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OGMCOAL - Ground Water Management Plan

From: Kirk Nicholes <knicholes@altoncoal.com>
To: "April Abate (aprilabate@utah.gov)" <aprilabate@utah.gov>
Date: 8/4/2011 6:12 AM
Subject: Ground Water Management Plan
Attachments: Mine Dewatering Letter to DEQ 2011.pdf

Hello April,

Attached is the letter to DEQ that Eric and I have put together to manage the alluvial water. I'm sending it out today, and if approved, will submit it for inclusion in the MRP.

Thank You

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PETERSEN HYDROLOGIC

2 August 2011

Mr. Michael Herkimer
Environmental Scientist
Department of Environmental Quality
Division of Water Quality
195 North 1950 West
Salt Lake City, Utah 84114

Mike,

Alton Coal Development, LLC (ACD) operates the Coal Hollow Mine, which is a surface coal mining operation located approximately 3 miles south of the town of Alton, Utah (Figures 1 and 2). The approved Mining and Reclamation Plan (MRP) for the Coal Hollow Mine calls for the interception and rerouting of up-gradient alluvial groundwaters away from the mine pit areas such that these waters do not drain into the mine pits. Conversations in this regard have been had with personnel from the Utah Department of Environmental Quality and the Utah Division of Oil, Gas and Mining. At your request, we are providing this letter report to summarize ACD's proposed alluvial groundwater interception and rerouting (mine dewatering) plans for the Coal Hollow Mine.

Hydrogeologic Overview

Geologic and Hydrogeologic conditions at the Coal Hollow Mine and surrounding areas have been characterized previously in conjunction with mine permitting activities. As described in the Coal Hollow Mine MRP, groundwater naturally occurs in saturated alluvial sediments in the mine permit and adjacent areas. The alluvial sediments in the mine area are dominated by discontinuous layers of silt, clay, and fine-grained sand. Coarser alluvial sediments consisting of sands and gravels are present in fluvial channel

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systems in some areas. The rate at which alluvial groundwaters flow into mine openings is proportional to the hydraulic conductivity and saturated thickness of the encountered alluvial sediments. Groundwater drainage rates from silty or clayey sediments are typically low, while drainage rates from sandy or gravelly sediments can be appreciably greater. Accordingly, because of the observed heterogeneous nature of the alluvial sediments in the mine area, it is anticipated that rates of flux through the alluvial sediments will vary considerably over the spatial extent of the Coal Hollow Mine pit areas.

The underlying Tropic Shale formation is a marine shale unit that is not capable of transmitting appreciable quantities of groundwater. Accordingly, substantial discharges from the Tropic Shale into the mine pit areas have not been observed nor are they anticipated.

Relatively small amounts of groundwater locally weep from the Smirl coal seam where it is exposed in the mine pit floor areas. The observed modest inflow rates and inflow volumes associated with seepage from the coal seam are likely attributable to the low storage volume within the coal itself (low primary porosity) and the general low hydraulic conductivity of unfractured coal. Where the coal is intensively fractured, the hydraulic conductivity is enhanced.

In the natural, undisturbed condition, water quality in the alluvial groundwater systems in the Coal Hollow Mine and surrounding areas is naturally degraded as the groundwater comes into contact with soluble minerals in the Tropic Shale formation along groundwater flow paths (See Coal Hollow Mine MRP for further description). In a similar manner, if groundwaters are allowed to come into contact with the Tropic Shale in mining areas, the chemical quality of the groundwater could be degraded. Accordingly, as indicated in the Coal Hollow Mine MRP, the mining and reclamation plan has been designed to minimize the potential for interactions between intercepted

alluvial groundwaters and the Tropic Shale bedrock or Tropic Shale derived sediments in disturbed mining areas.

Baseline Water Quality Data

Water quality in alluvial groundwater systems and in surface water drainages in the Coal Hollow Mine and surrounding areas has been monitored quarterly since 2005 by Petersen Hydrologic, LLC. Water monitoring station details are provided in Table 1. Water quality data for selected monitoring locations are presented in Table 2. The water monitoring sites for which data are provided in Table 2 were selected to provide information on ambient water quality conditions in the alluvial groundwater systems up-gradient of proposed mining areas. Additionally, information from selected surface water monitoring sites in nearby locations is also provided. It should be noted that during low-flow conditions, water monitored on Lower Robinson Creek at sites SW-5 and BLM-1 consists primarily of alluvial groundwater that locally seeps into the stream channel. During high-flow conditions, runoff water from up-gradient locations comprises the major fraction of the water in the stream. Water quality data for additional monitoring sites in the Coal Hollow Mine and surrounding area are available from the Utah Division of Oil, Gas and Mining's on-line coal water quality database at http://ogm.utah.gov/coal/edi/wqdb.htm.

Proposed Alluvial Groundwater Dewatering Plan

From a water quality standpoint, it is preferable to allow naturally occurring, uncontaminated alluvial groundwater that would otherwise flow into the mine pit areas to be rerouted and subsequently discharged in its natural, uncontaminated state rather than allowing that groundwater to flow into the mine pit areas. A conceptual drawing depicting the proposed interception of up-gradient alluvial groundwater is shown on Figure 3. It is apparent in Figure 3 that in the absence of an up-gradient alluvial groundwater intercept trench, alluvial groundwaters would naturally flow into the mine pit areas.

As described in the approved Coal Hollow Mine MRP (See Sections 301-742.728.332 and 301.742.728.333), the plan indicates that, "*where possible, groundwater that will be encountered in alluvial sediments along the margins of mine pit areas will be routed through pipes, ditches or other conveyance methods away from mining areas via gravity drainage so as to prevent or minimize the potential for interaction with sediments disturbed by mining operations (including contact with the mined coal seam)*". Because under this plan the alluvial groundwater (which constitutes the great majority of the groundwater in the mine area) will be routed away from the mining disturbed area, discharge of appreciable quantities of mine water from the mine pits should not be necessary. Minor quantities of groundwater that could potentially be encountered within the Smirl coal seam or from the overlying Tropic Shale bedrock may be managed within the mine pits, utilized as dust suppression water, or when necessary pumped from the pit areas and discharged through sediment ponds in compliance with the mine's UPDES permit. The UPDES permit for the Coal Hollow Mine allows for the discharge of mine waters though Pond #3 and Pond #4.

A map showing the Coal Hollow Mine area with the projected mining pit sequence is shown in Figure 2. It should be noted that the actual mining sequence may change in the future based on the geologic and hydrogeologic conditions encountered during mining operations. Also shown on Figure 2 are arrows showing the approximate direction of shallow alluvial groundwater flow. The approximate flow directions are based on potentiometric data obtained from the network of monitoring wells at the site. It is evident that shallow alluvial groundwater flow in the Coal Hollow Mine area is generally from upland recharge areas located to the east and north toward lower lying areas in the west and south. Accordingly, it is anticipated that the alluvial groundwater interception trenches to be constructed will be located up-gradient of the pit areas to be mined and oriented roughly perpendicular to the prevailing groundwater flow direction to maximize the effectiveness of the intercept trench.

While site specific hydrogeologic and operational considerations will dictate the specific operation plan for individual locations, the typical construction and operation of the alluvial groundwater dewatering system will be conducted as follows:

1) Alluvial groundwater intercept trenches will be constructed in the alluvial sediments up-gradient of the mining area. The intercept trenches will typically be constructed using a track-hoe or similar piece of equipment and will be of sufficient depth to intercept the desired alluvial groundwater zone. It should be noted that as the mining progresses, it will be necessary to periodically relocate, enlarge, or construct additional intercept trenches to maximize the efficiency of the alluvial groundwater interception and rerouting system.

2) A sump will be constructed at the down-gradient end of the intercept trench into which the intercepted water will collect. During the construction and initial operation phase of the intercept trench, suspended solids may be settled in the sump prior to discharging.

3) A pump will be utilized at the sump location which to pump the water from the sump through a pipe to the outfall location. The sump construction and the pumping protocols will be designed so as to minimize the potential to disturb sediments and increase the suspended solids load in the pumped water. Based on the locations of the current mining areas, the water collected from the drainage trenches will be piped to the proposed outfall location on Lower Robinson Creek as shown on Figure 2. As mining progresses to the south in the Sink Valley drainage, the intercepted alluvial groundwater will be pumped to a suitable approved location on Sink Valley Wash.

4) Water in the sump will only be pumped to the outfall location when the concentration of suspended solids is acceptable for discharge to the outfall location. Only uncontaminated groundwater will be discharged to the outfall

location. Water in the sump will likely also be used for dust suppression or mine process water.

5) The water quality and discharge rates from the alluvial groundwater intercept system will be routinely monitored as a natural drainage in conjunction with ACD's quarterly water monitoring activities. The monitoring activities will be conducted per monitoring protocol A,1 in the Coal Hollow Mine water monitoring plan (See Coal Hollow Mine MRP, Table 7-4). This monitoring protocol calls for quarterly discharge measurements and quarterly field and laboratory water quality measurements as indicated in Table 7-6A of the Coal Hollow Mine MRP.

It is my opinion that the operation of the proposed alluvial groundwater interception and rerouting system will likely be effective in minimizing impacts to water quality in the intercepted alluvial groundwaters while minimizing alluvial groundwater inflows to the Coal Hollow Mine workings.

Please feel free to contact me should you have any questions in this regard.

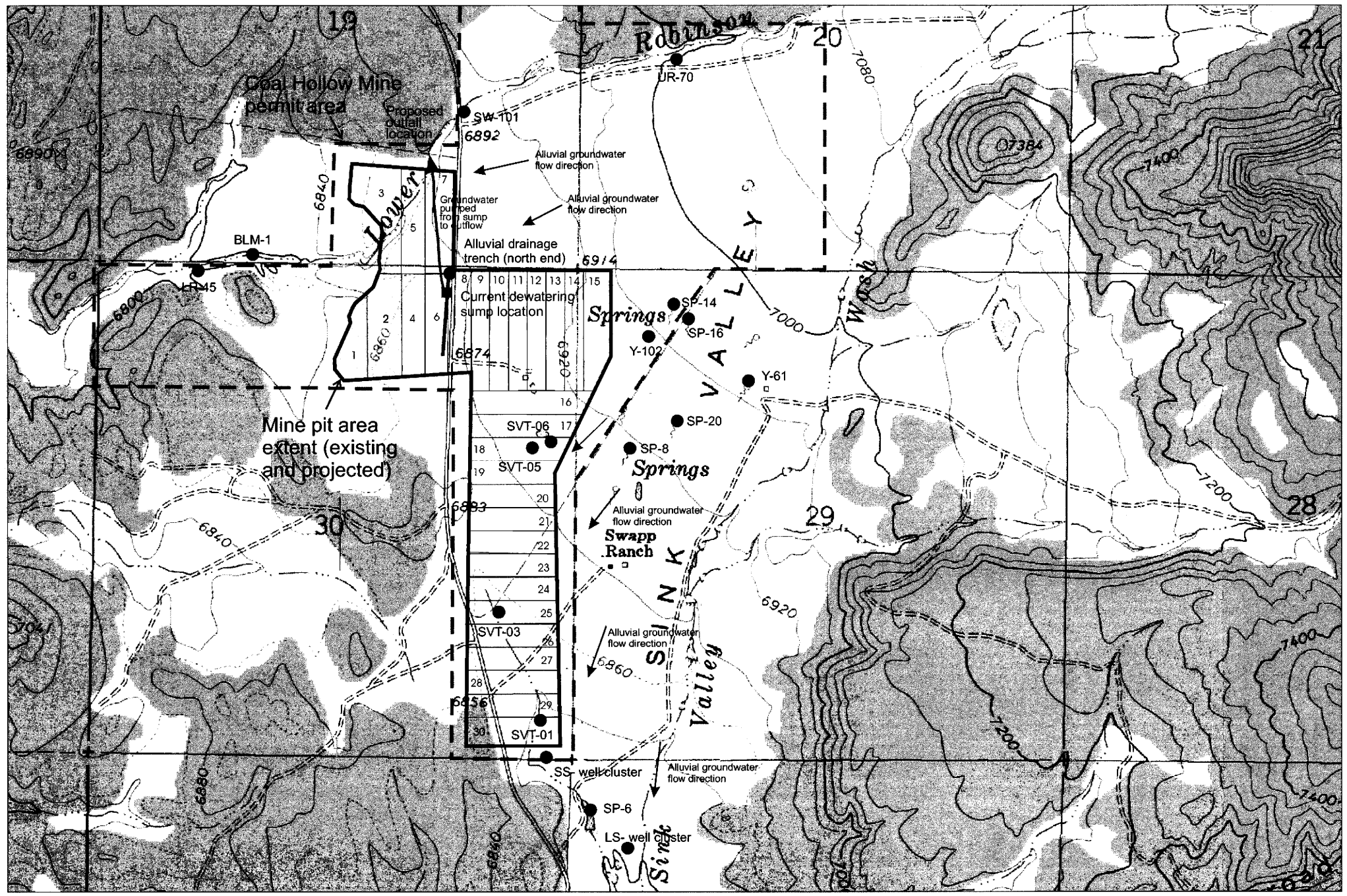
Sincerely,

Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG #5373615-2250

Figure 1 Location map showing Coal Hollow Mine permit area and the town of Alton, Utah.

112° 28' 14.876" W
37° 24' 19.690" N

112° 25' 18.184" W
37° 24' 21.852" N



37° 22' 45.718" N
112° 28' 13.040" W

37° 22' 47.878" N
112° 25' 16.409" W

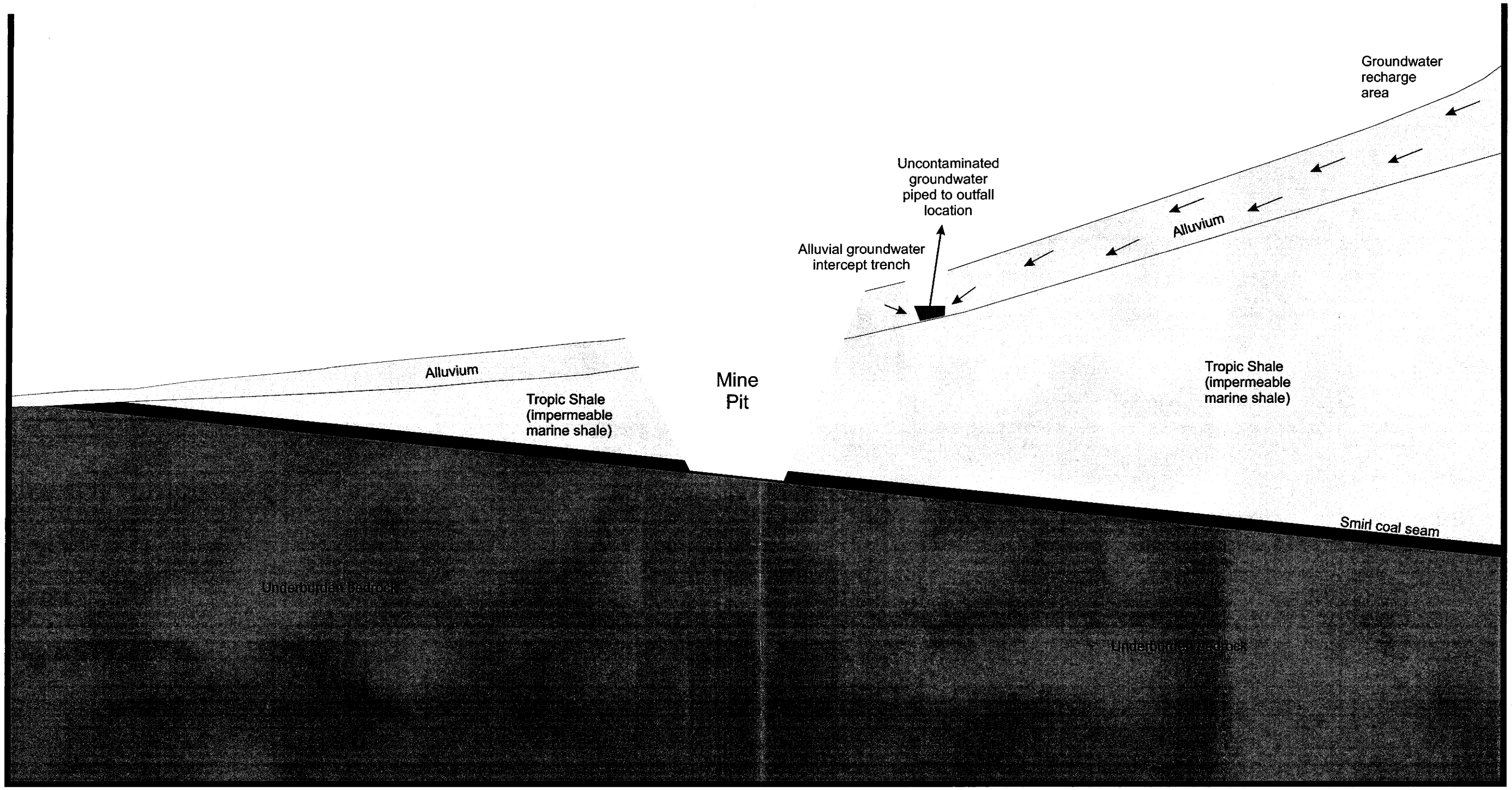
Note: The mining sequence shown here is the current projection. The actual mining sequence may change based on conditions encountered.

0 ¼ ½ Mile

0 1000 2000 Feet

0 0.5 Kilometer

Figure 2
Locations of mine pit areas and selected alluvial groundwater and surface-water monitoring locations.



Not to scale

Figure 3 Conceptual diagram showing alluvial groundwater intercept trench operation.

Table 1 Monitoring site details.

	Description	Drainage	UTM location, Z12, NAD 27		Elevation (appx)
Alluvial springs					
SP-14	Alluvial spring	Upper Sink Valley; up-gradient of mine area	4139790	372023	6985
SP-16	Alluvial spring	Upper Sink Valley; up-gradient of mine area	4139656	372035	6980
SP-20	Alluvial spring	Upper Sink Valley; up-gradient of mine area	4139325	372014	6940
SP-6	Alluvial spring	Lower Sink Valley, below mine area	4137977	371717	6829
SP-8	Alluvial spring	Upper Sink Valley; up-gradient of mine area	4139231	371861	6920
Alluvial groundwater monitoring wells					
Y-61	Alluvial well (142 feet depth)	Upper Sink Valley; up-gradient of mine area	4139433	372226	6962
Y-102	Alluvial well (63 feet depth)	Upper Sink Valley; up-gradient of mine area	4139571	371917	6950
LS-15	Alluvial well (15 feet depth)	Lower Sink Valley, below mine area	4137912	371843	6810
LS-28	Alluvial well (28 feet depth)	Lower Sink Valley, below mine area	4137912	371843	6810
LS-60	Alluvial well (60 feet depth)	Lower Sink Valley, below mine area	4137912	371843	6810
LS-85	Alluvial well (85 feet depth)	Lower Sink Valley, below mine area	4137912	371843	6811
SS-15	Alluvial well (15 feet depth)	Lower Sink Valley, below mine area	4138202	371618	6832
SS-30	Alluvial well (30 feet depth)	Lower Sink Valley, below mine area	4138202	371618	6830
SS-75	Well completed in coal burn sediments (75 feet depth)	Lower Sink Valley, below mine area	4138202	371618	6832
LR-45	Alluvial well (45 feet depth)	Lower Robinson Creek below mine area	4139787	370425	6798
UR-70	Alluvial well (70 feet depth)	Lower Robinson Creek above and north of mine area	4140485	372012	7005
Alluvial trenches/excavations					
SVT-01	Shallow alluvial back-hoe excavation	Sink Valley within mine pit area	4138309	371600	6836
SVT-03	Shallow alluvial back-hoe excavation	Sink Valley within mine pit area	4138743	371485	6856
SVT-05	Shallow alluvial back-hoe excavation	Sink Valley within mine pit area	4139189	371594	6882
SVT-06	Shallow alluvial back-hoe excavation	Sink Valley within mine pit area	4139150	371595	6881
Alluvial trench north end	Alluvial drainage trench up-gradient of current mining area		4139786	371230	6865
Creeks					
SW-101	Lower Robinson Creek near mine area	Lower Robinson Creek	4140303	371304	6891
BLM-1	Lower Robinson Creek below mine area	Lower Robinson Creek;	4139846	370624	6804
SW-5	Lower Robinson Creek at confluence with Kanab Creek	Lower Robinson Creek	4139453	369169	6677
SW-2	Kanab Creek below Lower Robinson Creek	Kanab Creek (not shown on Figure 2)	4139065	368782	6644
SW-9	Sink Valley Wash below mine area	Sink Valley Wash (not shown on Figure 2)	4135632	371485	6624

Table 2 Selected water quality information from the Coal Hollow Mine area.

	DATE	Temp Deg. C	F-pH pH units	F-D.O. mg/l	Sp Cond uS/cm	Flow GPM	TDS mg/l	TSS mg/l	NO2+NO3 N mg/l	O/G mg/l	NH3 mg/l	D-As mg/l	D-Ba mg/l	D-B mg/l	D-Cd mg/l	D-Ca mg/l	D-Cr mg/l	D-Cu mg/l	D-Fe mg/l	D-Pb mg/l	D-Mg mg/l	D-Mn mg/l	D-Ni mg/l	D-K mg/l	D-Se mg/l	D-Na mg/l	D-Zn mg/l	Acid. mg/l	Cl mg/l	F mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	SO4 mg/l	T-P mg/l	T-Alk mg/l	T-Hard. mg/l	F-Turb. NTU	Bcrb CaCO3 mg/l	Carb CaCO3 mg/l	Set Sol ml/l	D-Al mg/l	D-Mo mg/l	T-Fe mg/l	T-Mn mg/l	T-Se mg/l	T-B mg/l	D-Hg ug/l
Alluvial springs																																																
SP-14	3/31/2006	8.6	7.4		708	5.77																																										
SP-14	5/16/2006	12.7	7.83		734	6.3																																										
SP-14	9/8/2006	15.1	7.18		674	5.21																																										
SP-14	12/21/2006	5.2	7.85		669	4.39																																										
SP-14	3/28/2007	4.7	7.82		673	4.24																																										
SP-14	6/22/2007	22.6	7.56		794	2.54	454	228			< .1	< .01	0.073	0.03	< .001	84.3	< .001	< .01	0.03	< .01	55.1	0.043	0.001	6	< .02	7.64	< .004		6	0.17	< .05	< .05	< .05	72	0.43	349	437		349	< 5.		< .03	< .005	1.4	0.054			< .2
SP-14	9/29/2007	9.4	7.91		676	2.13																																										
SP-14	12/30/2007	3.6	7.83		552	4.6																																										
SP-14	6/18/2008	19.3	7.64		689	2.22																																										
SP-14	8/21/2008	20	8.03		727	1.98	448	182	< .05		0.2	< .01	0.027	0.04	< .001	74.19	< .001	< .01	< .03	< .01	57.17	0.007	< .001	10.61	< .02	7.34	< .004		7	0.27	< .05	< .05	< .05	85	0.52	329	421		329	< 5.		< .03	< .005	2.67	0.053			< .2
SP-14	3/19/2009	9	7.07		693	2.17	425	35	< .05		< .1	< .01	0.03	0.03	< .001	76.49	< .001	< .01	< .03	< .01	56.74	< .002	0.001	1.48	< .02	7.67	< .004		4	0.23	< .05	< .05	< .05	77	0.06	317	425		317	< 5.		< .03	< .005	0.68	0.013			< .2
SP-14	5/25/2009	15.4	8.1		653	1.22	430	48			0.2	< .01	0.029	0.03	< .001	72.14	< .001	< .01	< .03	< .01	56.66	< .002	< .001	1.42	< .02	7.77	< .004		4	0.23	< .05	< .05	< .05	84	0.11	299	413		299	< 5.		< .03	< .005	1.16	0.019			< .2
SP-14	9/30/2009	9.2	7.23		691	1.23	448	26			< .1	< .01	0.053	0.02	< .001	80.87	< .001	< .01	< .03	< .01	56.9	0.009	< .001	3.04	< .02	7.72	0.01		5	0.24	0.08	< .05	< .05	85	0.06	355	436		355	< 5.		< .03	< .005	0.56	0.02			< .2
SP-14	11/17/2009	7.6	7.78		708	1.53	451							0.02		77.1			< .03		55.01	0.006		1.88	< .02	7.1			5					84		335			335	< 5.				0.46	0.013	< .1	0.02	
SP-14	5/14/2010	9	8.02		682	1.58	440							0.02		79.78			< .03		54.87	< .002		1.47	< .02	7.3			4					80		327	425		327	< 5.				0.24	0.008	< .02	0.02	
SP-14	9/29/2010	11.2	7.23		743	0.72	461	24						0.02		80.97			< .03		56.35	0.008		1.88	< .02	7.5			5					89		335	434		335	< 5.				0.57	0.015	< .02	0.03	
SP-14	12/8/2010	8.9	7.45		735	1.39	421	50						0.02		77.29			< .03		51.57	0.005		1.66	< .02	6.68			4					86		327	405		327	< 5.				0.38	0.011	< .02	0.02	
SP-14	3/27/2011	9.3	7.52		725	2.11	443							0.05		79.58			< .03		52.21	0.002		1.55	< .02	5.9			4					82		346	414		346	< 5.				0.77	0.007	< .02	0.05	
SP-16	11/4/2005	6.7	7.3		692	1.35																																										
SP-16	1/25/2006	4.3	7.59		695	0.997	443				< .1	< .01	0.041	0.02	< .001	83.1	< .001	< .01	< .03	< .01	53.1	0.005	< .001	1.6		6.79	0.007		4	0.2	< .05	< .05	< .05	82		330	426		330	< 5.		< .03	< .005	0.06	0.005			< .2
SP-16	5/29/2006	10.5	7.68		712	0.86	460	< 5.			< .1	< .01	0.043	0.03	< .001	79.8	< .001	< .01	< .03	< .01	52.2	< .002	< .001	1.79	< .02	6.42	0.005		4	0.21	< .05	< .05	< .05	76	0.1	326	414		326	< 5.		< .03	< .005	0.08	0.004			< .2
SP-16	12/30/2006	5	7.86		672	0.35	437	< 5.	0.07		< .1	< .01	0.04	0.02	< .001	84.93	< .001	< .01	< .03	< .01	53.7	0.005	< .001	1.45	< .02	6.62	< .004		4	0.16				82	< .05	340	433	161	340	< 5.		< .03	< .005	0.08	0.005			< .2
SP-16	3/29/2007	8.2	7.66		719	0.88	446	5			< .1	< .01	0.037	0.02	< .001	79.9	< .001	< .01	< .03	< .01	54.7	0.003	< .001	1.36	< .02	6.77	< .004		4	0.16	0.05	< .05	< .05	87	< .05	346	425	54	346	< 5.		< .03	< .005	0.11	0.006			< .2
SP-16	6/22/2007	13.2	7.6		726	0.84	409	< 5.			< .1	< .01	0.024	0.02	< .001	79.3	< .001	< .01	< .03	< .01	54.3	0.004	< .001	1.59	< .02	6.46	< .004		3	0.16	< .05	< .05	< .05	72	< .05	322	422		322	< 5.		< .03	< .005	0.09	0.007			< .2
SP-16	9/30/2007	8.5	7.4		645	1.64	419	12			< .1	< .01	0.04	0.02	< .001	79.4	< .001	< .01	< .03	< .01	53.1	0.002	< .001	1.6	< .02	6.29	< .004		4	0.18	< .05	< .05	< .05	74	< .05	334	417		334	< 5.		< .03	< .005	0.2	0.007			< .2
SP-16	12/30/2007	6.2	7.51		580	1.52	438	46	3.21		< .1	< .01	0.039	0.02	< .001	74.46	< .001	< .01	< .03	< .01	49.41	< .002	< .001	1.38	< .02	5.66	< .004		3	0.18				69	< .05	315	389		315	< 5.		< .03	< .005	0.06	0.003			< .2
SP-16	6/18/2008	13.3	7.08		650	0.57	426	8	0.09		< .1	< .01	0.043	0.02	< .001	81.18	< .001	< .01	< .03	< .01	53.56	0.003	< .001	1.65	< .02	6.41	< .004		4	0.2	0.09	< .05	< .05	74	< .05	329	423		329	< 5.		< .03	< .005	0.11	0.01			< .2
SP-16	8/21/2008	10.8	7.64		700	0.85	420	14	< .05		< .1	< .01	0.041	0.02	< .001	80.55	< .001	< .01	< .03	< .01	53.22	0.006	< .001	1.46	< .02	6.31	0.009		4	0.24	< .05	< .05	< .05	73	< .05	333	420		333	< 5.		< .03	< .005	0.06	0.006			< .2
SP-16	3/19/2009		7.18		717	1.89	446	11	< .05		< .1	< .01	0.042	0.02	< .001	83.86	< .001	< .01	< .03	< .01	56.45	< .002	< .001	1.4	< .02	7	0.004		4	0.25	< .05	< .05	< .05	81	< .05	330	442		330	< 5.		< .03	< .005	< .05	0.003			< .2
SP-16	5/25/2009	11.8	7.16		679	1.6	433	< 5.			0.9	< .01	0.043	0.02	< .001	82.3	< .001	< .01	< .03	< .01	52.57	0.003	< .001	1.61	< .02	6.53	< .004		4	0.19	< .05	< .05	< .05	74	< .05	319	422		319	< 5.		< .03	< .005	< .05	0.004			< .2
SP-16	9/30/2009	9.2	7.35		682	1.06																																										
SP-16	11/18/2009	6.4	7.37		689	0.67																																										
SP-16	5/14/2010	10.4	7.64		689	1.21																																										
SP-16	9/29/2010	10.7	7.32		727	0.588																																										
SP-16	12/8/2010	6.5	7.51		720	1.12																																										
SP-16	3/27/2011	9	7.62		939	1.43																																										
SP-20	3/31/2006	9.3	7.66		696	5.95	381				< .1	< .01	0.04	0.03	< .001	79	< .001	< .01	< .03	< .01	49.1	< .002	< .001	1.53		7.19	0.009		4	0.18	0.07	< .05	< .05	66		329	399		329	< 5.		< .03	< .005	< .05	< .002			< .2
SP-20	5/16/2006	9.5	7.39		704	6.76																																										
SP-20	12/30/2006	8.9	7.93		666	7.21																																										
SP-20	3/29/2007	9.4	7.55		685	10.3																																										
SP-20	6/22/2007	9.9	7.62		691	10.5																																										
SP-20	9/29/2007	9.6	7.5		617	9.43																																										
SP-20	12/30/2007	9.3	7.52		606	10.1																																										
SP-20	6/18/2008	9.7	7.14		618	9.43																																										
SP-20	8/21/2008	9.9	7.29		688	8.64	397	< 5.	0.11		< .1	< .01	0.047	0.02	< .001	79.61	< .001	< .01	< .03	< .01	49.61	< .002	< .001	1.33	< .02	6.06	0.012		3	0.24	0.11	< .05	< .05	65	0.06	327	403		327	< 5.		< .03	< .005	< .05	< .002			< .2
SP-20	3/19/2009	9.6	7.09		682	9.46	409	9	0.1		< .1	< .01	0.048	0.02	< .001	79.64	< .001	< .01	< .03	< .01	52.49	< .002	< .001	1.42	< .02	6.52	< .004		3	0.21	0.1	< .05	< .05	62	< .05	327	415		327	< 5.		< .03	< .005	< .05	< .002			< .2
SP-20	5/24/2009	9.8	7.04		771	8.57	422	32			< .1	< .01	0.048	0.02	< .001	82.85	< .001	< .01	< .03	< .01	52.41	< .002	< .001	1.49	< .02	6.13	< .004		4	0.2	0.1	< .05	< .05	66	< .05	327	423		327	< 5.		< .03	< .005	< .05	< .002			< .2
SP-20	9/30/2009	10	7.09		685	7.88	412	< 5.			< .1	< .01	0.048	0.02	< .001	78.1	< .001	< .01	< .03	< .01	50.06	< .002	< .001	1.45	< .02	6.14	0.004		4	0.14	0.13	< .05	< .05	65	< .05	340	401		340	< 5.		< .03	< .005	< .05	< .002			< .2
SP-20	11/17/2009	9.7	7.28		676	8.67	428							0.02		77.9			< .03		50.11	< .002		1.44	< .02	6.03			3					66		328			328	< 5.				0.08	< .002	< .1	0.02	
SP-20	5/14/2010	10.1	7.43		686	8.84	417							0.02		80.48			< .03		49.22	< .002		1.43	< .02	6.35			3					64		331	404		331	< 5.				0.13	< .002	< .02	0.02	
SP-20	9/30/2010	10.6	7.17		695	7.35	422	< 5.						0.02		79.93			< .03		49.93	< .002		1.47	< .02	6.57			3					65		333	405		333	< 5.				< .05	< .002	< .02	0.03	
SP-20	12/8/2010	9.6	7.46		695	9.04	402	< 5.						0.01		79.63			< .03		48.61	< .002		1.39	< .02	5.95			3					65		340	399		340	< 5.				0.11	< .002	< .02	0.02	
SP-20	3/28/2011	9.9	7.58		698	11.6	427							0.02		80.87			< .03		50.25	< .002		1.39	< .02	5.19			3					66		341	409		341	< 5.				< .05	< .002	< .02	0.02	
SP-6	9/24/2005	16	7.41		1310	< .05	707		0.03		< .1	< .01	0.069	0.1	< .001	84.1	< .001	< .01	< .03	< .01	98.1	< .002	0.001	7.87	0.03	33	< .004		6	0.38	< .05	< .05	0.09	112	< .05	602	614		602	< 5.		< .03	< .005					< .2
SP-6	11/3/2005	10.5	7.76		1602	< .5	1083				< .1	< .01	0.087	0.14	< .001	84.5	< .001	< .01	< .03	< .01	133	0.064	< .001	18.8		81.3	< .004		44	0.22				301	< .05	612	759	16.4	612	< 5.		< .03	< .005					< .2
SP-6	5/29/2006	25.2	8.12		1475	0	944	51			< .1	< .01	0.065	0.21	< .001	63.4	< .001	< .01	0.04	< .01	162	< .002	0.001	5.58	< .02	55.6	0.005		6	0.4	< .05	< .05	< .05	139	0.26	778	825		778	< 5.		< .03	< .005	0.26	0.021			< .2
SP-6	9/7/2006	15.4	7.53		1038	< .05	666	638			< .1	< .01	0.029	0.1	< .001	71.06	< .001	< .01	0.16	< .01	89.43	0.063	< .001	10.14	< .02	38.5	< .004		23	0.27	< .05	< .05	< .05	126		482	546		482	< 5.		< .03	< .005	6.18	0.304			< .2
SP-6	12/30/2006	5.6	7.91		1175	< .05	935	5	< .05		< .1	< .01	0.023	0.09	< .001	81.17	< .001	< .01	< .03	< .01	152.19	0.051	< .001	4.08	< .02	46.92	0.012		19	0.43				300	< .05	539	829	161	539	< 5.		< .03	< .005	2.6	0.052			< .2
SP-6	3/30/2007	2.2	8.46		2920	0	2365	< 5.	< .05		< .1	< .01	0.054	0.25	< .001	13.3	< .001	< .01	< .03	< .01	505	0.011	0.001	4.52	< .02	113	< .004		52	0.98				807	< .05	1287	2113		1287	< 5.		< .03	0.009	0.05	0.011			< .2
SP-6	6/20/2007	19.8	7.77		1505	< .5	1025	898	< .05		< .1	< .01	0.065	0.18	< .001	74.9	< .001	< .01	0.08	< .01	180	0.053	0.001	19.7	< .02	41.3	0.017		22	0.43			0.27	116	0.34	825	928		825	< 5.		< .03	< .005	1.93	0.069			< .2
SP-6	9/30/2007	12	7.53		1044	< .5	597	31			< .1	< .01	0.022	0.09	< .001	65.8	< .001	< .01	0.04	< .01	95.6	0.008	< .001	4.97	< .02	26.3	< .004		10	0.26	< .05	< .05	< .05	115	0.16	449	558		449	< 5.		< .03	< .005	0.51	0.072			< .2
SP-6	12/30/2007	6.1	7.6		710	< .5	464	22	2.36		0.3	< .01	0.013	0.07	< .001	74.09	< .001	< .01	< .03	< .01	61.67	0.042	< .001	3.12	< .02	18.54	< .004		7	0.28				90	< .05	374	439		374	< 5.		< .03	< .005	3.05	0.051			< .2
SP-6	6/17/2008	23.5	7.47		863	< 5.	536	88	< .05		< .1	< .01	0.026	0.09	< .001	80.22	< .001	< .01	< .03	< .01	66.72	< .002	< .001	1.23	< .02	20.06	0.013		4	0.33	< .05	< .05	< .05	111	0.35	386	475		386	< 5.		< .03	< .005	4.57	0.06			< .2
SP-6	8/20/2008	19.2	7.38		1121	< 5.	721	141	< .05		< .1	< .01	0.044	0.1	< .001	81.3	< .001	0.01	< .03	< .01	104.78	0.012	< .001	2.35	< .02	30.65	< .004		9	0.69	< .05	< .05	< .05	152	0.1	499	635		499	< 5.		< .03	< .005	0.31	0.033			< .2
SP-6	12/30/2008	6.4	7.48		825	< 1.	529	35	2.62		< .1	< .01	0.017	0.07	< .001	83.99	< .001	< .01	< .03	< .01	63.93	0.108	< .001	3.21	< .02	19.81	< .004		7	0.34				92	0.05	380	473		380	< 5.		< .03	< .005	3.22	0.184			< .2
SP-6	3/18/2009	11.3	7.19		843	0	521	139	0.33		0.2	< .01	0.019	0.07	< .001	85.01	< .001	< .01	0.17	< .01	66.13	0.039	< .001	3.38	< .02	20.47	< .004		6	0.3				88	0.18	383	485		383	< 5.		< .03	< .005	15.47	0.06			< .2
SP-6	5/24/2009	23.1	7.09		6120	1.18	6018	16			< .1	0.03	0.071	0.5	< .001	42.71	0.002	0.02	0.16	< .01	1016.1	0.105	0.002	16.91	< .02	452.5	0.006		149	0.53				2714	0.34	1871	4291		1871	< 5.		< .03	< .005	0.63	0.119			< .2
SP-6	9/30/2009	16.6	7.51		1496	0.87																																										
SP-6	11/18/2009	11.1	7.34		821	4.55	528							0.07		80.03			1.6		62.97	0.047		3.28	< .02	19.28			6					94		384			384	< 5.				63.54	0.173	< .1	0.07	
SP-6	5/13/2010	21.6	8.55		4390	3.59	4242							0.32		52.02			< .03		732.73	0.011		8.96	< .02	297.78			107					1825		1444	3147		1255	189				< .05	0.016	< .02	0.33	
SP-6	9/28/2010	20.3	7.51		853	< 1.	521	305						0.07		80.89			0.15		63.2	0.004		3.61	< .02	20.92			7					114		375	462		375	< 5.				0.97	0.015	< .02	0.08	
SP-6	12/6/2010	3.4	7.19		1057	1.27	683	10						0.05		90.45			0.16		77.2	0.164		4.82	< .02	31.44			12					166		415	544		415	< 5.				0.3	0.164	< .02	0.06	
SP-8	5/27/2005	10.3	7.89		642	17.6	456				< .1	< .01	0.052	0.02	< .001	73.6	< .001	< .01	< .03	< .01	54.5	< .002	< .001	1.37	< .02	7.44	0.005	< 5.	4	0.17				77	< .05	328	408	1.52	328	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	9/24/2005	9.6	7.27		704	9.1	426		0.07		< .1	< .01	0.3	0.02	< .001	83.7	< .001	< .01	< .03	< .01	54.5	< .002	< .001	1.6	< .02	6.87	< .004		3	0.18	< .05	< .05	< .05	71	< .05	338	433		338	< 5.		< .03	< .005					< .2
SP-8	11/4/2005	9.6	7.48		706	12.8	413				< .1	< .01	0.047	0.02	< .001	80.1	< .001	< .01	< .03	< .01	47.7	< .002	< .001	1.43		6.47	< .004		2	< .05				65	< .05	333	396		333	< 5.		0.05	< .005					< .2
SP-8	3/31/2006	9.3	7.1		716	20.3	407				< .1	< .01	0.048	0.02	< .001	79.7	< .001	< .01	< .03	< .01	49.4	< .002	< .001	1.47		6.55	0.005		4	0.2	0.05	< .05	< .05	74		335	402		335	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	5/29/2006	10.5	7.75		701	14.3	432	5			< .1	< .01	0.051	0.03	< .001	83.8	< .001	< .01	< .03	< .01	52.4	< .002	0.001	1.67	< .02	6.99	0.006		4	0.2	< .05	< .05	< .05	69	< .05	337	425		337	< 5.		< .03	< .005	0.05	< .002			< .2
SP-8	12/30/2006	8.1	7.79		668	19.3	417	< 5.	0.06		< .1	< .01	0.051	0.02	< .001	85.06	< .001	< .01	< .03	< .01	50.96	< .002	< .001	1.34	< .02	6.98	< .004		3	0.16				72	< .05	339	422	161	339	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	3/29/2007	9.4	7.5		696	19.6	433	< 5.			< .1	< .01	0.054	0.02	< .001	81.8	< .001	< .01	< .03	< .01	51.4	< .002	< .001	1.38	< .02	7.02	< .004		4	0.17	0.09	< .05	< .05	75	< .05	339	416	54	339	< 5.		< .03	< .005	< .05	< .002			< .2

Well	DATE	Temp Deg. C	F-pH pH units	F-D.O. mg/l	Sp Cond uS/cm	Flow GPM	TDS mg/l	TSS mg/l	NO2+NO3 N mg/l	O/G mg/l	NH3 mg/l	D-As mg/l	D-Ba mg/l	D-B mg/l	D-Cd mg/l
SP-8	6/21/2007	10.8	7.68		711	19.3	427	< 5.			< .1	< .01	0.046	0.02	< .001
SP-8	9/30/2007	9.8	7.45		651	18.7	409	5			< .1	< .01	0.047	0.02	< .001
SP-8	12/30/2007	8	7.47		594	15.9	422	< 5.	1.98		0.3	< .01	0.048	0.02	< .001
SP-8	3/22/2008	7.7	7.21		687	17	430	< 5.	0.22		0.1	< .01	0.046	0.02	< .001
SP-8	6/18/2008	11	7.15		613	18.1	421	< 5.	0.1		< .1	< .01	0.048	0.02	< .001
SP-8	8/20/2008	11.1	7.25		707	16.9	415	5	0.09		< .1	< .01	0.048	0.02	< .001
SP-8	12/31/2008	7.6	7.37		683	7.95	418	< 5.	1.04		< .1	< .01	0.048	0.02	< .001
SP-8	3/18/2009	9.1	7.17		595	16.6	427	< 5.	1.26		< .1	< .01	0.048	0.02	< .001
SP-8	5/24/2009	10.5	7.88		674	14.5	425	23			< .1	< .01	0.048	0.02	< .001
SP-8	9/30/2009	10.3	7.18		679	17.8	420	< 5.			< .1	< .01	0.048	0.02	< .001
SP-8	11/17/2009	8.6	7.39		662	16.2	435							0.02	
SP-8	3/30/2010	6.3	7.67		655	17.7	424	< 5.			< .1	< .01	0.044	0.02	< .001
SP-8	5/13/2010	9.5	7.52		691	18	419							0.02	
SP-8	9/28/2010	10.5	7.3		708	17.3									
SP-8	12/10/2010	8.9	7.46		717	17.9	414	< 5.						0.02	
SP-8	3/27/2011	9.7	7.5		719	16.9	437							0.02	
Alluvial groundwater monitoring wells															
Y-61	8/12/2005	9.6	7.59		611	21.6	400				< .1	< .01	0.046	0.03	< .001
Y-61	11/4/2005	0.18	7.48		724	0.18	397				< .1	< .01	0.046	0.02	< .001
Y-61	3/31/2006	9.6	7.65		695	21.6	393				< .1	< .01	0.043	0.03	< .001
Y-61	5/29/2006	9.2	7.69		677		433	< 5.			< .1	< .01	0.04	0.02	< .001
Y-61	9/8/2006	9.8	7.16		662		385	9			< .1	< .01	0.043	0.02	< .001
Y-61	12/20/2006	9.2	7.68		652		422	< 5.	0.09		< .1	< .01	0.046	0.02	< .001
Y-61	1/15/2007					62.1									
Y-61	3/29/2007	9.4	7.68		663	0	426	< 5.			< .1	< .01	0.043	0.02	< .001
Y-61	6/22/2007	12.4	7.73		706		425	< 5.			< .1	< .01	0.044	0.02	< .001
Y-61	9/29/2007	9.7	7.5		603		417	< 5.			< .1	< .01	0.058	0.02	< .001
Y-61	12/30/2007	9.2	7.44		602		380	< 5.	1.96		< .1	< .01	0.045	0.02	< .001
Y-61	3/22/2008	9.4	7.35		662		378	< 5.	0.2		< .1	< .01	0.044	0.02	< .001
Y-61	6/18/2008	11.9	7.12		644		406	< 5.	0.13		0.2	< .01	0.046	0.02	< .001
Y-61	8/21/2008	10.2	7.33		693		400	< 5.	0.12		< .1	< .01	0.045	0.02	< .001
Y-61	12/31/2008	9.7	7.23		679		407	< 5.	0.53		0.1	< .01	0.045	0.02	< .001
Y-61	3/19/2009	9.6	7.15		678		409	< 5.	0.11		< .1	< .01	0.044	0.02	< .001
Y-61	5/25/2009	9.8	7.09		667		414	< 5.			< .1	< .01	0.046	0.02	< .001
Y-61	9/30/2009	10.1	7.08		667		402	< 5.			< .1	< .01	0.044	0.02	< .001
Y-61	11/18/2009	9.7	7.32		668		419							0.02	
Y-61	5/14/2010	10.4	7.49		671		416							0.02	
Y-61	9/30/2010	10.8	7.18		697		419	< 5.						0.02	
Y-61	12/10/2010	9.7	7.42		713		421	< 5.						0.01	
Y-61	3/27/2011	9.8	7.49		697		435							0.02	
Y-102	5/27/2005	9.5	7.25		662	0.64	492				< .1	< .01	0.039	0.03	< .001
Y-102	9/24/2005	9.4	7.29		715	0.62									
Y-102	9/24/2005	9.4	7.29		715	0.62	455		0.08		< .1	< .01	0.413	0.03	< .001
Y-102	11/4/2005	9.5	7.45		739	0.78	440				< .1	< .01	0.035	0.02	< .001
Y-102	1/26/2006	9.2	7.2		723	0.85	441				< .1	< .01	0.043	0.02	< .001
Y-102	5/29/2006	9.5	7.61		726	0.85	453	< 5.			< .1	< .01	0.049	0.02	< .001
Y-102	9/8/2006	9.6	7		715	0.74	437	< 5.			< .1	< .01	0.036	0.02	< .001
Y-102	12/21/2006	9.4	7.59		707	0.78	438	< 5.			< .1	< .01	0.039	0.02	< .001
Y-102	3/28/2007	9.3	7.52		693	0.97	442	< 5.			< .1	< .01	0.035	0.04	< .001
Y-102	6/21/2007	9.8	7.48		773	0.76	450	< 5.			< .1	< .01	0.032	0.02	< .001
Y-102	9/29/2007	9.3	7.46		632	0.74	434	< 5.			< .1	< .01	0.037	0.02	< .001
Y-102	10/11/2007														
Y-102	12/30/2007	9.5	7.49		630	0.76	464	< 5.	2.03		< .1	< .01	0.038	0.02	< .001
Y-102	3/22/2008	9.5	7.22		675	0.92	443	< 5.	0.44		< .1	< .01	0.038	0.02	< .001
Y-102	6/18/2008	9.8	7.11		682	0.78	442	25	0.11		< .1	< .01	0.039	0.02	< .001
Y-102	8/21/2008	9.6	7.33		703	0.85	381	35	0.1		< .1	< .01	0.041	0.02	< .001
Y-102	3/20/2009	9.4	7.23		696	1.03	438	< 5.	0.1		< .1	< .01	0.037	0.02	< .001
Y-102	5/25/2009	9.4	7.13		691	0.91	444	< 5.			0.6	< .01	0.04	0.02	< .001
Y-102	9/30/2009	9.9	7.09		702	0.54									
Y-102	11/18/2009	9.9	7.32		711	0.534									
Y-102	5/14/2010	9.9	7.55		690	0.59									
Y-102	9/29/2010	10.4	7.21		740										
LS-15	3/30/2007	7.3	7.91		2680		2060	3648	< .05		< .1	< .01	0.07	0.3	< .001
LS-28	3/30/2007	9.3	7.67		1881		1348	3648	0.13		< .1	< .01	0.08	0.22	< .001
LS-28	12/30/2008	10.4	7.51		1427		1062	1406	2.68		< .1	< .01	0.043	0.2	< .001
LS-28	3/18/2009	10.5	7.29		1809		1260	3124	0.33		< .1	< .01	0.056	0.21	< .001
LS-28	5/24/2009	10.2	7.43		1530		1142	658			< .1	< .01	0.04	0.19	< .001
LS-28	9/30/2009	10.7	7.48		1280		882	4430			0.2	< .01	0.041	0.17	< .001
LS-28	11/18/2009	10.8	7.53		1333		1022							0.19	
LS-28	3/30/2010	8.9	7.75		1719		1254	2006			< .1	< .01	0.042	0.2	< .001
LS-28	5/13/2010	10	7.67		1528		1142							0.18	
LS-28	9/28/2010	14.5	7.52		1360		859	196						0.16	
LS-28	12/7/2010	10.5	7.72		1404		1008	13						0.18	
LS-28	3/28/2011	8.8	7.73		1573		1253							0.19	
LS-60	3/30/2007	8.9	7.62		780		454	3054	0.1		< .1	< .01	0.084	0.06	< .001
LS-85	6/20/2007	10.2	7.67		755		484	22	3.57		< .1	< .01	0.064	0.06	< .01
LS-85	6/20/2007	10.2	7.67		755										
LS-85	9/30/2007	10.5	7.41		728										
LS-85	3/22/2008	10.2	7.37		735		448	9	1.3		0.3	< .01	0.068	0.06	< .001
LS-85	6/17/2008	10.5	7.34		723		466	17	< .05		< .1	< .01	0.069	0.06	< .001
LS-85	8/20/2008	10.5	7.25		810		457	9	< .05		< .1	< .01	0.07	0.06	< .001
LS-85	12/30/2008	10.4	7.35		749		462	14	2.59		< .1	< .01	0.068	0.06	< .001

Well	DATE	D-Ca mg/l	D-Cr mg/l	D-Cu mg/l	D-Fe mg/l	D-Pb mg/l	D-Mg mg/l	D-Mn mg/l	D-Ni mg/l	D-K mg/l	D-Se mg/l	D-Na mg/l	D-Zn mg/l	Acid. mg/l	Cl mg/l	F mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	SO4 mg/l
SP-8	6/21/2007	81.5	< .001	< .01	< .03	< .01	51.4	< .002	< .001	1.5	< .02	6.8	< .004		4	0.18	0.07	< .05	< .05	67
SP-8	9/30/2007	81.6	< .001	< .01	< .03	< .01	51.8	< .002	< .001	1.53	< .02	6.73	< .004		4	0.2	0.1	< .05	< .05	69
SP-8	12/30/2007	79.55	< .001	< .01	< .03	< .01	50.37	< .002	< .001	1.41	< .02	6.45	0.004		3	0.16				71
SP-8	3/22/2008	82.44	< .001	< .01	< .03	< .01	54.65	< .002	< .001	1.61	< .02	7.22	0.004		4	0.21			< .05	86
SP-8	6/18/2008	81.68	< .001	< .01	< .03	< .01	50.61	< .002	< .001	1.44	< .02	6.71	0.005		4	0.19	0.1	< .05	< .05	69
SP-8	8/20/2008	81.64	< .001	< .01	< .03	< .01	50.77	< .002	< .001	1.28	< .02	6.82	0.006		3	0.24	0.09	< .05	< .05	68
SP-8	12/31/2008	82.85	< .001	< .01	< .03	< .01	51.41	< .002	< .001	1.47	< .02	6.95	< .004		4	0.26				73
SP-8	3/18/2009	80.72	< .001	< .01	< .03	< .01	52.7	< .002	< .001	1.49	< .02	7.45	< .004		3	0.21				66
SP-8	5/24/2009	83.72	< .001	< .01	< .03	< .01	52.06	< .002	< .001	1.47	< .02	6.7	0.005		4	0.23	0.14	< .05	< .05	68
SP-8	9/30/2009	78.3	< .001	< .01	< .03	< .01	50.05	< .002	< .001	1.43	< .02	6.91	0.004		3	0.2	0.1	< .05	< .05	67
SP-8	11/17/2009	78.52			< .03		50.42	< .002		1.57	< .02	6.98			3					69
SP-8	3/30/2010	65.96	0.001	< .01	< .03	< .01	55.8	< .002	0.001	3.69	< .02	8.84	0.016		5	0.18	0.1	< .05	< .05	92
SP-8	5/13/2010	81.27			< .03		49.8	< .002		1.46	< .02	6.92			3					67
SP-8	9/28/2010																			
SP-8	12/10/2010	80.24			< .03		48.67	< .002		1.41	< .02	7.67			4					69
SP-8	3/27/2011	80.45			< .03		50.8	< .002		1.56	< .02	6.47			4					71
Alluvial groundwater monitoring wells																				
Y-61	8/12/2005	79.3	< .001	< .01	< .03	< .01	47.7	< .002	< .001	1.43	< .02	6.47	< .004		3	0.1	0.09	< .05		69
Y-61	11/4/2005	79.1	< .001	< .01	< .03	< .01	46.5	< .002	< .001	1.35		6.21	< .004		3	0.11				68
Y-61	3/31/2006	78.9	< .001	< .01	< .03	< .01	48.4	0.003	< .001	1.49		7.26	0.007		4	0.2	0.06	< .05	< .05	63
Y-61	5/29/2006	77.8	< .001	< .01	< .03	< .01	48.6	0.005	< .001	1.49	< .02	6.57	0.005		4	0.2	0.07	< .05	< .05	60
Y-61	9/8/2006	80.37	< .001	< .01	< .03	< .01	49.21	0.002	< .001	1.34	< .02	6.36	< .004		4	0.17	0.09	< .05	< .05	62
Y-61	12/20/2006	80.62	< .001	< .01	< .03	< .01	49.26	0.002	< .001	1.42	< .02	6.35	0.025		3	0.16				63
Y-61	1/15/2007																			
Y-61	3/29/2007	78.6	< .001	< .01	< .03	< .01	48.8	0.002	< .001	1.46	< .02	6.57	0.033		4	0.18	0.11	< .05	< .05	65
Y-61	6/22/2007	80	< .001	< .01	< .03	< .01	50.2	0.005	< .001	1.81	< .02	6.49	0.071		3	0.17	0.12	< .05	< .05	61
Y-61	9/29/2007	79.9	< .001	< .01	< .03	< .01	51	0.005	< .001	1.46	< .02	6.55	0.038		4	0.21	0.16	< .05	< .05	64
Y-61	12/30/2007	78.65	< .001	0.05	< .03	< .01	49.77	< .002	< .001	1.42	< .02	6.24	0.065		4	0.19				63
Y-61	3/22/2008	81.51	< .001	< .01	< .03	< .01	50.4	< .002	< .001	1.33	< .02	6.22	0.07		4	0.2			< .05	66
Y-61	6/18/2008	80.24	< .001	0.06	< .03	< .01	49.53	< .002	< .001	1.29	< .02	6.72	0.202		4	0.2	0.13	< .05	< .05	65
Y-61	8/21/2008	80.4	< .001	< .01	< .03	< .01	50.3	< .002	< .001	1.38	< .02	6.62	0.047		3	0.24	0.12	< .05	< .05	63
Y-61	12/31/2008	81.08	< .001	< .01	< .03	< .01	49.97	< .002	< .001	1.46	< .02	6.91	0.011		4	0.2				67
Y-61	3/19/2009	82.02	< .001	< .01	< .03	< .01	51.41	< .002	< .001	1.44	< .02	7.06	0.045		3	0.21	0.11	< .05	< .05	60
Y-61	5/25/2009	82.1	< .001	0.24	< .03	< .01	50.23	< .002	< .001	1.42	< .02	6.81	0.167		4	0.21	0.11	< .05	< .05	64
Y-61	9/30/2009	77.89	< .001	< .01	< .03	< .01	50.15	< .002	0.001	1.48	< .02	7.26	0.011		4	0.2	0.12	< .05	< .05	64
Y-61	11/18/2009	77.49			< .03		49.63	< .002		1.49	< .02	6.75			3					63
Y-61	5/14/2010	80.26			< .03		49.04	< .002		1.47	< .02	7.07			3					62
Y-61	9/30/2010	80.93			< .03		50.86	< .002		1.54	< .02	7.63			4					65
Y-61	12/10/2010	79.7			< .03		47.97	< .002		1.39	< .02	6.43			3					63
Y-61	3/27/2011	79.88			< .03		49.41	< .002		1.43	< .02	5.81			4					64
Y-102	5/27/2005	82.2	< .001	0.04	< .03	< .01	56.8	< .002	< .001	1.6	< .02	10.2	< .004	< 5.	4	0.18				98
Y-102	9/24/2005																			
Y-102	9/24/2005	81.4	< .001	< .01	< .03	< .01	49.8	< .002	< .001	2.14	< .02	10.1	< .004		3	0.18	0.06	< .05	< .05	89
Y-102	11/4/2005	81.8	< .001	< .01	< .03	< .01	49.8	< .002	< .001	1.51		8.71	< .004		4	0.06				91
Y-102	1/26/2006	86.8	< .001	< .01	< .03	< .01	55.2	< .002	< .001	1.67		9.09	0.011		5	0.21	0.07	< .05	< .05	91
Y-102	5/29/2006	80.1	< .001	< .01	< .03	< .01	50	< .002	< .001	1.49	< .02	6.5	0.004		5	0.21	0.08	< .05	< .05	84
Y-102	9/8/2006	81.24	< .001	< .01	< .03	< .01	52.71	< .002	< .001	1.52	0.02	9.04	< .004		4	0.17	0.1	< .05	< .05	84
Y-102	12/21/2006	81.68	< .001	< .01	< .03	< .01	52.26	< .002	< .001	1.69	< .02	8.9	0.004		4	0.17	0.08	< .05	< .05	84
Y-102	3/28/2007	80	< .001	< .01	< .03	< .01	52.5	0.002	< .001	1.53	< .02	8.94	< .004		4	0.17	0.1	< .05	< .05	84
Y-102	6/21/2007	80.7	< .001	< .01	< .03	< .01	54.5	0.005	< .001	1.84	< .02	9.01	< .004		4	0.16	0.1	< .05	< .05	79
Y-102	9/29/2007	79.9	< .001	< .01	< .03	< .01	53	< .002	< .001	1.61	< .02	8.87	< .004		4	0.21	0.13	< .05	< .05	81
Y-102	10/11/2007																			
Y-102	12/30/2007	78.61	< .001	< .01	< .03	< .01	52.55	< .002	< .001	1.57	< .02	8.37	0.009		4	0.19				80
Y-102	3/22/2008	81.04	< .001	< .01	< .03	< .01	53.21	< .002	< .001	1.42	< .02	8.21	0.006		4	0.21			< .05	80
Y-102	6/18/2008	81.33	< .001	< .01	< .03	< .01	53.58	< .002	< .001	1.61	< .02	8.94	< .004		4	0.2	0.11	< .05	< .05	81
Y-102	8/21/2008	81.16	< .001	< .01	< .03	< .01	52.97	< .002	< .001	1.54	< .02	9.04	0.006		4	0.25	0.1	< .05	< .05	79
Y-102	3/20/2009	79.82	< .001	< .01	< .03	< .01	54.28	< .002	0.001	1.64	< .02	9.9	0.007		4	0.22	0.1	< .05	< .05	76
Y-102	5/25/2009	83.04	< .001	< .01	< .03	< .01	55.37	< .002	0.001	1.71	< .02	8.57	0.006		4	0.24	0.1	< .05	< .05	80
Y-102	9/30/2009																			
Y-102	11/18/2009																			
Y-102	5/14/2010																			
Y-102	9/29/2010																			
LS-15	3/30/2007	66.6	< .001	< .01	< .03	0.01	375	0.062	< .001	2.45	< .02	131	< .004		71	1.04				1015
LS-28	3/30/2007	63.1	< .001	< .01	< .03	< .01	238	0.16	0.002	3.27	< .02	73.9	< .004		49	1.2				634
LS-28	12/30/2008	48.18	< .001	0.01	< .03	< .01	178.03	0.015	0.002	2.82	< .02	56.57	< .004		32	0.85				445
LS-28	3/18/2009	62.58	0.001	0.01	< .03	< .01	222.43	0.009	0.002	3.31	< .02	73.16	< .004		40	0.65				545
LS-28	5/24/2009	54.76	< .001	0.01	< .03	< .01	202.9	0.018	0.002	2.78	< .02	58.62	0.004		36	0.56				470
LS-28	9/30/2009	44.76	0.001	0.01	< .03	< .01	159.88	0.01	0.002	2.81	< .02	48.74	< .004		25	0.56	< .05	< .05	< .05	322
LS-28	11/18/2009	50.31			< .03		178	0.015		3.61	< .02	55.53			31					420
LS-28	3/30/2010	59.88	0.002	0.01	< .03	< .01	221.95	0.014	0.002	3.07	< .02	66.63	0.004		41	0.68	0.06	< .05	< .05	540
LS-28	5/13/2010	54.61			< .03		194.35	0.013		2.85	< .02	60.26			33					467
LS-28	9/28/2010	44.29			< .03		150.04	0.01		2.69	< .02	46.35			22					315
LS-28	12/7/2010	49.36			0.76		164.62	0.012		2.66	< .02	53.23			30					394
LS-28	3/28/2011	58.6			< .03		195.18	0.016		2.88	< .02	60.22			37					495
LS-60	3/30/2007	81.2	< .001	< .01	< .03	< .01	50.9	0.036	0.002	2.15	< .02	24.8	< .004		6	0.32				76
LS-85	6/20/2007	80.1	< .001	< .01	< .03	< .01	51.8	0.035	< .001	1.97	< .02	23.1	< .004		5	0.23			< .05	74
LS-85	6/20/2007																			
LS-85	9/30/2007																			
LS-85	3/22/2008	81.84	< .001	< .01	< .03	< .01	52.22	0.033	< .001	1.98	< .02	22.83	< .004		6	0.31			< .05	80
LS-85	6/17/2008	80.69	< .001	< .01	< .03	< .01	51.62	0.033	< .001	2.14	< .02	23.7	0.007		6	0.26	< .05	< .05	< .05	78
LS-85	8/20/2008	81.34	< .001	< .01	< .03	< .01	51.55	0.034	< .001	2.04	< .02	23.79	< .004		5	0.3	< .05	< .05	< .05	78
LS-85	12/30/2008	80.88	< .001	< .01	< .03	< .01	52.04	0.031	< .001	2.15	< .02	23.95	< .004		6	0.28				81

Well	DATE	T-P mg/l	T-Alk mg/l	T-Hard. mg/l	F-Turb. NTU	Bcrb CaCO3 mg/l	Carb CaCO3 mg/l	Set Sol ml/l	D-Al mg/l	D-Mo mg/l	T-Fe mg/l	T-Mn mg/l	T-Se mg/l	T-B mg/l	D-Hg ug/l
SP-8	6/21/2007	< .05	336	415		336	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	9/30/2007	< .05	328	417		328	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	12/30/2007	< .05	337	406		337	< 5.		< .03	< .005	0.16	< .002			< .2
SP-8	3/22/2008	< .05	342	431		342	< 5.		< .03	< .005	0.09	< .002			< .2
SP-8	6/18/2008	< .05	325	412		325	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	8/20/2008	< .05	332	413		332	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	12/31/2008	< .05	325	419		325	< 5.		< .03	< .005	0.06	< .002			< .2
SP-8	3/18/2009	< .05	329	419		329	< 5.		< .03	< .005	0.11	< .002			< .2
SP-8	5/24/2009	< .05	325	423		325	< 5.		< .03	< .005	0.09	< .002			< .2
SP-8	9/30/2009	< .05	343	402		343	< 5.		< .03	< .005	< .05	< .002			< .2
SP-8	11/17/2009		332			332	< 5.				0.09	< .002	< .1	0.02	
SP-8	3/30/2010	0.05	285	395		285	< 5.		< .03	< .005	0.17	0.004	< .02	0.02	< .2
SP-8	5/13/2010		330	408		330	< 5.				0.07	< .002	< .02	0.02	
SP-8	9/28/2010														
SP-8	12/10/2010		343	401		343	< 5.				0.05	< .002	< .02	0.02	
SP-8	3/27/2011		343	410		343	< 5.				< .05	< .002	< .02	0.02	
Alluvial groundwater monitoring wells															
Y-61	8/12/2005	< .05	328	394		328	< 5.		< .03	< .005					< .2
Y-61	11/4/2005	< .05	332	389		332	< 5.		< .03	< .005					< .2
Y-61	3/31/2006		330	396		330	< 5.		< .03	< .005	0.06	0.003			< .2
Y-61	5/29/2006	< .05	325	394		325	< 5.		< .03	< .005	0.28	0.007			< .2
Y-61	9/8/2006		332	403		332	< 5.		< .03	< .005	< .05	0.002			< .2
Y-61	12/20/2006	< .05	334	404	21.1	334	< 5.		< .03	< .005	0.17	0.011			< .2
Y-61	1/15/2007														
Y-61	3/29/2007	< .05	337	397		334	< 5.		< .03	< .005	0.08	0.003			< .2
Y-61	6/22/2007	< .05	325	406		325	< 5.		< .03	< .005	< .05	0.005			< .2
Y-61	9/29/2007	< .05	327	410		327	< 5.		< .03	< .005	0.08	0.005			< .2
Y-61	12/30/2007	< .05	338	401		338	< 5.		< .03	< .005	< .05	< .002			< .2
Y-61	3/22/2008	< .05	336	411		336	< 5.		< .03	< .005	< .05	< .002			< .2
Y-61	6/18/2008	< .05	325	404		325	< 5.		< .03	< .005	0.49	0.005			< .2
Y-61	8/21/2008	< .05	330	408		330	< 5.		< .03	< .005	< .05	< .002			< .2
Y-61	12/31/2008	< .05	316	408		316	< 5.		< .03	< .005	< .05	< .002			< .2
Y-61	3/19/2009	< .05	327	417		327	< 5.		< .03	< .005	0.09	< .002			< .2
Y-61	5/25/2009	< .05	317	412		317	< 5.		< .03	< .005	0.08	< .002			< .2
Y-61	9/30/2009	< .05	344	401		344	< 5.		< .03	< .005	< .05	< .002			< .2
Y-61	11/18/2009		337			337	< 5.				0.09	< .002	< .1	0.02	
Y-61	5/14/2010		335	402		335	< 5.				< .05	< .002	< .02	0.02	
Y-61	9/30/2010		341	412		341	< 5.				< .05	< .002	< .02	0.03	
Y-61	12/10/2010		333	397		333	< 5.				< .05	< .002	< .02	0.02	
Y-61	3/27/2011		346	403		346	< 5.				< .05	< .002	< .02	0.02	
Y-102	5/27/2005	< .05	329	439	1.5	329	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	9/24/2005										< .05	< .002			
Y-102	9/24/2005	< .05	341	408		341	< 5.		< .03	< .005					< .2
Y-102	11/4/2005	< .05	329	409	16.4	329	< 5.		< .03	< .005					< .2
Y-102	1/26/2006		330	444		330	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	5/29/2006	< .05	324	406		324	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	9/8/2006		333	420		333	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	12/21/2006		329	419	161	329	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	3/28/2007	< .05	337	416	890	337	< 5.		< .03	< .005	< .05	0.002			< .2
Y-102	6/21/2007	< .05	337	426		337	< 5.		< .03	< .005	< .05	0.005			< .2
Y-102	9/29/2007	< .05	331	418		331	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	10/11/2007														
Y-102	12/30/2007	< .05	336	413		336	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	3/22/2008	< .05	328	421		328	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	6/18/2008	< .05	323	424		323	< 5.		< .03	< .005	0.49	0.007			< .2
Y-102	8/21/2008	< .05	332	421		332	< 5.		< .03	< .005	2.45	0.058			< .2
Y-102	3/20/2009	< .05	325	423		325	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	5/25/2009	< .05	324	435		324	< 5.		< .03	< .005	< .05	< .002			< .2
Y-102	9/30/2009														
Y-102	11/18/2009														
Y-102	5/14/2010														
Y-102	9/29/2010														
LS-15	3/30/2007	6.05	979	1711		979	< 5.		< .03	0.006	71.9	1.4			< .2
LS-28	3/30/2007	1.04	611	1150		611	< 5.		< .03	0.006	14.7	0.477			< .2
LS-28	12/30/2008	0.56	505	853		505	< 5.		< .03	< .005	25.23	0.513			< .2
LS-28	3/18/2009	0.95	509	1072		509	< 5.		< .03	< .005	49.4	1.039			< .2
LS-28	5/24/2009	< .05	476	972		476	< 5.		< .03	< .005	10.32	0.19			< .2
LS-28	9/30/2009	1.38	471	770		471	< 5.		0.08	< .005	43.08	0.89			< .2
LS-28	11/18/2009		478			478	< 5.				126.89	2.691	< .1	0.19	
LS-28	3/30/2010	0.45	499	1064		499	< 5.		< .03	< .005	21.94	0.654	< .02	0.21	< .2
LS-28	5/13/2010		479	937		479	< 5.				2.07	0.021	< .02	0.18	
LS-28	9/28/2010		452	728		452	< 5.				2.13	0.046	< .02	0.16	
LS-28	12/7/2010		462	801		462	< 5.				3.13	0.037	< .02	0.18	
LS-28	3/28/2011		500	950		500	< 5.				1.85	0.033	< .02	0.19	
LS-60	3/30/2007	3.36	375	412		375	< 5.		< .03	< .005	54.8	0.923			< .2
LS-85	6/20/2007	< .05	366	413		366	< 5.		< .03	< .005	3.07	0.039			< .2
LS-85	6/20/2007														
LS-85	9/30/2007														
LS-85	3/22/2008	0.14	368	419		368	< 5.		< .03	< .005	3.01	0.034			< .2
LS-85	6/17/2008	< .05	358	414		358	< 5.		< .03	< .005	2.96	0.035			< .2
LS-85	8/20/2008	< .05	365	415		365	< 5.		< .03	< .005	2.81	0.034			< .2
LS-85	12/30/2008	< .05	353	416		353	< 5.		< .03	< .005	4.02	0.035			< .2

	DATE	Temp Deg. C	F-pH pH units	F-D.O. mg/l	Sp Cond uS/cm	Flow GPM	TDS mg/l	TSS mg/l	NO2+NO3 N mg/l	O/G mg/l	NH3 mg/l	D-As mg/l	D-Ba mg/l	D-B mg/l	D-Cd mg/l	D-Ca mg/l	D-Cr mg/l	D-Cu mg/l	D-Fe mg/l	D-Pb mg/l	D-Mg mg/l	D-Mn mg/l	D-Ni mg/l	D-K mg/l	D-Se mg/l	D-Na mg/l	D-Zn mg/l	Acid. mg/l	Cl mg/l	F mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	SO4 mg/l	T-P mg/l	T-Alk mg/l	T-Hard. mg/l	F-Turb. NTU	Bcrb CaCO3 mg/l	Carb CaCO3 mg/l	Set Sol ml/l	D-Al mg/l	D-Mo mg/l	T-Fe mg/l	T-Mn mg/l	T-Se mg/l	T-B mg/l	D-Hg ug/l
LS-85	3/18/2009	10.6	7.13		789		467	7	1		0.2	< .01	0.067	0.06	< .001	82.15	< .001	< .01	< .03	< .01	52.3	0.033	0.001	2.06	< .02	24.22	< .004		5	0.18				70	< .05	356	420		356	< 5.		< .03	< .005	2.84	0.033			< .2
LS-85	5/24/2009	10.5	7.25		763		466	9			< .1	< .01	0.07	0.06	< .001	82.61	< .001	< .01	< .03	< .01	54.15	0.033	< .001	2.15	< .02	23	0.01		6	0.21				79	< .05	352	429		352	< 5.		< .03	< .005	2.87	0.034			< .2
LS-85	9/30/2009	11.3	7.2		768		467	43			0.3	< .01	0.067	0.06	< .001	78.42	< .001	< .01	< .03	< .01	51.91	0.027	0.001	2.18	< .02	24.46	0.004		6	0.28	< .05	< .05	< .05	77	< .05	376	410		376	< 5.		< .03	< .005	3.48	0.034			< .2
LS-85	11/18/2009		7.35		770		457							0.06		77.73			< .03		51.86	0.033		2.12	< .02	23.6			5					79		361			361	< 5.				3.66	0.036	< .1	0.06	
LS-85	3/30/2010	10.6	7.49		812		473	8			0.2	< .01	0.068	0.06	< .001	82.37	< .001	< .01	< .03	< .01	53.65	0.034	< .001	2.12	< .02	24.21	< .004		5	0.26	< .05	< .05	< .05	78	< .05	368	427		368	< 5.		< .03	< .005	2.84	0.034	< .02	0.06	< .2
LS-85	5/13/2010	10.8	7.48		777		477							0.06		82.13			0.03		51.99	0.034		2.12	< .02	23.95			5					77		363	419		363	< 5.				2.8	0.034	< .02	0.06	
LS-85	9/28/2010	11.5	7.27		797		464	6						0.06		78.73			< .03		50.85	0.033		2.14	< .02	24.05			5					79		367	406		367	< 5.				2.75	0.033	< .02	0.06	
LS-85	12/7/2010	10.3	7.53		800		471	23						0.06		78.63			2.49		49.58	0.034		2	< .02	23.24			5					79		359	401		359	< 5.				2.9	0.034	< .02	0.06	
LS-85	3/28/2011	10.5	7.55		782		479							0.07		81.33			< .03		52.04	0.034		2.08	< .02	22.81			5					80		364	417		364	< 5.				2.79	0.034	< .02	0.07	
SS-15	3/29/2007	5.5	8.03		1895		1216	19832			< .1	< .01	0.066	0.19	< .001	26.1	< .001	< .01	< .03	< .01	265	0.131	0.002	4	< .02	53	< .004		28	1.09	< .05	< .05	0.05	360	< .05	834	1156		834	< 5.		< .03	< .005	332	8.78			< .2
SS-30	6/21/2007	13.9	7.79		1387		900	3964			< .1	< .01	0.07	0.13	< .001	64.6	< .001	< .01	< .03	< .01	141	0.022	0.002	4.46	< .02	59	< .004		16	0.8	< .05	< .05	< .05	245	3.8	557	742		557	< 5.		< .03	< .005	70.7	1.6			< .2
SS-30	3/22/2008	9.82	7.33		1212		860	2096	1.76		0.7	< .01	0.035	0.14	< .001	64.54	< .001	< .01	< .03	< .01	145.2	0.013	0.002	3.95	< .02	57.24	0.004		17	0.86			< .05	259	< .05	561	759		561	< 5.		< .03	< .005	65.3	1.63			< .2
SS-30	6/17/2008	10.3	7.39		1234		876	4292	0.05		0.7	< .01	0.033	0.13	< .001	61.97	< .001	0.01	< .03	< .01	138.23	0.007	0.003	4.13	< .02	57.97	0.006		17	0.68	0.05	< .05	< .05	264	0.24	616	724		616	< 5.		< .03	< .005	78.58	2.079			< .2
SS-30	8/20/2008	10.5	7.48		1381		918	1320	< .05		0.7	< .01	0.034	0.13	< .001	63.51	< .001	0.01	< .03	< .01	147.36	0.019	< .001	4.11	< .02	59.44	< .004		17	1	< .05	< .05	< .05	261	0.86	602	765		602	< 5.		< .03	< .005	23.07	0.553			< .2
SS-30	12/31/2008	11	7.47		1324		888	1878	3.04		0.7	< .01	0.032	0.14	< .001	63.77	< .001	0.01	< .03	< .01	146.72	0.019	0.003	4.19	< .02	60.35	< .004		16	0.57				280	0.52	533	763		533	< 5.		< .03	< .005	35.33	0.974			< .2
SS-30	3/18/2009	10.3	7.25		1354		860	698	0.27		0.4	< .01	0.034	0.14	< .001	64.89	< .001	0.01	< .03	< .01	146.86	0.016	0.004	4.12	< .02	61.43	0.004		16	0.5				260	1.45	538	767		538	< 5.		< .03	< .005	83.46	1.801			< 200.
SS-30	5/24/2009	10	7.34		1316		896	1656			0.3	< .01	0.033	0.13	< .001	64.63	< .001	0.01	< .03	< .01	149.44	0.014	0.002	3.96	< .02	57.42	< .004		17	0.59				266	0.07	544	777		544	< 5.		< .03	< .005	30.69	0.891			< .2
SS-30	9/30/2009	10.6	7.32		1282		932	5104			0.7	< .01	0.034	0.13	< .001	60.37	< .001	0.01	< .03	< .01	145.48	0.013	0.005	4.25	< .02	60.52	0.01		17	0.54	< .05	< .05	< .05	260	1.33	573	750		573	< 5.		< .03	< .005	65.71	1.733			< .2
SS-30	3/30/2010	10	7.66		1311		948	8856			0.5	< .01	0.044	0.13	< .001	65.03	0.001	0.01	< .03	< .01	152.88	0.01	0.004	4.33	< .02	60.85	< .004		17	0.55	< .05	< .05	< .05	267	0.74	555	792		555	< 5.		< .03	< .005	65.5	3.367	< .02	0.16	< .2
SS-30	5/13/2010	9.9	7.56		1343		898							0.13		65.67			0.03		144.14	0.016		3.95	< .02	60.2			18					292		556	758		556	< 5.				44.5	1.917	< .02	0.15	
SS-30	9/28/2010	11.3	7.37		1408		897	1474						0.13		62.71			< .03		149.5	0.019		4.17	< .02	61.64			17					272		562	772		562	< 5.				9.78	0.445	< .02	0.14	
SS-30	12/10/2010	10.9	7.54		1387		887	1290						0.13		61.41			< .03		143.76	0.015		4.07	< .02	59.86			17					267		564	745		564	< 5.				14.63	0.625	< .02	0.14	
SS-30	3/28/2011	9.6	7.7		1364		931							0.13		60.67			< .03		143.3	0.015		3.98	< .02	57.55			18					280		554	742		554	< 5.				16.01	1.025	< .02	0.14	
SS-75	3/29/2007	9	7.77		734		474	159			< .1	< .01	0.04	0.05	< .001	82.3	< .001	< .01	< .03	< .01	49.9	0.053	< .001	2.93	< .02	17.7	0.009		5	0.22	< .05	< .05	< .05	79	0.5	364	411	54	364	< 5.		< .03	< .005	5.11	0.089			< .2
LR-45	3/29/2007	7.6	7.87		1640		1292	4874			0.1	< .01	0.041	0.18	< .001	70.7	< .001	< .01	< .03	< .01	173	0.062	0.005	6.54	< .02	117	< .004		38	0.88	< .05	< .05	< .05	487	6.88	570	889	1500	570	< 5.		< .03	0.006	123	2.21			< .2
LR-45	6/22/2007	10.3	7.69		1869	0	1216	11688			0.2	< .01	0.037	0.15	< .001	74.2	< .001	< .01	< .03	< .01	172	0.068	0.004	6.61	< .02	124	0.012		39	0.8	< .05	< .05	< .05	515	11	521	894		521	< 5.		< .03	< .005	208	3.73			< .2
LR-45	9/30/2007	9.6	7.69		1674		1366	9216			0.1	< .01	0.034	0.17	< .001	75.2	0.001	< .01	0.08	< .01	181	0.059	0.007	6.58	< .02	127	< .004		43	0.72	< .05	< .05	< .05	550	6.82	603	933		603	< 5.		0.14	0.006	33.4	1.47			< .2
LR-45	6/17/2008	9.9	7.33		1622		1172	3904	0.2		0.3	< .01	0.022	0.13	< .001	63.97	< .001	0.01	< .03	< .01	148.87	0.046	0.003	5.17	< .02	108.04	0.006		39	0.89	0.08	0.12	< .05	519	< .05	519	773		519	< 5.		0.03	< .005	319.72	5.777			< .2
LR-45	8/20/2008	9.8	7.29		1728		1200	26724	0.13		0.3	< .01	0.03	0.16	< .001	73.12	< .001	0.01	< .03	< .01	173.34	0.073	< .001	6.22	< .02	123.45	< .004		38	0.61	< .05	0.1	< .05	505	< .05	520	896		520	< 5.		< .03	< .005	502.83	8.765			< .2
LR-45	3/18/2009	9.9	7.15		1699		1228	18236	< .05		0.2	< .01	0.028	0.16	< .001	72.02	0.001	0.01	< .03	< .01	167.09	0.062	0.006	6.2	< .02	122.53	0.01		37	0.63	< .05	< .05	< .05	474	< .05	526	868		526	< 5.		< .03	< .005	81.76	7.228			< .2
LR-45	5/25/2009	9.8	7.17		1676		1264	26336			0.8	< .01	0.028	0.16	< .001	70.48	< .001	0.01	< .03	< .01	175.59	0.065	0.002	5.98	< .02	114.49	< .004		38	0.63	< .05	< .05	< .05	504	< .05	516	899		516	< 5.		< .03	< .005	466.81	9.868			< .2
LR-45	9/29/2009	10.9	7.18		1723																																											
LR-45	11/17/2009	9.6	7.45		1710		1266							0.15		69.85			< .03		173.21	0.071		6.19	< .02	119.3			40					531		530			530	< 5.				314.29	5.513	< .1	0.19	
LR-45	4/23/2010	10.4	7.47		1698		1220	8856	0.07		0.1	< .01	0.034	0.18	< .001	72.71	0.002	0.01	< .03	< .01	180.89	0.002	0.001	5.19	< .02	114.66	< .004		35	0.63			< .05	457	0.69	589	926		589	< 5.		< .03	< .005	77.81	4.878	< .02	0.21	< .2
LR-45	9/28/2010	10.4	7.29		1795		1245	175						0.15		72			< .03		181.34	0.089		5.45	< .02	119.18			37					502		546	927		546	< 5.				1.48	0.118	< .02	0.15	
LR-45	12/8/2010	9.5	7.58		1740		1239	181						0.15		70.61			< .03		164.38	0.114		5.23	< .02	115.19			39					487		525	853		525	< 5.				70.47	2.763	< .02	0.2	
LR-45	3/27/2011	9.6	7.59		1690		1220							0.15		65.55			< .03		156.03	0.083		5.04	< .02	104.68			35					473		551	806		551	< 5.				9.24	1.036	< .02	0.17	
UR-70	1/19/2007																																															
UR-70	6/22/2007	10	7.41		4010		4046	74			1.3	< .01	0.111	0.82	< .001	402	< .001	< .01	< .03	< .01	211	0.339	0.004	16.9	< .02	484	0.01		68	0.32	< .05	< .05		2103	0.12	540	1873		540	< 5.		< .03	< .005	1.62	0.353			< .2
UR-70	9/29/2007	9.6	7.19		4880		5035	410			1.2	< .01	0.023	1.05	< .001	434	< .001	< .01	< .03	< .01	278	0.635	0.008	12.2	< .02	651	0.033		88	1.24	< .05	< .05	< .05	2843	0.46	561	2229		561	< 5.		< .03	< .005	12.6	0.647			< .2
UR-70	12/29/2007	8.9	7.1		4330		5208	42952	0.13		2.1	< .01	0.022	0.98	< .001	390.86	< .001	0.01	< .03	< .01	256.8	0.576	0.004	12.65	< .02	729.99	0.013		122	0.39				2906	0.68	552	2033		552	< 5.		0.04	< .005	236.05	4.948			< .2
UR-70	6/18/2008	10.5	6.68		5490		5052	62128	< .05		2.3	< .01	0.023	0.93	< .001	425.99	< .001	0.01	< .03	< .01	276.45	0.485	0.003	11.44	< .02	699.79	0.021		102	1.71	< .05	< .05	< .05	2930	< .05	538	2202		538	< 5.		< .03	< .005	359.71	5.978			< .2
UR-70	8/20/2008	9.8	6.96		4500		4948	1692	0.06		< .1	< .01	0.019	1	< .001	430.69	< .001	0.01	< .03	< .01	282.2	0.46	0.007	10.61	< .02	613.9	0.012		81	0.35	0.06	< .05	< .05	2789	1.22	630	2238		630	< 5.		< .03	< .005	47.44	1.074			< .2
UR-70	3/18/2009	10.1	6.74		4930		4764	1192	0.61		1.2	< .01	0.026	1.03	< .001	438.98	0.002	0.02	< .03	< .01	293.82	0.45	0.008	10.07	< .02	640.48	0.011		78	0.28				3006	2.52	547	2306		547	< 5.		< .03	< .005	65.07	1.554			< .2
UR-70	5/25/2009	9.7	6.82		4900		5158	6198			1.9	< .01	0.023	1.01	< .001	438.35	0.002	0.02	< .03	< .01	299.02	0.433	0.005	9.88	< .02	663.14	0.011		94	0.38	< .05	< .05	< .05	2931	1.05	544	2326		544	< 5.		< .03	< .005	185.12	3.212			< .2
UR-70	9/29/2009	9.9	6.55		4830																																											
UR-70	11/17/2009	9.9	6.8		5210		5080							1.02		412.3			< .03		292.76	0.458		12.06	< .02	737.23			102					3086		560			560	< 5.				584.53	9.749	< .1	1.02	
UR-70	3/31/2010	11.9	7.14		4860		5060	21744			1.7	< .01	0.02	1.03	< .001	425.75	0.003	0.01	< .03	< .01	295.47	0.421	0.004	11.31	< .02	741.23	0.01		107	0.38	< .05	< .05	16.23	3006	0.21	567	2280		567	< 5.		< .03	< .005	87.41	3.12	< .02	1.03	< .2
UR-70	5/13/2010	9.9	7.09		4840		4970							1.04		434.17			0.05		299.49	0.435		11.13	< .02	741.72			101					2966		579	2317		579	< 5.				78.77	2.103	< .02	1.04	
UR-70	9/30/2010	10.7	6.86		4990		4796	27						1.02		441.81			0.19		294.64	0.384		9.47	< .02	585.08			73					2675		571	2317		571	< 5.				7.54	0.384	< .02	1.02	
UR-70	12/10/2010	10	6.98		5810		5204	1783						1.01		407.07			0.35		270.08	0.488		9.65	< .02	731.08			94					2954		563	2129		563	< 5.				38.17	0.981	< .02	1.01	
UR-70	3/27/2011	9.4	7.12		4840		4544							1.01		435.93			< .03		278.7	0.363		9.36	< .02	549.94			65					2623		575	2236		575	< 5.				7.65	0.363	< .02	1.01	
Alluvial trenches/excavations																																																	
SVT-01	4/21/2006	6.1	8.14		2030		1469				< .1	< .01	0.062	0.2	< .001	14	< .001	< .01	< .03	< .01	311	< .002	0.003	4.51	< .02	54.2	< .004		33	0.6	< .05	< .05	0.06	478		1040	1316		1040	< 5.		< .03	< .005	1.22	0.012			< .2
SVT-03	4/21/2006	11.4	8.43		3700		3608				< .1	< .01	0.089	0.15	< .001	64.4	< .001	< .01	< .03	< .01	588	0.006	0.001	14.5	< .02	104	< .004		102	0.36	< .05	< .05	< .05	2080		781	2582		781	< 5.		< .03	< .005	6.88	0.149			< .2
SVT-05	4/21/2006	7.3	7.89		1142		966				< .1	< .01	0.047	0.08	< .001	55.1	< .001	< .01	< .03	< .01	173	0.003	< .001	1.93	< .02	25.7	0.006		20	0.41	< .05	< .05	< .05	345		531	850		531	< 5.		< .03	< .005	2.26	0.037			< .2
SVT-06	4/21/2006	9.1	8.16		1288		903				< .1	< .01	0.04	0.06	< .001	62.4	< .001	< .01	< .03	< .01	147	0.002	< .001	1.53	< .02	30.3	0.009		18	0.44	< .05	< .05	< .05	349		440	761		440	< 5.		< .03	< .005	1.29	0.028			< .2
Alluvial trench north end	6/2/2011	9.5	8.56	8.50	1159	13.4	746	609		<6						60.6			<0.02		110	<0.005		8.4	0.03	26.5			16					270		405		855	494	<2				10.4	0.233	0.08		
Creeks																																																	
SW-101	5/27/2005	17.7	8.41	8.03	495	734	309			2	< .1	< .01	0.182	0.02	< .001	54.2	< .001	< .01	< .03	< .01	36	< .002	< .001	1.02	< .02	4.67	< .004	< 5.	4	0.17				45	2.94	353	284	1000	345	8		< .03	< .005	52.7	0.882			< .2
SW-101	9/24/2005					0																																											
SW-101	11/3/2005					0																																											
SW-101	3/31/2006	8.6	8.62	7.77	3120	20.8	3012			< 2.	< .1	< .01	0.061	0.19	< .001	356	< .001	< .01	0.06	< .01	148	0.002	0.003	16.4		282	0.01		47	1.23	1.85	< .05	< .05	1899		820	1498	25500	820	< 5.	82	0.19	0.005	332	4.155			< .2
SW-101	5/3/2006					0																																											
SW-101	12/21/2006					0																																											
SW-101	12/30/2006					0																																											
SW-101	6/20/2007					0																																											
SW-101	9/29/2007					0																																											
SW-101	11/26/2007					0																																											
SW-101	12/29/2007					0																																											
SW-101	3/21/2008	0.9	7.91	9.23	531	777	644	13404	0.21	< 2.	< .1	< .01	0.029	0.07	< .001	73.07	< .001	< .01	< .03	< .01	20.9	< .002	0.002	6.31	< .02	41.1	< .004		5	0.27			< .05	235	< .05	174	269	7500	174	< 5.	23	< .03	< .005	149.66	2.339			< .2
SW-101	6/17/2008					0																																											
SW-101	7/27/2008					0																																											
SW-101	8/20/2008					0																																											
SW-101	12/10/2008					0																																											

	DATE	Temp Deg. C	F-pH pH units	F-D.O. mg/l	Sp Cond uS/cm	Flow GPM	TDS mg/l	TSS mg/l	NO2+NO3 N mg/l	O/G mg/l	NH3 mg/l	D-As mg/l	D-Ba mg/l	D-B mg/l	D-Cd mg/l	D-Ca mg/l	D-Cr mg/l	D-Cu mg/l	D-Fe mg/l	D-Pb mg/l	D-Mg mg/l	D-Mn mg/l	D-Ni mg/l	D-K mg/l
SW-101	12/30/2008					0																		
SW-101	3/17/2009	8.6	8.02	9.32	2560	18.5																		
SW-101	3/18/2009	8.9	8.2	9.57	2530	16.1	2228	22752	< .05	< 5.	0.6	< .01	0.071	0.2	< .001	256.02	0.001	0.01	< .03	< .01	121.82	< .002	0.004	14.03
SW-101	3/20/2009					2.96																		
SW-101	5/24/2009					0																		
SW-101	9/29/2009					0																		
SW-101	11/17/2009					0																		
SW-101	3/31/2010	2.9	8.44	10.7	1345	81	1056	330		< 5.	< .1	< .01	0.04	0.09	< .001	141.73	0.001	0.01	< .03	< .01	52.11	0.004	0.003	8.07
SW-101	4/22/2010					3.16																		
SW-101	4/22/2010	10.3	8.43	9.95	2780	3.08	2398	1656	0.86	< 5.		< .01	0.112	0.22	< .001	296.58	0.002	0.02	< .03	< .01	134.45	0.014	0.004	14.38
SW-101	4/23/2010					< .1																		
SW-101	5/6/2010					0																		
SW-101	5/6/2010	3.2	7.61	7.1	3510	0.005	3429	6	1.32	< 5.	< .1	< .01	0.056	0.41	< .001	360.12	< .001	0.01	< .03	< .01	184.35	0.016	0.002	15.1
SW-101	5/6/2010	3.2	7.61	7.1	3510	< 1.	3429																	
SW-101	5/6/2010	3.2	7.61	7.1	3510	< 1.																		
SW-101	5/7/2010					0																		
SW-101	5/12/2010					0																		
SW-101	5/13/2010					0																		
SW-101	9/27/2010					0																		
SW-101	10/5/2010	8.7	8.29	9.12	817	8080	696	171968		< 5.				0.09		121.85			< .03		30	0.014		8.17
SW-101	12/8/2010					0																		
SW-101	3/26/2011	1.1	8.41	9.93	2220	63.4																		
BLM-1	3/29/2007	1.4	8.57	9.55	1534	5.24	1182	778		< 2.	< .1	< .01	0.037	0.12	< .001	79.9	< .001	< .01	< .03	< .01	161	0.024	0.001	5.53
BLM-1	6/22/2007	28.8	8.59	5.2	1386	1.49																		
BLM-1	9/30/2007	16	8.38	6.88	1464	3.61																		
BLM-1	7/17/2008	19.3	8.5	6.68	1481	4.05																		
BLM-1	8/20/2008	23.3	8.47	5.52	1302	2.75																		
BLM-1	3/18/2009	11.1	8.21	8.35	1864	25.4																		
BLM-1	5/25/2009	19.7	8.42	6.95	1383	7.64																		
BLM-1	9/29/2009	16.8	8.47	7.27	1267	3.5																		
BLM-1	11/17/2009	1.1	8.51	8.62	1346	7.04																		
BLM-1	9/28/2010	14.4	8.44	7.96	1282	5.47	867	13						0.11		64.16			< .03		139.1	0.012		5.57
BLM-1	12/8/2010	0.9	8.49	9.61	1414	9.17																		
BLM-1	3/27/2011	6	8.26	9.55	2540	55.6																		
SW-5	5/27/2005	18	8.46	7.23	721	410	469			3	< .1	< .01	0.18	0.04	< .001	63	< .001	< .01	< .03	< .01	60.6	< .002	< .001	1.84
SW-5	5/30/2006	11.4	8.88	8.67	1543	5.37	1205	32		< 2.	< .1	< .01	0.042	0.16	< .001	69.8	< .001	< .01	< .03	< .01	148	0.007	0.001	5.67
SW-5	9/7/2006	13.7	8.36	7.89	1394	4.96	1081	26		< 2.	< .1	< .01	0.035	0.16	< .001	59.04	< .001	< .01	< .03	< .01	143.68	0.006	< .001	6.02
SW-5	12/30/2006					0																		
SW-5	3/29/2007					0																		
SW-5	6/22/2007					0																		
SW-5	9/29/2007	9.6	8.56	7.24	960	0.23	751	35	2.11	< 2.	< .1	< .01	0.079	0.09	< .001	75.3	< .001	< .01	< .03	< .01	95.7	< .002	< .001	6.57
SW-5	12/29/2007					0																		
SW-5	6/18/2008	18.8	8.51	6.61	1620	4.98	1255	36	< .05	< 5.	< .1	< .01	0.047	0.17	< .001	76.49	< .001	0.01	< .03	< .01	171.02	< .002	< .001	6.71
SW-5	8/21/2008	15	8.66	7.07	1484	4.52	1122	54	< .05	< 5.	< .1	< .01	0.036	0.16	< .001	68.64	< .001	0.01	< .03	< .01	153.26	0.01	< .001	6.68
SW-5	3/19/2009	8.5	8.58	9.16	1547	16.9	1186	232	1	< 5.	< .1	< .01	0.05	0.12	< .001	85.36	< .001	0.01	< .03	< .01	140.25	0.002	0.001	5.75
SW-5	5/25/2009	17	8.49	6.25	1528	24.5	1101	< 5.		< 5.	< .1	< .01	0.04	0.16	< .001	77.88	< .001	0.01	< .03	< .01	175.23	0.009	0.001	6.02
SW-5	9/29/2009	18.5		7.43	1483	1.05	1055	14		< 5.	0.3	< .01	0.039	0.16	< .001	57.69	< .001	0.01	< .03	< .01	154.93	< .002	0.002	7.91
SW-5	11/16/2009					0																		
SW-5	5/6/2010	10.9	8.62	8.28	1423	34.1	1046	50		< 5.		< .01	0.052	0.14	< .001	77.24	< .001	0.01	< .03	< .01	139.07	0.004	< .001	5.87
SW-5	5/13/2010	14.4	8.56	8.31	1382	30	1041	13	0.95															
SW-5	9/27/2010	23.6	8.51	6.25	1610	0.061	1091	7		< 5.				0.16		60			< .03		156.86	< .002		6.7
SW-5	12/7/2010	0.5	8.53	9.66	1424	0.21	1016	211		< 5.				0.09		69.1			< .03		123.21	0.009		5.17
SW-5	3/26/2011	0.9	8.62	9.59	1463	145	1201	66		< 5.				0.11		107.75			< .03		109.12	0.029		5.7
SW-2	5/27/2005	15.8	8.35	8.47	1120	934	853			< 2.	< .1	< .01	0.155	0.1	< .001	87.5	0.001	< .01	< .03	< .01	116	0.018	0.001	3.15
SW-2	9/25/2005	6.1	8.22	8.24	1926	32																		
SW-2	9/25/2005	6.1	8.22	8.24	1926	32	1625		< .02	< 2.	0.2	< .01	0.037	0.22	< .001	112	< .001	< .01	< .03	< .01	212	0.049	< .001	5.24
SW-2	11/3/2005	5.9	8.09	7.82	1814	430	1513			< 2.	< .1	< .01	0.054	0.18	< .001	127	< .001	< .01	< .03	< .01	183	0.048	0.001	7.04
SW-2	5/30/2006	8.5	8.69	8.93	1855	51	1156	< 5.		< 2.	< .1	< .01	0.034	0.2	< .001	113	< .001	< .01	< .03	< .01	186	0.016	0.001	5.77
SW-2	9/7/2006	14.7	8	7.99	1959	5.38	1725	6		< 2.	< .1	< .01	0.026	0.24	< .001	123.05	< .001	< .01	< .03	< .01	207.19	0.014	< .001	6.84
SW-2	3/29/2007	1.3	8.35	9.65	1847	21.3	1511	< 5.		< 2.	< .1	< .01	0.044	0.2	< .001	115	< .001	< .01	< .03	< .01	187	0.059	< .001	5.46
SW-2	6/22/2007	10.7	8.21	6.1	1819	3.4	1522	< 5.		< 2.	< .1	< .01	0.045	0.22	< .001	113	< .001	< .01	< .03	< .01	191	0.057	0.003	6.37
SW-2	9/29/2007	8.7	8.6	7.45	1622	36.2	1434	20	< .05	< 2.	< .1	< .01	0.069	0.18	< .001	107	< .001	< .01	< .03	< .01	188	0.009	< .001	6.75
SW-2	6/18/2008	14.8	8.13	7.03	1921	68	1672	< 5.	< .05	< 5.	< .1	< .01	0.033	0.22	< .001	127.61	< .001	0.01	< .03	< .01	242.99	< .002	< .001	6.6
SW-2	8/21/2008	10.5	8.2	7.1	2030	8.17	1771	40	< .05	< 5.	0.3	< .01	0.036	0.22	< .001	131.53	< .001	0.01	< .03	< .01	221.11	0.083	< .001	6.63
SW-2	3/19/2009	6.4	8.53	10.25	1113	1751	804	44	1.39	< 5.	< .1	< .01	0.078	0.08	< .001	82.81	< .001	0.01	< .03	< .01	107.7	< .002	0.002	3.96
SW-2	5/25/2009	14.2	8.07	7.08	1952	104	1659	< 5.		< 5.	< .1	< .01	0.035	0.23	< .001	119.42	0.001	0.01	< .03	< .01	228.02	0.02	0.001	6.61
SW-2	9/29/2009	18.6	7.6	6.98	2230	0																		
SW-2	11/16/2009	3.5	8.07	8.78	2400	15.9	2058	6		< 5.				0.22		121.9			< .03		262.25	0.056		8.35
SW-2	5/13/2010	10.7	8.29	8.81	1851	293	1541	< 5.		< 5.				0.19		117.01			< .03		192.92	0.052		5.93
SW-2	9/27/2010	23.5	8.21	6.82	2180	3.77	1712	< 5.		< 5.				0.24		112.75			< .03		227.9	0.014		7.96
SW-2	12/7/2010	0.9	8.59	9.59	1640	2299	1341	42		< 5.				0.17		126.61			< .03		157.21	0.016		6.77
SW-2	3/26/2011	1.1	8.67	9.46	1246	4414	981	112		< 5.				0.08		106.08			< .03		107.51	0.046		4.21
SW-9	6/17/2005					0																		
SW-9	9/24/2005					0																		
SW-9	11/3/2005					0																		
SW-9	3/30/2006	12	8.74	6.63	1715	10.6	1270			< 2.	< .1	< .01	0.097	0.3	< .001	53.7	< .001	< .01	< .03	< .01	164	0.01	0.001	9.88
SW-9	5/3/2006					0																		
SW-9	5/29/2006					0																		
SW-9	6/18/2006					0																		
SW-9	9/8/2006					0																		
SW-9	12/20/2006					0																		
SW-9	3/29/2007					0																		
SW-9	6/20/2007					0																		
SW-9	9/30/2007					0																		

	DATE	D-Se mg/l	D-Na mg/l	D-Zn mg/l	Acid. mg/l	Cl mg/l	F mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	SO4 mg/l	T-P mg/l	T-Alk mg/l	T-Hard. mg/l	F-Turb. NTU	Bcrb CaCO3 mg/l	Carb CaCO3 mg/l	Set Sol ml/l	D-Al mg/l	D-Mo mg/l	T-Fe mg/l	T-Mn mg/l	T-Se mg/l	T-B mg/l	D-Hg ug/l
SW-101	3/17/2009														26200										
SW-101	3/18/2009	< .02	245.34	0.008		35	0.72	< .05	< .05	< .05	1468	0.83	189	1141	24720	189	< 5.	80	< .03	< .005	259.87	3.899			< .2
SW-101	3/31/2010	< .02	118.68	< .004		16	0.42	0.45	< .05	< .05	611	0.49	140	568	328	140	< 5.	< .1	< .03	< .005	4.07	0.05	< .02	0.09	< .2
SW-101	4/22/2010	< .02	271.97	< .004		50	0.65			< .05	1481	2.3	172	1294	2960	172	< 5.	7	0.05	< .005	20.03	0.305	< .02	0.23	< .2
SW-101	5/6/2010	< .02	396.2	0.02		66	0.37			< .05	1852	< .05	358	1658	4.54	358	< 5.	< .1	< .03	< .005	0.06	0.016	< .02	0.41	< .2
SW-101	5/6/2010														4.54										
SW-101	10/5/2010	< .02	24.22			2					386		74	428	68000	74	< 5.	140			197.29	16.833	< .02	0.4	
BLM-1	3/29/2007	< .02	82	< .004		34	0.74	< .05	< .05	< .05	496	1.04	505	863	1500	505	< 5.	1	< .03	< .005	10.3	0.217			< .2
BLM-1	6/22/2007														0										
BLM-1	9/30/2007														8.2										
BLM-1	7/17/2008														117										
BLM-1	8/20/2008														16.1										
BLM-1	3/18/2009														8760										
BLM-1	5/25/2009														184										
BLM-1	9/29/2009														5.07										
BLM-1	11/17/2009														22.4										
BLM-1	9/28/2010	< .02	53.29			18					311		469	733		469	< 5.				0.15	0.019	< .02	0.11	
SW-5	5/27/2005	< .02	20.2	< .004	< 5.	6	0.19				144	2.38	338	407	1000	332	5		< .03	< .005	45.6	0.825			< .2
SW-5	5/30/2006	< .02	85.2	< .004		26	0.62	< .05	< .05	< .05	503	< .05	421	784	3.3	421	< 5.	0.1	< .03	< .005	0.21	0.044			< .2
SW-5	9/7/2006	< .02	83.11	< .004		27	0.6	< .05	< .05	< .05	474		405	739	13.4	374	< 5.	< .1	< .03	< .005	0.37	0.014			< .2
SW-5	9/29/2007	< .02	38.3	0.006		15	0.32				300	0.12	305	582	22.2	305	< 5.	< .1	< .03	< .005	1.18	0.034			< .2
SW-5	6/18/2008	< .02	94.78	< .004		31	0.71	< .05	< .05	< .05	600	< .05	406	895	5.88	382	25	< .1	< .03	< .005	0.22	0.009			< .2
SW-5	8/21/2008	< .02	91.81	0.018		30	1.06	< .05	< .05	< .05	500	0.07	413	803	28.1	413	< 5.	< .1	< .03	< .005	0.88	0.026			< .2
SW-5	3/19/2009	< .02	104.85	< .004		27	0.05				558	0.13	403	791	350	399	< 5.	0.5	< .03	< .005	3.99	0.055			< .2
SW-5	5/25/2009	< .02	75.92	< .004		26	0.49	< .05	< .05	< .05	532	< .05	418	916	2.98	382	36	< .1	< .03	< .005	0.06	0.013			< .2
SW-5	9/29/2009	< .02	82.11	0.01		28	0.51	0.06	< .05	< .05	450	0.06	430	782	9.08	395	35	< .1	< .03	< .005	0.29	0.01			< .2
SW-5	5/6/2010	< .02	73.72	0.007		22	0.45			< .05	447		391	766	22.2	355	37	< .1	< .03	< .005	0.31	0.008	< .02	0.14	< .2
SW-5	5/13/2010											0.07			12.7										
SW-5	9/27/2010	< .02	94.53			30					481		426	796		418	8				0.13	0.008	< .02	0.17	
SW-5	12/7/2010	< .02	83.18			27					465		342	680		342	< 5.				1.5	0.048	< .02	0.09	
SW-5	3/26/2011	< .02	105.45			32					549		333	718		333	< 5.				0.29	0.035	< .02	0.11	
SW-2	5/27/2005	< .02	42	< .004	< 5.	12	0.22				353	0.88	360	696	1000	360	< 5.		< .03	< .005	16	0.28			< .2
SW-2	9/25/2005														4.75						< .05	< .002			
SW-2	9/25/2005	< .02	94.2	0.053		22	0.18	< .05	< .05	< .05	< 1.	< .05	439	1153	4.75	439	< 5.	< .1	< .03	< .005					< .2002
SW-2	11/3/2005		58.6	< .004		16	0.17				821	< .05	415	1071	7.18	415	< 5.	< .1	< .03	< .005					< .2
SW-2	5/30/2006	< .02	80.8	< .004		24	0.44	< .05	< .05	< .05	763	< .05	417	1048	2.31	417	< 5.	< .1	< .03	< .005	0.12	0.024			< .2
SW-2	9/7/2006	< .02	107.07	< .004		28	0.49	< .05	< .05	< .05	892		426	1160	3.26	426	< 5.	< .1	< .03	< .005	0.07	0.019			< .2
SW-2	3/29/2007	< .02	93.8	< .004		24	0.65	< .05	< .05	< .05	761	< .05	440	1057	1.37	440	< 5.	< .1	< .03	< .005	< .05	0.059			< .2
SW-2	6/22/2007	< .02	91.4	0.005		23	0.43	< .05	< .05	< .05	714	< .05	424	1069		424	< 5.	< .1	< .03	< .005	0.28	0.067			< .2
SW-2	9/29/2007	< .02	79.9	< .004		25	0.44				711	< .05	390	1041	28.5	390	< 5.	< .1	< .03	< .005	0.57	0.028			< .2
SW-2	6/18/2008	< .02	104.5	0.005		29	0.51	< .05	< .05	< .05	843	< .05	433	1319		433	< 5.	< .1	< .03	< .005	0.05	0.036			< .2
SW-2	8/21/2008	< .02	102.19	< .004		30	0.37	< .05	< .05	< .05	907	< .05	422	1239	8.42	422	< 5.	< .1	< .03	< .005	0.77	0.101			< .2
SW-2	3/19/2009	< .02	29.84	< .004		32	0.22				296	0.05	343	650	32.1	327	16	0.1	< .03	< .005	0.86	0.03			< .2
SW-2	5/25/2009	< .02	99.16	< .004		29	0.4	< .05	< .05	< .05	835	< .05	427	1237	2.55	427	< 5.	< .1	< .03	< .005	0.24	0.026			< .2
SW-2	9/29/2009														15.2										
SW-2	11/16/2009	< .02	134.79			37					1094		428		9.39	428	< 5.				0.45	0.097	< .1	0.22	
SW-2	5/13/2010	< .02	92.61			23					707		441	1087	2.9	441	< 5.				0.12	0.056	< .02	0.19	
SW-2	9/27/2010	< .02	111.27			32					894		419	1220	4.31	419	< 5.				0.48	0.038	< .02	0.24	
SW-2	12/7/2010	< .02	48.88			14					677		351	964		351	< 5.				0.75	0.031	< .02	0.18	
SW-2	3/26/2011	< .02	32.03			11					366		391	708		391	< 5.				0.58	0.072	< .02	0.08	
SW-9	3/30/2006		122	< .004		41	0.48	< .05	< .05	< .05	520		498	809	12.7	448	50	< .1	< .03	< .005	0.36	0.034			< .2

	DATE	Temp Deg. C	F-pH pH units	F-D.O. mg/l	Sp Cond uS/cm	Flow GPM	TDS mg/l	TSS mg/l	NO2+NO3 N mg/l	O/G mg/l	NH3 mg/l	D-As mg/l	D-Ba mg/l	D-B mg/l	D-Cd mg/l	D-Ca mg/l	D-Cr mg/l	D-Cu mg/l	D-Fe mg/l	D-Pb mg/l	D-Mg mg/l	D-Mn mg/l	D-Ni mg/l	D-K mg/l	D-Se mg/l	D-Na mg/l	D-Zn mg/l	Acid. mg/l	Cl mg/l	F mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	SO4 mg/l	T-P mg/l	T-Alk mg/l	T-Hard. mg/l	F-Turb. NTU	Bcrb CaCO3 mg/l	Carb CaCO3 mg/l	Set Sol ml/l	D-Al mg/l	D-Mo mg/l	T-Fe mg/l	T-Mn mg/l	T-Se mg/l	T-B mg/l	D-Hg ug/l
SW-9	12/29/2007					0																																										
SW-9	3/21/2008	3.8	8.12	8.95	382	182	360	588	1.7	< 2.	< .1	< .01	0.045	0.1	< .001	25.63	< .001	< .01	< .03	< .01	33.9	< .002	< .001	3.9	< .02	28.3	< .004		8	0.26			0.06	96	0.84	161	204	745	161	< 5.	1	< .03	< .005	10.71	0.155			< .2
SW-9	3/22/2008					0																																										
SW-9	6/17/2008					0																																										
SW-9	7/27/2008					0																																										
SW-9	8/20/2008					0																																										
SW-9	12/30/2008					0																																										
SW-9	3/18/2009					0																																										
SW-9	5/24/2009					0																																										
SW-9	9/29/2009					0																																										
SW-9	11/18/2009					0																																										
SW-9	3/30/2010	10.9	8.26	8.91		7.01	837	34		< 5.	0.1	< .01	0.078	0.23	< .001	34.87	0.001	0.01	< .03	< .01	110.18	< .002	0.002	5.56	< .02	106.35	< .004		29	0.44	0.06	< .05	< .05	319	0.14	364	541	38.4	337	27	< .1	< .03	< .005	0.89	0.017	< .02	0.23	< .2
SW-9	4/23/2010	4.2	8.72	9.96	1722	33.6	1314	9	0.37	< 5.	< .1	< .01	0.056	0.23	< .001	47.65	0.002	0.01	< .03	< .01	230.27	< .002	0.001	6.4	< .02	87.28	< .004		41	0.46			< .05	511	0.06	570	1067	5.86	503	67	< .1	< .03	< .005	0.09	0.012	< .02	0.23	< .2
SW-9	5/6/2010	6.7	8.79	7.48	2380	< .25	1882	< 5.	0.64	< 5.	< .1	< .01	0.101	0.46	0.004	49.13	0.004	0.02	< .03	0.01	290.03	0.004	0.005	9.49	< .02	158.41	0.01		59	0.64			< .05	731	< .05	766	1317	4.15	659	107	< .1	0.05	0.005	0.05	0.015	< .02	0.46	< .2
SW-9	5/13/2010	16.5	8.78	7.17	2390	2.91																																3.24										
SW-9	9/28/2010					0																																										
SW-9	12/7/2010					0																																										
SW-9	3/26/2011	1.6	8.77	9.45	1495	492	1146	22		< 5.				0.17		49.29			< .03		184.48	0.022		6.13	< .02	66.64			30					442		506	883		478	28				0.1	0.026	< .02	0.17	