Whetstone Associates

2006 ANNUAL UPDATE OF THE LISBON VALLEY HYDROGEOLOGIC SYSTEM EVALUATION

Prepared for

Lisbon Valley Mining Co., LLC
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La Sal, UT 84530

Prepared by

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Attachment 2. Laboratory Analytical Results for Pit Wall Runoff, Sentinel West Pit
Attachment 3. Post-Mining Water Balance and Geochemical Model

EXECUTIVE SUMMARY

The 2006 Annual Hydrogeologic Update for the Lisbon Valley Mine is required by the GWQD Permit and the ROD. The report provides cumulative water quality data for monitoring wells and water supply wells, dewatering data for each point of withdrawal, construction as-built diagrams for newly installed wells, cumulative water level data for all wells, a current potentiometric surface map for the Burro Canyon aquifer, and updated modeling results evaluating the potential for pit lake development following cessation of mining and predicted water chemistry.

One monitoring well was drilled and two piezometers were abandoned in 2006. Water was pumped from six water supply wells to dewater the Centennial and Sentinel Pits and to provide process water. The rate of dewatering of the Centennial Pit slowed in 2006 from the previous year, because of decreased pumping from water wells SLV3 and PW-3. Overall water pumping increased 4.4 times from 2005 to 2006, although the annual average pumping rate (275 gpm) represented only 17% of the 1,650 gpm water rights for the project. Other well activities in 2006 included the rehabilitation of water well PW-7 to combat microbially mediated scaling, and the investigation of possible casing damage in well PW-3.

The hydrogeologic data collected in 2006 supports the approach and conclusions of previous modeling. Compartmentalization and perched water were confirmed in the Centennial Pit in June 2006. A surface water runoff sample collected from the Sentinel Pit during an October 2006 storm event contained slightly lower TDS (70 mg/L) than predicted by previous MWMT testing. The response of the Burro Canyon Aquifer from pumping at wells PW-3 and SLV3 matched the previous predictions. Well drilling (PW-8 and MW06-15) confirmed the existing conceptual model, and the water level in the N-aquifer at MW06-15 was within 1 ft of the expected water level.

Hydrogeologic data collected in 2006 does not change the conceptual models or numerical models for the project. The 2006 model input and results are identical to those presented in the 2005 Annual Update report. Although LVMC is evaluating and will propose expanding the Centennial Pit and decreasing the size of the GTO Pit, the models presented in this report are based on the current permitted mine plan. Adjustments to the models will be made to support permitting efforts, and those adjustments will be presented in the annual update report if and when regulatory approval is given.

The numerical models simulate groundwater flow and chemistry in each mine pit (Sentinel, Centennial, and GTO), surrounding shallow (Burro Canyon) aquifer, and underlying deep aquifer, starting at the end of mining. The water balance models indicate that small pools will form in the bottom of each pit. As before, the geochemical modeling indicates that the Burro Canyon aquifer will not be affected by the pools because groundwater will flow from the aquifer to the pits, in the long-term. During the first few decades of aquifer and pit refilling, surface water runoff to the pits (which is cleaner than the water in the Burro Canyon aquifer) will flow from the pits to the aquifer.

The Sentinel Pit model indicates that water quality in the N-aquifer below the pit is expected to improve for the first 71 years after mining. Thereafter, water quality is expected to decrease nominally, with a final increase steady-state TDS concentration of 6% (compared to 7% in the previous model). The 1998 model of the Sentinel Pit was based on the ultimate pit geometry, as shown in the EIS. However, because the ROD stipulates that "mining of the Sentinel #1 will not be allowed to cross Lisbon Canyon," the model was updated in 2005 using an ultimate pit geometry that does not cross Lisbon Canyon. The current model's prediction of better quality in the N-aquifer than in the 1998 model occurs as a result of a slightly larger surface area that collects and delivers relatively good quality runoff to the Sentinel Pit.

The Centennial Pit model indicates that water quality in the N-aquifer below the pit is expected to improve for the first 101 years after mining. Thereafter, water quality is expected to decrease nominally, with a final increase steady-state TDS concentration of 5%. The predicted final steady-state TDS is 717 mg/L,

compared to 718 mg/L in the 1998 model (ABC, 1998a). The differences in model results are due to a slight decrease in the areal extent of the Burro Canyon aquifer near the Centennial Pit.

The GTO Pit model indicates that water quality in the N-aquifer below the GTO Pit is expected to improve for the first 98 years after mining (compared to 110 years in the 1998 model [ABC, 1998a]). Thereafter, water quality is expected to decrease nominally, with a final increase steady-state TDS concentration of 2% (compared to 3% in the previous model). The differences between the models results from the slightly higher static water level and an increase in the areal extent of the Burro Canyon aquifer near the GTO Pit. Although the increase in N-aquifer water quality is predicted to occur 12 years earlier, the simulated final water quality is better than previously predicted.

The predicted changes to the N-aquifer TDS load are well below the preliminary Ground Water Protection Levels for the N-aquifer.

1. INTRODUCTION

The Lisbon Valley Mine is an open-pit copper mine with heap leach facility and solvent extraction/ electrowinning (SX/EW) plant located 18 miles southeast of La Sal Utah, in San Juan County. The property includes 1,103 acres of federal (547 acres), state (273 acres), and privately owned (256 acres) land. The mine is owned and operated by Lisbon Valley Mining Co, LLC (LVMC). LVMC is managed by Summo USA, a subsidiary of Constellation Copper Corporation.

1.1 Mine Activities

Permitted mine facilities include an office complex, laboratory, reverse osmosis (RO) plant, warehouse, four open pits, ore crushing facilities, conveyors, heap leach pad, solution processing SX/EW plant, solution ponds, and stormwater and sedimentation ponds. The locations of existing mine facilities and planned development are shown in Figure 1. The mine permits were approved in 1997, construction began in 2004, and mining began in August 2005.

Mining in 2006 was conducted in three pits: the Sentinel East, Sentinel West and Centennial pits. A total of 5,372,150 tons of ore were mined from these three pits along with 6,393,150 tons of waste and 114,480 tons of topsoil for a total of 11,879,780 tons of material removed. The Sentinel East Pit accounted for 599,620 tons of ore and 1,212,490 tons of waste and in the Sentinel West Pit 3,992,760 tons of ore and 2,451,210 tons of waste were mined. In the Centennial Pit, 779,770 tons of ore and 2,729,450 tons of waste were mined. The 6,393,150 tons of waste rock were hauled to Waste Dump C and 114,480 tons of topsoil were stockpiled or used in the reclamation of the waste dump. One 36-foot high lift of ore was placed on the Phase 1 Leach Pad and ore was stacked on Phase 2 Leach Pad to a height of 25 feet. Land disturbance involving vegetation grubbing and grading began for Phase 3 Leach Pad in August, 2006. A minor amount of grubbing occurred for the construction of a haul road to Waste Dump B situated between the Centennial and GTO deposits.

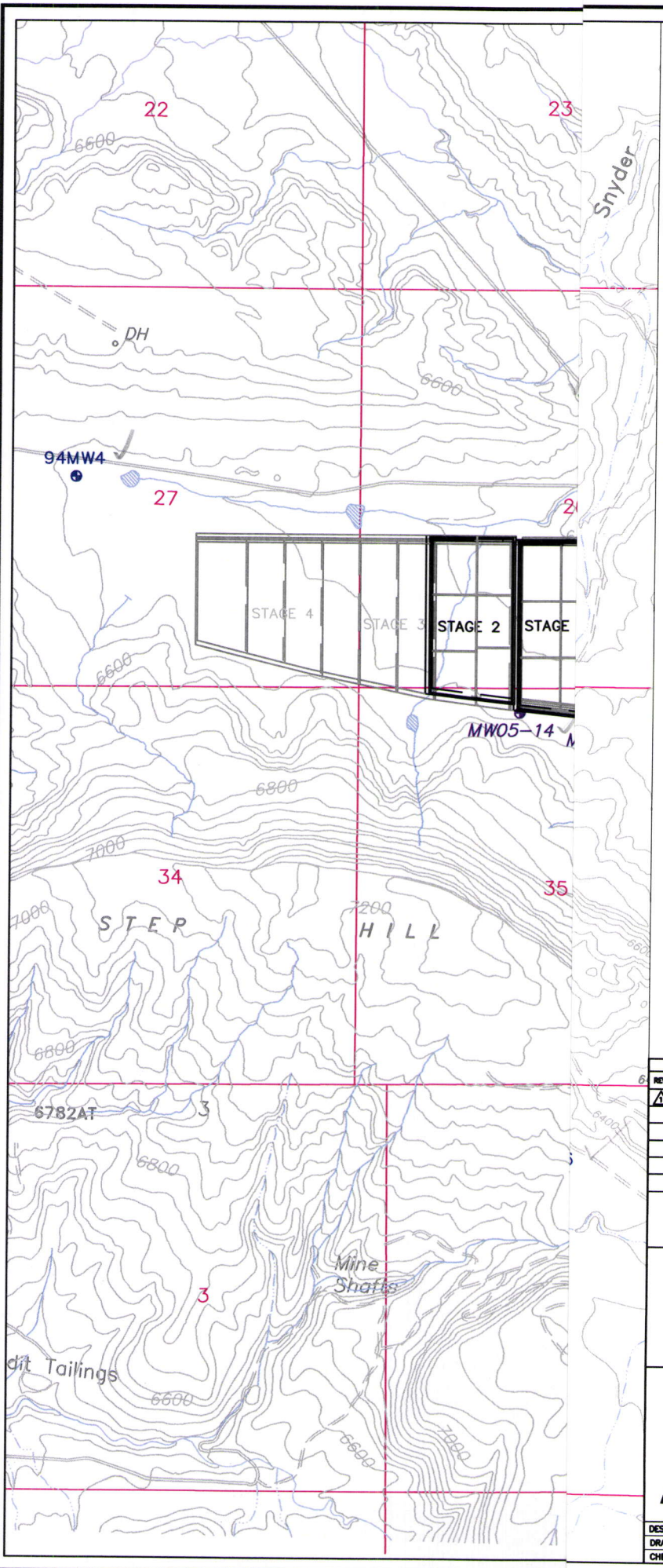
1.2 Purpose and Scope of the Annual Update Report

Environmental permitting analyses for the project identified features of the hydrogeologic system that controlled groundwater flow and minimized environmental impacts to groundwater from mining. A detailed evaluation of the hydrogeologic system was conducted from 1994 to 1996, with significant additional information gathering and analysis in 1997. The evaluation concluded that:

> The hydrogeology of the local flow system within Lisbon Valley is dominated by vertical heads between the shallow (Burro Canyon) aquifer and the deeper (Navajo/Entrada) aquifer. Geologic structure prevents the horizontal flow of ground water over significant distances within the Burro Canyon aquifer which consists of largely unconnected zones of water ponded on top of the Morrison Formation. These pockets of water are generally 100-300 feet below ground surface with average saturated thicknesses of around 40 feet. This water infiltrates along localized faults or high angle fractures and reaches the Navajo aquifer at considerable depth (800-1000 feet)." [UDEQ, 1997]

The documents and permits that are based on the hydrogeologic evaluation include:

- The Draft Environmental Impact Statement (DEIS) published by the US Bureau of Land Management (BLM) in May 1996.
- The Ground Water Quality Discharge Permit (GWQD Permit) issued by the Utah Department of Environmental Quality (UDEQ) on January 16, 1997



LEGEND

SLV-2	UPPER AQUIFER MONITORING WELL (<=500 FT.)
94MW5	UPPER AQUIFER MONITORING WELL (DRY)
94MW3	UPPER AQUIFER BOREHOLE (DRY, NOT COMPLETED)
MW97-13	LOWER (N-AQUIFER) MONITORING WELL (<1450 FT.)
MW96-7A	PAIRED UPPER AND LOWER AQUIFER MONITORING WELL
PW97-1	PRODUCTION WELL
98R8	PIEZOMETER
	PLANNED PIT CONTOURS

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1			

N

1000 0 1000 2000
SCALE IN FEET

FIGURE 1
LOCATION OF MINE FACILITIES, MONITORING WELLS, PIEZOMETERS, AND WATER SUPPLY WELLS

LISBON VALLEY MINING CO

Annual Hydrogeologic Evaluation Update

DESIGNED		DATE:		Whetstone Associates
DRAWN	SW	DATE:	1/29/07	
CHECKED		DATE:		

- The Final Environmental Impact Statement (FEIS) published by BLM in February 1997.
- The Record of Decision (ROD) issued by BLM on March 26, 1997
- The 1998 decision by the Interior Board of Land Appeals (IBLA) in support of the ROD.

Both the GWQD Permit and the ROD require that an Annual Hydrogeologic Update Report be prepared using all newly acquired data to confirm or modify previous conclusions about the hydrogeologic system.

The GWQD Permit states:

> The permittee will complete an annual update of the Lisbon Valley Hydrogeologic System Evaluation submitted as part of the ground water permit application. The purpose of the annual evaluation is to update and refine the original evaluation based on data obtained from the construction, testing and operation of de-watering and water supply wells. The evaluation will address whether or not pit lakes will form following mining in any of the mining pits and whether or not ground water quality in the Navajo/Entrada aquifer will be impacted by mining activities or by post closure conditions. The evaluation will help determine whether or not the permit will be expanded during the second permit term to include additional compliance monitoring wells in the Navajo/Entrada aquifer down gradient of the mine pits. In addition to updating the original evaluation each annual report will include:
>
> a. The evaluation will contain summarized dewatering data for each point of withdrawal.
>
> b. An annual water quality report with at least 1 complete water quality analysis from each active point of ground water withdrawal.
>
> c. A well construction As-Built report for all wells constructed in the year.
>
> d. A Potentiometric Map illustrating the ground water elevation of the uppermost aquifers beneath the mining facilities. The map must be superimposed on a topographic base map of at least 1:2400 (1"=200') or other scale approved by the Executive Secretary and must be inclusive of the entire mining and processing site. Known contours must be distinguished from suspected or inferred contours. Other pertinent geologic, hydrologic, or man made features, including wells, must be displayed.

The ROD states:

> During the life of mining operations, Summo will annually re-evaluate the modeled output of the current "Vertical Model" (Adrian Brown Consultants, 1996). This annual re-evaluation will be based on comparison of modeled output with cumulative water quality data obtained from dewatering, supply, and compliance wells as required by the UDWQ/GWQPD, and on cumulative hydrologic data obtained during the operational and closure phases. The first report will be due on January 30th of the year following the initiation of mining, and on that date in each succeeding year. The annual report will address:
>
> - Potential for pit lake development following cessation of mining,
> - Predicted pit lake water chemistry

- Potential for adverse impact to the Entrada/Navajo aquifer.
- This report will also include the cumulative set of water data collected up to that point.

The purpose of the 2006 Annual Update of the Lisbon Valley Hydrogeologic System Evaluation is to fulfill the requirements of the GWQD Permit and ROD, to summarize the new data collected during well drilling, permeability testing, and sampling, and to provide recommendations for aquifer dewatering and monitoring.

2. BACKGROUND HYDROGEOLOGY

Groundwater at the Lisbon Valley Mine primarily occurs in two aquifers, the Burro Canyon aquifer (or D-aquifer) which occurs at depths of less than 500 feet and the Navajo aquifer (or N-aquifer) which occurs below about 850 feet. These two aquifer systems are separated by several hundred feet of low-permeability interbedded shale, siltstone, and silty sandstone (Morrison Formation and Summerville Formation) as shown in Figure 2. An unsaturated zone exists between the upper and lower aquifers, and water levels indicate that strong downward vertical gradients exist.

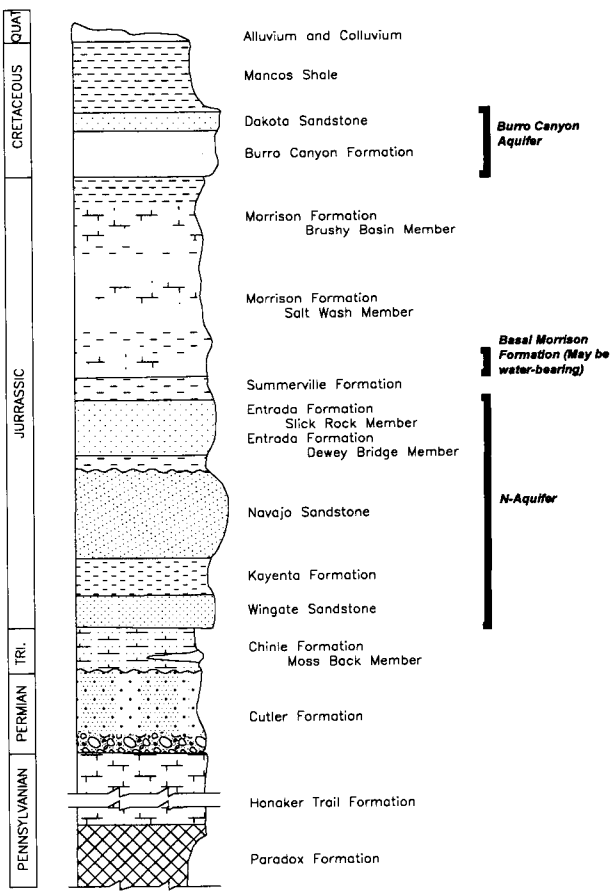


Figure 2. Stratigraphic Column Showing Burro Canyon Aquifer and N-aquifer

2.1 Burro Canyon Aquifer

The Burro Canyon aquifer is comprised of high-permeability sandstone of the lower unit (Bed 15) of the Burro Canyon Formation coupled in places with 10-30 feet of moderately high permeability material in the upper Brushy Basin member of the Morrison Formation. This zone is referred to as the Burro Canyon aquifer, where saturated, or as Bed 15, where unsaturated. The Burro Canyon aquifer, where present, ranges in thickness from 10-180 feet. In the vicinity of the Lisbon Valley Mine, the Burro Canyon aquifer is perched above the low-permeability Morrison Formation, which forms a leaky barrier to vertical downward flow.

The lateral extent of the Burro Canyon aquifer is controlled by the subsurface topography of the Morrison Formation, whose structural contours define the occurrence of the Burro Canyon aquifer. The aquifer is limited to a small (less than 350-acre) region in the central valley floor near the Sentinel and Centennial Pits, where it is bounded to the south by the main Lisbon Valley Fault. The aquifer is bounded to the north by faults which raise the Burro Canyon aquifer above the static water level in the valley floor and serve as conduits to drain water from that area. The water level elevation in the upper aquifer is approximately 6,250 feet above mean sea level (amsl) at the Sentinel Pit and 6,180 ft amsl at the Centennial Pit. A large area of older, unsaturated, dipping strata separates the Burro Canyon aquifer at the GTO Pit from the Burro Canyon aquifer at the Sentinel and Centennial pits. Near the GTO pit, the Burro Canyon aquifer is limited to about 206 acres and occurs in a synclinal fold that creates a basin on top of the Morrison Formation. The static water level in the Burro Canyon aquifer near the GTO Pit is 6,169 ft amsl.

Water quality in the Burro Canyon aquifer is poor, and has been classified as Class III by the State of Utah (UDEQ, 1998) because it naturally exceeds Utah Ground Water Quality Standards (R317-6-2) for uranium, gross alpha, and gross beta particle activity.

2.2 N-Aquifer

The N-aquifer consists of moderate to low-permeability sandstones and siltstones of the Entrada, Navajo, Kayenta, and Wingate formations, which generally behave as one hydrostratigraphic unit (Avery, 1986). Because the Navajo is the most permeable of those formations, references to the "deep aquifer" in Lisbon Valley generally refer to the saturated Navajo Formation.

In the project area, faulting has limited the areal extent and the hydraulic connection of the Navajo Formation (N-aquifer). The Lisbon Valley Fault strikes N40°W and dips 30 to 55 degrees to the northeast. In addition, the Lisbon Valley Fault splays into numerous "horsetail" faults to the south. These faults have significant vertical displacement and juxtapose permeable units against relatively impermeable units. This juxtaposition, along with gouge material along the fault surfaces, causes the fault zones to behave as barriers to groundwater flow. As a result, there is substantial compartmentalization of the N-aquifer.

Due to fault offsets and the shallow dip of these faults (45°), there are large areas adjacent to the proposed pits where the Navajo Formation does not exist. This area includes the western/southwestern half of the Centennial Pit, and the entire GTO Pit. Southeast of the GTO Pit, the strata dip at approximately 15 degrees toward the axis of a syncline, north of the Lisbon Valley Fault. The closest occurrence of the Navajo Formation to the GTO Pit is projected to be about 1,000 feet east of the pit at a depth of 1,500 feet below ground surface. The N-aquifer near the GTO Pit and to the southeast ("down-valley") does not appear to be in hydraulic communication with the N-aquifer near the Sentinel and Centennial pits, based on head differences between the locations (ABC, 1998a) and the lack of geologic continuity.

2.3 Other Water-Bearing Zones

Three other water-bearing zones (aquifers and aquicludes) have been identified on site:

- The Hermosa Group aquiclude, which occurs in Little Valley, a hydrogeologically-isolated area west of the Lisbon Valley Fault;
- An alluvial aquiclude, which consists of a small area of thin, variably-saturated, low-hydraulic conductivity alluvium located south of the proposed Sentinel Pit; and
- Water-bearing fractures that occur extensively in the valley and are generally aligned en echelon northwest-southeast. Well PW-2 is completed in a fracture in the Morrison Formation, and has a geochemical signature distinct from the adjacent Burro Canyon aquifer. Water in Morrison Formation fractures is of generally better quality than Burro Canyon groundwater, but would also be classified as Class III water according to Utah Ground Water Quality Standards (R317-6-2).

2.4 Flow Direction and Communication Between Aquifers

An unsaturated zone exists between upper and lower aquifers at the site, and water levels indicate that strong downward vertical gradients exist. Water in the upper aquifer percolates slowly downward to the deep N-aquifer. The water quality in the N-aquifer is similar to water in fractures in the upper aquifer, and is generally of slightly better quality than the Burro Canyon aquifer.

Downward vertical gradients also exist in the N-aquifer and, to the extent possible, water will move downward through the N-aquifer. However, the horizontal permeability of the N-aquifer is higher than the vertical permeability of the confining units below, and groundwater can more easily move laterally except where open fractures exist. The apparent flow direction in the N-aquifer below the Lisbon Valley Mine is to the northeast. The flow in the deep aquifer is also controlled by the relatively complex geologic structures.

Both the shallow and deep aquifers are highly segmented, with faults generally acting as barriers to flow across faults and as conduits for vertical groundwater flow along fault structures. The barriers to horizontal flow across faults are a result of fault gouge (altered to clay) along the fault planes and the juxtaposition of permeable units against low-permeability units.

3. 2006 METEOROLOGICAL DATA

LVMC monitors precipitation at the mine site. In addition, the National Weather Service (NWS) monitors weather and maintains historical records for the Monticello station (425805) and the La Sal 2 SE station (424947). Based on the historical records, the average precipitation measured at the Monticello station is slightly greater than at the La Sal 2 SE station. The Monticello station is considered to be most representative of the Lisbon Valley site, and was used in the EIS. The Monticello record also exhibits less missing data than the La Sal 2 SE station.

Daily precipitation measured at the Lisbon Valley Mine in 2006 is provided in Table 1. A total of 14.66 inches of precipitation were measured at LVMC for the 12 months of 2006, while 16.2 inches of precipitation were measured at the Monticello station in the first nine months of 2006 (Table 2). The historical average annual precipitation at Monticello from 1948 to 2005 is 15.2 in/yr (Table 3), and at La Sal from 1978 to 2005 is 13.8 in/yr (Table 4).

Fall 2006 saw several high-intensity rainstorms in the area. During October, the NWS station at Monticello received 4.16 inches, or approximately 27% of the longterm annual average (15.29 inches/yr). The 4.1 inches was nearly double the longterm monthly average of 1.7 inches, but significantly less than the 7.6 inches received in October 1972.

Table 1. 2006 Daily Precipitation (in Inches) Measured at Lisbon Valley Mine

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.00	0.00	0.00	0.31	0.00	0.00	0.02	0.80	0.12	0.00	0.00	0.00
2	0.00	0.02	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.30	0.00	0.00
3	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.60	0.20	0.42	0.00	0.00
5	0.20	0.06	0.00	0.14	0.00	0.00	0.18	0.00	0.15	0.60	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.60	0.25	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.20	0.67	0.00	0.20	0.00	0.00	0.00
9	0.00	0.00	0.25	0.00	0.02	0.00	0.20	0.00	0.00	0.32	0.00	0.00
10	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.07
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.12	0.00
13	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.24	0.12	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.15	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
19	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.17
20	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.03	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00
25	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
26	0.02	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.04	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.12	0.05	0.00
28	0.02	0.00	0.30	0.00	0.00	0.00	0.00	0.60	0.08	0.00	0.16	0.00
29	0.00	---	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0	0.00
30	0.00	---	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
31	0.17	---	0.00	---	0.00	---	0.00	0.00	---	0.00	---	0.00
max daily precip	0.20	0.06	0.30	0.31	0.18	0.20	0.67	0.80	0.32	0.98	0.16	0.17
mean daily precip	0.02	0.01	0.04	0.02	0.01	0.02	0.05	0.12	0.06	0.13	0.01	0.01
Total monthly precipitation	**0.47**	**0.20**	**1.32**	**0.45**	**0.20**	**0.59**	**1.44**	**3.70**	**1.79**	**3.88**	**0.33**	**0.29**
Total Annual Precipitation												**14.66**

Table 2. Historical Average Monthly Precipitation for Monticello, Utah

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1948	0 z	0 z	0 z	0 z	0 z	0 z	0.8	1.3	1	2.1	0	1.9	7.11
1949	5.6	0.9	0.2 s	0 z	0.9	1.3	0.2	1.3	0.6	3.4	0.2	1.9	16.1
1950	0.5	0.6	0.7	0.4	0.2	0.1	1.7	0.7	1.1	0	0.3	0.4	6.56
1951	0.7	0.4	0.2	1.1	0 z	0 z	0 z	0 Z	0 z	0 z	0.9 l	2.5	4.86
1952	2.4	0.6	1.7	1.5	0.4	0.9	3.6	0.3	1.5	0	1.2	0.4	14.4
1953	0.3	0.5	0.8	0.6	0.2	0	4.6	3.6	0.1	3.7	1.4	0.4	16.1
1954	0.4	0.1	1.4	0.8	1.8	0.5	0.4	1.6	1.2	1.4	0.5	1.3	11.4
1955	1	1.4	0.2	0.4	0.9	0.2	0.4	3.9	0.2	0	1.1	0.7	10.3
1956	1.4	0.4	0.1	0.6	0.7	0.1	4.4	1.4	0	1	0.2	0.3	10.4
1957	2.2	0.6	0.8	2.7	3	1.4	2.5	3.7	0	3.2	2.5	0.6	23.1
1958	0.5	1.2	1.3	0.4	1.3	0.4	0.9	1.3	2.8	0.6	0.8	0	11.3
1959	0.3	1.4	0.1	1	0.3	0.6	0.5	2.8	0.4	1.9	0.5	2.2	11.9
1960	0.8	1.8	0.8	0.6	0.4	0.3	1	1.1	0.8	3.7	0.5	1.4	13.2
1961	0.3	0.2	1.8	1	1.1	0.1	1.7	2.1	2.5	2.6	0.8	0.7	14.8
1962	0.7	1.4	0.8	0.4	0.3	0.2	0.3	0.9	4.8	1.6	1.4	0.6	13.1
1963	0.8	1.1	0.9	0.7	0.2	0.1	1.5	2.9	1.8	0.9	0.5	0.2	11.6
1964	0.2	0.2	1.1	1	0.2	0.2	2.5	1.9	1	0	1.5	1.9	11.6
1965	0.7	0.9	0.7	2	2.3	1.6	1.3	3.3	2.5	1.1	2.1	3.2	21.6
1966	0.2	1.1	0.1	1	0.7	0.2	2.8	1.7	1.1	0.7	1	3.1	13.5
1967	0.9	0	0.3	0.5	1.2	0.8	2.8	1.9	0.8	0	0.5	3.2	12.9
1968	0.7	0.6	0.7	1	1.2	0.1	1.8	3.8	0.2	0.6	0.5	0.7	12
1969	2.6	1.7	1.4	0	1.1	0.6	3.5	1.7	2.1	2.3	0.5	0.5	17.9
1970	0.1	0	3	1.2	0.1	0.5	0.3	1.7	2.3	1.4	1	1.3	12.8
1971	0.1	0.5	0.1	0.4	1.7	0.4	0.4	1.8	0.9	4.6	1	2.9	14.7
1972	0	0	0	0.2	0.4	1.2	1.3	1.3	1.4	7.6	1.3	4.1	18.8
1973	2.4	1.1	2.1	0.6	1.3	2.3	1.1	1.4	0.6	0.8	1	0.4	14.9
1974	4	0	0.6	0.5	0.1	0.1	3	0.9	0.6	3.3	1.6	1	15.5
1975	1.2	1.1	1.5	1.6	1.1	0.4	1.4	1.1	0.3	0.4	1.7	0.9	12.5
1976	0.5	3.4	0.6	0.8	1.1	0.1	0.9	1.8	1.3	0.5	0	0	10.8
1977	0.9	0.2	0.5	0.1	1	0.1	3	2.5	0.8	0.8	0.5	0.4	10.8
1978	3.7	2.2	1.9	1.4	0.8	0.1	0.4	0.2	0.4	1	4.3	4.8	21.4
1979	4.5	2.2	2.2	0.3	3	0.9	0.3	0.7	0.1	0.6	1.6	1.8	18.1
1980	6.3	3.1	1.3	1.4	1.6	0	0.6	0.7	2.1	1.3	0.5	0.3	19.1
1981	0	0.3	2.4	1.4	1	0.9	4	1.9	1.7	3.2	1.1	0.3	18.2
1982	1.8	0.5	1.7 a	0.1	0.9	0.1	0.8	4.3	3.7	1.6	3.7	2.5	21.4
1983	0.7	2.1	3.1	1.2	0.4	0.9	2.4	1.9	2.9	0.8	2.6 a	1.5	20.2
1984	0.7	0.6	0.2	0.7	0	1.8	0.9	1.7	0.9	2.9	0.5	4	14.8
1985	1.7	0.3	2.4	1.6	0.9	0.2	1.6	0.4	4.1	2.5	3.1	0.2	18.9
1986	0.3	1.2	0.8	1.7	1.3	1	1.5	2	2.8	1.5	1.9	0.4	16.4
1987	2.1	2.4	0.9	0.4	1.1	0.9	1.5	3.8	0.3	1.6	3.5	1	19.7
1988	2.4	0.3	0.1	1.3	1	0.6	1.4	3.1	1.3	0.8	0.6	1.7	14.3
1989	1.3	0.9	1.3	0	0.4	0.4	0.5	1.6	0.3	0.2	0	0	6.88
1990	1.1	0.5	1.1	1	0.2	0.6	1.8 a	2	2	1.7	1	1.6	14.6
1991	0.8	0.7	2.5	0.3	0.3	0.5	0.8	1.1 a	2.4	1.9	1.9	1.4	14.5
1992	1.2	1.9	1.1	0.4	1.7	0.1	1.5	1.6	0.8	1.6	0.3	2.7	15
1993	4.9	4	0.2	0.5 a	3.5	0.1	0	2.9	0.4	1.8	0.9	0.6	19.8
1994	0.9	3.3	0.1	2.2	0.6	0.1	0	2.2	1.9	2.7	2.2	1.3	17.4
1995	2.1	1.5	2.1	1.7	2	1.8	0.8	1.9	2.1	0.1	0.4	0.1	16.6
1996	0.8	0.6	0.2	0.2	0.2	1	1.9	0.6	2.2	2.5	2	0.5	12.7
1997	5.3	1.5	0.2	2.3	1.7	0.4	1	2.9	2.8	1.5	1.2	0.7	21.4
1998	0.9 a	1.2 b	2	0.5	0.6	0.4	2.2	1.5	0.7	4.1	1.5	0.1	15.6
1999	0.4	0.9	0	3.6	0.9	1.9	2.5	4	2.4	0	0.1	0.6	17.2
2000	1.6	0.8	2.9	0	0.5	0.2	1	2.3	2	3	1.2	0.2	15.6
2001	2	1.4	1.1	1.7	0.7	0.3	0.8	2.9	0.4	0.5	2	1	14.9
2002	0.1	0	0.5	0.1	0 z	0 z	2.1 b	0.9	2	1.7	1.3	0.4	9
2003	0.2	3.2	1.5	0	0.3	0.1	0.5	2.3	1.8	0.9	2	1.6	14.4
2004	0.6	1.7	0.2	1.3	0	0.7	0.7	1.6	3.7	2	2.3	2.9	17.8
2005	7	3	0.9 a	1.3	0.6	0.3	1	2.4	2.4	0.9	0.5	0 c	20.2
2006	0.5	0	2.6	0.5	0	0.4	2.7	2.1	3.1 b	4.1 e	0 z	0 z	16.2
						Period of Record Statistics							
MEAN	1.5	1.1	1.1	0.9	0.9	0.6	1.5	2	1.5	1.7	1.2	1.3	15.3
S.D.	1.7	1	0.9	0.7	0.8	0.6	1.1	1	1.1	1.4	1	1.2	3.74
SKEW	1.7	1.1	0.7	1.2	1.4	1.3	0.9	0.5	0.7	1.5	1.1	1.1	0
MAX	7	4	3.1	3.6	3.5	2.3	4.6	4.3	4.8	7.6	4.3	4.8	23.1
MIN	0	0	0	0	0	0	0	0.2	0	0	0	0	6.56
NO YRS	58	58	57	57	56	56	58	58	58	58	57	58	54

NOTES: a = 1 day missing, b = 2 days missing, c = 3 days, etc.; Maximum allowable number of missing days = 5.
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; ∴ monthly row may not sum (or average) to the long-term annual value.
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

Table 3. Monthly Climate Summary for Monticello, Utah (NWS Station 425805) For Period of Record : 7/ 1/1948 to 12/31/2005

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (in.)	Average Total SnowFall (in.)	Average Snow Depth (in.)
Jan	35.8	14.3	1.5	17.2	7.0
Feb	40.2	18.0	1.1	11.1	6.0
Mar	48.0	23.9	1.1	8.4	2.0
Apr	58.3	30.3	0.9	3.0	0.0
May	68.0	38.0	0.9	0.6	0.0
Jun	78.8	45.7	0.6	0.0	0.0
Jul	84.3	52.7	1.5	0.0	0.0
Aug	81.4	51.5	1.9	0.0	0.0
Sep	74.0	43.9	1.5	0.0	0.0
Oct	62.3	33.9	1.7	0.8	0.0
Nov	47.2	23.3	1.2	6.4	1.0
Dec	37.8	15.8	1.3	11.9	3.0
Annual	**59.7**	**32.6**	**15.2**	**59.5**	**2.0**

NOTES: Percent of possible observations for period of record:
Max. Temp.: Max. Temp.: 98.7% Min. Temp.: 98.8% Precipitation: 98.7%
Snowfall: 97.5% Snow Depth: 91.7%
Source: http://www.wrcc.dri.edu/summary/Climsmut.html

Table 4. Monthly Climate Summary for La Sal 2SE, Utah (NWS Station 424947) For Period of Record : 4/1/1978 to 12/31/2005

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (in.)	Average Total SnowFall (in.)	Average Snow Depth (in.)
Jan	36.9	13.1	0.9	10.2	3.0
Feb	40.7	17.2	0.8	7.9	3.0
Mar	50.0	24.9	1.0	8.5	1.0
Apr	58.8	30.7	1.0	4.8	0.0
May	68.6	38.4	0.9	1.2	0.0
Jun	80.1	46.7	0.7	0.0	0.0
Jul	86.5	54.0	1.3	0.0	0.0
Aug	84.0	53.0	1.7	0.0	0.0
Sep	75.6	44.7	1.8	0.0	0.0
Oct	63.5	33.9	1.7	2.2	0.0
Nov	47.8	22.3	1.2	6.0	1.0
Dec	38.3	14.4	0.8	7.6	2.0
Annual	**60.9**	**32.8**	**13.8**	**48.4**	**1.0**

NOTES: Percent of possible observations for period of record:
Max. Temp.: 95.4% Min. Temp.: 95.6% Precipitation: 96.2%
Snowfall: 90.1% Snow Depth: 82.1%
Source: http://www.wrcc.dri.edu/summary/Climsmut.html

4. 2006 WELL DRILLING AND WELL ABANDONMENT

4.1 Well Drilling

One new monitoring well (MW06-16) was drilled in 2006 (Table 5) for routine monitoring. MW06-15 was drilled to a total depth of 900 ft by Midway Drilling of Nephi, Utah. The well monitors the N-aquifer downgradient of the Sentinel West Pit. The monitoring well as-built report for MW06-15 was submitted to BLM and UDEQ in January, 2007 and is provided in Attachment 1.

Drilling commenced on one new water supply well (PW-8) in 2006, however the well was not completed. Rex Wyatt Drilling began drilling on July 23, 2006. However, equipment failures prevented drilling advancement past 790 feet, and the bit and drill string currently occupy the open hole. A request to redrill was submitted to the Utah State Engineer's Office in November and approved in December, 2006. LVMC intends to drill PW-8 at a location 40 feet from the existing site using a different drilling contractor in early 2007. The existing hole will be plugged and abandoned in accordance with the Utah Administrative Rules for well abandonment (R655-4-12).

Table 5. 2006 Well Drilling

WELL ID	TYPE	GENERAL LOCATION	DATES DRILLED/COMPLETED
PW-8	Dewatering / water supply well	NW Centennial Pit	Drilled July 23 - Nov 15, 2006 Not Completed
MW06-15	Monitoring well	Lisbon Canyon, Sentinel Pit	Nov 8 - Dec 12, 2006

4.2 Well Abandonment

Two piezometers were removed by mining activities in 2006: 97R7, located with the footprint of the Sentinel West Pit; and SLV4, located within the footprint of the Centennial Pit (Table 6).

Piezometer 97R7 was drilled in 1997 to a total depth of 254 ft (ABC, 1998b). The elevation bottom of the screen (6,126 ft amsl) was 94 feet below the planned pit floor (6,220 ft) and 124 feet below the highest expected static water level in the Burro Canyon Aquifer near the Sentinel Pit (6,150 ft). The piezometer was abandoned on May 24, 2006 by plugging with environmental-grade bentonite chips. The surface casing and upper portion of the piezometer were removed by blasting on August 7, 2006, as previously planned.

Piezometer SLV4 was removed by mining activities on November 21, 2006, when blasting reached the 6380 level of the Centennial Pit. Well abandonment procedures listed in UAC R655-4-12 were not required because the entire pieometer is being removed by mining. DWR was not formally notified because SLV4 is not listed in the state's well database. SLV4 is believed to have been drilled by Centennial Development Co. in the early 1970's, before Summo/LVMC acquired the property.

Other wells that are scheduled to be removed by mining include wells SLV3 and SLV1A in the Centennial Pit. These wells may be removed in 2007.

Table 6. 2006 Well Abandonment

WELL ID	TYPE	GENERAL LOCATION	DATE ABANDONED
97R7	Piezometer	In footprint of Sentinel Pit	Plugged May 2006; Removed August 2006
SLV4	Piezometer	In footprint of Centennial Pit	Removed November 2006

4.3 Other Well Activities

Other activities performed on water wells during 2006 included the rehabilitation of well PW-7 and the investigation of sand entering well PW-3.

4.3.1 PW-7 Well Rehabilitation

PW-7 well rehabilitation was required when the pump was pulled to alleviate a high-amperage condition that had existed since the Centrilift KC15500 was first installed in November, 2005. The pump was pulled on March 10, 2006, and excessive scaling (pitting and encrustation) was observed on the discharge pipe and pump. The scaling and corrosion were unexpected because the Langlier Index (Table 7) and Ryzner Stability Index (Table 8) of water quality at wells MW97-13 and PW-7 did not indicate significant risk of corrosion.

Table 7. Langlier Index Calculated for Wells PW-7 and MW97-13

Well	Date Sampled	Temperature (deg F)	Temperature (deg C)	pH	Ca (mg/L)	Alkalinity (mg/L)	TDS (mg/L)	Langlier Index
MW97-13	Oct-03	69.98	21.10	8.1	72.6	264	630	0.91
MW97-13	Oct-04	66.74	19.30	7.8	74.3	260	680	0.58
MW97-13	Oct-05	63.68	17.60	8.3	48.7	243	440	0.89
PW-7	Jun-05	61.00	16.11	8.0	120	292	1070	0.93

Saturation Index	Description	General Recommendations
-5	Severe Corrosion	Treatment Recommended
-4	Moderate/ Severe Corrosion	Treatment Recommended
-3	Moderate/Severe Corrosion	Treatment Recommended
-2	Moderate Corrosion	Treatment Should be Considered
-1	Mild Corrosion	Treatment Should be Considered
-0.5	Mild Corrosion/Near Balanced	Treatment Probably Not Needed
0	Balanced	Treatment Probably Not Needed
0.5	Near Balance	Treatment Probably Not Needed
1	Mild Scale Forming	Some Aesthetic Problems; Consider Treatment
2	Mild Scale Forming	Some Aesthetic Problems; Consider Treatment
3	Moderate Scale Forming	Treatment Should be Considered
4	Severe Scale Forming	Treatment Recommended
5	Severe Scale Forming	Treatment Recommended

NOTE: Negative Langlier indexes indicate undersaturation and increased potential for corrosion, while positive indexes indicate supersaturation and reduced potential for corrosion.

Table 8. Ryznar Stability Index Calculated for Well PW-7

Measured TDS	1,070	mg/L
Measured temperature	16.11	deg C
Measured pH	8.0	
Measured alk, as $CaCO_3$	292	mg/L
Measured Ca, as $CaCO_3$	120	mg/L
Measured Cl	30	mg/L
Measured SO_4	480	mg/L
Ryznar Stability index	6.8	

RSI Value	Condition
4.0 - 5.0	heavy scale
5.0 - 6.0	light scale
6.0 - 7.0	little scale or corrosion
7.0 - 7.5	corrosion significant
7.5 - 9.0	heavy corrosion
9.0 and higher	corrosion intolerable

Three water samples were collected by bailing from the upper, middle, and lower screened zones on April 18, and shipped to Water Systems Engineering lab in Ottawa, Kansas for bacteriological analysis. The well was diagnosed with calcium sulfate and barium sulfate scaling problems, as well as high levels of dissolved and suspended iron, which occurred due to reducing conditions (negative ORP) and the aggressive activity of sulfate-reducing bacteria. Laboratory analysis showed extremely high bacterial levels by the ATP count (heavy growth of sulfate reducing bacteria) as well as iron oxidizing bacteria represented by the Gallionella count. The naturally-occurring methane in the well may have provided a favorable food source for the bacterial colonies.

Well rehabilitation involved scrubbing the well with a plastic brush and bailing to remove scale, mixing and swabbing with acid and biodispersant, and re-chlorination of the well. Additionally, the lower sump was cemented to eliminate a stagnant zone for bacteriological buildup. These activities were performed by Water Well Services of Nephi, Utah, under the supervision of Whetstone Associates, with a Renovation Permit from the Utah State Engineer's Office. The rehabilitation work was performed from May 30 – June 23, 2006, a replacement pump (230 HP, 26-stage, Centrilift P155) was installed on June 23, and a subsequent bacteriological sample showed the well to be clear of bacteriological contamination.

4.3.2 PW-3 Casing Investigation

Well PW-3 was observed to be pumping sand (very coarse 8-12 silica sand filter pack) in November 2006. The well was taken off line immediately to avoid damaging the pump and putting sand into the raw water system. The 50 HP Grundfos 230S500-15 pump was pulled on November 13, 2006.

Jim Goddard of Utah DWR ran a video camera downhole on December 28, 2006. Although the initial video indicated a crack in the casing at 394 ft, subsequent scrubbing and camera work did not show a breach in the casing at that depth. The PW-3 casing rehabilitation work will continue in 2007. The diagnosis and repair of PW-3 is critical for continued dewatering of the Centennial Pit.

5. HYDRAULIC CONDUCTIVITY

A total of 24 aquifer pumping tests and 13 slug/injection tests have been conducted in 10 wells, 5 piezometers, and one open boring from 1995 to the present at the Lisbon Valley site (Table 9). The permeability test results are summarized in Table 10. It should be noted that aquifer boundary conditions are commonly more important than permeability in determining well yields from the Burro Canyon aquifer.

Table 9. Description of Aquifer Pumping Tests Performed at Lisbon Valley Mine Site

WELL	TEST TYPE	AVERAGE FLOW RATE(S)	DATE(S)	DURATION
95R1	Step drawdown test	N/A	1995	N/A
95R1	Constant discharge test	155 gpm	1995	15 hours
MW96-7B	Constant discharge test	7 gpm	9/22-23/1996	8.5 hours
MW96-7B	Constant discharge test (recovery)	---	9/23/1996	4.5 hours
SLV3	Constant discharge test	140 gpm	1995	24 hours
SLV-3	Constant discharge test	103 gpm	11/14-17/1997	72 hours
PW-1	Variable discharge test	4 - 28 gpm	11/12/1997	4 hours
PW-1	Constant discharge test	13 gpm	11/18/1997	20 hours
PW-2	Constant discharge test	75 gpm	11/20/1997	8.5 hours
PW-2	Constant discharge test	50.0 gpm	6/10-11/2004	21 hours
PW-3	Step drawdown test	75 gpm, 97 gpm	5/23/2004	2 hours
PW-3	Constant discharge test	96.4 gpm	5/24-25/04	24 hours
PW-4	Pre-test pump check	76.9 gpm	6/3/2004	20 minutes
PW-4	Constant discharge test	81.5 gpm	6/4/2004	24.7 minutes
PW-4	Constant discharge test	77.9 gpm	6/4/2004	25.4 minutes
PW-4	Constant discharge test	36.4 gpm	6/13/2004	7.5 hours
PW-5	Step drawdown test	258.8 gpm, 307.0 gpm, 194.1 gpm	6/5/2004	3.9 hours
PW-5	Variable rate discharge test	144 gpm (1.5 hrs), 225 gpm (22.5 hrs)	6/7-8/2004	24 hours
PW-6	Step drawdown test	260 gpm, 271 gpm, 288 gpm	5/19/2005	2.5 hours
PW-6	Constant discharge test	304 gpm	5/20-21/2005	26.2 hours
PW-7M	Step drawdown test	31.7 gpm, 40.8 gpm, 44.2 gpm	6/1/2005	1.7 hours
PW-7M	Constant discharge test	38.4 gpm	6/2/2005	7 hours
PW-7	Step drawdown test	160, 145, 132, 130.4 gpm	6/15/2005	2.4 hours
PW-7	Constant discharge test	144.7 gpm	6/16-17/2005	24 hours

N/A = Not available

Table 10. Pumping Test Results – Hydraulic Conductivity Summary

Well	Pump Intake Depth (ft)	Aquifer	Final Drawdown (ft)	Hydraulic Conductivity Low Range (cm/sec)	Hydraulic Conductivity High Range (cm/sec)	Hydraulic Conductivity Best Estimate (cm/sec)
95R1	N/A	Burro Canyon	N/A	---	---	---
95R1	N/A	Burro Canyon	13.7	2.22E-03	7.25E-03	4.70E-03
MW96-7B	980	N-aquifer	35.54	---	2.90E-04	2.90E-04
MW96-7B	980	N-aquifer	---	9.20E-05	---	9.20E-05
SLV3	N/A	Burro Canyon	5.7	2.22E-03	7.25E-03	4.70E-03
SLV-3	320	Burro Canyon	29.72	2.00E-03	6.00E-03	4.00E-03
PW-1	320	Alluvium	297	---	---	---
PW-1	320	Alluvium	300	---	---	2.60E-06
PW-2	320	Morrison Fracture	n/m	7.00E-04	2.50E-03	1.60E-04
PW-2	295	Morrison Fracture	119.9	1.41E-04	2.38E-04	1.99E-04
PW-3	400	Burro Canyon	17.18	---	---	---
PW-3	400	Burro Canyon	19.15	3.20E-03	6.50E-03	4.49E-03
PW-4	406	Burro Canyon	pumped dry	---	---	---
PW-4	406	Burro Canyon	pumped dry	1.11E-05	1.11E-05	1.11E-05
PW-4	406	Burro Canyon	pumped dry	1.04E-05	1.04E-05	1.04E-05
PW-4	385	Burro Canyon	259	8.24E-06	8.35E-05	4.05E-05
PW-5	512	Burro Canyon	61.54	---	---	---
PW-5	512	Burro Canyon	83.57	1.71E-04	3.98E-04	3.48E-04
PW-6	435	Burro Canyon	59.47	---	---	---
PW-6	435	Burro Canyon	65.96	2.23E-03	6.21E-03	2.66E-03
PW-7M	648	Morrison	56.3	---	---	---
PW-7M	648	Morrison	46.12	2.50E-04	1.15E-03	5.25E-04
PW-7	1,000	N-aquifer	39.18	---	---	---
PW-7	1,000	N-aquifer	51.49	1.19E-04	6.43E-04	2.89E-04

Slug tests, injection tests, and recovery tests were conducted in five piezometers (98R3, 98R4, 98R7, 98R8, and PW97-1A) in 1998 (ABC, 1998b). The purpose of these tests was to determine the approximate hydraulic conductivity of the various geologic units, for use in well spacing and water supply calculations in the vicinity of the Sentinel Pit.

Table 11. Slug and Injection Test Results

Piezo. ID	TEST TYPE	DATE	Aquifer	K (cm/sec)	K (ft/day)
98R3	RH Slug, CH injection, FH Recovery	4/18/1998	Alluvium	1.6E-04	0.45
98R4	RH Slug, CH injection, FH Recovery	4/19/1998	Morrison Fm	5.0E-05	0.14
98R7	RH Slug, CH injection, FH Recovery	4/18/1998	Alluvium	3.0E-05	0.09
98R8	RH Slug, CH injection, FH Recovery	4/19/1998	Burro Canyon	2.1E-04	0.60
PW97-1A	Falling Head Slug Test	4/18/1998	Alluvium	4.1E-08	1.2E-04

NOTES: FH = falling head
CH = constant head
RH = rising head

6. WATER QUALITY

Groundwater quality has been routinely monitored at the site since baseline data collection began in 1994. From 1994 to 1996, water quality samples were collected quarterly to support the impact analysis for the

EIS (BLM, 1997). In January 1997, UDEQ issued Ground Water Quality Discharge Permit UGW370005 (UDEQ 1997), and since that time water quality has been monitored routinely in accordance with the Permit and its modifications (UDEQ 2001, 2002, 2004). The GWQD Permit identifies one compliance well (94MW4) and seven ambient monitoring wells (SLV1A, SLV2, SLV3, MW2A, 94MW2, MW96-7A, and MW96-7B) to be monitored quarterly during active mining operations. LVMC also monitors water quality in five deep (N-aquifer) monitoring wells (MW97-9, MW-11, MW97-12, MW97-13, and MW06-15) as required by the ROD.

In April 2006, DEQ approved annual sampling for deep (N-aquifer) monitoring wells MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13 (LVMC, 2006). An additional N-aquifer monitoring well (MW06-15) was installed in December 2006, and was placed on an accelerated (quarterly) monitoring schedule for the first 4 sampling rounds. In April, 2006, DEQ also approved modifications to the groundwater analytical suite to eliminate isotopes of radium and thorium, as per the revised GWDP (pending).

Table 12 provides cumulative water quality data (from 1994 to 2006) for all project monitoring wells.

Annual monitoring of water quality from actively producing water supply wells is required in section 3.b of the GWQD Permit. Water quality results from active and inactive water supply wells are provided in Table 13 and Table 14, respectively.

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well SLV1A

Parameter	Units	Mar-95	May-95	Aug-95	Nov-95	Apr-96	Jun-96	Sep-96	Dec-96	3/17/97	5/20/97	8/27/97	12/2/97	2/9/98	5/19/98	8/20/98	11/21/98	5/18/99	11/9/99	5/6/00
Dissolved Aluminum	mg/L	<0.05 U	<0.01 U	**0.22**	<0.2 U	<0.03 U	0.03	<0.01 U	<0.05 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.28	0.20	0.27	0.22	0.21 J	0.22
Dissolved Antimony	mg/L	<0.005 U	<0.003 U	0.003	NA	<0.003 U	<0.003 U	<0.003 U	<0.003 U	0.005 J	0.009	<0.002 U	<0.012 U	<0.002 U	<0.01 UJ	<0.002 UJ	<0.002 U	0.005 J	<0.003 U	0.0034 FB
Dissolved Arsenic	mg/L	<0.01 U	<0.04 U	<0.005 U	<0.2 U(5)	<0.005 U	<0.005 U	0.006	<0.005 U	<0.005 U	0.009	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	0.008	0.006	<0.005 U	<0.0005 U
Dissolved Barium	mg/L	0.011	0.013 J	<0.01 U	<0.2 U	<0.01 U	0.006	0.008	<0.01 U	<0.01 U	<0.01 U	0.007	0.010	0.015	0.016	**0.017**	0.006	0.007	**0.13 J**	**0.28 J**
Dissolved Beryllium	mg/L	<0.004 U	<0.01 U	<0.001 U	<0.01 U(5)	<0.001 U	<0.002 U	<0.0002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U
Dissolved Cadmium	mg/L	0.029	0.021	0.014	0.009	0.007	0.005	0.008	0.007	0.006	0.003	0.007	0.01	0.0013	0.003	0.010	0.009	0.01	0.009	0.0132
Dissolved Calcium	mg/L	362	457	503	455	491	439	524	460	488	439	489	438	456	449	477	560	460	450	470
Dissolved Chromium	mg/L	<0.01 U	<0.01 U	0.006	<0.05 U	0.011	<0.001 U	0.007	0.011	0.008	0.007	0.007	0.008	0.007	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.1 U	<0.01 U	0.006	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.018	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 UJ	<0.01 U
Dissolved Iron	mg/L	0.033	0.015	1.13	<0.4 U(5)	0.69	0.743	0.714	0.5	0.71	1.76	<1.07 U	0.11	0.071	0.08	0.54	1.16	0.99	0.03	0.95
Dissolved Lead	mg/L	0.0046	<0.005 U	<0.005 U	NA	0.011	<0.02 U	<0.025 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 UJ	0.014	<0.005 U	<0.005 U	<0.0005 U
Dissolved Magnesium	mg/L	203	206	238	208	214	200	246	215	221	191	222	194	206	195	227	269	220	220	220
Dissolved Manganese	mg/L	1.49	1.71	1.89	2	2.04	1.61	1.69	1.75	2.06	1.71	1.95	2.16	2.55	2.47	1.90	2.15	1.8	1.7	1.7
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	0.0002	<0.0002 U	<0.0002 U	0.0006	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 UJ	<0.0002 U
Dissolved Molybdenum	mg/L	<0.01 U	<0.04 U	<0.04 U	<0.1 U	<0.02 U	<0.005 U	<0.025 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	0.01	<0.03 UJ	<0.01 U	<0.01 U	<0.01 U	<0.02 U
Dissolved Nickel	mg/L	0.027	0.046	0.04	<0.1 U	0.04	0.017	0.029	0.04	0.04	0.04	0.04	0.03	0.03	0.01	<0.02 U	0.04	0.03 B	0.03	0.03
Dissolved Potassium	mg/L	20.9	20.1	21.5	19.2	21.3	19.8	17.60	19	21	18.6	21.4	19.9	20.3	19.6	20.3	22.1	21	19	19
Dissolved Selenium	mg/L	<0.005 U	0.002	0.015	NA	0.018	<0.008 U	0.025	0.02	<0.002 U	0.011	<0.002 U	<0.004 U	<0.002 U	0.002	0.009	0.004	<0.002 U	<0.002 U	0.0052
Dissolved Silicon	mg/L	9.37	5.04	5.4	5	5.4	4.29	5.96	4.6	5.1	4.7	<5.5 U	5.3	6.29	3.7	5.0	4.1	3.7	4.4	4.3
Dissolved Silver	mg/L	<0.01 U	<0.01 U	<0.002 U	<0.05 U	<0.005 U	0.012	<0.01 U	<0.005 U	<0.001 U	<0.001 U	<0.2 U	<0.5 U	<0.5 U	0.0005	<0.0005 U	0.0008	<0.0005 U	<0.0005 U	<0.0005 U
Dissolved Sodium	mg/L	156	150	172	149	170	137	140	147	162	140	155	143	163	149	142	155	140	140	140
Dissolved Thallium	mg/L	<0.002 U	<0.005 U	<0.001 U	NA	<0.001 U	<0.001 U	<0.001 U	0.012	0.008	<0.001 U	<0.001 U	<0.001 U	0.003	<0.002 U	0.001 J	<0.001 U	<0.001 U	0.002 J	<0.0005 U
Dissolved Vanadium	mg/L	<0.01 U	<0.04 U	<0.04 U	<0.1 U	<0.01 U	<0.02 U	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Dissolved Zinc	mg/L	0.538	**5.17**	0.52	1.4	0.73	0.616	0.68	1.02	0.75	**4.01**	**1.74**	0.38	0.314	<0.26 UJ	0.35	0.27	0.2	0.38 J	0.39
Ammonia as NH_3-N	mg/L	<0.8 U	0.4 U	<0.8 U	<0.8 U	<0.7 U	0.6	0.4 U	0.6	0.4	0.5	0.4	0.4	0.42	<0.6 U	0.5	0.4	0.4 J	0.4 J	0.3
Nitrate as NO_3-N	mg/L	0.047 J	<0.02 UJ	<0.4 UJ	<0.02 UJ	<0.02 UJ	1.61	<0.08 UJ	<0.8 U	<0.64 U	0.39	<0.2 U	<0.2 U	<0.08 U	<0.4 U	<0.1 UJ	0.1	0.1 FB	<0.1 UJ	0.4
Nitrite as NO_2-N	mg/L	0.02 J	0.0087 J	0.006	0.008 J	<0.005 UJ	0.008 J	<0.005 UJ	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U	0.009 J	<0.005 U	<0.007 U	0.027 J	<0.005 UJ	<0.005 U	<0.005 UJ	<0.005 U
NO_3-N + NO_2-N	mg/L	0.067	<0.02 U	<0.4 U	<0.02 U	<0.02 UJ	1.62	<0.08 UJ	<0.8 U	<0.64 U	0.39	<0.2 U	<0.2 U	<0.08 U	<0.4 U	<0.1 UJ	0.1	0.1 FB	<0.1 U	0.4
Chloride	mg/L	109	117	100	110	104	108	107	113	113	112	113	109	117	109	113	118	114	114	115
Fluoride	mg/L	0.64	0.55	0.6	0.6	0.6	0.5	0.7	0.5	0.5	0.4	0.4	0.4	0.42	0.6	0.5	0.6	0.6	0.55	0.6
Sulfate	mg/L	1430 J	1960	1920	1950	1770	1760	1770	1500	1840	1670	1840	1780	1940	1910	1970	2030	1920	1890	1890
pH	SI units	7.71 J	7.61 J	6.95 J	7.07 J	6.50 J	6.80 J	6.70 J	6.50 J	6.50 J	6.50 J	6.70 J	5.80 J	6.6 J	6.7 J	6.8 J	6.6 J	6.61	6.68 J	6.8 J
Conductivity	umhos/cm	3420	3610	3680	3670	3680	3640	3860	3620	3630	3676	3627	3710	3719	3702	3810	3720	3470	3460	3540
Hardness as $CaCO_3$	mg/L	1970 J	2220	2200	2200	2120	2100	2200	2250	2220	2260	2250	2170	2120	1920	2130	2510	2050	2030	2080
TSS	mg/L	6920	3100 J	923	846 J	2250	1260	686	2210	1320	1490	1330	1650	2000	1370	980	834 J	1320	1630 J	1760 J
TDS	mg/L	3286	3400 J	3490	3450 J	3320	3280	3530	3440 J	3510	3340	3490	3450	3460	3470	3760	3500 J	3480	3450	3500
Alkalinity as $CaCO_3$	mg/L	462 J	543	510	497	512	486	503	529	510	506	529	519	488	478	494	499	496	478	522
Bicarbonate, total	mg/L	564	662	622	NA	624	592	614	645	621	617	645	632	595	463	602	608	605	582	636
Bicarbonate, diss.	mg/L	528	598	609	581	608	577 J	466	600	582	590	593	497 J	290	582	576	418	283 J	580	586
Carbonate	mg/L	<1. U	<1. U	NA	NA	<1. U	NA	NA	<5. U	<2. U	<2. U	<3. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	2.00 U	<2. U
Hydroxide	mg/L	<1. U	<1. U	NA	NA	<1. U	NA	NA	<5. U	<2. U	<2. U	<3. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	<2. U	<2. U
Gross Alpha +/- error	pCi/L	159 ± 54.4	283 ± 77.1	25 ± 12	33 ± 18	89 ± 36	77 ± 29	151 ± 29	164 ± 28.6	**418 ± 62.1**	**327 ± 44.8**	125 ± 24.3 J	28.8 ± 12.0 J	24.5 +/- 22.2	36.1 +/-11.5	36+/-11.3	0.3±10.3 UJ	58.3+/-14.4	98+/-43	180+/-84.5
Gross Beta +/- error	pCi/L	337 ± 50.8	279 ± 49.1	47 ± 24	55 ± 23	183 ± 48	130 ± 47	104 ± 10	176 ± 15.2	361 ± 27.8	295 ± 26.3	144 ± 14.6 J	14 ± 8.4 U	3.3 +/- 15.8	46.2 +/-9	35+/-9.4	22±11.9 J	101+/-11.4	140+/-32	118+/-16.7
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	0.024	0.023	0.019	0.022	0.0079	0.01076	0.025	0.0197	0.0225	0.0206 J	0.0218	0.0246	0.020
Radium ^{226} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	4.2 ± 0.6	5.1 ± 0.6	4.8 ± 0.5	4.6 ± 0.4	3.9 ± 0.3	3.2 ± 0.3	6.6 +/- 0.5 J	4.2 +/-0.4	4.0+/-0.4	6.0±0.6	3.9+/-0.4	11+/-1.2	5.0+/-0.4
Radium ^{228} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	3.0 ± 0.5	2 ± 0.6	3.0 ± 0.6	2.7 ± 0.4	4.6 ± 0.6	2.0 ± 0.5	3.3 +/- 0.5	1.5 +/-0.4	4.0+/-0.6	6±1.4	4.5+/-0.8	5.9+/-1.4	6+/-0.7
Thorium ^{230} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	1.3 ± 0.7	2.0 ± 0.8	1.3 ± 0.7 U	0.5 ± 0.3	2.7 ± 1.0 U	4.5 ± 1.30	< 0.3 +/- 0.4 U	0.2 +/-0.7	2.4+/-1.00	2.4±0.8	3+/-0.6 J	3.1+/-1.2	17+/-7.40
Thorium ^{232} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	0.2 ± 0.2	0.6 ± 0.3	0.6 ± 0.4 U	0.4 ± 0.2	0.6 ± 0.3 U	0.6 ± 0.50	0.2 +/- 0.2 J	0.3 +/-0.3	0.6+/-0.30	0.3±0.20 U	0.3+/-0.2	1.1+/-0.86	4+/-3.40

Gross Alpha	pCi/L	159	283	25	33	89	77	151	164	**418**	**327**	125 J	28.8 J	24.5	36.1	36	<0.3 UJ	58.3	98	180
Gross Beta	pCi/L	337	279	47	55	183	130	104	176	361	295	144 J	<14. U	3.3	46.2	35	22 J	101	140	118
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	0.024	0.023	0.019	0.022	0.0079	0.01076	0.025	0.0197	0.0225	0.0206 J	0.0218	0.0246	0.020
Radium ^{226}	pCi/L	0	NA	NA	NA	NA	NA	4.2	5.1	4.8	4.6	3.9	3.2	6.6 J	4.2	4	6	3.9	11	5
Radium ^{228}	pCi/L	NA	NA	NA	NA	NA	NA	3	2	3	2.7	4.6	2	3.3	1.5	4	6	4.5	5.9	6
Thorium ^{230}	pCi/L	NA	NA	NA	NA	NA	NA	1.3	2	<1.3 U	0.5	<2.7 U	4.5	<0.3 U	0.2	2.4	2.4	3 J	3.1	17
Thorium ^{232}	pCi/L	NA	NA	NA	NA	NA	NA	0.2	0.6	<0.6 U	0.4	<0.6 U	0.6	0.2 J	0.3	0.6	<0.3 U	0.3	1.1	4

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well SLV1A

Parameter	Units	11/15/00	5/10/01	11/13/01	10/7/02	10/8/03	10/5/04	10/25/05	10/25/05	3/16/06	5/19/06	9/5/06	11/2/06	Background Levels (1)	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	0.97	<0.06 U	<0.06 U	<0.06 U	<0.06 U	<0.06 U	<0.06 U	<0.06 U	<0.06 U	0.07 BJ FB	<0.06 U	<0.06 U	---	0.10	0.03	21	31
Dissolved Antimony	mg/L	0.002 FB B	<0.002 U	0.003 B	<0.002 U	0.002 B	0.0006 B	<0.0008 U	<0.0008 U	<0.0008 U	<0.0008 U	<0.0008 U	<0.0004 U	n/a	0.0021	0.0015	21	30
Dissolved Arsenic	mg/L	0.003 B	<0.001 U	<0.001 U	0.001 B	0.0011 B	<0.001 U	<0.001 U	<0.001 U	0.001 B	0.001 B	0.001 B	0.0012 B	n/a (5)	0.0063	0.0025	19	31
Dissolved Barium	mg/L	**0.140**	**0.257 FB**	**0.315**	0.006	0.010 B FB	0.009 B	0.011 B FB	0.008 B FB	0.007 B FB	0.009 B	<0.006 U	0.008 B FB	0.017	0.046	0.009	7	31
Dissolved Beryllium	mg/L	<0.0005 U	<0.0002 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0001 U	n/a	0.00072	0.00050	30	31
Dissolved Cadmium	mg/L	0.0145	0.0113	0.0146	0.0157	0.0136	0.0153	**0.0377 J**	**0.0542 J**	0.0183	0.0063	0.012	0.0101	0.033	0.013	0.010	0	31
Dissolved Calcium	mg/L	481	505	489	397.0	489	460	461	452	486	489	461	454	---	467	461	0	31
Dissolved Chromium	mg/L	0.0015 B	0.0004 B FB	0.0014 B	<0.0005 U	<0.0005 U	0.0008 B FB	0.0025 J	0.0065 J	0.0004 FB	0.0003 B FB	<0.0002 U	0.0022 FB	0.025	0.0046	0.0025	12	31
Dissolved Copper	mg/L	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	0.03 B J	0.06 B J	<0.02 U	<0.02 U	<0.02 U	<0.02 U	n/a	0.011	0.0060	26	31
Dissolved Iron	mg/L	1.36	0.28	0.90	0.64	0.68	0.98	0.13 J	0.24	1.27	0.88 J FB	0.83	1.1	---	0.65	0.69	2	31
Dissolved Lead	mg/L	0.002 B	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	0.0003 B	0.0009 B J	0.0017	0.0004 B	0.0004 B FB	<0.0002 U	0.0002 B FB	0.016	0.0031	0.0025	19	30
Dissolved Magnesium	mg/L	220	235	223	174	212	205	201	198	222	229	200	196	---	213.9	214.0	0	31
Dissolved Manganese	mg/L	1.53	1.8	1.56	1.33	1.58	1.61	1.49	1.47	1.76	1.79 J	1.48	1.49	2.92 (6)	1.78	1.71	0	31
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0005 B FB	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	n/a	0.00014	0.00010	27	31
Dissolved Molybdenum	mg/L	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	---	0.011	0.010	30	31
Dissolved Nickel	mg/L	0.03 B	0.03 B FB	0.04 B	0.05 B	0.04 B	0.03 B	0.03 B	0.03 B	0.04 B	0.02 B	0.02 B	0.02 B	0.063	0.032	0.030	2	31
Dissolved Potassium	mg/L	18.8	21.0	20.1	16.5	20.4	19.6	20.0	19.2	20.6	21.9	20.3	20	---	20.0	20.1	0	31
Dissolved Selenium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.031	0.0044	0.0010	20	30
Dissolved Silicon	mg/L	14.9	10.0 FB	10.7	8.2	10.3	10.1	10.3	9.8	10.5	10.9	9.8	0.7 B	---	6.8	5.4	1	31
Dissolved Silver	mg/L	<0.0003 U	<0.0001 U	<0.003 U	<0.0003 U	<0.0003 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0002 B FB	<0.0001 U	<0.00005 U	n/a	0.021	0.001	27	31
Dissolved Sodium	mg/L	159	151 FB	150	115	137	141	148	142	150	161	163	159	---	149.2	149.0	0	31
Dissolved Thallium	mg/L	<0.0003 U	<0.0001 U	<0.0003 U	<0.0003 U	0.0004 B	0.0003 B	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0001 B FB	n/a	0.0012	0.00050	22	30
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	n/a	0.0076	0.0050	30	31
Dissolved Zinc	mg/L	1.47	0.37 FB	0.61	0.39	0.55	0.4	0.22	0.27	0.22	**2.87**	0.9	**2.49**	1.491	0.98	0.54	1	31
Ammonia as NH_3-N	mg/L	0.5	0.48	0.38	0.31	0.37	0.31 B	0.26 B	0.28 B	0.44 B	0.53	0.43 B	0.58	---	0.41	0.40	5	31
Nitrate as NO_3-N	mg/L	0.32 FB	<0.2 U J	0.02 J B FB	<0.02 U	0.40	0.04 B	<0.02 U FB	<0.02 U	0.02 B FB	0.04 B FB	0.09 B FBJ	0.04 B	n/a	0.17	0.05	17	31
Nitrite as NO_2-N	mg/L	<0.01 U J	<0.1 U J	<0.01 U J	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	0.01 BH	0.02 BH FB	<0.01 UH	<0.01 UH	n/a	0.0078	0.0050	22	31
NO_3-N + NO_2-N	mg/L	0.32 FB	<0.2 U	0.02 J B FB	<0.02 UH	0.4 H	0.04 BH	0.02 UH FB	<0.02 UH	0.03 BH FB	0.06 BH FB	0.09 BH FB	0.04 BH	n/a	0.17	0.067	16	31
Chloride	mg/L	107	118	109	117	98	108	83	83	111	107	95	86	---	108	109	0	31
Fluoride	mg/L	0.6 FB	0.7	0.5	0.5 B	0.6	0.5	0.5 B	0.5 B	0.5	0.4 B	0.5	0.5 B	0.770	0.53	0.50	0	31
Sulfate	mg/L	2030	2030	2030	2000	1830	1830	1650	1680	1790	1770	1620	1610	---	1826	1840	0	31
pH	SI units	6.9 J	7.1 J	7.1 J	7 H	7.8 H	7.1 H	7.7 H	7.6 H	7.6 H	7.6 H	7.6 H	7.4 H	6.50 - 7.95	7.0	6.9	0	31
Conductivity	umhos/cm	3520	3580	3660	3690	3150	3630	3240	3290	3430	3410	3220	2570	---	3537	3627	0	31
Hardness as $CaCO_3$	mg/L	2110	2230	2140	1710	2090	1990	1980	1940	2130	2160	1970	1940	---	2109	2120	0	31
TSS	mg/L	1520	880	1250	258	388 J	336 H	320 J	978 J	758 J	1250 J	358 J	390 J	---	1373	1250	0	31
TDS	mg/L	3360	3450	3430 J	3290	3300	3300 H	2990	3050	3200	3300	3070	3040	5058	3367	3430	0	31
Alkalinity as $CaCO_3$	mg/L	476	497	420	479	461	455	502	493	495	499	485	454	---	493	496	0	31
Bicarbonate, total	mg/L	476	457	420	479	461	455	502	493	495	499	485	454	---	554	587	0	30
Bicarbonate, diss.	mg/L	469	497	396	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	523	579	0	22
Carbonate	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	1.04	1.00	25	27
Hydroxide	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	1.00	1.00	26	27
Gross Alpha +/- error	pCi/L	72+/-41 J	17+/-16	87+/-23	50.3+/-23	25.3+/-15	111+/-32	140+/-33	140+/-33	110+/-32	150+/-42	74+/-23	38+/-26	316	calculated below			
Gross Beta +/- error	pCi/L	120+/-27 J	50+/-16	132+/-22	86.1+/-21	24.8+/-15	54.7+/-18	130+/-17 J	88+/-19 J	120+/-21	170+/-30	110+/-20	46+/-19	400	calculated below			
Uranium, total	mg/L	0.0264	0.0214	0.0206	0.0226	0.0276	0.0200	0.0200	0.0200	**0.0368**	0.0256	0.0159	0.0173	0.03 (5) *	calculated below			
Radium 226 +/- error	pCi/L	6.2+/-0.7 J	7.4+/-0.9 J	0.26+/-0.2	6.65+/-0.6	9.25+/-0.7	9.2+/-0.7	6.9+/-0.6	6.4+/-0.6	11+/-0.68	NA	NA	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	12+/-1.3	6.2+/-0.7 J	8.77+/-0.8	2.56+/-1.2	7.78+/-1 FB	7.56+/-1.1	5.3+/-0.8 J FB	11+/-0.8 J FB	7.4+/-0.86	NA	NA	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	1+/-0.4 J	0.6+/-0.85	0.54+/-0.42	-2.61+/-1.4	0.27+/-0.35	0.16+/-0.38	0.24+/-0.42	0.35+/-0.59	0.27+/-0.5	NA	NA	NA	---	calculated below			
Thorium 232 +/- error	pCi/L	0.21+/-0.3 J	0.16+/-0.7	0.24+/-0.34	0.66+/-1.8	0.22+/-0.31	0.05+/-0.33	0.13+/-0.36	0.11+/-0.5	0.26+/-0.45	NA	NA	NA	---	calculated below			
Gross Alpha	pCi/L	72 J	17	87	50.3	25.3	111	140	140	110	150	74	38	316	107.3	87.0	1	31
Gross Beta	pCi/L	120 J	50	132	86.1	24.8	54.7	130 J	88 J	120	170	110	46	400	119.8	110.0	1	31
Uranium, total	mg/L	0.0264	0.0214	0.0206	0.0226	0.0276	0.0200	0.0200	0.0200	**0.0368**	0.0256	0.0159	0.0173	0.03 (5) *	0.021	0.021	0	25
Radium 226	pCi/L	6.2 J	7.4 J	0.26	6.65	9.25	9.2	6.9	6.4	11	NA	NA	NA	5 (3) *	5.64	5.10	0	23
Radium 228	pCi/L	12	6.2 J	8.77	2.56	7.78 FB	7.56	5.3 J FB	11 J FB	7.4	NA	NA	NA	5 (3) *	5.32	4.95	0	22
Thorium 230	pCi/L	1 J	0.6	0.54	-2.61	0.27	0.16	0.24	0.35	0.27	NA	NA	NA	---	1.79	0.63	3	22
Thorium 232	pCi/L	0.21 J	0.16	0.24	0.66	0.22	0.05	0.13	0.11	0.26	NA	NA	NA	---	0.50	0.28	3	22

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well SLV2

Parameter	Units	Oct-94	Mar-95	May-95	Aug-95	Nov-95	Apr-96	Jun-96	Sep-96	Dec-96	3/11/97	5/20/97	8/27/97	12/2/97	2/9/98	5/20/98	8/20/98	11/21/98	5/19/99	11/10/99
Dissolved Aluminum	mg/L	<0.05 U	<0.05 U	0.02	0.05	**0.26**	<0.03 U	<0.01 U	<0.01 U	<0.05 U	<0.03 U	<0.03 U	0.04	<0.03 U	<0.03 U	<0.05 U	<0.03 U	<0.03 U	0.06	0.08 J
Dissolved Antimony	mg/L	<0.002 U	<0.024 U	<0.003 U	<0.003 U	NA	<0.003 U	<0.003 U	<0.003 U	<0.003 U	<0.002 UJ	0.005	<0.002 U	<0.009 U	0.008	<0.002 UJ	0.003 J	<0.002 U	<0.003 UJ	0.004 FB
Dissolved Arsenic	mg/L	<0.005 U	<0.01 U	<0.04 U	<0.005 U	<0.02 U	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U
Dissolved Barium	mg/L	0.057	0.065	0.056	0.05	0.05	0.06	0.042	0.048	0.05	0.04	0.04	0.055	0.043	0.042	0.044	0.041	**0.043**	0.052	0.045 J
Dissolved Beryllium	mg/L	<0.005 U	<0.004 U	<0.01 U	<0.001 U	<0.001 U	<0.001 U	<0.002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U
Dissolved Cadmium	mg/L	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.005 U	<0.005 U	<0.001 U	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.0005 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U
Dissolved Calcium	mg/L	56.1	53	52.2	57.5	119	57.8	51.6	59.0	56.0	50.6	54.3	56	53.9	53.8	58	55.4	61.4	57	55
Dissolved Chromium	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	0.001	<0.001 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.07	<0.01 U	0.005	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.02	<0.01 U	0.01	<0.01 U	<0.01 U	0.01 FB	<0.01 UJ
Dissolved Iron	mg/L	0.012	0.024	0.025	0.13	0.37	0.02	0.016	<0.005 U	<0.02 U	<0.02 U	<0.01 U	<0.02 U	<0.02 U	<0.02 U	0.02	<0.02 U	0.03	0.04	<0.02 U
Dissolved Lead	mg/L	<0.005 U	**0.021**	<0.005 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U
Dissolved Magnesium	mg/L	21.9	21.4	21.2	22.4	23.2	23.1	21.2	24.5	24.0	22.3	22.3	22.9	22.7	23	23.6	24.0	25.9	24	22
Dissolved Manganese	mg/L	0.168 J	0.119	0.081	<0.01 U	**0.39**	0.03	0.022	0.071	0.010	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.02	0.02	0.02	0.01
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0004 U	<0.0002 U	<0.0002 U	<0.0002 UJ
Dissolved Molybdenum	mg/L	<0.01 U	<0.01 U	<0.04 U	<0.04 U	0.01	<0.02 U	<0.005 U	<0.005 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.01 U	<0.01 UJ	<0.01 U	0.01 B	0.01
Dissolved Nickel	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.002 U	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Dissolved Potassium	mg/L	2.5	2.36	2.54	2.5	2.6	2.7	2.38	2.50	2	2	2.3	2.8	2.5	2.4	2.6	2.7 J	2.4	2.8	2.3
Dissolved Selenium	mg/L	<0.002 U	<0.016 U	<0.002 U	<0.002 U	NA	0.004	0.004	0.004	0.005	0.007	0.004	0.002	<0.004 U	<0.002 U	0.002	0.003 J	<0.002 U	<0.002 U	0.005
Dissolved Silicon	mg/L	7.58	16.6	7.57	8.2	6.7	8.4	8.35	7.10	9.2	7.8	7.90	<8.5 U	8.2	8.13	5.8	7.8	7.7	6.8	7
Dissolved Silver	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.002 U	<0.005 U	<0.005 U	<0.002 U	<0.002 U	<0.005 U	<0.001 U	<0.001 U	<0.2 U	<0.5 U	<0.5 U	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
Dissolved Sodium	mg/L	39.6	39.8	39.6	40.7	42.7	44.1	36.0	37.9	37.2	37.3	36.8	40.2	36.7	36.5	37.6	41.3	37.1	43	38
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.005 U	<0.001 U	NA	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.002	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.003 U	0.001 J	<0.001 U	<0.001 U	<0.001 UJ
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.04 U	<0.04 U	<0.01 U	<0.01 U	0.003	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Dissolved Zinc	mg/L	0.077	0.05	0.657	<0.05 U	0.56	0.09	0.14	0.225	0.15	0.25	0.14	0.24	0.01	0.04 U	<0.05 UJ	0.01	0.02	<0.01 U	0.01 FBJ
Ammonia as NH_3-N	mg/L	<0.4 U	<0.4 U	<0.4 U	<0.8 U	<0.8 U	<0.4 U	<0.4 U	<0.7 U	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<0.29 U	0.2	<0.2 U	0.2 U	<0.2 UJ	<0.2 UJ
Nitrate as NO_3-N	mg/L	0.08 UJ	0.214 J	0.089 J	<0.02 UJ	0.11 J	<0.02 UJ	0.10	0.12 J	0.14	<0.02 U	0.25	<0.12 U	<0.1 U	<0.08 U	<0.3 U	<0.2 UJ	1 U	0.5	<0.1 U
Nitrite as NO_2-N	mg/L	NA	0.013 J	<0.005 UJ	0.012	<0.005 UJ	<0.005 UJ	0.014 J	<0.005 UJ	0.006 J	<0.017 UJ	<0.005 U	0.007	0.007 J	0.009	<0.014 U	<0.005 UJ	0.005 J	0.022	0.008 J
NO_3-N + NO_2-N	mg/L	<0.08 UJ	0.227	0.089	<0.02 U	0.11	<0.02 UJ	0.11	0.12 J	0.15	<0.03 UJ	0.25	<0.12 U	<0.11 U	<0.08 U	<0.3 U	<0.2 UJ	1 U	0.5	<0.1 U
Chloride	mg/L	23	19	33	13	15	14	12	13	14	15	15	12	14	14.2	15	10	13	17	5
Fluoride	mg/L	<1. U	0.57	0.45	<0.5 U	<0.5 U	0.6	0.4	0.7	0.5	0.4	0.4	0.4	0.3	0.39	0.4	0.6	0.5	0.5	0.51
Sulfate	mg/L	153	136	124	138	123	120	244	135	105	121	131	114	123	134	142	129	146	124	138
pH	SI units	7.71 J	7.67 J	8.23 J J	7.88 J	7.60 J	7.70 J	7.90 J	7.80 J	7.50 J	7.13 J	7.40 J	7.90 J	7.60 J	7.7 J	7.7 J	7.8 J	7.8 J	7.4	7.52 J
Conductivity	umhos/cm	636 J	615	575	618	604	606	607	668	605	624	616.9	631.4	641.9	651.4	638.9	636	643	585	606
Hardness as $CaCO_3$	mg/L	240	279	220	231	394	216	23	250	242	220	242	231	242	218	242	237	260	241	228
TSS	mg/L	6900 J	12720 J	4860	704	1150 J	4040	330	560	237	1780	2010	2660	821	748	3140	625	624 J	3100	664 J
TDS	mg/L	844 J	414 J	424 J	406	400 J	410	1280	500	412 J	440 J	416	524	460	480	664	<652. U	480 J	532	540
Alkalinity as $CaCO_3$	mg/L	1488	3644	606	231	256	614	190 J	236	204	309	326	543	247	311	531	449	225	278	403
Bicarbonate, total	mg/L	1814	4443	739	282	NA	749	212 J	287	248	376	397	662	301	379	196	547	271	339	491
Bicarbonate, diss.	mg/L	211	211	210	212	508	218	218	218	209	211	216	214	212 J	207	615	206	211	207 J	209
Carbonate	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<2. U	<1. U	<3. U	<3. U	<2. U	<1. U	16	<2. U	<2. U	<2. U	<2. U
Hydroxide	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<2. U	<1. U	<3. U	<3. U	<2. U	<1. U	3	<2. U	<2. U	<2. U	<2. U
Gross Alpha +/- error	pCi/L	64 ± 10	137 ± 28	187 ± 62.4	12 ± 4	51 ± 15	97 ± 40	33 ± 10	36 ± 6	46 ± 6.2	59 ± 9.6	164 ± 21.3	10 ± 2.3 J	32.4 ± 4.7 J	20.4 +/- 4.3	16.4 +/-2.7	22+/-4.9	0.6±2.9 UJ	73+/-11.1	83+/-31
Gross Beta +/- error	pCi/L	50 ± 6	214 ± 24	214 ± 48.8	30 ± 7	64 ± 16	179 ± 40	27 ± 10	20 ± 2	24 ± 2.2	56 ± 4.7	167 ± 11.2	12 ± 3.2 J	6.70 ± 3.1	< 3 +/- 2.8 U	7.1 +/-1.7	10+/-4.0	6±2.3 J	82+/-8.1	80+/-22
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	0.014	0.015	0.013	0.017	0.0071	0.00759	0.0151	0.0138	0.0167	0.0158 J	0.014	0.020
Radium 226 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.5 ± 0.3	1.0 ± 0.3	1.7 ± 0.3 U	1.5 ± 0.3	1.5 ± 0.2	1.9 ± 0.2	1.8 +/- 0.3 J	0.4 +/-0.2	2.6+/-0.4	1.7±0.4	0.5+/-0.2	8.3+/-1.1
Radium 228 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.8 ± 0.4 U	1.2 ± 0.5 U	0.7 ± 0.3 U	0.6 ± 0.2 U	2.0 ± 0.5 U	2.0 ± 0.5	< 0.7 +/- 0.2 U	0 +/-0.3	<0.9+/-0.4 U	2.7±1.2 U	1+/-0.6 J	4.4+/-1.3
Thorium 230 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.4 ± 0.8	1.3 ± 0.7	1.0 ± 0.6 U	0.6 ± 0.3 U	3.9 ± 1.4 U	2.8 ± 1.00	0.4 +/- 0.6	0.7 +/-1	0.4+/-0.60	2.2±1.00	2.6+/-0.60 J	3.4+/-1.2
Thorium 232 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.8 ± 0.4 U	0.4 ± 0.3	0.6 ± 0.3 U	0.5 ± 0.2	0.7 ± 0.4 U	0.8 ± 0.50	0.5 +/- 0.3 J	0.9 +/-0.5	0.8+/-0.40	0.6±0.50 U	0.5+/-0.20	2.8+/-1.3
Gross Alpha	pCi/L	64	137	187	12	51	97	33	36	46	59	164	10 J	32.4 J	20.4	16.4	22	0.6 UJ	73	83
Gross Beta	pCi/L	50	214	214	30	64	179	27	20	24	56	167	12 J	6.7	<3. U	7.1	10	6 J	82	80
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	0.014	0.015	0.013	0.017	0.0071	0.00759	0.0151	0.0138	0.0167	0.0158 J	0.014	0.020
Radium 226	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.5	1	<1.7 U	1.5	1.5	1.9	1.8 J	0.4	2.6	1.7	0.5	8.3
Radium 228	pCi/L	NA	NA	NA	NA	NA	NA	NA	<0.8 U	<1.2 U	<0.7 U	<0.6 U	<2. U	2	<0.7 U	0	<0.9 U	2.7 U	1 J	4.4
Thorium 230	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.4	1.3	<1. U	<0.6 U	<3.9 U	2.	0.4	0.7	0.4	2.2	2.6 J	3.4
Thorium 232	pCi/L	NA	NA	NA	NA	NA	NA	NA	<0.8 U	0.4	<0.6 U	0.5	<0.7 U	0.	0.5 J	0.9	0.8	0.6 U	0.5	2.8

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detect values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well SLV2

Parameter	Units	5/6/00	11/16/00	5/10/01	11/15/01	10/8/02	10/8/03	10/6/04	10/26/05	3/16/06	5/19/06	9/5/06	11/2/06	11/2/06	Calculated Max. Background Levels (1) or GWQS *	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	0.07	0.03 B	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.05 B	0.04 B	<0.03 UJ	0.11 B	<0.03 U	<0.03 U	---	0.036	0.015	21	32
Dissolved Antimony	mg/L	0.0032 FB J	0.004 FB B	0.002 B FB	<0.002 U	<0.002 U	0.0003 B	0.0005	<0.0004 U	0.0015 B	<0.0004 U	0.0005 B	<0.0004 U	<0.0004 U	n/a	0.0022	0.0015	20	31
Dissolved Arsenic	mg/L	<0.0005 U	0.002 B	0.002 B FB	0.002 B	0.002 B	0.0030	0.0021 B	0.0023 B	0.0026 B	0.0026 B	0.0023 B	0.0021 B	0.0022 B	n/a (5)	0.0034	0.0025	18	32
Dissolved Barium	mg/L	**0.65 J**	**1.02**	**0.489 FB**	0.050 FB	0.045	0.047	0.046	0.05	**0.624**	0.050	0.050	0.05	0.049	0.068	0.129	0.050	0	32
Dissolved Beryllium	mg/L	<0.001 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	n/a	0.00062	0.00050	31	32
Dissolved Cadmium	mg/L	<0.0005 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	n/a	0.00059	0.00050	31	32
Dissolved Calcium	mg/L	52	58.4	59.9 FB	57.0	57.4	61.1	56.3	61	61.4	61.2	63.8	60.4	60.5	---	59.00	57.20	0	32
Dissolved Chromium	mg/L	<0.005 U	<0.0005 U	0.0004 B FB	0.0004 B FB	<0.0001 U	<0.0001 U	0.0001 B FB	0.0002 B J	0.0003 B FB	0.0001 B FB	<0.0001 U	0.0005 B FB	<0.0001 U	n/a	0.0018	0.0025	24	32
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	n/a	0.0077	0.0050	28	32
Dissolved Iron	mg/L	<0.02 U	0.03 B	<0.01 U	0.04 B	0.01 B FB	0.02 B	<0.01 U	0.02 B J	<0.02 U	0.08 J FB	0.12 0	<0.02 U	<0.02 U	---	0.0344	0.0100	15	33
Dissolved Lead	mg/L	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	<0.0001 U	0.0002 B J	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.015 *	0.0022	0.0025	28	31
Dissolved Magnesium	mg/L	23	24.8	24.8 FB	25.1	23.8	25.4	23.6	24.9	25.5	26.4	23.6	24.1	23.9	---	23.58	23.60	0	32
Dissolved Manganese	mg/L	<0.01 U	0.009 B	<0.005 U	<0.005 U	<0.005 U	0.005 B	<0.005 U	<0.005 U	<0.005 U	0.008 BJ	0.010 B	<0.005 U	<0.005 U	0.361 (6)	0.033	0.009	14	32
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0003 B FB	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	n/a	0.00011	0.00010	30	32
Dissolved Molybdenum	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 B	<0.01 U	<0.01 U	0.01 B	<0.01 U	<0.01 U	---	0.0077	0.0050	27	32
Dissolved Nickel	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 B	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.03 B	<0.01 U	<0.01 U	n/a	0.0058	0.0050	29	32
Dissolved Potassium	mg/L	1.8	1.6	2.3 FB	2.5	2.6	2.6	2.4	2.6	2.1	2.7	2.4	2.6	2.5	---	2.42	2.50	0	32
Dissolved Selenium	mg/L	0.0104	0.009	0.007	0.005 B	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.002 B	0.004 B	0.005 B	0.005 B	0.005	0.009	0.0036	0.0040	12	31
Dissolved Silicon	mg/L	7.3	17.9	17.6 FB	18.1	17.6	17.5	17.4	17.1	19.2	18.4	17.6	19.1	19.1	---	11.72	8.28	1	32
Dissolved Silver	mg/L	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0003 U	<0.00005 U	<0.00005 U	0.00016 B FB	0.00006 B	<0.00005 U	<0.00005 U	n/a	0.01958	0.00025	29	32
Dissolved Sodium	mg/L	42	50.6	44.2 FB	42.2	39.4	41	41.0	40.4	46.9	44	43	42.2	42	---	40.67	40.55	0	32
Dissolved Thallium	mg/L	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	0.00005 B	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0002 B FB	0.0001 B FB	n/a	0.00049	0.00050	26	31
Dissolved Vanadium	mg/L	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.006 B	<0.005 U	0.005 B	<0.005 U	<0.005 U	0.008 B	0.012 B	0.012 B	n/a	0.00592	0.00500	25	32
Dissolved Zinc	mg/L	0.11	0.16	0.1 FB	0.01 B	0.03 B	0.03 B FB	0.01 B	<0.01 U	0.10	0.05 B FB	0.11	0.18	0.18	0.716	0.121	0.090	5	31
Ammonia as NH_3-N	mg/L	<0.2 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	0.09 B	0.80 B	<0.05 U	0.18 B FB	0.64	---	0.172	0.100	26	30
Nitrate as NO_3-N	mg/L	0.3	0.04 B FB	<0.1 U	0.09 J B FB	<0.02 U	<0.02 U	<0.02 U	<0.02 U	0.15 FB	0.06 B FB	0.11 FBJ	0.04 B	0.11	0.218	0.127	0.085	14	32
Nitrite as NO_2-N	mg/L	0.006	0.01 U J	<0.05 U	<0.01 U	<0.02 UH	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 U	0.01 BH FB	<0.01 UH	<0.01 UH	<0.01 UH	0.016	0.0076	0.0060	18	31
NO_3-N + NO_2-N	mg/L	0.5	0.04 B FB	<0.1 U	0.09 J B FB	<0.01 UH	<0.02 UH	<0.02 UH	<0.02 UH	0.15 FB	0.07 BH FB	0.11 H FBJ	<0.04 BH	0.11 H	0.234	0.1332	0.0795	16	32
Chloride	mg/L	11	12	14	12	13	12	12	13	12	12	12	12	11	---	13.88	13.00	0	32
Fluoride	mg/L	0.5000	0.6 FB	0.6	0.3 B FB	0.5	0.4 B	0.4 B	0.3 B	0.4 B	0.2 B	0.3 B	0.3 B	0.4 B	0.789	0.432	0.400	3	32
Sulfate	mg/L	144	150	150	160	150	150	140	140	140	140	130	130	130	---	139	137	0	32
pH	SI units	7.7 J	7.8 J	7.9 J	7.7 J	6.9 H	8.2 H	7.7 H	8.3 H	**8.2 H**	**8.2 H**	**8.2 H**	**8.2 H**	**8.3 H**	6.50 - 7.97	7.77	7.71	0	31
Conductivity	umhos/cm	618	601	612	617	662	654	614	641	611	615	628	580	577	---	620	617	0	32
Hardness as $CaCO_3$	mg/L	225	248	252	246	241	257	238	255	258	262	256	250	249	---	240	242	0	32
TSS	mg/L	4440 J	420	860	408	624	640 J	900	590 J	966 J	488	216 J	790 J	1170 J	---	1881	806	0	32
TDS	mg/L	536	484	380 FB	420 J	400	400	410	420	380	430	410	370	370	1221	480	420	1	32
Alkalinity as $CaCO_3$	mg/L	363	172	183	173	160	168	181	186	181	189	175	172	172	---	424	234	0	32
Bicarbonate, total	mg/L	442	172	171	173	160	168	181	186	181	189	175	172	172	---	493	271	0	31
Bicarbonate, diss.	mg/L	209	171	183	162	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	237	211	0	23
Carbonate	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	1	1	27	28
Hydroxide	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	1	1	27	26
Gross Alpha +/- error	pCi/L	151+/-98.4	14+/-6.7 J	20+/-6.3	24.5+/-7.2	53+/-12	24.5+/-6.7	19+/-6	80+/-182	71+/-21	49+/-13	35+/-9.3	41+/-13	21+/-9.7	197	calculated below			
Gross Beta +/- error	pCi/L	119+/-9.3	16+/-4.5 J	9+/-3.3	46.8+/-7.4	37.7+/-6.9	17.6+/-4.6	13.9+/-4 FB	75+/-11 J	66+/-14	51+/-8.8	30+/-7.1	36+/-8.4	30+/-7.1	274	calculated below			
Uranium, total	mg/L	0.011	0.017	0.0128	0.0127	0.0131	0.01380	0.01360	0.0134	0.0134	0.0140	0.0136	0.0136	0.0143	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	1.5+/-0.2	1+/-0.3 J	0.61+/-0.3 FB J	1.16+/-0.5	.48+/-0.3	1.02+/-0.2	0.74+/-0.2	1.9+/-0.3	2.1+/-0.29	NA	NA	NA	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	1+/-0.5 U	3.1+/-1	0.7+/-0.5 J	4.15+/-2	0.83+/-1.2	0.93+/-0.7 FB	1.11+/-0.7 FB	1.9+/-0.6 J FB	1.8+/-0.64	NA	NA	NA	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	2.9+/-0.90 FB	0.91_/-0.32 J	0.18+/-0.45	1.14+/-0.56	0.38+/-0.41	0.14+/-0.36	-0.93+/-0.54	0.55+/-0.48	1.2+/-0.54	NA	NA	NA	NA	---	calculated below			
Thorium 232 +/- error	pCi/L	0.4+/-0.10 U	1+/-0.37 FB J	-0.15+/-0.35	1.14+/-0.53	1.17+/-0.48	0.52+/-0.38	-0.25+/-0.58	0.08+/-0.48	1.34+/-0.52	NA	NA	NA	NA	---	calculated below			
Gross Alpha	pCi/L	151	14 J	20	24.5	53	24.5	19	80	71	49	35	41	21	197	54.6	38.5	0	32
Gross Beta	pCi/L	119	16 J	9	46.8	37.7	17.6	13.9 FB	75 J	66	51	30	36	30	274	56.2	33.0	1	32
Uranium, total	mg/L	0.011	0.017	0.0128	0.0127	0.0131	0.01380	0.01360	0.0134	0.0134	0.0140	0.0136	0.0136	0.0143	0.03 (2) *	0.01	0.01	0	25
Radium 226	pCi/L	1.5	1 J	0.61 FB J	1.16	0.48	1.02	0.74	1.9	2.1	NA	NA	NA	NA	5 (3) *	1.57	1.16	1	21
Radium 228	pCi/L	<1. U	3.1	0.7 J	4.15	0.83	0.93 FB	1.11 FB	1.9 J FB	1.8	NA	NA	NA	NA	5 (3) *	1.36	0.93	8	21
Thorium 230	pCi/L	2.9 FB	0.91 J	0.18	1.14	0.38	0.14	-0.93	0.55	1.2	NA	NA	NA	NA	---	1.16	0.91	3	21
Thorium 232	pCi/L	<0.4 U	1 FB J	-0.15	1.14	1.17	0.52	-0.25	0.08	1.34	NA	NA	NA	NA	---	0.66	0.50	4	21

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Wells SLV3 and PW-3

WELL		SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3
Parameter	**Units**	**Oct-94**	**Mar-95**	**May-95**	**Aug-95**	**Nov-95**	**Apr-96**	**Jun-96**	**Sep-96**	**Dec-96**	**3/11/97**	**5/20/97**	**8/28/97**	**12/2/97**	**2/10/98**	**5/20/98**	**8/21/98**	**11/21/98**	**5/19/99**	**11/11/99**
Dissolved Aluminum	mg/L	<0.05 U	<0.05 U	<0.01 U	<0.01 U	0.03	<0.03 U	0.02	<0.05 U	<0.05 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.17 U	0.09	<0.15 U	0.16	0.16 J
Dissolved Antimony	mg/L	<0.002 U	<0.006 U	<0.003 U	<0.003 U	NA	<0.003 U	<0.003 U	<0.003 U	<0.003 U	<0.002 UJ	0.020	<0.005 U	<0.002 U	<0.004 U	<0.01 UJ	<0.002 UJ	<0.002 U	0.005 J	<0.003 U
Dissolved Arsenic	mg/L	<0.005 U	<0.01 U	0.04	<0.005 U	<0.02 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	0.005	<0.005 U	<0.005 U
Dissolved Barium	mg/L	<0.01 U	0.012	<0.01 U	0.01	0.02	0.04	0.024	0.02	<0.01 U	0.03	<0.01 U	0.01	0.010	0.015	0.012 J	0.013	0.015	0.027	0.01 J
Dissolved Beryllium	mg/L	<0.005 U(3)	<0.004 U	<0.01 U(3)	<0.001 U	<0.001 U	<0.001 U	<0.0002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U
Dissolved Cadmium	mg/L	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.005 U	<0.005 U	0.001	0.001	<0.005 U	<0.001 U	<0.001 U	<0.0005 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U
Dissolved Calcium	mg/L	318	326	384	345	333	339	339	291	175	188	159	316	322	301	298	291	278	340	280
Dissolved Chromium	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	0.006	<0.001 U	0.021	0.005	<0.005 U	0.005	<0.005 UJ	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 UJ	0.01	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 UJ
Dissolved Iron	mg/L	4.9	7.94	2.35	7.14	4.66	6.69	2.58	8.83	28.0	0.03	24.4	10.8	11.7	13.8	10.6	<0.02 U	10.6	0.18	12
Dissolved Lead	mg/L	<0.005 U	<0.003 U	<0.005 U	<0.005 U	NA	0.006	0.005	<0.01 U	<0.005 U	0.008	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	0.010	<0.005 U	<0.005 U
Dissolved Magnesium	mg/L	116	102	113	124	94.9	95.4	101	92	99.8	77.4	86.8	106.0	103	103	96.8	103	97.4	92	94
Dissolved Manganese	mg/L	0.864 J	0.611	0.753	0.78	0.61	0.67	0.595	0.77	0.67	0.20	0.79	**1.07 J**	0.91	0.683	<0.8 U	0.73	0.66	0.28	0.76
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0006	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0013	0.0002	<0.0005 U	<0.0002 U	<0.0002 U	<0.0002 UJ
Dissolved Molybdenum	mg/L	<0.01 U	<0.01 U	<0.04 U	<0.04 U	<0.01 U	<0.02 U	<0.005 U	0.02	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	0.01	<0.01 UJ	<0.01 U	0.02 B	<0.01 U
Dissolved Nickel	mg/L	0.014	0.011	0.022	0.02	0.02	0.02	<0.002 U	0.03	<0.01 U	<0.01 U	<0.01 U	0.02	0.01	<0.01 U	0.01	<0.01 U	<0.01 U	0.01 B	0.01
Dissolved Potassium	mg/L	15.8	14.7	15.3	17.7	14.6	15.7	13.7	12	13	13	13.2	15.6	15.5	14.7	13.8	14.3 J	13.2	15	12
Dissolved Selenium	mg/L	<0.002 U	<0.002 U	<0.002 U	0.032	NA	0.012	<0.002 U	0.015	<0.01 U	0.008	0.006	<0.005 U	<0.004 U	<0.002 U	0.002	0.007	0.002	<0.002 U	<0.002 U
Dissolved Silicon	mg/L	3.73	9.2	4.19	4.8	4.6	5.7	5.72	3.7	2.4	3.4	2.6	<4.7 U	4.7	5.02	3.1	3.8	4.0	9	3.7
Dissolved Silver	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.002 U	<0.005 U	<0.005 U	0.005	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.2 U	<0.5 U	<0.5 U	0.0005	0.0011	<0.0005 U	<0.0005 U	<0.0005 U
Dissolved Sodium	mg/L	68.9	70.6	70.2	68.4	98.8	109	77.7	64.8	92.9	83.2	76.0	70.4	64.6	67.2	64.6	70.7	64.5	68	56
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.005 U	<0.001 U	NA	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.003	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.005 U	<0.002 U	<0.001 U	<0.001 U	<0.001 UJ
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.04 U	<0.04 U	<0.01 U	<0.01 U	<0.02 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Dissolved Zinc	mg/L	0.072	0.53	0.306	<0.05 U	0.08	0.05	0.054	0.05	0.02	<0.01 U	0.04	<0.09 U	<0.01 U	<0.01 U	<0.05 UJ	0.01	<0.01 U	0.01 FB	0.07 J
Ammonia as NH_3-N	mg/L	<0.8 U	<0.4 U	<0.4 U	<0.8 U	<0.8 U	<0.4 U	1	<0.5 U	0.3	<0.5 U	<0.2 U	0.3	0.4	0.44	<0.2 U	0.2	<0.2 U	0.2 J	0.3 J
Nitrate as NO_3-N	mg/L	1.54 J	0.029 J	<0.02 UJ	<0.02 UJ	0.02 J	0.05 J	<0.04 U	<0.08 UJ	<0.8 U	<0.02 U	0.18	<0.15 U	<0.29 U	<0.08 U	<0.2 U	<0.1 UJ	1	1.2	**1.7 FB**
Nitrite as NO_2-N	mg/L	NA	<0.005 UJ	<0.005 UJ	<0.005 UJ	0.009 J	<0.005 UJ	0.007 J	0.009 J	<0.005 UJ	<0.013 UJ	<0.005 U	0.006 J	0.005 J	<0.005 UJ	<0.008 U	0.005 J	<0.005 UJ	0.006	<0.005 UJ
NO_3-N + NO_2-N	mg/L	1.54 J	0.029	<0.02 U	<0.02 U	0.03	0.05 J	<0.04 U	<0.08 UJ	<0.08 U	<0.02 UJ	0.18	<0.16 U	<0.3 U	<0.08 U	<0.2 U	<0.1 UJ	1	1.2	**1.7**
Chloride	mg/L	27	24	26.9	23	24	24	23	23	24	25	22	24	24	23.4	25	23	22	23	22
Fluoride	mg/L	<1. U	0.39	0.37	<0.5 U	<0.5 U	<0.5 U	<1. U	<0.5 U	0.4	0.3	0.2	0.4	0.3	0.37	0.5	0.4	0.5	0.5	0.4
Sulfate	mg/L	1100	1080	1280	1270	1070	982	992	936	810	786	950	894	1060	1030	982	909	884	1030	959
pH	SI units	7.51 J	6.87 J	7.26 J	6.99 J	7.44 J	6.90 J	7.10 J	7.00 J	6.60 J	6.53 J	6.60 J	6.80 J	6.60 J	6.9 J	6.8 J	7.0 J	7.1 J	7.1	6.9 J
Conductivity	umhos/cm	2270 J	2260	2420	2580	2340	2290	2260	2370	2190	1980	2172	2165	2394	2247	2228	2260	2130	2110	2100
Hardness as $CaCO_3$	mg/L	1390	1320	1550	1570	1290	1210	1140	1170	806	850	838	1240	1380	1210	1140	1150	1100	1230	1090
TSS	mg/L	380 J	19	11 J	419	572 J	1680	962	580	462	356	226	1650	344	864	872	650	1050 J	976	306 J
TDS	mg/L	2030 J	1932	2190 J	2260	1940 J	1830	1800	1960	1680 J	1560 J	1850	1840	2050	1960	1940	1920	1760 J	1930	1870
Alkalinity as $CaCO_3$	mg/L	399	417	420	442	464	560	571	439	415	354	292	381	474	473	430	409	449	475	397
Bicarbonate, total	mg/L	486	508	512	538	NA	683	697	535	506	432	357	464	578	577	434	499	547	580	484
Bicarbonate, diss.	mg/L	487	501	509	511	531	527	533	409	388	366	339	445	440 J	500	524	418	286	331 J	474
Carbonate	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<2. U	<1. U	<2. U	<2. U	<2. U	<1. U	<2.	<2. U	<2. U	<1. U	<1. U
Hydroxide	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<2. U	<1. U	<2. U	<2. U	<2. U	<1. U	<2.	<2. U	<2. U	<1. U	<1. U
Gross Alpha +/- error	pCi/L	89 ± 8	85 ± 6	109 ± 27.1	59 ± 12	97 ± 21	101 ± 30	107 ± 27	140 ± 19	115 ± 14.1	71 ± 12.5	82 ± 13.4	97 ± 12.7 J	76.2 ± 13.3 J	83.8 +/- 11.4 J	**299 +/-18**	56+/-8.5	0.4±9.0 J	82+/-11.1	43+/-21
Gross Beta +/- error	pCi/L	51 ± 4	56 ± 4	76.4 ± 16.2	117 ± 18	94 ± 20	**164 ± 32**	86 ± 29	77 ± 7	72 ± 5.9	48 ± 5.3	49 ± 6.9	83 ± 6.2 J	67.0 ± 7.5	81.3 +/- 5.9	**194 +/-8.1**	81+/-7.8	54±7.1 J	79+/-7.7	44+/-14
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.14**	**0.146**	**0.073**	**0.062**	**86.3**	**0.06195**	**0.137**	**0.104**	**0.1351**	**0.996 J**	**0.113**	**0.088**
Radium ^{226} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	8.3 ± 0.8	7.3 ± 0.7	5.8 ± 0.5	4.4 ± 0.4	5.4 ± 0.4	5.4 ± 0.4	4.7 +/- 0.5	4 +/-0.4	6.1+/-0.5	5.6±0.6	5.3+/-0.4	2.1+/-0.6
Radium ^{228} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	2.4 ± 0.5	2 ± 0.6	2.2 ± 0.4 U	1.4 ± 0.3	2.2 ± 0.5 U	1.7 ± 0.4	2.9 +/- 0.5	2 +/-0.4	1.7+/-0.5	3±1.3	4+/-0.7	2.3+/-1.2
Thorium ^{230} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.3 ± 0.7	2.5 ± 1.0	1.5 ± 0.7 U	2.9 ± 0.7	2.3 ± 0.9 U	1.6 ± 0.60	0.9 +/- 0.7 J	1.9 +/-1.1	1.3+/-0.70	3.0±1.10	2.3+/-0.50 J	4.5+/-1.4
Thorium ^{232} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.6 ± 0.4	0.8 ± 0.5	0.4 ± 0.3 U	0.6 ± 0.3	0.6 ± 0.3 U	0.5 ± 0.30	0.5 +/- 0.3	0.3 +/-0.3	0.8+/-0.40	0.4±0.30	0.6+/-0.20 U	1.1+/-0.79

Gross Alpha	pCi/L	89	85	109	59	97	101	107	140	115	71	82	97 J	76.2 J	83.8 J	**299**	56	0.4 J	82	43
Gross Beta	pCi/L	51	56	76.4	117	94	**164**	86	77	72	48	49	83 J	67	81.3	**194**	81	54 J	79	44
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.14**	**0.146**	**0.073**	**0.062**	**86.3 (7)**	**0.06195**	**0.137**	**0.104**	**0.1351**	**0.996 J**	**0.113**	**0.088**
Radium ^{226}	pCi/L	NA	NA	NA	NA	NA	NA	NA	**8.3**	**7.3**	5.8	4.4	5.4	5.4	4.7	4	6.1	5.6	5.3	2.1
Radium ^{228}	pCi/L	NA	NA	NA	NA	NA	NA	NA	**2.4**	**2**	2.2 U	1.4	2.2 U	1.7	2.9	2	1.7	3	4	2.3
Thorium ^{230}	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.3	2.5	1.5 U	2.9	2.3 U	1.6	0.9 J	1.9	1.3	3	2.3 J	4.5
Thorium ^{232}	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.6	0.8	0.4 U	0.6	0.6 U	0.5	0.5	0.3	0.8	0.4	0.6 U	1.1

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006
(7) Values calculated without the 8/28/97 result

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Wells SLV3 and PW-3

WELL		SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	SLV3	PW-3	PW-3	PW-3					
Parameter	**Units**	**5/6/00**	**11/16/00**	**5/8/01**	**11/14/01**	**10/9/02**	**10/6/03**	**10/4/04**	**10/4/04**	**10/31/05**	**3/14/06**	**5/19/06**	**9/5/06**	**11/3/06**	**Calculated Max. Background Levels (1) or**	**Mean (4)**	**Median (4)**	**#ND**	**#**
Dissolved Aluminum	mg/L	0.12	0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.03 U	0.03 U	<0.06 U	0.04 B	<0.06 UJ	<0.03 U	<0.03 U	---	0.0381	0.0250	22	32
Dissolved Antimony	mg/L	0.0022 FB J	0.004 FB B	<0.002 U	<0.002 U	<0.002 U	<0.0004 U	0.0004 U	0.0004 U	<0.0008 U	<0.0008 U	<0.0004 U	<0.0004 U	<0.0004 U	n/a	0.0021	0.0010	25	31
Dissolved Arsenic	mg/L	0.0017	0.001 U	<0.001 U	<0.001 U	0.002 B	0.0007 B	0.001 U	0.001 U	<0.001 U	<0.001 U	0.001 B	0.0006 B	0.0009 B	n/a (5)	0.0035	0.0025	20	32
Dissolved Barium	mg/L	**0.27 J**	**0.182**	**0.286 FB**	**0.399**	0.009 B	0.011 FB	0.009 B	0.01 B	0.013 B FB	0.010 FB	0.01 B	0.01 B	0.01 FB	0.041	0.0474	0.0115	4	32
Dissolved Beryllium	mg/L	<0.001 U	<0.005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0002 U	0.0002 U	0.0002 U	<0.0002 U	<0.0002 U	<0.0001 U	<0.0001 U	<0.0001 U	n/a	0.0007	0.0005	29	32
Dissolved Cadmium	mg/L	<0.005 U	<0.005 U	<0.0001 U	0.0003 B	<0.0001 U	<0.0002 U	0.0006 B	0.0006 B	0.0038 J	0.0041	<0.0001 U	<0.0001 U	<0.0001 U	n/a	0.0010	0.0005	24	32
Dissolved Calcium	mg/L	310	310	309	318	307	307	303	301	421	400	237	243	244	---	301	308	0	32
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	0.0004 B FB	0.0005 FB	0.0002 B FB	<0.0002 U	0.0007 B FB	0.0007 B FB	<0.0002 U	0.0002 B FB	0.0003 B FB	<0.0001 U	<0.0001 U	n/a	0.0028	0.0025	20	32
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 U	0.01 U	<0.02 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	n/a	0.0058	0.0050	27	32
Dissolved Iron	mg/L	16	15.9	0.81	11.20	16.60	11.00	1.86	1.85	0.05 B J	0.47	3.28 J	1.86 0	1.77	---	7.57	6.69	1	33
Dissolved Lead	mg/L	<0.005 U	0.002 B	0.004 B	<0.001 U	<0.001 U	<0.0002 U	0.0005 B	0.0005 B	<0.0002 U	0.001 B	0.0009 FB	<0.0001 U	<0.0001 U	n/a	0.0026	0.0025	20	31
Dissolved Magnesium	mg/L	110	105	105	99.2	111	102	95.4	94.8	131	128	87	81.2	83.6	---	101.0	100.4	0	32
Dissolved Manganese	mg/L	**0.97**	**0.936**	0.764	0.829	**1.23**	0.750	0.545	0.55	0.750	0.733	0.18 J	0.176	0.172	0.905 (1)	0.67	0.73	1	32
Dissolved Mercury	mg/L	<0.002 U	<0.002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0003 B FB	0.0003 B FB	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	n/a	0.0002	0.0001	27	32
Dissolved Molybdenum	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 U	0.01 U	<0.02 U	<0.01 U	<0.02 U	0.03 B	0.01 B	---	0.0096	0.0100	25	32
Dissolved Nickel	mg/L	0.01	<0.01 U	<0.01 U	0.02 B	0.01 B	0.02 B	0.01 B	0.01 B	<0.02 U	0.01 B	<0.02 U	<0.01 U	<0.01 U	0.033	0.011	0.010	13	32
Dissolved Potassium	mg/L	14	13.3	14.4	14.1	14.7	14	14.1	14.1	15.3	16.0	13.2	12.3	12.9	---	14.2	14.1	0	32
Dissolved Selenium	mg/L	0.0121	0.004 B	0.002 B	0.003 B	0.002 B	0.001 B	0.001 U	0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.033	0.0042	0.0020	15	31
Dissolved Silicon	mg/L	4.4	9	8.5 FB	9.3	10	8.5	8.8	8.7	10.5	10.4	10.8	10.3	6.8	---	6.3	5.4	1	32
Dissolved Silver	mg/L	<0.0005 U	<0.003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0001 U	0.0001 U	<0.0001 U	<0.0001 U	0.00013 B FB	<0.00005 U	<0.00005 U	n/a	0.020	0.001	26	32
Dissolved Sodium	mg/L	74	75.4	71.3 FB	71.0	66.9	59.4	64.1	63.7	73.6	76.8	52.5	53.7	54.1	---	70.7	69.6	0	32
Dissolved Thallium	mg/L	<0.0005 U	<0.003 U	<0.00005 U	<0.0001 U	<0.0001 U	0.0002 B	0.0008 B	0.0009 B	0.0007 B	0.0007 B	<0.0001 U	<0.0001 U	0.0002 B FB	n/a	0.0007	0.0005	24	31
Dissolved Vanadium	mg/L	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005 U	0.005 U	0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	n/a	0.0059	0.0050	27	32
Dissolved Zinc	mg/L	0.28	**0.60**	0.11 FB	0.24	0.07	0.20	0.48	0.48	0.07 B	0.02 B FB	0.03 B FB	0.01 B	0.02 B	0.503	0.126	0.050	7	32
Ammonia as NH_3-N	mg/L	0.2	0.17 B	0.19 B	0.20 B	0.13 B	0.20 B	0.25 B	0.17 B	0.18 B	0.19 B	0.23 B	0.22 B FB	0.24 B FB	---	0.260	0.200	11	32
Nitrate as NO_3-N	mg/L	.4	<0.02 U	<0.1 U	0.05 J B FB	0.03 B	<0.02 U	0.02 U	0.02 U	<0.02 U	<0.02 U	<0.02 U	0.08 B FBJ	<0.02 U	1.289	0.224	0.040	18	31
Nitrite as NO_2-N	mg/L	.008	<0.01 U J	<0.05 U J	<0.01 U J	<0.01 UH	<0.01 UH	0.01 UH	0.01 UH	<0.01 UH	<0.01 UH	**0.02 BH FB**	<0.01 UH	**0.02 B**	0.010	0.007	0.005	19	30
NO_3-N + NO_2-N	mg/L	.4	<0.02 U	<0.1 U	0.05 J B FB	<0.01 UH	<0.02 UH	0.02 UH	0.02 UH	<0.02 UH	<0.02 UH	0.03 BH FB	0.08 BH FBJ	<0.02 U	1.299	0.212	0.040	18	31
Chloride	mg/L	21	24	22	27	22	21	19	19	32	24	19	18	19	---	23.1	23.0	0	32
Fluoride	mg/L	**0.60**	**0.7 FB**	**0.6**	0.3 B FB	0.4 B	0.4 B	0.4 B	0.4 B	0.3 B	<0.1 U	0.2 B	0.3 B	0.3 B	0.567	0.37	0.40	7	32
Sulfate	mg/L	921	1030	971	980	940	850	910	890	1190	1150	640	650	650	---	962	965	0	32
pH	SI units	6.9 J	7.1 J	7.2 J	7.5 J	6.9 H	**7.9 H**	7.3 H	7.2 H	**7.8 H**	**7.8 H**	**7.9 H**	**7.7 H**	**7.7 H**	6.50 - 7.67	7.2	7.1	0	32
Conductivity	umhos/cm	2100	2080	2070	2080	2090	1920	2080	2040	2550	2410	1620	1630	1350	---	2150	2169	0	32
Hardness as $CaCO_3$	mg/L	1230	1210	1200	1200	1220	1190	1150	1140	1590	1530	950	941	954	---	1193	1200	0	32
TSS	mg/L	924 J	232	168	526	118	146	12 BH	10 BH	<5. U	48 J	6 B	12 B J	8 B J	---	456	350	1	32
TDS	mg/L	1810	1810	1780	1780	1690	1650	1740 H	1720 H	2220 H J	2120	1320	1350	1240	2317	1829	1835	0	32
Alkalinity as $CaCO_3$	mg/L	484	383	408	344	397	375	399	404	470	470	352	343	322	---	419	412	0	32
Bicarbonate, total	mg/L	590	383	404	344	397	375	399	404	470	470	352	343	322	---	473	470	0	31
Bicarbonate, diss.	mg/L	431	378	408	349	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	438	440	0	23
Carbonate	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	2 U	2 U	<2. U	<2. U	<2. U	<2. U	<2. U	---	0.93	1.00	26	28
Hydroxide	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	2 U	2 U	<2. U	<2. U	<2. U	<2. U	<2. U	---	0.93	1.00	26	28
Gross Alpha +/- error	pCi/L	111+/-53.7	70+/-23 J	56+/-16	69+/-18 J	54.4+/-17	43.4+/-14	62.3+/-14	73.2+/-16	94+/-20	70+/-18	29+/-9.7	25+/-7.6	17+/-10	144	calculated below			
Gross Beta +/- error	pCi/L	**206+/-15**	65+/-14 J	53+/-11	51.2+/-11	37.5+/-12	35.9+/-8.3	40.7+/-8.4	29.4+/-7.6	77+/-12 J	27+/-9.3	20+/-5.9	18+/-5.9	12+/-7.4	162	calculated below			
Uranium, total	mg/L	**0.113**	**0.114**	0.0092	**0.0989**	**0.0938**	**0.0899**	**0.0922**	**0.0923**	**0.1170**	**0.1010**	0.0168	0.0160	0.0151	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	5.5+/-0.4	4.5+/-0.6 J	4.6+/-0.6 J	5.21+/-0.8	3.82+/-0.4	5.3+/-0.5	7.69+/-0.6	5.32+/-0.5	4.3+/-0.5	4.9+/-0.48	NA	NA	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	2+/-0.6	2.1+/-1.1	2.7+/-0.6 J	4.12+/-1.4	1.26+/-1.1	4.55+/-0.8 FB	1.91+/-0.7 FB	1.75+/-0.7 FB	1.7+/-0.65 J FB	1.7+/-0.65	NA	NA	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	5.4+/-1.90 FB	0.33/-0.15 J	-0.29+/-0.48	0.26+/-0.4		0.03+/-0.36	1.84+/-0.49 FB J	-0.42+/-0.28	-0.42+/-0.48	-0.28+/-0.41	NA	NA	NA	---	calculated below			
Thorium 232 +/- error	pCi/L	1.4+/-0.90	0.17/-0.15 FB J	0.11+/-0.48	0.46+/-0.4		0.05+/-0.33	0.13+/-0.3	0.18+/-0.35	0.31+/-0.54	0.03+/-0.41	NA	NA	NA	---	calculated below			
Gross Alpha	pCi/L	111	70 J	56	69 J	54.4	43.4	62.3	73.2	94	70	29	25	17	144	80.2	74.7	0	32
Gross Beta	pCi/L	**206**	65 J	53	51.2	37.5	35.9	40.7	29.4	77 J	27	20	18	12	162	70.2	60.5	0	32
Uranium, total	mg/L	**0.113**	**0.114**	0.0092	**0.0989**	**0.0938**	**0.0899**	**0.0922**	**0.0923**	**0.1170**	0.1010	0.0168	0.0160	0.0151	0.03 (2) *	0.1261	0.0964	0	24
Radium 226	pCi/L	5.5	4.5 J	4.6 J	5.21	3.82	5.3	7.69	5.32	4.3	4.9	NA	NA	NA	5 (3) *	5.25	5.30	0	22
Radium 228	pCi/L	2	2.1	2.7 J	4.12	1.26	4.55 FB	1.91	1.75	1.7 J FB	1.7	NA	NA	NA	5 (3) *	2.35	2.05	0	22
Thorium 230	pCi/L	5.4 FB	0.33 J	0.29	0.26		0.03	1.84		-0.42	-0.28	NA	NA	NA	---	1.78	1.60	0	19
Thorium 232	pCi/L	1.4	0.17 FB J	0.11	0.46		0.05	0.13	0.18	0.31	0.03	NA	NA	NA	---	0.478	0.460	0	21

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006
(7) Values calculated without the 8/28/97 result

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW-2A

Parameter	Units	Oct-94	Mar-95	May-95	Aug-95	Nov-95	Apr-96	Jun-96	Sep-96	Dec-96	3/17/97	5/20/97	8/27/97	12/2/97	12/2/97	2/9/98	5/20/98	8/21/98	11/21/98	5/18/99	11/9/99	5/6/00	11/15/00	5/8/01	11/15/01	10/8/02	10/7/03	10/5/04	Calculated Max. Background Levels (1) or	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	<0.05 U	<0.05 U	<0.01 U	0.03	<0.02 U	<0.03 U	<0.01 U	0.11	<0.05 U	0.03	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.18 U	0.10	0.16	0.15	0.15 J	0.13	<0.06 U	<0.06 U	<0.06 U	<0.06 U	<0.06 U	<0.06 U	---	0.049	0.030	19	25
Dissolved Antimony	mg/L	<0.002 U	<0.005 U	<0.003 U	0.004	NA	<0.003 U	<0.003 U	<0.003 U	<0.003 U	0.007 J	0.014	<0.002 U	<0.011 U	<0.002 U	<0.002 U	0.002	<0.002 UJ	<0.002 U	0.005 J	0.004 FB	0.0029 FB J	0.004 FB B	<0.002 U	0.002 B	<0.002 U	<0.0004 U	<0.0004 U	n/a	0.0026	0.0015	17	24
Dissolved Arsenic	mg/L	<0.005 U	<0.01 U	<0.04 U	0.005	<0.02 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	0.007	<0.005 U	<0.005 U	0.0005	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.0004 B	<0.001 U	n/a (5)	0.0033	0.0025	22	25
Dissolved Barium	mg/L	0.025	0.029	0.017	0.01	<0.02 U	0.01	0.01	0.013	0.02	**0.93**	0.01	0.013	0.015	0.015	0.016	0.013	0.012	0.014	0.013	**0.24 J**	**0.17 FB J**	**0.209**	**0.119 FB**	0.014 B FB	0.008 B	0.011 B FB	0.010 B	0.031	0.073	0.014	1	25
Dissolved Beryllium	mg/L	<0.005 U(3)	<0.004 U	<0.01 U(3)	<0.001 U	<0.001 U	<0.001 U	<0.0002 U	<0.0002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	0.0083	<0.0002 U	<0.0005 U	<0.0002 U	<0.0002 U	n/a	0.0010	0.0005	25	25
Dissolved Cadmium	mg/L	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.005 U	<0.005 U	<0.001 U	0.002	<0.005 U	<0.001 U	<0.001 U	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0005 U	<0.0002 U	0.0003 B	<0.0005 U	0.0002 B	<0.0002 U	n/a	0.0008	0.0005	23	25
Dissolved Calcium	mg/L	388	324	403	356	416	442	355	419	406	388	365	414	392	390	407	394	385	420	380	400	380	406	413	405	352	435	423	---	395	400	0	25
Dissolved Chromium	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	0.007	<0.001 U	0.009	0.007	0.006	<0.005 U	0.006	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0005 U	0.0002 B FB	0.0006 B FB	<0.0005 U	<0.0002 U	0.0007 B FB	n/a	0.0031	0.0025	18	25
Dissolved Copper	mg/L	0.125	0.203	0.221	0.38	0.16	0.21	0.182	0.145	0.17	0.25	0.21	0.16	0.17	0.17	0.138	0.2 J	0.22	0.24	0.21	0.20 J	0.17	0.18	0.16	0.13	0.25	0.17	0.21	0.361	0.194	0.182	0	25
Dissolved Iron	mg/L	0.015	0.012	0.034	0.23	0.19	0.02	0.079	0.224	0.09	0.30	0.35	<0.41 U	<0.02 U	<0.02 U	0.224	0.11	0.04	0.07	0.13	0.13	0.14	0.25	0.08 B	0.02 B	0.43	0.41	0.51	---	0.16	0.13	3	25
Dissolved Lead	mg/L	<0.005 U	<0.003 U	<0.005 U	<0.005 U	NA	0.013	<0.02 U	<0.025 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.005	<0.005 U	0.005	<0.005 UJ	0.011	<0.005 U	<0.005 U	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0002 U	0.0003 B	n/a	0.0036	0.0025	20	24
Dissolved Magnesium	mg/L	118	111	113	136	132	129	118	126	124	127	119	130	118	116	127	120	117	128	120	120	120	125	123	127	103	127	126	---	122.22	123.00	0	25
Dissolved Manganese	mg/L	1.17 J	0.895	0.998	1.04	1.04	1.48	1.04	1.10	**1.74**	1.42	1.32	1.24	**1.68**	**1.68**	**1.45**	<1.37 U	1.38	1.40	1.20	1.2	1.1	1.16	1.12	1.30	0.90	1.00	1.03	1.43 (6)	1.21	1.17	1	25
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0004 U	<0.0002 U	0.0003 B FB	<0.0002 UJ	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	n/a	0.00012	0.00010	24	25
Dissolved Molybdenum	mg/L	<0.01 U	0.01	<0.04 U	<0.04 U	<0.01 U	<0.02 U	<0.005 U	<0.025 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	0.01	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.02 U	---	0.0093	0.0100	25	25
Dissolved Nickel	mg/L	0.011	0.011	0.014	0.01	0.01	0.01	0.002	0.009	0.01	0.01	0.01	0.01	0.01	**0.02**	**0.016**	**0.03**	<0.01 U	<0.01 U	0.01 B	0.01	0.01	<0.02 U	<0.02 U	<0.02 U	**0.09 B**	**0.02 B**	<0.02 U	0.016	0.0142	0.0100	6	25
Dissolved Potassium	mg/L	16.4	17.7	16.7	17.2	16.3	16.6	15.4	12.6	15	15	14.7	17.1	15.0	14.9	14.7	14.6	13.2 J	14.7	15	15	14	13.8	14.7	14.6	12.3	16.3	14.9	---	15.13	15.00	0	25
Dissolved Selenium	mg/L	<0.002 U	<0.005 U	0.0033	0.016	NA	0.006	<0.008 U	0.02	<0.01 U	<0.002 U	<0.003 U	<0.002 U	<0.004 U	<0.004 U	<0.002 U	0.002	0.010	0.004	<0.002 U	<0.002 U	0.0011	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.021	0.0034	0.0013	18	24
Dissolved Silicon	mg/L	4.76	9.28	4.69	4.6	4.8	4.9	4.28	5.35	5.1	4.9	4.6	<5.1 U	5.0	5.0	5.06	3.2	4.2	4.0	3.9	4	4.1	9.5	8.9 FB	9.6	7.6	8.8	9.2	---	5.62	4.90	1	25
Dissolved Silver	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.002 U	<0.005 U	<0.005 U	0.008	<0.01 U	<0.005 U	0.506	<0.001 U	<0.2 U	<0.5 U	0.5	<0.5 U	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0003 U	<0.0001 U	<0.0001 U	<0.0003 U	<0.0001 U	<0.0001 U	n/a	0.0516	0.0010	24	25
Dissolved Sodium	mg/L	87.6	73.5	74.3	74.5	76.3	86.4	73.0	57.8	82.1	76.8	69.1	75.9	73.8	73.2	77.8	72.5	66.9	74.8	74	73	76	78.7	71 FB	72.4	57.4	67.5	72.1	---	73.64	73.80	0	25
Dissolved Thallium	mg/L	<0.001 U	<0.002 U	<0.005 U	<0.001 U	NA	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.003	0.001	<0.001 U	<0.001 U	<0.001 U	0.005	<0.002 U	<0.001 UJ	<0.001 U	<0.001 U	0.004 J	<0.0005 U	<0.0003 U	<0.0001 U	<0.0001 U	<0.0003 U	0.0002 B	0.0004 B	n/a	0.00095	0.00050	20	24
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.04 U	<0.04 U	<0.01 U	<0.01 U	<0.002 U	0.006	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	n/a	0.0062	0.0050	25	25
Dissolved Zinc	mg/L	**8.01**	0.132	**3.00**	0.820	0.12	0.68	0.801	0.48	0.67	0.17	0.22	1.21	0.87	0.88	0.687	<0.37 UJ	0.36	0.35	0.15	0.29 J	0.29	0.56	0.1 B FB	0.22	0.05 B	0.08 B FB	0.04 B	2.834	0.79	0.35	1	25
Ammonia as NH_3-N	mg/L	<0.4 U	<0.8 U	<0.04 U	<0.8 U	<0.8 U	<0.4 U	0.6	<0.4 U	0.2	0.3	0.3	0.3	<0.5 U	0.3	<0.29 U	<0.4 U	<0.2 U	<0.2 U	0.2 J	<0.2 UJ	<0.2 U	0.13 B	0.18 B	0.17 B	0.17 B	0.17 B	0.19 B	---	0.22	0.20	14	25
Nitrate as NO_3-N	mg/L	0.077 J	0.06 J	<0.02 U	<0.4 UJ	0.03	<0.02 UJ	0.04	<0.08 UJ	<0.8 U	**0.99**	0.10	<0.13 U	<0.09 U	<0.1 U	<0.08 U	<0.4 U	<0.2 UJ	0.1	<0.1 U	0.1 FB	**0.4**	0.03 FB B	<0.1 U	0.05 J B FB	<0.02 U	<0.02 U	<0.02 U	0.345	0.121	0.050	16	25
Nitrite as NO_2-N	mg/L	NA	0.0079	<0.005 U	0.011	<0.005 UJ	<0.005 UJ	0.007 J	<0.005 UJ	0.006 J	<0.005 U	<0.005 U	<0.005 U	<0.005 UJ	0.008 J	<0.005 U	<0.014 U	<0.013 J	<0.005 UJ	0.006	0.008 J	<0.005 U	<0.01 U J	<0.05 U J	<0.01 U	<0.01 UH	<0.01 UH	<0.01 UH	0.013	0.0056	0.0050	19	25
NO_3-N + NO_2-N	mg/L	0.089 J	0.068	<0.02 U	<0.4 U	0.03	<0.02 UJ	0.05	<0.08 UJ	<0.8 U	**0.99**	0.10	<0.13 U	<0.09 U	<0.11 U	<0.08 U	<0.4 U	<0.2 UJ	0.1	<0.1 U	0.1	**0.4**	0.03 FB B	<0.1 U	0.1 J B FB	<0.02 UH	<0.02 UH	<0.02 UH	0.358	0.122	0.050	16	25
Chloride	mg/L	18	25	28.9	13	14	14	20	14	14	15	6	14	13	13	16.1	16	16	15	16	14	15	15	16	14	18	15	15	---	15.67	15.00	0	25
Fluoride	mg/L	<1. U	0.35	<0.3 U	<0.5 U	<0.5 U	<0.5 U	0.3	0.8	0.3	0.3	0.2	0.2	0.2	<0.25 U	0.28	0.4	0.3	0.3	0.4	0.27	0.3000	0.5 FB B	0.5 B	0.2 B FB	0.4 B	0.3 B	0.3 B	0.768	0.32	0.30	6	25
Sulfate	mg/L	1220	1070 J	1290	1280	1240	1200	1200	1230	1060	1180	1210	1200	1160	1210	1030	1210	1030	1100	1170	1090	1080	1330	1220	1230	1180	1230	1240	---	1181	1200	0	25
pH	SI units	7.74 J	7.26 J	7.61 J	7.05 J	7.06 J	6.60 J	6.80 J	6.70 J	**6.30 J**	6.50 J	6.40 J	6.8 J	6.50 J	6.60 J	6.7 J	6.7 J	7 J	6.8 J	6.7	6.8 J	6.8 J	7.0 J	7.2 J	7.2 J	6.9 H	7.8 H	7.4 H	6.50 - 7.92	6.92	6.80	0	25
Conductivity	umhos/cm	2560 J	2445	2520	2700	2650	2680	2650	2820	2640	2750	2752	2734	2730	2731	2700	2643	2660	2620	2400	2440	2440	2560	2510	2590	2650	2440	2390	---	2608	2643	0	25
Hardness as $CaCO_3$	mg/L	1570	1350 J	1640	1720	1620	1610	1510	1680	1680	1700	1700	1670	1620	1630	1660	1480	1440	1580	1440	1490	1440	1530	1540	1530	1300	1610	1580	---	1567	1580	0	25
TSS	mg/L	2110 J	17960	644	168	42	474	160	242	304	105	1780	72	146	136	731	2440	760	200 J	398	516 J	202 J	144	84	1390	122	80	52 H	---	1165	202	0	25
TDS	mg/L	2250 J	2228	2340	2420	2320 J	2340	2260	**2610**	2470 J	2380	2330	2410	2400	2520	2340	**2640**	2430	2310 J	2320	2320	2190	2220	2250	2280 J	2300	2330	2320 H	2592	2353	2330	0	25
Alkalinity as $CaCO_3$	mg/L	1726	527 J	516	556	526	581	571	600	587	572	763	582	569	580	1040	736	574	565	538	554	527	532	551	466	542	539	551	---	629	565	0	25
Bicarbonate, total	mg/L	2105	643	629	677	NA	708	696	731	715	698	930	710	693	707	1270	560	699	689	656	676	642	532	533	466	542	539	551	---	731	683	0	24
Bicarbonate, diss.	mg/L	678	377	626	495	641	685	262 J	558	689	683	702	562	523 J	361 J	694	898	467	672 J	636 J	654	646	520	551	475	NA	NA	NA	---	583	594	0	22
Carbonate	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<2. U	<2. U	<2. U	<1. U	<2. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. UH	---	0.85	1.00	22	21
Hydroxide	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<2. U	<2. U	<2. U	<1. U	<2. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. UH	---	0.85	1.00	22	21
Gross Alpha +/- error	pCi/L	268 ± 19	**1240 ± 198**	427 ± 60.2	89 ± 13	165 ± 27	277 ± 38	< 47 ± 21	357 ± 29	471 ± 28.8	458 ± 28.9	**855 ± 80.6**	**519 ± 28.5 J**	220 ± 18.1 J	368 ± 23.4 J	282 ± 33.7	320 ±19.7	187 ±14.3	0.4 ±14.4 UJ	250 ±18.8	260 ±39	347 ±88.3	270 ±38 J	270 ±38	170 ±26	327 ±42	191 ±28	280 ±39	517	calculated below			
Gross Beta +/- error	pCi/L	145 ± 7	**1150 ± 119**	**256 ± 30.2**	73 ± 15	84 ± 19	94 ± 24	64 ± 27	82 ± 7	138 ± 7.6	140 ± 7.9	**408 ± 29.7**	174 ± 9.2 J	131 ± 9.1	218 ± 10.5	74.6 ± 13.9	96.6 ±8.2	153 ±9.7	143 ±8.7 J	184 ±10.3	78 ±20	205 ±14.4	130 ±15 J	120 ±16	156 ±19	146 ±16	83.8 ±16	126 ±15	250	calculated below			
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.28**	**0.340**	**0.397**	**0.456**	**0.228**	**0.22973**	**0.18834**	**0.336**	**0.378**	**0.4087**	**0.3275 J**	**0.319**	**0.304**	**0.29**	**0.404**	**0.3790**	**0.3350**	**0.3910**	**0.3870**	**0.3830**	0.03 (1,2) *	calculated below			
Radium 226 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	3.0 ± 0.5	2.3 ± 0.4	1.9 ± 0.3	5.1 ± 0.5	**1.5 ± 0.2**	1.7 ± 0.2	1.1 ± 0.2	4.3 ± 0.4 J	2.2 ±0.3	1.6 ±0.3	1.2 ±0.3	1.6 ±0.2	4.4 ±0.8	1.7 ±0.2	2.6 ±0.4 J	0.45 ±0.2 FB J	4.71 ±0.9	2.15 ±0.4	1.55 ±0.3	1.55 ±0.3	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.8 ± 0.4 U	1.2 ± 0.5 U	1.0 ± 0.5 U	1.7 ± 0.3	2.3 ± 0.5 U	0.8 ± 0.4 U	0.8 ± 0.3 U	0.8 ± 0.3	1.2 ±0.4	<0.9±0.4 U	4 ±1.3	2 ±0.7	1.3 ±1.1	1.0 ±0.5 U	75 ±0.8	1.1 ±0.9 J	5.09 ±1.4	0.57 ±1.2	0.54 ±0.7 FB	0.98 ±0.8 FB	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.9 ± 1.0	1.8 ± 0.8	1.1 ± 0.6 U	1.4 ± 0.5	2.0 ± 1.0 U	2.4 ± 0.80	2.6 ± 1.00	0.5 ± 0.6	1.9 ±1.2	1.6 ±0.80	2.6 ±1.00	1.9 ±0.50 J	3.3 ±1.2	3.9 ±1.30 FB	0.48 ±0.31 J	0.1 ±0.46	0.87 ±0.53	-0.57 ±0.53	-0.02 ±0.38	0.87 ±0.5 FB J	---	calculated below			
Thorium 232 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.0 ± 0.6	0.5 ± 0.3	0.4 ± 0.2 U	1.2 ± 0.3	0.8 ± 0.5 U	0.4 ± 0.30	1.1 ± 0.60	0.5 ± 0.3 J	1.5 ±0.6	0.3 ±0.20	0.4 ±0.30 U	0.4 ±0.20	1.3 ±0.82	0.6 ±0.40 U	0.39 ±0.41 J	-0.16 ±0.37	0.58 ±0.45	0.35 ±0.61	-0.08 ±0.33	0.11 ±0.36	---	calculated below			
Gross Alpha	pCi/L	268	**1240**	427	89	165	277	<47. U	357	471	458	**855**	**519 J**	220 J	368 J	282	320	187	<0.4 UJ	250	260	347	270 J	270	170	327	191	280	517	329	277	2	25
Gross Beta	pCi/L	145	**1150**	**256**	73	84	94	64	82	138	140	**408**	174 J	131	218	74.6	96.6	153	143 J	184	78	205	130 J	120	156	146	83.8	126	250	179.7	138	0	25
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.28**	**0.340**	**0.397**	**0.456**	**0.228**	**0.22973**	**0.18834**	**0.336**	**0.378**	**0.4087**	**0.3275 J**	**0.319**	**0.304**	**0.29**	**0.404**	**0.3790**	**0.3350**	**0.3910**	**0.3870**	**0.3830**	0.03 (1,2) *	0.3381	0.338	0	20
Radium 226	pCi/L	NA	NA	NA	NA	NA	NA	NA	3	2.3	1.9	5.1	**1.5**	1.7	1.1	4.3 J	2.2	1.6	1.2	1.6	4.4	1.7	2.6 J	0.45 FB J	4.71	2.15	1.55	1.55	5 (3) *	2.33	1.8	0	20
Radium 228	pCi/L	NA	NA	NA	NA	NA	NA	NA	<0.8 U	<1.2 U	<1. U	1.7	<2.3 U	<0.8 U	<0.8 U	0.8	1.2	<0.9 U	4	2.0	1.3	<1. U	75	1.1 J	5.09	0.57	0.54 FB	0.98 FB	5 (3) *	4.93	0.89	8	20
Thorium 230	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.9	1.8	<1.1 U	1.4	<2. U	2.4	2.6	0.5	1.9	1.6	2.6	1.9 J	3.3	3.9 FB	0.48 J	0.1	0.87	-0.57	-0.02	0.87 FB J	---	1.45	1.5	2	20
Thorium 232	pCi/L	NA	NA	NA	NA	NA	NA	NA	1	0.5	<0.4 U	1.2	<0.8 U	0.4	1.1	0.5 J	1.5	0.3	<0.4 U	0.4	1.3	<0.6 U	0.39 J	-0.16	0.58	0.35	-0.08	0.11	---	0.52	0.4	4	20

NOTES:

U = not detected at value given
B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
H = analysis exceeded method hold time
J = estimated detected value
UJ = estimated non-detect value
LB = detected in laboratory method or instrument blank
FB = detected in field blank or field rinsate blank
NA = not applicable
NC = not calculated as of this time
mg/L = milligrams per liter
umhos/cm = micromhos per centimeter
SI = standard international units
pCi/L = picocuries per liter
# = number of samples
std = standard deviation

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well 94MW2 and PW-6

WELL		94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2
Parameter	**Units**	**Oct-94**	**Mar-95**	**May-95**	**Aug-95**	**Nov-95**	**Apr-96**	**Jun-96**	**Sep-96**	**Dec-96**	**3/17/97**	**5/20/97**	**8/28/97**	**12/3/97**	**2/9/98**	**5/20/98**	**8/21/98**	**11/21/98**	**5/17/99**	**11/8/99**
Dissolved Aluminum	mg/L	<0.05 U	<0.05 U	0.016	0.97 J	<0.02 U	<0.03 U	0.01	<0.03 U	<0.05 U	<0.03 U	<0.03 U	0.98	<0.03 U	<0.03 U	<0.06 U	<0.03 U	0.07 J	0.06	0.06 J
Dissolved Antimony	mg/L	0.0068	<0.006 U	<0.003 U	**0.007**	NA	<0.003 U	<0.003 U	<0.003 U	<0.003 U	0.003 J	0.012	<0.005 U	<0.009 U	0.002	0.002	<0.002 UJ	<0.002 U	<0.003 UJ	0.004 FB
Dissolved Arsenic	mg/L	<0.005 U	<0.01 U	<0.04 U	0.011	<0.02 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	0.005
Dissolved Barium	mg/L	0.026	0.026	0.02	0.03	0.02	0.02	0.014	0.02	0.02	0.02	0.02	**0.216**	0.013	0.017	0.015	0.015	0.014	0.017	**0.28 J**
Dissolved Beryllium	mg/L	<0.005 U(3)	<0.004 U	<0.01 U(3)	0.0012	<0.001 U	<0.001 U	<0.002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U
Dissolved Cadmium	mg/L	<0.001 U	<0.005 U	0.0096	0.018 J	0.012	0.011	0.008	0.012	0.014	0.015	0.004	0.019	0.02	0.009	0.001	0.009	0.009	0.008	0.012
Dissolved Calcium	mg/L	162	176	119	125	100	113	96.5	119	100	90	92.7	109.0	93.6	101	93.6	103	106	92	94
Dissolved Chromium	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.001 U	0.014	<0.005 U	<0.005 U	<0.005 U	<0.005 UJ	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.02 UJ	0.01	<0.01 U	0.01	<0.01 U	<0.01 U	0.01 FB	<0.01 UJ
Dissolved Iron	mg/L	0.026	0.031	0.012	1.52 J	0.11	0.02	0.026	<0.01 U	<0.02 U	<0.07 U	0.83	<2.38 U	<0.02 U	0.573	0.327	0.09	0.09	0.11	0.07
Dissolved Lead	mg/L	<0.005 U	**0.069**	0.0051	0.019 J	NA	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U
Dissolved Magnesium	mg/L	51.5	54.8	35.8	40.1	35.3	38	34	40	36.7	35.2	32.9	38.5	34.2	37.2	34.1	36.4	38.3	35	36
Dissolved Manganese	mg/L	0.414 J	0.384	0.184	0.16	0.08	0.10	0.090	0.11	0.12	0.11	0.13	0.15 J	0.12	0.164	<0.14 U	0.16	0.16	0.15	0.15
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 UJ
Dissolved Molybdenum	mg/L	0.481	0.566	<0.04 U	0.05	0.02	0.03	0.019	0.05	0.03	<0.02 U	0.02	0.03	<0.02 U	0.04	<0.02 U	0.03 J	0.04	0.03 B	0.04
Dissolved Nickel	mg/L	0.047	**0.109**	0.025	0.03	0.02	0.02	0.010	0.03	0.02	0.01	0.01	0.02	0.01	0.016	0.01	<0.01 U	0.01	0.02 B	0.01
Dissolved Potassium	mg/L	13.6	11.9	9.1	10.5	8.8	9.8	9.21	11	9	9	8.5	10.5	9.1	8.8	8.68	9.4	9.4	8.9	8.5
Dissolved Selenium	mg/L	<0.002 U	0.027	0.0031	0.014	NA	0.007	<0.004 U	0.007	<0.002 U	<0.002 U	0.005	<0.005 U	<0.004 U	<0.002 U	0.002	0.003 J	0.003 J	0.01	<0.002 U
Dissolved Silicon	mg/L	5.12	11.6	5.34	7	5.5	6.2	5.34	5.6	5.6	5.8	5.6	<8.6 U	5.8	5.99	4	5.7	5.3	5.1	5.3
Dissolved Silver	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.002 U	0.01	<0.005 U	0.003	0.002	<0.005 U	**0.526**	<0.001 U	<0.2 U	<0.5 U	<0.5 U	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
Dissolved Sodium	mg/L	79.4	91.2	75.6	80.3	76.1	85.1	73.4	80.8	81.7	76.6	71.8	82.1	72.4	75.4	71.6	73.2	87.3	75	77
Dissolved Thallium	mg/L	<0.001 U	**0.003**	<0.005 U	<0.001 U	NA	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.014	<0.001 U	<0.001 U	0.002	<0.001 UJ	<0.001 U	<0.001 U	<0.001 UJ
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.04 U	<0.04 U	<0.01 U	<0.01 U	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Dissolved Zinc	mg/L	0.161	0.465	1.6	0.88 J	1.14	0.37	0.156	0.57	0.52	0.99	1.70	0.36	0.10	0.211	0.01	0.1	0.03	0.02 FB	0.23 J
Ammonia as NH_3-N	mg/L	<0.4 U	<0.4 U	<0.4 U	<0.8 U	<0.8 U	<0.4 U	<0.4 U	<0.4 U	<0.4 U	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<0.2 U	0.40	<0.2 U	<0.2 U	<0.2 UJ	0.3 J
Nitrate as NO_3-N	mg/L	0.071 J	0.069 J	0.037 J	<0.02 UJ	0.08 J	0.04 J	<0.04 U	<0.08 UJ	<0.08 U	<0.02 U	1.59	<0.08 U	<0.08 U	<0.08 U	<0.2 U	<0.2 UJ	0.1	0.1 FB	**0.8 FB**
Nitrite as NO_2-N	mg/L	NA	<0.005 UJ	<0.005 UJ	0.011 J	<0.005 UJ	0.007 J	0.009 J	0.013 J	0.014 J	<0.019 UJ	<0.005 U	<0.005 UJ	<0.005 U	<0.005 U	<0.011 U	0.01 J	0.005 J	<0.005 U	0.006 J
NO_3-N + NO_2-N	mg/L	0.085 J	0.069	0.037	<0.02 U	0.08	0.05 J	<0.04 U	<0.08 UJ	<0.08 U	<0.02 U	1.59	<0.08 U	<0.08 U	<0.08 U	<0.2 U	<0.2 UJ	0.1	0.1 FB	**0.8**
Chloride	mg/L	26	29	35.5	24	25	26	25	26	26	26	26	26	24	26	27	26	25	27	26
Fluoride	mg/L	<1. U	0.59	0.41	<0.5 U	<0.5 U	<0.5 U	0.4	<0.5 U	0.5	0.4	0.4	0.5	0.3	0.41	0.49	0.4	0.2	0.4	0.43
Sulfate	mg/L	627	589	412	420	420	358	389	382	321	381	344	322	363	384	392	320	384	337	381
pH	SI units	7.33 J	7.25 J	7.62 J	7.05 J	**6.33 J**	6.70 J	7.00 J	7.00 J	**6.30 J**	**6.50 J**	6.70 J	6.80 J	**6.40 J**	6.6 J	6.6 J	6.8 J	6.6 J	6.6	6.73 J
Conductivity	umhos/cm	1451 J	1398	1163	1155	1090	1140	1080	1120	1110	1120	1059	1077	1101	1143	1109	1120	1100	1050	1050
Hardness as $CaCO_3$	mg/L	645	616	486	481	420	413	420	410	423	408	417	395	395	404	391	407	422	374	383
TSS	mg/L	11700 J	571	2590 J	3420 J	3860 J	4420	3140	2830	2370	2240	3930	3160	1640	9800	438	3160	4270 J	2140	5160 J
TDS	mg/L	1120 J	1085	847 J	823	855 J	784	740	816	800 J	856	804	816	820	864	1060	1110	944 J	968	820
Alkalinity as $CaCO_3$	mg/L	1517	870	254	213	186	203	181	191	190	180	170	180	173	202	186	175	184	173	163
Bicarbonate, total	mg/L	1850	1060	310	259	NA	247	220	232	231	220	207	220	211	246	224	213	224	211	199
Bicarbonate, diss.	mg/L	232	211	290	242	220	243	208 J	218	214	205	203	207	197 J	219	226	209	209	128 J	198
Carbonate	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<5. U	<2. U	<3. U	<2. U	<2. U	<1. U	3	<2. U	<2. U	<1. U	<2. U
Hydroxide	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	<5. U	<2. U	<3. U	<2. U	<2. U	<1. U	3	<2. U	<2. U	<1. U	<2. U
Gross Alpha +/- error	pCi/L	248 ±14	**719 ± 48**	222 ± 43.2	110 ± 16 J	139 ± 26	173 ± 37	183 ± 43	470 ± 50	604 ± 59.3	399 ± 45.8	**888 ± 115**	106 ± 7.9 J	131 ± 8.5 J	188 ± 13	30.4 ±3.4	53 ±4.8	62±5.0 J	133 ±15.6	120 ±30
Gross Beta +/- error	pCi/L	402 ± 8	630 ± 30	247 ± 28.4	196 ± 21	104 ± 20	158 ± 32	226 ± 50	319 ± 16	328 ± 18.7	268 ± 18.6	678 ± 54.0	66 ± 4.0 J	75.0 ± 4.0	88.9 ± 6.6	39 ±2.3	60 ±3.6	50±3.4 J	185 ±12.1	75 ±21
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.14**	**0.147**	**0.111**	**0.089**	**0.0525**	**0.08417**	**0.293**	**0.193**	**0.1081**	**0.0887 J**	0.01	**0.11**
Radium ^{226} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	6.9 ± 0.7	7.9 ± 1.0	5.2 ± 0.6	5.6 ± 0.5	4.1 ± 0.4	5.9 ± 0.4	8.1 ± 0.5 J	8.9 ±0.7	5.4 ±0.5	5.0±0.6	6.2 ±0.4	14 ±1.4
Radium ^{228} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.9 ± 0.4	2.4 ± 1.1 U	1.0 ± 0.5	0.9 ± 0.3	1.7 ± 0.5 U	0.8 ± 0.4 U	0.7 ± 0.3	5.5 ±0.9	1.1 ±0.4	6±1.4	4 ±0.8	5.9 ±1.3
Thorium ^{230} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	3.9 ± 1.3	3.1 ± 0.9	2.2 ± 0.8	1.8 ± 0.5	7.5 ± 1.8	5.2 ± 1.20	4.9 ± 1.7	2.5 ±1.3	3.3 ±1.40	3.1±1.10 J	2.5 ±0.6 J	5.1 ±1.5
Thorium ^{232} +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.8 ± 0.5	0.8 ± 0.4	0.5 ± 0.3 U	0.5 ± 0.2	0.8 ± 0.4 U	0.9 ± 0.50	0.9 ± 0.4 J	0.8 ±0.4	0.9 ±0.50	0.9±0.50	0.5+/_0.2	1.7 ±0.95

Gross Alpha	pCi/L	248	**719**	222	110	139	173	183	470	604	399	**888**	106 J	131 J	188	30.4	53	62 J	133	120
Gross Beta	pCi/L	402	630	247	196	104	158	226	319	328	268	678	66 J	75	88.9	39	60	50 J	185	75
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.14**	**0.147**	**0.111**	**0.089**	**0.0525**	**0.08417**	**0.293**	**0.193**	**0.1081**	**0.0887 J**	0.01	**0.11**
Radium ^{226}	pCi/L	NA	NA	NA	NA	NA	NA	NA	6.9	7.9	5.2	5.6	4.1	5.9	8.1 J	8.9	5.4	5	6.2	14
Radium ^{228}	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.9	<2.4 U	1	0.9	<1.7 U	<0.8 U	0.7	5.5	<1.1	6	4	5.9
Thorium ^{230}	pCi/L	NA	NA	NA	NA	NA	NA	NA	3.9	3.1	2.2	1.8	7.5	5.2	4.9	2.5	3.3	3.1 J	2.5 J	5.1
Thorium ^{232}	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.8	0.8	<0.5 U	0.5	<0.8 U	0.9	0.9 J	0.8	0.9	0.9	0.5	1.7

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well 94MW2 and PW-6

WELL		94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	94MW2	PW-6	PW-6	PW-6	Calculated Max. Background Levels (1) or	Mean (4)	Median (4)	#ND	#
Parameter	Units	5/5/00	11/14/00	5/10/01	11/16/01	10/7/02	10/6/03	10/4/04	10/24/05	3/14/06	5/19/06	9/5/06	11/3/06					
Dissolved Aluminum	mg/L	0.04	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.06 B	NA	0.86 J FB	<0.03 U	<0.03 U	---	0.1155	0.0150	20	29
Dissolved Antimony	mg/L	0.0008 FB J	0.004 FB B	0.003 B FB	0.005 B	<0.002 U	0.0018	0.0008 B	0.0017 B	NA	<0.0004 U	<0.0004 U	<0.0004 U	0.007	0.0026	0.0017	15	28
Dissolved Arsenic	mg/L	0.0038	0.002 B	0.002 B FB	0.003 B	0.002 B	0.0027	0.0031	0.0033	NA	0.0005 B	0.0006 B	0.0028 B	n/a (5)	0.0039	0.0025	15	29
Dissolved Barium	mg/L	0.016 FB J	**0.299**	**0.171 FB**	**0.715**	0.015	0.015 FB	0.015	0.02 FB	NA	0.013	0.014	0.026	0.035	0.07	0.02	0	29
Dissolved Beryllium	mg/L	<0.001 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	NA	<0.0001 U	<0.0001 U	<0.0001 U	n/a	0.0007	0.0005	28	29
Dissolved Cadmium	mg/L	0.0085	0.0061	0.0098	0.0096	0.0082	0.0086	0.0104	**0.0597 J**	NA	0.0158	0.017	0.0012	0.019	0.0116	0.0096	2	29
Dissolved Calcium	mg/L	94	96.2	102	93.5	97.1	102	95.3	168	NA	123	122	117	---	110	102	0	29
Dissolved Chromium	mg/L	<0.005 U	<0.0005 U	0.0004 B FB	0.0004 B FB	<0.0001 U	0.0002 B FB	0.0001 B FB	0.0006 J	NA	0.0001 B FB	<0.0001 U	<0.0001 U	n/a	0.0023	0.0025	22	29
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	<0.01 U	<0.01 U	<0.01 U	n/a	0.006	0.005	26	29
Dissolved Iron	mg/L	0.17	0.21	0.11	0.12	0.23	0.25	0.19	0.27 J	NA	1.17 J FB	0.05	2.47	---	0.34	0.11	5	29
Dissolved Lead	mg/L	<0.0005 U	0.001 B	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	<0.0001 U	0.0005 B J	NA	0.0002 B FB	0.0002 B	<0.0001 U	0.064	0.0047	0.0025	21	28
Dissolved Magnesium	mg/L	37	35.7	37.3	35.4	34.5	36	34.4	49.9	NA	47.2	46.1	43.9	---	38.7	36.6	0	29
Dissolved Manganese	mg/L	0.16	0.155	0.178 FB	0.159	0.169	0.173	0.181	0.372	NA	0.08 J	0.008 B	0.258	1.4 (6)	0.16	0.16	1	29
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0003 B FB	<0.0002 U	NA	<0.0002 U	0.0003 B	<0.0002 U	n/a	0.0001	0.0001	27	29
Dissolved Molybdenum	mg/L	0.04	0.03 B	0.03 B	0.02 B	0.02 B	0.02 B	<0.01 U	0.09	NA	<0.02 U	0.01 B	0.03 B	---	0.06	0.03	6	29
Dissolved Nickel	mg/L	0.01	<0.01 U	0.01 B FB	0.01 B	0.01 B	0.02 B	<0.01 U	0.1	NA	<0.02 U	0.02 B	0.03 B	0.099	0.022	0.013	4	29
Dissolved Potassium	mg/L	9.2	7.7	9.0	7.7	8.5	9.4	8.9	10.1	NA	8.3	7.9	8.6	---	9.3	9.0	0	29
Dissolved Selenium	mg/L	0.002	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	NA	0.007	0.008	<0.001 U	0.027	0.004	0.002	16	28
Dissolved Silicon	mg/L	5.6	12.6	12.9 FB	12.7	12.5	12.7	12.7	16.7	NA	13.9	13.2	12.8	---	8.3	5.8	1	29
Dissolved Silver	mg/L	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.00005 U	<0.00005 U	NA	0.00009 B FB	<0.00005 U	<0.00005 U	0.010	0.03874	0.00038	24	29
Dissolved Sodium	mg/L	79	84.4	81.1 FB	79.2	71.6	76.8	76.4	79.5	NA	91.7	105	122	---	81.1	79.1	0	29
Dissolved Thallium	mg/L	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	0.00027 B	0.00041	0.0004 B	0.0008	NA	0.0002 B	0.0002 B	0.0002 B FB	0.002 *	0.0011	0.0005	19	28
Dissolved Vanadium	mg/L	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	n/a	0.005	0.005	29	29
Dissolved Zinc	mg/L	0.03 J	0.52	0.17 FB	0.33	0.03 B	0.07 FB	0.03 B	0.12	NA	0.06 FB	0.04 B	0.02 B	1.653	0.37	0.17	0	29
Ammonia as NH_3-N	mg/L	<0.2 U	<0.05 U	0.08 B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	---	0.14	0.10	27	29
Nitrate as NO_3-N	mg/L	**0.7**	0.03 FB B	<0.1 U	0.13 J FB	<0.02 U	**0.41**	<0.02 U	<0.02 U	NA	**1.54**	**0.95 J**	0.07 B	0.098	0.24	0.06	14	29
Nitrite as NO_2-N	mg/L	0.005	0.01 U J	<0.05 U	<0.01 U J	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	NA	0.01 BH FB	<0.01 UH	**0.02 B**	0.015	0.007	0.005	17	29
NO_3-N + NO_2-N	mg/L	**0.7**	0.03 FB B	<0.1 U	0.13 J FB	<0.02 UH	<0.41 UH	<0.02 UH	0.02 UH	NA	**1.55 H FB**	**0.95 HJ**	0.09 B	0.113	0.24	0.06	14	29
Chloride	mg/L	25	25	27	25	27	27	26	25	NA	23	21	29	---	26.05	26.00	0	29
Fluoride	mg/L	0.4000	0.6 FB	0.6	0.3 B FB	0.5 B	0.4 B	0.4 B	0.7	NA	0.1 B	0.3 B	0.3 B	0.679	0.40	0.40	5	29
Sulfate	mg/L	365	400	400	400	370	350	360	640	NA	370	440	380	---	400	382	0	29
pH	SI units	6.6 J	6.8 J	6.8 J	7 J	**6.5 H**	7.6 H	6.7 H	7.5 H	NA	7.8 H	7.8 H	**7.9 H**	6.50 - 7.81	6.9	6.8	0	29
Conductivity	umhos/cm	1050	1050	1060	1040	1060	1040	1030	1370	NA	1190	1280	1120	---	1131	1105	0	29
Hardness as $CaCO_3$	mg/L	387	387	408	379	385	403	380	625	NA	501	494	473	---	438	409	0	29
TSS	mg/L	3560 J	586	908	662	1380	1470	1840 H	846 J	NA	<5. U	<5. UJ	12 B J	---	2737	2305	2	29
TDS	mg/L	792	760	760	750	710	710	700 H	1030	NA	920	950	880	1180	863	822	0	29
Alkalinity as $CaCO_3$	mg/L	167	171	166	158	163	163	174	125	NA	259	253	265	---	255	181	0	29
Bicarbonate, total	mg/L	204	171	171	158	163	163	174	125	NA	259	253	265	---	300	220	0	28
Bicarbonate, diss.	mg/L	199	177	166	148	NA	NA	NA	NA	NA	NA	NA	NA	---	207	209	0	22
Carbonate	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	NA	<2. U	<2. U	<2. U	---	1	1	25	25
Hydroxide	mg/L	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	NA	<2. U	<2. U	<2. U	---	1	1	25	24
Gross Alpha +/- error	pCi/L	290 ±155	260 ±47 J	69 ±11	57.1 ±9.3	79.3 ±18	51.6 ±12	70.5 ±16	230 ±31	NA	16 ±5.6	18 ±5.8	16 ±7.2	706	calculated below			
Gross Beta +/- error	pCi/L	207 ±12.9	140 ±22 J	44 ±5.4	72.8 ±7.5	97.3 ±13	38.3 ±8.2	33.5 ±8.3	180 ±15 J	NA	17 ±4	17 ±5.0	11 ±4.8	3803	calculated below			
Uranium, total	mg/L	**0.088**	**0.077**	**0.0826**	**0.0984**	**0.0569**	**0.0601**	0.02870	**0.2670**	NA	0.0300	0.0330	0.0249	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	6.2 ±0.3	12 ±0.9 J	6.5 ±0.7 J	5.31 ±1	0.91 ±0.3	5.4 ±0.5	4.85 ±0.5	11 ±0.7	NA	NA	NA	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	2.0 ±0.5	3.5 ±1	3 ±0.5 J	4.05 ±0.7	1.94 ±1.4	3.2 ±1.4 FB	2.04 ±0.8 FB	4.7 ±0.7 J FB	NA	NA	NA	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	7.0 ±1.60 FB	3.9 ±0.65 J	3.1 ±1.1	1.87 ±0.71	1.87 ±0.6	3.54 ±0.73	0.4 ±0.98	1.4 ±0.6	NA	NA	NA	NA	---	calculated below			
Thorium 232 +/- error	pCi/L	1.6 ±0.70	0.8 ±0.31 FB J	1.8 ±0.89	0.57 ±0.51	0.89 ±0.46	0.97 ±0.46	0.71 ±0.94	0.2 ±0.4	NA	NA	NA	NA	---	calculated below			
Gross Alpha	pCi/L	290	260 J	69	57.1	79.3	51.6	70.5	230	NA	16	18	16	706	204.5	132.0	0	29
Gross Beta	pCi/L	207	140 J	44	72.8	97.3	38.3	33.5	180 J	NA	17	17	11	3803	168.4	100.7	0	29
Uranium, total	mg/L	**0.088**	**0.077**	**0.0826**	**0.0984**	**0.0569**	**0.0601**	0.02870	**0.2670**	NA	0.0300	**0.0330**	0.0249	0.03 (2) *	0.10	0.09	0	23
Radium 226	pCi/L	6.2	12 J	6.5 J	5.31	0.91	5.4	4.85	11	NA	NA	NA	NA	5 (3) *	6.8	6.1	0	20
Radium 228	pCi/L	2	3.5	3 J	4.05	1.94	3.2 FB	2.04 FB	4.7 J FB	NA	NA	NA	NA	5 (3) *	2.62	2.02	4	20
Thorium 230	pCi/L	7 FB	3.9 J	3.1	1.87	1.87	3.54	0.4	1.4	NA	NA	NA	NA	---	3.41	3.10	0	20
Thorium 232	pCi/L	1.6	0.8 FB J	1.8	0.57	0.89	0.97	0.71	0.2	NA	NA	NA	NA	---	0.84	0.80	2	20

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well 94MW4

Parameter	Units	Aug-95	Nov-95	Apr-96	Jun-96	Sep-96	Dec-96	Mar-97	May-97	Aug-97	12/3/97	4/2/98	Background Levels (1)	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	0.16	0.29	0.25	0.07	0.15	<0.05 U	0.13	0.29	0.26	0.06	0.2	-----	0.17	0.16	1	11
Dissolved Antimony	mg/L	0.013	NA	0.005	0.003	0.005	0.003	0.003 J	0.027	<0.005 U	<0.002 U	0.01	0.015	0.0073	0.0040	2	10
Dissolved Arsenic	mg/L	0.01	0.009	0.01	0.011	0.014	0.011	0.010	0.011	0.006	<0.005 U	0.005	0.0	0.0090	0.0100	1	11
Dissolved Barium	mg/L	0.01	0.01	1.3	0.014	0.018	0.02	0.02	0.02	0.026	0.015	0.043 J	1.424	0.136	0.020	0	11
Dissolved Beryllium	mg/L	<0.001 U	0.0037	<0.0005 U	<0.0002 U	<0.0002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	0.0	0.00074	0.00050	9	11
Dissolved Cadmium	mg/L	<0.001 U	<0.001 U	<0.002 U	<0.001 U	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.0005 U	<0.001 U	0.001	0.003	0.00075	0.00050	10	11
Dissolved Calcium	mg/L	7.2	4.9	7.23	6.73	6.25	9.5	6.1	5.9	10.1	6.95	6.34	-----	7.018	6.73	0	11
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	<0.002 U	<0.001 U	0.002	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.1	0.0024	0.0025	9	11
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	0.038	0.004	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	0.7	0.0088	0.0050	7	11
Dissolved Iron	mg/L	0.1	0.17	0.153	0.039	0.091	0.02	0.10	0.10	0.11	0.05	0.251	-----	0.11	0.10	0	11
Dissolved Lead	mg/L	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.008	0.0028	0.0025	9	10
Dissolved Magnesium	mg/L	2.1	1.5	2.19	1.45	1.67	3.1	1.8	1.5	2.8	1.6	1.45	-----	1.92	1.67	0	11
Dissolved Manganese	mg/L	<0.01 U	<0.01 U	<0.005 U	0.002	0.003	<0.01 U	<0.01 U	<0.01 U	0.02	0.24	<0.21 U	0.03	0.05	0.0050	7	11
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	0.0	0.00011	0.00010	10	11
Dissolved Molybdenum	mg/L	<0.04 U	0.02	0.02	0.015	0.016	<0.02 U	<0.02 U	<0.02 U	0.02	0.02	0.029	-----	0.017	0.020	4	11
Dissolved Nickel	mg/L	<0.01 U	<0.01 U	0.005	0.002	0.004	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.050	0.0051	0.0050	7	11
Dissolved Potassium	mg/L	2.3	2	2.28	2.05	2.0	2	2	2.0	5.5	2.6	2.09 J	-----	2.44	2.05	0	11
Dissolved Selenium	mg/L	0.002	NA	<0.002 U	<0.004 U	0.002	0.003	0.003	0.003	<0.005 U	<0.004 U	0.002	0.025	0.0023	0.0020	4	10
Dissolved Silicon	mg/L	4.2	1	4.5	4.46	4.65	3.9	4.2	4.4	6.4	5.7	4.79	-----	4.38	4.46	0	11
Dissolved Silver	mg/L	<0.002 U	<0.002 U	<0.002 U	<0.002 U	0.006	<0.005 U	<0.001 U	<0.001 U	0.9	<0.5 U	0.0005	0.050	0.106	0.0010	8	11
Dissolved Sodium	mg/L	216	212	210	228	228	238	219	222	182	182	213	-----	213.64	216.00	0	11
Dissolved Thallium	mg/L	<0.001 U	NA	<0.001 U	<0.001 U	<0.001 U	<0.001 U	**0.002**	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	0.001	0.00070	0.00050	9	10
Dissolved Vanadium	mg/L	<0.04 U	<0.01 U	0.008	0.008	0.006	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	n/a	0.0075	0.0050	7	11
Dissolved Zinc	mg/L	<0.05 U	0.11	0.094	0.113	0.07	0.17	0.07	0.07	0.03	<0.01 U	0.01	2.500	0.070	0.070	2	11
Ammonia as NH_3-N	mg/L	<0.8 U	<0.8 U	<0.7 U	<0.4 U	<0.7 U	0.4	0.4	<0.4 U	0.4	0.3	0.6	-----	0.36	0.40	6	11
Nitrate as NO_3-N	mg/L	<0.2 UJ	<1. UJ	0.06 J	1.19	1.0 J	0.74	1.35	0.68	0.69	<0.08 U	0.1	5.000	0.59	0.68	3	11
Nitrite as NO_2-N	mg/L	1.65	2.6 J	1.3 J	1.2 J	1.24 J	0.98 J	0.6 J	1.2 J	<0.025 U	0.008	<0.01 UJ	2.770	0.98	1.20	2	11
NO_3-N + NO_2-N	mg/L	1.28	2.02	1.34 J	2.41	2.20 J	1.72	1.94 J	1.91	0.69	<0.08 U	0.1	7.770	1.42	1.72	1	11
Chloride	mg/L	16	29	28	29	30	30	30	30	74	68	70.8	-----	39.53	30.00	0	11
Fluoride	mg/L	2.8	2.50	1.3	2.8	3.8	3.1	2.9	2.6	0.5	0.8	1.42	4.440	2.23	2.60	0	11
Sulfate	mg/L	286	282	275	137	240	224	245	243	56	57	68	-----	192	240	0	11
pH	SI units	8.64 J	7.46 J	8.50 J	8.80 J	8.70 J	8.20 J	8.23 J	8.00 J	8.3 J	7.80 J	8.0 J	6.50 - 9.52	8	8.2	0	11
Conductivity	umhos/cm	1132	1120	1120	1110	1180	1130	1080	1123	867.8	924.7	1103	-----	1081	1120	0	11
Hardness as $CaCO_3$	mg/L	26	20	31	235	23	33	24	23	34	23	21	-----	45	24	0	11
TSS	mg/L	1410	1900 J	1120	664	1540	844	1930	1790	3720	192	6030	-----	1922	1540	0	11
TDS	mg/L	734	826 J	820	470 J	810	856 J	890 J	776	1280	612	1080	1032	832	820	0	11
Alkalinity as $CaCO_3$	mg/L	561	411	363	306	396	319	386	421	390	324	1210	-----	462	390	0	11
Bicarbonate, total	mg/L	NA	NA	424	356	471	370	471	496	368	395	475	-----	425	424	0	9
Bicarbonate, diss.	mg/L	263	264	262	270	262	261	274	264	313	378 J	1460	-----	388	264	0	11
Carbonate	mg/L	NA	NA	<1. U	NA	NA	10	<1. U	8	53	<2. U	6	-----	11.29	6.00	3	7
Hydroxide	mg/L	NA	NA	<1. U	NA	NA	<5. U	<1. U	<3. U	<3. U	<2. U	5	---	1.79	1.50	6	7
Gross Alpha +/- error	pCi/L	26 ± 8	56 ± 20	46 ± 16	35 ± 12	140 ± 18	74 ± 10.5	70 ± 11.0	150 ± 18.8	98 ± 14.9	13.6 ± 3.7 J	5 +/-3.2	153		calculated below		
Gross Beta +/- error	pCi/L	68 ± 15	74 ± 19	62 ± 15	34 ± 12	64 ± 7	60 ± 4.7	57 ± 5.1	117 ± 10.6	100 ± 7.5	14.9 ± 2.9	14.5 +/-2.4	90		calculated below		
Uranium, total	mg/L	NA	NA	NA	NA	0.007	0.011	0.007	0.008	0.0088	0.00338	0.011	0.03		calculated below		
Radium ^{226} +/- error	pCi/L	NA	NA	NA	NA	3.3 ± 0.5	0.4 ± 0.3	3.0 ± 0.4	2.3 ± 0.3	3.6 ± 0.3	1.9 ± 0.2	3.2 +/-0.3	5 (3)		calculated below		
Radium ^{228} +/- error	pCi/L	NA	NA	NA	NA	1.7 ± 0.4	1.2 ± 0.5 U	1.3 ± 0.4 U	0.6 ± 0.3 U	4.2 ± 0.6	1.1 ± 0.4	2.3 +/-0.4	5 (3)		calculated below		
Thorium ^{230} +/- error	pCi/L	NA	NA	NA	NA	1.5 ± 0.7	2.0 ± 0.8	0.9 ± 0.5 U	1.1 ± 0.4	2.9 ± 1.2	1.7 ± 0.70	1.7 +/-0.8	---		calculated below		
Thorium ^{232} +/- error	pCi/L	NA	NA	NA	NA	0.8 ± 0.4	0.6 ± 0.3	0.2 ± 0.2 U	0.6 ± 0.2	1.2 ± 0.7	0.5 ± 0.40	0.8 +/-0.5	---		calculated below		
Gross Alpha	pCi/L	26	56	46	35	140	74	70	150	98	13.6 J	5	153	70.86	63.00	0	11
Gross Beta	pCi/L	68	74	62	34	64	60	57	117	100	14.9	14.5	90	65.09	63.00	0	11
Uranium, total	mg/L	NA	NA	NA	NA	0.007	0.011	0.007	0.008	0.0088	0.00338	0.011	0.03	0.0080	0.008	0	7
Radium ^{226}	pCi/L	NA	NA	NA	NA	3.3	0.4	3	2.3	3.6	1.9	3.2	5 (3)	2.42	2.65	0	7
Radium ^{228}	pCi/L	NA	NA	NA	NA	1.7	<1.2 U	<1.3 U	<0.6 U	4.2	1.1	2.3	5 (3)	1.43	0.88	3	7
Thorium ^{230}	pCi/L	NA	NA	NA	NA	1.5	2	<0.9 U	1.1	2.9	1.7	1.7	---	1.61	1.60	1	7
Thorium ^{232}	pCi/L	NA	NA	NA	NA	0.8	0.6	<0.2 U	0.6	1.2	0.5	0.8	---	0.63	0.60	1	7

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded,** boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

groundwater standard has not been established

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.

(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.

(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.

(4) Mean and median statistics calculated using ½ detection limit for non-detected values

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well 94MW6

Parameter	Units	Oct-94	Mar-94	May-95	Aug-95	Nov-95	Apr-96	Jun-96	Sep-96	Dec-96	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	<0.05 U	<0.05 U	0.015	0.02	0.05	<0.15 U	0.1	<0.04 U	<0.05 U	---	0.04	0.03	4	9
Dissolved Antimony	mg/L	<0.002 U	<0.005 U	<0.003 U	<0.003 U	NA	<0.003 U	<0.003 U	0.005	<0.003 U	0.006	0.00	0.0015	6	8
Dissolved Arsenic	mg/L	<0.005 U	<0.01 U	0.016	<0.005 U	<0.02 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.01 (5)	0.01	0.0025	7	9
Dissolved Barium	mg/L	0.068	0.04	0.046	0.04	0.02	<0.05 U	0.019	0.022	0.02	2.0	0.03	0.01	1	9
Dissolved Beryllium	mg/L	<0.005 U(3)	<0.004 U	<0.01 U(3)	<0.001 U	<0.001 U	<0.005 U	<0.002 U	<0.0002 U	<0.001 U	0.004	0.00	0.0005	8	9
Dissolved Cadmium	mg/L	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.005 U	<0.025 U(3)	<0.001 U	0.001	<0.005 U	0.005	0.00	0.01	7	9
Dissolved Calcium	mg/L	27.9	40.5	28.2	42	43.4	54.3	41.7	52.6	61.7	---	43.59	460	0	9
Dissolved Chromium	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.025 U	<0.001 U	0.026	<0.005 U	0.1	0.01	0.005	7	9
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.05 U	0.011	0.002	<0.01 U	1.3	0.01	0.005	6	9
Dissolved Iron	mg/L	0.021	0.038	0.024	0.24	0.14	0.19	0.238	0.229	0.19	---	0.15	0.64	0	9
Dissolved Lead	mg/L	<0.005 U	0.0037	<0.005 U	<0.005 U	NA	<0.005 U	<0.02 U	<0.005 U	<0.005 U	0.015	0.00	0.0025	6	8
Dissolved Magnesium	mg/L	17.4	23.1	18.3	23.6	23.7	27.6	22.6	25.7	37.6	---	24.40	215.0	0.00	9
Dissolved Manganese	mg/L	0.016 J	0.034	0.095	0.02	0.02	<0.05 U	0.01	0.02	0.01	0.05 (6)	0.03	1.75	1	9
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.002	0.00	0.0001	7	9
Dissolved Molybdenum	mg/L	<0.01 U	0.018	<0.04 U	<0.04 U	<0.01 U	<0.1 U	<0.005 U	<0.005 U	<0.02 U	---	0.01	0.01	7	9
Dissolved Nickel	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.05 U	0.002	<0.002 U	<0.01 U	---	0.01	0.030	7	9
Dissolved Potassium	mg/L	12	11.8	9.4	11.9	10.8	11.3	11.6	6.9	12	---	10.86	20.1	0	9
Dissolved Selenium	mg/L	<0.002 U	0.017	<0.002 U	0.006	NA	0.004	<0.004 U	0.007	<0.002 U	0.05	0.00	0.002	3	8
Dissolved Silicon	mg/L	7.78	10.9	5.43	5.2	5.3	4.9	5.21	4.23	4.3	---	5.92	5.3	0	9
Dissolved Silver	mg/L	<0.005 U	<0.01 U	<0.01 U	<0.002 U	<0.005 U	<0.025 U	<0.002 U	<0.001 U	<0.005 U	0.1	0.00	0.0008	8	9
Dissolved Sodium	mg/L	938	1250	1010	1220	1210	1290	1180	1360	1390	---	1205.33	149	0	9
Dissolved Thallium	mg/L	<0.001 U	<0.002 U	<0.005 U	<0.001 U	NA	<0.001 U	<0.001 U	0.01 U	0.008	0.002	0.00	0.0005	5	8
Dissolved Vanadium	mg/L	0.01	<0.01 U	<0.04 U	<0.04 U	<0.01 U	<0.05 U	<0.002 U	0.003	<0.01 U	n/a	0.01	0.005	7	9
Dissolved Zinc	mg/L	0.011	0.014	0.012	<0.05 U	0.03	<0.05 U	0.014	0.028	0.01	5.0	0.02	0.52	2	9
Ammonia as NH_3-N	mg/L	0.69	0.9	0.69	0.7	0.8	0.8	0.8	1.3	1.3	---	0.89	0.4	0	9
Nitrate as NO_3-N	mg/L	0.03 J	0.438 J	0.028 J	<0.02 UJ	0.06 J	0.07 J	<0.4 U	0.41 J J	<0.08 U	10.0	0.11	0.1	3	8
Nitrite as NO_2-N	mg/L	NA	0.011 J	<0.005 UJ	<0.005 UJ	0.005 J	<0.005 UJ	<0.005 UJ	<0.005 UJ	<0.005 UJ	1.0	0.00	0.005	6	8
NO_3-N + NO_2-N	mg/L	0.036 J	0.449	0.028	<0.02 U	0.06	0.07 J	<0.4 U	0.41 J	<0.08 U	10.0	0.14	0.100	3	9
Chloride	mg/L	118	127	142	113	116	110	225	116	113	---	131.11	112.0	0	9
Fluoride	mg/L	1.82	0.92	0.86	0.9	0.9	0.9	0.9	1.2	0.9	4.0	1.03	0.55	0	9
Sulfate	mg/L	1010	1510 J	1150	1280	1310	1340	1300	1490	1680	---	1341.11	1890	0.00	9
pH	SI units	8.12 J	8.39 J	8.21 J	7.52 J	7.75 J	7.20 J	7.50 J	7.30 J	7.20 J	6.5 - 8.5	7.69	6.8	0	9
Conductivity	umhos/cm	450 J	5260	4510	5090	5050	5240	5160	5670	5470	---	4655.56	3630	0	9
Hardness as $CaCO_3$	mg/L	145	180 J	158	200	197	235	150	275	282	---	202.44	2130	0	9
TSS	mg/L	10600 J	2240	2240	156	516 J	662	302	301	142	---	1906.56	1330	0	9
TDS	mg/L	6910 J	3930	3240 J	3560	3460 J	3700	3740 J	3860	4090 J	10000	4054.44	3450	0	9
Alkalinity as $CaCO_3$	mg/L	10200	1846 J	1920	1530	1500	1610	1560	1470	1500	---	2570.67	497	0	9
Bicarbonate, total	mg/L	12450	2250	2340	1870	NA	1960	1900	1800	1720	---	3286.25	604	0	8
Bicarbonate, diss.	mg/L	NA	1590	914	NA	1720	1790	1440	1610	1700	---	1537.71	552	0	7
Carbonate	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	53	---	11.00	1	3	5
Hydroxide	mg/L	<1. U	<1. U	<1. U	NA	NA	<1. U	NA	NA	2 U	---	0.80	1	3	5
Gross Alpha +/- error	pCi/L	248 ± 41	76.6 ± 41	223 ± 66.7	2.6 ± 7.7	23 ± 23	2 ± 25	221 ± 43	63 ± 26	35 ± 21.8 U(3)	15 pCi/L		calculated below		
Gross Beta +/- error	pCi/L	122 ± 12	228 ± 44.7	168 ± 43.3	25 ± 23	12 ± 25	54 ± 29	133 ± 46	19 ± 11 U(3)	44 ± 10.5	8 pCi/L (2)		calculated below		
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	0.002	0.003	0.03		calculated below		
Radium 226 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.5 ± 0.3 U	1.0 ± 0.3	5 (3)		calculated below		
Radium 228 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.9 ± 0.4	1.2 ± 0.5 U	5 (3)		calculated below		
Thorium 230 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	1.0 ± 0.7	0.8 ± 0.6	n/a		calculated below		
Thorium 232 +/- error	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.4 ± 0.3	0.6 ± 0.4	n/a		calculated below		
Gross Alpha	pCi/L	248	76.6	223	2.6	23	2	221	63	<35. U(3)	15 pCi/L	97.4	63	1	9
Gross Beta	pCi/L	122	228	168	25	12	54	133	<19. U(3)	44	8 pCi/L (4)	88.4	54	1	9
Uranium, total	mg/L	NA	NA	NA	NA	NA	NA	NA	0.002	0.003	0.03 (2) *	0.00	0.00	0	2
Radium 226	pCi/L	NA	NA	NA	NA	NA	NA	NA	<0.5 U	1	5 (3)	0.6	0.625	1	2
Radium 228	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.9	<1.2 U	5 (3)	0.8	0.75	1	2
Thorium 230	pCi/L	NA	NA	NA	NA	NA	NA	NA	1	0.8	n/a	0.9	0.9	0	2
Thorium 232	pCi/L	NA	NA	NA	NA	NA	NA	NA	0.4	0.6	n/a	0.5	0.5	0	2

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW96-7A

Parameter	Units	9/25/96	Dec-96	3/11/97	5/20/97	6/30/97	8/27/97	11/19/97	12/2/97	2/10/98	5/19/98	8/20/98	11/20/98	5/19/99	11/10/99	5/7/00	11/15/00	5/9/01	11/14/01	10/9/02	10/8/03	10/6/04	10/24/05	3/16/06	5/19/06	9/5/06	11/2/06	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	0.05	<0.05 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.14	<0.03 U	<0.03 U	<0.13 U	0.06	<0.11 U	0.12	0.11 J	0.08	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03	<0.03 U	<0.03 U	0.03 BJ FB	0.15 B	<0.03 U	---	0.04	0.02	18	26
Dissolved Antimony	mg/L	<0.003 U	<0.003 U	0.002 J	0.016	<0.002 U	<0.005 U	0.002	<0.004 U	<0.002 U	0.002	0.004 J	<0.002 U	<0.003 UJ	0.004 FB	0.0024 FB J	0.003 FB B	0.002 B FB	<0.002 U	0.003 B	<0.0002 U	<0.0002 U	0.0006 B	0.0009 B	<0.0008 U	<0.0004 U	<0.0004 U	0.006	0.0022	0.0015	14	26
Dissolved Arsenic	mg/L	<0.005 U	<0.005 U	**0.012**	**0.008**	0.005	<0.011 U	**0.006**	<0.005 U	**0.01**	**0.007**	0.005	**0.008**	**0.006**	<0.005 U	0.0051	0.002 B	0.002 B FB	0.003 B	0.003 B	0.0036	0.0028 B	0.0014 B	0.0019 B	<0.001 U	0.0016 B	0.0026 B	0.01 (5)	0.0043	0.0030	6	26
Dissolved Barium	mg/L	0.047	0.04	0.02	0.02	0.020	0.015	0.030	0.030	0.014	0.012 J	0.014	0.013	0.013	0.26 J	0.45 J	0.724	0.325 FB	0.011 FB	0.01	0.009 B FB	0.01 B	0.015 FB	0.436	0.012	0.007 B	0.009 B FB	2.0	0.0987	0.0150	0	26
Dissolved Beryllium	mg/L	<0.0002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0002 U	<0.0001 U	<0.0001 U	0.004	0.0003	0.0005	25	26
Dissolved Cadmium	mg/L	<0.001 U	<0.005 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0046 J	<0.0001 U	0.001	0.0005	<0.0001 U	0.005	0.0006	0.0005	22	26
Dissolved Calcium	mg/L	188	220	210	204	202	218	210	197	223	204	213	233	210	220	210	211	225	207	206	227	209	337	270	299	300	295	---	228.77	212.00	0	26
Dissolved Chromium	mg/L	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 UJ	0.006	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.0008 B	0.0005 B FB	0.0003 B FB	0.0002 FB	0.0001 B FB	0.0001 B FB	0.0025 J	0.0003 B FB	0.0002 B FB	<0.0001 U	0.0014 FB	0.1	0.0020	0.0025	13	26
Dissolved Copper	mg/L	0.01	<0.01 U	<0.01 U	<0.01 U	<0.005 U	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	0.01 FB	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.02 B J	<0.01 U	<0.01 U	<0.01 U	<0.01 U	1.3	0.0061	0.0050	22	26
Dissolved Iron	mg/L	0.049	0.07	4.29	2.70	4.10	<4.25 UJ	3.39	1.66	3.58	3.26	2.28	2.55	2.8	2.7	2.4	3.55	0.26	2.32	2.17	2.05	1.89	0.56 J	2.03	2.70 J	1.37	3.88	---	2.34	2.36	1	26
Dissolved Lead	mg/L	0.009	<0.005 U	0.01	<0.005 U	<0.005 U	<0.005 UJ	0.010	<0.005 U	<0.005 U	0.005	<0.005 UJ	0.006	<0.005 U	<0.005 U	<0.0005 U	0.002 B	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	<0.0001 U	0.0015 J	<0.0001 U	0.0009 B FB	0.0005 B	<0.0001 U	0.015	0.0027	0.0025	17	26
Dissolved Magnesium	mg/L	65.9	75.0	75.1	71.5	73.2	76.1	73.7	77.0	78.7	72.5	75.4	86.9	74	76	77	77.1	80.4	76.2	69.7	77.6	73.0	116	96.2	110	97.3	102	---	80.90	76.15	0	26
Dissolved Manganese	mg/L	**0.268**	**0.55**	**0.440**	**0.350**	**0.401**	**0.350 J**	**0.310**	**0.480**	**0.328**	**<0.3 U**	**0.32**	**0.32**	**0.27**	**0.28**	**0.27**	**0.312**	**0.281 FB**	**0.257**	**0.240**	**0.259**	**0.247**	**0.572**	**0.348**	**0.362 J**	**0.362**	**0.391**	0.05 (6)	0.34	0.32	1	26
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0028	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0003 U	<0.0002 U	<0.0002 U	<0.0002 UJ	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0006 B	0.0002 B FB	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.002	0.0002	0.0001	22	26
Dissolved Molybdenum	mg/L	0.026	0.04	0.04	0.04	0.03	0.04	0.03	0.02	0.042	<0.05 U	0.03 J	0.05	0.04 B	0.04	0.03	0.03 B	0.02 B	0.02 B	0.02 B	0.03 B	0.02 B	<0.01 U	0.04 B	0.02 B	0.01 B	<0.01 U	---	0.0286	0.0300	3	26
Dissolved Nickel	mg/L	0.009	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.03 B	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.02 B	<0.01 U	<0.01 U	<0.01 U	<0.01 U	---	0.0071	0.0050	21	26
Dissolved Potassium	mg/L	11.7	12	12	11.3	11.7	11.7	11.8	12.9	12	11.2	11	12.2	12	11	11	9.8	12.2	11.5	12.6	12.0	11.8	13.9	12.4	15.2	13.0	13.7	---	12.06	12.00	0	26
Dissolved Selenium	mg/L	0.012	<0.01 U	0.006	0.008	<0.002 U	<0.005 U	0.002	<0.004 U	<0.002 U	0.002	0.004 J	0.003 J	<0.002 U	0.006	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.05	0.0024	0.0010	17	26
Dissolved Silicon	mg/L	5.14	5.0	4.6	4.3	4.3	<4.6 U	5.4	4.1	4.6	2.9	4.1	4.0	3.5	3.8	4.2	9.4	9.6 FB	9.7	9.1	9.6	9.5	11.2	10.6	10.4	10.4	6.7	---	6.48	5.07	1	26
Dissolved Silver	mg/L	0.005	<0.005 U	<0.001 U	<0.001 U	<0.5 U	<0.2 U	0.5	<0.5 U	<0.5 U	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0003 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	0.0002 B FB	<0.00005 U	<0.00005 U	0.1	0.052	0.000	22	26
Dissolved Sodium	mg/L	228	69.2	60.5	60.6	60.7	58.5	58.8	77.6	60.8	58.5	58.4	61.5	61	62	64 FB	67.7	65.2 FB	59.1	61.3	54.8	58.6	62.2	79.7	81.9	81.1	79	---	71.18	61.40	0	26
Dissolved Thallium	mg/L	0.005	<0.001 U	0.004	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.002 U	<0.002 U	<0.001 U	<0.001 U	<0.001 UJ	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	0.00006 B	<0.0001 U	0.0001 B	<0.0001 U	<0.0002 U	<0.0001 U	0.0002 B FB	0.002	0.0007	0.0005	21	26
Dissolved Vanadium	mg/L	<0.002 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	n/a	0.0040	0.0050	25	26
Dissolved Zinc	mg/L	2.06	0.13	0.70	0.58	2.31	0.22	0.19	<0.01 U	<0.01 U	<0.01 UJ	0.17	<0.01 U	0.01 FB	0.22 J	0.19	0.44	0.11 FB	<0.01 U	0.02 B	0.03 B FB	0.01 B	0.14	0.22	2.93 B	0.11	0.54	5.0	0.44	0.16	5	26
Ammonia as NH_3-N	mg/L	<0.5 U	0.2	0.3	0.2	0.8	0.3	0.4	0.5	<0.4 U	<0.4 U	0.3	0.2	0.2 J	0.3 J	0.2	0.23 B	0.22 B	0.22 B	0.17 B	0.20 B	0.24 B	0.13 B	0.28 B	0.41 B	0.23 B FB	1.37	---	0.32	0.23	3	26
Nitrate as NO_3-N	mg/L	0.10 J	<0.8 U	<0.12 U	<0.64 U	0.2	<0.08 U	<0.08 U	<0.25 U	<0.08 U	<0.2 U	<0.1 UJ	0.1	0.1 FB	0.2 FB	0.5	0.47	<0.5 U	0.06 J B FB	<0.02 U	<0.02 U	<0.02 U	<0.02 U	0.05 B FB	0.03 B FB	0.06 B FBJ	<0.02 U	10.0	0.13	0.06	15	26
Nitrite as NO_2-N	mg/L	0.025 J	0.007	<0.006 UJ	<0.005 U	<0.005 UJ	<0.005 UJ	0.028	0.009 J	<0.005 U	<0.011 U	0.019 J	<0.005 UJ	<0.005 U	<0.005 UJ	0.006	<0.01 U J	<0.05 U J	<0.01 U J	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	0.02 BH FB	<0.01 UH	0.02 BH	1.0	0.0087	0.0050	18	26
NO_3-N + NO_2-N	mg/L	0.13 J	<0.8 U	<0.13 UJ	<0.64 U	0.2	<0.08 U	<0.08 U	<0.26 U	<0.08 U	<0.3 U	<0.1 UJ	0.1	0.1 FB	0.2	0.5	0.47	<0.5 U	0.06 J B FB	<0.02 UH	<0.02 UH	<0.02 UH	<0.02 UH	0.05 BH FB	0.05 BH FB	0.06 BH FB	<0.02 UH	10.0	0.13	0.06	15	26
Chloride	mg/L	19	20	18	18	19	19	18	18	18.9	20	18	17	19	19	17	20	19	17	19	19	17	26	20	22	21	21	---	19.19	19.00	0	26
Fluoride	mg/L	0.4	0.4	0.4	0.3	0.6	0.5	0.3	0.3	0.34	0.4	0.4	0.4	0.4	0.41	0.4	0.7 FB	0.6	0.3 B FB	0.4 B	0.4	0.4 B	0.3 B	0.4	0.2 B	0.3 B	0.3 B	4.0	0.39	0.40	0	26
Sulfate	mg/L	619	610	606	612	601	616	647	687	629	647	557	575	643	587	621	650	650	640	620	610	610	970	790	850	860	840	---	667.19	625.00	0	26
pH	SI units	6.80 J	6.50 J	6.58 J	6.70 J	7.00 J	6.90 J	6.90 J	6.90 J	6.8 J	6.8 J	7.1 J	6.8 J	6.9	6.95 J	6.9 J	7.2 J	7.4 J	7.2 J	7.2 H	7.9 H	7.2 H	7.6 H	7.8 H	7.8 H	7.8 H	7.7 H	6.5 - 8.5	7.13	6.98	0	26
Conductivity	umhos/cm	1740	1750	1790	1707	1666	1758	1727	1784	1716	1732	1740	1690	1600	1560	1590	1610	1610	1640	1670	1580	1660	2150	1840	1960	2010	1620	---	1727	1712	0	26
Hardness as $CaCO_3$	mg/L	850	938	930	933	907	910	912	899	895	808	842	940	829	862	841	844	893	831	801	886	823	1320	1070	1200	1150	1160	---	934	897	0	26
TSS	mg/L	482	202	514	81	1540	223	70	4090	207	116	134	72 J	51	20 J	31 J	136	80	14	20	10 B J	12 B	168 J	360 J	288	864 J	1860 J	---	448	135	0	26
TDS	mg/L	1430	1390 J	1350 J	1380	1410	1360	1610 J	1400	1340	1370	1450	1320 J	1340	1320	1260	1300	1270	1270 J	1260	1210	660	1820	1520	1800	1720	1670	10000	1393	1365	0	26
Alkalinity as $CaCO_3$	mg/L	389	407	402	370	432	382	377	474	369	382	359	376	373	365	362	360	379	322	366	350	352	433	399	417	408	361	---	383	377	0	26
Bicarbonate, total	mg/L	474	496	489	451	527	465	460	578	450	400	438	458	455	445	441	360	379	322	366	350	352	433	399	417	408	361	---	430	440	0	26
Bicarbonate, diss.	mg/L	445	443	452	449	458	453	338	308 J	454	466	421	446 J	264 J	423	442	394	375	326	NA	NA	NA	NA	NA	NA	NA	NA	---	409	443	0	18
Carbonate	mg/L	<1. U	<2. U	<1. U	<2. U	<3. U	<2. U	<2. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	0.94	1.00	25	26
Hydroxide	mg/L	<1. U	<2. U	<1. U	<2. U	<3. U	<2. U	<2. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	0.94	1.00	25	25
Gross Alpha +/- error	pCi/L	**119 ± 13.3**	**37 ± 8.3**	**66 ± 12.0**	**36 ± 7.8**	**179 ± 22.5 J**	**159 ± 16.0 J**	13.3 ± 6.0 J	**54.0 ± 10.0 J**	**203 ± 15.5**	**19 ±4.7**	**12 ±4.0**	8±3.5 J	**17 ±4.8**	**17 ±11**	**22.0 ±11.1**	12 ±8.4 J	**42 ±11**	9.12 ±4.8 FB	14.1 ±6.9	14 ±7.4	**15.7 ±7.8**	**50 ±15**	**36 ±14**	**24 ±12**	**37 ±12**	**110 ±33**	15 pCi/L	calculated below			
Gross Beta +/- error	pCi/L	**75.3 ± 5.2**	**27 ± 3.4**	**52 ± 5.6**	**28 ± 4.1**	**93 ± 9.6 J**	**97 ± 6.1 J**	**17.6 ± 4.2 J**	**28.2 ± 6.0**	**49.5 ± 6.9**	**42.3 ±4**	**26 ±4.2**	8±4.2 J	**23 ±3.7**	5.5 ±9.6	**26.7 ±4.2 FB**	**20 ±6.7 J**	**19 ±6.3**	**19.7 ±5.6 FB**	**19.3 ±6.2**	**12.9 ±5.5**	**14.7 ±6 FB**	**36 ±10 J FB**	**39 ±9.5**	**44 ±9.7**	**53 ±11**	**120 ±22**	8 pCi/L (6)	calculated below			
Uranium, total	mg/L	0.021	0.019	0.018	0.016	0.0068	0.0044	0.00704	0.011107	0.013	0.012	0.0114	0.0126 J	0.011	0.017 FB	0.011	0.017	0.0111	0.0103	0.0111	0.0101	0.01030	0.0154	0.0135	0.0087	0.0076	0.009	0.03 (2) *	calculated below			
Radium ^{226} +/- error	pCi/L	**5.9 ± 1.1**	**3.3 ± 0.5**	8.5 ± 0.6	3.4 ± 0.4	8.3 ± 0.7	**2.3 ± 0.3**	1.2 ± 0.2 J	4.7 ± 0.4	5.2 ± 0.4	2.8 ±0.3	2.5 ±0.4	2.7±0.4	2.4 ±0.3	0.66 ±0.4	2.8 ±0.2	2.5 ±0.4 J	2.2 ±0.5 FB J	1.93 ±0.9	1.96 ±0.3	2.84 ±0.4	2.76 ±0.3	3.9 ±0.4	2.7 ±0.27	NA	NA	NA	5 (3) *	calculated below			
Radium ^{228} +/- error	pCi/L	**6.5 ± 2.0**	**2 ± 0.6**	4.3 ± 0.5 U	3.4 ± 0.4	4.9 ± 0.7	**2.1 ± 0.5 U**	0.8 ± 0.3 U	1.5 ± 0.4	1.7 ± 0.4	1.5 ±0.4	1.5 ±0.4	2.7±1.2 U	3 ±0.7	2.4 ±1.2	2 ±0.5	1.5 ±0.6	1.7 ±0.6 J	1.26 ±0.7	1.19 ±1.2	1.92 ±0.7 FB	2.82 ±0.9 FB	4 ±0.7 J FB	1.3 ±0.58	NA	NA	NA	5 (3) *	calculated below			
Thorium ^{230} +/- error	pCi/L	3.0 ± 1.2	2.1 ± 0.9	3.2 ± 1.1	1.2 ± 0.5	NA	3.1 ± 1.0 U	1.2 ± 1.30 U	3.6 ± 0.90	1.2 ± 0.8	0.1 ±0.7	0.4 ±0.60	1.9±0.90	2.8 ±0.70 J	0.25 ±0.42 U	5 ±2.70 FB	0.1 ±0.07 U J	-0.2 ±0.45	-0.62 ±2.2	-0.21 ±0.57	0.05 ±0.36	0.79 ±1.7	0.19 ±0.42	0.2 ±0.43	NA	NA	NA	n/a	calculated below			
Thorium ^{232} +/- error	pCi/L	1.1 ± 0.6	0.3 ± 0.2 U	0.4 ± 0.3 U	0.5 ± 0.3	NA	0.8 ± 0.5 U	0.6 ± 0.50 U	1.0 ± 0.50	0.2 ± 0.2	0.6 ±0.3	0.7 ±0.40	0.4±0.30	0.3 ±0.20 U	1 ±0.66 U	1.4 ±1.10 U	0.0 ±0 U J	-0.03 ±0.42	0.48 ±2.1	-0.04 ±0.53	0.05 ±0.32	-0.77 ±1.2	0.03 ±0.35	0.7 ±0.46	NA	NA	NA	n/a	calculated below			

Gross Alpha	pCi/L	**119**	**37**	**66**	**36**	**179 J**	**159 J**	13.3 J	**54 J**	**203**	**19**	**12**	8 J	**17**	**17**	**22**	12 J	**42**	9.12 FB	14.1	14	**15.7**	**50**	**36**	**24**	**37**	**110**	15 pCi/L	50.97	30.00	0	26
Gross Beta	pCi/L	**75.3**	**27**	**52**	**28**	**93 J**	**97 J**	**17.6 J**	**28.2**	**49.5**	**42.3**	**26**	8 J	**23**	5.5	**26.7 FB**	**20 J**	**19**	**19.7 FB**	**19.3**	**12.9**	**14.7 FB**	**36 J FB**	**39**	**44**	**53**	**120**	8 pCi/L (6)	38.33	27.50	0	26
Uranium, total	mg/L	0.021	0.019	0.018	0.016	0.0068	0.0044	0.00704	0.01110^7	0.013	0.012	0.0114	0.0126 J	0.011	0.017 FB	0.011	0.017	0.0111	0.0103	0.0111	0.0101	0.01030	0.0154	0.0135	0.0087	0.0076	0.009	0.03 (2) *	0.012	0.011	0	25
Radium ^{226}	pCi/L	5.9	3.3	8.5	3.4	8.3	2.3	1.2 J	4.7	5.2	2.8	2.5	2.7	2.4	0.66	2.8	2.5 J	2.2 FB J	1.93	1.96	2.84	2.76	3.9	2.7	NA	NA	NA	5 (3) *	3.37	2.76	0	23
Radium ^{228}	pCi/L	6.5	2.0	<4.3 U	3.4	4.9	<2.1 U	<0.8 U	1.5	1.7	1.5	1.5	<2.7 U	3	2.4	2	1.5	1.7 J	1.26	1.19	1.92 FB	2.82 FB	4 J FB	1.3	NA	NA	NA	5 (3) *	2.22	1.70	4	23
Thorium ^{230}	pCi/L	3	2.1	3.2	1.2	NA	<3.1 U	<1.2 U	3.6	1.2	0.1	0.4	1.9	2.8 J	<0.25 U	5 FB	<0.1 U J	-0.2	-0.62	-0.21	0.05	0.79	0.19	0.2	NA	NA	NA	n/a	1.23	0.70	4	22
Thorium ^{232}	pCi/L	1.1	<0.3 U	<0.4 U	0.5	NA	<0.8 U	<0.6 U	1	0.2	0.6	0.7	0.4	<0.3 U	<1. U	<1.4 U	<0. U J	-0.03	0.48	-0.04	0.05	-0.77	0.03	0.7	NA	NA	NA	n/a	0.33	0.35	8	22

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum backeground level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW96-7B

Parameter	Units	9/22/96	9/25/96	Dec-96	3/11/97	5/20/97	6/30/97	8/27/97	11/19/97	12/2/97	2/10/98	5/19/98	8/20/98	11/20/98	5/21/99	11/10/99	5/7/00	11/16/00	5/9/01	11/14/01	10/9/02	10/8/03	10/06/04	10/24/05	03/16/06	06/16/06	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	<0.05 U	<0.05 U	<0.05 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.07	<0.03 U	<0.03 U	<0.06 U	<0.03 U	<0.03 UJ	<0.03 UJ	0.09 J	0.06	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.04 B	0.07 B	<0.03 UJ	---	0.03	0.02	20	25
Dissolved Antimony	mg/L	0.003	<0.003 U	<0.003 U	<0.002 UJ	0.005	<0.002 U	<0.005 U	<0.004 U	<0.002 U	<0.004 U	0.006	<0.002 UJ	<0.002 U	<0.003 UJ	0.003 FB	0.0046 FB J	0.003 FB B	<0.002 U	<0.002 U	<0.002 U	<0.0004 U	0.0002 B	<0.0004 U	0.0006 B	<0.0004 U	0.006	0.0018	0.0010	17	25
Dissolved Arsenic	mg/L	0.62	<0.005 U	<0.005 U	0.024	0.032	0.035	0.029	0.040	<0.005 U	0.034	0.1	0.022	0.011	0.066	0.168	0.0953	0.129	0.116	0.13	0.132	0.1840	0.0436	0.0266	0.0879	0.0689	0.01 (5)	0.0881	0.0436	3	25
Dissolved Barium	mg/L	0.08	0.02	0.05	0.07	0.05	0.049	0.044	0.060	0.022	0.054	0.07	0.062	0.071	0.059	0.42 J	0.64 J	0.627	0.306 FB	0.070 FB	0.066	0.070	0.056	0.047	0.498	0.064	2.0	0.145	0.064	0	25
Dissolved Beryllium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	0.001 U	<0.001 U	<0.0005 U	<0.0001 U	<0.0002 U	<0.0001 U	<0.0002 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.004	0.00039	0.00050	23	25
Dissolved Cadmium	mg/L	0.013	<0.005 U	<0.005 U	<0.001 U	<0.005 U	<0.001 U	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	0.001 U	<0.0005 U	<0.0005 U	<0.0001 U	<0.0002 U	<0.0001 U	0.0002 B	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.005	0.00111	0.00050	21	25
Dissolved Calcium	mg/L	22.2	23.4	20.1	17.9	11.1	11.1	11.2	11.2	12.6	9.66	9.8	16.6	8.8	9.4	11	9.3	9.6	9.3 FB	8.2	8.3	8.8	7.5	8.5	8.3	8.0	---	11.7	9.7	0	25
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 U	<0.005 U	<0.005 U	0.005 U	<0.005 U	0.0005 B	0.0004 B FB	<0.0002 U	0.0002 B FB	0.0001 B FB	0.0002 B FB	0.0011 J	0.0003 B FB	0.0001 B	0.1	0.0019	0.0025	15	25
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	0.02	<0.01 U	<0.005 U	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 J	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 B J	<0.01 U	<0.01 U	1.3	0.01	0.01	21	25
Dissolved Iron	mg/L	<0.02 U	0.02	0.03	0.10	<0.01 U	<0.02 U	<0.02 U	0.06	<0.02 U	<0.02 U	0.02	0.03	<0.02 U	0.02	0.25	0.18	0.08	<0.01 U	0.01 B	0.05 FB	0.02 B	0.03 B	0.91 J	0.12	0.08 J	---	0.08	0.02	8	25
Dissolved Lead	mg/L	0.01	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.008	<0.005 U	<0.005 U	0.005	<0.005 UJ	<0.005 U	<0.005 U	0.005 U	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	<0.0001 U	0.0009 J	<0.0001 U	<0.0001 U	0.015	0.0024	0.0025	20	25
Dissolved Magnesium	mg/L	10.2	10.2	17.0	12.0	10.2	10.3	11.3	10.9	11.2	12.7	11	14.9	14.2	12	11	12.00	11.9	12.1 FB	11.9	12.2	13.2	11.8	12.2	12.4	13.0	---	12.1	12.0	0	25
Dissolved Manganese	mg/L	0.05	0.03	0.03	0.05	0.01	0.017	0.01 J	<0.01 U	0.04	<0.01 U	<0.01 U	0.02	0.03	0.02	0.01	0.01	0.008 B	0.01 FB	0.006 B	0.005	0.007 B	0.023 B	0.017 B	0.009 B	0.010 BJ	0.05 (6)	0.017	0.010	3	25
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0106	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	<0.0005 U	<0.0002 U	<0.0002 U	0.0002 UJ	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.002	0.00054	0.00010	21	25
Dissolved Molybdenum	mg/L	0.28	0.22	0.02	0.07	0.06	0.08	0.08	0.07	0.12	0.024	0.07	<0.01 UJ	0.01	0.06	0.06	0.04	0.04 B	0.07	0.05	0.06	0.08	0.02 B	0.03 B	0.04 B	0.04 B	---	0.07	0.06	1	25
Dissolved Nickel	mg/L	0.02	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	---	0.01	0.01	20	25
Dissolved Potassium	mg/L	9	10	8	8	7.0	7.2	8	7.9	7.7	11.3	7.2	7.6 J	8.1	7.4	7.3	7.20	6.9	7.5	7.0	7.6	7.5	7.6	7.7	7.6	8.2	---	7.8	7.6	0	25
Dissolved Selenium	mg/L	0.002	<0.002 U	<0.002 U	<0.002 U	0.003	<0.002 U	<0.005 U	<0.002 U	<0.004 U	<0.002 U	0.002	<0.002 UJ	<0.002 UJ	<0.002 U	0.002 U	0.0015	<0.001 U	<0.001 U	<0.06 U J	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.05	0.002	0.001	20	25
Dissolved Silicon	mg/L	4.5	0.7	2.2	3.0	3.4	3.4	<3.5 U	3.8	3.1	4.64	2.8	4.7	4.5	3.6	4.1	4.3	9.6	9.4 FB	9.6	10.5	9.9	9.3	8.5	10.4	9.8	---	5.7	4.5	1	25
Dissolved Silver	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.001 U	<0.001 U	<0.5 U	<0.2 U	0.5	<0.5 U	<0.5 U	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	0.0005 U	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	0.00005	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	0.1	0.05444	0.00025	21	25
Dissolved Sodium	mg/L	325	290	128	141	131	142	136	149	163	125	144	117	138	150	150	150.0	152	159 FB	142	145	145	135	136.0	144	155	---	156	144	0	25
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.001 U	0.002	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	<0.001 U	<0.001 U	0.001 UJ	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.002	0.00041	0.00050	23	25
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	n/a	0.005	0.005	23	25
Dissolved Zinc	mg/L	0.15	<0.01 U	<0.01 U	0.03	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	0.01 B FB	0.11 J	0.02 J	0.04 FB B	0.01 FB	0.01	0.02 B	0.02 B FB	<0.01 U	0.02 B	0.01 B FB	0.03 B	5.0	0.02	0.01	10	25
Ammonia as NH_3-N	mg/L	<0.9 U	<1. U	0.2	0.4	0.8	0.6	0.2	0.4	0.5	0.4	<0.3 U	0.3	<0.2 U	0.3 J	0.2 J	0.2	0.09 B	0.18 B	0.18 B	0.23 B	0.16 B	0.18 B	0.07 B	0.13 B	0.13 B	---	0.28	0.20	4	25
Nitrate as NO_3-N	mg/L	<0.08 U	<0.08 U	0.08	0.54	40.00	<0.16 U	<0.08 U	<0.08 U	<0.24 U	<0.08 U	<0.1 U	<0.1 UJ	<0.1 U	<0.1 U	0.1 U	0.2	0.15 FB	<0.1 U	<0.02 U J	0.02 B	0.03 B FB	0.03 B	2.05	0.03 B FB	<0.02 U	10.0	1.76	0.05	14	25
Nitrite as NO_2-N	mg/L	<0.005 U	0.006	<0.005 U	<0.021 UJ	0.008	<0.005 UJ	0.006 J	0.062	0.016 J	<0.005 UJ	<0.11 U	<0.005 UJ	<0.005 UJ	<0.05 U	0.006 J	0.005	<0.01 U J	<0.05 U J	<0.01 U J	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	1.0	0.01	0.01	18	25
NO_3-N + NO_2-N	mg/L	<0.08 U	0.09	0.08	<0.56 U	40.00	<0.16 U	<0.08 U	<0.08 U	<0.26 U	<0.08 U	<0.2 U	<0.1 UJ	<0.1 U	<0.1 U	0.1 U	0	0.15 FB	<0.1 U	<0.02 U J	<0.02 UH	0.03 B FB H	0.03 BH	2.05 H	0.03 BH FB	<0.02 UH	10.0	1.75	0.05	15	25
Chloride	mg/L	18	31	14	15	14	12	14	13	12	13.3	12	13	10	13	12	12	11	13	11	12	12	11	11	10	10	---	13	12	0	25
Fluoride	mg/L	1.1	1.3	0.5	0.6	0.5	0.6	0.7	0.5	0.6	0.57	0.6	0.5	0.5	0.6	0.59	1	1 FB	0.8	0.8	0.5	0.6	0.5	0.4 B	0.5 B	0.4 B	4.0	0.6	0.6	0	25
Sulfate	mg/L	433	443	180	167	135	152	146	166	212	164	166	121	130	149	156	161	160	180	160	140	150	140	120	130	130	---	176	156	0	25
pH	SI units	7.60	7.80	8.20 J	7.73 J	8.10 J	8.30 J	8.30 J	8.30 J	8.00 J	8.7 J	8.3 J	8.4 J	8.6 J	8.3	8.3 J	8.3 J	8.4 J	8.5 J	8.3 J	8.5 H	8.6 H	8.6 H	8.4 H	8.8 H	8.6	6.5 - 8.5	8.3	8.3	0	25
Conductivity	umhos/cm	1630	1620	852	861	781.2	852.0	845	856.5	1004	847.5	847.4	764	719	812	770	795	784	825	803	786	817	631	744	729	775	---	870	812	0	25
Hardness as $CaCO_3$	mg/L	97	100	122	98	76	73	75	73	84	79	70	103	80.4	72.9	72.8	72.6	73	73	69	71	76	67	71	72	73	---	80	73	0	25
TSS	mg/L	11	2370	350	934	720	324	640	1230	988	426	209	95	249 J	292	488 J	241 J	216	599	178	164	78 J	204	258 J	118 J	84	---	459	258	0	25
TDS	mg/L	1080	1060	512 J	620 J	496	624	524	820 J	616	572	588	<636. U	110 J	584	556	488	490	530	500 J	480	470	470	430	420	440	10000	552	512	1	25
Alkalinity as $CaCO_3$	mg/L	347	433	259	288	292	276	290	314	311	267	255	254	247	262	256	251	243	258	214	239	233	220 H	221	239	245	---	269	256	0	25
Bicarbonate, total	mg/L	423	528	302	351	336	326	264	369	379	308	302	304	283	307	312	257	224	257	203	219	215	195 H	219	213	228	---	293	302	0	25
Bicarbonate, diss.	mg/L	416	384	260	311	291	301	304	299	321 J	299	301	280	269	294 J	294	302	218	242	198	NA	NA	NA H	NA	NA	NA	---	294	299	0	19
Carbonate	mg/L	<1. U	<2. U	7	<1. U	10	5	44	7	<2. U	9	5	3	9	6	1 U	24	19	16	16	20	18	26 H	<2. U	26	17 B	---	12	9	5	25
Hydroxide	mg/L	<1. U	<2. U	<5. U	<1. U	<3. U	<3. U	<2. U	<3. U	<2. U	<1. U	2	<2. U	<1. U	<1. U	1 U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. UH	<2. U	<2. U	<2. U	---	1	1	23	25
Gross Alpha +/- error	pCi/L	30+/-6.9	119+/-25.9	7.8 ± 4.9 U	132 ± 32.6	18 ± 11.7 U	22 ± 5.6 J	12 ± 3.7 J	17.7 ± 5.0 J	17.2 ± 5.2 J	10.4 +/- 3 J	5 +/-1.8	3+/-2.1	1.8±1.3 UJ	6+/-3.1	14+/-10	54.6+/-20.3	0.0+/-5.1 U J	2.7+/-2.9	4.45+/-3 FB	0.0+/-2.4 FB	5.03+/-3.7	5.24+/-4.7	17+/-5.7 FB	1.2+/-2.9 FB	1.3+/-3.7	15 pCi/L	calculated below			
Gross Beta +/- error	pCi/L	6+/-2.7	87+/-14.9	13 ± 2.2	219 ± 16.7	17 ± 8.2	21 ± 2.7 J	40 ± 2.8 J	15.6 ± 3.2 J	9.70 ± 3.3	10.9 +/- 1.7	12 +/-1.4	9+/-2.0	7±1.7 J	15+/-2.3	13+/-7.5	40.1+/-4.3	17+/-4.6 J	7.2+/-3.3	11.4+/-3.7 FB	11.2+/-3.9	8.32+/-3.6	12.2+/-4.2 FB	22+/-4.3 J FB	6.7+/-3.4	15+/-4	8 pCi/L (4)	calculated below			
Uranium, total	mg/L	0.003	0.003	<0.001 U	<0.001 U	0.002	<0.005 U	<0.0005 U	<0.001587 U	<0.00048 U	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	<0.001 U	0.005 FB	0.001 FB	0.0005 B	0.0005	0.00036	0.00070	0.00028 B FB	0.00016 B	0.0003 B	0.0004 B	0.0006	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	1.8+/0.4	2.0+/-0.8	0.3 ± 0.2 U	1.1 ± 0.2 U	0.7 ± 0.2	0.4 ± 0.2	0.3 ± 0.1	1.9 ± 0.3 J	0.8 ± 0.2	0.3 +/- 0.2	0.6 +/-0.2	0.5+/-0.2	0.6±0.3	0.4+/-0.1 U	0.48+/-0.4	0.5+/-0.1	0.5+/-0.2 J	0.22+/-0.2 FB J	0.23+/-0.3	0.32+/-0.2	0.88+/-0.3	0.35+/-0.2	0.46+/-0.2	0.3+/-0.12	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	1+/-0.5	5+/-1.5	1.2 ± 0.4 U	0.8 ± 0.3	0.6 ± 0.3 U	5.4 ± 0.7	0.9 ± 0.4 U	0.8 ± 0.3 U	0.8 ± 0.4 U	0.5 +/- 0.4	0.2 +/-0.3	1.3+/-0.4	2.7±1.1 U	4+/-1.1	1+/-1.1	13+/-0.9	2.2+/-1.2	0.0+/-1.1 J	2.11+/-1.3	2.17+/-1.1	1.63+/-0.8 FB	0.7+/-0.7 FB	2.3+/-0.6 J FB	1.2+/-0.53	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	2.2+/-0.9	4+/-1.7	0.6 ± 0.5	1.1 ± 0.6 U	1.0 ± 0.4	NA	2.6 ± 1.0 U	2.6 ± 1.50 U	2.3 ± 0.90	0.8 +/- 0.8 J	0.6 +/-1	1.2+/-1.10	1.7±0.90	1.7+/-0.40 J	4.5+/-1.2	0.6+/-0.40 FB	0.56+/-0.21 J	0.24+/-0.87	-0.05+/-0.34	0.84+/-0.39	-0.24+/-0.3	0.41+/-0.44	-0.06+/-0.47	-0.34+/-0.39	NA	n/a	calculated below			
Thorium 232 +/- error	pCi/L	<0.5 U	1.5+/-0.8	0.4 ± 0.3	0.3 ± 0.2 U	0.4 ± 0.2	NA	0.5 ± 0.4 U	1.3 ± 0.60 U	0.8 ± 0.50	0.4 +/- 0.3	0.1 +/-0.3	0.7+/-0.50	0.3±0.30	0.4+/-0.20	0.43+/-0.52	0.2+/-0.20 U	0.02+/-0.08 J	-2.1+/-0	0.27+/-0.36	0.16+/-0.27	-0.07+/-0.29	0.08+/-0.35	0.13+/-0.45	-0.06+/-0.39	NA	n/a	calculated below			
Gross Alpha	pCi/L	30	119	<7.8 U	132	18 U	22 J	12 J	17.7 J	17.2 J	10.4 J	5	3	<1.8 UJ	6	14	54.6	<0. U J	2.7	4.45 FB	0 FB	5.03	5.24	17 FB	1.2 FB	1.3	15 pCi/L	20.1	6.0	3	25
Gross Beta	pCi/L	6	87	13	219	17	21 J	40 J	15.6 J	9.7	10.9	12	9	7 J	15	13	40.1	17 J	7.2	11.4 FB	11.2	8.32	12.2 FB	22 J FB	6.7	15	8 pCi/L (4)	25.9	13.0	0	25
Uranium, total	mg/L	0.003	0.003	<0.001 U	<0.001 U	0.002	<0.005 U	<0.0005 U	<0.001587 U	<0.00048 U	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	<0.001 U	0.005 FB	0.001 FB	0.0005 B	0.0005	0.00036	0.00070	0.00028 B FB	0.00016 B	0.0003 B	0.0004	0.0006	0.03 (2) *	0.00100	0.00050	11	25
Radium 226	pCi/L	1.8	2.0	<0.3 U	<1.1 U	0.7	0.4	0.3	1.9 J	0.8	0.3	0.6	0.5	0.6	<0.4 U	0.48	0.5	0.5 J	0.22 FB J	0.23	0.32	0.88	0.35	0.46	0.3 B	NA	5 (3) *	0.63	0.50	3	23
Radium 228	pCi/L	1.0	5.0	<1.2 U	0.8	<0.6 U	5.4	<0.9 U	<0.8 U	<0.8 U	0.5	0.2	1.3	<2.7 U	4	1	13	2.2	0 J	2.11	2.17	1.63 FB	0.7 FB	2.3 J FB	1.2	NA	5 (3) *	2.00	1.10	6	24
Thorium 230	pCi/L	2.2	4.0	0.6	<1.1 U	1	NA	<2.6 U	<2.6 U	2.3	0.8 J	0.6	1.2	1.7	1.7 J	4.5	0.6 FB	0.56 J	0.24	-0.05	0.84	-0.24	0.41	-0.06	-0.34	NA	n/a	1.17	0.82	3	22
Thorium 232	pCi/L	<0.5 U	1.5	0.4	<0.3 U	0.4	NA	<0.5 U	<1.3 U	0.8	0.4	0.1	0.7	0.3	0.4	0.43	<0.2 U	0.02 J	-2.1	0.27	0.16	-0.07	0.08	0.13	-0.06	NA	n/a	0.23	0.25	5	23

NOTES:
- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW97-9

Parameter	Units	9/17/97	9/27/97	10/6/97	11/20/97	2/10/98	4/2/98	5/19/98	8/20/98	10/16/98	11/21/98	5/18/99	11/10/99	5/7/00	11/15/00	5/9/01	11/14/01	10/8/02	10/7/03	10/7/04	10/26/05	3/16/06	6/14/06	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	0.32	0.04	<0.03 U	<0.03 U	<0.03 U	0.03	<0.08 U	<0.03 U	<0.04 UJ	<0.03 U	<0.03 U	0.11 J	0.03	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.09 B	<0.03 U	<0.03 UJ	---	0.04	0.02	16	22
Dissolved Antimony	mg/L	<0.002 U	0.007	<0.01 U	<0.004 U	<0.004 U	0.002	<0.002 UJ	<0.002 UJ	<0.002 U	<0.002 U	**0.008 J**	0.004 FB	0.0017 FB J	<0.002 U	<0.002 U	<0.002 U	<0.002 U	0.0004 B	<0.0002 U	0.0005 B	<0.0004 U	<0.0004 U	0.006	0.0019	0.0010	15	22
Dissolved Arsenic	mg/L	0.01	0.008	0.009	0.011	0.007	0.009	0.007	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.0012	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.0008	<0.0005 U	0.002 B	0.0006 B	<0.0005 U	0.01 (5)	0.0037	0.0025	11	22
Dissolved Barium	mg/L	0.193	0.216	0.193	0.207	0.154	0.146 J J	0.149	0.123	0.121	0.112	0.1	0.48 J	0.49 J	0.518	0.444 FB	0.091 FB	0.08	0.082	0.079	0.142	0.090	0.081	2.0	0.20	0.14	0	22
Dissolved Beryllium	mg/L	<0.001 U	<0.001 U	<0.005 U	<0.001 U	<0.001 U	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0002 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.004	0.00045	0.00050	20	22
Dissolved Cadmium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0002 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0001 B	<0.0001 U	<0.0001 U	<0.0001 U	0.005	0.00035	0.00050	19	22
Dissolved Calcium	mg/L	26.9	26.7	27.2	27.1	22.9	22.1	21.9	24.3	22.9	27.5	26	25	26	28.2	30.7 FB	29.5	27.6	32.2	28.7	33.4	30.3	30.2	---	27.2	27.2	0	22
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.0005 B	0.0004 B FB	0.0006 FB	0.0001 BFB	0.0003 B FB	0.0006 FB	0.0055 J	0.0004 B FB	0.0006 FB	0.1	0.0021	0.0025	11	22
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 FB	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 B J	<0.01 U	<0.01 U	1.3	0.01	0.01	18	22
Dissolved Iron	mg/L	0.188	<0.02 U	0.076	0.169	0.392	0.409	0.43	<0.02 U	<0.02 U	0.20	0.27	0.15	0.17	0.33	0.01 B	0.22	0.2	0.33	0.34	0.16 J	0.36	0.25 J FB	---	0.21	0.20	3	22
Dissolved Lead	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.005	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0005 U	0.001 B	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	<0.0001 U	0.0010 J	<0.0001 U	<0.0001 U	0.015	0.0018	0.0025	18	22
Dissolved Magnesium	mg/L	11.3	12.5	12.4	12.5	10.4	10.4	10.5	11.9	11.9	14.5	13	12	14	14.6	15.6 FB	14.7	14.0	16.1	14.7	14.2	15.7	15.3	---	13.3	13.5	0	22
Dissolved Manganese	mg/L	0.048	**0.243**	**0.246**	**0.448**	**0.421**	**0.44 U**	**0.35 U**	**0.24**	**0.23**	**0.18**	**0.12**	**0.10**	**0.11**	**0.12**	**0.067 FB**	**0.070**	**0.057**	**0.079**	**0.080**	**0.107**	0.074 (6)	0.054 J (6)	0.05 (6)	0.177	0.115	0	22
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	0.0002	<0.0006 U	<0.0002 UJ	<0.0002 U	0.0003 B FB	<0.0002 UJ	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0003 B FB	<0.0002 U	<0.0002 U	<0.0002 U	0.002	0.00014	0.00010	18	22
Dissolved Molybdenum	mg/L	0.11	0.126	0.142	0.134	0.07	0.067	0.06	0.01 J	<0.02 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.02 B	<0.01 U	<0.01 U	---	0.04	0.01	12	22
Dissolved Nickel	mg/L	0.014	0.013	<0.01 U	<0.01 U	<0.01 U	0.014	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.02 B	<0.01 U	<0.01 U	---	0.01	0.01	17	22
Dissolved Potassium	mg/L	7.8	7.4	7.1	7.6	6.6	6.52 J J	6.3	6.4 J	6.9	6.6	6.5	5.3	6	6	6.3 FB	6.4	6.2	6.0	5.9	5.9	6.0	6.0	---	6.4	6.4	0	22
Dissolved Selenium	mg/L	0.004	<0.004 U	<0.008 U	<0.004 U	<0.002 U	0.002	0.002	<0.002 UJ	<0.002 U	<0.002 U	0.007	<0.002 U	0.0005	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.05	0.0015	0.0010	17	22
Dissolved Silicon	mg/L	5.87	5.87	5.52	6.48	6.05	4.59	3.9	5.9	5.4	5.4	5.1	5.1	5.8	13.6	13.4 FB	13.3	12.9	13.5	13	12.4	14.2	12.9	---	8.6	6.0	0	22
Dissolved Silver	mg/L	<0.5 U	<0.5 U	<0.5 U	<0.0005 U	<0.5 U	0.0005	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0001 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	0.00006 B	0.1	0.04559	0.00025	19	22
Dissolved Sodium	mg/L	168	147	150	148	140	137	127	114	113	119	110	90	100	99.4	98.4 FB	88.8	86.1	73.6	81.8	77.4	76.1	74.7	---	110.0	105.0	0	22
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	<0.001 U	<0.001 UJ	0.001	<0.002 U	<0.001 U	<0.001 UJ	<0.0005 U	<0.0001 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.002	0.0003	0.0005	21	22
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	n/a	0.0044	0.0050	20	22
Dissolved Zinc	mg/L	0.111	0.019	0.02	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 FB	0.02 FBJ	0.01 J	0.08 FB	0.01	0.01 B	<0.01 U	0.02 B FB	<0.01 U	0.07	<0.01 U	0.06 FB	5.0	0.02	0.01	8	22
Ammonia as NH_3-N	mg/L	0.3	0.28	0.28	0.51	0.55	0.55	<0.4 U	0.3	0.3	0.2	0.3 J	0.2 J	<0.2 U	0.10 B	0.14 B	0.16 B	0.06 B	0.13 B	0.14 B	0.07 B	0.13 B	<0.05 U	---	0.23	0.20	3	22
Nitrate as NO_3-N	mg/L	<0.08 U	0.1	<0.08 U	<0.08 U	<0.08 U	0.1	<0.2 U	<0.1 UJ	0.1	<0.1 U	<0.1 U	<0.1 U	0.3	0.38 FB	<0.1 U	0.03 B FB	<0.02 U	0.02 B FB	0.05 B	<0.02 U	0.29 FB	<0.02 U	10.0	0.09	0.05	13	22
Nitrite as NO_2-N	mg/L	0.012	0.048	0.094	0.08	<0.005 UJ	<0.005 UJ	<0.01 U	0.08 J	<0.005 UJ	<0.005 UJ	<0.005 U	<0.005 UJ	<0.005 U	<0.01 U J	<0.05 U	<0.01 U H	<0.01 UH	<0.01 UH	<0.01 U	<0.01 UH	<0.01 UH	<0.01 UH	1.0	0.02	0.01	17	22
NO_3-N + NO_2-N	mg/L	0.08	0.15	0.13	<0.08 U	<0.08 U	0.1	<0.2 U	<0.2 UJ	0.1	<0.1 U	<0.1 U	<0.1 U	0.3	0.38 FB	<0.1 U	0.03 BHFB	<0.02 UH	0.02 B FB H	0.05 BH	<0.02 UH	0.29 H FB	<0.02 UH	10.0	0.10	0.05	11	22
Chloride	mg/L	13.5	11.7	10	11.7	9.8	10.8	10	9	8	8	9 FB	7	8	7	9	6 FB	7	6	7	7	6	7	---	9	8	0	22
Fluoride	mg/L	0.92	0.87	0.85	0.78	0.78	0.87	0.8	0.8	0.8	0.8	0.8	0.73	0.8	1	0.9	0.2 FB	1	0.9	0.7	0.7	0.8	0.8	4.0	0.8	0.8	0	22
Sulfate	mg/L	190	161	157	144	128	137	126	122	104	106	94	95	81	80 FB	90	80 FB	70	70	70	70	50	60	---	104	95	0	22
pH	SI units	7.8	7.6	7.5	7.5	7.5 J	7.4 J J	7.7 J	<7.9 J	7.4 J	7.7 J	7.7	7.54 J	7.5 J	7.9 J	7.8 J	7.9 J	7.7 H	8.2 H	7.4 H	8.2 H	8.1 H	8.3	6.5 - 8.5	7.6	7.7	1	22
Conductivity	umhos/cm	1068	970.1	961.8	893.1	833.7	834.7	816.1	808	10000	733	696	670	640	605	629	610	627	617	551	595	552	575	---	1149	683	0	22
Hardness as $CaCO_3$	mg/L	104	109	118	110	99	103	98	110	106	128	118	112	123	131	141	134	127	147	132	142	140	138	---	121	121	0	22
TSS	mg/L	343	570	494	910	756	399	275	108	66	125 J	72	180 J	223 J	126	28 FB	24	46	10	38 H	1730 J	36 J	12 B	---	299	126	0	22
TDS	mg/L	816	664	648	644	532	528	548	624	524	452 J	408	448	396	390	410	380	360	330	360	330	320	320	10000	474	429	0	22
Alkalinity as $CaCO_3$	mg/L	338	319	311	318	290	285	283	271	278	275	264	258	249	249	248	233	248	228	231	244	240	248	---	269	261	0	22
Bicarbonate, total	mg/L	397	389	379	380	348	333	331	331	338	335	322	314	304	249	265	233	248	228	231	244	240	247	---	304	318	0	22
Bicarbonate, diss.	mg/L	378	366	346	360	355	348	345	324	329	321	283 J	310	309	244	248	226	NA	NA	NA	NA	NA	NA	---	318	327	0	16
Carbonate	mg/L	7	<2. U	1	4	3	2	2	<2. U	<2. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	2	1	16	22
Hydroxide	mg/L	<1. U	<2. U	<1. U	<2. U	<1. U	2	2	<2. U	<2. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	---	1	1	20	22
Gross Alpha +/- error	pCi/L	**277.0 ±49.9**	**67.2 ±13.5**	**18.0 ±8**	14.4 ±3.6	13.1 ± 3.2 J	5.1 ±2.6	2.8 ±1.7	9 ±2.3	1.3±0.9	0.3±1.4 UJ	8 ±2.1	5.1 ±4.9	**37.0 ±10.7**	2.1 ±4.9 J	3.6 ±3.2 FB	10.9 ±4.8 J FB	3.27 ±2.9 FB	0.85 ±2.1	0.0 ±3	**82 ±19**	4.3 ±3.2 FB	2.3 ±3.5 FB	15 pCi/L	calculated below			
Gross Beta +/- error	pCi/L	**237.0 ±28.2**	**57.3±13.5**	**32.0±8**	7.4 ±1.8	**20 ± 1.8**	**27.2 ±2.7**	**10.1 ±1.5**	**14 ±2.3**	**8±1.7 J**	7±1.4 J	**20 ±1.9**	**8.8 ±4.2**	**31.5 ±2.7 FB**	**15 ±3.9 J**	7.8 ±3.8	**11.8 ±3.6 FB**	6.28 ±3.4	4.68 ±3.3	**8.24 ±3.7 FB**	**110 ±13 J**	4.9 ±3.1	5.1 ±3.6	8 pCi/L (*)	calculated below			
Uranium, total	mg/L	0.003	0.003	0.004	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	<0.001 UJ	<0.001 U	0.006 FB	<0.001 U	0.0006 B	0.0003	0.00025	0.00036	0.00026 B FB	0.00030	0.0041	0.0003 B	0.0001 B	0.03 (2) *	calculated below			
Radium ^{226} +/- error	pCi/L	0.8±0.3	1.4±0.4	1.3±0.6	0.6 ±0.1	0.3 ± 0.3	1.2 ±0.2	0.2 ±0.1	0.5 ±0.3	1.0±0.2	0.9±0.3	0.4 ±0.1	0.5 ±0.4	0.5 ±0.1	0.4 ±0.2 J	0.36 ±0.2 FB J	0.36 ±0.3	0.31 ±0.2	0.48 ±0.3	0.57 ±0.2	3.1 ±0.4	0.33 ±0.14	NA	5 (3) *	calculated below			
Radium ^{228} +/- error	pCi/L	1.2 ±0.6	1.5 ±0.6	2.2±1.3	0.7 ±0.3	1.1 ± 0.8	0.9 ±0.4	1 ±0.4	<0.9 ±0.4 U	0.7±0.3 U	3±1.3	3 ±0.7	0.31 ±1 U	1.2 ±0.5	0.17 ±2.2	2 ±0.9 J	0.98 ±0.6	0.08 ±1	1.5 ±0.8 FB	1.55 ±0.7 FB	2.7 ±0.6 J FB	0.27 ±0.56	NA	5 (3) *	calculated below			
Thorium ^{230} +/- error	pCi/L	1.5 ±1.2	2.9 ±1.4	<1.0 ±0.8	1.5 ±2.4	1.6 ± 1.1 J	2 ±0.8	0 ±0.8	1.0 ±0.90	2.5±1.10 J	1.1±0.70	1.9 ±0.50 J	1.2 ±0.78	1.0 ±0.60 FB	-0.07 ±0.25 J	0.01 ±0.52	0.21 ±0.45	-0.88 ±1.1	-0.27 ±0.24	0.52 ±0.46 FB	0.93 ±0.53	-0.33 ±0.31	NA	n/a	calculated below			
Thorium ^{232} +/- error	pCi/L	1.5 ±1.2	1.0 ±0.7	<1.0 ±0.8	0.6 ±0.9	0.4 ± 0.4	0.6 ±0.4	0.5 ±0.4	0.4 ±0.30	0.4±0.30	0.3±0.30	0.3 ±0.20 U	0.3 ±0.57	0.4 ±0.30 U	0.17 ±1.9 J	-1.2 ±0.13	0.12 ±0.39	-0.09 ±1.1	0.08 ±0.26	0.46 ±0.42 FB	1.75 ±0.59	0.05 ±0.33	NA	n/a	calculated below			
Gross Alpha	pCi/L	**277.0**	**67.2**	**18.0**	14.4	13.1 J	5.1	2.8	9	1.3	<0.3 UJ	8	5.1	**37**	2.1 J	3.6 FB	10.9 J FB	3.27 FB	0.85	0	**82**	4.3 FB	2.3 FB	15 pCi/L	25.79	5.10	1	22
Gross Beta	pCi/L	**237.0**	**57.3**	**32.0**	7.4	**20**	**27.2**	**10.1**	**14**	**8 J**	7 J	**20**	**8.8**	**31.5 FB**	**15 J**	7.8	**11.8 FB**	6.28	4.68	**8.24 FB**	**110 J**	4.9	5.1	8 pCi/L (*)	29.73	10.95	0	22
Uranium, total	mg/L	0.003	0.003	0.004	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 UJ	<0.001 UJ	<0.001 U	0.006 FB	<0.001 U	0.0006 B	0.0003	0.00025	0.00036	0.00026 B FB	0.00030	0.0041	0.0003 B	0.0001 B	0.03 (2) *	0.0013	0.0005	7	22
Radium ^{226}	pCi/L	0.8	1.4	1.3	0.6	0.3	1.2	0.2	0.5	1	0.9	0.4	0.5	0.5	0.4 J	0.36 FB J	0.36	0.31	0.48	0.57	3.1	0.33	NA	5 (3) *	0.74	0.50	0	21
Radium ^{228}	pCi/L	1.2	1.5	2.2	<0.7 U	1.1	0.9	1	<0.9 U	<0.7 U	3	3	<0.31 U	1.2	0.17	2 J	0.98	0.08	1.5 FB	1.55 FB	2.7 J FB	0.27	NA	5 (3) *	1.26	1.15	4	20
Thorium ^{230}	pCi/L	1.5	2.9	<1.0 U	<1.5 U	1.6 J	2	0	1	2.5 J	1.1	1.9 J	1.2	1 FB	-0.07 J	0.01	0.21	-0.88	-0.27	0.52 FB	0.93	-0.33	NA	n/a	0.88	1.00	1	21
Thorium ^{232}	pCi/L	1.5	1.0	<1.0 U	<0.6 U	0.4	0.6	0.5	0.4	0.4	0.3	<0.3 U	0.3	<0.4 U	0.17 J	-1.2	0.12	-0.09	0.08	0.46 FB	1.75	0.05	NA	n/a	0.40	0.30	3	21

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW97-11

Parameter	Units	10/16/97	10/20/97	10/28/97	2/9/98	4/3/98	5/18/98	8/20/98	10/16/98	11/20/98	5/18/99	11/9/99	5/6/00	11/15/00	5/8/01	11/13/01	10/8/02	10/7/03	10/6/04	10/26/05	3/15/06	6/14/06	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	0.1	0.04	<0.03 U	<0.03 U	<0.03 U	<0.04 U	<0.03 U	<0.04 UJ	<0.03 U	0.03	0.03 J	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03	<0.03 U	0.03 B	<0.03 UJ	---	0.02	0.02	16	21
Dissolved Antimony	mg/L	<0.008 U	0.004	<0.004 U	<0.004 U	**<0.01** U	**0.01**	<0.002 UJ	<0.002 U	<0.002 U	<0.003 UJ	<0.003 U	<0.0005 UJ	0.003 FB B	0.003 B FB	0.003 B	<0.002 U	0.001 B	<0.0002	<0.0004 U	<0.0004 U	0.0008 B	0.006	0.0022	0.0015	14	21
Dissolved Arsenic	mg/L	<0.005 U	<0.005 U	<0.005 U	**0.023**	<0.005 U	0.008	<0.005 U	<0.005 U	<0.005 U	**0.014**	**0.017**	**0.0122**	0.006	0.003 B FB	0.005	0.003 B	0.0046	0.0034	<0.0005 U	0.0019 B	0.0018 B	0.01 (5)	0.0057	0.0030	8	21
Dissolved Barium	mg/L	0.067	0.064	0.078	1.29	0.575 J	1.15	0.708	0.289	0.221	0.25	0.56 J	0.12 FB J	0.488	0.294 FB	0.399	0.075	0.069	0.059	0.061	0.057	0.331	2.0	0.34	0.25	0	21
Dissolved Beryllium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0005 U	<0.0001	<0.0001 U	<0.0001 U	<0.0001 U	0.004	0.00035	0.00050	20	21
Dissolved Cadmium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0005 U	<0.0001	0.0002 B J	<0.0001 U	<0.0001 U	0.005	0.00035	0.00050	19	21
Dissolved Calcium	mg/L	55.8	54	60	53.4	29.5	30.9	26.8	16.7	20.9	59	60	60	64	65.2 FB	63.6	96.2	68	63.1	63.4	65.4	67.2	---	54.4	60.0	0	21
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.015	0.005	0.011	0.019	0.028	<0.005 U	<0.005 UJ	<0.005 U	<0.0005 U	0.0003 B FB	0.0004 B FB	0.0414	0.0007 FB	0.0001	0.0805 J	0.0003 B FB	0.0002 B FB	0.1	0.0105	0.0025	8	21
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 FB	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01	0.02 B J	<0.01 U	<0.01 U	1.3	0.01	0.01	18	21
Dissolved Iron	mg/L	0.061	<0.02 U	<0.02 U	15.7	0.88	12.3	1.96	1.45	0.75	7	5.8	3.5	2.15	0.14	3.44	6.0	0.85	0.73	0.37 J	0.38	<0.02 UJ	---	3.02	0.88	3	21
Dissolved Lead	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0005 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	0.0002	0.0006 J	<0.0001 U	<0.0001 U	0.015	0.0016	0.0025	18	21
Dissolved Magnesium	mg/L	19	18.9	21.2	18.1	9.5	9.7	9.1	5.3	6.5	19	20	22	21.7	21.8 FB	22.2	22.1	22	21.3	20.1	22.2	22.8	---	17.8	20.1	0	21
Dissolved Manganese	mg/L	**0.066**	**0.128**	**0.652**	**1.77**	<1.01 U	<1.31 U	**0.89**	**0.49**	**0.5**	**0.83**	**0.74**	**0.64**	**0.614**	**0.517 FB**	**1.280**	**3.420**	**0.624**	**0.421**	**0.932**	0.435 (6)	0.375 J (6)	0.05 (6)	0.785	0.624	2	21
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	0.00079	<0.0002 U	<0.0002 U	0.0002	<0.0002 U	<0.0002 UJ	<0.0002 U	0.0002 B FB	<0.0002 UJ	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002	<0.0002 U	<0.0002 U	<0.0002 U	0.002	0.00014	0.00010	18	21
Dissolved Molybdenum	mg/L	<0.02 U	<0.02 U	<0.02 U	<0.02 U	<0.01 U	0.01	<0.01 UJ	<0.03 U	<0.01 U	0.01 B	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 B	0.01 B	0.01	0.03 B	<0.01 U	<0.01 U	---	0.01	0.01	14	21
Dissolved Nickel	mg/L	0.012	0.013	0.027	0.032	0.02	0.01	<0.03 U	0.03	0.04	0.13	0.32	0.14	0.03 B	0.15 FB	2.63	13.100	0.450	0.01	2.08	0.18	0.04 B	---	0.93	0.04	1	21
Dissolved Potassium	mg/L	6.8	6.6	7	5.1	7.5 J	3.72	5.4	3.9	3.8	5.4	5.3	5.9	6	5.8 FB	5.9	6.3	6.3	6.3	6.0	6.5	6.6	---	5.8	6.0	0	21
Dissolved Selenium	mg/L	<0.008 U	0.003	<0.002 U	<0.002 U	<0.002 U	0.002	0.003 J	<0.002 U	<0.002 UJ	<0.002 U	<0.002 U	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001	<0.001 U	<0.001 U	<0.001 U	0.05	0.0012	0.0010	17	21
Dissolved Silicon	mg/L	8.04	7.89	8.61	10.3	8.8	9	12.1	11.3	12.0	7.2	7.5	7.9	18.1	16.4 FB	17.3	17.4	17.6	16.6	15.0	17.0	16.1	---	12.5	12.0	0	21
Dissolved Silver	mg/L	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.0039	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	0.00021 B	<0.00005 U	<0.00005	<0.00005 U	<0.00005 U	<0.00005 U	0.1	0.04793	0.00025	18	21
Dissolved Sodium	mg/L	120	126	141	170	210	188	195	234	248	150	150	160	177	164 FB	169	165	162	157	167	161	174	---	171	165	0	21
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.001 U	0.002	<0.001 UJ	<0.003 U	<0.001 UJ	0.001	<0.001 U	<0.001 U	**0.009 J**	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.0001	<0.0001 U	<0.0001 U	<0.0001 U	0.002	0.0008	0.0005	18	21
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005	<0.005 U	<0.005 U	<0.005 U	n/a	0.0042	0.0050	20	21
Dissolved Zinc	mg/L	1.32	1.14	0.534	<0.01 U	0.02	0.01	<0.01 U	<0.01 U	0.02	0.02 FB	0.22 J	0.03 J	0.46	0.32 FB	0.15	0.09	0.05 FB	1.94	0.75	0.19	3.79	5.0	0.53	0.15	3	21
Ammonia as NH_3-N	mg/L	<0.2 U	<0.2 U	<0.2 U	0.25	0.29	0.2	<0.2 U	<0.2 U	<0.2 U	0.2 J	1.7 J	<0.2 U	<0.05 U	<0.05 U	<0.05 U	0.07 B	0.06 B	0.07	<0.05 U	<0.05 U	<0.05 U	---	0.18	0.10	13	21
Nitrate as NO_3-N	mg/L	0.11	<0.08 U	<0.08 U	<0.08 U	<0.1 U	<0.2 U	<0.1 UJ	0.1	<0.1 U	<0.1 U	0.1 FB	0.5	0.29 FB	<0.1 U	0.02 J B FB	0.03 B	0.03 B FB	<0.02	<0.02 U	0.50 FB	0.22 H FB	10.0	0.11	0.05	11	21
Nitrite as NO_2-N	mg/L	<0.005 U	0.02	0.007	<0.005 U	<0.006 UJ	<0.018 U	0.01 J	<0.005 UJ	0.005 J	<0.005 U	0.007 J	<0.005 U	<0.01 U J	<0.05 U J	<0.01 U H	<0.01 U H	<0.01 UH	<0.01	<0.01 UH	<0.01 UH	<0.01 UH	1.0	0.01	0.01	16	21
NO_3-N + NO_2-N	mg/L	0.11	0.09	<0.08 U	<0.08 U	<0.1 U	<0.2 U	<0.1 UJ	0.1	<0.2 U	<0.1 U	0.1	0.5	0.29 FB	<0.1 U	0.02 J B FB	0.03 BH	0.03 B FB H	<0.02	<0.02 UH	0.50 H FB	0.22 H FB	10.0	0.12	0.05	10	21
Chloride	mg/L	88.7	95.4	103	121	136	134	139	142	144	124	177	122	122	124	145	161	133	124	148	147	126	---	131	133	0	21
Fluoride	mg/L	0.56	0.55	0.56	0.61	0.8	0.7	0.6	0.8	0.7	0.7	0.48	0.7	0.9 FB	0.8	0.6	0.6	0.7	0.6	0.4 B	0.6	0.9	4.0	0.7	0.6	0	21
Sulfate	mg/L	115	128	128	83	6	27	10	6	11	148	134	136	160	150	160	140	150	160	140	140	160	---	109	136	0	21
pH	SI units	7.3	7.4	7.2	6.9 J	**6.4 J**	**6.4 J**	6.6 J	**6.4 J**	6.5 J	6.8	6.73 J	7.1 J	7.4 J	7.4 J	7.3 J	7.0 H	7.8 H	7.5	7.9 H	7.9 H	8.1 H	6.5 - 8.5	7.1	7.2	0	21
Conductivity	umhos/cm	992	1066	1087	1175	1244	1200	1170	8040	1230	1160	1260	1150	1140	1170	1180	1220	1240	1150	1200	1180	1250	---	1500	1180	0	21
Hardness as $CaCO_3$	mg/L	206	205	223	212	115	118	104	64	79	226	232	240	249	253	250	264	260	245	241	255	262	---	205	232	0	21
TSS	mg/L	74	333	428	273	30	128	47	33	712 J	64	192 J	52 J	20	22 FB	32	20	24	62	154 J	42 J	24	---	132	52	0	21
TDS	mg/L	620	640	808	696	796	764	820	784	28 J	704	828	680	720	700	730	730	730	710	690	670	700	10000	693	710	0	21
Alkalinity as $CaCO_3$	mg/L	251	257	273	340	371	382	375	430	428	304	260	293	300	308	261	297	274	290	268	301	314	---	313	300	0	21
Bicarbonate, total	mg/L	306	313	333	414	452	466	457	524	522	370	317	357	300	300	261	297	274	290	268	301	314	---	354	314	0	21
Bicarbonate, diss.	mg/L	305	312	326	406	447	466	457	524	517	242 J	312	367	296	308	254	NA	NA	NA	NA	NA	NA	---	369	326	0	15
Carbonate	mg/L	<1. U	<1. U	<1. U	<1. U	<2. U	2	<2. U	<2. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2.	<2. U	<2. U	<2. U	---	1	1	20	21
Hydroxide	mg/L	<1. U	<1. U	<1. U	<1. U	<2. U	2	<2. U	<2. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2.	<2. U	<2. U	<2. U	---	1	1	20	21
Gross Alpha +/- error	pCi/L	**66.0 ±30.2**	**53.1 ±5.2**	**44.0 ±3.1**	7.3 ± 5.7	5.9 ±3.2	9.4 ±2.8	**15 ±3.7**	2.1±1.5	3.6±2.5 UJ	10 ±3.0	**19 ±8.6**	11.3 ±5.8	**21 ±7.9 J**	9.6 ±5	11.1 ±4.1 FB	11.8 ±5.3	6.9 ±3.9	**15.1 ±5.9**	**30 ±8.2 FB**	14 ±5.8	5 ±4.8 FB	15 pCi/L	calculated below			
Gross Beta +/- error	pCi/L	**37.5 ±12.7**	**21.1 ±2.8**	**33.0 ±2.6**	2.5 ± 4.8	**15.4 ±2.7**	**8.7 ±2**	**16 ±3.4**	4±1.9 J	**12±3.9 J**	**13 ±2.7**	**8.2 ±7.2**	**12.7 ±2.7 FB**	**13 ±4.5 J**	**9.8 ±4.2**	**11.1 ±4.1 FB**	**11.4 ±3.8**	5.15 ±4.1	**15.2 ±4.2**	**26 ±5.6 J FB**	**12 ±4.8**	**9.9 ±4.1**	8 pCi/L (4)	calculated below			
Uranium, total	mg/L	0.048	0.053	0.040	0.01	0.0012	<0.0043 U	0.0038	0.001 U	<0.001 UJ	0.009	0.016 FB	0.012	U	0.0103	0.00893	0.00985	0.01270	0.01070	0.0120	0.0111	0.0107	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	1.0 ±0.3	2.0 ±0.4	1.4 ±0.2	2.6 ± 0.3 J	1.0 ±0.2	0.7 ±0.2	1.1 ±0.3	0.5±0.2	0.8±0.3	0.7 ±0.2	5.3 ±1	1.1 ±0.1	0.8 ±0.3 J	0.8 ±0.3 FB J	0.43 ±0.6	0.48 ±0.2	1.13 ±0.3	0.76 ±0.4	0.51 ±0.2	0.76 ±0.19	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	2.9 ±0.6	1.1 ±0.5	<1.8 ±0.7	0.5 ± 0.3	0.8 ±0.4	0 ±0.6	<0.9 ±0.4 U	0.5±0.3	2.7±1.1 U	13 ±1.1	2 ±1.1 U	0.9 ±0.4 U	2.5 ±0.9 J	1.1 ±0.6 J	2.67 ±0.6	2.44 ±1.3	1.32 ±0.7 FB	1.79 ±0.7	1.7 ±0.6 J FB	0.96 ±0.57	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	2.5 ±0.9	2.1 ±0.8	0.4 ±0.1	0.8 ± 0.7	1.8 ±0.8	1 ±1.4	<0.4 ±0.50 U	4±3.10 J	2.4±1.30	1.5 ±0.40 J	1.3 ±0.73	0.6 ±0.40 FB	0.31 ±0.16 J	-0.21 ±0.47	0.0 ±0.44	-0.49 ±0.81	0.05 ±0.35	0.29 ±0.55	0.03 ±0.41	-0.21 ±0.35	NA	n/a	calculated below			
Thorium 232 +/- error	pCi/L	0.6 ±0.4	0.7 ±0.4	0.2 ±0.1	0.1 ± 0.1 J	0.5 ±0.4	0.5 ±0.5	0.5 ±0.30	1.5±0.10	0.6±0.50	0.5 ±0.20	0.18 ±0.38	0.3 ±0.20 U	0.12 ±0.12 FB J	0.18 ±0.48	-0.12 ±0.37	-0.19 ±0.76	0.12 ±0.32	0.18 ±0.48	0.2 ±0.39	0.08 ±0.36	NA	n/a	calculated below			
Gross Alpha	pCi/L	**66.0**	**53.1**	**44.0**	7.3	5.9	9.4	**15**	2.1	<3.6 UJ	10	**19**	11.3	**21 J**	9.6	11.1 FB	11.8	6.9	**15.1**	**30 FB**	14	5 FB	15 pCi/L	17.6	11.3	1	21
Gross Beta	pCi/L	**37.5**	**21.1**	**33.0**	2.5	**15.4**	**8.7**	**16**	4 J	**12 J**	**13**	**8.2**	**12.7 FB**	**13 J**	**9.8**	**11.1 FB**	**11.4**	5.15	**15.2**	**26 J FB**	**12**	**9.9**	8 pCi/L (4)	14.2	12.0	0	21
Uranium, total	mg/L	0.048	0.053	0.040	0.01	0.0012	<0.0043 U	0.0038	<0.001 U	<0.001 UJ	0.009	0.016 FB	0.012	U	0.0103	0.00893	0.00985	0.01270	0.01070	0.0120	0.0111	0.0107	0.03 (2) *	0.0141	0.0105	4	20
Radium 226	pCi/L	1.0	2.0	1.4	2.6 J	1	0.7	1.1	0.5	0.8	0.7	5.3	1.1	0.8 J	0.8 FB J	0.43	0.48	1.13	0.76	0.51	0.76	NA	5 (3) *	1.19	0.80	0	20
Radium 228	pCi/L	2.9	1.1	<1.8 U	0.5	0.8	0	<0.9 U	0.5	<2.7 U	13	<2. U	<0.9 U	2.5 J	1.1 J	2.67	2.44	1.32 FB	1.79	1.7 J FB	0.96	NA	5 (3) *	1.87	1.10	5	20
Thorium 230	pCi/L	2.5	2.1	0.4	0.8	1.8	1	<0.4 U	4 J	2.4	1.5 J	1.3	0.6 FB	0.31 J	-0.21	0	-0.49	0.05	0.29	0.03	-0.21	NA	n/a	0.92	0.51	1	20
Thorium 232	pCi/L	0.6	0.7	0.2	0.1 J	0.5	0.5	0.5	1.5	0.6	0.5	0.18	<0.3 U	0.12 FB J	0.18	-0.12	-0.19	0.12	0.18	0.2	0.08	NA	n/a	0.33	0.18	1	20

NOTES:

U =	not detected at value given
B =	detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
H =	analysis exceeded method hold time
J =	estimated detected value
UJ =	estimated non-detect value
LB =	detected in laboratory method or instrument blank
FB =	detected in field blank or field rinsate blank
NA =	not applicable
NC =	not calculated as of this time
mg/L =	milligrams per liter
umhos/cm =	micromhos per centimeter
SI =	standard international units
pCi/L =	picocuries per liter
# =	number of samples
std =	standard deviation

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded,** boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/L as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW97-12

Parameter	Units	10/29/97	11/3/97	11/13/97	11/17/97	11/17/97	2/11/98	4/2/98	5/19/98	8/20/98	10/15/98	11/21/98	5/19/99	11/9/99	5/6/00	11/15/00
Dissolved Aluminum	mg/L	<0.03 U	**0.08**	<0.03 U	<0.03 U	< 0.03 U	0.06	0.03	0.1	<0.03 U	0.04 J	<0.04 U	0.05	0.09 J	0.04	<0.03 U
Dissolved Antimony	mg/L	<0.002 U	0.006	<0.02 U	<0.02 U	< 0.02 U	<0.002 U	0.002	<0.002 UJ	<0.002 UJ	<0.002 U	<0.002 U	<0.003 UJ	<0.003 U	0.0029 FB J	<0.002 U
Dissolved Arsenic	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	< 0.005 U	<0.005 U	0.005	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0005 U	0.001 B
Dissolved Barium	mg/L	0.081	0.066	0.07	0.072	0.072	0.042	0.044 J	0.067	0.037	0.038	0.035	0.035	0.53 J	0.71 J	0.324
Dissolved Beryllium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	< 0.001 U	<0.001 U	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0002 U
Dissolved Cadmium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	< 0.001 U	<0.001 U	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0002 U
Dissolved Calcium	mg/L	46.7	46.7	47.3	43.7	46.5	47.3	44.4	44.6	45.9	43.3	44.2	46	47	47	48.1
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	< 0.005 U	<0.005 U	0.005	0.008	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.0034
Dissolved Copper	mg/L	<0.01 U	0.013	<0.01 U	<0.01 U	< 0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	0.01 FB	0.01 J	<0.01 U	<0.01 U
Dissolved Iron	mg/L	<0.02 U	0.103	<0.02 U	<0.02 U	< 0.02 U	0.049	0.033	0.09	0.04	<0.02 U	0.27	0.09	0.3	0.35	0.62
Dissolved Lead	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	< 0.005 U	<0.005 U	0.005	0.005	<0.005 UJ	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0005 U	<0.001 U
Dissolved Magnesium	mg/L	17.2	19.9	20.4	19.1	20.5	22.2	20.4	20.2	22.3	21.1	21.9	22	22	23	23.6
Dissolved Manganese	mg/L	**0.085**	**0.137**	**0.288**	**0.352**	**0.348**	**0.162**	<0.31 UJ	<0.5 U	**0.12**	**0.14**	**0.1**	**0.08**	**0.11**	**0.12**	**0.268**
Dissolved Mercury	mg/L	0.00084	<0.0002 U	<0.0002 U	<0.0002 U	< 0.0002 U	<0.0002 U	0.0002	0.0002	<0.0004 U	<0.0004 U	<0.0002 U	<0.0002 U	0.0002 FB J	<0.0002 U	<0.0002 U
Dissolved Molybdenum	mg/L	<0.02 U	<0.02 U	0.029	<0.02 U	<0.02 U	<0.02 U	0.018	<0.02 U	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Dissolved Nickel	mg/L	<0.01 U	0.01	<0.01 U	<0.01 U	<0.01 U	0.109	0.299	0.05	<0.03 U	0.02	0.10 J	0.10	0.22	0.31	0.21
Dissolved Potassium	mg/L	8.2	8.1	7.8	7.5	8	11.2	7.19 J	7.3	7.5 J	7.3	6.9	6.9	6.3	6.0	6.6
Dissolved Selenium	mg/L	0.028	0.009	<0.01 U	0.003	0.004	<0.002 U	0.002	0.002	0.002 J	<0.002 U	<0.002 U	<0.002 U	<0.002 U	0.0019	<0.001 U
Dissolved Silicon	mg/L	6.42	6.34	6.61	6.3	6.25	7.04	4.85	4.6	6.6	5.7	6.1	5.5	6.5	6.3	14.1
Dissolved Silver	mg/L	<0.5 U	<0.0005 U	0.0005 U	<0.0005 U	< 0.0005 U	<0.5 U	0.0005	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0001 U
Dissolved Sodium	mg/L	93.6	107	100	99.6	106	102	101	107	105	104	106	110	120	120	121
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	< 0.001 U	<0.001 U	<0.001 UJ	<0.002 U	<0.003 U	**0.02**	<0.001 U	<0.001 U	<0.001 UJ	<0.0005 U	<0.0001 U
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.005 U
Dissolved Zinc	mg/L	0.016	0.012	0.011	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.19 J	0.20	0.11 FB
Ammonia as NH_3-N	mg/L	<0.2 U	<0.2 U	0.2	0.23	0.3	0.4	0.47	<0.3 U	0.2	<0.2 U	<0.2 U	0.2 J	0.2 J	<0.2 U	0.11 B
Nitrate as NO_3-N	mg/L	0.28	<0.08 U	0.1	<0.08 U	< 0.08 U	0.2	0.2	3	<0.1 UJ	<0.1 U	<0.1 U	0.3 FB	0.1 FB	0.3	0.07 FB B
Nitrite as NO_2-N	mg/L	0.038	0.005	0.007	0.023	0.03	0.007	<0.06 UJ	<0.026 U	0.009 J	0.01 J	0.006 J	<0.005 U	<0.005 UJ	<0.005 U	<0.01 U J
NO_3-N + NO_2-N	mg/L	0.32	<0.08 U	0.11	<0.08 U	< 0.08 U	0.21	0.2	3.1	<0.1 UJ	0.1	<0.1 U	0.3 FB	0.1	0.3	0.07 FB B
Chloride	mg/L	31.4	26	22.6	20.1	21.4	27.1	26.8	25	19	18	18	19	16	16	20
Fluoride	mg/L	0.58	0.47	0.44	0.46	0.45	0.43	0.48	0.5	0.4	0.5	0.5	0.5	0.43	0.4	0.6 FB
Sulfate	mg/L	115	129	118	123	122	130	137	129	118	118	123	125	134	137	150
pH	SI units	7.5	7.5	7.4	7.4	7.4	7.4 J	7.3 J	7.3 J	7.7 J	7.1 J	7.3 J	7.4	7.4 J	7.4 J	7.6 J
Conductivity	umhos/cm	771.8	804.6	835.9	838.9	840	871.3	874.7	878.5	896	9680	892	846	850	851	868
Hardness as $CaCO_3$	mg/L	166	179	188	196	196	213	209	195	206	195	201	205	208	212	217
TSS	mg/L	419	86	154	75	95	2360	1430	1380	4020	976	632 J	144	2310 J	1280 J	482
TDS	mg/L	688	676	596	784	816	664	608	660	860	800	588 J	632	600	564	560
Alkalinity as $CaCO_3$	mg/L	234	255	286	294	288	384	338	338	374	332	337	347	383	355	316
Bicarbonate, total	mg/L	286	311	349	359	351	468	347	353	456	405	411	424	467	432	316
Bicarbonate, diss.	mg/L	264	311	337	294	318	369	412	412	356	378	368	304 J	392	396	307
Carbonate	mg/L	<1.0 U	<1.0 U	<1.0 U	<2.0 U	< 2 U	<1. U	2	2	<2. U	<2. U	<2. U	<1. U	<2. U	<2. U	<2. U
Hydroxide	mg/L	<1.0 U	<1.0 U	<1.0 U	<2.0 U	< 2 U	<1. U	2	2	<2. U	<2. U	<2. U	<1. U	<2. U	<2. U	<2. U
Gross Alpha +/- error	pCi/L	**34 ± 2.4**	**66 ± 3.2**	**57.6 ± 3.2**	**47.1 ± 4.7**	**44.7 ± 4.5**	< 8.4 ± 5.5 U	**94.1 ±5.8**	**102 ±6.2**	**94 ±5.8**	**83±4.5**	0.6±5.5 J	**144 ±9.8**	**74 ±17**	**470 ±131**	**24 ±7.2 J**
Gross Beta +/- error	pCi/L	**20 ± 1.9**	**22 ± 1.8**	**10.8 ± 1.4**	**19.1 ± 2.1**	**13.5 ± 2.1**	< 4.5 ± 3.8 U	**57.4 ±2.8**	**49.7 ±2.9**	**72 ±3.8**	**41±2.6 J**	**60±3.1 J**	**99 ±5.4**	**55 ±11**	**324 ±23.6**	**23 ±4.1 J**
Uranium, total	mg/L	**0.044**	**0.076**	**0.059**	**0.033**	**0.041**	0.158	**0.24**	**0.194**	**0.14**	**0.111**	**0.1855 J**	**0.145**	**0.049 FB**	**0.045**	**0.0537**
Radium ^{226} +/- error	pCi/L	0.92 ± 0.1	0.81 ± 0.1	1.1 ± 0.3	1.2 ± 0.3	1.3 ± 0.3	6.2 ± 0.5	3.5 ±0.3	3.2 ±0.3	3.2 ±0.4	4.2±0.4	2.0±0.90	5.2 ±0.4	9.3 ±1.2	8 ±0.4	2.6 ±0.4 J
Radium ^{228} +/- error	pCi/L	1.4 ± 0.7	<1.7 ± 0.8	<1.3 ± 0.5	<1.3 ± 0.5	<1.3 ± 0.5	2.4 ± 0.4	1.6 ±0.4	2 ±0.4	1.9 ±0.5	0.7±0.3 U	2.7±1.2 U	2 ±0.7	3.1 ±1.2	2.4 ±0.5	6.1 ±1.1
Thorium ^{230} +/- error	pCi/L	0.39 ± 0.1	0.28 ± 0.1	<1.7 ± 1.40	<1.6 ± 1.40	<1.8 ± 1.40	0.4 ± 0.6	2 ±0.8	0.4	1.7 ±1.70	2.6±1.00 J	2.0±0.90	4.2 ±0.90 J	3.7 ±1.2	3.4 ±1.00 FB	1 ±0.3 J
Thorium ^{232} +/- error	pCi/L	0.09 ± 0.06	0.11 ± 0.6	<0.9 ± 0.50	<0.8 ± 0.50	<0.9 ± 0.50	0.3 ± 0.2	0.3 ±0.3	0.4 ±0.3	0.7 ±0.40	0.6±0.40	0.6±0.40	0.7 ±0.30	1 ±0.75	0.5 ±0.30	0.6 ±0.25 FB J
Gross Alpha	pCi/L	**34**	**66**	**57.6**	**47.1**	**44.7**	<8.4 U	**94.1**	**102**	**94**	**83**	0.6 J	**144**	**74**	**470**	**24 J**
Gross Beta	pCi/L	**20**	**22**	**10.8**	**19.1**	**13.5**	<4.5 U	**57.4**	**49.7**	**72**	**41 J**	**60 J**	**99**	**55**	**324**	**23 J**
Uranium, total	mg/L	**0.044**	**0.076**	**0.059**	**0.033**	**0.041**	0.158	**0.24**	**0.194**	**0.14**	**0.111**	**0.1855 J**	**0.145**	**0.049 FB**	**0.045**	**0.0537**
Radium ^{226}	pCi/L	0.92	0.81	1.1	1.2	1.3	6.2	3.5	3.2	3.2	4.2	2	5.2	9.3	8	2.6 J
Radium ^{228}	pCi/L	1.4	<1.7 U	<1.3 U	<1.3 U	<1.3 U	2.4	1.6	2	1.9	<0.7 U	<2.7 U	2	3.1	2.4	6.1
Thorium ^{230}	pCi/L	0.39	0.28	<1.7 U	<1.6 U	<1.8 U	0.4	2	0.4	1.7	2.6 J	2	4.2 J	3.7	3.4 FB	1 J
Thorium ^{232}	pCi/L	0.09	0.11	<0.9 U	<0.8 U	<0.9 U	0.3	0.3	0.4	0.7	0.6	0.6	0.7	1	0.5	0.6 FB J

NOTES:

- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded**, boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW97-12

Parameter	Units	5/9/01	11/16/01	10/9/02	10/7/03	10/5/04	10/26/05	3/15/06	6/14/06	9/11/06	11/2/06	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.03 B	<0.03 UJ	0.04 B	<0.03 U	---	0.034	0.030	11	24
Dissolved Antimony	mg/L	<0.002 U	0.002 B	<0.002 U	0.0002 B	0.0003 B	0.0004 B	<0.0004 U	<0.0004 U	0.0007 B	<0.0004 U	0.006	0.0028	0.0010	13	24
Dissolved Arsenic	mg/L	0.001 B FB	0.002 B	0.001 B	0.0017	0.0012 B	0.0012 B	0.0013 B	0.0017 B	0.0009 B	0.0009 B	0.01 (5)	0.0025	0.0023	7	24
Dissolved Barium	mg/L	0.312 FB	0.449	0.032	0.035	0.036	0.033	0.032	0.037	0.044	0.037	2.0	0.13	0.04	0	25
Dissolved Beryllium	mg/L	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.004	0.00042	0.00050	18	24
Dissolved Cadmium	mg/L	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0001 B J	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.005	0.00041	0.00038	17	24
Dissolved Calcium	mg/L	49.4 FB	46.0	45.9	50.5	47.2	50.7	50.8	51.3	51.6	53.6	---	47.43	47.00	0	25
Dissolved Chromium	mg/L	0.0008 B FB	0.0032	0.0003 FB	0.0006 FB	0.0040	0.0032 J	0.0003 B FB	0.0004 B FB	0.0173	0.0027	0.1	0.0036	0.0026	7	24
Dissolved Copper	mg/L	<0.01 U	0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 B J	<0.01 U	<0.01 U	<0.01 U	<0.01 U	1.3	0.0072	0.0050	14	24
Dissolved Iron	mg/L	0.01 B	0.17	0.03 FB	0.13	0.09	<0.02 U	0.02 B	<0.02 UJ	0.06	<0.02 U	---	0.11	0.04	4	24
Dissolved Lead	mg/L	<0.001 U	0.001 U	<0.001 U	<0.0001 U	0.0001 B	0.0002 B J	0.0001 B	<0.0001 U	0.0002 B	<0.0001 U	0.015	0.0020	0.0018	13	24
Dissolved Magnesium	mg/L	23.3 FB	23.4	21.7	24.1	22.5	23.6	24.2	23.9	24.2	23.9	---	22.02	22.20	0	25
Dissolved Manganese	mg/L	**0.161 FB**	**0.157**	**0.065**	**0.052**	**0.088**	<0.005 U	0.031	0.067 J	0.091	0.051	0.05 (6)	0.14	0.12	3	25
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	0.0006 B	0.0002 B FB	<0.0002 U	<0.0002 U	0.0002 U	<0.0002 U	<0.0002 U	0.002	0.00019	0.00015	14	24
Dissolved Molybdenum	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.03 B	<0.01 U	<0.01 B	0.06	<0.01 U	---	0.012	0.005	17	25
Dissolved Nickel	mg/L	0.06 FB	0.02 B	0.02 B	0.04 B	0.02 B	0.07	<0.01 U	0.01 U	0.03 B	0.02 B	---	0.07	0.02	2	25
Dissolved Potassium	mg/L	6.5 FB	6.6	6.7	6.8	6.5	6.7	6.5	6.8	7.1	6.9	---	7.20	6.90	0	25
Dissolved Selenium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.05	0.0029	0.0010	16	25
Dissolved Silicon	mg/L	14.1 FB	14.6	13.8	14.5	14.3	14.2	16.1	14.5	13.8	15.5	---	9.78	6.61	0	25
Dissolved Silver	mg/L	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	0.00009 B FB	<0.00005 U	<0.00005 U	0.1	0.031	0.000	17	24
Dissolved Sodium	mg/L	116 FB	123	117	118	116	117	121	120	114	121	---	111.41	114.00	0	25
Dissolved Thallium	mg/L	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0002 B FB	0.002	0.0012	0.0004	18	24
Dissolved Vanadium	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0001 U	<0.005 U	n/a	0.0052	0.0050	18	25
Dissolved Zinc	mg/L	0.14 FB	0.14	<0.01 U	0.02 B FB	0.01 B	<0.01 U	<0.01 U	0.01 B FB	1.91	1.16	5.0	0.160	0.010	8	25
Ammonia as NH_3-N	mg/L	0.07 B	0.09 B	0.06 B	0.08 B	0.08 B	<0.05 U	0.24 B	0.01 B	0.07 B	0.47 B	---	0.17	0.15	5	25
Nitrate as NO_3-N	mg/L	<0.1 U	0.04 J B FB	<0.02 U	<0.02 U	0.08 B	<0.02 U	<0.03 B FB	<0.02 U	0.22	0.07 B	10.0	0.22	0.08	9	24
Nitrite as NO_2-N	mg/L	<0.05 U J	<0.01 U J	<0.01 UH	<0.01 UH	0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	0.02 BH	<0.01 UH	1.0	0.011	0.006	14	25
NO_3-N + NO_2-N	mg/L	<0.1 U	0.04 J B FB	<0.02 UH	<0.02 UH	0.08 BH	0.02 BH	<0.03 3H FI	<0.02 UH	0.24 H	0.07 BH	10.0	0.23	0.08	7	24
Chloride	mg/L	24	17	18	16	16	16	14	16	26	17	---	20.26	19.00	0	25
Fluoride	mg/L	0.6	0.5	0.4 B	0.5 B	0.5 B	0.4 B	0.3 B	0.4 B	0.5 B	0.4 B	4.0	0.47	0.47	0	25
Sulfate	mg/L	160	170	140	150	150	160	140	140	150	130	---	136	134	0	25
pH	SI units	7.7 J	7.6 J	7.4 H	8.1 H	7.9 H	8.3 H	8.1 H	8.3 H	8.2 H	8.1 H	6.5 - 8.5	7.6	7.5	0	25
Conductivity	umhos/cm	864	874	899	878	764 H	884	857	916	845	806	---	1207	864	0	25
Hardness as $CaCO_3$	mg/L	219	211	204	225	210	224	226	226	228	232	---	208	209	0	25
TSS	mg/L	1200	396	970	128	1400 H	860 J	722 J	1080	120	610 J	---	933	722	0	25
TDS	mg/L	570	580	550	550	550 H	530	520	540	520 H	540	10000	622	588	0	25
Alkalinity as $CaCO_3$	mg/L	317	293	319	307	317 H	326	332	334	304	302	---	320	319	0	25
Bicarbonate, total	mg/L	320	293	319	307	317 H	326	332	334	304	302	---	356	334	0	25
Bicarbonate, diss.	mg/L	317	281	NA	NA	NA H	NA	NA	NA	304	NA	---	340	328	0	18
Carbonate	mg/L	<2. U	<2. U	<2. U	<2. U	<2. UH	<2. U	<2. U	<2. U	<2. U	<2. U	---	1.08	1.00	18	24
Hydroxide	mg/L	<2. U	<2. U	<2. U	<2. U	<2. UH	<2. U	<2. U	<2. U	<2. U	<2. U	---	1.08	1.00	18	23
Gross Alpha +/- error	pCi/L	**62 ±10**	**37.2 ±8.3**	**106 ±19**	**27 ±10**	**144 ±25**	**110 ±22**	**74 ±15**	**83 ±20**	**27 ±3**	**28 ±9.3**	15 pCi/L	calculated below			
Gross Beta +/- error	pCi/L	**30 ±4.6**	**51 ±7.5**	**94.2 ±11**	**16.4 ±7.7**	**134 ±14**	**100 ±12 J**	**45+/7.2**	**74 ±12**	**30 ±5.6**	**26 ±6.0**	8 pCi/L (4)	calculated below			
Uranium, total	mg/L	**0.0307**	0.02520	**0.05620**	0.02330	**0.05070**	0.0233	**0.03530**	**0.03030**	0.0159	0.0188	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	3.4 ±0.7 J	3.37 ±0.7	5.59 ±0.6	3.83 ±0.4	7.9 ±0.7	4.6 ±0.6	NA	NA	NA	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	0.83 ±1 J	4.58 ±1.4	1.78 ±1.2	1.48 ±0.7 FB	2.23 ±0.8 FB	3.3 ±0.6 J FB	NA	NA	NA	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	1.9 ±1.2	1.49 ±2.8	1.12 ±0.5	-0.07 ±0.35	1.09 ±0.59 FB J	1.7 ±0.68	NA	NA	NA	NA	n/a	calculated below			
Thorium 232 +/- error	pCi/L	0.94 ±0.94	2.39 ±2.7	1.12 ±0.47	0.44 ±0.39	1.12 ±0.55 FB	1.78 ±0.65	NA	NA	NA	NA	n/a	calculated below			

Gross Alpha	pCi/L	**62**	**37.2**	**106**	**27**	**144**	**110**	**74**	**83**	**27**	**28**	15 pCi/L	81.50	66.00	1	25
Gross Beta	pCi/L	**30**	**51**	**94.2**	**16.4**	**134**	**100 J**	**45**	**74**	**30**	**26**	8 pCi/L (4)	58.77	45.00	1	25
Uranium, total	mg/L	**0.0307**	0.02520	**0.05620**	0.02330	**0.05070**	0.0233	**0.03530**	**0.03030**	0.01590	0.0188	0.03 (2) *	0.075	0.049	0	25
Radium 226	pCi/L	3.4 J	3.37	5.59	3.83	7.9	4.6	NA	NA	NA	NA	5 (3) *	3.88	3.40	0	21
Radium 228	pCi/L	0.83 J	4.58	1.78	1.48 FB	2.23 FB	3.3 J FB	NA	NA	NA	NA	5 (3) *	2.28	2.00	2	17
Thorium 230	pCi/L	1.9	1.49	1.12	-0.07	1.09 FB J	1.7	NA	NA	NA	NA	n/a	1.63	1.60	0	18
Thorium 232	pCi/L	0.94	2.39	1.12	0.44	1.12 FB	1.78	NA	NA	NA	NA	n/a	0.76	0.60	0	18

NOTES:
- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded,** boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW97-13

Parameter	Units	11/10/97	11/14/97	11/16/97	11/21/97	2/8/98	4/1/98	5/18/98	8/20/98	10/15/98	11/20/98	5/17/99	11/8/99	5/5/00	11/14/00	5/7/01	11/12/01	10/7/02	10/6/03	10/5/04	10/25/05	03/14/06	06/15/06	Groundwater Quality Standard	Mean (4)	Median (4)	#ND	#
Dissolved Aluminum	mg/L	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.04	0.03	<0.05 U	0.04	0.05 J	<0.06 U	0.07	0.06 J	0.05	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.03 U	0.03 B	0.08 B	<0.03 UJ	---	0.03	0.03	12	22
Dissolved Antimony	mg/L	<0.02 U	<0.02 U	<0.02 U	<0.008 U	<0.002 U	0.002	0.01	<0.002 UJ	<0.002 U	<0.002 U	0.005 J	<0.003 U	0.0005 FB J	0.005 FB B	0.003 B FB	<0.002 U	<0.002 U	0.0005 B	0.0006 B	<0.0004 U	0.0009 B	0.0011 B	0.006	0.0032	0.0011	12	22
Dissolved Arsenic	mg/L	0.008	0.007	0.008	0.015	0.018	0.033	0.024	0.016	0.011	0.019	0.018	0.028	0.0222	0.016	0.008	0.012	0.016	0.0214	0.0205	0.0128	0.0312	0.0182	0.01 (5)	0.0174	0.0170	0	22
Dissolved Barium	mg/L	0.194	0.172	0.147	0.133	0.098	0.073 J	0.079	0.075	0.067	0.062	0.069	0.36 J	0.074 FB J	0.367	0.377 FB	0.425	0.078	0.068	0.085	0.068	0.078	0.077	2.0	0.15	0.08	0	22
Dissolved Beryllium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0005 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.004	0.00037	0.00050	19	22
Dissolved Cadmium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	0.001	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.005 U	<0.0005 U	<0.0001 U	0.0001 B	<0.0001 U	0.0004 B	0.0002 B	0.0003 B J	0.0001 B	0.0001 B	0.005	0.00040	0.00050	14	22
Dissolved Calcium	mg/L	122	121	126	141	126	124	104	99.7	110	86.2	99	97	91	86.9	95	72.7	79.3	72.6	74.3	48.7	74.3	72.3	---	96.50	96.00	0	22
Dissolved Chromium	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.0005 U	0.0002 B FB	0.0004 B FB	0.0001 B FB	<0.0001 U	0.0002 B FB	0.0006 J	0.0002 B FB	0.0001 B FB	0.1	0.0018	0.0025	13	22
Dissolved Copper	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 UJ	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01 U	<0.01 U	<0.01 U	<0.01 U	1.3	0.01	0.01	19	22
Dissolved Iron	mg/L	<0.02 U	0.327	0.348	0.676	0.045	1.06	0.684	0.20	<0.02 U	0.31	0.39	0.31	0.33	0.29	0.05	0.11	0.2	0.16	0.11	0.04 B J	0.15	<0.02 UJ	---	0.26	0.20	3	22
Dissolved Lead	mg/L	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005	0.005	<0.005 UJ	0.005	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.0001 U	0.0002 B	0.0003 B J	<0.0001 U	0.0001 B FB	0.015	0.0018	0.0025	16	22
Dissolved Magnesium	mg/L	37.7	37.8	40.7	46.1	42.9	42.6	37.3	36.6	39.8	31.6	36	36	36	32.8	33.8	28.5	29.5	27.3	27.5	19.3	27.7	28	---	34.3	36.0	0	22
Dissolved Manganese	mg/L	0.21	0.417	0.625	1.06	0.875	<0.77 U	<0.57 U	0.49	0.48	0.32	0.32	0.27	0.27	0.233	0.226 FB	0.193	0.190	0.161	0.166	0.078	0.163 (6)	0.156 J (6)	0.05 (6)	0.344	0.270	2	22
Dissolved Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002	0.0002	<0.0004 U	<0.0002 UJ	<0.0002 U	0.0002 B FB	<0.0002 UJ	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.002	0.0001	0.0001	18	22
Dissolved Molybdenum	mg/L	0.697	0.816	0.84	0.672	0.392	0.385	0.305	0.23	0.28	0.20	0.22	0.21	0.2	0.17	0.17	0.12	0.14	0.11	0.11	0.06	0.14	0.11	---	0.30	0.21	0	22
Dissolved Nickel	mg/L	0.024	0.14	0.037	0.025	0.019	0.024	0.01	<0.02 U	<0.01 U	0.02	0.01 B	0.01	<0.01 U	0.01 B	0.01 B FB	0.01 B	<0.01 U	0.01 B	0.01 U	<0.01 U	<0.01 U	0.01 B	---	0.02	0.01	6	22
Dissolved Potassium	mg/L	11.5	11.8	12.1	12.6	10.8	11 J	9.7	11.1	11.7	8.9	10	9.6	10	8.9	8.5	8.3	8.9	8.1	8.5	7.1	8.8	9.2	---	9.9	9.7	0	22
Dissolved Selenium	mg/L	<0.01 U	<0.002 U	<0.002 U	0.008	<0.002 U	0.002	0.002	0.004 J	0.004	<0.002 UJ	0.002	<0.002 U	0.0008	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001 U	<0.001 U	<0.001 U	<0.001 U	0.05	0.002	0.001	14	22
Dissolved Silicon	mg/L	6.04	6.35	5.46	6.19	6.88	5.18	5	6.9	6.3	5.6	5.5	5.6	6.1	13.7	13.7 FB	14.6	13.9	14	14.2	16.5	14.5	13.7	---	9.4	6.6	0	22
Dissolved Silver	mg/L	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.5 U	0.0005	0.0005	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	0.1	0.01154	0.00025	19	22
Dissolved Sodium	mg/L	149	154	174	186	166	159	142	136	158	142	150	140	140	142	149 FB	118	124	114	118	87.5	116	123	---	140	142	0	22
Dissolved Thallium	mg/L	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.001	0.001	0.002 J	<0.002 U	<0.001 U	<0.001 U	0.001 J	<0.0005 U	<0.0003 U	<0.00005 U	<0.0001 U	<0.0001 U	<0.00005 U	0.0001 B	<0.0001 U	<0.0001 U	<0.0001 U	0.002	0.00047	0.00050	17	22
Dissolved Vanadium	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	0.01	0.01	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	0.005 U	<0.005 U	<0.005 U	<0.005 U	n/a	0.0045	0.0050	19	22
Dissolved Zinc	mg/L	<0.01 U	0.028	0.011	<0.01 U	<0.02 U	0.012	0.02	0.05	<0.01 U	<0.01 U	0.01 FB	0.2 J	<0.01 U	0.33	0.23 FB	0.11	<0.01 U	0.02 B FB	0.01 B	0.02 B	<0.01 U	3.99	5.0	0.23	0.01	8	22
Ammonia as NH_3-N	mg/L	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<0.2 U	0.66	0.2	0.2	<0.2 U	<0.2 U	0.2 J	0.2 J	<0.2 U	<0.05 U	0.08 B	0.05 B	<0.05 U	0.08 B	0.09 B	<0.05 U	0.07 B	0.08 B	---	0.13	0.10	11	22
Nitrate as NO_3-N	mg/L	0.15	0.11	0.12	<0.08 U	0.09	0.2	<0.2 U	<0.2 UJ	0.1	0.1	<0.1 U	0.1 FB	0.5	0.11 FB	0.20 B FB	0.06 J B FB	<0.02 U	<0.02 U	0.02 U	<0.02 U	0.17 FB	<0.02 U	10.0	0.11	0.10	8	22
Nitrite as NO_2-N	mg/L	<0.005 U	0.012	0.016	0.025	<0.005 UJ	<0.005 UJ	<0.015 U	0.005 J	<0.005 UJ	<0.005 UJ	<0.005 U	<0.005 UJ	<0.005 U	<0.01 U J	<0.05 U J	<0.01 U J	<0.01 UH	<0.01 UH	0.01 UH	<0.01 UH	<0.01 UH	<0.01 UH	1.0	0.007	0.005	17	22
NO_3-N + NO_2-N	mg/L	0.15	0.12	0.13	0.1	0.09	0.2	<0.2 U	<0.2 UJ	0.1	0.1	<0.1 U	0.1	0.5	0.11 FB	0.20 B FB	0.06 J B FB	<0.02 UH	<0.02 UH	0.02 UH	0.02 UH	0.17 H FB	<0.02 UH	10.0	0.11	0.10	6	22
Chloride	mg/L	15.5	14.8	18	18.7	19.4	22.3	22.5	21	24	24	32	30	31	32	40	32	39	36	41	29	44	47	---	28.8	29.5	0	22
Fluoride	mg/L	0.38	0.46	0.45	0.42	0.47	0.51	0.5	0.5	0.5	0.5	0.5	0.52	0.6	0.8 FB	0.7	0.6	0.7	0.6	0.6	0.6	0.1 B	0.4 B	4.0	0.52	0.50	0	22
Sulfate	mg/L	408	444	508	533	469	523	443	349	418	347	381	387	331	330	330	270	280	230	250	110	220	210	---	353	348	0	22
pH	SI units	7.1	7.1	7.0	7.0	7.0 J	6.9 J	7 J	7.2 J	6.9 J	7 J	7.2	7.23 J	7.1 J	7.5 J	7.5 J	7.5 J	7.2 H	8.1 H	7.8 H	8.3 H	8.2 H	8.2 H	6.5 - 8.5	7.4	7.2	0	22
Conductivity	umhos/cm	1454	1534	1660	1715	1623	1650	1482	1380	9100	1330	1370	1330	1230	1200	1200	1070	1120	1020	896	741	1010	1040	---	1643	1330	0	22
Hardness as $CaCO_3$	mg/L	440	495	515	556	509	536	444	400	439	345	395	390	375	352	376	299	319	294	299	201	300	296	---	390	383	0	22
TSS	mg/L	795	140	541	474	227	486	83	28	160	32 J	151	73 J	18 J	14	50	8	32	18	44 H	32 J	108 J	88	---	164	78	0	22
TDS	mg/L	1070	1340	1440	1240	1120 J	1200	1060	1060	1110	876 J	928	948	816	820	860	660	710	630	680 H	440	630	650	10000	922	902	0	22
Alkalinity as $CaCO_3$	mg/L	359	355	403	401	394	388	357	339	361	339	339	332	319	272	313	260	284	264	260	243	272	277	---	324	336	0	22
Bicarbonate, total	mg/L	438	433	491	489	481	406	428	413	440	413	414	404	389	272	284	260	284	264	260	243	272	277	---	366	405	0	22
Bicarbonate, diss.	mg/L	397	315	323	363	478	473	435	413	440	392	226 J	400	389	299	313	255	NA	NA	NA	NA	NA	NA	---	369	391	0	16
Carbonate	mg/L	<2. U	<1. U	<2. U	<2. U	<1. U	2	2	<2. U	<2. U	<1. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	2 U	<2. U	<2. U	<2. U	---	1	1	19	22
Hydroxide	mg/L	<2. U	<1. U	<2. U	<2. U	<1. U	2	2	<2. U	<2. U	<1. U	<1. U	<1. U	<1. U	<2. U	<2. U	<2. U	<2. U	<2. U	2 U	<2. U	<2. U	<2. U	---	1	1	19	22
Gross Alpha +/- error	pCi/L	51.0 ±6.5	43.4 ±6.5	50.6 ±7.4	34.3 ±7.7	0 J	29.6 ±5.9	20 ±3.9	14 ±3.5	22±3.9	13±2.9 J	25 ±11.8	6.9 ±8.1	16.8 ±8.2	6.5 ±6.1 J	61 ±11	3.9 ±2.9 FB	11.6 ±5.1	18.3 ±9	7.17 ±4.8	18 ±5.8 FB	13 ±5.3	22 ±7.5	15 pCi/L	calculated below			
Gross Beta +/- error	pCi/L	5.7 ±2.5	7.7 ±3.2	18.1 ±3.6	32.7 ±3.9	0	44.2 ±4.3	25 ±2.6	16 ±3.1	36±5.1 J	13±2.7 J	33 ±8.4 J	12 ±8.9	19.6 ±3.1 FB	15 ±4.2 J	50 ±6.5	13.7 ±3.8 FB	10 ±4.1	11.7 ±7.1	15.6 ±4.3 FB	20 ±4.1 J FB	19 ±4.6	26 ±4.6	8 pCi/L (*)	calculated below			
Uranium, total	mg/L	0.016	0.022	0.021	0.018	0.05	0.038	0.031	0.0029	0.022	0.0142 J	0.013	0.026	0.011	0.009	0.0066	0.00506	0.00509	0.00654	0.00434	0.0023	0.0042	0.0045	0.03 (2) *	calculated below			
Radium 226 +/- error	pCi/L	1.8 ±0.4	1.8 ±0.4	2.3 ±0.4	1.4 ±0.2	1.1 ±0.2 J	2.3 ±0.3	1.6 ±0.3	1.0 ±0.3	1.5±0.3	1.1±0.3	1.2 ±0.2	2.9 ±0.8	1.4 ±0.2	0.9 ±0.3 J	0.86 ±0.3 FB J	1.34 ±0.6	1.26 ±0.3	1.02 ±0.4	1.7 ±0.3	1.7 ±0.3	1.6 ±0.28	NA	5 (3) *	calculated below			
Radium 228 +/- error	pCi/L	<1.3 ±0.5 U	<1.3 ±0.6 U	<1.3 ±0.6 U	1.4 ±0.4	0.6 ± 0.3	1 ±0.4	0.7 ±0.7	<0.9 ±0.4 U	1.0±0.3	2.7±1.1 J	2 ±0.7	1.8 ±1.1	4 ±0.6	2.2 ±1	1.2 ±0.5 J	2.57 ±0.7	2.91 ±1.3	1.67 ±0.8 FB	1.89 ±0.8 FB	1.9 ±0.6 J FB	1.1 ±0.57	NA	5 (3) *	calculated below			
Thorium 230 +/- error	pCi/L	<2.4 ±1.5 U	<2.8 ±1.4 U	<2.9 ±1.5 U	<1.4 ±2.4 U	0.7 ± 0.6	3 ±1.2	0.7 ±0.9	0.8 ±0.80	3.7±1.40	2.0±0.90	1.7 ±0.50 J	2.2 ±0.9	0.5 ±0.40 FB	-0.15 ±0.24 U J	-0.16 ±0.45	-0.05 ±0.34	-0.28 ±0.46	-0.18 ±0.3	0.65 ±0.51 FB	0.09 ±0.44	0.03 ±0.41	NA	n/a	calculated below			
Thorium 232 +/- error	pCi/L	<1.2 ±0.7 U	<1.4 ±0.6 U	<1.5 ±0.6 U	<0.5 ±0.8 U	0.3 ± 0.2 J	0.6 ±0.5	0.7 ±0.4	0.5 ±0.40	1.1±0.70	0.8±0.50	0.3 ±0.20	0.63 ±0.58	0.3 ±0.20 U	0.09 ±0.12 U J	-0.91 ±0.21	-0.05 ±0.3	-0.07 ±0.44	0.09 ±0.31	0.2 ±0.4	0.27 ±0.42	0.23 ±0.39	NA	n/a	calculated below			

Gross Alpha	pCi/L	51.0	43.4	50.6	34.3	27.3 J	29.6	20	14	22	13 J	25	6.9	16.8	6.5 J	61	3.9 FB	11.6	18.3	7.17	18 FB	13	22	15 pCi/L	23.43	19.15	0	22
Gross Beta	pCi/L	5.7	7.7	18.1	32.7	22.7	44.2	25	16	36 J	13 J	33 J	12	19.6 FB	15 J	50	13.7 FB	10	11.7	15.6 FB	20 J FB	19	26	8 pCi/L (*)	21.21	18.55	0	22
Uranium, total	mg/L	0.016	0.022	0.021	0.018	0.05	0.038	0.031	0.0029	0.022	0.0142 J	0.013	0.026	0.011	0.009	0.0066	0.00506	0.00509	0.00654	0.00434	0.0023	0.0042	0.0045	0.03 (2) *	0.0151	0.0120	0	22
Radium 226	pCi/L	1.8	1.8	2.3	1.4	1.1 J	2.3	1.6	1	1.5	1.1	1.2	2.9	1.4	0.9 J	0.86 FB J	1.34	1.26	1.02	1.7	1.7	1.6	NA	5 (3) *	1.51	1.40	0	21
Radium 228	pCi/L	<1.3 U	<1.3 U	<1.3 U	1.4	0.6	1	0.7	<0.9 U	1	2.7 J	2	1.8	4	2.2	1.2 J	2.57	2.91	1.67 FB	1.89 FB	1.9 J FB	1.1	NA	5 (3) *	1.57	1.40	4	21
Thorium 230	pCi/L	<2.4 U	<2.8 U	<2.9 U	<1.4 U	0.7	3	0.7	0.8	3.7	2	1.7 J	2.2	0.5 FB	<0.15 U J	0.16	0.05	0.28	0.18	0.65 FB	0.09	0.03	NA	n/a	1.03	0.70	5	21
Thorium 232	pCi/L	<1.2 U	<1.4 U	<1.5 U	<0.5 U	0.3 J	0.6	0.7	0.5	1.1	0.8	0.3	0.63	<0.3 U	<0.09 U J	0.91	0.05	0.07	0.09	0.2	0.27	0.23	NA	n/a	0.44	0.30	6	21

NOTES:
- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation

0.91 **Bolded** and boxed results indicate that the parameter exceeds the maximum background level (defined as the mean + 2 standard deviations) for ambient monitoring wells SLV1A, SLV2, SLV3, MW2A, and 94MW2.

0.4 **Bolded,** boxed, and shaded results indicate that the parameter exceeds the Utah Groundwater Quality Standards applied to ambient monitoring wells MW96-7A, MW96-7B, MW97-9, MW97-11, MW97-12, and MW97-13, and to other wells where background statistics for specific constituents have not been calculated.

(1) Maximum background concentrations for SLV1A, SLV2, SLV3, MW2A, 94MW4 calculated by DEQ as the mean plus two standard deviations of the available data up to and including October 1996.
(2) The gross beta standard is the activity that will cause a 4 mrem/yr exposure; converted to pCi/L by assuming the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(3) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L.
(4) Mean and median statistics calculated using ½ detection limit for non-detected values
(5) Utah GWQS for Arsenic changed to 0.05 mg/l as of 1/1/2006
(6) No Utah GWQS for Manganese as of 1/1/2006

TABLE 12. CUMULATIVE WATER QUALITY RESULTS

Monitoring Well MW06-15

Parameter	Units	12/18/06		Groundwater Quality Standard	Mean [4]	Median [4]	#ND	#
Dissolved Aluminum	mg/L	0.06	B FB	---	0.06	0.06	0	1
Dissolved Antimony	mg/L	0.0017	B	0.006	0.0017	0.0017	0	1
Dissolved Arsenic	mg/L	<0.0005	U	0.01 [5]	0.0003	0.0003	1	1
Dissolved Barium	mg/L	0.05	FB	2.0	0.05	0.05	0	1
Dissolved Beryllium	mg/L	<0.0001	U	0.004	0.00005	0.00005	1	1
Dissolved Cadmium	mg/L	<0.0001	U	0.005	0.00005	0.00005	1	1
Dissolved Calcium	mg/L	9.2		---	9.20	9.2	0	1
Dissolved Chromium	mg/L	<0.0001	U	0.1	0.00005	0.00005	1	1
Dissolved Copper	mg/L	<0.01	U	1.3	0.01	0.005	1	1
Dissolved Iron	mg/L	<0.02	U	---	0.01	0.01	1	1
Dissolved Lead	mg/L	0.0002	B FB	0.015	0.0002	0.0002	0	1
Dissolved Magnesium	mg/L	3.4		---	3.4	3.4	0	1
Dissolved Manganese	mg/L	0.084		0.05 [6]	0.084	0.084	0	1
Dissolved Mercury	mg/L	<0.0002	U	0.002	0.0001	0.0001	1	1
Dissolved Molybdenum	mg/L	0.04	B	---	0.04	0.04	0	1
Dissolved Nickel	mg/L	<0.01	U	---	0.01	0.005	1	1
Dissolved Potassium	mg/L	8.0		---	8.0	8.0	0	1
Dissolved Selenium	mg/L	<0.001	U	0.05	0.0005	0.0005	1	1
Dissolved Silicon	mg/L	10.2		---	10.2	10.2	0	1
Dissolved Silver	mg/L	<0.00005	U	0.1	0.000025	0.000025	1	1
Dissolved Sodium	mg/L	271		---	271	271	0	1
Dissolved Thallium	mg/L	<0.0001	U	0.002	0.00005	0.00005	1	1
Dissolved Vanadium	mg/L	<0.005	U	n/a	0.0025	0.0025	1	1
Dissolved Zinc	mg/L	0.12		5.0	0.12	0.12	0	1
Ammonia as NH_3-N	mg/L	0.43	B FB	---	0.43	0.43	0	1
Nitrate as NO_3-N	mg/L	<0.02	U	10.0	0.01	0.01	1	1
Nitrite as NO_2-N	mg/L	<0.01	UH	1.0	0.005	0.005	1	1
NO_3-N + NO_2-N	mg/L	<0.02	UH	10.0	0.01	0.010	1	1
Chloride	mg/L	133		---	133	133.0	0	1
Fluoride	mg/L	2.6		4.0	2.6	2.60	0	1
Sulfate	mg/L	90		---	90	90	0	1
pH	SI units	[illegible]		6.5 - 8.5	8.7	8.7	0	1
Conductivity	umhos/cm	1230		---	1230	1230	0	1
Hardness as $CaCO_3$	mg/L	37		---	37	37	0	1
TSS	mg/L	566	J	---	566	566	0	1
TDS	mg/L	700		10000	700	700	0	1
Alkalinity as $CaCO_3$	mg/L	382		---	382	382	0	1
Bicarbonate, total	mg/L	350		---	350	350	0	1
Bicarbonate, diss.	mg/L	NA		---	NA	NA	0	0
Carbonate	mg/L	31		---	31	31	0	1
Hydroxide	mg/L	<2.	U	---	1	1	1	1
Gross Alpha +/- error	pCi/L	11+/-7.5		15 pCi/L		calculated below		
Gross Beta +/- error	pCi/L	[illegible]		8 pCi/L [4]		calculated below		
Uranium, total	mg/L	0.0051		0.03 [2] *		calculated below		
Radium ^{226} +/- error	pCi/L	NA		5 [3] *		calculated below		
Radium ^{228} +/- error	pCi/L	NA		5 [3] *		calculated below		
Thorium ^{230} +/- error	pCi/L	NA		n/a		calculated below		
Thorium ^{232} +/- error	pCi/L	NA		n/a		calculated below		
Gross Alpha	pCi/L	11		15 pCi/L	11	11	1	1
Gross Beta	pCi/L	[illegible]		8 pCi/L [4]	23	23	1	1
Uranium, total	mg/L	0.0051		0.03 [2] *	0.01	0.01	0	1
Radium ^{226}	pCi/L	NA		5 [3] *	NA	NA	1	0
Radium ^{228}	pCi/L	NA		5 [3] *	NA	NA	1	0
Thorium ^{230}	pCi/L	NA		n/a	NA	NA	0	0
Thorium ^{232}	pCi/L	NA		n/a	NA	NA	0	0

NOTES:
- U = not detected at value given
- B = detected at level between method detection limit (MDL) and pratical quantitation limit (PQL)
- H = analysis exceeded method hold time
- J = estimated detected value
- UJ = estimated non-detect value
- LB = detected in laboratory method or instrument blank
- FB = detected in field blank or field rinsate blank
- NA = not applicable
- NC = not calculated as of this time
- mg/L = milligrams per liter
- umhos/cm = micromhos per centimeter
- SI = standard international units
- pCi/L = picocuries per liter
- # = number of samples
- std = standard deviation
- --- = groundwater standard has not been established

TABLE 13.
CUMULATIVE WATER QUALITY DATA FROM ACTIVE WATER SUPPLY WELLS
Lisbon Valley Mine

Pumping Well		PW-2	PW-2	PW-2	PW-3	PW-3	PW-3	PW-3	PW-5	PW-5	PW-6	PW-6	PW-6	PW-6	PW-7	PW-7	MCL Maximum Contaminant Level	SMCL Secondary Maximum Contaminant Level	Utah Groundwater Quality Standard
Sample ID		PW 97-2-01-01	PW2-040611	PW-2-06-3	PW3-040525	PW-3-06-2	PW-3-06-3	PW-3-06-4	PW5-040607	PW-5-06-3	PW6-050520	PW-6-06-2	PW-6-06-3	PW-6-06-4	PW7-050616	PW-7-06-3			
Sample Date		11/20/97	06/11/04	09/07/06	05/25/04	05/19/06	09/05/06	11/03/06	06/07/04	09/07/06	05/20/05	05/19/06	09/05/06	11/03/06	06/16/05	9/7/06			
Parameter	**Units**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**			
Dissolved Metals																			
Aluminum	mg/L	<0.03 U	<0.03 U	0.17 B	<0.03 U	<0.06 UJ	<0.03 U	<0.03 U	<0.03 U	<0.03 U	<0.03 U	0.86 J FB	<0.03 U	<0.03 U	<0.03 U	0.04 B	-----	0.05 - 0.2	-----
Antimony	mg/L	<0.004 U	0.0015	<0.0004 U	0.0021	<0.0004 U	<0.0004 U	<0.0004 U	0.0004 B	<0.0004 U	0.0028	<0.0004 U	<0.0004 U	<0.0004 U	0.0012 B	<0.0004 U	0.006	-----	0.006
Arsenic	mg/L	<0.005 U	0.0021	0.0022 B	0.0022 B	0.001 B	0.0006 B	0.0009 B	0.0014	0.0029 B	**0.0177**	0.0005 B	0.0006 B	0.0028 B	**0.0124**	0.0231 -1	0.01 / 0.05 (1)	-----	0.01
Barium	mg/L	0.04	0.224	0.033	0.518	0.01 B	0.01 B	0.01 FB	0.015	0.014	0.345	0.013	0.014	0.026	0.183	0.031	2.0	-----	2.0
Beryllium	mg/L	<0.001 U	<0.0001 U	<0.0001 U	<0.0002 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.004	-----	0.004
Cadmium	mg/L	0.0028	0.0005	<0.0001 U	<0.0002 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0001 B	<0.0001 U	**0.026**	0.0158	0.017	0.0012	0.0009	<0.0001 U	0.005	-----	0.005
Calcium	mg/L	22.8	48.9	48.7	194	237	243	244	29.5	58.5	184	123	122	117	120	50.1	-----	-----	-----
Chromium	mg/L	<0.005 U	0.0003 B	<0.0001 U	0.0002 B	0.0003 B FB	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.0001 B	0.0001 B FB	<0.0001 U	<0.0001 U	<0.0001 U	<0.0001 U	0.1	-----	0.1
Copper	mg/L	<0.01 U	<0.01 U	0.01 B	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	1.3	1.0	1.3
Iron	mg/L	<0.02 U	0.03 B	0.12	0.98	3.28 J	1.86	1.77	0.11	0.03 B	0.6	1.17 J FB	0.05	2.47	<0.01 U	1	-----	0.3	-----
Lead	mg/L	<0.005 U	0.0001 B	<0.0001 U	0.0007 B	0.0009 FB	<0.0001 U	<0.0001 U	0.0002 B	0.0001 B	0.0002 B	0.0002 B FB	0.0002 B	<0.0001 U	<0.0001 U	0.0001 B	0.015	-----	0.015
Magnesium	mg/L	5.31	10.7	13.1	68.1	87	81.2	83.6	12.6	24.5	70.1	47.2	46.1	43.9	41.4	18.8	-----	-----	-----
Manganese	mg/L	0.025	0.05	0.047	**0.173**	**0.18 J**	**0.176**	**0.172**	0.028 B	**0.067**	**0.243**	**0.08 J**	0.008 B	**0.258**	**0.261**	**0.072**	-----	0.05	0.05
Mercury	mg/L	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	<0.0002 U	0.0003 B	<0.0002 U	<0.0002 U	<0.0002 U	0.002	-----	0.002
Molybdenum	mg/L	<0.02 U	<0.01 U	<0.01 U	0.04 B	<0.02 U	0.03 B	0.01 B	0.04 B	0.43	0.02 B	<0.02 U	0.01 B	0.03 B	0.72	0.09	-----	-----	-----
Nickel	mg/L	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.02 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.02 U	0.02 B	0.03 B	<0.01 U	<0.01 U	-----	-----	0.1
Potassium	mg/L	4.2	4.4	4.8	10.1	13.2	12.3	12.9	9.5	10.3	9	8.3	7.9	8.6	10.9	7.1	-----	-----	-----
Selenium	mg/L	<0.002 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	<0.001 U	0.002 B	0.007	0.008	<0.001 U	<0.001 U	<0.001 U	0.05	-----	0.05
Silicon	mg/L	4.83	11.2	10.4	12.3	10.8	10.3	6.8	10.2	10.5	17.4	13.9	13.2	12.8	6.5	14.7	-----	-----	-----
Silver	mg/L	<0.0005 U	<0.00005 U	<0.00005 U	<0.0001 U	0.00013 B FB	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	0.00009 B FB	<0.00005 U	<0.00005 U	<0.00005 U	<0.00005 U	-----	0.1	0.1
Sodium	mg/L	144	131	134	57.5	52.5	53.7	54.1	220	242	117	91.7	105	122	157	106	-----	-----	-----
Strontium	mg/L	N/A	1.4	N/A	6.82	N/A	N/A	N/A	2.53	N/A	4.48	N/A	N/A	N/A	4.81	N/A	-----	-----	-----
Thallium	mg/L	<0.001 U	<0.00005 U	<0.0001 U	**0.0029**	<0.0001 U	<0.0001 U	0.0002 B FB	0.00031	<0.0001 U	<0.0001 U	0.0002 B	0.0002 B	0.0002 B FB	<0.0001 U	<0.0001 U	0.002	-----	0.002
Vanadium	mg/L	<0.01 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	<0.005 U	-----	-----	-----
Zinc	mg/L	<0.01 U	0.23	0.08	0.66	0.03 B FB	0.01 B	0.02 B	0.1	<0.01 U	0.37	0.06 FB	0.04 B	0.02 B	0.02 B	<0.01 U	-----	5.0	5.0
Wet Chemistry																			
Ammonia as NH_3-N	mg/L	<0.2 U	0.13 B	0.15 B	0.25 B	0.23 B	0.22 B FB	0.24 B FB	0.15 B	0.22 B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	0.09 B	0.06 B	-----	-----	-----
Nitrate as NO_3-N	mg/L	0.12	0.11	0.08 B	0.03 B	<0.02 U	0.08 B FBJ	<0.02 U	0.09 B	0.03 B	0.48	1.54	0.95 J	0.07 B	<0.02 U	0.04 B	10.0	-----	10.0
Nitrite as NO_2-N	mg/L	0.031	<0.01 UH	<0.01 UH	<0.01 UH	0.02 BH FB	<0.01 UH	0.02 B	0.02 BH	<0.01 UH	0.02 B	0.01 BH FI	<0.01 UH	0.02 B	<0.01 U	<0.01 UH	1.0	-----	1.0
NO_3-N + NO_2-N	mg/L	0.15	0.11 H	0.08 BH	0.03 BH	0.03 BH FB	0.08 BH FBJ	<0.02 U	0.11 H	0.03 BH	0.5	1.55 H FB	0.95 HJ	0.09 B	<0.02 U	0.04 BH	10.0	-----	10.0
Chloride	mg/L	37.7	32	30	14	19	18	19	15	16	61	23	21	29	30	45	-----	250	-----
Fluoride	mg/L	0.86	0.8	0.7	0.5	0.2 B	0.3 B	0.3 B	0.9	0.3 B	1.3	0.1 B	0.3 B	0.3 B	0.6	0.2 B	4.0	2.0	4.0
Sulfate	mg/L	115	190	190	470	640	650	650	280	440	590	370	440	380	480	140	-----	250	-----
pH	SI units	7.9 H	7.7 H	8.1 H	7.2 H	7.9 H	7.7 H	7.7 H	8.2 H	8.3 H	6.8 H	7.8 H	7.8 H	7.9 H	8.0 H	8.2 H	-----	6.5 - 8.5	6.5 - 8.5
Conductivity	µM/cm	786.8	780	1070	1390	1620	1630	1350	1200	1770	1500	1190	1280	1120	1490	964	-----	-----	-----
Hardness as $CaCO_3$	mg/L	75	166	176	765	950	941	954	126	247	748	501	494	473	470	203	-----	-----	-----
TSS	mg/L	45 U	<5. U	8 B	<5. U	6 B	12 B J	8 B J	8 B	<5. U	8 B	<5. U	<5. UJ	12 B J	16 B	8 B	-----	-----	-----
TDS	mg/L	448	550	580	1010	1320	1350	1240	800	980	1220	920	950	880	1070	520	2000	500	10000
Alkalinity as $CaCO_3$, t	mg/L	216	234	232	382	352	343	322	258	326	275	259	253	265	292	245	-----	-----	-----
Bicarbonate, total	mg/L	259	234	232	382	352	343	322	258	322	275	259	253	265	292	245	-----	-----	-----
Carbonate	mg/L	2	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	4 B	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	-----	-----	-----
Hydroxide	mg/L	<1.0 U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	<2. U	-----	-----	-----
Radiologiccal																			
Gross Alpha	pCi/L	**59.2 ± 3.1**	**35.5**	**11**	n/a	**29+/-9.7**	**25+/-7.6**	**17+/-10**	**22.3**	5.5	**48**	**16+/-5.6**	**18+/-5.8**	**16+/-7.2**	**120**	2.4	15 pCi/L	-----	15 pCi/L
Gross Beta	pCi/L	5.9 ± 1.6	**11.7**	**16**	n/a	**20+/-5.9**	**18+/-5.9**	**12+/-7.4**	**19.6**	**12**	**44**	**17+/-4**	**17+/-5.0**	**11+/-4.8**	**35**	6.6	4 mrem/8 pCi/L (3)	-----	4 mrem/8 pCi/L (3)
Uranium, total	mg/L	**0.0486**	0.0297	**0.0375**	0.0089	0.0168	0.0160	0.0151	0.0018	0.0024	0.0292	0.0300	**0.033**	0.0249	**0.138**	0.0022	0.03	-----	0.03

NOTES:

< = analyte not detected at detection limit (DL) or practical quantitation limit (PQL) shown.
U = not detected at value given
B = detected at a value between method detection limit (MDL) and pratical quantitation limit (PQL)
H = analysis exceeded method hold time
mg/L = milligrams per liter
µM/cm = micromhos per centimeter
SI = standard international units
pCi/L = picocuries per liter

--- = no groundwater standard has been established.
0.17 Bold values exceed drinking water MCLs or SMCLs listed in R309-200-5 (Primary Drinking Water Standards) and R309-200-6 (Secondary Drinking Water Standards)
(1) Utah GWQS for arsenic increased from 0.01 to 0.05 mg/l as of 1/1/2006
(2) No Utah GWQS for manganese as of 1/1/2006
(3) Gross Beta standard is that activity that will cause a 4 mrem/year exposure (or 8pCi/L) in drinking water for all beta emitters, including Thorium isotopes.

Table 14. Water Quality Data from Inactive Water Supply Wells

WELL →		SLV-3	PW-1	PW-4	PW-7 Morrison	MCL	SMCL	
Analyte	Units	Average 25 samples	PW 97-1-01-01 11/12/97	PW4-040604 06/04/04	PW7-M-0506 06/02/05	Secondary Maximum Contaminant Level(1)	Secondary Maximum Contaminant Level(1)	Utah Groundwater Quality Standard (1)
Metals								
Aluminum	mg/L	0.0368	<0.03	<0.06	<0.03	-----	0.05 - 0.2	-----
Antimony	mg/L	0.0026	<0.002	0.001	0.0029	0.006	-----	0.006
Arsenic	mg/L	0.0041	<0.005	**0.0106**	0.0045	0.01	-----	0.01
Barium	mg/L	0.1076	0.013	0.664	0.261	2.0	-----	2.0
Beryllium	mg/L	0.0007	<0.001	<0.0002	<0.0001	0.004	-----	0.004
Cadmium	mg/L	0.00079	<0.001	0.0008	<0.0001	0.005	-----	0.005
Calcium	mg/L	270	95.8	259	221	-----	-----	-----
Chromium	mg/L	0.00336	<0.005	<0.0002	0.001	0.1	-----	0.1
Copper	mg/L	0.00544	<0.01	<0.01	<0.01	1.3	1.0	1.3
Iron	mg/L	7.85	0.041	0.88	5.1	-----	0.3	-----
Lead	mg/L	0.0028	<0.005	<0.0002	<0.0001	0.015	-----	0.015
Magnesium	mg/L	91.7	38.8	93.6	69.2	-----	-----	-----
Manganese	mg/L	**0.63**	**0.133**	**0.631**	**0.871**	-----	0.05	0.05
Mercury	mg/L	0.000178	<0.0002	<0.0002	<0.0002	0.002	-----	0.002
Molybdenum	mg/L	0.0089	<0.02	0.37	0.17	-----	-----	-----
Nickel	mg/L	0.012	<0.01	0.03	<0.01	-----	-----	-----
Potassium	mg/L	12.9	2.4	11.2	11.5	-----	-----	-----
Selenium	mg/L	0.0053	<0.01	<0.001	<0.001	0.05	-----	0.05
Silicon	mg/L	6.0	9.19	11.7	6.7	-----	-----	-----
Silver	mg/L	0.025	<0.0005	<0.0001	<0.00005	-----	0.1	0.1
Sodium	mg/L	69.6	93.7	98.9	165	-----	-----	-----
Strontium	mg/L	n/a	N/A	9.49	5.75	-----	-----	-----
Thallium	mg/L	0.00070	<0.001	0.0006	<0.0001	0.002	-----	0.002
Vanadium	mg/L	0.006	<0.01	<0.005	<0.005	-----	-----	-----
Zinc	mg/L	0.092	<0.01	4.42	0.06	-----	5.0	5.0
Wet Chemistry								
Ammonia as NH_3-N	mg/L	0.267	1.27	1.37	0.18	-----	-----	-----
Nitrate as NO_3-N	mg/L	0.284	1.1	0.13	0.03	10.0	-----	10.0
Nitrite as NO_2-N	mg/L	0.006	0.006	<0.01	<0.01	1.0	-----	1.0
NO_3-N + NO_2-N	mg/L	0.3	1.1	0.13	0.03	10.0	-----	10.0
Chloride	mg/L	22.33	9	16	23	-----	-----	-----
Fluoride	mg/L	0	0.32	0.5	0.7	4.0	2.0	4.0
Sulfate	mg/L	892.0	315	940	810	-----	250.0	-----
pH		7	7.4	7.7	7.9	-----	6.5 - 8.5	6.5 - 8.5
Conductivity	µS/cm	2026	1126	2110	1920	-----	-----	-----
Hardness as $CaCO_3$	mg/L	1085	416	1030	837	-----	-----	-----
TSS	mg/L	711	25	740	34	-----	-----	-----
TDS	mg/L	**1718**	776	1710	1490	-----	500	10000
Alkalinity as $CaCO_3$, t	mg/L	404	245	312	337	-----	-----	-----
Bicarbonate, total	mg/L	470	298	312	337	-----	-----	-----
Carbonate	mg/L	<1.	<1.0	<2.	<2.	-----	-----	-----
Hydroxide	mg/L	<1.	<1.0	<2.	<2.	-----	-----	-----
Radiologiccal								
Gross Alpha	pCi/L	**87.2**	<5.3 ± 3.4	**200**	**61**	15 pCi/L	-----	15 pCi/L
Gross Beta	pCi/L	**73.5**	<3.8 ± 2.2	**57.6**	49	50 pCi/L (2)	-----	4 mrem/yr 8 pCi/L (3)
Uranium, total	mg/L	0.0089	2	**0.1620**	**0.0302**	0.03	-----	0.03
Radium 226	mg/L	**7.0**	0.4 ± 0.2	n/a	n/a	0.03	-----	5 (4)
Radium 228	mg/L		<1.3 ± 0.5	n/a	n/a	0.03	-----	5 (4)
Thorium 230	mg/L		<1.9 ± 1.40	n/a	n/a	0.03	-----	
Thorium 232	pCi/L		<1 ± 0.60	n/a	n/a	5.0	-----	4 mrem/yr 8 pCi/L (5)

NOTES: Bold values exceed drinking water MCLs or SMCLs
< = analyte not detected at detection limit (DL) or practical quantitation limit (PQL) shown.
(1) --- indicates no groundwater standard has been established.
(2) EPA screening criteria under the Safe Drinking Water Act suggest that compliance for gross beta particle activity may be assumed without further analysis if gross beta activity falls below 50 pCi/L.
(3) Gross beta standard is that activity which will cause a 4 mrem/year exposure; converted to pCi/L by assuming that the beta activity is due to Sr-90 and a 2-liter per day intake of water.
(4) The standard is combined radium 226 and radium 228 activity of 5.0 pCi/L
(5) Standard is that activity which will cause a 4 mrem/year or 8pCi in drinking water for all beta emitters, including Thorium isotopes.

Three piezometers were sampled for a limited suite of water quality parameters in 1998, for use in water supply evaluations near the Sentinel Pit. The results (Table 15) indicated that water quality in the alluvium exhibits a high degree of variability. For example, the TDS content is 848 mg/L in 98R7, compared to 2,040 in 98R3. Groundwater from the Morrison Formation (98R4) contains even higher dissolved solids (5,570 mg/L). The study determined that alluvial groundwater from piezometer 98R7 would probably be suitable for use as plant process water, based on the low chloride content (7.6 mg/L) and relatively low TDS.

Table 15. Water Quality Data from Piezometers 98R3, 98R4, and 98R7

Analyte	Units	98R3-98-01 (Qal)	98R4-98-01 (Jm)	98R7-98-01 (Qal)
Bicarbonate as HCO3	mg/L	4/17/98 14:45	4/17/98 13:35	4/15/98 13:20
Analyte	**Units**	**Result**	**Result**	**Result**
Bicarbonate as HCO3	mg/L	2070	515	235
Carbonate as CO3	mg/L	< 3	< 1	< 2
Alkalinity, Total (CaCO3)	mg/L	1690	423	195
Chloride (D)	mg/L	26.8	107	7.6
Fluoride	mg/L	0.72	0.4	1.26
Sulfate	mg/L	1290	2980	189
pH	unit	7.1	6.6	7.8
Conductance, Specific	umhos/cm	2017	4110	699.3
Total Dissolved Solids	mg/L	2040	5570	848
Total Suspended Solids	mg/L	1800	181	194
Antimony, (D) as Sb	mg/L	0.008	0.003	< 0.002
Arsenic, (D) as As	mg/L	< 0.005	0.007	< 0.005
Barium (D), as Ba	mg/L	0.029	0.033	0.017
Beryllium (D), as Be	mg/L	< 0.001	< 0.001	< 0.001
Cadmium, (D) as Cd	mg/L	< 0.001	< 0.001	< 0.001
Calcium (D), as Ca	mg/L	319	436	21.1
Chromium (D), as Cr	mg/L	< 0.005	< 0.005	< 0.005
Copper (D), as Cu	mg/L	< 0.01	0.073	< 0.01
Iron (D), as Fe	mg/L	0.031	0.094	0.115
Lead,(D) as Pb	mg/L	< 0.005	0.023	< 0.005
Magnesium (D), as Mg	mg/L	98.3	289	7.66
Manganese (D), as Mn	mg/L	0.23	0.27	< 0.01
Mercury, as Hg (D)	mg/L	0.0004	< 0.0002	0.0003
Molybdenum (D), as Mo	mg/L	0.109	< 0.01	0.072
Nickel (D), as Ni	mg/L	< 0.01	0.018	< 0.01
Potassium (D), as K	mg/L	5.17	16.8	3.65
Sodium (D), as Na	mg/L	57.7	479	116
Selenium,(D) as Se	mg/L	0.017	< 0.002	0.003
Silver,(D) as Ag	mg/L	< 0.0005	< 0.0005	< 0.0005
Uranium, Total	pCi/L	87.6	81.2	615
Zinc (D), as Zn	mg/L	< 0.01	0.018	< 0.01

7. GROUNDWATER PUMPING

7.1 2006 Groundwater Pumping Rates

Groundwater was pumped from six wells for water supply in 2006. Five of these six wells (SLV3, PW-3, PW-5, PW-6, and PW-7) are wired for electrical power and plumbed into the water supply piping system (Figure 3). The sixth well (PW-2) is not plumbed into the water supply piping system because its low yield does not justify the cost of piping and electricity, so it was operated using a generator and a mobile water storage tank. All of the wells are included in water right number 05-2593, except SLV-3 which is covered under water right number 05-762 (Section 7.2). Each well is equipped with a totalizing flow meter. Monthly pumping rates for 2006 are shown in Table 16. Annual pumping rates for 2004 through 2006 are shown in Table 17.

Table 16. 2006 Monthly Groundwater Pumping

Month	SLV-3 WR 05-763	PW-2 WR 05-2593	PW-3 WR 05-2593	PW-4 WR 05-2593	PW-5 WR 05-2593	PW-6 WR 05-2593	PW-7 WR 05-2593	TOTAL (gallons)	TOTAL (acre-ft)
Jan	5,880	31,360	6,050	0	1,071,685	1,071,685	0	2,186,660	6.7
Feb	10,340	22,135	3,651,860	0	4,382,000	5,580,855	0	13,647,190	41.9
Mar	6,030	14,110	2,573,360	0	4,025,600	426,300	0	7,045,400	21.6
Apr	980	35,530	3,410,760	0	4,901,760	4,931,800	0	13,280,830	40.8
May	0	26,555	3,350,625	0	3,561,600	7,035,280	0	13,974,060	42.9
June	0	0	2,161,330	0	3,944,195	7,647,920	2,155,210	15,908,655	48.8
July	0	0	446,400	0	2,679,600	875,160	8,387,620	12,388,780	38.0
Aug	0	20	3,262,000	0	3,234,070	12,186,335	3,949,145	22,631,570	69.5
Sept	0	93,575	1,632,190	0	1,104,650	5,562,750	11,420,240	19,813,405	60.8
Oct	0	374840	2,234,445	0	525,660	5,190	6,039,745	9,179,880	28.2
Nov	0	302900	446,890	0	536,960	463,980	6,258,350	8,009,080	24.6
Dec	0	42510	0	0	352,340	947,100	4,887,430	6,229,380	19.1
TOTAL	**23,230**	**943,535**	**23,175,910**	**0**	**30,320,120**	**46,734,355**	**43,097,740**	**144,294,890**	**442.9**

NOTES: Groundwater pumping presented for production wells only (excludes monitoring well purging). WR indicates water right number. Values are in gallons, unless otherwise indicated.

Table 17. Total Groundwater Pumping by Year

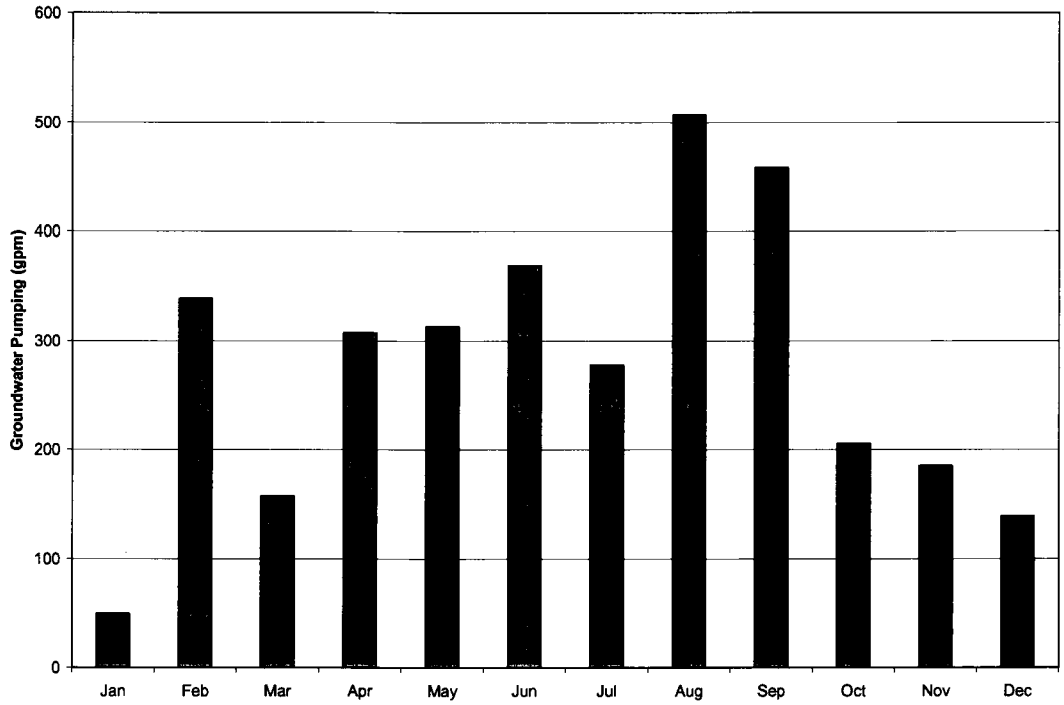
Year	SLV-3 WR 05-763	PW-2 WR 05-2593	PW-3 WR 05-2593	PW-4 WR 05-2593	PW-5 WR 05-2593	PW-6 WR 05-2593	PW-7 WR 05-2593	TOTAL (gallons)	TOTAL (acre-ft)
2004	468,935	83,167	138,889	22,319	329,615	0	0	**1,042,925**	**3.2**
2005	11,643,500	1,180,000	24,582,700	0	4,633,000	5,590,100	456,900	**48,086,200**	**147.6**
2006	23,230	943,535	23,175,910	0	30,320,120	46,734,355	43,097,740	**144,294,890**	**442.9**
TOTAL	12,135,665	2,206,702	47,897,499	22,319	35,282,735	52,324,455	43,554,640	**193,424,015**	**593.6**

NOTES: Groundwater pumping presented for production wells only (excludes monitoring well purging). WR indicates water right number Values are in gallons, unless otherwise indicated.

August saw the highest water demand for the project with a monthly average of 507 gpm, while January saw the lowest water demand with a monthly average of 49 gpm (Figure 4). Monthly water demand was affected by seasonal temperatures, precipitation, and project-specific water needs such as leach pad liner

construction. The overall annual average pumping rate in 2006 was 275 gpm, which represents 17% of the 1,650 gpm water rights for the project.

Figure 4. 2006 Average Monthly Water Use (in gpm)



7.2 Water Rights

The Lisbon Valley Mining Company owns water rights for 1,654 gpm at the site, which includes:

- a 1,500 gpm (3.345 cfs) temporary water right (#05-2593) obtained in 1996 for 28 points of diversion; and
- a 112 gpm (0.25 cfs) permanent water right (#05-762) purchased with the property for well SLV3; and
- a 42 gpm (0.094 cfs) permanent water right (#05-407) purchased with unpatented mineral claims in 1998 for an un-named well.

The major water right (temporary water right #05-2593) is a Fixed-Time water right that is valid until August 1, 2016 (20 years from the date of the application.) Beneficial uses identified for this water right include dust control, fire protection, heap leach, solvent extraction, circuits, boiler feed, showers, and toilet facilities.

Water right #05-2593 was originally issued to Summo USA Corporation, and was transferred to Lisbon Valley Copper Co, LLC on August 6, 1997. Water right #05-2593 had an original proof-due[1] date of

[1] To appropriate water in Utah, it is necessary to submit an application, receive approval, complete the development work, and prove that the water has been put to beneficial use by the "proof-due" date specified by the State Engineers Office (State of Utah Department of Natural Resources [DNR], Division of Water Rights [DWR].)

February 28, 2000. Summo applied for and received an extension of the proof-due date until October 31, 2005. LVMC applied for, and received, a second extension of the proof due date in October, 2005, which is valid until 2010. Water demand is predicted to be highest at the end of mining, during leach pad rinsing.

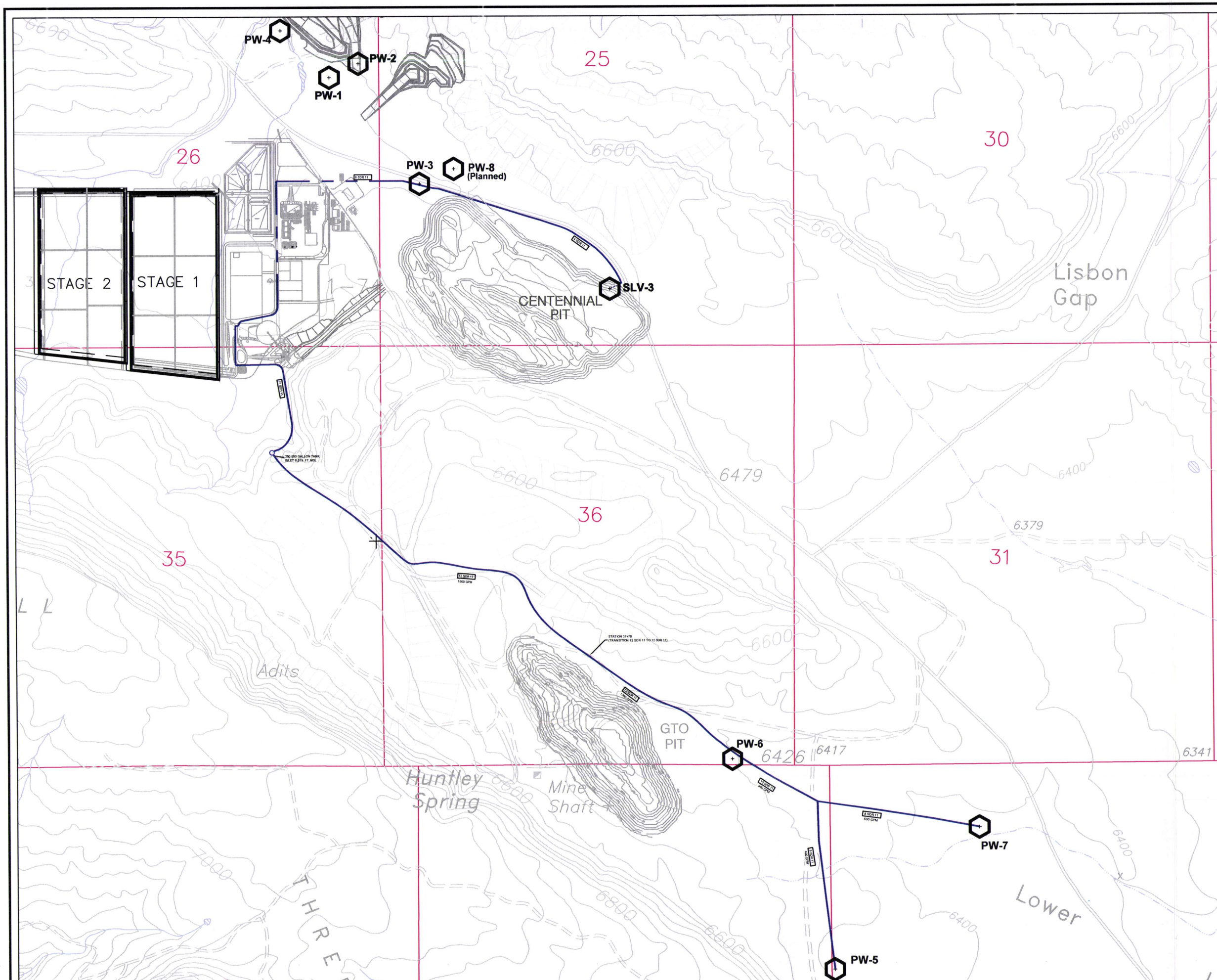
Temporary and Permanent Change Applications have been granted on water right #05-2593. The first application (t29010) was submitted on May 5, 2004, approved on May 14, 2004, and expired on May 13, 2005. This application relocated 4 points of diversion from the original (1996) decree to PW-2, PW-4, PW-5, and N-4, and also listed the additional 24 points of diversion whose locations did not change.

The second Temporary Change Application (t30128) was filed on April 26, 2005, approved on May 2, 2005, and expired on May 1, 2006. This temporary change application requested relocation of 2 points of diversion (PW-6 and N-4 / PW-7), re-applied for the relocation of the PW-2, PW-4, PW-5 points of diversion, and also listed the additional 23 original points of diversion whose locations did not change.

Both a Temporary (t31378) and Permanent (a31379) Change Application were filed on April 25, 2006. The two applications were identical, and were being submitted simultaneously to allow for the longer processing times associated with the Permanent Change Application. Temporary Change t31378 was approved on April 28, 2006 while Permanent Change a31379 was approved on July 6, 2006. The change application made permanent the relocation of 5 points of diversion (PW-2, PW-4, PW-5, PW-6, and PW-7), eliminated 10 unused points of diversion, and re-listed 13 points of diversion whose locations did not change (Whetstone, 2006b). Of the 18 points of diversion listed in LVMC's permanent change application, seven were drilled water wells, one was a drilled piezometer (00R63), and ten were yet to be drilled.

A Temporary Change Application (t31701) was filed on June 26, 2006 and approved on July 7. This temporary change application requested relocation of the point of diversion for PW-8 to a site located 1,310 feet from the location listed in the original (1996) water right. The change will expire on July 7, 2007.

A Temporary Change Application (t32105) was submitted on September 29, 2006, requesting a change in point of diversion to the proposed PW-9 location (mine coordinates 32277N, 53167E). The application was approved on November 28, 2006, and is valid for one year.



LEGEND

WATER SUPPLY PIPELINE

200,000G WATER STORAGE TANK

PW-7 PRODUCTION WELL

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1			

N

600 0 600 1,200
SCALE IN FEET
1" = 1200' 1:14,400

FIGURE 3
WATER SUPPLY PIPING SYSTEM

LISBON VALLEY MINING CO

Annual Hydrogeologic Evaluation Update

DESIGNED		DATE:	
DRAWN	SW	DATE:	1/29/07
CHECKED		DATE:	

Whetstone Associates

8. WATER LEVELS AND POTENTIOMETRIC SURFACE

Water levels are measured in 13 monitoring wells, three piezometers, and two water wells for the quarterly and annual sampling reports that are submitted to UDEQ and BLM. In addition, LVMC monitors pumping wells and piezometers to determine the effectiveness of pit dewatering and to assess the continued availability of groundwater. Table 18 summarizes the water levels measured in monitoring wells and selected piezometers at the project site for April 1994 through December 2006 as presented in the routine sampling reports.

Table 19 summarizes the water levels measured in pumping wells and piezometers, monitored regularly by LVMC personnel to assess pit dewatering and water supply. When possible, LVMC measures water levels in pumping wells (PW-3, PW-5, PW-6, and PW-7) and piezometers (00R63, 4R44, 98R4, and 98R8) when the wells have not been pumped for at least 24 hours.

Aquifer dewatering in the Centennial Pit area proceeded as planned in 2006 (Figure 5). Water levels in monitoring well MW96-7A declined 72.09 ft from October 2004 to December 2006, but are still nearly 38 feet above the planned final elevation of the Centennial Pit floor (6,080 ft). Water levels in piezometers 00R63 and 4R44 declined 92.3 and 93.0 ft, respectively, from February 2005 to December 2006, at which time they were 17 to 18 feet above the planned final pit floor. The water level decline is consistent with earlier predictions (ABC, 1998c) that the Burro Canyon aquifer in the vicinity of the Centennial pit could be dewatered within 12 months at a pumping rate of 286 gpm. Because actual pumping rates have been lower than planned, dewatering is proceeding more slowly. Combined pumping rates for PW-3 and SLV3 averaged 70 gpm in 2005 and 44 gpm in 2006. Average aquifer recharge from precipitation infiltration is 13 gpm[2], for a net dewatering rate of about 31 gpm throughout 2006. The total pumping from the Burro Canyon aquifer near the Centennial Pit (wells PW-3 and SLV-3) since construction startup in 2004 is 60 million gallons (184 acre-ft), which is about 36% of the expected available water in storage (neglecting recharge).

Aquifer dewatering in the Sentinel Pit area (Figure 6) was achieved by pumping PW-2 at an annual average rate of 1.8 gpm in 2006. Dewatering is occurring more quickly than predicted by the 1997 calculations, because well yields are lower and the productive saturated aquifer is less extensive than initially anticipated. Areas of alluvium that were previously thought to contribute water are now known to be hydraulically unconnected, due to the low permeability of the alluvium. Figure 6 shows how piezometer 98R7, located 422 ft from PW-2, has shown no response to pumping while piezometer 98R4, located 2,265 feet away along the same fracture has dropped 35.0 feet in response to pumping.

Pumping from wells PW-6 and PW-5 has caused drawdown in the Burro Canyon aquifer in the vicinity of the GTO Pit (Figure 7). However, aquifer dewatering is difficult to ascertain there are no observation wells in the area. Water levels in the pumping wells are highly variable, depending on the length of time since pumping. The elevation of the planned final GTO Pit floor is shown in Figure 7, although the saturated Burro does not extend below the GTO Pit. The areal extent of the Burro Canyon aquifer near each pit is shown in Figure 9.

The potentiometric surface map for the Burro Canyon aquifer is provided in Figure 10.

Pumping from N-aquifer well PW-7 has caused 18.75 feet of drawdown in N-aquifer monitoring well MW97-13 since pumping began (Figure 8). MW97-13 is completed in the N-aquifer, 1,358 feet east of PW-7. PW-7 was pumped at an annual average rate of 82 gpm throughout 2006.

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[2] Calculated as contributing aquifer area (11,057,300 ft^2) times 1 inch/year infiltration.

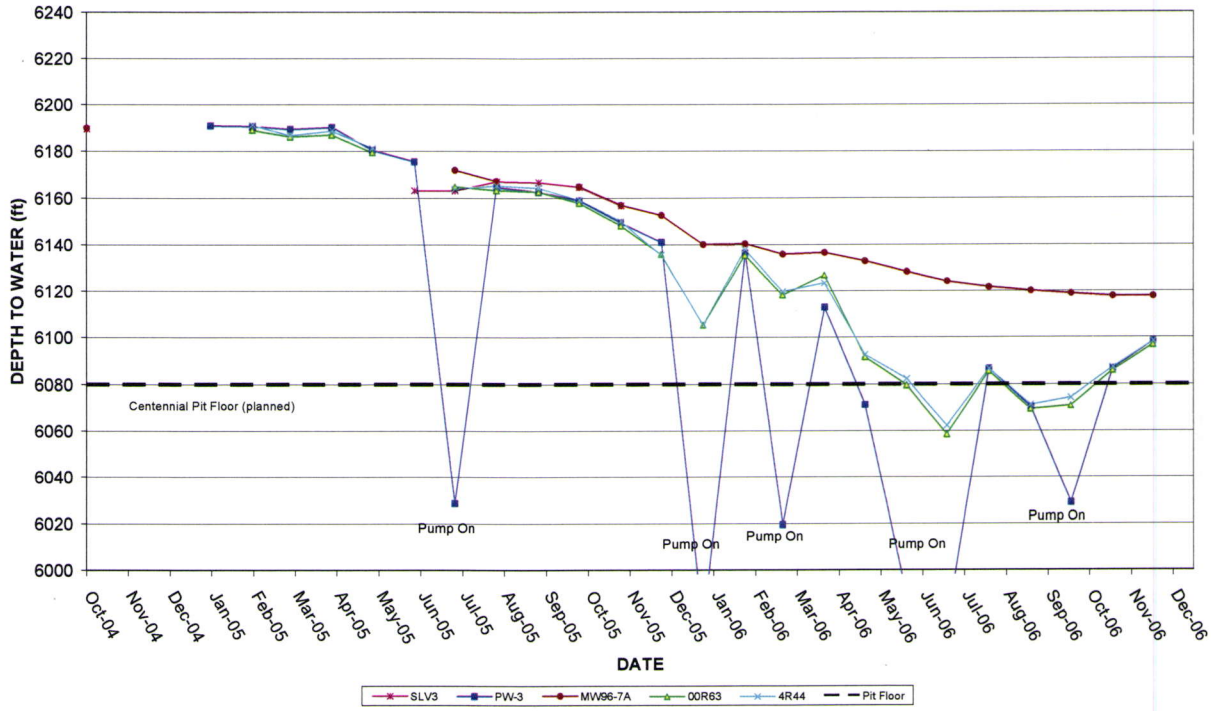


Figure 5. Water Level Elevations in Burro Canyon Aquifer, Centennial Pit Area

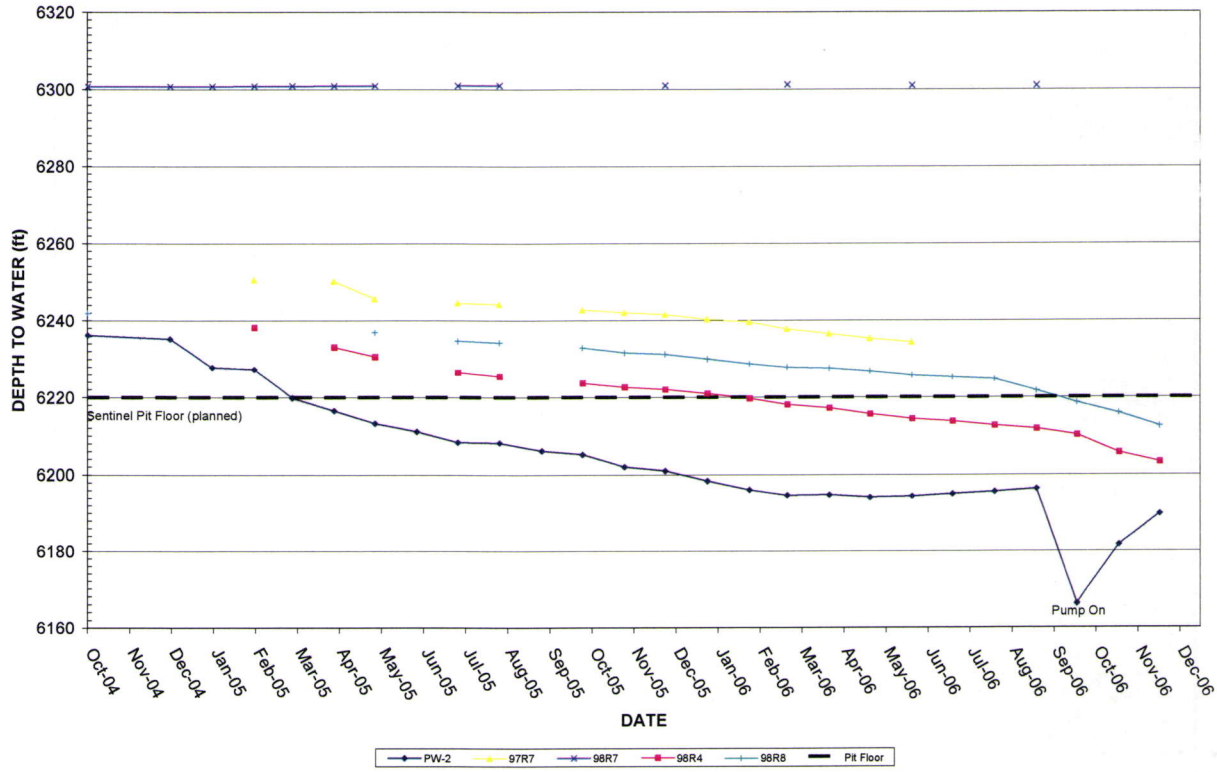


Figure 6. Water Level Elevations in Shallow Aquifer, Sentinel Pit Area

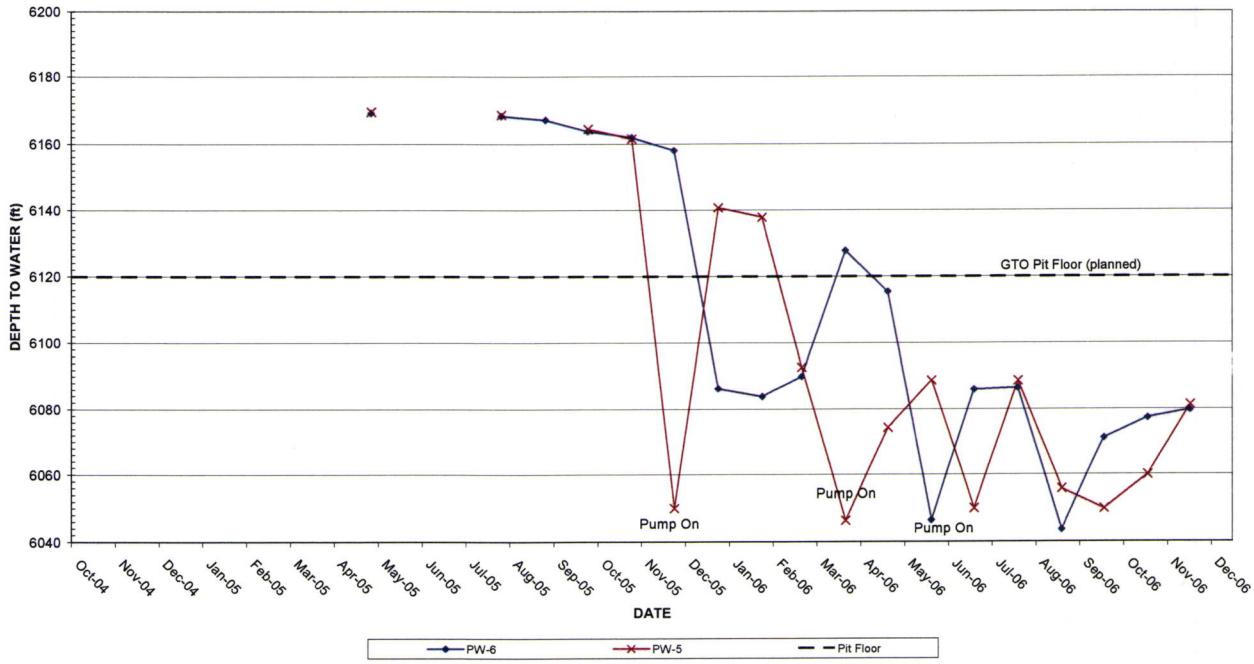


Figure 7. Water Level Elevations in Burro Canyon Aquifer, GTO Pit Area

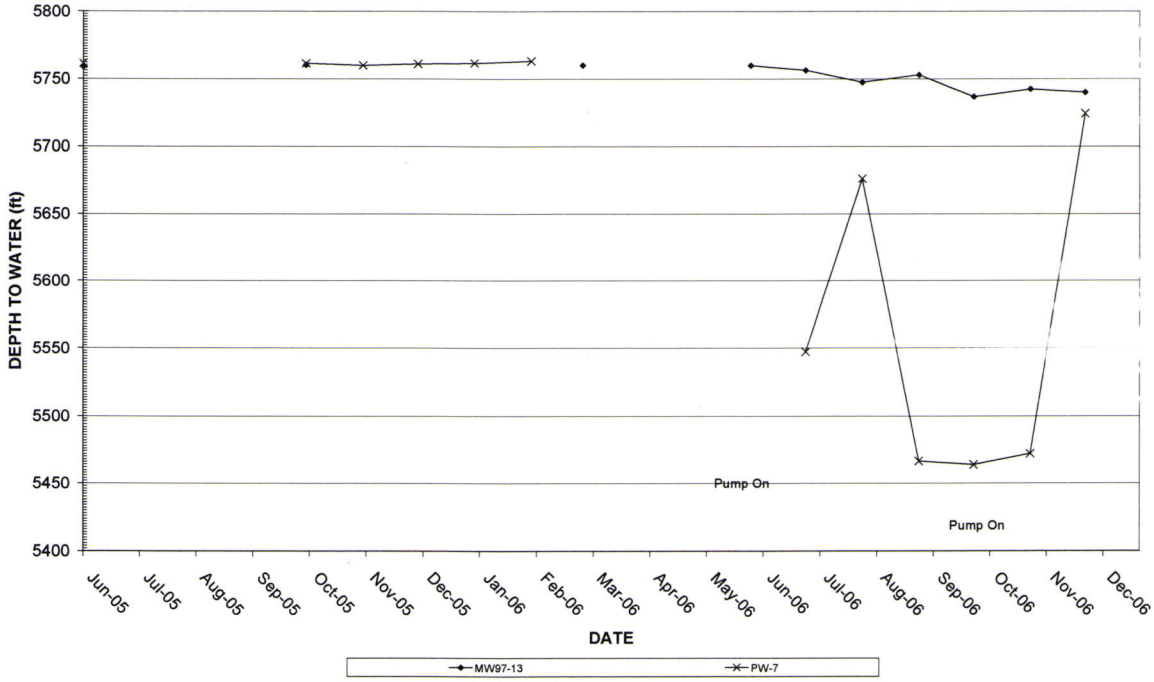
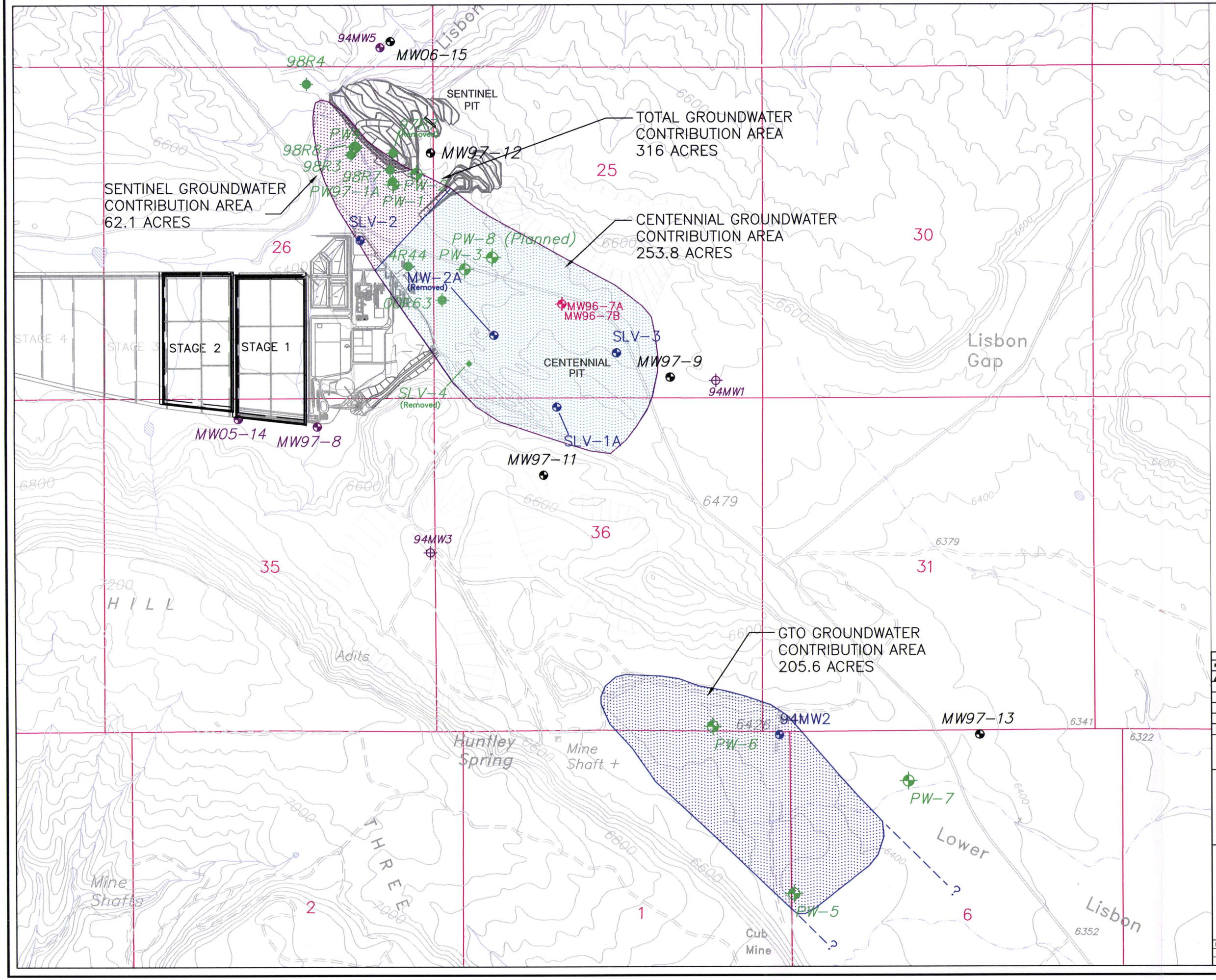


Figure 7. Water Level Elevations in Burro Canyon Aquifer, GTO Pit Area



LEGEND

- SLV-2 — UPPER AQUIFER MONITORING WELL (<=500 FT.)
- 94MW5 — UPPER AQUIFER MONITORING WELL (DRY)
- 94MW3 — UPPER AQUIFER BOREHOLE (DRY, NOT COMPLETED)
- MW97-13 — LOWER (N-AQUIFER) MONITORING WELL (<1450 FT.)
- MW96-7A — PAIRED UPPER AND LOWER AQUIFER MONITORING WELL
- PW97-1 — PRODUCTION WELL
- 98R8 — PIEZOMETER
- SATURATED AQUIFER NEAR SENTINEL PIT
- SATURATED AQUIFER, CENTENNIAL PIT
- SATURATED AQUIFER NEAR GTO PIT

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1			

N

750 0 750 1500
SCALE IN FEET

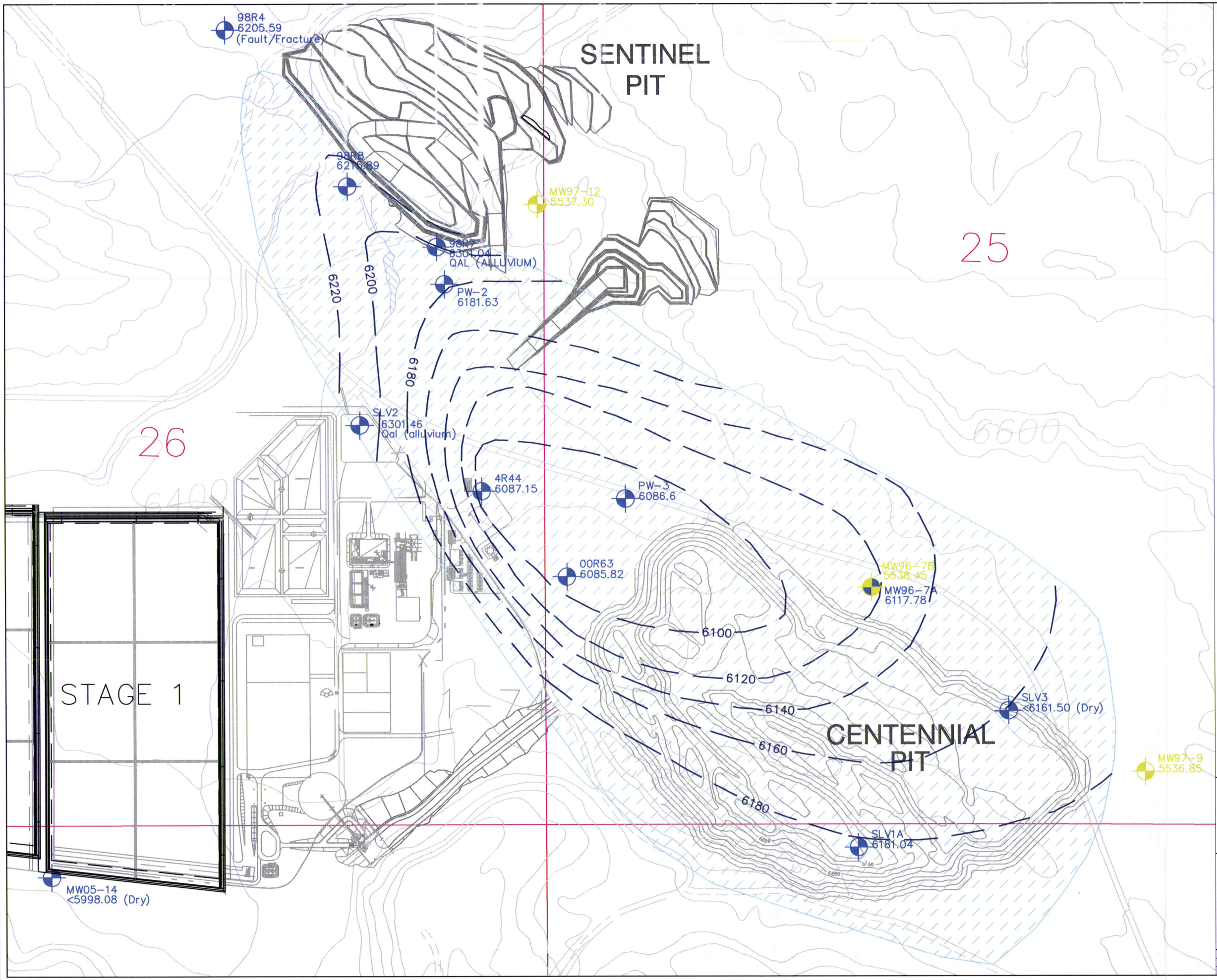
FIGURE 9
AREAL EXTENT OF THE BURRO CANYON AQUIFER

LISBON VALLEY MINING CO

Annual Hydrogeologic Evaluation Update

DESIGNED		DATE:	
DRAWN	SW	DATE:	1/29/07
CHECKED		DATE:	

Whetstone Associates



LEGEND

00R63 6158.03 UPPER AQUIFER WELL ID and WATER LEVEL (FT AMSL)

00R63 6158.03 LOWER AQUIFER WELL ID and WATER LEVEL (FT AMSL)

PLANNED PIT CONTOURS

DYNAMIC POTENTIOMETRIC SURFACE CONTOUR (OCTOBER 2005)

EXTENT OF BURRO CANYON AQUIFER

300 0 300 600
SCALE IN FEET

NORTH

FIGURE 10
POTENTIOMETRIC SURFACE MAP OF THE SHALLOW (BURRO CANYON) AQUIFER
NOVEMBER 2006

LISBON VALLEY MINING CO

Annual Hydrogeologic Evaluation Update

DESIGNED		DATE:		Whetstone Associates
DRAWN	SW	DATE:	1/31/07	
CHECKED		DATE:		

TABLE 18. WATER LEVELS IN PROJECT MONITORING WELLS
Lisbon Valley Mine
October 1994 through November/December 2006

Well ID	Elevation of Well Casing (ft amsl)	Date of SWL Measurement [1]	April 1994	October 1994	March 1995	May 1995	August 1995	September 1995	November 1995	April 1996	June 1996	September 1996	December 1996	March 1997	May 1997
SLV1A	6483.5 [4]	Depth to SWL (ft-btoc)	296.54	294.74	293.42	297.26	297.30	298.00	298.78	299.66	301.34	301.67	301.86	302.42	302.23
		SWL Elevation (ft-msl)	6186.96	6188.76	6190.08	6186.24	6186.20	6185.50	6184.72	6183.84	6182.16	6181.83	6181.64	6181.08	6181.27
SLV2	6379.3 [4]	Depth to SWL (ft-btoc)	83.60	83.16	82.41	82.36	82.28	82.29	82.38	82.01	82.00	82.08	82.11	82.89	82.62
		SWL Elevation (ft-msl)	6295.70	6296.14	6296.89	6296.94	6297.02	6297.01	6296.92	6297.29	6297.30	6297.22	6297.19	6296.41	6296.68
SLV3	6461.50	Depth to SWL (ft-btoc)	277.33	278.80	274.77	275.78	301.38	299.09	295.11	290.10	288.78	287.30	287.71	287.14	288.01
		SWL Elevation (ft-msl)	6191.72	6190.25	6194.28	6193.27	6167.67	6169.96	6173.94	6178.95	6180.27	6181.75	6181.34	6181.91	6181.04
PW-3	6392.02	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
SLV4 [2]	6396.7	Depth to SWL (ft-btoc)	93.95	94.71	94.60	95.79	94.50	93.71	94.25	95.59	93.14	98.11	96.10	95.82	95.13
		SWL Elevation (ft-msl)	6302.75	6301.99	6302.10	6300.91	6302.20	6302.99	6302.45	6301.11	6303.56	6298.59	6300.60	6300.88	6301.57
MW2A [7]	6452.8 [3,4]	Depth to SWL (ft-btoc)	267.00	267.70	266.30	267.38	288.06	287.97	285.36	280.74	278.90	278.94	279.08	279.64	279.70
		SWL Elevation (ft-msl)	6187.49	6186.79	6188.19	6187.11	6164.74	6164.83	6167.44	6172.06	6173.90	6173.86	6173.72	6173.16	6173.10
94MW2	6415.1	Depth to SWL (ft-btoc)	NA	259.58	261.48	257.80	257.23	NM	257.09	256.37	256.21	256.16	256.21	256.91	256.74
		SWL Elevation (ft-msl)		6155.52	6153.62	6157.30	6157.87		6158.01	6158.73	6158.89	6158.94	6158.89	6158.19	6158.36
94MW4 [5]	6511.2 [4]	Depth to SWL (ft-btoc)	NM	Dry	Dry	Dry	410.30	NM	410.54	410.32	410.18	410.92	410.98	412.01	411.43
		SWL Elevation (ft-msl)					6100.90		6100.66	6100.88	6101.02	6100.28	6100.22	6099.19	6099.77
94MW6	6287.50	Depth to SWL (ft-btoc)	NA	60.03	60.08	60.18	60.03	NM	60.31	60.39	60.69	60.63	60.65	60.29	60.45
		SWL Elevation (ft-msl)		6227.47	6227.42	6227.32	6227.47		6227.19	6227.11	6226.81	6226.87	6226.85	6227.21	6227.05
MW96-7A	6448.1 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	271.93	272.66	271.48	271.42
		SWL Elevation (ft-msl)										6176.17	6175.44	6176.62	6176.68
MW96-7B	6448.3 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	906.46	921.50	915.13	916.10
		SWL Elevation (ft-msl)										5541.84	5526.80	5533.17	5532.20
MW97-8	6450.2 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
MW97-9	6523.9 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
MW97-11	6606.8 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
MW97-12	6469.0 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
MW97-13	6397.6 [4]	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
MW05-14	6465.58	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													
MW06-15	6332.70	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)													

ft amsl	feet above mean sea level
ft btoc	feet below top of casing
SWL	static water level
NA	not applicable
NM	not measured

[1] water levels measured to the top of the PVC or steel well casing on the north side of the well
[2] piezometer
[3] elevation of ground surface was used prior to August 1995 6454.49; new surface casing installed in August 1995 with elevation of 6457.69.
[4] elevation of surface casings were surveyed in November 1997.
[5] previous open borehole; monitoring well constructed with 2.5-inch schedule 80 PVC in August 1997.
[6] not measured since these wells are not on the accelerated sampling schedule
[7] well MW2A removed by mining in August 2005, piezometer SLV4 removed by mining in Nov 2006

TABLE 18. WATER LEVELS IN PROJECT MONITORING WELLS
Lisbon Valley Mine
October 1994 through November/December 2006

Well ID	Elevation of Well Casing (ft amsl)	Date of SWL Measurement [1]	June 1997	August 1997	November 1997	December 1997	February 1998	April 1998	May 1998	August 1998	October 1998	November 1998	May 1999	November 1999
SLV1A	6483.5 [4]	Depth to SWL (ft-btoc)	301.10	300.02	NM [6]	299.78	298.63	NM [6]	298.06	298.02	NM [6]	296.72	294.22	293.05
		SWL Elevation (ft-msl)	6182.40	6183.48		6183.72	6184.87		6185.44	6185.48		6186.78	6189.28	6190.45
SLV2	6379.3 [4]	Depth to SWL (ft-btoc)	82.30	81.29	NM [6]	81.03	80.87	NM [6]	80.92	80.04	NM [6]	80.62	80.62	80.03
		SWL Elevation (ft-msl)	6297.00	6298.01		6298.27	6298.43		6298.38	6299.26		6298.68	6298.68	6299.27
SLV3	6461.50	Depth to SWL (ft-btoc)	285.51	283.28	NM [6]	282.33	282.15	NM [6]	283.34	283.29	NM [6]	278.98	277.12	267.32
		SWL Elevation (ft-msl)	6183.54	6185.77		6186.72	6186.90		6185.71	6185.76		6190.07	6191.93	6194.18
PW-3	6392.02	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)												
SLV4 [2]	6396.70	Depth to SWL (ft-btoc)	90.78	80.50	NM [6]	80.23	74.17	NM [6]	75.45	75.31	NM [6]	74.21	NM	82.73
		SWL Elevation (ft-msl)	6305.92	6316.20		6316.47	6322.53		6321.25	6321.39		6322.49		6313.97
MW2A	6452.80 [3,4]	Depth to SWL (ft-btoc)	277.73	274.20	NM [6]	274.01	272.81	NM [6]	272.56	272.43	NM [6]	270.50	268.17	266.93
		SWL Elevation (ft-msl)	6175.07	6178.60		6178.79	6179.99		6180.24	6180.37		6182.30	6184.63	6185.87
94MW2	6415.10	Depth to SWL (ft-btoc)	255.01	253.71	NM [6]	253.43	251.82	NM [6]	251.53	251.50	NM [6]	250.78	250.23	249.26
		SWL Elevation (ft-msl)	6160.09	6161.39		6161.67	6163.28		6163.57	6163.60		6164.32	6164.87	6165.84
94MW4 [5]	6511.2 [4]	Depth to SWL (ft-btoc)	406.96	428.17	NM [6]	426.21	448.53	484.50	488.94	490.41	494.98	496.25	494.93	493.82
		SWL Elevation (ft-msl)	6104.24	6083.03		6084.99	6062.67	6026.70	6022.26	6020.79	6016.22	6014.95	6016.27	6017.38
94MW6	6287.50	Depth to SWL (ft-btoc)	60.60	60.12	NM [6]	60.09	60.10	NM [6]	60.06	60.02	NM [6]	60.09	NM	NM
		SWL Elevation (ft-msl)	6226.90	6227.38		6227.41	6227.40		6227.44	6227.48		6227.41		
MW96-7A	6448.1 [4]	Depth to SWL (ft-btoc)	271.01	269.75	270.11	269.92	268.50	NM [6]	267.34	267.24	NM [6]	268.42	263.87	262.45
		SWL Elevation (ft-msl)	6177.09	6178.35	6177.99	6178.18	6179.60		6180.76	6180.86		6179.68	6184.23	6185.65
MW96-7B	6448.3 [4]	Depth to SWL (ft-btoc)	912.13	910.65	908.40	908.12	908.03	NM [6]	906.21	906.08	NM [6]	904.25	909.04	909.11
		SWL Elevation (ft-msl)	5536.17	5537.65	5539.90	5540.18	5540.27		5542.09	5542.22		5544.05	5539.26	5539.19
MW97-8	6450.2 [4]	Depth to SWL (ft-btoc)	NA	NA	NM [6]	NM	364.81	364.90	365.05	365.88	366.02	366.10	370.17	DRY
		SWL Elevation (ft-msl)					6065.19	6065.10	6064.95	6064.12	6063.98	6063.90	6080.03 [7]	
MW97-9	6523.9 [4]	Depth to SWL (ft-btoc)	NA	NA	984.50	NM	985.60	986.42	986.53	986.49	986.01	985.51	985.45	985.64
		SWL Elevation (ft-msl)			5539.40		5538.30	5537.48	5537.37	5537.41	5537.89	5538.39	5538.45	5538.26
MW97-11	6606.8 [4]	Depth to SWL (ft-btoc)	NA	NA	850.60	NM	851.71	852.51	852.76	851.76	852.51	852.05	852.13	851.78
		SWL Elevation (ft-msl)			5756.20		5755.09	5754.29	5754.04	5755.04	5754.29	5754.75	5754.67	5755.02
MW97-12	6469.0 [4]	Depth to SWL (ft-btoc)	NA	NA	929.97	NM	931.10	931.87	931.94	930.83	930.45	930.88	930.75	930.48
		SWL Elevation (ft-msl)			5539.03		5537.90	5537.13	5537.06	5538.17	5538.55	5538.12	5538.25	5538.52
MW97-13	6397.6 [4]	Depth to SWL (ft-btoc)	NA	NA	637.77	NM	638.88	640.01	641.31	640.30	639.30	638.92	639.05	638.46
		SWL Elevation (ft-msl)			5759.83		5758.72	5757.59	5756.29	5757.30	5758.30	5758.68	5758.55	5759.14
MW05-14	6465.58	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)												
MW06-15	6332.70	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SWL Elevation (ft-msl)												

ft amsl	feet above mean sea level
ft btoc	feet below top of casing
SWL	static water level
NA	not applicable
NM	not measured

[1] water levels measured to the top of the PVC or steel well casing on the north side of the well
[2] piezometer
[3] elevation of ground surface was used prior to August 1995 6454.49; new surface casing installed in August 1995 with elevation of 6457.69.
[4] elevation of surface casings were surveyed in November 1997.
[5] open borehole; monitoring well constructed with 2.5-inch schedule 80 PVC in August 1997.
[6] not measured since these wells are not on the accelerated sampling schedule
[7] well MW2A removed by mining in August 2005, piezometer SLV4 removed by mining in Nov 2006

TABLE 18. WATER LEVELS IN PROJECT MONITORING WELLS
Lisbon Valley Mine
October 1994 through November/December 2006

Well ID	Elevation of Well Casing (ft amsl)	Date of SWL Measurement [1]	May 2000	November 2000	May 2001	November 2001	October 2002	October 2003	October 2004	Oct/Nov 2005	March 2006 Results	May/June 2006 Results	September 2006 Results	Nov/Dec 2006 Results
SLV1A	6483.5 [4]	Depth to SWL (ft-btoc)	292.54	291.29	290.58	290.61	290.50	290.40	290.03	299.50	300.65	301.33	299.90	302.46
		SWL Elevation (ft-msl)	6190.96	6192.21	6192.92	6192.89	6193.00	6193.10	6193.47	6184.00	6182.85	6182.17	6183.60	6181.04
SLV2	6379.3 [4]	Depth to SWL (ft-btoc)	79.78	79.53	79.45	79.26	78.90	78.51	78.28	77.78	77.86	77.89	77.85	77.84
		SWL Elevation (ft-msl)	6299.52	6299.77	6299.85	6300.04	6300.40	6300.79	6301.02	6301.52	6301.44	6301.41	6301.45	6301.46
SLV3	6461.50	Depth to SWL (ft-btoc)	275.17	273.54	268.88	272.86	272.57	268.88	272.02	295.20	321.55	dry	dry	dry
		SWL Elevation (ft-msl)	6193.88	6187.96	6192.62	6188.64	6188.93	6192.62	6189.48	6166.30	6139.95	6461.50	<6461.50	<6461.50
PW-3	6392.02	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NM	233.03	372.61	320.85	321.81	305.42
		SWL Elevation (ft-msl)								6158.99	6019.41	6071.17	6070.21	6086.60
SLV4 [2]	6396.7	Depth to SWL (ft-btoc)	77.16	84.58	87.29	87.21	88.90	88.59	101.41	65.88	63.20	63.57	64.09	NA [7]
		SWL Elevation (ft-msl)	6319.54	6312.12	6309.41	6309.49	6307.80	6308.11	6295.29	6330.82	6333.50	6333.13	6332.61	
MW2A	6452.8 [3,4]	Depth to SWL (ft-btoc)	266.04	264.19	264.26	263.80	263.48	262.98	262.58	NA	NA [7]	NA [7]	NA [7]	NA [7]
		SWL Elevation (ft-msl)	6186.76	6188.61	6188.54	6189.00	6189.32	6189.82	6190.22					
94MW2	6415.1	Depth to SWL (ft-btoc)	248.76	248.38	248.29	247.84	247.42	246.83	246.65	250.55	DRY	DRY	DRY	DRY
		SWL Elevation (ft-msl)	6166.34	6166.72	6166.81	6167.26	6167.68	6168.27	6168.45	6164.55	<6415.10	<6415.10	<6415.10	<6415.10
94MW4 [5]	6511.2 [4]	Depth to SWL (ft-btoc)	493.24	492.44	491.91	491.31	490.24	489.36	488.76	489.71	489.60	NM	488.85	488.98
		SWL Elevation (ft-msl)	6017.96	6018.76	6019.29	6019.89	6020.96	6021.84	6022.44	6021.49	6021.60		6022.35	6022.22
94MW6	6287.50	Depth to SWL (ft-btoc)	NM	NM	NM	NM	NM	NM	NM	NM	NM [6]	NM [6]	NM [6]	NM [6]
		SWL Elevation (ft-msl)												
MW96-7A	6448.1 [4]	Depth to SWL (ft-btoc)	261.66	259.91	259.78	258.27	258.93	258.60	258.26	285.38	312.19	317.52	328.07	330.32
		SWL Elevation (ft-msl)	6186.44	6188.19	6188.32	6189.83	6189.17	6189.50	6189.84	6162.72	6135.91	6130.58	6120.03	6117.78
MW96-7B	6448.3 [4]	Depth to SWL (ft-btoc)	908.98	909.10	909.38	906.10	909.38	909.28	909.82	909.75	901.44	910.24	907.57	909.85
		SWL Elevation (ft-msl)	5539.19	5539.20	5538.92	5542.20	5538.92	5539.02	5538.48	5538.55	5546.86	5538.06	5540.73	5538.45
MW97-8	6450.2 [4]	Depth to SWL (ft-btoc)	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		SWL Elevation (ft-msl)												
MW97-9	6523.9 [4]	Depth to SWL (ft-btoc)	985.26	985.24	982.89	985.77	985.62	985.90	986.13	986.20	986.74	986.10	986.15	987.05
		SWL Elevation (ft-msl)	5538.64	5538.66	5541.01	5538.13	5538.28	5538.00	5537.78	5537.70	5537.16	5537.80	5537.75	5536.85
MW97-11	6606.8 [4]	Depth to SWL (ft-btoc)	851.53	851.64	852.02	851.94	852.06	855.50	851.99	852.00	851.87	840.71	854.33	861.30
		SWL Elevation (ft-msl)	5755.27	5755.16	5754.78	5754.86	5754.74	5751.30	5754.81	5754.80	5754.93	5766.09	5752.47	5745.50
MW97-12	6469.0 [4]	Depth to SWL (ft-btoc)	930.39	930.33	929.85	930.48	930.68	930.55	930.84	930.95	931.66	906.70	736.60	931.70
		SWL Elevation (ft-msl)	5538.61	5538.67	5539.15	5538.52	5538.32	5538.45	5538.16	5538.05	5537.34	5352.30	5732.40	5537.30
MW97-13	6397.6 [4]	Depth to SWL (ft-btoc)	638.34	638.37	638.87	636.88	638.37	638.49	638.68	637.50	637.67	637.83	644.83	655.39
		SWL Elevation (ft-msl)	5759.26	5759.23	5758.73	5760.72	5759.23	5759.11	5758.92	5760.10	5759.93	5759.77	5752.77	5742.21
MW05-14	6465.58	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	467.50 12-05	DRY	DRY	DRY	DRY
		SWL Elevation (ft-msl)								5998.08				
MW06-15	6332.70	Depth to SWL (ft-btoc)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	792.20
		SWL Elevation (ft-msl)												5540.50

ft amsl	feet above mean sea level
ft btoc	feet below top of casing
SWL	static water level
NA	not applicable
NM	not measured

[1] water levels measured to the top of the PVC or steel well casing on the north side of the well
[2] piezometer
[3] elevation of ground surface was used prior to August 1995 6454.49; new surface casing installed in August 1995 with elevation of 6457.69.
[4] elevation of surface casings were surveyed in November 1997.
[5] open borehole; monitoring well constructed with 2.5-inch schedule 80 PVC in August 1997.
[6] not measured since these wells are not on the accelerated sampling schedule
[7] well MW2A removed by mining in August 2005, piezometer SLV4 removed by mining in Nov 2006

Table 19. Water Levels in Pumping Wells and Piezometers

Well ID	Measuring Pt Elevation (1)		October 2004	December 2004	January 2005	February 2005	March 2005	April 2005	May 2005	June 2005	July 2005	August 2005	September 2005	October 2005	November 2005	December 2005
SLV3	6461.50	DTW	272.02	NM	NM	271.25	NM	NM	NM	298.32	298.36	294.54	294.88	296.85	304.72	NM
		WLE	6189.48			6190.25				6163.18	6163.14	6166.96	6166.62	6164.65	6156.78	
PW-2	6397.60	DTW	161.40	162.42	169.75	170.25	177.77	181.17	184.47	186.54	189.32	189.45	191.50	192.47	195.67	196.72
		WLE	6236.20	6235.18	6227.85	6227.35	6219.83	6216.43	6213.13	6274.96	6208.28	6208.15	6206.10	6205.13	6201.93	6200.88
PW-3	6392.02	DTW	NM	NM	201.05	201.35	202.56	201.79	211.37	216.39	363.73	227.43	229.35	233.03	242.41	250.78
		WLE			6190.97	6190.67	6189.46	6190.23	6180.65	6175.63	6028.29	6164.59	6162.67	6158.99	6149.61	6141.24
MW96-7A	6448.10	DTW	258.26	NM	NM	NM	NM	NM	NM	NM	276.27	280.91	NM	283.29	291.14	295.35
		WLE	6189.84								6171.83	6167.19		6164.81	6156.96	6152.75
97R7 (2)	6382.30	DTW	NM	NM	NM	131.65	NM	131.97	136.53	NM	137.61	137.98	NM	139.43	140.12	140.65
		WLE				6250.65		6250.33	6245.77		6244.69	6244.32		6242.88	6242.18	6241.65
98R4 (2)	6357.90	DTW	NM	NM	NM	119.71	NM	124.86	127.32	NM	131.41	132.48	NM	134.27	135.34	136.00
		WLE				6238.19		6233.04	6230.58		6226.49	6225.42		6223.63	6222.56	6221.90
98R7 (2)	6365.20	DTW	64.37	NM	NM	NM	NM	NM	64.19	NM	64.12	64.12	NM	NM	NM	NM
		WLE	6300.83						6301.01		6301.08	6301.08				
98R8 (2)	6353.50	DTW	111.53	NM	NM	NM	NM	NM	116.52	NM	118.76	119.21	NM	120.52	121.85	122.24
		WLE	6241.97						6236.98		6234.74	6234.29		6232.98	6231.65	6231.26
00R63 (2)	6398.10	DTW	NM	NM	NM	208.92	211.70	210.92	218.36	NM	233.07	234.52	235.31	240.07	249.66	262.07
		WLE				6189.18	6186.40	6187.18	6179.74		6165.03	6163.58	6162.79	6158.03	6148.44	6136.03
4R44 (2)	6380.42	DTW	NM	NM	NM	189.18	193.51	191.60	198.88	NM	216.36	215.00	215.86	221.12	230.09	244.65
		WLE				6191.24	6186.92	6188.82	6181.54		6164.06	6165.42	6164.56	6159.30	6150.33	6135.77
PW-5	6433.10	DTW	NM	NM	NM	NM	NM	NM	263.71	NM	NM	264.59	NM	268.78	271.65	383.12
		WLE							6169.39			6168.51		6164.32	6161.45	6049.98
PW-6	6435.85	DTW	NA	NA	NA	NA	NA	NA	266.74	NM	NM	267.61	268.77	272.12	273.97	277.84
		WLE							6169.11			6168.24	6167.08	6163.73	6161.88	6158.01
PW-7	6376.01	DTW	NA	NA	NA	NA	NA	NA	NA	614.70	NM	NM	NM	614.70	616.23	614.99
		WLE								5761.31				5761.31	5759.78	5761.02

(1) Measuring point elevation is top of the PVC or steel well casing on the north side of the well, elevation reported in feet above mean sea level (amsl)
(2) Piezometer
NA = not available; well was not drilled at this time
NM = not measured
DTW = depth to water, given in feet below measuring point (top of casing)
WLE = water level elevation, given in feet above mean sea level (amsl)

Table 19. Water Levels in Pumping Wells and Piezometers (Part 2)

Well ID	Measuring Pt Elevation (1)		January 2006	February 2006	March 2006	April 2006	May 2006	June 2006	July 2006	August 2006	September 2006	October 2006	November 2006	December 2006
SLV3	6461.50	DTW	321.46	321.41	321.49	321.36	321.49	Dry	Dry	Dry	Dry	Dry	Dry	Dry
		WLE	6140.04	6140.09	6140.01	6140.14	6140.01							
PW-2	6397.60	DTW	199.29	201.55	203.00	202.85	203.51	203.26	202.64	202.04	201.25	231.43	215.97	207.90
		WLE	6198.31	6196.05	6194.60	6194.75	6194.09	6194.34	6194.96	6195.56	6196.35	6166.17	6181.63	6189.70
PW-3	6392.02	DTW	415.65	255.57	372.61	279.05	320.85	403.40	414.55	305.45	321.81	363.34	305.42	293.70
		WLE	5976.37	6136.45	6019.41	6112.97	6071.17	5988.62	5977.47	6086.57	6070.21	6028.68	6086.60	6098.32
MW96-7A	6448.10	DTW	307.95	307.67	312.19	311.54	315.20	319.72	323.82	326.41	328.07	329.17	330.32	330.35
		WLE	6140.15	6140.43	6135.91	6136.56	6132.90	6128.38	6124.28	6121.69	6120.03	6118.93	6117.78	6117.75
97R7 (2)	6382.30	DTW	141.87	142.63	144.47	145.69	146.93	147.92	NM	NM	Removed	Removed	Removed	Removed
		WLE	6240.43	6239.67	6237.83	6236.61	6235.37	6234.38						
98R4 (2)	6357.90	DTW	137.05	138.29	139.85	140.77	142.35	143.63	144.28	145.38	146.19	147.81	152.31	154.72
		WLE	6220.85	6219.61	6218.05	6217.13	6215.55	6214.27	6213.62	6212.52	6211.71	6210.09	6205.59	6203.18
98R7 (2)	6365.20	DTW	NM	NM	63.86	NM	NM	64.07	NM	NM	64.16	NM	NM	NM
		WLE			6301.34			6301.13			6301.04			
98R8 (2)	6353.50	DTW	123.43	124.65	125.56	125.86	126.60	127.72	128.22	128.72	131.83	134.86	137.61	141.04
		WLE	6230.07	6228.85	6227.94	6227.64	6226.90	6225.78	6225.28	6224.78	6221.67	6218.64	6215.89	6212.46
00R63 (2)	6398.10	DTW	292.77	262.62	279.79	271.04	306.48	318.51	339.72	312.58	328.81	327.31	312.28	301.21
		WLE	6105.33	6135.48	6118.31	6127.06	6091.62	6079.59	6058.38	6085.52	6069.29	6070.79	6085.82	6096.89
4R44 (2)	6380.42	DTW	274.98	242.38	260.61	256.81	287.78	298.24	318.33	293.97	309.26	306.18	293.27	282.15
		WLE	6105.44	6138.04	6119.81	6123.61	6092.64	6082.18	6062.09	6086.45	6071.16	6074.24	6087.15	6098.27
PW-5	6433.10	DTW	292.48	295.35	340.43	386.78	358.87	344.44	383.13	344.50	377.38	383.23	373.18	351.81
		WLE	6140.62	6137.75	6092.67	6046.32	6074.23	6088.66	6049.97	6088.60	6055.72	6049.87	6059.92	6081.29
PW-6	6435.85	DTW	349.65	352.06	345.94	308.22	320.57	389.35	349.94	349.42	392.25	364.63	358.58	356.13
		WLE	6086.20	6083.79	6089.91	6127.63	6115.28	6046.50	6085.91	6086.43	6043.60	6071.22	6077.27	6079.72
PW-7	6376.01	DTW	614.59	613.02	NM	NM	NM	NM	828.85	699.79	909.53	912.25	904.00	652.03
		WLE	5761.42	5762.99					5547.16	5676.22	5466.48	5463.76	5472.01	5723.98

(1) Measuring point elevation is top of the PVC or steel well casing on the north side of the well, elevation reported in feet above mean sea level (amsl)
(2) Piezometer
NA = not available; well was not drilled at this time
NM = not measured
DTW = depth to water, given in feet below measuring point (top of casing)
WLE = water level elevation, given in feet above mean sea level (amsl)

9. NUMERICAL GROUNDWATER MODEL UPDATE

9.1 Summary of Previous Modeling

Conceptual and numerical models were developed for the DEIS, FEIS, and IBLA appeal. The numerical models evolved as the conceptual understanding of the hydrogeologic system increased.

Woodward Clyde Consultants developed a simple finite-difference Modflow model of flow in the Burro Canyon Aquifer in 1995 for the DEIS (WCC, 1995). In March 1996, Adrian Brown Consultants developed a two-dimensional finite-element "horizontal" flow model and a three-dimensional finite-element "vertical" flow model (ABC, 1996a). The vertical model was verified by field conditions (drilling and testing of paired shallow and deep monitoring wells MW96-7A and MW96-7B [1996b]) and a vertical spreadsheet model was developed for each of the proposed pits in October 1996 (ABC, 1996c). The vertical model was a numerical implementation of the following concept:

> In this system, flow is predominantly vertical. Infiltration moves to the upper saturated zones, where it is essentially perched. Most of the infiltration seeps vertically to the underlying materials, which ultimately drain to the deep basin sediments, which in turn drain to the [Delores] river. Little groundwater flow takes place laterally in the shallow saturated zone [Burro Canyon aquifer], due to its segmentation (ABC, 1996c).

The ROD requires that this vertical model be updated annually, based on new information collected during the year. In 1997, additional data were collected for the N-aquifer, the vertical model was refined, and the results were presented in the 1998 Annual Update of the Hydrogeologic System Evaluation (ABC, 1998a). Although the concept of the vertical model did not change, the numerical spreadsheet model was refined with a more accurate (and limited) areal extent of the Burro Canyon aquifer, more exact definition of post-mining pit topography, more accurate pit wall runoff volumes, finer resolution of timesteps, and geochemical input parameters developed from MWMT testing. The 1998 Annual Evaluation concluded that:

> The N-aquifer is recharged by the "intact [unfractured]" Burro Canyon aquifer, fractures, and pit ponds. During the first 90 to 110 years after mining, the model predicts that the quality of the water delivered to the N-aquifer will be better than before mining, because the pits will recapture relatively clean water from runoff and deliver it to both the shallow and deep aquifers. Eventually, evapoconcentrated water from the pit ponds will contribute to a slight increase in TDS [total dissolved solids] in the deep aquifer. The predicted TDS increases in the N-aquifer are 7%, 5%, and 3% for the Sentinel, Centennial, and GTO pits, respectively. These changes are significantly less than the 25% TDS limit increase allowed by the ground water quality protection regulations (UAC [Utah Administrative Code] R317-6).

The 2005 Annual Update of the Hydrogeologic System Evaluation (Whetstone, 2006) presented updated post-mining models, using the same methodology as used in 1998 and slight changes in hydrology based on data collected during 2004 and 2005. The updated models used a slightly smaller areal extent for the Burro Canyon aquifer in the vicinity of the Sentinel and Centennial Pits and larger areal extent near the GTO Pit. The updated model used an 8-ft higher static water level elevation in the Burro Canyon aquifer near the GTO Pit (6,169 ft amsl), and a decreased depth and increased in area for the geometry of the Sentinel Pit. The pit refilling and mass balance models for the Centennial and GTO pits were updated to incorporate the

new aquifer dimensions. Other model input parameters, including runoff rates, evaporation rates, and precipitation rates, were identical to those used in the 1998 model (ABC, 1998a).

Hydrogeologic data collected in 2006 does not change the conceptual models or numerical models for the project. Well drilling (PW-8 and MW06-15) confirmed the existing conceptual model, and the water level in the N-aquifer at MW06-15 was within 1 ft of the expected water level. A sample of pit wall runoff collected at the Sentinel Pit in October, 2006 (Attachment 2) were similar but had lower dissolved solids (60 mg/L) than the pit wall runoff chemistry calculated using MWMT results from drill samples (140, 125, and 342 mg/L for the Sentinel Centennial, and GTO pits, respectively). The model input and results presented below are identical to those presented in the 2005 Annual Update report.

Although LVMC has proposed expanding the Centennial Pit and decreasing the size of the GTO Pit, the models presented in this report are based on the current permitted mine plan. A memo evaluating the potential effects on groundwater from the proposed expansion of the Centennial Pit was presented to BLM on January 9, 2007 (Whetstone, 2007). Those modeling results will be presented in a future iteration of this report if the proposed expansion is approved.

9.2 Modeling Methodology

The numerical spreadsheet model simulates the post-mining water balance and mass balance for each mine pit. The model uses a calculated vertical permeability for both the low-permeability materials below the Burro Canyon aquifer and the fracture conduits that are known to exist at the site. The water level, flow, and quality in both the pit and the adjacent aquifer are simulated. The model assesses the effects of the project on both shallow and deep groundwater near the pits. The method is described in detail in the 1998 Annual Update Report (ABC, 1998a).

9.2.1 Flow Model

The water balance model computes the flow into and out of the pit and adjacent shallow aquifer. It starts with both the pits and upper aquifer dry, although the model itself does not require this condition. The flow model allows surface water inflow, precipitation, horizontal inflow or outflow from a shallow aquifer adjacent to the pit, vertical leakage to the underlying aquifer, and evaporation. These flow components are shown in Figure 11.

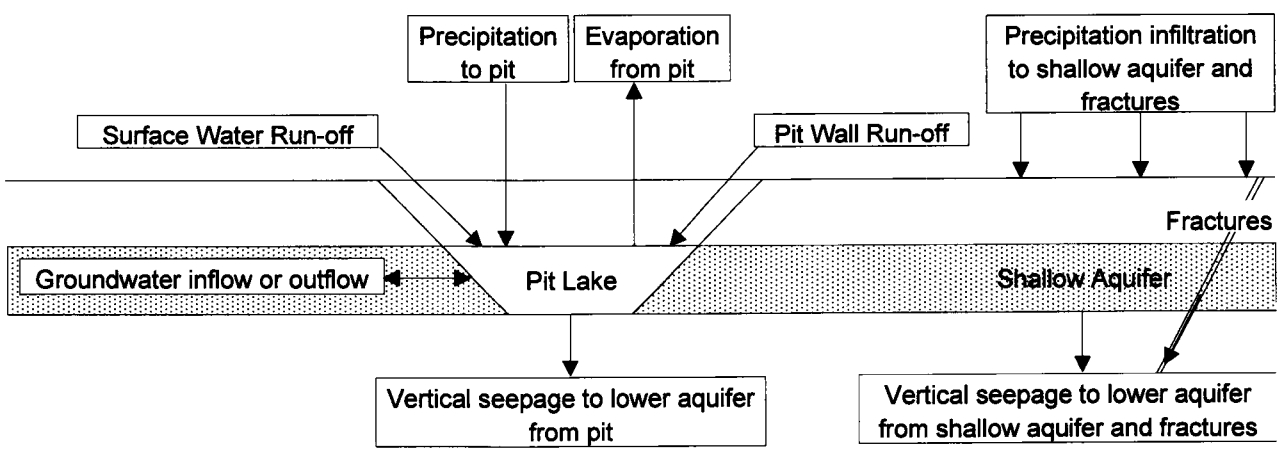


Figure 11. Water Balance Components

The model calculates a head-dependent vertical leakage to the lower aquifer. The driving force for vertical flow is greater with increasing hydraulic heads (water levels) in the pits and shallow aquifer. The model also calculates head-dependent flux to or from the shallow aquifer. Groundwater flow to the pit is a function of the water level in the shallow aquifer. The specific steps for implementation of the water balance model are given in Appendix B of the 1998 Hydrogeologic Update report (ABC, 1998a) and in Attachment 3.

Pit refilling will begin at the end of mining, when the dewatering pumps in the shallow aquifer are turned off. In the early years, surface water and pit wall runoff to the pits will help to recharge the shallow aquifer. After that time, the net annual flow will be from the shallow aquifer to the pits. As the pit levels increase, their evaporative areas increase. Eventually, the pond evaporation and leakage to the deep aquifer from the pits equals the inflow from runoff and groundwater. The pit pond elevations stabilize at an equilibrium level that balances evaporative and seepage losses against gains from precipitation, runoff, and shallow aquifer flowing to the pit. The final equilibrium water level in pit and shallow aquifer is lower than the pre-mining static water level because the recharge to the shallow aquifer is limited and the evaporative flux is high, relative to the aquifer recharge rate.

9.2.2 Geochemical Model

The geochemical model uses the water balance predicted by the flow model to distribute chemical mass to and from the various system components. The model tracks the flux and total mass in the pit pond, the shallow aquifer, and the deep aquifer. The means by which chemical mass moves between these three "compartments" in the model is described below:

- *Shallow Aquifer and Fractures*. Chemical mass may enter the shallow aquifer and fractures via precipitation infiltration on the aquifer recharge area and by outflow from the pit to groundwater. Chemical mass may exit the shallow aquifer and fractures by vertical leakage to the deep aquifer and by groundwater flow to the pit.
- *Pit Pond*. Chemical mass may enter the pit from influent surface water runoff, pit wall runoff, and shallow aquifer and fracture groundwater inflow. Evaporation removes water from the pit pond, but not chemical mass (therefore the pond has the ability to evapoconcentrate). Chemical mass may exit the pit by vertical leakage through the pit floor to the deep aquifer and outflow to shallow groundwater.
- *Deep Aquifer*. Chemical mass enters the deep aquifer via vertical leakage from the shallow (Burro Canyon) aquifer, from flow in vertical fractures, and from the pit pond. Chemical mass exits the deep aquifer by horizontal or vertical flow out of the aquifer area.

The primary input parameters used in the chemical balance model are the chemical concentrations of the following waters:

1. Groundwater in the "intact" Burro Canyon aquifer,
2. Groundwater in fracture flow,
3. Runoff from surface soils,
4. Runoff from pit walls, and
5. Groundwater in the deep system (N-aquifer).

The geochemical modeling was performed using total dissolved solids (TDS), as in previous evaluations. TDS is generally representative of the behavior of conservative species, that is, elements which do not attenuate along the groundwater flow path.

9.3 2006 Model Update

9.3.1 Hydrologic Input Parameters

Data collected from 2004 - 2006 confirmed the earlier conceptual model of the hydrogeologic system. Principally:

- The Burro Canyon aquifer is of limited areal extent. Exploration drilling in the southeast Centennial pit area in 2000 confirmed that the Burro Canyon aquifer does not extend more than 400 ft past the original southeast margin of the pit. The revised Centennial Pit boundary extends into the area of unsaturated Burro Canyon Formation. Exploration drilling for water supply and mineral potential near the Sentinel Pit in 1998 and 2004 indicated that the extent of the Burro Canyon aquifer may be more limited than previously realized in this area.
- The Burro Canyon aquifer is compartmentalized. Although piezometer 98R8 near the Sentinel Pit demonstrated high permeability when slug tested and well PW-4 produced more water during drilling than any other well, the completed well yields less than 30 gpm. The low yield is due to aquifer compartmentalization (faults are acting as barriers to groundwater flow, producing boundary conditions), rather than lack of permeability.
- The faulting and compartmentalization have resulted in perched water above the static water level of the Burro Canyon Aquifer in specific fault blocks. For example, in June 2006, 45 blast holes on the 6400 level of the Centennial Pit were wet due to groundwater perched on Beds 6,7, and 8, approximately 200 feet above the static water level (6,180 ft). Other blastholes in beds 9-10, 11-13 at the same level were dry (Figure 12). The anomalously high water levels in piezometer SLV4 in previous years are also attributed to perched water.

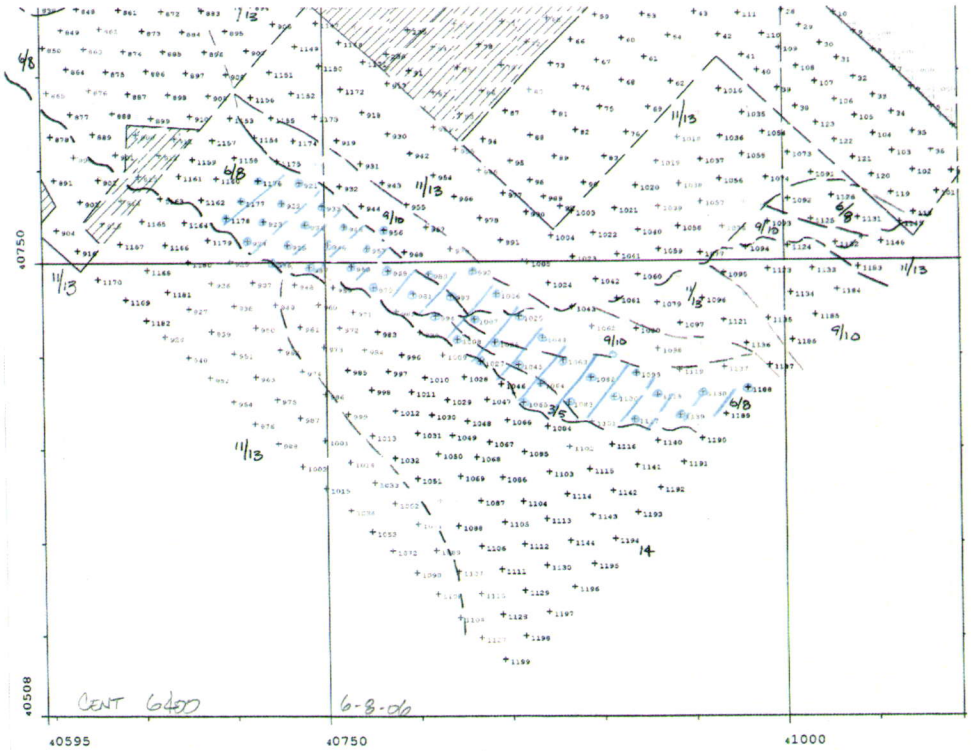


Figure 12. Perched Groundwater in Centennial Pit Beds 6,7,8

- Groundwater occurring in fractures in the Morrison Formation near the Sentinel Pit is of better quality and is hydraulically separated from water in the alluvium and, to a lesser extent, from water in the adjacent Burro Canyon formation. The relatively rapid water level response in piezometer 98R4 (located some distance from PW-2 along the strike of the fault) in response to pumping PW-2, is consistent with the conceptual and numerical hydrologic model.
- The Burro Canyon aquifer is deepest along the axis of the synclines along the strike of the Centennial Pit and southeast of the GTO Pit, as shown by yields from wells PW-3 and PW-6.
- Downward vertical gradients exist in the Morrison Formation between the overlying Burro Canyon aquifer and the underlying N-aquifer. This fact was again confirmed by the water level elevations measured while drilling well PW-7 in 2005.

These observations confirm and support the 1998 modeling. Minor changes were made in the 2005 update to account for the slightly smaller areal extent of the Burro Canyon aquifer near the Sentinel and Centennial Pits and larger areal extent near the GTO Pit, as well as an 9-ft higher static water level near the GTO Pit, and a wider and shallower Sentinel Pit than was modeled in 1998. The input values and results for each pit model are described in the following sections.

9.3.2 Sentinel Pit Model

The 1998 model of the Sentinel Pit was based on the ultimate pit geometry, as shown in the EIS. However, because the ROD stipulates that "mining of the Sentinel #1 will not be allowed to cross Lisbon Canyon," the model was updated in 2005 using an ultimate pit geometry that does not cross Lisbon Canyon. The pit is 60 ft shallower (the pit floor is at an elevation of 6,220 ft vs. 5,960 ft) and the total volume is less than proposed in the EIS. However, the total planned disturbance extends farther up the hillside to the east, for slope stability, and the total pit area encompasses 40.3 acres, or 6% more than in the 1998 model (Table 20). The areal extent of the aquifer is smaller than previously modeled: 62.1 acres vs. 88.5 acres used in the 1998 model (Table 20).

Table 20. Sentinel Pit Geometry Used in Current and Previous Modeling

Elevation (ft amsl)	1998 Model Area (Acres)	2005 -2006 Model Area (Acres)	Ratio
5960	0.0	---	---
6000	1.8	---	---
6040	4.0	---	---
6080	5.9	---	---
6120	8.1	---	---
6160	10.7	---	---
6200	13.6	0	---
6220	15.2	1.6	10%
6240	16.9	3.8	23%
6260	18.9	7.1	38%
6280	20.9	9.9	47%
6300	24.9	13.2	53%
6320	28.8	17.3	60%
Pit Rim	38.0	40.3	106%

Water Balance Component	1998 Model Area (Acres)	2005 -2006 Model Area (Acres)
Groundwater Catchment area:	62.1	88.5
Total area inside berm:	44.1	46.7
Total area inside pit rim:	38.0	40.3
Surface water drainage area:	6.1	6.3
Pit floor elevation:	5,960	6,220

9.3.3 Sentinel Pit Water Balance Results

The higher pit floor and smaller pit results in a much shallower pit pool in the 2005-2006 model than in the 1998 model, in spite of a 6% larger runoff area to the pit. The updated model predicts that water levels stabilize at 6,225.1 ft amsl, or about 5.1 feet above the pit floor (Figure 13). For comparison, water levels stabilized at 6,001.5 ft, or 41.6 feet above the pit floor in the previous model (ABC, 1998a). The planned pit floor is now higher, so the pit pool is smaller, evaporative losses are lower, and the final water level in the aquifer is higher than previously predicted.

The predicted final water level elevation is 24.9 feet below the present day static water level, as shown in Figure 13, compared to 248.5 ft in the previous model. The pit and aquifer take approximately 5 years to refill to 50% of the final level, and 37 years to reach 99% of the final level.

During the first 17 years after mining, the pit recharges the groundwater in the shallow aquifer. After 17 years, the net annual flow is from the aquifer toward the pit. Under the final, quasi-steady-state conditions, groundwater flows from the aquifer to the pit at an average annual rate of 1.7 gpm (2.8 acre-ft/yr).

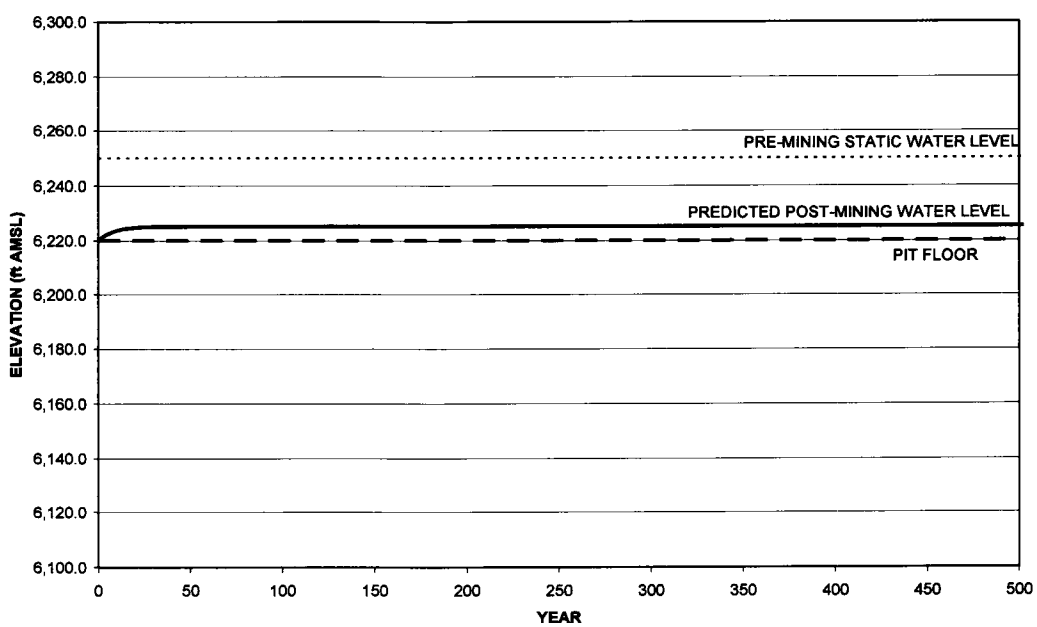


Figure 13. Model Results: Post-Mining Water Levels in the Sentinel Pit

The area of the pond, after more than one hundred years of refilling, is shown in Figure 14. The pond area is very small area relative to the size of the pit and the shallow aquifer. Evaporation from the small (0.99-acre) pond surface would average 2.5 gpm (4.0 acre-ft/yr). Leakage through fractures to the deep aquifer would be 2.8 gpm (4.4 acre-ft/yr); leakage from the shallow (Burro Canyon) aquifer to the deep aquifer would be 0.3 gpm (0.4 acre-ft/yr); and leakage from the pit to the deep aquifer would be a small fraction of that (0.05 gpm, 0.08 acre-ft/yr). Input data used in the Sentinel Pit refilling model, and output for 500 years are given in Attachment 3. The water balance results are compared to previous modeling results in Table 23.

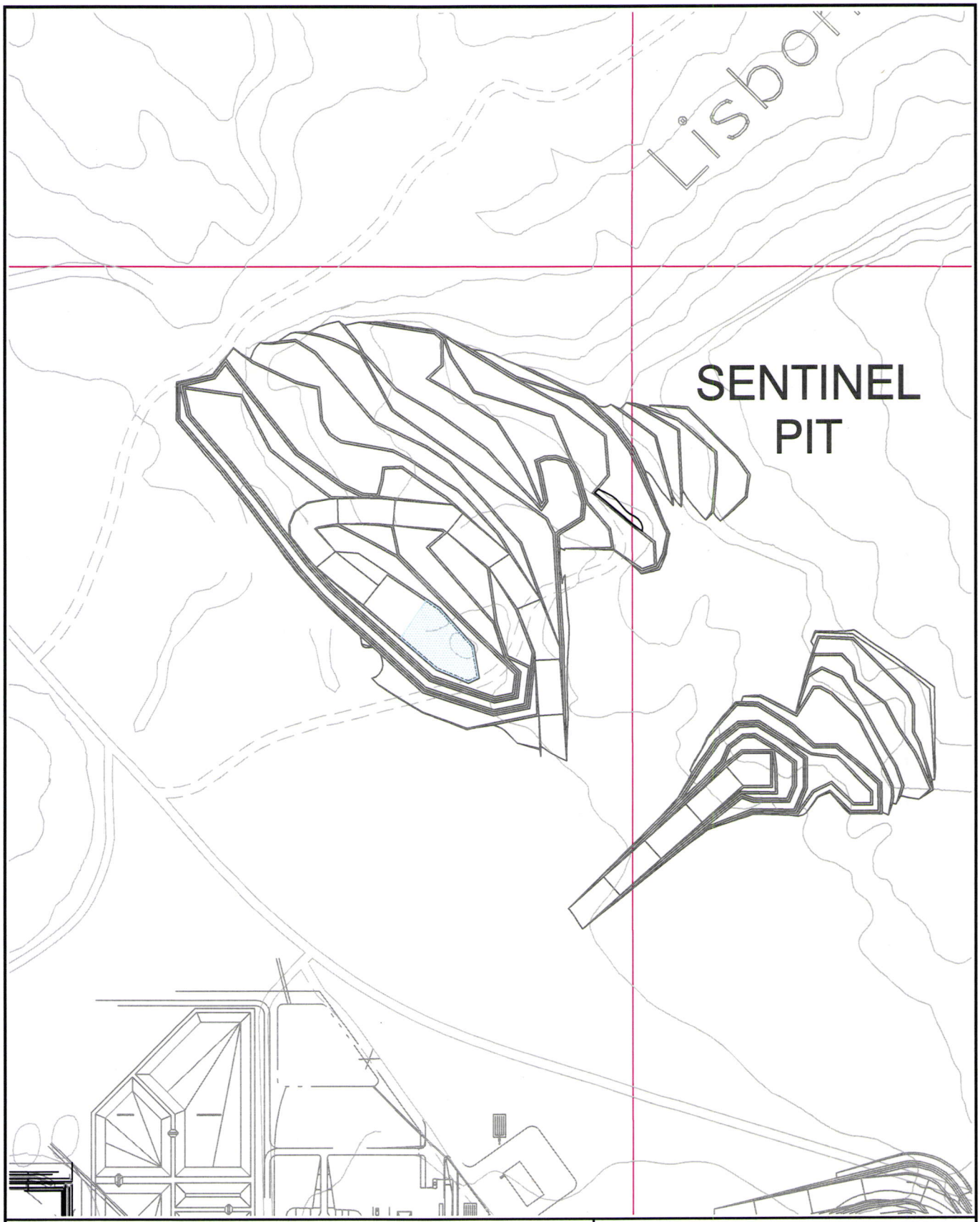
Table 21. Summary of Water Balance Model Results for the Sentinel Pit

Model	SENTINEL PIT ABC, 1998a	SENTINEL PIT Current Model
Pre-mining ground elevation (ft)	6,460	6,460
Original water table elevation (ft)	6,250	6,250
Final pit floor elevation (ft)	5,960	6,220.0
Predicted final water level elevation (ft)	6,001.50	6,225.1
Depth of floor below predicted pond surface (ft)	41.50	5.1
Pit area (acres)	38.0	40.3
Predicted final pond area (acres)	1.8	0.99
Pond evaporation	4.6 gpm, 7.38 acre-ft/yr	2.5 gpm, 3.96 acre-ft/yr
Leakage from intact BC aquifer to N-aquifer	0.3 gpm, 0.41 acre-ft/yr	0.3 gpm, 0.44 acre-ft/yr
Leakage from fractures to N-aquifer	2.5 gpm, 4.05 acre-ft/yr	2.8 gpm, 4.45 acre-ft/yr
Leakage from pit to N-aquifer	0.1 gpm, 0.095 acre-ft/yr	0.05 gpm, 0.079 acre-ft/yr

The small pond predicted in the floor of the Sentinel Pit would cover 2.46% of the planned pit area. Due to the shallow depth and small area, the Sentinel pit pool is not expected to persist long into the future. Sedimentation and vegetation that becomes established in the floor of the pit could significantly reduce the pond area.

9.3.4 Sentinel Pit Chemical Balance Results

The chemical balance model for the Sentinel Pit indicates that TDS in the shallow pit pond will increase slowly over time. Immediately after mining, the water quality in the pit will be better than that in the shallow aquifer and in fractures, because the pit will capture relatively clean water from surface runoff. After 17 years, high-TDS water from the Burro Canyon aquifer will begin to flow to the pit. Evaporation from the pit pond surface will begin to concentrate water in the pond, and the TDS will gradually increase until it reaches quasi-steady-state mass flux conditions, which are limited by geochemical equilibria of sulfate minerals under near-neutral pH conditions. The model predicts that 91 years will pass before the TDS in the pit pond reaches 3,000 mg/L (compared to 92 years in the previous model). The changes in TDS concentration in the pit pond over time are shown in Figure 15.



EXPLANATION

PREDICTED FINAL PIT POND AREA

PLANNED PIT CONTOURS

0 250 500
Scale (feet)

CONTOUR INTERVAL = 40 ft

NORTH

LISBON VALLEY MINING CO

FIGURE 14
MODELED POST-MINING
SENTINEL PIT POOL SURFACE AREA

Date: 1/29/07	Scale: 1" = 500' 1:6,000
Whetstone Associates	Project/File: 4124F
	Drawn/Checked By: SW / SW

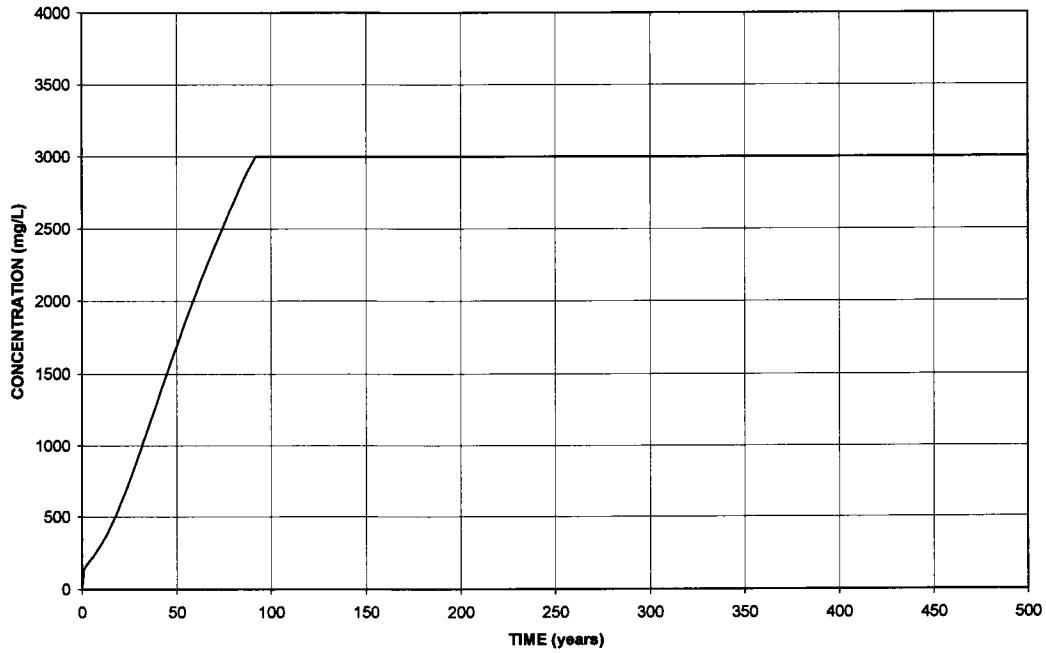


Figure 15. Predicted TDS Concentration in Sentinel Pit Pool

The shallow aquifer concentration is, at first, improved over the pre-mining concentration. This occurs because the pit captures relatively clean surface runoff, and recharges the aquifer at a rate that exceeds the net recharge (infiltration minus leakage) from precipitation. Over time, the flow of water reverses, from the aquifer to the pit, and the aquifer stabilizes at its pre-mining background concentration. Because groundwater will flow from the aquifer to the pit after this time, the Sentinel Pit will have no impact on groundwater chemistry in the shallow aquifer.

Immediately after mining, and for the first 71 years, the water quality in the N-aquifer improves slightly because the pit captures relatively good quality surface runoff water. This water recharges the shallow aquifer and leaks downward to the N-aquifer, and the total concentration is better than what is currently being delivered to the deep system. As evapoconcentration of the pit pond occurs over time, the quality of water delivered to the N-aquifer decreases. The model predicts that the TDS concentration in the N-aquifer below the Sentinel Pit will increase to 720 mg/L, from a starting concentration of 683 mg/L (Figure 16). This represents a 6% increase in TDS over pre-mining conditions[3]. For comparison, the previous model predicted a final concentration of 732 mg/L (7%) in the N-aquifer below the Sentinel Pit. These chemical changes are very slight, and are within the measured variability in N-aquifer wells at the site.

The geochemical model input parameters and results are given in detail in Attachment 3.

[3] For consistency, the model results are compared to the mean and standard deviations of TDS concentrations in the N-aquifer used in the 1998 model, which were based on 17 samples with a mean TDS of 683 mg/L and a standard deviation of 140. The model also uses the mean concentration of 683 mg/L as the starting concentration in the N-aquifer. Based on 86 samples collected from N-aquifer wells MW97-7B, MW97-9, MW97-11, MW97-12, and MW97-13 from February 1998 to October 2005, the mean TDS in the N-aquifer is 629 mg/L with a standard deviation of 209.

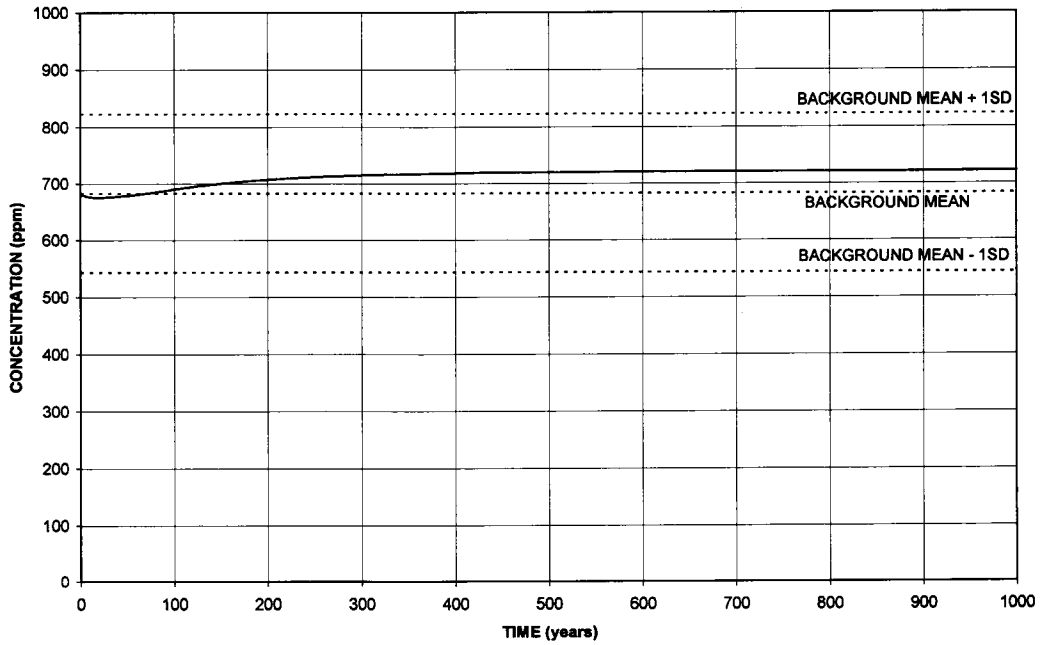


Figure 16. Predicted TDS Concentration in N-aquifer below Sentinel Pit

9.3.5 Centennial Pit Model

The Centennial Pit model uses the same pit geometry as presented in the EIS and evaluated in the 1998 model. The aquifer geometry, however, was refined slightly in 2005 based on information gained during hydrogeologic investigations and mineral exploration conducted since 1998. The revised areal extent of the Burro Canyon aquifer that contributes to the Centennial Pit is shown in Table 22. No other modifications were made to the model.

Table 22. Aquifer Geometry Used in Current and Previous Centennial Pit Modeling

Water Balance Component	1998 Model Area (Acres)	2005-2006 Model Area (Acres)
Shallow aquifer area:	255.2	253.8

9.3.6 Centennial Pit Water Balance Results

The change in aquifer geometry introduced in 2005 produces very small changes to water balance model results. The revised model predicts that water levels stabilize at 6,083.21 ft amsl (Figure 17), compared to 6,083.24 ft amsl in the previous model (ABC, 1998a).

The predicted final water level elevation is 96.8 feet below the present day static water level, as shown in Figure 17. The pit and aquifer take approximately 18 years to refill to 50% of the final level, and approximately 100 years to reach 99% of the final level.

During the first 29 years after mining, the pit recharges the groundwater in the shallow aquifer. After 29 years, the net annual flow is from the aquifer toward the pit. Under the final, quasi-steady-state conditions, groundwater flows from the aquifer to the pit at an average annual rate of 2.2 gpm (3.5 acre-ft/yr).

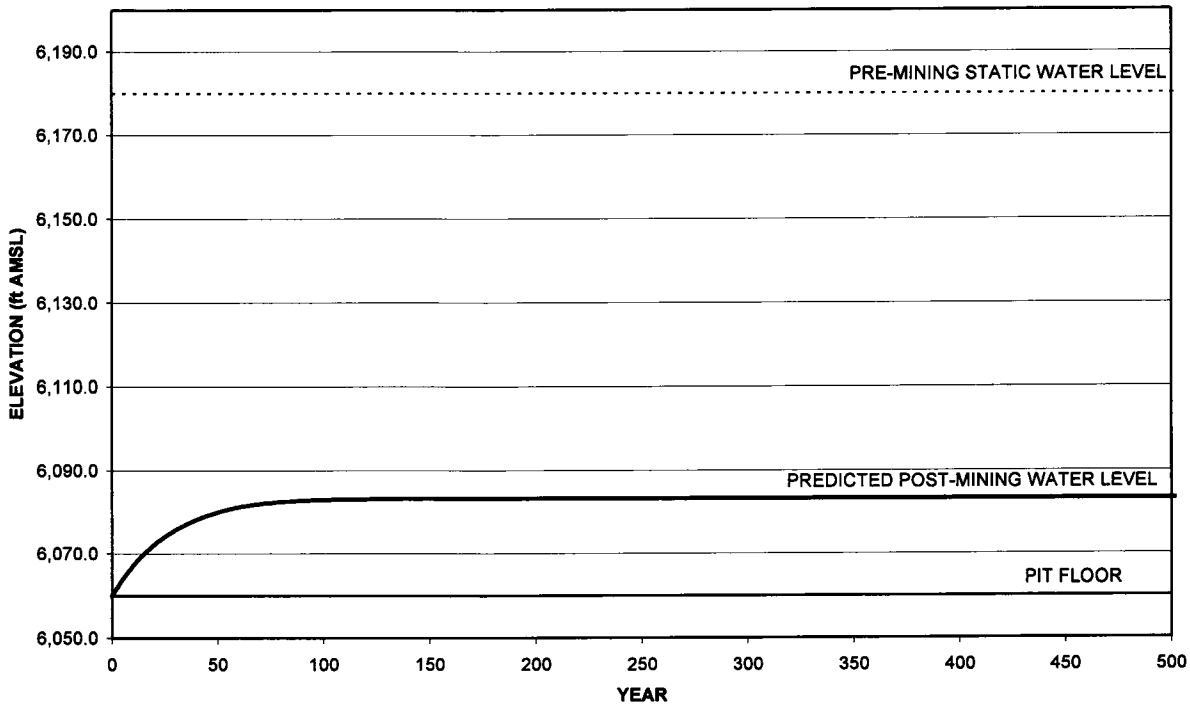
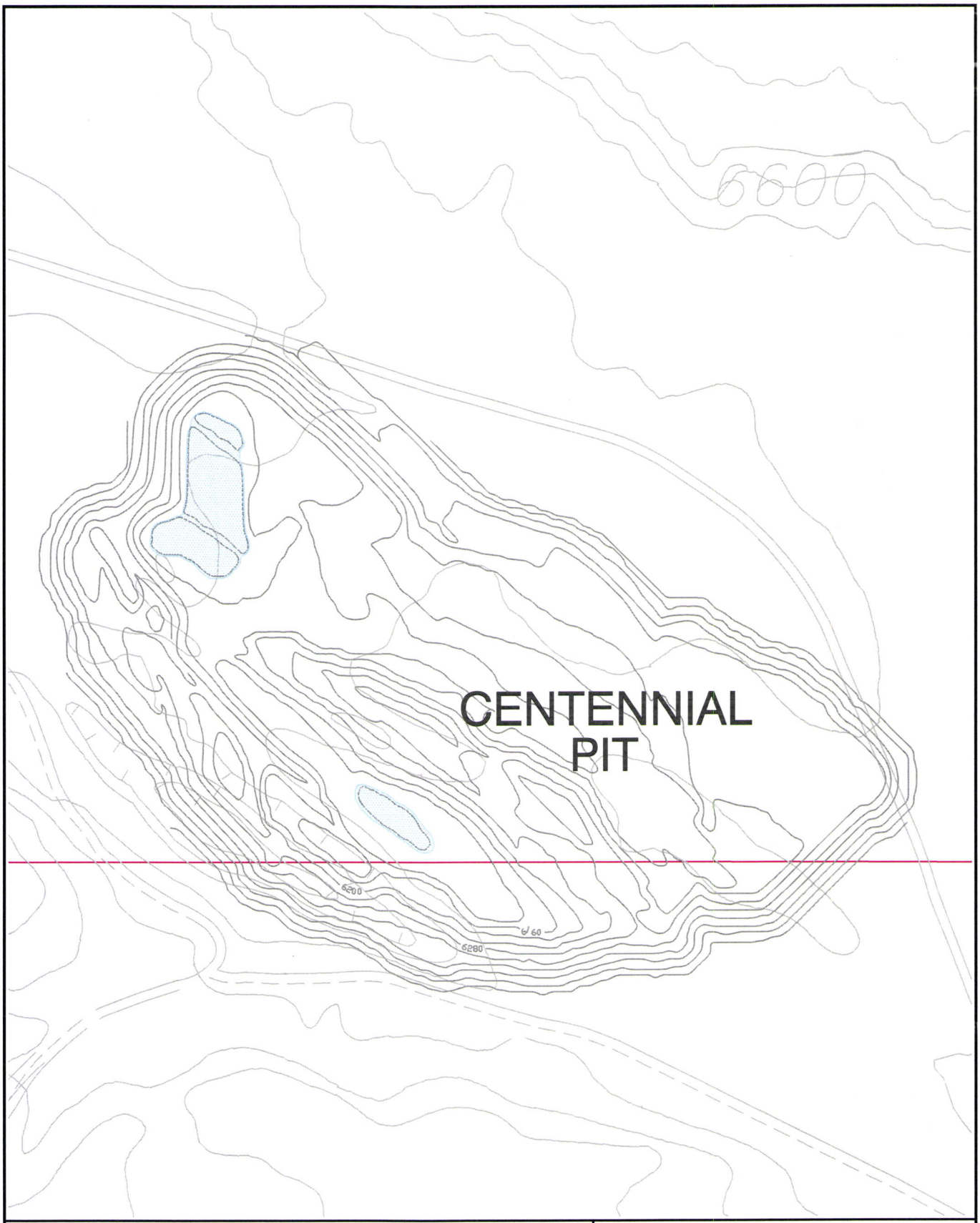


Figure 17. Model Results: Post-Mining Water Levels in the Centennial Pit

The area of the pond, after more than one hundred years of refilling, is shown in Figure 18. The 3.8-acre pond represents a small area relative to the size of the pit and the shallow aquifer. Evaporation from this surface would average 9.4 gpm (15.2 acre-ft/yr). Leakage through fractures to the deep aquifer would be 9.8 gpm (15.78 acre-ft/yr); leakage from the shallow (Burro Canyon) aquifer to the deep aquifer would be 1.0 gpm (1.6 acre-ft/yr); and leakage from the pit to the deep aquifer would be a small fraction of that (0.2 gpm, 0.26 acre-ft/yr). Input data used in the Centennial Pit refilling model, and output for 500 years are given in Attachment 3. The updated water balance results are almost identical to the previous modeling results, as shown in Table 23.

Table 23. Summary of Water Balance Model Results for the Centennial Pit

Model	CENTENNIAL PIT ABC, 1998a	CENTENNIAL PIT Current Model
Pre-mining ground elevation (ft)	6,440	6,440
Original water table elevation (ft)	6,180	6,180
Final pit floor elevation (ft)	6,060	6,060
Predicted final water level elevation (ft)	6,083.24	6,083.21
Depth of floor below predicted pond surface (ft)	23.24	23.21
Pit area (acres)	116	116
Predicted final pond area (acres)	3.8	3.8
Pond evaporation	9.4 gpm, 15.22 acre-ft/yr	9.4 gpm, 15.2 acre-ft/yr
Leakage from intact BC aquifer to N-aquifer	1 gpm, 1.59 acre-ft/yr	1 gpm, 1.58 acre-ft/yr
Leakage from fractures to N-aquifer	9.8 gpm, 15.86 acre-ft/yr	9.8 gpm, 15.78 acre-ft/yr
Leakage from pit to N-aquifer	0.2 gpm, 0.26 acre-ft/yr	0.2 gpm, 0.26 acre-ft/yr



EXPLANATION

PREDICTED FINAL PIT POND AREA

PLANNED PIT CONTOURS

0 250 500
Scale (feet)

CONTOUR INTERVAL = 40 ft

NORTH

LISBON VALLEY MINING CO

FIGURE 18
MODELED POST-MINING CENTENNIAL PIT POOL SURFACE AREA

Date: 1/29/07	Scale: 1" = 500' 1:6,000
Whetstone Associates	Project/File: 4124F
	Drawn/Checked By: SW / SW

The small pond predicted in the floor of the Centennial Pit would cover 3.28% of the planned pit area. During periods of higher than normal precipitation, the water levels in the pit could be slightly higher. However, a significant increase in the pond level is not expected, because both evaporation and the volume of water required to raise the pond level increase as the water level increase. During drought conditions, the shallow pond could go dry. Vegetation that becomes established in the floor of the pit could significantly reduce the pond area, as phreatophytes extract more water than predicted by free water surface evaporation alone.

9.3.7 Centennial Pit Chemical Balance Results

The chemical balance model results for the Centennial Pit updated in 2005 are nearly identical to 1998 model results. The results indicate that the TDS in the shallow pit pond will increase slowly over time. Immediately after mining, the water quality in the pit will be better than that in the shallow aquifer and in fractures, because the pit will capture relatively clean water from surface runoff. After 28 years, high-TDS water from the Burro Canyon aquifer will begin to flow to the pit. Evaporation from the pit pond surface will begin to concentrate water in the pond, and the TDS will gradually increase until it reaches quasi-steady-state mass flux conditions, which are limited by geochemical equilibria of sulfate minerals under near-neutral pH conditions. The model predicts that 90 years will pass before the TDS in the pit pond reaches 3,000 mg/L (compared to 87 years in the previous model). The changes in TDS concentration in the pit pond over time are shown in Figure 19.

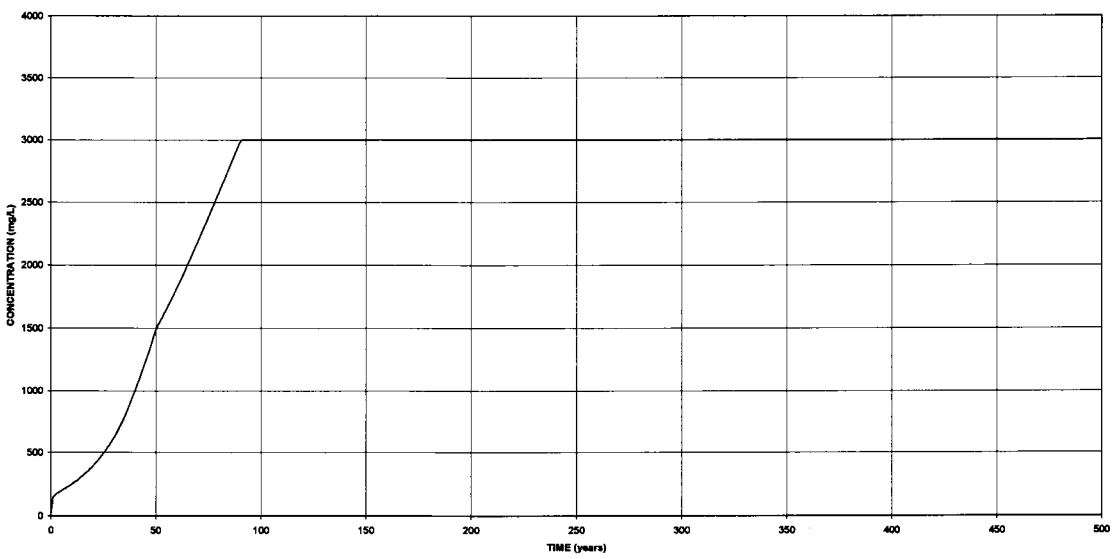


Figure 19. Predicted TDS Concentration in Centennial Pit Pool

The shallow aquifer concentration is, at first, improved over the pre-mining concentration. This occurs because the pit captures relatively clean surface runoff, and recharges the aquifer at a rate that exceeds the net recharge (infiltration minus leakage) from precipitation. Over time, the flow of water reverses, from the aquifer to the pit, and the aquifer stabilizes at its pre-mining background concentration. Because groundwater will flow from the aquifer to the pit after this time, the Centennial Pit will have no impact on groundwater chemistry in the shallow aquifer.

Immediately after mining, and for the first 101 years, the water quality in the N-aquifer is improved because the pit captures relatively good quality surface runoff water. This water recharges the shallow aquifer and leaks downward to the N-aquifer, and the total concentration is better than what is currently being delivered to the deep system. As evapoconcentration of the pit pond occurs over time, the quality of water delivered to the N-aquifer decreases. The model predicts that the TDS concentration in the N-aquifer below the Centennial Pit will increase to 718 mg/L, from a starting concentration of 683 mg/L (Figure 20). This represents a 5% increase in TDS over pre-mining conditions[4]. For comparison, the previous model predicted a final concentration of 717 mg/L in the N-aquifer below the Centennial Pit. These chemical changes are very slight, and are within the measured variability in N-aquifer wells at the site.

The geochemical model input parameters and results are given in detail in Attachment 3.

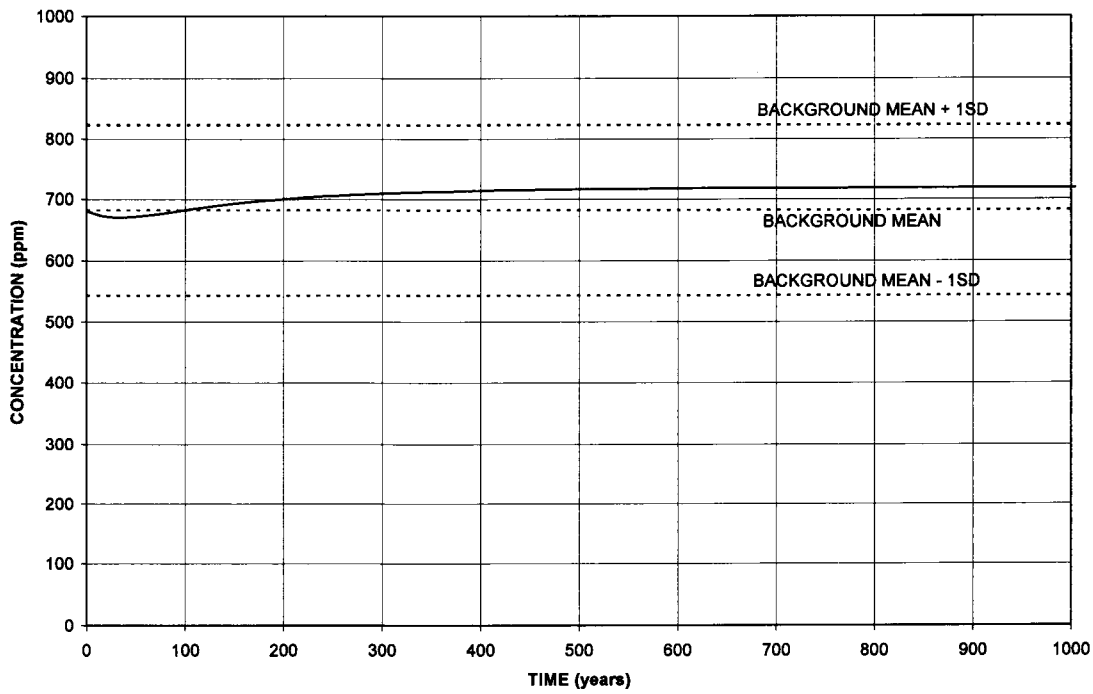


Figure 20. Predicted TDS Concentration in N-aquifer below Centennial Pit

9.3.8 GTO Pit Model

The updated GTO Pit model uses the same pit geometry proposed in the EIS and used in the 1998 model. However, drilling for mineral exploration and water supply indicates that the aquifer Burro Canyon extends farther south and east, into the area left open-ended in the 1998 report. The zone of Burro Canyon aquifer assumed to contribute to the GTO Pit is shown in Figure 9. Measurements of water levels in wells PW-5

[4] For consistency, the model results are compared to the mean and standard deviations of TDS concentrations in the N-aquifer used in the 1998 model, which were based on 17 samples with a mean TDS of 683 mg/L and a standard deviation of 140. The model also uses the mean concentration of 683 mg/L as the starting concentration in the N-aquifer. Based on 86 samples collected from N-aquifer wells MW97-7B, MW97-9, MW97-11, MW97-12, and MW97-13 from February 1998 to October 2005, the mean TDS in the N-aquifer is 629 mg/L with a standard deviation of 209.

and PW-6 indicates that the static water level in the Burro Canyon aquifer is 6,169 ft amsl, or 8 feet higher than previously modeled. These updates to the model are summarized in Table 24.

Table 24. GTO Aquifer Geometry Used in Current and Previous Modeling

Water Balance Component	1998 Model	2005-2006 Model	Change
Shallow aquifer area (acres)	115.8	205.6	+ 78%
Shallow aquifer static water level (ft amsl)	6,161	6,169	+ 8 ft

9.3.9 GTO Pit Water Balance Results

The larger aquifer area and higher static water level result in more flow from the shallow aquifer to the pit and a higher final water level in the updated model than in the 1998 model. The revised model predicts that water levels stabilize at 6,001.2 ft amsl, or about 21 feet above the pit floor (Figure 21). For comparison, water levels stabilized at 16.5 feet above the pit floor (5996.5 ft amsl) in the 1998 model (ABC, 1998a).

The predicted final water level elevation is 167 feet below the present day static water level, as shown in Figure 21. The pit and aquifer take approximately 39 years to refill to 50% of the final level, and approximately 300 years to reach 99% of the final level.

During the first 37 years after mining, the pit recharges the groundwater in the shallow aquifer. After 37 years, the net annual flow is from the aquifer toward the pit. Under the final, quasi-steady-state conditions, groundwater flows from the aquifer to the pit at an average annual rate of 1.8 gpm (2.9 acre-ft/yr).

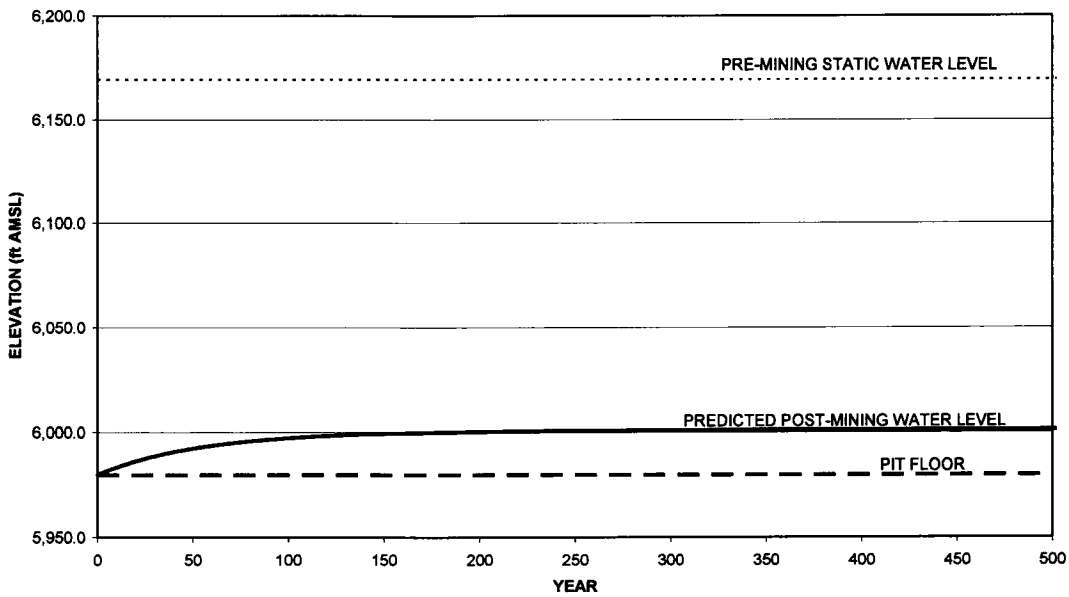


Figure 21. Model Results: Post-Mining Water Levels in the GTO Pit

The area of the pond, after more than one hundred years of refilling, is shown in Figure 22. The 2.6-acre pond represents a small area relative to the size of the pit and the shallow aquifer. Evaporation from this surface would average 6.4 gpm (10.29 acre-ft/yr). Leakage through fractures to the deep aquifer would be 7.9 gpm (12.7 acre-ft/yr); leakage from the shallow (Burro Canyon) aquifer to the deep aquifer would be 0.8 gpm (1.3 acre-ft/yr); and leakage from the pit to the deep aquifer would be a small fraction of that (0.1

gpm (0.18 acre-ft/yr). Input data used in the GTO Pit refilling model, and output for 500 years are given in Attachment 3. The water balance results are compared to previous modeling results in Table 25.

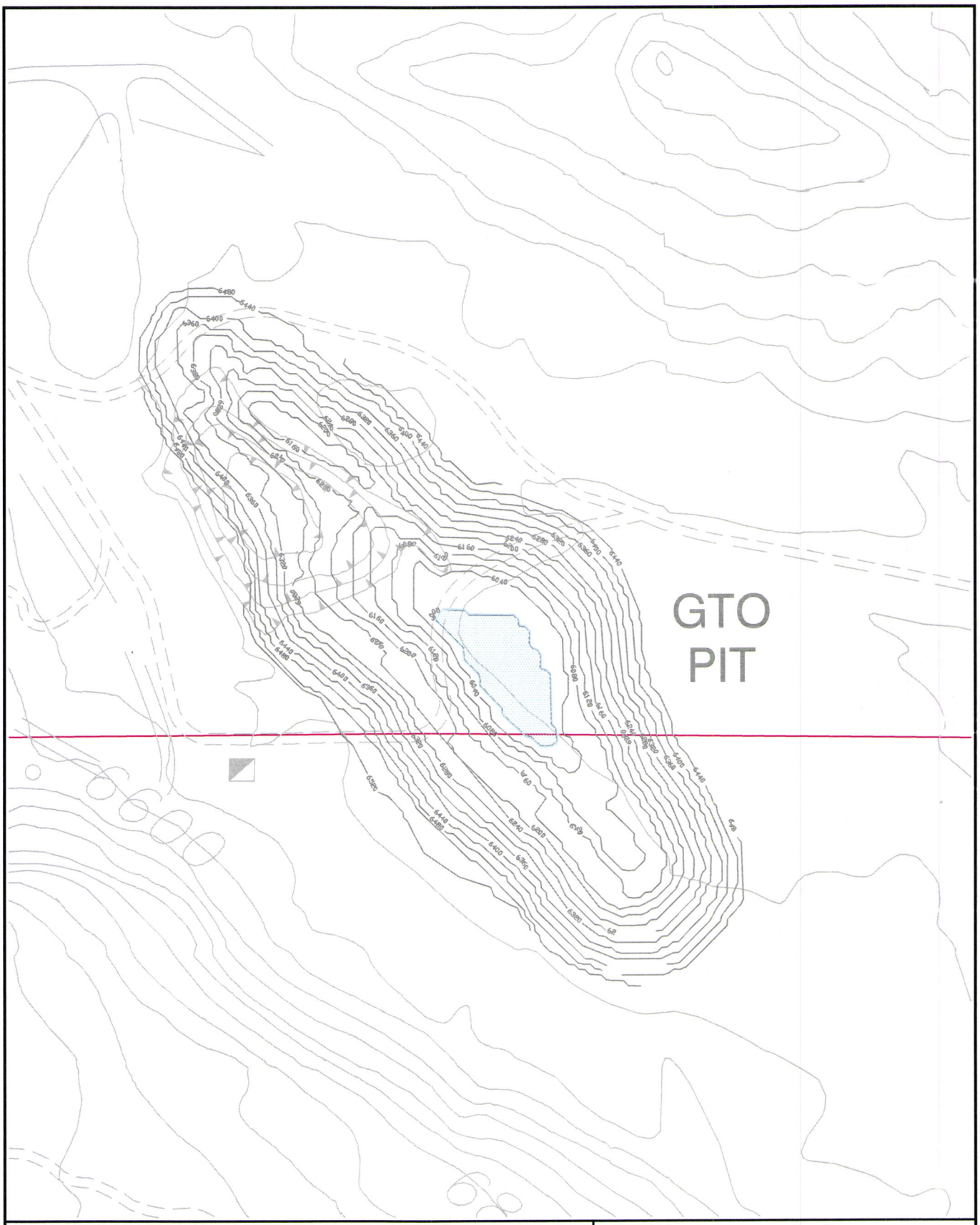
Table 25. Summary of Water Balance Model Results for the GTO Pit

Model	GTO PIT ABC, 1998a	GTO PIT 2005-2006 Model
Pre-mining ground elevation (ft)	6,490	6,490
Original water table elevation (ft)	6,161	6,169
Final pit floor elevation (ft)	5,980	5,980
Predicted final water level elevation (ft)	5,996.50	6,001.24
Depth of floor below predicted pond surface (ft)	16.50	21.24
Pit area (acres)	68	68
Predicted final pond area (acres)	2.12	2.57
Pond evaporation	5.3 gpm, 8.47 acre-ft/yr	6.4 gpm, 10.29 acre-ft/yr
Leakage from intact BC aquifer to N-aquifer	0.4 gpm, 0.71 acre-ft/yr	0.8 gpm, 1.27 acre-ft/yr
Leakage from fractures to N-aquifer	4.4 gpm, 7.14 acre-ft/yr	7.9 gpm, 12.7 acre-ft/yr
Leakage from pit to N-aquifer	0.1 gpm, 0.15 acre-ft/yr	0.1 gpm, 0.18 acre-ft/yr

The small pond predicted in the floor of the GTO Pit would cover 3.78% of the planned pit area. During periods of higher than normal precipitation, the water levels in the pits could be slightly higher. However, a significant increase in the pond level is not expected, because both evaporation and the volume of water required to raise the pond level increase as the water level increase. During drought conditions, the shallow ponds could go dry. Vegetation that becomes established in the floor of the pit could significantly reduce the pond area, as phreatophytes extract more water than predicted by free water surface evaporation alone.

9.3.10 GTO Pit Chemical Balance Results

The chemical balance model for the GTO Pit indicates that TDS in the shallow pit pond will increase slowly over time. Immediately after mining, the water quality in the pit will be better than that in the shallow aquifer and in fractures, because the pit will capture relatively clean water from surface runoff. After 37 years, high-TDS water from the Burro Canyon aquifer will begin to flow to the pit. Evaporation from the pit pond surface will begin to concentrate water in the pond, and the TDS will gradually increase until it reaches quasi-steady-state mass flux conditions, which are limited by geochemical equilibria of sulfate minerals under near-neutral pH conditions. The model predicts that 55 years will pass before the TDS in the pit pond reaches 3,000 mg/L (compared to 58 years in the previous model). The changes in TDS concentration in the pit pond over time are shown in Figure 23.



EXPLANATION

PREDICTED FINAL PIT POND AREA

PLANNED PIT CONTOURS

0 250 500
Scale (feet)

CONTOUR INTERVAL = 40 ft

NORTH

LISBON VALLEY MINING CO

FIGURE 22
MODELED POST-MINING
GTO PIT POOL SURFACE AREA

Date: 1/29/07	Scale: 1" = 500' 1:6,000
Whetstone Associates	Project/File: 4124F
	Drawn/Checked By: SW / SW

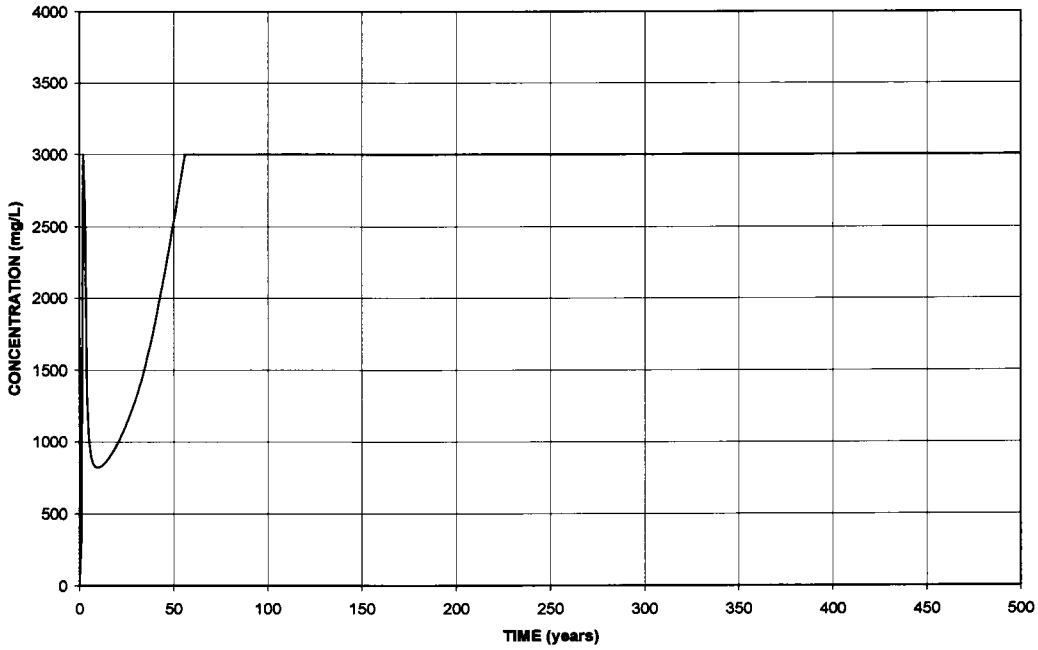


Figure 23. Predicted TDS Concentration in GTO Pit Pool

As predicted for the other two pits, the shallow aquifer concentration is, at first, improved over the pre-mining concentration. This occurs because the pit captures relatively clean surface runoff, and recharges the aquifer at a rate which exceeds the net recharge (infiltration minus leakage) from precipitation. Over time, the flow of water reverses, from the aquifer to the pit, and the aquifer stabilizes at its pre-mining background concentration. Because groundwater will flow from the aquifer to the pit after this time, the GTO Pit will have no impact on groundwater chemistry in the shallow aquifer.

Immediately after mining, and for the first 98 years, the water quality in the N-aquifer is improved because the pit captures relatively good quality surface runoff water. This water recharges the shallow aquifer and leaks downward to the N-aquifer, and the total concentration is better than what is currently being delivered to the deep system. As evapoconcentration of the small pit pond occurs over time, the quality of water delivered to the N-aquifer decreases. The model predicts that the TDS concentration in the N-aquifer below the GTO Pit will increase to 1,295 mg/L, from a starting concentration of 1,273 mg/L (Figure 24). This represents a 2% increase in TDS over pre-mining conditions[5]. For comparison, the previous model predicted a final concentration of 1,305 mg/L in the N-aquifer below the GTO Pit. These chemical changes predicted by the model are very slight, and are within the measured variability in N-aquifer wells at the site.

The geochemical model input parameters and results are given in detail in Attachment 3.

[5] For consistency, the model results are compared to the TDS concentration in the N-aquifer used in the 1998 GTO Pit model, which was based on 4 samples from MW97-13 with a mean TDS of 1,273 mg/L.

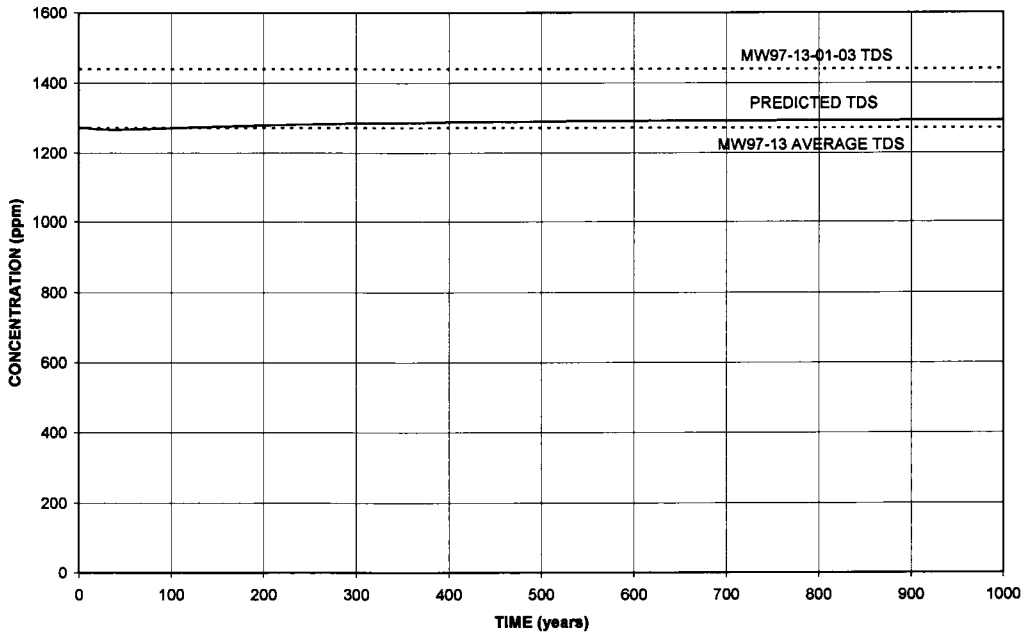


Figure 24. Predicted TDS Concentration in N-aquifer below GTO Pit

10. RECOMMENDATIONS

Hydrogeologic data collected over the last several years support the following recommendations:

- LVMC should more aggressively pump well PW-3 in the Centennial pit area, to successfully dewater the Centennial Pit in advance of mining. If possible, the well should be added to the mine's telemetry system to allow remote switching from the SX plant.
- A piezometer should be installed between well PW-6 and the GTO pit, to monitor water levels near the planned pit, assess the potential for groundwater inflow to the pit, and monitor water availability in the Burro Canyon aquifer.
- Locking valves should be installed on PW-6 and other production wells, to prevent the pumps from operating off the range of their respective pump curves.

11. CONCLUSIONS

This Annual Hydrogeologic Update for the Lisbon Valley Mine is required by the GWQD Permit and the ROD. One monitoring well was drilled during 2006 and two piezometers were abandoned, in accordance with R655-4-12. Water was pumped from six water supply wells to dewater the Centennial and Sentinel Pits and to provide process water. Other well activities in 2006 included the rehabilitation of water well PW-7 to combat microbially mediated scaling, and the investigation of possible casing damage in water supply well PW-3

The hydrogeologic data recently collected supports the approach and conclusions of previous modeling. For 2006, no changes were necessary to the 2005 updated models of groundwater flow and chemistry in the mine pits, surrounding shallow aquifer, and underlying deep aquifer.

The Sentinel Pit model indicates that water quality in the N-aquifer below the pit is expected to improve for the first 71 years after mining. Thereafter, water quality is expected to decrease nominally, with a final increase steady-state TDS concentration of 6% (compared to 7% in the 1998 model). The current model's prediction of better quality in the N-aquifer than in the previous model occurs as a result of a slightly larger surface area that collects and delivers relatively good quality runoff to the Sentinel Pit.

The Centennial Pit model indicates that water quality in the N-aquifer below the pit is expected to improve for the first 101 years after mining. Thereafter, water quality is expected to decrease nominally, with a final increase steady-state TDS concentration of 5%. The predicted final steady-state TDS is 717 mg/L, compared to 718 mg/L in the 1998 model (ABC, 1998a). The differences in model results are due to a slight decrease in the areal extent of the Burro Canyon aquifer near the Centennial Pit.

The GTO Pit model indicates that water quality in the N-aquifer below the GTO Pit is expected to improve for the first 98 years after mining (compared to 110 years in the 1998 model [ABC, 1998a]). Thereafter, water quality is expected to decrease nominally, with a final increase steady-state TDS concentration of 2% (compared to 3% in the previous model). The differences between the models results from the slightly higher static water level and an increase in the areal extent of the Burro Canyon aquifer near the GTO Pit. Although the increase in N-aquifer water quality is predicted to occur 12 years earlier, the simulated final water quality is better than previously predicted.

None of the predicted changes to the N-aquifer TDS load exceed, or even approach, the preliminary Ground Water Protection Levels for the N-aquifer. Water quality in the Burro Canyon aquifer is not affected by the mine pits, because immediately after mining, the water flowing from the pits to the aquifer is better quality than currently exists, while in later years, groundwater flows from the aquifer to the pits.

The detailed hydrogeologic evaluation led to recommendations for (1) continued pumping of PW-3 to achieve aquifer dewatering near the Centennial Pit, and (2) installation of a piezometer between well PW-6 and the GTO pit to assess the potential for groundwater inflow to the pit, and monitor water availability in the Burro Canyon aquifer.

February 5, 2007
Prepared and submitted by:

Whetstone Associates, Inc.

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ATTACHMENT 1
MONITORING WELL MW06-15
AS-BUILT REPORT

Prepared for

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Document 4124F.070205

February, 2007

Monitoring Well As-Built Report

To: Keith Eagan, UDEQ **4124I**

From: Susan Wyman, P.E., P.G., Whetstone Associates, Inc.

Date: January 12, 2007

Subject: Monitoring Well MW06-15 As-Built Report, Lisbon Valley Mining Co., San Juan County, Utah

In December, 2006, Lisbon Valley Mining Co., LLC, (LVMC) installed a new monitoring well as required by the 1997 Bureau of Land Management (BLM) Record of Decision (ROD). This Monitoring Well As-Built Report has been prepared and submitted in accordance with the requirements of Ground Water Quality Discharge Permit No. UGW370005, Part II, Section H.2.b.

Well Location

Monitoring well MW06-15 was drilled 600 feet northeast of the Sentinel Pit, at mine coordinates 45,686.4N, 39321.0E (Figure 1). The well is located 370 ft north and 830 ft west of the SE corner of Section 23, T30S, R25E, SLB&M.

Schedule of Activities

Well permits were obtained and a drilling contract was awarded with a June 2006 start date. However, the selected contractor encountered numerous scheduling delays, and an alternative drilling contractor, Midway Drilling and Perforating, was selected in October 2006. Drilling began on November 8, 2006 and the well was completed on November 14. However, a segment of PVC airline separated during well development, and could not be recovered from the well. Midway Drilling applied for a replacement well, and the first well was properly abandoned in accordance with Utah well drilling regulations (R655-4-12). The replacement well was drilled and completed from December 7 – 12 and is located 12 feet from the original boring. The schedule for drilling, completion, and development is shown in Table 1.

Table 1. Schedule for MW06-15 Drilling, Completion, and Development

ACTIVITY	DATES
Drilling	12/7/06 - 12/10/06
Well Completion	12/11/06 - 12/12/06
Well Development	12/14/06, 12/17/06
Sampling	12/18/06

Well Drilling and Geology

Monitoring well MW06-15 was drilled by Midway Drilling and Perforating of Nephi, Utah, using a Shram conventional rotary rig. Drilling began on December 7, 2006 and 8-inch surface casing was

installed through the alluvium to a depth of 50 feet. Below the alluvium, the boring encountered the Morrison, Summerville, Entrada, and Navajo formations (Table 2). A geologic log is provided in Attachment 1. Water was not evident during drilling, but was estimated in advance to be 800 ft bgs. The boring reached a total depth of 900 feet, and water level in the open hole was measure at 790.0 ft.

Table 2. Monitoring Well MW06-15 Geology

BED	FORMATION	DEPTH
	Quaternary Alluvium (Qal)	0-50
3,4,5	Dakota Sandstone (Kd)	---
6,7,8	Dakota Sandstone (Kd)	---
9,10	Dakota Sandstone (Kd)	---
11	Dakota Sandstone (Kd)	---
12-15	Burro Canyon Formation (Kbc)	---
17	Morrison Formation (Jm)	
	Brushy Basin Member (Jmb)	---
	Salt Wash Member (Jms)	50 - 400
Js	Summerville Formation (Js)	400 - 530
Je	Entrada Sandstone (Je)	530 - 760
Jn	Navajo Sandstone (Jn)	760 - 900+

Well Completion

A well completion diagram is provided in Attachment 2. The monitoring well was constructed using 2-inch diameter, schedule 5, 304 stainless steel casing and 0.020-slot stainless steel wire-wrap screen. The bottom of the casing was set at 897.9 ft bgs. The screened interval was placed from 838 to 888 feet bgs. A 9.8-foot section of blank casing with welded stainless steel end cap was placed below the screen to act as a sump. Stainless steel casing centralizers were placed at the top and bottom of the screened interval to center the well in the borehole. Additional centralizers were also placed at 798 feet bgs and again at 398 feet bgs along the blank casing above the well screen.

A filter pack of 10-20 gradation Colorado Silica Sand was constructed from the bottom of the casing to 41.6 feet above the well screen (796.4 to 897.9 feet bgs) using a tremmie pipe to place and tag the material. A five-foot thick seal of coated bentonite pellets was installed above the filter pack sand from 784.9 to 796.4 feet bgs. The annular space above the pellet seal was filled with a high-solids content bentonite grout (Wyoming Bentonite BH Ultra) to a depth of 0.5 feet bgs. A cement surface seal was placed from 0 to 0.5 feet bgs. An 8-inch diameter locking protective surface casing was installed in a 4-ft diameter concrete monument at the well head.

Static water level was measured at 792.2' ft below top of casing (btoc), at an elevation of 5,540.5 ft above mean sea level (amsl). Well completion and water level data are summarized in Table 3.

Table 3 Completion Data for Monitoring Well MW06-15

Well	Completion Date	Northing (ft)	Easting (ft)	Elevation of Top of Casing (ft amsl)	Screened Interval (ft bgs)	Total Depth (ft)	Depth to Water (ft btoc)	Water Level Elevation (ft)
MW06-15	12/12/06	45,686.4	39,321.0	6,332.7	838 - 888	897.9	792.2	5,540.5

Well Development and Sampling

Monitoring well MW06-15 was developed using a 25-ft long, 1.66-inch diameter, PVC bailer and a wireline rig operated by Rex Wyatt Drilling. The well was bailed for approximately 15 hours over two days, until water quality parameters stabilized and the water was visibly clear and free of drilling foam. The water quality parameters measured during well development are shown in Table 4.

Table 4. Water Quality Field Parameters Measured During Well Development

DATE	TEMPERATURE (°F)	pH	EC (um/cm)	VOLUME (gal.)
12/13/2006	63.5	7.66	1453	0
	70.5	7.65	1317	18.5
	69.2	7.91	1366	28
	67.3	7.87	1284	50
12/18/2006	62.0	8.18	1419	130
	63.1	7.79	1286	160
	64.2	8.00	1342	195
	65.6	7.91	1303	235

The well was sampled on December 18, 2006, and the results are presented in the 4th Quarter 2006 Sampling Report.

ATTACHMENT 1
GEOLOGIC LOG

LISBON VALLEY MINING COMPANY

Project: Lisbon Valley Copper	Drill Hole	Coordinates	Page 1 of 5
	No. MW06-15	45,686.4 N	Logged by: C. Bauer
	Depth: 900'	39,321.0 E	Date: 11-8-06
Area: Lisbon Canyon	Bearing:	6,330.7 El.	Drill Co.: Midway
	Inc.: Vertical	Drill Type: Rotary	Perforating & Drilling

From	To	Description	Rx	Alteration Silic.	Alteration Argil.	Alteration Org.	FeOx	$S^{=}$	Calcar/ CO_3	Assays	Assays	H_2O gpm
0	10	Qal - Rd brn to purp. brn clay & silt w/ frags. of silt & ss										
10	20											
20	30											
30	40											
40	50											
50	60	Red brn & lt. grey f.g ss. w/ minor clay										
60	70	Red brn & lt. grey vfg. ss, thin. bed., minor clay & shale										
70	80	Grey to grn grey vfg. to mg. ss, minor clay										
80	90											
90	100	Grey mg to cg ss w/ some chert peb.										
100	110											
110	120	Grn grey fg. ss, clay & minor shale, tr fg sulfides						Tr				
120	130	Red brn. fg. ss w/ minor clay, tr. sulfides						Tr				
130	140	Red brn & minor grey vfg. ss. w/ some shale						Tr				
140	150							Tr				
150	160							Tr				
160	170	Grey to buff fg. to mg. ss						Tr				
170	180	Buff w/ minor grey fg to mg. ss, minor shale						Tr				
180	190							Tr				
190	200							Tr				

LISBON VALLEY MINING COMPANY

Project: Lisbon Valley Copper	Drill Hole	Coordinates	Page 2 of 5
	No. MW06-15	45,686.4 N	Logged by: C. Bauer
	Depth: 900'	39,321.0 E	Date: 11-10-06
Area: Lisbon Canyon	Bearing:	6,330.7 grd. El.	Drill Co.: Midway
	Inc.: Vertical	Drill Type: Rotary	Perforating & Drilling

From	To	Description	Rx	Alteration Silic.	Alteration Argil.	Alteration Org.	FeOx	$S^{=}$	Calcar/ CO_3	Assays	Assays	H_2O gpm
200	210	Buff mg. ss. w/ minor red brn shale										
210	220											
220	230	Red brn fg. ss & shale										
230	240											
240	250	Lt. red brn fg. to mg. ss. tr. sulfides						Tr				
250	260							Tr				
260	270							Tr				
270	280	w/ minor shale						Tr				
280	290	Red brn shale & lt. red brn mg. ss						Tr				
290	300							Tr				
300	310	Lt. red brn fg. to mg. ss. w/ minor red brn shale						Tr				
310	320	Red brn v.fg. to fg. ss & shale, minor grey fg ss.						Tr				
320	330							Tr				
330	340							Tr				
340	350							Tr				
350	360							Tr				
360	370							Tr				
370	380							Tr				
380	390	Red brn & minor grey vfg. to fg. ss, minor shale						Tr				
390	400	w/ few buff chips					Tr	Tr				

LISBON VALLEY MINING COMPANY

Project: Lisbon Valley Copper	Drill Hole	Coordinates	Page 3 of 5	
	No. MW06-15	_____ N	Logged by: C. Bauer	
	Depth: _____	_____ E	Date: 11-10-06	
Area: Lisbon Canyon	Bearing: _____	_____ El.	Drill Co.: Midway	
	Inc.: Vertical	Drill Type: Rotary	Perforating & Drilling	

	From	To	Description	Rx	Alteration Silic.	Alteration Argil.	Alteration Org.	FeOx	$S^{=}$	Calcar/ CO_3	Assays	Assays	H_2O gpm
	400	410	Buff mg. ss. w/ minor red brn shale					Wk					
	410	420						Wk					
	420	430						Wk					
	430	440						Wk					
Js	440	450	w/ minor hydrocarbon.					Wk	Tr				
	450	460						Wk	Tr				
	460	470	Red brn w/ minor grey siltst to fg. ss, minor shale										
	470	480	thinly bed. ss										
	480	490											
	490	500											
	500	510											
	510	520											
	520	530											
	530	540	Grey fg. ss w/ minor red brn thin. bed. fg. ss										
	540	550											
	550	560											
	560	570											
Je	570	580											
	580	590	w/ some mg. chips										
	590	600											

LISBON VALLEY MINING COMPANY

Project: Lisbon Valley Copper	Drill Hole	Coordinates	Page 4 of 5	
	No. MW06-15	_____ N	Logged by: C. Bauer	
	Depth: _____	_____ E	Date: 11-11-06	
Area: Lisbon Canyon	Bearing: _____	_____ El.	Drill Co.: Midway	
	Inc.: Vertical	Drill Type: Rotary	Perforating & Drilling	

From	To	Description	Rx	Alteration Silic.	Alteration Argil.	Alteration Org.	FeOx	$S^{=}$	Calcar/ CO_3	Assays	Assays	H_2O gpm
600	610	Grey fg to mg ss, minor red brn siltstone & shale										
610	620											
620	630											
630	640											
640	650											
650	660											
660	670	Grey mg & cg ss w/ minor minor red brn siltst.										
670	680											
680	690	Grey fg to mg ss w/ some red brn siltst to vfg ss										
690	700											
700	710											
710	720	Grey & brn fg ss										
720	730											
730	740	Grey & minor brn fg to mg ss										
740	750						Tr					
750	760											
760	770	Grey & lt. yellow grey mg. & cg. ss, minor brn fg ss.						Tr				
770	780											
780	790											
790	800											

LISBON VALLEY MINING COMPANY

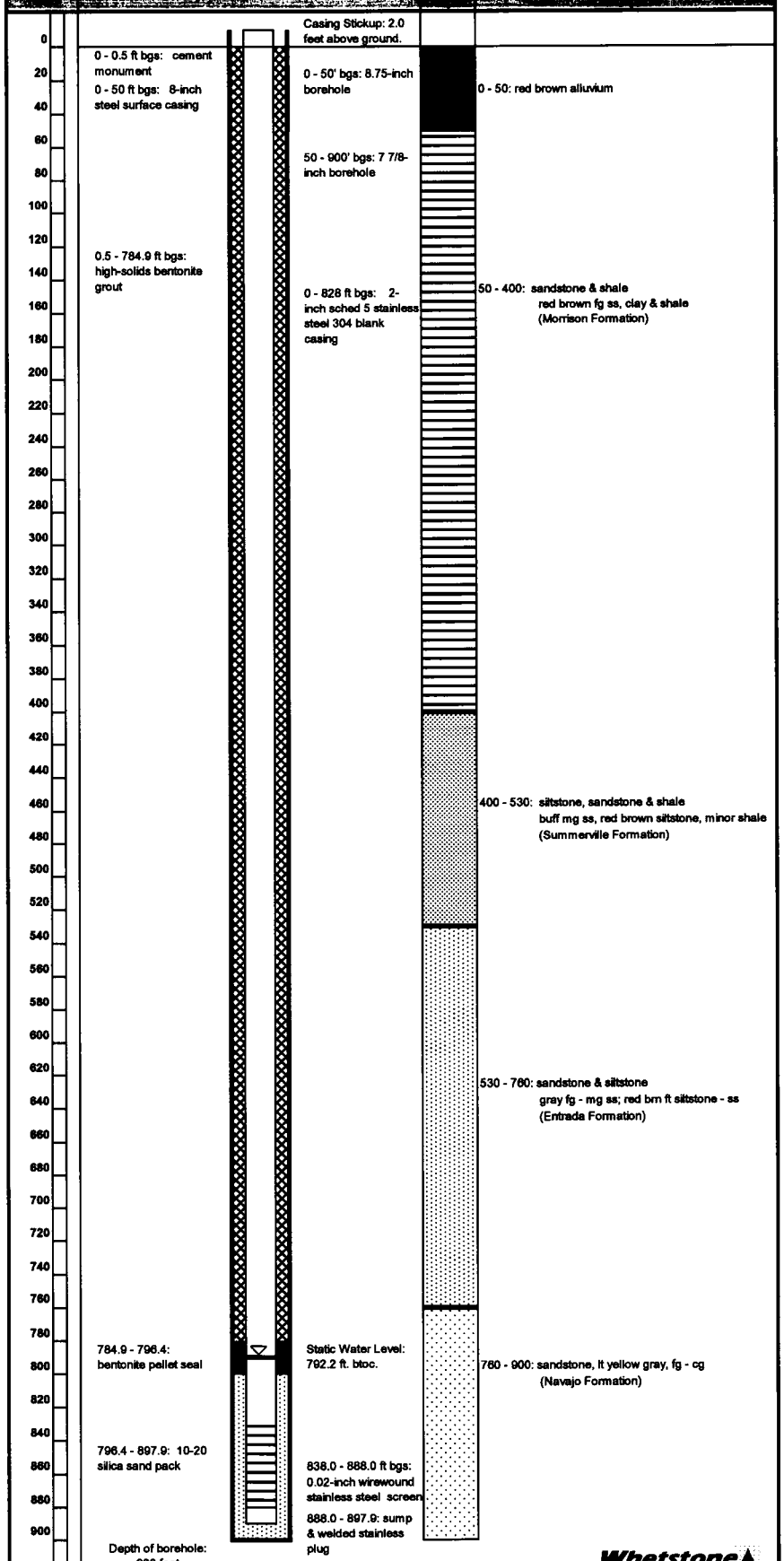
Project: Lisbon Valley Copper	Drill Hole	Coordinates	Page 5 of 5
	No. MW06-15	_____ N	Logged by: C. Bauer
	Depth: _____	_____ E	Date: 11-11-06
Area: Lisbon Canyon	Bearing: _____	_____ El.	Drill Co.: Midway
	Inc.: Vertical	Drill Type: Rotary	Perforating & Drilling

From / To	Description	Rx	Alteration			FeOx	$S^{=}$	Calcar/ CO_3	Assays		H_2O gpm
			Silic.	Argil.	Org.						
800 / 810	Lt. yellow grey mg. & cg. ss w/ minor grey & brn fg. ss.										
810 / 820											
820 / 830											
830 / 840	Lt. yellow grey & minor grey fg to cg ss										
840 / 850											
850 / 860											
860 / 870	Lt. yellow grey & minor grey mg. & cg. ss, minor brn fg ss										
870 / 880											
880 / 890											
890 / 900											

ATTACHMENT 2
WELL COMPLETION DIAGRAM

MONITORING WELL COMPLETION DIAGRAM — MW06-15

Well ID:	MW06-15	**Date Drilled:**	12/7/06 - 12/10/06
Project:	Lisbon Valley Mining Co.	**Completed:**	12/11/06 - 12/12/06
Coordinates:	45686.4 N, 39321.0 E	**Developed:**	12/14/06, 12/17/06
Ground Elev.:	6330.70 ft	**Yield Tested:**	n/a
Casing Elev.:	6332.70 ft	**Driller:**	Midway Drilling & Perforating, Nephi, Utah
Casing Stick-up:	2.00 ft	**Method:**	Air/Water Rotary
Casing Depth:	897.90 ft bgs	**Geologist:**	Chuck Bauer, LVMC



Whetstone Associates

ATTACHMENT 2
LABORATORY ANALYTICAL RESULTS FOR PIT WALL RUNOFF SENTINEL WEST PIT

Prepared for

Lisbon Valley Mining Co., LLC
920 S. County Rd 313
PO Box 248
La Sal, UT 84530

Prepared by

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719-742-5155
Document 4124F.070205

February, 2007

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Lisbon Valley Mining Company, LLC

Project ID: LISBON VALLEY COPPER

Sample ID: SENTINEL PW RUNOFF

ACZ Sample ID: ***L59307-01***

Date Sampled: *10/06/06 09:35*

Date Received: *10/07/06*

Sample Matrix: *Surface Water*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS							10/10/06 13:30	jjr

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	0.14	B		mg/L	0.03	0.2	10/13/06 14:55	wfg
Antimony, dissolved	M200.8 ICP-MS		U		mg/L	0.0004	0.002	10/12/06 12:41	jjr
Arsenic, dissolved	M200.8 ICP-MS	0.0031			mg/L	0.0005	0.003	10/12/06 12:41	jjr
Barium, dissolved	M200.7 ICP	0.195			mg/L	0.003	0.01	10/13/06 14:55	wfg
Beryllium, dissolved	M200.8 ICP-MS		U		mg/L	0.0001	0.0005	10/12/06 12:41	jjr
Cadmium, dissolved	M200.8 ICP-MS	0.0036			mg/L	0.0001	0.0005	10/12/06 12:41	jjr
Calcium, dissolved	M200.7 ICP	13.4			mg/L	0.2	1	10/31/06 0:46	msh
Chromium, dissolved	M200.8 ICP-MS		U		mg/L	0.0001	0.0005	10/12/06 12:41	jjr
Copper, dissolved	M200.7 ICP	0.27			mg/L	0.01	0.05	10/13/06 14:55	wfg
Iron, dissolved	M200.7 ICP	0.04	B		mg/L	0.02	0.05	10/13/06 14:55	wfg
Lead, dissolved	M200.8 ICP-MS	0.0019			mg/L	0.0001	0.0005	10/12/06 12:41	jjr
Magnesium, dissolved	M200.7 ICP	1.2			mg/L	0.2	1	10/31/06 0:46	msh
Manganese, dissolved	M200.7 ICP	0.061			mg/L	0.005	0.03	10/13/06 14:55	wfg
Mercury, dissolved	M245.1 CVAA		U		mg/L	0.0002	0.001	10/17/06 14:18	djt
Molybdenum, dissolved	M200.7 ICP		U		mg/L	0.01	0.05	10/13/06 14:55	wfg
Nickel, dissolved	M200.7 ICP		U		mg/L	0.01	0.05	10/13/06 14:55	wfg
Potassium, dissolved	M200.7 ICP	1.2			mg/L	0.3	1	10/13/06 14:55	wfg
Selenium, dissolved	SM 3114 B, AA-Hydride		U		mg/L	0.001	0.005	10/10/06 16:18	djt
Silica, dissolved	M200.7 ICP	4.5			mg/L	0.2	0.5	11/01/06 14:39	msh
Silver, dissolved	M200.8 ICP-MS	0.00114		*	mg/L	5E-05	0.0003	10/12/06 12:41	jjr
Sodium, dissolved	M200.7 ICP	1.9			mg/L	0.3	1	10/31/06 0:46	msh
Thallium, dissolved	M200.8 ICP-MS		U		mg/L	0.0001	0.0005	10/12/06 12:41	jjr
Uranium, total	M200.8 ICP-MS	0.0085			mg/L	0.0001	0.0005	10/11/06 19:30	scp
Vanadium, dissolved	M200.7 ICP		U		mg/L	0.005	0.03	10/13/06 14:55	wfg
Zinc, dissolved	M200.7 ICP	0.01	B		mg/L	0.01	0.05	10/13/06 14:55	wfg

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Lisbon Valley Mining Company, LLC

Project ID: LISBON VALLEY COPPER

Sample ID: SENTINEL PW RUNOFF

ACZ Sample ID: ***L59307-01***

Date Sampled: *10/06/06 09:35*

Date Received: *10/07/06*

Sample Matrix: *Surface Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		35			mg/L	2	20	10/18/06 0:00	ct
Carbonate as CaCO3			U		mg/L	2	20	10/18/06 0:00	ct
Hydroxide as CaCO3			U		mg/L	2	20	10/18/06 0:00	ct
Total Alkalinity		35			mg/L	2	20	10/18/06 0:00	ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-13.0			%			02/02/07 0:00	calc
Sum of Anions		1.3			meq/L	0.1	0.5	02/02/07 0:00	calc
Sum of Cations		1.0			meq/L	0.1	0.5	02/02/07 0:00	calc
Chloride	M325.2 - Colorimetric	18		*	mg/L	1	5	10/17/06 12:19	jag
Conductivity @25C	M120.1 - Meter	74			umhos/cm	1	10	10/18/06 17:30	ct
Fluoride	SM4500F-C		U	*	mg/L	0.1	0.5	10/20/06 14:42	ct
Hardness as CaCO3	SM2340B - Calculation	38			mg/L	1	7	02/02/07 0:00	calc
Lab Filtration	SM 3030 B			*				01/29/07 13:00	as
Lab Filtration & Acidification	SM 3030 B			*				10/09/06 16:00	mls
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.04	B		mg/L	0.02	0.1	02/02/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.06	B	*	mg/L	0.02	0.1	10/07/06 18:03	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.02	B	*	mg/L	0.01	0.05	10/07/06 18:03	pjb
Nitrogen, ammonia	M350.1 - Automated Phenate	1.85		*	mg/L	0.05	0.5	10/12/06 16:07	jag
pH (lab)	M150.1 - Electrometric								
pH		8.1	H		units	0.1	0.1	10/18/06 0:00	ct
pH measured at		22.0			C	0.1	0.1	10/18/06 0:00	ct
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	60	H	*	mg/L	10	20	01/29/07 17:02	lcp
Residue, Non-Filterable (TSS) @105C	M160.2 - Gravimetric	850		*	mg/L	25	100	10/11/06 15:56	cas
Sulfate	300.0 - Ion Chromatography	6.3	H	*	mg/L	0.5	3	01/31/07 16:15	jlf
TDS (calculated)	Calculation	70			mg/L	10	50	02/02/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	0.86						02/02/07 0:00	calc

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Revised Analytical Report

Lantz Indergard
Lisbon Valley Mining Company, LLC
P.O. Box 248
La Sal, UT 84530

February 2, 2007

Cc: Chuck Bauer, Susan Wyman

Project ID: LISBON VALLEY COPPER
ACZ Project ID: L59307

Lantz Indergard:

Enclosed are revised analytical reports for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 07, 2006 and reported on November 09, 2006. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L59307. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59307. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all the requirements of NELAC.

This report should be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

ACZ disposes of samples and sub-samples thirty days after the analytical results are reported to the client. That time frame has elapsed for this project. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

Sue Webber 02/Feb/07

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 8048: (800) 334-5493

Case Narrative

Lisbon Valley Mining Company, LLC

February 02, 2007

Project ID: LISBON VALLEY COPPER
ACZ Project ID: L59307

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 miscellaneous sample from Lisbon Valley Mining Company, LLC on October 7, 2006. The sample was received in good condition. Upon receipt, the sample custodian removed the sample from the cooler, inspected the contents, and logged the sample into ACZ's computerized Laboratory Information Management Syster (LIMS). The sample was assigned ACZ LIMS project number L59307. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times.

The Sulfate and TDS analyses were performed past hold times due to improper filtration with the initial analysis.

Sample Analysis

This sample was analyzed for inorganic, radiochemistry parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports.

This report was regenerated to report corrected TDS and Sulfate values. It was apparent with the initial report that the sub sample for sulfate and TDS was not filtered properly, giving biased high results. These parameters were retested with proper filtration and reported, although after the hold time had expired. No other changes were made.

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Lisbon Valley Mining Company, LLC
LISBON VALLEY COPPER

ACZ Project ID: L59307
Date Received: 10/7/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59307-01	SENTINEL PW RUNOFF	Y			Y							

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L 59307

LISBON VALLEY MINING CO

P.O. Box 248
La Sal, Utah 84530

Chain of Custody Record

Send report with laboratory QA to:
cbauer@lisbonvalley.com
swyman@whetstone-associates.com
lindergard@lisbonvalley.com

Lisbon Valley Copper Project

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO
(970) 879-6590

SAMPLE NUMBER	DATE	TIME	Diss. Wet Chemistry [1]	Dissolved metals [2]	Ammonia, NO2, NO3	Total uranium	Total alkalinity & TSS	Radiochemistry [3]	pH & conductivity [4]	Number of Containers
Sentinel PW Runoff	10/6/06	09:35	X	X	X	X	X	X	X	6

Remarks / Comments

Matrix: Water

Samples Stored on Ice

1) Chloride, hardness, sulfate, TDS, fluoride (Field Filtered 0.45 um)
2) ~~Field~~ LAB Filtered 0.45 um
3) Gross alpha, gross beta
4) Centrifuge tube for pH, E.C., alkalinity

Lab - please filter for dissolved metals + TDS.

Note:

- Follow standard analytical suite for project and required detection limits

Sampled By: S. Wyman / C. Bauer

Total Number of Containers: 6

Sampler's Signature: Susan A. Wyman

Contact Person:
Charles F. Bauer
Phone: (435) 686-9950 ext. 322 Fax: (435) 686-2223

Relinquished By:	Date / Time:	Received By:	Date / Time:
Susan A. Wyman	10/6/06 12:00	To FedEx	Rebecca Erickson 10.7.06 10:59a

Method of Shipment: Fed Ex

ATTACHMENT 3
POST-MINING WATER BALANCE AND GEOCHEMICAL MODELS

Prepared for

Lisbon Valley Mining Co., LLC
920 S. County Rd 313
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Prepared by

Whetstone Associates, Inc.
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P.O. Box 1156
La Veta, Colorado 81055
719-742-5155
Document 4124F.070205

February, 2007

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1. INTRODUCTION

The water balance and chemical balance models are updated annually for three open pits at the Lisbon Valley Mine. The model was updated in 2005, and no changes to the model were necessary in 2006 because information learned about the hydrogeologic system was consistent with the previous conceptual model. The numerical models compute the flow and water quality conditions in the pits and shallow aquifer, with vertical leakage to the deep aquifer below. The computational method used in the current update is identical to the method presented in the 1998 Annual Hydrogeologic Evaluation Update report (ABC, 1998a) and is described again here for convenience.

The water balance model allows surface water inflow, precipitation, horizontal inflow or outflow from a shallow aquifer adjacent to the pit, vertical leakage to the underlying aquifer, and evaporation. The flow is computed on a monthly or yearly basis, and each pit is modeled independently. The water volume and water level elevation in the pit and in the surrounding Burro Canyon (Dakota) aquifer are calculated at the end of each timestep (monthly or yearly). The chemical mass balance model couples the flow balance results with the mass load for each component, to compute concentrations in each outflow component.

The model uses a calculated vertical permeability for both the low-permeability materials below the Burro Canyon aquifer and the fracture conduits known to exist at the site. The water level, flow, and quality in both the pit and the adjacent aquifer are simulated. The model assesses the effects of the project on both shallow and deep groundwater near the pits.

Data collected from 2004 – 2006 confirm the fundamental knowledge about the hydrogeologic system. Principally, that (1) the Burro Canyon aquifer is of limited areal extent, (2) the Burro Canyon aquifer is compartmentalized, (3) groundwater occuring in fractures in the Morrison Formation near the Sentinel Pit is of better quality and is hydraulically separated from water in the alluvium and, to a lesser extent, from water in the adjacent Burro Canyon aquifer, (4) the Burro Canyon aquifer is deepest along the axis of the previously-mapped synclines, and (5) downward vertical gradients exist in the Morrison Formation between the overlying Burro Canyon aquifer. These observations confirm and support the previous modeling.

Some of the information collected prior to 2005 justified upgrading the previous models. By 2005, the Burro Canyon aquifer was known to be of slightly smaller areal extent in the vicinity of the Sentinel and Centennial Pits and larger areal extent near the GTO Pit than previously modeled. The static water level elevation in the Burro Canyon aquifer near the GTO Pit was 6,169 ft amsl, or 8 feet higher than previously anticipated. The planned final geometry of the Sentinel Pit had decreased in depth and increased in area from the geometry proposed in the Environmental Impact Statement (EIS) (BLM, 1997) and modeled in 1998 (ABC, 1998a). These changes were incorporated into the updated numerical models of post-mining hydrology and geochemistry. The pit refilling and mass balance models for the Centennial and GTO pits were updated to incorporate the new aquifer dimensions. The Sentinel Pit model also incorporated the planned changes in ultimate pit geometry. Other model input parameters, including runoff rates, evaporation rates, and precipitation rates, were identical to those used in the 1998 model (ABC, 1998a).

The methodology, input values, and results of the updated models are described in the following sections.

2. WATER BALANCE MODEL

2.1 Water Balance Model Approach

The water balance model computes the flow into and out of the pit and adjacent shallow aquifer. It starts with both the pit and upper aquifer dry[1], although the model itself does not require this condition. The flow model allows surface water inflow, precipitation, horizontal inflow or outflow from a shallow aquifer adjacent to the pit, vertical leakage to the underlying aquifer, and evaporation. These flow components are shown Figure 1.

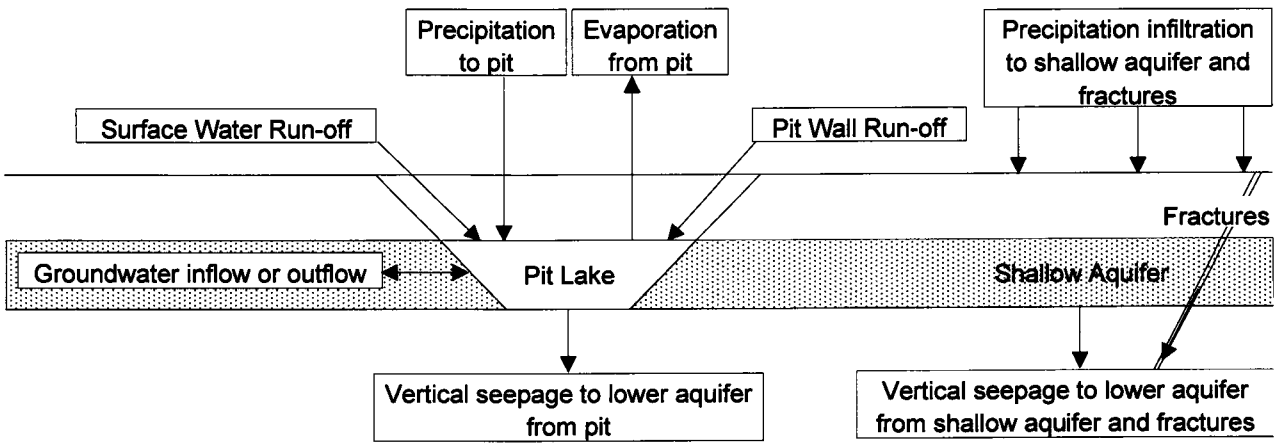


Figure 1. Water Balance Components

The model calculates a head-dependent flow between the shallow aquifer and the pit. The rate and direction of groundwater flow to or from the pit is a function of the water levels in the shallow aquifer and pit.

The model calculates a head-dependent vertical leakage to the lower aquifer. The driving force for vertical flow is greater with increasing hydraulic heads (water levels) in the pits and shallow aquifer. Similarly, groundwater flow to the pit is a function of the water level in the aquifer.

The model calculates direct precipitation, evaporation, and surface water run-on. The latter has been broken out into (1) run-on from the area between the pit rim and the berm surrounding each pit, and (2) run-on from the pit walls. The area and volume of the pit are calculated using a linear interpolation between benches (slope-intercept method).

The overall pit flow computation proceeds as follows:

1. The area of the shallow aquifer is calculated. The aquifer area includes all of the saturated aquifer believed to contribute water to the pit, less the area of the pit pond (which receives 100% of the direct precipitation).
2. Recharge to the shallow aquifer is calculated by multiplying the aquifer area by the aquifer recharge rate.

[1] Because LVMC intends to dewater the Burro Canyon aquifer during mining, and allow refilling only after the cessation of mining, the current model simulations start with the pit and aquifer dry to the level of the pit floor.

3. The head gradient which drives the vertical percolation is calculated, based on the water level in the shallow aquifer at the start of the time step.
4. Vertical percolation to the deep aquifer from the shallow aquifer is calculated for both fractures and "intact" rock, based on the vertical gradient (calculated in Step 3 above) and the aquifer area (calculated in Step 1 above).
5. Groundwater inflow to the shallow system (pit and aquifer) is calculated by subtracting the vertical leakage (calculated in Step 4) from the total recharge (calculated in Step 2).
6. Surface water inflow is calculated based on the surface area surrounding each pit (from the pit rim to the berm) times the runoff rate.
7. The pit wall area is calculated by subtracting the pond area (which changes over time) from the area within the pit rim (constant). As the pit pond area becomes larger, the area of the exposed pit walls becomes smaller.
8. Pit wall runoff inflow is calculated by multiplying the pit wall surface area (calculated in Step 7) times the pit wall runoff rate.
9. Inflow from direct precipitation is calculated by multiplying the pit pond area (at the start of the timestep) times the monthly or annual precipitation.
10. The vertical leakage out of the pit is calculated based on the pit pond area (at the start of the timestep) times the vertical gradient (calculated in Step 3).
11. The evaporation from the pit pond is calculated based on the pit pond area (at the start of the timestep) times the monthly or annual free water surface (FWS) evaporation rate.
12. The volume of water remaining in the shallow system is calculated, by summing the inflow components and subtracting the outflow components. The portion of this water which resides in the pit and in the aquifer are calculated, based on the geometry and storage capacity of both the pit and aquifer. (As the water level in the pit increases, the pit pond occupies a larger area and volume, and the remaining aquifer area and volume decrease.)
13. The water level in the pit and in the aquifer is calculated based on the geometry and storage capacity of both the pit and aquifer.
14. The volume and water level are input into the next timestep (month or year), and the pit pond area is calculated.
15. The process is repeated for sufficient years to reach quasi-steady-state conditions.

The water balance output is then used in the chemical mass balance model.

2.2 Water Balance Input

The input parameters to the water balance model are based on pit design, existing climatological and hydrogeologic data, and field observations. These input parameters are identical to those used in the previous modeling (ABC, 1998a).

2.2.1 Climatological Data

Precipitation. Precipitation data from four meteorological stations were analyzed by Hydro-Triad, Ltd. (J.D. Welsh & Associates, 1996) in support of water balance and engineering design for the site. The mean monthly precipitation data from the La Sal SE station was determined to be most representative of conditions at the Lisbon Valley Mine, based on elevation, proximity, topography, and isohyetal precipitation maps. The mean monthly design precipitation data for the Lisbon Valley site are taken

directly from the 1980-1993 period of record for the La Sal SE station. As described in detail by Hydro-Triad, Ltd. (J.D. Welsh & Associates, 1996), this period contains both extremely wet (1993) and dry (1989) years. This period is likely to be representative of long-term precipitation conditions, based on the fact that the monthly average precipitation at the Monticello station during this ten year period is within 5% of the monthly average for the 64-year period of record.

The mean monthly and total annual precipitation for the Lisbon Valley site (La Sal SE) is shown in Table 1. The regional wet season occurs during the months of July through November. On average, 58% of the annual precipitation occurs during this five month period. February and October are historically the driest (0.71 inches) and wettest (2.29 inches) months, respectively.

Evaporation. Annual and monthly evaporation for the site was calculated by Hydro-Triad based on the mean monthly Class A pan evaporation from several regional meteorological stations (J.D. Welsh & Associates, 1996, Appendix D). The annual free water surface (FWS) evaporation was determined to be 48 inches for the Lisbon Valley Site. Based on a pan coefficient of 0.72 (appropriate based on National Weather Service publications), the average annual pan evaporation is 66.7 inches for the site.

Table 1 gives the mean monthly and total annual pan evaporation and FWS evaporation for the Lisbon Valley site. Evaporation rates peak during the summer and decrease drastically during the winter. Of the 48.0 inches of annual pan evaporation, nearly 60%, or 28.4 inches, occurs from May to August. During the four month period from November to February, only 10%, or 4.8 inches, of FWS evaporation is anticipated (Hydro-Triad, J.D. Welsh & Associates, 1996).

Table 1. Mean Monthly Pan Evaporation, Free Water Surface Evaporation, and Precipitation used in Post-Mining Pit Refilling Model for the Lisbon Valley Mine

Month	Pan Evaporation (inches)	Free Water Surface (FWS) Evaporation (inches)	Precipitation (inches)
Jan	1.58	1.14	1.13
Feb	1.79	1.29	0.71
Mar	3.61	2.60	0.96
Apr	5.59	4.02	0.95
May	8.38	6.03	1.13
Jun	10.58	7.62	0.75
Jul	11.00	7.92	1.69
Aug	9.40	6.77	1.49
Sep	6.95	5.00	1.83
Oct	4.55	3.28	2.29
Nov	2.14	1.54	1.45
Dec	1.14	0.82	0.67
Total	66.71	48.03	15.05

The preceding table indicates that potential evaporation significantly exceeds precipitation at the site. This natural effect results in evapoconcentration of any surface water bodies, as seen in natural and artificial lakes throughout the west and southwest.

2.2.2 Shallow Aquifer Recharge Area

The area of shallow aquifer recharge was determined for each pit, as shown in Figure 2. Precipitation that infiltrates over these areas is available to recharge the shallow aquifer and contribute flow to the pit. When water levels in the pit are higher than in the shallow aquifer (as occurs during the early years of refilling), the shallow aquifer area is available to receive flow from the pit. Table 2 gives the area of saturated shallow aquifer assumed to report to each pit.

Table 2. Area of Saturated Aquifer Contribution to Pits

PIT NAME:	SENTINEL	CENTENNIAL	GTO
Area of Aquifer Contribution (acres)	62.1	253.8	205.6
Maximum Aquifer Recharge (gpm)	3.2	13.1	10.6

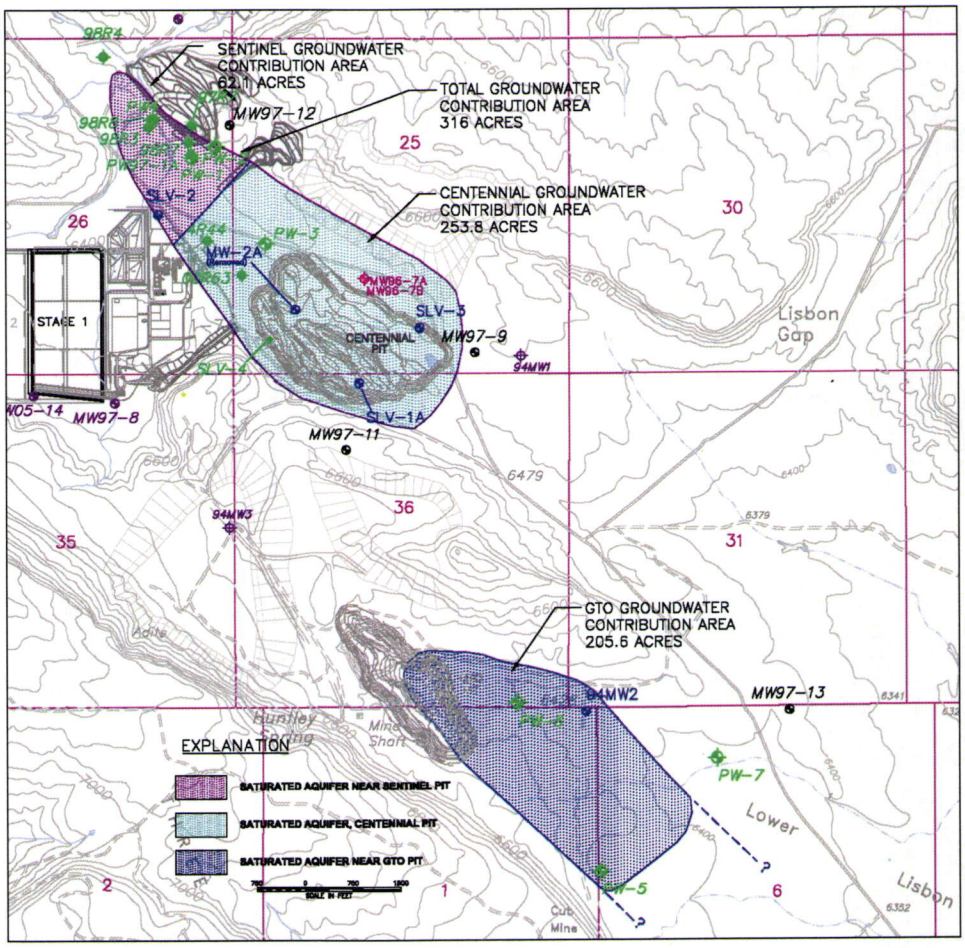


Figure 2. Areal Extent of the Burro Canyon Aquifer and Zone of Contribution to the Pits

2.2.3 Aquifer Recharge Rate

An infiltration rate of 1 in/yr was used in the water balance model, as in all previous modeling, which represents 6.65% of the average annual precipitation (15.04 inches). Infiltration to groundwater systems is

typically about 5% to 10% of the incident precipitation. In the Lisbon Valley area, infiltration is expected to be at the lower end of this range, as a result of the very high net evaporation.

This 6.65% rate falls within the range given in the hydrogeologic literature for the Moab-Monticello area. Weir, et al (1983) report that the maximum recharge to the area occurs near the La Sal and Abajo mountains, and is about 9% of the estimated annual average precipitation. Price and Arnow (1974) give an average recharge rate of 4% for the Colorado River Basin.

2.2.4 Surface Water Runoff Area

The ground surface area which can contribute runoff to each pit will be limited by a berm which will be constructed around the pit perimeter. The berm will be located approximately 50 feet from the pit rim, and can be visualized as a strip (or donut) around each pit. The berm around the Sentinel Pit is assumed to be an average of 40 ft from the rim of the current pit[2]. The surface water runoff areas for the Centennial and GTO pit areas were determined from engineering CAD drawings, and consistent with the EIS and the previous modeling. The areas providing surface water runoff to the pits are shown in Table 3.

Table 3. Area of Surface Runoff Surrounding Pits

PIT NAME:	SENTINEL	CENTENNIAL	GTO
Area for Surface Water Runoff from Soils (acres)	6.3	11.1	9.9
Average Annual Runoff to Pit (gpm)	0.11	0.20	0.18

2.2.5 Surface Water Runoff Rate

The average annual runoff rate was calculated as the probability-weighted runoff for all storm events up to 100 years, excluding all events of less than one inch precipitation. The runoff coefficient was increased for increasing magnitude storms. This method is detailed in Table 4, and is applied to the National Oceanic and Atmospheric Association short term precipitation data for the project area. This method is identical to that used in previous groundwater models of the site. The calculated expected annual runoff is 0.35 inches, which is approximately 2.3% of the total annual precipitation.

This value is consistent with the hydrogeologic literature (Weir, et al., 1983) which indicates that the Lisbon Valley area has an average annual runoff of between 6 and 13 mm (0.24-0.51 inches) per year.

[2] Current Sentinel Pit designed by Scott Wilson, 2005.

Table 4. Annual Probability-Weighted Runoff Calculation

Concept: Runoff to Lisbon Canyon is observed to be rare. To compute the amount of runoff for the evaluation of the refill of the Sentinel, Centennial, and GTO pits, the following are assumed:

A. No runoff occurs for precipitation less than 1 inch per day

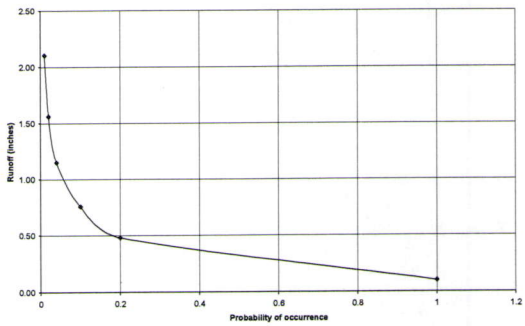
B. Runoff coefficient increases as the precipitation per day increases, per the table

C. Total runoff is equal to the expected runoff for all events up to 100 years, weighted by probability

The data for the storm magnitude/probability were obtained from "Appendix IV, Lisbon Valley Heap Leach Project Meteorology and Water Management Facilities Design Data, February 1996, prepared for J.D. Welsh and Associates, Inc. by Hydro-Triad, Ltd.

The runoff computations are presented below are graphed to show precipitation versus annual probability. The area under this curve is equal to the precipitation depth which reports as runoff to the pits. Based on this curve, the average annual runoff is 0.35 inches.

RETURN PERIOD (yrs)	STORM MAGNITUDE inches	RUNOFF COEFF	VOLUME	PROB-ABILITY
1	1	0.1	0.10	1
5	1.6	0.3	0.48	0.2
10	1.9	0.4	0.76	0.1
25	2.3	0.5	1.15	0.04
50	2.6	0.6	1.56	0.02
100	3	0.7	2.10	0.01



2.2.6 Pit Wall Runoff Area

The maximum pit wall area includes the entire area inside the pit rim, which provides runoff to the pit during storm events. At the start of the first timestep, when the pits are dry, the pit wall area is equal to this maximum. The pit wall area decreases as the water level in the pit rises. That is, the pit fills and covers up part of the wall, such that less area is exposed.

The flow model accounts for the change in pit wall area, by subtracting the pit pond area (calculated at the end of each timestep) from the maximum pit wall area. The maximum pit wall area was determined from engineering CAD drawings, and is shown in Table 5.

Table 5. Maximum Area of Pit Wall

PIT NAME:	SENTINEL	CENTENNIAL	GTO
Maximum Pit Wall Area (acres)	38.0	116	68
Maximum Annual Runoff @4.9% (gpm)	1.5	4.4	2.6
Maximum Runoff Annual @10% (gpm)	3.1	9.0	5.3

2.2.7 Pit Wall Runoff Rate

The rate of runoff from haul roads in the pit interior was determined by Adrian Brown Consultants in 1996. The runoff from haul roads, slopes, and benches was estimated using the Soil Conservation Service (SCS) method TR55 (SCS, 1986) to determine the runoff curve number and the total runoff (in inches) per storm event. The runoff and annual probability are factored to determine the annual probability-weighted runoff (Table 6). The calculated annual runoff from the pit interior was 0.74 inches, based on dirt roads with

hydrologic soil type C, and using the precipitation-frequency calculated for the site (Welsch/Hydro-Triad, 1996). This represents approximately 4.9% of the total precipitation at the site.

Previous sensitivity analyses (ABC, 1998a) used twice the calculated pit wall runoff rate, or a total annual runoff of 1.5 inches (10% of annual precipitation) from the pit walls in the flow and geochemical models.

Table 6. Annual Probability-Weighted Runoff From Pit Walls (Haul Roads, Slopes, and Benches)

Approach: The average annual runoff from haul roads can be computed, based on storm freqency, using the SCS method (SCS TR55).

1 Determine the runoff curve number, from TR55 Table 2-2a.
CN = 87 Dirt roads, hydrologic soil type C
Average runoff condition, initial abstraction (Ia) = 0.2S

2 Calculate potential maximum retention (S) in inches:
CN = 1000 / (S +10)
S = 1000/CN - 10

3 Calculate runoff (Q) in inches:
Q = (P-0.2S)2 / (P+0.8S)

4 Apply the annual weighted probability distribution for Q
5 Sum the annual contributions per storm event for an overall annual average Q

Assumptions:
A. No runoff occurs for precipitation less than 1/2 inch per day. (I_a, initial abstraction = 0.5 inches).
B. The runoff curve number is 87 for dirt roads, hydrologic soil group C.
C. Total runoff is equal to the expected runoff for all events up to 100 years, weighted by probability.
D. Data for the 2-100 yr storm magnitude/probability from "Appendix D, Lisbon Valley Heap Leach Project Meteorology and Water Management Facilities Design Data, June 1996, prepared for J.D. Welsh and Associates, Inc. by Hydro-Triad, Ltd.
E. Data for the 0.5-1.0 yr storm magnitude/probability extrapolated from Gumbel distribution using logarithmic curve fitting.
F. Haul road soils equate to SCS hydrologic soil group:
C (soils with slow infiltration, fine-textured soils low in organic content.)

Results:

RETURN PERIOD (yr)	STORM MAGNITUDE (inches)	CN	S (inches)	Q (inches)	PROB-ABILITY	Q ANNUAL (inches)
0.5	0.6	87	1.49	0.05	2	0.10
1	0.9	87	1.49	0.17	1	0.17
2	1.2	87	1.49	0.34	0.5	0.17
5	1.6	87	1.49	0.61	0.2	0.12
10	1.9	87	1.49	0.83	0.1	0.08
25	2.3	87	1.49	1.15	0.04	0.05
50	2.6	87	1.49	1.40	0.02	0.03
100	3	87	1.49	1.74	0.01	0.02

Expected Annual Runoff: 0.74 inches
0.0491 %

This constitutes approximately 4.9% of the total annual precipitation of 15.04 inches.

2.2.8 Pond Area and Volume

The pit pond area and volume are zero at the start of the simulation (end of mining) because the pits are dry. As the water level in the pit increases, the area and volume of the pond increase according to the pit geometry.

The model uses linear interpolation (slope-intercept equation) to determine the pit pond area and volume, based on the engineering drawings for the proposed final pits. Table 7 shows the planned pit geometry. The slope-intercept variables are given in Table 8 through Table 10.

The modeled geometry of the Centennial and GTO pits are identical to those presented in the EIS and in the previous modeling (ABC, 1998a). The 1998 model of the Sentinel Pit was based on the ultimate pit geometry, as shown in the EIS. However, BLM's Record of Decision (ROD) (BLM, 1997b) stipulates that "mining of the Sentinel #1 will not be allowed to cross Lisbon Canyon." The updated model of the Sentinel Pit uses the current planned ultimate pit geometry, which does not cross Lisbon Canyon. The pit is 60 ft shallower (the pit floor is at an elevation of 6,220 ft vs. 5,960 ft) and the total volume is less than proposed in the EIS. However, the total planned disturbance extends farther up the hillside to the east, for slope stability, and the total pit area encompasses 40.3 acres, or 6% more than in the 1998 model.

Table 7. Engineered Elevation and Area, with Extrapolated Volume, for Sentinel, Centennial, and GTO Pits

SENTINEL PIT GEOMETRY			CENTENNIAL PIT GEOMETRY			GTO PIT GEOMETRY		
ELEVATION (feet amsl)	AREA (acres)	VOLUME (acre-ft)	ELEVATION (feet amsl)	AREA (acres)	VOLUME (acre-ft)	ELEVATION (feet amsl)	AREA (acres)	VOLUME (acre-ft)
6,220	0	0	6,060	0	0	5,980	0.0	0
6,240	3.84	38	6,080	3.1	31	5,981	1.0	0.25
6,260	7.13	148	6,120	11.2	319	6,000	2.5	149
6,280	9.93	319	6,160	24.2	1,027	6,040	5.4	306
6,300	13.17	550	6,200	38.7	2,286	6,080	8.9	590
6,320	17.35	855	6,240	56.7	4,194	6,120	12.3	1,013
Pit Rim	40.3		6,280	78.5	6,897	6,160	16.9	1,597
			6,320	87.2	10,211	6,200	22.2	2,379
			6,360	94.9	13,851	6,240	27.1	3,365
						6,280	32.4	4,553
						6,320	37.4	5,948
						6,360	40.9	7,513
						6,400	47.6	9,283
						6,440	53.0	11,293

2.2.9 Aquifer Area and Volume

The model tracks the aquifer area and volume, which change as the pit and aquifer fill. At the start of the simulation (end of mining) the aquifer area is equal to the maximum aquifer recharge area and the aquifer volume is zero, because the pit and aquifer are dry. As the water level in the shallow system increases, the area of the aquifer (not occupied by the pit) decreases, because the pit pond takes up part of the aquifer infiltration area. However, the volume of the aquifer increases, as the water level rises. The aquifer area and volume are directly linked to the pit pond area and volume. The aquifer geometry and the slope-intercept variables are given in Table 8 through Table 10.

2.2.10 Aquifer Porosity

The model uses the porosity (void space) of the shallow aquifer to determine how much water is required to raise the water level in the aquifer. Because much of the aquifer volume is actually occupied by rock, the amount of water required to raise the level in a square foot of aquifer area would be much less than the amount required in a square foot of pit (which is all "void" and no rock).

The shallow aquifer porosity values are shown in Table 11. A 5% porosity has been used in the current model and in several earlier calculations for the shallow (Burro Canyon) aquifer. This 5% value represents the aquifer drainable porosity, which assumes that the aquifer cannot be pumped completely dry during the ten to twelve years of dewatering pumping. Some water will remain trapped in the pore spaces between aquifer grains, and will not be available for extraction nor will it have to be replaced in order to raise the water level in the aquifer.

Neither the flow balance nor the geochemical balance models are sensitive to the shallow aquifer porosity, with regard to final water level or chemistry. A higher porosity value would delay the pit refilling time and predicted chemical results; a lower porosity would accelerate the pit and aquifer refilling time and the geochemical system would stabilize sooner.

2.2.11 Timestep Size

The model may be run on a monthly or annual basis, or any combination of such. The monthly simulation uses long-term mean monthly precipitation and evaporation, and thereby captures some of the seasonal trends expected to occur at the site. However, the most pronounced variations in water levels will occur as a result of major storm events or extended periods of drought. Neither the long-term monthly nor the annual averages capture these extreme values, and the predicted final water levels in the pit and aquifer are identical for an "average monthly" or "total annual" simulation. (See ABC 1998a for a comparison of monthly to annual flow balance results.) The annual simulation allows the model to make predictions farther into the future, with fewer computations. Therefore, the simulations using annual averages are considered to be appropriate for this evaluation.

The flow balance model input values are summarized in Table 11.

TABLE 8.
SENTINEL PIT AND AQUIFER GEOMETRY CALCULATIONS

SENTINEL PIT VOLUME/AREA/ELEVATION
Susan Wyman, Whetstone Associates, 2/10/2006

NOTE: Engineered pit geometry (elevation, area) derived from CAD map of Sentinel Pit (Wilson Pit, 2005)
Pit volume calculated based on 20-foot benches
Linear interpolation derived using slope-intercept equation (y=a+bx)
Assumes constant slope between benches

SENTINEL PIT ELEVATION, AREA, AND VOLUME											
ENGINEERED PIT GEOMETRY			LINEAR INTERPOLATION OF AREA			INTERPOLATION: ELEVATION V VOL			INTERPOLATION: VOL V ELEVATION		
ELEVATION (feet amsl)	PIT AREA (acres)	PIT VOLUME (acre-ft)	a Area	b Area	Check	a Elev	b Elev	Check	a Elev	b Elev	Check
6220	0	0	-1195.308081	0.19	0	6220	0.520367937	6220	-11953	2	0
6240	3.84	38	-1021.237006	0.16	3.8	6233.0	0.182275811	6240	-34195	5	38
6260	7.13	148	-868.5956152	0.14	7.1	6242.6	0.117262581	6260	-53236	9	148
6280	9.93	319	-1009.974908	0.16	9.9	6252.4	0.086573806	6280	-72221	12	319
6300	13.17	550	-1009.974908	0.16	13.2	6252.4	0.086573806	6300	-72221	12	550
6320	17.35	855	-1009.974908	0.16		6252.4	0.086573806		-72221	12	
10000											

TABLE 8.
SENTINEL PIT AND AQUIFER GEOMETRY CALCULATIONS

SENTINEL PIT SHALLOW AQUIFER VOLUME/AREA/ELEVATION
Susan Wyman, Whetstone Associates, 2/10/2006

NOTE: Engineered pit geometry (elevation, area) derived from CAD map of Sentinel Pit (Wilson Pit, 2005)
Pit volume calculated based on 20-foot benches
Linear interpolation derived using slope-intercept equation (y=a+bx)
Assumes constant slope between benches

SHALLOW AQUIFER SURROUNDING SENTINEL PIT --- ELEVATION, AREA, AND VOLUME											
ENGINEERED PIT GEOMETRY			CORRESPONDING AQUIFER GEOMETRY			INTERPOLATION: ELEVATION V VOL			INTERPOLATION: VOL V ELEVATION		
ELEVATION (feet amsl)	PIT AREA (acres)	PIT VOLUME (acre-ft)	AQUIFER AREA (acres)	AQUIFER VOLUME (acre-ft)	TOTAL VOLUME (acre-ft)	a Elev	b Elev	Check	a Elev	b Elev	Check
6220	0	0	62	0	0	6220	0.202901454	6220	-30655	5	0
6240	3.84	38	58	60	99	6221.94	0.183206993	6240	-33961	5	99
6260	7.13	148	55	60	208	6235.19	0.119411662	6260	-52216	8	208
6280	9.93	319	52	57	375	6247.06	0.087780779	6280	-71167	11	375
6300	13.17	550	49	53	603	6320	-0.03316396	6300	190568	-30	603
6320	17.35					6320.0	-0.03316396		190568	-30	
10000											

TABLE 9. CENTENNIAL PIT AND AQUIFER GEOMETRY CALCULATIONS

CENTENNIAL PIT VOLUME/AREA/ELEVATION
Susan Wyman, Adrian Brown Consultants, 12/19/97

NOTE: Engineered pit geometry (elevation, area) derived from CAD map of Centennial Pit, used in all EIS evaluations
Pit volume calculated based on 40-foot benches
Linear interpolation derived using slope-intercept equation (y=a+bx)
Assumes constant slope between benches

CENTENNIAL PIT ELEVATION, AREA, AND VOLUME											
ENGINEERED PIT GEOMETRY			LINEAR INTERPOLATION OF AREA			INTERPOLATION: ELEVATION V VOL			INTERPOLATION: VOL V ELEVATION		
ELEVATION (feet amsl)	PIT AREA (acres)	PIT VOLUME (acre-ft)	a Area	b Area	Check	a Elev	b Elev	Check	a Elev	b Elev	Check
6060	0	0	-953.585	0.16	0	6060	0.63550	6060	-9536	2	0
6080	3.1	31	-1224.618	0.20	3.1	6075.6	0.13916	6080	-43658	7	31
6120	11.2	319	-1973.341	0.32	11.2	6102.0	0.05647	6120	-108067	18	319
6160	24.2	1,027	-2216.102	0.36	24.2	6127.4	0.03178	6160	-192823	31	1027
6200	38.7	2,286	-2739.596	0.45	38.7	6152.1	0.02096	6200	-293487	48	2286
6240	56.7	4,194	-3347.297	0.55	56.7	6177.9	0.01480	6240	-417492	68	4194
6280	78.5	6,897	-1285.241	0.22	78.5	6196.7	0.01207	6280	-513282	83	6897
6320	87.2	10,211	-1127.251	0.19	87.2	6207.8	0.01099	6320	-565019	91	10211
6360	94.9	13,851	-1127.251	0.19		6207.8	0.01099		-565019	91	
10000			-1127.251	0.19		6207.8	0.01099		-565019	91	

TABLE 9. CENTENNIAL PIT AND AQUIFER GEOMETRY CALCULATIONS

CENTENNIAL PIT SHALLOW AQUIFER VOLUME/AREA/ELEVATION
Susan Wyman, Adrian Brown Consultants, 12/19/97

NOTE: Engineered pit geometry (elevation, area) derived from CAD map of Centennial Pit, used in all EIS evaluations
Pit volume calculated based on 40-foot benches
Linear interpolation derived using slope-intercept equation (y=a+bx)
Assumes constant slope between benches

SHALLOW AQUIFER SURROUNDING CENTENNIAL PIT --- ELEVATION, AREA, AND VOLUME											
ENGINEERED PIT GEOMETRY			CORRESPONDING AQUIFER GEOMETRY			INTERPOLATION: ELEVATION V VOL			INTERPOLATION: VOL V ELEVATION		
ELEVATION (feet amsl)	PIT AREA (acres)	PIT VOLUME (acre-ft)	AQUIFER AREA (acres)	AQUIFER VOLUME (acre-ft)	TOTAL VOLUME (acre-ft)	a Elev	b Elev	Check	a Elev	b Elev	Check
6060	0	0	253.8	0	0	6060.0	0.07049	6060	-85973	14.2	0
6080	3.1	31	250.7	252	284	6059.0	0.07392	6080	-81962	13.5	284
6120	11.2	319	242.6	506	825	6072.9	0.05714	6120	-106281	17.5	825
6160	24.2	1,027	229.6	498	1,525	6110.4	0.03250	6160	-188024	30.8	1525
6200	38.7	2,286	215.1	470	2,756	6141.2	0.02134	6200	-287768	46.9	2756
6240	56.7	4,194	197.2	436	4,630	6170.4	0.01503	6240	-410591	66.5	4630
6280	78.5	6,897	175.4	394	7,292	6191.1	0.01219	6280	-507773	82.0	7292
6320	87.2	10,211	166.7	362	10,572	6203.3	0.01104	6320	-561813	90.6	10572
6360	94.9	13,851	159.0	344	14,195	10000.0	-0.25643	6360	38997	-3.9	14195
10000						10000.0	-0.25643		38997	-3.9	

TABLE 10. GTO PIT AND AQUIFER GEOMETRY CALCULATIONS

GTO PIT VOLUME/AREA/ELEVATION
Susan Wyman, Adrian Brown Consultants, 12/19/97

NOTE: Engineered pit geometry (elevation, area) derived from CAD map of GTO Pit, used in all EIS evaluations
Pit volume calculated based on 40-foot benches
Linear interpolation derived using slope-intercept equation (y=a+bx)
Assumes constant slope between benches

GTO PIT ELEVATION, AREA, AND VOLUME											
ENGINEERED PIT GEOMETRY			LINEAR INTERPOLATION OF AREA			INTERPOLATION: ELEVATION V VOL			INTERPOLATION: VOL V ELEVATION		
ELEVATION (feet amsl)	PIT AREA (acres)	PIT VOLUME (acre-ft)	a Area	b Area	Check	a Elev	b Elev	Check	a Elev	b Elev	Check
5980	0.0	0	-562.758	0.09	0	5980	0.12192	5980	-49049	8	0
5981	0.5	0.25	-622.969	0.10	0.5	5980.8	0.67101	5981	-8913	1	0.25
6000	2.5	29	-429.342	0.07	2.5	5992.7	0.25510	6000	-23491	4	29
6040	5.4	185	-523.817	0.09	5.4	6013.9	0.14061	6040	-42769	7	185
6080	8.9	470	-507.693	0.08	8.9	6035.5	0.09467	6080	-63754	11	470
6120	12.3	892	-703.306	0.12	12.3	6058.9	0.06849	6120	-88464	15	892
6160	16.9	1,476	-791.672	0.13	16.9	6084.5	0.05111	6160	-119041	20	1476
6200	22.2	2,259	-735.306	0.12	22.2	6108.3	0.04060	6200	-150468	25	2259
6240	27.1	3,244	-797.349	0.13	27.1	6130.8	0.03365	6240	-182205	30	3244
6280	32.4	4,433	-752.683	0.13	32.4	6152.8	0.02868	6280	-214500	35	4433
6320	37.4	5,828	-523.473	0.09	37.4	6171.1	0.02555	6320	-241517	39	5828
6360	40.9	7,393	-1016.934	0.17	40.9	6192.9	0.02260	6360	-273962	44	7393
6400	47.6	9,163	-816.682	0.14	47.6	6217.7	0.01989	6400	-312537	50	9163
6440	53.0	11,173	-816.682	0.14		6217.7	0.01989		-312537	50	
10000			-816.682	0.14		6217.7	0.01989		-312537	50	

Table 11. Flow Balance Model Input Values – Sentinel Pit

Pit Information			
Pit name	Sentinel	Centennial Pit	GTO
Groundwater Catchment area (acres)	62.1	253.8	205.6
Total area inside berm (acres)	46.7	127.1	77.9
Total area inside pit rim (acres)	40.3	116.0	68.0
SW Drainage area (acres)	6.3	11.1	9.9
Total pit lake area (acres)	varies	varies	varies
Runoff & Infiltration Rates			
Surface Water Runoff rate (% of precip.)	2.3%	2.3%	2.3%
Pit Wall Runoff rate (% of precip.)	4.9%	4.9%	4.9%
Groundwater Recharge rate (% of precip.)	6.65%	6.65%	6.65%
Elevation Data			
Starting Pit Water Level Elevation (ft)	6220.0	6060.0	5980.0
Pit Floor Elevation (ft)	6220.0	6060.0	5980.0
Remote GW Elevation (ft)	6250.0	6180.0	6169.0
Aquifer Data			
Burro Canyon Aquifer Porosity	0.05	0.05	0.05

2.3 Water Balance Results

2.3.1 Sentinel Pit Water Balance Results

The higher pit floor and smaller pit results in a much shallower pit pool than in previous modeling, in spite of a 6% larger runoff area to the pit. The revised model predicts that water levels stabilize at 6225.1 ft amsl, or about 5.1 feet above the pit floor (Figure 3). For comparison, water levels stabilized at 6001.5 ft, or 41.6 feet above the pit floor in the previous model (ABC, 1998a). The planned pit floor is now higher, so the pit pool is smaller, evaporative losses are lower, and the final water level in the aquifer is higher than previously predicted.

The predicted final water level elevation is 24.9 feet below the present day static water level, as shown in Figure 3, compared to 248.5 ft in the previous model. The pit and aquifer take approximately 5 years to refill to 50% of the final level, and 37 years to reach 99% of the final level.

During the first 17 years after mining, the pit recharges the groundwater in the shallow aquifer. After 17 years, the net annual flow is from the aquifer toward the pit. Under the final, quasi-steady-state conditions, groundwater flows from the aquifer to the pit at an average annual rate of 1.7 gpm (2.8 acre-ft/yr).

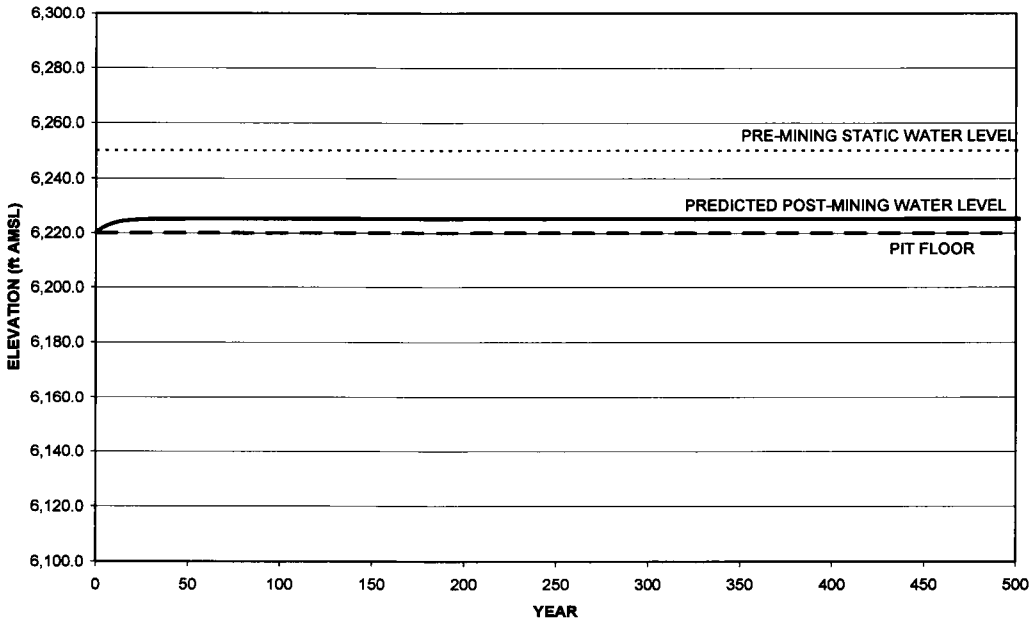


Figure 3. Model Results: Post-Mining Water Levels in the Sentinel Pit

The area of the pond, after more than one hundred years of refilling, is shown in Figure 4. The pond area is very small area relative to the size of the pit and the shallow aquifer. Evaporation from the small (0.99-acre) pond surface would average 2.5 gpm (4.0 acre-ft/yr). Leakage through fractures to the deep aquifer would be 2.8 gpm (4.4 acre-ft/yr); leakage from the shallow (Burro Canyon) aquifer to the deep aquifer would be 0.3 gpm (0.4 acre-ft/yr); and leakage from the pit to the deep aquifer would be a small fraction of that (0.05 gpm, 0.08 acre-ft/yr). Output for the first 500 years of the Sentinel Pit refilling model is given in Table 15. The water balance results are summarized and compared to previous modeling results in Table 12.

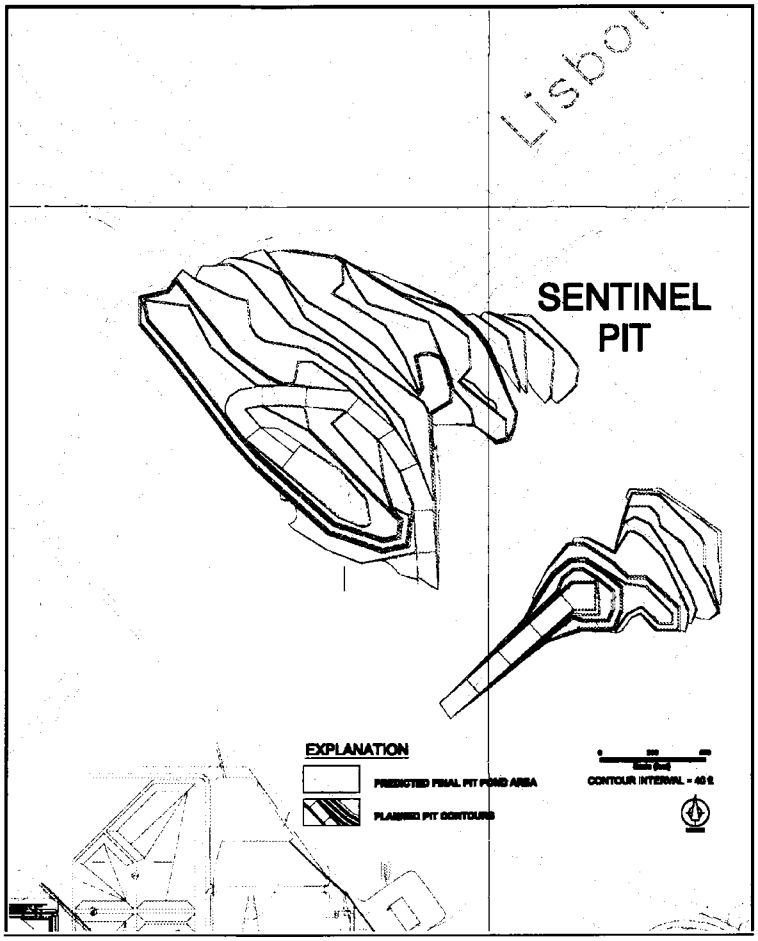


Figure 4. Map of Post-Mining Sentinel Pit Pool Surface Area

Table 12. Summary of Water Balance Model Results for the Sentinel Pit

Model	SENTINEL PIT ABC, 1998a	SENTINEL PIT Current Model
Pre-mining ground elevation (ft)	6,460	6,460
Original water table elevation (ft)	6,250	6,250
Final pit floor elevation (ft)	5,960	6,220.0
Predicted final water level elevation (ft)	6,001.5	6,225.1
Depth of floor below predicted pond surface (ft)	41.5	5.1
Pit area (acres)	38.0	40.3
Predicted final pond area (acres)	1.8	0.99
Pond evaporation	4.6 gpm, 7.38 acre-ft/yr	2.5 gpm, 3.96 acre-ft/yr
Leakage from intact BC aquifer to N-aquifer	0.3 gpm, 0.41 acre-ft/yr	0.3 gpm, 0.44 acre-ft/yr
Leakage from fractures to N-aquifer	2.5 gpm, 4.05 acre-ft/yr	2.8 gpm, 4.45 acre-ft/yr
Leakage from pit to N-aquifer	0.1 gpm, 0.095 acre-ft/yr	0.05 gpm, 0.079 acre-ft/yr

The small pond predicted in the floor of the Sentinel Pit would cover 2.46% of the planned pit area. Due to the shallow depth and small area, the Sentinel pit pool is not expected to persist long into the future.

Sedimentation and vegetation that becomes established in the floor of the pit could significantly reduce the pond area.

2.3.2 Centennial Pit Water Balance Results

The change in aquifer geometry produces very small changes to water balance model results. The revised model predicts that water levels stabilize at 6,083.21 ft amsl (Figure 5), compared to 6,083.24 ft amsl in the previous model (ABC, 1998a).

The predicted final water level elevation is 96.8 feet below the present day static water level, as shown in Figure 5. The pit and aquifer take approximately 18 years to refill to 50% of the final level, and approximately 100 years to reach 99% of the final level.

During the first 29 years after mining, the pit recharges the groundwater in the shallow aquifer. After 29 years, the net annual flow is from the aquifer toward the pit. Under the final, quasi-steady-state conditions, groundwater flows from the aquifer to the pit at an average annual rate of 2.2 gpm (3.5 acre-ft/yr).

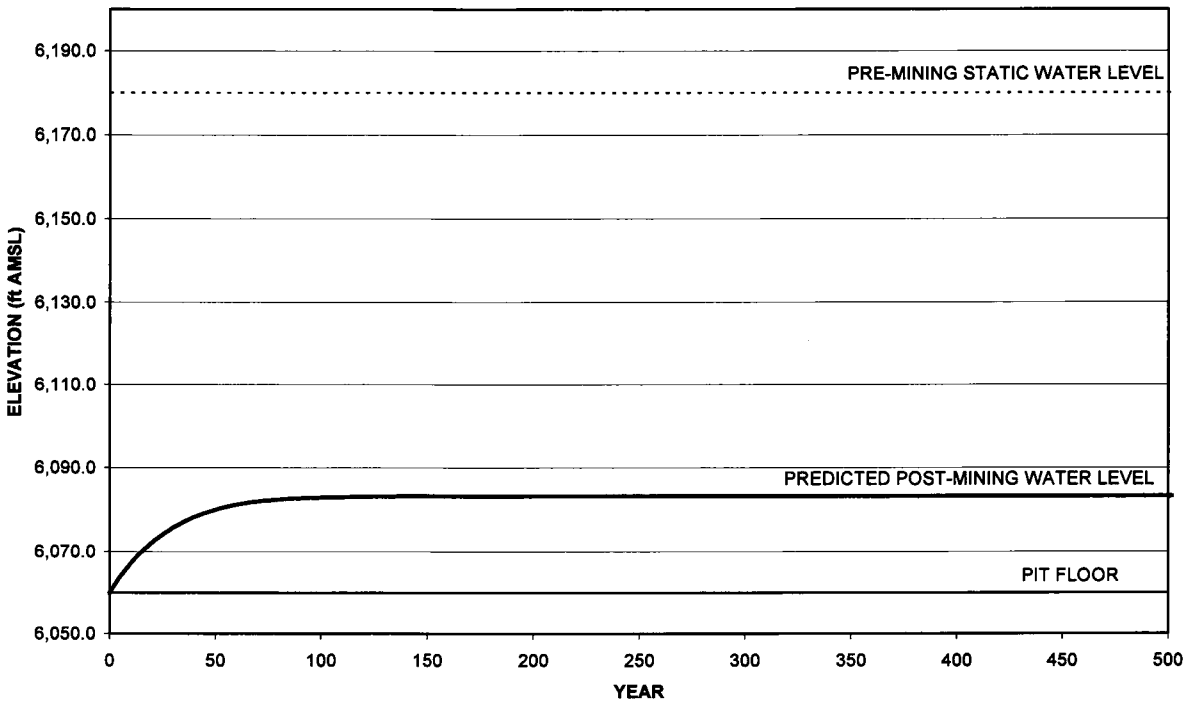


Figure 5. Model Results: Post-Mining Water Levels in the Centennial Pit

The area of the pond, after more than one hundred years of refilling, is shown in Figure 6. The 3.8-acre pond represents a small area relative to the size of the pit and the shallow aquifer. Evaporation from this surface would average 9.4 gpm (15.2 acre-ft/yr). Leakage through fractures to the deep aquifer would be 9.8 gpm (15.78 acre-ft/yr); leakage from the shallow (Burro Canyon) aquifer to the deep aquifer would be 1.0 gpm (1.6 acre-ft/yr); and leakage from the pit to the deep aquifer would be a small fraction of that (0.2 gpm, 0.26 acre-ft/yr). Output for the first 500 years of the Centennial Pit refilling model is given in Table 16. The updated water balance results are almost identical to the previous modeling results, as shown in Table 13.

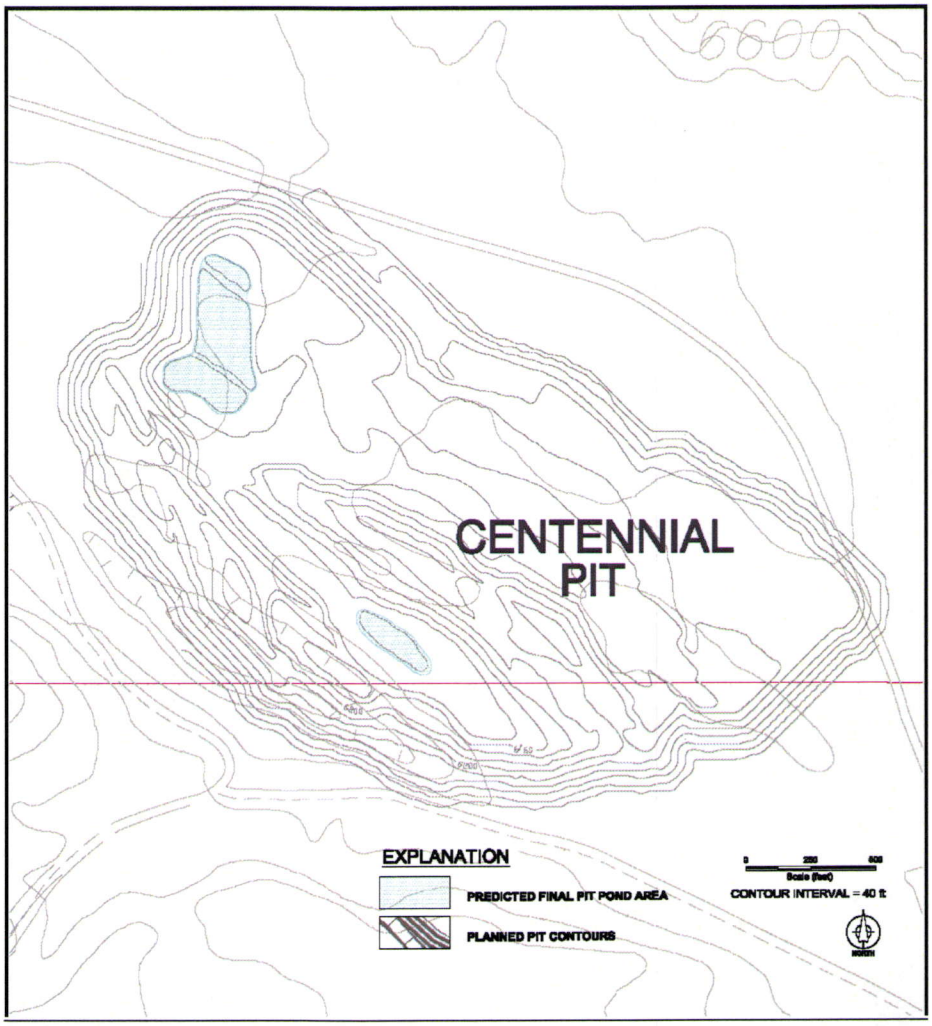


Figure 6. Map of Post-Mining Centennial Pit Pool Surface Area

Table 13. Summary of Water Balance Model Results for the Centennial Pit

Model	CENTENNIAL PIT ABC, 1998a	CENTENNIAL PIT Current Model
Pre-mining ground elevation (ft)	6,440	6,440
Original water table elevation (ft)	6,180	6,180
Final pit floor elevation (ft)	6,060	6,060
Predicted final water level elevation (ft)	6,083.24	6,083.21
Depth of floor below predicted pond surface (ft)	23.24	23.21
Pit area (acres)	116	116
Predicted final pond area (acres)	3.8	3.8
Pond evaporation	9.4 gpm, 15.22 acre-ft/yr	9.4 gpm, 15.2 acre-ft/yr
Leakage from intact BC aquifer to N-aquifer	1 gpm, 1.59 acre-ft/yr	1.0 gpm, 1.58 acre-ft/yr
Leakage from fractures to N-aquifer	9.8 gpm, 15.86 acre-ft/yr	9.8 gpm, 15.78 acre-ft/yr
Leakage from pit to N-aquifer	0.2 gpm, 0.26 acre-ft/yr	0.2 gpm, 0.26 acre-ft/yr

The small pond predicted in the floor of the Centennial Pits would cover 3.28% of the planned pit area. During periods of higher than normal precipitation, the water levels in the pit could be slightly higher. However, a significant increase in the pond level is not expected, because both evaporation and the volume of water required to raise the pond level increase as the water level increase. During drought conditions, the shallow pond could go dry. Vegetation that becomes established in the floor of the pit could significantly reduce the pond area, as phreatophytes extract more water than predicted by free water surface evaporation alone.

2.3.3 GTO Pit Water Balance Results

The larger aquifer area and higher static water level result in more flow from the shallow aquifer to the pit and a higher final water level than in the previous model. The revised model predicts that water levels stabilize at 6,001.2 ft amsl, or about 21 feet above the pit floor (Figure 7). For comparison, water levels stabilized at 16.5 feet above the pit floor (5996.5 ft amsl) in the previous model (ABC, 1998a).

The predicted final water level elevation is 167 feet below the present day static water level, as shown in Figure 7. The pit and aquifer take approximately 39 years to refill to 50% of the final level, and approximately 300 years to reach 99% of the final level.

During the first 37 years after mining, the pit recharges the groundwater in the shallow aquifer. After 37 years, the net annual flow is from the aquifer toward the pit. Under the final, quasi-steady-state conditions, groundwater flows from the aquifer to the pit at an average annual rate of 1.8 gpm (2.9 acre-ft/yr).

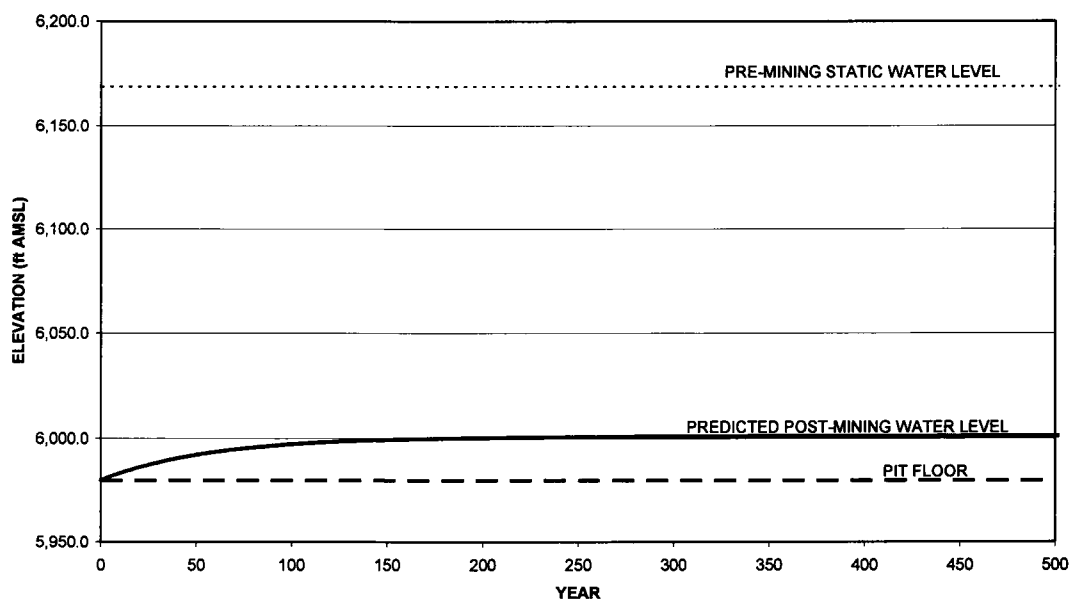


Figure 7. Model Results: Post-Mining Water Levels in the GTO Pit

The area of the pond, after more than one hundred years of refilling, is shown in Figure 8. The 2.6-acre pond represents a small area relative to the size of the pit and the shallow aquifer. Evaporation from this surface would average 6.4 gpm (10.29 acre-ft/yr). Leakage through fractures to the deep aquifer would be 7.9 gpm (12.7 acre-ft/yr); leakage from the shallow (Burro Canyon) aquifer to the deep aquifer would be 0.8 gpm (1.3 acre-ft/yr); and leakage from the pit to the deep aquifer would be a small fraction of that (0.1 gpm (0.18 acre-ft/yr). Output for the first 500 years of the GTO Pit refilling model is given in Table 17. The water balance results are compared to previous modeling results in Table 14.

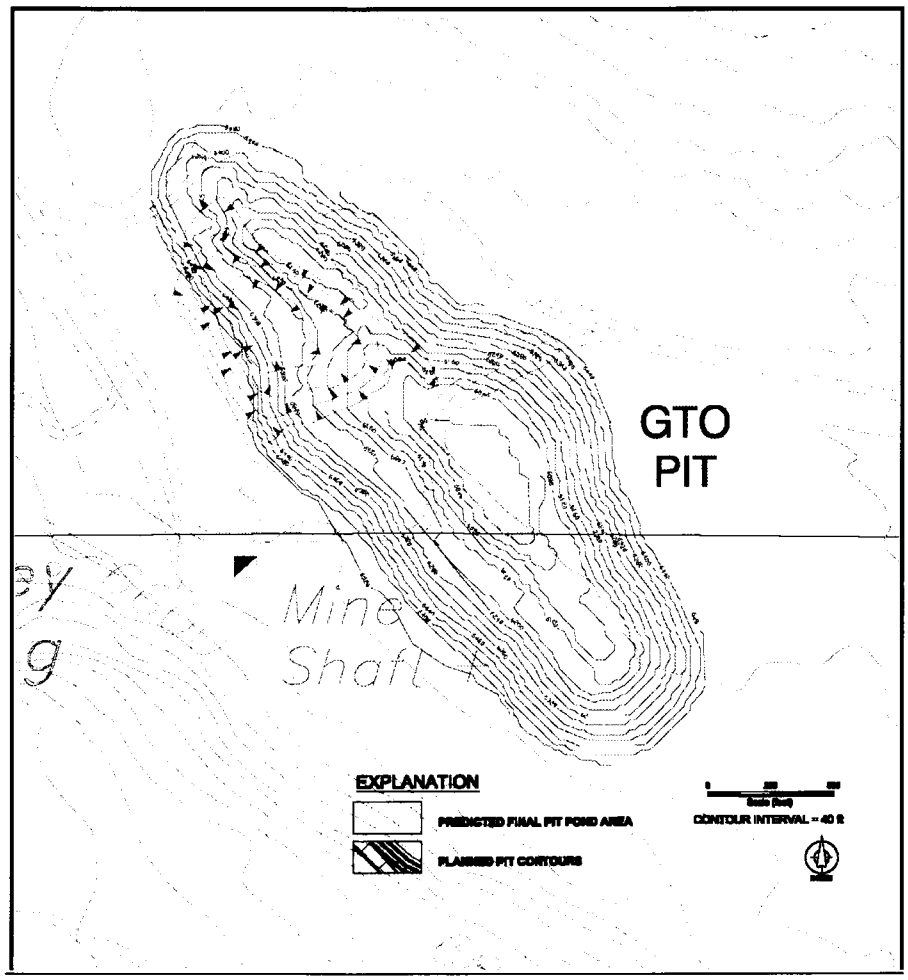


Figure 8. Map of Post-Mining GTO Pit Pool Surface Area

Table 14. Summary of Water Balance Model Results for the GTO Pit

Model	GTO PIT ABC, 1998a	GTO PIT Current Model
Pre-mining ground elevation (ft)	6,490	6,490
Original water table elevation (ft)	6,161	6,169
Final pit floor elevation (ft)	5,980	5,980
Predicted final water level elevation (ft)	5,996.50	6,001.24
Depth of floor below predicted pond surface (ft)	16.50	21.24
Pit area (acres)	68	68
Predicted final pond area (acres)	2.12	2.57
Pond evaporation	5.3 gpm, 8.47 acre-ft/yr	6.4 gpm, 10.3 acre-ft/yr
Leakage from intact BC aquifer to N-aquifer	0.4 gpm, 0.71 acre-ft/yr	0.8 gpm, 1.27 acre-ft/yr
Leakage from fractures to N-aquifer	4.4 gpm, 7.14 acre-ft/yr	7.9 gpm, 12.7 acre-ft/yr
Leakage from pit to N-aquifer	0.1 gpm, 0.15 acre-ft/yr	0.1 gpm, 0.18 acre-ft/yr

The small pond predicted in the floor of the GTO Pit would cover 3.78% of the planned pit area. During periods of higher than normal precipitation, the water levels in the pits could be slightly higher. However,

a significant increase in the pond level is not expected, because both evaporation and the volume of water required to raise the pond level increase as the water level increase. During drought conditions, the shallow ponds could go dry. Vegetation that becomes established in the floor of the pit could significantly reduce the pond area, as phreatophytes extract more water than predicted by free water surface evaporation alone.

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
0	0	6,220.0	0.0	40.3	62.1	1.722	5.2	4.48	0.45	4.9	0.2	0.19	2.5	0.0	2.9	0.000	2.9	0.00	0.00	2.9	6,220.59	-1.53	1.1	1.8
1	3	6,220.6	0.1	40.2	61.9	1.724	5.2	4.48	0.45	4.9	0.2	0.19	2.5	0.1	5.9	0.009	5.9	0.45	0.45	5.5	6,221.11	-1.33	2.1	3.3
2	5	6,221.1	0.2	40.1	61.8	1.725	5.2	4.48	0.45	4.9	0.2	0.19	2.5	0.3	8.6	0.017	8.6	0.85	0.85	7.7	6,221.57	-1.16	3.0	4.7
3	8	6,221.6	0.3	40.0	61.8	1.727	5.1	4.47	0.45	4.9	0.2	0.19	2.5	0.4	11.0	0.024	11.0	1.21	1.21	9.8	6,221.98	-1.00	3.8	6.0
4	10	6,222.0	0.4	39.9	61.7	1.728	5.1	4.47	0.45	4.9	0.2	0.19	2.5	0.5	13.1	0.030	13.1	1.52	1.52	11.5	6,222.34	-0.87	4.5	7.0
5	12	6,222.3	0.5	39.9	61.6	1.729	5.1	4.47	0.45	4.9	0.2	0.19	2.5	0.6	15.0	0.036	14.9	1.80	1.80	13.1	6,222.66	-0.75	5.1	8.0
6	13	6,222.7	0.5	39.8	61.5	1.730	5.1	4.47	0.45	4.9	0.2	0.19	2.4	0.6	16.6	0.041	16.6	2.05	2.05	14.5	6,222.95	-0.64	5.7	8.9
7	15	6,222.9	0.6	39.8	61.5	1.730	5.1	4.46	0.45	4.9	0.2	0.19	2.4	0.7	18.1	0.045	18.0	2.27	2.27	15.8	6,223.20	-0.54	6.1	9.6
8	16	6,223.2	0.6	39.7	61.4	1.731	5.1	4.46	0.45	4.9	0.2	0.19	2.4	0.8	19.4	0.049	19.3	2.46	2.46	16.9	6,223.42	-0.46	6.6	10.3
9	17	6,223.4	0.7	39.7	61.4	1.732	5.1	4.46	0.45	4.9	0.2	0.19	2.4	0.8	20.5	0.053	20.5	2.63	2.63	17.8	6,223.62	-0.38	7.0	10.9
10	18	6,223.6	0.7	39.6	61.4	1.732	5.1	4.46	0.45	4.9	0.2	0.19	2.4	0.9	21.5	0.056	21.5	2.78	2.78	18.7	6,223.79	-0.32	7.3	11.4
11	19	6,223.8	0.7	39.6	61.3	1.733	5.1	4.46	0.45	4.9	0.2	0.19	2.4	0.9	22.4	0.058	22.4	2.92	2.92	19.5	6,223.95	-0.26	7.6	11.9
12	19	6,223.9	0.8	39.6	61.3	1.733	5.1	4.46	0.45	4.9	0.2	0.19	2.4	1.0	23.2	0.061	23.2	3.04	3.04	20.1	6,224.09	-0.21	7.9	12.3
13	20	6,224.1	0.8	39.5	61.3	1.734	5.1	4.46	0.45	4.9	0.2	0.19	2.4	1.0	23.9	0.063	23.9	3.14	3.14	20.7	6,224.21	-0.16	8.1	12.6
14	21	6,224.2	0.8	39.5	61.2	1.734	5.1	4.46	0.45	4.9	0.2	0.19	2.4	1.0	24.6	0.065	24.5	3.24	3.24	21.3	6,224.31	-0.12	8.3	13.0
15	21	6,224.3	0.8	39.5	61.2	1.734	5.1	4.46	0.45	4.9	0.2	0.19	2.4	1.0	25.1	0.066	25.1	3.32	3.32	21.7	6,224.41	-0.08	8.5	13.3
16	22	6,224.4	0.8	39.5	61.2	1.734	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.1	25.6	0.068	25.5	3.39	3.39	22.1	6,224.49	-0.05	8.6	13.5
17	22	6,224.5	0.9	39.5	61.2	1.735	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.1	26.0	0.069	26.0	3.46	3.46	22.5	6,224.57	-0.02	8.8	13.7
18	23	6,224.6	0.9	39.5	61.2	1.735	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.1	26.4	0.070	26.4	3.51	3.51	22.8	6,224.63	0.00	8.9	13.9
19	23	6,224.6	0.9	39.4	61.2	1.735	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.1	26.8	0.071	26.7	3.56	3.56	23.1	6,224.69	0.02	9.0	14.1
20	23	6,224.7	0.9	39.4	61.2	1.735	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.1	27.1	0.072	27.0	3.61	3.61	23.4	6,224.74	0.04	9.1	14.3
21	23	6,224.7	0.9	39.4	61.1	1.735	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.1	27.3	0.073	27.3	3.65	3.65	23.6	6,224.79	0.06	9.2	14.4
22	24	6,224.8	0.9	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	27.6	0.074	27.5	3.69	3.69	23.8	6,224.83	0.08	9.3	14.5
23	24	6,224.8	0.9	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	27.8	0.074	27.7	3.72	3.72	24.0	6,224.87	0.09	9.4	14.6
24	24	6,224.9	0.9	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.0	0.075	27.9	3.74	3.74	24.1	6,224.90	0.10	9.4	14.7
25	24	6,224.9	0.9	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.1	0.075	28.1	3.77	3.77	24.3	6,224.93	0.11	9.5	14.8
26	24	6,224.9	0.9	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.3	0.076	28.2	3.79	3.79	24.4	6,224.95	0.12	9.5	14.9
27	24	6,225.0	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.4	0.076	28.3	3.81	3.81	24.5	6,224.97	0.13	9.6	15.0
28	25	6,225.0	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.5	0.077	28.4	3.83	3.83	24.6	6,224.99	0.14	9.6	15.0
29	25	6,225.0	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.6	0.077	28.5	3.84	3.84	24.7	6,225.01	0.14	9.6	15.1
30	25	6,225.0	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.7	0.077	28.6	3.85	3.85	24.8	6,225.03	0.15	9.7	15.1
31	25	6,225.0	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.8	0.077	28.7	3.87	3.87	24.8	6,225.04	0.15	9.7	15.2
32	25	6,225.0	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.9	0.078	28.8	3.88	3.88	24.9	6,225.05	0.16	9.7	15.2
33	25	6,225.1	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	28.9	0.078	28.8	3.89	3.89	25.0	6,225.06	0.16	9.7	15.2
34	25	6,225.1	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	29.0	0.078	28.9	3.89	3.89	25.0	6,225.07	0.17	9.7	15.3
35	25	6,225.1	1.0	39.4	61.1	1.736	5.1	4.45	0.45	4.9	0.2	0.19	2.4	1.2	29.0	0.078	28.9	3.90	3.90	25.0	6,225.08	0.17	9.8	15.3
36	25	6,225.1	1.0	39.4	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.1	0.078	29.0	3.91	3.91	25.1	6,225.09	0.17	9.8	15.3
37	25	6,225.1	1.0	39.4	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.1	0.078	29.0	3.91	3.91	25.1	6,225.10	0.18	9.8	15.3
38	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.1	0.078	29.1	3.92	3.92	25.1	6,225.10	0.18	9.8	15.3
39	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.2	0.079	29.1	3.92	3.92	25.2	6,225.11	0.18	9.8	15.4
40	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.2	0.079	29.1	3.93	3.93	25.2	6,225.11	0.18	9.8	15.4
41	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.2	0.079	29.1	3.93	3.93	25.2	6,225.11	0.18	9.8	15.4
42	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.2	0.079	29.2	3.93	3.93	25.2	6,225.12	0.18	9.8	15.4
43	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.2	3.94	3.94	25.2	6,225.12	0.19	9.8	15.4
44	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.2	3.94	3.94	25.3	6,225.12	0.19	9.8	15.4
45	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.2	3.94	3.94	25.3	6,225.13	0.19	9.9	15.4
46	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.2	3.94	3.94	25.3	6,225.13	0.19	9.9	15.4
47	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.2	3.95	3.95	25.3	6,225.13	0.19	9.9	15.4
48	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.2	3.95	3.95	25.3	6,225.13	0.19	9.9	15.4
49	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.3	3.95	3.95	25.3	6,225.13	0.19	9.9	15.4
50	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.4
51	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.3	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.4
52	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.4
53	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.5
54	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.5
55	25	6,225.1	1.0	39.3	61.1	1.736	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.5
56	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.5
57	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.5
58	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.95	3.95	25.3	6,225.14	0.19	9.9	15.5
59	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.3	6,225.14	0.19	9.9	15.5
60	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.3	6,225.14	0.19	9.9	15.5
61	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.3	6,225.14	0.19	9.9	15.5
62	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
63	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
64	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
65	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
66	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
67	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
68	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
69	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.14	0.19	9.9	15.5
70	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
71	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
72	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
73	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
74	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
75	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
76	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
77	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
78	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
79	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
80	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
81	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
82	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
83	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
84	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
85	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
86	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
87	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
88	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
89	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
90	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
91	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
92	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
93	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
94	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
95	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
96	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
97	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
98	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
99	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
100	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
101	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
102	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
103	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
104	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
105	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
106	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
107	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
108	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
109	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
110	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
111	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
112	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
113	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
114	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
115	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
116	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
117	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
118	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
119	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
120	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
121	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
122	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
123	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
124	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
125	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
126	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
127	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
128	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
129	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
130	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
131	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
132	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
133	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
134	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
135	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
136	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
137	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
138	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
139	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
140	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
141	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
142	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
143	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
144	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
145	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
146	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
147	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
148	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
149	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
150	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
151	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
152	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
153	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
154	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
155	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
156	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
157	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
158	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
159	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
160	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
161	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
162	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
163	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
164	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
165	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
166	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
167	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
168	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
169	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
170	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
171	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
172	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
173	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
174	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
175	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
176	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
177	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
178	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
179	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
180	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
181	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
182	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
183	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
184	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
185	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
186	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
187	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
188	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
189	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
190	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
191	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
192	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
193	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
194	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
195	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
196	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
197	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
198	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
199	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
200	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
201	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
202	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
203	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
204	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
205	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
206	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
207	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
208	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
209	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
210	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
211	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
212	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
213	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
214	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
215	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
216	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
217	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
218	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
219	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
220	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
221	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
222	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
223	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
224	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
225	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
226	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
227	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
228	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
229	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
230	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
231	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
232	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
233	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
234	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
235	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
236	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
237	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
238	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
239	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
240	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
241	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
242	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
243	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
244	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
245	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
246	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
247	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
248	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
249	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
250	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
251	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
252	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
253	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
254	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
255	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
256	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
257	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
258	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
259	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
260	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
261	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
262	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
263	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
264	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
265	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
266	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
267	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
268	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
269	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
270	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
271	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
272	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
273	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
274	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
275	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
276	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
277	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
278	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
279	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
280	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
281	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
282	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
283	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
284	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
285	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
286	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
287	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
288	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
289	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
290	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
291	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
292	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
293	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
294	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
295	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
296	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
297	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
298	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
299	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
300	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
301	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
302	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
303	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
304	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
305	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
306	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
307	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
308	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
309	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
310	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
311	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
312	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
313	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
314	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
315	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
316	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
317	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
318	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
319	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
320	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
321	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
322	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
323	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
324	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
325	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
326	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
327	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
328	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
329	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
330	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
331	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
332	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
333	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
334	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
335	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
336	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
337	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
338	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
339	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
340	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
341	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
342	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
343	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
344	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
345	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
346	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
347	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
348	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
349	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
350	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
351	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
352	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
353	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
354	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
355	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
356	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
357	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
358	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
359	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
360	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
361	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
362	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
363	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
364	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
365	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
366	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
367	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
368	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
369	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
370	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
371	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
372	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
373	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
374	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
375	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
376	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
377	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
378	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
379	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
380	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
381	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
382	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
383	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
384	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
385	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
386	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
387	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
388	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
389	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
390	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
391	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
392	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
393	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
394	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
395	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
396	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
397	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
398	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
399	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
400	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
401	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
402	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
403	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
404	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
405	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
406	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
407	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
408	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
409	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
410	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
411	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
412	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
413	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
414	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
415	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
416	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
417	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
418	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
419	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
420	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
421	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
422	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
423	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
424	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
425	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
426	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
427	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
428	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
429	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
430	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
431	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 15. WATER BALANCE FOR SENTINEL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
432	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
433	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
434	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
435	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
436	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
437	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
438	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
439	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
440	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
441	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
442	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
443	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
444	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
445	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
446	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
447	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
448	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
449	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
450	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
451	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
452	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
453	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
454	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
455	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
456	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
457	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
458	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
459	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
460	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
461	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
462	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
463	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
464	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
465	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
466	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
467	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
468	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
469	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
470	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
471	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
472	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
473	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
474	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
475	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
476	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
477	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
478	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
479	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
480	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
481	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
482	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
483	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
484	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
485	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
486	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
487	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
488	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
489	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
490	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
491	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
492	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
493	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
494	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
495	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
496	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
497	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
498	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
499	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5
500	25	6,225.1	1.0	39.3	61.1	1.737	5.1	4.45	0.44	4.9	0.2	0.19	2.4	1.2	29.4	0.079	29.3	3.96	3.96	25.4	6,225.15	0.19	9.9	15.5

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
0	0.0	6,060.0	0.0	116.0	253.8	1.000	21.2	15.3	1.53	16.78	4.38	0.32	7.13	0.00	11.83	0.0000	11.8	0.00	0.00	11.8	6,060.8	-6.14	1.3	10.5
1	11.8	6,060.8	0.1	115.9	253.7	1.002	21.1	15.3	1.53	16.80	4.34	0.32	7.12	0.16	23.78	0.0087	23.8	0.53	0.53	23.3	6,061.6	-5.81	2.6	20.7
2	23.3	6,061.6	0.3	115.7	253.6	1.004	21.1	15.3	1.53	16.82	4.31	0.32	7.11	0.32	35.32	0.0171	35.3	1.03	1.03	34.3	6,062.4	-5.49	3.8	30.5
3	34.3	6,062.4	0.4	115.6	253.5	1.005	21.1	15.3	1.53	16.84	4.28	0.32	7.11	0.48	46.46	0.0253	46.4	1.52	1.52	44.9	6,063.2	-5.18	5.0	39.9
4	44.9	6,063.2	0.5	115.5	253.3	1.007	21.1	15.3	1.53	16.86	4.25	0.32	7.10	0.62	57.22	0.0332	57.2	1.99	1.99	55.2	6,063.9	-4.88	6.1	49.1
5	55.2	6,063.9	0.6	115.4	253.2	1.008	21.1	15.3	1.53	16.88	4.22	0.32	7.09	0.77	67.60	0.0408	67.6	2.45	2.45	65.1	6,064.6	-4.59	7.2	57.9
6	65.1	6,064.6	0.7	115.3	253.1	1.010	21.1	15.4	1.54	16.90	4.20	0.32	7.08	0.91	77.62	0.0482	77.6	2.89	2.89	74.7	6,065.3	-4.31	8.3	66.4
7	74.7	6,065.3	0.8	115.2	253.0	1.011	21.1	15.4	1.54	16.91	4.17	0.32	7.08	1.04	87.29	0.0554	87.2	3.32	3.32	83.9	6,065.9	-4.05	9.3	74.6
8	83.9	6,065.9	0.9	115.1	252.9	1.013	21.1	15.4	1.54	16.93	4.15	0.32	7.07	1.17	96.63	0.0623	96.6	3.73	3.73	92.8	6,066.5	-3.79	10.3	82.5
9	92.8	6,066.5	1.0	115.0	252.8	1.014	21.1	15.4	1.54	16.95	4.12	0.32	7.07	1.29	105.65	0.0690	105.6	4.12	4.12	101.5	6,067.2	-3.54	11.3	90.2
10	101.5	6,067.2	1.1	114.9	252.7	1.016	21.1	15.4	1.54	16.96	4.10	0.32	7.06	1.41	114.35	0.0755	114.3	4.50	4.50	109.8	6,067.7	-3.29	12.2	97.6
11	109.8	6,067.7	1.2	114.8	252.6	1.017	21.1	15.4	1.54	16.98	4.07	0.32	7.05	1.53	122.75	0.0818	122.7	4.87	4.87	117.8	6,068.3	-3.06	13.1	104.7
12	117.8	6,068.3	1.3	114.7	252.5	1.018	21.0	15.4	1.54	16.99	4.05	0.32	7.05	1.64	130.86	0.0879	130.8	5.23	5.23	125.5	6,068.8	-2.84	13.9	111.6
13	125.5	6,068.8	1.4	114.6	252.4	1.019	21.0	15.5	1.55	17.01	4.03	0.32	7.04	1.75	138.69	0.0938	138.6	5.57	5.57	133.0	6,069.4	-2.62	14.8	118.3
14	133.0	6,069.4	1.5	114.5	252.4	1.020	21.0	15.5	1.55	17.02	4.01	0.32	7.04	1.85	146.25	0.0995	146.1	5.91	5.91	140.2	6,069.9	-2.41	15.6	124.7
15	140.2	6,069.9	1.6	114.4	252.3	1.021	21.0	15.5	1.55	17.03	3.99	0.32	7.03	1.95	153.54	0.1050	153.4	6.23	6.23	147.2	6,070.4	-2.20	16.3	130.9
16	147.2	6,070.4	1.6	114.4	252.2	1.023	21.0	15.5	1.55	17.04	3.97	0.32	7.03	2.05	160.58	0.1103	160.5	6.54	6.54	153.9	6,070.9	-2.01	17.1	136.9
17	153.9	6,070.9	1.7	114.3	252.1	1.024	21.0	15.5	1.55	17.06	3.95	0.32	7.02	2.14	167.38	0.1155	167.3	6.83	6.83	160.4	6,071.3	-1.82	17.8	142.6
18	160.4	6,071.3	1.8	114.2	252.1	1.025	21.0	15.5	1.55	17.07	3.94	0.32	7.02	2.23	173.94	0.1205	173.8	7.12	7.12	166.7	6,071.8	-1.64	18.5	148.2
19	166.7	6,071.8	1.8	114.2	252.0	1.026	21.0	15.5	1.55	17.08	3.92	0.32	7.02	2.32	180.28	0.1253	180.2	7.40	7.40	172.8	6,072.2	-1.46	19.2	153.6
20	172.8	6,072.2	1.9	114.1	251.9	1.026	21.0	15.5	1.55	17.09	3.90	0.32	7.01	2.40	186.39	0.1300	186.3	7.67	7.67	178.6	6,072.6	-1.29	19.8	158.8
21	178.6	6,072.6	2.0	114.0	251.9	1.027	21.0	15.5	1.55	17.10	3.89	0.32	7.01	2.48	192.30	0.1345	192.2	7.93	7.93	184.2	6,073.0	-1.13	20.4	163.8
22	184.2	6,073.0	2.0	114.0	251.8	1.028	21.0	15.6	1.56	17.11	3.87	0.32	7.00	2.56	198.00	0.1389	197.9	8.18	8.18	189.7	6,073.4	-0.97	21.0	168.6
23	189.7	6,073.4	2.1	113.9	251.7	1.029	21.0	15.6	1.56	17.12	3.86	0.32	7.00	2.64	203.50	0.1431	203.4	8.42	8.42	194.9	6,073.7	-0.82	21.6	173.3
24	194.9	6,073.7	2.2	113.8	251.7	1.030	21.0	15.6	1.56	17.13	3.84	0.32	7.00	2.71	208.81	0.1472	208.7	8.65	8.65	200.0	6,074.1	-0.67	22.2	177.8
25	200.0	6,074.1	2.2	113.8	251.6	1.031	21.0	15.6	1.56	17.14	3.83	0.32	6.99	2.78	213.94	0.1511	213.8	8.88	8.88	204.9	6,074.4	-0.53	22.7	182.2
26	204.9	6,074.4	2.3	113.7	251.6	1.031	21.0	15.6	1.56	17.15	3.82	0.32	6.99	2.85	218.89	0.1549	218.7	9.10	9.10	209.6	6,074.8	-0.39	23.3	186.4
27	209.6	6,074.8	2.3	113.7	251.5	1.032	21.0	15.6	1.56	17.16	3.80	0.32	6.99	2.92	223.66	0.1586	223.5	9.31	9.31	214.2	6,075.1	-0.26	23.8	190.4
28	214.2	6,075.1	2.4	113.6	251.5	1.033	21.0	15.6	1.56	17.17	3.79	0.32	6.98	2.98	228.27	0.1622	228.1	9.51	9.51	218.6	6,075.4	-0.13	24.2	194.4
29	218.6	6,075.4	2.4	113.6	251.4	1.033	21.0	15.6	1.56	17.17	3.78	0.32	6.98	3.04	232.73	0.1656	232.6	9.71	9.71	222.9	6,075.7	0.00	24.7	198.1
30	222.9	6,075.7	2.5	113.5	251.4	1.034	20.9	15.6	1.56	17.18	3.77	0.32	6.98	3.10	237.02	0.1689	236.9	9.89	9.89	227.0	6,076.0	0.12	25.2	201.8
31	227.0	6,076.0	2.5	113.5	251.3	1.035	20.9	15.6	1.56	17.19	3.76	0.32	6.97	3.16	241.17	0.1722	241.0	10.08	10.08	230.9	6,076.3	0.23	25.6	205.3
32	230.9	6,076.3	2.6	113.4	251.3	1.035	20.9	15.6	1.56	17.20	3.74	0.32	6.97	3.21	245.18	0.1753	245.0	10.25	10.25	234.8	6,076.5	0.34	26.0	208.7
33	234.8	6,076.5	2.6	113.4	251.2	1.036	20.9	15.6	1.56	17.20	3.73	0.32	6.97	3.27	249.04	0.1783	248.9	10.42	10.42	238.4	6,076.8	0.45	26.4	212.0
34	238.4	6,076.8	2.6	113.4	251.2	1.037	20.9	15.6	1.56	17.21	3.72	0.32	6.97	3.32	252.78	0.1812	252.6	10.59	10.59	242.0	6,077.1	0.55	26.8	215.2
35	242.0	6,077.1	2.7	113.3	251.2	1.037	20.9	15.7	1.57	17.22	3.71	0.32	6.96	3.37	256.38	0.1840	256.2	10.74	10.74	245.5	6,077.3	0.65	27.2	218.2
36	245.5	6,077.3	2.7	113.3	251.1	1.038	20.9	15.7	1.57	17.22	3.71	0.32	6.96	3.41	259.86	0.1867	259.7	10.90	10.90	248.8	6,077.5	0.75	27.6	221.2
37	248.8	6,077.5	2.8	113.2	251.1	1.038	20.9	15.7	1.57	17.23	3.70	0.32	6.96	3.46	263.22	0.1893	263.0	11.04	11.04	252.0	6,077.8	0.84	27.9	224.0
38	252.0	6,077.8	2.8	113.2	251.0	1.039	20.9	15.7	1.57	17.23	3.69	0.32	6.96	3.51	266.46	0.1919	266.3	11.19	11.19	255.1	6,078.0	0.94	28.3	226.8
39	255.1	6,078.0	2.8	113.2	251.0	1.039	20.9	15.7	1.57	17.24	3.68	0.32	6.95	3.55	269.58	0.1943	269.4	11.32	11.32	258.1	6,078.2	1.02	28.6	229.4
40	258.1	6,078.2	2.9	113.1	251.0	1.040	20.9	15.7	1.57	17.24	3.67	0.32	6.95	3.59	272.61	0.1967	272.4	11.46	11.46	261.0	6,078.4	1.11	28.9	232.0
41	261.0	6,078.4	2.9	113.1	250.9	1.040	20.9	15.7	1.57	17.25	3.66	0.32	6.95	3.63	275.52	0.1989	275.3	11.59	11.59	263.7	6,078.6	1.19	29.3	234.5
42	263.7	6,078.6	2.9	113.1	250.9	1.040	20.9	15.7	1.57	17.25	3.66	0.32	6.95	3.67	278.34	0.2012	278.1	11.71	11.71	266.4	6,078.8	1.27	29.6	236.9
43	266.4	6,078.8	3.0	113.0	250.9	1.041	20.9	15.7	1.57	17.26	3.65	0.32	6.95	3.71	281.05	0.2033	280.8	11.83	11.83	269.0	6,079.0	1.34	29.8	239.2
44	269.0	6,079.0	3.0	113.0	250.9	1.041	20.9	15.7	1.57	17.26	3.64	0.32	6.95	3.74	283.68	0.2053	283.5	11.94	11.94	271.5	6,079.1	1.41	30.1	241.4
45	271.5	6,079.1	3.0	113.0	250.8	1.042	20.9	15.7	1.57	17.27	3.63	0.32	6.94	3.78	286.21	0.2073	286.0	12.05	12.05	273.9	6,079.3	1.48	30.4	243.6
46	273.9	6,079.3	3.0	113.0	250.8	1.042	20.9	15.7	1.57	17.27	3.63	0.32	6.94	3.81	288.65	0.2093	288.4	12.16	12.16	276.3	6,079.5	1.55	30.6	245.6
47	276.3	6,079.5	3.1	112.9	250.8	1.042	20.9	15.7	1.57	17.28	3.62	0.32	6.94	3.84	291.01	0.2111	290.8	12.27	12.27	278.5	6,079.6	1.62	30.9	247.6
48	278.5	6,079.6	3.1	112.9	250.8	1.043	20.9	15.7	1.57	17.28	3.62	0.32	6.94	3.87	293.29	0.2129	293.1	12.37	12.37	280.7	6,079.8	1.68	31.1	249.6
49	280.7	6,079.8	3.1	112.9	250.7	1.043	20.9	15.7	1.57	17.28	3.61	0.32	6.94	3.90	295.49	0.2146	295.3	12.46	12.46	282.8	6,079.9	1.74	31.4	251.4
50	282.8	6,079.9	3.1	112.9	250.7	1.043	20.9	15.7	1.57	17.29	3.60	0.32	6.94	3.93	297.61	0.2163	297.4	12.56	12.56	284.8	6,080.1	2.26	32.1	252.8
51	284.8	6,080.1	3.2	112.8	250.7	1.044	20.9	15.7	1.57	17.29	3.60	0.32	6.93	3.97	299.66	0.2182	299.4	12.66	12.66	286.8	6,080.2	2.69	33.1	253.7
52	286.8	6,080.2	3.2	112.8	250.6	1.044	20.9	15.7	1.57	17.29	3.59	0.32	6.93	4.00	301.64	0.2203	301.4	12.78	12.78	288.6	6,080.4	2.72	34.1	254.6
53	288.6	6,080.4	3.2	112.8	250.6	1.044	20.9	15.7	1.57	17.30	3.59	0.32	6.93	4.04	303.52	0.2223	303.3	12.89	12.89	290.4	6,080.5	2.76	35.0	255.4
54	290.4	6,080.5	3.2	112.8	250.6	1.045	20.9	15.7	1.57	17.30	3.58	0.32	6.93	4.07	305.32	0.2241	305.1	13.00	13.00	292.1	6,080.6	2.79	35.9	256.2
55	292.1	6,080.6	3.3	112.7	250.6	1.045	20.9	15.7	1.57	17.30	3.58	0.32	6.93	4.10	307.03	0.2259	306.8	13.10	13.10	293.7	6,080.7	2.82	36.8	256.9
56	293.7	6,080.7	3.3	112.7	250.5	1.045	20.9	15.7	1.57	17.31	3.57	0.32	6.93	4.13	308.67	0.2277	308.4	13.19	13.19	295.2	6,080.9	2.85	37.6	257.7
57	295.2	6,080.9	3.3	112.7	250.5	1.045	20.9	15.7	1.57	17.31	3.57	0.32	6.92	4.16	310.23	0.2293	310.0	13.28	13.28	296.7	6,081.0	2.88	38.4	258.4
58	296.7	6,081.0	3.3	112.7	250.5	1.046	20.9	15.7	1.57	17.31	3.56	0.32	6.92	4.19	311.72	0.2309	311.5	13.37	13.37	298.1	6,081.1	2.91	39.1	259.0
59	298.1	6,081.1	3.4	112.6	250.5	1.046	20.9	15.7	1.57	17.31	3.56	0.32	6.92	4.22	313.14	0.2324	312.9	13.46	13.46	299.5	6,081.2	2.93	39.8	259.6
60	299.5	6,081.2	3.4	112.6	250.5	1.046	20.9	15.7	1.57	17.31	3.56	0.32	6.92	4.24	314.49	0.2338	314.3	13.54	13.54	300.7	6,081.3	2.96	40.5	260.2
61	300.7	6,081.3	3.4	112.6	250.4	1.046	20.9	15.7	1.57	17.32	3.55	0.32	6.92	4.27	315.79	0.2351	315.6	13.61	13.61	301.9	6,081.3	2.98	41.1	260.8
62	301.9	6,081.3	3.4	112.6	250.4	1.046	20.9	15.7	1.57	17.32	3.55	0.32	6.92	4.29	317.02	0.2364	316.8	13.68	13.68	303.1	6,081.4	3.01	41.8	261.3
63	303.1	6,081.4	3.4	112.6	250.4	1.047	20.9	15.7	1.57	17.32	3.55	0.32	6.92	4.31	318.20	0.2377	318.0	13.75	13.75	304.2	6,081.5	3.03	42.3	261.9
64	304.2	6,081.5	3.5	112.5	250.4	1.047	20.9	15.7	1.57	17.32	3.54	0.32	6.92	4.33	319.32	0.2389	319.1	13.82	13.82	305.3	6,081.6	3.05	42.9	262.4
65	305.3	6,081.6	3.5	112.5	250.4	1.047	20.9	15.7	1.57	17.32	3.54	0.32	6.92	4.35	320.39	0.2400	320.2	13.88	13.88	306.3	6,081.7	3.07	43.4	262.8
66	306.3	6,081.7	3.5	112.5	250.4	1.047	20.9	15.8	1.58	17.33	3.54	0.32	6.91	4.37	321.42	0.2411	321.2	13.94	13.94	307.2	6,081.7	3.09	44.0	263.3

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
67	307.2	6,081.7	3.5	112.5	250.3	1.047	20.9	15.8	1.58	17.33	3.53	0.32	6.91	4.39	322.39	0.2421	322.2	14.00	14.00	308.2	6,081.8	3.10	44.4	263.7
68	308.2	6,081.8	3.5	112.5	250.3	1.047	20.9	15.8	1.58	17.33	3.53	0.32	6.91	4.40	323.32	0.2431	323.1	14.06	14.06	309.0	6,081.9	3.12	44.9	264.1
69	309.0	6,081.9	3.5	112.5	250.3	1.048	20.9	15.8	1.58	17.33	3.53	0.32	6.91	4.42	324.21	0.2440	324.0	14.11	14.11	309.9	6,081.9	3.14	45.3	264.5
70	309.9	6,081.9	3.5	112.5	250.3	1.048	20.9	15.8	1.58	17.33	3.53	0.32	6.91	4.44	325.06	0.2449	324.8	14.16	14.16	310.7	6,082.0	3.15	45.8	264.9
71	310.7	6,082.0	3.5	112.5	250.3	1.048	20.9	15.8	1.58	17.33	3.52	0.32	6.91	4.45	325.87	0.2458	325.6	14.21	14.21	311.4	6,082.0	3.17	46.2	265.2
72	311.4	6,082.0	3.6	112.4	250.3	1.048	20.9	15.8	1.58	17.33	3.52	0.32	6.91	4.47	326.64	0.2466	326.4	14.25	14.25	312.1	6,082.1	3.18	46.6	265.6
73	312.1	6,082.1	3.6	112.4	250.3	1.048	20.9	15.8	1.58	17.34	3.52	0.32	6.91	4.48	327.38	0.2474	327.1	14.29	14.29	312.8	6,082.2	3.20	46.9	265.9
74	312.8	6,082.2	3.6	112.4	250.3	1.048	20.9	15.8	1.58	17.34	3.52	0.32	6.91	4.49	328.08	0.2481	327.8	14.34	14.34	313.5	6,082.2	3.21	47.3	266.2
75	313.5	6,082.2	3.6	112.4	250.2	1.048	20.9	15.8	1.58	17.34	3.52	0.32	6.91	4.50	328.75	0.2488	328.5	14.37	14.37	314.1	6,082.2	3.22	47.6	266.5
76	314.1	6,082.2	3.6	112.4	250.2	1.048	20.9	15.8	1.58	17.34	3.51	0.32	6.91	4.52	329.39	0.2495	329.1	14.41	14.41	314.7	6,082.3	3.23	47.9	266.8
77	314.7	6,082.3	3.6	112.4	250.2	1.048	20.9	15.8	1.58	17.34	3.51	0.32	6.91	4.53	330.00	0.2501	329.7	14.45	14.45	315.3	6,082.3	3.24	48.2	267.1
78	315.3	6,082.3	3.6	112.4	250.2	1.049	20.9	15.8	1.58	17.34	3.51	0.32	6.91	4.54	330.58	0.2507	330.3	14.48	14.48	315.8	6,082.4	3.25	48.5	267.3
79	315.8	6,082.4	3.6	112.4	250.2	1.049	20.9	15.8	1.58	17.34	3.51	0.32	6.91	4.55	331.14	0.2513	330.9	14.52	14.52	316.4	6,082.4	3.26	48.8	267.6
80	316.4	6,082.4	3.6	112.4	250.2	1.049	20.9	15.8	1.58	17.34	3.51	0.32	6.91	4.56	331.67	0.2519	331.4	14.55	14.55	316.9	6,082.4	3.27	49.1	267.8
81	316.9	6,082.4	3.6	112.4	250.2	1.049	20.8	15.8	1.58	17.34	3.51	0.32	6.90	4.57	332.17	0.2524	331.9	14.58	14.58	317.3	6,082.5	3.28	49.3	268.0
82	317.3	6,082.5	3.6	112.4	250.2	1.049	20.8	15.8	1.58	17.34	3.51	0.32	6.90	4.58	332.65	0.2529	332.4	14.60	14.60	317.8	6,082.5	3.29	49.6	268.2
83	317.8	6,082.5	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.34	3.50	0.32	6.90	4.58	333.11	0.2534	332.9	14.63	14.63	318.2	6,082.5	3.30	49.8	268.4
84	318.2	6,082.5	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.59	333.55	0.2539	333.3	14.66	14.66	318.6	6,082.6	3.31	50.0	268.6
85	318.6	6,082.6	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.60	333.97	0.2543	333.7	14.68	14.68	319.0	6,082.6	3.32	50.2	268.8
86	319.0	6,082.6	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.61	334.37	0.2548	334.1	14.71	14.71	319.4	6,082.6	3.32	50.4	269.0
87	319.4	6,082.6	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.61	334.75	0.2552	334.5	14.73	14.73	319.8	6,082.7	3.33	50.6	269.2
88	319.8	6,082.7	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.62	335.12	0.2555	334.9	14.75	14.75	320.1	6,082.7	3.34	50.8	269.3
89	320.1	6,082.7	3.7	112.3	250.2	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.63	335.46	0.2559	335.2	14.77	14.77	320.4	6,082.7	3.34	51.0	269.5
90	320.4	6,082.7	3.7	112.3	250.1	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.63	335.79	0.2563	335.5	14.79	14.79	320.7	6,082.7	3.35	51.1	269.6
91	320.7	6,082.7	3.7	112.3	250.1	1.049	20.8	15.8	1.58	17.35	3.50	0.32	6.90	4.64	336.11	0.2566	335.9	14.81	14.81	321.0	6,082.8	3.36	51.3	269.8
92	321.0	6,082.8	3.7	112.3	250.1	1.049	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.65	336.41	0.2569	336.2	14.83	14.83	321.3	6,082.8	3.36	51.4	269.9
93	321.3	6,082.8	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.65	336.70	0.2572	336.4	14.84	14.84	321.6	6,082.8	3.37	51.6	270.0
94	321.6	6,082.8	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.66	336.97	0.2575	336.7	14.86	14.86	321.9	6,082.8	3.37	51.7	270.1
95	321.9	6,082.8	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.66	337.24	0.2578	337.0	14.87	14.87	322.1	6,082.8	3.38	51.9	270.3
96	322.1	6,082.8	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.67	337.49	0.2581	337.2	14.89	14.89	322.3	6,082.9	3.38	52.0	270.4
97	322.3	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.67	337.72	0.2583	337.5	14.90	14.90	322.6	6,082.9	3.39	52.1	270.5
98	322.6	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.67	337.95	0.2586	337.7	14.92	14.92	322.8	6,082.9	3.39	52.2	270.6
99	322.8	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.68	338.17	0.2588	337.9	14.93	14.93	323.0	6,082.9	3.39	52.3	270.7
100	323.0	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.68	338.38	0.2590	338.1	14.94	14.94	323.2	6,082.9	3.40	52.4	270.8
101	323.2	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.69	338.57	0.2592	338.3	14.95	14.95	323.4	6,082.9	3.40	52.5	270.8
102	323.4	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.69	338.76	0.2594	338.5	14.96	14.96	323.5	6,082.9	3.41	52.6	270.9
103	323.5	6,082.9	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.69	338.94	0.2596	338.7	14.97	14.97	323.7	6,083.0	3.41	52.7	271.0
104	323.7	6,083.0	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.70	339.11	0.2598	338.9	14.98	14.98	323.9	6,083.0	3.41	52.8	271.1
105	323.9	6,083.0	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.70	339.28	0.2600	339.0	14.99	14.99	324.0	6,083.0	3.41	52.9	271.2
106	324.0	6,083.0	3.7	112.3	250.1	1.050	20.8	15.8	1.58	17.35	3.49	0.32	6.90	4.70	339.43	0.2601	339.2	15.00	15.00	324.2	6,083.0	3.42	52.9	271.2
107	324.2	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.49	0.32	6.90	4.70	339.58	0.2603	339.3	15.01	15.01	324.3	6,083.0	3.42	53.0	271.3
108	324.3	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.49	0.32	6.90	4.71	339.73	0.2604	339.5	15.02	15.02	324.4	6,083.0	3.42	53.1	271.3
109	324.4	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.49	0.32	6.90	4.71	339.86	0.2606	339.6	15.03	15.03	324.6	6,083.0	3.43	53.2	271.4
110	324.6	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.71	339.99	0.2607	339.7	15.04	15.04	324.7	6,083.0	3.43	53.2	271.5
111	324.7	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.71	340.11	0.2608	339.9	15.04	15.04	324.8	6,083.0	3.43	53.3	271.5
112	324.8	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.72	340.23	0.2610	340.0	15.05	15.05	324.9	6,083.0	3.43	53.3	271.6
113	324.9	6,083.0	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.72	340.34	0.2611	340.1	15.06	15.06	325.0	6,083.1	3.43	53.4	271.6
114	325.0	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.72	340.45	0.2612	340.2	15.06	15.06	325.1	6,083.1	3.44	53.5	271.7
115	325.1	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.72	340.55	0.2613	340.3	15.07	15.07	325.2	6,083.1	3.44	53.5	271.7
116	325.2	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.72	340.65	0.2614	340.4	15.08	15.08	325.3	6,083.1	3.44	53.6	271.8
117	325.3	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	340.74	0.2615	340.5	15.08	15.08	325.4	6,083.1	3.44	53.6	271.8
118	325.4	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	340.83	0.2616	340.6	15.09	15.09	325.5	6,083.1	3.44	53.6	271.8
119	325.5	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	340.92	0.2617	340.7	15.09	15.09	325.6	6,083.1	3.44	53.7	271.9
120	325.6	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	341.00	0.2618	340.7	15.10	15.10	325.6	6,083.1	3.45	53.7	271.9
121	325.6	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	341.08	0.2619	340.8	15.10	15.10	325.7	6,083.1	3.45	53.8	271.9
122	325.7	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	341.15	0.2619	340.9	15.10	15.10	325.8	6,083.1	3.45	53.8	272.0
123	325.8	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.73	341.22	0.2620	341.0	15.11	15.11	325.8	6,083.1	3.45	53.8	272.0
124	325.8	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.29	0.2621	341.0	15.11	15.11	325.9	6,083.1	3.45	53.9	272.0
125	325.9	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.35	0.2622	341.1	15.12	15.12	326.0	6,083.1	3.45	53.9	272.1
126	326.0	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.41	0.2622	341.2	15.12	15.12	326.0	6,083.1	3.45	53.9	272.1
127	326.0	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.47	0.2623	341.2	15.12	15.12	326.1	6,083.1	3.45	54.0	272.1
128	326.1	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.53	0.2623	341.3	15.13	15.13	326.1	6,083.1	3.46	54.0	272.1
129	326.1	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.58	0.2624	341.3	15.13	15.13	326.2	6,083.1	3.46	54.0	272.2
130	326.2	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.63	0.2625	341.4	15.13	15.13	326.2	6,083.1	3.46	54.0	272.2
131	326.2	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.68	0.2625	341.4	15.14	15.14	326.3	6,083.1	3.46	54.1	272.2
132	326.3	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.72	0.2626	341.5	15.14	15.14	326.3	6,083.1	3.46	54.1	272.2
133	326.3	6,083.1	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.74	341.77	0.2626	341.5	15.14	15.14	326.4	6,083.2	3.46	54.1	272.2

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
134	326.4	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	341.81	0.2626	341.5	15.14	15.14	326.4	6,083.2	3.46	54.1	272.3
135	326.4	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	341.85	0.2627	341.6	15.15	15.15	326.4	6,083.2	3.46	54.2	272.3
136	326.4	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	341.89	0.2627	341.6	15.15	15.15	326.5	6,083.2	3.46	54.2	272.3
137	326.5	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	341.92	0.2628	341.7	15.15	15.15	326.5	6,083.2	3.46	54.2	272.3
138	326.5	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	341.96	0.2628	341.7	15.15	15.15	326.5	6,083.2	3.46	54.2	272.3
139	326.5	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	341.99	0.2628	341.7	15.15	15.15	326.6	6,083.2	3.46	54.2	272.3
140	326.6	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.02	0.2629	341.8	15.16	15.16	326.6	6,083.2	3.47	54.2	272.4
141	326.6	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.05	0.2629	341.8	15.16	15.16	326.6	6,083.2	3.47	54.3	272.4
142	326.6	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.08	0.2629	341.8	15.16	15.16	326.7	6,083.2	3.47	54.3	272.4
143	326.7	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.11	0.2630	341.8	15.16	15.16	326.7	6,083.2	3.47	54.3	272.4
144	326.7	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.14	0.2630	341.9	15.16	15.16	326.7	6,083.2	3.47	54.3	272.4
145	326.7	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.16	0.2630	341.9	15.16	15.16	326.7	6,083.2	3.47	54.3	272.4
146	326.7	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.19	0.2630	341.9	15.17	15.17	326.8	6,083.2	3.47	54.3	272.4
147	326.8	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.21	0.2631	341.9	15.17	15.17	326.8	6,083.2	3.47	54.3	272.4
148	326.8	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.23	0.2631	342.0	15.17	15.17	326.8	6,083.2	3.47	54.3	272.5
149	326.8	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.25	0.2631	342.0	15.17	15.17	326.8	6,083.2	3.47	54.4	272.5
150	326.8	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.27	0.2631	342.0	15.17	15.17	326.8	6,083.2	3.47	54.4	272.5
151	326.8	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.29	0.2632	342.0	15.17	15.17	326.9	6,083.2	3.47	54.4	272.5
152	326.9	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.31	0.2632	342.0	15.17	15.17	326.9	6,083.2	3.47	54.4	272.5
153	326.9	6,083.2	3.8	112.2	250.1	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.33	0.2632	342.1	15.17	15.17	326.9	6,083.2	3.47	54.4	272.5
154	326.9	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.75	342.34	0.2632	342.1	15.17	15.17	326.9	6,083.2	3.47	54.4	272.5
155	326.9	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.36	0.2632	342.1	15.18	15.18	326.9	6,083.2	3.47	54.4	272.5
156	326.9	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.37	0.2632	342.1	15.18	15.18	326.9	6,083.2	3.47	54.4	272.5
157	326.9	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.39	0.2633	342.1	15.18	15.18	326.9	6,083.2	3.47	54.4	272.5
158	326.9	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.40	0.2633	342.1	15.18	15.18	327.0	6,083.2	3.47	54.4	272.5
159	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.41	0.2633	342.1	15.18	15.18	327.0	6,083.2	3.47	54.4	272.5
160	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.43	0.2633	342.2	15.18	15.18	327.0	6,083.2	3.47	54.4	272.5
161	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.44	0.2633	342.2	15.18	15.18	327.0	6,083.2	3.47	54.4	272.5
162	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.45	0.2633	342.2	15.18	15.18	327.0	6,083.2	3.47	54.5	272.5
163	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.46	0.2633	342.2	15.18	15.18	327.0	6,083.2	3.47	54.5	272.6
164	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.47	0.2633	342.2	15.18	15.18	327.0	6,083.2	3.47	54.5	272.6
165	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.48	0.2634	342.2	15.18	15.18	327.0	6,083.2	3.47	54.5	272.6
166	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.49	0.2634	342.2	15.18	15.18	327.0	6,083.2	3.47	54.5	272.6
167	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.50	0.2634	342.2	15.18	15.18	327.0	6,083.2	3.47	54.5	272.6
168	327.0	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.51	0.2634	342.2	15.18	15.18	327.1	6,083.2	3.47	54.5	272.6
169	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.51	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
170	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.52	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
171	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.53	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
172	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.54	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
173	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.54	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
174	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.55	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
175	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.56	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
176	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.56	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
177	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.57	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.47	54.5	272.6
178	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.57	0.2634	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
179	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.58	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
180	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.58	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
181	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.59	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
182	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.59	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
183	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.60	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
184	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.60	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
185	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.60	0.2635	342.3	15.19	15.19	327.1	6,083.2	3.48	54.5	272.6
186	327.1	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.61	0.2635	342.3	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
187	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.61	0.2635	342.3	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
188	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.61	0.2635	342.3	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
189	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.62	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
190	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.62	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
191	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.62	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
192	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.63	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
193	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.63	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
194	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.63	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
195	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.63	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
196	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.63	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
197	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.64	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
198	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.64	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.5	272.6
199	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.64	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
200	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.64	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
201	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.64	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
202	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.65	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
203	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.65	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
204	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.65	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
205	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.65	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
206	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.65	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
207	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.65	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
208	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
209	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
210	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
211	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
212	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
213	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
214	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
215	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
216	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
217	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.66	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
218	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
219	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
220	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2635	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
221	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
222	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
223	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
224	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
225	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
226	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
227	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
228	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
229	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
230	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
231	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
232	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
233	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
234	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
235	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.67	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
236	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
237	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
238	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
239	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
240	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.6
241	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
242	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
243	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
244	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
245	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
246	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
247	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
248	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
249	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
250	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
251	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
252	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
253	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
254	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
255	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
256	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
257	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
258	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
259	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
260	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
261	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
262	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
263	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
264	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
265	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
266	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
267	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
268	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
269	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
270	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
271	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
272	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
273	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
274	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
275	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
276	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
277	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
278	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
279	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
280	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
281	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
282	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
283	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
284	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
285	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
286	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
287	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
288	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
289	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
290	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
291	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
292	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
293	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
294	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
295	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
296	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
297	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
298	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
299	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
300	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
301	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
302	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
303	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
304	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.19	15.19	327.2	6,083.2	3.48	54.6	272.7
305	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
306	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
307	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
308	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
309	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
310	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
311	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
312	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
313	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
314	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
315	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
316	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
317	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
318	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
319	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
320	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
321	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
322	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
323	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
324	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
325	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
326	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
327	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
328	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
329	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
330	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
331	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
332	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
333	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
334	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
335	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
336	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
337	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
338	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
339	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
340	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
341	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
342	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
343	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
344	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
345	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
346	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
347	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
348	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
349	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
350	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
351	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
352	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
353	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
354	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
355	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
356	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
357	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
358	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
359	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
360	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
361	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
362	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
363	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
364	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
365	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
366	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
367	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
368	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
369	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
370	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
371	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
372	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
373	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
374	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
375	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
376	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
377	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
378	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
379	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
380	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
381	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
382	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
383	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
384	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
385	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
386	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
387	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
388	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
389	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
390	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
391	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
392	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
393	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
394	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
395	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
396	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
397	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
398	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
399	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
400	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
401	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
402	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
403	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
404	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
405	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
406	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
407	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
408	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
409	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
410	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
411	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
412	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
413	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
414	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
415	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
416	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
417	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
418	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
419	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
420	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
421	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
422	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
423	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
424	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
425	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
426	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
427	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
428	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
429	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
430	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
431	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
432	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
433	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
434	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
435	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
436	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
437	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
438	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
439	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
440	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
441	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
442	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
443	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
444	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
445	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
446	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
447	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
448	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
449	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
450	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
451	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
452	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
453	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
454	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
455	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
456	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
457	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
458	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
459	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
460	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
461	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
462	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
463	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
464	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
465	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
466	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
467	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
468	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7

TABLE 16. WATER BALANCE FOR CENTENNIAL PIT AND SURROUNDING AQUIFER

TIME	PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
469	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
470	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
471	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
472	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
473	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
474	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
475	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
476	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
477	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
478	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
479	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
480	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
481	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
482	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
483	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
484	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
485	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
486	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
487	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
488	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
489	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
490	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
491	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
492	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
493	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
494	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
495	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
496	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
497	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
498	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
499	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7
500	327.2	6,083.2	3.8	112.2	250.0	1.050	20.8	15.8	1.58	17.36	3.48	0.32	6.90	4.76	342.68	0.2636	342.4	15.20	15.20	327.2	6,083.2	3.48	54.6	272.7

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
0	0.0	5,980.0	0.0	68.0	205.6	1.000	17.1	12.5	1.25	13.79	3.34	0.29	4.18	0.000	7.81	0.0000	7.8	0.00	0.00	7.8	5,980.43	-0.94	3.5	4.3
1	7.8	5,980.4	0.0	68.0	205.6	1.001	17.1	12.5	1.25	13.80	3.33	0.29	4.18	0.051	15.66	0.0027	15.7	0.16	0.16	15.5	5,980.85	-0.88	7.0	8.5
2	15.5	5,980.9	0.1	67.9	205.5	1.001	17.1	12.5	1.25	13.80	3.33	0.29	4.17	0.101	23.39	0.0054	23.4	0.32	0.32	23.1	5,981.27	-10.59	0.7	22.4
3	23.1	5,981.3	0.5	67.5	205.1	1.002	17.1	12.5	1.25	13.78	3.31	0.29	4.15	0.662	31.47	0.0355	31.4	2.11	2.11	29.3	5,981.62	-2.43	1.2	28.2
4	29.3	5,981.6	0.6	67.4	205.1	1.002	17.1	12.5	1.25	13.78	3.30	0.29	4.14	0.708	37.77	0.0379	37.7	2.26	2.26	35.5	5,981.95	-2.34	1.7	33.8
5	35.5	5,982.0	0.6	67.4	205.0	1.003	17.1	12.5	1.25	13.79	3.30	0.29	4.14	0.752	43.95	0.0403	43.9	2.40	2.40	41.5	5,982.29	-2.25	2.2	39.3
6	41.5	5,982.3	0.6	67.4	205.0	1.003	17.1	12.5	1.25	13.79	3.29	0.29	4.14	0.795	50.03	0.0427	50.0	2.54	2.54	47.4	5,982.61	-2.16	2.7	44.8
7	47.4	5,982.6	0.7	67.3	205.0	1.003	17.1	12.5	1.25	13.79	3.29	0.29	4.14	0.838	56.00	0.0450	56.0	2.67	2.67	53.3	5,982.94	-2.07	3.1	50.1
8	53.3	5,982.9	0.7	67.3	204.9	1.004	17.1	12.5	1.25	13.80	3.28	0.29	4.14	0.880	61.86	0.0473	61.8	2.81	2.81	59.0	5,983.25	-1.98	3.6	55.4
9	59.0	5,983.3	0.7	67.3	204.9	1.004	17.1	12.5	1.25	13.80	3.27	0.29	4.13	0.921	67.63	0.0495	67.6	2.94	2.94	64.6	5,983.56	-1.89	4.1	60.6
10	64.6	5,983.6	0.8	67.2	204.9	1.005	17.1	12.5	1.25	13.80	3.27	0.29	4.13	0.962	73.29	0.0517	73.2	3.07	3.07	70.2	5,983.87	-1.81	4.5	65.6
11	70.2	5,983.9	0.8	67.2	204.8	1.005	17.1	12.6	1.26	13.81	3.26	0.29	4.13	1.002	78.85	0.0538	78.8	3.20	3.20	75.6	5,984.17	-1.72	5.0	70.6
12	75.6	5,984.2	0.8	67.2	204.8	1.005	17.1	12.6	1.26	13.81	3.26	0.29	4.13	1.041	84.31	0.0560	84.3	3.32	3.32	80.9	5,984.46	-1.64	5.4	75.5
13	80.9	5,984.5	0.9	67.1	204.8	1.006	17.1	12.6	1.26	13.81	3.25	0.29	4.13	1.079	89.68	0.0581	89.6	3.44	3.44	86.2	5,984.75	-1.56	5.8	80.3
14	86.2	5,984.7	0.9	67.1	204.7	1.006	17.1	12.6	1.26	13.82	3.24	0.29	4.12	1.117	94.95	0.0601	94.9	3.57	3.57	91.3	5,985.03	-1.48	6.3	85.1
15	91.3	5,985.0	0.9	67.1	204.7	1.006	17.1	12.6	1.26	13.82	3.24	0.29	4.12	1.154	100.13	0.0621	100.1	3.68	3.68	96.4	5,985.31	-1.41	6.7	89.7
16	96.4	5,985.3	0.9	67.1	204.7	1.007	17.1	12.6	1.26	13.82	3.23	0.29	4.12	1.191	105.22	0.0641	105.2	3.80	3.80	101.4	5,985.58	-1.33	7.1	94.3
17	101.4	5,985.6	1.0	67.0	204.6	1.007	17.1	12.6	1.26	13.83	3.23	0.29	4.12	1.226	110.22	0.0661	110.2	3.91	3.91	106.2	5,985.85	-1.25	7.5	98.8
18	106.2	5,985.9	1.0	67.0	204.6	1.008	17.1	12.6	1.26	13.83	3.22	0.29	4.12	1.262	115.13	0.0680	115.1	4.03	4.03	111.0	5,986.12	-1.18	7.9	103.2
19	111.0	5,986.1	1.0	67.0	204.6	1.008	17.0	12.6	1.26	13.83	3.22	0.29	4.12	1.296	119.95	0.0699	119.9	4.14	4.14	115.7	5,986.38	-1.11	8.3	107.5
20	115.7	5,986.4	1.1	66.9	204.6	1.008	17.0	12.6	1.26	13.83	3.21	0.29	4.11	1.330	124.69	0.0717	124.6	4.25	4.25	120.4	5,986.63	-1.04	8.6	111.7
21	120.4	5,986.6	1.1	66.9	204.5	1.009	17.0	12.6	1.26	13.84	3.21	0.29	4.11	1.364	129.35	0.0735	129.3	4.35	4.35	124.9	5,986.88	-0.97	9.0	115.9
22	124.9	5,986.9	1.1	66.9	204.5	1.009	17.0	12.6	1.26	13.84	3.20	0.29	4.11	1.396	133.92	0.0753	133.8	4.46	4.46	129.4	5,987.13	-0.90	9.4	120.0
23	129.4	5,987.1	1.1	66.9	204.5	1.009	17.0	12.6	1.26	13.84	3.20	0.29	4.11	1.428	138.42	0.0771	138.3	4.56	4.56	133.8	5,987.37	-0.83	9.7	124.0
24	133.8	5,987.4	1.2	66.8	204.5	1.009	17.0	12.6	1.26	13.84	3.19	0.29	4.11	1.460	142.83	0.0788	142.8	4.66	4.66	138.1	5,987.61	-0.76	10.1	128.0
25	138.1	5,987.6	1.2	66.8	204.4	1.010	17.0	12.6	1.26	13.85	3.19	0.29	4.11	1.491	147.17	0.0805	147.1	4.76	4.76	142.3	5,987.84	-0.70	10.4	131.9
26	142.3	5,987.8	1.2	66.8	204.4	1.010	17.0	12.6	1.26	13.85	3.18	0.29	4.10	1.522	151.43	0.0822	151.3	4.86	4.86	146.5	5,988.07	-0.64	10.8	135.7
27	146.5	5,988.1	1.2	66.8	204.4	1.010	17.0	12.6	1.26	13.85	3.18	0.29	4.10	1.552	155.62	0.0838	155.5	4.95	4.95	150.6	5,988.30	-0.57	11.1	139.5
28	150.6	5,988.3	1.3	66.7	204.4	1.011	17.0	12.6	1.26	13.85	3.18	0.29	4.10	1.581	159.73	0.0855	159.6	5.05	5.05	154.6	5,988.52	-0.51	11.5	143.1
29	154.6	5,988.5	1.3	66.7	204.3	1.011	17.0	12.6	1.26	13.86	3.17	0.29	4.10	1.610	163.77	0.0871	163.7	5.14	5.14	158.5	5,988.74	-0.45	11.8	146.8
30	158.5	5,988.7	1.3	66.7	204.3	1.011	17.0	12.6	1.26	13.86	3.17	0.29	4.10	1.638	167.74	0.0886	167.6	5.23	5.23	162.4	5,988.95	-0.39	12.1	150.3
31	162.4	5,988.9	1.3	66.7	204.3	1.011	17.0	12.6	1.26	13.86	3.16	0.29	4.10	1.666	171.64	0.0902	171.5	5.32	5.32	166.2	5,989.16	-0.33	12.4	153.8
32	166.2	5,989.2	1.4	66.6	204.3	1.012	17.0	12.6	1.26	13.86	3.16	0.29	4.10	1.694	175.47	0.0917	175.4	5.41	5.41	170.0	5,989.37	-0.27	12.7	157.3
33	170.0	5,989.4	1.4	66.6	204.2	1.012	17.0	12.6	1.26	13.87	3.16	0.29	4.09	1.721	179.23	0.0931	179.1	5.49	5.49	173.6	5,989.57	-0.22	13.0	160.6
34	173.6	5,989.6	1.4	66.6	204.2	1.012	17.0	12.6	1.26	13.87	3.15	0.29	4.09	1.747	182.93	0.0946	182.8	5.58	5.58	177.3	5,989.77	-0.16	13.3	163.9
35	177.3	5,989.8	1.4	66.6	204.2	1.013	17.0	12.6	1.26	13.87	3.15	0.29	4.09	1.773	186.56	0.0960	186.5	5.66	5.66	180.8	5,989.96	-0.11	13.6	167.2
36	180.8	5,990.0	1.4	66.6	204.2	1.013	17.0	12.6	1.26	13.87	3.14	0.29	4.09	1.799	190.13	0.0974	190.0	5.74	5.74	184.3	5,990.15	-0.05	13.9	170.4
37	184.3	5,990.2	1.5	66.5	204.2	1.013	17.0	12.6	1.26	13.87	3.14	0.29	4.09	1.824	193.63	0.0988	193.5	5.82	5.82	187.7	5,990.34	0.00	14.2	173.5
38	187.7	5,990.3	1.5	66.5	204.1	1.013	17.0	12.6	1.26	13.88	3.14	0.29	4.09	1.849	197.08	0.1002	197.0	5.90	5.90	191.1	5,990.53	0.05	14.5	176.6
39	191.1	5,990.5	1.5	66.5	204.1	1.013	17.0	12.6	1.26	13.88	3.13	0.29	4.09	1.873	200.46	0.1015	200.4	5.98	5.98	194.4	5,990.71	0.10	14.7	179.7
40	194.4	5,990.7	1.5	66.5	204.1	1.014	17.0	12.6	1.26	13.88	3.13	0.29	4.09	1.897	203.78	0.1028	203.7	6.05	6.05	197.6	5,990.89	0.15	15.0	182.6
41	197.6	5,990.9	1.5	66.5	204.1	1.014	17.0	12.6	1.26	13.88	3.13	0.29	4.08	1.920	207.05	0.1041	206.9	6.13	6.13	200.8	5,991.07	0.20	15.3	185.6
42	200.8	5,991.1	1.5	66.5	204.1	1.014	17.0	12.6	1.26	13.88	3.12	0.29	4.08	1.943	210.25	0.1054	210.1	6.20	6.20	203.9	5,991.24	0.25	15.5	188.4
43	203.9	5,991.2	1.6	66.4	204.1	1.014	17.0	12.6	1.26	13.89	3.12	0.29	4.08	1.966	213.41	0.1066	213.3	6.27	6.27	207.0	5,991.41	0.29	15.8	191.3
44	207.0	5,991.4	1.6	66.4	204.0	1.015	17.0	12.6	1.26	13.89	3.12	0.29	4.08	1.988	216.50	0.1079	216.4	6.34	6.34	210.1	5,991.57	0.34	16.0	194.0
45	210.1	5,991.6	1.6	66.4	204.0	1.015	17.0	12.6	1.26	13.89	3.11	0.29	4.08	2.010	219.54	0.1091	219.4	6.41	6.41	213.0	5,991.74	0.39	16.3	196.8
46	213.0	5,991.7	1.6	66.4	204.0	1.015	17.0	12.6	1.26	13.89	3.11	0.29	4.08	2.031	222.53	0.1103	222.4	6.48	6.48	215.9	5,991.90	0.43	16.5	199.4
47	215.9	5,991.9	1.6	66.4	204.0	1.015	17.0	12.6	1.26	13.89	3.11	0.29	4.08	2.052	225.47	0.1114	225.4	6.55	6.55	218.8	5,992.06	0.48	16.7	202.1
48	218.8	5,992.1	1.7	66.3	204.0	1.015	17.0	12.6	1.26	13.89	3.10	0.29	4.08	2.073	228.35	0.1126	228.2	6.61	6.61	221.6	5,992.21	0.52	17.0	204.7
49	221.6	5,992.2	1.7	66.3	204.0	1.016	17.0	12.6	1.26	13.90	3.10	0.29	4.08	2.093	231.18	0.1137	231.1	6.68	6.68	224.4	5,992.36	0.56	17.2	207.2
50	224.4	5,992.4	1.7	66.3	203.9	1.016	17.0	12.6	1.26	13.90	3.10	0.29	4.08	2.113	233.97	0.1148	233.9	6.74	6.74	227.1	5,992.51	0.60	17.4	209.7
51	227.1	5,992.5	1.7	66.3	203.9	1.016	17.0	12.6	1.26	13.90	3.10	0.29	4.07	2.132	236.70	0.1159	236.6	6.81	6.81	229.8	5,992.66	0.64	17.6	212.1
52	229.8	5,992.7	1.7	66.3	203.9	1.016	17.0	12.6	1.26	13.90	3.09	0.29	4.07	2.152	239.39	0.1169	239.3	6.87	6.87	232.4	5,992.81	0.68	17.8	214.6
53	232.4	5,992.8	1.7	66.3	203.9	1.016	17.0	12.6	1.26	13.90	3.09	0.29	4.07	2.171	242.02	0.1180	241.9	6.93	6.93	235.0	5,992.95	0.72	18.1	216.9
54	235.0	5,992.9	1.7	66.3	203.9	1.017	17.0	12.6	1.26	13.90	3.09	0.29	4.07	2.189	244.62	0.1190	244.5	6.99	6.99	237.5	5,993.09	0.76	18.3	219.2
55	237.5	5,993.1	1.8	66.2	203.9	1.017	17.0	12.6	1.26	13.90	3.08	0.29	4.07	2.207	247.16	0.1200	247.0	7.04	7.04	240.0	5,993.22	0.80	18.5	221.5
56	240.0	5,993.2	1.8	66.2	203.8	1.017	17.0	12.6	1.26	13.91	3.08	0.29	4.07	2.225	249.66	0.1210	249.5	7.10	7.10	242.4	5,993.36	0.84	18.7	223.8
57	242.4	5,993.4	1.8	66.2	203.8	1.017	17.0	12.6	1.26	13.91	3.08	0.29	4.07	2.243	252.12	0.1220	252.0	7.16	7.16	244.8	5,993.49	0.88	18.9	226.0
58	244.8	5,993.5	1.8	66.2	203.8	1.017	17.0	12.6	1.26	13.91	3.08	0.29	4.07	2.260	254.54	0.1230	254.4	7.21	7.21	247.2	5,993.62	0.91	19.1	228.1
59	247.2	5,993.6	1.8	66.2	203.8	1.017	17.0	12.6	1.26	13.91	3.07	0.29	4.07	2.277	256.91	0.1239	256.8	7.27	7.27	249.5	5,993.75	0.95	19.2	230.3
60	249.5	5,993.7	1.8	66.2	203.8	1.018	17.0	12.6	1.26	13.91	3.07	0.29	4.07	2.294	259.24	0.1248	259.1	7.32	7.32	251.8	5,993.87	0.98	19.4	232.4
61	251.8	5,993.9	1.8	66.2	203.8	1.018	17.0	12.6	1.26	13.91	3.07	0.29	4.07	2.310	261.53	0.1258	261.4	7.37	7.37	254.0	5,994.00	1.02	19.6	234.4
62	254.0	5,994.0	1.9	66.1	203.8	1.018	17.0	12.6	1.26	13.91	3.07	0.29	4.06	2.326	263.78	0.1267	263.7	7.42	7.42	256.2	5,994.12	1.05	19.8	236.4
63	256.2	5,994.1	1.9	66.1	203.8	1.018	17.0	12.7	1.27	13.92	3.06	0.29	4.06	2.342	265.99	0.1275	265.9	7.47	7.47	258.4	5,994.24	1.08	20.0	238.4
64	258.4	5,994.2	1.9	66.1	203.7	1.018	17.0	12.7	1.27	13.92	3.06	0.29	4.06	2.358	268.16	0.1284	268.0	7.52	7.52	260.5	5,994.35	1.12	20.2	240.4
65	260.5	5,994.4	1.9	66.1	203.7	1.018	17.0	12.7	1.27	13.92	3.06	0.29	4.06	2.373	270.29	0.1293	270.2	7.57	7.57	262.6	5,994.47	1.15	20.3	242.3
66	262.6	5,994.5	1.9	66.1	203.7	1.019	17.0	12.7	1.27	13.92	3.06	0.29	4.06	2.388	272.39	0.1301	272.3	7.62	7.62	264.6	5,994.58	1.18	20.5	244.1

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
67	264.6	5,994.6	1.9	66.1	203.7	1.019	17.0	12.7	1.27	13.92	3.06	0.29	4.06	2.403	274.44	0.1309	274.3	7.67	7.67	266.6	5,994.69	1.21	20.7	246.0
68	266.6	5,994.7	1.9	66.1	203.7	1.019	17.0	12.7	1.27	13.92	3.05	0.29	4.06	2.417	276.47	0.1317	276.3	7.71	7.71	268.6	5,994.80	1.24	20.8	247.8
69	268.6	5,994.8	1.9	66.1	203.7	1.019	17.0	12.7	1.27	13.92	3.05	0.29	4.06	2.431	278.45	0.1325	278.3	7.76	7.76	270.6	5,994.91	1.27	21.0	249.6
70	270.6	5,994.9	1.9	66.1	203.7	1.019	17.0	12.7	1.27	13.92	3.05	0.29	4.06	2.445	280.40	0.1333	280.3	7.80	7.80	272.5	5,995.01	1.30	21.1	251.3
71	272.5	5,995.0	2.0	66.0	203.7	1.019	17.0	12.7	1.27	13.92	3.05	0.29	4.06	2.459	282.32	0.1341	282.2	7.85	7.85	274.3	5,995.12	1.33	21.3	253.1
72	274.3	5,995.1	2.0	66.0	203.6	1.019	17.0	12.7	1.27	13.93	3.05	0.29	4.06	2.473	284.20	0.1348	284.1	7.89	7.89	276.2	5,995.22	1.36	21.4	254.7
73	276.2	5,995.2	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.04	0.29	4.06	2.486	286.05	0.1356	285.9	7.93	7.93	278.0	5,995.32	1.38	21.6	256.4
74	278.0	5,995.3	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.04	0.29	4.06	2.499	287.87	0.1363	287.7	7.98	7.98	279.8	5,995.42	1.41	21.7	258.0
75	279.8	5,995.4	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.04	0.29	4.06	2.512	289.66	0.1370	289.5	8.02	8.02	281.5	5,995.51	1.44	21.9	259.6
76	281.5	5,995.5	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.04	0.29	4.06	2.524	291.41	0.1377	291.3	8.06	8.06	283.2	5,995.61	1.47	22.0	261.2
77	283.2	5,995.6	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.04	0.29	4.05	2.537	293.13	0.1384	293.0	8.10	8.10	284.9	5,995.70	1.49	22.2	262.7
78	284.9	5,995.7	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.03	0.29	4.05	2.549	294.83	0.1391	294.7	8.13	8.13	286.6	5,995.79	1.52	22.3	264.3
79	286.6	5,995.8	2.0	66.0	203.6	1.020	17.0	12.7	1.27	13.93	3.03	0.29	4.05	2.561	296.49	0.1397	296.4	8.17	8.17	288.2	5,995.88	1.54	22.4	265.8
80	288.2	5,995.9	2.1	65.9	203.6	1.020	17.0	12.7	1.27	13.93	3.03	0.29	4.05	2.572	298.12	0.1404	298.0	8.21	8.21	289.8	5,995.97	1.57	22.6	267.2
81	289.8	5,996.0	2.1	65.9	203.6	1.020	17.0	12.7	1.27	13.93	3.03	0.29	4.05	2.584	299.73	0.1410	299.6	8.25	8.25	291.3	5,996.05	1.59	22.7	268.7
82	291.3	5,996.1	2.1	65.9	203.6	1.021	17.0	12.7	1.27	13.94	3.03	0.29	4.05	2.595	301.31	0.1417	301.2	8.28	8.28	292.9	5,996.14	1.61	22.8	270.1
83	292.9	5,996.1	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.03	0.29	4.05	2.606	302.86	0.1423	302.7	8.32	8.32	294.4	5,996.22	1.64	22.9	271.5
84	294.4	5,996.2	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.617	304.38	0.1429	304.2	8.35	8.35	295.9	5,996.30	1.66	23.1	272.8
85	295.9	5,996.3	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.628	305.87	0.1435	305.7	8.39	8.39	297.3	5,996.38	1.68	23.2	274.2
86	297.3	5,996.4	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.638	307.34	0.1441	307.2	8.42	8.42	298.8	5,996.46	1.70	23.3	275.5
87	298.8	5,996.5	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.649	308.79	0.1447	308.6	8.45	8.45	300.2	5,996.54	1.73	23.4	276.8
88	300.2	5,996.5	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.659	310.20	0.1452	310.1	8.49	8.49	301.6	5,996.62	1.75	23.5	278.0
89	301.6	5,996.6	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.669	311.60	0.1458	311.5	8.52	8.52	302.9	5,996.69	1.77	23.6	279.3
90	302.9	5,996.7	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.02	0.29	4.05	2.679	312.96	0.1463	312.8	8.55	8.55	304.3	5,996.77	1.79	23.7	280.5
91	304.3	5,996.8	2.1	65.9	203.5	1.021	17.0	12.7	1.27	13.94	3.01	0.29	4.05	2.688	314.31	0.1469	314.2	8.58	8.58	305.6	5,996.84	1.81	23.9	281.7
92	305.6	5,996.8	2.2	65.8	203.5	1.022	17.0	12.7	1.27	13.94	3.01	0.29	4.05	2.698	315.63	0.1474	315.5	8.61	8.61	306.9	5,996.91	1.83	24.0	282.9
93	306.9	5,996.9	2.2	65.8	203.5	1.022	17.0	12.7	1.27	13.94	3.01	0.29	4.05	2.707	316.93	0.1479	316.8	8.64	8.64	308.1	5,996.98	1.85	24.1	284.1
94	308.1	5,997.0	2.2	65.8	203.5	1.022	17.0	12.7	1.27	13.94	3.01	0.29	4.05	2.716	318.20	0.1484	318.1	8.67	8.67	309.4	5,997.05	1.87	24.2	285.2
95	309.4	5,997.0	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.01	0.29	4.05	2.725	319.45	0.1489	319.3	8.70	8.70	310.6	5,997.12	1.89	24.3	286.3
96	310.6	5,997.1	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.01	0.29	4.04	2.734	320.68	0.1494	320.5	8.73	8.73	311.8	5,997.18	1.90	24.4	287.4
97	311.8	5,997.2	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.01	0.29	4.04	2.743	321.89	0.1499	321.7	8.75	8.75	313.0	5,997.25	1.92	24.5	288.5
98	313.0	5,997.2	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.00	0.29	4.04	2.751	323.08	0.1504	322.9	8.78	8.78	314.1	5,997.31	1.94	24.6	289.6
99	314.1	5,997.3	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.00	0.29	4.04	2.759	324.25	0.1509	324.1	8.81	8.81	315.3	5,997.37	1.96	24.7	290.6
100	315.3	5,997.4	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.00	0.29	4.04	2.768	325.39	0.1513	325.2	8.83	8.83	316.4	5,997.43	1.98	24.7	291.7
101	316.4	5,997.4	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.00	0.29	4.04	2.776	326.52	0.1518	326.4	8.86	8.86	317.5	5,997.50	1.99	24.8	292.7
102	317.5	5,997.5	2.2	65.8	203.4	1.022	17.0	12.7	1.27	13.95	3.00	0.29	4.04	2.784	327.62	0.1522	327.5	8.88	8.88	318.6	5,997.55	2.01	24.9	293.7
103	318.6	5,997.6	2.2	65.8	203.4	1.023	16.9	12.7	1.27	13.95	3.00	0.29	4.04	2.791	328.71	0.1527	328.6	8.91	8.91	319.6	5,997.61	2.02	25.0	294.6
104	319.6	5,997.6	2.2	65.8	203.4	1.023	16.9	12.7	1.27	13.95	3.00	0.29	4.04	2.799	329.78	0.1531	329.6	8.93	8.93	320.7	5,997.67	2.04	25.1	295.6
105	320.7	5,997.7	2.2	65.8	203.4	1.023	16.9	12.7	1.27	13.95	3.00	0.29	4.04	2.807	330.82	0.1535	330.7	8.96	8.96	321.7	5,997.73	2.06	25.2	296.5
106	321.7	5,997.7	2.2	65.8	203.4	1.023	16.9	12.7	1.27	13.95	3.00	0.29	4.04	2.814	331.85	0.1539	331.7	8.98	8.98	322.7	5,997.78	2.07	25.3	297.5
107	322.7	5,997.8	2.2	65.8	203.4	1.023	16.9	12.7	1.27	13.95	2.99	0.29	4.04	2.821	332.87	0.1543	332.7	9.00	9.00	323.7	5,997.84	2.09	25.3	298.4
108	323.7	5,997.8	2.3	65.7	203.4	1.023	16.9	12.7	1.27	13.95	2.99	0.29	4.04	2.828	333.86	0.1547	333.7	9.03	9.03	324.7	5,997.89	2.10	25.4	299.3
109	324.7	5,997.9	2.3	65.7	203.4	1.023	16.9	12.7	1.27	13.95	2.99	0.29	4.04	2.835	334.84	0.1551	334.7	9.05	9.05	325.6	5,997.94	2.12	25.5	300.1
110	325.6	5,997.9	2.3	65.7	203.4	1.023	16.9	12.7	1.27	13.95	2.99	0.29	4.04	2.842	335.80	0.1555	335.6	9.07	9.07	326.6	5,997.99	2.13	25.6	301.0
111	326.6	5,998.0	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.99	0.29	4.04	2.849	336.74	0.1559	336.6	9.09	9.09	327.5	5,998.05	2.15	25.7	301.8
112	327.5	5,998.0	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.99	0.29	4.04	2.856	337.66	0.1563	337.5	9.11	9.11	328.4	5,998.10	2.16	25.7	302.7
113	328.4	5,998.1	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.99	0.29	4.04	2.862	338.57	0.1566	338.4	9.13	9.13	329.3	5,998.14	2.17	25.8	303.5
114	329.3	5,998.1	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.99	0.29	4.04	2.868	339.47	0.1570	339.3	9.15	9.15	330.2	5,998.19	2.19	25.9	304.3
115	330.2	5,998.2	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.99	0.29	4.04	2.875	340.35	0.1573	340.2	9.17	9.17	331.0	5,998.24	2.20	25.9	305.1
116	331.0	5,998.2	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.99	0.29	4.04	2.881	341.21	0.1577	341.1	9.19	9.19	331.9	5,998.29	2.21	26.0	305.8
117	331.9	5,998.3	2.3	65.7	203.3	1.023	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.887	342.06	0.1580	341.9	9.21	9.21	332.7	5,998.33	2.23	26.1	306.6
118	332.7	5,998.3	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.893	342.89	0.1584	342.7	9.23	9.23	333.5	5,998.38	2.24	26.1	307.4
119	333.5	5,998.4	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.899	343.71	0.1587	343.5	9.25	9.25	334.3	5,998.42	2.25	26.2	308.1
120	334.3	5,998.4	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.905	344.51	0.1590	344.4	9.27	9.27	335.1	5,998.46	2.26	26.3	308.8
121	335.1	5,998.5	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.910	345.30	0.1593	345.1	9.29	9.29	335.9	5,998.51	2.27	26.3	309.5
122	335.9	5,998.5	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.916	346.07	0.1597	345.9	9.31	9.31	336.6	5,998.55	2.29	26.4	310.2
123	336.6	5,998.5	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.921	346.84	0.1600	346.7	9.32	9.32	337.4	5,998.59	2.30	26.5	310.9
124	337.4	5,998.6	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.927	347.58	0.1603	347.4	9.34	9.34	338.1	5,998.63	2.31	26.5	311.6
125	338.1	5,998.6	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.04	2.932	348.32	0.1606	348.2	9.36	9.36	338.8	5,998.67	2.32	26.6	312.2
126	338.8	5,998.7	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.03	2.937	349.04	0.1608	348.9	9.37	9.37	339.5	5,998.71	2.33	26.6	312.9
127	339.5	5,998.7	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.03	2.942	349.75	0.1611	349.6	9.39	9.39	340.2	5,998.75	2.34	26.7	313.5
128	340.2	5,998.7	2.3	65.7	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.03	2.947	350.45	0.1614	350.3	9.41	9.41	340.9	5,998.78	2.35	26.8	314.1
129	340.9	5,998.8	2.4	65.6	203.3	1.024	16.9	12.7	1.27	13.96	2.98	0.29	4.03	2.952	351.13	0.1617	351.0	9.42	9.42	341.5	5,998.82	2.36	26.8	314.7
130	341.5	5,998.8	2.4	65.6	203.3	1.024	16.9	12.7	1.27	13.96	2.97	0.29	4.03	2.957	351.81	0.1620	351.6	9.44	9.44	342.2	5,998.86	2.37	26.9	315.3
131	342.2	5,998.9	2.4	65.6	203.3	1.024	16.9	12.7	1.27	13.96	2.97	0.29	4.03	2.962	352.47	0.1622	352.3	9.45	9.45	342.9	5,998.89	2.38	26.9	315.9
132	342.9	5,998.9	2.4	65.6	203.3	1.024	16.9	12.7	1.27	13.96	2.97	0.29	4.03	2.966	353.12	0.1625	353.0	9.47	9.47	343.5	5,998.93	2.39	27.0	316.5
133	343.5	5,998.9	2.4	65.6	203.3	1.024	16.9	12.7	1.27	13.96	2.97	0.29	4.03	2.971	353.75	0.1627	353.6	9.48	9.48	344.1	5,998.96	2.40	27.0	317.1

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
134	344.1	5,999.0	2.4	65.6	203.2	1.024	16.9	12.7	1.27	13.97	2.97	0.29	4.03	2.975	354.38	0.1630	354.2	9.50	9.50	344.7	5,998.99	2.41	27.1	317.7
135	344.7	5,999.0	2.4	65.6	203.2	1.024	16.9	12.7	1.27	13.97	2.97	0.29	4.03	2.980	355.00	0.1632	354.8	9.51	9.51	345.3	5,999.03	2.42	27.1	318.2
136	345.3	5,999.0	2.4	65.6	203.2	1.024	16.9	12.7	1.27	13.97	2.97	0.29	4.03	2.984	355.60	0.1635	355.4	9.52	9.52	345.9	5,999.06	2.43	27.2	318.7
137	345.9	5,999.1	2.4	65.6	203.2	1.024	16.9	12.7	1.27	13.97	2.97	0.29	4.03	2.988	356.19	0.1637	356.0	9.54	9.54	346.5	5,999.09	2.44	27.2	319.3
138	346.5	5,999.1	2.4	65.6	203.2	1.024	16.9	12.7	1.27	13.97	2.97	0.29	4.03	2.992	356.78	0.1640	356.6	9.55	9.55	347.1	5,999.12	2.45	27.3	319.8
139	347.1	5,999.1	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	2.997	357.35	0.1642	357.2	9.56	9.56	347.6	5,999.15	2.45	27.3	320.3
140	347.6	5,999.2	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.001	357.91	0.1644	357.8	9.58	9.58	348.2	5,999.19	2.46	27.4	320.8
141	348.2	5,999.2	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.005	358.47	0.1647	358.3	9.59	9.59	348.7	5,999.21	2.47	27.4	321.3
142	348.7	5,999.2	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.008	359.01	0.1649	358.8	9.60	9.60	349.2	5,999.24	2.48	27.4	321.8
143	349.2	5,999.2	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.012	359.55	0.1651	359.4	9.61	9.61	349.8	5,999.27	2.49	27.5	322.3
144	349.8	5,999.3	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.016	360.07	0.1653	359.9	9.63	9.63	350.3	5,999.30	2.50	27.5	322.8
145	350.3	5,999.3	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.020	360.59	0.1655	360.4	9.64	9.64	350.8	5,999.33	2.50	27.6	323.2
146	350.8	5,999.3	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.97	0.29	4.03	3.023	361.09	0.1657	360.9	9.65	9.65	351.3	5,999.36	2.51	27.6	323.7
147	351.3	5,999.4	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.027	361.59	0.1659	361.4	9.66	9.66	351.8	5,999.38	2.52	27.6	324.1
148	351.8	5,999.4	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.030	362.08	0.1661	361.9	9.67	9.67	352.2	5,999.41	2.53	27.7	324.6
149	352.2	5,999.4	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.034	362.56	0.1663	362.4	9.68	9.68	352.7	5,999.44	2.53	27.7	325.0
150	352.7	5,999.4	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.037	363.03	0.1665	362.9	9.69	9.69	353.2	5,999.46	2.54	27.8	325.4
151	353.2	5,999.5	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.041	363.49	0.1667	363.3	9.70	9.70	353.6	5,999.49	2.55	27.8	325.8
152	353.6	5,999.5	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.044	363.95	0.1669	363.8	9.71	9.71	354.1	5,999.51	2.55	27.8	326.2
153	354.1	5,999.5	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.047	364.40	0.1670	364.2	9.72	9.72	354.5	5,999.53	2.56	27.9	326.6
154	354.5	5,999.5	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.050	364.84	0.1672	364.7	9.73	9.73	354.9	5,999.56	2.57	27.9	327.0
155	354.9	5,999.6	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.053	365.27	0.1674	365.1	9.74	9.74	355.4	5,999.58	2.57	27.9	327.4
156	355.4	5,999.6	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.056	365.69	0.1676	365.5	9.75	9.75	355.8	5,999.60	2.58	28.0	327.8
157	355.8	5,999.6	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.059	366.11	0.1677	365.9	9.76	9.76	356.2	5,999.63	2.59	28.0	328.2
158	356.2	5,999.6	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.062	366.52	0.1679	366.3	9.77	9.77	356.6	5,999.65	2.59	28.0	328.5
159	356.6	5,999.6	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.065	366.92	0.1681	366.8	9.78	9.78	357.0	5,999.67	2.60	28.1	328.9
160	357.0	5,999.7	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.068	367.31	0.1682	367.1	9.79	9.79	357.4	5,999.69	2.60	28.1	329.3
161	357.4	5,999.7	2.4	65.6	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.071	367.70	0.1684	367.5	9.80	9.80	357.7	5,999.71	2.61	28.1	329.6
162	357.7	5,999.7	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.073	368.08	0.1685	367.9	9.81	9.81	358.1	5,999.73	2.62	28.2	329.9
163	358.1	5,999.7	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.076	368.46	0.1687	368.3	9.82	9.82	358.5	5,999.75	2.62	28.2	330.3
164	358.5	5,999.8	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.079	368.83	0.1688	368.7	9.83	9.83	358.8	5,999.77	2.63	28.2	330.6
165	358.8	5,999.8	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.081	369.19	0.1690	369.0	9.83	9.83	359.2	5,999.79	2.63	28.3	330.9
166	359.2	5,999.8	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.084	369.54	0.1691	369.4	9.84	9.84	359.5	5,999.81	2.64	28.3	331.2
167	359.5	5,999.8	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.086	369.89	0.1693	369.7	9.85	9.85	359.9	5,999.83	2.64	28.3	331.6
168	359.9	5,999.8	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.089	370.23	0.1694	370.1	9.86	9.86	360.2	5,999.85	2.65	28.3	331.9
169	360.2	5,999.8	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.96	0.29	4.03	3.091	370.57	0.1695	370.4	9.87	9.87	360.5	5,999.87	2.65	28.4	332.2
170	360.5	5,999.9	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.95	0.29	4.03	3.094	370.90	0.1697	370.7	9.87	9.87	360.9	5,999.88	2.66	28.4	332.5
171	360.9	5,999.9	2.5	65.5	203.2	1.025	16.9	12.7	1.27	13.97	2.95	0.29	4.03	3.096	371.23	0.1698	371.1	9.88	9.88	361.2	5,999.90	2.66	28.4	332.8
172	361.2	5,999.9	2.5	65.5	203.2	1.026	16.9	12.7	1.27	13.97	2.95	0.29	4.03	3.098	371.55	0.1699	371.4	9.89	9.89	361.5	5,999.92	2.67	28.4	333.0
173	361.5	5,999.9	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.100	371.86	0.1701	371.7	9.89	9.89	361.8	5,999.94	2.67	28.5	333.3
174	361.8	5,999.9	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.103	372.17	0.1702	372.0	9.90	9.90	362.1	5,999.95	2.68	28.5	333.6
175	362.1	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.105	372.47	0.1703	372.3	9.91	9.91	362.4	5,999.97	2.68	28.5	333.9
176	362.4	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.107	372.77	0.1704	372.6	9.92	9.92	362.7	5,999.98	2.69	28.5	334.1
177	362.7	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.109	373.06	0.1705	372.9	9.92	9.92	363.0	6,000.00	2.69	28.6	334.4
178	363.0	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.111	373.35	0.1707	373.2	9.93	9.93	363.2	6,000.02	2.73	28.6	334.6
179	363.2	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.112	373.63	0.1707	373.5	9.93	9.93	363.5	6,000.03	2.74	28.7	334.8
180	363.5	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.114	373.91	0.1708	373.7	9.94	9.94	363.8	6,000.05	2.74	28.7	335.1
181	363.8	6,000.0	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.115	374.18	0.1709	374.0	9.94	9.94	364.1	6,000.06	2.74	28.8	335.3
182	364.1	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.117	374.45	0.1710	374.3	9.95	9.95	364.3	6,000.08	2.74	28.9	335.5
183	364.3	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.118	374.72	0.1711	374.5	9.95	9.95	364.6	6,000.09	2.74	28.9	335.7
184	364.6	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.119	374.98	0.1711	374.8	9.95	9.95	364.9	6,000.10	2.75	29.0	335.9
185	364.9	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.120	375.24	0.1712	375.1	9.96	9.96	365.1	6,000.12	2.75	29.0	336.1
186	365.1	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.122	375.50	0.1713	375.3	9.96	9.96	365.4	6,000.13	2.75	29.1	336.3
187	365.4	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.123	375.76	0.1713	375.6	9.97	9.97	365.6	6,000.15	2.75	29.1	336.5
188	365.6	6,000.1	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.124	376.01	0.1714	375.8	9.97	9.97	365.9	6,000.16	2.76	29.2	336.7
189	365.9	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.126	376.26	0.1715	376.1	9.97	9.97	366.1	6,000.17	2.76	29.2	336.9
190	366.1	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.127	376.50	0.1716	376.3	9.98	9.98	366.4	6,000.19	2.76	29.3	337.1
191	366.4	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.128	376.74	0.1716	376.6	9.98	9.98	366.6	6,000.20	2.76	29.3	337.2
192	366.6	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.129	376.98	0.1717	376.8	9.99	9.99	366.8	6,000.21	2.76	29.4	337.4
193	366.8	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.130	377.22	0.1718	377.0	9.99	9.99	367.1	6,000.23	2.77	29.4	337.6
194	367.1	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.131	377.45	0.1718	377.3	9.99	9.99	367.3	6,000.24	2.77	29.5	337.8
195	367.3	6,000.2	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.133	377.68	0.1719	377.5	10.00	10.00	367.5	6,000.25	2.77	29.5	338.0
196	367.5	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.134	377.91	0.1720	377.7	10.00	10.00	367.7	6,000.26	2.77	29.6	338.1
197	367.7	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.135	378.13	0.1720	378.0	10.00	10.00	368.0	6,000.28	2.77	29.6	338.3
198	368.0	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.136	378.35	0.1721	378.2	10.01	10.01	368.2	6,000.29	2.78	29.7	338.5
199	368.2	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.137	378.57	0.1721	378.4	10.01	10.01	368.4	6,000.30	2.78	29.7	338.7
200	368.4	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.138	378.79	0.1722	378.6	10.01	10.01	368.6	6,000.31	2.78	29.8	338.8

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
201	368.6	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.139	379.00	0.1723	378.8	10.02	10.02	368.8	6,000.32	2.78	29.8	339.0
202	368.8	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.03	3.140	379.21	0.1723	379.0	10.02	10.02	369.0	6,000.33	2.78	29.9	339.1
203	369.0	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.141	379.42	0.1724	379.3	10.02	10.02	369.2	6,000.35	2.79	29.9	339.3
204	369.2	6,000.3	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.142	379.63	0.1724	379.5	10.03	10.03	369.4	6,000.36	2.79	30.0	339.5
205	369.4	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.143	379.83	0.1725	379.7	10.03	10.03	369.6	6,000.37	2.79	30.0	339.6
206	369.6	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.144	380.03	0.1726	379.9	10.03	10.03	369.8	6,000.38	2.79	30.0	339.8
207	369.8	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.145	380.23	0.1726	380.1	10.04	10.04	370.0	6,000.39	2.79	30.1	339.9
208	370.0	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.146	380.43	0.1727	380.3	10.04	10.04	370.2	6,000.40	2.79	30.1	340.1
209	370.2	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.95	0.29	4.02	3.147	380.62	0.1727	380.4	10.04	10.04	370.4	6,000.41	2.80	30.2	340.2
210	370.4	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.148	380.81	0.1728	380.6	10.05	10.05	370.6	6,000.42	2.80	30.2	340.4
211	370.6	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.149	381.00	0.1728	380.8	10.05	10.05	370.8	6,000.43	2.80	30.3	340.5
212	370.8	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.150	381.18	0.1729	381.0	10.05	10.05	371.0	6,000.44	2.80	30.3	340.7
213	371.0	6,000.4	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.151	381.37	0.1729	381.2	10.06	10.06	371.1	6,000.45	2.80	30.3	340.8
214	371.1	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.152	381.55	0.1730	381.4	10.06	10.06	371.3	6,000.46	2.80	30.4	340.9
215	371.3	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.153	381.73	0.1730	381.6	10.06	10.06	371.5	6,000.47	2.81	30.4	341.1
216	371.5	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.154	381.91	0.1731	381.7	10.06	10.06	371.7	6,000.48	2.81	30.4	341.2
217	371.7	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.154	382.08	0.1731	381.9	10.07	10.07	371.8	6,000.49	2.81	30.5	341.4
218	371.8	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.155	382.25	0.1732	382.1	10.07	10.07	372.0	6,000.50	2.81	30.5	341.5
219	372.0	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.156	382.42	0.1732	382.3	10.07	10.07	372.2	6,000.51	2.81	30.6	341.6
220	372.2	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.157	382.59	0.1733	382.4	10.08	10.08	372.3	6,000.52	2.81	30.6	341.8
221	372.3	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.158	382.76	0.1733	382.6	10.08	10.08	372.5	6,000.53	2.81	30.6	341.9
222	372.5	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.159	382.92	0.1734	382.7	10.08	10.08	372.7	6,000.53	2.82	30.7	342.0
223	372.7	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.159	383.09	0.1734	382.9	10.08	10.08	372.8	6,000.54	2.82	30.7	342.1
224	372.8	6,000.5	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.160	383.25	0.1735	383.1	10.09	10.09	373.0	6,000.55	2.82	30.7	342.3
225	373.0	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.161	383.40	0.1735	383.2	10.09	10.09	373.1	6,000.56	2.82	30.8	342.4
226	373.1	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.162	383.56	0.1736	383.4	10.09	10.09	373.3	6,000.57	2.82	30.8	342.5
227	373.3	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.162	383.71	0.1736	383.5	10.09	10.09	373.4	6,000.58	2.82	30.8	342.6
228	373.4	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.163	383.87	0.1736	383.7	10.10	10.10	373.6	6,000.59	2.82	30.9	342.7
229	373.6	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.164	384.02	0.1737	383.8	10.10	10.10	373.7	6,000.59	2.83	30.9	342.9
230	373.7	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.165	384.16	0.1737	384.0	10.10	10.10	373.9	6,000.60	2.83	30.9	343.0
231	373.9	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.165	384.31	0.1738	384.1	10.10	10.10	374.0	6,000.61	2.83	31.0	343.1
232	374.0	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.166	384.46	0.1738	384.3	10.10	10.10	374.2	6,000.62	2.83	31.0	343.2
233	374.2	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.167	384.60	0.1739	384.4	10.11	10.11	374.3	6,000.63	2.83	31.0	343.3
234	374.3	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.168	384.74	0.1739	384.6	10.11	10.11	374.5	6,000.63	2.83	31.0	343.4
235	374.5	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.168	384.88	0.1739	384.7	10.11	10.11	374.6	6,000.64	2.83	31.1	343.5
236	374.6	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.169	385.02	0.1740	384.8	10.11	10.11	374.7	6,000.65	2.83	31.1	343.6
237	374.7	6,000.6	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.170	385.15	0.1740	385.0	10.12	10.12	374.9	6,000.66	2.84	31.1	343.7
238	374.9	6,000.7	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.170	385.29	0.1741	385.1	10.12	10.12	375.0	6,000.66	2.84	31.2	343.8
239	375.0	6,000.7	2.5	65.5	203.1	1.026	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.171	385.42	0.1741	385.2	10.12	10.12	375.1	6,000.67	2.84	31.2	343.9
240	375.1	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.172	385.55	0.1741	385.4	10.12	10.12	375.3	6,000.68	2.84	31.2	344.0
241	375.3	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.172	385.68	0.1742	385.5	10.12	10.12	375.4	6,000.68	2.84	31.2	344.1
242	375.4	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.173	385.81	0.1742	385.6	10.13	10.13	375.5	6,000.69	2.84	31.3	344.2
243	375.5	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.173	385.94	0.1742	385.8	10.13	10.13	375.6	6,000.70	2.84	31.3	344.3
244	375.6	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.174	386.06	0.1743	385.9	10.13	10.13	375.8	6,000.70	2.84	31.3	344.4
245	375.8	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.175	386.18	0.1743	386.0	10.13	10.13	375.9	6,000.71	2.84	31.4	344.5
246	375.9	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.175	386.30	0.1743	386.1	10.13	10.13	376.0	6,000.72	2.85	31.4	344.6
247	376.0	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.98	2.94	0.29	4.02	3.176	386.42	0.1744	386.3	10.14	10.14	376.1	6,000.72	2.85	31.4	344.7
248	376.1	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.176	386.54	0.1744	386.4	10.14	10.14	376.2	6,000.73	2.85	31.4	344.8
249	376.2	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.177	386.66	0.1744	386.5	10.14	10.14	376.3	6,000.74	2.85	31.5	344.9
250	376.3	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.178	386.78	0.1745	386.6	10.14	10.14	376.5	6,000.74	2.85	31.5	345.0
251	376.5	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.178	386.89	0.1745	386.7	10.14	10.14	376.6	6,000.75	2.85	31.5	345.1
252	376.6	6,000.7	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.179	387.00	0.1745	386.8	10.14	10.14	376.7	6,000.76	2.85	31.5	345.2
253	376.7	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.179	387.11	0.1746	386.9	10.15	10.15	376.8	6,000.76	2.85	31.6	345.2
254	376.8	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.180	387.22	0.1746	387.0	10.15	10.15	376.9	6,000.77	2.85	31.6	345.3
255	376.9	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.180	387.33	0.1746	387.2	10.15	10.15	377.0	6,000.77	2.85	31.6	345.4
256	377.0	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.181	387.44	0.1747	387.3	10.15	10.15	377.1	6,000.78	2.86	31.6	345.5
257	377.1	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.181	387.55	0.1747	387.4	10.15	10.15	377.2	6,000.79	2.86	31.6	345.6
258	377.2	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.182	387.65	0.1747	387.5	10.16	10.16	377.3	6,000.79	2.86	31.7	345.7
259	377.3	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.182	387.75	0.1748	387.6	10.16	10.16	377.4	6,000.80	2.86	31.7	345.7
260	377.4	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.183	387.86	0.1748	387.7	10.16	10.16	377.5	6,000.80	2.86	31.7	345.8
261	377.5	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.183	387.96	0.1748	387.8	10.16	10.16	377.6	6,000.81	2.86	31.7	345.9
262	377.6	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.184	388.06	0.1748	387.9	10.16	10.16	377.7	6,000.81	2.86	31.8	346.0
263	377.7	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.184	388.15	0.1749	388.0	10.16	10.16	377.8	6,000.82	2.86	31.8	346.0
264	377.8	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.185	388.25	0.1749	388.1	10.16	10.16	377.9	6,000.82	2.86	31.8	346.1
265	377.9	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.185	388.35	0.1749	388.2	10.17	10.17	378.0	6,000.83	2.86	31.8	346.2
266	378.0	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.186	388.44	0.1749	388.3	10.17	10.17	378.1	6,000.83	2.86	31.8	346.3
267	378.1	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.186	388.54	0.1750	388.4	10.17	10.17	378.2	6,000.84	2.86	31.9	346.3

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
268	378.2	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.187	388.63	0.1750	388.5	10.17	10.17	378.3	6,000.84	2.87	31.9	346.4
269	378.3	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.187	388.72	0.1750	388.5	10.17	10.17	378.4	6,000.85	2.87	31.9	346.5
270	378.4	6,000.8	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.188	388.81	0.1751	388.6	10.17	10.17	378.5	6,000.85	2.87	31.9	346.5
271	378.5	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.188	388.90	0.1751	388.7	10.17	10.17	378.5	6,000.86	2.87	31.9	346.6
272	378.5	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.189	388.99	0.1751	388.8	10.18	10.18	378.6	6,000.86	2.87	32.0	346.7
273	378.6	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.189	389.07	0.1751	388.9	10.18	10.18	378.7	6,000.87	2.87	32.0	346.8
274	378.7	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.189	389.16	0.1752	389.0	10.18	10.18	378.8	6,000.87	2.87	32.0	346.8
275	378.8	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.190	389.24	0.1752	389.1	10.18	10.18	378.9	6,000.88	2.87	32.0	346.9
276	378.9	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.190	389.33	0.1752	389.2	10.18	10.18	379.0	6,000.88	2.87	32.0	346.9
277	379.0	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.191	389.41	0.1752	389.2	10.18	10.18	379.0	6,000.89	2.87	32.0	347.0
278	379.0	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.191	389.49	0.1752	389.3	10.18	10.18	379.1	6,000.89	2.87	32.1	347.1
279	379.1	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.191	389.57	0.1753	389.4	10.19	10.19	379.2	6,000.90	2.87	32.1	347.1
280	379.2	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.192	389.65	0.1753	389.5	10.19	10.19	379.3	6,000.90	2.87	32.1	347.2
281	379.3	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.192	389.73	0.1753	389.6	10.19	10.19	379.4	6,000.90	2.88	32.1	347.3
282	379.4	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.193	389.80	0.1753	389.6	10.19	10.19	379.4	6,000.91	2.88	32.1	347.3
283	379.4	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.193	389.88	0.1754	389.7	10.19	10.19	379.5	6,000.91	2.88	32.1	347.4
284	379.5	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.193	389.96	0.1754	389.8	10.19	10.19	379.6	6,000.92	2.88	32.2	347.4
285	379.6	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.194	390.03	0.1754	389.9	10.19	10.19	379.7	6,000.92	2.88	32.2	347.5
286	379.7	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.194	390.11	0.1754	389.9	10.19	10.19	379.7	6,000.92	2.88	32.2	347.5
287	379.7	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.194	390.18	0.1754	390.0	10.20	10.20	379.8	6,000.93	2.88	32.2	347.6
288	379.8	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.195	390.25	0.1755	390.1	10.20	10.20	379.9	6,000.93	2.88	32.2	347.7
289	379.9	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.195	390.32	0.1755	390.1	10.20	10.20	379.9	6,000.94	2.88	32.2	347.7
290	379.9	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.196	390.39	0.1755	390.2	10.20	10.20	380.0	6,000.94	2.88	32.2	347.8
291	380.0	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.94	0.29	4.02	3.196	390.46	0.1755	390.3	10.20	10.20	380.1	6,000.94	2.88	32.3	347.8
292	380.1	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.196	390.53	0.1755	390.4	10.20	10.20	380.2	6,000.95	2.88	32.3	347.9
293	380.2	6,000.9	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.197	390.60	0.1756	390.4	10.20	10.20	380.2	6,000.95	2.88	32.3	347.9
294	380.2	6,001.0	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.197	390.66	0.1756	390.5	10.20	10.20	380.3	6,000.95	2.88	32.3	348.0
295	380.3	6,001.0	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.197	390.73	0.1756	390.6	10.20	10.20	380.3	6,000.96	2.88	32.3	348.0
296	380.3	6,001.0	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.198	390.79	0.1756	390.6	10.20	10.20	380.4	6,000.96	2.88	32.3	348.1
297	380.4	6,001.0	2.5	65.5	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.198	390.86	0.1756	390.7	10.21	10.21	380.5	6,000.96	2.89	32.3	348.1
298	380.5	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.198	390.92	0.1757	390.7	10.21	10.21	380.5	6,000.97	2.89	32.4	348.2
299	380.5	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.198	390.98	0.1757	390.8	10.21	10.21	380.6	6,000.97	2.89	32.4	348.2
300	380.6	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.199	391.04	0.1757	390.9	10.21	10.21	380.7	6,000.98	2.89	32.4	348.3
301	380.7	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.199	391.11	0.1757	390.9	10.21	10.21	380.7	6,000.98	2.89	32.4	348.3
302	380.7	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.199	391.17	0.1757	391.0	10.21	10.21	380.8	6,000.98	2.89	32.4	348.4
303	380.8	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.200	391.23	0.1757	391.1	10.21	10.21	380.8	6,000.98	2.89	32.4	348.4
304	380.8	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.200	391.28	0.1758	391.1	10.21	10.21	380.9	6,000.99	2.89	32.4	348.5
305	380.9	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.200	391.34	0.1758	391.2	10.21	10.21	381.0	6,000.99	2.89	32.5	348.5
306	381.0	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.201	391.40	0.1758	391.2	10.21	10.21	381.0	6,000.99	2.89	32.5	348.5
307	381.0	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.201	391.46	0.1758	391.3	10.22	10.22	381.1	6,001.00	2.89	32.5	348.6
308	381.1	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.201	391.51	0.1758	391.3	10.22	10.22	381.1	6,001.00	2.89	32.5	348.6
309	381.1	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.201	391.57	0.1758	391.4	10.22	10.22	381.2	6,001.00	2.89	32.5	348.7
310	381.2	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.202	391.62	0.1759	391.4	10.22	10.22	381.2	6,001.01	2.89	32.5	348.7
311	381.2	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.202	391.68	0.1759	391.5	10.22	10.22	381.3	6,001.01	2.89	32.5	348.8
312	381.3	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.202	391.73	0.1759	391.6	10.22	10.22	381.3	6,001.01	2.89	32.5	348.8
313	381.3	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.202	391.78	0.1759	391.6	10.22	10.22	381.4	6,001.02	2.89	32.5	348.8
314	381.4	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.203	391.83	0.1759	391.7	10.22	10.22	381.4	6,001.02	2.89	32.6	348.9
315	381.4	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.203	391.88	0.1759	391.7	10.22	10.22	381.5	6,001.02	2.89	32.6	348.9
316	381.5	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.203	391.94	0.1759	391.8	10.22	10.22	381.5	6,001.02	2.89	32.6	349.0
317	381.5	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.203	391.99	0.1760	391.8	10.22	10.22	381.6	6,001.03	2.89	32.6	349.0
318	381.6	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.204	392.03	0.1760	391.9	10.22	10.22	381.6	6,001.03	2.90	32.6	349.0
319	381.6	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.204	392.08	0.1760	391.9	10.23	10.23	381.7	6,001.03	2.90	32.6	349.1
320	381.7	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.204	392.13	0.1760	392.0	10.23	10.23	381.7	6,001.03	2.90	32.6	349.1
321	381.7	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.204	392.18	0.1760	392.0	10.23	10.23	381.8	6,001.04	2.90	32.6	349.1
322	381.8	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.205	392.23	0.1760	392.0	10.23	10.23	381.8	6,001.04	2.90	32.6	349.2
323	381.8	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.205	392.27	0.1760	392.1	10.23	10.23	381.9	6,001.04	2.90	32.6	349.2
324	381.9	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.205	392.32	0.1761	392.1	10.23	10.23	381.9	6,001.04	2.90	32.7	349.3
325	381.9	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.205	392.36	0.1761	392.2	10.23	10.23	382.0	6,001.05	2.90	32.7	349.3
326	382.0	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.206	392.41	0.1761	392.2	10.23	10.23	382.0	6,001.05	2.90	32.7	349.3
327	382.0	6,001.0	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.206	392.45	0.1761	392.3	10.23	10.23	382.0	6,001.05	2.90	32.7	349.4
328	382.0	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.206	392.50	0.1761	392.3	10.23	10.23	382.1	6,001.05	2.90	32.7	349.4
329	382.1	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.206	392.54	0.1761	392.4	10.23	10.23	382.1	6,001.06	2.90	32.7	349.4
330	382.1	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.206	392.58	0.1761	392.4	10.23	10.23	382.2	6,001.06	2.90	32.7	349.5
331	382.2	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.207	392.62	0.1761	392.4	10.23	10.23	382.2	6,001.06	2.90	32.7	349.5
332	382.2	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.207	392.66	0.1761	392.5	10.23	10.23	382.3	6,001.06	2.90	32.7	349.5
333	382.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.207	392.71	0.1762	392.5	10.24	10.24	382.3	6,001.07	2.90	32.7	349.6
334	382.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.207	392.75	0.1762	392.6	10.24	10.24	382.3	6,001.07	2.90	32.7	349.6

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
335	382.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.207	392.79	0.1762	392.6	10.24	10.24	382.4	6,001.07	2.90	32.8	349.6
336	382.4	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.208	392.82	0.1762	392.6	10.24	10.24	382.4	6,001.07	2.90	32.8	349.6
337	382.4	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.208	392.86	0.1762	392.7	10.24	10.24	382.4	6,001.07	2.90	32.8	349.7
338	382.4	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.208	392.90	0.1762	392.7	10.24	10.24	382.5	6,001.08	2.90	32.8	349.7
339	382.5	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.208	392.94	0.1762	392.8	10.24	10.24	382.5	6,001.08	2.90	32.8	349.7
340	382.5	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.208	392.98	0.1762	392.8	10.24	10.24	382.6	6,001.08	2.90	32.8	349.8
341	382.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.209	393.01	0.1762	392.8	10.24	10.24	382.6	6,001.08	2.90	32.8	349.8
342	382.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.209	393.05	0.1763	392.9	10.24	10.24	382.6	6,001.08	2.90	32.8	349.8
343	382.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.209	393.09	0.1763	392.9	10.24	10.24	382.7	6,001.09	2.90	32.8	349.8
344	382.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.209	393.12	0.1763	392.9	10.24	10.24	382.7	6,001.09	2.90	32.8	349.9
345	382.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.209	393.16	0.1763	393.0	10.24	10.24	382.7	6,001.09	2.91	32.8	349.9
346	382.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.209	393.19	0.1763	393.0	10.24	10.24	382.8	6,001.09	2.91	32.8	349.9
347	382.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.210	393.23	0.1763	393.1	10.24	10.24	382.8	6,001.09	2.91	32.9	350.0
348	382.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.210	393.26	0.1763	393.1	10.24	10.24	382.8	6,001.10	2.91	32.9	350.0
349	382.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.210	393.29	0.1763	393.1	10.24	10.24	382.9	6,001.10	2.91	32.9	350.0
350	382.9	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.210	393.33	0.1763	393.2	10.24	10.24	382.9	6,001.10	2.91	32.9	350.0
351	382.9	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.210	393.36	0.1763	393.2	10.25	10.25	382.9	6,001.10	2.91	32.9	350.1
352	382.9	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.210	393.39	0.1764	393.2	10.25	10.25	383.0	6,001.10	2.91	32.9	350.1
353	383.0	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.42	0.1764	393.2	10.25	10.25	383.0	6,001.10	2.91	32.9	350.1
354	383.0	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.46	0.1764	393.3	10.25	10.25	383.0	6,001.11	2.91	32.9	350.1
355	383.0	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.49	0.1764	393.3	10.25	10.25	383.1	6,001.11	2.91	32.9	350.2
356	383.1	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.52	0.1764	393.3	10.25	10.25	383.1	6,001.11	2.91	32.9	350.2
357	383.1	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.55	0.1764	393.4	10.25	10.25	383.1	6,001.11	2.91	32.9	350.2
358	383.1	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.58	0.1764	393.4	10.25	10.25	383.2	6,001.11	2.91	32.9	350.2
359	383.2	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.211	393.61	0.1764	393.4	10.25	10.25	383.2	6,001.11	2.91	32.9	350.2
360	383.2	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.64	0.1764	393.5	10.25	10.25	383.2	6,001.12	2.91	32.9	350.3
361	383.2	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.66	0.1764	393.5	10.25	10.25	383.2	6,001.12	2.91	32.9	350.3
362	383.2	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.69	0.1764	393.5	10.25	10.25	383.3	6,001.12	2.91	33.0	350.3
363	383.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.72	0.1764	393.5	10.25	10.25	383.3	6,001.12	2.91	33.0	350.3
364	383.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.75	0.1765	393.6	10.25	10.25	383.3	6,001.12	2.91	33.0	350.4
365	383.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.78	0.1765	393.6	10.25	10.25	383.3	6,001.12	2.91	33.0	350.4
366	383.3	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.212	393.80	0.1765	393.6	10.25	10.25	383.4	6,001.12	2.91	33.0	350.4
367	383.4	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.83	0.1765	393.7	10.25	10.25	383.4	6,001.13	2.91	33.0	350.4
368	383.4	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.86	0.1765	393.7	10.25	10.25	383.4	6,001.13	2.91	33.0	350.4
369	383.4	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.88	0.1765	393.7	10.25	10.25	383.5	6,001.13	2.91	33.0	350.5
370	383.5	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.91	0.1765	393.7	10.25	10.25	383.5	6,001.13	2.91	33.0	350.5
371	383.5	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.93	0.1765	393.8	10.25	10.25	383.5	6,001.13	2.91	33.0	350.5
372	383.5	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.96	0.1765	393.8	10.25	10.25	383.5	6,001.13	2.91	33.0	350.5
373	383.5	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	393.98	0.1765	393.8	10.26	10.26	383.6	6,001.13	2.91	33.0	350.5
374	383.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.213	394.01	0.1765	393.8	10.26	10.26	383.6	6,001.14	2.91	33.0	350.6
375	383.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.03	0.1765	393.9	10.26	10.26	383.6	6,001.14	2.91	33.0	350.6
376	383.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.06	0.1765	393.9	10.26	10.26	383.6	6,001.14	2.91	33.0	350.6
377	383.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.08	0.1766	393.9	10.26	10.26	383.6	6,001.14	2.91	33.0	350.6
378	383.6	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.10	0.1766	393.9	10.26	10.26	383.7	6,001.14	2.91	33.0	350.6
379	383.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.13	0.1766	393.9	10.26	10.26	383.7	6,001.14	2.91	33.0	350.6
380	383.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.15	0.1766	394.0	10.26	10.26	383.7	6,001.14	2.91	33.0	350.7
381	383.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.17	0.1766	394.0	10.26	10.26	383.7	6,001.14	2.91	33.1	350.7
382	383.7	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.19	0.1766	394.0	10.26	10.26	383.8	6,001.15	2.91	33.1	350.7
383	383.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.214	394.21	0.1766	394.0	10.26	10.26	383.8	6,001.15	2.91	33.1	350.7
384	383.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.24	0.1766	394.1	10.26	10.26	383.8	6,001.15	2.91	33.1	350.7
385	383.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.26	0.1766	394.1	10.26	10.26	383.8	6,001.15	2.91	33.1	350.8
386	383.8	6,001.1	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.28	0.1766	394.1	10.26	10.26	383.8	6,001.15	2.91	33.1	350.8
387	383.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.30	0.1766	394.1	10.26	10.26	383.9	6,001.15	2.92	33.1	350.8
388	383.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.32	0.1766	394.1	10.26	10.26	383.9	6,001.15	2.92	33.1	350.8
389	383.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.34	0.1766	394.2	10.26	10.26	383.9	6,001.15	2.92	33.1	350.8
390	383.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.36	0.1766	394.2	10.26	10.26	383.9	6,001.15	2.92	33.1	350.8
391	383.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.38	0.1766	394.2	10.26	10.26	383.9	6,001.16	2.92	33.1	350.8
392	383.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.215	394.40	0.1766	394.2	10.26	10.26	384.0	6,001.16	2.92	33.1	350.9
393	384.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.42	0.1766	394.2	10.26	10.26	384.0	6,001.16	2.92	33.1	350.9
394	384.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.44	0.1767	394.3	10.26	10.26	384.0	6,001.16	2.92	33.1	350.9
395	384.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.46	0.1767	394.3	10.26	10.26	384.0	6,001.16	2.92	33.1	350.9
396	384.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.47	0.1767	394.3	10.26	10.26	384.0	6,001.16	2.92	33.1	350.9
397	384.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.49	0.1767	394.3	10.26	10.26	384.1	6,001.16	2.92	33.1	350.9
398	384.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.51	0.1767	394.3	10.26	10.26	384.1	6,001.16	2.92	33.1	350.9
399	384.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.53	0.1767	394.4	10.26	10.26	384.1	6,001.16	2.92	33.1	351.0
400	384.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.55	0.1767	394.4	10.26	10.26	384.1	6,001.17	2.92	33.1	351.0
401	384.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.56	0.1767	394.4	10.26	10.26	384.1	6,001.17	2.92	33.1	351.0

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
402	384.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.58	0.1767	394.4	10.26	10.26	384.1	6,001.17	2.92	33.1	351.0
403	384.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.60	0.1767	394.4	10.26	10.26	384.2	6,001.17	2.92	33.1	351.0
404	384.2	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.216	394.62	0.1767	394.4	10.27	10.27	384.2	6,001.17	2.92	33.1	351.0
405	384.2	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.63	0.1767	394.5	10.27	10.27	384.2	6,001.17	2.92	33.2	351.0
406	384.2	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.65	0.1767	394.5	10.27	10.27	384.2	6,001.17	2.92	33.2	351.1
407	384.2	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.66	0.1767	394.5	10.27	10.27	384.2	6,001.17	2.92	33.2	351.1
408	384.2	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.68	0.1767	394.5	10.27	10.27	384.2	6,001.17	2.92	33.2	351.1
409	384.2	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.70	0.1767	394.5	10.27	10.27	384.3	6,001.17	2.92	33.2	351.1
410	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.71	0.1767	394.5	10.27	10.27	384.3	6,001.17	2.92	33.2	351.1
411	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.73	0.1767	394.6	10.27	10.27	384.3	6,001.17	2.92	33.2	351.1
412	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.74	0.1767	394.6	10.27	10.27	384.3	6,001.18	2.92	33.2	351.1
413	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.76	0.1767	394.6	10.27	10.27	384.3	6,001.18	2.92	33.2	351.1
414	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.77	0.1767	394.6	10.27	10.27	384.3	6,001.18	2.92	33.2	351.1
415	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.79	0.1768	394.6	10.27	10.27	384.3	6,001.18	2.92	33.2	351.2
416	384.3	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.80	0.1768	394.6	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
417	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.217	394.82	0.1768	394.6	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
418	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.83	0.1768	394.7	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
419	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.84	0.1768	394.7	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
420	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.86	0.1768	394.7	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
421	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.87	0.1768	394.7	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
422	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.88	0.1768	394.7	10.27	10.27	384.4	6,001.18	2.92	33.2	351.2
423	384.4	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.90	0.1768	394.7	10.27	10.27	384.5	6,001.18	2.92	33.2	351.2
424	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.91	0.1768	394.7	10.27	10.27	384.5	6,001.18	2.92	33.2	351.3
425	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.92	0.1768	394.7	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
426	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.94	0.1768	394.8	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
427	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.95	0.1768	394.8	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
428	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.96	0.1768	394.8	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
429	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.97	0.1768	394.8	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
430	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	394.99	0.1768	394.8	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
431	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	395.00	0.1768	394.8	10.27	10.27	384.5	6,001.19	2.92	33.2	351.3
432	384.5	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	395.01	0.1768	394.8	10.27	10.27	384.6	6,001.19	2.92	33.2	351.3
433	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.218	395.02	0.1768	394.8	10.27	10.27	384.6	6,001.19	2.92	33.2	351.3
434	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.03	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.3
435	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.04	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.4
436	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.06	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.4
437	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.07	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.4
438	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.08	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.4
439	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.09	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.4
440	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.10	0.1768	394.9	10.27	10.27	384.6	6,001.19	2.92	33.2	351.4
441	384.6	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.11	0.1768	394.9	10.27	10.27	384.7	6,001.20	2.92	33.3	351.4
442	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.12	0.1768	394.9	10.27	10.27	384.7	6,001.20	2.92	33.3	351.4
443	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.13	0.1768	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.4
444	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.14	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.4
445	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.15	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.4
446	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.16	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.4
447	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.17	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.5
448	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.18	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.5
449	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.19	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.5
450	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.20	0.1769	395.0	10.27	10.27	384.7	6,001.20	2.92	33.3	351.5
451	384.7	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.21	0.1769	395.0	10.27	10.27	384.8	6,001.20	2.92	33.3	351.5
452	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.219	395.22	0.1769	395.0	10.27	10.27	384.8	6,001.20	2.92	33.3	351.5
453	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.23	0.1769	395.0	10.27	10.27	384.8	6,001.20	2.92	33.3	351.5
454	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.24	0.1769	395.1	10.28	10.28	384.8	6,001.20	2.92	33.3	351.5
455	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.24	0.1769	395.1	10.28	10.28	384.8	6,001.20	2.92	33.3	351.5
456	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.25	0.1769	395.1	10.28	10.28	384.8	6,001.20	2.92	33.3	351.5
457	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.26	0.1769	395.1	10.28	10.28	384.8	6,001.20	2.92	33.3	351.5
458	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.27	0.1769	395.1	10.28	10.28	384.8	6,001.20	2.92	33.3	351.5
459	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.28	0.1769	395.1	10.28	10.28	384.8	6,001.20	2.92	33.3	351.5
460	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.29	0.1769	395.1	10.28	10.28	384.8	6,001.21	2.92	33.3	351.5
461	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.30	0.1769	395.1	10.28	10.28	384.8	6,001.21	2.92	33.3	351.6
462	384.8	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.30	0.1769	395.1	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
463	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.31	0.1769	395.1	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
464	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.32	0.1769	395.1	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
465	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.33	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
466	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.33	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
467	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.34	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
468	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.35	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6

TABLE 17. WATER BALANCE FOR GTO PIT AND SURROUNDING AQUIFER

TIME	INITIAL PIT GEOMETRY				AQUIFER SYSTEM						FLOW IN					FLOW OUT				RESULTS				
Current Year	Total Volume in shallow system (acre-ft)	Pit Lake Elevation (feet)	Pit Lake Area (acres)	Pit Wall Area (acres)	Groundwater Infiltration Area (acres)	Head gradient through "Morrison"	Infiltration to Groundwater (acre-ft)	Leakage through Fractures (acre-ft)	Leakage through "Intact" Burro Canyon (acre-ft)	Total Shallow Aquifer & Fracture Leakage to Deep Aquifer (acre-ft)	Groundwater Input to Shallow System (acre-ft)	Surface Water Inflow to Pit (acre-ft)	Wall Runoff to Pit (acre-ft)	Direct Precipitation on Pit Lake Surface (acre-ft)	Total Volume in Shallow System to date (acre-ft)	Maximum Vertical Leakage out of Pit Floor (acre-ft)	Volume after Leakage (acre-ft)	Potential Evaporation (acre-ft)	Actual Evaporation (acre-ft)	Volume at end of timestep (acre-ft)	Water Elevation at end of timestep (ft)	Ground-water flow from aquifer to pit (acre-ft)	Pit Volume (acre-ft)	Aquifer Volume (acre-ft)
469	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.36	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
470	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.36	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
471	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.37	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
472	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.38	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
473	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.39	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
474	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.39	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
475	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.40	0.1769	395.2	10.28	10.28	384.9	6,001.21	2.92	33.3	351.6
476	384.9	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.41	0.1769	395.2	10.28	10.28	385.0	6,001.21	2.92	33.3	351.6
477	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.41	0.1769	395.2	10.28	10.28	385.0	6,001.21	2.92	33.3	351.6
478	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.220	395.42	0.1769	395.2	10.28	10.28	385.0	6,001.21	2.92	33.3	351.6
479	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.43	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.92	33.3	351.7
480	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.43	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.92	33.3	351.7
481	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.44	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.93	33.3	351.7
482	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.45	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.93	33.3	351.7
483	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.45	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.93	33.3	351.7
484	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.46	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.93	33.3	351.7
485	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.46	0.1769	395.3	10.28	10.28	385.0	6,001.21	2.93	33.3	351.7
486	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.47	0.1769	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
487	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.48	0.1769	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
488	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.48	0.1769	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
489	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.49	0.1770	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
490	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.49	0.1770	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
491	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.50	0.1770	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
492	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.51	0.1770	395.3	10.28	10.28	385.0	6,001.22	2.93	33.3	351.7
493	385.0	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.51	0.1770	395.3	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
494	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.52	0.1770	395.3	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
495	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.52	0.1770	395.3	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
496	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.53	0.1770	395.3	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
497	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.53	0.1770	395.4	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
498	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.54	0.1770	395.4	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
499	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.54	0.1770	395.4	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7
500	385.1	6,001.2	2.6	65.4	203.1	1.027	16.9	12.7	1.27	13.99	2.93	0.29	4.02	3.221	395.55	0.1770	395.4	10.28	10.28	385.1	6,001.22	2.93	33.3	351.7

3. CHEMICAL BALANCE MODEL

3.1 Chemical Balance Model Approach

The geochemical model uses the water balance predicted by the flow model to distribute chemical mass to and from the various system components. The model tracks the flux and total mass in the pit pond, the shallow aquifer, and the deep aquifer. The means by which chemical mass moves between these three "compartments" is described below:

- Shallow Aquifer and Fractures. Chemical mass may enter the shallow aquifer and fractures via precipitation infiltration on the aquifer recharge area and by outflow from the pit to groundwater. Chemical mass may exit the shallow aquifer and fractures by vertical leakage to the deep aquifer and by groundwater flow to the pit.

- Pit Pond. Chemical mass may enter the pit from influent surface water runoff, pit wall runoff, and shallow aquifer and fracture groundwater inflow. Evaporation removes water from the pit pond, but not chemical mass (therefore the pond has the ability to evapoconcentrate). Chemical mass may exit the pit by vertical leakage through the pit floor to the deep aquifer and outflow to shallow groundwater.

- Deep Aquifer. Chemical mass enters the deep aquifer via vertical leakage from the shallow (Burro Canyon) aquifer, from flow in vertical fractures, and from the pit pond. Chemical mass exits the deep aquifer by horizontal or vertical flow out of the aquifer area.

The flow model tracked the volume of flow from each component in acre-feet. For computational convenience, the volume of water (acre-feet) output from the flow model is converted to a mass of water (tons) in the chemical model, using the standard conversions of 43,560 cubic feet per acre-foot, 62.4 pounds of water per cubic foot, and 2,000 pounds per ton. In this manner, both the water and chemical are tracked as masses in the chemical balance model.

The chemical mass balance computation for the shallow aquifer proceeds as follows:

1. The total precipitation infiltration (calculated by the flow model) is partitioned into fracture flow and "intact Burro Canyon" aquifer flow.
2. The chemical mass input to the shallow aquifer through fractures is calculated by multiplying the water mass in fracture flow times the fracture water concentration.
3. The chemical mass input to the shallow aquifer through "intact rock" is calculated by multiplying the water mass infiltrating through the "intact rock" times the Burro Canyon water concentration.
4. The chemical mass output from the shallow aquifer to the pit is calculated by multiplying the amount of water flowing from the aquifer to the pit (calculated by the flow model) times the interim average concentration for the shallow aquifer (intact Burro Canyon aquifer and fractures). If the flow moves from the pit to the aquifer (as it typically does in early time) the chemical mass "output" from the shallow aquifer and fractures to the pit is a negative value, and is calculated by multiplying the amount of water flowing from the pit to the aquifer times the interim pit pond concentration.
5. The chemical mass output from the shallow aquifer to the deep aquifer is calculated by multiplying the amount of water flowing from the shallow aquifer and fractures to the deep aquifer (calculated by the flow model) times the average concentration in the shallow aquifer and fractures at the start of the timestep.

6. The resulting chemical mass in the shallow aquifer is calculated as the sum of the initial mass, plus the input from fracture flow, plus the input from flow in the intact rock, minus (or plus) the output (or input) to the pit, minus the output to the deep aquifer.

7. The concentration in the shallow aquifer and fractures is calculated as the total chemical mass (determined in Step 6 above) divided by the total water in the shallow aquifer and fractures (determined by the flow model) at the end of the timestep. The concentration and mass at the end of the timestep are used as initial conditions at the start of the subsequent timestep.

The chemical mass balance computation for the pit pond proceeds as follows:

1. The chemical mass input to the pit from surface runoff is calculated by multiplying the water mass in surface runoff (calculated from the flow model) times the surface water runoff concentration.

2. The chemical mass input to the pit from pit wall runoff is calculated by multiplying the water mass in pit wall runoff (calculated from the flow model) times the pit wall runoff concentration.

3. The chemical mass input to the pit from the shallow aquifer is calculated by multiplying the amount of water flowing from the aquifer to the pit (calculated by the flow model) times the interim shallow aquifer concentration. If the flow moves from the pit to the aquifer (as it typically does in early time) the chemical mass "input" from the shallow aquifer to the pit is a negative value, and is calculated by multiplying the amount of water flowing from the pit to the aquifer times the interim pit pond concentration. This calculation is the same as in Step 4 (above) for the shallow aquifer geochemical balance.

4. The chemical mass output from the pit to the deep aquifer is calculated by multiplying the amount of water leaking from the pit pond to the deep aquifer (calculated by the flow model) times the pit pond concentration at the start of the timestep. In late time, this is the only mechanism by which chemical mass exits the pit pond.

5. The resulting chemical mass in the pit is calculated as the sum of the initial mass, plus the input from surface runoff, plus the input from pit wall runoff, plus (or minus) the input (or output) from the shallow aquifer, minus the output to the deep aquifer.

6. The resulting concentration in the pit is calculated as the total chemical mass (determined in Step 5 above) divided by the total water in the pit (determined by the flow model) at the end of the timestep. The concentration and mass at the end of the timestep are used as initial conditions at the start of the subsequent timestep.

The chemical mass balance computation for the deep aquifer proceeds as follows:

1. The chemical mass input to the deep aquifer from the shallow aquifer is calculated by multiplying the amount of water flowing from the shallow aquifer to the deep aquifer (calculated by the flow model) times the shallow aquifer concentration at the start of the timestep. (This is identical to Step 5 in the shallow aquifer mass balance described above.)

2. The chemical mass input to the deep aquifer from the pit pond is calculated by multiplying the amount of water flowing from the pit to the deep aquifer (calculated by the flow model) times the pit pond concentration at the start of the timestep. (This is identical to Step 4 in the pit pond mass balance described above.)

3. The interim total chemical mass in the deep aquifer is calculated as the sum of the initial mass plus the input from fracture water leakage, plus Burro Canyon aquifer leakage, plus the input from leakage from the pit.
4. The interim total water in the deep aquifer is calculated as the sum of the initial water mass in the deep aquifer (Section 3.2.7, below) plus the input from fracture water leakage, shallow (Burro Canyon) aquifer leakage, plus the input from leakage from the pit.
5. The interim concentration in the deep aquifer is determined as the chemical mass divided by the total water.
6. The horizontal or vertical water outflow from the deep aquifer is calculated as the sum of the fracture flow to the deep aquifer, plus leakage from the shallow (Burro Canyon) aquifer, plus the leakage from the pit. In this manner, the total water in the deep aquifer is the same at the beginning and end of every timestep (contrary to the shallow aquifer and pit, which fill over time).
7. The chemical mass outflow from the deep aquifer is calculated as the total outflow (calculated in Step 6) times the interim concentration (calculated in Step 5).
8. The final chemical mass is calculated as the sum of the initial mass, plus the input from shallow ("intact" Burro Canyon) aquifer leakage, plus the input from fractures, plus the input from leakage from the pit, minus horizontal or vertical mass outflow.
9. The final amount of water in the deep aquifer is equal to the initial water, plus leakage from the shallow aquifer, plus leakage from the pit, minus horizontal or vertical outflow. Since N-aquifer outflow is equal to shallow aquifer leakage, plus fracture leakage, plus pit leakage, the total water in the deep aquifer is the same at the beginning and end of every timestep.
10. The resulting concentration in the deep aquifer is calculated as the total chemical mass (determined in Step 8) divided by the total water in the aquifer (determined in Step 9) at the end of the timestep.

The concentration and mass at the end of the timestep are used as initial conditions at the start of the subsequent timestep.

3.2 Chemical Balance Input

The primary input parameters used in the chemical balance model that were not covered in the discussion of the flow balance model are the chemical concentrations of the following waters:

1. Groundwater in the "intact" Burro Canyon aquifer,
2. Groundwater in fracture flow,
3. Runoff from surface soils,
4. Runoff from pit walls, and
5. Groundwater in the deep system (N-aquifer).

The modeling was performed using total dissolved solids (TDS), as in the 1996 and 1998 evaluations (ABC, 1996c; ABC 1998a). TDS is generally representative of the behavior of conservative species (i.e., elements which do not attenuate along the groundwater flow path). Elements that are known to precipitate along a groundwater flow path (iron, for example) were not modeled. Trace metals, including selenium and zinc, were discussed modeled previously and presented in a detailed a technical memorandum submitted to BLM (Wyman, 1998b, 1998d, 1998c).

The input concentrations used in the chemical balance model are summarized in Table 18. The sources of the input data are described in the following sections.

Table 18. Summary of Input to Chemical Balance Model

	SENTINEL PIT	CENTENNIAL PIT	GTO PIT
Component Chemistry			
Constituent:	TDS	TDS	TDS
Concentration in "Burro Canyon":	2039	2039	2039
Concentration in Fracture Flow:	448	448	448
Concentration in Pit Wall Runoff (Maximum):	140	147	342
Concentration in Surface Water Runoff:	150	150	150
Concentration in N-aquifer:	683	683	1273
Vertical Flow Distribution			
Flow in fractures =	85%	85%	48%
Flow in "intact" rock =	15%	15%	52%
Deep Aquifer Conditions			
Area:	62.1	253.8	205.6
Thickness:	200	200	300
Porosity:	0.05	0.05	0.05
Geochemical Constraints			
TDS Limit in pit:	3000	3000	3000

NOTE: Concentrations in mg/L.

3.2.1 Burro Canyon Aquifer Quality

Water quality in the Burro Canyon aquifer was calculated as the average of 52 samples collected from 1994 through 1997. Although numerous additional samples have been collected from 1998 to 2005, the input to the 2005 model was not changed because (1) the new data are not significantly different and (2) the new model is more directly comparable to the previous model.

Notably, the calcium and gypsum concentrations in about 30% of the 52 samples indicate that the water in the Burro Canyon aquifer is at or near the solubility limit for gypsum precipitation.

Table 19. Average Water Quality from Burro Canyon Aquifer Wells, Input to Chemical Balance Model

	Burro Canyon Average WQ		
	Result	# Samples	# Detect
TDS (mg/L)	2039	52	52
Sulfate (mg/L)	1038	52	52

3.2.2 Fracture Water Quality

The water quality in fractures is based on a November 1997 sample from well PW97-2, which is shown in Table 20. A water quality sample collected from PW-2 in June 2004 had a TDS of 550 mg/L and sulfate of 190 mg/L.

Table 20. Water Quality from Fractures, Input to Chemical Balance Model

	Fracture WQ	
	Result	# Samples
TDS (mg/L)	448	1
Sulfate (mg/L)	115	1

3.2.3 Surface Water Runoff Quality

The chemical quality of surface water runoff is based on measured water quality from runoff to a stock pond in Little Valley. Because the contribution of surface water runoff to the pits is very small, relative to the contribution from pit wall runoff and groundwater inflow, the model is relatively insensitive to the concentration specified for surface water runoff. The values used in the model are shown in the following table. For constituents which were not detected, a value of one half the detection limit was used.

Table 21. Water Quality from Surface Runoff, Input to Chemical Balance Model

	Surface Runoff WQ	
	Result	# Samples
TDS (mg/L)	150	1
Sulfate (mg/L)	<5	1

3.2.4 Pit Wall Runoff Quality

The pit wall runoff concentrations were calculated based on the percentage of each rock type exposed in the final pit wall, and the expected TDS or sulfate load provided by each rock type, as described in detail in the 1998 Annual Update Report (ABC, 1998a). The area of each rock type exposed was determined from maps showing the rock units which will be exposed in the final pits. The TDS and sulfate loads were determined through an evaluation of leach tests (modified meteoric water mobility tests [MWMT/GWMT] and synthetic precipitation leaching procedures [SPLP]) performed on rocks from the site. This evaluation is given in detail in the previous modeling report (ABC, 1998a).

Runoff concentrations were calculated for both the 4.9% and 10% runoff. Because each pit will contain different rock units exposed in the final excavation, the estimated pit wall runoff concentrations are different for each pit.

Table 22. Water Quality from Pit Wall Runoff, Input to Chemical Balance Model

	Sentinel Pit Wall Runoff		Centennial Pit Wall Runoff		GTO Pit Wall Runoff	
	4.9%	10%	4.9%	10%	4.9%	10%
TDS (mg/L)	140	67	125	61	342	168
Sulfate (mg/L)	58	28	48	23	143	70

A sample of pit wall runoff collected at the Sentinel Pit in October, 2006 (**Error! Reference source not found.**) were similar but had lower dissolved solids (60 mg/L) than the pit wall runoff chemistry calculated using MWMT results from drill samples. The results were 43% of the TDS concentrations calculated for the Sentinel Pit based on 4.9% runoff, and 90% of the TDS concentrations based on 10% runoff. Although the sample from the Sentinel Pit would not be representative of runoff from the GTO Pit, the results indicate that the pit wall runoff concentrations used in the model may be high, and therefore the model may conservatively overestimate the chemical impacts to groundwater.

3.2.5 N-Aquifer Water Quality

The water quality in the N-aquifer is very similar in wells MW96-7B, MW97-9, MW97-11, and MW97-12. The starting water quality in the N-aquifer was calculated as the arithmetic average of 17 samples collected from these four wells (Table 23). The descriptive statistics prepared for the 17 individual samples and for the 4 well averages, as shown in Table 24. Note that the mean TDS from 17 samples (683 mg/L) is nearly identical to the mean of the 4 well means (684 mg/L). For modeling purposes, each sample is equally-weighted and the 17-sample mean (683 mg/L TDS, 159 mg/L sulfate) was used as the starting N-aquifer concentrations below the Sentinel and Centennial Pits.

Table 23. Average Water Quality in N-aquifer, Input to Chemical Balance Model

Well ID:		MW96-7B	MW97-9	MW 97-11	MW 97-12	MW 97-13	AVERAGE for analysis	
No. of Samples:		5	4	3	5	4	17	4
Analyte	**Units**	**Average**	**Average**	**Average**	**Average**	**Average**	N-aquifer w/o MW97-13	MW97-13
TDS (mg/L)	mg/L	642.4	693	689	712	1272.5	683	1273
Sulfate (mg/L)	mg/L	214.2	163	124	121.4	473.25	159	473

Table 24. Descriptive Statistics, Including Mean and Standard Deviation, for N-aquifer Sulfate and TDS Analytical Results, Excluding Well MW97-13

STATISTIC:	*SULFATE 17 Samples*	*SULFATE 4 Well Averages*	*TDS 17 Samples*	*TDS 4 Well Averages*
Mean	158.9	155.5	683.1	677.7
Standard Error	18.6	21.8	33.9	11.8
Median	135	143	648	687.7
Mode	115		816	
Standard Deviation	76.7	43.5	139.9	23.7
Sample Variance	5884	1896	19585	561
Kurtosis	13.53	-0.28	2.04	3.71
Skewness	3.54	1.05	1.15	-1.91
Range	328	93	564	50.6
Minimum	115	121	496	642
Maximum	443	214	1060	693
Sum	2701	622	11612	2711
Count	17	4	17	4
95% Confidence Level	39.4	69.3	72.0	37.7

Monitoring well MW97-13 has a different chemical signature, is located down-valley, and is apparently on the same major fault block as the GTO pit. Therefore, it is appropriate to use the water quality in MW97-13 in the evaluation of impact to N-aquifer water quality at the GTO pit. The average water quality for the N-aquifer at the GTO Pit was calculated as the average of four samples from monitoring well MW97-13. The concentrations used in the model are given in Table 23.

For consistency, the 2005 - 2006 updated model uses the same starting TDS concentrations in the N-aquifer that were used in the 1998 model. The mean TDS of 683 mg/L and a standard deviation of 140 are comparable to the more recent data. Based on 86 samples collected from N-aquifer wells MW97-7B,

MW97-9, MW97-11, MW97-12, and MW97-13 from February 1998 to October 2005, the mean TDS in the N-aquifer is 629 mg/L with a standard deviation of 209.

3.2.6 Solubility Constraints

The current geochemical model imposes a ceiling of 3,000 mg/L on TDS, which is consistent with previous modeling (ABC, 1996c; ABC, 1998a), based on the saturation levels inferred from water quality measurements from the Burro Canyon aquifer, in which the pit ponds will develop. The 3,000 mg/L represents the point at which gypsum would begin to precipitate from the pit ponds, in a calcium-sulfate or calcium-sulfate-bicarbonate system. The solubility constraints were evaluated and a sensitivity analysis using a 5,000 mg/L TDS limit in the pits was submitted in a 1998 technical memorandum to BLM (Wyman, 1998a).

3.2.7 N-Aquifer Volume

The volume of water in the N-aquifer is used in the chemical balance model, in determining the final aquifer concentrations. The geometry (volume) of the N-aquifer was not used in the flow model, because that model simply routed water out of the shallow aquifer and pit as leakage. The chemical model tracks the mass of water and chemical out of the shallow aquifer and pit, but goes one step further and calculates the concentration in the receiving aquifer (N-aquifer) over time. The concentration is determined by dividing the chemical mass at a given time by the aquifer volume at that time.

The initial volume of the deep aquifer is simply the aquifer area times its thickness times its porosity:

$$V = A \cdot b \cdot n_e$$

where:

V=	Volume of N-aquifer
A =	area of N-aquifer
b=	thickness of N-aquifer
n_e=	aquifer effective porosity

Area. The area of the deep aquifer at each pit is assumed to be equivalent to the area of the shallow aquifer which contributes to each pit. This allows for the total leakage from the shallow aquifer to be calculated in the model, in order to maintain mass balance. This approach will tend to overestimate impacts to the N-aquifer, because no water which might mix with the N-aquifer from the sides is considered. The areas used for the N-aquifer at each pit, identical to the areas of the shallow aquifer contribution, are in Table 26 below.

Aquifer Thickness. The thickness of the deep aquifer is based on the thickness of the Navajo Formation in drill holes at the site. In reality, the N-aquifer also includes the Entrada (where saturated), Kayenta, and Wingate Formations, and is significantly thicker than the modeled aquifer. However, because the Navajo Formation is generally the most permeable, the model uses only the Navajo Formation to calculate impacts to the aquifer. This approach is environmentally conservative, and will overestimate impacts to the N-aquifer as a whole.

The thickness of the Navajo Formation at the Centennial and Sentinel Pits is over 200 feet, based on drilling at MW96-7, MW97-9, MW97-12, and KLVR5. The GTO Pit is located on a separate major fault block. The thickness of the Navajo Formation at the GTO, based on drilling at MW97-13, is over 280 feet. At well MW97-11, the Navajo Formation was unsaturated and the N-aquifer occurred in the Kayenta and Wingate formations, which have a combined total thickness of over 287 feet (Table 25).

Table 25. Depth to N-aquifer Formations in Lisbon Valley Drill Holes

WELL:	MW96-7B	MW97-9	MW97-11	MW97-12	MW97-13	KLVR5
Entrada Sandstone (Je)	810-985	772-935	175-790	640-855	960-1157	1110-1180
Navajo Sandstone (Jn)	985-1195+	935-1073 (?)	790-823	855-1040+	1157-1440+	1180-1510+
Kayenta Formation (Jk)	not drilled	1073-1090+	823-900	not drilled	not drilled	not drilled
Wingate Sandstone (Trw)	not drilled	not drilled	900-1110+	not drilled	not drilled	not drilled

Aquifer Porosity. The effective porosity of the N-aquifer is assumed to be 5%.

Using the aquifer area, thickness, and porosity determined for each pit, the volume of water in the N-aquifer below each pit was calculated. These values are given in Table 26.

Table 26. Area of N-aquifer used in Modeling Calculations

PIT NAME:	SENTINEL	CENTENNIAL	GTO
Area of N-aquifer (acres)	62.1	253.8	205.6
Thickness of N-aquifer (feet)	200	200	300
Effective Aquifer Porosity	5%	5%	5%
Receiving Aquifer Volume (acre-ft)	621	2,538	3,084

3.3 Chemical Balance Results

3.3.1 Sentinel Pit Chemical Balance Results

The chemical balance model for the Sentinel Pit indicates that TDS in the shallow pit pond will increase slowly over time. Immediately after mining, the water quality in the pit will be better than that in the shallow aquifer and in fractures, because the pit will capture relatively clean water from surface runoff. After 17 years, high-TDS water from the Burro Canyon aquifer will begin to flow to the pit. Evaporation from the pit pond surface will begin to concentrate water in the pond, and the TDS will gradually increase until it reaches quasi-steady-state mass flux conditions, which are limited by geochemical equilibria of sulfate minerals under near-neutral pH conditions. The model predicts that 91 years will pass before the TDS in the pit pond reaches 3,000 mg/L (compared to 92 years in the previous model). The changes in TDS concentration in the pit pond over time are shown in Figure 9.

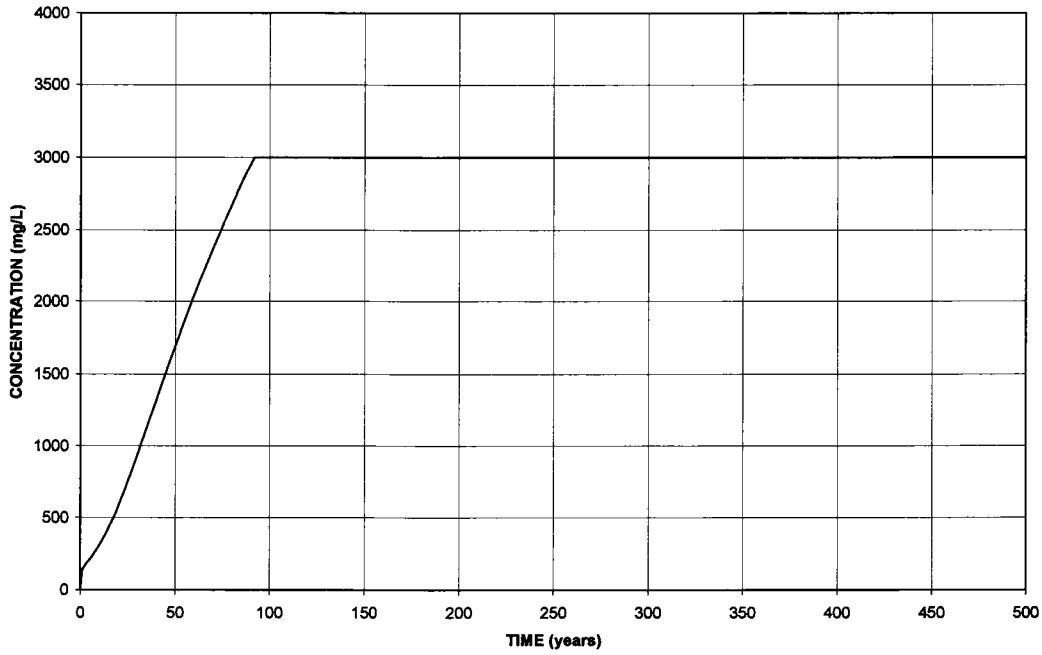


Figure 9. Predicted TDS Concentration in Sentinel Pit Pool

The shallow aquifer concentration is, at first, improved over the pre-mining concentration. This occurs because the pit captures relatively clean surface runoff, and recharges the aquifer at a rate that exceeds the net recharge (infiltration minus leakage) from precipitation. Over time, the flow of water reverses, from the aquifer to the pit, and the aquifer stabilizes at its pre-mining background concentration. Because groundwater will flow from the aquifer to the pit after this time, the Sentinel Pit will have no impact on groundwater chemistry in the shallow aquifer.

Immediately after mining, and for the first 71 years, the water quality in the N-aquifer improves slightly because the pit captures relatively good quality surface runoff water. This water recharges the shallow aquifer and leaks downward to the N-aquifer, and the total concentration is better than what is currently being delivered to the deep system. As evapoconcentration of the pit pond occurs over time, the quality of water delivered to the N-aquifer decreases. The model predicts that the TDS concentration in the N-aquifer below the Sentinel Pit will increase to 720 mg/L, from a starting concentration of 683 mg/L (Figure 10). This represents a 5% increase in TDS over pre-mining conditions[3]. For comparison, the previous model predicted a final concentration of 732 mg/L in the N-aquifer below the Sentinel Pit. These chemical changes are very slight, and are within the measured variability in N-aquifer wells at the site.

[3] For consistency, the model results are compared to the mean and standard deviations of TDS concentrations in the N-aquifer used in the 1998 model, which were based on 17 samples with a mean TDS of 683 mg/L and a standard deviation of 140. The model also uses the mean concentration of 683 mg/L as the starting concentration in the N-aquifer. Based on 86 samples collected from N-aquifer wells MW97-7B, MW97-9, MW97-11, MW97-12, and MW97-13 from February 1998 to October 2005, the mean TDS in the N-aquifer is 629 mg/L with a standard deviation of 209.

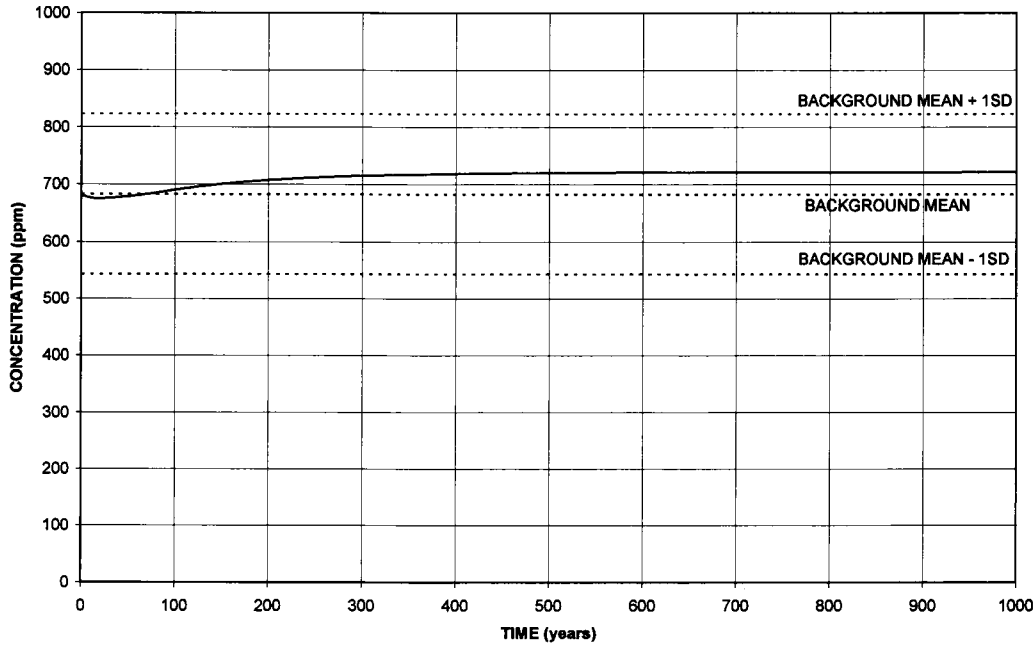


Figure 10. Predicted TDS Concentration in N-aquifer below Sentinel Pit

3.3.2 Centennial Pit Chemical Balance Results

The updated chemical balance model for the Centennial Pit is nearly identical to previous modeling. The results indicate that the TDS in the shallow pit pond will increase slowly over time. Immediately after mining, the water quality in the pit will be better than that in the shallow aquifer and in fractures, because the pit will capture relatively clean water from surface runoff. After 28 years, high-TDS water from the Burro Canyon aquifer will begin to flow to the pit. Evaporation from the pit pond surface will begin to concentrate water in the pond, and the TDS will gradually increase until it reaches quasi-steady-state mass flux conditions, which are limited by geochemical equilibria of sulfate minerals under near-neutral pH conditions. The model predicts that 90 years will pass before the TDS in the pit pond reaches 3,000 mg/L (compared to 87 years in the previous model). The changes in TDS concentration in the pit pond over time are shown in Figure 11.

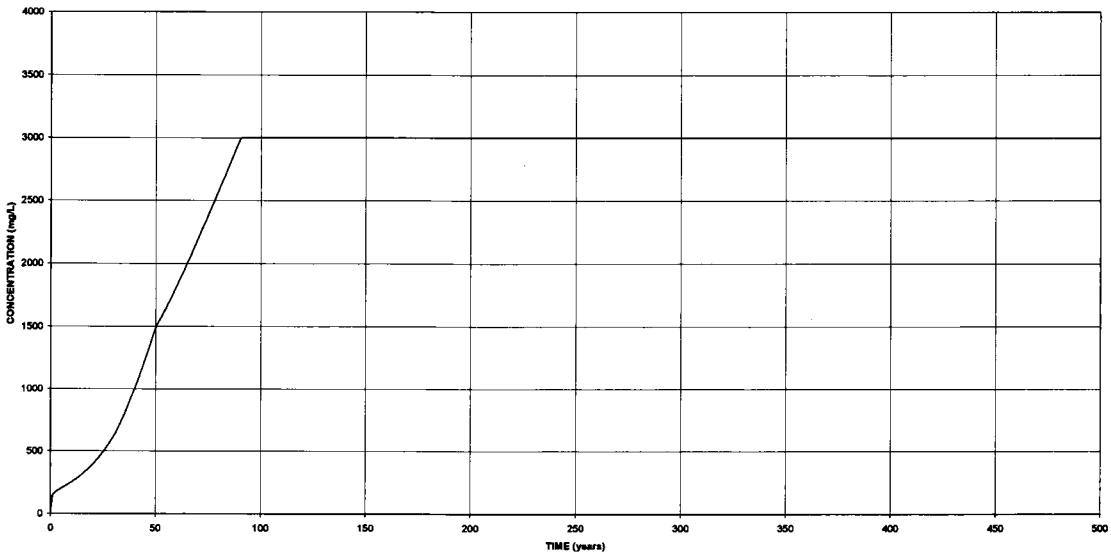


Figure 11. Predicted TDS Concentration in Centennial Pit Pool

The shallow aquifer concentration is, at first, improved over the pre-mining concentration. This occurs because the pit captures relatively clean surface runoff, and recharges the aquifer at a rate that exceeds the net recharge (infiltration minus leakage) from precipitation. Over time, the flow of water reverses, from the aquifer to the pit, and the aquifer stabilizes at its pre-mining background concentration. Because groundwater will flow from the aquifer to the pit after this time, the Centennial Pit will have no impact on groundwater chemistry in the shallow aquifer.

Immediately after mining, and for the first 101 years, the water quality in the N-aquifer is improved because the pit captures relatively good quality surface runoff water. This water recharges the shallow aquifer and leaks downward to the N-aquifer, and the total concentration is better than what is currently being delivered to the deep system. As evapoconcentration of the pit pond occurs over time, the quality of water delivered to the N-aquifer decreases. The model predicts that the TDS concentration in the N-aquifer below the Centennial Pit will increase to 718 mg/L, from a starting concentration of 683 mg/L (Figure 12). This represents a 5% increase in TDS over pre-mining conditions[4]. For comparison, the previous model predicted a final concentration of 717 mg/L in the N-aquifer below the Centennial Pit. These chemical changes are very slight, and are within the measured variability in N-aquifer wells at the site.

[4] For consistency, the model results are compared to the mean and standard deviations of TDS concentrations in the N-aquifer used in the 1998 model, which were based on 17 samples with a mean TDS of 683 mg/L and a standard deviation of 140. The model also uses the mean concentration of 683 mg/L as the starting concentration in the N-aquifer. Based on 86 samples collected from N-aquifer wells MW97-7B, MW97-9, MW97-11, MW97-12, and MW97-13 from February 1998 to October 2005, the mean TDS in the N-aquifer is 629 mg/L with a standard deviation of 209.

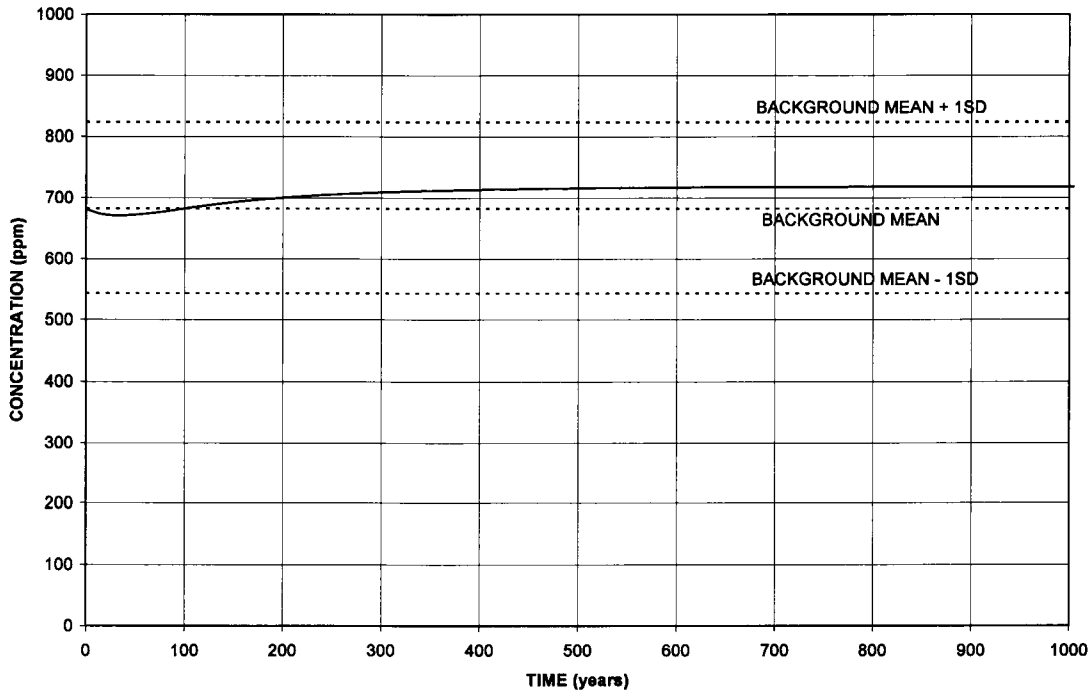


Figure 12. Predicted TDS Concentration in N-aquifer below Centennial Pit

3.3.3 GTO Pit Chemical Balance Results

The chemical balance model for the GTO Pit indicates that TDS in the shallow pit pond will increase slowly over time. Immediately after mining, the water quality in the pit will be better than that in the shallow aquifer and in fractures, because the pit will capture relatively clean water from surface runoff. After 37 years, high-TDS water from the Burro Canyon aquifer will begin to flow to the pit. Evaporation from the pit pond surface will begin to concentrate water in the pond, and the TDS will gradually increase until it reaches quasi-steady-state mass flux conditions, which are limited by geochemical equilibria of sulfate minerals under near-neutral pH conditions. The model predicts that 55 years will pass before the TDS in the pit pond reaches 3,000 mg/L (compared to 58 years in the previous model). The changes in TDS concentration in the pit pond over time are shown in Figure 13.

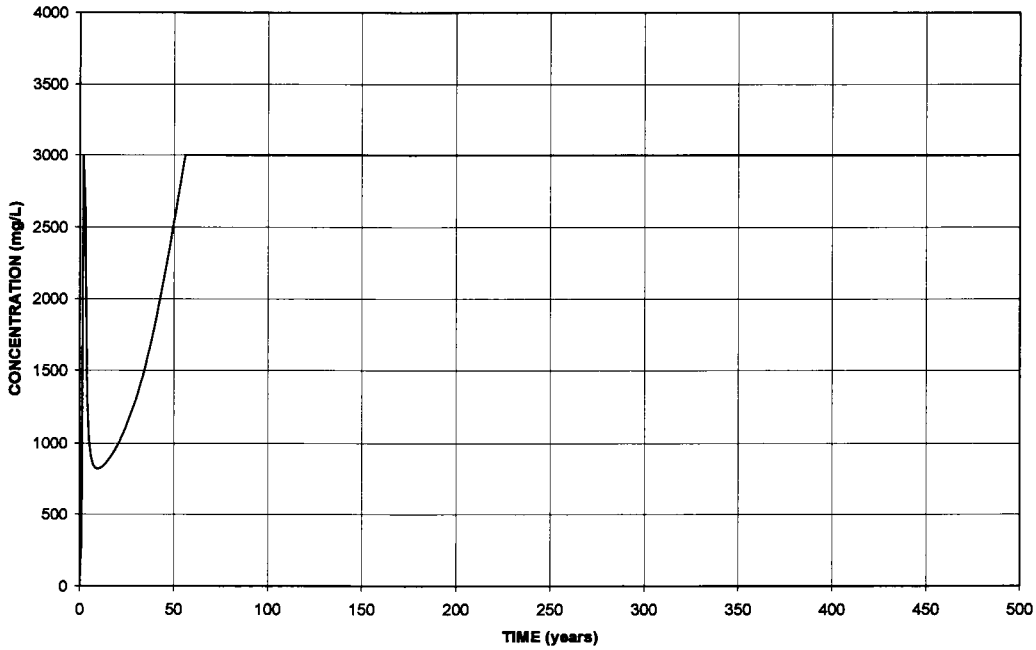


Figure 13. Predicted TDS Concentration in GTO Pit Pool

As predicted for the other two pits, the shallow aquifer concentration is, at first, improved over the pre-mining concentration. This occurs because the pit captures relatively clean surface runoff, and recharges the aquifer at a rate which exceeds the net recharge (infiltration minus leakage) from precipitation. Over time, the flow of water reverses, from the aquifer to the pit, and the aquifer stabilizes at its pre-mining background concentration. Because groundwater will flow from the aquifer to the pit after this time, the GTO Pit will have no impact on groundwater chemistry in the shallow aquifer.

Immediately after mining, and for the first 98 years, the water quality in the N-aquifer is improved because the pit captures relatively good quality surface runoff water. This water recharges the shallow aquifer and leaks downward to the N-aquifer, and the total concentration is better than what is currently being delivered to the deep system. As evapoconcentration of the small pit pond occurs over time, the quality of water delivered to the N-aquifer decreases. The model predicts that the TDS concentration in the N-aquifer below the GTO Pit will increase to 1,295 mg/L, from a starting concentration of 1,273 mg/L (Figure 14). This represents a 2% increase in TDS over pre-mining conditions[5]. For comparison, the previous model predicted a final concentration of 1,305 mg/L in the N-aquifer below the GTO Pit. These chemical changes predicted by the model are very slight, and are within the measured variability in N-aquifer wells at the site.

Chemical balance results for all pits is summarized in Table 27.

[5] For consistency, the model results are compared to the TDS concentration in the N-aquifer used in the 1998 GTO Pit model, which was based on 4 samples from MW97-13 with a mean TDS of 1,273 mg/L.

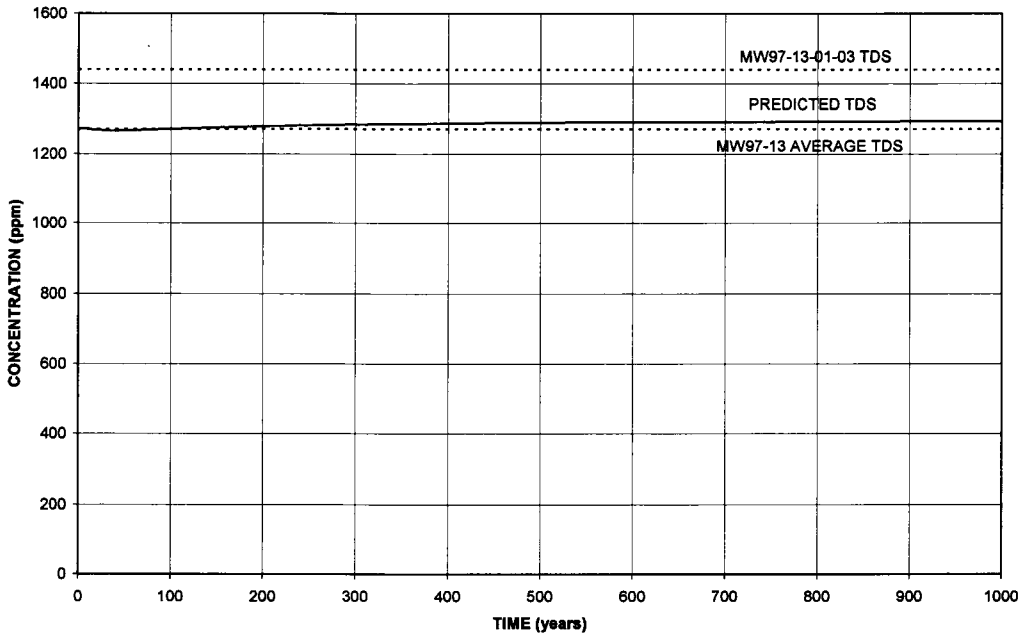


Figure 14. Predicted TDS Concentration in N-aquifer below GTO Pit

Table 27. Summary of Chemical Balance Modeling Results

MODEL RESULTS	SENTINEL PIT	CENTENNIAL PIT	GTO PIT
Time to reach chemical equilibrium in pit pool (yrs)	91	90	55
Initial TDS concentration in Burro Canyon aquifer (mg/L)	2,039	2,039	2,039
Final TDS concentration in Burro Canyon aquifer (mg/L)	2,039	2,039	2,039
% Change in TDS in Burro Canyon aquifer	0%	0%	0%
Initial TDS concentration in fractures (mg/L)	448	448	448
Final TDS concentration in fractures (mg/L)	448	448	448
% Change in TDS in fractures	0%	0%	0%
Initial TDS concentration in N-aquifer (mg/L)	683	683	1,273
Final TDS concentration in N-aquifer (mg/L)	721	718	1,295
% Change in TDS in N-aquifer	-6%	-5%	-2%

4. CONCLUSIONS

The potential groundwater effects of the Lisbon Valley Mine were evaluated by constructing water balance and chemical balance models for each of the pits. The models compute the flow and water quality conditions in the pits and shallow aquifer, with vertical leakage to the deep aquifer below.

The model simulations start at the end of mining, when the shallow aquifer and pits are dry. When the dewatering pumps are turned off at the end of mining, the pits and shallow aquifer will begin to refill. The flow balance and chemical balance are calculated, to determine (among other things) the final water levels in the pits and shallow aquifer, and the chemical concentrations in the pit and underlying N-aquifer.

In the early years of refilling, surface water and pit wall runoff to the pits will help to recharge the shallow aquifer. After that time, the net annual flow will be from the shallow aquifer to the pits. As the pit levels

increase, their evaporative areas increase. Eventually, the pond evaporation and leakage to the deep aquifer from the pits equals the inflow from runoff and groundwater. This occurs because the recharge to the shallow aquifer is limited, and the evaporative flux is high, relative to the aquifer recharge rate.

The flow balance models predict that the shallow aquifer will never fully refill. The model predicts that the aquifer and pit pond elevations will stabilize at levels that are 25 to 168 feet lower than the pre-mining static water levels. Small ponds will form in the floors of the pits, and will take decades to fill. The ponds will cover 2.5% (Sentinel) to 3.8% (GTO) of the planned pit area.

The chemical balance model predicts that the water quality in all three pit ponds will be significantly better than that in the intact Burro Canyon aquifer (2,039 mg/L TDS), at the end of mining and for 43 to 65 years. Eventually, the combined effects of shallow groundwater flowing to the pits and evaporation contribute to an increase in TDS concentrations above those in the Burro Canyon aquifer. The water ponded in the Sentinel, Centennial, and GTO pits will take 91, 90, and 55 years to reach 3,000 mg/L TDS, respectively, compared to 92, 87, and 58 years predicted by previous modeling. The N-aquifer is recharged by the "intact" Burro Canyon aquifer, fractures, and the pit ponds. During the first 71 to 101 years after mining, the model predicts that the quality of water in the N-aquifer will be better than before mining, because the pits will capture relatively clean water from runoff and deliver it to both the shallow and deep aquifers. Eventually evapoconcentrated water from the pit ponds will contribute to an increase in TDS in the deep aquifer. The predicted TDS increases in the N-aquifer are 6%, 5%, and 2% for the Sentinel, Centennial, and GTO pits, respectively, compared to 7%, 5%, and 3% predicted by previous modeling. These changes are significantly less than the 25% TDS limit increase allowed by the ground water quality protection regulations (UAC R317-6). The pit ponds will not impact the shallow aquifer, because groundwater flows from the aquifer to the pit, not the reverse.

Field evidence suggests that trace metals are attenuated through natural processes, and do not appear to concentrate in solution. Trace metals have been essentially undetected in the three runoff ponds at the site. The lack of trace metals in the runoff ponds indicates that other chemical processes (such as sorption) may ultimately control the fate of trace metals in the system. Trace metals which might report to the pit pond, from sources such as the Burro Canyon aquifer water, for example, are not expected to evapoconcentrate in a pit pond, but to adsorb onto precipitating solids and suspended particulates (e.g. clays) in the pit pond. Further, the N-aquifer contains trace metals which are not derived from the present-day recharge from the overlying aquifer and fractures, but rather from ancestral sources.

In summary, the shallow (Burro Canyon) aquifer will not be affected in the longterm, because groundwater will flow from the aquifer to the pits. None of the predicted changes to the N-aquifer TDS load exceed, or even approach, the preliminary Ground Water Protection Levels for the N-aquifer. These results are consistent with the previous modeling, which concluded that the vertical permeability through the pit floor and aquifer were very low, and that as a result only very small quantities of dissolved solids could leak through the pit floor to the underlying aquifer, some 400-600 feet below.

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TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
																0		
0.00	0.0	0.0	0	251	150	0.038	3368	140	0.472	-2,082	141	-0.293	0.000	0.000	0.000	0.216	1538	141
1.00	0.2	1,537.9	141	251	150	0.038	3359	140	0.470	-1,813	141	-0.255	12.236	141	-0.002	0.467	2900	161
2.00	0.5	2,899.8	161	251	150	0.038	3350	140	0.469	-1,576	150	-0.236	23.091	161	-0.004	0.734	4106	179
3.00	0.7	4,105.9	179	251	150	0.038	3343	140	0.468	-1,365	161	-0.220	32.720	179	-0.006	1.014	5174	196
4.00	1.0	5,174.0	196	251	150	0.038	3337	140	0.467	-1,179	173	-0.204	41.258	196	-0.008	1.307	6120	214
5.00	1.3	6,119.9	214	251	150	0.038	3331	140	0.466	-1,014	187	-0.189	48.829	214	-0.010	1.611	6957	232
6.00	1.6	6,957.5	232	251	150	0.038	3326	140	0.466	-867	201	-0.174	55.541	232	-0.013	1.927	7699	250
7.00	1.9	7,699.3	250	251	150	0.038	3321	140	0.465	-738	216	-0.159	61.490	250	-0.015	2.256	8356	270
8.0	2.3	8,356.2	270	251	150	0.038	3317	140	0.464	-623	231	-0.144	66.764	270	-0.018	2.596	8938	290
9.0	2.6	8,937.9	290	251	150	0.038	3313	140	0.464	-522	248	-0.129	71.437	290	-0.021	2.947	9453	312
10.0	2.9	9,453.1	312	251	150	0.038	3310	140	0.463	-432	265	-0.114	75.578	312	-0.024	3.310	9909	334
11.0	3.3	9,909.3	334	251	150	0.038	3307	140	0.463	-352	283	-0.100	79.248	334	-0.026	3.685	10313	357
12.0	3.7	10,313.3	357	251	150	0.038	3305	140	0.463	-282	302	-0.085	82.500	357	-0.029	4.071	10671	381
13.0	4.1	10,671.1	381	251	150	0.038	3303	140	0.462	-219	321	-0.070	85.380	381	-0.033	4.468	10988	407
14.0	4.5	10,987.9	407	251	150	0.038	3301	140	0.462	-164	342	-0.056	87.933	407	-0.036	4.876	11269	433
15.0	4.9	11,268.5	433	251	150	0.038	3299	140	0.462	-115	363	-0.042	90.194	433	-0.039	5.295	11517	460
16.0	5.3	11,517.0	460	251	150	0.038	3298	140	0.462	-71	385	-0.027	92.197	460	-0.042	5.725	11737	488
17.0	5.7	11,737.1	488	251	150	0.038	3296	140	0.461	-33	407	-0.013	93.971	488	-0.046	6.165	11932	517
18.0	6.2	11,931.9	517	251	150	0.038	3295	140	0.461	1	679	0.001	95.542	517	-0.049	6.615	12105	546
19.0	6.6	12,104.5	546	251	150	0.038	3294	140	0.461	31	681	0.021	96.935	546	-0.053	7.082	12257	578
20.0	7.1	12,257.3	578	251	150	0.038	3293	140	0.461	58	681	0.039	98.168	578	-0.057	7.564	12393	610
21.0	7.6	12,392.7	610	251	150	0.038	3292	140	0.461	82	682	0.056	99.260	610	-0.061	8.057	12513	644
22.0	8.1	12,512.5	644	251	150	0.038	3291	140	0.461	102	682	0.070	100.227	644	-0.065	8.561	12619	678
23.0	8.6	12,618.7	678	251	150	0.038	3291	140	0.461	121	683	0.083	101.084	678	-0.069	9.074	12713	714
24.0	9.1	12,712.7	714	251	150	0.038	3290	140	0.461	137	683	0.094	101.843	714	-0.073	9.593	12796	750
25.0	9.6	12,795.9	750	251	150	0.038	3290	140	0.461	152	683	0.104	102.515	750	-0.077	10.118	12870	786
26.0	10.1	12,869.6	786	251	150	0.038	3289	140	0.460	165	683	0.113	103.110	786	-0.081	10.648	12935	823
27.0	10.6	12,934.9	823	251	150	0.038	3289	140	0.460	176	683	0.120	103.637	823	-0.085	11.181	12993	861
28.0	11.2	12,992.7	861	251	150	0.038	3288	140	0.460	186	683	0.127	104.104	861	-0.090	11.717	13044	898
29.0	11.7	13,043.9	898	251	150	0.038	3288	140	0.460	195	683	0.133	104.517	898	-0.094	12.254	13089	936
30.0	12.3	13,089.2	936	251	150	0.038	3288	140	0.460	203	683	0.139	104.884	936	-0.098	12.793	13129	974
31.0	12.8	13,129.4	974	251	150	0.038	3288	140	0.460	210	683	0.144	105.208	974	-0.103	13.332	13165	1013
32.0	13.3	13,164.9	1013	251	150	0.038	3287	140	0.460	216	683	0.148	105.495	1013	-0.107	13.871	13196	1051
33.0	13.9	13,196.4	1051	251	150	0.038	3287	140	0.460	222	683	0.152	105.749	1051	-0.111	14.409	13224	1090
34.0	14.4	13,224.3	1090	251	150	0.038	3287	140	0.460	227	683	0.155	105.975	1090	-0.115	14.947	13249	1128
35.0	14.9	13,249.0	1128	251	150	0.038	3287	140	0.460	231	683	0.158	106.174	1128	-0.120	15.483	13271	1167
36.0	15.5	13,270.9	1167	251	150	0.038	3287	140	0.460	235	683	0.160	106.351	1167	-0.124	16.017	13290	1205
37.0	16.0	13,290.2	1205	251	150	0.038	3287	140	0.460	238	683	0.163	106.507	1205	-0.128	16.549	13307	1244
38.0	16.5	13,307.4	1244	251	150	0.038	3287	140	0.460	241	683	0.165	106.646	1244	-0.133	17.079	13323	1282
39.0	17.1	13,322.6	1282	251	150	0.038	3286	140	0.460	244	683	0.167	106.768	1282	-0.137	17.607	13336	1320
40.0	17.6	13,336.0	1320	251	150	0.038	3286	140	0.460	246	683	0.168	106.877	1320	-0.141	18.132	13348	1358
41.0	18.1	13,347.9	1358	251	150	0.038	3286	140	0.460	248	683	0.170	106.973	1358	-0.145	18.654	13358	1396
42.0	18.7	13,358.5	1396	251	150	0.038	3286	140	0.460	250	683	0.171	107.059	1396	-0.149	19.173	13368	1434
43.0	19.2	13,367.8	1434	251	150	0.038	3286	140	0.460	252	683	0.172	107.134	1434	-0.154	19.689	13376	1472
44.0	19.7	13,376.1	1472	251	150	0.038	3286	140	0.460	253	683	0.173	107.201	1472	-0.158	20.202	13383	1509
45.0	20.2	13,383.4	1509	251	150	0.038	3286	140	0.460	255	683	0.174	107.260	1509	-0.162	20.712	13390	1547
46.0	20.7	13,389.9	1547	251	150	0.038	3286	140	0.460	256	683	0.175	107.312	1547	-0.166	21.218	13396	1584
47.0	21.2	13,395.6	1584	251	150	0.038	3286	140	0.460	257	683	0.175	107.359	1584	-0.170	21.721	13401	1621
48.0	21.7	13,400.7	1621	251	150	0.038	3286	140	0.460	258	683	0.176	107.400	1621	-0.174	22.221	13405	1658
49.0	22.2	13,405.2	1658	251	150	0.038	3286	140	0.460	258	683	0.176	107.436	1658	-0.178	22.717	13409	1694
50.0	22.7	13,409.2	1694	251	150	0.038	3286	140	0.460	259	683	0.177	107.469	1694	-0.182	23.210	13413	1730
51.0	23.2	13,412.7	1730	251	150	0.038	3286	140	0.460	260	683	0.177	107.497	1730	-0.186	23.699	13416	1766
52.0	23.7	13,415.9	1766	251	150	0.038	3286	140	0.460	260	683	0.178	107.522	1766	-0.190	24.184	13419	1802
53.0	24.2	13,418.6	1802	251	150	0.038	3286	140	0.460	261	683	0.178	107.545	1802	-0.194	24.666	13421	1838
54.0	24.7	13,421.1	1838	251	150	0.038	3286	140	0.460	261	683	0.178	107.565	1838	-0.198	25.145	13423	1873
55.0	25.1	13,423.3	1873	251	150	0.038	3286	140	0.460	262	683	0.179	107.582	1873	-0.202	25.619	13425	1908
56.0	25.6	13,425.2	1908	251	150	0.038	3286	140	0.460	262	683	0.179	107.598	1908	-0.205	26.091	13427	1943
57.0	26.1	13,426.9	1943	251	150	0.038	3286	140	0.460	262	683	0.179	107.612	1943	-0.209	26.558	13428	1978
58.0	26.6	13,428.4	1978	251	150	0.038	3286	140	0.460	262	683	0.179	107.624	1978	-0.213	27.022	13430	2012
59.0	27.0	13,429.7	2012	251	150	0.038	3286	140	0.460	263	683	0.179	107.635	2012	-0.217	27.483	13431	2046
60.0	27.5	13,430.9	2046	251	150	0.038	3286	140	0.460	263	683	0.180	107.644	2046	-0.220	27.940	13432	2080
61.0	27.9	13,432.0	2080	251	150	0.038	3286	140	0.460	263	683	0.180	107.653	2080	-0.224	28.393	13433	2114

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
62.0	28.4	13,432.9	2114	251	150	0.038	3286	140	0.460	263	683	0.180	107.660	2114	-0.228	28.843	13434	2147
63.0	28.8	13,433.7	2147	251	150	0.038	3286	140	0.460	263	683	0.180	107.667	2147	-0.231	29.290	13434	2180
64.0	29.3	13,434.5	2180	251	150	0.038	3286	140	0.460	263	683	0.180	107.673	2180	-0.235	29.733	13435	2213
65.0	29.7	13,435.1	2213	251	150	0.038	3286	140	0.460	264	683	0.180	107.678	2213	-0.238	30.172	13436	2246
66.0	30.2	13,435.7	2246	251	150	0.038	3286	140	0.460	264	683	0.180	107.682	2246	-0.242	30.608	13436	2278
67.0	30.6	13,436.2	2278	251	150	0.038	3286	140	0.460	264	683	0.180	107.687	2278	-0.245	31.041	13437	2310
68.0	31.0	13,436.6	2310	251	150	0.038	3286	140	0.460	264	683	0.180	107.690	2310	-0.249	31.470	13437	2342
69.0	31.5	13,437.0	2342	251	150	0.038	3286	140	0.460	264	683	0.180	107.693	2342	-0.252	31.896	13437	2374
70.0	31.9	13,437.4	2374	251	150	0.038	3286	140	0.460	264	683	0.180	107.696	2374	-0.256	32.318	13438	2405
71.0	32.3	13,437.7	2405	251	150	0.038	3286	140	0.460	264	683	0.180	107.699	2405	-0.259	32.737	13438	2436
72.0	32.7	13,438.0	2436	251	150	0.038	3286	140	0.460	264	683	0.180	107.701	2436	-0.262	33.153	13438	2467
73.0	33.2	13,438.2	2467	251	150	0.038	3286	140	0.460	264	683	0.180	107.703	2467	-0.266	33.565	13438	2498
74.0	33.6	13,438.4	2498	251	150	0.038	3286	140	0.460	264	683	0.180	107.705	2498	-0.269	33.974	13439	2528
75.0	34.0	13,438.6	2528	251	150	0.038	3286	140	0.460	264	683	0.180	107.706	2528	-0.272	34.380	13439	2558
76.0	34.4	13,438.8	2558	251	150	0.038	3286	140	0.460	264	683	0.180	107.708	2558	-0.276	34.783	13439	2588
77.0	34.8	13,438.9	2588	251	150	0.038	3286	140	0.460	264	683	0.180	107.709	2588	-0.279	35.182	13439	2618
78.0	35.2	13,439.1	2618	251	150	0.038	3286	140	0.460	264	683	0.181	107.710	2618	-0.282	35.579	13439	2647
79.0	35.6	13,439.2	2647	251	150	0.038	3286	140	0.460	264	683	0.181	107.711	2647	-0.285	35.972	13439	2677
80.0	36.0	13,439.3	2677	251	150	0.038	3286	140	0.460	264	683	0.181	107.712	2677	-0.288	36.362	13439	2706
81.0	36.4	13,439.4	2706	251	150	0.038	3286	140	0.460	264	683	0.181	107.712	2706	-0.291	36.748	13439	2734
82.0	36.7	13,439.5	2734	251	150	0.038	3286	140	0.460	264	683	0.181	107.713	2734	-0.295	37.132	13440	2763
83.0	37.1	13,439.5	2763	251	150	0.038	3286	140	0.460	264	683	0.181	107.714	2763	-0.298	37.513	13440	2791
84.0	37.5	13,439.6	2791	251	150	0.038	3286	140	0.460	264	683	0.181	107.714	2791	-0.301	37.891	13440	2819
85.0	37.9	13,439.6	2819	251	150	0.038	3286	140	0.460	264	683	0.181	107.715	2819	-0.304	38.265	13440	2847
86.0	38.3	13,439.7	2847	251	150	0.038	3286	140	0.460	264	683	0.181	107.715	2847	-0.307	38.637	13440	2875
87.0	38.6	13,439.7	2875	251	150	0.038	3286	140	0.460	264	683	0.181	107.715	2875	-0.310	39.005	13440	2902
88.0	39.0	13,439.8	2902	251	150	0.038	3286	140	0.460	264	683	0.181	107.716	2902	-0.313	39.371	13440	2929
89.0	39.4	13,439.8	2929	251	150	0.038	3286	140	0.460	264	683	0.181	107.716	2929	-0.316	39.734	13440	2956
90.0	39.7	13,439.8	2956	251	150	0.038	3286	140	0.460	264	683	0.181	107.716	2956	-0.318	40.094	13440	2983
91.0	40.1	13,439.9	2983	251	150	0.038	3286	140	0.460	264	683	0.181	107.716	2983	-0.321	40.451	13440	3000
92.0	40.3	13,439.9	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
93.0	40.3	13,439.9	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
94.0	40.3	13,439.9	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
95.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
96.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
97.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
98.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.717	3000	-0.323	40.675	13440	3000
99.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
100.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
101.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
102.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
103.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
104.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
105.0	40.3	13,440.0	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
106.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
107.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
108.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
109.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
110.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
111.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
112.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
113.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
114.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
115.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
116.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
117.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
118.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
119.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
120.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
121.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
122.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
123.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
124.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
125.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
126.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
127.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
128.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
129.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
130.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
131.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
132.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
133.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
134.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
135.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
136.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
137.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
138.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
139.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
140.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
141.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
142.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
143.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
144.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
145.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
146.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
147.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
148.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
149.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
150.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
151.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
152.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
153.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
154.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
155.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
156.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
157.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
158.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
159.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
160.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
161.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
162.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
163.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
164.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
165.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
166.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
167.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
168.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
169.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
170.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
171.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
172.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
173.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
174.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
175.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
176.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
177.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
178.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
179.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
180.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
181.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
182.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
183.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
184.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
185.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
186.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
187.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
188.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
189.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
190.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
191.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
192.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
193.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
194.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
195.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
196.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
197.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
198.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
199.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
200.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
201.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
202.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
203.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
204.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
205.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
206.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
207.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
208.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
209.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
210.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
211.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
212.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
213.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
214.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
215.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
216.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
217.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
218.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
219.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
220.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
221.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
222.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
223.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
224.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
225.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
226.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
227.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
228.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
229.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
230.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
231.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
232.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
233.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
234.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
235.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
236.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
237.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
238.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
239.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
240.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
241.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
242.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
243.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
244.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
245.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
246.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
247.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
248.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
249.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
250.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
251.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
252.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
253.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
254.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
255.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
256.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
257.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
258.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
259.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
260.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
261.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
262.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
263.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
264.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
265.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
266.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
267.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
268.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
269.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
270.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
271.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
272.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
273.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
274.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
275.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
276.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
277.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
278.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
279.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
280.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
281.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
282.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
283.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
284.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
285.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
286.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
287.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
288.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
289.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
290.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
291.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
292.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
293.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
294.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
295.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
296.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
297.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
298.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
299.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
300.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
301.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
302.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
303.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
304.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
305.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
306.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
307.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
308.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
309.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
310.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
311.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
312.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
313.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
314.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
315.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
316.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
317.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
318.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
319.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
320.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
321.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
322.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
323.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
324.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
325.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
326.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
327.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
328.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
329.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
330.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
331.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
332.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
333.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
334.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
335.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
336.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
337.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
338.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
339.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
340.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
341.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
342.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
343.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
344.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
345.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
346.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
347.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
348.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
349.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
350.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
351.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
352.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
353.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
354.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
355.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
356.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
357.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
358.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
359.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
360.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
361.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
362.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
363.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
364.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
365.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
366.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
367.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
368.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
369.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
370.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
371.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
372.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
373.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
374.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
375.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
376.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
377.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
378.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
379.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
380.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
381.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
382.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
383.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
384.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
385.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
386.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
387.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
388.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
389.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
390.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
391.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
392.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
393.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
394.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
395.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
396.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
397.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
398.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
399.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
400.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
401.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
402.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
403.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
404.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
405.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
406.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
407.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
408.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
409.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
410.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
411.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
412.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
413.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
414.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
415.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
416.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
417.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
418.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
419.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
420.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
421.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
422.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
423.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
424.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
425.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
426.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
427.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
428.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
429.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
430.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
431.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
432.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
433.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
434.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
435.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
436.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
437.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
438.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
439.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 28. CHEMICAL BALANCE MODEL RESULTS FOR SENTINEL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run-off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
440.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
441.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
442.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
443.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
444.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
445.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
446.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
447.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
448.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
449.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
450.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
451.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
452.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
453.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
454.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
455.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
456.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
457.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
458.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
459.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
460.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
461.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
462.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
463.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
464.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
465.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
466.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
467.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
468.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
469.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
470.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
471.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
472.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
473.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
474.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
475.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
476.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
477.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
478.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
479.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
480.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
481.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
482.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
483.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
484.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
485.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
486.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
487.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
488.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
489.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
490.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
491.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
492.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
493.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
494.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
495.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
496.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
497.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
498.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
499.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000
500.0	40.3	13,440.1	3000	251	150	0.038	3286	140	0.460	264	683	0.181	107.718	3000	-0.323	40.675	13440	3000

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
0.00	0.000001	6.83E-10	683	5990	448	2.7	1038	2039	2.1	-2081.9	140.7	-0.3	6704	683	5	0.5	2406	214
1.00	2406	0.514	214	5979	448	2.7	1036	2039	2.1	-1813.5	140.7	-0.3	6698	214	1.4	4.1	4537	910
2.00	4537	4.129	910	5970	448	2.7	1035	2039	2.1	-1575.8	149.8	-0.2	6693	910	6.1	3.1	6424	476
3.00	6424	3.058	476	5961	448	2.7	1033	2039	2.1	-1365.3	161.1	-0.2	6688	476	3.2	4.9	8095	602
4.00	8095	4.871	602	5953	448	2.7	1032	2039	2.1	-1178.8	173.4	-0.2	6684	602	4.0	5.8	9575	608
5.00	9575	5.825	608	5947	448	2.7	1031	2039	2.1	-1013.7	186.6	-0.2	6680	608	4.1	6.7	10886	617
6.00	10886	6.716	617	5941	448	2.7	1030	2039	2.1	-867.5	200.7	-0.2	6677	617	4.1	7.5	12047	625
7.00	12047	7.531	625	5936	448	2.7	1029	2039	2.1	-738.0	215.6	-0.2	6674	625	4.2	8.3	13074	633
8.0	13074	8.274	633	5931	448	2.7	1028	2039	2.1	-623.3	231.3	-0.1	6672	633	4.2	8.9	13985	640
9.0	13985	8.949	640	5927	448	2.7	1027	2039	2.1	-521.7	247.7	-0.1	6670	640	4.3	9.6	14791	646
10.0	14791	9.560	646	5923	448	2.7	1027	2039	2.1	-431.8	265.0	-0.1	6668	646	4.3	10.1	15504	652
11.0	15504	10.111	652	5920	448	2.7	1026	2039	2.1	-352.1	283.0	-0.1	6666	652	4.3	10.6	16137	657
12.0	16137	10.608	657	5917	448	2.7	1025	2039	2.1	-281.6	301.8	-0.1	6664	657	4.4	11.1	16696	662
13.0	16696	11.054	662	5914	448	2.6	1025	2039	2.1	-219.1	321.3	-0.1	6663	662	4.4	11.5	17192	666
14.0	17192	11.453	666	5912	448	2.6	1025	2039	2.1	-163.8	341.7	-0.1	6662	666	4.4	11.8	17631	670
15.0	17631	11.809	670	5910	448	2.6	1024	2039	2.1	-114.8	362.8	0.0	6660	670	4.5	12.1	18020	673
16.0	18020	12.126	673	5908	448	2.6	1024	2039	2.1	-71.4	384.6	0.0	6659	673	4.5	12.4	18364	676
17.0	18364	12.407	676	5907	448	2.6	1024	2039	2.1	-32.9	407.2	0.0	6659	676	4.5	12.7	18669	678
18.0	18669	12.655	678	5905	448	2.6	1023	2039	2.1	1.1	679.3	0.0	6658	678	4.5	12.9	18939	680
19.0	18939	12.874	680	5904	448	2.6	1023	2039	2.1	31.2	680.6	0.0	6657	680	4.5	13.1	19178	681
20.0	19178	13.059	681	5903	448	2.6	1023	2039	2.1	57.9	681.5	0.0	6657	681	4.5	13.2	19390	682
21.0	19390	13.218	682	5902	448	2.6	1023	2039	2.1	81.5	682.0	0.1	6656	682	4.5	13.4	19578	682
22.0	19578	13.355	682	5901	448	2.6	1023	2039	2.1	102.5	682.4	0.1	6656	682	4.5	13.5	19744	682
23.0	19744	13.474	682	5901	448	2.6	1023	2039	2.1	121.0	682.6	0.1	6655	682	4.5	13.6	19891	683
24.0	19891	13.578	683	5900	448	2.6	1023	2039	2.1	137.4	682.7	0.1	6655	683	4.5	13.7	20021	683
25.0	20021	13.670	683	5899	448	2.6	1022	2039	2.1	152.0	682.8	0.1	6654	683	4.5	13.7	20136	683
26.0	20136	13.750	683	5899	448	2.6	1022	2039	2.1	164.8	682.9	0.1	6654	683	4.5	13.8	20238	683
27.0	20238	13.821	683	5898	448	2.6	1022	2039	2.1	176.2	682.9	0.1	6654	683	4.5	13.9	20329	683
28.0	20329	13.883	683	5898	448	2.6	1022	2039	2.1	186.3	683.0	0.1	6654	683	4.5	13.9	20409	683
29.0	20409	13.938	683	5898	448	2.6	1022	2039	2.1	195.3	683.0	0.1	6653	683	4.5	14.0	20480	683
30.0	20480	13.987	683	5897	448	2.6	1022	2039	2.1	203.2	683.0	0.1	6653	683	4.5	14.0	20543	683
31.0	20543	14.030	683	5897	448	2.6	1022	2039	2.1	210.2	683.0	0.1	6653	683	4.5	14.1	20598	683
32.0	20598	14.068	683	5897	448	2.6	1022	2039	2.1	216.4	683.0	0.1	6653	683	4.5	14.1	20648	683
33.0	20648	14.102	683	5896	448	2.6	1022	2039	2.1	221.9	683.0	0.2	6653	683	4.5	14.1	20691	683
34.0	20691	14.132	683	5896	448	2.6	1022	2039	2.1	226.8	683.0	0.2	6653	683	4.5	14.2	20730	683
35.0	20730	14.159	683	5896	448	2.6	1022	2039	2.1	231.1	683.0	0.2	6653	683	4.5	14.2	20764	683
36.0	20764	14.182	683	5896	448	2.6	1022	2039	2.1	234.9	683.0	0.2	6653	683	4.5	14.2	20794	683
37.0	20794	14.203	683	5896	448	2.6	1022	2039	2.1	238.3	683.0	0.2	6653	683	4.5	14.2	20821	683
38.0	20821	14.221	683	5896	448	2.6	1022	2039	2.1	241.3	683.0	0.2	6652	683	4.5	14.2	20845	683
39.0	20845	14.237	683	5896	448	2.6	1022	2039	2.1	243.9	683.0	0.2	6652	683	4.5	14.3	20866	683
40.0	20866	14.252	683	5895	448	2.6	1022	2039	2.1	246.3	683.0	0.2	6652	683	4.5	14.3	20885	683
41.0	20885	14.264	683	5895	448	2.6	1022	2039	2.1	248.4	683.0	0.2	6652	683	4.5	14.3	20901	683
42.0	20901	14.276	683	5895	448	2.6	1022	2039	2.1	250.2	683.0	0.2	6652	683	4.5	14.3	20916	683
43.0	20916	14.286	683	5895	448	2.6	1022	2039	2.1	251.8	683.0	0.2	6652	683	4.5	14.3	20929	683
44.0	20929	14.294	683	5895	448	2.6	1022	2039	2.1	253.3	683.0	0.2	6652	683	4.5	14.3	20940	683
45.0	20940	14.302	683	5895	448	2.6	1022	2039	2.1	254.6	683.0	0.2	6652	683	4.5	14.3	20950	683
46.0	20950	14.309	683	5895	448	2.6	1022	2039	2.1	255.7	683.0	0.2	6652	683	4.5	14.3	20959	683
47.0	20959	14.315	683	5895	448	2.6	1022	2039	2.1	256.7	683.0	0.2	6652	683	4.5	14.3	20967	683
48.0	20967	14.321	683	5895	448	2.6	1022	2039	2.1	257.6	683.0	0.2	6652	683	4.5	14.3	20974	683
49.0	20974	14.326	683	5895	448	2.6	1022	2039	2.1	258.4	683.0	0.2	6652	683	4.5	14.3	20981	683
50.0	20981	14.330	683	5895	448	2.6	1022	2039	2.1	259.1	683.0	0.2	6652	683	4.5	14.3	20986	683
51.0	20986	14.334	683	5895	448	2.6	1022	2039	2.1	259.7	683.0	0.2	6652	683	4.5	14.3	20991	683
52.0	20991	14.337	683	5895	448	2.6	1022	2039	2.1	260.2	683.0	0.2	6652	683	4.5	14.3	20995	683
53.0	20995	14.340	683	5895	448	2.6	1022	2039	2.1	260.7	683.0	0.2	6652	683	4.5	14.3	20999	683
54.0	20999	14.343	683	5895	448	2.6	1022	2039	2.1	261.1	683.0	0.2	6652	683	4.5	14.3	21003	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
55.0	21003	14.345	683	5895	448	2.6	1022	2039	2.1	261.5	683.0	0.2	6652	683	4.5	14.3	21006	683
56.0	21006	14.347	683	5895	448	2.6	1022	2039	2.1	261.9	683.0	0.2	6652	683	4.5	14.3	21008	683
57.0	21008	14.349	683	5895	448	2.6	1022	2039	2.1	262.2	683.0	0.2	6652	683	4.5	14.4	21011	683
58.0	21011	14.350	683	5895	448	2.6	1022	2039	2.1	262.4	683.0	0.2	6652	683	4.5	14.4	21013	683
59.0	21013	14.352	683	5895	448	2.6	1022	2039	2.1	262.7	683.0	0.2	6652	683	4.5	14.4	21014	683
60.0	21014	14.353	683	5895	448	2.6	1022	2039	2.1	262.9	683.0	0.2	6652	683	4.5	14.4	21016	683
61.0	21016	14.354	683	5895	448	2.6	1022	2039	2.1	263.0	683.0	0.2	6652	683	4.5	14.4	21018	683
62.0	21018	14.355	683	5895	448	2.6	1022	2039	2.1	263.2	683.0	0.2	6652	683	4.5	14.4	21019	683
63.0	21019	14.356	683	5895	448	2.6	1022	2039	2.1	263.3	683.0	0.2	6652	683	4.5	14.4	21020	683
64.0	21020	14.357	683	5895	448	2.6	1022	2039	2.1	263.5	683.0	0.2	6652	683	4.5	14.4	21021	683
65.0	21021	14.357	683	5895	448	2.6	1022	2039	2.1	263.6	683.0	0.2	6652	683	4.5	14.4	21022	683
66.0	21022	14.358	683	5895	448	2.6	1022	2039	2.1	263.7	683.0	0.2	6652	683	4.5	14.4	21023	683
67.0	21023	14.359	683	5895	448	2.6	1022	2039	2.1	263.8	683.0	0.2	6652	683	4.5	14.4	21023	683
68.0	21023	14.359	683	5895	448	2.6	1022	2039	2.1	263.9	683.0	0.2	6652	683	4.5	14.4	21024	683
69.0	21024	14.360	683	5895	448	2.6	1022	2039	2.1	263.9	683.0	0.2	6652	683	4.5	14.4	21025	683
70.0	21025	14.360	683	5895	448	2.6	1022	2039	2.1	264.0	683.0	0.2	6652	683	4.5	14.4	21025	683
71.0	21025	14.360	683	5895	448	2.6	1022	2039	2.1	264.0	683.0	0.2	6652	683	4.5	14.4	21025	683
72.0	21025	14.361	683	5895	448	2.6	1022	2039	2.1	264.1	683.0	0.2	6652	683	4.5	14.4	21026	683
73.0	21026	14.361	683	5895	448	2.6	1022	2039	2.1	264.1	683.0	0.2	6652	683	4.5	14.4	21026	683
74.0	21026	14.361	683	5895	448	2.6	1022	2039	2.1	264.2	683.0	0.2	6652	683	4.5	14.4	21026	683
75.0	21026	14.361	683	5895	448	2.6	1022	2039	2.1	264.2	683.0	0.2	6652	683	4.5	14.4	21027	683
76.0	21027	14.361	683	5895	448	2.6	1022	2039	2.1	264.2	683.0	0.2	6652	683	4.5	14.4	21027	683
77.0	21027	14.362	683	5895	448	2.6	1022	2039	2.1	264.3	683.0	0.2	6652	683	4.5	14.4	21027	683
78.0	21027	14.362	683	5895	448	2.6	1022	2039	2.1	264.3	683.0	0.2	6652	683	4.5	14.4	21027	683
79.0	21027	14.362	683	5895	448	2.6	1022	2039	2.1	264.3	683.0	0.2	6652	683	4.5	14.4	21028	683
80.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.3	683.0	0.2	6652	683	4.5	14.4	21028	683
81.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.3	683.0	0.2	6652	683	4.5	14.4	21028	683
82.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
83.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
84.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
85.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
86.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
87.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
88.0	21028	14.362	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
89.0	21028	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
90.0	21028	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21028	683
91.0	21028	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
92.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
93.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
94.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
95.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
96.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
97.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
98.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
99.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
100.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
101.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.4	683.0	0.2	6652	683	4.5	14.4	21029	683
102.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
103.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
104.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
105.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
106.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
107.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
108.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
109.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
110.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
111.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
112.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
113.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
114.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
115.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
116.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
117.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
118.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
119.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
120.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
121.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
122.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
123.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
124.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
125.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
126.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
127.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
128.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
129.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
130.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
131.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
132.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
133.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
134.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
135.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
136.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
137.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
138.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
139.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
140.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
141.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
142.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
143.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
144.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
145.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
146.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
147.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
148.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
149.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
150.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
151.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
152.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
153.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
154.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
155.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
156.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
157.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
158.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
159.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
160.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
161.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
162.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
163.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
164.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
165.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
166.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
167.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
168.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
169.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
170.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
171.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
172.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
173.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
174.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
175.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
176.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
177.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
178.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
179.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
180.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
181.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
182.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
183.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
184.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
185.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
186.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
187.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
188.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
189.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
190.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
191.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
192.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
193.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
194.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
195.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
196.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
197.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
198.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
199.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
200.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
201.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
202.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
203.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
204.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
205.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
206.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
207.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
208.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
209.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
210.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
211.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
212.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
213.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
214.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
215.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
216.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
217.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
218.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
219.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
220.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
221.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
222.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
223.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
224.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
225.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
226.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
227.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
228.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
229.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
230.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
231.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
232.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
233.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
234.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
235.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
236.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
237.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
238.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
239.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
240.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
241.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
242.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
243.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
244.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
245.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
246.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
247.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
248.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
249.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
250.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
251.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
252.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
253.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
254.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
255.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
256.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
257.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
258.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
259.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
260.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
261.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
262.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
263.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
264.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
265.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
266.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
267.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
268.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
269.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
270.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
271.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
272.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
273.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
274.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
275.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
276.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
277.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
278.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
279.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
280.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
281.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
282.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
283.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
284.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
285.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
286.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
287.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
288.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
289.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
290.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
291.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
292.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
293.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
294.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
295.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
296.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
297.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
298.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
299.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
300.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
301.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
302.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
303.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
304.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
305.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
306.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
307.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
308.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
309.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
310.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
311.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
312.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
313.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
314.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
315.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
316.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
317.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
318.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
319.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
320.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
321.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
322.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
323.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
324.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
325.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
326.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
327.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
328.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
329.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
330.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
331.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
332.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
333.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
334.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
335.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
336.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
337.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
338.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
339.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
340.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
341.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
342.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
343.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
344.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
345.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
346.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
347.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
348.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
349.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
350.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
351.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
352.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
353.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
354.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
355.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
356.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
357.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
358.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
359.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
360.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
361.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
362.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
363.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
364.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
365.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
366.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
367.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
368.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
369.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
370.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
371.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
372.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
373.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
374.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
375.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
376.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
377.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
378.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
379.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
380.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
381.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
382.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
383.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
384.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
385.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
386.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
387.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
388.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
389.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
390.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
391.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
392.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
393.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
394.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
395.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
396.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
397.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
398.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
399.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
400.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
401.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
402.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
403.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
404.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
405.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
406.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
407.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
408.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
409.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
410.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
411.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
412.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
413.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
414.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
415.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
416.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
417.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
418.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
419.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
420.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
421.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
422.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
423.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
424.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
425.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
426.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
427.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
428.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
429.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
430.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
431.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
432.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
433.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
434.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
435.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
436.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
437.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
438.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
439.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
440.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
441.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
442.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
443.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
444.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
445.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
446.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 29. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR SENTINEL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
447.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
448.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
449.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
450.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
451.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
452.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
453.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
454.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
455.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
456.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
457.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
458.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
459.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
460.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
461.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
462.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
463.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
464.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
465.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
466.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
467.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
468.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
469.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
470.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
471.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
472.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
473.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
474.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
475.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
476.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
477.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
478.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
479.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
480.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
481.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
482.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
483.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
484.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
485.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
486.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
487.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
488.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
489.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
490.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
491.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
492.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
493.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
494.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
495.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
496.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
497.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
498.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
499.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683
500.0	21029	14.363	683	5895	448	2.6	1022	2039	2.1	264.5	683.0	0.2	6652	683	4.5	14.4	21029	683

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
0.00	843,404.6	576	683.00	6,704	683	4.6	0.0	0.0	0.0000	850,109	581	683	6,704	4.57882	843,405	576	683
1.00	843,404.6	576	683.00	6,698	214	1.4	140.7	12.2	0.0017	850,115	577	679	6,710	4.55828	843,405	573	679
2.00	843,404.6	573	679.30	6,693	910	6.1	161.2	23.1	0.0037	850,121	579	681	6,716	4.57419	843,405	574	681
3.00	843,404.6	574	681.10	6,688	476	3.2	178.9	32.7	0.0059	850,126	578	679	6,721	4.56659	843,405	573	679
4.00	843,404.6	573	679.47	6,684	602	4.0	196.1	41.3	0.0081	850,130	577	679	6,725	4.56529	843,405	573	679
5.00	843,404.6	573	678.83	6,680	608	4.1	213.5	48.8	0.0104	850,134	577	678	6,729	4.56400	843,405	572	678
6.00	843,404.6	572	678.25	6,677	617	4.1	231.6	55.5	0.0129	850,137	576	678	6,733	4.56287	843,405	572	678
7.00	843,404.6	572	677.74	6,674	625	4.2	250.3	61.5	0.0154	850,141	576	677	6,736	4.56193	843,405	571	677
8.0	843,404.6	571	677.30	6,672	633	4.2	269.9	66.8	0.0180	850,143	575	677	6,739	4.56117	843,405	571	677
9.0	843,404.6	571	676.92	6,670	640	4.3	290.4	71.4	0.0207	850,146	575	677	6,741	4.56058	843,405	571	677
10.0	843,404.6	571	676.59	6,668	646	4.3	311.8	75.6	0.0236	850,148	575	676	6,743	4.56016	843,405	570	676
11.0	843,404.6	570	676.32	6,666	652	4.3	334.1	79.2	0.0265	850,150	575	676	6,745	4.55990	843,405	570	676
12.0	843,404.6	570	676.10	6,664	657	4.4	357.3	82.5	0.0295	850,151	575	676	6,747	4.55979	843,405	570	676
13.0	843,404.6	570	675.93	6,663	662	4.4	381.5	85.4	0.0326	850,153	574	676	6,748	4.55981	843,405	570	676
14.0	843,404.6	570	675.79	6,662	666	4.4	406.6	87.9	0.0358	850,154	574	676	6,749	4.55996	843,405	570	676
15.0	843,404.6	570	675.69	6,660	670	4.5	432.7	90.2	0.0390	850,155	574	676	6,751	4.56021	843,405	570	676
16.0	843,404.6	570	675.61	6,659	673	4.5	459.8	92.2	0.0424	850,156	574	675	6,752	4.56055	843,405	570	676
17.0	843,404.6	570	675.57	6,659	676	4.5	487.7	94.0	0.0458	850,157	574	675	6,753	4.56098	843,405	570	676
18.0	843,404.6	570	675.55	6,658	678	4.5	516.6	95.5	0.0494	850,158	574	675	6,753	4.56148	843,405	570	676
19.0	843,404.6	570	675.55	6,657	680	4.5	546.5	96.9	0.0530	850,159	574	675	6,754	4.56203	843,405	570	676
20.0	843,404.6	570	675.57	6,657	681	4.5	577.8	98.2	0.0567	850,159	574	675	6,755	4.56261	843,405	570	676
21.0	843,404.6	570	675.60	6,656	682	4.5	610.3	99.3	0.0606	850,160	574	676	6,755	4.56321	843,405	570	676
22.0	843,404.6	570	675.64	6,656	682	4.5	643.9	100.2	0.0645	850,160	574	676	6,756	4.56380	843,405	570	676
23.0	843,404.6	570	675.69	6,655	682	4.5	678.5	101.1	0.0686	850,161	574	676	6,756	4.56440	843,405	570	676
24.0	843,404.6	570	675.75	6,655	683	4.5	713.7	101.8	0.0727	850,161	574	676	6,757	4.56501	843,405	570	676
25.0	843,404.6	570	675.81	6,654	683	4.5	749.7	102.5	0.0769	850,162	574	676	6,757	4.56561	843,405	570	676
26.0	843,404.6	570	675.87	6,654	683	4.5	786.2	103.1	0.0811	850,162	574	676	6,757	4.56622	843,405	570	676
27.0	843,404.6	570	675.94	6,654	683	4.5	823.2	103.6	0.0853	850,162	575	676	6,758	4.56683	843,405	570	676
28.0	843,404.6	570	676.02	6,654	683	4.5	860.6	104.1	0.0896	850,162	575	676	6,758	4.56746	843,405	570	676
29.0	843,404.6	570	676.09	6,653	683	4.5	898.3	104.5	0.0939	850,163	575	676	6,758	4.56809	843,405	570	676
30.0	843,404.6	570	676.18	6,653	683	4.5	936.2	104.9	0.0982	850,163	575	676	6,758	4.56874	843,405	570	676
31.0	843,404.6	570	676.26	6,653	683	4.5	974.4	105.2	0.1025	850,163	575	676	6,758	4.56940	843,405	570	676
32.0	843,404.6	570	676.36	6,653	683	4.5	1,012.7	105.5	0.1068	850,163	575	676	6,758	4.57008	843,405	571	676
33.0	843,404.6	571	676.45	6,653	683	4.5	1,051.1	105.7	0.1112	850,163	575	676	6,759	4.57077	843,405	571	677
34.0	843,404.6	571	676.55	6,653	683	4.5	1,089.6	106.0	0.1155	850,163	575	676	6,759	4.57148	843,405	571	677
35.0	843,404.6	571	676.66	6,653	683	4.5	1,128.1	106.2	0.1198	850,163	575	676	6,759	4.57221	843,405	571	677
36.0	843,404.6	571	676.76	6,653	683	4.5	1,166.7	106.4	0.1241	850,164	575	677	6,759	4.57297	843,405	571	677
37.0	843,404.6	571	676.88	6,653	683	4.5	1,205.2	106.5	0.1284	850,164	575	677	6,759	4.57374	843,405	571	677
38.0	843,404.6	571	676.99	6,652	683	4.5	1,243.6	106.6	0.1326	850,164	575	677	6,759	4.57454	843,405	571	677
39.0	843,404.6	571	677.11	6,652	683	4.5	1,282.0	106.8	0.1369	850,164	575	677	6,759	4.57535	843,405	571	677
40.0	843,404.6	571	677.24	6,652	683	4.5	1,320.2	106.9	0.1411	850,164	576	677	6,759	4.57619	843,405	571	677
41.0	843,404.6	571	677.37	6,652	683	4.5	1,358.4	107.0	0.1453	850,164	576	677	6,759	4.57705	843,405	571	677
42.0	843,404.6	571	677.50	6,652	683	4.5	1,396.4	107.1	0.1495	850,164	576	677	6,759	4.57794	843,405	572	678
43.0	843,404.6	572	677.64	6,652	683	4.5	1,434.3	107.1	0.1537	850,164	576	677	6,759	4.57885	843,405	572	678
44.0	843,404.6	572	677.78	6,652	683	4.5	1,472.0	107.2	0.1578	850,164	576	678	6,759	4.57978	843,405	572	678
45.0	843,404.6	572	677.92	6,652	683	4.5	1,509.5	107.3	0.1619	850,164	576	678	6,759	4.58073	843,405	572	678
46.0	843,404.6	572	678.07	6,652	683	4.5	1,546.8	107.3	0.1660	850,164	576	678	6,759	4.58171	843,405	572	678
47.0	843,404.6	572	678.22	6,652	683	4.5	1,584.0	107.4	0.1701	850,164	576	678	6,759	4.58271	843,405	572	678
48.0	843,404.6	572	678.37	6,652	683	4.5	1,620.9	107.4	0.1741	850,164	577	678	6,759	4.58373	843,405	572	679
49.0	843,404.6	572	678.53	6,652	683	4.5	1,657.6	107.4	0.1781	850,164	577	678	6,759	4.58477	843,405	572	679
50.0	843,404.6	572	678.69	6,652	683	4.5	1,694.1	107.5	0.1821	850,164	577	678	6,760	4.58584	843,405	573	679
51.0	843,404.6	573	678.86	6,652	683	4.5	1,730.4	107.5	0.1860	850,164	577	679	6,760	4.58693	843,405	573	679
52.0	843,404.6	573	679.03	6,652	683	4.5	1,766.5	107.5	0.1899	850,164	577	679	6,760	4.58804	843,405	573	679
53.0	843,404.6	573	679.20	6,652	683	4.5	1,802.3	107.5	0.1938	850,164	577	679	6,760	4.58917	843,405	573	679
54.0	843,404.6	573	679.38	6,652	683	4.5	1,837.9	107.6	0.1977	850,164	577	679	6,760	4.59032	843,405	573	680
55.0	843,404.6	573	679.56	6,652	683	4.5	1,873.2	107.6	0.2015	850,164	577	679	6,760	4.59149	843,405	573	680
56.0	843,404.6	573	679.74	6,652	683	4.5	1,908.3	107.6	0.2053	850,164	578	679	6,760	4.59269	843,405	573	680
57.0	843,404.6	573	679.92	6,652	683	4.5	1,943.2	107.6	0.2091	850,164	578	680	6,760	4.59390	843,405	574	680
58.0	843,404.6	574	680.11	6,652	683	4.5	1,977.8	107.6	0.2129	850,164	578	680	6,760	4.59514	843,405	574	680
59.0	843,404.6	574	680.30	6,652	683	4.5	2,012.1	107.6	0.2166	850,164	578	680	6,760	4.59639	843,405	574	680
60.0	843,404.6	574	680.50	6,652	683	4.5	2,046.2	107.6	0.2203	850,164	578	680	6,760	4.59767	843,405	574	681
61.0	843,404.6	574	680.69	6,652	683	4.5	2,080.1	107.7	0.2239	850,164	578	680	6,760	4.59896	843,405	574	681
62.0	843,404.6	574	680.89	6,652	683	4.5	2,113.7	107.7	0.2276	850,164	579	681	6,760	4.60027	843,405	574	681
63.0	843,404.6	574	681.09	6,652	683	4.5	2,147.1	107.7	0.2312	850,164	579	681	6,760	4.60160	843,405	575	681

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
64.0	843,404.6	575	681.30	6,652	683	4.5	2,180.2	107.7	0.2347	850,164	579	681	6,760	4.60295	843,405	575	682
65.0	843,404.6	575	681.51	6,652	683	4.5	2,213.1	107.7	0.2383	850,164	579	681	6,760	4.60432	843,405	575	682
66.0	843,404.6	575	681.72	6,652	683	4.5	2,245.7	107.7	0.2418	850,164	579	681	6,760	4.60570	843,405	575	682
67.0	843,404.6	575	681.93	6,652	683	4.5	2,278.0	107.7	0.2453	850,164	579	682	6,760	4.60710	843,405	575	682
68.0	843,404.6	575	682.14	6,652	683	4.5	2,310.2	107.7	0.2488	850,164	580	682	6,760	4.60852	843,405	576	682
69.0	843,404.6	576	682.36	6,652	683	4.5	2,342.0	107.7	0.2522	850,164	580	682	6,760	4.60995	843,405	576	683
70.0	843,404.6	576	682.58	6,652	683	4.5	2,373.7	107.7	0.2556	850,164	580	682	6,760	4.61140	843,405	576	683
71.0	843,404.6	576	682.80	6,652	683	4.5	2,405.0	107.7	0.2590	850,164	580	682	6,760	4.61286	843,405	576	683
72.0	843,404.6	576	683.03	6,652	683	4.5	2,436.2	107.7	0.2624	850,164	580	683	6,760	4.61435	843,405	576	683
73.0	843,404.6	576	683.26	6,652	683	4.5	2,467.1	107.7	0.2657	850,164	581	683	6,760	4.61584	843,405	576	683
74.0	843,404.6	576	683.49	6,652	683	4.5	2,497.7	107.7	0.2690	850,164	581	683	6,760	4.61735	843,405	577	684
75.0	843,404.6	577	683.72	6,652	683	4.5	2,528.1	107.7	0.2723	850,164	581	683	6,760	4.61888	843,405	577	684
76.0	843,404.6	577	683.95	6,652	683	4.5	2,558.3	107.7	0.2755	850,164	581	684	6,760	4.62041	843,405	577	684
77.0	843,404.6	577	684.18	6,652	683	4.5	2,588.2	107.7	0.2788	850,164	581	684	6,760	4.62197	843,405	577	684
78.0	843,404.6	577	684.42	6,652	683	4.5	2,617.9	107.7	0.2820	850,164	582	684	6,760	4.62353	843,405	577	685
79.0	843,404.6	577	684.66	6,652	683	4.5	2,647.4	107.7	0.2852	850,164	582	684	6,760	4.62511	843,405	578	685
80.0	843,404.6	578	684.90	6,652	683	4.5	2,676.6	107.7	0.2883	850,164	582	684	6,760	4.62670	843,405	578	685
81.0	843,404.6	578	685.15	6,652	683	4.5	2,705.6	107.7	0.2914	850,164	582	685	6,760	4.62831	843,405	578	685
82.0	843,404.6	578	685.39	6,652	683	4.5	2,734.4	107.7	0.2945	850,164	582	685	6,760	4.62993	843,405	578	686
83.0	843,404.6	578	685.64	6,652	683	4.5	2,762.9	107.7	0.2976	850,164	583	685	6,760	4.63155	843,405	578	686
84.0	843,404.6	578	685.88	6,652	683	4.5	2,791.2	107.7	0.3007	850,164	583	685	6,760	4.63319	843,405	579	686
85.0	843,404.6	579	686.13	6,652	683	4.5	2,819.3	107.7	0.3037	850,164	583	686	6,760	4.63485	843,405	579	686
86.0	843,404.6	579	686.39	6,652	683	4.5	2,847.2	107.7	0.3067	850,164	583	686	6,760	4.63651	843,405	579	687
87.0	843,404.6	579	686.64	6,652	683	4.5	2,874.8	107.7	0.3097	850,164	583	686	6,760	4.63818	843,405	579	687
88.0	843,404.6	579	686.89	6,652	683	4.5	2,902.2	107.7	0.3126	850,164	584	686	6,760	4.63987	843,405	580	687
89.0	843,404.6	580	687.15	6,652	683	4.5	2,929.4	107.7	0.3155	850,164	584	687	6,760	4.64156	843,405	580	687
90.0	843,404.6	580	687.41	6,652	683	4.5	2,956.4	107.7	0.3185	850,164	584	687	6,760	4.64327	843,405	580	688
91.0	843,404.6	580	687.67	6,652	683	4.5	2,983.2	107.7	0.3213	850,164	584	687	6,760	4.64498	843,405	580	688
92.0	843,404.6	580	687.93	6,652	683	4.5	3,000.0	107.7	0.3231	850,164	584	687	6,760	4.64671	843,405	580	688
93.0	843,404.6	580	688.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	585	688	6,760	4.64846	843,405	581	688
94.0	843,404.6	581	688.45	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	585	688	6,760	4.65019	843,405	581	689
95.0	843,404.6	581	688.70	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	585	688	6,760	4.65191	843,405	581	689
96.0	843,404.6	581	688.96	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	585	688	6,760	4.65362	843,405	581	689
97.0	843,404.6	581	689.21	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	586	689	6,760	4.65531	843,405	581	689
98.0	843,404.6	581	689.46	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	586	689	6,760	4.65699	843,405	582	690
99.0	843,404.6	582	689.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	586	689	6,760	4.65866	843,405	582	690
100.0	843,404.6	582	689.95	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	586	689	6,760	4.66031	843,405	582	690
101.0	843,404.6	582	690.20	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	586	690	6,760	4.66195	843,405	582	690
102.0	843,404.6	582	690.44	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	587	690	6,760	4.66357	843,405	583	691
103.0	843,404.6	583	690.68	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	587	690	6,760	4.66519	843,405	583	691
104.0	843,404.6	583	690.92	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	587	690	6,760	4.66679	843,405	583	691
105.0	843,404.6	583	691.16	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	587	691	6,760	4.66837	843,405	583	691
106.0	843,404.6	583	691.39	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	587	691	6,760	4.66995	843,405	583	692
107.0	843,404.6	583	691.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	588	691	6,760	4.67151	843,405	584	692
108.0	843,404.6	584	691.86	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	588	691	6,760	4.67306	843,405	584	692
109.0	843,404.6	584	692.09	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	588	692	6,760	4.67460	843,405	584	692
110.0	843,404.6	584	692.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	588	692	6,760	4.67612	843,405	584	693
111.0	843,404.6	584	692.54	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	588	692	6,760	4.67764	843,405	584	693
112.0	843,404.6	584	692.76	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	588	692	6,760	4.67914	843,405	584	693
113.0	843,404.6	584	692.98	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	589	692	6,760	4.68063	843,405	585	693
114.0	843,404.6	585	693.20	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	589	693	6,760	4.68211	843,405	585	693
115.0	843,404.6	585	693.42	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	589	693	6,760	4.68357	843,405	585	694
116.0	843,404.6	585	693.64	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	589	693	6,760	4.68503	843,405	585	694
117.0	843,404.6	585	693.86	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	589	693	6,760	4.68647	843,405	585	694
118.0	843,404.6	585	694.07	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	590	694	6,760	4.68790	843,405	586	694
119.0	843,404.6	586	694.28	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	590	694	6,760	4.68932	843,405	586	694
120.0	843,404.6	586	694.49	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	590	694	6,760	4.69073	843,405	586	695
121.0	843,404.6	586	694.70	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	590	694	6,760	4.69212	843,405	586	695
122.0	843,404.6	586	694.91	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	590	694	6,760	4.69351	843,405	586	695
123.0	843,404.6	586	695.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	590	695	6,760	4.69489	843,405	586	695
124.0	843,404.6	586	695.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	591	695	6,760	4.69625	843,405	587	696
125.0	843,404.6	587	695.52	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	591	695	6,760	4.69760	843,405	587	696
126.0	843,404.6	587	695.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	591	695	6,760	4.69895	843,405	587	696
127.0	843,404.6	587	695.91	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	591	695	6,760	4.70028	843,405	587	696
128.0	843,404.6	587	696.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	591	696	6,760	4.70160	843,405	587	696

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
129.0	843,404.6	587	696.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	591	696	6,760	4.70291	843,405	587	697
130.0	843,404.6	587	696.50	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	592	696	6,760	4.70421	843,405	588	697
131.0	843,404.6	588	696.69	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	592	696	6,760	4.70550	843,405	588	697
132.0	843,404.6	588	696.88	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	592	696	6,760	4.70678	843,405	588	697
133.0	843,404.6	588	697.07	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	592	696	6,760	4.70805	843,405	588	697
134.0	843,404.6	588	697.26	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	592	697	6,760	4.70931	843,405	588	697
135.0	843,404.6	588	697.45	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	592	697	6,760	4.71056	843,405	588	698
136.0	843,404.6	588	697.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	593	697	6,760	4.71180	843,405	589	698
137.0	843,404.6	589	697.82	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	593	697	6,760	4.71303	843,405	589	698
138.0	843,404.6	589	698.00	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	593	697	6,760	4.71425	843,405	589	698
139.0	843,404.6	589	698.18	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	593	698	6,760	4.71546	843,405	589	698
140.0	843,404.6	589	698.36	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	593	698	6,760	4.71666	843,405	589	699
141.0	843,404.6	589	698.54	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	593	698	6,760	4.71785	843,405	589	699
142.0	843,404.6	589	698.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	698	6,760	4.71903	843,405	589	699
143.0	843,404.6	589	698.89	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	698	6,760	4.72020	843,405	590	699
144.0	843,404.6	590	699.06	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	698	6,760	4.72137	843,405	590	699
145.0	843,404.6	590	699.23	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	699	6,760	4.72252	843,405	590	699
146.0	843,404.6	590	699.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	699	6,760	4.72366	843,405	590	700
147.0	843,404.6	590	699.57	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	699	6,760	4.72480	843,405	590	700
148.0	843,404.6	590	699.74	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	594	699	6,760	4.72592	843,405	590	700
149.0	843,404.6	590	699.91	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	699	6,760	4.72704	843,405	590	700
150.0	843,404.6	590	700.07	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	699	6,760	4.72815	843,405	591	700
151.0	843,404.6	591	700.24	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	700	6,760	4.72925	843,405	591	700
152.0	843,404.6	591	700.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	700	6,760	4.73034	843,405	591	701
153.0	843,404.6	591	700.56	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	700	6,760	4.73142	843,405	591	701
154.0	843,404.6	591	700.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	700	6,760	4.73250	843,405	591	701
155.0	843,404.6	591	700.88	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	700	6,760	4.73356	843,405	591	701
156.0	843,404.6	591	701.04	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	595	700	6,760	4.73462	843,405	591	701
157.0	843,404.6	591	701.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.73567	843,405	592	701
158.0	843,404.6	592	701.35	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.73671	843,405	592	702
159.0	843,404.6	592	701.50	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.73774	843,405	592	702
160.0	843,404.6	592	701.65	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.73876	843,405	592	702
161.0	843,404.6	592	701.81	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.73978	843,405	592	702
162.0	843,404.6	592	701.96	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.74078	843,405	592	702
163.0	843,404.6	592	702.10	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	596	701	6,760	4.74178	843,405	592	702
164.0	843,404.6	592	702.25	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74277	843,405	592	702
165.0	843,404.6	592	702.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74376	843,405	593	703
166.0	843,404.6	593	702.54	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74473	843,405	593	703
167.0	843,404.6	593	702.69	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74570	843,405	593	703
168.0	843,404.6	593	702.83	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74666	843,405	593	703
169.0	843,404.6	593	702.97	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74761	843,405	593	703
170.0	843,404.6	593	703.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	702	6,760	4.74856	843,405	593	703
171.0	843,404.6	593	703.25	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	703	6,760	4.74950	843,405	593	703
172.0	843,404.6	593	703.39	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	597	703	6,760	4.75043	843,405	593	704
173.0	843,404.6	593	703.53	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	703	6,760	4.75135	843,405	593	704
174.0	843,404.6	593	703.67	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	703	6,760	4.75226	843,405	594	704
175.0	843,404.6	594	703.80	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	703	6,760	4.75317	843,405	594	704
176.0	843,404.6	594	703.94	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	703	6,760	4.75407	843,405	594	704
177.0	843,404.6	594	704.07	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	703	6,760	4.75497	843,405	594	704
178.0	843,404.6	594	704.20	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	704	6,760	4.75585	843,405	594	704
179.0	843,404.6	594	704.33	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	704	6,760	4.75673	843,405	594	704
180.0	843,404.6	594	704.46	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	704	6,760	4.75760	843,405	594	705
181.0	843,404.6	594	704.59	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	598	704	6,760	4.75847	843,405	594	705
182.0	843,404.6	594	704.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	704	6,760	4.75933	843,405	594	705
183.0	843,404.6	594	704.85	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	704	6,760	4.76018	843,405	595	705
184.0	843,404.6	595	704.97	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	704	6,760	4.76102	843,405	595	705
185.0	843,404.6	595	705.10	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	704	6,760	4.76186	843,405	595	705
186.0	843,404.6	595	705.22	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	705	6,760	4.76269	843,405	595	705
187.0	843,404.6	595	705.35	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	705	6,760	4.76352	843,405	595	705
188.0	843,404.6	595	705.47	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	705	6,760	4.76434	843,405	595	706
189.0	843,404.6	595	705.59	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	705	6,760	4.76515	843,405	595	706
190.0	843,404.6	595	705.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	599	705	6,760	4.76596	843,405	595	706
191.0	843,404.6	595	705.83	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	705	6,760	4.76675	843,405	595	706
192.0	843,404.6	595	705.95	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	705	6,760	4.76755	843,405	595	706
193.0	843,404.6	595	706.06	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	705	6,760	4.76833	843,405	596	706

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
194.0	843,404.6	596	706.18	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.76911	843,405	596	706
195.0	843,404.6	596	706.30	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.76989	843,405	596	706
196.0	843,404.6	596	706.41	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.77066	843,405	596	707
197.0	843,404.6	596	706.52	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.77142	843,405	596	707
198.0	843,404.6	596	706.64	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.77217	843,405	596	707
199.0	843,404.6	596	706.75	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.77292	843,405	596	707
200.0	843,404.6	596	706.86	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.77367	843,405	596	707
201.0	843,404.6	596	706.97	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	600	706	6,760	4.77440	843,405	596	707
202.0	843,404.6	596	707.08	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	706	6,760	4.77514	843,405	596	707
203.0	843,404.6	596	707.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.77586	843,405	597	707
204.0	843,404.6	597	707.29	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.77658	843,405	597	707
205.0	843,404.6	597	707.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.77730	843,405	597	708
206.0	843,404.6	597	707.51	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.77801	843,405	597	708
207.0	843,404.6	597	707.61	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.77871	843,405	597	708
208.0	843,404.6	597	707.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.77941	843,405	597	708
209.0	843,404.6	597	707.82	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.78010	843,405	597	708
210.0	843,404.6	597	707.92	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.78079	843,405	597	708
211.0	843,404.6	597	708.02	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.78147	843,405	597	708
212.0	843,404.6	597	708.12	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	601	707	6,760	4.78214	843,405	597	708
213.0	843,404.6	597	708.22	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78281	843,405	597	708
214.0	843,404.6	597	708.32	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78348	843,405	597	708
215.0	843,404.6	597	708.42	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78414	843,405	598	709
216.0	843,404.6	598	708.52	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78479	843,405	598	709
217.0	843,404.6	598	708.61	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78544	843,405	598	709
218.0	843,404.6	598	708.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78609	843,405	598	709
219.0	843,404.6	598	708.81	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78672	843,405	598	709
220.0	843,404.6	598	708.90	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78736	843,405	598	709
221.0	843,404.6	598	708.99	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78799	843,405	598	709
222.0	843,404.6	598	709.09	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	708	6,760	4.78861	843,405	598	709
223.0	843,404.6	598	709.18	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	709	6,760	4.78923	843,405	598	709
224.0	843,404.6	598	709.27	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	709	6,760	4.78984	843,405	598	709
225.0	843,404.6	598	709.36	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	602	709	6,760	4.79045	843,405	598	709
226.0	843,404.6	598	709.45	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79106	843,405	598	710
227.0	843,404.6	598	709.54	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79166	843,405	599	710
228.0	843,404.6	599	709.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79225	843,405	599	710
229.0	843,404.6	599	709.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79284	843,405	599	710
230.0	843,404.6	599	709.81	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79343	843,405	599	710
231.0	843,404.6	599	709.89	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79401	843,405	599	710
232.0	843,404.6	599	709.98	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79458	843,405	599	710
233.0	843,404.6	599	710.06	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79515	843,405	599	710
234.0	843,404.6	599	710.15	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	709	6,760	4.79572	843,405	599	710
235.0	843,404.6	599	710.23	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	710	6,760	4.79628	843,405	599	710
236.0	843,404.6	599	710.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	710	6,760	4.79684	843,405	599	710
237.0	843,404.6	599	710.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	710	6,760	4.79740	843,405	599	710
238.0	843,404.6	599	710.48	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	603	710	6,760	4.79794	843,405	599	711
239.0	843,404.6	599	710.56	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.79849	843,405	599	711
240.0	843,404.6	599	710.64	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.79903	843,405	599	711
241.0	843,404.6	599	710.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.79957	843,405	599	711
242.0	843,404.6	599	710.80	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.80010	843,405	600	711
243.0	843,404.6	600	710.88	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.80062	843,405	600	711
244.0	843,404.6	600	710.96	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.80115	843,405	600	711
245.0	843,404.6	600	711.03	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.80167	843,405	600	711
246.0	843,404.6	600	711.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.80218	843,405	600	711
247.0	843,404.6	600	711.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	710	6,760	4.80269	843,405	600	711
248.0	843,404.6	600	711.26	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80320	843,405	600	711
249.0	843,404.6	600	711.34	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80370	843,405	600	711
250.0	843,404.6	600	711.41	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80420	843,405	600	711
251.0	843,404.6	600	711.49	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80470	843,405	600	712
252.0	843,404.6	600	711.56	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80519	843,405	600	712
253.0	843,404.6	600	711.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80568	843,405	600	712
254.0	843,404.6	600	711.70	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	604	711	6,760	4.80616	843,405	600	712
255.0	843,404.6	600	711.78	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80664	843,405	600	712
256.0	843,404.6	600	711.85	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80711	843,405	600	712
257.0	843,404.6	600	711.92	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80759	843,405	600	712
258.0	843,404.6	600	711.99	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80805	843,405	601	712

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
259.0	843,404.6	601	712.06	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80852	843,405	601	712
260.0	843,404.6	601	712.12	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80898	843,405	601	712
261.0	843,404.6	601	712.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	711	6,760	4.80944	843,405	601	712
262.0	843,404.6	601	712.26	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.80989	843,405	601	712
263.0	843,404.6	601	712.33	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81034	843,405	601	712
264.0	843,404.6	601	712.39	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81078	843,405	601	712
265.0	843,404.6	601	712.46	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81123	843,405	601	713
266.0	843,404.6	601	712.53	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81167	843,405	601	713
267.0	843,404.6	601	712.59	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81210	843,405	601	713
268.0	843,404.6	601	712.65	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81253	843,405	601	713
269.0	843,404.6	601	712.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81296	843,405	601	713
270.0	843,404.6	601	712.78	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81339	843,405	601	713
271.0	843,404.6	601	712.85	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81381	843,405	601	713
272.0	843,404.6	601	712.91	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	605	712	6,760	4.81423	843,405	601	713
273.0	843,404.6	601	712.97	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	712	6,760	4.81464	843,405	601	713
274.0	843,404.6	601	713.03	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	712	6,760	4.81506	843,405	601	713
275.0	843,404.6	601	713.09	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	712	6,760	4.81546	843,405	601	713
276.0	843,404.6	601	713.15	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	712	6,760	4.81587	843,405	602	713
277.0	843,404.6	602	713.21	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81627	843,405	602	713
278.0	843,404.6	602	713.27	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81667	843,405	602	713
279.0	843,404.6	602	713.33	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81707	843,405	602	713
280.0	843,404.6	602	713.39	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81746	843,405	602	713
281.0	843,404.6	602	713.45	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81785	843,405	602	714
282.0	843,404.6	602	713.51	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81824	843,405	602	714
283.0	843,404.6	602	713.56	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81862	843,405	602	714
284.0	843,404.6	602	713.62	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81900	843,405	602	714
285.0	843,404.6	602	713.68	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81938	843,405	602	714
286.0	843,404.6	602	713.73	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.81975	843,405	602	714
287.0	843,404.6	602	713.79	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.82012	843,405	602	714
288.0	843,404.6	602	713.84	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.82049	843,405	602	714
289.0	843,404.6	602	713.90	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.82086	843,405	602	714
290.0	843,404.6	602	713.95	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.82122	843,405	602	714
291.0	843,404.6	602	714.00	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.82158	843,405	602	714
292.0	843,404.6	602	714.06	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	606	713	6,760	4.82194	843,405	602	714
293.0	843,404.6	602	714.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	713	6,760	4.82229	843,405	602	714
294.0	843,404.6	602	714.16	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	713	6,760	4.82264	843,405	602	714
295.0	843,404.6	602	714.21	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	713	6,760	4.82299	843,405	602	714
296.0	843,404.6	602	714.27	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82333	843,405	602	714
297.0	843,404.6	602	714.32	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82368	843,405	603	714
298.0	843,404.6	603	714.37	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82402	843,405	603	714
299.0	843,404.6	603	714.42	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82435	843,405	603	714
300.0	843,404.6	603	714.47	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82469	843,405	603	715
301.0	843,404.6	603	714.52	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82502	843,405	603	715
302.0	843,404.6	603	714.57	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82535	843,405	603	715
303.0	843,404.6	603	714.61	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82568	843,405	603	715
304.0	843,404.6	603	714.66	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82600	843,405	603	715
305.0	843,404.6	603	714.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82632	843,405	603	715
306.0	843,404.6	603	714.76	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82664	843,405	603	715
307.0	843,404.6	603	714.81	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82696	843,405	603	715
308.0	843,404.6	603	714.85	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82727	843,405	603	715
309.0	843,404.6	603	714.90	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82758	843,405	603	715
310.0	843,404.6	603	714.95	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82789	843,405	603	715
311.0	843,404.6	603	714.99	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82820	843,405	603	715
312.0	843,404.6	603	715.04	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82850	843,405	603	715
313.0	843,404.6	603	715.08	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82881	843,405	603	715
314.0	843,404.6	603	715.13	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82911	843,405	603	715
315.0	843,404.6	603	715.17	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82940	843,405	603	715
316.0	843,404.6	603	715.21	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	714	6,760	4.82970	843,405	603	715
317.0	843,404.6	603	715.26	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	607	715	6,760	4.82999	843,405	603	715
318.0	843,404.6	603	715.30	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83028	843,405	603	715
319.0	843,404.6	603	715.34	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83057	843,405	603	715
320.0	843,404.6	603	715.39	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83085	843,405	603	715
321.0	843,404.6	603	715.43	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83114	843,405	603	715
322.0	843,404.6	603	715.47	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83142	843,405	603	716
323.0	843,404.6	603	715.51	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83169	843,405	604	716

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
324.0	843,404.6	604	715.55	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83197	843,405	604	716
325.0	843,404.6	604	715.59	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83225	843,405	604	716
326.0	843,404.6	604	715.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83252	843,405	604	716
327.0	843,404.6	604	715.67	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83279	843,405	604	716
328.0	843,404.6	604	715.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83305	843,405	604	716
329.0	843,404.6	604	715.75	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83332	843,405	604	716
330.0	843,404.6	604	715.79	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83358	843,405	604	716
331.0	843,404.6	604	715.83	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83384	843,405	604	716
332.0	843,404.6	604	715.87	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83410	843,405	604	716
333.0	843,404.6	604	715.91	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83436	843,405	604	716
334.0	843,404.6	604	715.95	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83462	843,405	604	716
335.0	843,404.6	604	715.99	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83487	843,405	604	716
336.0	843,404.6	604	716.02	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83512	843,405	604	716
337.0	843,404.6	604	716.06	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83537	843,405	604	716
338.0	843,404.6	604	716.10	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83562	843,405	604	716
339.0	843,404.6	604	716.13	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83586	843,405	604	716
340.0	843,404.6	604	716.17	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83611	843,405	604	716
341.0	843,404.6	604	716.21	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	715	6,760	4.83635	843,405	604	716
342.0	843,404.6	604	716.24	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83659	843,405	604	716
343.0	843,404.6	604	716.28	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83682	843,405	604	716
344.0	843,404.6	604	716.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83706	843,405	604	716
345.0	843,404.6	604	716.35	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83729	843,405	604	716
346.0	843,404.6	604	716.38	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83752	843,405	604	716
347.0	843,404.6	604	716.42	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83775	843,405	604	716
348.0	843,404.6	604	716.45	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	608	716	6,760	4.83798	843,405	604	716
349.0	843,404.6	604	716.48	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83821	843,405	604	717
350.0	843,404.6	604	716.52	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83843	843,405	604	717
351.0	843,404.6	604	716.55	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83866	843,405	604	717
352.0	843,404.6	604	716.58	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83888	843,405	604	717
353.0	843,404.6	604	716.62	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83910	843,405	604	717
354.0	843,404.6	604	716.65	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83931	843,405	604	717
355.0	843,404.6	604	716.68	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83953	843,405	604	717
356.0	843,404.6	604	716.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83974	843,405	605	717
357.0	843,404.6	605	716.74	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.83996	843,405	605	717
358.0	843,404.6	605	716.78	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84017	843,405	605	717
359.0	843,404.6	605	716.81	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84038	843,405	605	717
360.0	843,404.6	605	716.84	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84058	843,405	605	717
361.0	843,404.6	605	716.87	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84079	843,405	605	717
362.0	843,404.6	605	716.90	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84099	843,405	605	717
363.0	843,404.6	605	716.93	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84120	843,405	605	717
364.0	843,404.6	605	716.96	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84140	843,405	605	717
365.0	843,404.6	605	716.99	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84160	843,405	605	717
366.0	843,404.6	605	717.02	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84179	843,405	605	717
367.0	843,404.6	605	717.05	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84199	843,405	605	717
368.0	843,404.6	605	717.08	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84218	843,405	605	717
369.0	843,404.6	605	717.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84238	843,405	605	717
370.0	843,404.6	605	717.13	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84257	843,405	605	717
371.0	843,404.6	605	717.16	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84276	843,405	605	717
372.0	843,404.6	605	717.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84295	843,405	605	717
373.0	843,404.6	605	717.22	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	716	6,760	4.84313	843,405	605	717
374.0	843,404.6	605	717.25	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84332	843,405	605	717
375.0	843,404.6	605	717.27	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84350	843,405	605	717
376.0	843,404.6	605	717.30	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84369	843,405	605	717
377.0	843,404.6	605	717.33	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84387	843,405	605	717
378.0	843,404.6	605	717.35	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84405	843,405	605	717
379.0	843,404.6	605	717.38	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84422	843,405	605	717
380.0	843,404.6	605	717.41	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84440	843,405	605	717
381.0	843,404.6	605	717.43	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84458	843,405	605	717
382.0	843,404.6	605	717.46	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84475	843,405	605	717
383.0	843,404.6	605	717.48	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84492	843,405	605	718
384.0	843,404.6	605	717.51	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84509	843,405	605	718
385.0	843,404.6	605	717.54	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84526	843,405	605	718
386.0	843,404.6	605	717.56	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84543	843,405	605	718
387.0	843,404.6	605	717.59	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84560	843,405	605	718
388.0	843,404.6	605	717.61	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84577	843,405	605	718

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
389.0	843,404.6	605	717.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84593	843,405	605	718
390.0	843,404.6	605	717.66	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	609	717	6,760	4.84609	843,405	605	718
391.0	843,404.6	605	717.68	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84625	843,405	605	718
392.0	843,404.6	605	717.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84642	843,405	605	718
393.0	843,404.6	605	717.73	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84657	843,405	605	718
394.0	843,404.6	605	717.75	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84673	843,405	605	718
395.0	843,404.6	605	717.78	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84689	843,405	605	718
396.0	843,404.6	605	717.80	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84705	843,405	605	718
397.0	843,404.6	605	717.82	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84720	843,405	605	718
398.0	843,404.6	605	717.85	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84735	843,405	605	718
399.0	843,404.6	605	717.87	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84750	843,405	605	718
400.0	843,404.6	605	717.89	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84766	843,405	605	718
401.0	843,404.6	605	717.91	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84780	843,405	606	718
402.0	843,404.6	606	717.94	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84795	843,405	606	718
403.0	843,404.6	606	717.96	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84810	843,405	606	718
404.0	843,404.6	606	717.98	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84825	843,405	606	718
405.0	843,404.6	606	718.00	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84839	843,405	606	718
406.0	843,404.6	606	718.02	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84853	843,405	606	718
407.0	843,404.6	606	718.04	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84868	843,405	606	718
408.0	843,404.6	606	718.07	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84882	843,405	606	718
409.0	843,404.6	606	718.09	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84896	843,405	606	718
410.0	843,404.6	606	718.11	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84910	843,405	606	718
411.0	843,404.6	606	718.13	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84924	843,405	606	718
412.0	843,404.6	606	718.15	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84937	843,405	606	718
413.0	843,404.6	606	718.17	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84951	843,405	606	718
414.0	843,404.6	606	718.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84964	843,405	606	718
415.0	843,404.6	606	718.21	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84978	843,405	606	718
416.0	843,404.6	606	718.23	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	717	6,760	4.84991	843,405	606	718
417.0	843,404.6	606	718.25	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85004	843,405	606	718
418.0	843,404.6	606	718.27	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85017	843,405	606	718
419.0	843,404.6	606	718.29	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85030	843,405	606	718
420.0	843,404.6	606	718.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85043	843,405	606	718
421.0	843,404.6	606	718.32	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85056	843,405	606	718
422.0	843,404.6	606	718.34	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85068	843,405	606	718
423.0	843,404.6	606	718.36	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85081	843,405	606	718
424.0	843,404.6	606	718.38	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85093	843,405	606	718
425.0	843,404.6	606	718.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85106	843,405	606	718
426.0	843,404.6	606	718.42	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85118	843,405	606	718
427.0	843,404.6	606	718.44	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85130	843,405	606	718
428.0	843,404.6	606	718.45	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85142	843,405	606	718
429.0	843,404.6	606	718.47	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85154	843,405	606	718
430.0	843,404.6	606	718.49	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85166	843,405	606	719
431.0	843,404.6	606	718.51	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85178	843,405	606	719
432.0	843,404.6	606	718.52	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85189	843,405	606	719
433.0	843,404.6	606	718.54	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85201	843,405	606	719
434.0	843,404.6	606	718.56	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85212	843,405	606	719
435.0	843,404.6	606	718.58	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85224	843,405	606	719
436.0	843,404.6	606	718.59	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85235	843,405	606	719
437.0	843,404.6	606	718.61	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85246	843,405	606	719
438.0	843,404.6	606	718.63	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85257	843,405	606	719
439.0	843,404.6	606	718.64	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85268	843,405	606	719
440.0	843,404.6	606	718.66	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85279	843,405	606	719
441.0	843,404.6	606	718.67	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85290	843,405	606	719
442.0	843,404.6	606	718.69	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85301	843,405	606	719
443.0	843,404.6	606	718.71	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85312	843,405	606	719
444.0	843,404.6	606	718.72	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85322	843,405	606	719
445.0	843,404.6	606	718.74	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85333	843,405	606	719
446.0	843,404.6	606	718.75	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85343	843,405	606	719
447.0	843,404.6	606	718.77	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85354	843,405	606	719
448.0	843,404.6	606	718.78	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85364	843,405	606	719
449.0	843,404.6	606	718.80	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85374	843,405	606	719
450.0	843,404.6	606	718.81	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85384	843,405	606	719
451.0	843,404.6	606	718.83	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85394	843,405	606	719
452.0	843,404.6	606	718.84	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	610	718	6,760	4.85404	843,405	606	719
453.0	843,404.6	606	718.86	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85414	843,405	606	719

TABLE 30. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW SENTINEL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (BC&FRX) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration in Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
454.0	843,404.6	606	718.87	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85424	843,405	606	719
455.0	843,404.6	606	718.89	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85434	843,405	606	719
456.0	843,404.6	606	718.90	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85443	843,405	606	719
457.0	843,404.6	606	718.92	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85453	843,405	606	719
458.0	843,404.6	606	718.93	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85462	843,405	606	719
459.0	843,404.6	606	718.95	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85472	843,405	606	719
460.0	843,404.6	606	718.96	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85481	843,405	606	719
461.0	843,404.6	606	718.97	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85490	843,405	606	719
462.0	843,404.6	606	718.99	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85499	843,405	606	719
463.0	843,404.6	606	719.00	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85508	843,405	606	719
464.0	843,404.6	606	719.01	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85518	843,405	606	719
465.0	843,404.6	606	719.03	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85526	843,405	606	719
466.0	843,404.6	606	719.04	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85535	843,405	606	719
467.0	843,404.6	606	719.05	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85544	843,405	606	719
468.0	843,404.6	606	719.07	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85553	843,405	606	719
469.0	843,404.6	606	719.08	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85562	843,405	606	719
470.0	843,404.6	606	719.09	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85570	843,405	606	719
471.0	843,404.6	606	719.10	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85579	843,405	607	719
472.0	843,404.6	607	719.12	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85587	843,405	607	719
473.0	843,404.6	607	719.13	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85596	843,405	607	719
474.0	843,404.6	607	719.14	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85604	843,405	607	719
475.0	843,404.6	607	719.15	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85612	843,405	607	719
476.0	843,404.6	607	719.17	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85621	843,405	607	719
477.0	843,404.6	607	719.18	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85629	843,405	607	719
478.0	843,404.6	607	719.19	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85637	843,405	607	719
479.0	843,404.6	607	719.20	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85645	843,405	607	719
480.0	843,404.6	607	719.22	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85653	843,405	607	719
481.0	843,404.6	607	719.23	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85661	843,405	607	719
482.0	843,404.6	607	719.24	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85668	843,405	607	719
483.0	843,404.6	607	719.25	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	718	6,760	4.85676	843,405	607	719
484.0	843,404.6	607	719.26	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85684	843,405	607	719
485.0	843,404.6	607	719.27	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85692	843,405	607	719
486.0	843,404.6	607	719.28	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85699	843,405	607	719
487.0	843,404.6	607	719.30	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85707	843,405	607	719
488.0	843,404.6	607	719.31	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85714	843,405	607	719
489.0	843,404.6	607	719.32	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85722	843,405	607	719
490.0	843,404.6	607	719.33	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85729	843,405	607	719
491.0	843,404.6	607	719.34	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85736	843,405	607	719
492.0	843,404.6	607	719.35	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85743	843,405	607	719
493.0	843,404.6	607	719.36	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85751	843,405	607	719
494.0	843,404.6	607	719.37	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85758	843,405	607	719
495.0	843,404.6	607	719.38	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85765	843,405	607	719
496.0	843,404.6	607	719.39	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85772	843,405	607	719
497.0	843,404.6	607	719.40	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85779	843,405	607	719
498.0	843,404.6	607	719.41	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85786	843,405	607	719
499.0	843,404.6	607	719.42	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85792	843,405	607	719
500.0	843,404.6	607	719.43	6,652	683	4.5	3,000.0	107.7	0.3232	850,164	611	719	6,760	4.85799	843,405	607	719

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
																0		
0.00	0.0	0.0	0	442	150	0.066	9688	147	1.424	-8,347	147	-1.228	0.000	0.000	0.000	0.262	1783	147
1.00	0.3	1,783.3	147	442	150	0.066	9677	147	1.423	-7,896	147	-1.162	11.808	147	-0.002	0.588	3505	168
2.00	0.6	3,504.8	168	442	150	0.066	9667	147	1.421	-7,460	152	-1.137	23.247	168	-0.004	0.934	5167	181
3.00	0.9	5,166.7	181	442	150	0.066	9657	147	1.420	-7,040	159	-1.116	34.327	181	-0.006	1.298	6771	192
4.00	1.3	6,770.9	192	442	150	0.066	9647	147	1.418	-6,634	165	-1.095	45.058	192	-0.009	1.679	8320	202
5.00	1.7	8,319.6	202	442	150	0.066	9637	147	1.417	-6,242	172	-1.073	55.451	202	-0.011	2.078	9815	212
6.00	2.1	9,814.5	212	442	150	0.066	9628	147	1.415	-5,864	179	-1.050	65.513	212	-0.014	2.496	11258	222
7.00	2.5	11,257.7	222	442	150	0.066	9619	147	1.414	-5,498	187	-1.026	75.256	222	-0.017	2.934	12651	232
8.0	2.9	12,650.8	232	442	150	0.066	9611	147	1.413	-5,146	194	-1.000	84.687	232	-0.020	3.393	13996	242
9.0	3.4	13,995.6	242	442	150	0.066	9602	147	1.412	-4,805	203	-0.974	93.816	242	-0.023	3.875	15294	253
10.0	3.9	15,293.8	253	442	150	0.066	9594	147	1.410	-4,477	211	-0.946	102.651	253	-0.026	4.379	16547	265
11.0	4.4	16,547.1	265	442	150	0.066	9587	147	1.409	-4,159	220	-0.916	111.202	265	-0.029	4.909	17757	276
12.0	4.9	17,756.8	276	442	150	0.066	9579	147	1.408	-3,853	230	-0.885	119.477	276	-0.033	5.465	18925	289
13.0	5.5	18,924.7	289	442	150	0.066	9572	147	1.407	-3,557	240	-0.853	127.483	289	-0.037	6.049	20052	302
14.0	6.0	20,052.1	302	442	150	0.066	9565	147	1.406	-3,272	250	-0.819	135.229	302	-0.041	6.661	21140	315
15.0	6.7	21,140.4	315	442	150	0.066	9558	147	1.405	-2,996	261	-0.783	142.723	315	-0.045	7.305	22191	329
16.0	7.3	22,190.9	329	442	150	0.066	9552	147	1.404	-2,730	273	-0.744	149.973	329	-0.049	7.982	23205	344
17.0	8.0	23,205.1	344	442	150	0.066	9546	147	1.403	-2,474	285	-0.704	156.985	344	-0.054	8.693	24184	359
18.0	8.7	24,184.1	359	442	150	0.066	9540	147	1.402	-2,226	297	-0.662	163.767	359	-0.059	9.441	25129	376
19.0	9.4	25,129.2	376	442	150	0.066	9534	147	1.401	-1,986	311	-0.617	170.326	376	-0.064	10.227	26041	393
20.0	10.2	26,041.5	393	442	150	0.066	9528	147	1.401	-1,755	325	-0.570	176.669	393	-0.069	11.055	26922	411
21.0	11.1	26,922.2	411	442	150	0.066	9523	147	1.400	-1,532	339	-0.520	182.803	411	-0.075	11.926	27772	429
22.0	11.9	27,772.3	429	442	150	0.066	9518	147	1.399	-1,317	355	-0.467	188.735	429	-0.081	12.843	28593	449
23.0	12.8	28,593.0	449	442	150	0.066	9513	147	1.398	-1,109	371	-0.412	194.470	449	-0.087	13.808	29385	470
24.0	13.8	29,385.3	470	442	150	0.066	9508	147	1.398	-908	388	-0.353	200.014	470	-0.094	14.825	30150	492
25.0	14.8	30,150.1	492	442	150	0.066	9503	147	1.397	-714	406	-0.290	205.375	492	-0.101	15.897	30888	515
26.0	15.9	30,888.3	515	442	150	0.066	9499	147	1.396	-527	425	-0.224	210.557	515	-0.108	17.027	31601	539
27.0	17.0	31,601.0	539	442	150	0.066	9494	147	1.396	-347	445	-0.154	215.567	539	-0.116	18.219	32289	564
28.0	18.2	32,289.0	564	442	150	0.066	9490	147	1.395	-173	466	-0.080	220.409	564	-0.124	19.475	32953	591
29.0	19.5	32,953.2	591	442	150	0.066	9486	147	1.394	-4	488	-0.002	225.089	591	-0.133	20.801	33594	619
30.0	20.8	33,594.3	619	442	150	0.066	9482	147	1.394	158	668	0.106	229.613	619	-0.142	22.224	34213	650
31.0	22.2	34,213.2	650	442	150	0.066	9478	147	1.393	315	669	0.211	233.986	650	-0.152	23.742	34811	682
32.0	23.7	34,810.6	682	442	150	0.066	9474	147	1.393	466	671	0.313	238.211	682	-0.162	25.352	35387	716
33.0	25.4	35,387.4	716	442	150	0.066	9471	147	1.392	613	672	0.411	242.295	716	-0.174	27.048	35944	753
34.0	27.0	35,944.1	753	442	150	0.066	9468	147	1.392	754	673	0.507	246.242	753	-0.185	28.828	36482	790
35.0	28.8	36,481.6	790	442	150	0.066	9464	147	1.391	890	674	0.600	250.055	790	-0.198	30.687	37000	829
36.0	30.7	37,000.4	829	442	150	0.066	9461	147	1.391	1,021	675	0.689	253.740	829	-0.210	32.623	37501	870
37.0	32.6	37,501.2	870	442	150	0.066	9458	147	1.390	1,148	675	0.776	257.301	870	-0.224	34.631	37985	912
38.0	34.6	37,984.7	912	442	150	0.066	9455	147	1.390	1,271	676	0.859	260.742	912	-0.238	36.709	38451	955
39.0	36.7	38,451.4	955	442	150	0.066	9452	147	1.389	1,389	677	0.940	264.066	955	-0.252	38.853	38902	999
40.0	38.9	38,902.0	999	442	150	0.066	9449	147	1.389	1,503	677	1.018	267.278	999	-0.267	41.059	39337	1044
41.0	41.1	39,336.9	1044	442	150	0.066	9447	147	1.389	1,613	678	1.094	270.381	1044	-0.282	43.325	39757	1090
42.0	43.3	39,756.8	1090	442	150	0.066	9444	147	1.388	1,720	678	1.167	273.379	1090	-0.298	45.649	40162	1137
43.0	45.6	40,162.1	1137	442	150	0.066	9442	147	1.388	1,823	679	1.237	276.275	1137	-0.314	48.026	40553	1184
44.0	48.0	40,553.3	1184	442	150	0.066	9439	147	1.388	1,922	679	1.305	279.074	1184	-0.330	50.454	40931	1233
45.0	50.5	40,931.0	1233	442	150	0.066	9437	147	1.387	2,018	679	1.371	281.776	1233	-0.347	52.931	41296	1282
46.0	52.9	41,295.6	1282	442	150	0.066	9435	147	1.387	2,110	680	1.434	284.388	1282	-0.365	55.454	41648	1332
47.0	55.5	41,647.6	1332	442	150	0.066	9432	147	1.387	2,199	680	1.495	286.910	1332	-0.382	58.020	41987	1382
48.0	58.0	41,987.3	1382	442	150	0.066	9430	147	1.386	2,285	680	1.555	289.346	1382	-0.400	60.627	42315	1433
49.0	60.6	42,315.3	1433	442	150	0.066	9428	147	1.386	2,368	680	1.612	291.700	1433	-0.418	63.273	42632	1484
50.0	63.3	42,631.9	1484	442	150	0.066	9426	147	1.386	3,076	681	2.094	293.973	1484	-0.436	66.383	43565	1524
51.0	66.4	43,565.0	1524	442	150	0.066	9424	147	1.385	3,652	681	2.486	296.566	1524	-0.452	69.869	44969	1554
52.0	69.9	44,969.2	1554	442	150	0.066	9422	147	1.385	3,701	681	2.521	299.378	1554	-0.465	73.376	46309	1584
53.0	73.4	46,308.9	1584	442	150	0.066	9419	147	1.385	3,748	681	2.553	302.062	1584	-0.479	76.901	47587	1616
54.0	76.9	47,587.2	1616	442	150	0.066	9417	147	1.384	3,793	681	2.584	304.624	1616	-0.492	80.444	48807	1648
55.0	80.4	48,806.8	1648	442	150	0.066	9415	147	1.384	3,836	681	2.614	307.070	1648	-0.506	84.002	49970	1681
56.0	84.0	49,970.4	1681	442	150	0.066	9413	147	1.384	3,877	682	2.642	309.404	1681	-0.520	87.574	51081	1714
57.0	87.6	51,080.7	1714	442	150	0.066	9411	147	1.383	3,915	682	2.669	311.633	1714	-0.534	91.159	52140	1748
58.0	91.2	52,140.0	1748	442	150	0.066	9409	147	1.383	3,953	682	2.695	313.761	1748	-0.549	94.755	53151	1783
59.0	94.8	53,150.6	1783	442	150	0.066	9408	147	1.383	3,988	682	2.720	315.791	1783	-0.563	98.360	54115	1818
60.0	98.4	54,115.0	1818	442	150	0.066	9406	147	1.383	4,022	682	2.743	317.729	1818	-0.578	101.975	55035	1853
61.0	102.0	55,035.0	1853	442	150	0.066	9404	147	1.382	4,054	682	2.765	319.579	1853	-0.592	105.596	55913	1889

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
62.0	105.6	55,912.9	1889	442	150	0.066	9403	147	1.382	4,085	682	2.787	321.345	1889	-0.607	109.225	56750	1925
63.0	109.2	56,750.5	1925	442	150	0.066	9401	147	1.382	4,114	682	2.807	323.031	1925	-0.622	112.858	57550	1961
64.0	112.9	57,549.6	1961	442	150	0.066	9400	147	1.382	4,142	682	2.826	324.639	1961	-0.637	116.496	58312	1998
65.0	116.5	58,312.1	1998	442	150	0.066	9399	147	1.382	4,169	682	2.845	326.174	1998	-0.652	120.137	59040	2035
66.0	120.1	59,039.5	2035	442	150	0.066	9397	147	1.381	4,195	682	2.862	327.640	2035	-0.667	123.780	59734	2072
67.0	123.8	59,733.6	2072	442	150	0.066	9396	147	1.381	4,219	682	2.879	329.038	2072	-0.682	127.425	60396	2110
68.0	127.4	60,395.9	2110	442	150	0.066	9395	147	1.381	4,242	682	2.895	330.373	2110	-0.697	131.071	61028	2148
69.0	131.1	61,027.7	2148	442	150	0.066	9394	147	1.381	4,265	683	2.911	331.646	2148	-0.712	134.716	61631	2186
70.0	134.7	61,630.6	2186	442	150	0.066	9393	147	1.381	4,286	683	2.925	332.862	2186	-0.728	138.361	62206	2224
71.0	138.4	62,205.8	2224	442	150	0.066	9392	147	1.381	4,306	683	2.939	334.022	2224	-0.743	142.004	62755	2263
72.0	142.0	62,754.6	2263	442	150	0.066	9391	147	1.380	4,325	683	2.952	335.129	2263	-0.758	145.645	63278	2302
73.0	145.6	63,278.2	2302	442	150	0.066	9390	147	1.380	4,343	683	2.965	336.186	2302	-0.774	149.283	63778	2341
74.0	149.3	63,777.8	2341	442	150	0.066	9389	147	1.380	4,361	683	2.977	337.194	2341	-0.789	152.917	64255	2380
75.0	152.9	64,254.5	2380	442	150	0.066	9388	147	1.380	4,378	683	2.989	338.156	2380	-0.805	156.548	64709	2419
76.0	156.5	64,709.3	2419	442	150	0.066	9388	147	1.380	4,394	683	3.000	339.074	2419	-0.820	160.173	65143	2459
77.0	160.2	65,143.3	2459	442	150	0.066	9387	147	1.380	4,409	683	3.010	339.951	2459	-0.836	163.794	65557	2498
78.0	163.8	65,557.3	2498	442	150	0.066	9386	147	1.380	4,423	683	3.020	340.787	2498	-0.851	167.408	65952	2538
79.0	167.4	65,952.3	2538	442	150	0.066	9386	147	1.380	4,437	683	3.030	341.585	2538	-0.867	171.017	66329	2578
80.0	171.0	66,329.2	2578	442	150	0.066	9385	147	1.380	4,451	683	3.039	342.346	2578	-0.883	174.619	66689	2618
81.0	174.6	66,688.8	2618	442	150	0.066	9384	147	1.379	4,463	683	3.048	343.073	2618	-0.898	178.214	67032	2659
82.0	178.2	67,031.9	2659	442	150	0.066	9384	147	1.379	4,475	683	3.056	343.766	2659	-0.914	181.802	67359	2699
83.0	181.8	67,359.3	2699	442	150	0.066	9383	147	1.379	4,487	683	3.064	344.428	2699	-0.930	185.381	67672	2739
84.0	185.4	67,671.6	2739	442	150	0.066	9383	147	1.379	4,498	683	3.071	345.059	2739	-0.945	188.953	67970	2780
85.0	189.0	67,969.6	2780	442	150	0.066	9382	147	1.379	4,508	683	3.078	345.662	2780	-0.961	192.516	68254	2821
86.0	192.5	68,253.9	2821	442	150	0.066	9382	147	1.379	4,518	683	3.085	346.236	2821	-0.977	196.070	68525	2861
87.0	196.1	68,525.2	2861	442	150	0.066	9381	147	1.379	4,528	683	3.092	346.785	2861	-0.992	199.615	68784	2902
88.0	199.6	68,784.1	2902	442	150	0.066	9381	147	1.379	4,537	683	3.098	347.309	2902	-1.008	203.150	69031	2943
89.0	203.2	69,031.0	2943	442	150	0.066	9380	147	1.379	4,545	683	3.104	347.808	2943	-1.024	206.676	69267	2984
90.0	206.7	69,266.6	2984	442	150	0.066	9380	147	1.379	4,554	683	3.110	348.285	2984	-1.039	210.192	69491	3000
91.0	208.5	69,491.5	3000	442	150	0.066	9379	147	1.379	4,562	683	3.115	348.739	3000	-1.046	211.988	69706	3000
92.0	209.1	69,706.0	3000	442	150	0.066	9379	147	1.379	4,569	683	3.120	349.173	3000	-1.048	212.636	69911	3000
93.0	209.7	69,910.6	3000	442	150	0.066	9379	147	1.379	4,576	683	3.125	349.587	3000	-1.049	213.253	70106	3000
94.0	210.3	70,105.9	3000	442	150	0.066	9378	147	1.379	4,583	683	3.130	349.983	3000	-1.050	213.843	70292	3000
95.0	210.9	70,292.2	3000	442	150	0.066	9378	147	1.379	4,590	683	3.134	350.360	3000	-1.051	214.405	70470	3000
96.0	211.4	70,469.9	3000	442	150	0.066	9378	147	1.379	4,596	683	3.139	350.719	3000	-1.052	214.941	70640	3000
97.0	211.9	70,639.5	3000	442	150	0.066	9377	147	1.378	4,602	683	3.143	351.063	3000	-1.053	215.453	70801	3000
98.0	212.4	70,801.4	3000	442	150	0.066	9377	147	1.378	4,608	683	3.147	351.390	3000	-1.054	215.941	70956	3000
99.0	212.9	70,955.8	3000	442	150	0.066	9377	147	1.378	4,613	683	3.150	351.703	3000	-1.055	216.407	71103	3000
100.0	213.3	71,103.1	3000	442	150	0.066	9377	147	1.378	4,618	683	3.154	352.001	3000	-1.056	216.852	71244	3000
101.0	213.7	71,243.6	3000	442	150	0.066	9376	147	1.378	4,623	683	3.157	352.285	3000	-1.057	217.276	71378	3000
102.0	214.1	71,377.7	3000	442	150	0.066	9376	147	1.378	4,628	683	3.161	352.557	3000	-1.058	217.681	71506	3000
103.0	214.5	71,505.7	3000	442	150	0.066	9376	147	1.378	4,632	683	3.164	352.816	3000	-1.058	218.067	71628	3000
104.0	214.9	71,627.7	3000	442	150	0.066	9376	147	1.378	4,637	683	3.167	353.063	3000	-1.059	218.435	71744	3000
105.0	215.2	71,744.2	3000	442	150	0.066	9376	147	1.378	4,641	683	3.169	353.299	3000	-1.060	218.787	71855	3000
106.0	215.6	71,855.3	3000	442	150	0.066	9375	147	1.378	4,645	683	3.172	353.524	3000	-1.061	219.122	71961	3000
107.0	215.9	71,961.4	3000	442	150	0.066	9375	147	1.378	4,648	683	3.175	353.739	3000	-1.061	219.442	72063	3000
108.0	216.2	72,062.5	3000	442	150	0.066	9375	147	1.378	4,652	683	3.177	353.944	3000	-1.062	219.747	72159	3000
109.0	216.5	72,159.1	3000	442	150	0.066	9375	147	1.378	4,655	683	3.179	354.139	3000	-1.062	220.039	72251	3000
110.0	216.8	72,251.1	3000	442	150	0.066	9375	147	1.378	4,658	683	3.182	354.326	3000	-1.063	220.316	72339	3000
111.0	217.0	72,339.0	3000	442	150	0.066	9374	147	1.378	4,662	683	3.184	354.504	3000	-1.064	220.582	72423	3000
112.0	217.3	72,422.9	3000	442	150	0.066	9374	147	1.378	4,664	683	3.186	354.673	3000	-1.064	220.835	72503	3000
113.0	217.5	72,502.8	3000	442	150	0.066	9374	147	1.378	4,667	683	3.188	354.835	3000	-1.065	221.076	72579	3000
114.0	217.7	72,579.2	3000	442	150	0.066	9374	147	1.378	4,670	683	3.190	354.990	3000	-1.065	221.306	72652	3000
115.0	218.0	72,652.0	3000	442	150	0.066	9374	147	1.378	4,672	683	3.191	355.138	3000	-1.065	221.526	72721	3000
116.0	218.2	72,721.5	3000	442	150	0.066	9374	147	1.378	4,675	683	3.193	355.278	3000	-1.066	221.736	72788	3000
117.0	218.4	72,787.7	3000	442	150	0.066	9374	147	1.378	4,677	683	3.195	355.413	3000	-1.066	221.936	72851	3000
118.0	218.6	72,851.0	3000	442	150	0.066	9374	147	1.378	4,679	683	3.196	355.541	3000	-1.067	222.127	72911	3000
119.0	218.7	72,911.3	3000	442	150	0.066	9373	147	1.378	4,682	683	3.198	355.663	3000	-1.067	222.309	72969	3000
120.0	218.9	72,968.9	3000	442	150	0.066	9373	147	1.378	4,684	683	3.199	355.780	3000	-1.067	222.482	73024	3000
121.0	219.1	73,023.8	3000	442	150	0.066	9373	147	1.378	4,686	683	3.200	355.891	3000	-1.068	222.648	73076	3000
122.0	219.2	73,076.2	3000	442	150	0.066	9373	147	1.378	4,687	683	3.201	355.997	3000	-1.068	222.806	73126	3000
123.0	219.4	73,126.3	3000	442	150	0.066	9373	147	1.378	4,689	683	3.203	356.098	3000	-1.068	222.957	73174	3000
124.0	219.5	73,174.0	3000	442	150	0.066	9373	147	1.378	4,691	683	3.204	356.195	3000	-1.069	223.101	73219	3000

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
125.0	219.7	73,219.5	3000	442	150	0.066	9373	147	1.378	4,692	683	3.205	356.287	3000	-1.069	223.239	73263	3000
126.0	219.8	73,262.9	3000	442	150	0.066	9373	147	1.378	4,694	683	3.206	356.375	3000	-1.069	223.370	73304	3000
127.0	219.9	73,304.4	3000	442	150	0.066	9373	147	1.378	4,695	683	3.207	356.459	3000	-1.069	223.495	73344	3000
128.0	220.0	73,343.9	3000	442	150	0.066	9373	147	1.378	4,697	683	3.208	356.539	3000	-1.070	223.614	73382	3000
129.0	220.1	73,381.6	3000	442	150	0.066	9373	147	1.378	4,698	683	3.209	356.616	3000	-1.070	223.728	73418	3000
130.0	220.3	73,417.6	3000	442	150	0.066	9373	147	1.378	4,699	683	3.210	356.689	3000	-1.070	223.837	73452	3000
131.0	220.4	73,452.0	3000	442	150	0.066	9373	147	1.378	4,701	683	3.211	356.758	3000	-1.070	223.940	73485	3000
132.0	220.5	73,484.7	3000	442	150	0.066	9373	147	1.378	4,702	683	3.211	356.825	3000	-1.070	224.039	73516	3000
133.0	220.5	73,516.0	3000	442	150	0.066	9372	147	1.378	4,703	683	3.212	356.888	3000	-1.071	224.133	73546	3000
134.0	220.6	73,545.8	3000	442	150	0.066	9372	147	1.378	4,704	683	3.213	356.949	3000	-1.071	224.223	73574	3000
135.0	220.7	73,574.3	3000	442	150	0.066	9372	147	1.378	4,705	683	3.213	357.006	3000	-1.071	224.309	73601	3000
136.0	220.8	73,601.4	3000	442	150	0.066	9372	147	1.378	4,706	683	3.214	357.061	3000	-1.071	224.391	73627	3000
137.0	220.9	73,627.3	3000	442	150	0.066	9372	147	1.378	4,707	683	3.215	357.114	3000	-1.071	224.469	73652	3000
138.0	221.0	73,652.1	3000	442	150	0.066	9372	147	1.378	4,708	683	3.215	357.164	3000	-1.071	224.544	73676	3000
139.0	221.0	73,675.7	3000	442	150	0.066	9372	147	1.378	4,708	683	3.216	357.212	3000	-1.072	224.615	73698	3000
140.0	221.1	73,698.2	3000	442	150	0.066	9372	147	1.378	4,709	683	3.216	357.257	3000	-1.072	224.683	73720	3000
141.0	221.2	73,719.6	3000	442	150	0.066	9372	147	1.378	4,710	683	3.217	357.301	3000	-1.072	224.748	73740	3000
142.0	221.2	73,740.1	3000	442	150	0.066	9372	147	1.378	4,711	683	3.217	357.342	3000	-1.072	224.810	73760	3000
143.0	221.3	73,759.7	3000	442	150	0.066	9372	147	1.378	4,711	683	3.218	357.382	3000	-1.072	224.869	73778	3000
144.0	221.3	73,778.3	3000	442	150	0.066	9372	147	1.378	4,712	683	3.218	357.420	3000	-1.072	224.925	73796	3000
145.0	221.4	73,796.1	3000	442	150	0.066	9372	147	1.378	4,713	683	3.219	357.456	3000	-1.072	224.979	73813	3000
146.0	221.4	73,813.1	3000	442	150	0.066	9372	147	1.378	4,713	683	3.219	357.490	3000	-1.072	225.030	73829	3000
147.0	221.5	73,829.3	3000	442	150	0.066	9372	147	1.378	4,714	683	3.220	357.523	3000	-1.073	225.079	73845	3000
148.0	221.5	73,844.7	3000	442	150	0.066	9372	147	1.378	4,714	683	3.220	357.554	3000	-1.073	225.125	73859	3000
149.0	221.6	73,859.5	3000	442	150	0.066	9372	147	1.378	4,715	683	3.220	357.584	3000	-1.073	225.170	73874	3000
150.0	221.6	73,873.5	3000	442	150	0.066	9372	147	1.378	4,715	683	3.221	357.613	3000	-1.073	225.212	73887	3000
151.0	221.7	73,887.0	3000	442	150	0.066	9372	147	1.378	4,716	683	3.221	357.640	3000	-1.073	225.253	73900	3000
152.0	221.7	73,899.8	3000	442	150	0.066	9372	147	1.378	4,716	683	3.221	357.666	3000	-1.073	225.291	73912	3000
153.0	221.7	73,912.0	3000	442	150	0.066	9372	147	1.378	4,717	683	3.222	357.691	3000	-1.073	225.328	73924	3000
154.0	221.8	73,923.6	3000	442	150	0.066	9372	147	1.378	4,717	683	3.222	357.714	3000	-1.073	225.363	73935	3000
155.0	221.8	73,934.8	3000	442	150	0.066	9372	147	1.378	4,718	683	3.222	357.737	3000	-1.073	225.397	73945	3000
156.0	221.8	73,945.4	3000	442	150	0.066	9372	147	1.378	4,718	683	3.222	357.758	3000	-1.073	225.429	73956	3000
157.0	221.9	73,955.5	3000	442	150	0.066	9372	147	1.378	4,718	683	3.223	357.779	3000	-1.073	225.460	73965	3000
158.0	221.9	73,965.2	3000	442	150	0.066	9372	147	1.378	4,719	683	3.223	357.798	3000	-1.073	225.489	73974	3000
159.0	221.9	73,974.4	3000	442	150	0.066	9372	147	1.378	4,719	683	3.223	357.817	3000	-1.073	225.517	73983	3000
160.0	221.9	73,983.2	3000	442	150	0.066	9372	147	1.378	4,719	683	3.223	357.835	3000	-1.074	225.543	73992	3000
161.0	222.0	73,991.6	3000	442	150	0.066	9372	147	1.378	4,720	683	3.223	357.852	3000	-1.074	225.568	74000	3000
162.0	222.0	73,999.6	3000	442	150	0.066	9372	147	1.378	4,720	683	3.224	357.868	3000	-1.074	225.593	74007	3000
163.0	222.0	74,007.2	3000	442	150	0.066	9372	147	1.378	4,720	683	3.224	357.884	3000	-1.074	225.616	74015	3000
164.0	222.0	74,014.5	3000	442	150	0.066	9372	147	1.378	4,720	683	3.224	357.898	3000	-1.074	225.638	74021	3000
165.0	222.1	74,021.5	3000	442	150	0.066	9372	147	1.378	4,721	683	3.224	357.912	3000	-1.074	225.659	74028	3000
166.0	222.1	74,028.1	3000	442	150	0.066	9372	147	1.378	4,721	683	3.224	357.926	3000	-1.074	225.679	74034	3000
167.0	222.1	74,034.4	3000	442	150	0.066	9372	147	1.378	4,721	683	3.224	357.939	3000	-1.074	225.698	74040	3000
168.0	222.1	74,040.5	3000	442	150	0.066	9372	147	1.378	4,721	683	3.225	357.951	3000	-1.074	225.716	74046	3000
169.0	222.1	74,046.2	3000	442	150	0.066	9372	147	1.378	4,721	683	3.225	357.963	3000	-1.074	225.733	74052	3000
170.0	222.2	74,051.7	3000	442	150	0.066	9372	147	1.378	4,722	683	3.225	357.974	3000	-1.074	225.750	74057	3000
171.0	222.2	74,057.0	3000	442	150	0.066	9372	147	1.378	4,722	683	3.225	357.984	3000	-1.074	225.766	74062	3000
172.0	222.2	74,062.0	3000	442	150	0.066	9372	147	1.378	4,722	683	3.225	357.995	3000	-1.074	225.781	74067	3000
173.0	222.2	74,066.8	3000	442	150	0.066	9371	147	1.378	4,722	683	3.225	358.004	3000	-1.074	225.795	74071	3000
174.0	222.2	74,071.3	3000	442	150	0.066	9371	147	1.378	4,722	683	3.225	358.013	3000	-1.074	225.809	74076	3000
175.0	222.2	74,075.7	3000	442	150	0.066	9371	147	1.378	4,722	683	3.225	358.022	3000	-1.074	225.822	74080	3000
176.0	222.2	74,079.8	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.031	3000	-1.074	225.835	74084	3000
177.0	222.3	74,083.8	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.039	3000	-1.074	225.847	74088	3000
178.0	222.3	74,087.5	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.046	3000	-1.074	225.858	74091	3000
179.0	222.3	74,091.1	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.054	3000	-1.074	225.869	74095	3000
180.0	222.3	74,094.6	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.061	3000	-1.074	225.879	74098	3000
181.0	222.3	74,097.9	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.067	3000	-1.074	225.889	74101	3000
182.0	222.3	74,101.0	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.074	3000	-1.074	225.899	74104	3000
183.0	222.3	74,104.0	3000	442	150	0.066	9371	147	1.378	4,723	683	3.226	358.080	3000	-1.074	225.908	74107	3000
184.0	222.3	74,106.8	3000	442	150	0.066	9371	147	1.378	4,724	683	3.226	358.085	3000	-1.074	225.916	74110	3000
185.0	222.3	74,109.5	3000	442	150	0.066	9371	147	1.378	4,724	683	3.226	358.091	3000	-1.074	225.924	74112	3000
186.0	222.3	74,112.1	3000	442	150	0.066	9371	147	1.378	4,724	683	3.226	358.096	3000	-1.074	225.932	74115	3000
187.0	222.3	74,114.6	3000	442	150	0.066	9371	147	1.378	4,724	683	3.226	358.101	3000	-1.074	225.940	74117	3000

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
188.0	222.4	74,117.0	3000	442	150	0.066	9371	147	1.378	4,724	683	3.226	358.106	3000	-1.074	225.947	74119	3000
189.0	222.4	74,119.2	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.111	3000	-1.074	225.954	74121	3000
190.0	222.4	74,121.4	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.115	3000	-1.074	225.960	74123	3000
191.0	222.4	74,123.4	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.119	3000	-1.074	225.966	74125	3000
192.0	222.4	74,125.4	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.123	3000	-1.074	225.972	74127	3000
193.0	222.4	74,127.2	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.127	3000	-1.074	225.978	74129	3000
194.0	222.4	74,129.0	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.130	3000	-1.074	225.983	74131	3000
195.0	222.4	74,130.7	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.134	3000	-1.074	225.988	74132	3000
196.0	222.4	74,132.3	3000	442	150	0.066	9371	147	1.378	4,724	683	3.227	358.137	3000	-1.074	225.993	74134	3000
197.0	222.4	74,133.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.140	3000	-1.074	225.998	74135	3000
198.0	222.4	74,135.4	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.143	3000	-1.074	226.002	74137	3000
199.0	222.4	74,136.8	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.146	3000	-1.074	226.007	74138	3000
200.0	222.4	74,138.1	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.149	3000	-1.074	226.011	74139	3000
201.0	222.4	74,139.4	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.151	3000	-1.074	226.015	74141	3000
202.0	222.4	74,140.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.154	3000	-1.074	226.018	74142	3000
203.0	222.4	74,141.8	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.156	3000	-1.074	226.022	74143	3000
204.0	222.4	74,142.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.159	3000	-1.074	226.025	74144	3000
205.0	222.4	74,144.0	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.161	3000	-1.074	226.028	74145	3000
206.0	222.4	74,145.0	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.163	3000	-1.074	226.031	74146	3000
207.0	222.4	74,145.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.165	3000	-1.074	226.034	74147	3000
208.0	222.4	74,146.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.167	3000	-1.074	226.037	74148	3000
209.0	222.4	74,147.7	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.168	3000	-1.075	226.040	74149	3000
210.0	222.4	74,148.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.170	3000	-1.075	226.042	74149	3000
211.0	222.4	74,149.4	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.172	3000	-1.075	226.045	74150	3000
212.0	222.5	74,150.2	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.173	3000	-1.075	226.047	74151	3000
213.0	222.5	74,150.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.175	3000	-1.075	226.049	74152	3000
214.0	222.5	74,151.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.176	3000	-1.075	226.051	74152	3000
215.0	222.5	74,152.2	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.178	3000	-1.075	226.053	74153	3000
216.0	222.5	74,152.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.179	3000	-1.075	226.055	74153	3000
217.0	222.5	74,153.5	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.180	3000	-1.075	226.057	74154	3000
218.0	222.5	74,154.1	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.181	3000	-1.075	226.059	74155	3000
219.0	222.5	74,154.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.182	3000	-1.075	226.060	74155	3000
220.0	222.5	74,155.1	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.183	3000	-1.075	226.062	74156	3000
221.0	222.5	74,155.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.184	3000	-1.075	226.064	74156	3000
222.0	222.5	74,156.1	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.185	3000	-1.075	226.065	74157	3000
223.0	222.5	74,156.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.186	3000	-1.075	226.066	74157	3000
224.0	222.5	74,157.0	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.187	3000	-1.075	226.068	74157	3000
225.0	222.5	74,157.4	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.188	3000	-1.075	226.069	74158	3000
226.0	222.5	74,157.8	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.189	3000	-1.075	226.070	74158	3000
227.0	222.5	74,158.2	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.190	3000	-1.075	226.071	74159	3000
228.0	222.5	74,158.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.190	3000	-1.075	226.072	74159	3000
229.0	222.5	74,158.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.191	3000	-1.075	226.073	74159	3000
230.0	222.5	74,159.2	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.192	3000	-1.075	226.074	74160	3000
231.0	222.5	74,159.5	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.192	3000	-1.075	226.075	74160	3000
232.0	222.5	74,159.8	3000	442	150	0.066	9371	147	1.378	4,725	683	3.227	358.193	3000	-1.075	226.076	74160	3000
233.0	222.5	74,160.1	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.194	3000	-1.075	226.077	74160	3000
234.0	222.5	74,160.4	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.194	3000	-1.075	226.078	74161	3000
235.0	222.5	74,160.7	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.195	3000	-1.075	226.079	74161	3000
236.0	222.5	74,160.9	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.195	3000	-1.075	226.079	74161	3000
237.0	222.5	74,161.1	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.196	3000	-1.075	226.080	74161	3000
238.0	222.5	74,161.4	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.196	3000	-1.075	226.081	74162	3000
239.0	222.5	74,161.6	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.196	3000	-1.075	226.082	74162	3000
240.0	222.5	74,161.8	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.197	3000	-1.075	226.082	74162	3000
241.0	222.5	74,162.0	3000	442	150	0.066	9371	147	1.378	4,725	683	3.228	358.197	3000	-1.075	226.083	74162	3000
242.0	222.5	74,162.2	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.198	3000	-1.075	226.083	74162	3000
243.0	222.5	74,162.3	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.198	3000	-1.075	226.084	74163	3000
244.0	222.5	74,162.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.198	3000	-1.075	226.084	74163	3000
245.0	222.5	74,162.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.199	3000	-1.075	226.085	74163	3000
246.0	222.5	74,162.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.199	3000	-1.075	226.085	74163	3000
247.0	222.5	74,163.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.199	3000	-1.075	226.086	74163	3000
248.0	222.5	74,163.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.200	3000	-1.075	226.086	74163	3000
249.0	222.5	74,163.3	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.200	3000	-1.075	226.087	74163	3000
250.0	222.5	74,163.4	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.200	3000	-1.075	226.087	74164	3000

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
251.0	222.5	74,163.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.200	3000	-1.075	226.087	74164	3000
252.0	222.5	74,163.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.201	3000	-1.075	226.088	74164	3000
253.0	222.5	74,163.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.201	3000	-1.075	226.088	74164	3000
254.0	222.5	74,163.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.201	3000	-1.075	226.088	74164	3000
255.0	222.5	74,163.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.201	3000	-1.075	226.089	74164	3000
256.0	222.5	74,164.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.201	3000	-1.075	226.089	74164	3000
257.0	222.5	74,164.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.202	3000	-1.075	226.089	74164	3000
258.0	222.5	74,164.2	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.202	3000	-1.075	226.089	74164	3000
259.0	222.5	74,164.3	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.202	3000	-1.075	226.090	74164	3000
260.0	222.5	74,164.4	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.202	3000	-1.075	226.090	74164	3000
261.0	222.5	74,164.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.202	3000	-1.075	226.090	74165	3000
262.0	222.5	74,164.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.202	3000	-1.075	226.090	74165	3000
263.0	222.5	74,164.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.091	74165	3000
264.0	222.5	74,164.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.091	74165	3000
265.0	222.5	74,164.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.091	74165	3000
266.0	222.5	74,164.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.091	74165	3000
267.0	222.5	74,164.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.091	74165	3000
268.0	222.5	74,164.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.092	74165	3000
269.0	222.5	74,165.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.092	74165	3000
270.0	222.5	74,165.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.203	3000	-1.075	226.092	74165	3000
271.0	222.5	74,165.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.092	74165	3000
272.0	222.5	74,165.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.092	74165	3000
273.0	222.5	74,165.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.092	74165	3000
274.0	222.5	74,165.2	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.092	74165	3000
275.0	222.5	74,165.2	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
276.0	222.5	74,165.3	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
277.0	222.5	74,165.3	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
278.0	222.5	74,165.3	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
279.0	222.5	74,165.4	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
280.0	222.5	74,165.4	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
281.0	222.5	74,165.4	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
282.0	222.5	74,165.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74165	3000
283.0	222.5	74,165.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74166	3000
284.0	222.5	74,165.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74166	3000
285.0	222.5	74,165.5	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.204	3000	-1.075	226.093	74166	3000
286.0	222.5	74,165.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
287.0	222.5	74,165.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
288.0	222.5	74,165.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
289.0	222.5	74,165.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
290.0	222.5	74,165.6	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
291.0	222.5	74,165.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
292.0	222.5	74,165.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
293.0	222.5	74,165.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
294.0	222.5	74,165.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
295.0	222.5	74,165.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
296.0	222.5	74,165.7	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
297.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
298.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
299.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
300.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
301.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
302.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
303.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
304.0	222.5	74,165.8	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
305.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
306.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
307.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
308.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.094	74166	3000
309.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
310.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
311.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
312.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
313.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
314.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
315.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
316.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
317.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
318.0	222.5	74,165.9	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
319.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
320.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
321.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
322.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
323.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
324.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
325.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
326.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
327.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
328.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
329.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
330.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
331.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
332.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
333.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
334.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
335.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
336.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
337.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
338.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
339.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
340.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
341.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
342.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
343.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
344.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
345.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
346.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
347.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
348.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
349.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
350.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
351.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
352.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
353.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
354.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
355.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
356.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
357.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
358.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
359.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
360.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
361.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
362.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
363.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
364.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
365.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
366.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
367.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
368.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
369.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
370.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
371.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.205	3000	-1.075	226.095	74166	3000
372.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
373.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
374.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
375.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
376.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
377.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
378.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
379.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
380.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
381.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
382.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
383.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
384.0	222.5	74,166.0	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
385.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
386.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
387.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
388.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
389.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
390.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
391.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
392.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
393.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
394.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
395.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
396.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
397.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
398.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
399.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
400.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
401.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
402.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
403.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
404.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
405.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
406.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
407.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
408.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
409.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
410.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
411.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
412.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
413.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
414.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
415.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
416.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
417.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
418.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
419.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
420.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
421.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
422.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
423.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
424.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
425.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
426.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
427.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
428.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
429.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
430.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
431.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
432.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
433.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
434.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
435.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
436.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
437.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
438.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
439.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000

TABLE 31. CHEMICAL BALANCE MODEL RESULTS FOR CENTENNIAL PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
440.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
441.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
442.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
443.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
444.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
445.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
446.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
447.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
448.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
449.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
450.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
451.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
452.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
453.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
454.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
455.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
456.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
457.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
458.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
459.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
460.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
461.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
462.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
463.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
464.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
465.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
466.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
467.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
468.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
469.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
470.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
471.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
472.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
473.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
474.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
475.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
476.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
477.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
478.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
479.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
480.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
481.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
482.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
483.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
484.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
485.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
486.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
487.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
488.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
489.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
490.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
491.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
492.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
493.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
494.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
495.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
496.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
497.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
498.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
499.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000
500.0	222.5	74,166.1	3000	442	150	0.066	9371	147	1.378	4,726	683	3.228	358.206	3000	-1.075	226.095	74166	3000

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
0.00	0.000001	6.83E-10	683	24503	448	11.0	4247	2039	8.7	-8346.6	147.1	-1.2	22801	683	16	5.3	14295	370
1.00	14295	5.291	370	24490	448	11.0	4244	2039	8.7	-7895.6	147.1	-1.2	22830	370	8.4	17.6	28094	627
2.00	28094	17.628	627	24478	448	11.0	4242	2039	8.6	-7460.1	152.4	-1.1	22859	627	14.3	24.0	41415	580
3.00	41415	24.038	580	24466	448	11.0	4240	2039	8.6	-7039.6	158.5	-1.1	22886	580	13.3	31.5	54274	580
4.00	54274	31.476	580	24454	448	11.0	4238	2039	8.6	-6633.7	165.0	-1.1	22913	580	13.3	38.9	66688	583
5.00	66688	38.880	583	24443	448	11.0	4236	2039	8.6	-6241.9	171.8	-1.1	22938	583	13.4	46.2	78671	587
6.00	78671	46.168	587	24433	448	10.9	4234	2039	8.6	-5863.5	179.0	-1.0	22963	587	13.5	53.3	90239	591
7.00	90239	53.321	591	24423	448	10.9	4233	2039	8.6	-5498.3	186.5	-1.0	22987	591	13.6	60.3	101406	595
8.0	101406	60.336	595	24413	448	10.9	4231	2039	8.6	-5145.7	194.4	-1.0	23009	595	13.7	67.2	112185	599
9.0	112185	67.209	599	24403	448	10.9	4229	2039	8.6	-4805.3	202.6	-1.0	23032	599	13.8	73.9	122592	603
10.0	122592	73.941	603	24394	448	10.9	4228	2039	8.6	-4476.7	211.3	-0.9	23053	603	13.9	80.5	132637	607
11.0	132637	80.531	607	24385	448	10.9	4226	2039	8.6	-4159.5	220.3	-0.9	23073	607	14.0	87.0	142334	611
12.0	142334	86.980	611	24376	448	10.9	4225	2039	8.6	-3853.2	229.8	-0.9	23093	611	14.1	93.3	151696	615
13.0	151696	93.288	615	24368	448	10.9	4223	2039	8.6	-3557.5	239.8	-0.9	23112	615	14.2	99.5	160732	619
14.0	160732	99.456	619	24360	448	10.9	4222	2039	8.6	-3272.0	250.2	-0.8	23130	619	14.3	105.5	169456	622
15.0	169456	105.484	622	24352	448	10.9	4220	2039	8.6	-2996.5	261.2	-0.8	23148	622	14.4	111.4	177877	626
16.0	177877	111.373	626	24345	448	10.9	4219	2039	8.6	-2730.4	272.7	-0.7	23165	626	14.5	117.1	186006	630
17.0	186006	117.122	630	24338	448	10.9	4218	2039	8.6	-2473.6	284.7	-0.7	23182	630	14.6	122.7	193854	633
18.0	193854	122.733	633	24331	448	10.9	4217	2039	8.6	-2225.7	297.4	-0.7	23198	633	14.7	128.2	201429	636
19.0	201429	128.207	636	24324	448	10.9	4216	2039	8.6	-1986.3	310.7	-0.6	23213	636	14.8	133.5	208742	640
20.0	208742	133.542	640	24318	448	10.9	4214	2039	8.6	-1755.3	324.7	-0.6	23228	640	14.9	138.7	215801	643
21.0	215801	138.739	643	24311	448	10.9	4213	2039	8.6	-1532.2	339.4	-0.5	23242	643	14.9	143.8	222616	646
22.0	222616	143.800	646	24305	448	10.9	4212	2039	8.6	-1316.8	354.9	-0.5	23256	646	15.0	148.7	229195	649
23.0	229195	148.722	649	24299	448	10.9	4211	2039	8.6	-1108.9	371.2	-0.4	23269	649	15.1	153.5	235545	652
24.0	235545	153.508	652	24294	448	10.9	4210	2039	8.6	-908.2	388.3	-0.4	23282	652	15.2	158.2	241676	654
25.0	241676	158.156	654	24288	448	10.9	4209	2039	8.6	-714.5	406.3	-0.3	23294	654	15.2	162.7	247593	657
26.0	247593	162.666	657	24283	448	10.9	4208	2039	8.6	-527.4	425.2	-0.2	23306	657	15.3	167.0	253306	659
27.0	253306	167.038	659	24278	448	10.9	4208	2039	8.6	-346.9	445.1	-0.2	23318	659	15.4	171.3	258821	662
28.0	258821	171.272	662	24273	448	10.9	4207	2039	8.6	-172.6	466.1	-0.1	23329	662	15.4	175.4	264145	664
29.0	264145	175.367	664	24268	448	10.9	4206	2039	8.6	-4.3	488.2	0.0	23340	664	15.5	179.3	269284	666
30.0	269284	179.322	666	24264	448	10.9	4205	2039	8.6	158.2	667.6	0.1	23350	666	15.5	183.1	274245	668
31.0	274245	183.112	668	24260	448	10.9	4204	2039	8.6	315.0	669.1	0.2	23360	668	15.6	186.7	279034	669
32.0	279034	186.745	669	24255	448	10.9	4204	2039	8.6	466.4	670.5	0.3	23370	669	15.6	190.2	283657	671
33.0	283657	190.229	671	24251	448	10.9	4203	2039	8.6	612.5	671.8	0.4	23379	671	15.7	193.6	288119	672
34.0	288119	193.574	672	24247	448	10.9	4202	2039	8.6	753.6	672.9	0.5	23388	672	15.7	196.8	292427	673
35.0	292427	196.785	673	24243	448	10.9	4202	2039	8.6	889.8	673.8	0.6	23396	673	15.7	199.9	296586	674
36.0	296586	199.869	674	24240	448	10.9	4201	2039	8.6	1021.3	674.7	0.7	23405	674	15.8	202.8	300601	675
37.0	300601	202.832	675	24236	448	10.9	4200	2039	8.6	1148.2	675.5	0.8	23413	675	15.8	205.7	304476	676
38.0	304476	205.681	676	24233	448	10.9	4200	2039	8.6	1270.8	676.2	0.9	23421	676	15.8	208.4	308217	676
39.0	308217	208.420	676	24229	448	10.9	4199	2039	8.6	1389.1	676.8	0.9	23428	676	15.8	211.1	311829	677
40.0	311829	211.055	677	24226	448	10.9	4199	2039	8.6	1503.3	677.3	1.0	23435	677	15.9	213.6	315315	677
41.0	315315	213.589	677	24223	448	10.9	4198	2039	8.6	1613.5	677.8	1.1	23442	677	15.9	216.0	318680	678
42.0	318680	216.028	678	24220	448	10.9	4198	2039	8.6	1719.9	678.3	1.2	23449	678	15.9	218.4	321929	678
43.0	321929	218.375	678	24217	448	10.8	4197	2039	8.6	1822.6	678.7	1.2	23456	678	15.9	220.6	325065	679
44.0	325065	220.635	679	24214	448	10.8	4197	2039	8.6	1921.8	679.1	1.3	23462	679	15.9	222.8	328093	679
45.0	328093	222.810	679	24212	448	10.8	4196	2039	8.6	2017.6	679.4	1.4	23468	679	15.9	224.9	331015	679
46.0	331015	224.905	679	24209	448	10.8	4196	2039	8.6	2110.0	679.7	1.4	23474	679	15.9	226.9	333837	680
47.0	333837	226.923	680	24207	448	10.8	4195	2039	8.6	2199.2	680.0	1.5	23479	680	16.0	228.9	336560	680
48.0	336560	228.866	680	24204	448	10.8	4195	2039	8.6	2285.3	680.2	1.6	23485	680	16.0	230.7	339189	680
49.0	339189	230.738	680	24202	448	10.8	4194	2039	8.6	2368.5	680.5	1.6	23490	680	16.0	232.5	341727	680
50.0	341727	232.542	680	24200	448	10.8	4194	2039	8.6	3076.2	680.7	2.1	23495	680	16.0	233.9	343550	681
51.0	343550	233.853	681	24197	448	10.8	4194	2039	8.6	3651.8	680.9	2.5	23500	681	16.0	234.8	344789	681
52.0	344789	234.761	681	24194	448	10.8	4193	2039	8.5	3701.1	681.0	2.5	23504	681	16.0	235.6	345971	681
53.0	345971	235.626	681	24192	448	10.8	4193	2039	8.5	3748.1	681.2	2.6	23508	681	16.0	236.4	347099	681
54.0	347099	236.449	681	24189	448	10.8	4192	2039	8.5	3792.9	681.4	2.6	23512	681	16.0	237.2	348175	681
55.0	348175	237.233	681	24187	448	10.8	4192	2039	8.5	3835.7	681.5	2.6	23516	681	16.0	238.0	349202	681
56.0	349202	237.979	681	24184	448	10.8	4191	2039	8.5	3876.5	681.6	2.6	23519	681	16.0	238.7	350182	682

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
57.0	350182	238.689	682	24182	448	10.8	4191	2039	8.5	3915.5	681.7	2.7	23523	682	16.0	239.4	351117	682
58.0	351117	239.365	682	24180	448	10.8	4191	2039	8.5	3952.6	681.8	2.7	23526	682	16.0	240.0	352009	682
59.0	352009	240.009	682	24178	448	10.8	4190	2039	8.5	3988.1	681.9	2.7	23529	682	16.0	240.6	352860	682
60.0	352860	240.622	682	24176	448	10.8	4190	2039	8.5	4021.9	682.0	2.7	23532	682	16.0	241.2	353672	682
61.0	353672	241.207	682	24174	448	10.8	4190	2039	8.5	4054.2	682.1	2.8	23535	682	16.1	241.8	354446	682
62.0	354446	241.763	682	24172	448	10.8	4189	2039	8.5	4085.0	682.2	2.8	23538	682	16.1	242.3	355185	682
63.0	355185	242.293	682	24171	448	10.8	4189	2039	8.5	4114.4	682.2	2.8	23540	682	16.1	242.8	355891	682
64.0	355891	242.798	682	24169	448	10.8	4189	2039	8.5	4142.5	682.3	2.8	23543	682	16.1	243.3	356564	682
65.0	356564	243.279	682	24168	448	10.8	4188	2039	8.5	4169.2	682.3	2.8	23545	682	16.1	243.7	357206	682
66.0	357206	243.737	682	24166	448	10.8	4188	2039	8.5	4194.7	682.4	2.9	23547	682	16.1	244.2	357818	682
67.0	357818	244.174	682	24165	448	10.8	4188	2039	8.5	4219.1	682.4	2.9	23549	682	16.1	244.6	358403	682
68.0	358403	244.589	682	24164	448	10.8	4188	2039	8.5	4242.3	682.5	2.9	23551	682	16.1	245.0	358960	682
69.0	358960	244.986	682	24162	448	10.8	4188	2039	8.5	4264.5	682.5	2.9	23553	682	16.1	245.4	359492	683
70.0	359492	245.363	683	24161	448	10.8	4187	2039	8.5	4285.7	682.6	2.9	23555	683	16.1	245.7	360000	683
71.0	360000	245.723	683	24160	448	10.8	4187	2039	8.5	4305.9	682.6	2.9	23557	683	16.1	246.1	360484	683
72.0	360484	246.066	683	24159	448	10.8	4187	2039	8.5	4325.1	682.6	3.0	23559	683	16.1	246.4	360946	683
73.0	360946	246.393	683	24158	448	10.8	4187	2039	8.5	4343.5	682.7	3.0	23560	683	16.1	246.7	361387	683
74.0	361387	246.705	683	24157	448	10.8	4187	2039	8.5	4361.0	682.7	3.0	23562	683	16.1	247.0	361808	683
75.0	361808	247.001	683	24156	448	10.8	4186	2039	8.5	4377.8	682.7	3.0	23563	683	16.1	247.3	362209	683
76.0	362209	247.284	683	24155	448	10.8	4186	2039	8.5	4393.7	682.7	3.0	23565	683	16.1	247.6	362592	683
77.0	362592	247.554	683	24154	448	10.8	4186	2039	8.5	4408.9	682.8	3.0	23566	683	16.1	247.8	362957	683
78.0	362957	247.811	683	24153	448	10.8	4186	2039	8.5	4423.5	682.8	3.0	23567	683	16.1	248.1	363306	683
79.0	363306	248.056	683	24152	448	10.8	4186	2039	8.5	4437.3	682.8	3.0	23568	683	16.1	248.3	363639	683
80.0	363639	248.290	683	24152	448	10.8	4186	2039	8.5	4450.6	682.8	3.0	23570	683	16.1	248.5	363956	683
81.0	363956	248.513	683	24151	448	10.8	4186	2039	8.5	4463.2	682.8	3.0	23571	683	16.1	248.7	364259	683
82.0	364259	248.725	683	24150	448	10.8	4185	2039	8.5	4475.2	682.8	3.1	23572	683	16.1	248.9	364548	683
83.0	364548	248.927	683	24150	448	10.8	4185	2039	8.5	4486.7	682.9	3.1	23573	683	16.1	249.1	364823	683
84.0	364823	249.120	683	24149	448	10.8	4185	2039	8.5	4497.7	682.9	3.1	23574	683	16.1	249.3	365086	683
85.0	365086	249.304	683	24148	448	10.8	4185	2039	8.5	4508.1	682.9	3.1	23575	683	16.1	249.5	365337	683
86.0	365337	249.479	683	24148	448	10.8	4185	2039	8.5	4518.1	682.9	3.1	23575	683	16.1	249.6	365577	683
87.0	365577	249.647	683	24147	448	10.8	4185	2039	8.5	4527.6	682.9	3.1	23576	683	16.1	249.8	365805	683
88.0	365805	249.806	683	24147	448	10.8	4185	2039	8.5	4536.7	682.9	3.1	23577	683	16.1	250.0	366023	683
89.0	366023	249.958	683	24146	448	10.8	4185	2039	8.5	4545.4	682.9	3.1	23578	683	16.1	250.1	366231	683
90.0	366231	250.103	683	24146	448	10.8	4185	2039	8.5	4553.7	682.9	3.1	23578	683	16.1	250.2	366429	683
91.0	366429	250.241	683	24145	448	10.8	4185	2039	8.5	4561.6	682.9	3.1	23579	683	16.1	250.4	366619	683
92.0	366619	250.373	683	24145	448	10.8	4185	2039	8.5	4569.1	682.9	3.1	23580	683	16.1	250.5	366799	683
93.0	366799	250.498	683	24145	448	10.8	4184	2039	8.5	4576.3	682.9	3.1	23580	683	16.1	250.6	366971	683
94.0	366971	250.618	683	24144	448	10.8	4184	2039	8.5	4583.1	682.9	3.1	23581	683	16.1	250.7	367136	683
95.0	367136	250.732	683	24144	448	10.8	4184	2039	8.5	4589.7	682.9	3.1	23582	683	16.1	250.8	367293	683
96.0	367293	250.841	683	24143	448	10.8	4184	2039	8.5	4595.9	683.0	3.1	23582	683	16.1	250.9	367442	683
97.0	367442	250.945	683	24143	448	10.8	4184	2039	8.5	4601.9	683.0	3.1	23583	683	16.1	251.0	367585	683
98.0	367585	251.044	683	24143	448	10.8	4184	2039	8.5	4607.5	683.0	3.1	23583	683	16.1	251.1	367721	683
99.0	367721	251.139	683	24142	448	10.8	4184	2039	8.5	4613.0	683.0	3.2	23584	683	16.1	251.2	367851	683
100.0	367851	251.229	683	24142	448	10.8	4184	2039	8.5	4618.1	683.0	3.2	23584	683	16.1	251.3	367976	683
101.0	367976	251.315	683	24142	448	10.8	4184	2039	8.5	4623.1	683.0	3.2	23585	683	16.1	251.4	368094	683
102.0	368094	251.397	683	24142	448	10.8	4184	2039	8.5	4627.8	683.0	3.2	23585	683	16.1	251.5	368207	683
103.0	368207	251.475	683	24141	448	10.8	4184	2039	8.5	4632.3	683.0	3.2	23585	683	16.1	251.5	368314	683
104.0	368314	251.550	683	24141	448	10.8	4184	2039	8.5	4636.5	683.0	3.2	23586	683	16.1	251.6	368417	683
105.0	368417	251.621	683	24141	448	10.8	4184	2039	8.5	4640.6	683.0	3.2	23586	683	16.1	251.7	368515	683
106.0	368515	251.688	683	24141	448	10.8	4184	2039	8.5	4644.5	683.0	3.2	23586	683	16.1	251.8	368609	683
107.0	368609	251.753	683	24140	448	10.8	4184	2039	8.5	4648.3	683.0	3.2	23587	683	16.1	251.8	368698	683
108.0	368698	251.815	683	24140	448	10.8	4184	2039	8.5	4651.8	683.0	3.2	23587	683	16.1	251.9	368783	683
109.0	368783	251.874	683	24140	448	10.8	4184	2039	8.5	4655.2	683.0	3.2	23587	683	16.1	251.9	368865	683
110.0	368865	251.930	683	24140	448	10.8	4184	2039	8.5	4658.4	683.0	3.2	23588	683	16.1	252.0	368942	683
111.0	368942	251.983	683	24140	448	10.8	4184	2039	8.5	4661.5	683.0	3.2	23588	683	16.1	252.0	369016	683
112.0	369016	252.034	683	24140	448	10.8	4184	2039	8.5	4664.5	683.0	3.2	23588	683	16.1	252.1	369087	683
113.0	369087	252.083	683	24139	448	10.8	4184	2039	8.5	4667.3	683.0	3.2	23588	683	16.1	252.1	369154	683
114.0	369154	252.129	683	24139	448	10.8	4184	2039	8.5	4669.9	683.0	3.2	23589	683	16.1	252.2	369218	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
115.0	369218	252.174	683	24139	448	10.8	4184	2039	8.5	4672.5	683.0	3.2	23589	683	16.1	252.2	369280	683
116.0	369280	252.216	683	24139	448	10.8	4184	2039	8.5	4674.9	683.0	3.2	23589	683	16.1	252.3	369338	683
117.0	369338	252.256	683	24139	448	10.8	4183	2039	8.5	4677.3	683.0	3.2	23589	683	16.1	252.3	369394	683
118.0	369394	252.295	683	24139	448	10.8	4183	2039	8.5	4679.5	683.0	3.2	23589	683	16.1	252.3	369447	683
119.0	369447	252.331	683	24139	448	10.8	4183	2039	8.5	4681.6	683.0	3.2	23590	683	16.1	252.4	369498	683
120.0	369498	252.366	683	24138	448	10.8	4183	2039	8.5	4683.6	683.0	3.2	23590	683	16.1	252.4	369547	683
121.0	369547	252.400	683	24138	448	10.8	4183	2039	8.5	4685.5	683.0	3.2	23590	683	16.1	252.4	369593	683
122.0	369593	252.431	683	24138	448	10.8	4183	2039	8.5	4687.4	683.0	3.2	23590	683	16.1	252.5	369637	683
123.0	369637	252.462	683	24138	448	10.8	4183	2039	8.5	4689.1	683.0	3.2	23590	683	16.1	252.5	369679	683
124.0	369679	252.491	683	24138	448	10.8	4183	2039	8.5	4690.8	683.0	3.2	23590	683	16.1	252.5	369719	683
125.0	369719	252.518	683	24138	448	10.8	4183	2039	8.5	4692.4	683.0	3.2	23591	683	16.1	252.5	369758	683
126.0	369758	252.545	683	24138	448	10.8	4183	2039	8.5	4693.9	683.0	3.2	23591	683	16.1	252.6	369794	683
127.0	369794	252.570	683	24138	448	10.8	4183	2039	8.5	4695.4	683.0	3.2	23591	683	16.1	252.6	369829	683
128.0	369829	252.594	683	24138	448	10.8	4183	2039	8.5	4696.8	683.0	3.2	23591	683	16.1	252.6	369862	683
129.0	369862	252.617	683	24138	448	10.8	4183	2039	8.5	4698.1	683.0	3.2	23591	683	16.1	252.6	369894	683
130.0	369894	252.639	683	24138	448	10.8	4183	2039	8.5	4699.4	683.0	3.2	23591	683	16.1	252.7	369924	683
131.0	369924	252.659	683	24137	448	10.8	4183	2039	8.5	4700.6	683.0	3.2	23591	683	16.1	252.7	369953	683
132.0	369953	252.679	683	24137	448	10.8	4183	2039	8.5	4701.7	683.0	3.2	23591	683	16.1	252.7	369981	683
133.0	369981	252.698	683	24137	448	10.8	4183	2039	8.5	4702.8	683.0	3.2	23591	683	16.1	252.7	370007	683
134.0	370007	252.716	683	24137	448	10.8	4183	2039	8.5	4703.9	683.0	3.2	23592	683	16.1	252.7	370032	683
135.0	370032	252.733	683	24137	448	10.8	4183	2039	8.5	4704.9	683.0	3.2	23592	683	16.1	252.7	370056	683
136.0	370056	252.750	683	24137	448	10.8	4183	2039	8.5	4705.8	683.0	3.2	23592	683	16.1	252.8	370079	683
137.0	370079	252.766	683	24137	448	10.8	4183	2039	8.5	4706.7	683.0	3.2	23592	683	16.1	252.8	370101	683
138.0	370101	252.781	683	24137	448	10.8	4183	2039	8.5	4707.6	683.0	3.2	23592	683	16.1	252.8	370122	683
139.0	370122	252.795	683	24137	448	10.8	4183	2039	8.5	4708.4	683.0	3.2	23592	683	16.1	252.8	370142	683
140.0	370142	252.808	683	24137	448	10.8	4183	2039	8.5	4709.2	683.0	3.2	23592	683	16.1	252.8	370161	683
141.0	370161	252.821	683	24137	448	10.8	4183	2039	8.5	4710.0	683.0	3.2	23592	683	16.1	252.8	370179	683
142.0	370179	252.834	683	24137	448	10.8	4183	2039	8.5	4710.7	683.0	3.2	23592	683	16.1	252.8	370196	683
143.0	370196	252.846	683	24137	448	10.8	4183	2039	8.5	4711.4	683.0	3.2	23592	683	16.1	252.9	370212	683
144.0	370212	252.857	683	24137	448	10.8	4183	2039	8.5	4712.0	683.0	3.2	23592	683	16.1	252.9	370228	683
145.0	370228	252.868	683	24137	448	10.8	4183	2039	8.5	4712.7	683.0	3.2	23592	683	16.1	252.9	370243	683
146.0	370243	252.878	683	24137	448	10.8	4183	2039	8.5	4713.3	683.0	3.2	23592	683	16.1	252.9	370257	683
147.0	370257	252.888	683	24137	448	10.8	4183	2039	8.5	4713.8	683.0	3.2	23592	683	16.1	252.9	370271	683
148.0	370271	252.897	683	24137	448	10.8	4183	2039	8.5	4714.4	683.0	3.2	23592	683	16.1	252.9	370284	683
149.0	370284	252.906	683	24137	448	10.8	4183	2039	8.5	4714.9	683.0	3.2	23592	683	16.1	252.9	370296	683
150.0	370296	252.915	683	24137	448	10.8	4183	2039	8.5	4715.4	683.0	3.2	23593	683	16.1	252.9	370308	683
151.0	370308	252.923	683	24137	448	10.8	4183	2039	8.5	4715.8	683.0	3.2	23593	683	16.1	252.9	370320	683
152.0	370320	252.930	683	24137	448	10.8	4183	2039	8.5	4716.3	683.0	3.2	23593	683	16.1	252.9	370330	683
153.0	370330	252.938	683	24137	448	10.8	4183	2039	8.5	4716.7	683.0	3.2	23593	683	16.1	252.9	370341	683
154.0	370341	252.945	683	24137	448	10.8	4183	2039	8.5	4717.1	683.0	3.2	23593	683	16.1	253.0	370350	683
155.0	370350	252.952	683	24137	448	10.8	4183	2039	8.5	4717.5	683.0	3.2	23593	683	16.1	253.0	370360	683
156.0	370360	252.958	683	24137	448	10.8	4183	2039	8.5	4717.9	683.0	3.2	23593	683	16.1	253.0	370369	683
157.0	370369	252.964	683	24136	448	10.8	4183	2039	8.5	4718.3	683.0	3.2	23593	683	16.1	253.0	370377	683
158.0	370377	252.970	683	24136	448	10.8	4183	2039	8.5	4718.6	683.0	3.2	23593	683	16.1	253.0	370385	683
159.0	370385	252.976	683	24136	448	10.8	4183	2039	8.5	4718.9	683.0	3.2	23593	683	16.1	253.0	370393	683
160.0	370393	252.981	683	24136	448	10.8	4183	2039	8.5	4719.2	683.0	3.2	23593	683	16.1	253.0	370401	683
161.0	370401	252.986	683	24136	448	10.8	4183	2039	8.5	4719.5	683.0	3.2	23593	683	16.1	253.0	370408	683
162.0	370408	252.991	683	24136	448	10.8	4183	2039	8.5	4719.8	683.0	3.2	23593	683	16.1	253.0	370414	683
163.0	370414	252.995	683	24136	448	10.8	4183	2039	8.5	4720.1	683.0	3.2	23593	683	16.1	253.0	370421	683
164.0	370421	253.000	683	24136	448	10.8	4183	2039	8.5	4720.3	683.0	3.2	23593	683	16.1	253.0	370427	683
165.0	370427	253.004	683	24136	448	10.8	4183	2039	8.5	4720.6	683.0	3.2	23593	683	16.1	253.0	370433	683
166.0	370433	253.008	683	24136	448	10.8	4183	2039	8.5	4720.8	683.0	3.2	23593	683	16.1	253.0	370438	683
167.0	370438	253.012	683	24136	448	10.8	4183	2039	8.5	4721.0	683.0	3.2	23593	683	16.1	253.0	370444	683
168.0	370444	253.015	683	24136	448	10.8	4183	2039	8.5	4721.2	683.0	3.2	23593	683	16.1	253.0	370449	683
169.0	370449	253.019	683	24136	448	10.8	4183	2039	8.5	4721.4	683.0	3.2	23593	683	16.1	253.0	370454	683
170.0	370454	253.022	683	24136	448	10.8	4183	2039	8.5	4721.6	683.0	3.2	23593	683	16.1	253.0	370458	683
171.0	370458	253.025	683	24136	448	10.8	4183	2039	8.5	4721.8	683.0	3.2	23593	683	16.1	253.0	370463	683
172.0	370463	253.028	683	24136	448	10.8	4183	2039	8.5	4722.0	683.0	3.2	23593	683	16.1	253.0	370467	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
173.0	370467	253.031	683	24136	448	10.8	4183	2039	8.5	4722.2	683.0	3.2	23593	683	16.1	253.0	370471	683
174.0	370471	253.034	683	24136	448	10.8	4183	2039	8.5	4722.3	683.0	3.2	23593	683	16.1	253.0	370475	683
175.0	370475	253.037	683	24136	448	10.8	4183	2039	8.5	4722.5	683.0	3.2	23593	683	16.1	253.0	370478	683
176.0	370478	253.039	683	24136	448	10.8	4183	2039	8.5	4722.6	683.0	3.2	23593	683	16.1	253.0	370482	683
177.0	370482	253.042	683	24136	448	10.8	4183	2039	8.5	4722.8	683.0	3.2	23593	683	16.1	253.0	370485	683
178.0	370485	253.044	683	24136	448	10.8	4183	2039	8.5	4722.9	683.0	3.2	23593	683	16.1	253.0	370488	683
179.0	370488	253.046	683	24136	448	10.8	4183	2039	8.5	4723.0	683.0	3.2	23593	683	16.1	253.0	370491	683
180.0	370491	253.048	683	24136	448	10.8	4183	2039	8.5	4723.1	683.0	3.2	23593	683	16.1	253.1	370494	683
181.0	370494	253.050	683	24136	448	10.8	4183	2039	8.5	4723.2	683.0	3.2	23593	683	16.1	253.1	370497	683
182.0	370497	253.052	683	24136	448	10.8	4183	2039	8.5	4723.4	683.0	3.2	23593	683	16.1	253.1	370500	683
183.0	370500	253.054	683	24136	448	10.8	4183	2039	8.5	4723.5	683.0	3.2	23593	683	16.1	253.1	370502	683
184.0	370502	253.055	683	24136	448	10.8	4183	2039	8.5	4723.6	683.0	3.2	23593	683	16.1	253.1	370505	683
185.0	370505	253.057	683	24136	448	10.8	4183	2039	8.5	4723.7	683.0	3.2	23593	683	16.1	253.1	370507	683
186.0	370507	253.059	683	24136	448	10.8	4183	2039	8.5	4723.7	683.0	3.2	23593	683	16.1	253.1	370509	683
187.0	370509	253.060	683	24136	448	10.8	4183	2039	8.5	4723.8	683.0	3.2	23593	683	16.1	253.1	370511	683
188.0	370511	253.062	683	24136	448	10.8	4183	2039	8.5	4723.9	683.0	3.2	23593	683	16.1	253.1	370513	683
189.0	370513	253.063	683	24136	448	10.8	4183	2039	8.5	4724.0	683.0	3.2	23593	683	16.1	253.1	370515	683
190.0	370515	253.064	683	24136	448	10.8	4183	2039	8.5	4724.1	683.0	3.2	23593	683	16.1	253.1	370517	683
191.0	370517	253.065	683	24136	448	10.8	4183	2039	8.5	4724.1	683.0	3.2	23593	683	16.1	253.1	370519	683
192.0	370519	253.067	683	24136	448	10.8	4183	2039	8.5	4724.2	683.0	3.2	23593	683	16.1	253.1	370520	683
193.0	370520	253.068	683	24136	448	10.8	4183	2039	8.5	4724.3	683.0	3.2	23593	683	16.1	253.1	370522	683
194.0	370522	253.069	683	24136	448	10.8	4183	2039	8.5	4724.3	683.0	3.2	23593	683	16.1	253.1	370523	683
195.0	370523	253.070	683	24136	448	10.8	4183	2039	8.5	4724.4	683.0	3.2	23593	683	16.1	253.1	370525	683
196.0	370525	253.071	683	24136	448	10.8	4183	2039	8.5	4724.5	683.0	3.2	23593	683	16.1	253.1	370526	683
197.0	370526	253.072	683	24136	448	10.8	4183	2039	8.5	4724.5	683.0	3.2	23593	683	16.1	253.1	370527	683
198.0	370527	253.073	683	24136	448	10.8	4183	2039	8.5	4724.6	683.0	3.2	23593	683	16.1	253.1	370529	683
199.0	370529	253.074	683	24136	448	10.8	4183	2039	8.5	4724.6	683.0	3.2	23593	683	16.1	253.1	370530	683
200.0	370530	253.074	683	24136	448	10.8	4183	2039	8.5	4724.7	683.0	3.2	23593	683	16.1	253.1	370531	683
201.0	370531	253.075	683	24136	448	10.8	4183	2039	8.5	4724.7	683.0	3.2	23593	683	16.1	253.1	370532	683
202.0	370532	253.076	683	24136	448	10.8	4183	2039	8.5	4724.7	683.0	3.2	23593	683	16.1	253.1	370533	683
203.0	370533	253.077	683	24136	448	10.8	4183	2039	8.5	4724.8	683.0	3.2	23593	683	16.1	253.1	370534	683
204.0	370534	253.077	683	24136	448	10.8	4183	2039	8.5	4724.8	683.0	3.2	23593	683	16.1	253.1	370535	683
205.0	370535	253.078	683	24136	448	10.8	4183	2039	8.5	4724.9	683.0	3.2	23593	683	16.1	253.1	370536	683
206.0	370536	253.078	683	24136	448	10.8	4183	2039	8.5	4724.9	683.0	3.2	23593	683	16.1	253.1	370537	683
207.0	370537	253.079	683	24136	448	10.8	4183	2039	8.5	4724.9	683.0	3.2	23593	683	16.1	253.1	370538	683
208.0	370538	253.080	683	24136	448	10.8	4183	2039	8.5	4725.0	683.0	3.2	23593	683	16.1	253.1	370538	683
209.0	370538	253.080	683	24136	448	10.8	4183	2039	8.5	4725.0	683.0	3.2	23593	683	16.1	253.1	370539	683
210.0	370539	253.081	683	24136	448	10.8	4183	2039	8.5	4725.0	683.0	3.2	23593	683	16.1	253.1	370540	683
211.0	370540	253.081	683	24136	448	10.8	4183	2039	8.5	4725.1	683.0	3.2	23593	683	16.1	253.1	370540	683
212.0	370540	253.082	683	24136	448	10.8	4183	2039	8.5	4725.1	683.0	3.2	23593	683	16.1	253.1	370541	683
213.0	370541	253.082	683	24136	448	10.8	4183	2039	8.5	4725.1	683.0	3.2	23593	683	16.1	253.1	370542	683
214.0	370542	253.082	683	24136	448	10.8	4183	2039	8.5	4725.1	683.0	3.2	23593	683	16.1	253.1	370542	683
215.0	370542	253.083	683	24136	448	10.8	4183	2039	8.5	4725.2	683.0	3.2	23593	683	16.1	253.1	370543	683
216.0	370543	253.083	683	24136	448	10.8	4183	2039	8.5	4725.2	683.0	3.2	23593	683	16.1	253.1	370543	683
217.0	370543	253.084	683	24136	448	10.8	4183	2039	8.5	4725.2	683.0	3.2	23593	683	16.1	253.1	370544	683
218.0	370544	253.084	683	24136	448	10.8	4183	2039	8.5	4725.2	683.0	3.2	23593	683	16.1	253.1	370544	683
219.0	370544	253.084	683	24136	448	10.8	4183	2039	8.5	4725.2	683.0	3.2	23593	683	16.1	253.1	370545	683
220.0	370545	253.085	683	24136	448	10.8	4183	2039	8.5	4725.3	683.0	3.2	23593	683	16.1	253.1	370545	683
221.0	370545	253.085	683	24136	448	10.8	4183	2039	8.5	4725.3	683.0	3.2	23593	683	16.1	253.1	370546	683
222.0	370546	253.085	683	24136	448	10.8	4183	2039	8.5	4725.3	683.0	3.2	23593	683	16.1	253.1	370546	683
223.0	370546	253.085	683	24136	448	10.8	4183	2039	8.5	4725.3	683.0	3.2	23593	683	16.1	253.1	370547	683
224.0	370547	253.086	683	24136	448	10.8	4183	2039	8.5	4725.3	683.0	3.2	23593	683	16.1	253.1	370547	683
225.0	370547	253.086	683	24136	448	10.8	4183	2039	8.5	4725.3	683.0	3.2	23593	683	16.1	253.1	370547	683
226.0	370547	253.086	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370548	683
227.0	370548	253.086	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370548	683
228.0	370548	253.087	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370548	683
229.0	370548	253.087	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370549	683
230.0	370549	253.087	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370549	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
231.0	370549	253.087	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370549	683
232.0	370549	253.087	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370549	683
233.0	370549	253.088	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370550	683
234.0	370550	253.088	683	24136	448	10.8	4183	2039	8.5	4725.4	683.0	3.2	23593	683	16.1	253.1	370550	683
235.0	370550	253.088	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370550	683
236.0	370550	253.088	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370550	683
237.0	370550	253.088	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370550	683
238.0	370550	253.088	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370551	683
239.0	370551	253.088	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370551	683
240.0	370551	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370551	683
241.0	370551	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370551	683
242.0	370551	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370551	683
243.0	370551	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370551	683
244.0	370551	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
245.0	370552	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
246.0	370552	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
247.0	370552	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
248.0	370552	253.089	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
249.0	370552	253.090	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
250.0	370552	253.090	683	24136	448	10.8	4183	2039	8.5	4725.5	683.0	3.2	23593	683	16.1	253.1	370552	683
251.0	370552	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370552	683
252.0	370552	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370552	683
253.0	370552	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
254.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
255.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
256.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
257.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
258.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
259.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
260.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
261.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
262.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
263.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
264.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
265.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
266.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370553	683
267.0	370553	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
268.0	370554	253.090	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
269.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
270.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
271.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
272.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
273.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
274.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
275.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
276.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
277.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
278.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
279.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
280.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
281.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
282.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
283.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
284.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
285.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
286.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
287.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
288.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
289.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
290.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
291.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
292.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
293.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
294.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
295.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
296.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
297.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
298.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
299.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
300.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
301.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
302.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
303.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
304.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
305.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
306.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
307.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
308.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
309.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
310.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
311.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
312.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
313.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
314.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
315.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
316.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
317.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
318.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
319.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
320.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
321.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
322.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
323.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
324.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
325.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
326.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
327.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
328.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
329.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
330.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
331.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
332.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
333.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
334.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
335.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
336.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
337.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
338.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
339.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
340.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
341.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
342.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
343.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
344.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
345.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370554	683
346.0	370554	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
347.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
348.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
349.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
350.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
351.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
352.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
353.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
354.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
355.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
356.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
357.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
358.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
359.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
360.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
361.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
362.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
363.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
364.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
365.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
366.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
367.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
368.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
369.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
370.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
371.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
372.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
373.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
374.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
375.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
376.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
377.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
378.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
379.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
380.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
381.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
382.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
383.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
384.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
385.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
386.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
387.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
388.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
389.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
390.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
391.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
392.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
393.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
394.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
395.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
396.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
397.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
398.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
399.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
400.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
401.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
402.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
403.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
404.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
405.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
406.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
407.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
408.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
409.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
410.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
411.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
412.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
413.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
414.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
415.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
416.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
417.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
418.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
419.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
420.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
421.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
422.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
423.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
424.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
425.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
426.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
427.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
428.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
429.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
430.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
431.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
432.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
433.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
434.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
435.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
436.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
437.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
438.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
439.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
440.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
441.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
442.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
443.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
444.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
445.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
446.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
447.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
448.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
449.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
450.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
451.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
452.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
453.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
454.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
455.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
456.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
457.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
458.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
459.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
460.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
461.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
462.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683

TABLE 32. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR CENTENNIAL PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
463.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
464.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
465.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
466.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
467.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
468.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
469.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
470.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
471.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
472.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
473.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
474.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
475.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
476.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
477.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
478.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
479.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
480.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
481.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
482.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
483.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
484.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
485.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
486.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
487.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
488.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
489.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
490.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
491.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
492.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
493.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
494.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
495.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
496.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
497.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
498.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
499.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683
500.0	370555	253.091	683	24136	448	10.8	4183	2039	8.5	4725.6	683.0	3.2	23593	683	16.1	253.1	370555	683

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
0.00	3,449,883	2,356	683.00	22,801	683	15.6	0.0	0.0	0.0000	3,472,684	2,372	683	22,801	15.57	3,449,883	2,356	683
1.00	3,449,883	2,356	683.00	22,830	370	8.4	147.1	11.8	0.0017	3,472,725	2,365	681	22,842	15.55	3,449,883	2,349	681
2.00	3,449,883	2,349	680.94	22,859	627	14.3	167.7	23.2	0.0039	3,472,765	2,364	681	22,882	15.57	3,449,883	2,348	681
3.00	3,449,883	2,348	680.59	22,886	580	13.3	180.8	34.3	0.0062	3,472,804	2,361	680	22,921	15.58	3,449,883	2,346	680
4.00	3,449,883	2,346	679.92	22,913	580	13.3	191.7	45.1	0.0086	3,472,841	2,359	679	22,958	15.59	3,449,883	2,343	679
5.00	3,449,883	2,343	679.25	22,938	583	13.4	201.8	55.5	0.0112	3,472,877	2,357	679	22,994	15.60	3,449,883	2,341	679
6.00	3,449,883	2,341	678.61	22,963	587	13.5	211.7	65.5	0.0139	3,472,911	2,355	678	23,028	15.61	3,449,883	2,339	678
7.00	3,449,883	2,339	678.00	22,987	591	13.6	221.7	75.3	0.0167	3,472,945	2,353	677	23,062	15.62	3,449,883	2,337	677
8.0	3,449,883	2,337	677.41	23,009	595	13.7	231.9	84.7	0.0196	3,472,977	2,351	677	23,094	15.63	3,449,883	2,335	677
9.0	3,449,883	2,335	676.85	23,032	599	13.8	242.4	93.8	0.0227	3,473,008	2,349	676	23,125	15.64	3,449,883	2,333	676
10.0	3,449,883	2,333	676.33	23,053	603	13.9	253.3	102.7	0.0260	3,473,038	2,347	676	23,155	15.65	3,449,883	2,332	676
11.0	3,449,883	2,332	675.83	23,073	607	14.0	264.7	111.2	0.0294	3,473,067	2,346	675	23,184	15.66	3,449,883	2,330	675
12.0	3,449,883	2,330	675.36	23,093	611	14.1	276.5	119.5	0.0330	3,473,095	2,344	675	23,213	15.67	3,449,883	2,328	675
13.0	3,449,883	2,328	674.92	23,112	615	14.2	288.8	127.5	0.0368	3,473,122	2,343	674	23,240	15.67	3,449,883	2,327	675
14.0	3,449,883	2,327	674.50	23,130	619	14.3	301.6	135.2	0.0408	3,473,149	2,341	674	23,266	15.68	3,449,883	2,326	674
15.0	3,449,883	2,326	674.12	23,148	622	14.4	315.1	142.7	0.0450	3,473,174	2,340	674	23,291	15.69	3,449,883	2,324	674
16.0	3,449,883	2,324	673.76	23,165	626	14.5	329.2	150.0	0.0494	3,473,198	2,339	673	23,315	15.70	3,449,883	2,323	673
17.0	3,449,883	2,323	673.43	23,182	630	14.6	344.0	157.0	0.0540	3,473,222	2,338	673	23,339	15.71	3,449,883	2,322	673
18.0	3,449,883	2,322	673.12	23,198	633	14.7	359.4	163.8	0.0589	3,473,244	2,337	673	23,361	15.72	3,449,883	2,321	673
19.0	3,449,883	2,321	672.84	23,213	636	14.8	375.7	170.3	0.0640	3,473,266	2,336	673	23,383	15.73	3,449,883	2,320	673
20.0	3,449,883	2,320	672.58	23,228	640	14.9	392.7	176.7	0.0694	3,473,287	2,335	672	23,405	15.74	3,449,883	2,320	672
21.0	3,449,883	2,320	672.35	23,242	643	14.9	410.6	182.8	0.0751	3,473,308	2,334	672	23,425	15.74	3,449,883	2,319	672
22.0	3,449,883	2,319	672.14	23,256	646	15.0	429.4	188.7	0.0810	3,473,327	2,334	672	23,445	15.75	3,449,883	2,318	672
23.0	3,449,883	2,318	671.95	23,269	649	15.1	449.2	194.5	0.0873	3,473,346	2,333	672	23,464	15.76	3,449,883	2,318	672
24.0	3,449,883	2,318	671.78	23,282	652	15.2	469.9	200.0	0.0940	3,473,365	2,333	672	23,482	15.77	3,449,883	2,317	672
25.0	3,449,883	2,317	671.64	23,294	654	15.2	491.7	205.4	0.1010	3,473,383	2,332	671	23,500	15.78	3,449,883	2,317	672
26.0	3,449,883	2,317	671.51	23,306	657	15.3	514.7	210.6	0.1084	3,473,400	2,332	671	23,517	15.79	3,449,883	2,316	671
27.0	3,449,883	2,316	671.41	23,318	659	15.4	538.8	215.6	0.1162	3,473,416	2,332	671	23,533	15.80	3,449,883	2,316	671
28.0	3,449,883	2,316	671.32	23,329	662	15.4	564.2	220.4	0.1244	3,473,432	2,331	671	23,549	15.81	3,449,883	2,316	671
29.0	3,449,883	2,316	671.25	23,340	664	15.5	591.0	225.1	0.1330	3,473,448	2,331	671	23,565	15.81	3,449,883	2,316	671
30.0	3,449,883	2,316	671.19	23,350	666	15.5	619.2	229.6	0.1422	3,473,462	2,331	671	23,580	15.82	3,449,883	2,315	671
31.0	3,449,883	2,315	671.15	23,360	668	15.6	649.6	234.0	0.1520	3,473,477	2,331	671	23,594	15.83	3,449,883	2,315	671
32.0	3,449,883	2,315	671.13	23,370	669	15.6	682.0	238.2	0.1625	3,473,491	2,331	671	23,608	15.84	3,449,883	2,315	671
33.0	3,449,883	2,315	671.12	23,379	671	15.7	716.4	242.3	0.1736	3,473,504	2,331	671	23,621	15.85	3,449,883	2,315	671
34.0	3,449,883	2,315	671.12	23,388	672	15.7	752.5	246.2	0.1853	3,473,517	2,331	671	23,634	15.86	3,449,883	2,315	671
35.0	3,449,883	2,315	671.13	23,396	673	15.7	790.2	250.1	0.1976	3,473,529	2,331	671	23,647	15.87	3,449,883	2,315	671
36.0	3,449,883	2,315	671.15	23,405	674	15.8	829.4	253.7	0.2104	3,473,541	2,331	671	23,659	15.88	3,449,883	2,316	671
37.0	3,449,883	2,316	671.18	23,413	675	15.8	869.9	257.3	0.2238	3,473,553	2,331	671	23,670	15.88	3,449,883	2,316	671
38.0	3,449,883	2,316	671.22	23,421	676	15.8	911.7	260.7	0.2377	3,473,564	2,331	671	23,681	15.89	3,449,883	2,316	671
39.0	3,449,883	2,316	671.27	23,428	676	15.8	954.7	264.1	0.2521	3,473,575	2,331	671	23,692	15.90	3,449,883	2,316	671
40.0	3,449,883	2,316	671.33	23,435	677	15.9	998.7	267.3	0.2669	3,473,585	2,332	671	23,703	15.91	3,449,883	2,316	671
41.0	3,449,883	2,316	671.39	23,442	677	15.9	1,043.8	270.4	0.2822	3,473,595	2,332	671	23,713	15.92	3,449,883	2,316	671
42.0	3,449,883	2,316	671.46	23,449	678	15.9	1,089.8	273.4	0.2979	3,473,605	2,332	671	23,722	15.93	3,449,883	2,317	672
43.0	3,449,883	2,317	671.54	23,456	678	15.9	1,136.6	276.3	0.3140	3,473,615	2,332	671	23,732	15.93	3,449,883	2,317	672
44.0	3,449,883	2,317	671.62	23,462	679	15.9	1,184.3	279.1	0.3305	3,473,624	2,333	672	23,741	15.94	3,449,883	2,317	672
45.0	3,449,883	2,317	671.71	23,468	679	15.9	1,232.7	281.8	0.3473	3,473,632	2,333	672	23,750	15.95	3,449,883	2,318	672
46.0	3,449,883	2,318	671.81	23,474	679	15.9	1,281.8	284.4	0.3645	3,473,641	2,333	672	23,758	15.96	3,449,883	2,318	672
47.0	3,449,883	2,318	671.91	23,479	680	16.0	1,331.5	286.9	0.3820	3,473,649	2,334	672	23,766	15.97	3,449,883	2,318	672
48.0	3,449,883	2,318	672.02	23,485	680	16.0	1,381.8	289.3	0.3998	3,473,657	2,334	672	23,774	15.97	3,449,883	2,319	672
49.0	3,449,883	2,319	672.14	23,490	680	16.0	1,432.8	291.7	0.4179	3,473,665	2,334	672	23,782	15.98	3,449,883	2,319	672
50.0	3,449,883	2,319	672.26	23,495	680	16.0	1,484.2	294.0	0.4363	3,473,672	2,335	672	23,789	15.99	3,449,883	2,320	672
51.0	3,449,883	2,320	672.38	23,500	681	16.0	1,523.8	296.6	0.4519	3,473,679	2,335	672	23,796	16.00	3,449,883	2,320	673
52.0	3,449,883	2,320	672.51	23,504	681	16.0	1,553.7	299.4	0.4651	3,473,686	2,336	672	23,803	16.00	3,449,883	2,321	673
53.0	3,449,883	2,321	672.65	23,508	681	16.0	1,584.5	302.1	0.4786	3,473,693	2,336	673	23,810	16.01	3,449,883	2,321	673
54.0	3,449,883	2,321	672.79	23,512	681	16.0	1,616.0	304.6	0.4923	3,473,700	2,337	673	23,817	16.02	3,449,883	2,322	673
55.0	3,449,883	2,322	672.93	23,516	681	16.0	1,648.2	307.1	0.5061	3,473,706	2,337	673	23,823	16.03	3,449,883	2,322	673
56.0	3,449,883	2,322	673.07	23,519	681	16.0	1,681.0	309.4	0.5201	3,473,712	2,338	673	23,829	16.03	3,449,883	2,323	673
57.0	3,449,883	2,323	673.22	23,523	682	16.0	1,714.4	311.6	0.5343	3,473,717	2,338	673	23,834	16.04	3,449,883	2,323	673
58.0	3,449,883	2,323	673.37	23,526	682	16.0	1,748.3	313.8	0.5486	3,473,723	2,339	673	23,840	16.05	3,449,883	2,324	674
59.0	3,449,883	2,324	673.53	23,529	682	16.0	1,782.8	315.8	0.5630	3,473,728	2,339	673	23,845	16.06	3,449,883	2,324	674
60.0	3,449,883	2,324	673.69	23,532	682	16.0	1,817.6	317.7	0.5775	3,473,733	2,340	674	23,850	16.06	3,449,883	2,325	674
61.0	3,449,883	2,325	673.85	23,535	682	16.1	1,852.9	319.6	0.5921	3,473,737	2,340	674	23,855	16.07	3,449,883	2,325	674
62.0	3,449,883	2,325	674.02	23,538	682	16.1	1,888.6	321.3	0.6069	3,473,742	2,341	674	23,859	16.08	3,449,883	2,326	674
63.0	3,449,883	2,326	674.19	23,540	682	16.1	1,924.6	323.0	0.6217	3,473,746	2,341	674	23,863	16.08	3,449,883	2,326	674
64.0	3,449,883	2,326	674.36	23,543	682	16.1	1,961.1	324.6	0.6366	3,473,750	2,342	674	23,867	16.09	3,449,883	2,327	675

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
65.0	3,449,883	2,327	674.54	23,545	682	16.1	1,997.8	326.2	0.6516	3,473,754	2,342	674	23,871	16.10	3,449,883	2,328	675
66.0	3,449,883	2,328	674.72	23,547	682	16.1	2,034.9	327.6	0.6667	3,473,758	2,343	675	23,875	16.10	3,449,883	2,328	675
67.0	3,449,883	2,328	674.90	23,549	682	16.1	2,072.2	329.0	0.6818	3,473,761	2,344	675	23,878	16.11	3,449,883	2,329	675
68.0	3,449,883	2,329	675.08	23,551	682	16.1	2,109.8	330.4	0.6970	3,473,765	2,344	675	23,882	16.12	3,449,883	2,330	675
69.0	3,449,883	2,330	675.27	23,553	682	16.1	2,147.7	331.6	0.7123	3,473,768	2,345	675	23,885	16.12	3,449,883	2,330	675
70.0	3,449,883	2,330	675.47	23,555	683	16.1	2,185.9	332.9	0.7276	3,473,771	2,346	675	23,888	16.13	3,449,883	2,331	676
71.0	3,449,883	2,331	675.66	23,557	683	16.1	2,224.2	334.0	0.7429	3,473,774	2,346	675	23,891	16.14	3,449,883	2,332	676
72.0	3,449,883	2,332	675.86	23,559	683	16.1	2,262.8	335.1	0.7583	3,473,777	2,347	676	23,894	16.14	3,449,883	2,332	676
73.0	3,449,883	2,332	676.06	23,560	683	16.1	2,301.7	336.2	0.7738	3,473,779	2,348	676	23,896	16.15	3,449,883	2,333	676
74.0	3,449,883	2,333	676.27	23,562	683	16.1	2,340.7	337.2	0.7893	3,473,782	2,348	676	23,899	16.16	3,449,883	2,334	676
75.0	3,449,883	2,334	676.47	23,563	683	16.1	2,379.9	338.2	0.8048	3,473,784	2,349	676	23,901	16.16	3,449,883	2,334	677
76.0	3,449,883	2,334	676.69	23,565	683	16.1	2,419.2	339.1	0.8203	3,473,786	2,350	676	23,904	16.17	3,449,883	2,335	677
77.0	3,449,883	2,335	676.90	23,566	683	16.1	2,458.8	340.0	0.8359	3,473,789	2,350	677	23,906	16.18	3,449,883	2,336	677
78.0	3,449,883	2,336	677.12	23,567	683	16.1	2,498.5	340.8	0.8514	3,473,791	2,351	677	23,908	16.18	3,449,883	2,337	677
79.0	3,449,883	2,337	677.34	23,568	683	16.1	2,538.3	341.6	0.8671	3,473,793	2,352	677	23,910	16.19	3,449,883	2,338	678
80.0	3,449,883	2,338	677.56	23,570	683	16.1	2,578.3	342.3	0.8827	3,473,795	2,353	677	23,912	16.19	3,449,883	2,338	678
81.0	3,449,883	2,338	677.79	23,571	683	16.1	2,618.4	343.1	0.8983	3,473,796	2,353	677	23,914	16.20	3,449,883	2,339	678
82.0	3,449,883	2,339	678.02	23,572	683	16.1	2,658.6	343.8	0.9140	3,473,798	2,354	678	23,915	16.21	3,449,883	2,340	678
83.0	3,449,883	2,340	678.25	23,573	683	16.1	2,699.0	344.4	0.9296	3,473,800	2,355	678	23,917	16.21	3,449,883	2,341	678
84.0	3,449,883	2,341	678.48	23,574	683	16.1	2,739.4	345.1	0.9453	3,473,801	2,356	678	23,919	16.22	3,449,883	2,342	679
85.0	3,449,883	2,342	678.72	23,575	683	16.1	2,780.0	345.7	0.9609	3,473,803	2,357	678	23,920	16.23	3,449,883	2,342	679
86.0	3,449,883	2,342	678.96	23,575	683	16.1	2,820.6	346.2	0.9766	3,473,804	2,357	679	23,922	16.23	3,449,883	2,343	679
87.0	3,449,883	2,343	679.21	23,576	683	16.1	2,861.3	346.8	0.9922	3,473,806	2,358	679	23,923	16.24	3,449,883	2,344	679
88.0	3,449,883	2,344	679.45	23,577	683	16.1	2,902.1	347.3	1.0079	3,473,807	2,359	679	23,924	16.25	3,449,883	2,345	680
89.0	3,449,883	2,345	679.70	23,578	683	16.1	2,942.9	347.8	1.0236	3,473,808	2,360	679	23,926	16.25	3,449,883	2,346	680
90.0	3,449,883	2,346	679.96	23,578	683	16.1	2,983.8	348.3	1.0392	3,473,810	2,361	680	23,927	16.26	3,449,883	2,347	680
91.0	3,449,883	2,347	680.21	23,579	683	16.1	3,000.0	348.7	1.0462	3,473,811	2,362	680	23,928	16.27	3,449,883	2,348	680
92.0	3,449,883	2,348	680.47	23,580	683	16.1	3,000.0	349.2	1.0475	3,473,812	2,363	680	23,929	16.27	3,449,883	2,348	681
93.0	3,449,883	2,348	680.72	23,580	683	16.1	3,000.0	349.6	1.0488	3,473,813	2,363	680	23,930	16.28	3,449,883	2,349	681
94.0	3,449,883	2,349	680.97	23,581	683	16.1	3,000.0	350.0	1.0499	3,473,814	2,364	681	23,931	16.29	3,449,883	2,350	681
95.0	3,449,883	2,350	681.22	23,582	683	16.1	3,000.0	350.4	1.0511	3,473,815	2,365	681	23,932	16.29	3,449,883	2,351	681
96.0	3,449,883	2,351	681.47	23,582	683	16.1	3,000.0	350.7	1.0522	3,473,816	2,366	681	23,933	16.30	3,449,883	2,352	682
97.0	3,449,883	2,352	681.72	23,583	683	16.1	3,000.0	351.1	1.0532	3,473,817	2,367	681	23,934	16.31	3,449,883	2,353	682
98.0	3,449,883	2,353	681.97	23,583	683	16.1	3,000.0	351.4	1.0542	3,473,817	2,368	682	23,935	16.31	3,449,883	2,354	682
99.0	3,449,883	2,354	682.21	23,584	683	16.1	3,000.0	351.7	1.0551	3,473,818	2,369	682	23,935	16.32	3,449,883	2,354	682
100.0	3,449,883	2,354	682.46	23,584	683	16.1	3,000.0	352.0	1.0560	3,473,819	2,369	682	23,936	16.33	3,449,883	2,355	682.7
101.0	3,449,883	2,355	682.70	23,585	683	16.1	3,000.0	352.3	1.0569	3,473,820	2,370	682	23,937	16.33	3,449,883	2,356	682.9
102.0	3,449,883	2,356	682.94	23,585	683	16.1	3,000.0	352.6	1.0577	3,473,820	2,371	683	23,937	16.34	3,449,883	2,357	683.2
103.0	3,449,883	2,357	683.18	23,585	683	16.1	3,000.0	352.8	1.0584	3,473,821	2,372	683	23,938	16.35	3,449,883	2,358	683.4
104.0	3,449,883	2,358	683.42	23,586	683	16.1	3,000.0	353.1	1.0592	3,473,822	2,373	683	23,939	16.35	3,449,883	2,359	684
105.0	3,449,883	2,359	683.66	23,586	683	16.1	3,000.0	353.3	1.0599	3,473,822	2,374	683	23,939	16.36	3,449,883	2,359	684
106.0	3,449,883	2,359	683.89	23,586	683	16.1	3,000.0	353.5	1.0606	3,473,823	2,374	684	23,940	16.36	3,449,883	2,360	684
107.0	3,449,883	2,360	684.13	23,587	683	16.1	3,000.0	353.7	1.0612	3,473,823	2,375	684	23,940	16.37	3,449,883	2,361	684
108.0	3,449,883	2,361	684.36	23,587	683	16.1	3,000.0	353.9	1.0618	3,473,824	2,376	684	23,941	16.37	3,449,883	2,362	685
109.0	3,449,883	2,362	684.59	23,587	683	16.1	3,000.0	354.1	1.0624	3,473,824	2,377	684	23,941	16.38	3,449,883	2,363	685
110.0	3,449,883	2,363	684.82	23,588	683	16.1	3,000.0	354.3	1.0630	3,473,825	2,378	684	23,942	16.39	3,449,883	2,363	685
111.0	3,449,883	2,363	685.05	23,588	683	16.1	3,000.0	354.5	1.0635	3,473,825	2,378	685	23,942	16.39	3,449,883	2,364	685
112.0	3,449,883	2,364	685.27	23,588	683	16.1	3,000.0	354.7	1.0640	3,473,826	2,379	685	23,943	16.40	3,449,883	2,365	685
113.0	3,449,883	2,365	685.50	23,588	683	16.1	3,000.0	354.8	1.0645	3,473,826	2,380	685	23,943	16.40	3,449,883	2,366	686
114.0	3,449,883	2,366	685.72	23,589	683	16.1	3,000.0	355.0	1.0650	3,473,826	2,381	685	23,944	16.41	3,449,883	2,366	686
115.0	3,449,883	2,366	685.94	23,589	683	16.1	3,000.0	355.1	1.0654	3,473,827	2,381	686	23,944	16.41	3,449,883	2,367	686
116.0	3,449,883	2,367	686.16	23,589	683	16.1	3,000.0	355.3	1.0658	3,473,827	2,382	686	23,944	16.42	3,449,883	2,368	686
117.0	3,449,883	2,368	686.38	23,589	683	16.1	3,000.0	355.4	1.0662	3,473,827	2,383	686	23,945	16.43	3,449,883	2,369	687
118.0	3,449,883	2,369	686.60	23,589	683	16.1	3,000.0	355.5	1.0666	3,473,828	2,384	686	23,945	16.43	3,449,883	2,369	687
119.0	3,449,883	2,369	686.82	23,590	683	16.1	3,000.0	355.7	1.0670	3,473,828	2,384	686	23,945	16.44	3,449,883	2,370	687
120.0	3,449,883	2,370	687.03	23,590	683	16.1	3,000.0	355.8	1.0673	3,473,828	2,385	687	23,946	16.44	3,449,883	2,371	687
121.0	3,449,883	2,371	687.25	23,590	683	16.1	3,000.0	355.9	1.0677	3,473,829	2,386	687	23,946	16.45	3,449,883	2,372	687
122.0	3,449,883	2,372	687.46	23,590	683	16.1	3,000.0	356.0	1.0680	3,473,829	2,387	687	23,946	16.45	3,449,883	2,372	688
123.0	3,449,883	2,372	687.67	23,590	683	16.1	3,000.0	356.1	1.0683	3,473,829	2,387	687	23,946	16.46	3,449,883	2,373	688
124.0	3,449,883	2,373	687.88	23,590	683	16.1	3,000.0	356.2	1.0686	3,473,829	2,388	687	23,947	16.46	3,449,883	2,374	688
125.0	3,449,883	2,374	688.09	23,591	683	16.1	3,000.0	356.3	1.0689	3,473,830	2,389	688	23,947	16.47	3,449,883	2,375	688
126.0	3,449,883	2,375	688.30	23,591	683	16.1	3,000.0	356.4	1.0691	3,473,830	2,390	688	23,947	16.47	3,449,883	2,375	689
127.0	3,449,883	2,375	688.50	23,591	683	16.1	3,000.0	356.5	1.0694	3,473,830	2,390	688	23,947	16.48	3,449,883	2,376	689
128.0	3,449,883	2,376	688.70	23,591	683	16.1	3,000.0	356.5	1.0696	3,473,830	2,391	688	23,947	16.48	3,449,883	2,377	689
129.0	3,449,883	2,377	688.91	23,591	683	16.1	3,000.0	356.6	1.0698	3,473,830	2,392	688	23,948	16.49	3,449,883	2,377	689
130.0	3,449,883	2,377	689.11	23,591	683	16.1	3,000.0	356.7	1.0701	3,473,831	2,392	689	23,948	16.49	3,449,883	2,378	689

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
131.0	3,449,883	2,378	689.31	23,591	683	16.1	3,000.0	356.8	1.0703	3,473,831	2,393	689	23,948	16.50	3,449,883	2,379	690
132.0	3,449,883	2,379	689.51	23,591	683	16.1	3,000.0	356.8	1.0705	3,473,831	2,394	689	23,948	16.50	3,449,883	2,379	690
133.0	3,449,883	2,379	689.71	23,591	683	16.1	3,000.0	356.9	1.0707	3,473,831	2,394	689	23,948	16.51	3,449,883	2,380	690
134.0	3,449,883	2,380	689.90	23,592	683	16.1	3,000.0	356.9	1.0708	3,473,831	2,395	689	23,948	16.51	3,449,883	2,381	690
135.0	3,449,883	2,381	690.10	23,592	683	16.1	3,000.0	357.0	1.0710	3,473,831	2,396	690	23,949	16.52	3,449,883	2,381	690
136.0	3,449,883	2,381	690.29	23,592	683	16.1	3,000.0	357.1	1.0712	3,473,832	2,396	690	23,949	16.52	3,449,883	2,382	690
137.0	3,449,883	2,382	690.48	23,592	683	16.1	3,000.0	357.1	1.0713	3,473,832	2,397	690	23,949	16.53	3,449,883	2,383	691
138.0	3,449,883	2,383	690.67	23,592	683	16.1	3,000.0	357.2	1.0715	3,473,832	2,398	690	23,949	16.53	3,449,883	2,383	691
139.0	3,449,883	2,383	690.86	23,592	683	16.1	3,000.0	357.2	1.0716	3,473,832	2,398	690	23,949	16.54	3,449,883	2,384	691
140.0	3,449,883	2,384	691.05	23,592	683	16.1	3,000.0	357.3	1.0718	3,473,832	2,399	691	23,949	16.54	3,449,883	2,385	691
141.0	3,449,883	2,385	691.24	23,592	683	16.1	3,000.0	357.3	1.0719	3,473,832	2,400	691	23,949	16.54	3,449,883	2,385	691
142.0	3,449,883	2,385	691.42	23,592	683	16.1	3,000.0	357.3	1.0720	3,473,832	2,400	691	23,949	16.55	3,449,883	2,386	692
143.0	3,449,883	2,386	691.61	23,592	683	16.1	3,000.0	357.4	1.0721	3,473,832	2,401	691	23,950	16.55	3,449,883	2,387	692
144.0	3,449,883	2,387	691.79	23,592	683	16.1	3,000.0	357.4	1.0723	3,473,832	2,402	691	23,950	16.56	3,449,883	2,387	692
145.0	3,449,883	2,387	691.97	23,592	683	16.1	3,000.0	357.5	1.0724	3,473,833	2,402	692	23,950	16.56	3,449,883	2,388	692
146.0	3,449,883	2,388	692.15	23,592	683	16.1	3,000.0	357.5	1.0725	3,473,833	2,403	692	23,950	16.57	3,449,883	2,388	692
147.0	3,449,883	2,388	692.33	23,592	683	16.1	3,000.0	357.5	1.0726	3,473,833	2,404	692	23,950	16.57	3,449,883	2,389	693
148.0	3,449,883	2,389	692.51	23,592	683	16.1	3,000.0	357.6	1.0727	3,473,833	2,404	692	23,950	16.58	3,449,883	2,390	693
149.0	3,449,883	2,390	692.69	23,592	683	16.1	3,000.0	357.6	1.0728	3,473,833	2,405	692	23,950	16.58	3,449,883	2,390	693
150.0	3,449,883	2,390	692.87	23,593	683	16.1	3,000.0	357.6	1.0728	3,473,833	2,405	692	23,950	16.58	3,449,883	2,391	693
151.0	3,449,883	2,391	693.04	23,593	683	16.1	3,000.0	357.6	1.0729	3,473,833	2,406	693	23,950	16.59	3,449,883	2,392	693
152.0	3,449,883	2,392	693.21	23,593	683	16.1	3,000.0	357.7	1.0730	3,473,833	2,407	693	23,950	16.59	3,449,883	2,392	693
153.0	3,449,883	2,392	693.39	23,593	683	16.1	3,000.0	357.7	1.0731	3,473,833	2,407	693	23,950	16.60	3,449,883	2,393	694
154.0	3,449,883	2,393	693.56	23,593	683	16.1	3,000.0	357.7	1.0731	3,473,833	2,408	693	23,950	16.60	3,449,883	2,393	694
155.0	3,449,883	2,393	693.73	23,593	683	16.1	3,000.0	357.7	1.0732	3,473,833	2,408	693	23,950	16.60	3,449,883	2,394	694
156.0	3,449,883	2,394	693.90	23,593	683	16.1	3,000.0	357.8	1.0733	3,473,833	2,409	693	23,951	16.61	3,449,883	2,394	694
157.0	3,449,883	2,394	694.06	23,593	683	16.1	3,000.0	357.8	1.0733	3,473,833	2,409	694	23,951	16.61	3,449,883	2,395	694
158.0	3,449,883	2,395	694.23	23,593	683	16.1	3,000.0	357.8	1.0734	3,473,833	2,410	694	23,951	16.62	3,449,883	2,396	694
159.0	3,449,883	2,396	694.40	23,593	683	16.1	3,000.0	357.8	1.0735	3,473,833	2,411	694	23,951	16.62	3,449,883	2,396	695
160.0	3,449,883	2,396	694.56	23,593	683	16.1	3,000.0	357.8	1.0735	3,473,834	2,411	694	23,951	16.62	3,449,883	2,397	695
161.0	3,449,883	2,397	694.72	23,593	683	16.1	3,000.0	357.9	1.0736	3,473,834	2,412	694	23,951	16.63	3,449,883	2,397	695
162.0	3,449,883	2,397	694.89	23,593	683	16.1	3,000.0	357.9	1.0736	3,473,834	2,412	694	23,951	16.63	3,449,883	2,398	695
163.0	3,449,883	2,398	695.05	23,593	683	16.1	3,000.0	357.9	1.0737	3,473,834	2,413	695	23,951	16.64	3,449,883	2,398	695
164.0	3,449,883	2,398	695.21	23,593	683	16.1	3,000.0	357.9	1.0737	3,473,834	2,413	695	23,951	16.64	3,449,883	2,399	695
165.0	3,449,883	2,399	695.37	23,593	683	16.1	3,000.0	357.9	1.0737	3,473,834	2,414	695	23,951	16.64	3,449,883	2,399	696
166.0	3,449,883	2,399	695.52	23,593	683	16.1	3,000.0	357.9	1.0738	3,473,834	2,415	695	23,951	16.65	3,449,883	2,400	696
167.0	3,449,883	2,400	695.68	23,593	683	16.1	3,000.0	357.9	1.0738	3,473,834	2,415	695	23,951	16.65	3,449,883	2,401	696
168.0	3,449,883	2,401	695.84	23,593	683	16.1	3,000.0	358.0	1.0739	3,473,834	2,416	695	23,951	16.65	3,449,883	2,401	696
169.0	3,449,883	2,401	695.99	23,593	683	16.1	3,000.0	358.0	1.0739	3,473,834	2,416	696	23,951	16.66	3,449,883	2,402	696
170.0	3,449,883	2,402	696.15	23,593	683	16.1	3,000.0	358.0	1.0739	3,473,834	2,417	696	23,951	16.66	3,449,883	2,402	696
171.0	3,449,883	2,402	696.30	23,593	683	16.1	3,000.0	358.0	1.0740	3,473,834	2,417	696	23,951	16.67	3,449,883	2,403	696
172.0	3,449,883	2,403	696.45	23,593	683	16.1	3,000.0	358.0	1.0740	3,473,834	2,418	696	23,951	16.67	3,449,883	2,403	697
173.0	3,449,883	2,403	696.60	23,593	683	16.1	3,000.0	358.0	1.0740	3,473,834	2,418	696	23,951	16.67	3,449,883	2,404	697
174.0	3,449,883	2,404	696.75	23,593	683	16.1	3,000.0	358.0	1.0740	3,473,834	2,419	696	23,951	16.68	3,449,883	2,404	697
175.0	3,449,883	2,404	696.90	23,593	683	16.1	3,000.0	358.0	1.0741	3,473,834	2,419	696	23,951	16.68	3,449,883	2,405	697
176.0	3,449,883	2,405	697.04	23,593	683	16.1	3,000.0	358.0	1.0741	3,473,834	2,420	697	23,951	16.68	3,449,883	2,405	697
177.0	3,449,883	2,405	697.19	23,593	683	16.1	3,000.0	358.0	1.0741	3,473,834	2,420	697	23,951	16.69	3,449,883	2,406	697
178.0	3,449,883	2,406	697.34	23,593	683	16.1	3,000.0	358.0	1.0741	3,473,834	2,421	697	23,951	16.69	3,449,883	2,406	697
179.0	3,449,883	2,406	697.48	23,593	683	16.1	3,000.0	358.1	1.0742	3,473,834	2,421	697	23,951	16.69	3,449,883	2,407	698
180.0	3,449,883	2,407	697.62	23,593	683	16.1	3,000.0	358.1	1.0742	3,473,834	2,422	697	23,951	16.70	3,449,883	2,407	698
181.0	3,449,883	2,407	697.77	23,593	683	16.1	3,000.0	358.1	1.0742	3,473,834	2,422	697	23,951	16.70	3,449,883	2,408	698
182.0	3,449,883	2,408	697.91	23,593	683	16.1	3,000.0	358.1	1.0742	3,473,834	2,423	697	23,951	16.70	3,449,883	2,408	698
183.0	3,449,883	2,408	698.05	23,593	683	16.1	3,000.0	358.1	1.0742	3,473,834	2,423	698	23,951	16.71	3,449,883	2,409	698
184.0	3,449,883	2,409	698.19	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,424	698	23,951	16.71	3,449,883	2,409	698
185.0	3,449,883	2,409	698.33	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,424	698	23,951	16.71	3,449,883	2,410	698
186.0	3,449,883	2,410	698.46	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,425	698	23,951	16.72	3,449,883	2,410	699
187.0	3,449,883	2,410	698.60	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,425	698	23,951	16.72	3,449,883	2,411	699
188.0	3,449,883	2,411	698.74	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,426	698	23,951	16.72	3,449,883	2,411	699
189.0	3,449,883	2,411	698.87	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,426	698	23,951	16.73	3,449,883	2,411	699
190.0	3,449,883	2,411	699.00	23,593	683	16.1	3,000.0	358.1	1.0743	3,473,834	2,427	699	23,951	16.73	3,449,883	2,412	699
191.0	3,449,883	2,412	699.14	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,427	699	23,951	16.73	3,449,883	2,412	699
192.0	3,449,883	2,412	699.27	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,427	699	23,951	16.74	3,449,883	2,413	699
193.0	3,449,883	2,413	699.40	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,428	699	23,951	16.74	3,449,883	2,413	700
194.0	3,449,883	2,413	699.53	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,428	699	23,951	16.74	3,449,883	2,414	700
195.0	3,449,883	2,414	699.66	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,429	699	23,951	16.75	3,449,883	2,414	700
196.0	3,449,883	2,414	699.79	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,429	699	23,951	16.75	3,449,883	2,415	700

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
197.0	3,449,883	2,415	699.91	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,430	699	23,951	16.75	3,449,883	2,415	700
198.0	3,449,883	2,415	700.04	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,430	700	23,951	16.76	3,449,883	2,415	700
199.0	3,449,883	2,415	700.17	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,431	700	23,951	16.76	3,449,883	2,416	700
200.0	3,449,883	2,416	700.29	23,593	683	16.1	3,000.0	358.1	1.0744	3,473,834	2,431	700	23,951	16.76	3,449,883	2,416	700
201.0	3,449,883	2,416	700.42	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,431	700	23,951	16.76	3,449,883	2,417	701
202.0	3,449,883	2,417	700.54	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,432	700	23,952	16.77	3,449,883	2,417	701
203.0	3,449,883	2,417	700.66	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,432	700	23,952	16.77	3,449,883	2,418	701
204.0	3,449,883	2,418	700.78	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,433	700	23,952	16.77	3,449,883	2,418	701
205.0	3,449,883	2,418	700.90	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,433	700	23,952	16.78	3,449,883	2,418	701
206.0	3,449,883	2,418	701.02	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,433	701	23,952	16.78	3,449,883	2,419	701
207.0	3,449,883	2,419	701.14	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,434	701	23,952	16.78	3,449,883	2,419	701
208.0	3,449,883	2,419	701.26	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,434	701	23,952	16.78	3,449,883	2,420	701
209.0	3,449,883	2,420	701.38	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,435	701	23,952	16.79	3,449,883	2,420	701
210.0	3,449,883	2,420	701.49	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,435	701	23,952	16.79	3,449,883	2,420	702
211.0	3,449,883	2,420	701.61	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,436	701	23,952	16.79	3,449,883	2,421	702
212.0	3,449,883	2,421	701.72	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,436	701	23,952	16.80	3,449,883	2,421	702
213.0	3,449,883	2,421	701.84	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,436	701	23,952	16.80	3,449,883	2,422	702
214.0	3,449,883	2,422	701.95	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,437	701	23,952	16.80	3,449,883	2,422	702
215.0	3,449,883	2,422	702.06	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,437	702	23,952	16.80	3,449,883	2,422	702
216.0	3,449,883	2,422	702.18	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,437	702	23,952	16.81	3,449,883	2,423	702
217.0	3,449,883	2,423	702.29	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,438	702	23,952	16.81	3,449,883	2,423	702
218.0	3,449,883	2,423	702.40	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,438	702	23,952	16.81	3,449,883	2,424	703
219.0	3,449,883	2,424	702.51	23,593	683	16.1	3,000.0	358.2	1.0745	3,473,834	2,439	702	23,952	16.81	3,449,883	2,424	703
220.0	3,449,883	2,424	702.62	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,439	702	23,952	16.82	3,449,883	2,424	703
221.0	3,449,883	2,424	702.72	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,439	702	23,952	16.82	3,449,883	2,425	703
222.0	3,449,883	2,425	702.83	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,440	702	23,952	16.82	3,449,883	2,425	703
223.0	3,449,883	2,425	702.94	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,440	702	23,952	16.82	3,449,883	2,425	703
224.0	3,449,883	2,425	703.04	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,440	703	23,952	16.83	3,449,883	2,426	703
225.0	3,449,883	2,426	703.15	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,441	703	23,952	16.83	3,449,883	2,426	703
226.0	3,449,883	2,426	703.25	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,441	703	23,952	16.83	3,449,883	2,426	703
227.0	3,449,883	2,426	703.36	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,442	703	23,952	16.83	3,449,883	2,427	703
228.0	3,449,883	2,427	703.46	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,442	703	23,952	16.84	3,449,883	2,427	704
229.0	3,449,883	2,427	703.56	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,442	703	23,952	16.84	3,449,883	2,428	704
230.0	3,449,883	2,428	703.66	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,443	703	23,952	16.84	3,449,883	2,428	704
231.0	3,449,883	2,428	703.76	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,443	703	23,952	16.84	3,449,883	2,428	704
232.0	3,449,883	2,428	703.86	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,443	703	23,952	16.85	3,449,883	2,429	704
233.0	3,449,883	2,429	703.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,444	703	23,952	16.85	3,449,883	2,429	704
234.0	3,449,883	2,429	704.06	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,444	704	23,952	16.85	3,449,883	2,429	704
235.0	3,449,883	2,429	704.16	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,444	704	23,952	16.85	3,449,883	2,430	704
236.0	3,449,883	2,430	704.26	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,445	704	23,952	16.86	3,449,883	2,430	704
237.0	3,449,883	2,430	704.35	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,445	704	23,952	16.86	3,449,883	2,430	704
238.0	3,449,883	2,430	704.45	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,445	704	23,952	16.86	3,449,883	2,431	705
239.0	3,449,883	2,431	704.55	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,446	704	23,952	16.86	3,449,883	2,431	705
240.0	3,449,883	2,431	704.64	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,446	704	23,952	16.86	3,449,883	2,431	705
241.0	3,449,883	2,431	704.73	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,446	704	23,952	16.87	3,449,883	2,432	705
242.0	3,449,883	2,432	704.83	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,447	704	23,952	16.87	3,449,883	2,432	705
243.0	3,449,883	2,432	704.92	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,447	704	23,952	16.87	3,449,883	2,432	705
244.0	3,449,883	2,432	705.01	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,447	704	23,952	16.87	3,449,883	2,433	705
245.0	3,449,883	2,433	705.10	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,448	705	23,952	16.88	3,449,883	2,433	705
246.0	3,449,883	2,433	705.20	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,448	705	23,952	16.88	3,449,883	2,433	705
247.0	3,449,883	2,433	705.29	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,448	705	23,952	16.88	3,449,883	2,433	705
248.0	3,449,883	2,433	705.37	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,449	705	23,952	16.88	3,449,883	2,434	705
249.0	3,449,883	2,434	705.46	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,449	705	23,952	16.88	3,449,883	2,434	706
250.0	3,449,883	2,434	705.55	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,449	705	23,952	16.89	3,449,883	2,434	706
251.0	3,449,883	2,434	705.64	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,449	705	23,952	16.89	3,449,883	2,435	706
252.0	3,449,883	2,435	705.73	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,450	705	23,952	16.89	3,449,883	2,435	706
253.0	3,449,883	2,435	705.81	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,450	705	23,952	16.89	3,449,883	2,435	706
254.0	3,449,883	2,435	705.90	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,450	705	23,952	16.89	3,449,883	2,436	706
255.0	3,449,883	2,436	705.99	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,451	705	23,952	16.90	3,449,883	2,436	706
256.0	3,449,883	2,436	706.07	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,451	706	23,952	16.90	3,449,883	2,436	706
257.0	3,449,883	2,436	706.15	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,451	706	23,952	16.90	3,449,883	2,436	706
258.0	3,449,883	2,436	706.24	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,451	706	23,952	16.90	3,449,883	2,437	706
259.0	3,449,883	2,437	706.32	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,452	706	23,952	16.90	3,449,883	2,437	706
260.0	3,449,883	2,437	706.40	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,452	706	23,952	16.91	3,449,883	2,437	706
261.0	3,449,883	2,437	706.49	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,452	706	23,952	16.91	3,449,883	2,438	707
262.0	3,449,883	2,438	706.57	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,453	706	23,952	16.91	3,449,883	2,438	707

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
263.0	3,449,883	2,438	706.65	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,453	706	23,952	16.91	3,449,883	2,438	707
264.0	3,449,883	2,438	706.73	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,453	706	23,952	16.91	3,449,883	2,438	707
265.0	3,449,883	2,438	706.81	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,453	706	23,952	16.92	3,449,883	2,439	707
266.0	3,449,883	2,439	706.89	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,454	706	23,952	16.92	3,449,883	2,439	707
267.0	3,449,883	2,439	706.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,454	706	23,952	16.92	3,449,883	2,439	707
268.0	3,449,883	2,439	707.04	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,454	706	23,952	16.92	3,449,883	2,439	707
269.0	3,449,883	2,439	707.12	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,455	707	23,952	16.92	3,449,883	2,440	707
270.0	3,449,883	2,440	707.20	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,455	707	23,952	16.93	3,449,883	2,440	707
271.0	3,449,883	2,440	707.27	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,455	707	23,952	16.93	3,449,883	2,440	707
272.0	3,449,883	2,440	707.35	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,455	707	23,952	16.93	3,449,883	2,441	707
273.0	3,449,883	2,441	707.42	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,456	707	23,952	16.93	3,449,883	2,441	707
274.0	3,449,883	2,441	707.50	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,456	707	23,952	16.93	3,449,883	2,441	708
275.0	3,449,883	2,441	707.57	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,456	707	23,952	16.93	3,449,883	2,441	708
276.0	3,449,883	2,441	707.65	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,456	707	23,952	16.94	3,449,883	2,442	708
277.0	3,449,883	2,442	707.72	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,457	707	23,952	16.94	3,449,883	2,442	708
278.0	3,449,883	2,442	707.79	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,457	707	23,952	16.94	3,449,883	2,442	708
279.0	3,449,883	2,442	707.87	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,457	707	23,952	16.94	3,449,883	2,442	708
280.0	3,449,883	2,442	707.94	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,457	707	23,952	16.94	3,449,883	2,443	708
281.0	3,449,883	2,443	708.01	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,458	707	23,952	16.94	3,449,883	2,443	708
282.0	3,449,883	2,443	708.08	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,458	708	23,952	16.95	3,449,883	2,443	708
283.0	3,449,883	2,443	708.15	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,458	708	23,952	16.95	3,449,883	2,443	708
284.0	3,449,883	2,443	708.22	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,458	708	23,952	16.95	3,449,883	2,444	708
285.0	3,449,883	2,444	708.29	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,459	708	23,952	16.95	3,449,883	2,444	708
286.0	3,449,883	2,444	708.36	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,459	708	23,952	16.95	3,449,883	2,444	708
287.0	3,449,883	2,444	708.43	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,459	708	23,952	16.95	3,449,883	2,444	708
288.0	3,449,883	2,444	708.49	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,459	708	23,952	16.96	3,449,883	2,444	709
289.0	3,449,883	2,444	708.56	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,459	708	23,952	16.96	3,449,883	2,445	709
290.0	3,449,883	2,445	708.63	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,460	708	23,952	16.96	3,449,883	2,445	709
291.0	3,449,883	2,445	708.70	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,460	708	23,952	16.96	3,449,883	2,445	709
292.0	3,449,883	2,445	708.76	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,460	708	23,952	16.96	3,449,883	2,445	709
293.0	3,449,883	2,445	708.83	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,460	708	23,952	16.96	3,449,883	2,446	709
294.0	3,449,883	2,446	708.89	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,461	708	23,952	16.97	3,449,883	2,446	709
295.0	3,449,883	2,446	708.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,461	708	23,952	16.97	3,449,883	2,446	709
296.0	3,449,883	2,446	709.02	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,461	708	23,952	16.97	3,449,883	2,446	709
297.0	3,449,883	2,446	709.09	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,461	709	23,952	16.97	3,449,883	2,446	709
298.0	3,449,883	2,446	709.15	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,462	709	23,952	16.97	3,449,883	2,447	709
299.0	3,449,883	2,447	709.21	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,462	709	23,952	16.97	3,449,883	2,447	709
300.0	3,449,883	2,447	709.27	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,462	709	23,952	16.97	3,449,883	2,447	709
301.0	3,449,883	2,447	709.34	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,462	709	23,952	16.98	3,449,883	2,447	709
302.0	3,449,883	2,447	709.40	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,462	709	23,952	16.98	3,449,883	2,448	709
303.0	3,449,883	2,448	709.46	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,463	709	23,952	16.98	3,449,883	2,448	710
304.0	3,449,883	2,448	709.52	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,463	709	23,952	16.98	3,449,883	2,448	710
305.0	3,449,883	2,448	709.58	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,463	709	23,952	16.98	3,449,883	2,448	710
306.0	3,449,883	2,448	709.64	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,463	709	23,952	16.98	3,449,883	2,448	710
307.0	3,449,883	2,448	709.70	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,463	709	23,952	16.98	3,449,883	2,449	710
308.0	3,449,883	2,449	709.76	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,464	709	23,952	16.99	3,449,883	2,449	710
309.0	3,449,883	2,449	709.82	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,464	709	23,952	16.99	3,449,883	2,449	710
310.0	3,449,883	2,449	709.88	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,464	709	23,952	16.99	3,449,883	2,449	710
311.0	3,449,883	2,449	709.93	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,464	709	23,952	16.99	3,449,883	2,449	710
312.0	3,449,883	2,449	709.99	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,464	709	23,952	16.99	3,449,883	2,450	710
313.0	3,449,883	2,450	710.05	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,465	709	23,952	16.99	3,449,883	2,450	710
314.0	3,449,883	2,450	710.11	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,465	710	23,952	16.99	3,449,883	2,450	710
315.0	3,449,883	2,450	710.16	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,465	710	23,952	17.00	3,449,883	2,450	710
316.0	3,449,883	2,450	710.22	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,465	710	23,952	17.00	3,449,883	2,450	710
317.0	3,449,883	2,450	710.27	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,465	710	23,952	17.00	3,449,883	2,451	710
318.0	3,449,883	2,451	710.33	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,466	710	23,952	17.00	3,449,883	2,451	710
319.0	3,449,883	2,451	710.38	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,466	710	23,952	17.00	3,449,883	2,451	710
320.0	3,449,883	2,451	710.44	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,466	710	23,952	17.00	3,449,883	2,451	710
321.0	3,449,883	2,451	710.49	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,466	710	23,952	17.00	3,449,883	2,451	711
322.0	3,449,883	2,451	710.55	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,466	710	23,952	17.01	3,449,883	2,451	711
323.0	3,449,883	2,451	710.60	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,467	710	23,952	17.01	3,449,883	2,452	711
324.0	3,449,883	2,452	710.65	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,467	710	23,952	17.01	3,449,883	2,452	711
325.0	3,449,883	2,452	710.71	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,467	710	23,952	17.01	3,449,883	2,452	711
326.0	3,449,883	2,452	710.76	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,467	710	23,952	17.01	3,449,883	2,452	711
327.0	3,449,883	2,452	710.81	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,467	710	23,952	17.01	3,449,883	2,452	711
328.0	3,449,883	2,452	710.86	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,467	710	23,952	17.01	3,449,883	2,453	711

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
329.0	3,449,883	2,453	710.91	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,468	710	23,952	17.01	3,449,883	2,453	711
330.0	3,449,883	2,453	710.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,468	710	23,952	17.02	3,449,883	2,453	711
331.0	3,449,883	2,453	711.01	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,468	710	23,952	17.02	3,449,883	2,453	711
332.0	3,449,883	2,453	711.06	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,468	710	23,952	17.02	3,449,883	2,453	711
333.0	3,449,883	2,453	711.11	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,468	711	23,952	17.02	3,449,883	2,453	711
334.0	3,449,883	2,453	711.16	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,468	711	23,952	17.02	3,449,883	2,454	711
335.0	3,449,883	2,454	711.21	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,469	711	23,952	17.02	3,449,883	2,454	711
336.0	3,449,883	2,454	711.26	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,469	711	23,952	17.02	3,449,883	2,454	711
337.0	3,449,883	2,454	711.31	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,469	711	23,952	17.02	3,449,883	2,454	711
338.0	3,449,883	2,454	711.36	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,469	711	23,952	17.02	3,449,883	2,454	711
339.0	3,449,883	2,454	711.40	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,469	711	23,952	17.03	3,449,883	2,454	711
340.0	3,449,883	2,454	711.45	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,469	711	23,952	17.03	3,449,883	2,455	711
341.0	3,449,883	2,455	711.50	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,470	711	23,952	17.03	3,449,883	2,455	712
342.0	3,449,883	2,455	711.55	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,470	711	23,952	17.03	3,449,883	2,455	712
343.0	3,449,883	2,455	711.59	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,470	711	23,952	17.03	3,449,883	2,455	712
344.0	3,449,883	2,455	711.64	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,470	711	23,952	17.03	3,449,883	2,455	712
345.0	3,449,883	2,455	711.68	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,470	711	23,952	17.03	3,449,883	2,455	712
346.0	3,449,883	2,455	711.73	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,470	711	23,952	17.03	3,449,883	2,456	712
347.0	3,449,883	2,456	711.77	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.03	3,449,883	2,456	712
348.0	3,449,883	2,456	711.82	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.04	3,449,883	2,456	712
349.0	3,449,883	2,456	711.86	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.04	3,449,883	2,456	712
350.0	3,449,883	2,456	711.91	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.04	3,449,883	2,456	712
351.0	3,449,883	2,456	711.95	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.04	3,449,883	2,456	712
352.0	3,449,883	2,456	712.00	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.04	3,449,883	2,456	712
353.0	3,449,883	2,456	712.04	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,471	711	23,952	17.04	3,449,883	2,457	712
354.0	3,449,883	2,457	712.08	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,472	712	23,952	17.04	3,449,883	2,457	712
355.0	3,449,883	2,457	712.13	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,472	712	23,952	17.04	3,449,883	2,457	712
356.0	3,449,883	2,457	712.17	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,472	712	23,952	17.04	3,449,883	2,457	712
357.0	3,449,883	2,457	712.21	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,472	712	23,952	17.04	3,449,883	2,457	712
358.0	3,449,883	2,457	712.25	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,472	712	23,952	17.05	3,449,883	2,457	712
359.0	3,449,883	2,457	712.29	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,472	712	23,952	17.05	3,449,883	2,457	712
360.0	3,449,883	2,457	712.33	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	712
361.0	3,449,883	2,458	712.38	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	712
362.0	3,449,883	2,458	712.42	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	712
363.0	3,449,883	2,458	712.46	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	712
364.0	3,449,883	2,458	712.50	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	713
365.0	3,449,883	2,458	712.54	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	713
366.0	3,449,883	2,458	712.58	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,458	713
367.0	3,449,883	2,458	712.62	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,473	712	23,952	17.05	3,449,883	2,459	713
368.0	3,449,883	2,459	712.65	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
369.0	3,449,883	2,459	712.69	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
370.0	3,449,883	2,459	712.73	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
371.0	3,449,883	2,459	712.77	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
372.0	3,449,883	2,459	712.81	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
373.0	3,449,883	2,459	712.85	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
374.0	3,449,883	2,459	712.88	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,474	712	23,952	17.06	3,449,883	2,459	713
375.0	3,449,883	2,459	712.92	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	712	23,952	17.06	3,449,883	2,460	713
376.0	3,449,883	2,460	712.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	712	23,952	17.06	3,449,883	2,460	713
377.0	3,449,883	2,460	712.99	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	712	23,952	17.06	3,449,883	2,460	713
378.0	3,449,883	2,460	713.03	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	712	23,952	17.06	3,449,883	2,460	713
379.0	3,449,883	2,460	713.07	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	712	23,952	17.07	3,449,883	2,460	713
380.0	3,449,883	2,460	713.10	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	713	23,952	17.07	3,449,883	2,460	713
381.0	3,449,883	2,460	713.14	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	713	23,952	17.07	3,449,883	2,460	713
382.0	3,449,883	2,460	713.17	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,475	713	23,952	17.07	3,449,883	2,460	713
383.0	3,449,883	2,460	713.21	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
384.0	3,449,883	2,461	713.24	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
385.0	3,449,883	2,461	713.28	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
386.0	3,449,883	2,461	713.31	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
387.0	3,449,883	2,461	713.35	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
388.0	3,449,883	2,461	713.38	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
389.0	3,449,883	2,461	713.42	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
390.0	3,449,883	2,461	713.45	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,461	713
391.0	3,449,883	2,461	713.48	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,476	713	23,952	17.07	3,449,883	2,462	714
392.0	3,449,883	2,462	713.52	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
393.0	3,449,883	2,462	713.55	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
394.0	3,449,883	2,462	713.58	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
395.0	3,449,883	2,462	713.61	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
396.0	3,449,883	2,462	713.65	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
397.0	3,449,883	2,462	713.68	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
398.0	3,449,883	2,462	713.71	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
399.0	3,449,883	2,462	713.74	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,462	714
400.0	3,449,883	2,462	713.77	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,477	713	23,952	17.08	3,449,883	2,463	714
401.0	3,449,883	2,463	713.80	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.08	3,449,883	2,463	714
402.0	3,449,883	2,463	713.83	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.08	3,449,883	2,463	714
403.0	3,449,883	2,463	713.86	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.08	3,449,883	2,463	714
404.0	3,449,883	2,463	713.90	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.08	3,449,883	2,463	714
405.0	3,449,883	2,463	713.93	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.09	3,449,883	2,463	714
406.0	3,449,883	2,463	713.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.09	3,449,883	2,463	714
407.0	3,449,883	2,463	713.99	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.09	3,449,883	2,463	714
408.0	3,449,883	2,463	714.01	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.09	3,449,883	2,463	714
409.0	3,449,883	2,463	714.04	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,478	713	23,952	17.09	3,449,883	2,463	714
410.0	3,449,883	2,463	714.07	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	713	23,952	17.09	3,449,883	2,464	714
411.0	3,449,883	2,464	714.10	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
412.0	3,449,883	2,464	714.13	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
413.0	3,449,883	2,464	714.16	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
414.0	3,449,883	2,464	714.19	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
415.0	3,449,883	2,464	714.22	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
416.0	3,449,883	2,464	714.24	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
417.0	3,449,883	2,464	714.27	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
418.0	3,449,883	2,464	714.30	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.09	3,449,883	2,464	714
419.0	3,449,883	2,464	714.33	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.10	3,449,883	2,464	714
420.0	3,449,883	2,464	714.35	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,479	714	23,952	17.10	3,449,883	2,465	714
421.0	3,449,883	2,465	714.38	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	714
422.0	3,449,883	2,465	714.41	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	714
423.0	3,449,883	2,465	714.44	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	714
424.0	3,449,883	2,465	714.46	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	714
425.0	3,449,883	2,465	714.49	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	715
426.0	3,449,883	2,465	714.51	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	715
427.0	3,449,883	2,465	714.54	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	715
428.0	3,449,883	2,465	714.57	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	715
429.0	3,449,883	2,465	714.59	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	715
430.0	3,449,883	2,465	714.62	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,465	715
431.0	3,449,883	2,465	714.64	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,480	714	23,952	17.10	3,449,883	2,466	715
432.0	3,449,883	2,466	714.67	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.10	3,449,883	2,466	715
433.0	3,449,883	2,466	714.69	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.10	3,449,883	2,466	715
434.0	3,449,883	2,466	714.72	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.10	3,449,883	2,466	715
435.0	3,449,883	2,466	714.74	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.10	3,449,883	2,466	715
436.0	3,449,883	2,466	714.77	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
437.0	3,449,883	2,466	714.79	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
438.0	3,449,883	2,466	714.81	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
439.0	3,449,883	2,466	714.84	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
440.0	3,449,883	2,466	714.86	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
441.0	3,449,883	2,466	714.89	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
442.0	3,449,883	2,466	714.91	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,466	715
443.0	3,449,883	2,466	714.93	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,481	714	23,952	17.11	3,449,883	2,467	715
444.0	3,449,883	2,467	714.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
445.0	3,449,883	2,467	714.98	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
446.0	3,449,883	2,467	715.00	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
447.0	3,449,883	2,467	715.02	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
448.0	3,449,883	2,467	715.05	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
449.0	3,449,883	2,467	715.07	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
450.0	3,449,883	2,467	715.09	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	714	23,952	17.11	3,449,883	2,467	715
451.0	3,449,883	2,467	715.11	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	715	23,952	17.11	3,449,883	2,467	715
452.0	3,449,883	2,467	715.13	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	715	23,952	17.11	3,449,883	2,467	715
453.0	3,449,883	2,467	715.16	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	715	23,952	17.11	3,449,883	2,467	715
454.0	3,449,883	2,467	715.18	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	715	23,952	17.12	3,449,883	2,467	715
455.0	3,449,883	2,467	715.20	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	715	23,952	17.12	3,449,883	2,467	715
456.0	3,449,883	2,467	715.22	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,482	715	23,952	17.12	3,449,883	2,467	715
457.0	3,449,883	2,467	715.24	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
458.0	3,449,883	2,468	715.26	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
459.0	3,449,883	2,468	715.28	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
460.0	3,449,883	2,468	715.30	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715

TABLE 33. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW CENTENNIAL PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Chemical Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Shallow Aquifer (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
461.0	3,449,883	2,468	715.32	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
462.0	3,449,883	2,468	715.34	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
463.0	3,449,883	2,468	715.37	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
464.0	3,449,883	2,468	715.39	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
465.0	3,449,883	2,468	715.41	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
466.0	3,449,883	2,468	715.43	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
467.0	3,449,883	2,468	715.44	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
468.0	3,449,883	2,468	715.46	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	715
469.0	3,449,883	2,468	715.48	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	716
470.0	3,449,883	2,468	715.50	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,483	715	23,952	17.12	3,449,883	2,468	716
471.0	3,449,883	2,468	715.52	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.12	3,449,883	2,469	716
472.0	3,449,883	2,469	715.54	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.12	3,449,883	2,469	716
473.0	3,449,883	2,469	715.56	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.12	3,449,883	2,469	716
474.0	3,449,883	2,469	715.58	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.12	3,449,883	2,469	716
475.0	3,449,883	2,469	715.60	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
476.0	3,449,883	2,469	715.62	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
477.0	3,449,883	2,469	715.63	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
478.0	3,449,883	2,469	715.65	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
479.0	3,449,883	2,469	715.67	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
480.0	3,449,883	2,469	715.69	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
481.0	3,449,883	2,469	715.71	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
482.0	3,449,883	2,469	715.72	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
483.0	3,449,883	2,469	715.74	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
484.0	3,449,883	2,469	715.76	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
485.0	3,449,883	2,469	715.78	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
486.0	3,449,883	2,469	715.79	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,484	715	23,952	17.13	3,449,883	2,469	716
487.0	3,449,883	2,469	715.81	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
488.0	3,449,883	2,470	715.83	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
489.0	3,449,883	2,470	715.85	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
490.0	3,449,883	2,470	715.86	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
491.0	3,449,883	2,470	715.88	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
492.0	3,449,883	2,470	715.90	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
493.0	3,449,883	2,470	715.91	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
494.0	3,449,883	2,470	715.93	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
495.0	3,449,883	2,470	715.94	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
496.0	3,449,883	2,470	715.96	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
497.0	3,449,883	2,470	715.98	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
498.0	3,449,883	2,470	715.99	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.13	3,449,883	2,470	716
499.0	3,449,883	2,470	716.01	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.14	3,449,883	2,470	716
500.0	3,449,883	2,470	716.02	23,593	683	16.1	3,000.0	358.2	1.0746	3,473,834	2,485	715	23,952	17.14	3,449,883	2,470	716

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
																0		
0.00	0.0	0.0	0	394	150	0.059	5679	342	1.944	-1,276	330	-0.421	0.000	0.000	0.000	1.582	4798	330
1.00	1.6	4,797.8	330	394	150	0.059	5676	342	1.942	-1,194	330	-0.394	3.695	330	-0.001	3.189	9519	3000
2.00	28.6	9,518.9	3000	394	150	0.059	5673	342	1.941	-14,390	1961	-28.213	7.334	3000	-0.022	2.322	888	2615
3.00	2.3	888.0	2615	394	150	0.059	5635	342	1.929	-3,309	623	-2.062	48.234	2615	-0.126	2.122	1587	1337
4.00	2.1	1,586.7	1337	394	150	0.059	5632	342	1.927	-3,181	540	-1.717	51.540	1337	-0.069	2.323	2273	1022
5.00	2.3	2,273.0	1022	394	150	0.059	5629	342	1.926	-3,055	519	-1.586	54.791	1022	-0.056	2.666	2947	905
6.00	2.7	2,947.3	905	394	150	0.059	5626	342	1.925	-2,931	519	-1.520	57.987	905	-0.052	3.078	3610	853
7.00	3.1	3,609.8	853	394	150	0.059	5624	342	1.925	-2,809	526	-1.477	61.130	853	-0.052	3.532	4261	829
8.0	3.5	4,260.5	829	394	150	0.059	5621	342	1.924	-2,690	537	-1.444	64.220	829	-0.053	4.018	4900	820
9.0	4.0	4,899.9	820	394	150	0.059	5618	342	1.923	-2,572	550	-1.414	67.258	820	-0.055	4.530	5528	820
10.0	4.5	5,528.0	820	394	150	0.059	5615	342	1.922	-2,457	564	-1.387	70.245	820	-0.058	5.067	6145	825
11.0	5.1	6,145.0	825	394	150	0.059	5613	342	1.921	-2,344	580	-1.359	73.182	825	-0.060	5.627	6751	834
12.0	5.6	6,751.2	834	394	150	0.059	5610	342	1.920	-2,232	596	-1.331	76.069	834	-0.063	6.212	7347	846
13.0	6.2	7,346.7	846	394	150	0.059	5608	342	1.919	-2,123	614	-1.302	78.908	846	-0.067	6.821	7932	860
14.0	6.8	7,931.7	860	394	150	0.059	5605	342	1.918	-2,015	632	-1.273	81.699	860	-0.070	7.455	8506	876
15.0	7.5	8,506.5	876	394	150	0.059	5603	342	1.917	-1,910	650	-1.242	84.442	876	-0.074	8.115	9071	895
16.0	8.1	9,071.1	895	394	150	0.059	5600	342	1.916	-1,806	670	-1.210	87.140	895	-0.078	8.803	9626	915
17.0	8.8	9,625.8	915	394	150	0.059	5598	342	1.916	-1,704	690	-1.176	89.791	915	-0.082	9.520	10171	936
18.0	9.5	10,170.8	936	394	150	0.059	5595	342	1.915	-1,604	711	-1.141	92.398	936	-0.086	10.266	10706	959
19.0	10.3	10,706.1	959	394	150	0.059	5593	342	1.914	-1,506	733	-1.104	94.961	959	-0.091	11.045	11232	983
20.0	11.0	11,232.1	983	394	150	0.059	5591	342	1.913	-1,409	756	-1.065	97.480	983	-0.096	11.856	11749	1009
21.0	11.9	11,748.7	1009	394	150	0.059	5589	342	1.913	-1,314	780	-1.025	99.957	1009	-0.101	12.702	12256	1036
22.0	12.7	12,256.3	1036	394	150	0.059	5586	342	1.912	-1,221	805	-0.982	102.391	1036	-0.106	13.584	12755	1065
23.0	13.6	12,755.0	1065	394	150	0.059	5584	342	1.911	-1,129	830	-0.938	104.784	1065	-0.112	14.505	13245	1095
24.0	14.5	13,244.9	1095	394	150	0.059	5582	342	1.910	-1,039	857	-0.891	107.137	1095	-0.117	15.467	13726	1127
25.0	15.5	13,726.2	1127	394	150	0.059	5580	342	1.910	-951	885	-0.841	109.449	1127	-0.123	16.471	14199	1160
26.0	16.5	14,199.0	1160	394	150	0.059	5578	342	1.909	-864	914	-0.790	111.723	1160	-0.130	17.520	14663	1195
27.0	17.5	14,663.5	1195	394	150	0.059	5576	342	1.908	-778	944	-0.735	113.957	1195	-0.136	18.616	15120	1231
28.0	18.6	15,119.8	1231	394	150	0.059	5574	342	1.908	-695	976	-0.678	116.153	1231	-0.143	19.761	15568	1269
29.0	19.8	15,568.1	1269	394	150	0.059	5572	342	1.907	-612	1009	-0.618	118.312	1269	-0.150	20.959	16008	1309
30.0	21.0	16,008.5	1309	394	150	0.059	5570	342	1.906	-531	1043	-0.554	120.434	1309	-0.158	22.213	16441	1351
31.0	22.2	16,441.1	1351	394	150	0.059	5568	342	1.906	-452	1079	-0.488	122.520	1351	-0.166	23.524	16866	1395
32.0	23.5	16,866.2	1395	394	150	0.059	5567	342	1.905	-374	1117	-0.417	124.571	1395	-0.174	24.898	17284	1441
33.0	24.9	17,283.7	1441	394	150	0.059	5565	342	1.904	-297	1156	-0.343	126.586	1441	-0.182	26.336	17694	1488
34.0	26.3	17,694.0	1488	394	150	0.059	5563	342	1.904	-222	1197	-0.265	128.567	1488	-0.191	27.842	18097	1538
35.0	27.8	18,097.0	1538	394	150	0.059	5561	342	1.903	-147	1239	-0.183	130.514	1538	-0.201	29.421	18493	1591
36.0	29.4	18,492.9	1591	394	150	0.059	5560	342	1.903	-75	1284	-0.096	132.427	1591	-0.211	31.076	18882	1646
37.0	31.1	18,881.8	1646	394	150	0.059	5558	342	1.902	-3	1330	-0.004	134.308	1646	-0.221	32.812	19264	1703
38.0	32.8	19,263.9	1703	394	150	0.059	5556	342	1.901	67	1264	0.085	136.157	1703	-0.232	34.625	19639	1763
39.0	34.6	19,639.3	1763	394	150	0.059	5555	342	1.901	136	1265	0.172	137.974	1763	-0.243	36.514	20008	1825
40.0	36.5	20,008.1	1825	394	150	0.059	5553	342	1.900	204	1266	0.258	139.760	1825	-0.255	38.476	20370	1889
41.0	38.5	20,370.4	1889	394	150	0.059	5552	342	1.900	270	1266	0.342	141.515	1889	-0.267	40.510	20726	1955
42.0	40.5	20,726.3	1955	394	150	0.059	5550	342	1.899	336	1267	0.425	143.240	1955	-0.280	42.614	21076	2022
43.0	42.6	21,075.9	2022	394	150	0.059	5549	342	1.899	400	1267	0.507	144.936	2022	-0.293	44.786	21419	2091
44.0	44.8	21,419.5	2091	394	150	0.059	5547	342	1.898	463	1268	0.587	146.602	2091	-0.307	47.024	21757	2161
45.0	47.0	21,756.9	2161	394	150	0.059	5546	342	1.898	525	1268	0.666	148.240	2161	-0.320	49.327	22088	2233
46.0	49.3	22,088.4	2233	394	150	0.059	5544	342	1.897	586	1269	0.744	149.849	2233	-0.335	51.692	22414	2306
47.0	51.7	22,414.1	2306	394	150	0.059	5543	342	1.897	646	1269	0.820	151.431	2306	-0.349	54.119	22734	2381
48.0	54.1	22,734.1	2381	394	150	0.059	5541	342	1.896	705	1269	0.895	152.986	2381	-0.364	56.605	23048	2456
49.0	56.6	23,048.4	2456	394	150	0.059	5540	342	1.896	763	1270	0.968	154.514	2456	-0.379	59.148	23357	2532
50.0	59.1	23,357.2	2532	394	150	0.059	5539	342	1.895	819	1270	1.041	156.015	2532	-0.395	61.748	23661	2610
51.0	61.7	23,660.6	2610	394	150	0.059	5537	342	1.895	875	1270	1.112	157.491	2610	-0.411	64.403	23959	2688
52.0	64.4	23,958.6	2688	394	150	0.059	5536	342	1.895	930	1270	1.181	158.941	2688	-0.427	67.111	24251	2767
53.0	67.1	24,251.4	2767	394	150	0.059	5535	342	1.894	984	1271	1.250	160.367	2767	-0.444	69.870	24539	2847
54.0	69.9	24,539.1	2847	394	150	0.059	5534	342	1.894	1,037	1271	1.317	161.767	2847	-0.461	72.680	24822	2928
55.0	72.7	24,821.6	2928	394	150	0.059	5532	342	1.893	1,089	1271	1.384	163.144	2928	-0.478	75.538	25099	3000
56.0	75.3	25,099.2	3000	394	150	0.059	5531	342	1.893	1,140	1271	1.449	164.497	3000	-0.493	78.205	25372	3000
57.0	76.1	25,372.0	3000	394	150	0.059	5530	342	1.892	1,190	1271	1.512	165.826	3000	-0.497	79.082	25640	3000
58.0	76.9	25,639.9	3000	394	150	0.059	5529	342	1.892	1,239	1271	1.575	167.133	3000	-0.501	79.945	25903	3000
59.0	77.7	25,903.1	3000	394	150	0.059	5528	342	1.892	1,287	1272	1.637	168.417	3000	-0.505	80.792	26162	3000
60.0	78.5	26,161.7	3000	394	150	0.059	5527	342	1.891	1,335	1272	1.697	169.678	3000	-0.509	81.624	26416	3000
61.0	79.2	26,415.7	3000	394	150	0.059	5526	342	1.891	1,382	1272	1.757	170.918	3000	-0.513	82.441	26665	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
62.0	80.0	26,665.3	3000	394	150	0.059	5524	342	1.891	1,427	1272	1.815	172.137	3000	-0.516	83.245	26910	3000
63.0	80.7	26,910.4	3000	394	150	0.059	5523	342	1.890	1,473	1272	1.873	173.334	3000	-0.520	84.034	27151	3000
64.0	81.5	27,151.3	3000	394	150	0.059	5522	342	1.890	1,517	1272	1.929	174.511	3000	-0.524	84.809	27388	3000
65.0	82.2	27,387.9	3000	394	150	0.059	5521	342	1.890	1,560	1272	1.985	175.667	3000	-0.527	85.570	27620	3000
66.0	82.9	27,620.4	3000	394	150	0.059	5520	342	1.889	1,603	1272	2.039	176.804	3000	-0.530	86.318	27849	3000
67.0	83.5	27,848.7	3000	394	150	0.059	5519	342	1.889	1,645	1272	2.093	177.920	3000	-0.534	87.053	28073	3000
68.0	84.2	28,073.1	3000	394	150	0.059	5518	342	1.889	1,686	1272	2.145	179.018	3000	-0.537	87.775	28294	3000
69.0	84.9	28,293.5	3000	394	150	0.059	5517	342	1.888	1,727	1272	2.197	180.096	3000	-0.540	88.484	28510	3000
70.0	85.5	28,510.0	3000	394	150	0.059	5517	342	1.888	1,767	1272	2.248	181.155	3000	-0.543	89.181	28723	3000
71.0	86.2	28,722.7	3000	394	150	0.059	5516	342	1.888	1,806	1272	2.298	182.197	3000	-0.547	89.866	28932	3000
72.0	86.8	28,931.7	3000	394	150	0.059	5515	342	1.887	1,844	1272	2.346	183.220	3000	-0.550	90.538	29137	3000
73.0	87.4	29,137.0	3000	394	150	0.059	5514	342	1.887	1,882	1272	2.395	184.225	3000	-0.553	91.199	29339	3000
74.0	88.0	29,338.7	3000	394	150	0.059	5513	342	1.887	1,919	1272	2.442	185.213	3000	-0.556	91.848	29537	3000
75.0	88.6	29,536.8	3000	394	150	0.059	5512	342	1.886	1,955	1273	2.488	186.184	3000	-0.559	92.486	29731	3000
76.0	89.2	29,731.5	3000	394	150	0.059	5511	342	1.886	1,991	1273	2.534	187.138	3000	-0.561	93.112	29923	3000
77.0	89.8	29,922.7	3000	394	150	0.059	5510	342	1.886	2,026	1273	2.579	188.075	3000	-0.564	93.727	30111	3000
78.0	90.3	30,110.6	3000	394	150	0.059	5510	342	1.886	2,061	1273	2.623	188.996	3000	-0.567	94.332	30295	3000
79.0	90.9	30,295.1	3000	394	150	0.059	5509	342	1.885	2,095	1273	2.666	189.902	3000	-0.570	94.926	30476	3000
80.0	91.4	30,476.5	3000	394	150	0.059	5508	342	1.885	2,128	1273	2.708	190.791	3000	-0.572	95.509	30655	3000
81.0	92.0	30,654.6	3000	394	150	0.059	5507	342	1.885	2,161	1273	2.750	191.665	3000	-0.575	96.083	30830	3000
82.0	92.5	30,829.6	3000	394	150	0.059	5507	342	1.884	2,193	1273	2.791	192.524	3000	-0.578	96.646	31001	3000
83.0	93.0	31,001.5	3000	394	150	0.059	5506	342	1.884	2,225	1273	2.831	193.367	3000	-0.580	97.199	31170	3000
84.0	93.5	31,170.4	3000	394	150	0.059	5505	342	1.884	2,256	1273	2.871	194.197	3000	-0.583	97.742	31336	3000
85.0	94.0	31,336.3	3000	394	150	0.059	5504	342	1.884	2,286	1273	2.910	195.011	3000	-0.585	98.276	31499	3000
86.0	94.5	31,499.3	3000	394	150	0.059	5504	342	1.883	2,316	1273	2.948	195.812	3000	-0.587	98.801	31659	3000
87.0	95.0	31,659.4	3000	394	150	0.059	5503	342	1.883	2,346	1273	2.985	196.599	3000	-0.590	99.316	31817	3000
88.0	95.5	31,816.7	3000	394	150	0.059	5502	342	1.883	2,375	1273	3.022	197.371	3000	-0.592	99.822	31971	3000
89.0	95.9	31,971.3	3000	394	150	0.059	5502	342	1.883	2,403	1273	3.058	198.131	3000	-0.594	100.320	32123	3000
90.0	96.4	32,123.1	3000	394	150	0.059	5501	342	1.883	2,431	1273	3.094	198.877	3000	-0.597	100.808	32272	3000
91.0	96.8	32,272.2	3000	394	150	0.059	5500	342	1.882	2,458	1273	3.129	199.610	3000	-0.599	101.288	32419	3000
92.0	97.3	32,418.8	3000	394	150	0.059	5500	342	1.882	2,485	1273	3.163	200.331	3000	-0.601	101.760	32563	3000
93.0	97.7	32,562.7	3000	394	150	0.059	5499	342	1.882	2,512	1273	3.197	201.039	3000	-0.603	102.223	32704	3000
94.0	98.1	32,704.1	3000	394	150	0.059	5499	342	1.882	2,538	1273	3.230	201.734	3000	-0.605	102.678	32843	3000
95.0	98.5	32,843.1	3000	394	150	0.059	5498	342	1.882	2,563	1273	3.263	202.418	3000	-0.607	103.125	32980	3000
96.0	98.9	32,979.6	3000	394	150	0.059	5497	342	1.881	2,588	1273	3.295	203.089	3000	-0.609	103.564	33114	3000
97.0	99.3	33,113.6	3000	394	150	0.059	5497	342	1.881	2,613	1273	3.326	203.749	3000	-0.611	103.996	33245	3000
98.0	99.7	33,245.4	3000	394	150	0.059	5496	342	1.881	2,637	1273	3.357	204.398	3000	-0.613	104.420	33375	3000
99.0	100.1	33,374.8	3000	394	150	0.059	5496	342	1.881	2,661	1273	3.387	205.035	3000	-0.615	104.836	33502	3000
100.0	100.5	33,501.9	3000	394	150	0.059	5495	342	1.881	2,684	1273	3.417	205.661	3000	-0.617	105.245	33627	3000
101.0	100.9	33,626.8	3000	394	150	0.059	5495	342	1.880	2,707	1273	3.446	206.276	3000	-0.619	105.647	33750	3000
102.0	101.2	33,749.5	3000	394	150	0.059	5494	342	1.880	2,730	1273	3.475	206.880	3000	-0.621	106.042	33870	3000
103.0	101.6	33,870.0	3000	394	150	0.059	5494	342	1.880	2,752	1273	3.503	207.474	3000	-0.622	106.430	33988	3000
104.0	102.0	33,988.5	3000	394	150	0.059	5493	342	1.880	2,774	1273	3.531	208.057	3000	-0.624	106.811	34105	3000
105.0	102.3	34,104.8	3000	394	150	0.059	5493	342	1.880	2,795	1273	3.558	208.630	3000	-0.626	107.185	34219	3000
106.0	102.7	34,219.1	3000	394	150	0.059	5492	342	1.879	2,816	1273	3.585	209.193	3000	-0.628	107.553	34331	3000
107.0	103.0	34,331.4	3000	394	150	0.059	5492	342	1.879	2,837	1273	3.611	209.747	3000	-0.629	107.914	34442	3000
108.0	103.3	34,441.7	3000	394	150	0.059	5491	342	1.879	2,857	1273	3.637	210.291	3000	-0.631	108.269	34550	3000
109.0	103.7	34,550.0	3000	394	150	0.059	5491	342	1.879	2,877	1273	3.662	210.825	3000	-0.632	108.618	34656	3000
110.0	104.0	34,656.5	3000	394	150	0.059	5490	342	1.879	2,897	1273	3.687	211.350	3000	-0.634	108.961	34761	3000
111.0	104.3	34,761.1	3000	394	150	0.059	5490	342	1.879	2,916	1273	3.712	211.865	3000	-0.636	109.297	34864	3000
112.0	104.6	34,863.8	3000	394	150	0.059	5489	342	1.879	2,935	1273	3.736	212.372	3000	-0.637	109.628	34965	3000
113.0	104.9	34,964.8	3000	394	150	0.059	5489	342	1.878	2,953	1273	3.760	212.870	3000	-0.639	109.953	35064	3000
114.0	105.2	35,063.9	3000	394	150	0.059	5488	342	1.878	2,972	1273	3.783	213.359	3000	-0.640	110.272	35161	3000
115.0	105.5	35,161.3	3000	394	150	0.059	5488	342	1.878	2,990	1273	3.806	213.840	3000	-0.642	110.585	35257	3000
116.0	105.8	35,257.0	3000	394	150	0.059	5488	342	1.878	3,007	1273	3.828	214.312	3000	-0.643	110.893	35351	3000
117.0	106.1	35,351.0	3000	394	150	0.059	5487	342	1.878	3,024	1273	3.850	214.776	3000	-0.644	111.196	35443	3000
118.0	106.3	35,443.4	3000	394	150	0.059	5487	342	1.878	3,041	1273	3.872	215.232	3000	-0.646	111.493	35534	3000
119.0	106.6	35,534.2	3000	394	150	0.059	5486	342	1.878	3,058	1273	3.893	215.679	3000	-0.647	111.785	35623	3000
120.0	106.9	35,623.3	3000	394	150	0.059	5486	342	1.877	3,074	1273	3.914	216.119	3000	-0.648	112.072	35711	3000
121.0	107.1	35,710.9	3000	394	150	0.059	5486	342	1.877	3,091	1273	3.934	216.552	3000	-0.650	112.354	35797	3000
122.0	107.4	35,796.9	3000	394	150	0.059	5485	342	1.877	3,106	1273	3.954	216.977	3000	-0.651	112.630	35881	3000
123.0	107.6	35,881.4	3000	394	150	0.059	5485	342	1.877	3,122	1273	3.974	217.394	3000	-0.652	112.902	35964	3000
124.0	107.9	35,964.5	3000	394	150	0.059	5485	342	1.877	3,137	1273	3.994	217.804	3000	-0.653	113.170	36046	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
125.0	108.1	36,046.0	3000	394	150	0.059	5484	342	1.877	3,152	1273	4.013	218.207	3000	-0.655	113.432	36126	3000
126.0	108.4	36,126.2	3000	394	150	0.059	5484	342	1.877	3,167	1273	4.031	218.603	3000	-0.656	113.690	36205	3000
127.0	108.6	36,204.9	3000	394	150	0.059	5483	342	1.877	3,181	1273	4.050	218.991	3000	-0.657	113.943	36282	3000
128.0	108.8	36,282.2	3000	394	150	0.059	5483	342	1.876	3,196	1273	4.068	219.374	3000	-0.658	114.192	36358	3000
129.0	109.1	36,358.2	3000	394	150	0.059	5483	342	1.876	3,210	1273	4.086	219.749	3000	-0.659	114.437	36433	3000
130.0	109.3	36,432.9	3000	394	150	0.059	5482	342	1.876	3,223	1273	4.103	220.118	3000	-0.660	114.677	36506	3000
131.0	109.5	36,506.2	3000	394	150	0.059	5482	342	1.876	3,237	1273	4.120	220.480	3000	-0.661	114.913	36578	3000
132.0	109.7	36,578.2	3000	394	150	0.059	5482	342	1.876	3,250	1273	4.137	220.836	3000	-0.663	115.145	36649	3000
133.0	109.9	36,649.0	3000	394	150	0.059	5482	342	1.876	3,263	1273	4.154	221.186	3000	-0.664	115.372	36719	3000
134.0	110.2	36,718.5	3000	394	150	0.059	5481	342	1.876	3,276	1273	4.170	221.530	3000	-0.665	115.596	36787	3000
135.0	110.4	36,786.9	3000	394	150	0.059	5481	342	1.876	3,288	1273	4.186	221.867	3000	-0.666	115.816	36854	3000
136.0	110.6	36,854.0	3000	394	150	0.059	5481	342	1.876	3,301	1273	4.202	222.199	3000	-0.667	116.032	36920	3000
137.0	110.8	36,919.9	3000	394	150	0.059	5480	342	1.876	3,313	1273	4.217	222.525	3000	-0.668	116.244	36985	3000
138.0	111.0	36,984.6	3000	394	150	0.059	5480	342	1.875	3,325	1273	4.232	222.845	3000	-0.669	116.452	37048	3000
139.0	111.1	37,048.3	3000	394	150	0.059	5480	342	1.875	3,337	1273	4.247	223.160	3000	-0.669	116.657	37111	3000
140.0	111.3	37,110.8	3000	394	150	0.059	5480	342	1.875	3,348	1273	4.262	223.469	3000	-0.670	116.858	37172	3000
141.0	111.5	37,172.2	3000	394	150	0.059	5479	342	1.875	3,359	1273	4.276	223.773	3000	-0.671	117.056	37233	3000
142.0	111.7	37,232.5	3000	394	150	0.059	5479	342	1.875	3,370	1273	4.290	224.071	3000	-0.672	117.250	37292	3000
143.0	111.9	37,291.8	3000	394	150	0.059	5479	342	1.875	3,381	1273	4.304	224.364	3000	-0.673	117.441	37350	3000
144.0	112.0	37,350.0	3000	394	150	0.059	5479	342	1.875	3,392	1273	4.318	224.652	3000	-0.674	117.628	37407	3000
145.0	112.2	37,407.2	3000	394	150	0.059	5478	342	1.875	3,403	1273	4.331	224.935	3000	-0.675	117.812	37463	3000
146.0	112.4	37,463.4	3000	394	150	0.059	5478	342	1.875	3,413	1273	4.345	225.213	3000	-0.676	117.993	37519	3000
147.0	112.6	37,518.6	3000	394	150	0.059	5478	342	1.875	3,423	1273	4.357	225.486	3000	-0.676	118.170	37573	3000
148.0	112.7	37,572.8	3000	394	150	0.059	5478	342	1.875	3,433	1273	4.370	225.754	3000	-0.677	118.345	37626	3000
149.0	112.9	37,626.1	3000	394	150	0.059	5477	342	1.874	3,443	1273	4.383	226.018	3000	-0.678	118.516	37678	3000
150.0	113.0	37,678.4	3000	394	150	0.059	5477	342	1.874	3,452	1273	4.395	226.277	3000	-0.679	118.685	37730	3000
151.0	113.2	37,729.8	3000	394	150	0.059	5477	342	1.874	3,462	1273	4.407	226.532	3000	-0.680	118.850	37780	3000
152.0	113.3	37,780.4	3000	394	150	0.059	5477	342	1.874	3,471	1273	4.419	226.782	3000	-0.680	119.013	37830	3000
153.0	113.5	37,830.0	3000	394	150	0.059	5476	342	1.874	3,480	1273	4.430	227.027	3000	-0.681	119.173	37879	3000
154.0	113.6	37,878.7	3000	394	150	0.059	5476	342	1.874	3,489	1273	4.442	227.268	3000	-0.682	119.329	37927	3000
155.0	113.8	37,926.6	3000	394	150	0.059	5476	342	1.874	3,498	1273	4.453	227.506	3000	-0.683	119.484	37974	3000
156.0	113.9	37,973.7	3000	394	150	0.059	5476	342	1.874	3,507	1273	4.464	227.738	3000	-0.683	119.635	38020	3000
157.0	114.1	38,019.9	3000	394	150	0.059	5476	342	1.874	3,515	1273	4.475	227.967	3000	-0.684	119.784	38065	3000
158.0	114.2	38,065.3	3000	394	150	0.059	5475	342	1.874	3,524	1273	4.485	228.192	3000	-0.685	119.930	38110	3000
159.0	114.3	38,109.9	3000	394	150	0.059	5475	342	1.874	3,532	1273	4.496	228.413	3000	-0.685	120.073	38154	3000
160.0	114.5	38,153.8	3000	394	150	0.059	5475	342	1.874	3,540	1273	4.506	228.630	3000	-0.686	120.214	38197	3000
161.0	114.6	38,196.8	3000	394	150	0.059	5475	342	1.874	3,548	1273	4.516	228.843	3000	-0.687	120.353	38239	3000
162.0	114.7	38,239.1	3000	394	150	0.059	5475	342	1.874	3,556	1273	4.526	229.053	3000	-0.687	120.489	38281	3000
163.0	114.8	38,280.7	3000	394	150	0.059	5475	342	1.874	3,563	1273	4.536	229.258	3000	-0.688	120.623	38322	3000
164.0	115.0	38,321.5	3000	394	150	0.059	5474	342	1.873	3,571	1273	4.545	229.461	3000	-0.688	120.754	38362	3000
165.0	115.1	38,361.6	3000	394	150	0.059	5474	342	1.873	3,578	1273	4.555	229.659	3000	-0.689	120.883	38401	3000
166.0	115.2	38,401.0	3000	394	150	0.059	5474	342	1.873	3,585	1273	4.564	229.854	3000	-0.690	121.010	38440	3000
167.0	115.3	38,439.7	3000	394	150	0.059	5474	342	1.873	3,592	1273	4.573	230.046	3000	-0.690	121.134	38478	3000
168.0	115.4	38,477.7	3000	394	150	0.059	5474	342	1.873	3,599	1273	4.582	230.234	3000	-0.691	121.257	38515	3000
169.0	115.5	38,515.1	3000	394	150	0.059	5474	342	1.873	3,606	1273	4.591	230.420	3000	-0.691	121.377	38552	3000
170.0	115.7	38,551.8	3000	394	150	0.059	5473	342	1.873	3,613	1273	4.599	230.601	3000	-0.692	121.495	38588	3000
171.0	115.8	38,587.9	3000	394	150	0.059	5473	342	1.873	3,620	1273	4.608	230.780	3000	-0.692	121.611	38623	3000
172.0	115.9	38,623.3	3000	394	150	0.059	5473	342	1.873	3,626	1273	4.616	230.955	3000	-0.693	121.725	38658	3000
173.0	116.0	38,658.1	3000	394	150	0.059	5473	342	1.873	3,633	1273	4.624	231.128	3000	-0.693	121.837	38692	3000
174.0	116.1	38,692.3	3000	394	150	0.059	5473	342	1.873	3,639	1273	4.632	231.297	3000	-0.694	121.947	38726	3000
175.0	116.2	38,725.8	3000	394	150	0.059	5473	342	1.873	3,645	1273	4.640	231.464	3000	-0.694	122.055	38759	3000
176.0	116.3	38,758.8	3000	394	150	0.059	5472	342	1.873	3,651	1273	4.648	231.627	3000	-0.695	122.161	38791	3000
177.0	116.4	38,791.2	3000	394	150	0.059	5472	342	1.873	3,658	1273	4.656	231.788	3000	-0.695	122.266	38824	3000
178.0	116.5	38,823.7	3000	394	150	0.059	5472	342	1.873	3,714	1273	4.728	231.945	3000	-0.696	122.435	38906	3000
179.0	116.7	38,906.0	3000	394	150	0.059	5472	342	1.873	3,717	1273	4.732	232.053	3000	-0.696	122.686	38987	3000
180.0	117.0	38,987.2	3000	394	150	0.059	5472	342	1.873	3,720	1273	4.736	232.160	3000	-0.696	122.933	39067	3000
181.0	117.2	39,067.5	3000	394	150	0.059	5472	342	1.873	3,724	1273	4.740	232.266	3000	-0.697	123.178	39147	3000
182.0	117.4	39,146.7	3000	394	150	0.059	5472	342	1.873	3,727	1273	4.744	232.371	3000	-0.697	123.419	39225	3000
183.0	117.7	39,225.0	3000	394	150	0.059	5472	342	1.873	3,730	1273	4.748	232.474	3000	-0.697	123.658	39302	3000
184.0	117.9	39,302.3	3000	394	150	0.059	5472	342	1.873	3,733	1273	4.752	232.576	3000	-0.698	123.893	39379	3000
185.0	118.1	39,378.6	3000	394	150	0.059	5472	342	1.872	3,736	1273	4.756	232.676	3000	-0.698	124.126	39454	3000
186.0	118.4	39,454.0	3000	394	150	0.059	5472	342	1.872	3,739	1273	4.760	232.775	3000	-0.698	124.355	39528	3000
187.0	118.6	39,528.4	3000	394	150	0.059	5471	342	1.872	3,742	1273	4.764	232.874	3000	-0.699	124.582	39602	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
188.0	118.8	39,602.0	3000	394	150	0.059	5471	342	1.872	3,745	1273	4.768	232.970	3000	-0.699	124.806	39675	3000
189.0	119.0	39,674.6	3000	394	150	0.059	5471	342	1.872	3,748	1273	4.772	233.066	3000	-0.699	125.028	39746	3000
190.0	119.2	39,746.2	3000	394	150	0.059	5471	342	1.872	3,751	1273	4.775	233.161	3000	-0.699	125.246	39817	3000
191.0	119.5	39,817.1	3000	394	150	0.059	5471	342	1.872	3,754	1273	4.779	233.254	3000	-0.700	125.462	39887	3000
192.0	119.7	39,887.0	3000	394	150	0.059	5471	342	1.872	3,757	1273	4.783	233.346	3000	-0.700	125.675	39956	3000
193.0	119.9	39,956.0	3000	394	150	0.059	5471	342	1.872	3,760	1273	4.786	233.437	3000	-0.700	125.885	40024	3000
194.0	120.1	40,024.2	3000	394	150	0.059	5471	342	1.872	3,762	1273	4.790	233.527	3000	-0.701	126.093	40092	3000
195.0	120.3	40,091.6	3000	394	150	0.059	5471	342	1.872	3,765	1273	4.793	233.616	3000	-0.701	126.298	40158	3000
196.0	120.5	40,158.1	3000	394	150	0.059	5471	342	1.872	3,768	1273	4.796	233.704	3000	-0.701	126.501	40224	3000
197.0	120.7	40,223.7	3000	394	150	0.059	5471	342	1.872	3,771	1273	4.800	233.790	3000	-0.701	126.701	40289	3000
198.0	120.9	40,288.6	3000	394	150	0.059	5471	342	1.872	3,773	1273	4.803	233.876	3000	-0.702	126.899	40353	3000
199.0	121.1	40,352.6	3000	394	150	0.059	5470	342	1.872	3,776	1273	4.807	233.960	3000	-0.702	127.094	40416	3000
200.0	121.2	40,415.9	3000	394	150	0.059	5470	342	1.872	3,778	1273	4.810	234.043	3000	-0.702	127.287	40478	3000
201.0	121.4	40,478.4	3000	394	150	0.059	5470	342	1.872	3,781	1273	4.813	234.126	3000	-0.702	127.477	40540	3000
202.0	121.6	40,540.1	3000	394	150	0.059	5470	342	1.872	3,783	1273	4.816	234.207	3000	-0.703	127.665	40601	3000
203.0	121.8	40,601.0	3000	394	150	0.059	5470	342	1.872	3,786	1273	4.819	234.288	3000	-0.703	127.850	40661	3000
204.0	122.0	40,661.1	3000	394	150	0.059	5470	342	1.872	3,788	1273	4.822	234.367	3000	-0.703	128.034	40721	3000
205.0	122.2	40,720.6	3000	394	150	0.059	5470	342	1.872	3,791	1273	4.825	234.445	3000	-0.703	128.215	40779	3000
206.0	122.3	40,779.2	3000	394	150	0.059	5470	342	1.872	3,793	1273	4.828	234.523	3000	-0.704	128.394	40837	3000
207.0	122.5	40,837.2	3000	394	150	0.059	5470	342	1.872	3,795	1273	4.831	234.599	3000	-0.704	128.570	40894	3000
208.0	122.7	40,894.4	3000	394	150	0.059	5470	342	1.872	3,798	1273	4.834	234.674	3000	-0.704	128.745	40951	3000
209.0	122.9	40,950.9	3000	394	150	0.059	5470	342	1.872	3,800	1273	4.837	234.749	3000	-0.704	128.917	41007	3000
210.0	123.0	41,006.7	3000	394	150	0.059	5470	342	1.872	3,802	1273	4.840	234.823	3000	-0.704	129.087	41062	3000
211.0	123.2	41,061.8	3000	394	150	0.059	5470	342	1.872	3,804	1273	4.843	234.895	3000	-0.705	129.255	41116	3000
212.0	123.3	41,116.2	3000	394	150	0.059	5470	342	1.872	3,807	1273	4.846	234.967	3000	-0.705	129.421	41170	3000
213.0	123.5	41,170.0	3000	394	150	0.059	5470	342	1.872	3,809	1273	4.849	235.038	3000	-0.705	129.584	41223	3000
214.0	123.7	41,223.1	3000	394	150	0.059	5470	342	1.872	3,811	1273	4.851	235.108	3000	-0.705	129.746	41275	3000
215.0	123.8	41,275.5	3000	394	150	0.059	5469	342	1.872	3,813	1273	4.854	235.177	3000	-0.706	129.906	41327	3000
216.0	124.0	41,327.3	3000	394	150	0.059	5469	342	1.872	3,815	1273	4.857	235.245	3000	-0.706	130.064	41378	3000
217.0	124.1	41,378.4	3000	394	150	0.059	5469	342	1.872	3,817	1273	4.859	235.313	3000	-0.706	130.219	41429	3000
218.0	124.3	41,428.9	3000	394	150	0.059	5469	342	1.872	3,819	1273	4.862	235.379	3000	-0.706	130.373	41479	3000
219.0	124.4	41,478.7	3000	394	150	0.059	5469	342	1.872	3,821	1273	4.865	235.445	3000	-0.706	130.525	41528	3000
220.0	124.6	41,528.0	3000	394	150	0.059	5469	342	1.872	3,823	1273	4.867	235.510	3000	-0.707	130.675	41577	3000
221.0	124.7	41,576.6	3000	394	150	0.059	5469	342	1.872	3,825	1273	4.870	235.574	3000	-0.707	130.823	41625	3000
222.0	124.9	41,624.6	3000	394	150	0.059	5469	342	1.872	3,827	1273	4.872	235.638	3000	-0.707	130.970	41672	3000
223.0	125.0	41,672.0	3000	394	150	0.059	5469	342	1.872	3,829	1273	4.874	235.700	3000	-0.707	131.114	41719	3000
224.0	125.2	41,718.9	3000	394	150	0.059	5469	342	1.872	3,831	1273	4.877	235.762	3000	-0.707	131.257	41765	3000
225.0	125.3	41,765.1	3000	394	150	0.059	5469	342	1.872	3,833	1273	4.879	235.823	3000	-0.707	131.398	41811	3000
226.0	125.4	41,810.8	3000	394	150	0.059	5469	342	1.872	3,835	1273	4.882	235.883	3000	-0.708	131.537	41856	3000
227.0	125.6	41,855.9	3000	394	150	0.059	5469	342	1.872	3,837	1273	4.884	235.943	3000	-0.708	131.674	41900	3000
228.0	125.7	41,900.4	3000	394	150	0.059	5469	342	1.872	3,838	1273	4.886	236.001	3000	-0.708	131.810	41944	3000
229.0	125.8	41,944.4	3000	394	150	0.059	5469	342	1.871	3,840	1273	4.889	236.060	3000	-0.708	131.944	41988	3000
230.0	126.0	41,987.8	3000	394	150	0.059	5469	342	1.871	3,842	1273	4.891	236.117	3000	-0.708	132.076	42031	3000
231.0	126.1	42,030.7	3000	394	150	0.059	5469	342	1.871	3,844	1273	4.893	236.173	3000	-0.709	132.207	42073	3000
232.0	126.2	42,073.1	3000	394	150	0.059	5469	342	1.871	3,845	1273	4.895	236.229	3000	-0.709	132.336	42115	3000
233.0	126.3	42,114.9	3000	394	150	0.059	5469	342	1.871	3,847	1273	4.897	236.285	3000	-0.709	132.464	42156	3000
234.0	126.5	42,156.3	3000	394	150	0.059	5468	342	1.871	3,849	1273	4.899	236.339	3000	-0.709	132.590	42197	3000
235.0	126.6	42,197.1	3000	394	150	0.059	5468	342	1.871	3,850	1273	4.902	236.393	3000	-0.709	132.714	42237	3000
236.0	126.7	42,237.4	3000	394	150	0.059	5468	342	1.871	3,852	1273	4.904	236.446	3000	-0.709	132.837	42277	3000
237.0	126.8	42,277.1	3000	394	150	0.059	5468	342	1.871	3,854	1273	4.906	236.499	3000	-0.709	132.958	42316	3000
238.0	126.9	42,316.4	3000	394	150	0.059	5468	342	1.871	3,855	1273	4.908	236.550	3000	-0.710	133.078	42355	3000
239.0	127.1	42,355.3	3000	394	150	0.059	5468	342	1.871	3,857	1273	4.910	236.602	3000	-0.710	133.196	42394	3000
240.0	127.2	42,393.6	3000	394	150	0.059	5468	342	1.871	3,858	1273	4.912	236.652	3000	-0.710	133.313	42431	3000
241.0	127.3	42,431.4	3000	394	150	0.059	5468	342	1.871	3,860	1273	4.914	236.702	3000	-0.710	133.428	42469	3000
242.0	127.4	42,468.8	3000	394	150	0.059	5468	342	1.871	3,861	1273	4.916	236.751	3000	-0.710	133.542	42506	3000
243.0	127.5	42,505.7	3000	394	150	0.059	5468	342	1.871	3,863	1273	4.917	236.800	3000	-0.710	133.655	42542	3000
244.0	127.6	42,542.2	3000	394	150	0.059	5468	342	1.871	3,864	1273	4.919	236.848	3000	-0.711	133.766	42578	3000
245.0	127.7	42,578.2	3000	394	150	0.059	5468	342	1.871	3,866	1273	4.921	236.896	3000	-0.711	133.875	42614	3000
246.0	127.8	42,613.7	3000	394	150	0.059	5468	342	1.871	3,867	1273	4.923	236.943	3000	-0.711	133.984	42649	3000
247.0	127.9	42,648.8	3000	394	150	0.059	5468	342	1.871	3,869	1273	4.925	236.989	3000	-0.711	134.091	42683	3000
248.0	128.1	42,683.5	3000	394	150	0.059	5468	342	1.871	3,870	1273	4.927	237.035	3000	-0.711	134.196	42718	3000
249.0	128.2	42,717.7	3000	394	150	0.059	5468	342	1.871	3,871	1273	4.928	237.080	3000	-0.711	134.301	42752	3000
250.0	128.3	42,751.5	3000	394	150	0.059	5468	342	1.871	3,873	1273	4.930	237.125	3000	-0.711	134.404	42785	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
251.0	128.4	42,784.9	3000	394	150	0.059	5468	342	1.871	3,874	1273	4.932	237.169	3000	-0.712	134.505	42818	3000
252.0	128.5	42,817.9	3000	394	150	0.059	5468	342	1.871	3,875	1273	4.933	237.212	3000	-0.712	134.606	42850	3000
253.0	128.6	42,850.5	3000	394	150	0.059	5468	342	1.871	3,877	1273	4.935	237.255	3000	-0.712	134.705	42883	3000
254.0	128.6	42,882.6	3000	394	150	0.059	5468	342	1.871	3,878	1273	4.937	237.298	3000	-0.712	134.803	42914	3000
255.0	128.7	42,914.4	3000	394	150	0.059	5468	342	1.871	3,879	1273	4.938	237.340	3000	-0.712	134.900	42946	3000
256.0	128.8	42,945.8	3000	394	150	0.059	5468	342	1.871	3,881	1273	4.940	237.381	3000	-0.712	134.995	42977	3000
257.0	128.9	42,976.7	3000	394	150	0.059	5468	342	1.871	3,882	1273	4.942	237.422	3000	-0.712	135.090	43007	3000
258.0	129.0	43,007.3	3000	394	150	0.059	5468	342	1.871	3,883	1273	4.943	237.462	3000	-0.712	135.183	43038	3000
259.0	129.1	43,037.5	3000	394	150	0.059	5467	342	1.871	3,884	1273	4.945	237.502	3000	-0.713	135.275	43067	3000
260.0	129.2	43,067.4	3000	394	150	0.059	5467	342	1.871	3,886	1273	4.946	237.542	3000	-0.713	135.366	43097	3000
261.0	129.3	43,096.8	3000	394	150	0.059	5467	342	1.871	3,887	1273	4.948	237.580	3000	-0.713	135.456	43126	3000
262.0	129.4	43,125.9	3000	394	150	0.059	5467	342	1.871	3,888	1273	4.949	237.619	3000	-0.713	135.544	43155	3000
263.0	129.5	43,154.7	3000	394	150	0.059	5467	342	1.871	3,889	1273	4.951	237.657	3000	-0.713	135.632	43183	3000
264.0	129.5	43,183.0	3000	394	150	0.059	5467	342	1.871	3,890	1273	4.952	237.694	3000	-0.713	135.718	43211	3000
265.0	129.6	43,211.1	3000	394	150	0.059	5467	342	1.871	3,891	1273	4.954	237.731	3000	-0.713	135.804	43239	3000
266.0	129.7	43,238.7	3000	394	150	0.059	5467	342	1.871	3,893	1273	4.955	237.768	3000	-0.713	135.888	43266	3000
267.0	129.8	43,266.1	3000	394	150	0.059	5467	342	1.871	3,894	1273	4.957	237.804	3000	-0.713	135.971	43293	3000
268.0	129.9	43,293.0	3000	394	150	0.059	5467	342	1.871	3,895	1273	4.958	237.839	3000	-0.714	136.054	43320	3000
269.0	130.0	43,319.7	3000	394	150	0.059	5467	342	1.871	3,896	1273	4.959	237.875	3000	-0.714	136.135	43346	3000
270.0	130.0	43,346.0	3000	394	150	0.059	5467	342	1.871	3,897	1273	4.961	237.909	3000	-0.714	136.215	43372	3000
271.0	130.1	43,372.0	3000	394	150	0.059	5467	342	1.871	3,898	1273	4.962	237.944	3000	-0.714	136.294	43398	3000
272.0	130.2	43,397.7	3000	394	150	0.059	5467	342	1.871	3,899	1273	4.963	237.978	3000	-0.714	136.372	43423	3000
273.0	130.3	43,423.0	3000	394	150	0.059	5467	342	1.871	3,900	1273	4.965	238.011	3000	-0.714	136.450	43448	3000
274.0	130.3	43,448.1	3000	394	150	0.059	5467	342	1.871	3,901	1273	4.966	238.044	3000	-0.714	136.526	43473	3000
275.0	130.4	43,472.8	3000	394	150	0.059	5467	342	1.871	3,902	1273	4.967	238.077	3000	-0.714	136.601	43497	3000
276.0	130.5	43,497.2	3000	394	150	0.059	5467	342	1.871	3,903	1273	4.968	238.109	3000	-0.714	136.676	43521	3000
277.0	130.6	43,521.3	3000	394	150	0.059	5467	342	1.871	3,904	1273	4.970	238.141	3000	-0.714	136.749	43545	3000
278.0	130.6	43,545.1	3000	394	150	0.059	5467	342	1.871	3,905	1273	4.971	238.172	3000	-0.715	136.822	43569	3000
279.0	130.7	43,568.6	3000	394	150	0.059	5467	342	1.871	3,906	1273	4.972	238.203	3000	-0.715	136.893	43592	3000
280.0	130.8	43,591.8	3000	394	150	0.059	5467	342	1.871	3,907	1273	4.973	238.234	3000	-0.715	136.964	43615	3000
281.0	130.8	43,614.8	3000	394	150	0.059	5467	342	1.871	3,908	1273	4.975	238.264	3000	-0.715	137.034	43637	3000
282.0	130.9	43,637.4	3000	394	150	0.059	5467	342	1.871	3,909	1273	4.976	238.294	3000	-0.715	137.103	43660	3000
283.0	131.0	43,659.8	3000	394	150	0.059	5467	342	1.871	3,910	1273	4.977	238.324	3000	-0.715	137.171	43682	3000
284.0	131.0	43,681.9	3000	394	150	0.059	5467	342	1.871	3,910	1273	4.978	238.353	3000	-0.715	137.238	43704	3000
285.0	131.1	43,703.7	3000	394	150	0.059	5467	342	1.871	3,911	1273	4.979	238.382	3000	-0.715	137.305	43725	3000
286.0	131.2	43,725.2	3000	394	150	0.059	5467	342	1.871	3,912	1273	4.980	238.410	3000	-0.715	137.371	43747	3000
287.0	131.2	43,746.5	3000	394	150	0.059	5467	342	1.871	3,913	1273	4.981	238.438	3000	-0.715	137.435	43768	3000
288.0	131.3	43,767.5	3000	394	150	0.059	5467	342	1.871	3,914	1273	4.982	238.466	3000	-0.715	137.499	43788	3000
289.0	131.4	43,788.3	3000	394	150	0.059	5467	342	1.871	3,915	1273	4.983	238.493	3000	-0.715	137.563	43809	3000
290.0	131.4	43,808.7	3000	394	150	0.059	5467	342	1.871	3,916	1273	4.985	238.520	3000	-0.716	137.625	43829	3000
291.0	131.5	43,829.0	3000	394	150	0.059	5467	342	1.871	3,916	1273	4.986	238.547	3000	-0.716	137.687	43849	3000
292.0	131.5	43,849.0	3000	394	150	0.059	5467	342	1.871	3,917	1273	4.987	238.573	3000	-0.716	137.748	43869	3000
293.0	131.6	43,868.7	3000	394	150	0.059	5467	342	1.871	3,918	1273	4.988	238.600	3000	-0.716	137.808	43888	3000
294.0	131.7	43,888.2	3000	394	150	0.059	5467	342	1.871	3,919	1273	4.989	238.625	3000	-0.716	137.867	43907	3000
295.0	131.7	43,907.4	3000	394	150	0.059	5466	342	1.871	3,920	1273	4.990	238.651	3000	-0.716	137.926	43926	3000
296.0	131.8	43,926.4	3000	394	150	0.059	5466	342	1.871	3,920	1273	4.991	238.676	3000	-0.716	137.984	43945	3000
297.0	131.8	43,945.2	3000	394	150	0.059	5466	342	1.871	3,921	1273	4.992	238.701	3000	-0.716	138.041	43964	3000
298.0	131.9	43,963.7	3000	394	150	0.059	5466	342	1.871	3,922	1273	4.993	238.725	3000	-0.716	138.097	43982	3000
299.0	131.9	43,982.0	3000	394	150	0.059	5466	342	1.871	3,923	1273	4.993	238.749	3000	-0.716	138.153	44000	3000
300.0	132.0	44,000.1	3000	394	150	0.059	5466	342	1.871	3,923	1273	4.994	238.773	3000	-0.716	138.208	44018	3000
301.0	132.1	44,017.9	3000	394	150	0.059	5466	342	1.871	3,924	1273	4.995	238.797	3000	-0.716	138.263	44036	3000
302.0	132.1	44,035.6	3000	394	150	0.059	5466	342	1.871	3,925	1273	4.996	238.820	3000	-0.716	138.316	44053	3000
303.0	132.2	44,053.0	3000	394	150	0.059	5466	342	1.871	3,925	1273	4.997	238.843	3000	-0.717	138.369	44070	3000
304.0	132.2	44,070.2	3000	394	150	0.059	5466	342	1.871	3,926	1273	4.998	238.866	3000	-0.717	138.422	44087	3000
305.0	132.3	44,087.2	3000	394	150	0.059	5466	342	1.871	3,927	1273	4.999	238.888	3000	-0.717	138.473	44104	3000
306.0	132.3	44,103.9	3000	394	150	0.059	5466	342	1.871	3,928	1273	5.000	238.910	3000	-0.717	138.525	44120	3000
307.0	132.4	44,120.5	3000	394	150	0.059	5466	342	1.871	3,928	1273	5.001	238.932	3000	-0.717	138.575	44137	3000
308.0	132.4	44,136.8	3000	394	150	0.059	5466	342	1.871	3,929	1273	5.001	238.954	3000	-0.717	138.625	44153	3000
309.0	132.5	44,153.0	3000	394	150	0.059	5466	342	1.871	3,930	1273	5.002	238.975	3000	-0.717	138.674	44169	3000
310.0	132.5	44,168.9	3000	394	150	0.059	5466	342	1.871	3,930	1273	5.003	238.996	3000	-0.717	138.723	44185	3000
311.0	132.6	44,184.7	3000	394	150	0.059	5466	342	1.871	3,931	1273	5.004	239.017	3000	-0.717	138.771	44200	3000
312.0	132.6	44,200.2	3000	394	150	0.059	5466	342	1.871	3,931	1273	5.005	239.037	3000	-0.717	138.818	44216	3000
313.0	132.6	44,215.6	3000	394	150	0.059	5466	342	1.871	3,932	1273	5.005	239.058	3000	-0.717	138.865	44231	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
314.0	132.7	44,230.8	3000	394	150	0.059	5466	342	1.871	3,933	1273	5.006	239.078	3000	-0.717	138.911	44246	3000
315.0	132.7	44,245.7	3000	394	150	0.059	5466	342	1.871	3,933	1273	5.007	239.097	3000	-0.717	138.957	44261	3000
316.0	132.8	44,260.5	3000	394	150	0.059	5466	342	1.871	3,934	1273	5.008	239.117	3000	-0.717	139.002	44275	3000
317.0	132.8	44,275.1	3000	394	150	0.059	5466	342	1.871	3,934	1273	5.009	239.136	3000	-0.717	139.046	44290	3000
318.0	132.9	44,289.6	3000	394	150	0.059	5466	342	1.871	3,935	1273	5.009	239.155	3000	-0.717	139.090	44304	3000
319.0	132.9	44,303.8	3000	394	150	0.059	5466	342	1.871	3,936	1273	5.010	239.174	3000	-0.718	139.134	44318	3000
320.0	133.0	44,317.9	3000	394	150	0.059	5466	342	1.871	3,936	1273	5.011	239.193	3000	-0.718	139.176	44332	3000
321.0	133.0	44,331.8	3000	394	150	0.059	5466	342	1.871	3,937	1273	5.011	239.211	3000	-0.718	139.219	44345	3000
322.0	133.0	44,345.5	3000	394	150	0.059	5466	342	1.871	3,937	1273	5.012	239.229	3000	-0.718	139.261	44359	3000
323.0	133.1	44,359.0	3000	394	150	0.059	5466	342	1.871	3,938	1273	5.013	239.247	3000	-0.718	139.302	44372	3000
324.0	133.1	44,372.4	3000	394	150	0.059	5466	342	1.871	3,938	1273	5.014	239.265	3000	-0.718	139.343	44386	3000
325.0	133.2	44,385.6	3000	394	150	0.059	5466	342	1.871	3,939	1273	5.014	239.282	3000	-0.718	139.383	44399	3000
326.0	133.2	44,398.7	3000	394	150	0.059	5466	342	1.871	3,939	1273	5.015	239.300	3000	-0.718	139.423	44412	3000
327.0	133.2	44,411.6	3000	394	150	0.059	5466	342	1.871	3,940	1273	5.016	239.317	3000	-0.718	139.462	44424	3000
328.0	133.3	44,424.3	3000	394	150	0.059	5466	342	1.871	3,940	1273	5.016	239.333	3000	-0.718	139.501	44437	3000
329.0	133.3	44,436.9	3000	394	150	0.059	5466	342	1.871	3,941	1273	5.017	239.350	3000	-0.718	139.539	44449	3000
330.0	133.3	44,449.3	3000	394	150	0.059	5466	342	1.871	3,941	1273	5.018	239.366	3000	-0.718	139.577	44462	3000
331.0	133.4	44,461.5	3000	394	150	0.059	5466	342	1.871	3,942	1273	5.018	239.383	3000	-0.718	139.614	44474	3000
332.0	133.4	44,473.7	3000	394	150	0.059	5466	342	1.871	3,942	1273	5.019	239.399	3000	-0.718	139.651	44486	3000
333.0	133.5	44,485.6	3000	394	150	0.059	5466	342	1.871	3,943	1273	5.019	239.414	3000	-0.718	139.688	44497	3000
334.0	133.5	44,497.4	3000	394	150	0.059	5466	342	1.871	3,943	1273	5.020	239.430	3000	-0.718	139.724	44509	3000
335.0	133.5	44,509.1	3000	394	150	0.059	5466	342	1.871	3,944	1273	5.021	239.445	3000	-0.718	139.759	44521	3000
336.0	133.6	44,520.6	3000	394	150	0.059	5466	342	1.871	3,944	1273	5.021	239.461	3000	-0.718	139.794	44532	3000
337.0	133.6	44,532.0	3000	394	150	0.059	5466	342	1.870	3,945	1273	5.022	239.476	3000	-0.718	139.829	44543	3000
338.0	133.6	44,543.2	3000	394	150	0.059	5466	342	1.870	3,945	1273	5.022	239.490	3000	-0.718	139.863	44554	3000
339.0	133.7	44,554.3	3000	394	150	0.059	5466	342	1.870	3,946	1273	5.023	239.505	3000	-0.719	139.897	44565	3000
340.0	133.7	44,565.2	3000	394	150	0.059	5466	342	1.870	3,946	1273	5.023	239.519	3000	-0.719	139.930	44576	3000
341.0	133.7	44,576.0	3000	394	150	0.059	5466	342	1.870	3,947	1273	5.024	239.534	3000	-0.719	139.963	44587	3000
342.0	133.8	44,586.7	3000	394	150	0.059	5466	342	1.870	3,947	1273	5.025	239.548	3000	-0.719	139.996	44597	3000
343.0	133.8	44,597.3	3000	394	150	0.059	5466	342	1.870	3,947	1273	5.025	239.562	3000	-0.719	140.028	44608	3000
344.0	133.8	44,607.7	3000	394	150	0.059	5466	342	1.870	3,948	1273	5.026	239.576	3000	-0.719	140.060	44618	3000
345.0	133.9	44,618.0	3000	394	150	0.059	5466	342	1.870	3,948	1273	5.026	239.589	3000	-0.719	140.091	44628	3000
346.0	133.9	44,628.1	3000	394	150	0.059	5466	342	1.870	3,949	1273	5.027	239.603	3000	-0.719	140.122	44638	3000
347.0	133.9	44,638.2	3000	394	150	0.059	5466	342	1.870	3,949	1273	5.027	239.616	3000	-0.719	140.152	44648	3000
348.0	133.9	44,648.1	3000	394	150	0.059	5466	342	1.870	3,950	1273	5.028	239.629	3000	-0.719	140.183	44658	3000
349.0	134.0	44,657.9	3000	394	150	0.059	5466	342	1.870	3,950	1273	5.028	239.642	3000	-0.719	140.212	44668	3000
350.0	134.0	44,667.5	3000	394	150	0.059	5466	342	1.870	3,950	1273	5.029	239.655	3000	-0.719	140.242	44677	3000
351.0	134.0	44,677.1	3000	394	150	0.059	5466	342	1.870	3,951	1273	5.029	239.667	3000	-0.719	140.271	44686	3000
352.0	134.1	44,686.5	3000	394	150	0.059	5466	342	1.870	3,951	1273	5.030	239.680	3000	-0.719	140.300	44696	3000
353.0	134.1	44,695.8	3000	394	150	0.059	5466	342	1.870	3,951	1273	5.030	239.692	3000	-0.719	140.328	44705	3000
354.0	134.1	44,705.0	3000	394	150	0.059	5466	342	1.870	3,952	1273	5.031	239.704	3000	-0.719	140.356	44714	3000
355.0	134.1	44,714.1	3000	394	150	0.059	5466	342	1.870	3,952	1273	5.031	239.716	3000	-0.719	140.384	44723	3000
356.0	134.2	44,723.0	3000	394	150	0.059	5466	342	1.870	3,953	1273	5.032	239.728	3000	-0.719	140.411	44732	3000
357.0	134.2	44,731.9	3000	394	150	0.059	5466	342	1.870	3,953	1273	5.032	239.740	3000	-0.719	140.438	44741	3000
358.0	134.2	44,740.6	3000	394	150	0.059	5466	342	1.870	3,953	1273	5.033	239.751	3000	-0.719	140.465	44749	3000
359.0	134.2	44,749.2	3000	394	150	0.059	5466	342	1.870	3,954	1273	5.033	239.763	3000	-0.719	140.491	44758	3000
360.0	134.3	44,757.8	3000	394	150	0.059	5466	342	1.870	3,954	1273	5.033	239.774	3000	-0.719	140.517	44766	3000
361.0	134.3	44,766.2	3000	394	150	0.059	5466	342	1.870	3,954	1273	5.034	239.785	3000	-0.719	140.543	44775	3000
362.0	134.3	44,774.5	3000	394	150	0.059	5466	342	1.870	3,955	1273	5.034	239.796	3000	-0.719	140.568	44783	3000
363.0	134.3	44,782.7	3000	394	150	0.059	5465	342	1.870	3,955	1273	5.035	239.807	3000	-0.719	140.593	44791	3000
364.0	134.4	44,790.8	3000	394	150	0.059	5465	342	1.870	3,955	1273	5.035	239.818	3000	-0.719	140.618	44799	3000
365.0	134.4	44,798.8	3000	394	150	0.059	5465	342	1.870	3,956	1273	5.036	239.828	3000	-0.719	140.642	44807	3000
366.0	134.4	44,806.7	3000	394	150	0.059	5465	342	1.870	3,956	1273	5.036	239.839	3000	-0.720	140.666	44815	3000
367.0	134.4	44,814.5	3000	394	150	0.059	5465	342	1.870	3,956	1273	5.036	239.849	3000	-0.720	140.690	44822	3000
368.0	134.5	44,822.3	3000	394	150	0.059	5465	342	1.870	3,957	1273	5.037	239.859	3000	-0.720	140.713	44830	3000
369.0	134.5	44,829.9	3000	394	150	0.059	5465	342	1.870	3,957	1273	5.037	239.869	3000	-0.720	140.737	44837	3000
370.0	134.5	44,837.4	3000	394	150	0.059	5465	342	1.870	3,957	1273	5.038	239.879	3000	-0.720	140.760	44845	3000
371.0	134.5	44,844.8	3000	394	150	0.059	5465	342	1.870	3,957	1273	5.038	239.889	3000	-0.720	140.782	44852	3000
372.0	134.6	44,852.2	3000	394	150	0.059	5465	342	1.870	3,958	1273	5.038	239.899	3000	-0.720	140.805	44859	3000
373.0	134.6	44,859.4	3000	394	150	0.059	5465	342	1.870	3,958	1273	5.039	239.908	3000	-0.720	140.827	44867	3000
374.0	134.6	44,866.6	3000	394	150	0.059	5465	342	1.870	3,958	1273	5.039	239.918	3000	-0.720	140.848	44874	3000
375.0	134.6	44,873.6	3000	394	150	0.059	5465	342	1.870	3,959	1273	5.039	239.927	3000	-0.720	140.870	44881	3000
376.0	134.6	44,880.6	3000	394	150	0.059	5465	342	1.870	3,959	1273	5.040	239.936	3000	-0.720	140.891	44887	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
377.0	134.7	44,887.5	3000	394	150	0.059	5465	342	1.870	3,959	1273	5.040	239.945	3000	-0.720	140.912	44894	3000
378.0	134.7	44,894.3	3000	394	150	0.059	5465	342	1.870	3,959	1273	5.040	239.954	3000	-0.720	140.933	44901	3000
379.0	134.7	44,901.0	3000	394	150	0.059	5465	342	1.870	3,960	1273	5.041	239.963	3000	-0.720	140.953	44908	3000
380.0	134.7	44,907.6	3000	394	150	0.059	5465	342	1.870	3,960	1273	5.041	239.972	3000	-0.720	140.974	44914	3000
381.0	134.7	44,914.2	3000	394	150	0.059	5465	342	1.870	3,960	1273	5.041	239.981	3000	-0.720	140.994	44921	3000
382.0	134.8	44,920.7	3000	394	150	0.059	5465	342	1.870	3,961	1273	5.042	239.989	3000	-0.720	141.013	44927	3000
383.0	134.8	44,927.1	3000	394	150	0.059	5465	342	1.870	3,961	1273	5.042	239.997	3000	-0.720	141.033	44933	3000
384.0	134.8	44,933.4	3000	394	150	0.059	5465	342	1.870	3,961	1273	5.042	240.006	3000	-0.720	141.052	44940	3000
385.0	134.8	44,939.6	3000	394	150	0.059	5465	342	1.870	3,961	1273	5.043	240.014	3000	-0.720	141.071	44946	3000
386.0	134.8	44,945.8	3000	394	150	0.059	5465	342	1.870	3,962	1273	5.043	240.022	3000	-0.720	141.090	44952	3000
387.0	134.9	44,951.8	3000	394	150	0.059	5465	342	1.870	3,962	1273	5.043	240.030	3000	-0.720	141.108	44958	3000
388.0	134.9	44,957.8	3000	394	150	0.059	5465	342	1.870	3,962	1273	5.044	240.038	3000	-0.720	141.127	44964	3000
389.0	134.9	44,963.8	3000	394	150	0.059	5465	342	1.870	3,962	1273	5.044	240.046	3000	-0.720	141.145	44970	3000
390.0	134.9	44,969.6	3000	394	150	0.059	5465	342	1.870	3,963	1273	5.044	240.054	3000	-0.720	141.162	44975	3000
391.0	134.9	44,975.4	3000	394	150	0.059	5465	342	1.870	3,963	1273	5.045	240.061	3000	-0.720	141.180	44981	3000
392.0	134.9	44,981.1	3000	394	150	0.059	5465	342	1.870	3,963	1273	5.045	240.069	3000	-0.720	141.197	44987	3000
393.0	135.0	44,986.7	3000	394	150	0.059	5465	342	1.870	3,963	1273	5.045	240.076	3000	-0.720	141.215	44992	3000
394.0	135.0	44,992.3	3000	394	150	0.059	5465	342	1.870	3,963	1273	5.045	240.084	3000	-0.720	141.232	44998	3000
395.0	135.0	44,997.8	3000	394	150	0.059	5465	342	1.870	3,964	1273	5.046	240.091	3000	-0.720	141.248	45003	3000
396.0	135.0	45,003.2	3000	394	150	0.059	5465	342	1.870	3,964	1273	5.046	240.098	3000	-0.720	141.265	45009	3000
397.0	135.0	45,008.6	3000	394	150	0.059	5465	342	1.870	3,964	1273	5.046	240.105	3000	-0.720	141.281	45014	3000
398.0	135.0	45,013.9	3000	394	150	0.059	5465	342	1.870	3,964	1273	5.047	240.112	3000	-0.720	141.297	45019	3000
399.0	135.1	45,019.1	3000	394	150	0.059	5465	342	1.870	3,965	1273	5.047	240.119	3000	-0.720	141.313	45024	3000
400.0	135.1	45,024.3	3000	394	150	0.059	5465	342	1.870	3,965	1273	5.047	240.126	3000	-0.720	141.329	45029	3000
401.0	135.1	45,029.4	3000	394	150	0.059	5465	342	1.870	3,965	1273	5.047	240.133	3000	-0.720	141.345	45034	3000
402.0	135.1	45,034.4	3000	394	150	0.059	5465	342	1.870	3,965	1273	5.048	240.139	3000	-0.720	141.360	45039	3000
403.0	135.1	45,039.4	3000	394	150	0.059	5465	342	1.870	3,965	1273	5.048	240.146	3000	-0.720	141.375	45044	3000
404.0	135.1	45,044.3	3000	394	150	0.059	5465	342	1.870	3,966	1273	5.048	240.152	3000	-0.720	141.390	45049	3000
405.0	135.1	45,049.2	3000	394	150	0.059	5465	342	1.870	3,966	1273	5.048	240.159	3000	-0.720	141.405	45054	3000
406.0	135.2	45,054.0	3000	394	150	0.059	5465	342	1.870	3,966	1273	5.049	240.165	3000	-0.720	141.419	45059	3000
407.0	135.2	45,058.7	3000	394	150	0.059	5465	342	1.870	3,966	1273	5.049	240.171	3000	-0.721	141.434	45063	3000
408.0	135.2	45,063.4	3000	394	150	0.059	5465	342	1.870	3,966	1273	5.049	240.178	3000	-0.721	141.448	45068	3000
409.0	135.2	45,068.0	3000	394	150	0.059	5465	342	1.870	3,967	1273	5.049	240.184	3000	-0.721	141.462	45073	3000
410.0	135.2	45,072.5	3000	394	150	0.059	5465	342	1.870	3,967	1273	5.050	240.190	3000	-0.721	141.476	45077	3000
411.0	135.2	45,077.0	3000	394	150	0.059	5465	342	1.870	3,967	1273	5.050	240.196	3000	-0.721	141.490	45081	3000
412.0	135.2	45,081.5	3000	394	150	0.059	5465	342	1.870	3,967	1273	5.050	240.202	3000	-0.721	141.503	45086	3000
413.0	135.3	45,085.9	3000	394	150	0.059	5465	342	1.870	3,967	1273	5.050	240.207	3000	-0.721	141.517	45090	3000
414.0	135.3	45,090.2	3000	394	150	0.059	5465	342	1.870	3,967	1273	5.051	240.213	3000	-0.721	141.530	45094	3000
415.0	135.3	45,094.5	3000	394	150	0.059	5465	342	1.870	3,968	1273	5.051	240.219	3000	-0.721	141.543	45099	3000
416.0	135.3	45,098.7	3000	394	150	0.059	5465	342	1.870	3,968	1273	5.051	240.224	3000	-0.721	141.556	45103	3000
417.0	135.3	45,102.9	3000	394	150	0.059	5465	342	1.870	3,968	1273	5.051	240.230	3000	-0.721	141.569	45107	3000
418.0	135.3	45,107.0	3000	394	150	0.059	5465	342	1.870	3,968	1273	5.051	240.235	3000	-0.721	141.581	45111	3000
419.0	135.3	45,111.1	3000	394	150	0.059	5465	342	1.870	3,968	1273	5.052	240.241	3000	-0.721	141.594	45115	3000
420.0	135.3	45,115.1	3000	394	150	0.059	5465	342	1.870	3,968	1273	5.052	240.246	3000	-0.721	141.606	45119	3000
421.0	135.4	45,119.1	3000	394	150	0.059	5465	342	1.870	3,969	1273	5.052	240.251	3000	-0.721	141.618	45123	3000
422.0	135.4	45,123.0	3000	394	150	0.059	5465	342	1.870	3,969	1273	5.052	240.256	3000	-0.721	141.630	45127	3000
423.0	135.4	45,126.9	3000	394	150	0.059	5465	342	1.870	3,969	1273	5.052	240.262	3000	-0.721	141.642	45131	3000
424.0	135.4	45,130.7	3000	394	150	0.059	5465	342	1.870	3,969	1273	5.053	240.267	3000	-0.721	141.653	45134	3000
425.0	135.4	45,134.5	3000	394	150	0.059	5465	342	1.870	3,969	1273	5.053	240.272	3000	-0.721	141.665	45138	3000
426.0	135.4	45,138.2	3000	394	150	0.059	5465	342	1.870	3,969	1273	5.053	240.276	3000	-0.721	141.676	45142	3000
427.0	135.4	45,141.9	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.053	240.281	3000	-0.721	141.687	45146	3000
428.0	135.4	45,145.5	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.053	240.286	3000	-0.721	141.698	45149	3000
429.0	135.4	45,149.1	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.054	240.291	3000	-0.721	141.709	45153	3000
430.0	135.5	45,152.7	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.054	240.296	3000	-0.721	141.720	45156	3000
431.0	135.5	45,156.2	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.054	240.300	3000	-0.721	141.731	45160	3000
432.0	135.5	45,159.6	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.054	240.305	3000	-0.721	141.741	45163	3000
433.0	135.5	45,163.0	3000	394	150	0.059	5465	342	1.870	3,970	1273	5.054	240.309	3000	-0.721	141.752	45166	3000
434.0	135.5	45,166.4	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.054	240.314	3000	-0.721	141.762	45170	3000
435.0	135.5	45,169.7	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.055	240.318	3000	-0.721	141.772	45173	3000
436.0	135.5	45,173.0	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.055	240.322	3000	-0.721	141.782	45176	3000
437.0	135.5	45,176.3	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.055	240.327	3000	-0.721	141.792	45179	3000
438.0	135.5	45,179.5	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.055	240.331	3000	-0.721	141.802	45183	3000
439.0	135.5	45,182.7	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.055	240.335	3000	-0.721	141.812	45186	3000

TABLE 34. CHEMICAL BALANCE MODEL RESULTS FOR GTO PIT

TIME	INITIAL PIT CONDITONS			INPUT TO PIT						GW INPUT OR OUTPUT FROM PIT			OUTPUT FROM PIT			FINAL PIT CONDITIONS		
Current Year	Initial Mass in Pit (tons)	Initial Water in Pit (tons)	Initial Concentration (ppm)	Surface Water Run-off to Pit (tons)	Concentration in Surface Water (ppm)	Mass into Pit from Surface Water (tons)	Pit Wall Run off to Pit (tons)	Concentration in Pit Wall Run off (ppm)	Mass into Pit from Wall Run-off (tons)	Groundwater Inflow to Pit from Shallow Aquifer (tons)	Concentration in Groundwater Inflow from Shallow Aquifer (ppm)	Mass into Pit from Shallow Aquifer Groundwater (tons)	Leakage from Pit to Deep Aquifer (tons)	Concentration of water in pit (ppm)	Mass from Pit by Leakage to Deep Aquifer (tons)	Chemical Mass in Pit at end of timestep (tons)	Water in Pit at end of timestep (tons)	Concentration in Pit at end of timestep (ppm)
440.0	135.6	45,185.8	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.055	240.339	3000	-0.721	141.821	45189	3000
441.0	135.6	45,188.9	3000	394	150	0.059	5465	342	1.870	3,971	1273	5.056	240.343	3000	-0.721	141.831	45192	3000
442.0	135.6	45,191.9	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.056	240.347	3000	-0.721	141.840	45195	3000
443.0	135.6	45,194.9	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.056	240.351	3000	-0.721	141.849	45198	3000
444.0	135.6	45,197.9	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.056	240.355	3000	-0.721	141.858	45201	3000
445.0	135.6	45,200.9	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.056	240.359	3000	-0.721	141.867	45204	3000
446.0	135.6	45,203.8	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.056	240.363	3000	-0.721	141.876	45207	3000
447.0	135.6	45,206.6	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.057	240.367	3000	-0.721	141.885	45209	3000
448.0	135.6	45,209.5	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.057	240.371	3000	-0.721	141.893	45212	3000
449.0	135.6	45,212.3	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.057	240.374	3000	-0.721	141.902	45215	3000
450.0	135.6	45,215.0	3000	394	150	0.059	5465	342	1.870	3,972	1273	5.057	240.378	3000	-0.721	141.910	45218	3000
451.0	135.7	45,217.7	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.057	240.382	3000	-0.721	141.919	45220	3000
452.0	135.7	45,220.4	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.057	240.385	3000	-0.721	141.927	45223	3000
453.0	135.7	45,223.1	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.057	240.389	3000	-0.721	141.935	45226	3000
454.0	135.7	45,225.7	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.058	240.392	3000	-0.721	141.943	45228	3000
455.0	135.7	45,228.3	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.058	240.396	3000	-0.721	141.951	45231	3000
456.0	135.7	45,230.9	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.058	240.399	3000	-0.721	141.959	45233	3000
457.0	135.7	45,233.4	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.058	240.402	3000	-0.721	141.966	45236	3000
458.0	135.7	45,235.9	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.058	240.406	3000	-0.721	141.974	45238	3000
459.0	135.7	45,238.4	3000	394	150	0.059	5465	342	1.870	3,973	1273	5.058	240.409	3000	-0.721	141.981	45241	3000
460.0	135.7	45,240.8	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.058	240.412	3000	-0.721	141.989	45243	3000
461.0	135.7	45,243.2	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.058	240.415	3000	-0.721	141.996	45246	3000
462.0	135.7	45,245.6	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.418	3000	-0.721	142.003	45248	3000
463.0	135.7	45,247.9	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.421	3000	-0.721	142.011	45250	3000
464.0	135.8	45,250.3	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.425	3000	-0.721	142.018	45253	3000
465.0	135.8	45,252.5	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.428	3000	-0.721	142.025	45255	3000
466.0	135.8	45,254.8	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.431	3000	-0.721	142.031	45257	3000
467.0	135.8	45,257.0	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.433	3000	-0.721	142.038	45259	3000
468.0	135.8	45,259.2	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.436	3000	-0.721	142.045	45261	3000
469.0	135.8	45,261.4	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.439	3000	-0.721	142.052	45264	3000
470.0	135.8	45,263.6	3000	394	150	0.059	5465	342	1.870	3,974	1273	5.059	240.442	3000	-0.721	142.058	45266	3000
471.0	135.8	45,265.7	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.445	3000	-0.721	142.065	45268	3000
472.0	135.8	45,267.8	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.448	3000	-0.721	142.071	45270	3000
473.0	135.8	45,269.8	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.450	3000	-0.721	142.077	45272	3000
474.0	135.8	45,271.9	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.453	3000	-0.721	142.084	45274	3000
475.0	135.8	45,273.9	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.456	3000	-0.721	142.090	45276	3000
476.0	135.8	45,275.9	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.458	3000	-0.721	142.096	45278	3000
477.0	135.8	45,277.9	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.461	3000	-0.721	142.102	45280	3000
478.0	135.8	45,279.8	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.464	3000	-0.721	142.108	45282	3000
479.0	135.8	45,281.7	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.466	3000	-0.721	142.114	45284	3000
480.0	135.9	45,283.6	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.060	240.469	3000	-0.721	142.119	45286	3000
481.0	135.9	45,285.5	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.061	240.471	3000	-0.721	142.125	45287	3000
482.0	135.9	45,287.4	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.061	240.474	3000	-0.721	142.131	45289	3000
483.0	135.9	45,289.2	3000	394	150	0.059	5465	342	1.870	3,975	1273	5.061	240.476	3000	-0.721	142.136	45291	3000
484.0	135.9	45,291.0	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.478	3000	-0.721	142.142	45293	3000
485.0	135.9	45,292.8	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.481	3000	-0.721	142.147	45295	3000
486.0	135.9	45,294.5	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.483	3000	-0.721	142.152	45296	3000
487.0	135.9	45,296.3	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.485	3000	-0.721	142.158	45298	3000
488.0	135.9	45,298.0	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.488	3000	-0.721	142.163	45300	3000
489.0	135.9	45,299.7	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.490	3000	-0.721	142.168	45301	3000
490.0	135.9	45,301.3	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.492	3000	-0.721	142.173	45303	3000
491.0	135.9	45,303.0	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.061	240.494	3000	-0.721	142.178	45305	3000
492.0	135.9	45,304.6	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.496	3000	-0.721	142.183	45306	3000
493.0	135.9	45,306.2	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.499	3000	-0.721	142.188	45308	3000
494.0	135.9	45,307.8	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.501	3000	-0.722	142.193	45309	3000
495.0	135.9	45,309.4	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.503	3000	-0.722	142.198	45311	3000
496.0	135.9	45,311.0	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.505	3000	-0.722	142.203	45312	3000
497.0	135.9	45,312.5	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.507	3000	-0.722	142.207	45314	3000
498.0	135.9	45,314.0	3000	394	150	0.059	5465	342	1.870	3,976	1273	5.062	240.509	3000	-0.722	142.212	45315	3000
499.0	135.9	45,315.5	3000	394	150	0.059	5465	342	1.870	3,977	1273	5.062	240.511	3000	-0.722	142.216	45317	3000
500.0	136.0	45,317.0	3000	394	150	0.059	5465	342	1.870	3,977	1273	5.062	240.513	3000	-0.722	142.221	45318	3000

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
0.00	0.0	1.27E-09	1273	11212	448	5.0	12076	2039	24.6	-1275.6	329.8	-0.4	18746	1273	24	6.2	5818	1066
1.00	5818	6.203	1066	11210	448	5.0	12073	2039	24.6	-1193.9	329.7	-0.4	18752	1066	20.0	16.2	11543	1407
2.00	11543	16.243	1407	11208	448	5.0	12071	2039	24.6	-14390.0	1960.6	-28.2	18759	1407	26.4	47.7	30453	1566
3.00	30453	47.693	1566	11183	448	5.0	12045	2039	24.6	-3309.3	623.0	-2.1	18728	1566	29.3	50.0	38262	1307
4.00	38262	49.993	1307	11181	448	5.0	12043	2039	24.6	-3181.0	539.6	-1.7	18733	1307	24.5	56.8	45934	1237
5.00	45934	56.797	1237	11179	448	5.0	12041	2039	24.6	-3054.9	519.3	-1.6	18738	1237	23.2	64.8	53471	1211
6.00	53471	64.774	1211	11178	448	5.0	12038	2039	24.5	-2931.0	518.6	-1.5	18743	1211	22.7	73.1	60876	1202
7.00	60876	73.143	1202	11176	448	5.0	12036	2039	24.5	-2809.3	525.8	-1.5	18747	1202	22.5	81.6	68150	1198
8.0	68150	81.644	1198	11174	448	5.0	12035	2039	24.5	-2689.8	536.7	-1.4	18752	1198	22.5	90.2	75296	1198
9.0	75296	90.167	1198	11172	448	5.0	12033	2039	24.5	-2572.4	549.8	-1.4	18757	1198	22.5	98.7	82316	1199
10.0	82316	98.660	1199	11170	448	5.0	12031	2039	24.5	-2457.0	564.4	-1.4	18761	1199	22.5	107.1	89213	1200
11.0	89213	107.095	1200	11169	448	5.0	12029	2039	24.5	-2343.6	579.9	-1.4	18765	1200	22.5	115.5	95989	1203
12.0	95989	115.458	1203	11167	448	5.0	12027	2039	24.5	-2232.3	596.3	-1.3	18770	1203	22.6	123.7	102645	1205
13.0	102645	123.738	1205	11165	448	5.0	12025	2039	24.5	-2122.8	613.6	-1.3	18774	1205	22.6	131.9	109185	1208
14.0	109185	131.930	1208	11164	448	5.0	12023	2039	24.5	-2015.4	631.5	-1.3	18778	1208	22.7	140.0	115609	1211
15.0	115609	140.030	1211	11162	448	5.0	12022	2039	24.5	-1909.8	650.3	-1.2	18782	1211	22.7	148.0	121920	1214
16.0	121920	148.035	1214	11160	448	5.0	12020	2039	24.5	-1806.0	669.8	-1.2	18786	1214	22.8	155.9	128120	1217
17.0	128120	155.943	1217	11159	448	5.0	12018	2039	24.5	-1704.1	690.1	-1.2	18790	1217	22.9	163.8	134212	1220
18.0	134212	163.753	1220	11157	448	5.0	12017	2039	24.5	-1604.0	711.2	-1.1	18794	1220	22.9	171.5	140196	1223
19.0	140196	171.464	1223	11156	448	5.0	12015	2039	24.5	-1505.6	733.2	-1.1	18798	1223	23.0	179.1	146074	1226
20.0	146074	179.074	1226	11154	448	5.0	12013	2039	24.5	-1409.0	756.1	-1.1	18801	1226	23.0	186.6	151849	1229
21.0	151849	186.583	1229	11153	448	5.0	12012	2039	24.5	-1314.0	779.8	-1.0	18805	1229	23.1	194.0	157523	1232
22.0	157523	193.990	1232	11151	448	5.0	12010	2039	24.5	-1220.8	804.6	-1.0	18809	1232	23.2	201.3	163097	1234
23.0	163097	201.294	1234	11150	448	5.0	12009	2039	24.5	-1129.2	830.3	-0.9	18812	1234	23.2	208.5	168573	1237
24.0	168573	208.495	1237	11149	448	5.0	12007	2039	24.5	-1039.1	857.1	-0.9	18816	1237	23.3	215.6	173952	1239
25.0	173952	215.591	1239	11147	448	5.0	12006	2039	24.5	-950.7	885.0	-0.8	18819	1239	23.3	222.6	179237	1242
26.0	179237	222.583	1242	11146	448	5.0	12004	2039	24.5	-863.8	914.1	-0.8	18822	1242	23.4	229.5	184429	1244
27.0	184429	229.469	1244	11145	448	5.0	12003	2039	24.5	-778.5	944.4	-0.7	18826	1244	23.4	236.2	189529	1246
28.0	189529	236.248	1246	11143	448	5.0	12002	2039	24.5	-694.6	976.0	-0.7	18829	1246	23.5	242.9	194540	1249
29.0	194540	242.919	1249	11142	448	5.0	12000	2039	24.5	-612.2	1009.0	-0.6	18832	1249	23.5	249.5	199463	1251
30.0	199463	249.482	1251	11141	448	5.0	11999	2039	24.5	-531.3	1043.3	-0.6	18835	1251	23.6	255.9	204299	1253
31.0	204299	255.935	1253	11140	448	5.0	11998	2039	24.5	-451.8	1079.2	-0.5	18838	1253	23.6	262.3	209050	1255
32.0	209050	262.277	1255	11138	448	5.0	11996	2039	24.5	-373.7	1116.6	-0.4	18841	1255	23.6	268.5	213717	1256
33.0	213717	268.507	1256	11137	448	5.0	11995	2039	24.5	-296.9	1155.7	-0.3	18844	1256	23.7	274.6	218302	1258
34.0	218302	274.622	1258	11136	448	5.0	11994	2039	24.5	-221.5	1196.5	-0.3	18847	1258	23.7	280.6	222807	1259
35.0	222807	280.623	1259	11135	448	5.0	11993	2039	24.5	-147.5	1239.1	-0.2	18850	1259	23.7	286.5	227232	1261
36.0	227232	286.506	1261	11134	448	5.0	11991	2039	24.5	-74.7	1283.7	-0.1	18853	1261	23.8	292.3	231580	1262
37.0	231580	292.270	1262	11133	448	5.0	11990	2039	24.4	-3.2	1330.3	0.0	18855	1262	23.8	297.9	235851	1263
38.0	235851	297.913	1263	11132	448	5.0	11989	2039	24.4	67.0	1264.0	0.1	18858	1263	23.8	303.4	240047	1264
39.0	240047	303.441	1264	11131	448	5.0	11988	2039	24.4	136.0	1264.9	0.2	18861	1264	23.8	308.9	244169	1265
40.0	244169	308.858	1265	11130	448	5.0	11987	2039	24.4	203.8	1265.6	0.3	18863	1265	23.9	314.2	248218	1266
41.0	248218	314.166	1266	11129	448	5.0	11986	2039	24.4	270.4	1266.3	0.3	18866	1266	23.9	319.4	252197	1266
42.0	252197	319.370	1266	11128	448	5.0	11985	2039	24.4	335.8	1266.9	0.4	18868	1266	23.9	324.5	256105	1267
43.0	256105	324.473	1267	11127	448	5.0	11984	2039	24.4	400.0	1267.5	0.5	18871	1267	23.9	329.5	259944	1267
44.0	259944	329.477	1267	11126	448	5.0	11983	2039	24.4	463.2	1267.9	0.6	18873	1267	23.9	334.4	263716	1268
45.0	263716	334.385	1268	11125	448	5.0	11982	2039	24.4	525.2	1268.4	0.7	18876	1268	23.9	339.2	267422	1268
46.0	267422	339.200	1268	11124	448	5.0	11981	2039	24.4	586.1	1268.8	0.7	18878	1268	23.9	343.9	271062	1269
47.0	271062	343.923	1269	11123	448	5.0	11980	2039	24.4	646.0	1269.1	0.8	18880	1269	24.0	348.6	274639	1269
48.0	274639	348.558	1269	11122	448	5.0	11979	2039	24.4	704.8	1269.4	0.9	18882	1269	24.0	353.1	278152	1269
49.0	278152	353.106	1269	11121	448	5.0	11978	2039	24.4	762.6	1269.7	1.0	18885	1269	24.0	357.6	281604	1270
50.0	281604	357.569	1270	11120	448	5.0	11977	2039	24.4	819.3	1270.0	1.0	18887	1270	24.0	361.9	284995	1270
51.0	284995	361.949	1270	11119	448	5.0	11976	2039	24.4	875.1	1270.2	1.1	18889	1270	24.0	366.2	288326	1270
52.0	288326	366.249	1270	11119	448	5.0	11975	2039	24.4	929.9	1270.5	1.2	18891	1270	24.0	370.5	291599	1270
53.0	291599	370.469	1270	11118	448	5.0	11974	2039	24.4	983.7	1270.7	1.2	18893	1270	24.0	374.6	294814	1271
54.0	294814	374.612	1271	11117	448	5.0	11973	2039	24.4	1036.6	1270.8	1.3	18895	1271	24.0	378.7	297972	1271
55.0	297972	378.679	1271	11116	448	5.0	11972	2039	24.4	1088.5	1271.0	1.4	18897	1271	24.0	382.7	301075	1271

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
56.0	301075	382.672	1271	11115	448	5.0	11972	2039	24.4	1139.6	1271.2	1.4	18899	1271	24.0	386.6	304124	1271
57.0	304124	386.592	1271	11115	448	5.0	11971	2039	24.4	1189.7	1271.3	1.5	18901	1271	24.0	390.4	307118	1271
58.0	307118	390.441	1271	11114	448	5.0	11970	2039	24.4	1238.9	1271.4	1.6	18903	1271	24.0	394.2	310061	1271
59.0	310061	394.220	1271	11113	448	5.0	11969	2039	24.4	1287.3	1271.5	1.6	18905	1271	24.0	397.9	312951	1272
60.0	312951	397.931	1272	11112	448	5.0	11968	2039	24.4	1334.9	1271.6	1.7	18906	1272	24.0	401.6	315790	1272
61.0	315790	401.575	1272	11112	448	5.0	11968	2039	24.4	1381.6	1271.7	1.8	18908	1272	24.0	405.2	318580	1272
62.0	318580	405.153	1272	11111	448	5.0	11967	2039	24.4	1427.4	1271.8	1.8	18910	1272	24.0	408.7	321320	1272
63.0	321320	408.667	1272	11110	448	5.0	11966	2039	24.4	1472.5	1271.9	1.9	18912	1272	24.1	412.1	324012	1272
64.0	324012	412.118	1272	11110	448	5.0	11965	2039	24.4	1516.8	1272.0	1.9	18913	1272	24.1	415.5	326657	1272
65.0	326657	415.507	1272	11109	448	5.0	11965	2039	24.4	1560.3	1272.1	2.0	18915	1272	24.1	418.8	329256	1272
66.0	329256	418.835	1272	11108	448	5.0	11964	2039	24.4	1603.0	1272.1	2.0	18917	1272	24.1	422.1	331808	1272
67.0	331808	422.103	1272	11108	448	5.0	11963	2039	24.4	1645.0	1272.2	2.1	18918	1272	24.1	425.3	334316	1272
68.0	334316	425.313	1272	11107	448	5.0	11963	2039	24.4	1686.3	1272.2	2.1	18920	1272	24.1	428.5	336779	1272
69.0	336779	428.466	1272	11106	448	5.0	11962	2039	24.4	1726.8	1272.3	2.2	18921	1272	24.1	431.6	339200	1272
70.0	339200	431.563	1272	11106	448	5.0	11961	2039	24.4	1766.6	1272.3	2.2	18923	1272	24.1	434.6	341577	1272
71.0	341577	434.604	1272	11105	448	5.0	11961	2039	24.4	1805.7	1272.4	2.3	18924	1272	24.1	437.6	343913	1272
72.0	343913	437.591	1272	11105	448	5.0	11960	2039	24.4	1844.1	1272.4	2.3	18926	1272	24.1	440.5	346208	1272
73.0	346208	440.525	1272	11104	448	5.0	11959	2039	24.4	1881.9	1272.5	2.4	18927	1272	24.1	443.4	348462	1272
74.0	348462	443.406	1272	11103	448	5.0	11959	2039	24.4	1918.9	1272.5	2.4	18929	1272	24.1	446.2	350677	1273
75.0	350677	446.237	1273	11103	448	5.0	11958	2039	24.4	1955.4	1272.5	2.5	18930	1273	24.1	449.0	352853	1273
76.0	352853	449.017	1273	11102	448	5.0	11958	2039	24.4	1991.1	1272.6	2.5	18931	1273	24.1	451.7	354990	1273
77.0	354990	451.748	1273	11102	448	5.0	11957	2039	24.4	2026.3	1272.6	2.6	18933	1273	24.1	454.4	357090	1273
78.0	357090	454.430	1273	11101	448	5.0	11956	2039	24.4	2060.8	1272.6	2.6	18934	1273	24.1	457.1	359153	1273
79.0	359153	457.064	1273	11101	448	5.0	11956	2039	24.4	2094.8	1272.6	2.7	18935	1273	24.1	459.7	361180	1273
80.0	361180	459.652	1273	11100	448	5.0	11955	2039	24.4	2128.1	1272.7	2.7	18936	1273	24.1	462.2	363171	1273
81.0	363171	462.194	1273	11100	448	5.0	11955	2039	24.4	2160.9	1272.7	2.8	18938	1273	24.1	464.7	365127	1273
82.0	365127	464.691	1273	11099	448	5.0	11954	2039	24.4	2193.0	1272.7	2.8	18939	1273	24.1	467.1	367048	1273
83.0	367048	467.144	1273	11099	448	5.0	11954	2039	24.4	2224.6	1272.7	2.8	18940	1273	24.1	469.6	368936	1273
84.0	368936	469.553	1273	11098	448	5.0	11953	2039	24.4	2255.7	1272.7	2.9	18941	1273	24.1	471.9	370790	1273
85.0	370790	471.920	1273	11098	448	5.0	11953	2039	24.4	2286.2	1272.8	2.9	18942	1273	24.1	474.2	372612	1273
86.0	372612	474.245	1273	11097	448	5.0	11952	2039	24.4	2316.2	1272.8	2.9	18944	1273	24.1	476.5	374402	1273
87.0	374402	476.528	1273	11097	448	5.0	11952	2039	24.4	2345.6	1272.8	3.0	18945	1273	24.1	478.8	376160	1273
88.0	376160	478.772	1273	11097	448	5.0	11951	2039	24.4	2374.5	1272.8	3.0	18946	1273	24.1	481.0	377888	1273
89.0	377888	480.975	1273	11096	448	5.0	11951	2039	24.4	2402.9	1272.8	3.1	18947	1273	24.1	483.1	379585	1273
90.0	379585	483.140	1273	11096	448	5.0	11950	2039	24.4	2430.9	1272.8	3.1	18948	1273	24.1	485.3	381252	1273
91.0	381252	485.266	1273	11095	448	5.0	11950	2039	24.4	2458.3	1272.8	3.1	18949	1273	24.1	487.4	382890	1273
92.0	382890	487.355	1273	11095	448	5.0	11949	2039	24.4	2485.2	1272.8	3.2	18950	1273	24.1	489.4	384499	1273
93.0	384499	489.407	1273	11094	448	5.0	11949	2039	24.4	2511.7	1272.9	3.2	18951	1273	24.1	491.4	386080	1273
94.0	386080	491.422	1273	11094	448	5.0	11949	2039	24.4	2537.7	1272.9	3.2	18952	1273	24.1	493.4	387632	1273
95.0	387632	493.402	1273	11094	448	5.0	11948	2039	24.4	2563.2	1272.9	3.3	18953	1273	24.1	495.3	389158	1273
96.0	389158	495.347	1273	11093	448	5.0	11948	2039	24.4	2588.3	1272.9	3.3	18954	1273	24.1	497.3	390657	1273
97.0	390657	497.258	1273	11093	448	5.0	11947	2039	24.4	2613.0	1272.9	3.3	18955	1273	24.1	499.1	392129	1273
98.0	392129	499.135	1273	11093	448	5.0	11947	2039	24.4	2637.2	1272.9	3.4	18956	1273	24.1	501.0	393576	1273
99.0	393576	500.979	1273	11092	448	5.0	11947	2039	24.4	2661.0	1272.9	3.4	18957	1273	24.1	502.8	394997	1273
100.0	394997	502.790	1273	11092	448	5.0	11946	2039	24.4	2684.4	1272.9	3.4	18957	1273	24.1	504.6	396393	1273
101.0	396393	504.570	1273	11091	448	5.0	11946	2039	24.4	2707.4	1272.9	3.4	18958	1273	24.1	506.3	397764	1273
102.0	397764	506.318	1273	11091	448	5.0	11945	2039	24.4	2729.9	1272.9	3.5	18959	1273	24.1	508.0	399112	1273
103.0	399112	508.035	1273	11091	448	5.0	11945	2039	24.4	2752.1	1272.9	3.5	18960	1273	24.1	509.7	400435	1273
104.0	400435	509.722	1273	11090	448	5.0	11945	2039	24.4	2773.9	1272.9	3.5	18961	1273	24.1	511.4	401736	1273
105.0	401736	511.379	1273	11090	448	5.0	11944	2039	24.4	2795.2	1272.9	3.6	18962	1273	24.1	513.0	403013	1273
106.0	403013	513.007	1273	11090	448	5.0	11944	2039	24.4	2816.3	1272.9	3.6	18962	1273	24.1	514.6	404268	1273
107.0	404268	514.606	1273	11089	448	5.0	11944	2039	24.4	2836.9	1272.9	3.6	18963	1273	24.1	516.2	405501	1273
108.0	405501	516.177	1273	11089	448	5.0	11943	2039	24.4	2857.2	1272.9	3.6	18964	1273	24.1	517.7	406712	1273
109.0	406712	517.720	1273	11089	448	5.0	11943	2039	24.4	2877.1	1272.9	3.7	18965	1273	24.1	519.2	407902	1273
110.0	407902	519.236	1273	11089	448	5.0	11943	2039	24.4	2896.7	1272.9	3.7	18965	1273	24.1	520.7	409071	1273
111.0	409071	520.725	1273	11088	448	5.0	11942	2039	24.4	2915.9	1272.9	3.7	18966	1273	24.1	522.2	410220	1273
112.0	410220	522.189	1273	11088	448	5.0	11942	2039	24.3	2934.8	1273.0	3.7	18967	1273	24.1	523.6	411348	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
113.0	411348	523.626	1273	11088	448	5.0	11942	2039	24.3	2953.4	1273.0	3.8	18968	1273	24.1	525.0	412456	1273
114.0	412456	525.038	1273	11087	448	5.0	11941	2039	24.3	2971.6	1273.0	3.8	18968	1273	24.1	526.4	413545	1273
115.0	413545	526.425	1273	11087	448	5.0	11941	2039	24.3	2989.5	1273.0	3.8	18969	1273	24.1	527.8	414615	1273
116.0	414615	527.788	1273	11087	448	5.0	11941	2039	24.3	3007.1	1273.0	3.8	18970	1273	24.1	529.1	415666	1273
117.0	415666	529.126	1273	11087	448	5.0	11941	2039	24.3	3024.4	1273.0	3.8	18970	1273	24.1	530.4	416698	1273
118.0	416698	530.442	1273	11086	448	5.0	11940	2039	24.3	3041.4	1273.0	3.9	18971	1273	24.1	531.7	417712	1273
119.0	417712	531.733	1273	11086	448	5.0	11940	2039	24.3	3058.1	1273.0	3.9	18972	1273	24.2	533.0	418709	1273
120.0	418709	533.003	1273	11086	448	5.0	11940	2039	24.3	3074.5	1273.0	3.9	18972	1273	24.2	534.2	419688	1273
121.0	419688	534.249	1273	11086	448	5.0	11939	2039	24.3	3090.6	1273.0	3.9	18973	1273	24.2	535.5	420649	1273
122.0	420649	535.474	1273	11085	448	5.0	11939	2039	24.3	3106.4	1273.0	4.0	18973	1273	24.2	536.7	421594	1273
123.0	421594	536.678	1273	11085	448	5.0	11939	2039	24.3	3121.9	1273.0	4.0	18974	1273	24.2	537.9	422522	1273
124.0	422522	537.860	1273	11085	448	5.0	11939	2039	24.3	3137.2	1273.0	4.0	18975	1273	24.2	539.0	423434	1273
125.0	423434	539.021	1273	11085	448	5.0	11938	2039	24.3	3152.2	1273.0	4.0	18975	1273	24.2	540.2	424330	1273
126.0	424330	540.162	1273	11084	448	5.0	11938	2039	24.3	3166.9	1273.0	4.0	18976	1273	24.2	541.3	425210	1273
127.0	425210	541.283	1273	11084	448	5.0	11938	2039	24.3	3181.4	1273.0	4.0	18976	1273	24.2	542.4	426074	1273
128.0	426074	542.384	1273	11084	448	5.0	11938	2039	24.3	3195.6	1273.0	4.1	18977	1273	24.2	543.5	426923	1273
129.0	426923	543.465	1273	11084	448	5.0	11937	2039	24.3	3209.6	1273.0	4.1	18977	1273	24.2	544.5	427758	1273
130.0	427758	544.528	1273	11084	448	5.0	11937	2039	24.3	3223.3	1273.0	4.1	18978	1273	24.2	545.6	428577	1273
131.0	428577	545.572	1273	11083	448	5.0	11937	2039	24.3	3236.8	1273.0	4.1	18978	1273	24.2	546.6	429383	1273
132.0	429383	546.597	1273	11083	448	5.0	11937	2039	24.3	3250.1	1273.0	4.1	18979	1273	24.2	547.6	430174	1273
133.0	430174	547.604	1273	11083	448	5.0	11937	2039	24.3	3263.1	1273.0	4.2	18979	1273	24.2	548.6	430951	1273
134.0	430951	548.594	1273	11083	448	5.0	11936	2039	24.3	3275.9	1273.0	4.2	18980	1273	24.2	549.6	431714	1273
135.0	431714	549.566	1273	11083	448	5.0	11936	2039	24.3	3288.4	1273.0	4.2	18980	1273	24.2	550.5	432464	1273
136.0	432464	550.522	1273	11082	448	5.0	11936	2039	24.3	3300.8	1273.0	4.2	18981	1273	24.2	551.5	433201	1273
137.0	433201	551.460	1273	11082	448	5.0	11936	2039	24.3	3312.9	1273.0	4.2	18981	1273	24.2	552.4	433925	1273
138.0	433925	552.382	1273	11082	448	5.0	11936	2039	24.3	3324.8	1273.0	4.2	18982	1273	24.2	553.3	434636	1273
139.0	434636	553.287	1273	11082	448	5.0	11935	2039	24.3	3336.5	1273.0	4.2	18982	1273	24.2	554.2	435335	1273
140.0	435335	554.177	1273	11082	448	5.0	11935	2039	24.3	3348.0	1273.0	4.3	18982	1273	24.2	555.1	436021	1273
141.0	436021	555.051	1273	11081	448	5.0	11935	2039	24.3	3359.3	1273.0	4.3	18983	1273	24.2	555.9	436696	1273
142.0	436696	555.910	1273	11081	448	5.0	11935	2039	24.3	3370.4	1273.0	4.3	18983	1273	24.2	556.8	437358	1273
143.0	437358	556.753	1273	11081	448	5.0	11935	2039	24.3	3381.3	1273.0	4.3	18984	1273	24.2	557.6	438009	1273
144.0	438009	557.582	1273	11081	448	5.0	11934	2039	24.3	3392.0	1273.0	4.3	18984	1273	24.2	558.4	438648	1273
145.0	438648	558.396	1273	11081	448	5.0	11934	2039	24.3	3402.5	1273.0	4.3	18985	1273	24.2	559.2	439276	1273
146.0	439276	559.195	1273	11081	448	5.0	11934	2039	24.3	3412.8	1273.0	4.3	18985	1273	24.2	560.0	439893	1273
147.0	439893	559.981	1273	11081	448	5.0	11934	2039	24.3	3423.0	1273.0	4.4	18985	1273	24.2	560.8	440500	1273
148.0	440500	560.753	1273	11080	448	5.0	11934	2039	24.3	3433.0	1273.0	4.4	18986	1273	24.2	561.5	441095	1273
149.0	441095	561.511	1273	11080	448	5.0	11934	2039	24.3	3442.8	1273.0	4.4	18986	1273	24.2	562.3	441680	1273
150.0	441680	562.256	1273	11080	448	5.0	11933	2039	24.3	3452.4	1273.0	4.4	18986	1273	24.2	563.0	442255	1273
151.0	442255	562.988	1273	11080	448	5.0	11933	2039	24.3	3461.8	1273.0	4.4	18987	1273	24.2	563.7	442819	1273
152.0	442819	563.707	1273	11080	448	5.0	11933	2039	24.3	3471.1	1273.0	4.4	18987	1273	24.2	564.4	443374	1273
153.0	443374	564.413	1273	11080	448	5.0	11933	2039	24.3	3480.3	1273.0	4.4	18987	1273	24.2	565.1	443919	1273
154.0	443919	565.107	1273	11080	448	5.0	11933	2039	24.3	3489.2	1273.0	4.4	18988	1273	24.2	565.8	444454	1273
155.0	444454	565.788	1273	11079	448	5.0	11933	2039	24.3	3498.0	1273.0	4.5	18988	1273	24.2	566.5	444980	1273
156.0	444980	566.458	1273	11079	448	5.0	11933	2039	24.3	3506.7	1273.0	4.5	18988	1273	24.2	567.1	445497	1273
157.0	445497	567.116	1273	11079	448	5.0	11932	2039	24.3	3515.2	1273.0	4.5	18989	1273	24.2	567.8	446005	1273
158.0	446005	567.762	1273	11079	448	5.0	11932	2039	24.3	3523.5	1273.0	4.5	18989	1273	24.2	568.4	446503	1273
159.0	446503	568.397	1273	11079	448	5.0	11932	2039	24.3	3531.7	1273.0	4.5	18989	1273	24.2	569.0	446993	1273
160.0	446993	569.021	1273	11079	448	5.0	11932	2039	24.3	3539.8	1273.0	4.5	18990	1273	24.2	569.6	447474	1273
161.0	447474	569.634	1273	11079	448	5.0	11932	2039	24.3	3547.7	1273.0	4.5	18990	1273	24.2	570.2	447947	1273
162.0	447947	570.235	1273	11078	448	5.0	11932	2039	24.3	3555.5	1273.0	4.5	18990	1273	24.2	570.8	448412	1273
163.0	448412	570.827	1273	11078	448	5.0	11932	2039	24.3	3563.1	1273.0	4.5	18991	1273	24.2	571.4	448868	1273
164.0	448868	571.408	1273	11078	448	5.0	11932	2039	24.3	3570.7	1273.0	4.5	18991	1273	24.2	572.0	449316	1273
165.0	449316	571.979	1273	11078	448	5.0	11931	2039	24.3	3578.0	1273.0	4.6	18991	1273	24.2	572.5	449757	1273
166.0	449757	572.539	1273	11078	448	5.0	11931	2039	24.3	3585.3	1273.0	4.6	18991	1273	24.2	573.1	450189	1273
167.0	450189	573.090	1273	11078	448	5.0	11931	2039	24.3	3592.4	1273.0	4.6	18992	1273	24.2	573.6	450614	1273
168.0	450614	573.631	1273	11078	448	5.0	11931	2039	24.3	3599.4	1273.0	4.6	18992	1273	24.2	574.2	451032	1273
169.0	451032	574.163	1273	11078	448	5.0	11931	2039	24.3	3606.3	1273.0	4.6	18992	1273	24.2	574.7	451442	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
170.0	451442	574.685	1273	11078	448	5.0	11931	2039	24.3	3613.0	1273.0	4.6	18992	1273	24.2	575.2	451845	1273
171.0	451845	575.198	1273	11078	448	5.0	11931	2039	24.3	3619.6	1273.0	4.6	18993	1273	24.2	575.7	452241	1273
172.0	452241	575.702	1273	11077	448	5.0	11931	2039	24.3	3626.2	1273.0	4.6	18993	1273	24.2	576.2	452630	1273
173.0	452630	576.197	1273	11077	448	5.0	11931	2039	24.3	3632.6	1273.0	4.6	18993	1273	24.2	576.7	453012	1273
174.0	453012	576.684	1273	11077	448	5.0	11930	2039	24.3	3638.8	1273.0	4.6	18993	1273	24.2	577.2	453388	1273
175.0	453388	577.162	1273	11077	448	5.0	11930	2039	24.3	3645.0	1273.0	4.6	18994	1273	24.2	577.6	453756	1273
176.0	453756	577.631	1273	11077	448	5.0	11930	2039	24.3	3651.1	1273.0	4.6	18994	1273	24.2	578.1	454119	1273
177.0	454119	578.092	1273	11077	448	5.0	11930	2039	24.3	3657.6	1273.0	4.7	18994	1273	24.2	578.5	454474	1273
178.0	454474	578.545	1273	11077	448	5.0	11930	2039	24.3	3713.9	1273.0	4.7	18994	1273	24.2	578.9	454773	1273
179.0	454773	578.925	1273	11077	448	5.0	11930	2039	24.3	3717.2	1273.0	4.7	18995	1273	24.2	579.3	455068	1273
180.0	455068	579.300	1273	11077	448	5.0	11930	2039	24.3	3720.5	1273.0	4.7	18995	1273	24.2	579.7	455359	1273
181.0	455359	579.671	1273	11077	448	5.0	11930	2039	24.3	3723.7	1273.0	4.7	18995	1273	24.2	580.0	455646	1273
182.0	455646	580.038	1273	11077	448	5.0	11930	2039	24.3	3726.9	1273.0	4.7	18995	1273	24.2	580.4	455931	1273
183.0	455931	580.399	1273	11077	448	5.0	11930	2039	24.3	3730.1	1273.0	4.7	18996	1273	24.2	580.8	456211	1273
184.0	456211	580.756	1273	11076	448	5.0	11930	2039	24.3	3733.2	1273.0	4.8	18996	1273	24.2	581.1	456488	1273
185.0	456488	581.109	1273	11076	448	5.0	11930	2039	24.3	3736.3	1273.0	4.8	18996	1273	24.2	581.5	456762	1273
186.0	456762	581.457	1273	11076	448	5.0	11930	2039	24.3	3739.4	1273.0	4.8	18996	1273	24.2	581.8	457032	1273
187.0	457032	581.801	1273	11076	448	5.0	11929	2039	24.3	3742.4	1273.0	4.8	18997	1273	24.2	582.1	457299	1273
188.0	457299	582.141	1273	11076	448	5.0	11929	2039	24.3	3745.4	1273.0	4.8	18997	1273	24.2	582.5	457562	1273
189.0	457562	582.476	1273	11076	448	5.0	11929	2039	24.3	3748.3	1273.0	4.8	18997	1273	24.2	582.8	457822	1273
190.0	457822	582.808	1273	11076	448	5.0	11929	2039	24.3	3751.2	1273.0	4.8	18997	1273	24.2	583.1	458079	1273
191.0	458079	583.135	1273	11076	448	5.0	11929	2039	24.3	3754.1	1273.0	4.8	18998	1273	24.2	583.5	458333	1273
192.0	458333	583.458	1273	11076	448	5.0	11929	2039	24.3	3756.9	1273.0	4.8	18998	1273	24.2	583.8	458584	1273
193.0	458584	583.777	1273	11076	448	5.0	11929	2039	24.3	3759.7	1273.0	4.8	18998	1273	24.2	584.1	458831	1273
194.0	458831	584.092	1273	11076	448	5.0	11929	2039	24.3	3762.5	1273.0	4.8	18998	1273	24.2	584.4	459076	1273
195.0	459076	584.403	1273	11076	448	5.0	11929	2039	24.3	3765.2	1273.0	4.8	18998	1273	24.2	584.7	459317	1273
196.0	459317	584.711	1273	11076	448	5.0	11929	2039	24.3	3767.9	1273.0	4.8	18999	1273	24.2	585.0	459556	1273
197.0	459556	585.014	1273	11076	448	5.0	11929	2039	24.3	3770.5	1273.0	4.8	18999	1273	24.2	585.3	459791	1273
198.0	459791	585.314	1273	11076	448	5.0	11929	2039	24.3	3773.1	1273.0	4.8	18999	1273	24.2	585.6	460023	1273
199.0	460023	585.610	1273	11076	448	5.0	11929	2039	24.3	3775.7	1273.0	4.8	18999	1273	24.2	585.9	460253	1273
200.0	460253	585.902	1273	11076	448	5.0	11929	2039	24.3	3778.3	1273.0	4.8	18999	1273	24.2	586.2	460480	1273
201.0	460480	586.191	1273	11076	448	5.0	11929	2039	24.3	3780.8	1273.0	4.8	19000	1273	24.2	586.5	460704	1273
202.0	460704	586.476	1273	11076	448	5.0	11929	2039	24.3	3783.3	1273.0	4.8	19000	1273	24.2	586.8	460925	1273
203.0	460925	586.757	1273	11076	448	5.0	11929	2039	24.3	3785.8	1273.0	4.8	19000	1273	24.2	587.0	461143	1273
204.0	461143	587.035	1273	11075	448	5.0	11929	2039	24.3	3788.2	1273.0	4.8	19000	1273	24.2	587.3	461359	1273
205.0	461359	587.310	1273	11075	448	5.0	11929	2039	24.3	3790.6	1273.0	4.8	19000	1273	24.2	587.6	461572	1273
206.0	461572	587.581	1273	11075	448	5.0	11928	2039	24.3	3793.0	1273.0	4.8	19001	1273	24.2	587.8	461782	1273
207.0	461782	587.849	1273	11075	448	5.0	11928	2039	24.3	3795.3	1273.0	4.8	19001	1273	24.2	588.1	461990	1273
208.0	461990	588.113	1273	11075	448	5.0	11928	2039	24.3	3797.7	1273.0	4.8	19001	1273	24.2	588.4	462195	1273
209.0	462195	588.374	1273	11075	448	5.0	11928	2039	24.3	3799.9	1273.0	4.8	19001	1273	24.2	588.6	462397	1273
210.0	462397	588.632	1273	11075	448	5.0	11928	2039	24.3	3802.2	1273.0	4.8	19001	1273	24.2	588.9	462597	1273
211.0	462597	588.887	1273	11075	448	5.0	11928	2039	24.3	3804.4	1273.0	4.8	19001	1273	24.2	589.1	462795	1273
212.0	462795	589.138	1273	11075	448	5.0	11928	2039	24.3	3806.6	1273.0	4.8	19002	1273	24.2	589.4	462990	1273
213.0	462990	589.386	1273	11075	448	5.0	11928	2039	24.3	3808.8	1273.0	4.8	19002	1273	24.2	589.6	463183	1273
214.0	463183	589.632	1273	11075	448	5.0	11928	2039	24.3	3811.0	1273.0	4.9	19002	1273	24.2	589.9	463373	1273
215.0	463373	589.874	1273	11075	448	5.0	11928	2039	24.3	3813.1	1273.0	4.9	19002	1273	24.2	590.1	463561	1273
216.0	463561	590.113	1273	11075	448	5.0	11928	2039	24.3	3815.2	1273.0	4.9	19002	1273	24.2	590.3	463746	1273
217.0	463746	590.349	1273	11075	448	5.0	11928	2039	24.3	3817.2	1273.0	4.9	19002	1273	24.2	590.6	463930	1273
218.0	463930	590.583	1273	11075	448	5.0	11928	2039	24.3	3819.3	1273.0	4.9	19003	1273	24.2	590.8	464111	1273
219.0	464111	590.813	1273	11075	448	5.0	11928	2039	24.3	3821.3	1273.0	4.9	19003	1273	24.2	591.0	464289	1273
220.0	464289	591.040	1273	11075	448	5.0	11928	2039	24.3	3823.3	1273.0	4.9	19003	1273	24.2	591.3	464466	1273
221.0	464466	591.265	1273	11075	448	5.0	11928	2039	24.3	3825.3	1273.0	4.9	19003	1273	24.2	591.5	464640	1273
222.0	464640	591.487	1273	11075	448	5.0	11928	2039	24.3	3827.2	1273.0	4.9	19003	1273	24.2	591.7	464812	1273
223.0	464812	591.706	1273	11075	448	5.0	11928	2039	24.3	3829.1	1273.0	4.9	19003	1273	24.2	591.9	464982	1273
224.0	464982	591.923	1273	11075	448	5.0	11928	2039	24.3	3831.0	1273.0	4.9	19004	1273	24.2	592.1	465150	1273
225.0	465150	592.136	1273	11075	448	5.0	11928	2039	24.3	3832.9	1273.0	4.9	19004	1273	24.2	592.3	465316	1273
226.0	465316	592.347	1273	11075	448	5.0	11928	2039	24.3	3834.7	1273.0	4.9	19004	1273	24.2	592.6	465480	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
227.0	465480	592.556	1273	11075	448	5.0	11928	2039	24.3	3836.6	1273.0	4.9	19004	1273	24.2	592.8	465641	1273
228.0	465641	592.761	1273	11075	448	5.0	11928	2039	24.3	3838.4	1273.0	4.9	19004	1273	24.2	593.0	465801	1273
229.0	465801	592.965	1273	11075	448	5.0	11928	2039	24.3	3840.1	1273.0	4.9	19004	1273	24.2	593.2	465959	1273
230.0	465959	593.165	1273	11075	448	5.0	11928	2039	24.3	3841.9	1273.0	4.9	19004	1273	24.2	593.4	466114	1273
231.0	466114	593.364	1273	11074	448	5.0	11927	2039	24.3	3843.6	1273.0	4.9	19005	1273	24.2	593.6	466268	1273
232.0	466268	593.559	1273	11074	448	5.0	11927	2039	24.3	3845.3	1273.0	4.9	19005	1273	24.2	593.8	466420	1273
233.0	466420	593.753	1273	11074	448	5.0	11927	2039	24.3	3847.0	1273.0	4.9	19005	1273	24.2	593.9	466570	1273
234.0	466570	593.944	1273	11074	448	5.0	11927	2039	24.3	3848.7	1273.0	4.9	19005	1273	24.2	594.1	466718	1273
235.0	466718	594.132	1273	11074	448	5.0	11927	2039	24.3	3850.4	1273.0	4.9	19005	1273	24.2	594.3	466864	1273
236.0	466864	594.318	1273	11074	448	5.0	11927	2039	24.3	3852.0	1273.0	4.9	19005	1273	24.2	594.5	467009	1273
237.0	467009	594.502	1273	11074	448	5.0	11927	2039	24.3	3853.6	1273.0	4.9	19005	1273	24.2	594.7	467151	1273
238.0	467151	594.684	1273	11074	448	5.0	11927	2039	24.3	3855.2	1273.0	4.9	19005	1273	24.2	594.9	467292	1273
239.0	467292	594.863	1273	11074	448	5.0	11927	2039	24.3	3856.8	1273.0	4.9	19006	1273	24.2	595.0	467431	1273
240.0	467431	595.040	1273	11074	448	5.0	11927	2039	24.3	3858.3	1273.0	4.9	19006	1273	24.2	595.2	467569	1273
241.0	467569	595.215	1273	11074	448	5.0	11927	2039	24.3	3859.8	1273.0	4.9	19006	1273	24.2	595.4	467704	1273
242.0	467704	595.388	1273	11074	448	5.0	11927	2039	24.3	3861.4	1273.0	4.9	19006	1273	24.2	595.6	467838	1273
243.0	467838	595.558	1273	11074	448	5.0	11927	2039	24.3	3862.9	1273.0	4.9	19006	1273	24.2	595.7	467971	1273
244.0	467971	595.727	1273	11074	448	5.0	11927	2039	24.3	3864.3	1273.0	4.9	19006	1273	24.2	595.9	468101	1273
245.0	468101	595.893	1273	11074	448	5.0	11927	2039	24.3	3865.8	1273.0	4.9	19006	1273	24.2	596.1	468230	1273
246.0	468230	596.057	1273	11074	448	5.0	11927	2039	24.3	3867.2	1273.0	4.9	19006	1273	24.2	596.2	468358	1273
247.0	468358	596.220	1273	11074	448	5.0	11927	2039	24.3	3868.6	1273.0	4.9	19007	1273	24.2	596.4	468484	1273
248.0	468484	596.380	1273	11074	448	5.0	11927	2039	24.3	3870.0	1273.0	4.9	19007	1273	24.2	596.5	468608	1273
249.0	468608	596.538	1273	11074	448	5.0	11927	2039	24.3	3871.4	1273.0	4.9	19007	1273	24.2	596.7	468731	1273
250.0	468731	596.694	1273	11074	448	5.0	11927	2039	24.3	3872.8	1273.0	4.9	19007	1273	24.2	596.8	468852	1273
251.0	468852	596.848	1273	11074	448	5.0	11927	2039	24.3	3874.2	1273.0	4.9	19007	1273	24.2	597.0	468971	1273
252.0	468971	597.001	1273	11074	448	5.0	11927	2039	24.3	3875.5	1273.0	4.9	19007	1273	24.2	597.2	469090	1273
253.0	469090	597.151	1273	11074	448	5.0	11927	2039	24.3	3876.8	1273.0	4.9	19007	1273	24.2	597.3	469206	1273
254.0	469206	597.300	1273	11074	448	5.0	11927	2039	24.3	3878.1	1273.0	4.9	19007	1273	24.2	597.4	469322	1273
255.0	469322	597.447	1273	11074	448	5.0	11927	2039	24.3	3879.4	1273.0	4.9	19007	1273	24.2	597.6	469436	1273
256.0	469436	597.592	1273	11074	448	5.0	11927	2039	24.3	3880.7	1273.0	4.9	19007	1273	24.2	597.7	469548	1273
257.0	469548	597.735	1273	11074	448	5.0	11927	2039	24.3	3881.9	1273.0	4.9	19008	1273	24.2	597.9	469659	1273
258.0	469659	597.876	1273	11074	448	5.0	11927	2039	24.3	3883.1	1273.0	4.9	19008	1273	24.2	598.0	469769	1273
259.0	469769	598.016	1273	11074	448	5.0	11927	2039	24.3	3884.4	1273.0	4.9	19008	1273	24.2	598.2	469877	1273
260.0	469877	598.153	1273	11074	448	5.0	11927	2039	24.3	3885.6	1273.0	4.9	19008	1273	24.2	598.3	469984	1273
261.0	469984	598.290	1273	11074	448	5.0	11927	2039	24.3	3886.8	1273.0	4.9	19008	1273	24.2	598.4	470089	1273
262.0	470089	598.424	1273	11074	448	5.0	11927	2039	24.3	3887.9	1273.0	4.9	19008	1273	24.2	598.6	470194	1273
263.0	470194	598.557	1273	11074	448	5.0	11927	2039	24.3	3889.1	1273.0	5.0	19008	1273	24.2	598.7	470297	1273
264.0	470297	598.688	1273	11074	448	5.0	11927	2039	24.3	3890.3	1273.0	5.0	19008	1273	24.2	598.8	470398	1273
265.0	470398	598.817	1273	11074	448	5.0	11927	2039	24.3	3891.4	1273.0	5.0	19008	1273	24.2	598.9	470499	1273
266.0	470499	598.945	1273	11074	448	5.0	11927	2039	24.3	3892.5	1273.0	5.0	19008	1273	24.2	599.1	470598	1273
267.0	470598	599.071	1273	11074	448	5.0	11927	2039	24.3	3893.6	1273.0	5.0	19009	1273	24.2	599.2	470696	1273
268.0	470696	599.196	1273	11074	448	5.0	11926	2039	24.3	3894.7	1273.0	5.0	19009	1273	24.2	599.3	470793	1273
269.0	470793	599.319	1273	11074	448	5.0	11926	2039	24.3	3895.8	1273.0	5.0	19009	1273	24.2	599.4	470888	1273
270.0	470888	599.441	1273	11074	448	5.0	11926	2039	24.3	3896.9	1273.0	5.0	19009	1273	24.2	599.6	470983	1273
271.0	470983	599.561	1273	11074	448	5.0	11926	2039	24.3	3897.9	1273.0	5.0	19009	1273	24.2	599.7	471076	1273
272.0	471076	599.680	1273	11073	448	5.0	11926	2039	24.3	3898.9	1273.0	5.0	19009	1273	24.2	599.8	471168	1273
273.0	471168	599.797	1273	11073	448	5.0	11926	2039	24.3	3900.0	1273.0	5.0	19009	1273	24.2	599.9	471259	1273
274.0	471259	599.912	1273	11073	448	5.0	11926	2039	24.3	3901.0	1273.0	5.0	19009	1273	24.2	600.0	471348	1273
275.0	471348	600.027	1273	11073	448	5.0	11926	2039	24.3	3902.0	1273.0	5.0	19009	1273	24.2	600.1	471437	1273
276.0	471437	600.139	1273	11073	448	5.0	11926	2039	24.3	3903.0	1273.0	5.0	19009	1273	24.2	600.3	471525	1273
277.0	471525	600.251	1273	11073	448	5.0	11926	2039	24.3	3903.9	1273.0	5.0	19009	1273	24.2	600.4	471611	1273
278.0	471611	600.361	1273	11073	448	5.0	11926	2039	24.3	3904.9	1273.0	5.0	19009	1273	24.2	600.5	471696	1273
279.0	471696	600.470	1273	11073	448	5.0	11926	2039	24.3	3905.9	1273.0	5.0	19009	1273	24.2	600.6	471781	1273
280.0	471781	600.577	1273	11073	448	5.0	11926	2039	24.3	3906.8	1273.0	5.0	19010	1273	24.2	600.7	471864	1273
281.0	471864	600.683	1273	11073	448	5.0	11926	2039	24.3	3907.7	1273.0	5.0	19010	1273	24.2	600.8	471946	1273
282.0	471946	600.787	1273	11073	448	5.0	11926	2039	24.3	3908.6	1273.0	5.0	19010	1273	24.2	600.9	472027	1273
283.0	472027	600.891	1273	11073	448	5.0	11926	2039	24.3	3909.5	1273.0	5.0	19010	1273	24.2	601.0	472107	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
284.0	472107	600.993	1273	11073	448	5.0	11926	2039	24.3	3910.4	1273.0	5.0	19010	1273	24.2	601.1	472187	1273
285.0	472187	601.094	1273	11073	448	5.0	11926	2039	24.3	3911.3	1273.0	5.0	19010	1273	24.2	601.2	472265	1273
286.0	472265	601.193	1273	11073	448	5.0	11926	2039	24.3	3912.2	1273.0	5.0	19010	1273	24.2	601.3	472342	1273
287.0	472342	601.291	1273	11073	448	5.0	11926	2039	24.3	3913.1	1273.0	5.0	19010	1273	24.2	601.4	472418	1273
288.0	472418	601.388	1273	11073	448	5.0	11926	2039	24.3	3913.9	1273.0	5.0	19010	1273	24.2	601.5	472493	1273
289.0	472493	601.484	1273	11073	448	5.0	11926	2039	24.3	3914.7	1273.0	5.0	19010	1273	24.2	601.6	472568	1273
290.0	472568	601.579	1273	11073	448	5.0	11926	2039	24.3	3915.6	1273.0	5.0	19010	1273	24.2	601.7	472641	1273
291.0	472641	601.672	1273	11073	448	5.0	11926	2039	24.3	3916.4	1273.0	5.0	19010	1273	24.2	601.8	472714	1273
292.0	472714	601.765	1273	11073	448	5.0	11926	2039	24.3	3917.2	1273.0	5.0	19010	1273	24.2	601.9	472785	1273
293.0	472785	601.856	1273	11073	448	5.0	11926	2039	24.3	3918.0	1273.0	5.0	19010	1273	24.2	601.9	472856	1273
294.0	472856	601.946	1273	11073	448	5.0	11926	2039	24.3	3918.8	1273.0	5.0	19011	1273	24.2	602.0	472926	1273
295.0	472926	602.035	1273	11073	448	5.0	11926	2039	24.3	3919.6	1273.0	5.0	19011	1273	24.2	602.1	472995	1273
296.0	472995	602.123	1273	11073	448	5.0	11926	2039	24.3	3920.3	1273.0	5.0	19011	1273	24.2	602.2	473063	1273
297.0	473063	602.209	1273	11073	448	5.0	11926	2039	24.3	3921.1	1273.0	5.0	19011	1273	24.2	602.3	473130	1273
298.0	473130	602.295	1273	11073	448	5.0	11926	2039	24.3	3921.8	1273.0	5.0	19011	1273	24.2	602.4	473197	1273
299.0	473197	602.380	1273	11073	448	5.0	11926	2039	24.3	3922.6	1273.0	5.0	19011	1273	24.2	602.5	473262	1273
300.0	473262	602.463	1273	11073	448	5.0	11926	2039	24.3	3923.3	1273.0	5.0	19011	1273	24.2	602.5	473327	1273
301.0	473327	602.546	1273	11073	448	5.0	11926	2039	24.3	3924.0	1273.0	5.0	19011	1273	24.2	602.6	473391	1273
302.0	473391	602.627	1273	11073	448	5.0	11926	2039	24.3	3924.8	1273.0	5.0	19011	1273	24.2	602.7	473454	1273
303.0	473454	602.707	1273	11073	448	5.0	11926	2039	24.3	3925.5	1273.0	5.0	19011	1273	24.2	602.8	473517	1273
304.0	473517	602.787	1273	11073	448	5.0	11926	2039	24.3	3926.2	1273.0	5.0	19011	1273	24.2	602.9	473578	1273
305.0	473578	602.865	1273	11073	448	5.0	11926	2039	24.3	3926.8	1273.0	5.0	19011	1273	24.2	602.9	473639	1273
306.0	473639	602.943	1273	11073	448	5.0	11926	2039	24.3	3927.5	1273.0	5.0	19011	1273	24.2	603.0	473699	1273
307.0	473699	603.019	1273	11073	448	5.0	11926	2039	24.3	3928.2	1273.0	5.0	19011	1273	24.2	603.1	473759	1273
308.0	473759	603.095	1273	11073	448	5.0	11926	2039	24.3	3928.8	1273.0	5.0	19011	1273	24.2	603.2	473817	1273
309.0	473817	603.170	1273	11073	448	5.0	11926	2039	24.3	3929.5	1273.0	5.0	19011	1273	24.2	603.2	473875	1273
310.0	473875	603.243	1273	11073	448	5.0	11926	2039	24.3	3930.1	1273.0	5.0	19011	1273	24.2	603.3	473932	1273
311.0	473932	603.316	1273	11073	448	5.0	11926	2039	24.3	3930.8	1273.0	5.0	19011	1273	24.2	603.4	473989	1273
312.0	473989	603.388	1273	11073	448	5.0	11926	2039	24.3	3931.4	1273.0	5.0	19012	1273	24.2	603.5	474044	1273
313.0	474044	603.459	1273	11073	448	5.0	11926	2039	24.3	3932.0	1273.0	5.0	19012	1273	24.2	603.5	474100	1273
314.0	474100	603.529	1273	11073	448	5.0	11926	2039	24.3	3932.6	1273.0	5.0	19012	1273	24.2	603.6	474154	1273
315.0	474154	603.598	1273	11073	448	5.0	11926	2039	24.3	3933.3	1273.0	5.0	19012	1273	24.2	603.7	474208	1273
316.0	474208	603.666	1273	11073	448	5.0	11926	2039	24.3	3933.9	1273.0	5.0	19012	1273	24.2	603.7	474261	1273
317.0	474261	603.734	1273	11073	448	5.0	11926	2039	24.3	3934.4	1273.0	5.0	19012	1273	24.2	603.8	474313	1273
318.0	474313	603.801	1273	11073	448	5.0	11926	2039	24.3	3935.0	1273.0	5.0	19012	1273	24.2	603.9	474365	1273
319.0	474365	603.866	1273	11073	448	5.0	11926	2039	24.3	3935.6	1273.0	5.0	19012	1273	24.2	603.9	474416	1273
320.0	474416	603.931	1273	11073	448	5.0	11926	2039	24.3	3936.2	1273.0	5.0	19012	1273	24.2	604.0	474466	1273
321.0	474466	603.996	1273	11073	448	5.0	11926	2039	24.3	3936.7	1273.0	5.0	19012	1273	24.2	604.1	474516	1273
322.0	474516	604.059	1273	11073	448	5.0	11926	2039	24.3	3937.3	1273.0	5.0	19012	1273	24.2	604.1	474565	1273
323.0	474565	604.122	1273	11073	448	5.0	11926	2039	24.3	3937.8	1273.0	5.0	19012	1273	24.2	604.2	474614	1273
324.0	474614	604.183	1273	11073	448	5.0	11926	2039	24.3	3938.4	1273.0	5.0	19012	1273	24.2	604.2	474662	1273
325.0	474662	604.245	1273	11073	448	5.0	11926	2039	24.3	3938.9	1273.0	5.0	19012	1273	24.2	604.3	474709	1273
326.0	474709	604.305	1273	11073	448	5.0	11926	2039	24.3	3939.4	1273.0	5.0	19012	1273	24.2	604.4	474756	1273
327.0	474756	604.364	1273	11073	448	5.0	11926	2039	24.3	3940.0	1273.0	5.0	19012	1273	24.2	604.4	474802	1273
328.0	474802	604.423	1273	11073	448	5.0	11926	2039	24.3	3940.5	1273.0	5.0	19012	1273	24.2	604.5	474848	1273
329.0	474848	604.481	1273	11073	448	5.0	11926	2039	24.3	3941.0	1273.0	5.0	19012	1273	24.2	604.5	474893	1273
330.0	474893	604.539	1273	11073	448	5.0	11926	2039	24.3	3941.5	1273.0	5.0	19012	1273	24.2	604.6	474937	1273
331.0	474937	604.595	1273	11073	448	5.0	11926	2039	24.3	3942.0	1273.0	5.0	19012	1273	24.2	604.7	474981	1273
332.0	474981	604.651	1273	11073	448	5.0	11926	2039	24.3	3942.5	1273.0	5.0	19012	1273	24.2	604.7	475025	1273
333.0	475025	604.706	1273	11073	448	5.0	11926	2039	24.3	3943.0	1273.0	5.0	19012	1273	24.2	604.8	475067	1273
334.0	475067	604.761	1273	11073	448	5.0	11926	2039	24.3	3943.4	1273.0	5.0	19012	1273	24.2	604.8	475110	1273
335.0	475110	604.815	1273	11073	448	5.0	11926	2039	24.3	3943.9	1273.0	5.0	19012	1273	24.2	604.9	475152	1273
336.0	475152	604.868	1273	11073	448	5.0	11926	2039	24.3	3944.4	1273.0	5.0	19013	1273	24.2	604.9	475193	1273
337.0	475193	604.921	1273	11073	448	5.0	11926	2039	24.3	3944.8	1273.0	5.0	19013	1273	24.2	605.0	475234	1273
338.0	475234	604.973	1273	11073	448	5.0	11926	2039	24.3	3945.3	1273.0	5.0	19013	1273	24.2	605.0	475274	1273
339.0	475274	605.024	1273	11073	448	5.0	11925	2039	24.3	3945.7	1273.0	5.0	19013	1273	24.2	605.1	475314	1273
340.0	475314	605.074	1273	11073	448	5.0	11925	2039	24.3	3946.2	1273.0	5.0	19013	1273	24.2	605.1	475353	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
341.0	475353	605.124	1273	11073	448	5.0	11925	2039	24.3	3946.6	1273.0	5.0	19013	1273	24.2	605.2	475392	1273
342.0	475392	605.174	1273	11073	448	5.0	11925	2039	24.3	3947.1	1273.0	5.0	19013	1273	24.2	605.2	475430	1273
343.0	475430	605.222	1273	11073	448	5.0	11925	2039	24.3	3947.5	1273.0	5.0	19013	1273	24.2	605.3	475468	1273
344.0	475468	605.271	1273	11073	448	5.0	11925	2039	24.3	3947.9	1273.0	5.0	19013	1273	24.2	605.3	475505	1273
345.0	475505	605.318	1273	11073	448	5.0	11925	2039	24.3	3948.3	1273.0	5.0	19013	1273	24.2	605.4	475542	1273
346.0	475542	605.365	1273	11073	448	5.0	11925	2039	24.3	3948.7	1273.0	5.0	19013	1273	24.2	605.4	475578	1273
347.0	475578	605.411	1273	11073	448	5.0	11925	2039	24.3	3949.1	1273.0	5.0	19013	1273	24.2	605.5	475614	1273
348.0	475614	605.457	1273	11073	448	5.0	11925	2039	24.3	3949.5	1273.0	5.0	19013	1273	24.2	605.5	475650	1273
349.0	475650	605.502	1273	11073	448	5.0	11925	2039	24.3	3949.9	1273.0	5.0	19013	1273	24.2	605.5	475685	1273
350.0	475685	605.547	1273	11073	448	5.0	11925	2039	24.3	3950.3	1273.0	5.0	19013	1273	24.2	605.6	475719	1273
351.0	475719	605.591	1273	11073	448	5.0	11925	2039	24.3	3950.7	1273.0	5.0	19013	1273	24.2	605.6	475754	1273
352.0	475754	605.635	1273	11073	448	5.0	11925	2039	24.3	3951.1	1273.0	5.0	19013	1273	24.2	605.7	475787	1273
353.0	475787	605.678	1273	11073	448	5.0	11925	2039	24.3	3951.5	1273.0	5.0	19013	1273	24.2	605.7	475821	1273
354.0	475821	605.720	1273	11073	448	5.0	11925	2039	24.3	3951.8	1273.0	5.0	19013	1273	24.2	605.8	475854	1273
355.0	475854	605.762	1273	11073	448	5.0	11925	2039	24.3	3952.2	1273.0	5.0	19013	1273	24.2	605.8	475886	1273
356.0	475886	605.803	1273	11073	448	5.0	11925	2039	24.3	3952.6	1273.0	5.0	19013	1273	24.2	605.8	475918	1273
357.0	475918	605.844	1273	11072	448	5.0	11925	2039	24.3	3952.9	1273.0	5.0	19013	1273	24.2	605.9	475950	1273
358.0	475950	605.885	1273	11072	448	5.0	11925	2039	24.3	3953.3	1273.0	5.0	19013	1273	24.2	605.9	475981	1273
359.0	475981	605.925	1273	11072	448	5.0	11925	2039	24.3	3953.6	1273.0	5.0	19013	1273	24.2	606.0	476012	1273
360.0	476012	605.964	1273	11072	448	5.0	11925	2039	24.3	3954.0	1273.0	5.0	19013	1273	24.2	606.0	476043	1273
361.0	476043	606.003	1273	11072	448	5.0	11925	2039	24.3	3954.3	1273.0	5.0	19013	1273	24.2	606.0	476073	1273
362.0	476073	606.041	1273	11072	448	5.0	11925	2039	24.3	3954.7	1273.0	5.0	19013	1273	24.2	606.1	476103	1273
363.0	476103	606.079	1273	11072	448	5.0	11925	2039	24.3	3955.0	1273.0	5.0	19013	1273	24.2	606.1	476132	1273
364.0	476132	606.117	1273	11072	448	5.0	11925	2039	24.3	3955.3	1273.0	5.0	19013	1273	24.2	606.2	476161	1273
365.0	476161	606.154	1273	11072	448	5.0	11925	2039	24.3	3955.6	1273.0	5.0	19013	1273	24.2	606.2	476190	1273
366.0	476190	606.190	1273	11072	448	5.0	11925	2039	24.3	3956.0	1273.0	5.0	19013	1273	24.2	606.2	476219	1273
367.0	476219	606.226	1273	11072	448	5.0	11925	2039	24.3	3956.3	1273.0	5.0	19013	1273	24.2	606.3	476246	1273
368.0	476246	606.262	1273	11072	448	5.0	11925	2039	24.3	3956.6	1273.0	5.0	19013	1273	24.2	606.3	476274	1273
369.0	476274	606.297	1273	11072	448	5.0	11925	2039	24.3	3956.9	1273.0	5.0	19014	1273	24.2	606.3	476301	1273
370.0	476301	606.332	1273	11072	448	5.0	11925	2039	24.3	3957.2	1273.0	5.0	19014	1273	24.2	606.4	476328	1273
371.0	476328	606.366	1273	11072	448	5.0	11925	2039	24.3	3957.5	1273.0	5.0	19014	1273	24.2	606.4	476355	1273
372.0	476355	606.400	1273	11072	448	5.0	11925	2039	24.3	3957.8	1273.0	5.0	19014	1273	24.2	606.4	476381	1273
373.0	476381	606.434	1273	11072	448	5.0	11925	2039	24.3	3958.1	1273.0	5.0	19014	1273	24.2	606.5	476407	1273
374.0	476407	606.467	1273	11072	448	5.0	11925	2039	24.3	3958.4	1273.0	5.0	19014	1273	24.2	606.5	476433	1273
375.0	476433	606.499	1273	11072	448	5.0	11925	2039	24.3	3958.7	1273.0	5.0	19014	1273	24.2	606.5	476458	1273
376.0	476458	606.531	1273	11072	448	5.0	11925	2039	24.3	3958.9	1273.0	5.0	19014	1273	24.2	606.6	476483	1273
377.0	476483	606.563	1273	11072	448	5.0	11925	2039	24.3	3959.2	1273.0	5.0	19014	1273	24.2	606.6	476508	1273
378.0	476508	606.595	1273	11072	448	5.0	11925	2039	24.3	3959.5	1273.0	5.0	19014	1273	24.2	606.6	476532	1273
379.0	476532	606.626	1273	11072	448	5.0	11925	2039	24.3	3959.8	1273.0	5.0	19014	1273	24.2	606.7	476556	1273
380.0	476556	606.656	1273	11072	448	5.0	11925	2039	24.3	3960.0	1273.0	5.0	19014	1273	24.2	606.7	476580	1273
381.0	476580	606.687	1273	11072	448	5.0	11925	2039	24.3	3960.3	1273.0	5.0	19014	1273	24.2	606.7	476604	1273
382.0	476604	606.717	1273	11072	448	5.0	11925	2039	24.3	3960.6	1273.0	5.0	19014	1273	24.2	606.7	476627	1273
383.0	476627	606.746	1273	11072	448	5.0	11925	2039	24.3	3960.8	1273.0	5.0	19014	1273	24.2	606.8	476650	1273
384.0	476650	606.775	1273	11072	448	5.0	11925	2039	24.3	3961.1	1273.0	5.0	19014	1273	24.2	606.8	476672	1273
385.0	476672	606.804	1273	11072	448	5.0	11925	2039	24.3	3961.3	1273.0	5.0	19014	1273	24.2	606.8	476695	1273
386.0	476695	606.833	1273	11072	448	5.0	11925	2039	24.3	3961.6	1273.0	5.0	19014	1273	24.2	606.9	476717	1273
387.0	476717	606.861	1273	11072	448	5.0	11925	2039	24.3	3961.8	1273.0	5.0	19014	1273	24.2	606.9	476739	1273
388.0	476739	606.888	1273	11072	448	5.0	11925	2039	24.3	3962.1	1273.0	5.0	19014	1273	24.2	606.9	476760	1273
389.0	476760	606.916	1273	11072	448	5.0	11925	2039	24.3	3962.3	1273.0	5.0	19014	1273	24.2	606.9	476781	1273
390.0	476781	606.943	1273	11072	448	5.0	11925	2039	24.3	3962.5	1273.0	5.0	19014	1273	24.2	607.0	476802	1273
391.0	476802	606.970	1273	11072	448	5.0	11925	2039	24.3	3962.8	1273.0	5.0	19014	1273	24.2	607.0	476823	1273
392.0	476823	606.996	1273	11072	448	5.0	11925	2039	24.3	3963.0	1273.0	5.0	19014	1273	24.2	607.0	476844	1273
393.0	476844	607.022	1273	11072	448	5.0	11925	2039	24.3	3963.2	1273.0	5.0	19014	1273	24.2	607.0	476864	1273
394.0	476864	607.048	1273	11072	448	5.0	11925	2039	24.3	3963.5	1273.0	5.0	19014	1273	24.2	607.1	476884	1273
395.0	476884	607.073	1273	11072	448	5.0	11925	2039	24.3	3963.7	1273.0	5.0	19014	1273	24.2	607.1	476903	1273
396.0	476903	607.098	1273	11072	448	5.0	11925	2039	24.3	3963.9	1273.0	5.0	19014	1273	24.2	607.1	476923	1273
397.0	476923	607.123	1273	11072	448	5.0	11925	2039	24.3	3964.1	1273.0	5.0	19014	1273	24.2	607.1	476942	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
398.0	476942	607.147	1273	11072	448	5.0	11925	2039	24.3	3964.3	1273.0	5.0	19014	1273	24.2	607.2	476961	1273
399.0	476961	607.172	1273	11072	448	5.0	11925	2039	24.3	3964.5	1273.0	5.0	19014	1273	24.2	607.2	476980	1273
400.0	476980	607.195	1273	11072	448	5.0	11925	2039	24.3	3964.8	1273.0	5.0	19014	1273	24.2	607.2	476998	1273
401.0	476998	607.219	1273	11072	448	5.0	11925	2039	24.3	3965.0	1273.0	5.0	19014	1273	24.2	607.2	477017	1273
402.0	477017	607.242	1273	11072	448	5.0	11925	2039	24.3	3965.2	1273.0	5.0	19014	1273	24.2	607.3	477035	1273
403.0	477035	607.265	1273	11072	448	5.0	11925	2039	24.3	3965.4	1273.0	5.0	19014	1273	24.2	607.3	477053	1273
404.0	477053	607.288	1273	11072	448	5.0	11925	2039	24.3	3965.6	1273.0	5.0	19014	1273	24.2	607.3	477070	1273
405.0	477070	607.310	1273	11072	448	5.0	11925	2039	24.3	3965.8	1273.0	5.0	19014	1273	24.2	607.3	477088	1273
406.0	477088	607.333	1273	11072	448	5.0	11925	2039	24.3	3966.0	1273.0	5.0	19014	1273	24.2	607.4	477105	1273
407.0	477105	607.354	1273	11072	448	5.0	11925	2039	24.3	3966.2	1273.0	5.0	19014	1273	24.2	607.4	477122	1273
408.0	477122	607.376	1273	11072	448	5.0	11925	2039	24.3	3966.3	1273.0	5.0	19014	1273	24.2	607.4	477138	1273
409.0	477138	607.397	1273	11072	448	5.0	11925	2039	24.3	3966.5	1273.0	5.0	19014	1273	24.2	607.4	477155	1273
410.0	477155	607.418	1273	11072	448	5.0	11925	2039	24.3	3966.7	1273.0	5.0	19014	1273	24.2	607.4	477171	1273
411.0	477171	607.439	1273	11072	448	5.0	11925	2039	24.3	3966.9	1273.0	5.0	19014	1273	24.2	607.5	477187	1273
412.0	477187	607.460	1273	11072	448	5.0	11925	2039	24.3	3967.1	1273.0	5.1	19014	1273	24.2	607.5	477203	1273
413.0	477203	607.480	1273	11072	448	5.0	11925	2039	24.3	3967.2	1273.0	5.1	19014	1273	24.2	607.5	477219	1273
414.0	477219	607.500	1273	11072	448	5.0	11925	2039	24.3	3967.4	1273.0	5.1	19014	1273	24.2	607.5	477235	1273
415.0	477235	607.520	1273	11072	448	5.0	11925	2039	24.3	3967.6	1273.0	5.1	19014	1273	24.2	607.5	477250	1273
416.0	477250	607.539	1273	11072	448	5.0	11925	2039	24.3	3967.8	1273.0	5.1	19014	1273	24.2	607.6	477265	1273
417.0	477265	607.559	1273	11072	448	5.0	11925	2039	24.3	3967.9	1273.0	5.1	19014	1273	24.2	607.6	477280	1273
418.0	477280	607.578	1273	11072	448	5.0	11925	2039	24.3	3968.1	1273.0	5.1	19014	1273	24.2	607.6	477295	1273
419.0	477295	607.596	1273	11072	448	5.0	11925	2039	24.3	3968.3	1273.0	5.1	19014	1273	24.2	607.6	477309	1273
420.0	477309	607.615	1273	11072	448	5.0	11925	2039	24.3	3968.4	1273.0	5.1	19014	1273	24.2	607.6	477324	1273
421.0	477324	607.633	1273	11072	448	5.0	11925	2039	24.3	3968.6	1273.0	5.1	19014	1273	24.2	607.7	477338	1273
422.0	477338	607.652	1273	11072	448	5.0	11925	2039	24.3	3968.8	1273.0	5.1	19014	1273	24.2	607.7	477352	1273
423.0	477352	607.669	1273	11072	448	5.0	11925	2039	24.3	3968.9	1273.0	5.1	19014	1273	24.2	607.7	477366	1273
424.0	477366	607.687	1273	11072	448	5.0	11925	2039	24.3	3969.1	1273.0	5.1	19014	1273	24.2	607.7	477380	1273
425.0	477380	607.705	1273	11072	448	5.0	11925	2039	24.3	3969.2	1273.0	5.1	19014	1273	24.2	607.7	477393	1273
426.0	477393	607.722	1273	11072	448	5.0	11925	2039	24.3	3969.4	1273.0	5.1	19014	1273	24.2	607.7	477407	1273
427.0	477407	607.739	1273	11072	448	5.0	11925	2039	24.3	3969.5	1273.0	5.1	19015	1273	24.2	607.8	477420	1273
428.0	477420	607.756	1273	11072	448	5.0	11925	2039	24.3	3969.7	1273.0	5.1	19015	1273	24.2	607.8	477433	1273
429.0	477433	607.772	1273	11072	448	5.0	11925	2039	24.3	3969.8	1273.0	5.1	19015	1273	24.2	607.8	477446	1273
430.0	477446	607.789	1273	11072	448	5.0	11925	2039	24.3	3970.0	1273.0	5.1	19015	1273	24.2	607.8	477458	1273
431.0	477458	607.805	1273	11072	448	5.0	11925	2039	24.3	3970.1	1273.0	5.1	19015	1273	24.2	607.8	477471	1273
432.0	477471	607.821	1273	11072	448	5.0	11925	2039	24.3	3970.2	1273.0	5.1	19015	1273	24.2	607.8	477483	1273
433.0	477483	607.837	1273	11072	448	5.0	11925	2039	24.3	3970.4	1273.0	5.1	19015	1273	24.2	607.9	477496	1273
434.0	477496	607.852	1273	11072	448	5.0	11925	2039	24.3	3970.5	1273.0	5.1	19015	1273	24.2	607.9	477508	1273
435.0	477508	607.868	1273	11072	448	5.0	11925	2039	24.3	3970.6	1273.0	5.1	19015	1273	24.2	607.9	477520	1273
436.0	477520	607.883	1273	11072	448	5.0	11925	2039	24.3	3970.8	1273.0	5.1	19015	1273	24.2	607.9	477531	1273
437.0	477531	607.898	1273	11072	448	5.0	11925	2039	24.3	3970.9	1273.0	5.1	19015	1273	24.2	607.9	477543	1273
438.0	477543	607.913	1273	11072	448	5.0	11925	2039	24.3	3971.0	1273.0	5.1	19015	1273	24.2	607.9	477555	1273
439.0	477555	607.927	1273	11072	448	5.0	11925	2039	24.3	3971.2	1273.0	5.1	19015	1273	24.2	607.9	477566	1273
440.0	477566	607.942	1273	11072	448	5.0	11925	2039	24.3	3971.3	1273.0	5.1	19015	1273	24.2	608.0	477577	1273
441.0	477577	607.956	1273	11072	448	5.0	11925	2039	24.3	3971.4	1273.0	5.1	19015	1273	24.2	608.0	477588	1273
442.0	477588	607.970	1273	11072	448	5.0	11925	2039	24.3	3971.5	1273.0	5.1	19015	1273	24.2	608.0	477599	1273
443.0	477599	607.984	1273	11072	448	5.0	11925	2039	24.3	3971.7	1273.0	5.1	19015	1273	24.2	608.0	477610	1273
444.0	477610	607.998	1273	11072	448	5.0	11925	2039	24.3	3971.8	1273.0	5.1	19015	1273	24.2	608.0	477621	1273
445.0	477621	608.011	1273	11072	448	5.0	11925	2039	24.3	3971.9	1273.0	5.1	19015	1273	24.2	608.0	477631	1273
446.0	477631	608.025	1273	11072	448	5.0	11925	2039	24.3	3972.0	1273.0	5.1	19015	1273	24.2	608.0	477642	1273
447.0	477642	608.038	1273	11072	448	5.0	11925	2039	24.3	3972.1	1273.0	5.1	19015	1273	24.2	608.1	477652	1273
448.0	477652	608.051	1273	11072	448	5.0	11925	2039	24.3	3972.3	1273.0	5.1	19015	1273	24.2	608.1	477662	1273
449.0	477662	608.064	1273	11072	448	5.0	11925	2039	24.3	3972.4	1273.0	5.1	19015	1273	24.2	608.1	477672	1273
450.0	477672	608.077	1273	11072	448	5.0	11925	2039	24.3	3972.5	1273.0	5.1	19015	1273	24.2	608.1	477682	1273
451.0	477682	608.089	1273	11072	448	5.0	11925	2039	24.3	3972.6	1273.0	5.1	19015	1273	24.2	608.1	477692	1273
452.0	477692	608.102	1273	11072	448	5.0	11925	2039	24.3	3972.7	1273.0	5.1	19015	1273	24.2	608.1	477701	1273
453.0	477701	608.114	1273	11072	448	5.0	11925	2039	24.3	3972.8	1273.0	5.1	19015	1273	24.2	608.1	477711	1273
454.0	477711	608.126	1273	11072	448	5.0	11925	2039	24.3	3972.9	1273.0	5.1	19015	1273	24.2	608.1	477720	1273

TABLE 35. CHEMICAL BALANCE MODEL RESULTS FOR SHALLOW AQUIFER (BURRO CANYON AND FRACTURES) NEAR GTO PIT

TIME	INITIAL AQUIFER CONDITIONS			INPUT TO SHALLOW AQUIFER (BC & FRX)						OUTPUT FROM SHALLOW AQUIFER (BC & FRX)						SHALLOW AQUIFER RESULTS		
Current Year	Initial Water in Shallow Aquifer (tons)	Initial Mass in Shallow Aquifer (tons)	Initial Concentration in Shallow Aquifer (ppm)	Flow to Shallow Aquifer via Fractures (tons)	Concentration of Water in Fractures (ppm)	Mass into Shallow Aquifer via Fractures (tons)	Flow to Shallow Aquifer via "Intact Rock" (tons)	Concentration of Water in "Intact Rock" (ppm)	Mass into Shallow Aquifer via "Intact Rock" (tons)	Flow from Shallow Aquifer to Pit (tons)	Concentration of Water from Aquifer to Pit (ppm)	Mass into Pit from Shallow Aquifer (tons)	Flow from Shallow Aquifer to Deep Aquifer (tons)	Concentration in Shallow Aquifer Leakage to Deep Aquifer (ppm)	Mass from Shallow Aquifer to Deep Aquifer (tons)	Solute Mass Remaining in Shallow Aquifer (tons)	Water in Shallow Aquifer at end of timestep (tons)	Final AVERAGE Concentration in Shallow Aquifer (BC&FRX) (ppm)
455.0	477720	608.138	1273	11072	448	5.0	11925	2039	24.3	3973.0	1273.0	5.1	19015	1273	24.2	608.1	477730	1273
456.0	477730	608.150	1273	11072	448	5.0	11925	2039	24.3	3973.1	1273.0	5.1	19015	1273	24.2	608.2	477739	1273
457.0	477739	608.162	1273	11072	448	5.0	11925	2039	24.3	3973.2	1273.0	5.1	19015	1273	24.2	608.2	477748	1273
458.0	477748	608.173	1273	11072	448	5.0	11925	2039	24.3	3973.3	1273.0	5.1	19015	1273	24.2	608.2	477757	1273
459.0	477757	608.185	1273	11072	448	5.0	11925	2039	24.3	3973.4	1273.0	5.1	19015	1273	24.2	608.2	477766	1273
460.0	477766	608.196	1273	11072	448	5.0	11925	2039	24.3	3973.5	1273.0	5.1	19015	1273	24.2	608.2	477774	1273
461.0	477774	608.207	1273	11072	448	5.0	11925	2039	24.3	3973.6	1273.0	5.1	19015	1273	24.2	608.2	477783	1273
462.0	477783	608.218	1273	11072	448	5.0	11925	2039	24.3	3973.7	1273.0	5.1	19015	1273	24.2	608.2	477792	1273
463.0	477792	608.229	1273	11072	448	5.0	11925	2039	24.3	3973.8	1273.0	5.1	19015	1273	24.2	608.2	477800	1273
464.0	477800	608.240	1273	11072	448	5.0	11925	2039	24.3	3973.9	1273.0	5.1	19015	1273	24.2	608.3	477808	1273
465.0	477808	608.250	1273	11072	448	5.0	11925	2039	24.3	3974.0	1273.0	5.1	19015	1273	24.2	608.3	477816	1273
466.0	477816	608.261	1273	11072	448	5.0	11925	2039	24.3	3974.1	1273.0	5.1	19015	1273	24.2	608.3	477825	1273
467.0	477825	608.271	1273	11072	448	5.0	11925	2039	24.3	3974.2	1273.0	5.1	19015	1273	24.2	608.3	477833	1273
468.0	477833	608.281	1273	11072	448	5.0	11925	2039	24.3	3974.3	1273.0	5.1	19015	1273	24.2	608.3	477840	1273
469.0	477840	608.291	1273	11072	448	5.0	11925	2039	24.3	3974.4	1273.0	5.1	19015	1273	24.2	608.3	477848	1273
470.0	477848	608.301	1273	11072	448	5.0	11925	2039	24.3	3974.4	1273.0	5.1	19015	1273	24.2	608.3	477856	1273
471.0	477856	608.311	1273	11072	448	5.0	11925	2039	24.3	3974.5	1273.0	5.1	19015	1273	24.2	608.3	477864	1273
472.0	477864	608.320	1273	11072	448	5.0	11925	2039	24.3	3974.6	1273.0	5.1	19015	1273	24.2	608.3	477871	1273
473.0	477871	608.330	1273	11072	448	5.0	11925	2039	24.3	3974.7	1273.0	5.1	19015	1273	24.2	608.3	477879	1273
474.0	477879	608.340	1273	11072	448	5.0	11925	2039	24.3	3974.8	1273.0	5.1	19015	1273	24.2	608.3	477886	1273
475.0	477886	608.349	1273	11072	448	5.0	11925	2039	24.3	3974.9	1273.0	5.1	19015	1273	24.2	608.4	477893	1273
476.0	477893	608.358	1273	11072	448	5.0	11925	2039	24.3	3974.9	1273.0	5.1	19015	1273	24.2	608.4	477900	1273
477.0	477900	608.367	1273	11072	448	5.0	11925	2039	24.3	3975.0	1273.0	5.1	19015	1273	24.2	608.4	477907	1273
478.0	477907	608.376	1273	11072	448	5.0	11925	2039	24.3	3975.1	1273.0	5.1	19015	1273	24.2	608.4	477914	1273
479.0	477914	608.385	1273	11072	448	5.0	11925	2039	24.3	3975.2	1273.0	5.1	19015	1273	24.2	608.4	477921	1273
480.0	477921	608.394	1273	11072	448	5.0	11925	2039	24.3	3975.3	1273.0	5.1	19015	1273	24.2	608.4	477928	1273
481.0	477928	608.402	1273	11072	448	5.0	11925	2039	24.3	3975.3	1273.0	5.1	19015	1273	24.2	608.4	477935	1273
482.0	477935	608.411	1273	11072	448	5.0	11925	2039	24.3	3975.4	1273.0	5.1	19015	1273	24.2	608.4	477941	1273
483.0	477941	608.419	1273	11072	448	5.0	11925	2039	24.3	3975.5	1273.0	5.1	19015	1273	24.2	608.4	477948	1273
484.0	477948	608.428	1273	11072	448	5.0	11925	2039	24.3	3975.5	1273.0	5.1	19015	1273	24.2	608.4	477954	1273
485.0	477954	608.436	1273	11072	448	5.0	11925	2039	24.3	3975.6	1273.0	5.1	19015	1273	24.2	608.4	477961	1273
486.0	477961	608.444	1273	11072	448	5.0	11925	2039	24.3	3975.7	1273.0	5.1	19015	1273	24.2	608.5	477967	1273
487.0	477967	608.452	1273	11072	448	5.0	11925	2039	24.3	3975.8	1273.0	5.1	19015	1273	24.2	608.5	477973	1273
488.0	477973	608.460	1273	11072	448	5.0	11925	2039	24.3	3975.8	1273.0	5.1	19015	1273	24.2	608.5	477979	1273
489.0	477979	608.468	1273	11072	448	5.0	11925	2039	24.3	3975.9	1273.0	5.1	19015	1273	24.2	608.5	477985	1273
490.0	477985	608.476	1273	11072	448	5.0	11925	2039	24.3	3976.0	1273.0	5.1	19015	1273	24.2	608.5	477991	1273
491.0	477991	608.483	1273	11072	448	5.0	11925	2039	24.3	3976.0	1273.0	5.1	19015	1273	24.2	608.5	477997	1273
492.0	477997	608.491	1273	11072	448	5.0	11925	2039	24.3	3976.1	1273.0	5.1	19015	1273	24.2	608.5	478003	1273
493.0	478003	608.498	1273	11072	448	5.0	11925	2039	24.3	3976.2	1273.0	5.1	19015	1273	24.2	608.5	478009	1273
494.0	478009	608.506	1273	11072	448	5.0	11925	2039	24.3	3976.2	1273.0	5.1	19015	1273	24.2	608.5	478015	1273
495.0	478015	608.513	1273	11072	448	5.0	11925	2039	24.3	3976.3	1273.0	5.1	19015	1273	24.2	608.5	478020	1273
496.0	478020	608.520	1273	11072	448	5.0	11925	2039	24.3	3976.4	1273.0	5.1	19015	1273	24.2	608.5	478026	1273
497.0	478026	608.527	1273	11072	448	5.0	11925	2039	24.3	3976.4	1273.0	5.1	19015	1273	24.2	608.5	478031	1273
498.0	478031	608.534	1273	11072	448	5.0	11925	2039	24.3	3976.5	1273.0	5.1	19015	1273	24.2	608.5	478037	1273
499.0	478037	608.541	1273	11072	448	5.0	11925	2039	24.3	3976.5	1273.0	5.1	19015	1273	24.2	608.5	478042	1273
500.0	478042	608.548	1273	11072	448	5.0	11925	2039	24.3	3976.6	1273.0	5.1	19015	1273	24.2	608.6	478047	1273

TABLE 36. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW GTO PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Shallow Aquifer and Fractures (averaged) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
0.00	4,191,810	5,336	1,273.00	18,746	1,273	23.9	0.0	0.0	0.0000	4,210,556	5,360	1,273	18,746	23.86	4,191,810	5,336	1273
1.00	4,191,810	5,336	1,273.00	18,752	1,066	20.0	329.8	3.7	0.0012	4,210,566	5,356	1,272	18,756	23.86	4,191,810	5,332	1272
2.00	4,191,810	5,332	1,272.08	18,759	1,407	26.4	3,000.0	7.3	0.0220	4,210,576	5,359	1,273	18,766	23.88	4,191,810	5,335	1273
3.00	4,191,810	5,335	1,272.68	18,728	1,566	29.3	2,614.8	48.2	0.1261	4,210,586	5,364	1,274	18,776	23.92	4,191,810	5,340	1274
4.00	4,191,810	5,340	1,274.00	18,733	1,307	24.5	1,337.2	51.5	0.0689	4,210,594	5,365	1,274	18,784	23.93	4,191,810	5,341	1274
5.00	4,191,810	5,341	1,274.15	18,738	1,237	23.2	1,021.9	54.8	0.0560	4,210,603	5,364	1,274	18,793	23.94	4,191,810	5,340	1274
6.00	4,191,810	5,340	1,273.98	18,743	1,211	22.7	904.5	58.0	0.0525	4,210,611	5,363	1,274	18,801	23.95	4,191,810	5,339	1274
7.00	4,191,810	5,339	1,273.70	18,747	1,202	22.5	852.7	61.1	0.0521	4,210,618	5,362	1,273	18,808	23.95	4,191,810	5,338	1273
8.0	4,191,810	5,338	1,273.37	18,752	1,198	22.5	829.1	64.2	0.0532	4,210,626	5,360	1,273	18,816	23.95	4,191,810	5,336	1273
9.0	4,191,810	5,336	1,273.03	18,757	1,198	22.5	820.1	67.3	0.0552	4,210,634	5,359	1,273	18,824	23.96	4,191,810	5,335	1273
10.0	4,191,810	5,335	1,272.68	18,761	1,199	22.5	819.5	70.2	0.0576	4,210,641	5,357	1,272	18,831	23.96	4,191,810	5,333	1272
11.0	4,191,810	5,333	1,272.34	18,765	1,200	22.5	824.6	73.2	0.0603	4,210,649	5,356	1,272	18,839	23.96	4,191,810	5,332	1272
12.0	4,191,810	5,332	1,272.02	18,770	1,203	22.6	833.5	76.1	0.0634	4,210,656	5,355	1,272	18,846	23.97	4,191,810	5,331	1272
13.0	4,191,810	5,331	1,271.70	18,774	1,205	22.6	845.5	78.9	0.0667	4,210,663	5,353	1,271	18,853	23.97	4,191,810	5,329	1271
14.0	4,191,810	5,329	1,271.40	18,778	1,208	22.7	859.9	81.7	0.0703	4,210,670	5,352	1,271	18,860	23.97	4,191,810	5,328	1271
15.0	4,191,810	5,328	1,271.11	18,782	1,211	22.7	876.4	84.4	0.0740	4,210,677	5,351	1,271	18,867	23.98	4,191,810	5,327	1271
16.0	4,191,810	5,327	1,270.83	18,786	1,214	22.8	894.6	87.1	0.0780	4,210,683	5,350	1,271	18,873	23.98	4,191,810	5,326	1271
17.0	4,191,810	5,326	1,270.57	18,790	1,217	22.9	914.5	89.8	0.0821	4,210,690	5,349	1,270	18,880	23.98	4,191,810	5,325	1270
18.0	4,191,810	5,325	1,270.33	18,794	1,220	22.9	936.0	92.4	0.0865	4,210,696	5,348	1,270	18,886	23.99	4,191,810	5,324	1270
19.0	4,191,810	5,324	1,270.10	18,798	1,223	23.0	958.9	95.0	0.0911	4,210,703	5,347	1,270	18,893	23.99	4,191,810	5,323	1270
20.0	4,191,810	5,323	1,269.88	18,801	1,226	23.0	983.3	97.5	0.0959	4,210,709	5,346	1,270	18,899	23.99	4,191,810	5,322	1270
21.0	4,191,810	5,322	1,269.68	18,805	1,229	23.1	1,009.1	100.0	0.1009	4,210,715	5,345	1,269	18,905	24.00	4,191,810	5,321	1269
22.0	4,191,810	5,321	1,269.49	18,809	1,232	23.2	1,036.4	102.4	0.1061	4,210,721	5,345	1,269	18,911	24.00	4,191,810	5,321	1269
23.0	4,191,810	5,321	1,269.31	18,812	1,234	23.2	1,065.0	104.8	0.1116	4,210,727	5,344	1,269	18,917	24.01	4,191,810	5,320	1269
24.0	4,191,810	5,320	1,269.15	18,816	1,237	23.3	1,095.2	107.1	0.1173	4,210,733	5,343	1,269	18,923	24.01	4,191,810	5,319	1269
25.0	4,191,810	5,319	1,269.00	18,819	1,239	23.3	1,126.8	109.4	0.1233	4,210,739	5,343	1,269	18,928	24.02	4,191,810	5,319	1269
26.0	4,191,810	5,319	1,268.87	18,822	1,242	23.4	1,160.0	111.7	0.1296	4,210,744	5,342	1,269	18,934	24.02	4,191,810	5,318	1269
27.0	4,191,810	5,318	1,268.74	18,826	1,244	23.4	1,194.8	114.0	0.1362	4,210,750	5,342	1,269	18,940	24.03	4,191,810	5,318	1269
28.0	4,191,810	5,318	1,268.63	18,829	1,246	23.5	1,231.2	116.2	0.1430	4,210,755	5,341	1,268	18,945	24.03	4,191,810	5,317	1269
29.0	4,191,810	5,317	1,268.53	18,832	1,249	23.5	1,269.4	118.3	0.1502	4,210,760	5,341	1,268	18,950	24.04	4,191,810	5,317	1268
30.0	4,191,810	5,317	1,268.44	18,835	1,251	23.6	1,309.3	120.4	0.1577	4,210,766	5,340	1,268	18,956	24.04	4,191,810	5,317	1268
31.0	4,191,810	5,317	1,268.37	18,838	1,253	23.6	1,351.1	122.5	0.1655	4,210,771	5,340	1,268	18,961	24.05	4,191,810	5,316	1268
32.0	4,191,810	5,316	1,268.30	18,841	1,255	23.6	1,394.8	124.6	0.1737	4,210,776	5,340	1,268	18,966	24.05	4,191,810	5,316	1268
33.0	4,191,810	5,316	1,268.24	18,844	1,256	23.7	1,440.5	126.6	0.1823	4,210,781	5,340	1,268	18,971	24.06	4,191,810	5,316	1268
34.0	4,191,810	5,316	1,268.19	18,847	1,258	23.7	1,488.4	128.6	0.1914	4,210,786	5,340	1,268	18,976	24.06	4,191,810	5,316	1268
35.0	4,191,810	5,316	1,268.16	18,850	1,259	23.7	1,538.5	130.5	0.2008	4,210,790	5,339	1,268	18,980	24.07	4,191,810	5,316	1268
36.0	4,191,810	5,316	1,268.13	18,853	1,261	23.8	1,590.9	132.4	0.2107	4,210,795	5,339	1,268	18,985	24.07	4,191,810	5,316	1268
37.0	4,191,810	5,316	1,268.10	18,855	1,262	23.8	1,645.8	134.3	0.2210	4,210,800	5,339	1,268	18,990	24.08	4,191,810	5,316	1268
38.0	4,191,810	5,316	1,268.09	18,858	1,263	23.8	1,703.3	136.2	0.2319	4,210,804	5,339	1,268	18,994	24.08	4,191,810	5,316	1268
39.0	4,191,810	5,316	1,268.08	18,861	1,264	23.8	1,763.0	138.0	0.2433	4,210,809	5,339	1,268	18,999	24.09	4,191,810	5,316	1268
40.0	4,191,810	5,316	1,268.08	18,863	1,265	23.9	1,825.0	139.8	0.2551	4,210,813	5,339	1,268	19,003	24.10	4,191,810	5,316	1268
41.0	4,191,810	5,316	1,268.09	18,866	1,266	23.9	1,888.8	141.5	0.2673	4,210,817	5,339	1,268	19,007	24.10	4,191,810	5,316	1268
42.0	4,191,810	5,316	1,268.10	18,868	1,266	23.9	1,954.5	143.2	0.2800	4,210,822	5,339	1,268	19,012	24.11	4,191,810	5,316	1268
43.0	4,191,810	5,316	1,268.11	18,871	1,267	23.9	2,021.9	144.9	0.2930	4,210,826	5,339	1,268	19,016	24.11	4,191,810	5,316	1268
44.0	4,191,810	5,316	1,268.13	18,873	1,267	23.9	2,090.9	146.6	0.3065	4,210,830	5,339	1,268	19,020	24.12	4,191,810	5,316	1268
45.0	4,191,810	5,316	1,268.16	18,876	1,268	23.9	2,161.3	148.2	0.3204	4,210,834	5,339	1,268	19,024	24.12	4,191,810	5,316	1268
46.0	4,191,810	5,316	1,268.19	18,878	1,268	23.9	2,233.1	149.8	0.3346	4,210,838	5,340	1,268	19,028	24.13	4,191,810	5,316	1268
47.0	4,191,810	5,316	1,268.23	18,880	1,269	24.0	2,306.2	151.4	0.3492	4,210,842	5,340	1,268	19,032	24.13	4,191,810	5,316	1268
48.0	4,191,810	5,316	1,268.27	18,882	1,269	24.0	2,380.5	153.0	0.3642	4,210,845	5,340	1,268	19,035	24.14	4,191,810	5,317	1268
49.0	4,191,810	5,317	1,268.31	18,885	1,269	24.0	2,455.9	154.5	0.3795	4,210,849	5,340	1,268	19,039	24.15	4,191,810	5,317	1268
50.0	4,191,810	5,317	1,268.36	18,887	1,270	24.0	2,532.3	156.0	0.3951	4,210,853	5,340	1,268	19,043	24.15	4,191,810	5,317	1268
51.0	4,191,810	5,317	1,268.42	18,889	1,270	24.0	2,609.8	157.5	0.4110	4,210,856	5,341	1,268	19,046	24.16	4,191,810	5,317	1268
52.0	4,191,810	5,317	1,268.47	18,891	1,270	24.0	2,688.1	158.9	0.4273	4,210,860	5,341	1,268	19,050	24.16	4,191,810	5,317	1269
53.0	4,191,810	5,317	1,268.54	18,893	1,270	24.0	2,767.3	160.4	0.4438	4,210,863	5,341	1,268	19,053	24.17	4,191,810	5,318	1269
54.0	4,191,810	5,318	1,268.60	18,895	1,271	24.0	2,847.3	161.8	0.4606	4,210,867	5,341	1,268	19,057	24.17	4,191,810	5,318	1269
55.0	4,191,810	5,318	1,268.67	18,897	1,271	24.0	2,928.1	163.1	0.4777	4,210,870	5,342	1,269	19,060	24.18	4,191,810	5,318	1269
56.0	4,191,810	5,318	1,268.75	18,899	1,271	24.0	3,000.0	164.5	0.4935	4,210,873	5,342	1,269	19,063	24.18	4,191,810	5,319	1269
57.0	4,191,810	5,319	1,268.83	18,901	1,271	24.0	3,000.0	165.8	0.4975	4,210,877	5,342	1,269	19,067	24.19	4,191,810	5,319	1269
58.0	4,191,810	5,319	1,268.91	18,903	1,271	24.0	3,000.0	167.1	0.5014	4,210,880	5,343	1,269	19,070	24.19	4,191,810	5,319	1269
59.0	4,191,810	5,319	1,268.99	18,905	1,271	24.0	3,000.0	168.4	0.5053	4,210,883	5,343	1,269	19,073	24.20	4,191,810	5,320	1269
60.0	4,191,810	5,320	1,269.07	18,906	1,272	24.0	3,000.0	169.7	0.5090	4,210,886	5,343	1,269	19,076	24.21	4,191,810	5,320	1269
61.0	4,191,810	5,320	1,269.15	18,908	1,272	24.0	3,000.0	170.9	0.5128	4,210,889	5,344	1,269	19,079	24.21	4,191,810	5,320	1269
62.0	4,191,810	5,320	1,269.23	18,910	1,272	24.0	3,000.0	172.1	0.5164	4,210,892	5,344	1,269	19,082	24.22	4,191,810	5,321	1269
63.0	4,191,810	5,321	1,269.32	18,912	1,272	24.1	3,000.0	173.3	0.5200	4,210,895	5,344	1,269	19,085	24.22	4,191,810	5,321	1269
64.0	4,191,810	5,321	1,269.40	18,913	1,272	24.1	3,000.0	174.5	0.5235	4,210,898	5,345	1,269	19,088	24.23	4,191,810	5,321	1269
65.0	4,191,810	5,321	1,269.49	18,915	1,272	24.1	3,000.0	175.7	0.5270	4,210,901	5,345	1,269	19,091	24.23	4,191,810	5,322	1270

TABLE 36. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW GTO PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Shallow Aquifer and Fractures (averaged) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
66.0	4,191,810	5,322	1,269.57	18,917	1,272	24.1	3,000.0	176.8	0.5304	4,210,903	5,345	1,269	19,093	24.24	4,191,810	5,322	1270
67.0	4,191,810	5,322	1,269.66	18,918	1,272	24.1	3,000.0	177.9	0.5338	4,210,906	5,346	1,269	19,096	24.24	4,191,810	5,323	1270
68.0	4,191,810	5,323	1,269.74	18,920	1,272	24.1	3,000.0	179.0	0.5371	4,210,909	5,346	1,270	19,099	24.25	4,191,810	5,323	1270
69.0	4,191,810	5,323	1,269.83	18,921	1,272	24.1	3,000.0	180.1	0.5403	4,210,911	5,346	1,270	19,101	24.25	4,191,810	5,323	1270
70.0	4,191,810	5,323	1,269.91	18,923	1,272	24.1	3,000.0	181.2	0.5435	4,210,914	5,347	1,270	19,104	24.26	4,191,810	5,324	1270
71.0	4,191,810	5,324	1,270.00	18,924	1,272	24.1	3,000.0	182.2	0.5466	4,210,916	5,347	1,270	19,106	24.26	4,191,810	5,324	1270
72.0	4,191,810	5,324	1,270.09	18,926	1,272	24.1	3,000.0	183.2	0.5497	4,210,919	5,347	1,270	19,109	24.27	4,191,810	5,324	1270
73.0	4,191,810	5,324	1,270.17	18,927	1,272	24.1	3,000.0	184.2	0.5527	4,210,921	5,348	1,270	19,111	24.27	4,191,810	5,325	1270
74.0	4,191,810	5,325	1,270.26	18,929	1,272	24.1	3,000.0	185.2	0.5556	4,210,924	5,348	1,270	19,114	24.28	4,191,810	5,325	1270
75.0	4,191,810	5,325	1,270.35	18,930	1,273	24.1	3,000.0	186.2	0.5586	4,210,926	5,349	1,270	19,116	24.28	4,191,810	5,325	1270
76.0	4,191,810	5,325	1,270.43	18,931	1,273	24.1	3,000.0	187.1	0.5614	4,210,928	5,349	1,270	19,118	24.29	4,191,810	5,326	1271
77.0	4,191,810	5,326	1,270.52	18,933	1,273	24.1	3,000.0	188.1	0.5642	4,210,931	5,349	1,270	19,121	24.29	4,191,810	5,326	1271
78.0	4,191,810	5,326	1,270.61	18,934	1,273	24.1	3,000.0	189.0	0.5670	4,210,933	5,350	1,270	19,123	24.29	4,191,810	5,327	1271
79.0	4,191,810	5,327	1,270.70	18,935	1,273	24.1	3,000.0	189.9	0.5697	4,210,935	5,350	1,271	19,125	24.30	4,191,810	5,327	1271
80.0	4,191,810	5,327	1,270.78	18,936	1,273	24.1	3,000.0	190.8	0.5724	4,210,937	5,350	1,271	19,127	24.30	4,191,810	5,327	1271
81.0	4,191,810	5,327	1,270.87	18,938	1,273	24.1	3,000.0	191.7	0.5750	4,210,939	5,351	1,271	19,129	24.31	4,191,810	5,328	1271
82.0	4,191,810	5,328	1,270.96	18,939	1,273	24.1	3,000.0	192.5	0.5776	4,210,941	5,351	1,271	19,131	24.31	4,191,810	5,328	1271
83.0	4,191,810	5,328	1,271.05	18,940	1,273	24.1	3,000.0	193.4	0.5801	4,210,943	5,352	1,271	19,133	24.32	4,191,810	5,328	1271
84.0	4,191,810	5,328	1,271.14	18,941	1,273	24.1	3,000.0	194.2	0.5826	4,210,945	5,352	1,271	19,135	24.32	4,191,810	5,329	1271
85.0	4,191,810	5,329	1,271.22	18,942	1,273	24.1	3,000.0	195.0	0.5850	4,210,947	5,352	1,271	19,137	24.32	4,191,810	5,329	1271
86.0	4,191,810	5,329	1,271.31	18,944	1,273	24.1	3,000.0	195.8	0.5874	4,210,949	5,353	1,271	19,139	24.33	4,191,810	5,329	1271
87.0	4,191,810	5,329	1,271.40	18,945	1,273	24.1	3,000.0	196.6	0.5898	4,210,951	5,353	1,271	19,141	24.33	4,191,810	5,330	1271
88.0	4,191,810	5,330	1,271.49	18,946	1,273	24.1	3,000.0	197.4	0.5921	4,210,953	5,353	1,271	19,143	24.34	4,191,810	5,330	1272
89.0	4,191,810	5,330	1,271.58	18,947	1,273	24.1	3,000.0	198.1	0.5944	4,210,955	5,354	1,271	19,145	24.34	4,191,810	5,331	1272
90.0	4,191,810	5,331	1,271.67	18,948	1,273	24.1	3,000.0	198.9	0.5966	4,210,957	5,354	1,271	19,147	24.34	4,191,810	5,331	1272
91.0	4,191,810	5,331	1,271.75	18,949	1,273	24.1	3,000.0	199.6	0.5988	4,210,959	5,354	1,272	19,149	24.35	4,191,810	5,331	1272
92.0	4,191,810	5,331	1,271.84	18,950	1,273	24.1	3,000.0	200.3	0.6010	4,210,960	5,355	1,272	19,150	24.35	4,191,810	5,332	1272
93.0	4,191,810	5,332	1,271.93	18,951	1,273	24.1	3,000.0	201.0	0.6031	4,210,962	5,355	1,272	19,152	24.36	4,191,810	5,332	1272
94.0	4,191,810	5,332	1,272.02	18,952	1,273	24.1	3,000.0	201.7	0.6052	4,210,964	5,356	1,272	19,154	24.36	4,191,810	5,332	1272
95.0	4,191,810	5,332	1,272.11	18,953	1,273	24.1	3,000.0	202.4	0.6073	4,210,965	5,356	1,272	19,155	24.36	4,191,810	5,333	1272
96.0	4,191,810	5,333	1,272.19	18,954	1,273	24.1	3,000.0	203.1	0.6093	4,210,967	5,356	1,272	19,157	24.37	4,191,810	5,333	1272
97.0	4,191,810	5,333	1,272.28	18,955	1,273	24.1	3,000.0	203.7	0.6112	4,210,969	5,357	1,272	19,159	24.37	4,191,810	5,334	1272
98.0	4,191,810	5,334	1,272.37	18,956	1,273	24.1	3,000.0	204.4	0.6132	4,210,970	5,357	1,272	19,160	24.37	4,191,810	5,334	1272
99.0	4,191,810	5,334	1,272.46	18,957	1,273	24.1	3,000.0	205.0	0.6151	4,210,972	5,357	1,272	19,162	24.38	4,191,810	5,334	1273
100.0	4,191,810	5,334	1,272.54	18,957	1,273	24.1	3,000.0	205.7	0.6170	4,210,973	5,358	1,272	19,163	24.38	4,191,810	5,335	1273
101.0	4,191,810	5,335	1,272.63	18,958	1,273	24.1	3,000.0	206.3	0.6188	4,210,975	5,358	1,272	19,165	24.39	4,191,810	5,335	1273
102.0	4,191,810	5,335	1,272.72	18,959	1,273	24.1	3,000.0	206.9	0.6206	4,210,976	5,359	1,273	19,166	24.39	4,191,810	5,335	1273
103.0	4,191,810	5,335	1,272.81	18,960	1,273	24.1	3,000.0	207.5	0.6224	4,210,978	5,359	1,273	19,168	24.39	4,191,810	5,336	1273
104.0	4,191,810	5,336	1,272.89	18,961	1,273	24.1	3,000.0	208.1	0.6242	4,210,979	5,359	1,273	19,169	24.40	4,191,810	5,336	1273
105.0	4,191,810	5,336	1,272.98	18,962	1,273	24.1	3,000.0	208.6	0.6259	4,210,980	5,360	1,273	19,170	24.40	4,191,810	5,336	1273
106.0	4,191,810	5,336	1,273.07	18,962	1,273	24.1	3,000.0	209.2	0.6276	4,210,982	5,360	1,273	19,172	24.40	4,191,810	5,337	1273
107.0	4,191,810	5,337	1,273.15	18,963	1,273	24.1	3,000.0	209.7	0.6292	4,210,983	5,360	1,273	19,173	24.41	4,191,810	5,337	1273
108.0	4,191,810	5,337	1,273.24	18,964	1,273	24.1	3,000.0	210.3	0.6309	4,210,984	5,361	1,273	19,174	24.41	4,191,810	5,338	1273
109.0	4,191,810	5,338	1,273.32	18,965	1,273	24.1	3,000.0	210.8	0.6325	4,210,986	5,361	1,273	19,176	24.41	4,191,810	5,338	1273
110.0	4,191,810	5,338	1,273.41	18,965	1,273	24.1	3,000.0	211.3	0.6340	4,210,987	5,361	1,273	19,177	24.42	4,191,810	5,338	1273
111.0	4,191,810	5,338	1,273.50	18,966	1,273	24.1	3,000.0	211.9	0.6356	4,210,988	5,362	1,273	19,178	24.42	4,191,810	5,339	1274
112.0	4,191,810	5,339	1,273.58	18,967	1,273	24.1	3,000.0	212.4	0.6371	4,210,989	5,362	1,273	19,179	24.42	4,191,810	5,339	1274
113.0	4,191,810	5,339	1,273.67	18,968	1,273	24.1	3,000.0	212.9	0.6386	4,210,991	5,362	1,273	19,181	24.43	4,191,810	5,339	1274
114.0	4,191,810	5,339	1,273.75	18,968	1,273	24.1	3,000.0	213.4	0.6401	4,210,992	5,363	1,274	19,182	24.43	4,191,810	5,340	1274
115.0	4,191,810	5,340	1,273.84	18,969	1,273	24.1	3,000.0	213.8	0.6415	4,210,993	5,363	1,274	19,183	24.43	4,191,810	5,340	1274
116.0	4,191,810	5,340	1,273.92	18,970	1,273	24.1	3,000.0	214.3	0.6429	4,210,994	5,364	1,274	19,184	24.43	4,191,810	5,340	1274
117.0	4,191,810	5,340	1,274.01	18,970	1,273	24.1	3,000.0	214.8	0.6443	4,210,995	5,364	1,274	19,185	24.44	4,191,810	5,341	1274
118.0	4,191,810	5,341	1,274.09	18,971	1,273	24.1	3,000.0	215.2	0.6457	4,210,996	5,364	1,274	19,186	24.44	4,191,810	5,341	1274
119.0	4,191,810	5,341	1,274.18	18,972	1,273	24.2	3,000.0	215.7	0.6470	4,210,997	5,365	1,274	19,187	24.44	4,191,810	5,341	1274
120.0	4,191,810	5,341	1,274.26	18,972	1,273	24.2	3,000.0	216.1	0.6484	4,210,998	5,365	1,274	19,188	24.45	4,191,810	5,342	1274
121.0	4,191,810	5,342	1,274.35	18,973	1,273	24.2	3,000.0	216.6	0.6497	4,210,999	5,365	1,274	19,189	24.45	4,191,810	5,342	1274
122.0	4,191,810	5,342	1,274.43	18,973	1,273	24.2	3,000.0	217.0	0.6509	4,211,000	5,366	1,274	19,190	24.45	4,191,810	5,343	1275
123.0	4,191,810	5,343	1,274.51	18,974	1,273	24.2	3,000.0	217.4	0.6522	4,211,001	5,366	1,274	19,191	24.46	4,191,810	5,343	1275
124.0	4,191,810	5,343	1,274.60	18,975	1,273	24.2	3,000.0	217.8	0.6534	4,211,002	5,366	1,274	19,192	24.46	4,191,810	5,343	1275
125.0	4,191,810	5,343	1,274.68	18,975	1,273	24.2	3,000.0	218.2	0.6546	4,211,003	5,367	1,274	19,193	24.46	4,191,810	5,344	1275
126.0	4,191,810	5,344	1,274.76	18,976	1,273	24.2	3,000.0	218.6	0.6558	4,211,004	5,367	1,275	19,194	24.46	4,191,810	5,344	1275
127.0	4,191,810	5,344	1,274.85	18,976	1,273	24.2	3,000.0	219.0	0.6570	4,211,005	5,367	1,275	19,195	24.47	4,191,810	5,344	1275
128.0	4,191,810	5,344	1,274.93	18,977	1,273	24.2	3,000.0	219.4	0.6581	4,211,006	5,368	1,275	19,196	24.47	4,191,810	5,345	1275
129.0	4,191,810	5,345	1,275.01	18,977	1,273	24.2	3,000.0	219.7	0.6592	4,211,007	5,368	1,275	19,197	24.47	4,191,810	5,345	1275
130.0	4,191,810	5,345	1,275.09	18,978	1,273	24.2	3,000.0	220.1	0.6604	4,211,008	5,368	1,275	19,198	24.47	4,191,810	5,345	1275
131.0	4,191,810	5,345	1,275.18	18,978	1,273	24.2	3,000.0	220.5	0.6614	4,211,009	5,369	1,275	19,199	24.48	4,191,810	5,346	1275
132.0	4,191,810	5,346	1,275.26	18,979	1,273	24.2	3,000.0	220.8	0.6625	4,211,010	5,369	1,275	19,200	24.48	4,191,810	5,346	1275

TABLE 36. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW GTO PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Shallow Aquifer and Fractures (averaged) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
133.0	4,191,810	5,346	1,275.34	18,979	1,273	24.2	3,000.0	221.2	0.6636	4,211,011	5,369	1,275	19,200	24.48	4,191,810	5,346	1275
134.0	4,191,810	5,346	1,275.42	18,980	1,273	24.2	3,000.0	221.5	0.6646	4,211,011	5,370	1,275	19,201	24.49	4,191,810	5,347	1276
135.0	4,191,810	5,347	1,275.50	18,980	1,273	24.2	3,000.0	221.9	0.6656	4,211,012	5,370	1,275	19,202	24.49	4,191,810	5,347	1276
136.0	4,191,810	5,347	1,275.58	18,981	1,273	24.2	3,000.0	222.2	0.6666	4,211,013	5,371	1,275	19,203	24.49	4,191,810	5,347	1276
137.0	4,191,810	5,347	1,275.66	18,981	1,273	24.2	3,000.0	222.5	0.6676	4,211,014	5,371	1,275	19,204	24.49	4,191,810	5,348	1276
138.0	4,191,810	5,348	1,275.75	18,982	1,273	24.2	3,000.0	222.8	0.6685	4,211,014	5,371	1,276	19,204	24.50	4,191,810	5,348	1276
139.0	4,191,810	5,348	1,275.83	18,982	1,273	24.2	3,000.0	223.2	0.6695	4,211,015	5,372	1,276	19,205	24.50	4,191,810	5,348	1276
140.0	4,191,810	5,348	1,275.91	18,982	1,273	24.2	3,000.0	223.5	0.6704	4,211,016	5,372	1,276	19,206	24.50	4,191,810	5,349	1276
141.0	4,191,810	5,349	1,275.99	18,983	1,273	24.2	3,000.0	223.8	0.6713	4,211,017	5,372	1,276	19,207	24.50	4,191,810	5,349	1276
142.0	4,191,810	5,349	1,276.06	18,983	1,273	24.2	3,000.0	224.1	0.6722	4,211,017	5,373	1,276	19,207	24.51	4,191,810	5,349	1276
143.0	4,191,810	5,349	1,276.14	18,984	1,273	24.2	3,000.0	224.4	0.6731	4,211,018	5,373	1,276	19,208	24.51	4,191,810	5,350	1276
144.0	4,191,810	5,350	1,276.22	18,984	1,273	24.2	3,000.0	224.7	0.6740	4,211,019	5,373	1,276	19,209	24.51	4,191,810	5,350	1276
145.0	4,191,810	5,350	1,276.30	18,985	1,273	24.2	3,000.0	224.9	0.6748	4,211,019	5,374	1,276	19,209	24.51	4,191,810	5,350	1276
146.0	4,191,810	5,350	1,276.38	18,985	1,273	24.2	3,000.0	225.2	0.6756	4,211,020	5,374	1,276	19,210	24.51	4,191,810	5,351	1276
147.0	4,191,810	5,351	1,276.46	18,985	1,273	24.2	3,000.0	225.5	0.6765	4,211,021	5,374	1,276	19,211	24.52	4,191,810	5,351	1277
148.0	4,191,810	5,351	1,276.54	18,986	1,273	24.2	3,000.0	225.8	0.6773	4,211,021	5,374	1,276	19,211	24.52	4,191,810	5,351	1277
149.0	4,191,810	5,351	1,276.62	18,986	1,273	24.2	3,000.0	226.0	0.6781	4,211,022	5,375	1,276	19,212	24.52	4,191,810	5,352	1277
150.0	4,191,810	5,352	1,276.69	18,986	1,273	24.2	3,000.0	226.3	0.6788	4,211,023	5,375	1,276	19,213	24.52	4,191,810	5,352	1277
151.0	4,191,810	5,352	1,276.77	18,987	1,273	24.2	3,000.0	226.5	0.6796	4,211,023	5,375	1,277	19,213	24.53	4,191,810	5,352	1277
152.0	4,191,810	5,352	1,276.85	18,987	1,273	24.2	3,000.0	226.8	0.6803	4,211,024	5,376	1,277	19,214	24.53	4,191,810	5,353	1277
153.0	4,191,810	5,353	1,276.92	18,987	1,273	24.2	3,000.0	227.0	0.6811	4,211,025	5,376	1,277	19,215	24.53	4,191,810	5,353	1277
154.0	4,191,810	5,353	1,277.00	18,988	1,273	24.2	3,000.0	227.3	0.6818	4,211,025	5,376	1,277	19,215	24.53	4,191,810	5,353	1277
155.0	4,191,810	5,353	1,277.08	18,988	1,273	24.2	3,000.0	227.5	0.6825	4,211,026	5,377	1,277	19,216	24.54	4,191,810	5,354	1277
156.0	4,191,810	5,354	1,277.15	18,988	1,273	24.2	3,000.0	227.7	0.6832	4,211,026	5,377	1,277	19,216	24.54	4,191,810	5,354	1277
157.0	4,191,810	5,354	1,277.23	18,989	1,273	24.2	3,000.0	228.0	0.6839	4,211,027	5,377	1,277	19,217	24.54	4,191,810	5,354	1277
158.0	4,191,810	5,354	1,277.30	18,989	1,273	24.2	3,000.0	228.2	0.6846	4,211,027	5,378	1,277	19,217	24.54	4,191,810	5,355	1277
159.0	4,191,810	5,355	1,277.38	18,989	1,273	24.2	3,000.0	228.4	0.6852	4,211,028	5,378	1,277	19,218	24.54	4,191,810	5,355	1277
160.0	4,191,810	5,355	1,277.46	18,990	1,273	24.2	3,000.0	228.6	0.6859	4,211,028	5,378	1,277	19,218	24.55	4,191,810	5,355	1278
161.0	4,191,810	5,355	1,277.53	18,990	1,273	24.2	3,000.0	228.8	0.6865	4,211,029	5,379	1,277	19,219	24.55	4,191,810	5,355	1278
162.0	4,191,810	5,355	1,277.61	18,990	1,273	24.2	3,000.0	229.1	0.6872	4,211,029	5,379	1,277	19,219	24.55	4,191,810	5,356	1278
163.0	4,191,810	5,356	1,277.68	18,991	1,273	24.2	3,000.0	229.3	0.6878	4,211,030	5,379	1,277	19,220	24.55	4,191,810	5,356	1278
164.0	4,191,810	5,356	1,277.75	18,991	1,273	24.2	3,000.0	229.5	0.6884	4,211,030	5,380	1,277	19,220	24.55	4,191,810	5,356	1278
165.0	4,191,810	5,356	1,277.83	18,991	1,273	24.2	3,000.0	229.7	0.6890	4,211,031	5,380	1,278	19,221	24.56	4,191,810	5,357	1278
166.0	4,191,810	5,357	1,277.90	18,991	1,273	24.2	3,000.0	229.9	0.6896	4,211,031	5,380	1,278	19,221	24.56	4,191,810	5,357	1278
167.0	4,191,810	5,357	1,277.97	18,992	1,273	24.2	3,000.0	230.0	0.6901	4,211,032	5,381	1,278	19,222	24.56	4,191,810	5,357	1278
168.0	4,191,810	5,357	1,278.05	18,992	1,273	24.2	3,000.0	230.2	0.6907	4,211,032	5,381	1,278	19,222	24.56	4,191,810	5,358	1278
169.0	4,191,810	5,358	1,278.12	18,992	1,273	24.2	3,000.0	230.4	0.6913	4,211,033	5,381	1,278	19,223	24.56	4,191,810	5,358	1278
170.0	4,191,810	5,358	1,278.19	18,992	1,273	24.2	3,000.0	230.6	0.6918	4,211,033	5,381	1,278	19,223	24.57	4,191,810	5,358	1278
171.0	4,191,810	5,358	1,278.27	18,993	1,273	24.2	3,000.0	230.8	0.6923	4,211,034	5,382	1,278	19,223	24.57	4,191,810	5,359	1278
172.0	4,191,810	5,359	1,278.34	18,993	1,273	24.2	3,000.0	231.0	0.6929	4,211,034	5,382	1,278	19,224	24.57	4,191,810	5,359	1278
173.0	4,191,810	5,359	1,278.41	18,993	1,273	24.2	3,000.0	231.1	0.6934	4,211,034	5,382	1,278	19,224	24.57	4,191,810	5,359	1278
174.0	4,191,810	5,359	1,278.48	18,993	1,273	24.2	3,000.0	231.3	0.6939	4,211,035	5,383	1,278	19,225	24.57	4,191,810	5,359	1279
175.0	4,191,810	5,359	1,278.55	18,994	1,273	24.2	3,000.0	231.5	0.6944	4,211,035	5,383	1,278	19,225	24.58	4,191,810	5,360	1279
176.0	4,191,810	5,360	1,278.62	18,994	1,273	24.2	3,000.0	231.6	0.6949	4,211,036	5,383	1,278	19,226	24.58	4,191,810	5,360	1279
177.0	4,191,810	5,360	1,278.69	18,994	1,273	24.2	3,000.0	231.8	0.6954	4,211,036	5,384	1,278	19,226	24.58	4,191,810	5,360	1279
178.0	4,191,810	5,360	1,278.76	18,994	1,273	24.2	3,000.0	231.9	0.6958	4,211,036	5,384	1,279	19,226	24.58	4,191,810	5,361	1279
179.0	4,191,810	5,361	1,278.84	18,995	1,273	24.2	3,000.0	232.1	0.6962	4,211,037	5,384	1,279	19,227	24.58	4,191,810	5,361	1279
180.0	4,191,810	5,361	1,278.91	18,995	1,273	24.2	3,000.0	232.2	0.6965	4,211,037	5,384	1,279	19,227	24.58	4,191,810	5,361	1279
181.0	4,191,810	5,361	1,278.98	18,995	1,273	24.2	3,000.0	232.3	0.6968	4,211,037	5,385	1,279	19,227	24.59	4,191,810	5,362	1279
182.0	4,191,810	5,362	1,279.04	18,995	1,273	24.2	3,000.0	232.4	0.6971	4,211,038	5,385	1,279	19,228	24.59	4,191,810	5,362	1279
183.0	4,191,810	5,362	1,279.11	18,996	1,273	24.2	3,000.0	232.5	0.6974	4,211,038	5,385	1,279	19,228	24.59	4,191,810	5,362	1279
184.0	4,191,810	5,362	1,279.18	18,996	1,273	24.2	3,000.0	232.6	0.6977	4,211,038	5,386	1,279	19,228	24.59	4,191,810	5,362	1279
185.0	4,191,810	5,362	1,279.25	18,996	1,273	24.2	3,000.0	232.7	0.6980	4,211,039	5,386	1,279	19,229	24.59	4,191,810	5,363	1279
186.0	4,191,810	5,363	1,279.32	18,996	1,273	24.2	3,000.0	232.8	0.6983	4,211,039	5,386	1,279	19,229	24.60	4,191,810	5,363	1279
187.0	4,191,810	5,363	1,279.39	18,997	1,273	24.2	3,000.0	232.9	0.6986	4,211,039	5,386	1,279	19,229	24.60	4,191,810	5,363	1279
188.0	4,191,810	5,363	1,279.46	18,997	1,273	24.2	3,000.0	233.0	0.6989	4,211,040	5,387	1,279	19,230	24.60	4,191,810	5,364	1280
189.0	4,191,810	5,364	1,279.52	18,997	1,273	24.2	3,000.0	233.1	0.6992	4,211,040	5,387	1,279	19,230	24.60	4,191,810	5,364	1280
190.0	4,191,810	5,364	1,279.59	18,997	1,273	24.2	3,000.0	233.2	0.6995	4,211,040	5,387	1,279	19,230	24.60	4,191,810	5,364	1280
191.0	4,191,810	5,364	1,279.66	18,998	1,273	24.2	3,000.0	233.3	0.6998	4,211,041	5,388	1,279	19,231	24.60	4,191,810	5,364	1280
192.0	4,191,810	5,364	1,279.72	18,998	1,273	24.2	3,000.0	233.3	0.7000	4,211,041	5,388	1,279	19,231	24.61	4,191,810	5,365	1280
193.0	4,191,810	5,365	1,279.79	18,998	1,273	24.2	3,000.0	233.4	0.7003	4,211,041	5,388	1,280	19,231	24.61	4,191,810	5,365	1280
194.0	4,191,810	5,365	1,279.86	18,998	1,273	24.2	3,000.0	233.5	0.7006	4,211,042	5,388	1,280	19,232	24.61	4,191,810	5,365	1280
195.0	4,191,810	5,365	1,279.92	18,998	1,273	24.2	3,000.0	233.6	0.7008	4,211,042	5,389	1,280	19,232	24.61	4,191,810	5,365	1280
196.0	4,191,810	5,365	1,279.99	18,999	1,273	24.2	3,000.0	233.7	0.7011	4,211,042	5,389	1,280	19,232	24.61	4,191,810	5,366	1280
197.0	4,191,810	5,366	1,280.05	18,999	1,273	24.2	3,000.0	233.8	0.7014	4,211,043	5,389	1,280	19,233	24.61	4,191,810	5,366	1280
198.0	4,191,810	5,366	1,280.12	18,999	1,273	24.2	3,000.0	233.9	0.7016	4,211,043	5,390	1,280	19,233	24.62	4,191,810	5,367	1280
199.0	4,191,810	5,366	1,280.18	18,999	1,273	24.2	3,000.0	234.0	0.7019	4,211,043	5,390	1,280	19,233	24.62	4,191,810	5,367	1280

TABLE 36. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW GTO PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Shallow Aquifer and Fractures (averaged) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
200.0	4,191,810	5,367	1,280.25	18,999	1,273	24.2	3,000.0	234.0	0.7021	4,211,043	5,390	1,280	19,233	24.62	4,191,810	5,367	1280
201.0	4,191,810	5,367	1,280.31	19,000	1,273	24.2	3,000.0	234.1	0.7024	4,211,044	5,390	1,280	19,234	24.62	4,191,810	5,367	1280
202.0	4,191,810	5,367	1,280.38	19,000	1,273	24.2	3,000.0	234.2	0.7026	4,211,044	5,391	1,280	19,234	24.62	4,191,810	5,367	1280
203.0	4,191,810	5,367	1,280.44	19,000	1,273	24.2	3,000.0	234.3	0.7029	4,211,044	5,391	1,280	19,234	24.62	4,191,810	5,368	1281
204.0	4,191,810	5,368	1,280.51	19,000	1,273	24.2	3,000.0	234.4	0.7031	4,211,045	5,391	1,280	19,235	24.62	4,191,810	5,368	1281
205.0	4,191,810	5,368	1,280.57	19,000	1,273	24.2	3,000.0	234.4	0.7033	4,211,045	5,391	1,280	19,235	24.63	4,191,810	5,368	1281
206.0	4,191,810	5,368	1,280.63	19,001	1,273	24.2	3,000.0	234.5	0.7036	4,211,045	5,392	1,280	19,235	24.63	4,191,810	5,368	1281
207.0	4,191,810	5,368	1,280.69	19,001	1,273	24.2	3,000.0	234.6	0.7038	4,211,045	5,392	1,280	19,235	24.63	4,191,810	5,369	1281
208.0	4,191,810	5,369	1,280.76	19,001	1,273	24.2	3,000.0	234.7	0.7040	4,211,046	5,392	1,280	19,236	24.63	4,191,810	5,369	1281
209.0	4,191,810	5,369	1,280.82	19,001	1,273	24.2	3,000.0	234.7	0.7042	4,211,046	5,392	1,281	19,236	24.63	4,191,810	5,369	1281
210.0	4,191,810	5,369	1,280.88	19,001	1,273	24.2	3,000.0	234.8	0.7045	4,211,046	5,393	1,281	19,236	24.63	4,191,810	5,369	1281
211.0	4,191,810	5,369	1,280.94	19,001	1,273	24.2	3,000.0	234.9	0.7047	4,211,046	5,393	1,281	19,236	24.64	4,191,810	5,370	1281
212.0	4,191,810	5,370	1,281.00	19,002	1,273	24.2	3,000.0	235.0	0.7049	4,211,047	5,393	1,281	19,237	24.64	4,191,810	5,370	1281
213.0	4,191,810	5,370	1,281.07	19,002	1,273	24.2	3,000.0	235.0	0.7051	4,211,047	5,393	1,281	19,237	24.64	4,191,810	5,370	1281
214.0	4,191,810	5,370	1,281.13	19,002	1,273	24.2	3,000.0	235.1	0.7053	4,211,047	5,394	1,281	19,237	24.64	4,191,810	5,370	1281
215.0	4,191,810	5,370	1,281.19	19,002	1,273	24.2	3,000.0	235.2	0.7055	4,211,047	5,394	1,281	19,237	24.64	4,191,810	5,371	1281
216.0	4,191,810	5,371	1,281.25	19,002	1,273	24.2	3,000.0	235.2	0.7057	4,211,048	5,394	1,281	19,238	24.64	4,191,810	5,371	1281
217.0	4,191,810	5,371	1,281.31	19,002	1,273	24.2	3,000.0	235.3	0.7059	4,211,048	5,394	1,281	19,238	24.64	4,191,810	5,371	1281
218.0	4,191,810	5,371	1,281.37	19,003	1,273	24.2	3,000.0	235.4	0.7061	4,211,048	5,395	1,281	19,238	24.65	4,191,810	5,372	1281
219.0	4,191,810	5,372	1,281.43	19,003	1,273	24.2	3,000.0	235.4	0.7063	4,211,048	5,395	1,281	19,238	24.65	4,191,810	5,372	1281
220.0	4,191,810	5,372	1,281.49	19,003	1,273	24.2	3,000.0	235.5	0.7065	4,211,048	5,395	1,281	19,238	24.65	4,191,810	5,372	1282
221.0	4,191,810	5,372	1,281.55	19,003	1,273	24.2	3,000.0	235.6	0.7067	4,211,049	5,395	1,281	19,239	24.65	4,191,810	5,372	1282
222.0	4,191,810	5,372	1,281.61	19,003	1,273	24.2	3,000.0	235.6	0.7069	4,211,049	5,396	1,281	19,239	24.65	4,191,810	5,373	1282
223.0	4,191,810	5,373	1,281.67	19,003	1,273	24.2	3,000.0	235.7	0.7071	4,211,049	5,396	1,281	19,239	24.65	4,191,810	5,373	1282
224.0	4,191,810	5,373	1,281.72	19,004	1,273	24.2	3,000.0	235.8	0.7073	4,211,049	5,396	1,281	19,239	24.65	4,191,810	5,373	1282
225.0	4,191,810	5,373	1,281.78	19,004	1,273	24.2	3,000.0	235.8	0.7075	4,211,050	5,396	1,282	19,240	24.66	4,191,810	5,373	1282
226.0	4,191,810	5,373	1,281.84	19,004	1,273	24.2	3,000.0	235.9	0.7076	4,211,050	5,397	1,282	19,240	24.66	4,191,810	5,373	1282
227.0	4,191,810	5,373	1,281.90	19,004	1,273	24.2	3,000.0	235.9	0.7078	4,211,050	5,397	1,282	19,240	24.66	4,191,810	5,374	1282
228.0	4,191,810	5,374	1,281.96	19,004	1,273	24.2	3,000.0	236.0	0.7080	4,211,050	5,397	1,282	19,240	24.66	4,191,810	5,374	1282
229.0	4,191,810	5,374	1,282.01	19,004	1,273	24.2	3,000.0	236.1	0.7082	4,211,050	5,397	1,282	19,240	24.66	4,191,810	5,374	1282
230.0	4,191,810	5,374	1,282.07	19,004	1,273	24.2	3,000.0	236.1	0.7084	4,211,051	5,398	1,282	19,241	24.66	4,191,810	5,374	1282
231.0	4,191,810	5,374	1,282.13	19,005	1,273	24.2	3,000.0	236.2	0.7085	4,211,051	5,398	1,282	19,241	24.66	4,191,810	5,375	1282
232.0	4,191,810	5,375	1,282.18	19,005	1,273	24.2	3,000.0	236.2	0.7087	4,211,051	5,398	1,282	19,241	24.67	4,191,810	5,375	1282
233.0	4,191,810	5,375	1,282.24	19,005	1,273	24.2	3,000.0	236.3	0.7089	4,211,051	5,398	1,282	19,241	24.67	4,191,810	5,375	1282
234.0	4,191,810	5,375	1,282.30	19,005	1,273	24.2	3,000.0	236.3	0.7090	4,211,051	5,399	1,282	19,241	24.67	4,191,810	5,375	1282
235.0	4,191,810	5,375	1,282.35	19,005	1,273	24.2	3,000.0	236.4	0.7092	4,211,052	5,399	1,282	19,242	24.67	4,191,810	5,376	1282
236.0	4,191,810	5,376	1,282.41	19,005	1,273	24.2	3,000.0	236.4	0.7093	4,211,052	5,399	1,282	19,242	24.67	4,191,810	5,376	1282
237.0	4,191,810	5,376	1,282.46	19,005	1,273	24.2	3,000.0	236.5	0.7095	4,211,052	5,399	1,282	19,242	24.67	4,191,810	5,376	1283
238.0	4,191,810	5,376	1,282.52	19,005	1,273	24.2	3,000.0	236.6	0.7097	4,211,052	5,400	1,282	19,242	24.67	4,191,810	5,376	1283
239.0	4,191,810	5,376	1,282.58	19,006	1,273	24.2	3,000.0	236.6	0.7098	4,211,052	5,400	1,282	19,242	24.67	4,191,810	5,377	1283
240.0	4,191,810	5,377	1,282.63	19,006	1,273	24.2	3,000.0	236.7	0.7100	4,211,052	5,400	1,282	19,242	24.68	4,191,810	5,377	1283
241.0	4,191,810	5,377	1,282.68	19,006	1,273	24.2	3,000.0	236.7	0.7101	4,211,053	5,400	1,282	19,243	24.68	4,191,810	5,377	1283
242.0	4,191,810	5,377	1,282.74	19,006	1,273	24.2	3,000.0	236.8	0.7103	4,211,053	5,400	1,282	19,243	24.68	4,191,810	5,377	1283
243.0	4,191,810	5,377	1,282.79	19,006	1,273	24.2	3,000.0	236.8	0.7104	4,211,053	5,401	1,283	19,243	24.68	4,191,810	5,377	1283
244.0	4,191,810	5,377	1,282.85	19,006	1,273	24.2	3,000.0	236.8	0.7105	4,211,053	5,401	1,283	19,243	24.68	4,191,810	5,378	1283
245.0	4,191,810	5,378	1,282.90	19,006	1,273	24.2	3,000.0	236.9	0.7107	4,211,053	5,401	1,283	19,243	24.68	4,191,810	5,378	1283
246.0	4,191,810	5,378	1,282.95	19,006	1,273	24.2	3,000.0	236.9	0.7108	4,211,053	5,401	1,283	19,243	24.68	4,191,810	5,378	1283
247.0	4,191,810	5,378	1,283.01	19,007	1,273	24.2	3,000.0	237.0	0.7110	4,211,054	5,402	1,283	19,244	24.68	4,191,810	5,378	1283
248.0	4,191,810	5,378	1,283.06	19,007	1,273	24.2	3,000.0	237.0	0.7111	4,211,054	5,402	1,283	19,244	24.69	4,191,810	5,379	1283
249.0	4,191,810	5,379	1,283.11	19,007	1,273	24.2	3,000.0	237.1	0.7112	4,211,054	5,402	1,283	19,244	24.69	4,191,810	5,379	1283
250.0	4,191,810	5,379	1,283.17	19,007	1,273	24.2	3,000.0	237.1	0.7114	4,211,054	5,402	1,283	19,244	24.69	4,191,810	5,379	1283
251.0	4,191,810	5,379	1,283.22	19,007	1,273	24.2	3,000.0	237.2	0.7115	4,211,054	5,402	1,283	19,244	24.69	4,191,810	5,379	1283
252.0	4,191,810	5,379	1,283.27	19,007	1,273	24.2	3,000.0	237.2	0.7116	4,211,054	5,403	1,283	19,244	24.69	4,191,810	5,379	1283
253.0	4,191,810	5,379	1,283.32	19,007	1,273	24.2	3,000.0	237.3	0.7118	4,211,054	5,403	1,283	19,244	24.69	4,191,810	5,380	1283
254.0	4,191,810	5,380	1,283.37	19,007	1,273	24.2	3,000.0	237.3	0.7119	4,211,055	5,403	1,283	19,245	24.69	4,191,810	5,380	1283
255.0	4,191,810	5,380	1,283.43	19,007	1,273	24.2	3,000.0	237.3	0.7120	4,211,055	5,403	1,283	19,245	24.69	4,191,810	5,380	1283
256.0	4,191,810	5,380	1,283.48	19,007	1,273	24.2	3,000.0	237.4	0.7121	4,211,055	5,404	1,283	19,245	24.69	4,191,810	5,380	1284
257.0	4,191,810	5,380	1,283.53	19,008	1,273	24.2	3,000.0	237.4	0.7123	4,211,055	5,404	1,283	19,245	24.70	4,191,810	5,381	1284
258.0	4,191,810	5,381	1,283.58	19,008	1,273	24.2	3,000.0	237.5	0.7124	4,211,055	5,404	1,283	19,245	24.70	4,191,810	5,381	1284
259.0	4,191,810	5,381	1,283.63	19,008	1,273	24.2	3,000.0	237.5	0.7125	4,211,055	5,404	1,283	19,245	24.70	4,191,810	5,381	1284
260.0	4,191,810	5,381	1,283.68	19,008	1,273	24.2	3,000.0	237.5	0.7126	4,211,055	5,404	1,283	19,245	24.70	4,191,810	5,381	1284
261.0	4,191,810	5,381	1,283.73	19,008	1,273	24.2	3,000.0	237.6	0.7127	4,211,056	5,405	1,283	19,246	24.70	4,191,810	5,381	1284
262.0	4,191,810	5,381	1,283.78	19,008	1,273	24.2	3,000.0	237.6	0.7129	4,211,056	5,405	1,283	19,246	24.70	4,191,810	5,382	1284
263.0	4,191,810	5,382	1,283.83	19,008	1,273	24.2	3,000.0	237.7	0.7130	4,211,056	5,405	1,284	19,246	24.70	4,191,810	5,382	1284
264.0	4,191,810	5,382	1,283.88	19,008	1,273	24.2	3,000.0	237.7	0.7131	4,211,056	5,405	1,284	19,246	24.70	4,191,810	5,382	1284
265.0	4,191,810	5,382	1,283.93	19,008	1,273	24.2	3,000.0	237.7	0.7132	4,211,056	5,405	1,284	19,246	24.70	4,191,810	5,382	1284
266.0	4,191,810	5,382	1,283.98	19,008	1,273	24.2	3,000.0	237.8	0.7133	4,211,056	5,406	1,284	19,246	24.71	4,191,810	5,382	1284

TABLE 36. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW GTO PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Shallow Aquifer and Fractures (averaged) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
267.0	4,191,810	5,382	1,284.03	19,009	1,273	24.2	3,000.0	237.8	0.7134	4,211,056	5,406	1,284	19,246	24.71	4,191,810	5,383	1284
268.0	4,191,810	5,383	1,284.07	19,009	1,273	24.2	3,000.0	237.8	0.7135	4,211,056	5,406	1,284	19,246	24.71	4,191,810	5,383	1284
269.0	4,191,810	5,383	1,284.12	19,009	1,273	24.2	3,000.0	237.9	0.7136	4,211,057	5,406	1,284	19,247	24.71	4,191,810	5,383	1284
270.0	4,191,810	5,383	1,284.17	19,009	1,273	24.2	3,000.0	237.9	0.7137	4,211,057	5,406	1,284	19,247	24.71	4,191,810	5,383	1284
271.0	4,191,810	5,383	1,284.22	19,009	1,273	24.2	3,000.0	237.9	0.7138	4,211,057	5,407	1,284	19,247	24.71	4,191,810	5,383	1284
272.0	4,191,810	5,383	1,284.27	19,009	1,273	24.2	3,000.0	238.0	0.7139	4,211,057	5,407	1,284	19,247	24.71	4,191,810	5,384	1284
273.0	4,191,810	5,384	1,284.32	19,009	1,273	24.2	3,000.0	238.0	0.7140	4,211,057	5,407	1,284	19,247	24.71	4,191,810	5,384	1284
274.0	4,191,810	5,384	1,284.36	19,009	1,273	24.2	3,000.0	238.0	0.7141	4,211,057	5,407	1,284	19,247	24.71	4,191,810	5,384	1284
275.0	4,191,810	5,384	1,284.41	19,009	1,273	24.2	3,000.0	238.1	0.7142	4,211,057	5,407	1,284	19,247	24.72	4,191,810	5,384	1284
276.0	4,191,810	5,384	1,284.46	19,009	1,273	24.2	3,000.0	238.1	0.7143	4,211,057	5,408	1,284	19,247	24.72	4,191,810	5,384	1285
277.0	4,191,810	5,384	1,284.50	19,009	1,273	24.2	3,000.0	238.1	0.7144	4,211,057	5,408	1,284	19,247	24.72	4,191,810	5,385	1285
278.0	4,191,810	5,385	1,284.55	19,009	1,273	24.2	3,000.0	238.2	0.7145	4,211,058	5,408	1,284	19,248	24.72	4,191,810	5,385	1285
279.0	4,191,810	5,385	1,284.60	19,009	1,273	24.2	3,000.0	238.2	0.7146	4,211,058	5,408	1,284	19,248	24.72	4,191,810	5,385	1285
280.0	4,191,810	5,385	1,284.64	19,010	1,273	24.2	3,000.0	238.2	0.7147	4,211,058	5,408	1,284	19,248	24.72	4,191,810	5,385	1285
281.0	4,191,810	5,385	1,284.69	19,010	1,273	24.2	3,000.0	238.3	0.7148	4,211,058	5,409	1,284	19,248	24.72	4,191,810	5,385	1285
282.0	4,191,810	5,385	1,284.73	19,010	1,273	24.2	3,000.0	238.3	0.7149	4,211,058	5,409	1,284	19,248	24.72	4,191,810	5,386	1285
283.0	4,191,810	5,386	1,284.78	19,010	1,273	24.2	3,000.0	238.3	0.7150	4,211,058	5,409	1,284	19,248	24.72	4,191,810	5,386	1285
284.0	4,191,810	5,386	1,284.83	19,010	1,273	24.2	3,000.0	238.4	0.7151	4,211,058	5,409	1,285	19,248	24.72	4,191,810	5,386	1285
285.0	4,191,810	5,386	1,284.87	19,010	1,273	24.2	3,000.0	238.4	0.7151	4,211,058	5,409	1,285	19,248	24.73	4,191,810	5,386	1285
286.0	4,191,810	5,386	1,284.92	19,010	1,273	24.2	3,000.0	238.4	0.7152	4,211,058	5,410	1,285	19,248	24.73	4,191,810	5,386	1285
287.0	4,191,810	5,386	1,284.96	19,010	1,273	24.2	3,000.0	238.4	0.7153	4,211,059	5,410	1,285	19,248	24.73	4,191,810	5,387	1285
288.0	4,191,810	5,387	1,285.01	19,010	1,273	24.2	3,000.0	238.5	0.7154	4,211,059	5,410	1,285	19,249	24.73	4,191,810	5,387	1285
289.0	4,191,810	5,387	1,285.05	19,010	1,273	24.2	3,000.0	238.5	0.7155	4,211,059	5,410	1,285	19,249	24.73	4,191,810	5,387	1285
290.0	4,191,810	5,387	1,285.09	19,010	1,273	24.2	3,000.0	238.5	0.7156	4,211,059	5,410	1,285	19,249	24.73	4,191,810	5,387	1285
291.0	4,191,810	5,387	1,285.14	19,010	1,273	24.2	3,000.0	238.5	0.7156	4,211,059	5,411	1,285	19,249	24.73	4,191,810	5,387	1285
292.0	4,191,810	5,387	1,285.18	19,010	1,273	24.2	3,000.0	238.6	0.7157	4,211,059	5,411	1,285	19,249	24.73	4,191,810	5,387	1285
293.0	4,191,810	5,387	1,285.23	19,010	1,273	24.2	3,000.0	238.6	0.7158	4,211,059	5,411	1,285	19,249	24.73	4,191,810	5,388	1285
294.0	4,191,810	5,388	1,285.27	19,011	1,273	24.2	3,000.0	238.6	0.7159	4,211,059	5,411	1,285	19,249	24.73	4,191,810	5,388	1285
295.0	4,191,810	5,388	1,285.31	19,011	1,273	24.2	3,000.0	238.7	0.7160	4,211,059	5,411	1,285	19,249	24.74	4,191,810	5,388	1285
296.0	4,191,810	5,388	1,285.36	19,011	1,273	24.2	3,000.0	238.7	0.7160	4,211,059	5,411	1,285	19,249	24.74	4,191,810	5,388	1285
297.0	4,191,810	5,388	1,285.40	19,011	1,273	24.2	3,000.0	238.7	0.7161	4,211,059	5,412	1,285	19,249	24.74	4,191,810	5,388	1285
298.0	4,191,810	5,388	1,285.44	19,011	1,273	24.2	3,000.0	238.7	0.7162	4,211,059	5,412	1,285	19,249	24.74	4,191,810	5,389	1285
299.0	4,191,810	5,389	1,285.48	19,011	1,273	24.2	3,000.0	238.7	0.7162	4,211,060	5,412	1,285	19,250	24.74	4,191,810	5,389	1286
300.0	4,191,810	5,389	1,285.53	19,011	1,273	24.2	3,000.0	238.8	0.7163	4,211,060	5,412	1,285	19,250	24.74	4,191,810	5,389	1286
301.0	4,191,810	5,389	1,285.57	19,011	1,273	24.2	3,000.0	238.8	0.7164	4,211,060	5,412	1,285	19,250	24.74	4,191,810	5,389	1286
302.0	4,191,810	5,389	1,285.61	19,011	1,273	24.2	3,000.0	238.8	0.7165	4,211,060	5,413	1,285	19,250	24.74	4,191,810	5,389	1286
303.0	4,191,810	5,389	1,285.65	19,011	1,273	24.2	3,000.0	238.8	0.7165	4,211,060	5,413	1,285	19,250	24.74	4,191,810	5,390	1286
304.0	4,191,810	5,389	1,285.69	19,011	1,273	24.2	3,000.0	238.9	0.7166	4,211,060	5,413	1,285	19,250	24.74	4,191,810	5,390	1286
305.0	4,191,810	5,390	1,285.74	19,011	1,273	24.2	3,000.0	238.9	0.7167	4,211,060	5,413	1,285	19,250	24.75	4,191,810	5,390	1286
306.0	4,191,810	5,390	1,285.78	19,011	1,273	24.2	3,000.0	238.9	0.7167	4,211,060	5,413	1,286	19,250	24.75	4,191,810	5,390	1286
307.0	4,191,810	5,390	1,285.82	19,011	1,273	24.2	3,000.0	238.9	0.7168	4,211,060	5,413	1,286	19,250	24.75	4,191,810	5,390	1286
308.0	4,191,810	5,390	1,285.86	19,011	1,273	24.2	3,000.0	239.0	0.7169	4,211,060	5,414	1,286	19,250	24.75	4,191,810	5,390	1286
309.0	4,191,810	5,390	1,285.90	19,011	1,273	24.2	3,000.0	239.0	0.7169	4,211,060	5,414	1,286	19,250	24.75	4,191,810	5,391	1286
310.0	4,191,810	5,390	1,285.94	19,011	1,273	24.2	3,000.0	239.0	0.7170	4,211,060	5,414	1,286	19,250	24.75	4,191,810	5,391	1286
311.0	4,191,810	5,391	1,285.98	19,011	1,273	24.2	3,000.0	239.0	0.7171	4,211,060	5,414	1,286	19,251	24.75	4,191,810	5,391	1286
312.0	4,191,810	5,391	1,286.02	19,012	1,273	24.2	3,000.0	239.0	0.7171	4,211,061	5,414	1,286	19,251	24.75	4,191,810	5,391	1286
313.0	4,191,810	5,391	1,286.06	19,012	1,273	24.2	3,000.0	239.1	0.7172	4,211,061	5,414	1,286	19,251	24.75	4,191,810	5,391	1286
314.0	4,191,810	5,391	1,286.10	19,012	1,273	24.2	3,000.0	239.1	0.7172	4,211,061	5,415	1,286	19,251	24.75	4,191,810	5,391	1286
315.0	4,191,810	5,391	1,286.14	19,012	1,273	24.2	3,000.0	239.1	0.7173	4,211,061	5,415	1,286	19,251	24.75	4,191,810	5,391	1286
316.0	4,191,810	5,391	1,286.18	19,012	1,273	24.2	3,000.0	239.1	0.7174	4,211,061	5,415	1,286	19,251	24.75	4,191,810	5,392	1286
317.0	4,191,810	5,392	1,286.22	19,012	1,273	24.2	3,000.0	239.1	0.7174	4,211,061	5,415	1,286	19,251	24.76	4,191,810	5,392	1286
318.0	4,191,810	5,392	1,286.26	19,012	1,273	24.2	3,000.0	239.2	0.7175	4,211,061	5,415	1,286	19,251	24.76	4,191,810	5,392	1286
319.0	4,191,810	5,392	1,286.30	19,012	1,273	24.2	3,000.0	239.2	0.7175	4,211,061	5,415	1,286	19,251	24.76	4,191,810	5,392	1286
320.0	4,191,810	5,392	1,286.34	19,012	1,273	24.2	3,000.0	239.2	0.7176	4,211,061	5,416	1,286	19,251	24.76	4,191,810	5,392	1286
321.0	4,191,810	5,392	1,286.38	19,012	1,273	24.2	3,000.0	239.2	0.7176	4,211,061	5,416	1,286	19,251	24.76	4,191,810	5,392	1286
322.0	4,191,810	5,392	1,286.41	19,012	1,273	24.2	3,000.0	239.2	0.7177	4,211,061	5,416	1,286	19,251	24.76	4,191,810	5,393	1286
323.0	4,191,810	5,393	1,286.45	19,012	1,273	24.2	3,000.0	239.2	0.7177	4,211,061	5,416	1,286	19,251	24.76	4,191,810	5,393	1286
324.0	4,191,810	5,393	1,286.49	19,012	1,273	24.2	3,000.0	239.3	0.7178	4,211,061	5,416	1,286	19,251	24.76	4,191,810	5,393	1287
325.0	4,191,810	5,393	1,286.53	19,012	1,273	24.2	3,000.0	239.3	0.7178	4,211,061	5,416	1,286	19,251	24.76	4,191,810	5,393	1287
326.0	4,191,810	5,393	1,286.57	19,012	1,273	24.2	3,000.0	239.3	0.7179	4,211,061	5,417	1,286	19,251	24.76	4,191,810	5,393	1287
327.0	4,191,810	5,393	1,286.60	19,012	1,273	24.2	3,000.0	239.3	0.7179	4,211,062	5,417	1,286	19,251	24.76	4,191,810	5,393	1287
328.0	4,191,810	5,393	1,286.64	19,012	1,273	24.2	3,000.0	239.3	0.7180	4,211,062	5,417	1,286	19,252	24.76	4,191,810	5,394	1287
329.0	4,191,810	5,394	1,286.68	19,012	1,273	24.2	3,000.0	239.3	0.7180	4,211,062	5,417	1,286	19,252	24.76	4,191,810	5,394	1287
330.0	4,191,810	5,394	1,286.72	19,012	1,273	24.2	3,000.0	239.4	0.7181	4,211,062	5,417	1,286	19,252	24.77	4,191,810	5,394	1287
331.0	4,191,810	5,394	1,286.75	19,012	1,273	24.2	3,000.0	239.4	0.7181	4,211,062	5,417	1,286	19,252	24.77	4,191,810	5,394	1287
332.0	4,191,810	5,394	1,286.79	19,012	1,273	24.2	3,000.0	239.4	0.7182	4,211,062	5,417	1,286	19,252	24.77	4,191,810	5,394	1287
333.0	4,191,810	5,394	1,286.83	19,012	1,273	24.2	3,000.0	239.4	0.7182	4,211,062	5,418	1,287	19,252	24.77	4,191,810	5,394	1287

TABLE 36. CHEMICAL BALANCE MODEL RESULTS FOR N-AQUIFER BELOW GTO PIT

TIME	INITIAL DEEP AQUIFER CONDITIONS			INPUT TO DEEP AQUIFER									OUTPUT FROM DEEP AQUIFER		FINAL DEEP AQUIFER CONDITIONS		
Current Year	Initial Water in Deep Aquifer (tons)	Initial Mass in Deep Aquifer (tons)	Initial Concentration in Deep Aquifer (ppm)	Flow to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Shallow Aquifer and Fractures (averaged) (ppm)	Chemical Mass to Deep Aquifer from Shallow Aquifer and Fracture Leakage (tons)	Concentration in Pit (ppm)	Flow to Deep Aquifer from Pit via Vertical Leakage (tons)	Chemical Mass to Deep Aquifer from Pit via Vertical Leakage (tons)	Sum of Water in Deep Aquifer (tons)	Chemical Mass in Deep Aquifer (tons)	Concentration Deep Aquifer (ppm)	Groundwater Flow from Deep Aquifer (tons)	Chemical Mass out from Deep Aquifer via Groundwater Flow (tons)	Final Water in Deep Aquifer (tons)	Final Chemical Mass in Deep Aquifer (tons)	Final Concentration in Deep Aquifer (ppm)
468.0	4,191,810	5,410	1,290.54	19,015	1,273	24.2	3,000.0	240.4	0.7213	4,211,065	5,433	1,290	19,255	24.84	4,191,810	5,410	1291
469.0	4,191,810	5,410	1,290.56	19,015	1,273	24.2	3,000.0	240.4	0.7213	4,211,065	5,433	1,290	19,255	24.84	4,191,810	5,410	1291
470.0	4,191,810	5,410	1,290.58	19,015	1,273	24.2	3,000.0	240.4	0.7213	4,211,065	5,433	1,290	19,255	24.84	4,191,810	5,410	1291
471.0	4,191,810	5,410	1,290.60	19,015	1,273	24.2	3,000.0	240.4	0.7213	4,211,065	5,433	1,290	19,255	24.84	4,191,810	5,410	1291
472.0	4,191,810	5,410	1,290.62	19,015	1,273	24.2	3,000.0	240.4	0.7213	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,410	1291
473.0	4,191,810	5,410	1,290.64	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,410	1291
474.0	4,191,810	5,410	1,290.66	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,410	1291
475.0	4,191,810	5,410	1,290.68	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,410	1291
476.0	4,191,810	5,410	1,290.70	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,410	1291
477.0	4,191,810	5,410	1,290.72	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,411	1291
478.0	4,191,810	5,411	1,290.74	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,411	1291
479.0	4,191,810	5,411	1,290.76	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,411	1291
480.0	4,191,810	5,411	1,290.78	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,411	1291
481.0	4,191,810	5,411	1,290.80	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,411	1291
482.0	4,191,810	5,411	1,290.81	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,290	19,255	24.85	4,191,810	5,411	1291
483.0	4,191,810	5,411	1,290.83	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,291	19,255	24.85	4,191,810	5,411	1291
484.0	4,191,810	5,411	1,290.85	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,434	1,291	19,255	24.85	4,191,810	5,411	1291
485.0	4,191,810	5,411	1,290.87	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,435	1,291	19,255	24.85	4,191,810	5,411	1291
486.0	4,191,810	5,411	1,290.89	19,015	1,273	24.2	3,000.0	240.5	0.7214	4,211,065	5,435	1,291	19,255	24.85	4,191,810	5,411	1291
487.0	4,191,810	5,411	1,290.91	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,065	5,435	1,291	19,255	24.85	4,191,810	5,411	1291
488.0	4,191,810	5,411	1,290.93	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,255	24.85	4,191,810	5,411	1291
489.0	4,191,810	5,411	1,290.94	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,255	24.85	4,191,810	5,411	1291
490.0	4,191,810	5,411	1,290.96	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
491.0	4,191,810	5,412	1,290.98	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
492.0	4,191,810	5,412	1,291.00	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
493.0	4,191,810	5,412	1,291.02	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
494.0	4,191,810	5,412	1,291.03	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
495.0	4,191,810	5,412	1,291.05	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
496.0	4,191,810	5,412	1,291.07	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
497.0	4,191,810	5,412	1,291.09	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,435	1,291	19,256	24.85	4,191,810	5,412	1291
498.0	4,191,810	5,412	1,291.10	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,436	1,291	19,256	24.85	4,191,810	5,412	1291
499.0	4,191,810	5,412	1,291.12	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,436	1,291	19,256	24.85	4,191,810	5,412	1291
500.0	4,191,810	5,412	1,291.14	19,015	1,273	24.2	3,000.0	240.5	0.7215	4,211,066	5,436	1,291	19,256	24.86	4,191,810	5,412	1291

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Mine Permit Number M0370088 Mine Name Lisbon Valley
Operator Lisbon Valley Mining Co. LLC Date February 13, 2007
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2006 Annual Update of the Lisbon Valley Hydrogelogic System Evaluation

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