PETERSEN HYDROLOGIC

29 March 2006

Mr. Gary Gray
GENWAL Resources, Inc.
P.O. Box 1077
Price, Utah 84501

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Dear Gary,

At your request, we have produced this Annual Hydrologic Monitoring Report for the Crandall Canyon #1 Mine for the year 2005. This report is based on hydrologic monitoring information collected during 2005 and submitted to the Utah Division of Oil, Gas and Mining. Water samples for baseline laboratory water quality parameters were collected and analyzed during 2005.

Other than the permitted discharge of mine water to Crandall Creek, there are no indications that mining-related impacts to the hydrologic balance in the mine permit area have occurred.

If you have any questions in this regard, please feel free to contact me.

Sincerely,

Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG No. 5373615-2250

For additional information

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Summary of Hydrologic Monitoring at the GENWAL Resources, Inc. Crandall Canyon #1 Mine During 2005

Introduction

Hydrologic monitoring at GENWAL Resources' Crandall Canyon #1 Mine was carried out in 2005 in accordance with the hydrologic monitoring plan as approved by the Utah Division of Oil, Gas and Mining (DOGM). During 2005 water samples were also collected and analyzed for baseline laboratory water quality parameters as specified in the monitoring plan. Hydrologic monitoring locations are shown on Figure 1. All 2005 hydrologic monitoring data have been entered into the DOGM on-line electronic database. The purpose of this document is to present and summarize the results of the 2005 hydrologic monitoring.

Including this introduction, this report contains the following sections:

- Introduction
- Methods of Study
- Climate
- Presentation of Data
- Spring Monitoring Summary
- Stream Monitoring Summary
- In-Mine Monitoring Summary
- Mine Discharge Monitoring Summary
- Conclusions

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Methods of Study

The specific methods of study used to collect the 2005 hydrologic monitoring data are described below.

Discharge Measurements

Discharge measurements for springs were performed using a calibrated container and a stopwatch. Generally, spring discharge measurements were performed by damming and diverting the spring discharge through a pipe. Using an appropriately sized container, time-to-fill measurements were typically performed at least 3 times at each location. An average time-to-fill value was used to calculate the reported discharge measurement. At some spring locations with large discharge rates, spring discharge measurements were performed using a 90° v-notch weir, or using cross-sectional area – current velocity techniques. Discharge measurements at Indian Creek, upper Crandall Creek, and lower Crandall Creek were performed using the existing, permanently installed 3-foot Parshall flumes, or using a current-velocity meter and wading rod. Discharge measurements during high-flow periods in Blind Canyon Creek were performed using the existing 12-inch Parshall Flume. Discharge measurements at other stream monitoring stations were performed using either a portable 3-inch Parshall flume, current-velocity meter and wading rod, portable 90-degree v-notch weir, or a stopwatch and calibrated container as appropriate. Discharge measurements and calculations were performed using standard U.S. Bureau of Reclamation methods.

Discharge Temperature Measurements

Temperature measurements were performed using a Taylor brand electronic digital thermometer. Discharge temperature measurements at springs were performed as close to the spring discharge locations as possible. Stream temperature measurements were performed, where possible, in a shaded, actively flowing portion of the stream.

Specific Conductance Measurements

Specific conductance measurements were performed using an Extech brand model EC400 conductivity meter with automatic temperature compensation. The instrument was regularly calibrated using traceable ASTM conductivity standard solutions.

pH Measurements

pH Measurements were performed using an Oakton brand Acorn 6 model electronic pH meter with automatic temperature compensation. The instrument was regularly calibrated using traceable ASTM pH standard solutions.

Dissolved Oxygen Measurements

Dissolved oxygen measurements were performed using a YSI brand model 55 dissolved oxygen meter. The meter was routinely calibrated using atmospheric oxygen calibration methods.

Water Quality Laboratory Measurements

Water quality laboratory analyses were performed by SGS Mineral Services of Huntington, Utah, a Utah State certified water analysis laboratory. Information regarding laboratory standard analytical methods and procedures used and laboratory detection limits has been entered into the DOGM on-line database.

As specified in GENWAL's Mining and Reclamation Permit, baseline water-quality parameters are to be analyzed periodically at streams and springs to monitor for potential mining-related impacts to baseline water-quality parameters. At the direction of personnel from the Utah Division of Oil, Gas and Mining, water samples for baseline laboratory water-quality analyses were collected during high-flow conditions (2nd quarter 2005 monitoring event), and again during baseflow conditions (4th quarter 2005 monitoring event). Baseline water-quality analyses were performed by SGS Mineral Services of Huntington, Utah.

Climate

A plot of the Palmer Hydrologic Drought Index for Utah Region 4 is presented in Figure 2. The PHDI is a monthly value generated by the National Climatic Data Center that indicates wet and dry spells. The PHDI is calculated from several hydrologic parameters including precipitation, temperature, evapotranspiration, soil water recharge, soil water loss, and runoff. Consequently, it is a useful tool for evaluating the relationship between climate and groundwater and surface water discharge data. The PHDI is useful for determining whether

variations in spring and stream discharge rates are the result of climatic variability or whether they are the result of other factors.

It is apparent in Figure 2 that, beginning in late 2004, the region transitioned from the previous 3-year period of drought into a period of severe to extreme wetness. The wet conditions persisted throughout 2005.

Presentation of Data

The results of the 2005 hydrologic monitoring, including discharge measurements, laboratory water quality parameters, and field water quality data are presented in tabular form in Table 1. Supplemental baseline water-quality analyses collected at springs and streams during the 2nd and 4th quarters of 2005 are listed in Table 1A. Hydrologic monitoring locations are shown on Figure 1. A compilation of historic discharge and water quality data for springs, streams, and in-mine locations is presented in Table 2. A summary of water-quality and discharge data from the Crandall Canyon #1 Mine workings (UPDES 002) and from the sediment pond at the mine surface facilities (UPDES 001) is presented in Table 3. Time series plots of specific conductance, pH, and discharge for each of the regular water-monitoring sites, together with plots of the PHDI for Utah Region 4 are included at the end of this report.

Operational monitoring of eight spring sites (LB-5A, LB-7, LB-7A, LB-7B, LB-7C, LB-12, SP-79, and Little Bear Spring) and six stream sites (Little Bear Creek, Section 4 Creek, Section 5 Creek, Section 5 Creek U. R. Fork, Section 5 Creek U. L. Fork, and IBC-1)

associated with the new South Crandall Lease area began in 2005. Also commencing in 2005 was operational monitoring of two spring sites (SP-18 and SP-22) and one stream monitoring site (Shingle Creek) in the Shingle Canyon drainage (Figure 1).

During the 1st quarter of 2005, heavy snow-cover prohibited access to the high-elevation spring and stream monitoring sites on East Mountain and in upper Joes Valley. Most stream monitoring sites in the Huntington Canyon drainage were accessed during the 1st quarter. Springs SP-30 and SP-36 were able to be monitored in late March 2005 when snow cover on the south facing hillsides in Crandall Canyon had melted. Little Bear Spring (which is monitored at an access/diversion point in the spring discharge pipeline in Huntington Canyon) was also monitored in the 1st quarter. UPDES discharge and the accessible in-mine monitoring locations were also accessed during the 1st quarter of 2005.

During the 2nd quarter of 2005 all monitoring sites were accessed and monitored with the exception of those in the Little Bear Canyon and in the adjacent Section 4 Canyon. These sites were inaccessible due to high spring runoff flows in Huntington Creek, which made crossing of the creek unsafe. The sites in Little Bear and Section 4 Canyons were monitored early in the 3rd quarter in July 2005, as soon as the creek could reasonably be crossed (an additional monitoring event later in the 3rd quarter at these sites was also performed).

All of the regular monitoring stations were accessed and monitored during the 3rd and 4th quarters of 2005. It is noteworthy that two monitoring trips to Little Bear Canyon were required during the 4th quarter of 2005. During the initial monitoring trip to Little Bear

Canyon, monitoring personnel were forced off the mounting in the upper canyon area by an aggressive black bear.

In-mine monitoring sites MW-1 and DH-1 were monitored during 2005. All other in-mine sites are either located in portions of the mine that were sealed/not accessible during 2005, or have been rendered unable to be monitored as a result of mine flooding or mining operations.

Spring Monitoring Summary

In accordance with the approved monitoring plan, 23 springs were monitored for discharge and field and laboratory water-quality parameters during 2005. Additionally, Little Bear Spring is monitored for field and laboratory operational water quality parameters, but is not monitored for discharge. A summary of the 2005 monitoring results for springs in the mine permit area and adjacent is presented below.

East Mountain Springs

As specified in the water monitoring plan, eight springs on East Mountain were monitored during 2005. These include SP2-24, SP2-9, SP47A, SP1-3, SP1-19, SP1-22, SP1-9, and SP1-24.

The water quality at these springs, as indicated by field measurements of specific conductance and pH, is similar to that monitored during previous years (see attached plots). The solute compositions of springs SP1-9, SP2-9, and SP2-24, which are monitored for laboratory water quality parameters as specified in the MRP, likewise are similar to previous years (Tables 1 and 2). It is notable that total iron concentration measured at spring SP1-9

during October 2005 was 2.81 mg/l. This result is most likely attributable to the inclusion of fine suspended particulate matter that was visible entering the acidified metal sample container during sample collection. This conclusion is supported by the lack of dissolved iron (<0.05 mg/l) measured at the same monitoring event.

Discharges measured at all of the springs on East Mountain during the 2nd quarter of 2005 were greater than those measured in recent years. This condition is attributed to the wet climatic conditions the region experienced during early 2005. Peak discharge rates measured at springs SP2-24, SP1-19, SP1-22, and SP1-24 were significantly elevated above recent years (Table 1). Baseflow spring discharge rates measured at most East Mountain springs during the 4th quarter of 2005 were generally greater than those measured in recent years.

There is no indication that mining-related activities have had any detrimental effects on discharge rates or water quality of groundwater systems that support springs on East Mountain.

Upper Joes Valley Springs

As specified in the monitoring plan, three springs in Upper Joes Valley were monitored during 2005. These include SP1-33, SP1-47, and SP2-1. These springs were all monitored during the 2nd, 3rd, and 4th quarters of 2005. Heavy snowpack in upper Joes Valley prohibited access during the 1st quarter of 2005.

Water quality at the Upper Joes Valley springs, as indicated by field measurements of specific conductance and pH, was similar to that monitored during previous years (see attached plots). The solute composition of spring SP1-33, which is monitored quarterly for laboratory water quality parameters as specified in the MRP, is likewise similar to that of previous years (Tables 1 and 2).

Peak discharge rates measured at springs SP1-47 and SP1-33 during 2005 were appreciably greater than those measured in recent years. This condition is consistent with the period of wetness the region experienced in 2005. Peak discharge measured at SP2-1 during 2005 was similar to that measured during recent years. However, baseflow discharge measured during the 4th quarter of 2005 was appreciably greater than that in previous years, reflecting the wet climatic conditions experienced during 2005.

There is no indication that mining-related activities have had any detrimental impacts to the water quality or water quantity of groundwater systems that support springs in Upper Joes Valley.

Crandall Canyon Springs

As specified in the water monitoring plan, three springs were monitored in Crandall Canyon during 2005. These include SP-30, SP-36, and SP-58. Springs SP-30 and SP-36 were monitored in the 1st, 2nd, 3rd, and 4th quarters of 2005. Spring SP-58 was monitored in the first three quarters of 2005, but was inaccessible in the 1st quarter due to heavy snowpack in Crandall Canyon above the mine.

Discharge rates measured at spring SP-30 during 2005 increased moderately relative to those measured in recent years (Table 1). The increased discharge from SP-30 is likely in response to the increased wetness the region experienced during 2005. Discharge rates measured at SP-36 and SP-58 were similar to those measured in previous years. Pronounced seasonal variation was apparent in discharge rates at both SP-36 and SP-58. Although discharges from these springs during 2005 are similar to those of previous years, is apparent that the groundwater systems that support these springs have not yet responded to the recent trend toward wetter climatic conditions in the region.

Water quality at the Crandall Canyon springs, as indicated by field measurements of specific conductance and pH, was similar to that monitored during previous years (see attached plots). The solute compositions of springs SP-36 and SP-58, which are monitored quarterly for laboratory water quality parameters as specified in the MRP, likewise are generally similar to previous years (Tables 1 and 2). During 2003 it was noted that the concentration of sulfate in discharge from spring SP-58 had increased somewhat relative to that of previous years (Table 2). Sulfate concentrations measured at SP-58 during 2005 were again somewhat greater than those measured in recent years. It is suspected that the recent elevated sulfate concentrations may be related to the recent drought conditions the region has experienced. As discussed above, SP-58, has not yet responded appreciably to the recent wet conditions the region is experiencing. It seems likely that when an influx of low-TDS recharge water reaches SP-58, sulfate concentrations will likely decline.

There is no indication that mining-related activities have had any detrimental impacts to the water quality or water quantity of groundwater systems that support springs in Crandall Canyon.

South Crandall Area Springs

As part of the recent permit revision that included the new South Crandall Lease area, eight springs were added to the water monitoring program. These include, Little Bear Spring, SP-5A, LB-7, LB-7A, LB-7B, LB-7C, LB-12, and SP-79 (Figure 1). Little Bear Spring is located near the mouth of Little Bear Canyon and is developed s and piped to adjacent municipalities for use as municipal water. Spring LB-12 seeps from the Blackhawk Formation near the bottom of Little Bear Canyon. Spring LB-5A discharges from the Blackhawk Formation on the north slope of Little Bear Canyon. Springs LB-7, LB-7A, LB-7B, LB-7C discharge near the contact of the Blackhawk Formation and the overlying Castlegate Sandstone. Spring SP-79 discharges in the canyon bottom near the mouth of an unnamed stream drainage immediately north of Little Bear Canyon. Spring Discharge rates are measured quarterly at all of these springs with the exception of Little Bear Spring. Discharge measurements at Little Bear Spring are not practical due to the developed nature of the spring for municipal use. Discharge at Little Bear Spring is routinely measured (monthly) by the Castle Valley Special Service District. While Discharge rates at Little Bear Spring typically range from about 200 go 400 gpm, discharges from the other springs in the South Crandall Lease area are generally meager. Discharges measured at LB-5A and LB-7 during 2005 were generally about 2 gpm or less. Discharges at LB-12, LB-7A, LB-7B, and

LB-7C are typically much less than 1 gpm (Table 1). Discharge at SP-79 is usually less than about 1 gpm.

Laboratory water quality measurements and field parameters are performed at Little Bear Spring, SP-79 and at spring LB-5A. Discharge measurements and field water quality measurements only are performed at the other five springs. Recent discharge measurements and field water quality parameters for these springs are plotted on the attached sheets. It is apparent in these plots and in Tables 1 that field water quality at these springs is similar to that measured at other springs in the Crandall Canyon Mine area.

Shingle Canyon Area Springs

Springs SP-18 and SP-22 were added the water monitoring plan in conjunction with recent permit amendments. SP-18 discharges from the hillside above the upper Left Fork of Shingle Canyon (Figure 1). SP-22 discharges from the bottom of the stream channel in the upper Right Fork of Shingle Creek (Figure 1). Monitoring at both springs is for field water quality parameters and discharge rate. Discharge from both springs is meager. During 2005, discharge at SP-18 was relatively constant at about 0.2 gpm. It is noteworthy that during the winter of 2004, mass movement of the hillside at SP-18 occurred and the saturated clayey sediments slumped down the hill toward the creek. Discharge from SP-22 ranged from 1.09 gpm in June, to 0.05 gpm in September. Based on field water quality measurements, it is apparent that water quality at these springs is similar to other springs monitored in the Crandall Canyon Mine area.

Stream Monitoring Summary

In accordance with the approved hydrologic monitoring plan, 12 stream sites were monitored for flow and water quality during 2005. These include Indian Creek in Upper Joes Valley, Horse Canyon Creek, Blind Canyon Creek, Shingle Creek, a creek in an unnamed drainage in Section 4 in Huntington Creek, Little Bear Canyon Creek, and six sites in the Crandall Creek drainage.

Indian Creek

Discharge rate and field water quality measurements were performed on Indian Creek during the 2nd, 3rd, and 4th quarters of 2005. Located in Upper Joes Valley, the site was not accessible during the 1st quarter because of the heavy snowpack. Discharge measured at Indian Creek during 2005 ranged from 1,800 gpm in June to 570 gpm in October (Table 1). Discharge in Indian Creek during 2005 was greater than that of previous years, in response to the wet climatic conditions the region experienced during 2005.

Water quality in Indian Creek during 2005, as indicated by field measurements of specific conductance and pH, was generally similar to that monitored during previous years (see attached plots). The solute composition of Indian Creek monitored during 2005 was similar to that measured in previous years (Table 2). There are no changes in discharge rates or to water quality that would suggest that any mining-related impacts have occurred in Indian Creek.

Horse Canyon Creek

Horse Canyon Creek, which is monitored near the confluence with Huntington Creek (Figure 1), was monitored during the 1st, 2nd, 3rd, and 4th quarters of 2005. Discharge in Horse Canyon Creek monitored during 2005 was significantly greater than that measured in previous years, ranging from 1,860 gpm during May to 31 gpm in December (Table 1).

Water quality in Horse Canyon Creek during 2005, as indicated by field measurements of specific conductance and pH, was similar to that monitored during previous years (see attached plots). It is noteworthy that the specific conductance measured in May 2005 was considerably lower than that in previous years. This condition is attributed to the large amount of low-TDS snowmelt that was present in the stream during the unusually high discharge conditions during the spring of 2005. The solute composition of Horse Canyon Creek monitored during 2005 was also generally similar to that measured in previous years (Table 2). It was noted in 2003 that the sulfate concentrations measured in Horse Canyon Creek had increased somewhat, likely in response to the prolonged period of drought (i.e., resulting from a smaller input of low-TDS snowmelt water relative to the drought-resistant baseflow component). As anticipated, sulfate concentrations in Horse Canyon Creek during 2005 were substantially lower than those measured during 2003 and 2004, (particularly during the high-runoff season, when the sulfate concentration was only 11 mg/l) suggesting that the elevated sulfate concentrations observed previously were likely drought-related.

There are no changes in discharge rate or to water quality that would suggest that any mining related impacts have occurred in Horse Canyon Creek.

Blind Canyon Creek

Blind Canyon Creek, which is monitored near the confluence with Huntington Creek (Figure 1), was monitored during the 1st, 2nd, 3rd, and 4th quarters of 2005. Discharge in Blind Canyon Creek monitored during 2005 ranged from 1,930 gpm during May to 32.7 gpm in December (Table 1). The springtime discharge rate measured in May are several times greater than typical high-flow discharge rates measured in Blind Canyon Creek in previous years. The elevated discharge rates reflect the extremely wet climatic conditions the region experienced during 2005.

Water quality in Blind Canyon Creek, as indicated by field measurements of specific conductance and pH, was similar to that monitored during previous years (see attached plots). The solute composition of Blind Canyon Creek monitored during 2005 was likewise similar to that measured in previous years (Table 2).

There are no changes in discharge rate or water quality that would suggest that any mining related impacts have occurred in Blind Canyon Creek.

Shingle Canyon Creek

Monitoring in Shingle Creek, a small drainage just above Crandall Canyon (Figure 1), has been added to the monitoring plan in conjunction with recent permit amendments. Shingle Creek is monitored a short distance above the mouth of the canyon for discharge and field water quality parameters. Discharge in the drainage is typically meager. During June 2005, a period of extreme wetness in the region, discharge in Shingle Creek was only 20.2 gpm.

During the summer and fall months, discharge ranged from about 6 to 13 gpm. During 2004, the June discharge was also meager, at about 18 gpm. By July 2004, the stream was dry.

Water quality during 2005, as indicated by field water quality measurements, was similar to that at other streams in the Crandall Canyon Mine area.

Little Bear Canyon Creek

Monitoring in Little Bear Canyon Creek, a small drainage about 1¼ miles below Crandall Canyon (Figure 1), has been added to the monitoring plan in conjunction with recent permit amendments. Little Bear Canyon Creek is monitored a short distance above the confluence with Huntington Creek. Discharge in Little Bear Canyon Creek during 2005 was meager. During much of the year, the stream channel was dry (Table 1). Discharge measured in July and September was only about 7 gpm.

Water quality in Little Bear Canyon Creek during 2005 was similar to that at other streams in the Crandall Canyon Mine area.

Section 4 Creek

Monitoring in Section 4 Creek, a small drainage about ¾ mile below Crandall Canyon (Figure 1), has been added to the monitoring plan in conjunction with recent permit amendments. Section 4 Creek is monitored near the confluence with Huntington Creek. Discharge at Section 4 Creek is meager. Discharge measured during 2005 ranged from no flow during June, to 7.1 gpm in March (Table 1). It is somewhat unusual that discharge at

the creek apparently is lower during the springtime, increasing as the year progresses. This condition is likely due to interactions between surface waters and groundwaters in the thick alluvial sediments in the mouth of the canyon.

Water quality in Section 4 Creek during 2005 was similar to that at other streams in the Crandall Canyon Mine area, although TDS concentrations are somewhat greater in the creek than are most other nearby creeks (Table 1).

Crandall Canyon Drainage

Crandall Canyon Creek Upper Flume

The upper flume in Crandall Canyon Creek is located above the mine surface facilities in Crandall Canyon. This station was monitored during all four quarters of 2005. The discharge measured at the upper flume ranged from 6,450 gpm in May to 72 gpm in March. The high-flow discharge rates at the upper flume in Crandall Canyon Creek were much greater than those measured in previous years. This is a reflection of the period of extreme wetness the region experienced during 2005. The baseflow measurement in 2005 (72 gpm measured in March) is slightly lower than that measured in previous years.

Water quality at the upper flume in Crandall Creek during 2005, as indicated by field measurements of specific conductance and pH, was generally similar to that monitored during previous years (see Table 2 and attached plots). It was observed in 2003 that sulfate concentrations measured at the upper flume were somewhat elevated relative to previous years. Sulfate concentrations measured during 2005 during and after the high spring runoff

event lower than in recent years. This supports the conclusion that the elevated sulfate concentrations in upper Crandall Creek (and other streams and springs in the area) are at least in part due to the recent protracted regional drought.

There are no changes in discharge rate or water quality in upper Crandall Canyon Creek that would suggest that any mining-related impacts have occurred.

LOF-1 Crandall Canyon Creek Lower Flume

The lower flume in Crandall Canyon Creek is located immediately below the Crandall Canyon #1 Mine discharge. The lower flume site was monitored during all four quarters of 2005. Stream flow measured at the lower flume is a composite of Crandall Canyon Creek water and mine discharge water. The discharge measured at the lower flume during 2005 was significantly greater than that measured in previous years, which is a reflection of the recent period of extreme wetness the region experienced during 2005. It should be noted that discharge from the Crandall Canyon Mine (which is included in discharge at LOF-1) during was similar to or somewhat lower than measured in recent years (average discharge of 825 gpm).

The solute composition of stream waters at the lower flume during 2005 was similar to that measured in previous years. (Although sulfate concentrations in recent years have been elevated slightly, which is attributable to the above-described conditions in upper Crandall Creek). The permitted discharge of mine water into Crandall Canyon Creek results in significantly increased discharge rates in Crandall Creek relative to the non-mining condition

during baseflow conditions. This is particularly evident during drought periods when the relative contribution of water in Crandall Creek above the mine discharge point is small. Because of the relatively good quality of the water discharged from the mine, impacts to water quality in Crandall Creek below the mine are typically small. During 2005, the average TDS concentrations in Crandall Creek above and below the mine were 498 and 518 mg/l, respectively. This represents an increase in TDS of only about 4%.

IBC-1

IBC-1 was added to the Crandall Canyon Mine monitoring plan in conjunction with recent permit amendments. IBC-1 is monitored quarterly for discharge and field and laboratory water quality parameters. The drainage that is monitored at IBC-1 is a tributary to the Crandall Creek drainage and is located adjacent to the mine surface facilities, immediately south of the existing UPF-1 monitoring site (Figure 1). Discharge measured at IBC-1 during 2005 ranged from about 75 gpm during May, to no-flow during March and December.

Water quality monitored in the drainage during 2005 is similar to that in other streams in the Crandall Canyon Mine area.

Section 5 Creek

Section 5 Creek is a tributary of Crandall Creek located on the south slope of Crandall Canyon adjacent to the lower mine facilities (Figure 1). Monitoring at Section 5 Creek occurs about 400 feet above the mouth of the canyon, and at the upper left and right forks. Monitoring at the main stream site (Section 5 Creek) is for discharge and field and laboratory

water quality parameters. At the upper forks, monitoring is for discharge and field water quality parameters only.

Discharge measured at the lower monitoring site during 2005 ranged from about 20 gpm during June, to 0.7 gpm during November. It is noteworthy that discharge in the creek infiltrates rapidly below the lower monitoring site and generally does not persist in the drainage to the confluence with Crandall Creek. Discharge measured at the upper forks during 2005 ranged from 0.55 to 5.05 gpm at the upper right fork, and from 3.73 to 13.4 gpm at the upper left fork.

Water quality monitored during 2005 in Section 5 Canyon was generally similar to that monitored at other streams in the Crandall Canyon Mine area.

In-Mine monitoring Summary

In-mine monitoring sites MW-1, and DH-1 were monitored during 2005. All other in-mine monitoring sites are either in portions of the mine that are not accessible or were rendered inoperable as a result of mining activities. In-mine monitoring well MW-2 was previously flooded with mine water and could not be monitored during 2005. During previous years, sites DH-2, MW-3, MW-4, MW-5, MW-6, MW-6A, MW-7, and MW-8 became permanently inaccessible or destroyed and are not available for monitoring.

DH-1

DH-1, which is an in-mine drill hole located near the mine portals continued to be dry (slow drip, not enough flow to monitor) during all of 2005 (Table 1). This site has been dry since early 1990 and conditions at the site were unchanged during 2005.

MW-1

MW-1 did not produce sufficient water to monitor during 2005. This condition is unchanged from 2004. The water production from MW-1 had been meager and declining for several years (see Table 2 and attached plots). This condition is not related to mining activities (other than pumping the well). Rather it is a consequence of the poor groundwater production potential of the Star Point Sandstone groundwater system in which the well is completed.

Mine Discharge Monitoring Summary

UPDES 002

Discharge from UPDES 002 (Crandall Canyon #1 discharge) during 2005 was somewhat lower than that measured in recent years. The mine discharge averaged 825 gpm during 2005 (see Table 3 and attached plots).

TDS concentrations measured during 2005 were similar to those measured during previous years. Total iron and dissolved iron concentrations were generally low during 2005 (Table 3). Total iron concentrations were consistently less than 0.2 mg/l, while dissolved iron

concentrations were all lower than 0.03 mg/l. Suspended solids were less than laboratory detection limits, with a single detection of 10 mg/l occurring during October 2005 (Table 3).

UPDES 001

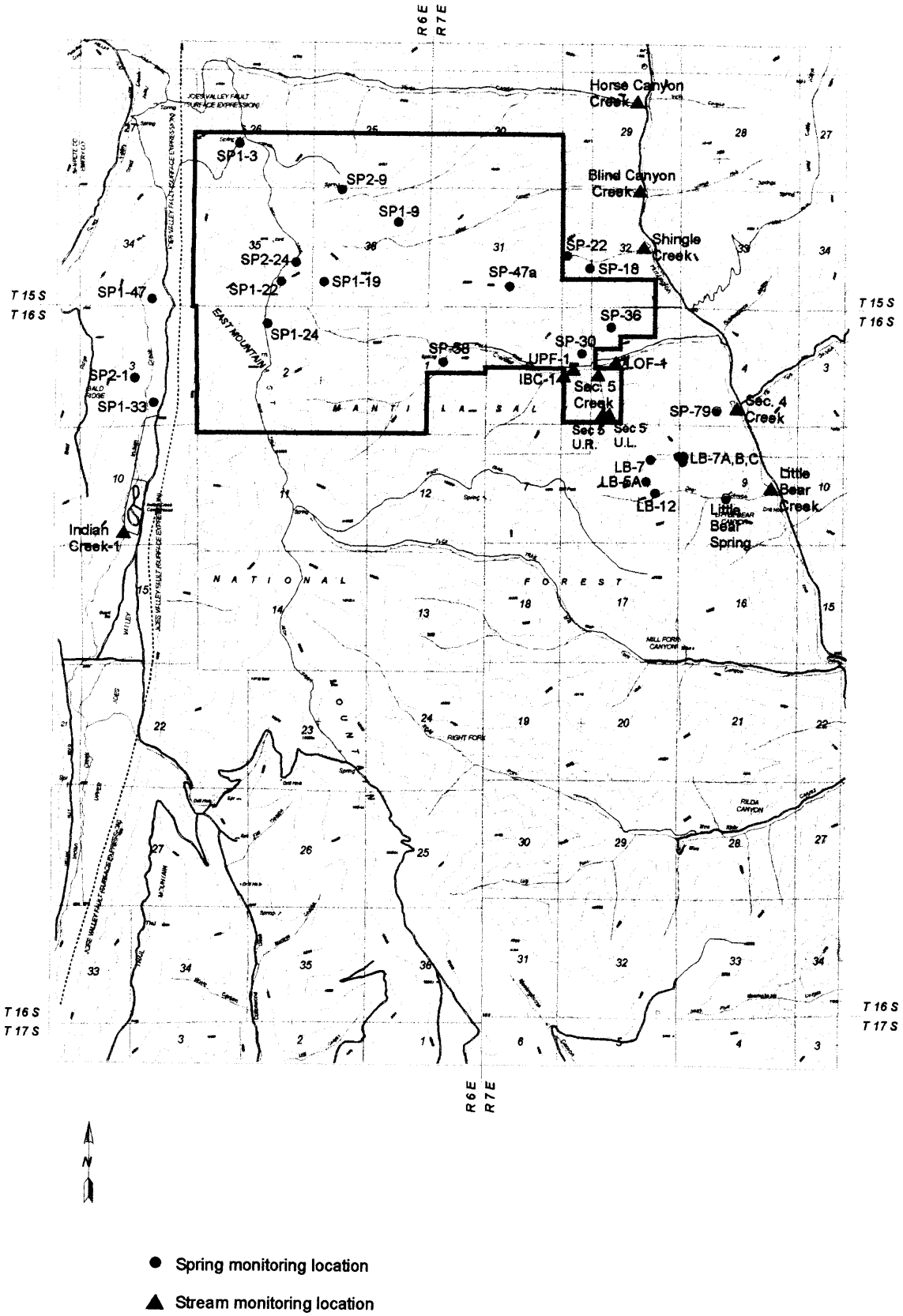
There was no discharge from UPDES 001 (sediment pond discharge) during 2005.

Conclusions

- Discharge rates measured at streams and springs in the mine permit area were commonly greater than those measured in previous years. This condition is the result of the period of extreme wetness the region experienced during 2005.

- No major changes to important water quality parameters were observed in springs, streams, or in-mine locations during 2005. Some spring and stream locations continued to experience modestly elevated sulfate concentrations, although these were commonly lower than those measured during 2004. The elevated sulfate concentrations are likely attributable to the recent period of prolonged drought from which the region is still recovering.

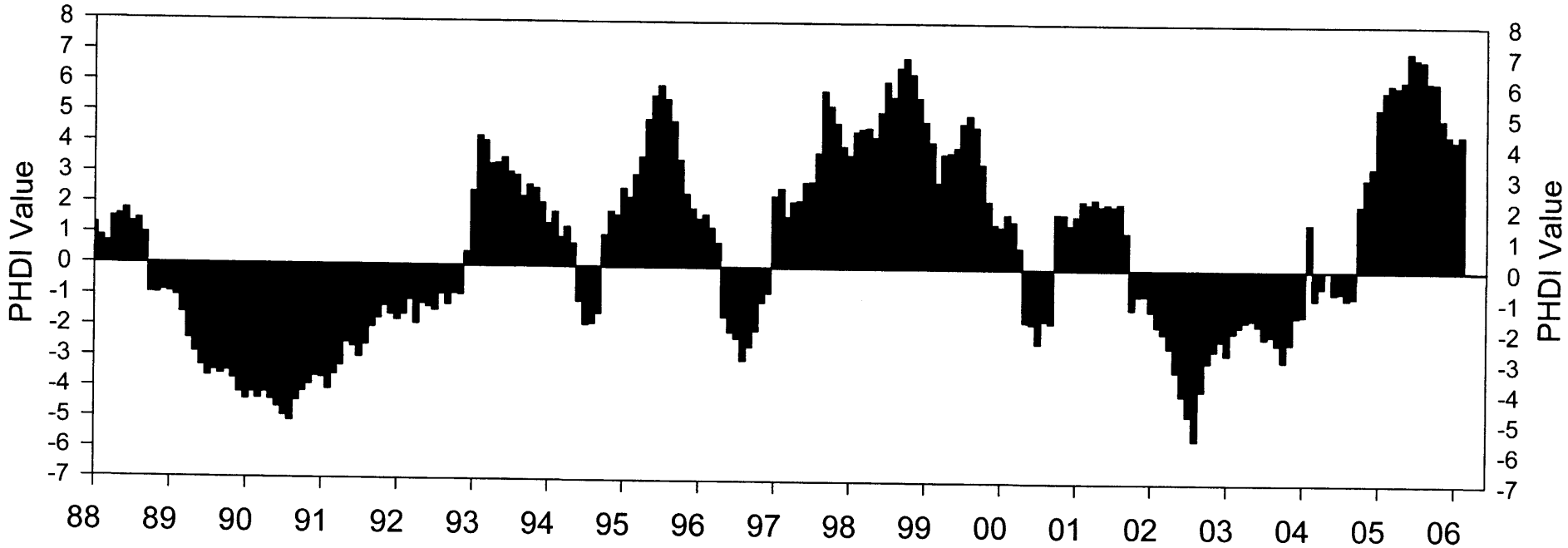
- Other than the permitted increase in the discharge rate to Crandall Canyon Creek resulting from the addition of mine discharge water, there is no indication that any mining-related impacts to the hydrologic balance occurred during 2005.



● Spring monitoring location

▲ Stream monitoring location

Figure 1 Hydrologic monitoring locations



-1 to -2 Mild Drought
-2 to -3 Moderate Drought
-3 to -4 Severe Drought
-4 to -5 Extreme Drought

1 to 2 Mild Wet Spell
2 to 3 Moderate Wet Spell
3 to 4 Severe Wet Spell
4 to 5 Extreme Wet Spell

Figure 2 Plot of Palmer Hydrologic Drought Index for Utah Region 4.

Table 1 Results of hydrologic monitoring at GENWAL's Crandall Canyon Mine permit area during 2005.

	Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Set Sol (mg/l)	DO (mg/l)	O&G (mg/l)	Tot Alk (mg/l)	Hard. (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	K (mg/l)	Anions (meq/l)	Cations (meq/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	Mn(d) (mg/l)	Mn(T) (mg/l)
Springs																											
SP-30	3/28/2005	Yes	0.029	4.3	8.18	677																					
SP-30	6/21/2005	Yes	0.032	11.4	7.7	829																					
SP-30	8/23/2005	Yes	0.04	11.5	7.92	884																					
SP-30	12/27/2005	Yes	0.069	3.7	7.93	796																					
SP-36	3/28/2005	Yes	1	7.9	7.83	551	406					296	343	361	< 5.	53	8	61.9	45.7	7.59	0.81	7.2	7.2	< .03	< .05	< .002	< .002
SP-36	6/21/2005	Yes	0.97	9.4	7.54	626	392		< .1			303	388	369	< 5.	57	7	68.8	52.4	8.18	1.31	7.4	8.1	< .03	< .05	< .002	< .002
SP-36	9/23/2005	Yes	0.41	11	7.88	673	378					305	375	372	< 5.	53	8	66.7	50.5	7.32	1.28	7.4	7.8	< .03	< .05	< .002	< .002
SP-36	12/27/2005	Yes	0.77	6.9	7.97	618	341		< .1			298	356	363	< 5.	51	7	64.1	47.6	7.76	1.43	7.2	7.5	< .03	< .05	< .002	< .002
SP-58	3/28/2005	Inaccessible																									
SP-58	5/31/2005	Yes	44.9	4.8	7.43	639	499					276	460	337	< 5.	147	4	103	49.3	4.87	1.64	8.7	9.4	< .03	< .05	< .002	< .002
SP-58	8/25/2005	Yes	23.6	5.1	7.57	617	446					290	402	354	< 5.	129	3	92.6	41.5	4.71	1.66	8.6	8.3	< .03	< .05	< .002	< .002
SP-58	11/2/2005	Yes	18.9	5.2	7.57	651	436		< .1	9.32		278	372	339	< 5.	122	3	84.9	38.8	5.07	1.58	8.2	7.7	< .03	< .05	< .002	< .002
SP2-24	3/28/2005	Inaccessible																									
SP2-24	6/19/2005	Yes	27	3	7.92	288	206		< .1			133	167	162	< 5.	5	4	47.2	12	1.75	8.24	2.9	3.6	< .03	0.18	< .002	0.003
SP2-24	8/26/2005	Yes	3.26	3.8	7.89	342	222					161	183	196	< 5.	6	5	50.5	13.9	1.49	5.38	3.5	3.9	< .03	< .05	< .002	< .002
SP2-24	10/12/2005	Yes	1.73	4.3	7.98	329	225		< .1	10.97		159	195	194	< 5.	6	4	52.6	15.5	1.83	4.87	3.4	4.1	< .03	0.05	< .002	< .002
SP2-9	3/28/2005	Inaccessible																									
SP2-9	6/19/2005	Yes	8.57	4.2	7.48	262	202		< .1			143	173	174	< 5.	3	< 1.	53.8	9.32	1.49	0.64	2.9	3.5	< .03	0.52	< .002	0.01
SP2-9	8/26/2005	Yes	2.94	5.2	7.71	270	181					149	164	182	< 5.	7	< 1.	50.6	9.06	1.27	0.79	3.1	3.3	< .03	1.17	< .002	0.059
SP2-9	10/12/2005	Yes	0.86	5.5	7.78	252	187		< .1	9.67		138	147	168	< 5.	7	< 1.	43.5	9.26	2.38	0.88	2.9	3.1	0.04	0.36	0.002	0.012
SP-47A	3/28/2005	Inaccessible																									
SP-47A	6/19/2005	Yes	1.81	5.4	7.41	392																					
SP-47A	8/26/2005	Yes	0.36	8.1	7.39	366																					
SP-47A	10/12/2005	Yes	0.19	7.1	7.43	347																					
SP1-3	3/28/2005	Inaccessible																									
SP1-3	6/19/2005	Yes	0.58	6.2	7.8	215																					
SP1-3	8/26/2005	Yes	0.45	7.8	7.99	267																					
SP1-3	10/12/2005	Yes	0.39	3	8.05	236																					
SP1-19	3/28/2005	Inaccessible																									
SP1-19	6/19/2005	Yes	153	3.9	7.91	346																					
SP1-19	8/26/2005	Yes	6.8	6.4	7.83	423																					
SP1-19	10/12/2005	Yes	3.03	6.2	8.12	412																					
SP1-22	3/28/2005	Inaccessible																									
SP1-22	6/19/2005	Yes	37	3.8	7.92	221																					
SP1-22	8/26/2005	Yes	1.75	5.9	7.97	316																					
SP1-22	10/12/2005	Yes	0.82	6.2	8.02	301																					
SP1-33	3/28/2005	Inaccessible																									
SP1-33	6/19/2005	Yes	5.04	4.6	7.63	469	354		< .1			256	290	312	< 5.	34	2	75.4	24.6	9.84	1.07	5.9	6.2	< .03	< .05	0.002	0.004
SP1-33	8/25/2005	Yes	3.29	5.4	7.65	448	312					258	275	315	< 5.	24	2	73.2	22.4	4.76	0.93	5.7	5.7	< .03	0.2	0.005	0.009
SP1-33	10/12/2005	Yes	2.99	5.3	7.85	444	307		< .1	9.55		251	281	306	< 5.	25	2	74	23.3	4.82	1.08	5.6	5.8	< .03	< .05	0.002	0.003
SP1-47	3/28/2005	Inaccessible																									
SP1-47	6/19/2005	Yes	7	16.8	8.25	459																					
SP1-47	8/25/2005	Yes	12	16.1	8.33	447																					
SP1-47	10/12/2005	Yes	11.9	8.3	8.25	443																					

	Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Set Sol (mg/l)	DO (mg/l)	O&G (mg/l)	Tot Alk (mg/l)	Hard. (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	K (mg/l)	Anions (meq/l)	Cations (meq/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	Mn(d) (mg/l)	Mn(T) (mg/l)
SP2-1	3/28/2005	Inaccessible																									
SP2-1	6/19/2005	Yes	27	4.5	7.67	418																					
SP2-1	8/25/2005	Yes	5.02	5.9	7.48	486																					
SP2-1	10/12/2005	Yes	3.16	6.2	7.73	473																					
SP1-9	3/28/2005	Inaccessible																									
SP1-9	6/19/2005	Yes	10.6	3.9	7.56	203	168		< .1			112	123	137	< 5.	7	< 1.	33.8	9.26	1.77	0.87	2.4	2.5	< .03	0.21	< .002	< .002
SP1-9	8/26/2005	Yes	1.07	5.6	7.77	296	195					160	184	195	< 5.	12	< 1.	49.8	14.5	2	1.1	3.4	3.8	< .03	0.09	< .002	< .002
SP1-9	10/12/2005	Yes	0.82	5.7	7.76	299	204		< .1	10.97		167	186	204	< 5.	12	1	50.1	14.9	2.07	1.13	3.6	3.8	< .03	2.81	< .002	0.017
SP1-24	3/28/2005	Inaccessible																									
SP1-24	6/19/2005	Yes	3.75	4	7.87	341																					
SP1-24	8/26/2005	Yes	0.255	11.5	7.89	415																					
SP1-24	10/12/2005	Yes	0.17	7.6	7.98	386																					
LB-5A	3/28/2005	Inaccessible																									
LB-5A	6/21/2005	Inaccessible																									
LB-5A	7/27/2005	Yes	1.55	8.6	7.57	746	449					277	345	338	<5	106	5	64.0	45.0	6.28	1.23	7.9	7.2	< .03	< .05	< .002	<.002
LB-5A	9/2/2005	Yes	1.55	8.7	7.44	740	464					290	391	337	< 5.	119	5	73.8	50.3	7.08	1.47	8.1	8.2	< .03	< .05	< .002	< .002
LB-5A	10/17/2005	Yes	1.3	8.5	7.68	752	436		< .1	10.61		302	460	368	< 5.	128	6	89.6	57.3	7.07	1.62	8.9	9.5	< .03	0.38	< .002	0.021
LB-7	3/28/2005	Inaccessible																									
LB-7	6/21/2005	Inaccessible																									
LB-7	7/27/2005	Yes	1.03	11.4	8.31	876																					
LB-7	9/2/2005	Yes	1.3	8.8	7.92	512																					
LB-7	10/21/2005	Yes	1.6	8.7	7.92	611																					
LB-7A	3/28/2005	Inaccessible																									
LB-7A	6/21/2005	Inaccessible																									
LB-7A	7/27/2005	Yes	0.12	9.8	8.39	423																					
LB-7A	9/2/2005	Yes	0.11	9.6	8.43	459																					
LB-7A	10/21/2005	Yes	0.11	11.3	8.25	529																					
LB-7B	3/28/2005	Inaccessible																									
LB-7B	6/21/2005	Inaccessible																									
LB-7B	7/27/2005	Yes	0																								
LB-7B	9/2/2005	Yes	0																								
LB-7B	10/21/2005	Yes	0																								
LB-7C	3/28/2005	Inaccessible																									
LB-7C	6/21/2005	Inaccessible																									
LB-7C	7/27/2005	Yes	0.17	19.8	8.4	391																					
LB-7C	9/2/2005	Yes	0.21	19.8	8.44	421																					
LB-7C	10/21/2005	Yes	0.32	16.8	8.44	462																					
LB-12	3/28/2005	Inaccessible																									
LB-12	6/21/2005	Inaccessible																									
LB-12	7/27/2005	Yes	0.14	10.5	7.97	1037																					
LB-12	9/2/2005	Yes	0.10	11.0	7.92	908																					
LB-12	10/21/2005	Yes	0.12	8.9	7.88	931																					
Litle Bear Spring	3/28/2005	Yes		8.2	7.54	480	362					280	297	341	<5	33	3	64.1	33.3	6.09	1.00	6.4	6.2	< .03	<.05	<.002	< .002
Litle Bear Spring	6/21/2005	Yes		8.6	7.61	496	333	16	< .1			273	327	333	< 5.	38	4	68.8	37.6	7.37	1.53	6.4	6.9	< .03	< .05	< .002	< .002
Litle Bear Spring	9/23/2005	Yes		8.5	7.68	516	333					274	313	334	< 5.	35	4	65.8	36.1	6.5	1.34	6.3	6.6	< .03	< .05	< .002	< .002
Litle Bear Spring	12/27/2005	Yes		8.2	7.58	576	312		< .1			279	307	340	< 5.	34	4	65.4	34.9	7.34	1.74	6.4	6.5	< .03	< .05	< .002	< .002
SP-18	3/28/2005	Inaccessible																									

	Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Set Sol (mg/l)	DO (mg/l)	O&G (mg/l)	Tot Alk (mg/l)	Hard. (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	K (mg/l)	Anions (meq/l)	Cations (meq/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	Mn(d) (mg/l)	Mn(T) (mg/l)
SP-18	6/20/2005	Yes	0.17	6.4	8.08	610																					
SP-18	9/23/2005	Yes	0.16	6.4	8.04	840																					
SP-18	10/25/2005	Yes	0.16	3.8	8.18	766																					
SP-22	3/28/2005	Inaccessible																									
SP-22	6/20/2005	Yes	1.09	7.6	7.84	506																					
SP-22	9/23/2005	Yes	0.05	9.8	8.35	473																					
SP-22	10/25/2005	Yes	0.1	4.9	7.87	503																					
SP-79	3/28/2005	Inaccessible																									
SP-79	6/21/2005	Inaccessible																									
SP-79	7/27/2005	Yes	0.54	9.8	8.05	901	632		<0.1			349	522	426	<5	20	30	82.8	76.5	16.2	5.63	11.6	11.3	0.36	1.29	0.036	0.119
SP-79	9/2/2005	Yes	0.38	8.6	8.26	873	661					349	514	426	< 5.	221	15	80.5	76.1	15	5.12	12	11.1	< .03	0.78	< .002	0.07
SP-79	12/28/2005	Yes	1.05	2	8.19	928	594		0.3	10.36		342	514	411	5	201	14	78.6	77.1	15.2	4.99	11.4	11.1	< .03	2.14	< .002	0.152
Streams																											
UPF-1	3/28/2005	Yes	72	0.9	8.1	636	587	< 5.	< .1	13.18	< 2.	233	450	284	< 5.	253	2	99	49.2	4.28	1.2	10	9.2	< .03	< .05	< .002	< .002
UPF-1	5/31/2005	Yes	6450	8	8.15	509	391	126	0.1	8.95	< 2.	224	337	266	6	98	2	88.3	28.4	8.21	1.12	6.6	7.1	< .03	1.72	< .002	0.044
UPF-1	8/25/2005	Yes	220	11.3	8.26	696	528	< 5.	< .1	7.83	< 2.	202	441	246	< 5.	217	2	97.7	47.8	5.68	1.68	8.6	9.1	< .03	< .05	< .002	0.002
UPF-1	12/27/2005	Yes	117	0.6	8.19	744	484	< 5.	< .1	9.51	< 2.	243	428	296	< 5.	182	3	96.5	45.5	5.71	1.79	8.7	8.9	< .03	< .05	< .002	0.002
LOF-1	3/28/2005	Yes	1150	10.8	8.13	749	575	< 5.	< .1	7	< 2.	332	385	405	< 5.	137	19	80.3	44.8	43.9	6.97	10	9.8	< .03	0.11	0.006	0.009
LOF-1	5/31/2005	Yes	6730	8.5	8.26	536	408	109	0.1	8.85	< 2.	230	331	280	< 5.	103	4	86.7	27.8	9.84	1.56	6.9	7.1	< .03	1	0.002	0.04
LOF-1	8/25/2005	Yes	884	11.9	8.27	763	542	< 5.	< .1	7.68	< 2.	286	423	349	< 5.	182	10	89.3	48.5	30.3	5.82	9.8	9.9	< .03	0.08	0.009	0.009
LOF-1	12/28/2005	Yes	555	8.4	8.29	832	545	< 5.	< .1	10.92	< 2.	290	423	335	15	180	15	84.2	51.7	33.2	6.46	10	10.1	< .03	0.09	0.005	0.009
Horse Canyon Creek	3/28/2005	Yes	138	1.9	8.59	492	384			8.5	< 2.	274	322	308	21	61	5	66.1	38.1	6.71	1.09	6.9	6.8	< .03	0.21	0.002	0.008
Horse Canyon Creek	5/31/2005	Yes	1860	10.4	8.31	314	184	69	< .1	8.65	< 2.	175	203	207	5	11	2	51.7	17.9	2.58	0.57	3.8	4.2	< .03	1.39	0.008	0.042
Horse Canyon Creek	8/25/2005	Yes	61	13.9	8.47	576	351	14	< .1	7.38	< 2.	253	328	293	13	91	5	60.1	43.2	10.3	2.21	7.1	7.1	< .03	0.37	< .002	0.016
Horse Canyon Creek	12/28/2005	Yes	31	1.3	8.45	633	358	6	< .1	9.58	< 2.	285	353	330	14	80	5	71.4	42.5	9.34	2.09	7.5	7.5	< .03	0.17	0.002	0.01
Blind Canyon Flume	3/28/2005	Yes	132	1.4	8.53	438	368	< 5.	< .1	8.2	< 2.	275	314	327	6	37	3	62.3	38.5	3.81	0.91	6.3	6.5	< .03	0.1	< .002	0.002
Blind Canyon Flume	5/31/2005	Yes	1930	10.7	8.29	366	245	32	< .1	8.84	< 2.	210	250	237	16	18	2	63.5	22.1	2.26	0.7	4.6	5.1	< .03	0.59	0.003	0.018
Blind Canyon Flume	8/25/2005	Yes	80.4	13.6	8.39	465	273	< 5.	< .1	8.17	< 2.	239	270	274	13	34	2	50.3	35.1	3.53	1.45	5.5	5.6	< .03	0.16	< .002	0.008
Blind Canyon Flume	12/28/2005	Yes	32.7	0.5	8.42	567	287	< 5.	< .1	11.96	< 2.	289	315	343	8	34	4	62.8	38.5	4.13	1.43	6.6	6.5	< .03	< .05	0.002	0.003
Indian Creek	3/28/2005	Inaccessible																									
Indian Creek	6/19/2005	Yes	1800	12	8.26	435	332	25	< .1	7.1	< 2.	259	276	316	< 5.	14	1	77.5	20.1	6.14	0.71	5.5	5.8	< .03	0.31	< .002	0.022
Indian Creek	8/25/2005	Yes	705	11.7	8.3	461	275	< 5.	< .1	8.31	< 2.	262	274	319	< 5.	9	2	74.8	21.1	3.98	0.57	5.5	5.7	< .03	0.14	0.008	0.016
Indian Creek	10/12/2005	Yes	570	6.4	8.25	420	293	< 5.	< .1	8.47	< 2.	260	263	317	< 5.	9	2	70.8	20.9	3.92	0.76	5.4	5.4	< .03	0.12	0.003	0.016
Little Bear Creek	3/28/2005	Yes	0																								
Little Bear Creek	6/21/2005	Inaccessible																									
Little Bear Creek	7/27/2005	Yes	6.98	13.3	8.52	507	326	15	<0.1		<2	265	338	322	<5	53	7.2	61.8	44.5	8.98	2.25	6.6	7.2	< .03	0.17	<0.002	0.018
Little Bear Creek	9/5/2005	Yes	6.98	10.5	8.44	551	370	19	< .1	8.6	< 2.	284	315	317	25	54	11	58.6	40.9	7.83	3.96	7.1	6.7	< .03	0.22	< .002	0.009
Little Bear Creek	12/28/2005	Yes	0																								
IBC-1	3/28/2005	Yes	0																								
IBC-1	5/31/2005	Yes	74.8	8.2	8.25	439	331	< 5.	< .1	9.08	< 2.	245	301	278	17	37	5	61	36.1	6.48	1.3	5.8	6.3	< .03	< .05	< .002	< .002
IBC-1	8/25/2005	Yes	0.8	9.8	8.37	534	342	< 5.	< .1	7.21	< 2.	276	329	337	< 5.	59	7	59.9	43.5	8.28	1.69	6.9	7	< .03	< .05	< .002	< .002
IBC-1	12/27/2005	Yes	0																								
Section 4 Creek	3/28/2005	Yes	7.1	1.8	8.29	731	607	<5	<.1	7.8	<2	336	478	410	<5	178	13	74.5	71	13.9	3.29	10.8	10.2	<.03	<.05	<.002	0.002
Section 4 Creek	6/21/2005	Yes	0																								
Section 4 Creek	9/5/2005	Yes	2.46	9.5	8.3	773	580	18	< .1	8.8	< 2.	371	501	447	< 5.	132	11	75.3	76	3.95	3.95	10.4	10.8	< .03	0.24	< .002	0.033
Section 4 Creek	12/28/2005	Yes	5.67	1.3	8.44	815	497	7	< .1	9.8	< 2.	343	461	389	24	133	12	70.1	69.5	13.5	3.67	10	9.9	< .03	0.79	< .002	0.084

	Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Set Sol (mg/l)	DO (mg/l)	O&G (mg/l)	Tot Alk (mg/l)	Hard. (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	K (mg/l)	Anions (meq/l)	Cations (meq/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	Mn(d) (mg/l)	Mn(T) (mg/l)
Section 5 Creek	3/28/2005	Inaccessible																									
Section 5 Creek	6/21/2005	Yes	19.8	17.4	8.48	501	320	< 5.	< .1	6.02	< 2.	231	297	254	23	51	5	50.8	41.3	7.61	1.63	5.8	6.3	< .03	< .05	< .002	< .002
Section 5 Creek	8/25/2005	Yes	1.53	11.7	8.79	455	252	7	< .1	7	< 2.	230	273	276	< 5.	53	5	43.5	39.8	7.12	1.48	5.8	5.8	< .03	< .05	0.002	0.003
Section 5 Creek	11/2/2005	Yes	8.93	0.7	8.07	378	261	7	< .1	9.08	< 2.	208	248	254	< 5.	47	5	40.1	36	6.58	1.39	5.3	5.3	< .03	< .05	< .002	< .002
Section 5 Creek U R Fork	3/28/2005	Inaccessible																									
Section 5 Creek U R Fork	6/21/2005	Yes	5.04	16.6	8.27	567				5.9																	
Section 5 Creek U R Fork	8/25/2005	Yes	0.55	11.2	8.66	494				7.18																	
Section 5 Creek U R Fork	11/2/2005	Yes	2.4	0.2	8.54	428				8.88																	
Section 5 Creek U L Fork	3/28/2005	Inaccessible																									
Section 5 Creek U L Fork	6/21/2005	Yes	13.4	11	8.25	437				8.4																	
Section 5 Creek U L Fork	8/25/2005	Yes	2.12	10	8.68	396				7.73																	
Section 5 Creek U L Fork	11/2/2005	Yes	3.73	1.4	8.55	379				9.16																	
Shingle Creek	3/28/2005	Inaccessible																									
Shingle Creek	6/20/2005	Yes	20.2	12.1	8.06	609				7																	
Shingle Creek	9/23/2005	Yes	6.33	8.2	8.23	703				7.03																	
Shingle Creek	10/25/2005	Yes	12.7	3.4	8.18	663				8.38																	
UPDES																											
UT0024368-001	1/26/2005	yes	0																								
UT0024368-001	2/25/2005	yes	0																								
UT0024368-001	3/28/2005	yes	0																								
UT0024368-001	4/25/2005	yes	0																								
UT0024368-001	5/27/2005	yes	0																								
UT0024368-001	6/30/2005	yes	0																								
UT0024368-001	7/28/2005	yes	0																								
UT0024368-001	8/22/2005	yes	0																								
UT0024368-001	9/21/2005	yes	0																								
UT0024368-001	10/19/2005	yes	0																								
UT0024368-001	11/22/2005	yes	0																								
UT0024368-001	12/15/2005	yes	0																								
UT0024368-002	1/26/2005	yes	900	12.9	7.5	743	486	< 5.		8.3	< 2.													< .03	0.19		
UT0024368-002	2/25/2005	yes	900	12.5	7.5	910	538	< 5.		7.7	< 2.													< .03	0.13		
UT0024368-002	3/28/2005	yes	900	12	7.6	754	555	< 5.		7.8	< 2.													< .03	0.08		
UT0024368-002	4/25/2005	yes	750	12.4	7.6	775	538	< 5.		7.1	< 2.													< .03	0.06		
UT0024368-002	5/27/2005	yes	600	7.7	7.7	741	489	< 5.		8.9	< 2.													< .03	0.1		
UT0024368-002	6/30/2005	yes	750	13.4	7.8	787	556	< 5.		7.6	< 2.							86.2	52.9	40.5	7.88			< .03	< .05		0.002
UT0024368-002	7/28/2005	yes	900	15.2	7.4	760	525	< 5.	< 5.	8.7	< 2.													< .03	0.07		0.003
UT0024368-002	8/22/2005	yes	900	15.5	7.5	940	574	< 5.		8.6	< 2.													< .03	0.14		0.006
UT0024368-002	9/21/2005	yes	600	13.3	7.7	830	478	10		7.8	< 2.													< .03	0.12		
UT0024368-002	10/19/2005	yes	900	11.6	7.7	805	478	< 5.		8.3	3													< .03	< .05		0.002
UT0024368-002	11/22/2005	yes	900	10.8	8.1	720	476	< 5.		8.4	< 2.													< .03	< .05		
UT0024368-002	12/15/2005	yes	900	10.2	8	530	410	< 5.		8.8	< 2.													< .02	0.08		0.002
In-Mine Monitoring Wells																											
DH-1	3/28/2005	yes	0																								
	6/28/2005	yes	0																								
	8/22/2005	yes	0																								
	11/22/2005	yes	0																								
DH-2	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									

	Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Set Sol (mg/l)	DO (mg/l)	O&G (mg/l)	Tot Alk (mg/l)	Hard. (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	K (mg/l)	Anions (meq/l)	Cations (meq/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	Mn(d) (mg/l)	Mn(T) (mg/l)
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-1	3/28/2005	yes	0																								
	6/28/2005	yes	0																								
	8/22/2005	yes	0																								
	11/22/2005	yes	0																								
MW-2	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-3	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-4	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-5	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-6	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-6A	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-7	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									
MW-8	3/28/2005	Inaccessible																									
	6/28/2005	Inaccessible																									
	8/22/2005	Inaccessible																									
	11/22/2005	Inaccessible																									

Table 1A Results of supplemental baseline list hydrologic monitoring at GENWAL's Crandall Canyon Mine permit area during 2005.

	Date	NO2+NO3 N mg/l	NH3 mg/l	D-As mg/l	D-B mg/l	D-Cd mg/l	D-Cu mg/l	D-Pb mg/l	D-Zn mg/l	Acidity mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	T-P mg/l	F-Turb. NTU	D-Al mg/l	D-Mb mg/l
Springs																	
SP-36	6/21/2005	0.05	< .1	< .01	0.04	< .001	< .01	< .01	< .004	< 5.		< .05		< .05		< .03	< .005
SP-36	12/27/2005		< .1	< .01	0.03	< .001	< .01	< .01	< .004	< 5.	< .1	< .1	< .01	0.15		< .03	< .005
SP-58	5/31/2005	0.24	< .1	< .01	0.02	< .001	< .01	< .01	0.004			< .05		< .05		< .03	< .005
SP-58	11/2/2005		< .1	< .01	0.02	< .001	< .01	< .01	< .004	< 5.	< .05	< .05		< .05		< .03	< .005
SP2-24	6/19/2005	8.29	< .1	< .01	0.02	< .001	< .01	< .01	< .004	< 5.		< .05		0.26		< .03	< .005
SP2-24	10/12/2005		0.2	< .01	< .01	< .001	< .01	< .01	< .004	< 5.	5.03	< .05		< .05		< .03	< .005
SP2-9	6/19/2005	1.54	< .1	< .01	0.01	< .001	< .01	< .01	< .004	< 5.		< .05		0.16		< .03	< .005
SP2-9	10/12/2005		0.5	< .01	< .01	< .001	< .01	< .01	< .004	< 5.	0.91	< .05		0.06		< .03	< .005
SP1-33	6/19/2005	0.39	< .1	< .01	0.02	< .001	< .01	< .01	< .004	< 5.		< .05		< .05		< .03	< .005
SP1-33	10/12/2005		0.2	< .01	< .01	< .001	< .01	< .01	< .004	< 5.	0.4	< .05		< .05		< .03	< .005
SP1-9	6/19/2005	0.12	< .1	< .01	0.01	< .001	< .01	< .01	< .004	< 5.		< .05		< .05		0.04	< .005
SP1-9	10/12/2005		0.2	< .01	< .01	< .001	< .01	< .01	< .004	< 5.	0.17	< .05		0.07		< .03	< .005
LB-5A	7/27/2005		<.1	<0.010	0.02	<.001	<0.01	<0.01	0.012	<5	0.28	<0.05		<0.05		<0.03	<0.005
LB-5A	10/17/2005		< .1	< .01	0.02	< .001	< .01	< .01	< .004	< 5.	0.27	< .05		< .05		< .03	< .005
Little Bear Spring	6/21/2005	0.22	< .1	< .01	0.02	< .001	< .01	< .01	0.005	< 5.		< .05		< .05		< .03	< .005
Little Bear Spring	12/27/2005		< .1	< .01	0.02	< .001	< .01	< .01	< .004	< 5.	0.2	< .1	< .01	0.15		< .03	< .005
SP-79	7/27/2005		< .1	<0.010	0.14	<0.001	<0.01	<0.01	<0.004	<5	<0.05	<0.05	<0.05	<0.05		<0.03	<0.005
SP-79	12/28/2005		< .1	< .01	0.09	< .001	< .01	< .01	< .004	< 5.	< .05	< .05	< .05	0.07		< .03	< .005
Streams																	
UPF-1	5/31/2005	0.96	< .1	< .01	0.01	< .001	< .01	< .01	< .004			< .05		0.15		< .03	< .005
UPF-1	12/27/2005		< .1	< .01	0.01	< .001	< .01	< .01	< .004	< 5.	< .1	< .1	< .01	0.15	1.75	< .03	< .005
LOF-1	5/31/2005	1.01	< .1	< .01	0.02	< .001	< .01	< .01	< .004			< .05		0.14		< .03	< .005
LOF-1	12/28/2005		< .1	< .01	0.11	< .001	< .01	< .01	< .004	< 5.	5.36	< .05	< .05	< .01	3.16	< .03	< .005
Horse Canyon Creek	5/31/2005	0.43	< .1	< .01	0.01	< .001	< .01	< .01	< .004			< .05		0.13		< .03	< .005
Horse Canyon Creek	12/28/2005		< .1	< .01	0.02	< .001	< .01	< .01	< .004	< 5.	0.11	< .05	< .05	> .05	4.23	< .03	< .005
Blind Canyon Flume	5/31/2005	< .05	< .1	< .01	0.02	< .001	< .01	< .01	< .004			< .05		0.06		< .03	< .005
Blind Canyon Flume	12/28/2005		< .1	< .01	0.01	< .001	< .01	< .01	< .004	< 5.	0.07	< .05	< .05	< .01	1.73	< .03	< .005
Indian Creek	6/19/2005	0.11	< .1	< .01	0.02	< .001	0.04	< .01	< .004	< 5.		< .05		0.05	121	< .03	< .005
Indian Creek	10/12/2005		0.4	< .01	< .01	< .001	< .01	< .01	< .004	< 5.	< .05	< .05		< .05		< .03	< .005

	Date	NO2+NO3 N mg/l	NH3 mg/l	D-As mg/l	D-B mg/l	D-Cd mg/l	D-Cu mg/l	D-Pb mg/l	D-Zn mg/l	Acidity mg/l	NO3 mg/l	NO2 mg/l	O-PO4 mg/l	T-P mg/l	F-Turb. NTU	D-Al mg/l	D-Mb mg/l
Little Bear Creek	7/27/2005		<0.1	<0.010	0.04	<0.001	<0.01	<0.01	<0.004	<5	0.06	<0.05		<0.05			
IBC-1	5/31/2005	< .05	< .1	< .01	0.03	< .001	< .01	< .01	< .004			< .05		< .05		< .03	< .005
Section 4 Creek	12/28/2005		< .1	< .01	0.05	< .001	< .01	< .01	< .004	< 5.	< .05	< .05	< .05	0.06	4.77	< .03	< .005
Section 5 Creek	6/21/2005	< .05	< .1	< .01	0.04	< .001	< .01	< .01	< .004	< 5.		< .05		< .05		< .03	< .005
Section 5 Creek	11/2/2005		< .1	< .01	0.02	< .001	< .01	< .01	< .004	5	< .05	< .05		< .05	1.73	< .03	< .005

Table 2 Solute compositions and discharge rates of streams, springs and wells in the GENWAL permit area.

summer's table revised for annual report 2005.xls 16 Mar 05

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Streams																		
L. Flume (Crandall Creek)	11-Mar-88	76.3	3.00	8.24	743	384	64.0	36.5	10.6	3.3	289	0	91.0	5.8		<0.05	<0.01	
	31-May-88	350.1	3.60	8.14	528	252	64.0	21.9	4.7	2.8	269	0	18.0	4.1		<0.05	0.02	
	30-Sep-88	58.3	9.90	7.68	483	256	60.0	25.5	6.9	1.6	267	16	38.1	5.6		<0.05	<0.01	
	2-Nov-88	62.8	6.80	8.40	670	330	60.0	42.6	8.6	2.5	298	0	73.3	4.2	<0.05		<0.01	
	31-Mar-89					298	56.5	29.4	5.8	1.4	259	7	0.0	20.0		0.03	<0.01	
	22-Jun-89					198	56.3	23.1	3.9	0.7	248	<1	28.0	25.0	<0.02	<0.02	<0.01	
	28-Sep-89					32	57.6	32.2	5.3	0.4	314	<1	25.0	10.0	<0.02	<0.02	<0.01	
	18-Dec-89					326	68.7	29.2	5.4	0.1	294	<1	40.0	10.0	0.06		<0.01	
	30-Jan-90					291	60.7	28.4	1.0	0.4	292	<1	33.0	10.0	<0.02	<0.02	<0.01	
	18-Jan-90	4.5	3.10	7.20	450													
	30-Jan-90					291	60.7	28.4	1.0	0.4	292	<1	33.0	10.0	<0.02	<0.02	<0.01	
	13-Apr-90					225	66.0	28.0	3.3	4.6	274	<1	35.0	20.0		<0.02	0.02	
	14-Apr-90	430.9	3.20	7.20	448													
	23-Jul-90	502.7	3.30	7.20	448													
	24-Jul-90					254	61.8	21.6	3.4	0.0	270	<1	28.0	10.0		<0.02	0.02	
	11-Oct-90	103.2	4.80	7.60	300													
	12-Oct-90					189	70.5	30.5	5.6	0.0	363	<1	22.0	5.0	<0.02	<0.02	<0.01	
	12-Jan-91	148.1	2.80	8.46	300													
	14-Jan-91					323	86.7	39.7	9.3	0.6	346	<1	43.0	70.0	0.03	0.03	0.39	
	4-Apr-91	148.1	1.40	8.00	330	318	69.0	28.1	5.0	0.5	252	<1	47.0	15.0	<0.02	<0.02	<0.01	
	21-Jul-91	538.6	4.90	7.20	500													
	11-Oct-91	237.8	7.00	8.26	600	298	74.6	24.9	4.1	0.0	270	<1	52.0	15.0		0.09		
	8-Mar-92	44.9	3.33	7.60	400	564	99.7	28.9	75.1	1.0	326	0	58.0	125.0	0.00	0.00	0.00	
	18-Jun-92	116.7	17.33	8.24	513	265	71.5	19.0	3.1	0.0	228	5	30.0	20.0	0.00		0.00	
	30-Sep-92	134.6	16.1	8.2	550	357	91.2	24.1	3.1	0.0	406	0	50.0	10.0	0.44		0.06	
	16-Dec-92	224.4	0.6	7.9	620	254	93.4	35.5	10.3	1.3	301	0	100.0	15.0	0.10	0.05	0.00	
	4-Mar-93	234.0	1.0	7.8	490	615	68.8	27.9	94.1	0.0	311	0	60.0	164.0	0.12	0.00	0.00	
	3-Jun-93	6500.0	12.0	8.1	300	244	57.8	20.2	4.8	0.6	248	0	19.0	4.9	0.28	<0.5	<0.03	
	1-Jul-93	290.0	10.0	8.1	540	249	57.7	21.3	5.7	0.1	253	0	24.0	5.3	<0.05	0.05	<0.03	
	25-Oct-93	380.0	7.0	7.2	440	368	59.0	32.0	9.0	<2	281	<1	50.0	28.0	<0.2	<0.2	0.10	
	9-Feb-94	220.0	29.4	7.3	506	265	46.0	35.0	4.5	1.7	296	0	29.0	4.1	0.00		0.00	
	15-Jul-94	30.0	57.2	7.6	610	301	46.0	30.0	21.0	1.9	246	0	46.0	31.0	0.09	0.21	< 02	
	6-Sep-94	40.0	46.4	7.6	848	308	42.0	31.0	25.0	2.4	241	0	44.0	40.0	0.13	< .05	<.02	

Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
	gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
22-Nov-94	125.0	28.4	6.7		450	65.0	40.0	38.0	<5	290	0	50.0	68.0	<.2	<.2	<.2	
10-Mar-95	184.0	0.0	7.9	480	700	70.0	55.0	113.0	3.0	260	20	75.0	230.0	0.10	<0.1	<0.1	
16-May-95	535.0	7.0	8.2	380	310	60.0	31.0	10.0	2.0	240	240	42.0	15.0	0.40	<0.1	<0.1	
10-Aug-95	636.0	12.0	8.4	534	290	55.0	25.0	10.0	1.0	249	14	34.0	14.0	0.1<	<0.1	<0.1	
28-Nov-95	71.6	10.0	8.8	546	390	61.0	37.0	19.0	4.0	240	15	82.0	21.0	0.1<	<0.1	<0.1	
26-Mar-96	150.0	1.0	8.1	640	328	57.0	35.0	6.0	1.1	350	<2	28.0	10.0	0.18	<.03		< 04
26-Jun-96					266	56.0	24.0	8.0	2.0	254	18	29.0	11.0	<.1	<.1		<0.1
16-Aug-96	15.0	15.0	7.3	605	327	53.0	37.0	17.0	4.0	246	16	45.0	17.0	<.1	<.2		<0.1
24-Oct-96	2.5	0.0	8.3	686	377	61.0	41.0	17.0	3.0	318	<5	62.0	20.0	<.1	<.1		<0.1
25-Mar-97	11.3	10.0	8.7	670	422	61.0	37.5	14.8	2.0	300	<1	62.1	23.0	<0.02	0.03		<0.05
5-May-97	224.4	6.0	8.6	724	330	52.2	31.8	8.7	1.7	267	<1	44.9	9.5	0.07	<0.02		<0.05
20-Aug-97	673.2	8.0	8.0	620	370	68.0	36.0	15.0	4.0	353	<5	59.0	9.0	0.10	<0.1	<0.1	
7-Oct-97	507.1	7.0	8.0	569	370	71.0	38.0	18.0	4.0	368	<5	100.0	7.6	0.30	<0.1	<0.1	
8-Sep-98			8.2	655	405	71.0	37.0	16.0	4.0	366	<5	66.0	10.0	0.50	<0.1	<0.1	
4-Mar-99	399.0	3.0	8.2	454	435	79.0	43.0	19.0	2.0	334	<5	101.0	31.0	<0.1	<0.1	<0.1	
10-Jun-99	4406.0				292	83.0	29.0	7.0	2.0	294	<5	33.0	4.0	0.1	<0.1	<0.1	
15-Sep-99	502.0	7.3	8.6	500	410	71.1	38.7	10.5	2.0	318	<1	70.0	12.0	0.12	<0.02	0.01	
4-Nov-99	336.0	10.0	8.5	592	450	50.7	46.5	31.2	5.9	325	<1	88.0	29.0	0.08	<0.02	<0.01	
20-Jun-00	1135	10.6	8.33	539	333	60	30	7	2	275	<5	56	8	<0.1	<0.1	<0.1	<0.1
14-Sep-00	1210	11.2	7.99	708	413	63	37	30	6	344	<5	93	12	<0.1	<0.1	<0.1	<0.1
9-Dec-00	1135	9	8.15	717	401	63	37	30	6	345	<5	95	12	<0.1	<0.1	<0.1	<0.1
13-Mar-01	1819	10	7.5	747	488	49	32	67	6	353	<5	98	30	0.2	<0.1	<0.1	<0.1
1-May-01	1436	10.9	7.8	678	398	57	35	40	8	331	<5	88	20	<0.1	<0.1	<0.1	<0.1
9-Sep-01	276	8.5	8.18	637	479	73	40	16	2	314	<5	128	21.2	<0.1	<0.1	<0.05	<0.05
29-Oct-01	221	4.7	8.27	696	485	79	43	15	2	328	<5	124.8	17.7	<0.1	<0.1	<0.05	<0.05
21-Mar-02	1283	9.5	8.15	710	385	58	35	44	7	336	<5.	106	19	<0.1	<0.1	<0.05	<0.05
8-Jun-02	1308	12.7	8.49	797	522	75	44	35	6	304	<5.	184	13	<0.1	<0.1	<0.05	<0.05
27-Sep-02	972	11.5	8.05	708	442	62	40	36	7	318	<5.	126	14	0.1	<0.1	<0.05	<0.05
19-Nov-02	614	9.9	7.94	708	441	62	37	29	7	319	<5	121	13	<0.1	<0.1	<0.05	<0.05
23-Mar-03	884	10.4	8.06	722	425	63.9	38.8	33	6.45	296	<5.	112	21	0.056	<0.005	0.007	0.006
13-Jun-03	2,810	10.8	8.07	715	509	79.2	40.2	24.4	4.8	249	<5.	162	8	0.042	<0.005	<0.005	<0.005
23-Sep-03	499	11.4	7.92	766	506	79.2	47	37.6	6.8	405	<5.	132	12	0.095	<0.005	0.011	0.007
9-Dec-03	1177	10.0	8.29	847	493	75.5	44.3	42.4	7.09	415	<5	121	17	0.049	0.006	0.01	0.005
31-Mar-04	296	4.6	8.21	976	667	97.2	53.1	39.3	2.65	342	< 5.	189	69	0.088	< .03	0.051	0.049
17-Jun-04	2910	9.8	8.19	796	515	90.1	41.5	22.4	3.86	260	< 5.	180	8	0.08	< .03	0.009	0.005
20-Sep-04	801	10.7	8.25	740	513	87.5	49.6	36.9	6.54	339	< 5.	139	10	0.06	< .03	0.008	0.007
6-Nov-04	190	3.3	7.93	744	596	94.9	48.3	24.6	2.5			193	24	0.11	< .03	0.024	0.02

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	28-Mar-05	1150	10.8	8.13	749	575	80.3	44.8	43.9	6.97	405	< 5.	137	19	0.11	< .03	0.009	0.006
	31-May-05	6730	8.5	8.26	536	408	86.7	27.8	9.84	1.56	280	< 5.	103	4	1	< .03	0.04	0.002
	25-Aug-05	884	11.9	8.27	763	542	89.3	48.5	30.3	5.82	349	< 5.	182	10	0.08	< .03	0.009	0.009
	28-Dec-05	555	8.4	8.29	832	545	84.2	51.7	33.2	6.46	335	15	180	15	0.09	< .03	0.009	0.005
U. Flume (Crandall Creek)	11-Mar-88	112.2	1.6	8.6	755	296	58.0	17.0	4.3	1.6	284	0	35.1	4.4		<0.05	0.01	
	31-May-88	561.0	3.5	8.2	463	276	62.0	21.9	4.8	5.0	264	0	16.2	5.7		<0.05	0.01	
	30-Sep-88	67.3	9.8	7.7	430	232	56.0	28.0	5.3	1.2	235	24	27.1	8.0		<0.05		<0.01
	2-Nov-88	80.8	6.7	8.4	478	252	50.0	30.4	4.1	1.1	246	0	32.2	3.4	<0.05		<0.01	
	31-Mar-89					198	53.3	30.7	3.8	0.9	272	25	30.0	15.0		<0.02	<0.01	
	22-Jun-89					198	50.5	22.1	2.8	1.1	228	<1	25.0	5.0	<0.02	<0.02	<0.01	
	28-Sep-89					265	52.9	27.6	3.7	0.1	273	<1	20.0	10.0	<0.02	<0.02	<0.01	
	18-Dec-89					289	60.2	24.2	1.2	0.0	224	<1	45.0	15.0	<0.02		<0.01	
	29-Jan-90					282	67.7	26.3	0.9	0.2	266	<1	50.0	10.0		<0.02	<0.01	
	18-Jan-90	3.5	2.9	7.0	400													
	30-Jan-90					282	67.7	26.3	0.9	0.2	266	<1	50.0	10.0		<0.02	<0.01	
	13-Apr-90					185	89.9	24.6	4.9	4.5	325	<1	40.0	20.0		<0.02		<0.01
	14-Apr-90	430.9	3.0	7.0	400													
	23-Jul-90	430.9	3.2	7.1	410													
	24-Jul-90					247	62.2	21.3	2.8	0.0	251	<1	32.0	15.0		<0.02	0.03	
	11-Oct-90	170.5	5.2	7.5	300													
	12-Oct-90					261	63.4	22.4	2.0	0.0	279	<1	25.0	10.0	<0.02	<0.02	0.02	
	12-Jan-91		3.2	8.5	300													
	14-Jan-91					300	76.6	33.1	4.9	0.1	323	<1	27.0	45.0	0.09	0.11	0.24	
	4-Apr-91	368.0	1.4	8.0	400	290	67.9	24.8	2.9	0.0	252	<1	33.0	25.0	<0.02	<0.02	<0.01	
	21-Jul-91	852.7	5.1	7.0	500	234	56.5	22.9	2.8	1.8	261	<1	23.0	5.0	<0.02	<0.02	0.05	
	11-Oct-91	273.8	8.0	8.5	600	262	67.7	25.9	3.0	0.0	263	<1	36.0	10.0		0.05		
	8-Mar-92	67.3	1.1	7.5	300	320	72.2	22.2	3.2	0.0	274	0	32.0	20.0	0.00		0.00	
	18-Jun-92	161.6	16.8	8.2	517	250	53.5	26.8	1.4	0.0	217	5	27.0	10.0	0.00		0.00	
	30-Sep-92	94.3	13.3	8.2	600	288	63.9	23.7	1.3	0.0	224	0	28.0	20.0	0.13		0.00	
	4-Mar-93	68.7	0.8	7.9	440	611	56.7	25.7	3.2	1.4	306	0	60.0	3.3	1.20	0.14	0.00	
	3-Jun-93	5386.0	3.0	8.2	300	245	60.3	18.0	3.0	0.2	244	0	18.0	3.9	0.34	<0.05	<0.03	
	1-Jul-93	129.0	9.4	8.1	427	231	54.8	20.0	23.1	<0.10	247	0	26.0	2.3	<0.05	<0.05	<0.03	
	25-Oct-93	147.0	6.0	7.9	440	297	56.0	28.0	4.0	<2.0	194	<1	28.0	6.0	<0.20	<0.20	<0.10	
	9-Feb-94	168.0	32.0	7.2		409	55.0	44.0	39.0	1.7	312	3						
	15-Jul-94	70.0	55.4	7.6	430	228	44.0	26.0	4.1	1.1	227	0						
	6-Sep-94	50.0	41.0	7.6	613	225	41.0	25.0	5.0	<10	241	0						

Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
	gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
22-Nov-94	125.0	28.4	6.8		280	58.0	30.0	<5	<5	260	<1						
10-Mar-95	180.0	0.6	7.9	450	280	55.0	30.0	6.0	2.0	245	10	25.0	6.0	<0.1	<0.1	<0.1	
16-May-95	522.0	8.0	8.0	490	260	60.0	31.0	5.0	1.0	250	20	38.0	10.0	0.30	<0.1	<0.1	
10-Aug-95	254.0	11.0	8.9	467	230	56.0	23.0	5.0	<1	248	13	27.0	55.0	<0.1	<0.1	<0.1	
28-Nov-95	47.7	6.0	9.2	432	290	62.0	27.0	5.0	<1	250	15	31.0	20.0	<0.1	<0.1	<0.1	
26-Mar-96	150.0	1.0	8.0	580	322	61.0	30.0	4.0	<.3	314	<2	38.0	5.0	0.19	<.03		<.04
26-Jun-96					266	52.0	21.0	4.0	<1	240	13	24.0	4.0	<0.1	<0.1		<0.1
16-Aug-96	15.0	14.0	8.3	499	261	55.0	29.0	5.0	<1	232	25	29.0	7.0	<0.1	<0.1		<0.1
24-Oct-96	2.0	3.0	8.2	564	312	60.0	34.0	6.0	1.0	326	<5	38.0	7.0	<0.1	<0.1		<0.1
25-Mar-97	11.2	3.0	8.4	730	370	59.9	35.0	4.7	1.6	293	<1	50.6	3.9	<0.005		<0.05	
5-May-97	47.0	6.0	9.0	656	314	59.9	35.0	4.7	1.6	293	<1	50.6	3.9	<0.02	<0.02	<0.05	
20-Aug-97	673.2	8.0	7.7	502	310		31.0	5.0	1.0	301	<5	48.0	4.0	270.00	<0.1		<0.1
1-Oct-97	507.1	6.0	7.9	641	320	68.0	32.0	5.0	<1	352	<5	48.0	4.0	<0.1	<0.1	<0.1	
8-Sep-98			8.4	548	337	70.0	33.0	4.0	1.0	321	<5	50.0	3.0	0.60	<0.1	<0.1	
4-Mar-99	367.0	3.0	8.1	380	344	71.0	37.0	5.0	2.0	356	<5	79.0	4.0	<0.1	<0.1	<0.1	
10-Jun-99	4173.0				256	64.0	21.0	3.0	<1	272	<5	21.0	1.0	0.1	<0.1	<0.1	
15-Sep-99	467.0	7.2	8.0	480	370	62.1	35.2	4.4	1.4	283	<1	57.0	7.0	0.09	<0.02	0.01	
4-Nov-99	305.0	12.0	7.9	479	340	61.0	40.6	4.2	1.7	313	<1	63.0	7.0	0.05	<0.02	<0.01	
20-Jun-00	950	8.7	8.31	479	304	59	27	3	<1	270	<5	45	2	<0.1	<0.1	<0.1	<0.1
14-Sep-00	321	9.2	8.06	557	325	60	34	5	2	281	<5	76	3	<0.1	<0.1	<0.1	<0.1
9-Dec-00	350	-0.3	8.26	590	333	66	36	4	1	324	<5	73	2	<0.1	<0.1	<0.1	<0.1
13-Mar-01	234	3.6	7.8	583	383	62	37	4	1	311	<5	84	2	<0.1	<0.1	<0.1	<0.1
1-May-01	383	10.8	7.9	567	336	63	38	4	1	303	<5	81	3	<0.1	<0.1	<0.1	<0.1
9-Sep-01	367	9.3	8.36	549	419	69	37	5	1	284	<5	124	3.1	<0.1	<0.1	<0.05	<0.05
29-Oct-01	262	3.7	8.39	592	406	71	39	5	2	306	<5	98.9	3	<0.1	<0.1	<0.05	<0.05
21-Mar-02	182	1.2	8.23	533	302	68	38	5	<1.	306	<5.	102	3	<0.1	<0.1	<0.05	<0.05
8-Jun-02	539	14.3	8.15	901	678	111	60	6	2	245	<5.	341	2	<0.1	<0.1	<0.05	<0.05
27-Sep-02	124	7.3	8.21	575	377	67	39	6	1	270	<5.	114	2	<0.1	<0.1	<0.05	<0.05
19-Nov-02	117	0.5	8.01	604	419	68	36	4	1	309	<5	118	3	<0.1	<0.1	<0.05	<0.05
23-Mar-03	121	2.8	8.15	619	390	73.9	40.5	4.9	1.48	289	5	109	3	0.013	<0.005	<0.005	<0.005
13-Jun-03	1,230	9.1	8.39	717	530	98.2	41.2	4.9	1.33	238	6	213	2	0.023	<0.005	<0.005	<0.005
23-Sep-03	138	9.0	8.15	680	478	89.2	47.7	4.6	1.71	293	<5.	178	2	0.153	<0.005	<0.005	<0.005
9-Dec-03	86	0.4	8.38	697	478	91.8	48	4.61	1.64	321	<5	164	3	<0.02	<0.005	<0.005	<0.005
31-Mar-04	117	3.9	8.39	758	546	95.3	49.2	4.77	1.66	304	<5	197	3	<0.05	<0.03	<0.002	<0.002
17-Jun-04	1010	8.4	8.48	733	482	97.7	39.2	6.19	1.41	201	< 5.	212	3	< .05	< .03	< .002	< .002
20-Sep-04	393	5.5	8.58	667	523	95.7	49.4	4.76	1.67	222	< 5.	204	2	< .05	< .03	< .002	< .002
6-Nov-04	134	1	8.06	669	530	93.5	45.8	4.68	1.55			195	2	< .05	< .03	< .002	< .002

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	28-Mar-05	72	0.9	8.1	636	587	99	49.2	4.28	1.2	284	< 5.	253	2	< .05	< .03	< .002	< .002
	31-May-05	6450	8	8.15	509	391	88.3	28.4	8.21	1.12	266	6	98	2	1.72	< .03	0.044	< .002
	25-Aug-05	220	11.3	8.26	696	528	97.7	47.8	5.68	1.68	246	< 5.	217	2	< .05	< .03	0.002	< .002
	27-Dec-05	117	0.6	8.19	744	484	96.5	45.5	5.71	1.79	296	< 5.	182	3	< .05	< .03	0.002	< .002
Blind Canyon Flume	12-Jan-91		4.2	8.6	300													
	14-Jan-91					293	58.2	40.7	4.6	0.2	325	<1	23.0	55.0	0.38	0.34	0.26	
	4-Apr-91		0.9	8.5	200	257	52.3	21.0	1.3	1.6	207	<1	23.0	20.0	0.05	<0.02	<0.01	
	21-Jul-91	368.0	10.5		600	253	56.6	26.9	11.9	2.2	279	<1	9.0	10.0	<0.02	0.06	0.17	
	11-Oct-91	67.3	7.0	8.5	600	279	71.4	22.8	3.9	0.0	318	<1	10.0	15.0		0.11		
	8-Mar-92	Frozen	0.0	7.4	400	315	85.4	25.9	3.1	0.0	312	0	22.0	20.0		0.00	0.05	
	18-Jun-92	80.8	10.1	8.4	624	241	69.4	21.9	0.3	0.0	259	6	7.0	30.0		0.00	0.00	
	30-Sep-92	0.0																
	16-Dec-92	0.0																
	3-Jun-93	1.0	4.5	8.4	300	234	52.5	19.3	1.8	<0.10	246	0	11.0	3.1	0.53	0.06	<0.03	
	1-Jul-93	1.0	10.1	7.8	517	245	49.2	21.6	21.2	<0.10	257	0	18.0	3.6	1.35	0.06	<0.03	
	25-Oct-93	0.0																
	15-Jul-94	dry																
	6-Sep-94	dry																
	16-May-95	147.0	9.0	8.4	610	300	61.0	33.0	4.0	2.0	265	25	24.0	5.0	1.00	<0.01	<0.1	
	9-Aug-95	0.0																
	28-Nov-95	0.0																
	5-May-97	0.0																
	15-Aug-97	0.0																
	9-Oct-97	0.0																
	8-Sep-98			8.4	497	296	50.0	37.0	4.0	1.0	281	13	24.0	4.0	0.10	<0.01	<0.1	
	15-Sep-99	26.0	10.0	8.1	580	450	54.1	61.2	10.2	2.0	378	9	56.0	11.0	0.04	<0.02	<0.01	
	4-Nov-99	1.0	11.0	8.2	517	380	51.2	64.1	9.6	2.0	389	<1	55.0	11.0	0.06	<0.02	<0.01	
	20-Jun-00	173	13.9	8.61	482	290	51	32	2	1	289	<5	29	2	0.1	<0.1	<0.1	<0.1
	14-Sep-00	54	10.1	8.27	514	303	49	37	4	2	312	<5	25	3	0.1	<0.1	<0.1	<0.1
	8-Dec-00	10	-0.4	8.4	511	337	56	38	4	1	356	<5	30	3	0.3	<0.1	<0.1	<0.1
	14-Mar-01	50	0	8.3	500	337	54	40	5	1	354	<5	34	3	<0.1	<0.1	<0.1	<0.1
	2-May-01	488	3.3	8.6	422	261	54	28	2	<1	267	11	21	2	0.4	<0.1	<0.1	<0.1
	9-Sep-01	24.8	7.6	8.43	458	324	50	35	4	1	312	<5	28	3.2	<0.1	<0.1	<0.05	<0.05
	29-Oct-01	39.9	3.4	8.54	511	347	55	38	4	1	332	<5	31.7	3.2	<0.1	<0.1	<0.05	<0.05
	21-Mar-02	30	0.1	8.42	452	245	53	37	5	1	324	<5.	34	3	0.3	<0.1	<0.05	<0.05
	8-Jun-02	95	17.6	8.24	445	262	46	32	5	1	278	<5.	30	2	0.2	<0.1	<0.05	<0.05

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	27-Sep-02	9.3	6.3	8.46	514	296	50	41	6	2	309	7	36	3	0.1	<0.1	<0.05	<0.05
	19-Nov-02	17.4	0.0	8.19	510	315	59	40	4	1	348	<5	40	3	<0.1	<0.1	<0.05	<0.05
	23-Mar-03	60	0.5	8.41	494	307	55.9	38.4	4.29	1.25	321	6	42	3	0.155	<0.005	0.008	<0.005
	13-Jun-03	231	11.9	8.45	427	273	56.8	28.4	5.42	1.07	244	11	30	2	0.182	<0.005	0.012	0.012
	22-Sep-03	18.8	7.0	8.14	492	339	58.7	42	3.89	1.99	327	6	35	3	0.15	<0.005	<0.005	<0.005
	9-Dec-03	21.5	0.4	8.61	535	306	62.1	39.6	4.09	1.59	343	<5	42	3	0.116	<0.005	<0.005	<0.005
	31-Mar-04	105	2.1	8.65	504	331	61.5	35.1	3.65	1.33	318	< 5.	41	3	0.129	< .03	0.012	< .002
	17-Jun-04	280	9.2	8.62	425	231	53.6	26.1	2.43	1	207	< 5.	30	2	0.39	< .03	0.02	< .005
	20-Sep-04	26.1	6	8.31	419	278	55.8	39.7	3.48	1.79	244	14	38	3	0.05	< .03	< .002	< .002
	6-Nov-04	38.4	0.1	8.28	486	324	63.1	38.4	3.59	1.44			42	3	0.07	< .03	0.003	< .002
	28-Mar-05	132	1.4	8.53	438	368	62.3	38.5	3.81	0.91	327	6	37	3	0.1	< .03	0.002	< .002
	31-May-05	1930	10.7	8.29	366	245	63.5	22.1	2.26	0.7	237	16	18	2	0.59	< .03	0.018	0.003
	25-Aug-05	80.4	13.6	8.39	465	273	50.3	35.1	3.53	1.45	274	13	34	2	0.16	< .03	0.008	< .002
	28-Dec-05	32.7	0.5	8.42	567	287	62.8	38.5	4.13	1.43	343	8	34	4	< .05	< .03	0.003	0.002
Horse Canyon	22-Nov-94	6.0	-2.0	6.8		340	65.0	40.0	7.0	<5	290	0	50.0	8.0	2.00	<.2	<.2	
	16-May-95	387.0	9.0	8.3	440	290	58.0	30.0	5.0	1.0	240	30	21.0	1.0	0.70	<0.1	<0.1	
	9-Aug-95	72.0	10.0	8.1	765	280	50.0	33.0	7.0	1.0	274	17	25.0	6.0	0.20	<0.1	<0.1	
	28-Nov-95	15.9	9.0	8.9	436	280	62.0	35.0	6.0	1.0	280	25	30.0	7.0	0.10	<0.1	<0.1	
	26-Mar-96	280.0	1.0	7.9	340	128	57.0	35.0	6.0	1.1	350	<2	28.0	10.0	0.18	<.03		<.04
	13-Jun-96					203	45.0	16.0	3.0	<1	212	12	<1	5.0	<.1	<0.1		<0.1
	12-Aug-96	7.0	14.0	8.0	509	270	41.0	36.0	6.0	1.0	245	17	30.0	7.0	<.1	<0.1		<0.1
	24-Oct-96	3.0	0.0	8.9	584	301	55.0	37.0	6.0	1.0	331	<5	16.0	7.0	<.1	<0.1		<0.1
	25-Mar-97	12.6	3.0	8.6	789	410	59.1	41.2	6.1	1.5	344	<1	34.8	6.1	0.23	<0.2		0.02
	5-May-97	64.0	5.0	8.7	608	284	57.1	30.4	4.3	1.0	279	4	21.6	3.9	0.21	<0.02		0.01
	20-Aug-97	60.0	9.0	7.8	438	270	45.0	27.0	4.0	<1	<10	<5	17.0	<0.1	<0.1		<0.1	
	7-Oct-97	179.5	7.0	8.0	473	260	63.0	30.0	4.0	<1	321	<5	16.0	5.0	0.20	<0.1	<0.1	
	8-Sep-98			8.5	557	346	62.0	38.0	7.0	2.0	276	31	43.0	5.0	0.50	<0.1	<0.1	
	10-Jun-99	337.0				229	57.0	22.0	3.0	<1	250	<5	13.0	2.0	0.2	<0.1	<0.1	
	15-Sep-99	860.0	7.0	8.1	400	410	61.5	42.3	8.6	1.9	320	<1	58.0	8.0	0.11	<0.02	0.02	
	4-Nov-99	352.0	10.0	8.3	502	400	55.4	46.4	8.4	2.2	353	<1	60.0	8.0	0.17	<0.02	0.01	
	20-Jun-00	235	15.9	8.33	522	321	56	32	5	1	303	<5	43	3	0.1	<0.1	<0.1	<0.1
	14-Sep-00	80	11.6	8.21	675	422	64	44	13	3	308	12	108	5	<0.1	<0.1	<0.1	<0.1
	8-Dec-00	75	0	8.4	622	399	67	42	10	2	339	<5	96	4	0.2	<0.1	<0.1	<0.1
	14-Mar-01	102	0.7	8.2	594	415	65	43	9	2	340	<5	88	5	<0.1	<0.1	<0.1	<0.1
	2-May-01	970	3.2	8.5	372	238	49	22	2	<1	217	8	22	2	0.6	<0.1	<0.1	<0.1
	9-Sep-01	68	10	8.42	674	527	75	49	15	3	330	<5	170	6.9	<0.1	<0.1	<0.05	<0.05

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	29-Oct-01	69.3	4.3	8.49	719	516	80	50	14	2	361	<5	150.8	5.7	0.1	<0.1	<0.05	<0.05
	21-Mar-02	85.7	1.3	8.41	537	363	69	43	11	2	318	<5.	112	5	0.3	<0.1	<0.05	<0.05
	8-Jun-02	104	18.9	8.34	586	376	61	39	11	2	279	8	96	4	0.5	<0.1	<0.05	<0.05
	27-Sep-02	47.2	7.7	8.44	727	481	75	52	17	3	318	10	155	6	0.1	<0.1	<0.05	<0.05
	19-Nov-02	52.9	0.6	8.23	696	474	71	46	13	3	338	<5	145	5	<0.1	<0.1	<0.05	<0.05
	23-Mar-03	145	2.2	8.45	539	343	58.9	36.4	8.06	1.61	257	6	78	4	0.219	0.005	0.013	<0.004
	13-Jun-03	198	12.6	8.45	457	311	56.1	28.3	5.56	1.33	246	8	51	3	0.311	<0.005	0.022	<0.005
	22-Sep-03	37.7	7.5	8.19	698	504	82.3	58.2	15	3.47	348	<5.	153	6	0.141	<0.005	0.006	<0.005
	9-Dec-03	33	0.5	8.55	688	442	74.6	48	11.1	2.56	356	<5	121	5	0.039	<0.005	<0.005	<0.005
	31-Mar-04	218	4.1	8.65	515	334	63.1	33.8	5.77	1.41	266	< 5.	56	4	0.21	< .03	0.014	< .005
	17-Jun-04	183	9.3	8.53	457	260	54.4	28.1	5.12	1.36	212	< 5.	45	3	0.76	< .03	0.041	< .002
	20-Sep-04	38.7	6.4	8.39	559	442	74.9	52.9	12.1	2.89	262	16	133	5	0.09	< .03	< .002	< .002
	6-Nov-04	48	0.2	8.27	554	430	74.7	47.2	10.3	2.22			107	4	0.08	< .03	0.004	< .002
	28-Mar-05	138	1.9	8.59	492	384	66.1	38.1	6.71	1.09	308	21	61	5	0.21	< .03	0.008	0.002
	31-May-05	1860	10.4	8.31	314	184	51.7	17.9	2.58	0.57	207	5	11	2	1.39	< .03	0.042	0.008
	25-Aug-05	61	13.9	8.47	576	351	60.1	43.2	10.3	2.21	293	13	91	5	0.37	< .03	0.016	< .002
	28-Dec-05	31	1.3	8.45	633	358	71.4	42.5	9.34	2.09	330	14	80	5	0.17	< .03	0.01	0.002
Indian Creek	26-Jun-96					290	67.0	19.0	3.0	<1	302	9	5.0	2.0		<0.1	<0.1	
	16-Aug-96	673.2	12.0	7.4	465	260	68.0	22.0	3.0	<1	293	9	4.0	4.0		<0.1	<0.1	
	24-Oct-96	1570.8	3.0	8.4	724	262	67.0	22.0	3.0	1.0	334	<5	6.0	5.0		<0.1	<0.1	
	1-Jul-97	4936.8	13.9	7.4	425	260	71.0	19.0	3.0	1.0	310		7.0	2.0		<0.1	<0.1	
	20-Aug-97	4488.0	12.0	7.8	423	250	72.0	21.0	3.0	<1	<10	<5	5.0	2.0		<0.1	<0.1	
	10-Oct-97	3927.0	7.0	8.3	483	240	74.0	21.0	3.0	<1	318	<5	6.0	4.0	<0.1	<0.1	<0.1	
	25-Jun-98	1257.0				235	72.0	19.0	3.0	<1	307	<5	6.0	5.0	0.30	<0.1	<0.1	
	26-Sep-98	1122.0				321	62.0	22.0	7.0	3.0	211	<5	78.0	<1	11.00	<0.1	<0.1	
	21-May-99	1571.0	11.0	7.5	395													
	15-Sep-99	1282.0	4.0	8.2	380	290	73.5	21.9	2.9	1.1	320	7	11.0	<1	0.2	<0.02	0.03	
	4-Nov-99	708.0	10.0	8.4	380	270	57.2	23.0	2.6	0.9	299	<1	12.0	6.0	0.12	<0.02	<0.01	
	21-Jun-00	1250	8	8.49	466	281	70	19	2	<1	318	<5	5	1	0.1	<0.1	<0.1	<0.1
	13-Sep-00	634	13.8	8.01	390	238	60	20	3	<1	291	<5	7	2	0.1	<0.1	<0.1	<0.1
	17-Jun-01	1184	14.4	8.35	459	256	66	19	3	<1	311	<5	6	1	0.1	<0.1	<0.1	<0.1
	9-Sep-01	634	8.4	8.29	417	287	65	20	4	<1	326	<5	7	2.1	<0.1	<0.1	<0.05	<0.05
	28-Oct-01	580	7.6	7.81	454	268	66	21	4	<1	315	<5	7.4	2	<0.1	<0.1	<0.05	<0.05
	6-Jun-02	734	15	8.26	461	272	65	21	4	<1.	303	<5.	5	2	0.1	<0.1	<0.05	<0.05
	26-Sep-02	321	12.9	8.23	431	249	60	21	4	<1.	287	<5.	7	1	<0.1	<0.1	<0.05	<0.05
	10-Oct-02	247	8.2	8.43	457	256	70	21	4	<1	305	<5	9	2	<0.1	<0.1	<0.05	<0.05

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	9-Jun-03	1,130	7.7	8.08	388	286	78	19.6	4.66	0.515	313	6	14	1	0.095	<0.005	0.012	0.008
	21-Sep-03	274	8.9	8.05	441	296	67.8	22	3.06	0.538	326	<5.	8	2	0.073	<0.005	0.009	0.006
	21-Oct-03	263	9.4	7.98	478	288	69.5	22.1	2.79	0.741	318	<5	9	2	0.353	<0.005	0.02	<0.005
	14-Jun-04	753	12	8.3	487	288	71.6	20.3	5.31	0.57	263	< 5.	14	2	0.11	< .03	0.012	0.006
	9-Sep-04	327	11.5	8.26	435	253	68.6	21	3.59	0.73	250	< 5.	10	3	0.16	< .03	0.015	0.008
	17-Oct-04	320	5.3	8.38	464	256	69.2	19.9	3.61	0.79			11	2	0.17	< .03	0.017	0.01
	19-Jun-05	1800	12	8.26	435	332	77.5	20.1	6.14	0.71	316	< 5.	14	1	0.31	< .03	0.022	< .002
	25-Aug-05	705	11.7	8.3	461	275	74.8	21.1	3.98	0.57	319	< 5.	9	2	0.14	< .03	0.016	0.008
	12-Oct-05	570	6.4	8.25	420	293	70.8	20.9	3.92	0.76	317	< 5.	9	2	0.12	< .03	0.016	0.003
IBC-1	31-May-05	74.8	8.2	8.25	439	331	61	36.1	6.48	1.3	278	17	37	5	< .05	< .03	< .002	<0.002
	25-Aug-05	0.8	9.8	8.37	534	342	59.9	43.5	8.28	1.69	337	< 5.	59	7	< .05	< .03	< .002	<0.002
	27-Dec-05	0																
Little Bear Creek																		
	21-Jun-05	20																
	27-Jul-05	6.98	13.3	8.52	507	326	61.8	44.5	8.98	2.25	322	<5	53	7	0.17	<0.03	0.018	<0.002
	5-Sep-05	6.98	10.5	8.44	551	370	58.6	40.9	7.83	3.96	317	25	54	11	0.22	< .03	0.009	<0.002
	28-Dec-05	0																
Section 4 Creek	21-Jun-05	0																
	27-Jul-05	1.03	11.4	8.31	876	576	77.9	75.3	15.6	4.31	447	4	151	15	0.28	<0.03	0.03	<0.002
	5-Sep-05	2.46	9.5	8.3	773	580	75.3	76	3.95	3.95	447	< 5.	132	11	0.24	< .03	0.033	<0.002
	28-Dec-05	5.67	1.3	8.44	815	497	70.1	69.5	13.5	3.67	389	24	133	12	0.79	< .03	0.084	<0.002
Section 5 Creek	21-Jun-05	19.8	17.4	8.48	501	320	50.8	41.3	7.61	1.63	254	23	51	5	< .05	< .03	< .002	<0.002
	25-Aug-05	1.53	11.7	8.79	455	252	43.5	39.8	7.12	1.48	276	< 5.	53	5	< .05	< .03	0.003	0.002
	2-Nov-05	8.93	0.7	8.07	378	261	40.1	36	6.58	1.39	254	< 5.	47	5	< .05	< .03	< .002	<0.002
Section 5 Creek U. L. Fork	21-Jun-05	13.4	11	8.25	437													
	25-Aug-05	2.12	10	8.68	396													
	2-Nov-05	3.73	1.4	8.55	379													
Section 5 Creek U. R. Fork	21-Jun-05	5.04	16.6	8.27	567													
	25-Aug-05	0.55	11.2	8.66	494													
	2-Nov-05	2.4	0.2	8.54	428													

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Shingle Creek	20-Jun-05	20.2	12.1	8.06	609													
	23-Sep-05	6.33	8.2	8.23	703													
	25-Oct-05	12.7	3.4	8.18	663													
Springs																		
SP1-33	7-Nov-95	1.8	9.0	7.5	479	330	71.0	23.0	5.0	1.0	335	<5	17.0	6.0	0.30	<0.1	<0.1	
	21-Jun-96					298	70.0	23.0	5.0	<1	321	<5	14.0	4.0		<0.1		<0.1
	16-Aug-96	0.5	7.0	7.8	480	295	72.0	23.0	4.0	1.0	316	<5	17.0	7.0		<0.1		<0.1
	24-Oct-96	1.0	5.0	8.1	733													
	20-Aug-97	3.0	7.0	8.2	502	290		22.0	5.0	<1	321	<5	17.0	3.0		<0.1		<0.1
	10-Oct-97	3.0	6.0	8.3	501	290	82.0	24.0	5.0	1.0	315	<5	18.0	5.0	3.60	<0.1	0.10	
	25-Jun-98			8.7	463	255	70.0	23.0	5.0	<1								
	21-May-99			8.1		215	68.0	17.0	5.0	2.0	245	<5	2.0	<1	0.5	<0.1	<0.1	
	15-Sep-99	1.2	4.0	7.6	550	350	85.8	25.1		2.3	366	<1	11.0	7.0	0.61	<0.02	0.09	
	4-Nov-99	1.5	13.0	7.5	395	290	65.7	24.4	3.9	1.1	329	<1	21.0	7.0	0.39	<0.02	<0.01	
	23-Jun-00	2.9	4.3	7.76	504	280	70	22	4	<1	318	<5	16	2	1.8	<0.1	<0.1	0.1
	13-Sep-00	2.47	5.5	7.92	492	267	66	22	5	1	311	<5	19	3	<0.1	<0.1	<0.1	<0.1
	17-Jun-01	3.19	5.4	7.42	474	269	67	22	5	<1	318	<5	20	2	0.1	<0.1	<0.1	<0.1
	9-Sep-01	3.08	6.4	7.58	445	324	68	22	5	<1	321	<5	20	2.9	<0.1	<0.1	<0.05	<0.05
	28-Oct-01	2.31	6.4	6.88	483	284	68	23	5	1	319	<5	20	2.3	0.2	<0.1	<0.05	<0.05
	6-Jun-02	1.63	5.4	7.43	488	302	68	23	6	<1.	314	<5.	19	3	0.2	<0.1	<0.05	<0.05
	26-Sep-02	1.29	5.9	7.79	468	272	66	22	6	<1.	309	<5.	17	2	<0.1	<0.1	<0.05	<0.05
	10-Oct-02	1.40	5.7	7.83	473	258	70	23	5	1	309	<5	17	2	<0.1	<0.1	<0.05	<0.05
	9-Jun-03	1.90	4.3	7.71	336	288	71.9	22.4	4.03	0.979	316	<5.	17	2	0.052	<0.005	<0.005	<0.005
	21-Sep-03	2.38	5.4	7.38	491	325	73.6	24	4.51	0.909	325	<5.	29	2	0.167	0.02	0.006	0.006
	22-Oct-03	2.22	5.7	7.87	518	308	74.9	24	4.19	1.09	320	<5	28	2	0.359	<0.005	0.011	<0.005
	14-Jun-04	2.51	4.6	7.57	505	281	73.7	23.2	4.18	1	267	< 5.	20	2	0.42	< .03	0.018	< .005
	17-Sep-04	2.78	5.5	7.94	461	290	76.9	24.2	4.3	1.08	265	< 5.	20	2	< .05	< .03	< .005	< .002
	17-Oct-04	2.9	2.7	8.34	437	287	72.7	22.6	4.49	1.08			23	2	0.19	< .03	0.01	0.004
	19-Jun-05	5.04	4.6	7.63	469	354	75.4	24.6	9.84	1.07	312	< 5.	34	2	< .05	< .03	0.004	0.002
	25-Aug-05	3.29	5.4	7.65	448	312	73.2	22.4	4.76	0.93	315	< 5.	24	2	0.2	< .03	0.009	0.005
	12-Oct-05	2.99	5.3	7.85	444	307	74	23.3	4.82	1.08	306	< 5.	25	2	< .05	< .03	0.003	0.002
SP1-47	23-Jul-90	no flow																

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	19-Aug-90	no flow																
	26-Sep-90	no flow																
	18-Jun-91	no flow																
	12-Jun-92					262	91.9	21.2	2.3	1.0	332	0	9.5	3.5		0.50	0.03	
	21-Jun-96					272	69.0	19.0	3.0	<1	307	<5	4.0	3.0	0.80	<0.1	<0.1	
	24-Oct-96	1.0	3.0	8.1	571	283	70.0	21.0	3.0	1.0	330	<5	4.0	5.0	1.40	<0.1	<0.1	
	30-Jun-97	3.0	18.0	7.1	427	290	76.0	17.0	2.0	1.0	310	<5	7.0	1.0	0.10	<0.1	<0.1	
	20-Aug-97	4.0	8.0	7.2	488	270	77.0	20.0	3.0	2.0	334	<5	17.0	5.0	0.30	<0.1	<0.1	
	10-Oct-97	3.0	9.0	8.3	509													
	25-Jun-98			7.7	473	256	75.0	18.0	3.0	<1	340	<5	6.0	4.0	0.60	<0.1	<0.1	
	8-Sep-98			8.2	532	330	79.0	24.0	3.0	4.0	330	<5	3.0	6.0	0.30	<0.1	<0.1	
	15-Sep-99	2.1	5.0	7.8	490	350	89.0	19.3	2.9	0.9	343	<1	9.0	6.0	0.89	<0.02	<0.1	
	4-Nov-99	1.8	12.0	8.2	372	270	76.4	21.1	2.0	0.8	306	<1	13.0	6.0	1.12	<0.02	0.04	
	21-Jun-00	3.68	25.3	8.08	384													
	13-Sep-00	7.32	15.4	8.16	445													
	17-Jun-01	4.05	20.4	8.38	385													
	9-Sep-01	6.38	15.9	8.21	378													
	28-Oct-01	9.02	12.3	8.29	443													
	6-Jun-02	3.93	24.9	8.13	378													
	25-Sep-02	4.71	11.8	8.29	420													
	10-Oct-02	6.82	10.6	8.59	369													
	9-Jun-03	2.61	17.9	8.23	394													
	21-Sep-03	3.87	15.6	7.85	425													
	21-Oct-03	4.54	13.1	7.90	471													
	14-Jun-04	3.7	3.2	7.94	357													
	17-Sep-04	3.9	19.3	8.12	449													
	17-Oct-04	10.3	2.7	8.34	437													
	19-Jun-05	7	16.8	8.25	459													
	25-Aug-05	12	16.1	8.33	447													
	12-Oct-05	11.9	8.3	8.25	443													
SP2-24	10-Oct-91	0.4	6.0	8.3	500	227	65.1	13.6	2.1	0.0	248	<1	5.0	10.0		0.06		
	18-Jun-92	2.0	5.4	7.7	265	186	63.0	6.0	1.0	0.0	190	0	5.0	20.0		0.02	0.06	
	29-Sep-92	0.5	7.8	7.9	300	208	94.5	20.4	0.5	0.0	204	0	80.0	20.0		0.00	0.10	
	3-Jun-93	8.0	2.0	8.0	200	184	37.9	86.0	0.3	3.7	272	0	4.0	3.1	0.29	<0.05	<0.03	
	1-Jul-93	7.8	12.0	7.8	200	186	41.1	9.9	1.4	6.7	158	0	4.0	3.6	<0.05	0.17	<0.03	
	25-Oct-93	1.5	6.0	7.8	290	219	48.0	15.0	1.0	3.0	179	<1	5.0	7.0	<0.2	<0.2	<0.1	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	2-Jun-94	5.0	42.8	8.2	280	214	40.3	9.9	1.2	8.5	168	5	<10	7.0	0.10	0.05	<0.1	
	12-Sep-94	3.0	41.0	7.5	402	184	52.0	15.0	1.3	5.5	195	0	7.3	7.8	<.05	<0.05	<0.02	
	9-Sep-95	dry																
	25-Jun-96					177	39.0	11.0	1.0	5.0	171	3	2.0	2.0		<0.1		<0.1
	12-Aug-96	1.0	10.0	7.9	380	217	50.0	16.0	2.0	1.0	207	13	10.0	4.0		<0.1		<0.1
	13-Oct-96	1.0	4.0	8.5	840	216	62.0	14.0	3.0	1.0	254	<5	11.0	3.0		<0.1		<0.1
	7-Aug-97	dry																
	9-Oct-97	dry																
	15-Sep-99	2.0	13.0	8.4	300	220	43.8	15.0	2.0	0.7	197	<1	10.0	6.0	1.7	<0.02	0.04	
	4-Nov-99	dry																
	22-Jun-00	2.05	4.5	8.07	331	304	49	13	<1	<1	212	<5	3	2	<0.1	<0.1	<0.1	<0.1
	12-Sep-00	0.233	8.4	8.13	320	190	44	14	2	<1	211	<5	3	1	0.5	<0.1	<0.1	<0.1
	23-Jun-01	2.52	4.4	7.55	379	207	50	17	3	2	225	<5	6	4.5	0.1	<0.1	<0.1	<0.1
	8-Sep-01	2.09	4.5	7.99	347	252	50	14	2	5	217	<5	6	5.1	<0.1	<0.1	<0.05	<0.05
	27-Oct-01	1.13	5.4	7.04	349	192	50	15	2	5	204	<5	5.1	4.6	<0.1	<0.1	<0.05	<0.05
	7-Jun-02	6.59	3.6	8.05	355	241	48	14	3	1	189	<5.	6	5	0.5	<0.1	<0.05	<0.05
	25-Sep-02	1.23	5.4	8.16	353	203	49	15	3	5	200	<5.	6	5	<0.1	<0.1	<0.05	<0.05
	10-Oct-02	1.08	5.5	8.53	384	207	52	16	3	4	201	<5	6	4	<0.1	<0.1	<0.05	<0.05
	14-Jun-03	9.68	3.1	7.82	322	211	49.5	12.4	1.34	7.54	174	<5.	5	3	0.021	<0.005	<0.005	<0.005
	20-Sep-03	1.78	5.4	7.56	365	254	53.5	15.8	1.34	4.57	207	<5.	6	4	<0.02	0.05	<0.005	<0.005
	22-Oct-03	1.27	5.0	7.96	383	226	53.7	15.7	1.69	4.51	217	<5	6	4	<0.02	0.012	<0.005	<0.005
	14-Jun-04	11.6	3.2	7.94	357	214	47.1	12.1	1.38	7.69	143	< 5.	6	3	0.05	< .03	< .002	< .002
	10-Sep-04	2.22	4.2	8.03	313	203	55.6	15.7	1.6	4.93	163	< 5.	7	4	< .05	< .03	< .002	< .002
	19-Jun-05	27	3	7.92	288	206	47.2	12	1.75	8.24	162	< 5.	5	4	0.18	< .03	0.003	< .002
	26-Aug-05	3.26	3.8	7.89	342	222	50.5	13.9	1.49	5.38	196	< 5.	6	5	< .05	< .03	< .002	< .002
	12-Oct-05	1.73	4.3	7.98	329	225	52.6	15.5	1.83	4.87	194	< 5.	6	4	0.05	< .03	< .002	< .002
SP-47a	14-Jun-91	2.0	5.0	7.5	400													
	28-Jun-91						47.7	16.4	5.2	0.7	212	0	21.4	3.1		0.08	<0.01	
	21-Jul-91	0.0	6.4		400	214	54.5	14.6	4.3	3.0	208	<1	17.0	10.0		<0.02		
	24-Aug-91	0.2	8.0	7.2	400													
	27-Aug-91					231	60.1	18.1	4.4	2.3	235	<1	24.0	15.0	0.11		0.02	
	21-Sep-91	0.1	8.0	7.5	400													
	24-Sep-91					281	54.1	9.0	5.7	0.0	190	<1	18.0	10.0		0.13	0.01	
	18-Jun-92	<0.1	9.7	7.1	402	202	63.7	7.8	2.7	0.0	185	0	8.0	30.0		0.00	0.00	
	29-Sep-92	0.1	8.9	8.0	310	224	50.3	27.1	5.3	0.0	209	0	26.0	15.0		0.26	0.09	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	4-Jun-93	<1	8.1	8.0	475	302	49.0	16.8	4.3	1.1	219	0	3.0	25.9	0.28	0.08	<0.03	
	1-Jul-93	1.2	10.0	7.9	140	216	47.0	14.7	5.2	<1.1	241	0	27.0	5.7	0.14	0.06	<0.03	
	25-Oct-93	1.2	4.0	7.9	310	236	46.0	17.0	3.0	<2	154	<1	22.0	9.0	1.20	0.20	<0.1	
	2-Jun-94	<1	4.0	7.8	380	329	68.7	19.5	5.0	1.8	313	<1	53.5	8.0	0.03	<0.1	<0.1	
	12-Sep-94	dry																
	9-Aug-95	0.5	10.0	8.1	280	250	50.0	17.0	6.0	2.0	226	<5	24.0	8.0	<0.1	<0.1	<0.1	
	25-Jun-96					284	65.0	19.0	6.0	1.0	303	<5	18.0	8.0		<0.1		<0.1
	12-Aug-96	1.5	10.0	7.7	473	150	46.0	9.0	2.0	1.0	177	0	6.0	2.0		<0.1		<0.1
	13-Oct-96	0.3	8.0	7.5	250	193	48.0	15.0	6.0	2.0	209	<5	24.0	9.0		<0.1		<0.1
	7-Aug-97	3.0	8.3	7.5	349			16.0	5.0	2.0	212	<5	7.0	7.0		<0.1		
	9-Oct-97	<0.10	1.0	7.7	752													
	21-May-99	0.7	10.0	7.1	450	273	62.0	20.0	6.0	2.0	274	<5	23.0	6.0	0.3	<0.1	<0.1	
	15-Sep-99	2.5	10.0	7.5	410	240	52.5	18.0	7.3	2.1	215	<1	28.0	10.0	0.53	<0.02	0.01	
	4-Nov-99	dry																
	22-Jun-00	dry																
	11-Sep-00	dry																
	23-Jun-01	1.47	7	7.05	351													
	8-Sep-01	0.276	9	7.54	437													
	27-Oct-01	0.211	7.4	8.3	372													
	7-Jun-02	1.01	6.3	7.06	337													
	25-Sep-02	0.101	9.2	7.72	321													
	10-Oct-02	0.102	7.5	7.63	346													
	14-Jun-03	1.51	5.4	7.38	333													
	20-Sep-03	0.112	8.8	7.59	336													
	22-Oct-03	0.169	8.5	7.28	346													
	14-Jun-04	1.03	5.5	7.26	361													
	10-Sep-04	0.17	8.5	7.54	324													
	19-Jun-05	1.81	5.4	7.41	392													
	26-Aug-05	0.36	8.1	7.39	366													
	12-Oct-05	0.19	7.1	7.43	347													
SP1-19	5-Jul-87	<1.	6	8.05	400													
	5-Oct-87	0																
	5-Oct-89	0																
	2-Jun-94	20	4	8.2	320	193					218	7	<10.	<2.	0.025	<0.01	<0.01	
	12-Aug-96	0																
	13-Oct-96	0.3	6	7.53	180	190					235	<5.	11	3	<0.1	<0.1	<0.1	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	7-Aug-97	0																
	9-Oct-97	0																
	11-Mar-98	0																
	25-Sep-98	1.5	7			167					175	<5.	2	<1.	0.8	<0.1	<0.1	
	15-Sep-99			8.2	500	330					264	<1.	52	6	0.69	<0.02	<0.01	
	15-Sep-99	0																
	4-Nov-99	1	9.4	7.78	403	360					301	<1.	68	9	0.19	<0.02	<0.01	
	22-Jun-00	18.8	6.4	8.28	417													
	12-Sep-00	1.35	7.2	8.27	456													
	23-Jun-01	29.4	6	7.96	390													
	8-Sep-01	1.62	6.46	8.25	453													
	27-Oct-01	1.3	5	7.31	434													
	7-Jun-02	50.2	5.1	8.37	394													
	25-Sep-02	1.4	6.5	8.25	425													
	10-Oct-02	1.75	5.4	8.54	419													
	14-Jun-03	97	4.2	7.78	388													
	20-Sep-03	3.35	7.0	7.71	451													
	22-Oct-03	2.21	6.8	7.81	483													
	14-Jun-04	102	4.2	7.68	408													
	10-Sep-04	2.8	7.5	7.81	395													
	28-Mar-05	No Access																
	19-Jun-05	153	3.9	7.91	346													
	26-Aug-05	6.8	6.4	7.83	423													
	12-Oct-05	3.03	6.2	8.12	412													
SP1-22	9-Aug-95	1.0	7.0	8.5	211	220	46.0	11.0	3.0	7.5	177	5	5.0	6.0	<0.1	<0.1	<0.1	
	28-Nov-95	dry																
	7-Aug-97	1.1	8.0	7.5	293	200		14.0	2.0	6.0	186	<5	5.0	6.0		<0.1	<0.1	
	9-Oct-97	1.0	8.0	7.8	585													
	15-Sep-99	3.6	13.0	8.1	380		48.8	16.9	2.3	0.8	217	<1	11.0	7.0	1.27	<0.02	0.03	
	4-Nov-99	3.0	9.6	7.3	245	220	53.0	18.4	1.4	2.8	220	<1	11.0	8.0	2.66	<0.02	0.07	
	22-Jun-00	3.53	5.1	8.24	304													
	12-Sep-00	0.545	7.5	8.24	347													
	23-Jun-01	3.26	4.8	7.75	265													
	8-Sep-01	0.638	7.7	8.21	312													
	27-Oct-01	0.268	7.4	7.24	326													

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^{-}	CO_3^{-}	SO_4^{2-}	Cl^{-}	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	7-Jun-02	5.04	4.8	8.4	279													
	25-Sep-02	0.283	8.8	8.19	311													
	10-Oct-02	0.282	7.5	8.54	323													
	14-Jun-03	7.39	4.2	7.90	261													
	20-Sep-03	0.749	7.5	7.70	332													
	22-Oct-03	0.487	8.4	7.89	348													
	14-Jun-04	10.7	4.3	7.94	295													
	10-Sep-04	0.86	7.1	8.02	298													
	19-Jun-05	37	3.8	7.92	221													
	26-Aug-05	1.75	5.9	7.97	316													
	12-Oct-05	0.82	6.2	8.02	301													
SP1-24	7-Aug-97	dry																
	9-Oct-97	dry																
	25-Sep-98					313	60.0	21.0	3.0	<1	289	<5	19.0	2.0	<0.1	<0.1	<0.1	
	15-Sep-99	dry																
	4-Nov-99	0.7	8.6	7.4	328	310	62.6	28.1	2.6	3.7	287	<1	23.0	8.0	0.04	<0.02	<0.01	
	12-Sep-00	0.612	6.9	8.08	399													
	23-Jun-01	0.798	8	7.64	401													
	8-Sep-01	0.122	12.7	8.08	395													
	27-Oct-01	0.119	7.6	7.17	399													
	7-Jun-02	0.773	7.5	8.09	389													
	25-Sep-02	0.098	12.6	8.01	387													
	10-Oct-02	0.156	8.9	8.26	402													
	14-Jun-03	1.24	5.6	7.66	382													
	20-Sep-03	0.200	11.0	7.75	415													
	22-Oct-03	0.146	10.8	7.71	434													
	14-Jun-04	1.45	5.3	7.74	415													
	10-Sep-04	0.15	13.4	7.98	395													
	19-Jun-05	3.75	4	7.87	341													
	26-Aug-05	0.255	11.5	7.89	415													
	12-Oct-05	0.17	7.6	7.98	386													
SP1-9	9-Aug-95	7.0	8.2	8.2		170	43.0	6.0	3.0	<1	171	<5	6.0	4.0	<0.1	<0.1	<0.1	
	7-Aug-97	3.0	5.6	7.9	171	180	46.0	13.0	2.0	1.0	193	<5	12.0	3.0		<0.1	<0.1	
	4-Oct-97	3.0	1.0	7.9	328	160	53.0	13.0	3.0	2.0	179	<5	27.0	2.0	1.30	<0.1	<0.1	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	25-Sep-98					167	44.0	6.0	1.0	<1	175	<5	2.0	<1	0.80	<0.1	<0.1	
	15-Sep-99	dry																
	4-Nov-99	dry																
	21-Jun-00	3.39	4.2	7.76	271	181	42	12	2	<1	183	<5	11	<1	<0.1	<0.1	<0.1	<0.1
	11-Sep-00	0.698	5.8	7.48	324	193	45	13	2	1	201	<5	11	<1	<0.1	<0.1	<0.1	<0.1
	23-Jun-01	3.06	4.6	7.46	290	163	41	12	3	<1.	186	<5	10	1	0.1	<0.1	<0.1	<0.1
	8-Sep-01	0.822	6.8	8.11	322	222	46	14	2	<1	210	<5	13	1.3	0.9	<0.1	<0.05	<0.05
	27-Oct-01	0.566	6.9	8.29	288	168	46	14	3	<1	207	<5	12.6	1.2	0.4	<0.1	<0.05	<0.05
	7-Jun-02	3.85	5.1	7.73	289	189	41	13	3	<1.	183	<5.	11	<1.	<0.1	<0.1	<0.05	<0.05
	25-Sep-02	0.455	7.2	7.8	321	179	47	16	4	<1.	211	<5.	13	1	0.3	<0.1	<0.05	<0.05
	10-Oct-02	0.344	6.5	8.05	327	181	48	15	3	<1	215	<5	13	1	0.2	<0.1	<0.05	<0.05
	14-Jun-03	5.99	3.9	7.62	274	171	42.8	11.8	1.7	0.839	172	<5.	10	<1.	0.046	0.007	<0.005	<0.005
	20-Sep-03	0.696	6.4	7.77	333	232	48.6	15	1.66	0.929	215	<5.	13	<1.	0.051	<0.005	<0.005	<0.005
	22-Oct-03	0.594	6.6	7.35	350	206	49.5	14.9	1.97	1.97	213	<5	13	<1	<0.02	<0.005	<0.005	<0.005
	14-Jun-04	7.41	4	7.64	277	162	39.9	10.8	1.75	0.81	137	< 5.	9	< 1.	0.1	< .03	< .002	< .002
	10-Sep-04	0.73	6.1	7.94	301	167	49.6	14.5	1.97	1.08	167	< 5.	11	1	0.73	< .03	0.003	< .002
	17-Oct-04	0.71	5.9	7.81	330	188	49.4	14.1	2.15	1.12			13	1	1.65	< .03	0.01	0.002
	19-Jun-05	10.6	3.9	7.56	203	168	33.8	9.26	1.77	0.87	137	< 5.	7	< 1.	0.21	< .03	< .002	< .002
	26-Aug-05	1.07	5.6	7.77	296	195	49.8	14.5	2	1.1	195	< 5.	12	< 1.	0.09	< .03	< .002	< .002
	12-Oct-05	0.82	5.7	7.76	299	204	50.1	14.9	2.07	1.13	204	< 5.	12	1	2.81	< .03	0.017	< .002
SP2-1	21-Jun-96					270	74.0	15.0	2.0	<1	307	<5	1.0	2.0		<0.1	<0.1	
	24-Oct-96	0.5	3.0	8.3	865	286	79.0	17.0	3.0	<1	359	<5	5.0	4.0		<0.1	<0.1	
	20-Aug-97	4.0	7.0	7.6	391	230		14.0	2.0	<1	264	<5	<5	3.0		<0.1		<0.1
	10-Oct-97	65.0	8.0	8.2	507													
	25-Jun-98			8.2	454	242	75.0	17.0	2.0	<1	326	<5	5.0	3.0	0.20	<0.1	<0.1	
	8-Sep-98			8.3	492	301	83.0	17.0	2.0	<1	345	<5	1.0	3.0	0.30	<0.1	<0.1	
	21-May-99	1.0	9.0	7.8	450	275	87.0	12.0	1.0	1.0	318	<5	2.0	<1	<0.1	<0.1	<0.1	
	15-Sep-99	0.4	8.0	7.4	460	310	81.8	18.2	1.5	0.4	325	<1	8.0	7.0	0.2	<0.02	0.03	
	4-Nov-99	1.0	11.0	8.0	392	290	71.4	18.7	1.9	0.5	290	<1	8.0	6.0	0.28	<0.02	0.01	
	22-Jun-00	13.6	5.1	7.84	488	311	79	19	1	<1	363	<5	2	<1	<0.1	<0.1	<0.1	<0.1
	13-Sep-00	1.37	6.7	7.61	529													
	17-Jun-01	19.4	5	7.49	479													
	9-Sep-01	1.22	6.9	7.67	481													
	28-Oct-01	1.266	6.9	7.52	516													
	6-Jun-02	26.8	4.9	7.47	489													
	25-Sep-02	0.802	7.8	7.61	488													

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	10-Oct-02	0.865	7.4	7.93	516													
	9-Jun-03	30.3	4.5	7.48	537													
	21-Sep-03	0.708	7.2	7.49	518													
	22-Oct-03	0.366	7.1	8.01	543													
	14-Jun-04	23.1	4.9	7.55	514													
	17-Sep-04	0.86	7	7.89	478													
	17-Oct-04	1.7	6.6	7.62	533													
	19-Jun-05	27	4.5	7.67	418													
	25-Aug-05	5.02	5.9	7.48	486													
	12-Oct-05	3.16	6.2	7.73	473													
SP2-9	10-Oct-91	0.6	7.0	8.0	300	170	56.4	4.4	1.8	0.0	173	<1	4.0	10.0		0.16		
	9-Aug-95	dry																
	7-Aug-97	4.0	5.4	7.5	294	160		9.0	2.0	<1	172	<5	8.0	1.0		<0.1		
	9-Oct-97	<0.25	2.0	7.5	295	64	44.0	9.0	2.0	2.0	197	<5	10.0	2.0	0.70	<0.1	<0.1	
	25-Sep-98					198	50.0	9.0	2.0	<1	192	<5	6.0	<1	0.30	<0.1	<0.1	
	15-Sep-99	dry																
	4-Nov-99	0.5	10.0	7.1	272	180	58.8	10.3	0.8	5.8	190	<1	12.0	8.0	1.8	<0.02	0.03	
	21-Jun-00	5.9	3.9	7.96	277	170	45	8	<1	<1	177	<5	4	<1	0.3	<0.1	<0.1	<0.1
	11-Sep-00	0.903	5.8	7.55	299	181	46	9	2	<1	187	<5	6	<1	<0.1	<0.1	<0.1	<0.1
	23-Jun-01	5.83	4.5	7.42	248	147	44	7	2	<1	186	<5	3	<0.5	0.1	<0.1	<0.1	<0.1
	8-Sep-01	1.11	6.3	7.77	285	205	46	9	2	<1	190	<5	7	0.5	<0.1	<0.1	<0.05	<0.05
	27-Oct-01	0.257	6.6	7.62	288	172	48	9	2	<1	196	<5	6.8	0.8	<0.1	<0.1	<0.05	<0.05
	7-Jun-02	3.64	4.6	7.31	269	186	44	8	3	<1.	174	<5.	5	<1.	0.3	<0.1	<0.05	<0.05
	25-Sep-02	0.395	7.4	7.54	279	166	45	10	3	<1.	184	<5.	7	<1.	<0.1	<0.1	<0.05	<0.05
	10-Oct-02	0.361	6.2	7.97	291	163	48	10	3	<1	185	<5	7	1	<0.1	<0.1	<0.05	<0.05
	14-Jun-03	5.86	4.0	7.81	261	176	46.4	7.91	1.12	0.601	165	<5.	3	<1.	0.131	0.01	<0.005	<0.005
	20-Sep-02	0.629	6.0	7.62	292	212	48.7	9.77	1.19	0.654	188	<5.	6	<1.	0.783	<0.005	0.012	<0.005
	22-Oct-03	0.448	6.1	7.48	305	185	48.3	9.42	1.35	0.82	187	<5	7	<1	0.142	0.01	<0.005	<0.005
	14-Jun-04	6.55	4.1	7.55	291	177	49.6	8.01	1.21	0.64	146	< 5.	3	< 1.	0.15	< .03	< .005	< .002
	10-Sep-04	1.09	5.8	7.77	259	144	50.8	9.5	1.43	0.82	149	< 5.	6	< 1.	0.34	< .03	0.004	< .002
	17-Oct-04	0.64	5	7.74	294	166	49.8	9.01	1.52	0.93			10	< 1.	0.35	< .03	0.005	< .002
	19-Jun-05	8.57	4.2	7.48	262	202	53.8	9.32	1.49	0.64	174	< 5.	3	< 1.	0.52	< .03	0.01	< .002
	26-Aug-05	2.94	5.2	7.71	270	181	50.6	9.06	1.27	0.79	182	< 5.	7	< 1.	1.17	< .03	0.059	< .002
	12-Oct-05	0.86	5.5	7.78	252	187	43.5	9.26	2.38	0.88	168	< 5.	7	< 1.	0.36	0.04	0.012	0.002
SP1-3	9-Aug-95	0.3	7.0	8.3	283		37.0	6.0	4.0	<1	152	<5	6.0	3.0	0.20	<0.1	<0.1	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	12-Aug-96	2.0	5.0	7.3	313	150	46.0	8.0	2.0	<1	180	0	7.0	3.0	<.1	<0.1	<0.1	
	24-Oct-96	1.2	6.0	7.5	150	290	48.0	8.0	2.0	<1	389	<5	<2	4.0	0.30		<0.1	
	7-Aug-97	11.5	4.8	7.9	271	140	41.0	7.0	3.0	<1	156	<5	8.0	3.0	1.30	<0.1	<0.1	
	9-Oct-97	1.0	3.0	8.1	367													
	21-May-99	3.0	10.0	6.8	400	261	73.0	14.0	1.0	<1	293	<5	10.0	<1	2.9	<0.1	0.1	
	15-Sep-99	0.5	13.0	7.6	290	220	43.6	9.1	4.0	0.7	174	<1	13.0	6.0	<0.05	<0.02	<0.01	
	4-Nov-99	0.3	8.0	7.3	245	180	50.7	9.3	2.5	0.8	179	<1	13.0	7.0	0.06	<0.02	<0.01	
	21-Jun-00	0.46	6.5	8.11	206													
	11-Sep-00	0.16	4	7.48	288													
	23-Jun-01	0.513	2.2	7.75	197													
	8-Sep-01	0.248	4.5	7.82	273													
	27-Oct-01	0.114	5.6	7.31	282													
	21-Mar-02																	
	7-Jun-02	0.11	2.2	7.69	271													
	25-Sep-02	0.002	10.5	7.84	299													
	10-Oct-02	0.0291	3.8	8.19	277													
	14-Jun-03	0.573	5.3	7.88	190													
	20-Sep-03	0.167	4.6	7.94	267													
	22-Oct-03	0.124	4.4	7.74	287													
	14-Jun-04	0.547	5.6	7.83	230													
	10-Sep-04	0.41	5.2	8.07	245													
	17-Oct-04	0.37	3.4	7.93	271													
	19-Jun-05	0.58	6.2	7.8	215													
	26-Aug-05	0.45	7.8	7.99	267													
	12-Oct-05	0.39	3	8.05	236													
SP-30	18-Jan-90	no flow																
	14-Apr-90	no flow																
	23-Jul-90	no flow																
	9-Oct-90	no flow																
	12-Jan-91	no flow																
	4-Apr-91	no flow																
	21-Jul-91	no flow																
	10-Oct-91	no flow																
	23-Jun-93	dry																
	1-Jul-93	dry																
	25-Oct-93	dry																

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	2-Jun-94	dry																
	12-Sep-94	dry																
	10-Mar-95	dry																
	16-May-95	dry																
	10-Aug-95	dry																
	28-Nov-95	dry																
	16-Aug-96	dry																
	24-Oct-96	dry																
	7-Aug-97	dry																
	9-Oct-97	dry																
	15-Sep-99	dry																
	4-Nov-99	dry																
	13-Sep-00	0.053	13.4	8.16	820													
	9-Dec-00	0.04	4.9	8	660													
	14-Mar-01	0.055	2.5	7.7	744													
	23-Jun-01	0.121	14.1	7.78	796													
	10-Sep-01	0.049	13.9	7.75	769													
	29-Oct-01	0.031	9.7	8.09	822													
	21-Mar-02	0.0347	4.4	7.99	705													
	8-Jun-02	0.035	11.4	7.48	755													
	27-Sep-02	0.0414	10.8	7.94	788													
	19-Nov-02	0.0373	4.6	7.90	741													
	23-Mar-03	0.0407	5.4	7.81	789													
	13-Jun-03	0.0353	11.2	7.97	804													
	26-Sep-03	0.0325	12.5	7.78	804													
	5-Dec-03	0.0295	4.3	7.98	772													
	31-Mar-04	0.0248	7.8	8.1	808													
	18-Jun-04	0.0252	11.1	8.08	857													
	20-Sep-04	0.021	11	8.39	694													
	6-Nov-04	0.204	7.1	7.93	791													
	28-Mar-05	0.029	4.3	8.18	677													
	21-Jun-05	0.032	11.4	7.7	829													
	23-Aug-05	0.04	11.5	7.92	884													
	27-Dec-05	0.069	3.7	7.93	796													
SP-36	25-Sep-88	<1	11.7	7.1	890	504	52.0	98.5	20.1	4.8	537	40	83.4	25.9	<0.05		0.02	
	30-Sep-88	<1	12.5	7.0	914	512	52.0	98.5	20.0	4.8	532	18	85.3	24.9	<0.05		0.02	

Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
	gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Oct-88	<1	7.1	8.5	995	520	48.0	87.6	17.1	2.5	523	0	73.0	11.8	<0.05		<0.01	
23-Jun-89					463	50.9	85.6	16.7	1.9	444	33	120.0	15.0		0.34	<0.01	
27-Jun-90	0.1	6.3		600													
28-Jun-90					476	54.0	83.6	16.9	0.5	587	<1	25.0	20.0		<0.02	<0.01	
19-Aug-90	no flow																
26-Sep-90	no flow																
18-Jun-91	0.7	13.6	8.0	600													
19-Jun-91					482	53.8	79.4	15.0	2.9	459	<1	60.0	85.0		0.45	0.07	
21-Jul-91	0.1	6.4		1100	505	41.2	82.4	15.2	2.6	485	<1	64.0	10.0		<0.02	<0.01	
24-Aug-91	no flow																
21-Sep-91	no flow																
18-Jun-92	0.0	22.9	8.3	910	484	54.1	84.9	18.3	0.0	468	12	69.0	15.0		0.00	0.03	
30-Sep-92	dry																
23-Jun-93	dry																
1-Jul-93	dry																
25-Oct-93	dry																
2-Jun-94	<1	6.0	8.1	840	432	68.2	42.1	8.7	2.1	638	<1	52.4	12.5		0.10	<.01	
12-Sep-94	dry																
10-Mar-95	dry																
16-May-95	dry																
9-Aug-95	dry																
28-Nov-95	dry																
10-Mar-96	dry																
16-May-96	dry																
9-Aug-96	dry																
28-Nov-96	dry																
7-Aug-97	dry																
10-Jun-99	dry																
15-Sep-99	dry																
4-Nov-99	dry																
13-Sep-00	0.023	16.4	7.72	664	364	60	46	8	<1	382	<5	43	7	<0.1	<0.1	<0.1	<0.1
9-Dec-00	0.875	8.2	8.1	613	345	59	44	7	1	374	<5	46	6	<0.1	<0.1	<0.1	<0.1
14-Mar-01	0.950	5.4	7.8	605	377	59	45	8	1	372	<5	52	7	<0.1	<0.1	<0.1	<0.1
23-Jun-01	0.800	9.3	7.88	505	355	61	46	8	1	381	<5	48	7.3	<0.1	<0.1	<0.1	<0.1
10-Sep-01	0.783	11.6	8.07	612	392	63	44	8	1	393	<5	54	8.3	<0.1	<0.1	<0.05	<0.05
29-Oct-01	0.744	11.7	8.03	601	408	63	47	8	1	375	<5	50.4	7.3	<0.1	<0.1	<0.05	<0.05
21-Mar-02	1.26	6.4	7.89	511	285	60	45	8	<1.	371	<5.	50	8	0.1	<0.1	<0.05	<0.05

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	8-Jun-02	1.03	8.9	7.86	631	373	60	46	9	1	368	<5.	49	8	0.1	<0.1	<0.05	<0.05
	27-Sep-02	0.756	11.5	7.8	629	332	61	46	8	1	373	<5.	47	6	<0.1	<0.1	<0.05	<0.05
	19-Nov-02	1.02	9.5	7.96	612	364	58	41	7	1	366	<5	48	6	<0.1	<0.1	<0.05	<0.05
	23-Mar-03	1.28	6.9	7.94	615	364	58.5	44.6	7.46	0.98	360	<5.	50	8	0.04	<0.005	<0.005	<0.005
	13-Jun-03	0.982	9.0	7.92	612	365	62.4	45	6.77	1.11	365	<5.	50	7	0.13	<0.005	0.007	<0.005
	26-Sep-03	0.641	11.5	7.69	642	358	65.6	48.8	6.94	1.37	385	<5.	52	6	0.02	<0.005	<0.005	<0.005
	5-Dec-03	0.810	9.3	7.98	636	387	63.3	46.9	7.58	1.38	377	<5	52	7	<0.02	<0.005	<0.005	<0.005
	31-Mar-04	0.949	7.2	8.07	632	385	63.6	46.6	7.6	1.15	368	< 5.	54	8	< .05	< .03	< .002	< .002
	18-Jun-04	0.84	9.8	7.82	643	370	59.7	44	6.99	1.14	313	< 5.	52	7	< .05	< .03	< .002	< .002
	20-Sep-04	0.599	11.3	8.33	583	364	67.9	49.2	6.89	1.42	305	< 5.	50	6	< .05	< .03	< .002	< .002
	6-Nov-04	0.74	10.7	7.62	618	372	63.5	45.6	7.12	1.32			49	6	< .05	< .03	< .002	< .002
	28-Mar-05	1.00	7.9	7.83	551	406	61.9	45.7	7.59	0.81	361	< 5.	53	8	< .05	< .03	< .002	< .002
	21-Jun-05	0.97	9.4	7.54	626	392	68.8	52.4	8.18	1.31	369	< 5.	57	7	< .05	< .03	< .002	< .002
	23-Sep-05	0.41	11	7.88	673	378	66.7	50.5	7.32	1.28	372	< 5.	53	8	< .05	< .03	< .002	< .002
	27-Dec-05	0.77	6.9	7.97	618	341	64.1	47.6	7.76	1.43	363	< 5.	51	7	< .05	< .03	< .002	< .002
SP-58	31-Jul-88	3.0	5.2	7.9	490	272	68.0	26.8	4.5	1.0	293	0	22.4	4.8		<0.05	<0.01	
	25-Aug-88	7.0	8.9	6.8	545	264	70.0	28.0	5.0	1.1	293	0	23.5	3.8	<0.05		<0.01	
	28-Sep-88	6.0	8.8	7.1	590	248	68.0	29.2	4.9	1.1	296	0	20.8	3.9	<0.05		<0.01	
	31-Oct-88	6.0	5.2	8.0	597	292	68.0	26.8	3.8	1.2	294	0	28.6	3.1	<0.05		<0.01	
	22-Jun-89					390	53.7	24.9	3.6	0.5	265	<1	28.0	15.0		0.08	<0.01	
	31-Aug-89					300	69.9	26.0	31.0	0.8	344	<1	68.0	5.0		0.03	<0.01	
	28-Sep-89					313	59.8	26.2	3.4	0.2	290	<1	20.0	10.0	<0.02		<0.01	
	31-Oct-89					266	58.1	24.8	3.4	0.9	284	<1	200.0	10.0		<0.02	<0.01	
	26-Jun-90	2.0	16.7		500													
	26-Jun-90					254	89.5	25.9	2.1	0.1	330	<1	50.0	15.0		<0.02	<0.01	
	23-Jul-90	2.5	18.9		500													
	24-Jul-90					258	64.0	17.0	2.6	0.1	256	<1	15.0	20.0		<0.02	0.02	
	19-Aug-90	6.0	8.3		400	275	75.2	20.0	9.6	0.1	303	<1	15.0	30.0	<0.02		<0.01	
	27-Sep-90					356	79.1	22.4	7.4	0.5	321	<1	27.0	20.0		<0.02	<0.02	
	26-Sep-90	5.5	8.7		400													
	18-Jun-91	60.0	4.5	7.5	500													
	19-Jun-91					270	58.2	25.7	3.0	1.0	290	<1	25.0	25.0		0.57	0.01	
	19-Jul-91					289	67.9	24.8	3.7	3.2	312	<1	24.0	10.0		<0.02	0.31	
	21-Jul-91	15.0	6.0	7.6	570													
	24-Aug-91	12.0	6.0	7.2	600													
	27-Aug-91					292	80.4	24.2	0.5	0.0	295	<1	26.0	15.0	<0.02		0.03	

Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
	gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
21-Sep-91	10.0	7.0	7.2	600													
24-Sep-91					281	81.3	23.4	3.4	0.0	277	<1	28.0	20.0		0.02	<0.01	
18-Jun-92	10.0	10.0	7.2	694	259	81.0	19.7	1.1	0.0	317	0	5.0	5.0		0.00	0.07	
31-Aug-92	9.7	13.3	8.0	740	275	66.8	19.1	3.7	0.0	275	0	27.0	15.0		0.00	0.00	
3-Jun-93	1100.0	3.0	8.5	300	240	65.4	18.6	3.6	0.1	272	0	16.0	2.7	0.31	<0.05	<0.03	
1-Jul-93	62.0	9.0	8.0	340	237	56.5	15.2	3.3	1.0	242	0	21.0	3.0	0.05	0.05	0.03	
25-Oct-93	87.0	6.0	7.9	410	260	55.0	32.0	3.0	<2	265	<1	26.0	5.0	<0.2	<0.2	0.20	
9-Jun-94	15.0	41.0	7.9	450	232	60.5	22.8	3.2	1.0	306	1	28.0	<2	0.02	<0.01	<0.01	
12-Sep-94	5.0	41.0		571	266	64.0	24.0	3.9	1.2	263	6	34.0	3.8	<.05	<0.05	<0.02	
16-May-95	3.8	7.0	7.8	340	280	61.0	29.0	5.0	1.0	240	20	40.0	5.0	0.30	<0.1	<0.1	
10-Aug-95	125.9	9.0	8.4	368	250	58.0	22.0	5.0	<1	244	14	29.0	4.0	<0.1	<0.1	<0.1	
28-Nov-95	35.8	10.0		572	300	70.0	26.0	5.0	1.0	255	15	35.0	6.0	1.00	<0.1	<0.1	
25-May-97	0.5	7.0	9.0	815	434	73.0	51.9	7.1	1.8	387	<1	71.6	5.1		<0.02		<0.005
27-Jun-97	52.0	7.4	6.7	560	380	81.0	35.0	4.0	1.0	348	<5	90.0	4.0	<0.1	<0.1	<0.1	
15-Aug-97	30.0	5.0	8.0	567	350		35.0	4.0	1.0	353	<5	60.0	3.0		<0.1		<0.01
7-Oct-97	30.0	6.0	8.0	569	350	77.0	34.0	4.0	1.0	350	<5	57.0	6.8	<0.1	<0.1	<0.1	
25-Sep-98					328	71.0	28.0	4.0	1.0	307	<5	42.0	3.0	<0.1	<0.1	<0.1	
10-Jun-99	3.0				253	68.0	19.0	4.0	<1	270	7	17.0	<1	<0.1	<0.1	<0.1	
15-Sep-99	56.0	6.6	8.0	500	360	68.4	27.8	6.6	1.3	285	<1	46.0	7.0	0.04	<0.02	<0.01	
4-Nov-99	4.0	11.0	8.0	499	380	81.4	39.3	3.4	1.6	380	<1	61.0	7.0	0.18	<0.02	<0.01	
20-Jun-00	47.8	4.5	7.76	592	388	74		2	2	340	<5	62	2	<0.1	<0.1	<0.1	<0.1
14-Sep-00	15.4	4.8	7.94	605	349	74	33	4	2	334	<5	69	3	<0.1	<0.1	<0.1	<0.1
8-Dec-00	19.4	4.7	7.6	599	391	76	34	4	1	348	<5	69	3	<0.1	<0.1	<0.1	<0.1
3-May-01	23.75	4.4	7.7	610	377	79	38	3	1	350	<5	73	2	<0.1	<0.1	<0.1	<0.1
7-Sep-01	20.1	5.5	7.56	592	409	77	34	4	1	353	<5	77	3.2	<0.1	<0.1	<0.05	<0.05
28-Oct-01	16.5	5.6	7.77	608	376	82	36	4	2	389	<5	75.2	2.9	<0.1	<0.1	<0.05	<0.05
8-Jun-02	31.6	5.2	7.42	631	414	80	39	5	1	348	<5.	92	3	<0.1	<0.1	<0.05	<0.05
27-Sep-02	18.5	5.6	7.35	590	362	79	35	5	1	332	<5.	80	2	<0.1	<0.1	<0.05	<0.05
6-Nov-02	19.7	5.2	7.86	590	378	79	38	4	1	332	<5	85	2	<0.1	<0.1	<0.05	<0.05
30-Jan-03	17.9	4.9	7.31	626	400	87.7	39.2	4.08	1.72	346	<5.	92	2	<0.02	<0.005	<0.005	<0.005
13-Jun-03	38.9	4.8	7.68	642	436	89.9	40.8	3.86	1.63	332	<5.	119	2	<0.02	<0.005	<0.005	<0.005
26-Sep-03	16.1	5.2	7.20	535	406	88.1	39.6	3.96	1.56	348	<5.	102	2	<0.02	<0.005	<0.005	<0.005
4-Dec-03	18.1	5.2	7.67	647	418	88.1	38	4.95	1.68	344	<5	102	3	<0.02	0.007	<0.005	<0.005
18-Jun-04	41	5.1	7.48	672	443	85.9	39.3	4.37	1.6	282	< 5.	123	3	< .05	< .03	< .002	< .002
20-Sep-04	21.9	5.2	8.09	539	425	94.3	41.1	4.35	1.64	284	< 5.	107	2	< .05	< .03	< .002	< .002
6-Nov-04	20.2	5.4	7.62	589	434	87.7	37.3	4.32	1.54			107	2	< .05	< .03	< .002	< .002
31-May-05	44.9	4.8	7.43	639	499	103	49.3	4.87	1.64	337	< 5.	147	4	< .05	< .03	< .002	< .002

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	25-Aug-05	23.6	5.1	7.57	617	446	92.6	41.5	4.71	1.66	354	< 5.	129	3	< .05	< .03	< .002	< .002
	2-Nov-05	18.9	5.2	7.57	651	436	84.9	38.8	5.07	1.58	339	< 5.	122	3	< .05	< .03	< .002	< .002
LB-12	7-Nov-04	0																
	27-Jul-05	0.14	10.5	7.97	1037													
	2-Sep-05	0.01	11	7.92	908													
	17-Oct-05	0.12	8.9	7.88	931													
LB-5A	27-Jul-05	1.55	8.6	7.57	746	449	64.0	45.0	6.28	1.23	277	<5	106	5	<0.05	<0.03	<0.002	<0.002
	2-Sep-05	1.55	8.7	7.44	740	464	73.8	50.3	7.08	1.47	337	< 5.	119	5	< .05	< .03	< .002	< .002
	17-Oct-05	1.3	8.5	7.68	752	436	89.6	57.3	7.07	1.62	368	< 5.	128	6	0.38	< .03	0.021	< .002
LB-7	27-Jul-05	1.03	11.4	8.31	876													
	2-Sep-05	1.3	8.8	7.92	512													
	21-Oct-05	1.6	8.7	7.92	611													
LB-7A	27-Jul-05	0.12	9.8	8.39	423													
	2-Sep-05	0.11	9.6	8.43	459													
	21-Oct-05	0.11	11.3	8.25	529													
LB-7B	27-Jul-05	0																
	2-Sep-05	0																
	21-Oct-05	0																
LB-7C	27-Jul-05	0.17	19.8	8.4	391													
	2-Sep-05	0.21	19.8	8.44	421													
	21-Oct-05	0.32	16.8	8.44	462													
Little Bear Spring	21-Jun-05	---	8.6	7.61	496	333	68.8	37.6	7.37	1.53	333	< 5.	38	4	< .05	< .03	< .002	< .002
	23-Sep-05	---	8.5	7.68	516	333	65.8	36.1	6.5	1.34	334	< 5.	35	4	< .05	< .03	< .002	< .002
	27-Dec-05	---	8.2	7.58	576	312	65.4	34.9	7.34	1.74	340	< 5.	34	4	< .05	< .03	< .002	< .002
SP-18	20-Jun-05	0.17	6.4	8.08	610													
	23-Sep-05	0.16	6.4	8.04	840													
	25-Oct-05	0.16	3.8	8.18	766													
SP-22	20-Jun-05	1.09	7.6	7.84	506													

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	23-Sep-05	0.05	9.8	8.35	473													
	25-Oct-05	0.1	4.9	7.87	503													
SP-79	27-Jul-05	0.54	9.8	8.05	901	632	75.3	76.0	16.2	5.63	458	<5	20	11	0.24	<0.03	0.033	<0.002
	2-Sep-05	0.38	8.6	8.26	873	661	80.5	76.1	15	5.12	426	< 5	221	15	0.78	< .03	0.07	< .002
	28-Dec-05	1.05	2	8.19	928	594	78.6	77.1	15.2	4.99	411	5	201	14	2.14	< .03	0.152	< .002
DH-1	11-Mar-88	1.0	5.4	8.3	1125		60.0	85.1	14.1	8.0	521	0	88.5	10.0		0.05	<0.01	
	31-May-88	0.2	7.0	7.9	1100		92.0	86.3	14.2	11.0	605	0	63.0	11.8	<0.05		0.03	
	28-Sep-88	1.0	8.2	8.2	460		84.0	82.7	14.8	7.5	312	0	82.5	10.4			<0.01	
	3-Nov-88	0.3	7.6	8.1	1039		58.0	81.5	14.1	7.8	560	0	91.2	8.1	<0.05		0.06	
	31-Mar-89					673	91.1	86.8	15.3	8.1	556	28	150.0	5.0		<0.02	<0.01	
	12-Jun-89					680	104.0	87.2	11.4	6.3	614	<1	150.0	10.0		<0.02	<0.01	
	18-Jan-90	1.0	7.5	7.8	840													
	29-Jan-90					620	92.8	85.1	11.9	6.2	617	<1	100.0	7.5		<0.02	<0.01	
	13-Apr-90					633	120.0	79.5	12.0	8.1	559	<1	170.0	35.0		<0.02	<0.01	
	14-Apr-90	0.0	7.8	7.9	835													
	23-Jul-90	0.0	7.0	7.9	840													
	24-Jul-90					573	83.1	84.5	3.6	6.3	531	<1	100.0	30.0		<0.02	<0.01	
	9-Oct-90	0.0	4.9	8.9	600													
	10-Oct-90					499	87.5	89.9	14.0	5.6	574	<1	130.0	20.0	<0.02	<0.02	<0.01	
	12-Jan-91	0.0	9.5		300													
	14-Jan-91					556	97.2	89.4	15.6	7,41	564	<1	130.0	100.0		0.08	0.30	
	4-Apr-91	0.0	4.4	8.6	500													
	30-Apr-91					560	96.2	84.5	11.4	6.5	602	<1	90.0	30.0	<0.02		<0.01	
	1-Jul-91	0.0	7.2	9.1	710	557	84.6	58.0	23.1	8.0	543	<1	76.0	10.0		<0.02	0.22	
	11-Oct-91	0.0	8.0	8.0	900	595	79.0	82.3	13.9	2.3	584	<1	100.0	10.0		0.07		
	8-Mar-92	dry																
	2-Jun-92	dry																
	22-Sep-92	dry																
	16-Dec-92	dry																
	2-Mar-94	dry																
	6-Jun-94	dry																
	28-Sep-94	dry																
	20-Dec-94	dry																
	29-Mar-95	dry																

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	27-Jun-95	dry																
	27-Sep-95	dry																
	18-Mar-99	dry																
	24-Jun-99	dry																
	15-Sep-99	dry																
	7-Dec-99	dry																
	30-Mar-00	dry																
	27-Jun-00	dry																
	27-Sep-00	dry																
	14-Dec-00	dry																
	13-Mar-01	dry																
	1-May-01	dry																
	27-Sep-01	dry																
	3-Dec-01	dry																
	27-Mar-02	dry																
	20-Jun-02	dry																
	25-Sep-02	dry																
	26-Dec-02	dry																
	28-Mar-05	dry																
	28-Jun-05	dry																
	22-Aug-05	dry																
	22-Nov-05	dry																
MW-1	11-Mar-88	185.0	9.5	7.7	530	308	34.0	25.5	32.5	6.4	284	0	6.6	5.3		0.05	<0.01	
	31-May-88	185.5	8.2	8.6	350	240	34.2	24.2	33.4	0.0	284	0	5.7	4.5	0.14		0.01	
	28-Sep-88	186.7	19.0	7.1	460	240	34.0	24.3	44.0	4.7	295	0	5.1	5.3	<0.05		0.02	
	3-Nov-88		10.9	10.9	460	196	32.0	17.0	39.1	4.3	282	0	5.7	3.5	<0.05		<0.01	
	31-Mar-89					312	23.8	16.5	69.7	4.5	301	<1	24.0	10.0		<0.02	<0.01	
	12-Jun-89					392	25.1	18.0	77.2	3.8	285	<1	50.0	20.0		0.06	<0.01	
	3-Oct-89					341	15.7	13.2	78.6	3.2	311	<1	10.0	15.0		<0.02	<0.01	
	18-Dec-89					292	20.6	14.5	74.0	2.1	311	<1	23.0	15.0		0.31	0.05	
	18-Jan-90		10.2	8.1	450													
	29-Jan-90					300	31.0	17.0	65.2	0.2	314	<1	24.0	10.0		<0.02	<0.01	
	13-Apr-90					279	31.2	13.7	64.1	6.4	303	<1	18.0	10.0		<0.02	<0.01	
	14-Apr-90	2.0	10.3	7.8														
	1-Jul-90	0.0	10.3	8.1														

Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
	gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
24-Jul-90					307	22.4	12.2	74.4	3.5	315	<1	5.0	25.0		<0.02	0.02	
9-Oct-90		6.2	8.4	400													
10-Oct-90					261	21.0	13.1	86.1	2.8	339	<1	15.0	10.0	<0.02		<0.01	
20-Dec-90					247	29.3	11.1	73.6	2.9	297	<1	27.0	15.0	0.13		<0.01	
11-Jan-91					247	29.3	11.1	73.6	2.9	297	<1	27.0	15.0	0.13		<0.01	
12-Jan-91		7.7	8.2	300													
14-Jan-91					288	30.5	20.0	76.9	12.2	346	<1	21.0	14.5		0.03	0.28	
4-Apr-91	4.8	7.2	8.0	400	306	25.1	7.2	69.4	2.3	280	<1	18.0	25.0	<0.02	<0.02	<0.01	
21-Jul-91					298	22.4	14.6	71.4	4.2	298	<1	14.0	15.0		0.02	<0.01	
11-Oct-91		12.0	7.8	700	289	24.2	4.6	8.6	0.0	289	<1	23.0	15.0		0.07		
10-Dec-91					265	21.8	15.1	68.8	6.8	316	0	21.0	10.0		0.00	0.00	
8-Mar-92		12.2	7.9		326	27.2	12.4	96.5	3.8	334	0	27.0	10.0	0.00		0.00	
24-Jun-92		12.2	8.0		288	26.9	9.2	84.8	5.0	287	0	28.0	15.0	0.00		0.00	
22-Sep-92		12.2	7.6		372	27.9	17.1	51.7	61.8	281	0	60.0	45.0	0.00		0.02	
8-Dec-92		13.1	7.3		252	10.9	1.4	88.0	2.1	291	0	27.0	15.0	0.08		0.00	
4-Mar-93	1.1	12.8	7.5	532		18.9	14.5	71.4	3.4	285	0	21.0	0.1		6.80	0.47	
15-Jun-93	6.0	14.6	7.3	561	333	20.2	14.9	68.3	2.4	284	0	20.0	26.3		0.05	<0.03	
16-Sep-93	1.8	11.3	7.9	568	333	19.6	18.0	90.0	4.0	283	0	17.0	28.9	0.16	<0.05	<0.03	
7-Dec-93	3.0	12.4	6.7	528	353	19.0	16.0	70.0	9.0	233	<1	20.0	31.0	0.02	<0.02	<0.1	
2-Mar-94	0.4	56.0	6.7	554	292	27.0	10.0	78.0	4.0	284	0	19.0	15.0		0.08	<.02	
6-Jun-94	2.3	56.3	6.7	785	290	25.0	17.0	69.0	0.4	299	0	21.0	10.0		<0.05	<.02	
28-Sep-94	0.6	58.7	6.3	920	315	18.0	14.0	80.0	16.0	291	0	19.0	26.0		0.09	<.02	
20-Dec-94	0.5	56.2	7.0	860	300	18.0	13.0	75.0	4.0	262	0	18.0	14.0		<0.1	<0.1	
29-Mar-95					230	24.0	20.0	69.0	4.0	275	<5	17.0	12.0		<0.1		<0.1
7-Jun-95	0.5	12.0			290	20.0	16.0	73.0	4.0	260	15	18.0	14.0		<0.1		<0.1
27-Sep-95	0.5	15.0	7.9	540	410	110.0	43.0	14.0	5.0	475	<5	26.0	7.0		<0.1		<0.1
18-Dec-95	0.5	15.0	7.7	705	300	21.0	16.0	69.0	4.0	295	<5	17.0	13.0		<0.1		<0.1
26-Mar-96					268	19.0	15.0	72.0	3.8	302	<2	37.0	13.0		<0.03		<.04
19-Jun-96	0.5	15.4	7.7	508	296	20.0	15.0	73.0	4.0	296	<5	18.0			<0.1		<0.1
30-Sep-96					442	85.0	47.0	15.0	6.0	460	<5	39.0	13.0		0.10		<0.1
30-Oct-96	0.4	14.5	8.1	498	298	20.0	14.0	72.0	4.0	308	<5	18.0	13.0		<0.1		<0.1
3-Feb-97		12.7	8.0	500	244	19.0	16.0	73.0	4.0	293	<5	18.0	12.0	0.80	<0.1	<0.1	
22-May-97	0.4	10.4	7.8	504	280	19.0	13.0	66.0	3.0	299	<5	18.0	12.0	0.40	<0.4	<0.1	
30-Dec-97	0.4	13.2	7.5	496	290	21.0	16.0	67.0	3.0	307	<5	18.0	7.0	<0.1	<0.1	<0.1	
31-Mar-98	0.1	12.6	7.7	530	279	20.0	16.0	67.0	4.0	305	<5	15.0	12.0	<0.1	<0.1	<0.1	
28-May-98	0.2	12.6	7.6	518	279	21.0	15.0	76.0	4.0	300	<5	15.0	11.0	2.10	<0.1	<0.1	
24-Jun-99	0.0	12.5	7.9	490	258	22.0	15.0	73.0	5.0	303	<5	17.0	12.0	<0.1	<0.1	<0.1	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	15-Sep-99	0.0																
	7-Dec-99	0.0																
	30-Mar-00	0.30	13.4	8.3	491	298	22	17	74	4	297	<5	18	12	<0.1	<0.1		<0.1
	27-Jun-00	0.67	14.2	7.3	494	260	19	15	71	4	300	<5	18	11	<0.1	<0.1	<0.1	<0.1
	27-Sep-00	0.7	14.7	7.3	494	266	19	15	73	4	295	<5	19	13	0.4	<0.1	<0.1	<0.1
	14-Dec-00	0.5	13.4	8	545	285	18	14	68	4	303	<5	16	10	<0.1	<0.1	<0.1	<0.1
	13-Mar-01	0																
	1-May-01	0																
	27-Sep-01	0																
	3-Dec-01	0.3	10.9	8	476	274	22	16	64	4	296	<5	15	9.4	0.7	<0.1	<0.05	<0.05
	27-Mar-02	0																
	20-Jun-02	0																
	25-Sep-02	0																
	26-Dec-02	0																
	27-Feb-04	0																
	17-Jun-04	0																
	30-Sep-04	0																
	25-Oct-04	0																
	28-Mar-05	0																
	28-Jun-05	0																
	22-Aug-05	0																
	22-Nov-05	0																
MW-2	21-Jun-89					614	121.2	67.6	22.4	0.7	368	<1	290.0	10.0		1.9	0.1	
	2-Oct-89					464	75.8	47.6	16.9	7.2	410	<1	80.0	10.0		1.1	0.1	
	30-Jan-90						852.0	146.3	22.6	27.7			16.50.0		44	30.7	0.6	
	30-Apr-90					990	463.2	77.9	13.9	41.6	510	<1	800.0	15.0		0.0	0.8	
	23-Jul-90	57.8 feet	10.0	7.8														
	24-Jul-90					254	118.3	47.4	18.8	7.4	448	<1	150.0	20.0		<0.02	0.1	
	9-Oct-90	54.0 feet	9.6	7.9	700													
	10-Oct-90					492	135.5	48.9	19.9	5.4	422	<1	200.0	20.0	2	1.4	0.1	
	12-Jan-91	72.2 feet	11.4	7.5	500													
	14-Jan-91					592	149.9	57.8	61.0	10.5	507	<1	180.0	125.0		2.1	0.2	
	4-Apr-91	52.6 feet	11.3	7.8	600	540	108.4	52.9	18.3	13.1	398	<1	170.0	45.0	1	0.0	0.1	
	21-Jul-91					388	73.5	31.7	11.9	7.2	402	<1	18.0	10.0		0.0	0.0	
	11-Oct-91	55.2 feet	11.0	7.2	800	389	89.3	40.0	13.7	0.0	425	<1	25.0	10.0		0.2		
	10-Dec-91					369	74.8	37.5	1.1	6.7	398	<1	23.0	15.0		1.9	0.0	

Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
	gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
8-Mar-92	56.0 feet	10.0	7.2	500	361	95.9	39.3	12.5	5.3	447	<1	17.0	15.0		0.0	0.0	
2-Jun-92	56.6 feet	8.3	7.7		420	94.4	41.4	15.1	6.6	457	<1	60.0	20.0		0.3	0.0	
15-Sep-92	53.5 feet	13.3	7.6		364	90.2	49.1	10.9	7.7	461	<1	27.0	15.0	5	4.9	0.0	
16-Dec-92	53.3 feet	9.7	7.3	813	313	158.0	63.2	14.6	5.1	424	<1	310.0	10.0	4	4.2	0.1	
4-Mar-93	53.5 feet	11.7	7.4	768	200	84.6	44.6	12.9	4.2	434	<1	70.0	0.1	41	37	0	
15-Jun-93	53.9 feet	12.2	7.4	748		67.2	37.6	12.3	4.6	423	<1	32.0	4.8		0	<0.03	
16-Sep-93	52.8 feet	11.0	7.4	754		76.3	16.0	85.0	4.0	446	<1	11.0	4.8	3	<0.05	<0.03	
7-Dec-93	52.4 feet	11.4	7.2	672		77.0	45.0	14.0	6.0	355	<1	30.0	5.0	3	<0.02	<0.10	
2-Mar-94	52.3 feet	53.0	7.4	694	416	81.0	45.0	15.0	5.0	476	<5	31.0	5.2		1	<0.02	
6-Jun-94	52.0 feet	53.7	6.4	910	390	33.0	74.0	15.0	5.6	468	<5	30.0	3.1		3	0	
28-Sep-94	51.6 feet	54.0	7.0	724	413	79.0	45.0	14.0	5.9	442	<5	47.0	3.7		2	0	
20-Dec-94	51.7 feet	55.0	7.0	810	420	80.0	44.0	15.0	6.0	418	<5	30.0	5.0		<.1	<0.1	
29-Mar-95					370	89.0	46.0	14.0	5.0	425	<5	26.0	6.0		0	<0.1	
27-Jun-95		12.0			430	73.0	45.0	15.0	5.0	460	<5	21.0	7.0		<0.1	<0.1	
27-Sep-95		12.9	7.6	782	410	110.0	43.0	14.0	5.0	475	<5	26.0	7.0		<0.1	<0.1	
18-Dec-95	51.2 feet	12.5	7.3	1178	470	78.0	43.0	19.0	5.0	450	<5	41.0	6.0		<0.1	<0.1	
3-Feb-97		10.9	7.3	731	413	74.0	41.0	14.0	5.0	450	<5	39.0	5.0	5	<0.1	<0.1	
22-May-97	49.4 feet	11.6	7.1	706	430	77.0	42.0	12.0	4.0	455	<5	51.0	7.0	2	<0.1	<0.1	
21-Aug-97	51.6 feet	11.9	6.5	713	390	88.0	47.0	19.0	6.0	427	<5	59.0	6.0	2	<0.1	<0.1	
30-Dec-97	flooded																
31-Mar-98	flooded																
28-May-98	flooded																
18-Mar-99	flooded																
24-Jun-99	flooded																
15-Sep-99	flooded																
7-Dec-99	flooded																
30-Mar-00	flooded																
27-Jun-00	flooded																
27-Sep-00	flooded																
14-Dec-00	flooded																
13-Mar-01	flooded																
1-May-01	flooded																
27-Sep-01	flooded																
3-Dec-01	flooded																
27-Mar-02	flooded																
20-Jun-02	flooded																
25-Sep-02	flooded																

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^{-}	CO_3^{-}	SO_4^{2-}	Cl^{-}	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	26-Dec-02	flooded																
	27-Feb-04	flooded																
	17-Jun-04	flooded																
	30-Sep-04	flooded																
	25-Oct-04	flooded																
	28-Mar-05	flooded																
	28-Jun-05	flooded																
	22-Aug-05	flooded																
	22-Nov-05	flooded																
MW-3	21-Jun-89					572	74.0	48.4	24.3	6.8	349	<1	110.0	15.0		3.13	0.23	
	2-Oct-89					797	150.0	73.6	30.7	13.5	394	<1	410.0	20.0		<0.02	0.13	
	18-Mar-99	Inaccessible																
MW-4	4-Mar-93	dry																
	15-Jun-93	dry																
	16-Sep-93	dry																
	17-Feb-93	dry																
	2-Mar-94	dry																
	6-Jun-94	dry																
	28-Sep-94	dry																
	20-Dec-94	dry																
	29-Mar-95	dry																
	27-Jun-95	dry																
	27-Sep-95	dry																
	18-Mar-99	Inaccessible																
MW-5	22-Sep-92	dry																
	8-Dec-92	dry																
	4-Mar-93	dry																
	15-Jun-93					1352	850.0	356.0	18.2	9.7				3.3	26.6		0.91	
	16-Sep-93	109 ft	12.5	7.5	104	759	157.0	90.0	8.7	8.0	411	<5	250.0	12.1	1.0		0.14	
	7-Dec-93	108.8 ft	12.1	7.2	953	650	51.0	120.0	8.0	11.0	320	<1	250.0	8.0	8.0		0.30	
	2-Mar-94	111.0 ft	12.3	7.1	920	653	120.0	69.0	9.2	8.0	400	<5	245.0	5.2				
	6-Jun-94	111.0 ft	11.9	6.2	1063	655	34.0	114.0	9.9	20.0	394	<5	267.0	16.0		5.5	0.24	
	28-Sep-94	dry																
	20-Dec-94	51.5 ft	13.3	7.5	890	740	505.0	224.0	9.0	9.0	577	<5	130.0	12.0		<0.1	0.60	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	18-Dec-95	108.2 ft	13.2	7.4	1132	650	108.0	58.0	7.0	5.0	520	<5	214.0	7.0		<0.1	0.10	
	18-Mar-99	destroyed																
MW-6a	6-May-97		14.2	8.2	544	320	46.0	32.0	22.0	12.0	243	<5	61.0	17.0	0.8	<0.1	0.40	
	28-May-98		12.5	7.1	524	330	63.0	36.0	13.0	5.0	310	<5	33.0	9.0	1.8	<0.1	0.20	
	18-Mar-99	1.8 feet	13.1	7.7	519	317	41.0	35.0	11.0	5.0	311	<5	5.0	6.0	0.5	<0.1	<0.1	
	24-Jun-99	inaccessible																
	15-Sep-99	2.3 feet																
	7-Dec-99	4.5 feet	12.5	8.1	526	294	62.0	39.0	15.0	4.0	343	<5	32.0	3.0	0.4	<0.1	<0.1	
	30-Mar-00	2 feet	12.5	7.9	526	303	53	38	13	4	340	<5	34	3	0.2	<0.1		<0.1
	27-Jun-00	0.8 feet	13.3	8.00	480	263	48	31	8	3	305	<5	28	4	3.6	<0.1	<0.1	0.1
	27-Sep-00	0.8 feet	13.3	8.00	480	265	46	32	9	4	294	<5	34	5	0.6	<0.1	<0.1	<0.1
	14-Dec-00	1.5 feet	12.9	8.2	489	270	45	30	9	3	300	<5	14	2	0.6	<0.1	<0.1	<0.1
	13-Mar-01	Impacted by mining, inaccessible																
MW-8	5-Jun-97	dry	14.1	7.8	547	340	64.0	37.0	17.0	6.0	317	<5	40.0	8.0	3.7	<0.1	<0.1	
	21-Aug-97	51.6 feet	14.3	7.2	507	280	60.0	35.0	13.0	4.0	308	<5	36.0	4.0	3.2	<0.1	0.10	
	30-Dec-97	2.1 feet	12.7	6.5	504	260	53.0	35.0	13.0	4.0	306	<5	39.0	2.0	5.2	<0.1	<0.1	
	31-Mar-98	2.2 feet	13.4	7.7	52	284	57.0	34.0	12.0	5.0	327	<5	33.0	5.0	2.1	<0.1	<0.1	
	28-May-98		12.9	7.8	506	274	53.0	35.0	13.0	4.0	311	<5	29.0	4.0	2.8	<0.1	<0.1	
	18-Mar-99	2.3 feet	13.3	7.7	512	348	52.0	35.0	13.0	4.0	309	<5	35.0	33.0	2.2	<0.1	<0.1	
	24-Jun-99	2.2 feet	11.7	7.4	511	267	64.0	38.0	13.0		328	<5	40.0	3.0	3.8	<0.1	<0.1	
	15-Sep-99	2.5 feet																
	7-Dec-99	4.5 feet	13.0	7.6	524	305	53.0	37.0	13.0	4.0	332	<5	38.0	4.0	0.7	<0.1	<0.1	
	30-Mar-00	2.2 feet	13	7.5	519	310	67	42	13	4	304	<5	41	3	1.3	<0.1		<0.1
	27-Jun-00	2.2 feet	13.6	7.1	515	275	48	33	12	4	320	<5	38	3	0.7	<0.1	<0.1	<0.1
	27-Sep-00	2.2 feet	13.6	7.1	515	257	47	33	13	4	309	<5	40	3	0.6	<0.1	<0.1	<0.1
	14-Dec-00	2.1 feet	13.3	8	518	275	46	32	12	4	312	<5	34	2	0.8	<0.1	<0.1	<0.1
	13-Mar-01	Impacted by mining, inaccessible																
MW-6	5-Jun-97		13.3	12.6	6170	1390	742.0	5.0	62.0	24.0	<5	128	48.0	40.7	1.60	<0.1	0.20	
	22-Aug-97	3.3 feet	13.8	10.8	960	280	60.0	4.0	49.0	6.0	<5	35	27.0	8.0	0.70	<0.1	<0.1	
	30-Dec-97	0.8 feet	11.9	10.1	635	1030	69.0	6.0	48.0	7.0	<5	24	15.0	4.0	2.80	<0.1	<0.1	
	31-Mar-98	0.1 feet	13.5	11.8	488	1009	450.0	2.0	31.0	9.0	<5	56	20.0	13.0	0.60	<0.1	1.00	
	28-May-98		12.4	11.5	461	985	304.0	1.0	29.0	9.0	<5	233	23.0	16.7	0.60	<0.1	<0.1	
	16-Sep-98		12.9	11.8	6075	1344	397.0	<1	29.0	9.0	<5	35	12.0	2.0	0.20	<0.1	<0.1	
	18-Mar-99	0.0 feet	13.3	12.3	6780	1404	626.0	2.0	31.0	9.0	<5	39	10.0	5.0	0.2	<0.1	<0.1	

	Date	flow	T	pH	Cond.	TDS	Ca^{2+}	Mg^{2+}	Na^{+}	K^{+}	HCO_3^-	CO_3^-	SO_4^{2-}	Cl^-	Fe(T)	Fe(d)	Mn(T)	Mn(d)
		gpm	°C		µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
	15-Sep-99	---	13.5	12.2	6290	1241	600.0	10.0	26.0	9.0	<5	57	11.0	8.0	0.3	<0.1	<0.1	
	7-Dec-99	0.0 feet	12.5	12.1	6640	1345	604.0	4.0	28.0	8.0	<5	86	14.0	7.0	0.3	<0.1	<0.1	
	27-Jun-00	0.0 feet	13.8	12.2	6190	1223	546	<1	25	7	<5	40	18	8	0.1	<0.1	<0.1	<0.1
	27-Sep-00	0.0 feet	13.8	12.27	6190	866	343	<1	22	6	31	<5	36	6	0.1	<0.1	<0.1	<0.1
	14-Dec-00	0.0 feet	13	12.5	4090	808	270	<1	21	6	<5	38	16	7	<0.1	<0.1	<0.1	<0.1
	13-Mar-01	Impacted by mining, inaccessible																
MW-7	5-Jun-97		12.1	7.7	511	310	62.0	<0.1	4.0	2.0	319	<5	33.0	6.2	0	<0.1	32.00	<0.1
	21-Aug-97	0.2	11.0	6.7	496	270	63.0	33.0	5.0	2.0	314	<5	30.0	5.0	0	<0.1	<0.1	
	11-Feb-98		20.1	7.4	520	3	58.0	31.0	3.0	2.0	323	<5	31.0	5.0	0	<0.1	<0.1	<0.1
	28-May-98	0.1	10.7	6.9	514	301	60.0	34.0	5.0	2.0	312	<5	83.0	10.0	0	<0.1	<0.1	
	16-Sep-98	0.1	11.2	7.3	577	35	61.0	32.0	4.0	2.0	324	<5	33.0	4.0	0	<0.1	<0.1	
	25-May-99		10.9	8.0	578	323							61.0	6.0				
	7-Dec-99	0.1	10.5	7.0	517	281	61.0	32.0	4.0	3.0	327	<5	29.0	4.0		<0.1	<0.1	
	30-Mar-00	0.11	10.5	7.5	503	200	63	35	4	2	313	<5	34	4	1.3	<0.1		<0.1
	27-Jun-00	0.12	11	7.6	500	263	58	32	4	2	321	<5	32	3	0.2	<0.1	<0.1	<0.1
	27-Sep-00	0.1	11	7.6	500	283	57	32	5	2	313	<5	34	4	3.1	<0.1	<0.1	<0.1
	14-Dec-00	0.1	11.1	7.8	512	288	56	30	4	2	316	<5	29	3	0.2	<0.1	<0.1	<0.1
	13-Mar-01					323	56	32	4	2	314	<5	32	3	0.2	<0.1	<0.1	<0.1
	1-May-01	0.1	11.6	7.6	499	275	58	32	3	2	313	<5	32	3	0.3	<0.1	<0.1	<0.1
	27-Sep-01		12.2	7.8	487	314	56	32	5	2	316	<5	26.1	5	0.1	<0.1	<0.05	<0.05
	3-Dec-01	0.1	10.5	7.5	494	282	57	32	5	2	306	<5	28	3	0.2	<0.1	<0.05	<0.05
	27-Mar-02	0.1	11.9	7.5	487	323	55	31	4	2	313	<5.	31	3	0.2	<0.1	<0.05	<0.05
	20-Jun-02	0.2	12.8	7.3	480	283	36	24	32	6	226	<5.	69	9	<0.1	<0.1	<0.05	<0.05
	25-Sep-02	0.05	11.5	6.8	488	310	51	31	6	2	300	<5.	30	3	0.2	<0.1	<0.05	<0.05
	26-Dec-02	0.9		7.83	502	286	42	25	25	6	215	<5	68	7	<0.1	<0.1	<0.05	<0.05
	31-Jan-03	Well area inaccessible																

Table 3 GENWAL UPDES Chemistry and discharge

Genwal Mine Discharge 002 chemistry for report.xls 17 Mar 2005

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
Mine discharge (UPDES 002)											
01-Jan-96	yes	101		8.14	624	367	<5				<2
01-Feb-96	yes	92		8.23	650	361	10	0.3	<0.1		<2
01-Mar-96	yes	66	12.3	7.46	657	432	<5		0.02		5
01-Apr-96	yes	69		7.81		370	14	0.5	0.05		7
01-May-96	yes	66		8.33	633	380	<5		0.03		4
01-Jun-96	yes	176	14.8	7.62	622	433	<5		0.02		4
01-Jul-96	yes	397	12.2	7.3		216	<5		<0.1		
01-Aug-96	yes	342		8.45							
01-Sep-96	yes	322		7.43	712	439	<5	<0.1	<0.1		<2
01-Oct-96	yes	269		7.4		422	<5		<0.1		
01-Nov-96	yes	206		7.6		422	10		2		
01-Dec-96	yes	333		7.7		457	8		0.2		
01-Jan-97	yes	396	11.6	7.5	816	460	<5	<0.1	0.2		<2
01-Feb-97	yes	316	12.1	7.7	808	490	<5	<0.1	0.2		<2
01-Mar-97	yes	325	12.5	7.8	779	460	<5	<0.1	0.2		<2
01-Apr-97	yes	254	11.7	7.6	773	470	<5	<0.1	0.3		
01-May-97	yes	240	12.3	7.4	855	480	<5	<0.1	0.2		<2
01-Jun-97	yes	238	12.2	6.7	726	490	<5	<0.1	0.2		<2
01-Jul-97	yes	278	13	6.7	731	470	<5	<0.1	<0.1		
01-Aug-97	yes	198	12.4	6.75	728	470	<5	<0.1	0.2		
01-Sep-97	yes	269	13.3	6.8	728	490	<5	<0.1	0.2		<2
01-Oct-97	yes	378	11.6	7	721	440	<5	<0.1	0.3		
01-Nov-97	yes	404									
01-Dec-97	yes	397	11.8	6.6	741	450	<5	<0.1	0.2		
01-Jan-98	yes	384	13.3	7	740	450	<5	<0.1	0.2		
01-Feb-98	yes	349	11.7	7.65	762	460	4	<0.1	0.1		
01-Mar-98	yes	326	10.4	7.05	783	472	<5	<0.1	0.2		
01-Apr-98	yes	316	12.1	7.7	795	433	4	<0.1	0.2		
01-May-98	yes	527	12.3	7.4	855	480	<5	<0.1	0.2		<2

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
01-Jun-98	yes	615	13.5	7.6	726	477	8	<0.1	0.2		
01-Jul-98	yes	688	13.4	7.85	666	427	<5	<0.1	<0.1		
01-Aug-98	yes	637									
01-Sep-98	yes	665	13.2	7.55	690	467	<5	<0.1	<0.1		<2
01-Oct-98	yes	689	12.2	7.1	653	449	23	<0.1	0.3		
01-Nov-98	yes	598	11.6	7.8	646	420	<5	<0.1	<0.1		<2
01-Dec-98	yes	578	10.9	7.7	660	411	<5	<0.1	<0.1		
01-Jan-99	yes	569	10.1	7.6	640	400	<5	<0.1	<0.1		<2
01-Feb-99	yes	607	10.4	7.4	722	445	<5	<0.1	<0.1		
01-Mar-99	yes	580	11.2	7.6	639	418	<5	<0.1	<0.1		<2
01-Apr-99	yes	565	11.2	7.7	664	335	<5	<0.1	<0.1	4.1	
01-May-99	yes	556	9	7.8	667	384	<5	<0.1	<0.1		
01-Jun-99	yes	622	12.8	7.8	685	397	<5	<0.1	<0.1	7.3	<2
01-Jul-99	yes	214	14.4	7.42	699	427	<5	<0.1	0.3	4.3	
01-Aug-99	yes	220	14.3	7.3	721	430	<5	<0.1	<0.1	2.3	
01-Sep-99	yes	208	11.9	7.4	730	428	<5	<0.1	<0.1		<2
01-Oct-99	yes	357	12.3	7.8	734	448	<5	<0.1	<0.1		
01-Nov-99	yes	875	11.4	7.8	692	413	<5	<0.1	<0.1		<2
01-Dec-99	yes	839	12.3	6.8	684	412	<5	<0.1	<0.1	10.4	<2
24-Jan-00	yes	760	11.5	8.0	666	405	<5	<0.1	<0.1	5.7	
14-Feb-00	yes	654	11.5	7.8	675	402	<5	<0.1	0.1	4.1	
30-Mar-00	yes	665	11.5	7.4	681	395	<5	<0.1	<0.1		<2
25-Apr-00	yes	703	11.7	8.2	704	431	<5	<0.1	<0.1		
30-May-00	yes	655	13.3	8.1	714	456	6			5.1	<2
27-Jun-00	yes	772	11.9	7.1	715	420	<5	<0.1	<0.1	8.8	
31-Jul-00	yes	766	16.6	7.7	731	457	<5	<0.1	<0.1	7.8	<2
29-Aug-00	yes	687	16.9	6.9	724	443	<5	<0.1	0.2	6.8	<2
27-Sep-00	yes	623	11.9	7.1	715	407	<5	<0.1	<0.1	8.8	<2
25-Oct-00	yes	705	12.8	7.7	676	413	6	<0.1	<0.1	10.2	
27-Nov-00	yes	675	12.1	7.5	675	401	<5	<0.1	<0.1	9.1	
07-Dec-00	yes	754	12.1	7.3	691	442	<5	<0.1	<0.1	7.8	4
25-Jan-01	yes	1040	7.4	7.4	698	402	<5	<0.1	<0.1	8.5	4
15-Feb-01	yes	1050	7.8	7.8	709	412	<5	<0.1	<0.1	9.5	<2
13-Mar-01	yes	1020	11.7	7.1	708	454	<5	<0.1	<0.1	5.1	<2

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
27-Apr-01	yes	1050	9.6	7.8	707	419	<5	<0.1		6.8	<2
30-May-01	yes	1040	13.2	7.6	686	412	<5	<0.1		6.1	<2
19-Jun-01	yes	1040	14.4	7.1	720	449	<5	<0.1	<0.1	10.6	
19-Jul-01	yes	1040	14.1	6.9	730	499	<5	<0.1	<0.1	8.8	<2
23-Aug-01	yes	1040	14.9	7.1	708	478	<5	<0.1	<0.1	8	<2
27-Sep-01	yes	1040	12.3	7.4	685	456	<5	<0.1	<0.1	8.2	<2
25-Oct-01	yes	1030	11.5	7.1	681	438	<5	<0.1	<0.1	9.3	
27-Nov-01	yes	1020	7.1	7.3	693	451	<5	<0.1	0.1	6.2	
05-Dec-01	yes	780	11.2	7.6	697	438	<5	<0.1	<0.1	4.8	<2
14-Jan-02	yes	604	9	7.1	700	390	<5	<0.1	<0.1	8.2	
10-Feb-02	yes	1020	8.3	7.9	698	420	<5.	<0.1	<0.1	9.6	
27-Mar-02	yes	1020	10.8	7.2	667	443		<0.1	<0.1	9.6	<2.
24-Apr-02	yes	900	12.8	7.8	686	448	<5.	<0.1	<0.1	11.2	
9-May-02	yes	900	8.88	7.7	687	442	6	<0.1	<0.1	8.2	
20-Jun-02	yes	900	14.2	7.7	688	425	<5.	<0.1	<0.1	9	<2.
22-Jul-02	yes	900	14.8	7.7	712	424	<5.	<0.1	<0.1	7.1	
29-Aug-02	yes	900	12.7	7.5	694	458	<5.	<0.1	<0.1	6.8	<2.
25-Sep-02	yes	900	12.7	7.4	720	456	<5.	<0.1	<0.1	6.8	<2.
10-Oct-02	yes	900	9.0	7.4	712	440	<5	<0.1	<0.1	6.8	
10-Nov-02	yes	900	9.0	7.4	714	395	5	<0.1	<0.1	7.8	
26-Dec-02	yes	900	9.1	7.5	710	422	<5	<0.1	<0.1	7.6	<2
31-Jan-03	yes	700	11.1	7.4	672	398	<5.	<0.005	0.069	6.4	
11-Feb-03	yes	250	8.2	7.3	695	395	<5.	<0.005	0.091	6.8	
4-Mar-03	yes	975	11.2	7.7	687	417	<5.	<0.005	0.03	2.2	3
16-Apr-03	yes	1050	7.6	7.2	703	448	<5	<0.005	0.135	6.8	2
22-May-03	yes	900	13.6	7.8	711	427	<5	<0.005	0.021	8.1	<2
25-Jun-03	yes	1050	13.2	7.8	739	430	<5	<0.005	0.028	8.4	
28-Jul-03	yes	900	13.5	7.9	772	499	6	<0.005	0.301	8.1	
18-Aug-03	yes	1050	12.9	7.7	796	504	<5	<0.005	<0.02	9.7	<2
25-Sep-03	yes	1050	14.1	7.6	776	501	<5	0.012	0.059	8.9	
29-Oct-03	yes	1050	10.0	7.9	799	494	<5	<0.005	0.031	8.6	<2
30-Oct-03	yes	1050	10.0	7.9	806	549	<5	0.018	<0.02	8.6	
30-Nov-03	yes	1050	9.5	7.4	833	508	<5	0.007	0.079	4.7	
29-Dec-03	yes	1050	8.0	7.8	796	471	<5	<0.005	0.041	2.5	<2

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
29-Jan-04	yes	900	9.2	7.9	810	511	< 5.	< .03	< .05	6.8	< 2.
27-Feb-04	yes	900	9	7.5	810	467	< 5.	< .03	0.302	6.5	< 2.
15-Mar-04	yes	900	9.2	7.6	805	518	< 5.	< .03	0.07	7.3	< 2.
29-Apr-04	yes	900	11.2	7.8	755	526	< 5.	< .03	0.08	9.0	< 2.
27-May-04	yes	900	11.1	7.2	757	491	< 5.	< .03	0.2	8.5	< 2.
17-Jun-04	yes	900	13.5	7.3	740	498	< 5.	< .03	0.16	8.7	< 2.
26-Jul-04	yes	900	15.1	7.2	756	517	5	< .03	1.08	9.3	< 2.
31-Aug-04	yes	900	13.9	7.3	751	521	< 5.	< .03	0.1	8.1	3
30-Sep-04	yes	900	12.6	7.3	766	513	< 5.	< .03	0.08	8.2	< 2.
25-Oct-04	yes	900	12.9	7.5	755	1206	12	< .03	0.21	8.1	< 2.
24-Nov-04	yes	900	12.3	7.5	756	508	< 5.	< .03	0.05	8.3	< 2.
21-Dec-04	yes	900	12.9	7.5	751	503	< 5.	< .03	< .05	8.1	< 2.
26-Jan-05	yes	900	12.9	7.5	743	486	< 5.	< .03	0.19	8.3	< 2.
25-Feb-05	yes	900	12.5	7.5	910	538	< 5.	< .03	0.13	7.7	< 2.
28-Mar-05	yes	900	12	7.6	754	555	< 5.	< .03	0.08	7.8	< 2.
25-Apr-05	yes	750	12.4	7.6	775	538	< 5.	< .03	0.06	7.1	< 2.
27-May-05	yes	600	7.7	7.7	741	489	< 5.	< .03	0.1	8.9	< 2.
30-Jun-05	yes	750	13.4	7.8	787	556	< 5.	< .03	< .05	7.6	< 2.
28-Jul-05	yes	900	15.2	7.4	760	525	< 5.	< .03	0.07	8.7	< 2.
22-Aug-05	yes	900	15.5	7.5	940	574	< 5.	< .03	0.14	8.6	< 2.
21-Sep-05	yes	600	13.3	7.7	830	478	10	< .03	0.12	7.8	< 2.
19-Oct-05	yes	900	11.6	7.7	805	478	< 5.	< .03	< .05	8.3	3
22-Nov-05	yes	900	10.8	8.1	720	476	< 5.	< .03	< .05	8.4	< 2.
15-Dec-05	yes	900	10.2	8	530	410	< 5.	< .02	0.08	8.8	< 2.

Sed Pond Discharge (UPDES 001)

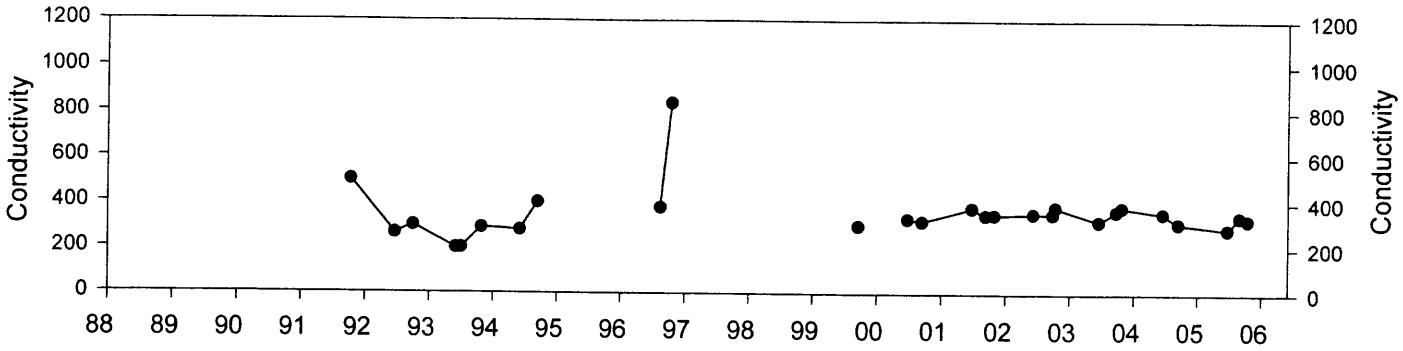
Jan-99	yes	no discharge
Feb-99	yes	no discharge
Mar-99	yes	no discharge
Apr-99	yes	no discharge
May-99	yes	no discharge
Jun-99	yes	no discharge
Jul-99	yes	no discharge

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
Aug-99	yes	no discharge									
Sep-99	yes	no discharge									
Oct-99	yes	no discharge									
Nov-99	yes	no discharge									
Dec-99	yes	no discharge									
Jan-00	yes	no discharge									
Feb-00	yes	no discharge									
Mar-00	yes	no discharge									
Apr-00	yes	no discharge									
May-00	yes	no discharge									
Jun-00	yes	no discharge									
Jul-00	yes	no discharge									
Aug-00	yes	no discharge									
Sep-00	yes	no discharge									
Oct-00	yes	no discharge									
Nov-00	yes	no discharge									
Dec-00	yes	no discharge									
25-Jan-01	yes	no discharge									
15-Feb-01	yes	no discharge									
13-Mar-01	yes	no discharge									
27-Apr-01	yes	no discharge									
30-May-01	yes	no discharge									
19-Jun-01	yes	no discharge									
19-Jul-01	yes	no discharge									
23-Aug-01	yes	no discharge									
27-Sep-01	yes	no discharge									
25-Oct-01	yes	no discharge									
27-Nov-01	yes	no discharge									
05-Dec-01	yes	no discharge									
10-Jan-00	yes	no discharge									
15-Feb-02	yes	no discharge									
27-Mar-02	yes	no discharge									
24-Apr-02	yes	no discharge									
9-May-02	yes	no discharge									

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
20-Jun-02	yes	no discharge									
22-Jul-02	yes	no discharge									
29-Aug-02	yes	no discharge									
25-Sep-02	yes	no discharge									
10-Oct-02	yes	no discharge									
10-Nov-02	yes	no discharge									
26-Dec-02	yes	no discharge									
31-Jan-03	yes	no discharge									
11-Feb-03	yes	no discharge									
4-Mar-03	yes	no discharge									
16-Apr-03	yes	no discharge									
22-May-03	yes	no discharge									
25-Jun-03	yes	no discharge									
28-Jul-03	yes	no discharge									
18-Aug-03	yes	no discharge									
25-Sep-03	yes	no discharge									
30-Oct-03	yes	no discharge									
30-Nov-03	yes	no discharge									
29-Dec-03	yes	no discharge									
29-Jan-04	yes	no discharge									
27-Feb-04	yes	no discharge									
15-Mar-04	yes	no discharge									
29-Apr-04	yes	no discharge									
27-May-04	yes	no discharge									
17-Jun-04	yes	no discharge									
26-Jul-04	yes	no discharge									
31-Aug-04	yes	no discharge									
30-Sep-04	yes	no discharge									
25-Oct-04	yes	no discharge									
24-Nov-04	yes	no discharge									
21-Dec-04	yes	no discharge									
26-Jan-05	yes	no discharge									
25-Feb-05	yes	no discharge									
28-Mar-05	yes	no discharge									

Date	Monitored	Flow (gpm)	T (°C)	pH (S.U.)	Cond (µs/cm)	TDS (mg/l)	TSS (mg/l)	Fe(d) (mg/l)	Fe(T) (mg/l)	DO (mg/l)	O&G (mg/l)
25-Apr-05	yes	no discharge									
27-May-05	yes	no discharge									
30-Jun-05	yes	no discharge									
28-Jul-05	yes	no discharge									
22-Aug-05	yes	no discharge									
21-Sep-05	yes	no discharge									
19-Oct-05	yes	no discharge									
22-Nov-05	yes	no discharge									
15-Dec-05	yes	no discharge									

SP2-24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1000
800
600
400
200
0
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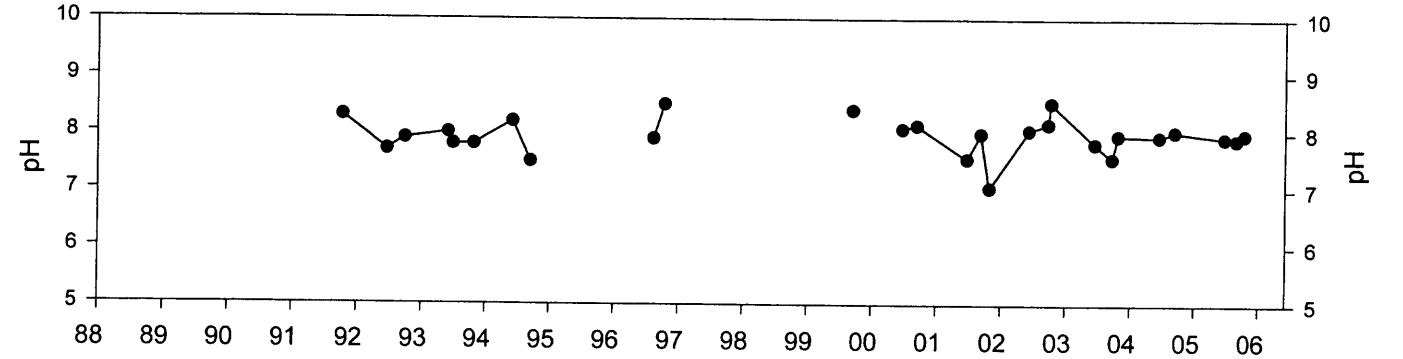
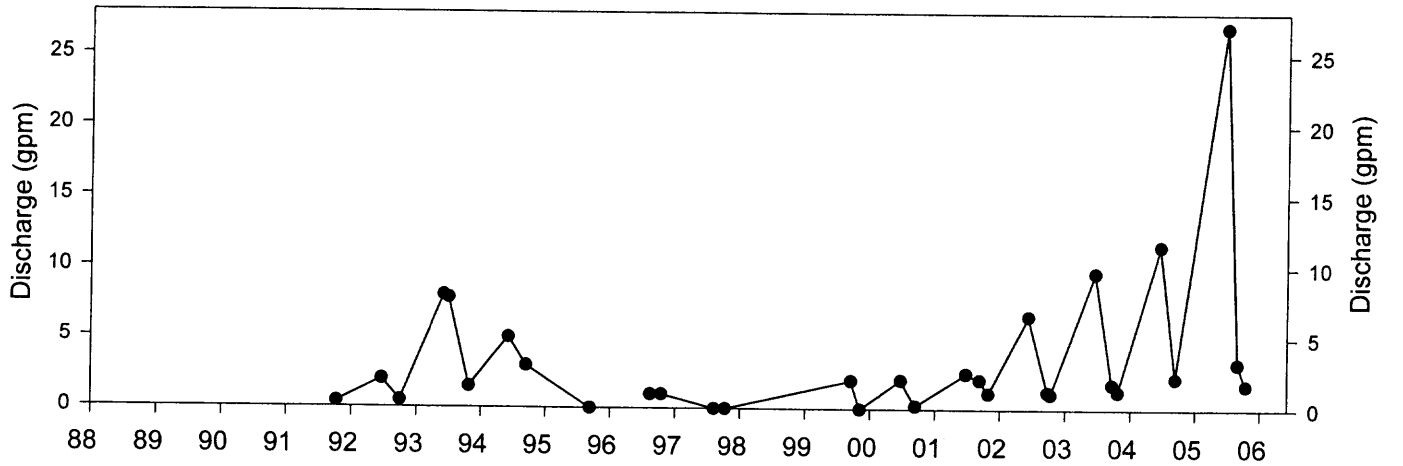

pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


Discharge (gpm)
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20
15
10
5
0
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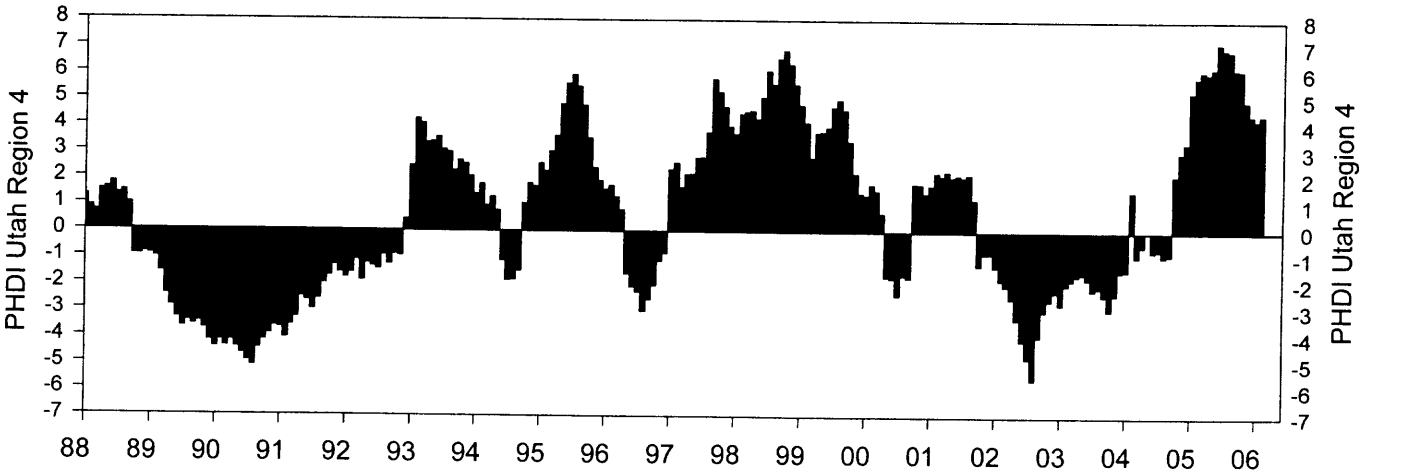
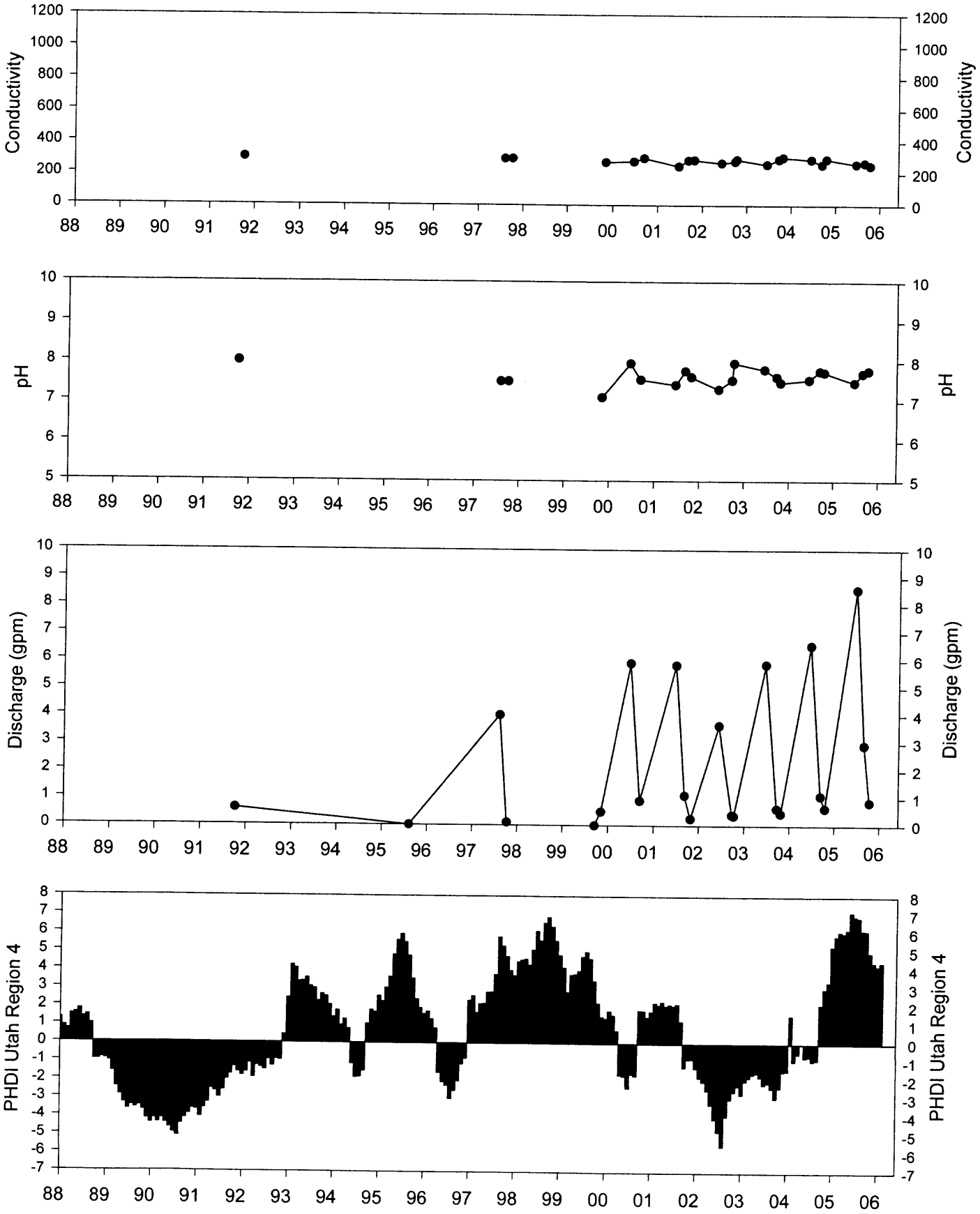

PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

SP2-9


Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
10
9
8
7
6
5
4
3
2
1
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
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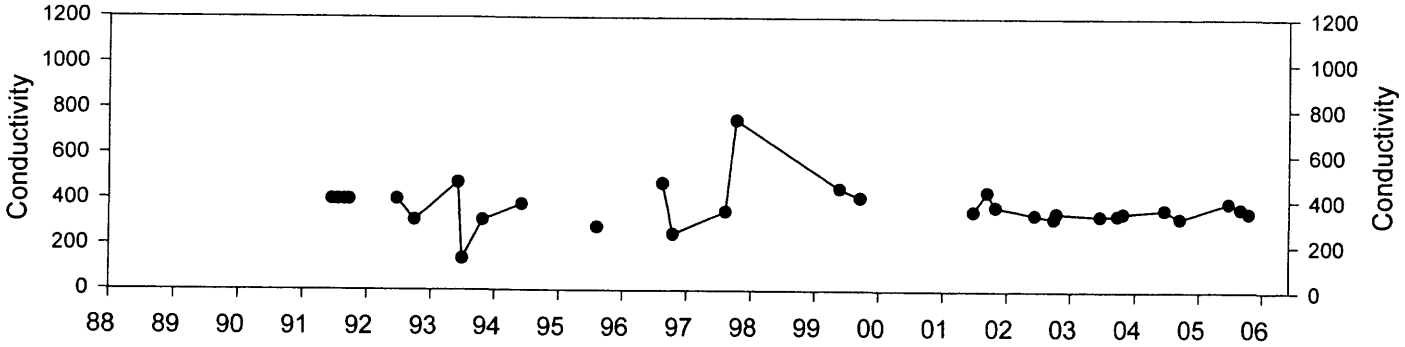
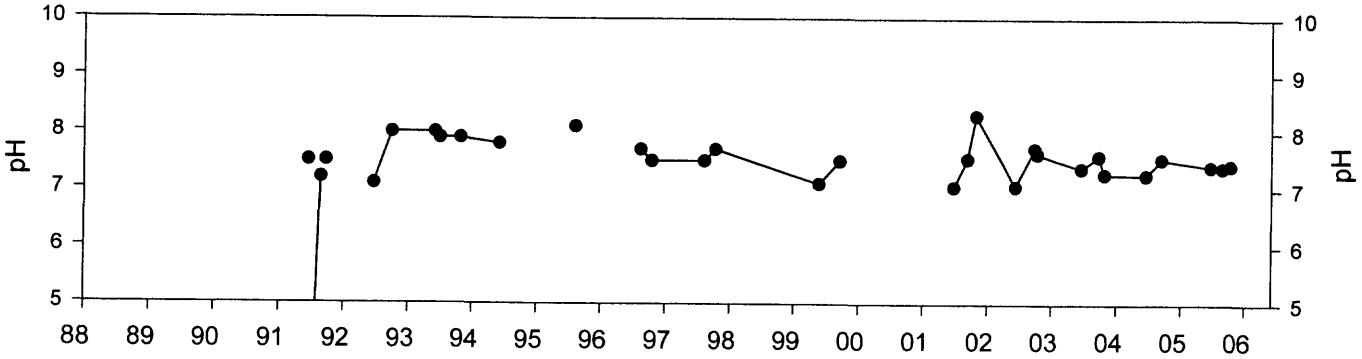
-2
-3
-4
-5
-6
-7

SP-47A


Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
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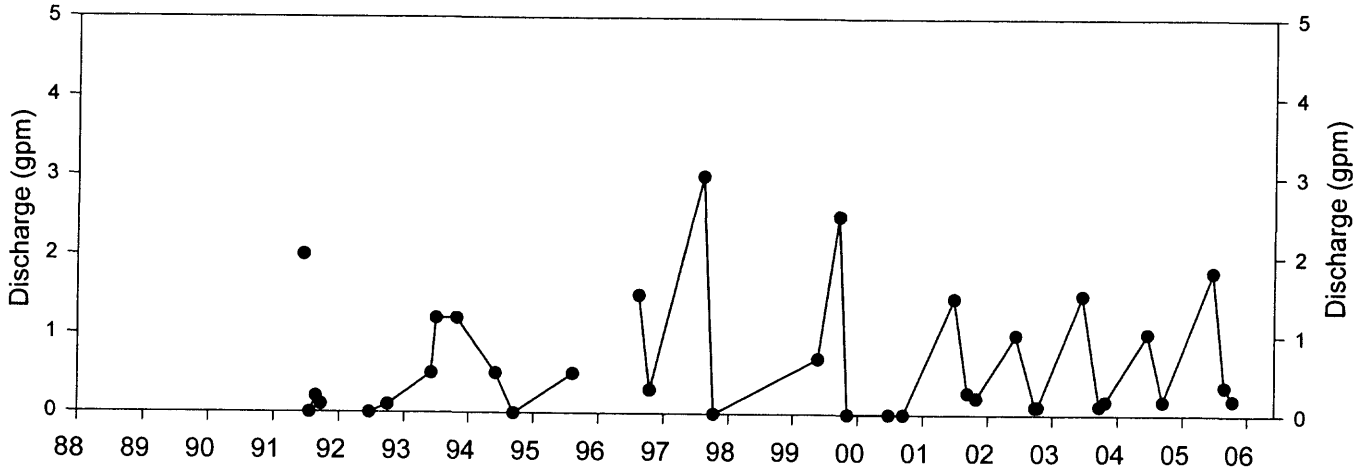
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06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4
3
2
1
0
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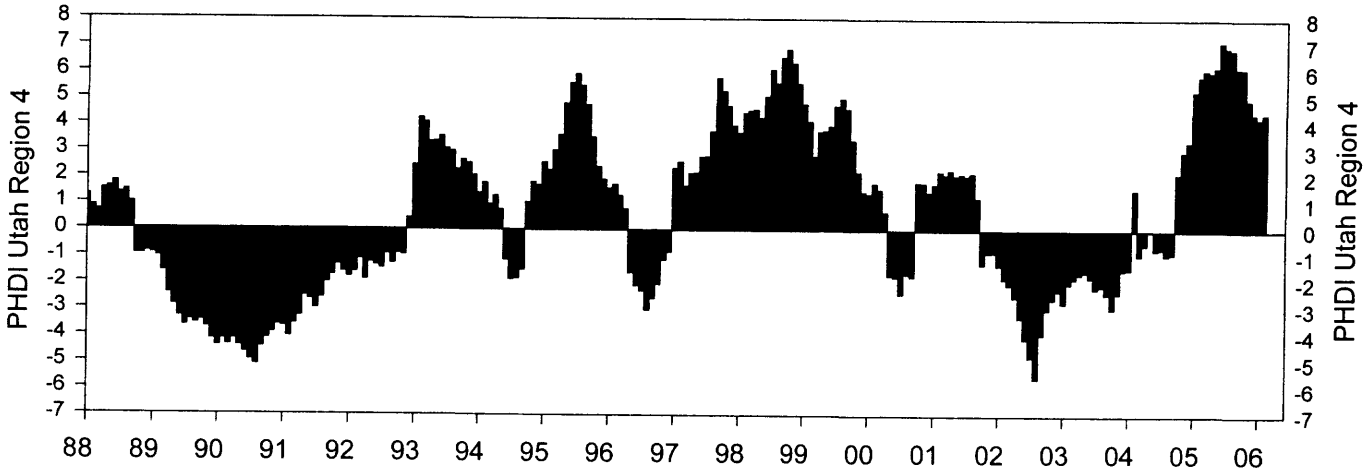
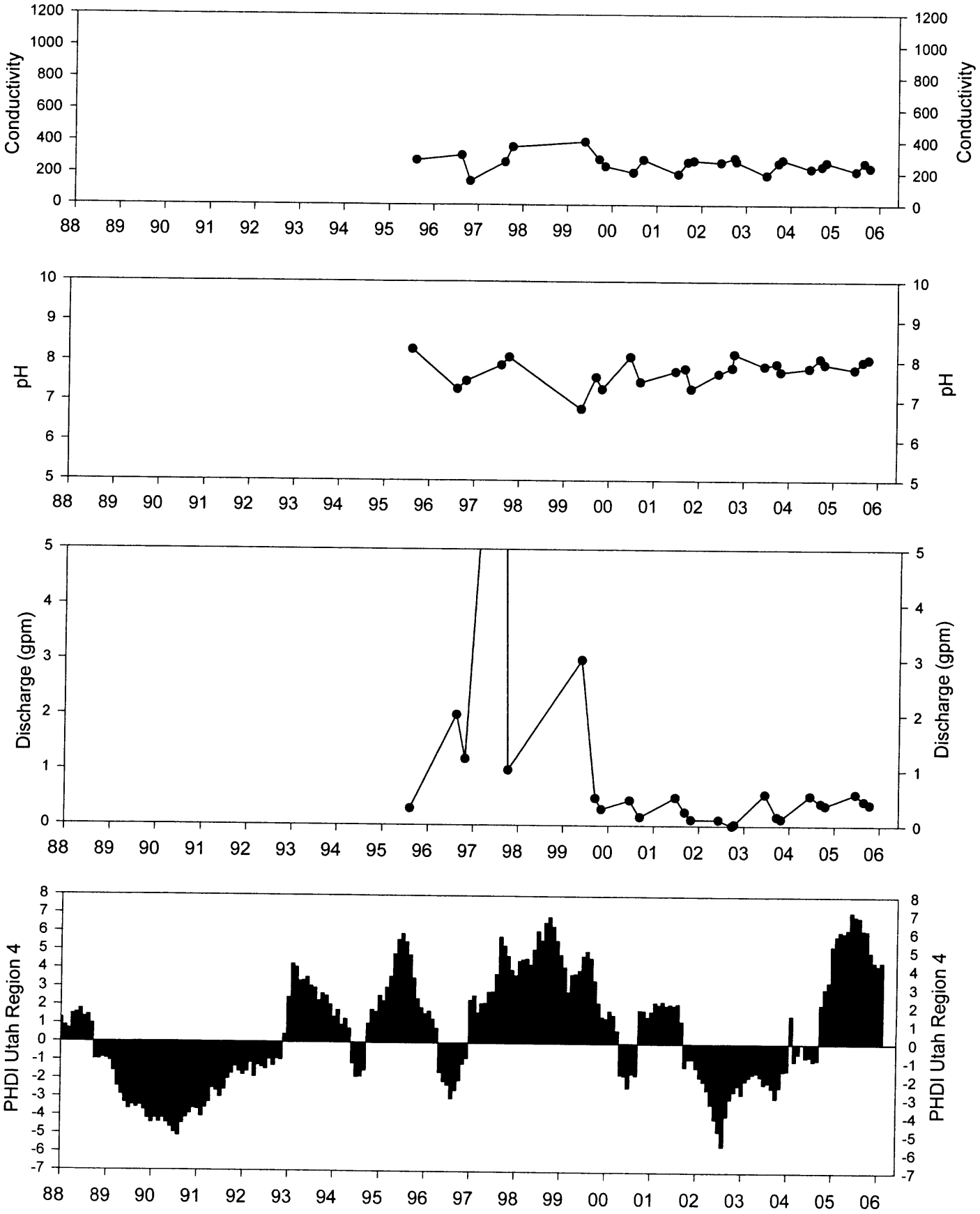
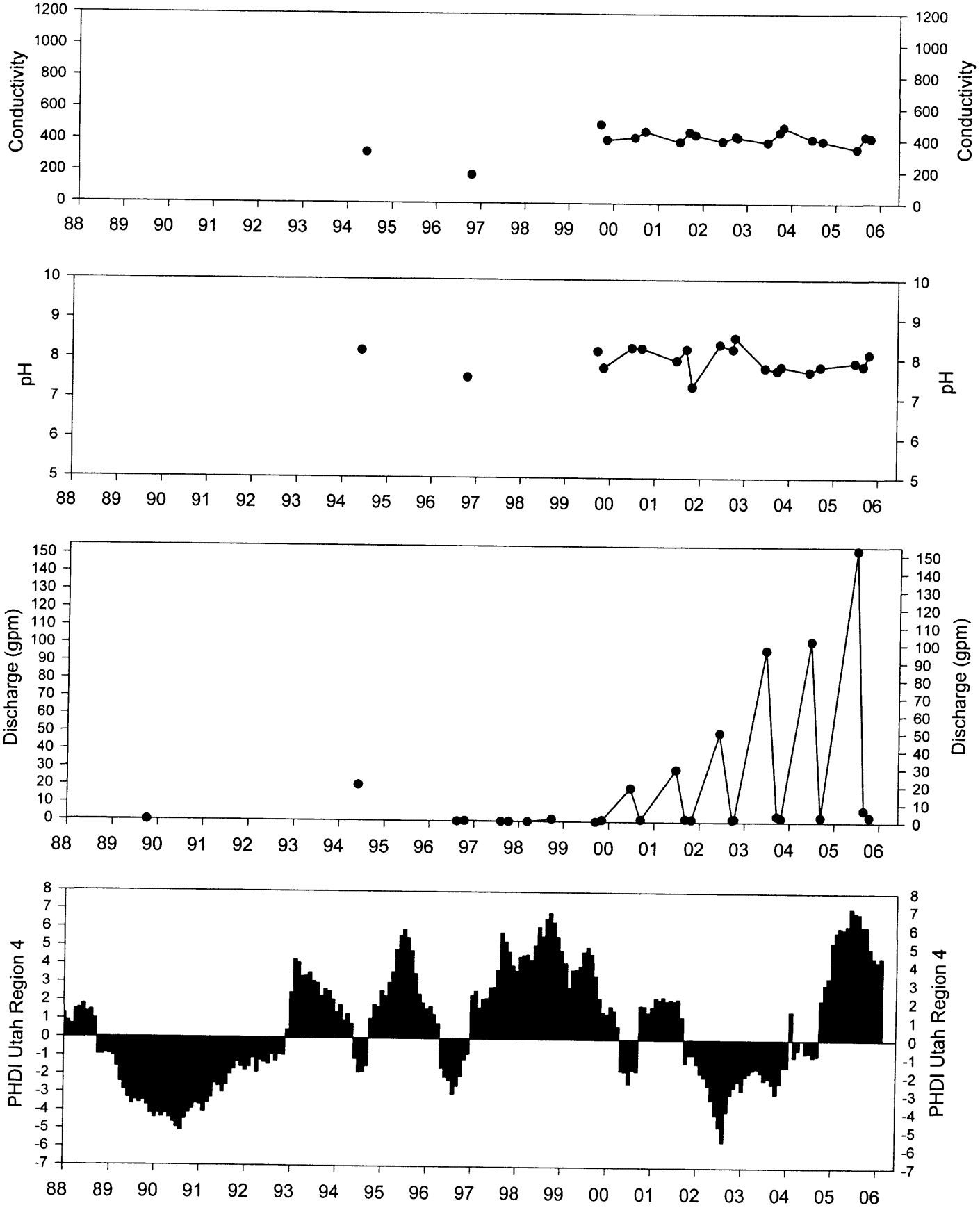

PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

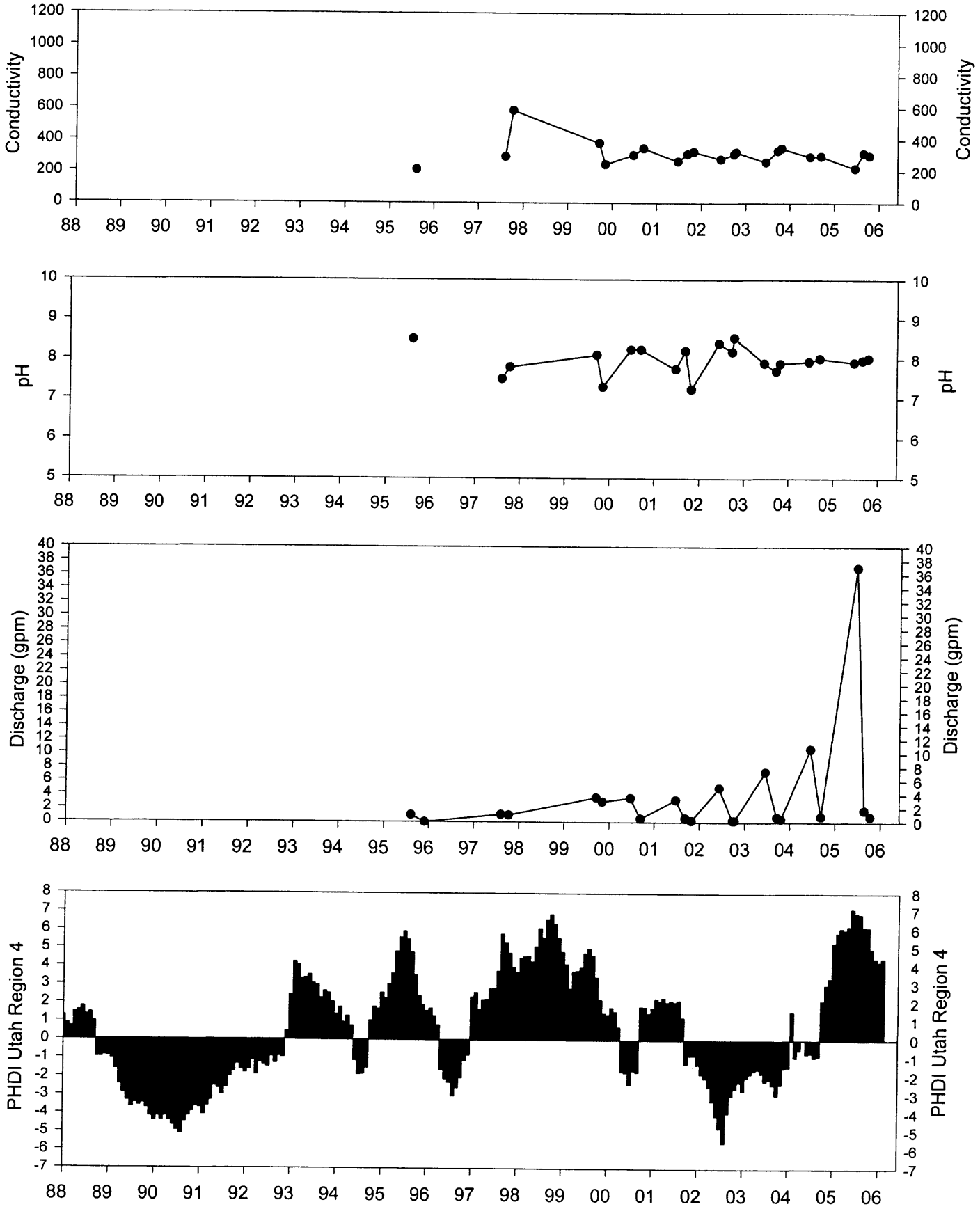
SP1-3


Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
5
4
3
2
1
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7

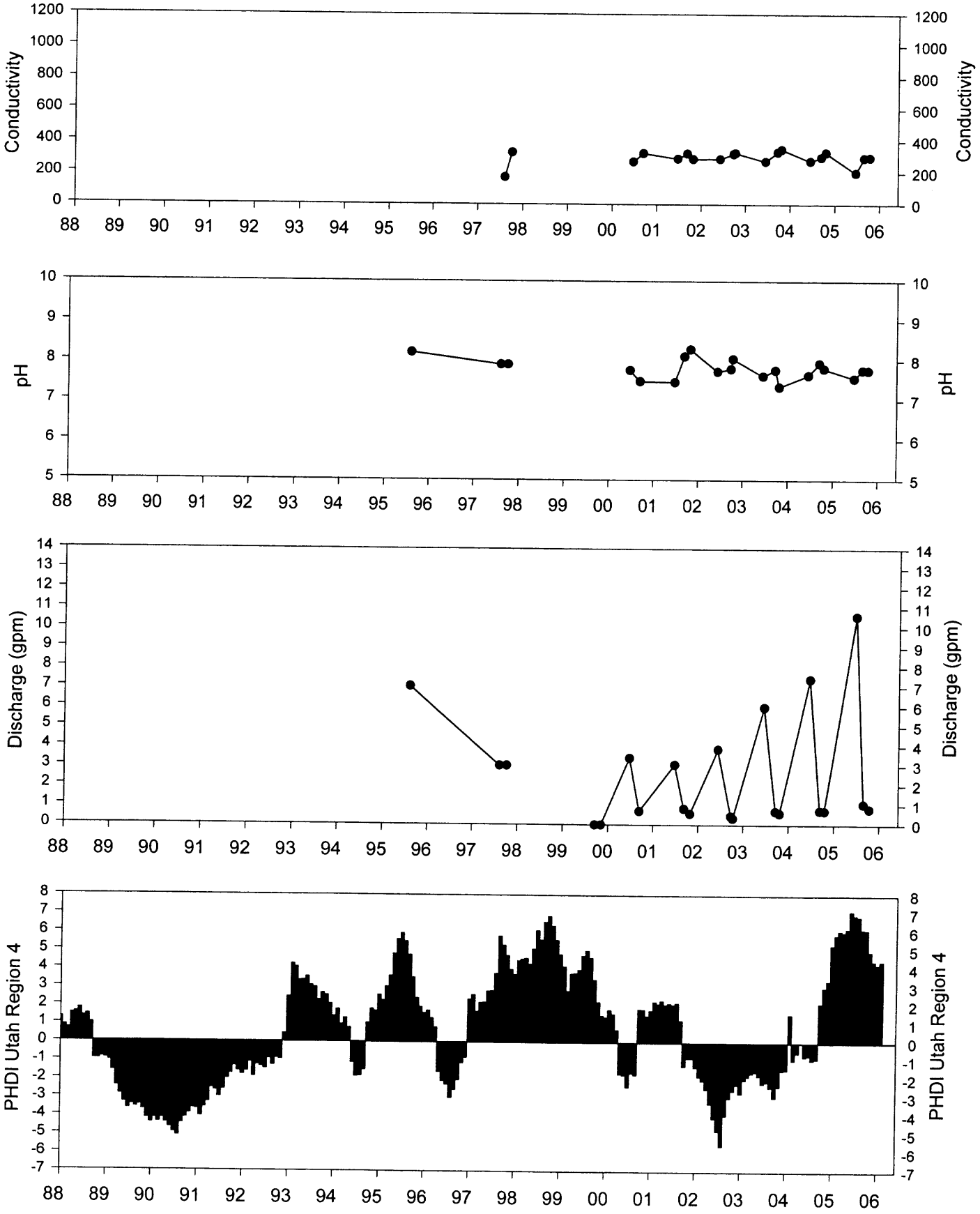
SP1-19


Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

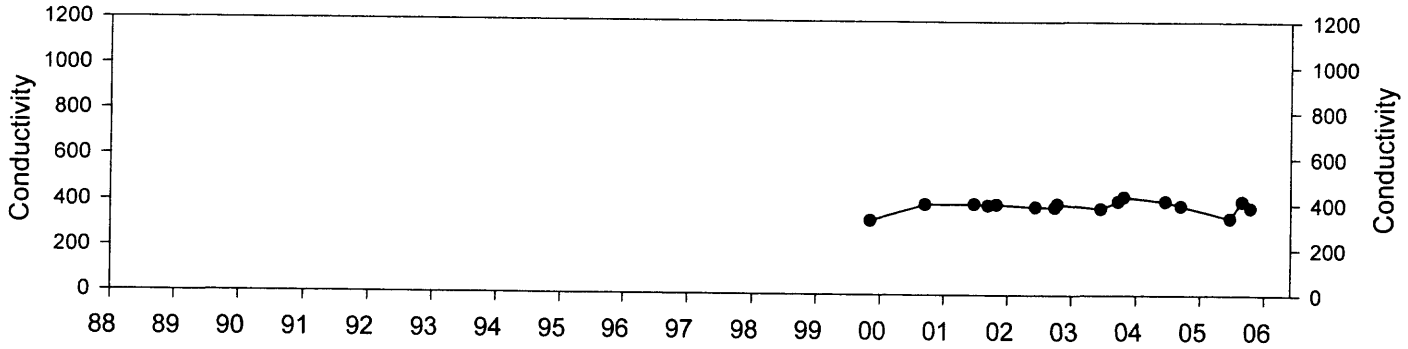
SP1-22

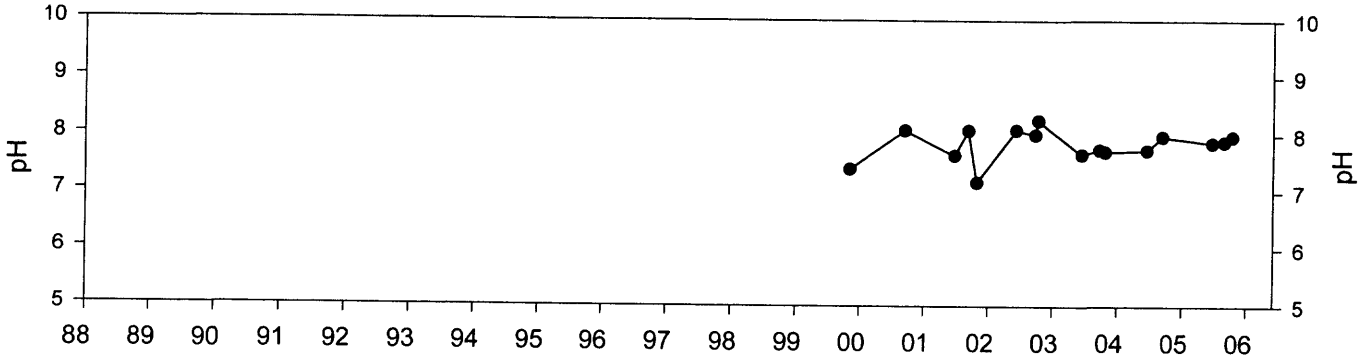

Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

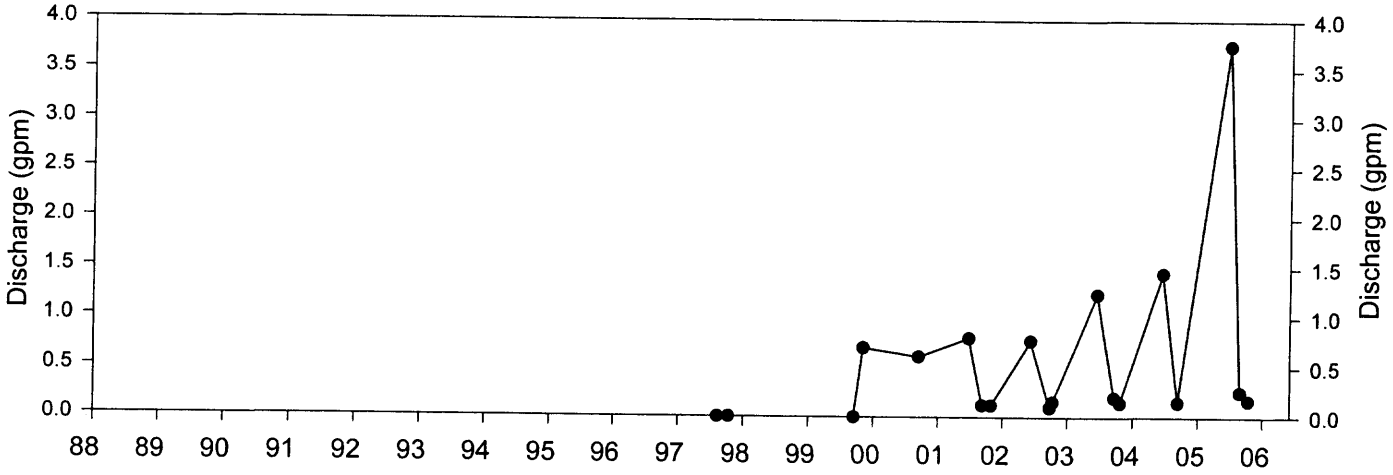
SP1-9

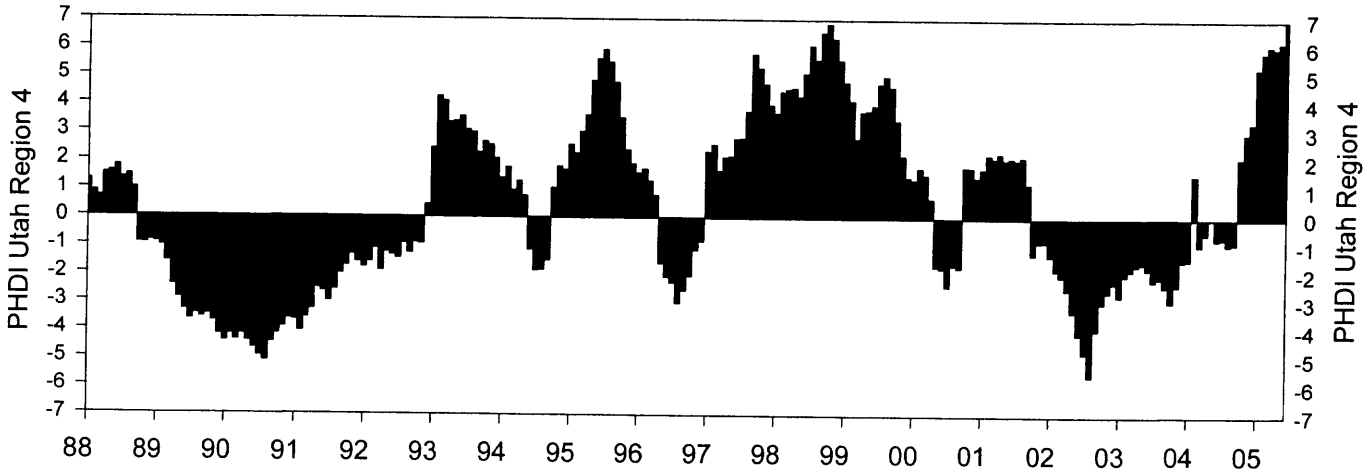

Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

SP1-24

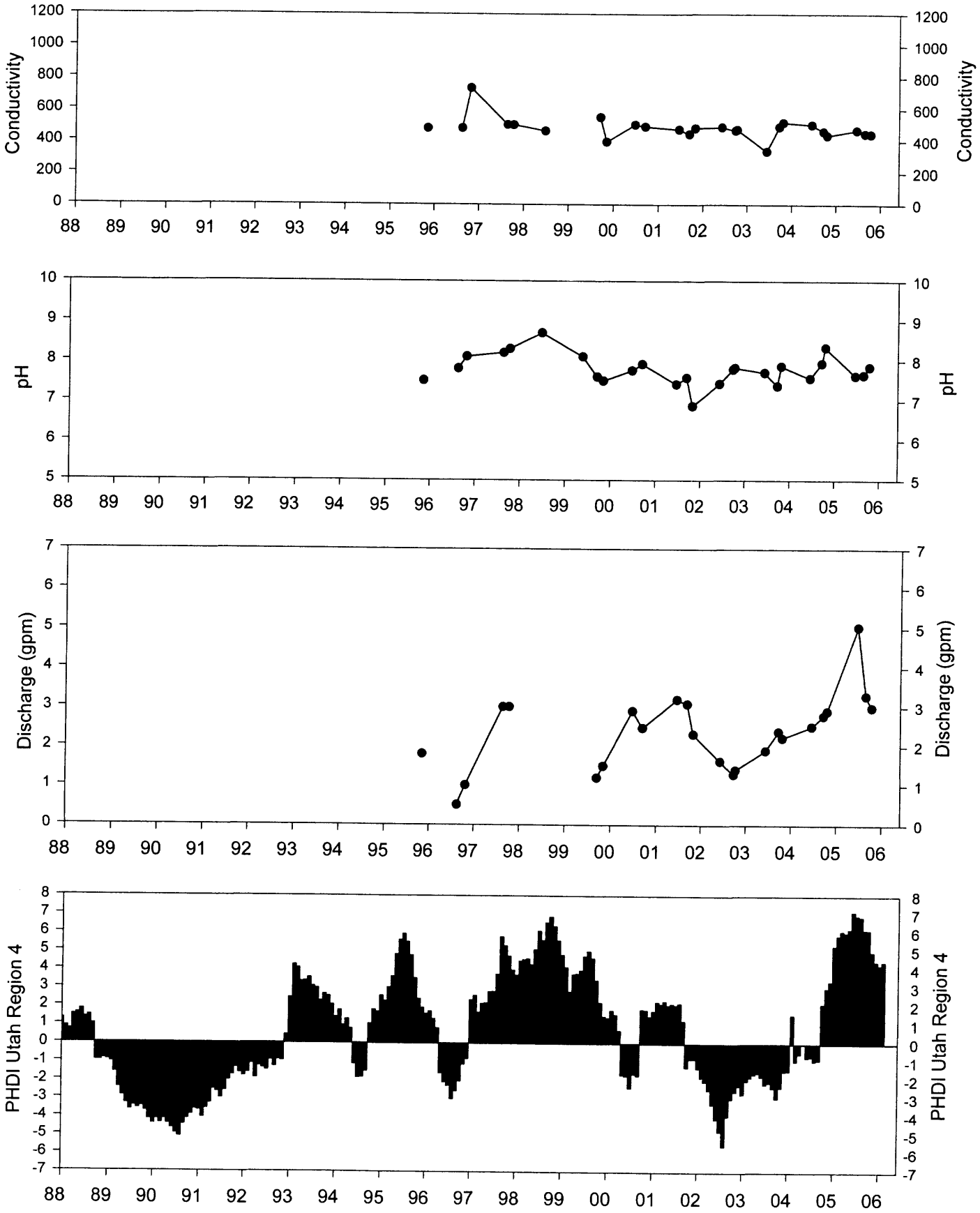

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

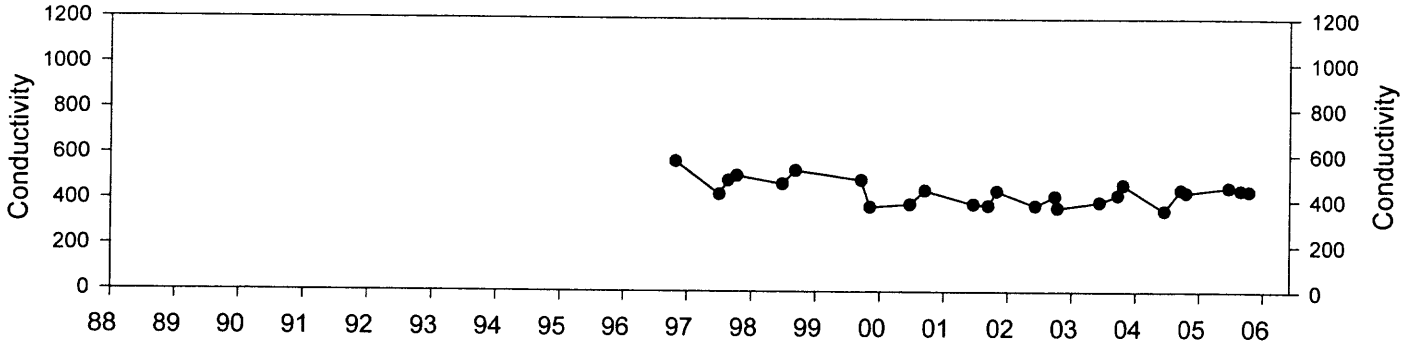

Discharge (gpm)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

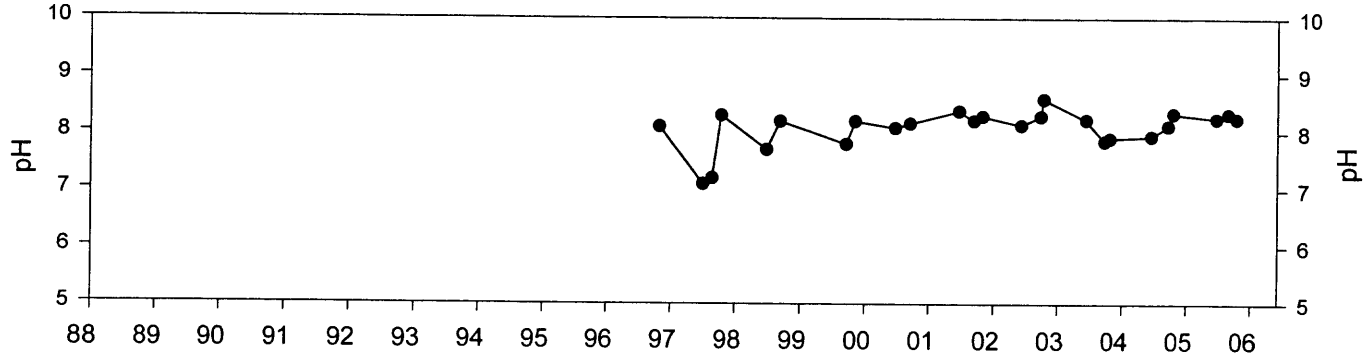

PHDI Utah Region 4
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05

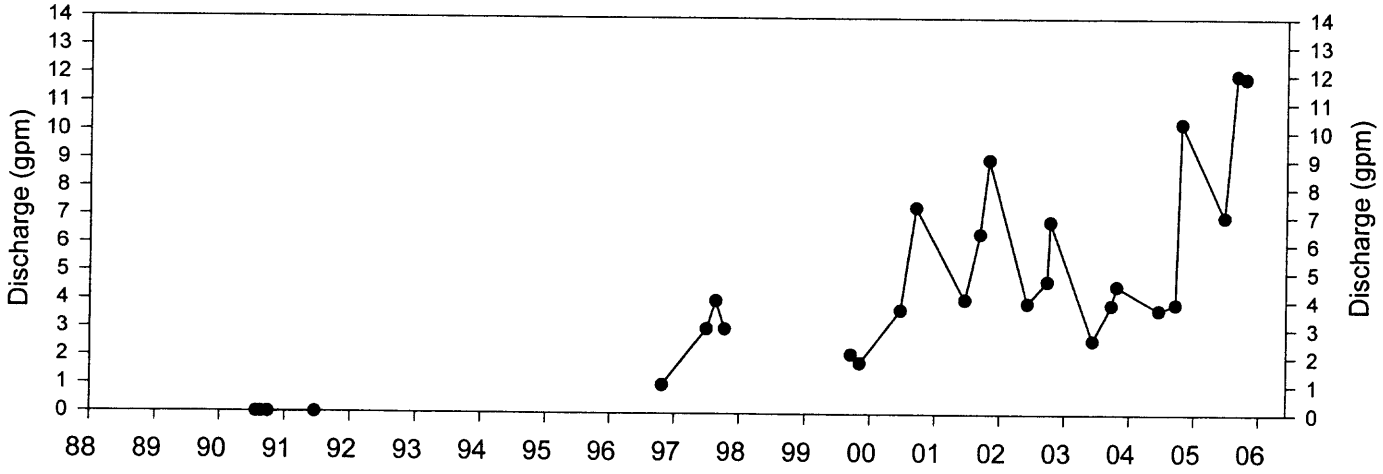
SP1-33

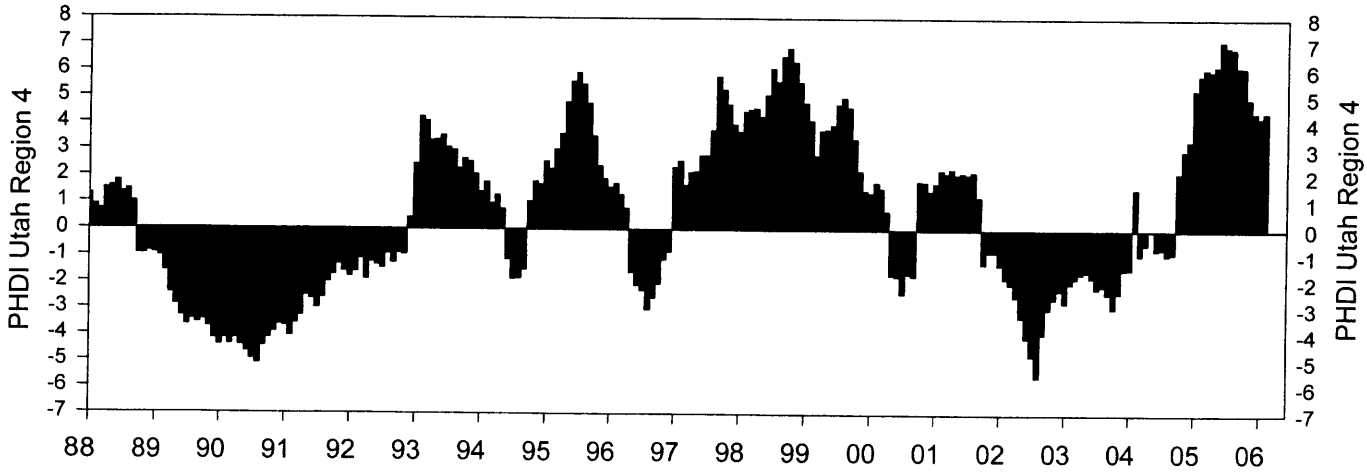

Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

SP1-47

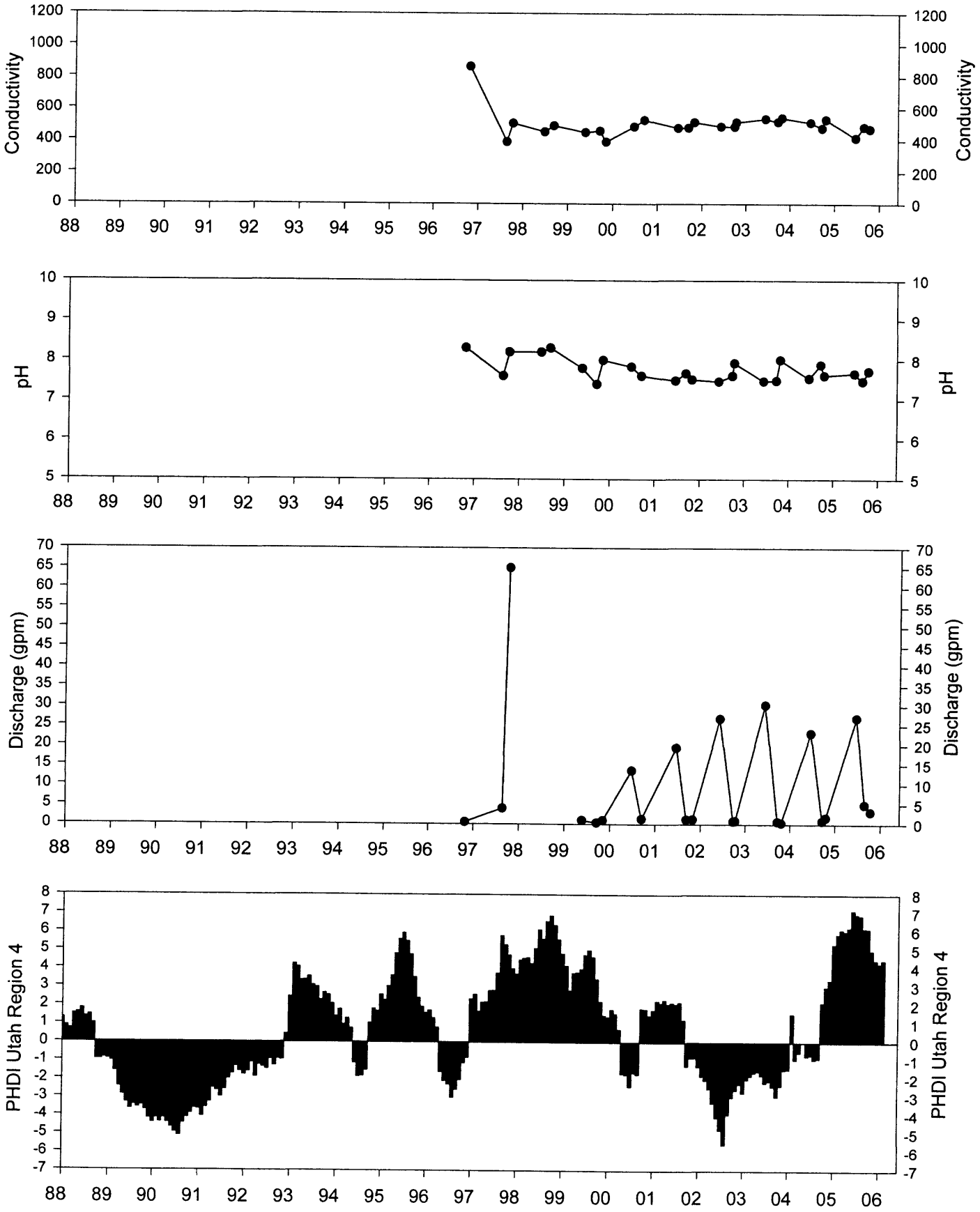

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

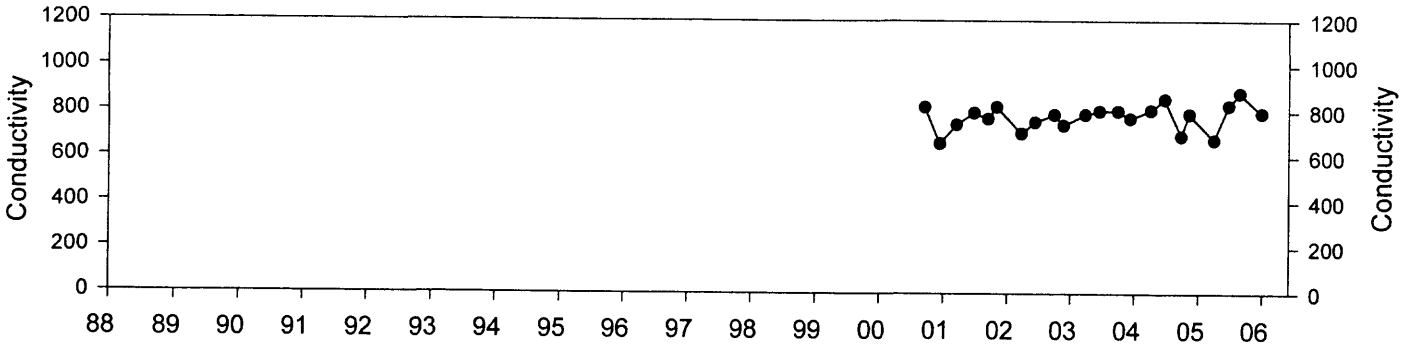

Discharge (gpm)
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

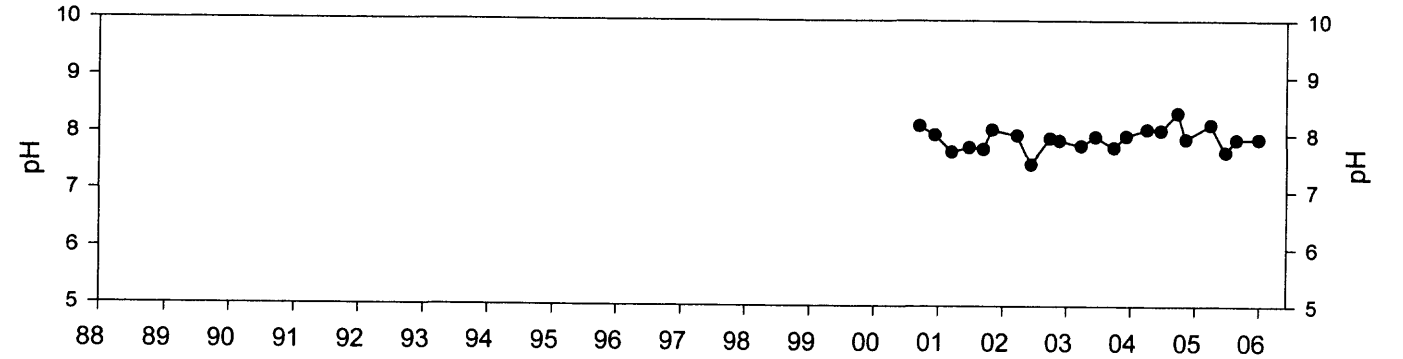

PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

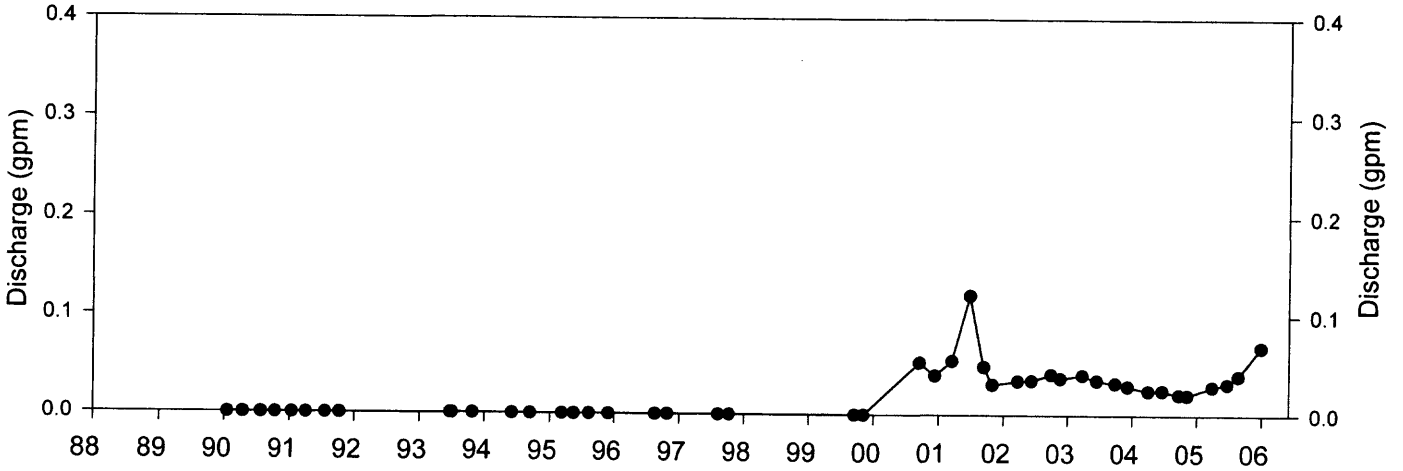
SP2-1

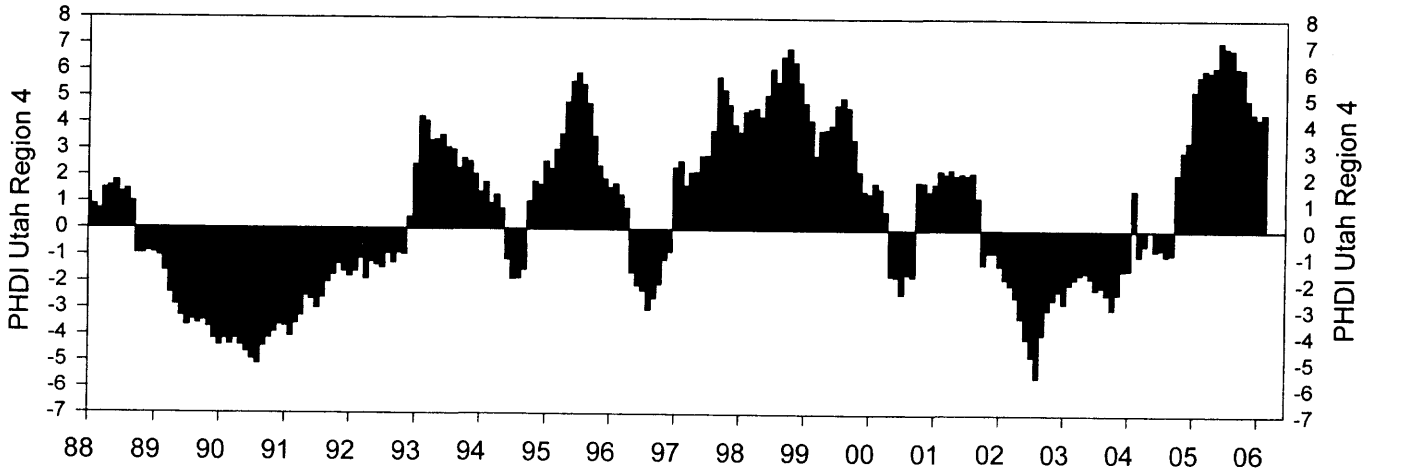

Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

SP-30

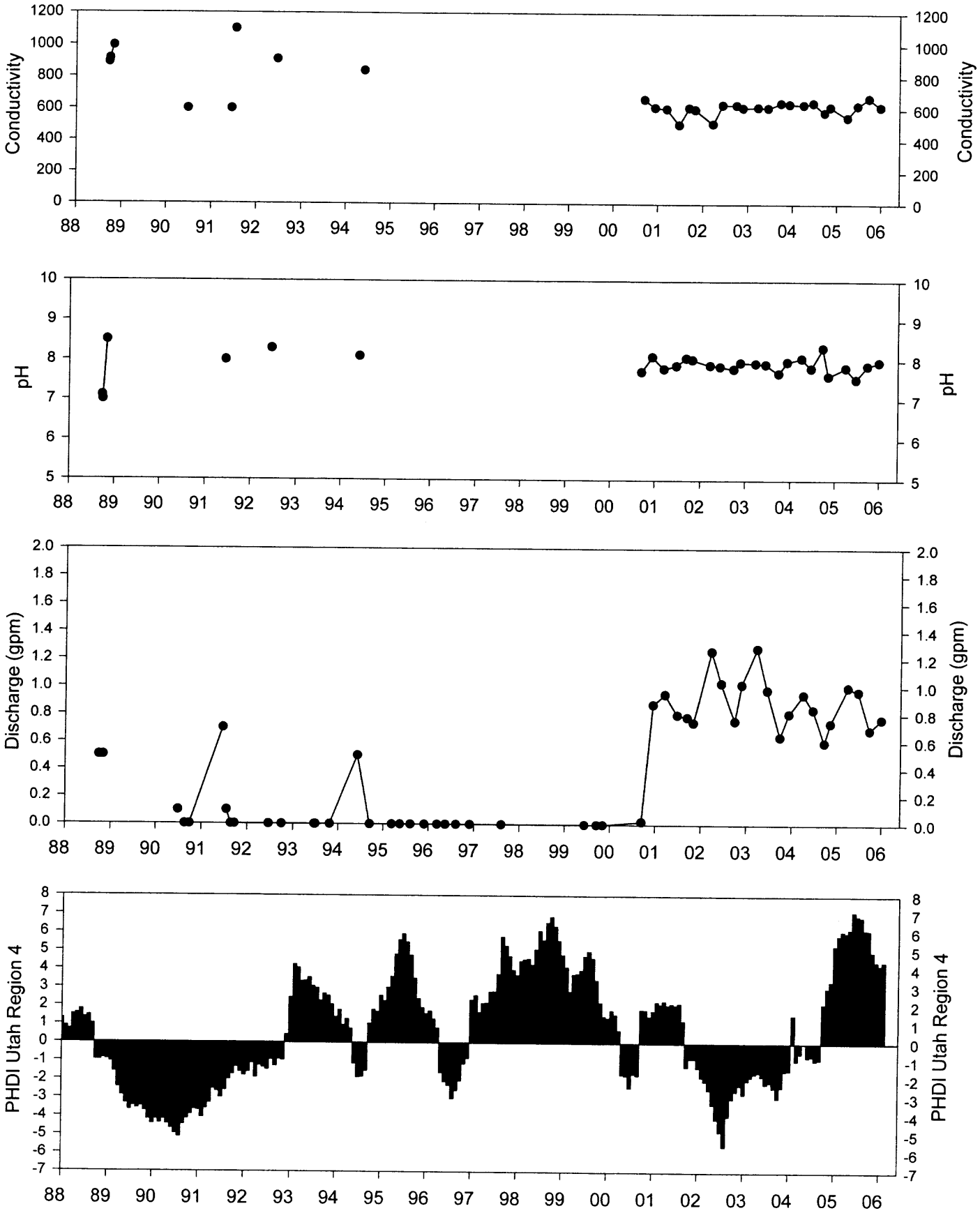

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

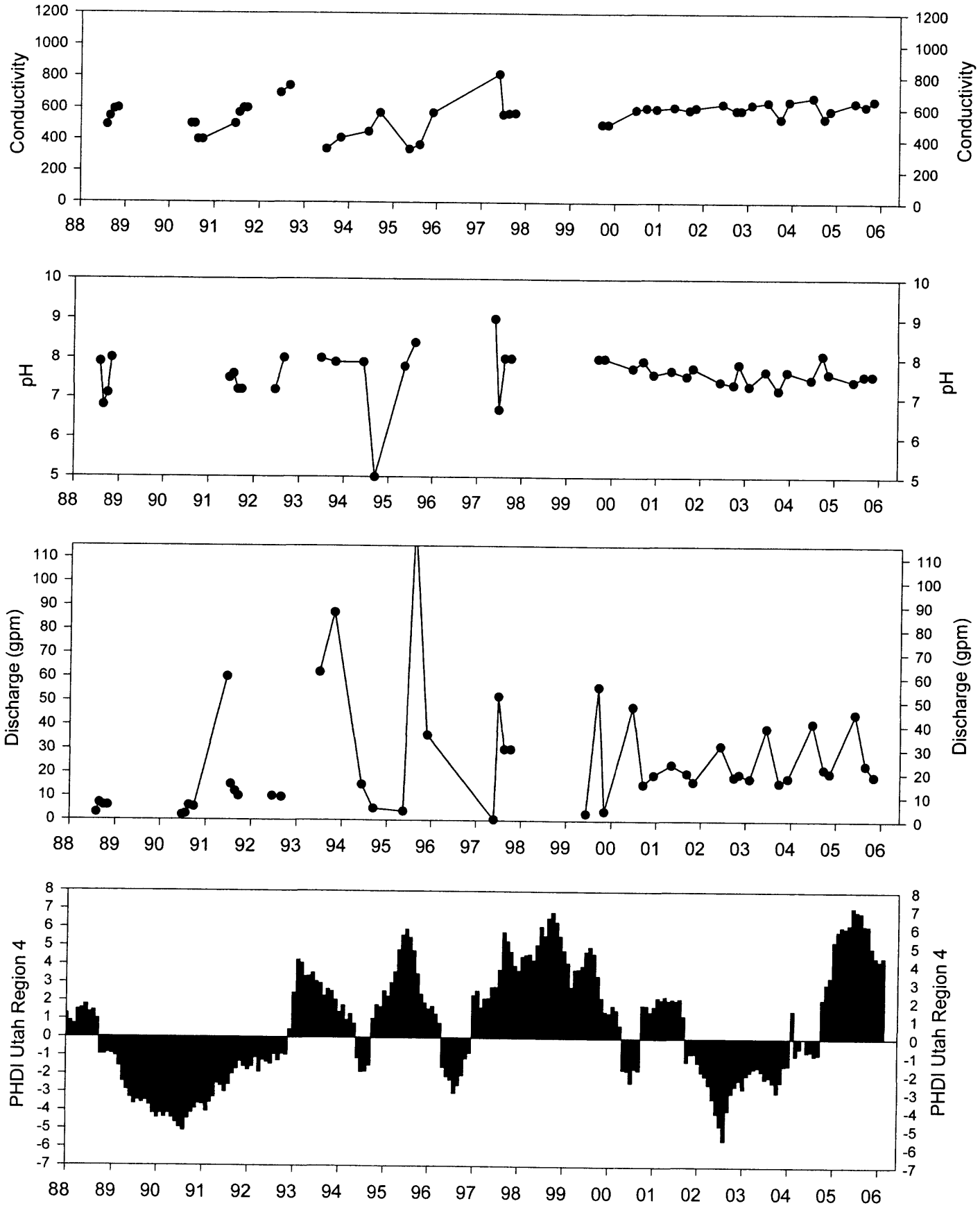

Discharge (gpm)
0.4
0.3
0.2
0.1
0.0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

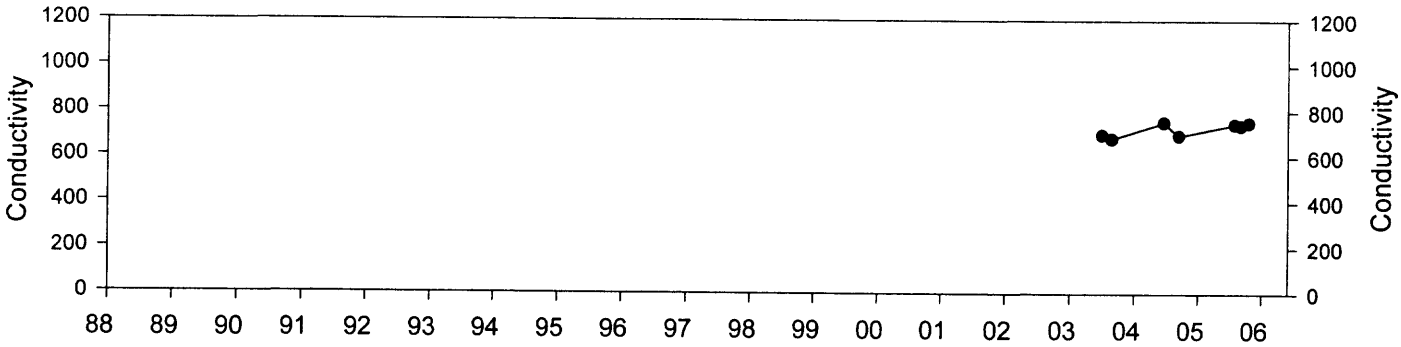
SP-36

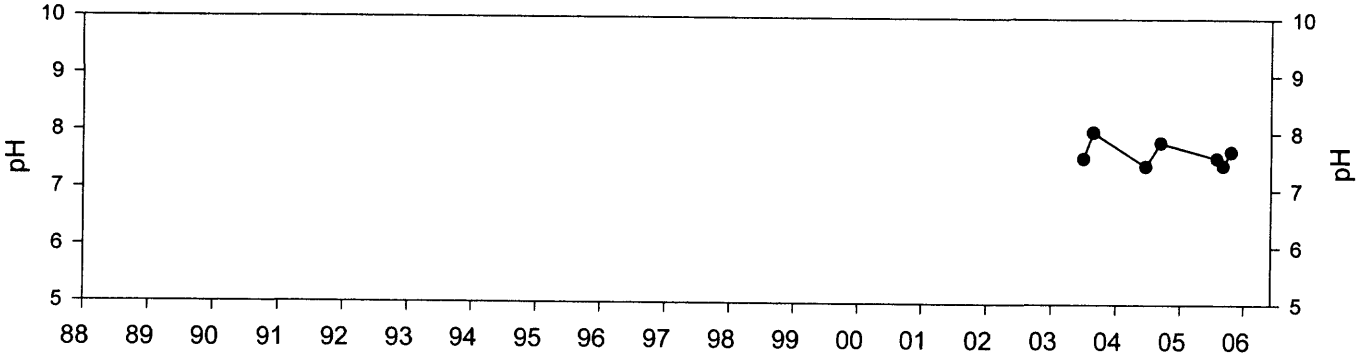

Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

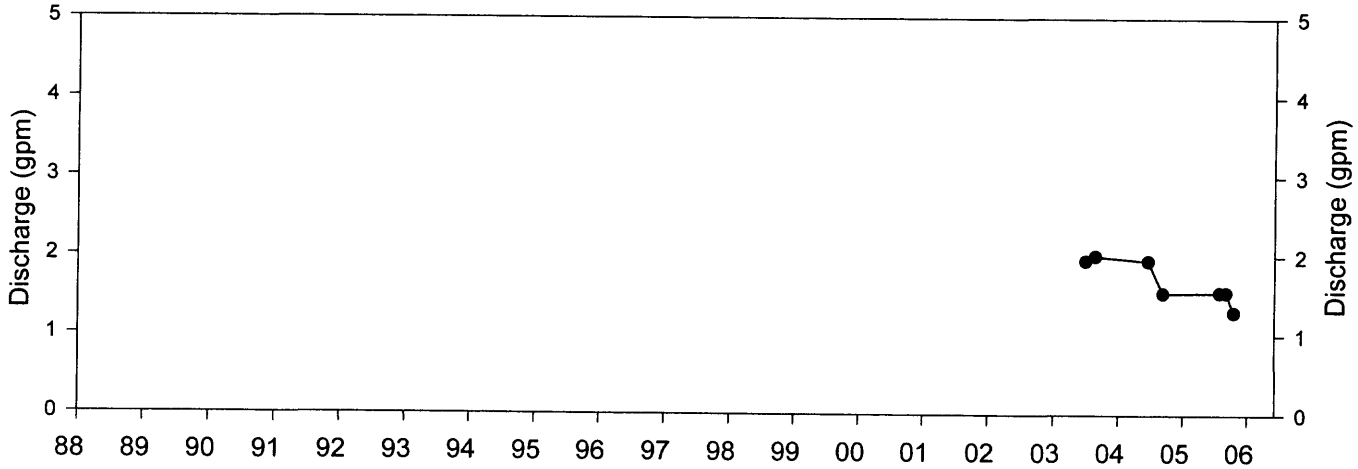
SP-58

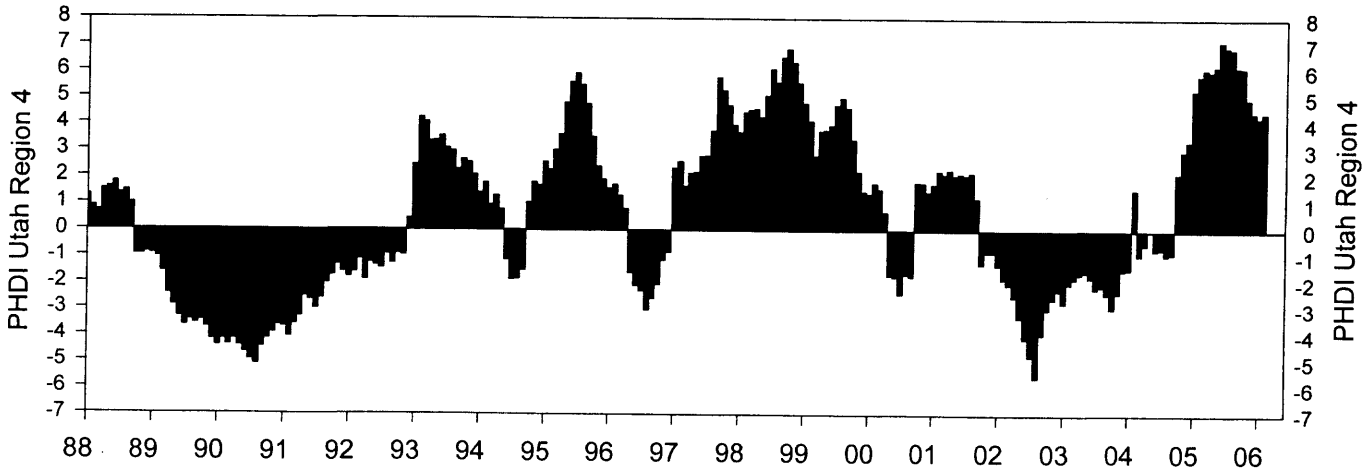

Conductivity
pH
Discharge (gpm)
PHDI Utah Region 4
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

LB-5A

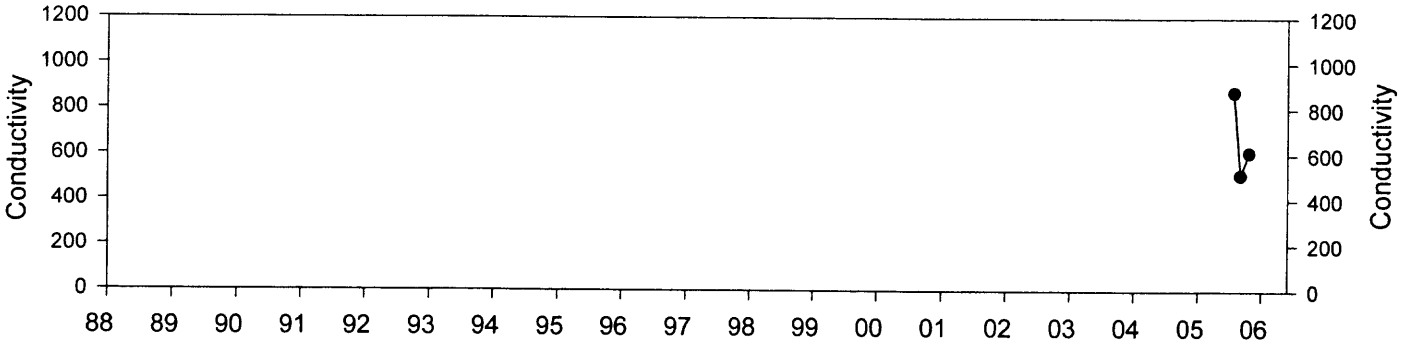

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

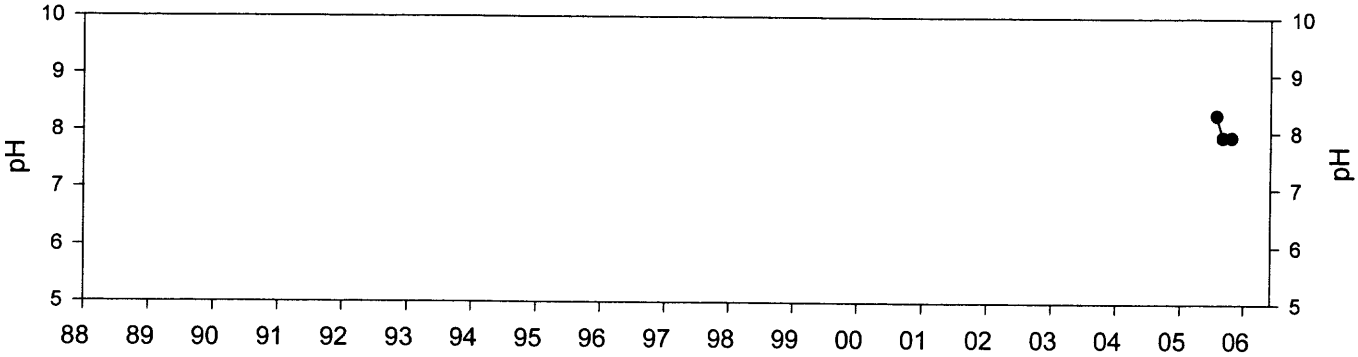

pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

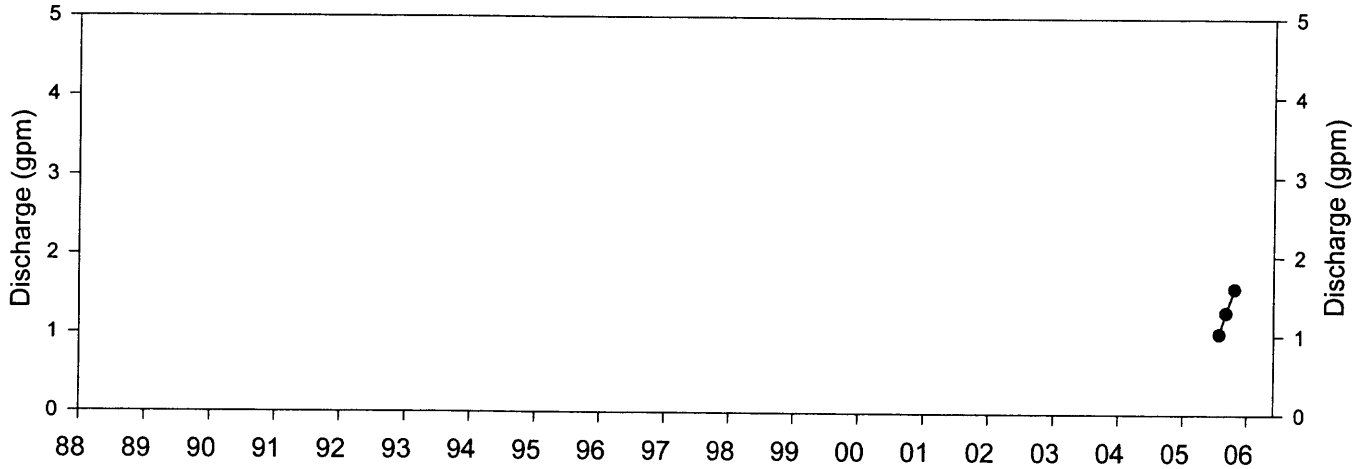

Discharge (gpm)
5
4
3
2
1
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

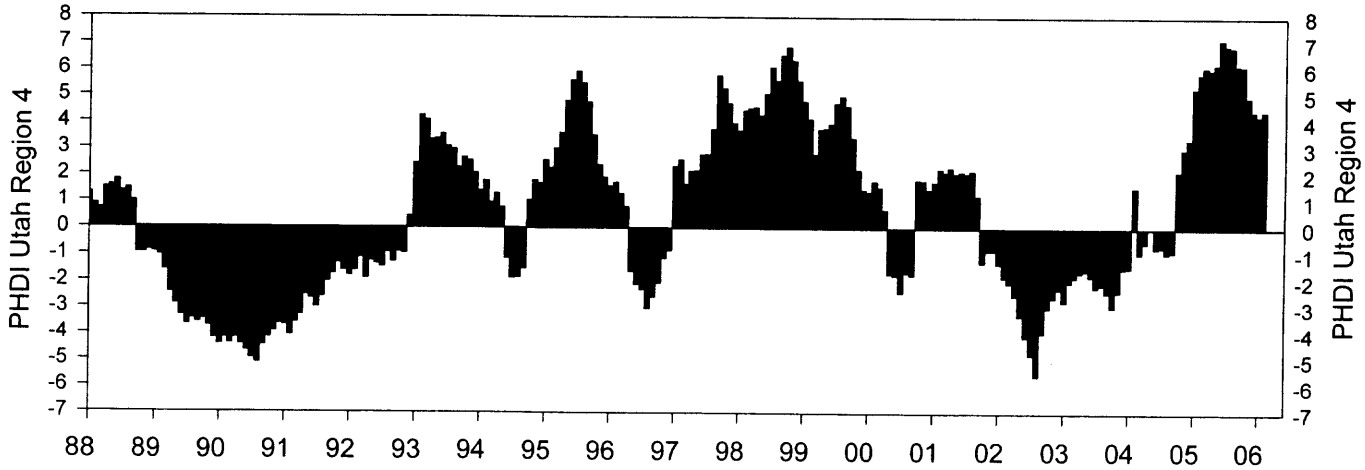

PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

LB-7

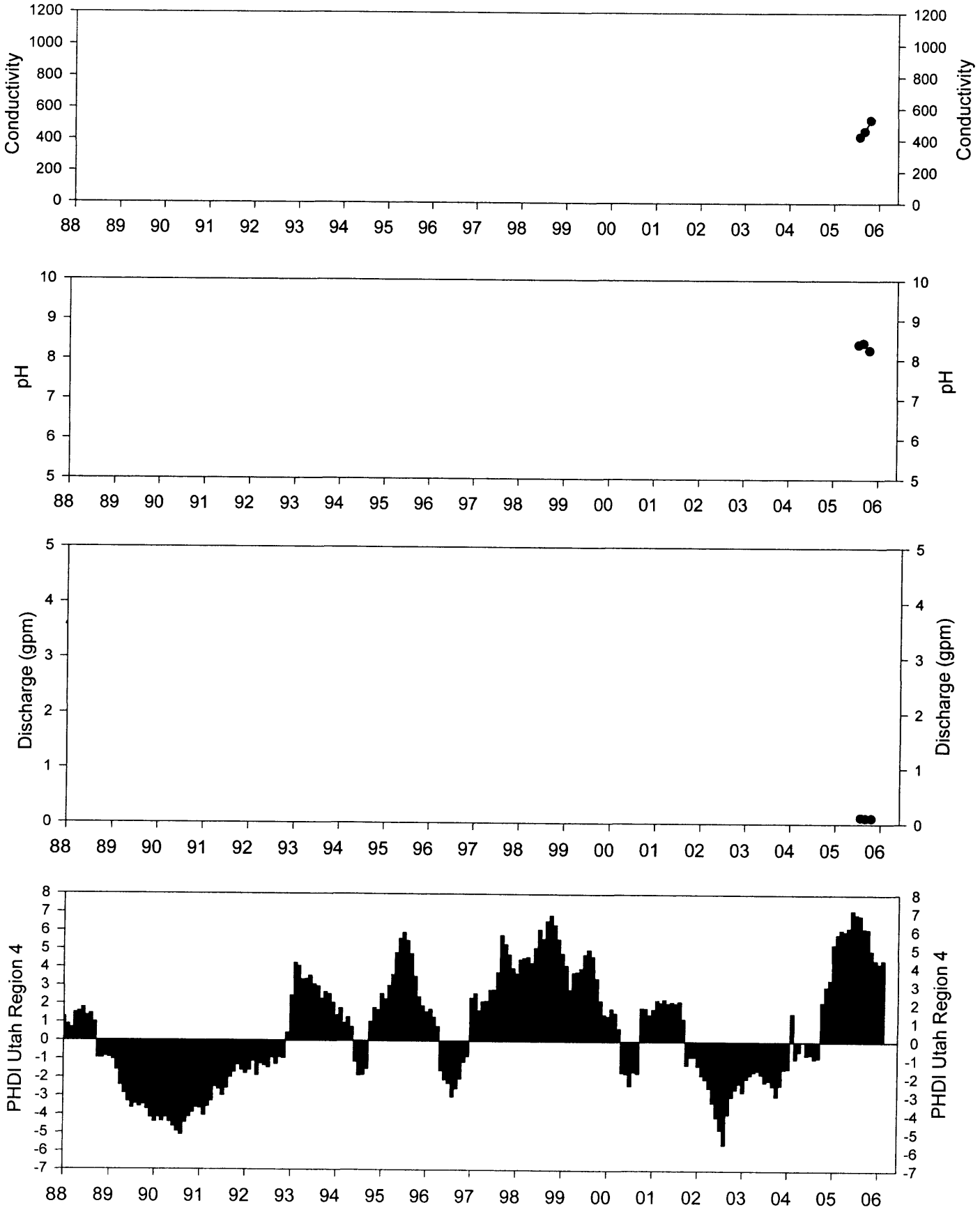

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

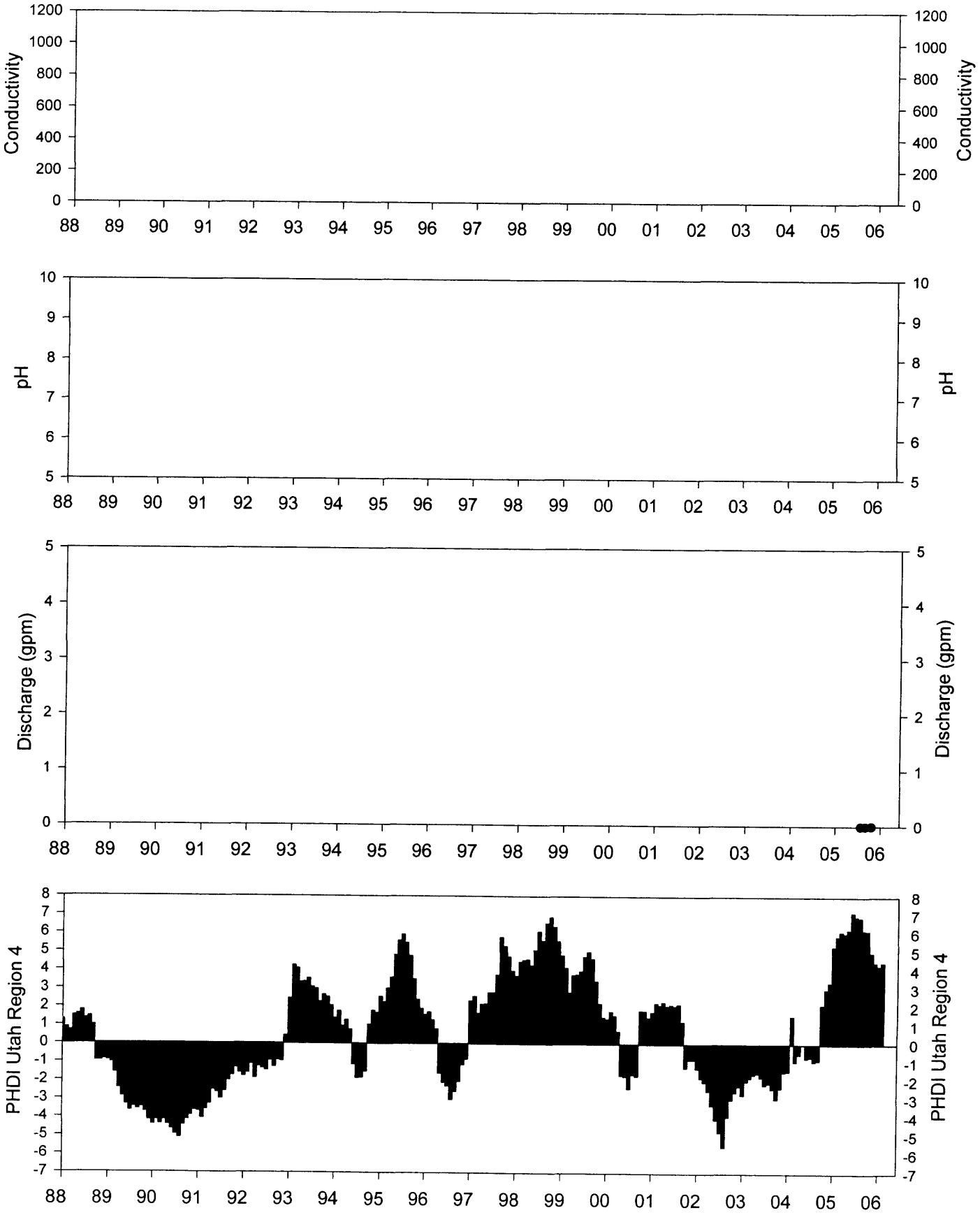

Discharge (gpm)
5
4
3
2
1
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

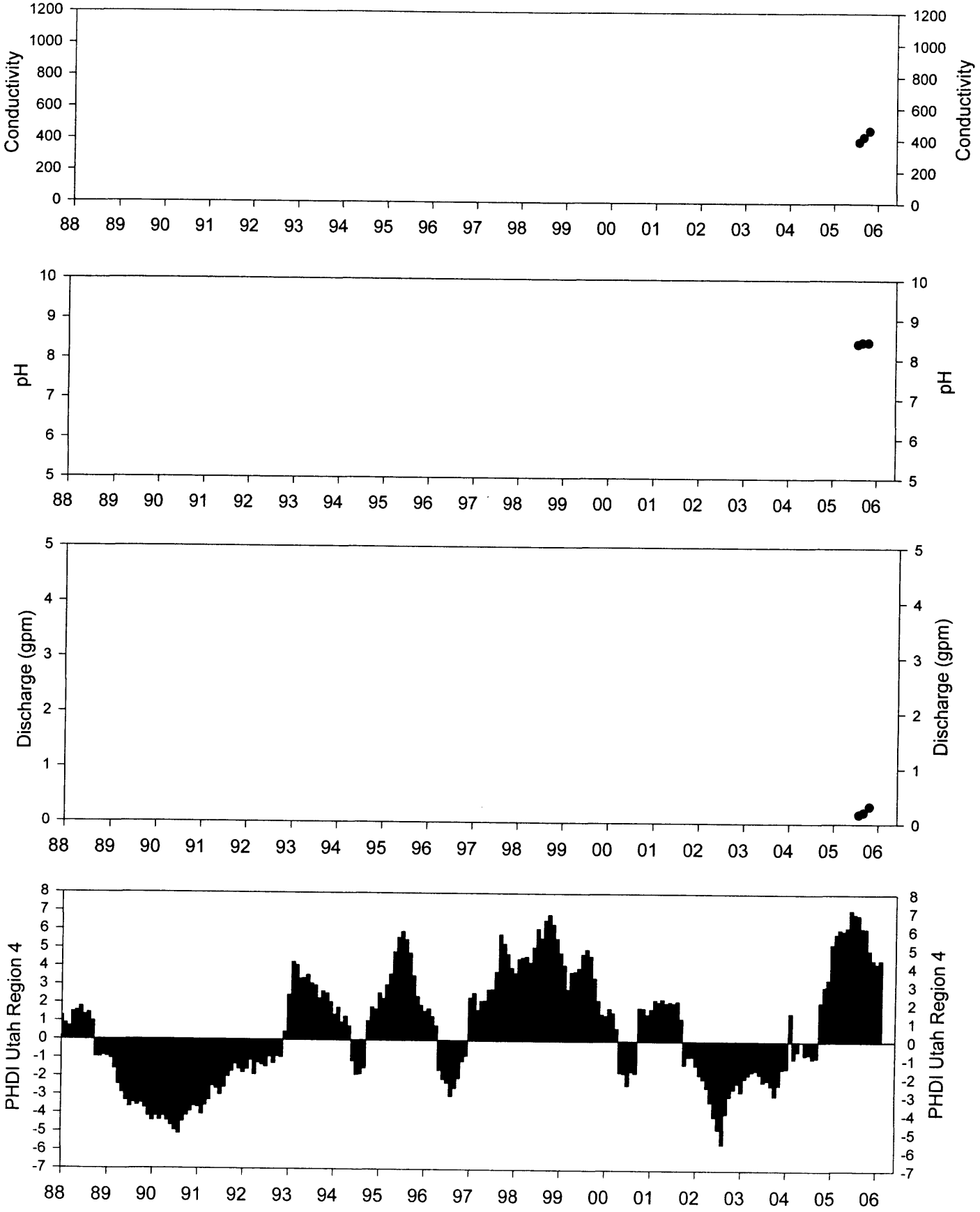
LB-7A


Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
5
4
3
2
1
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7

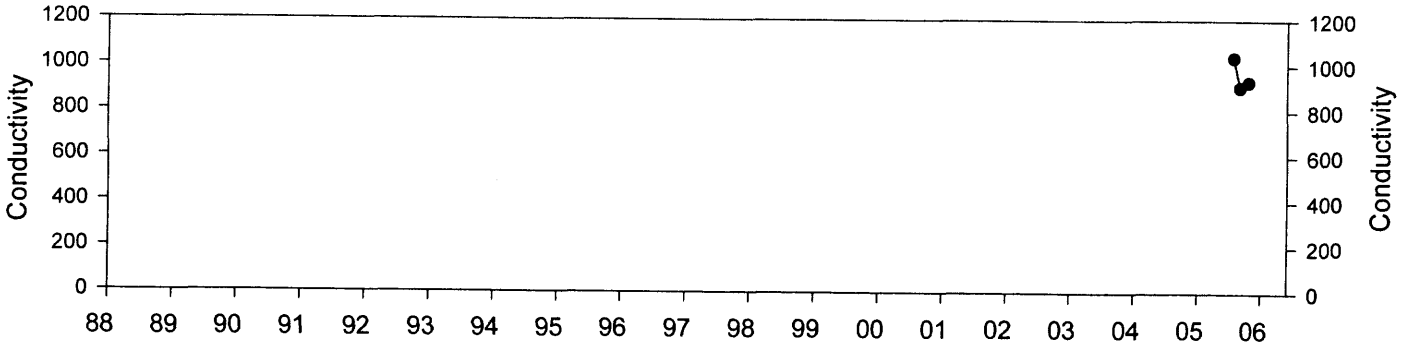
LB-7B

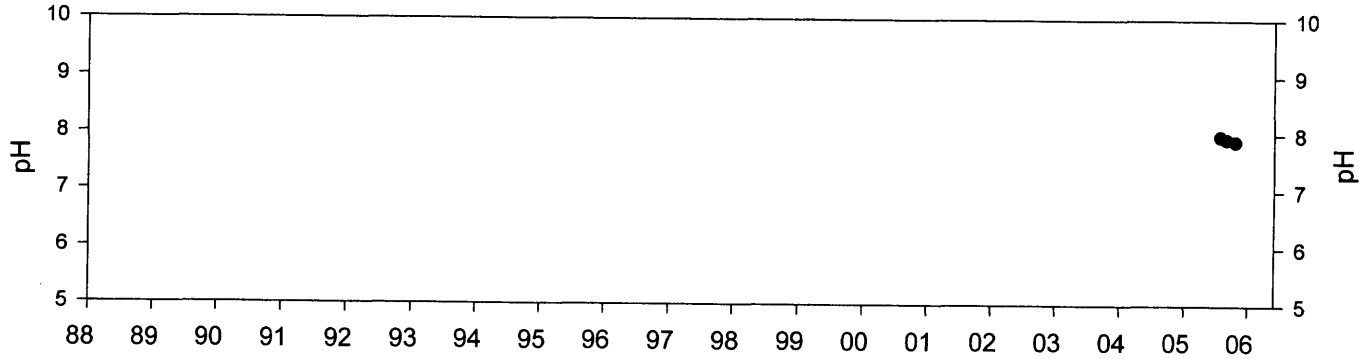

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
5
4
3
2
1
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7

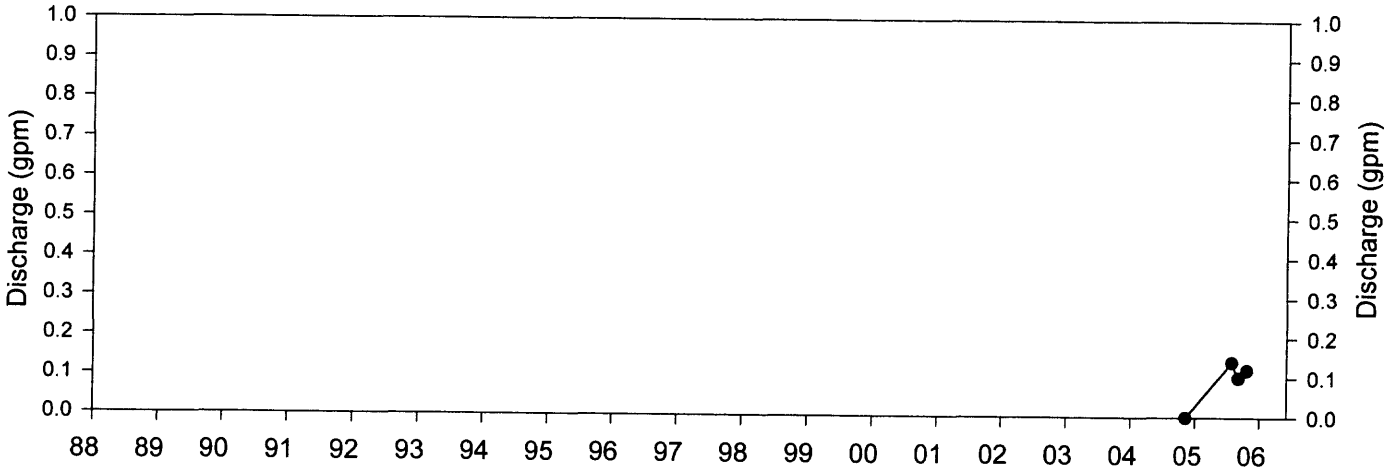
LB-7C

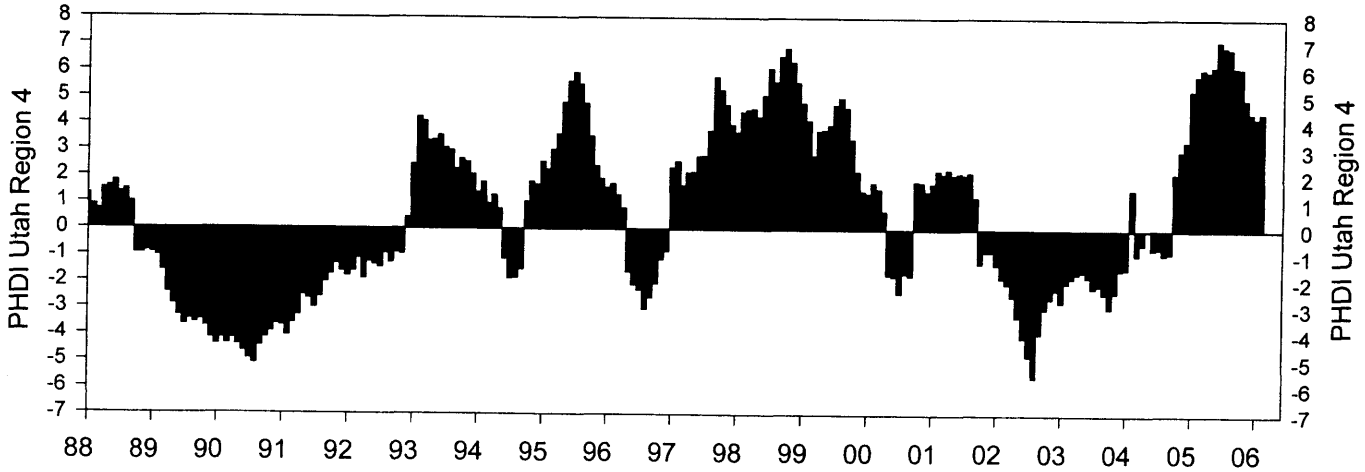

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
5
4
3
2
1
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7

LB-12

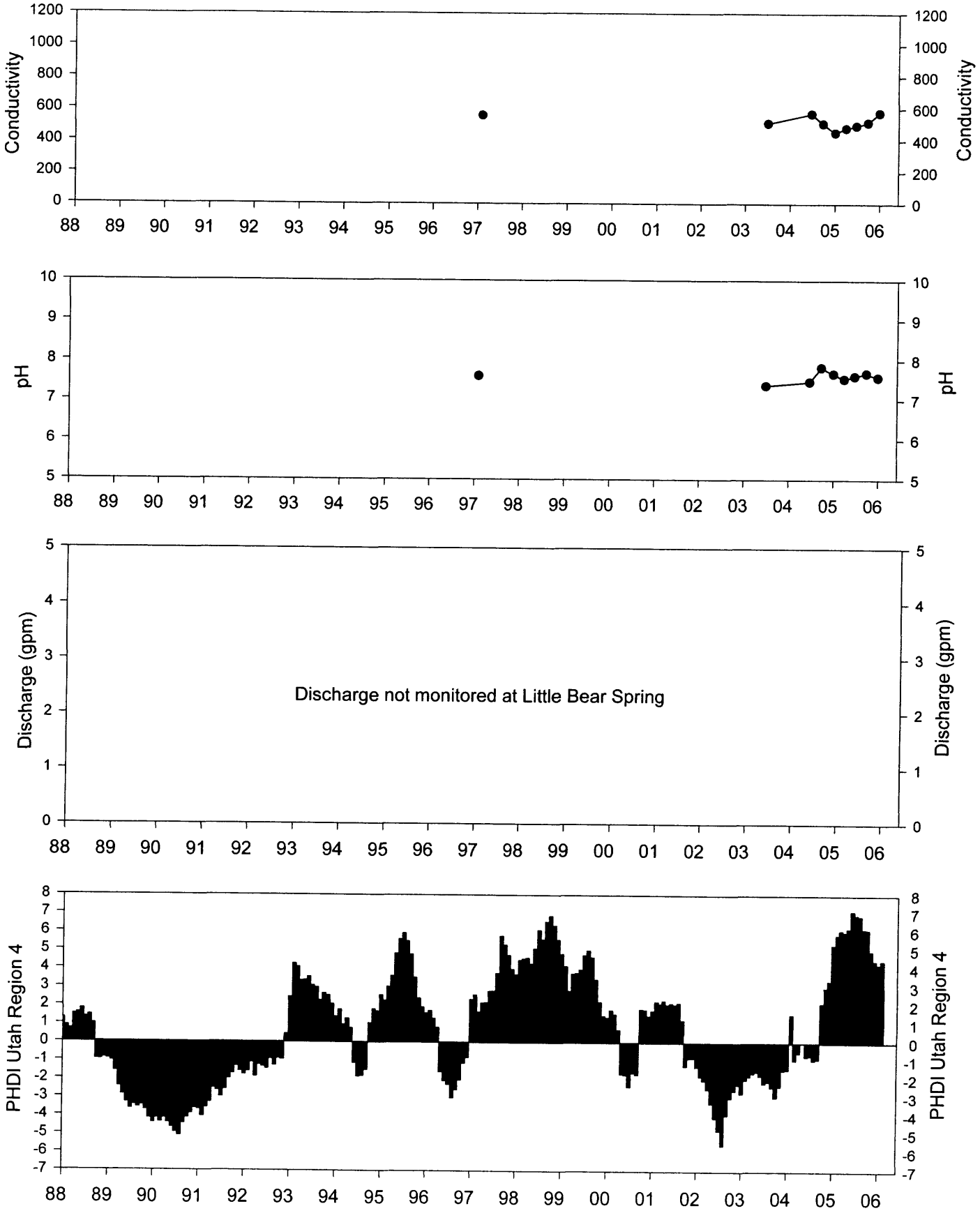

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

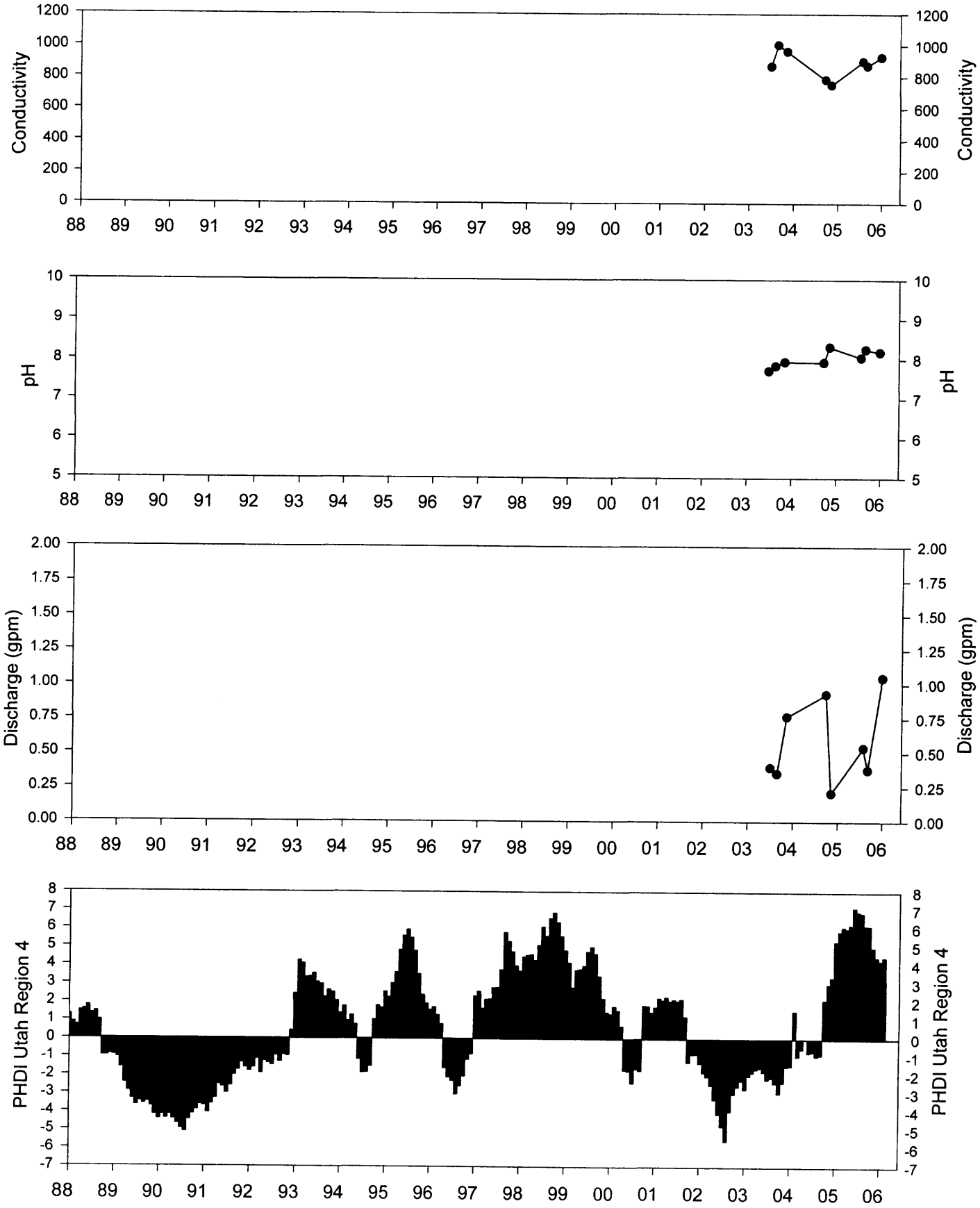

Discharge (gpm)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

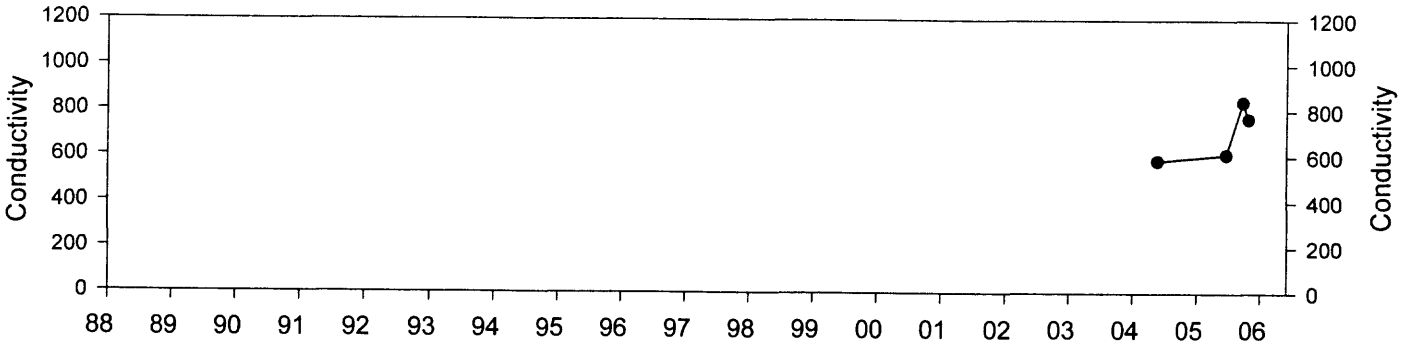
Little Bear Spring

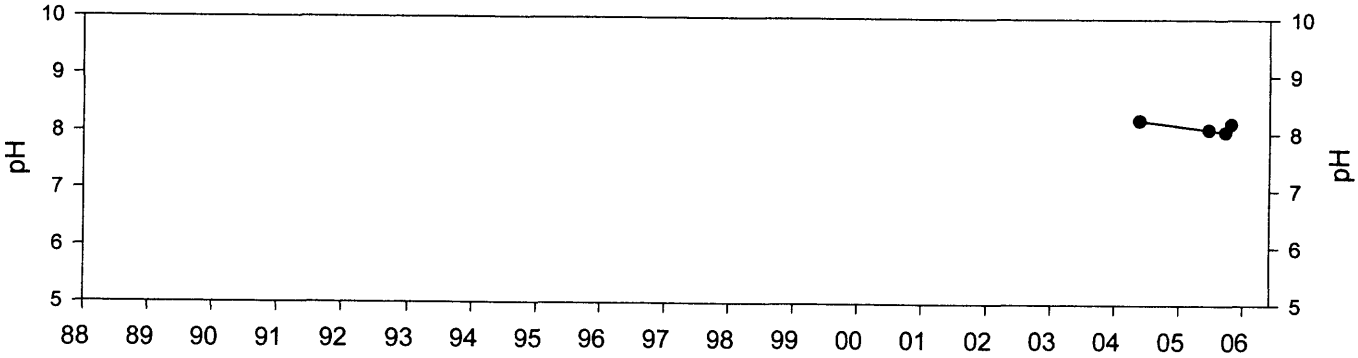


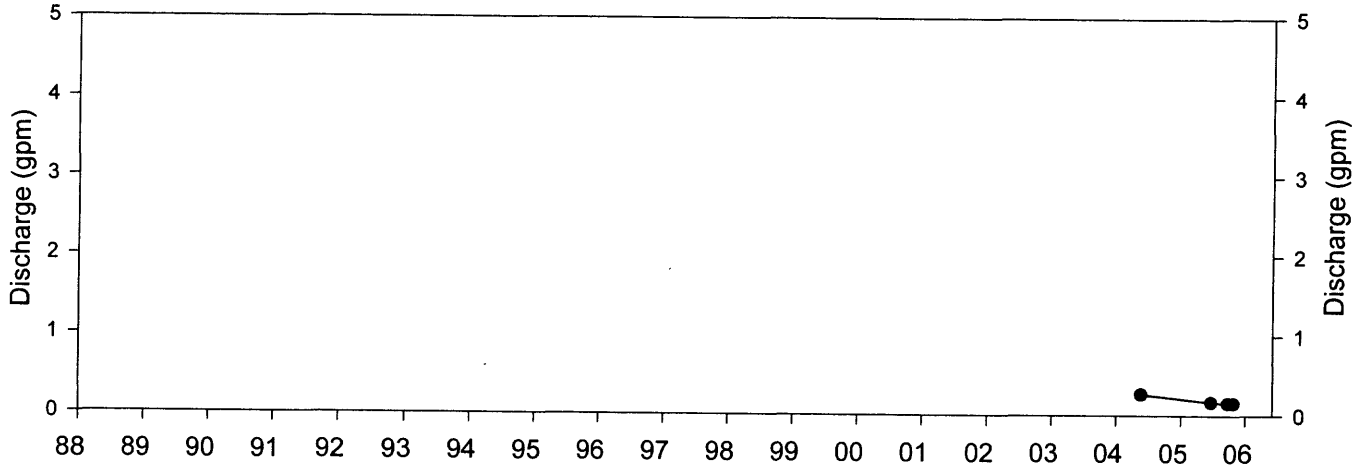
SP-79

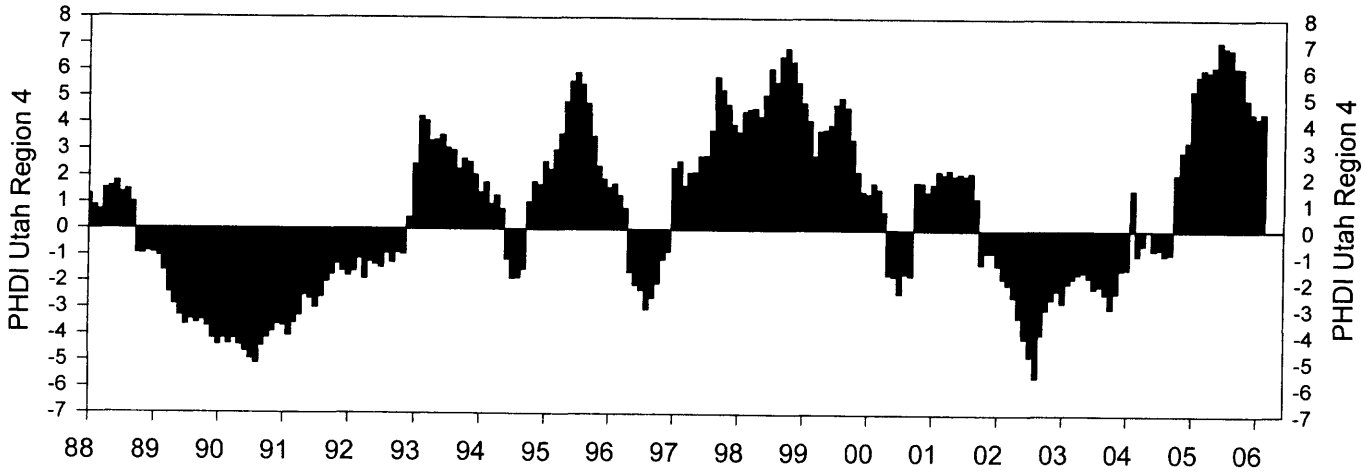

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7

SP-18

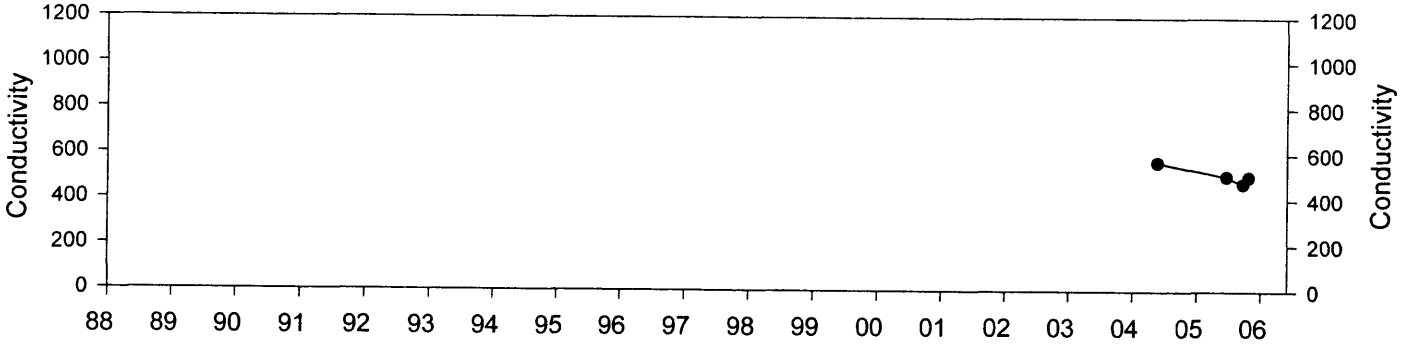

Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

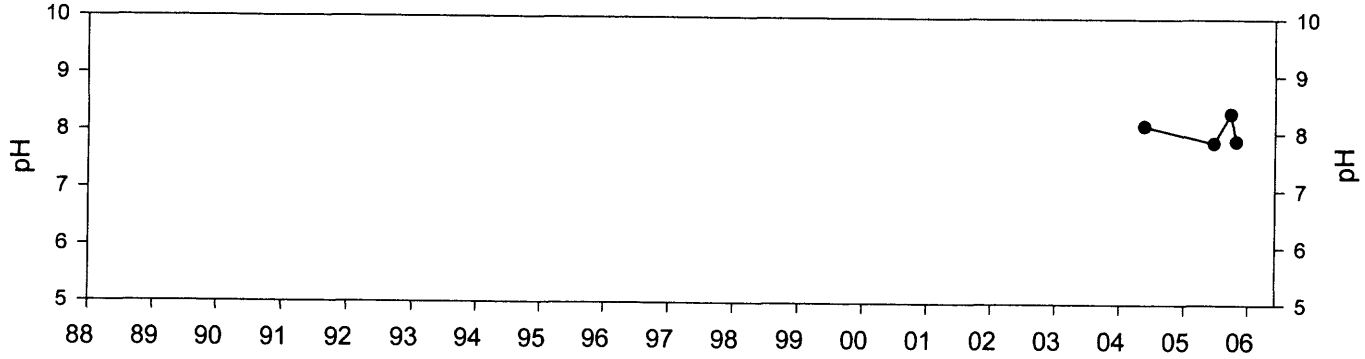

pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

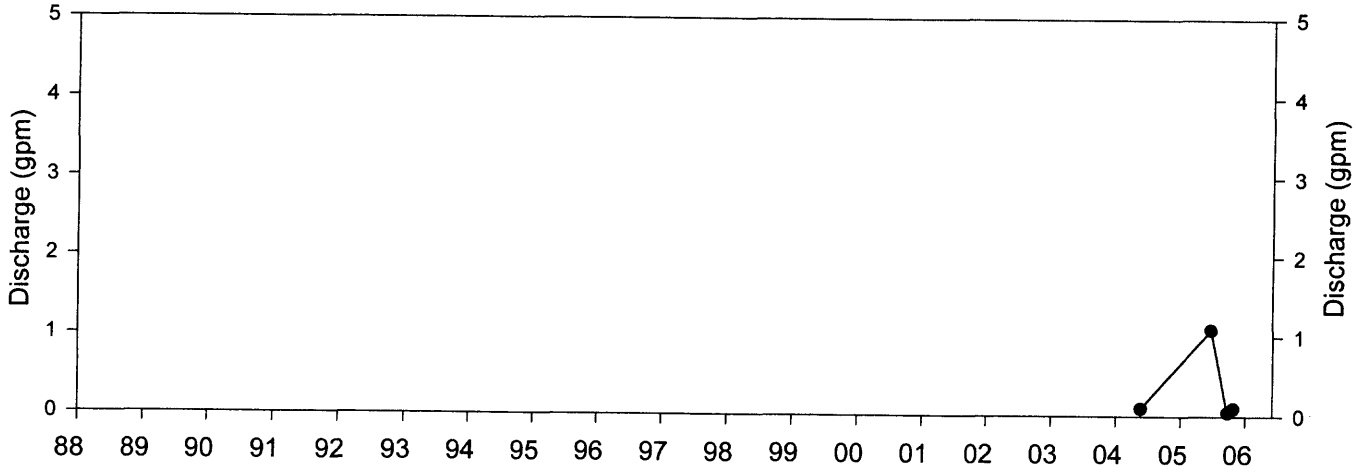

Discharge (gpm)
5
4
3
2
1
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

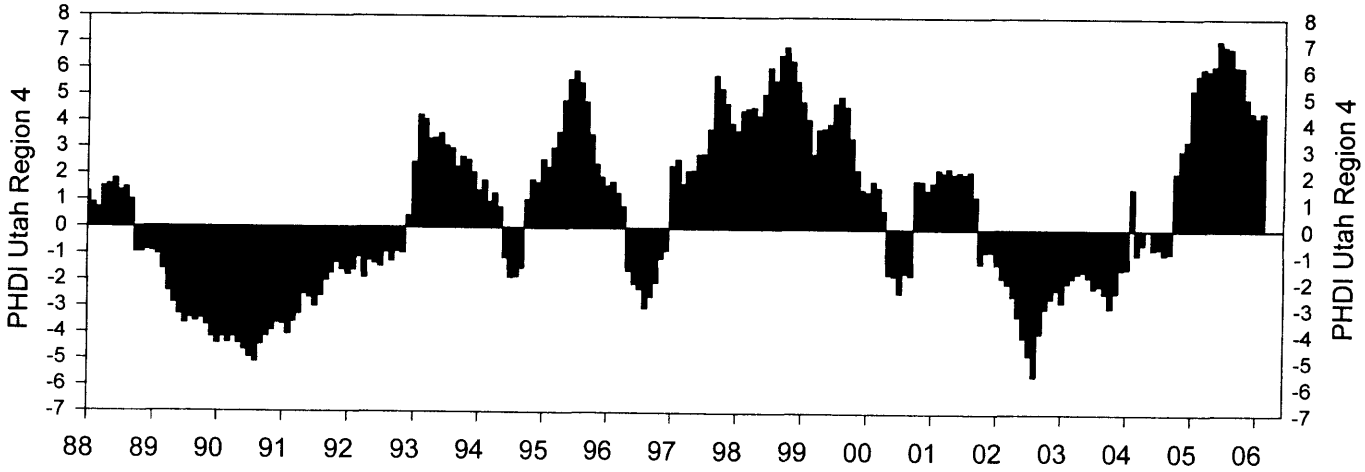

PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

SP-22


Conductivity
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


pH
10
9
8
7
6
5
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


Discharge (gpm)
5
4
3
2
1
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06


PHDI Utah Region 4
8
7
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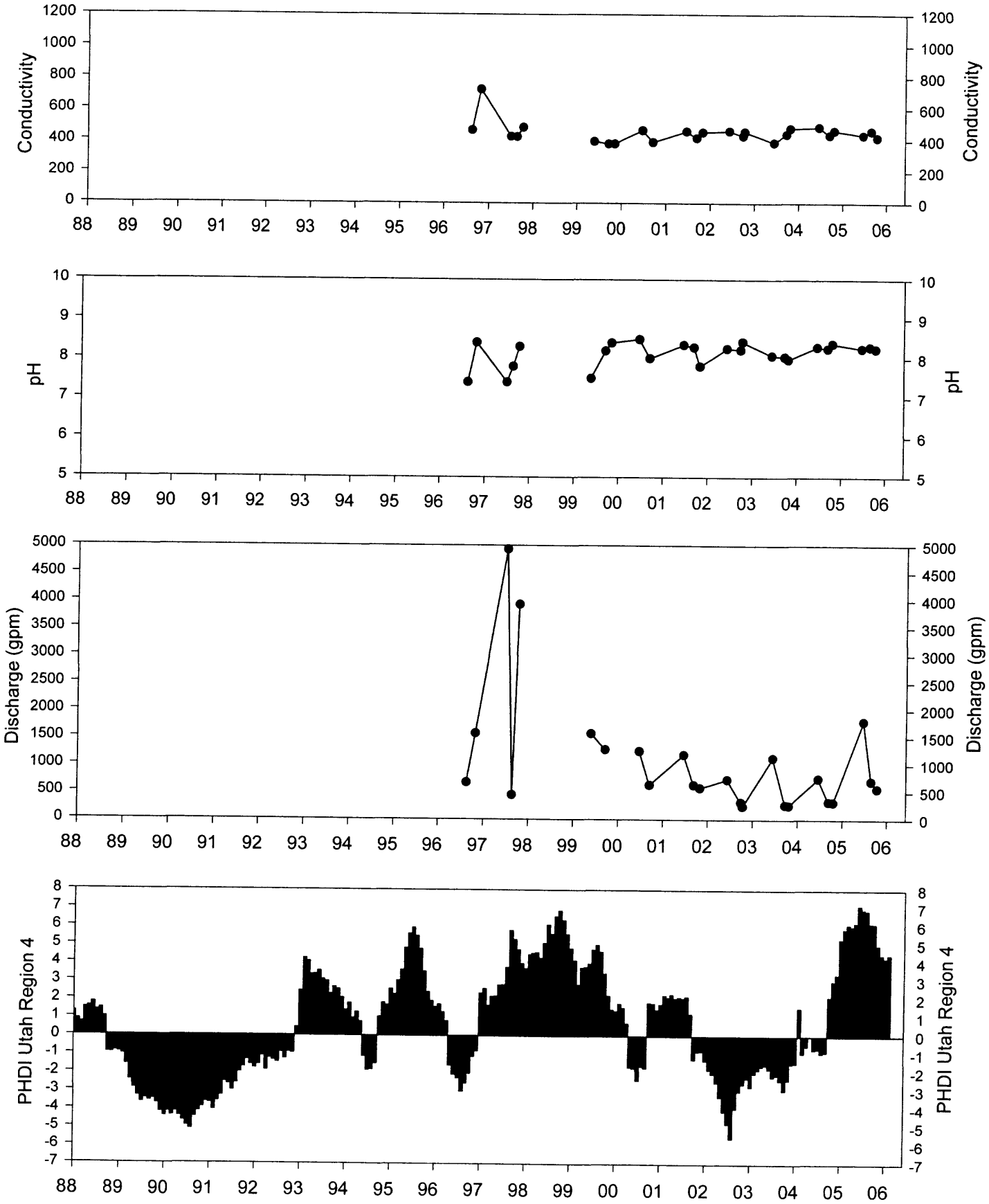
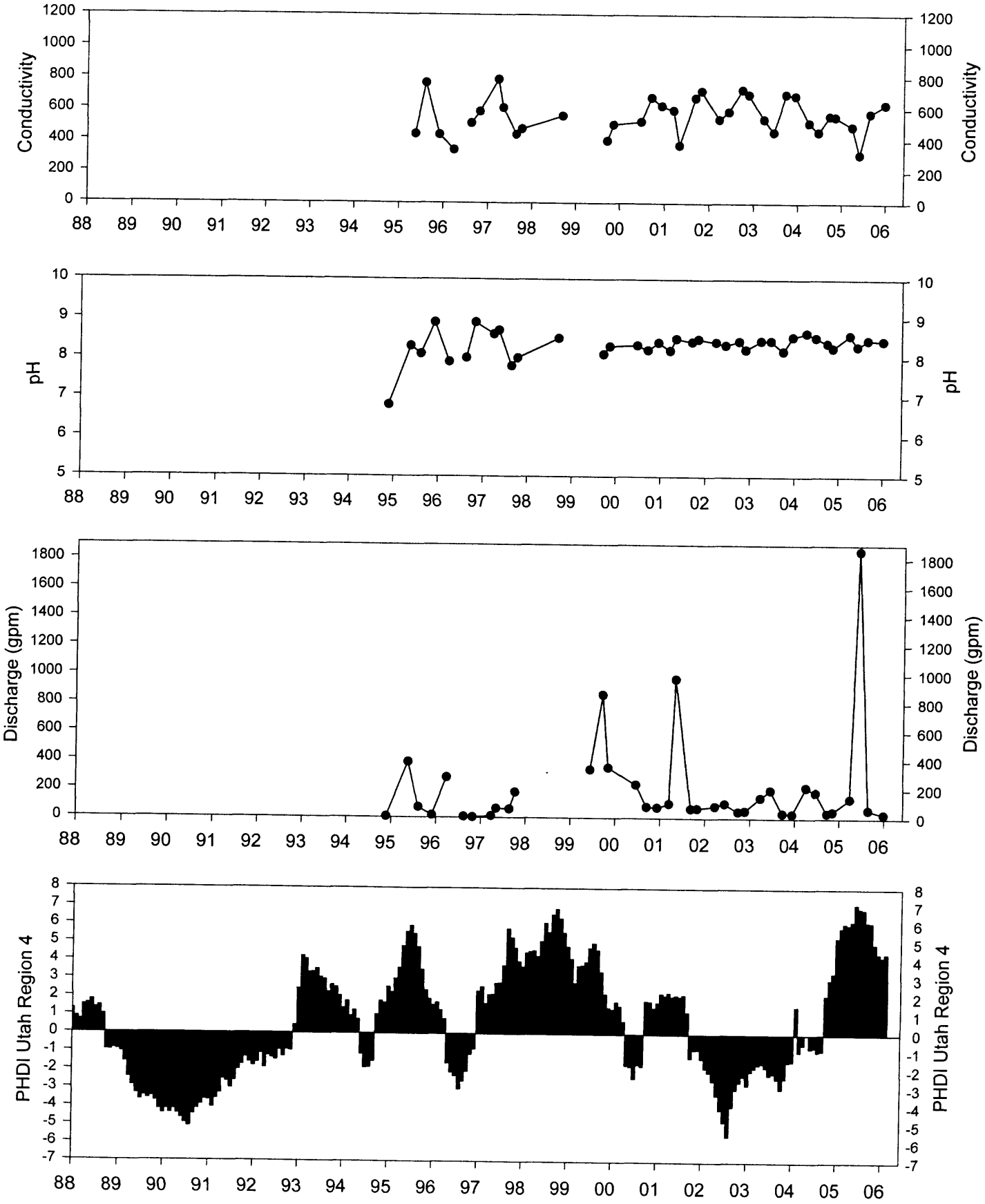
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

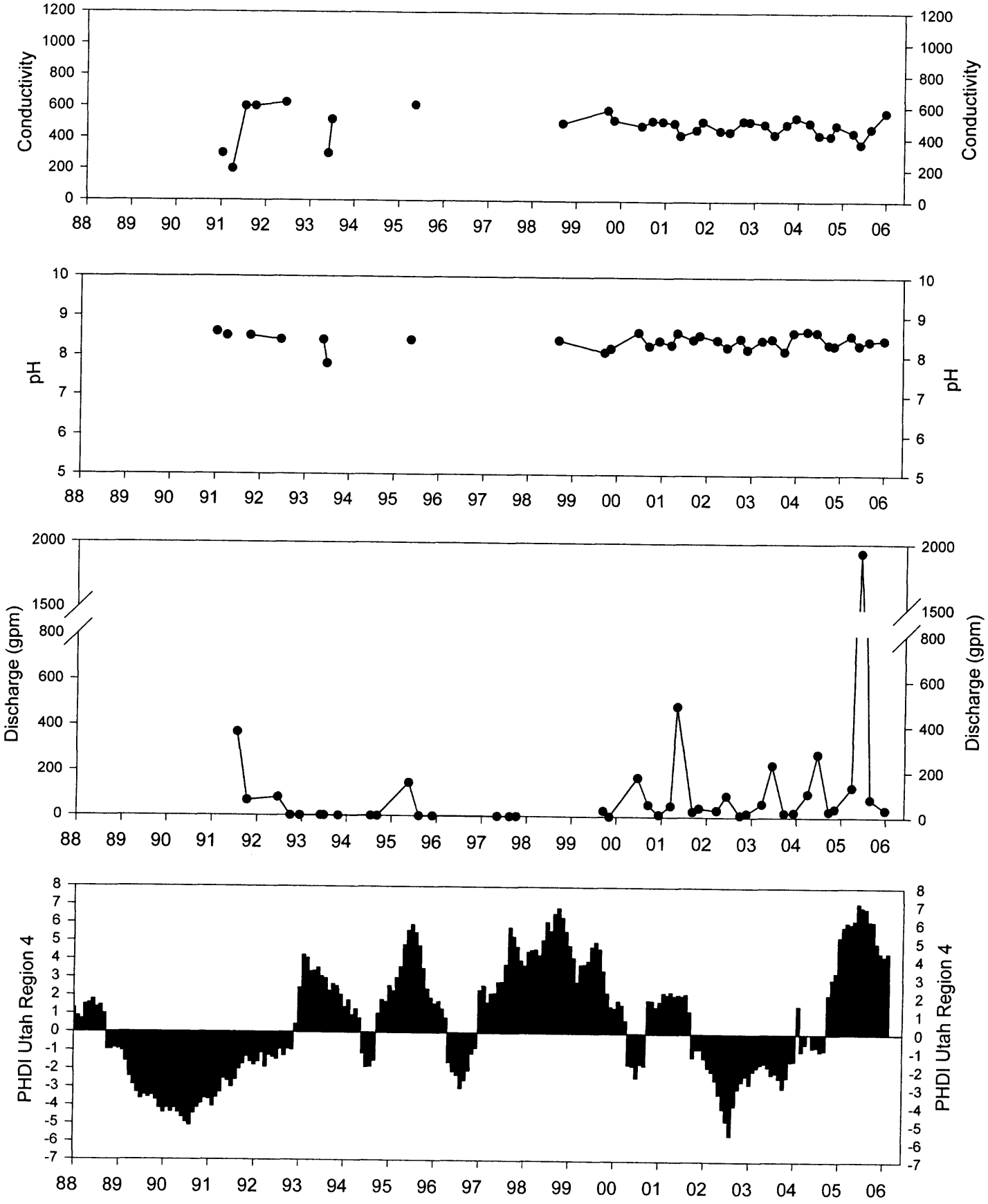
Indian Creek



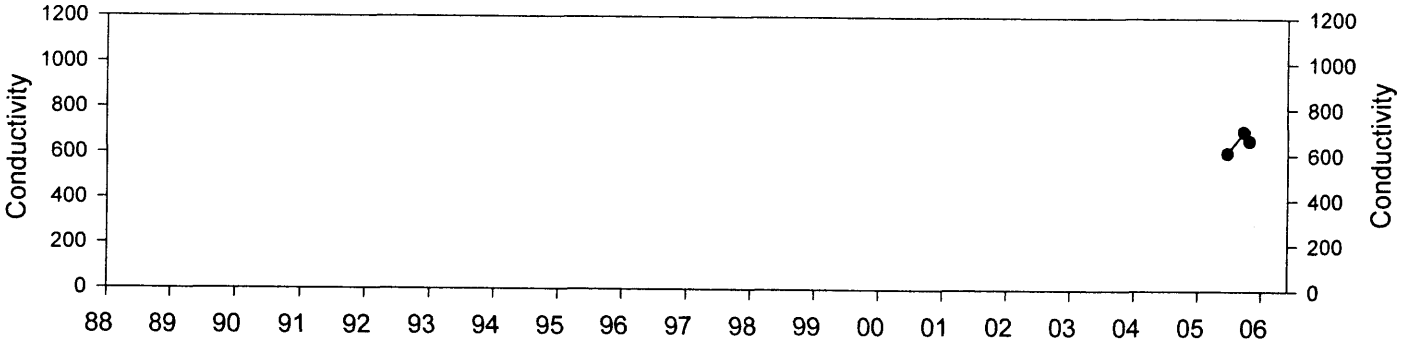
Horse Canyon Creek

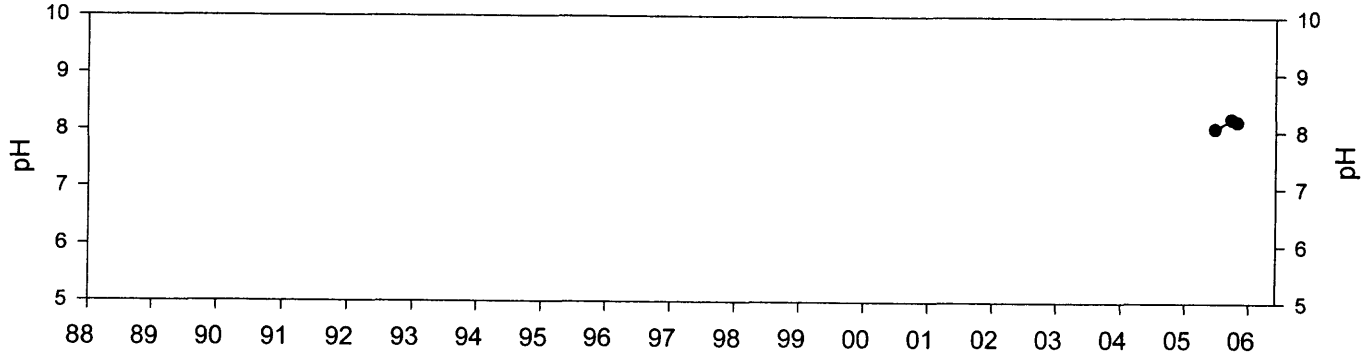


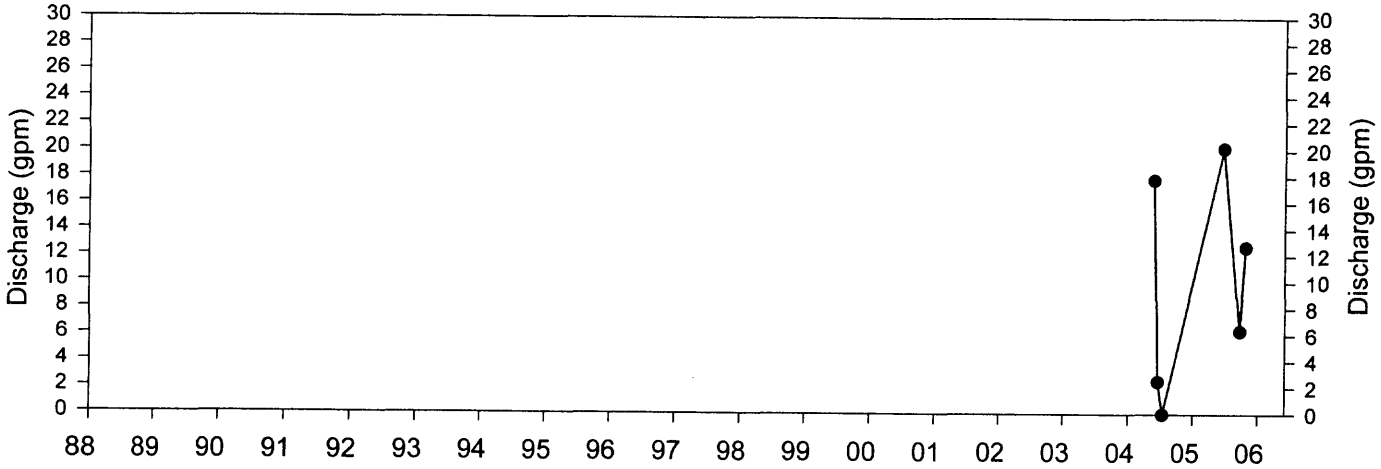
Blind Canyon Creek

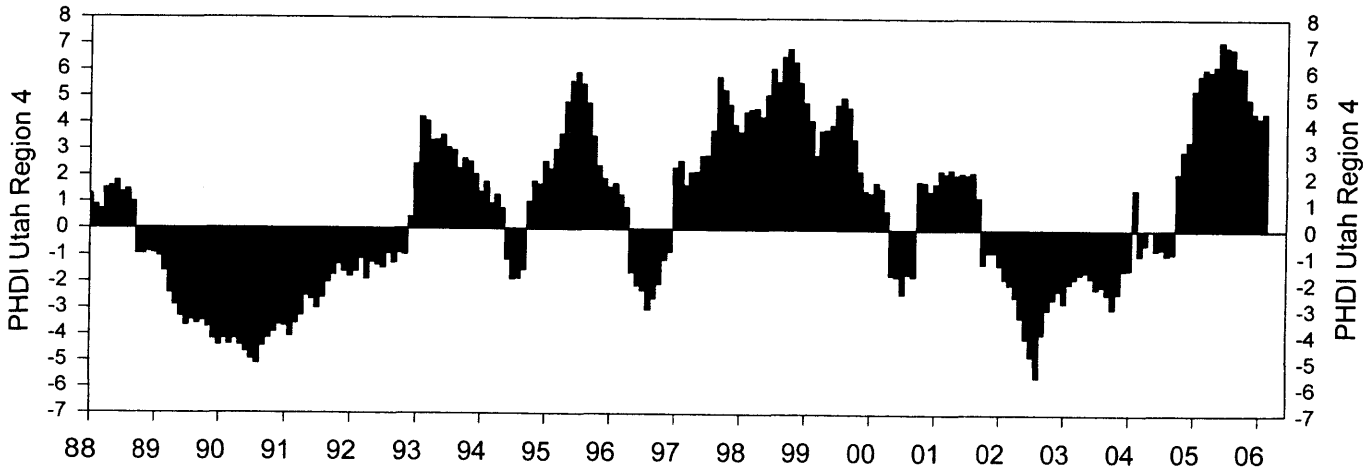


Shingle Creek

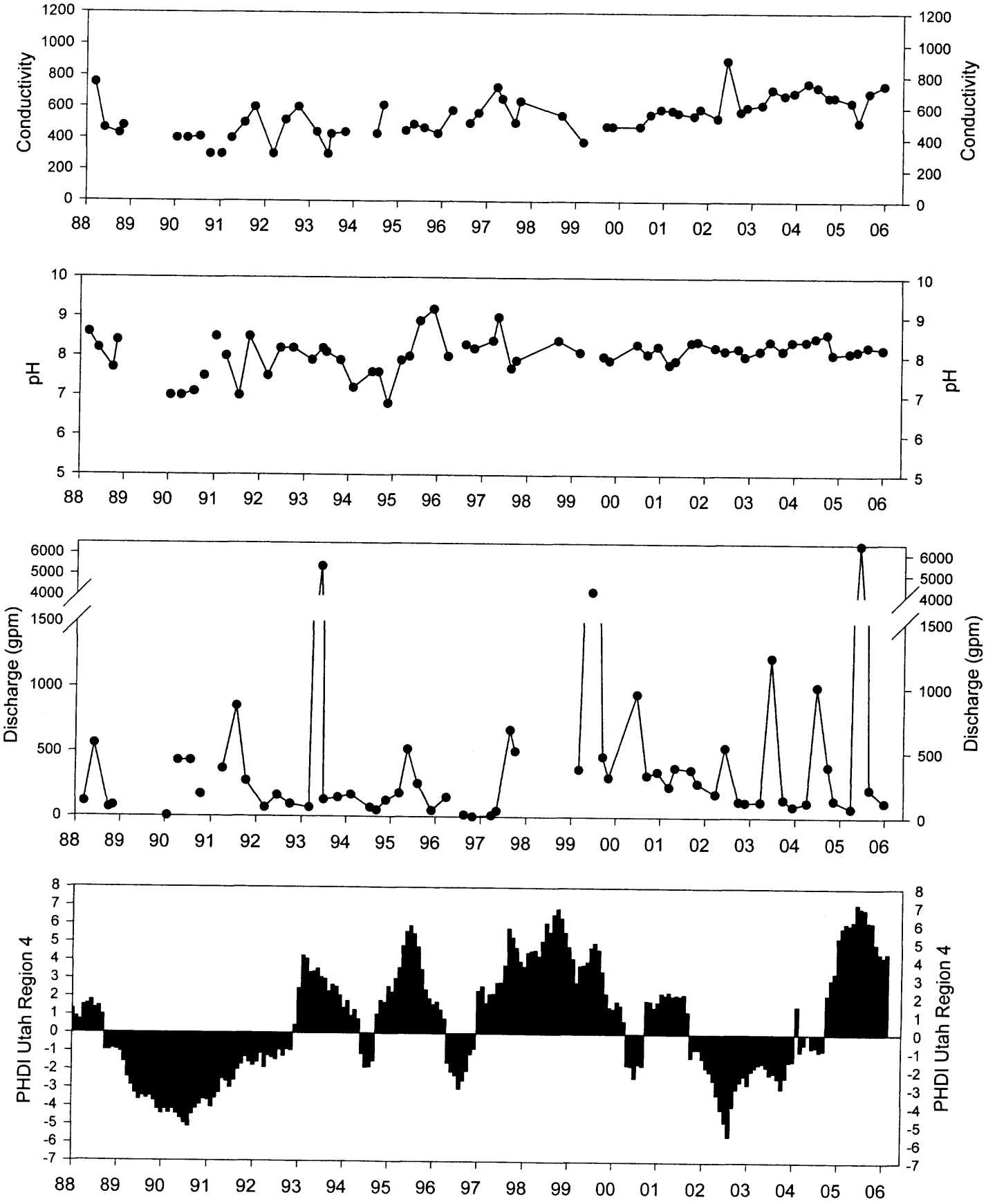




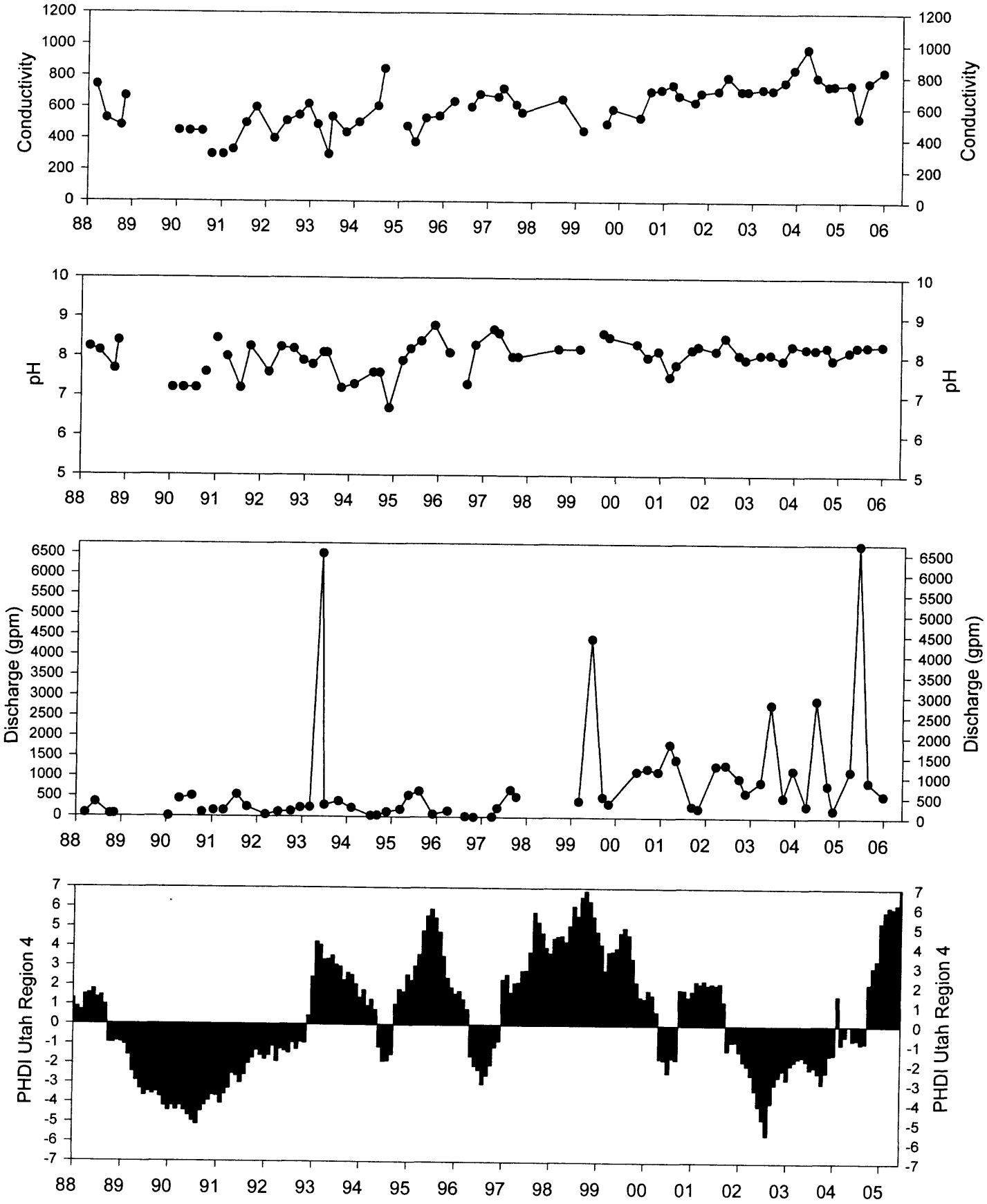




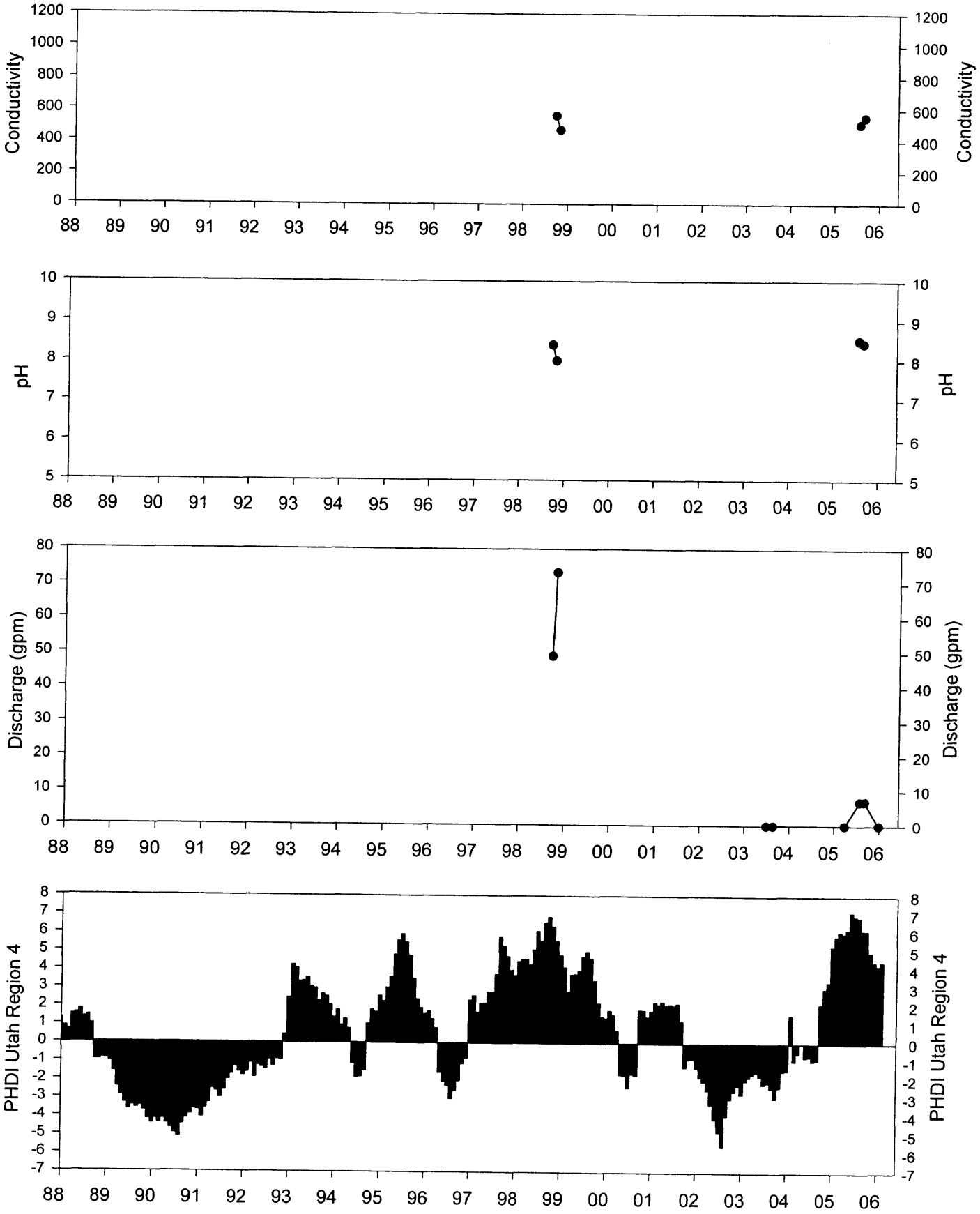
Crandall Canyon Upper Flume



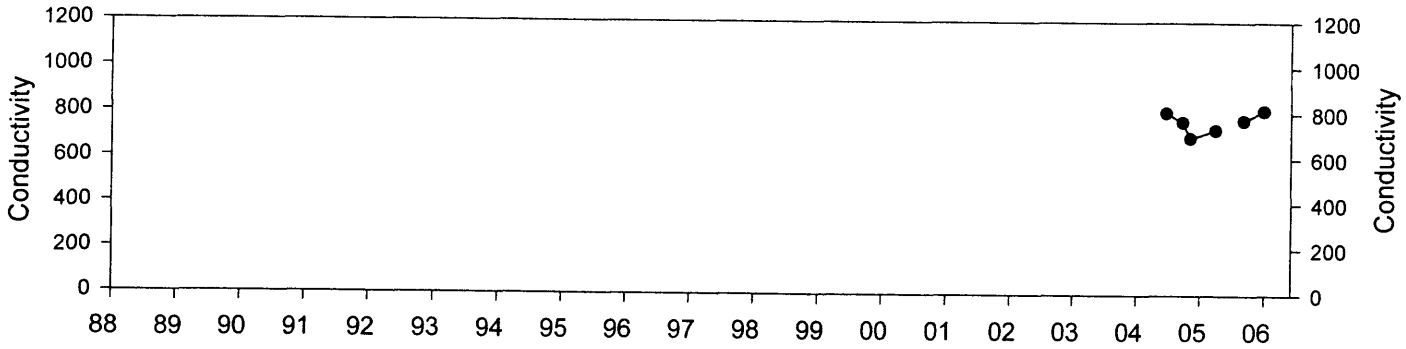
Crandall Canyon Lower Flume

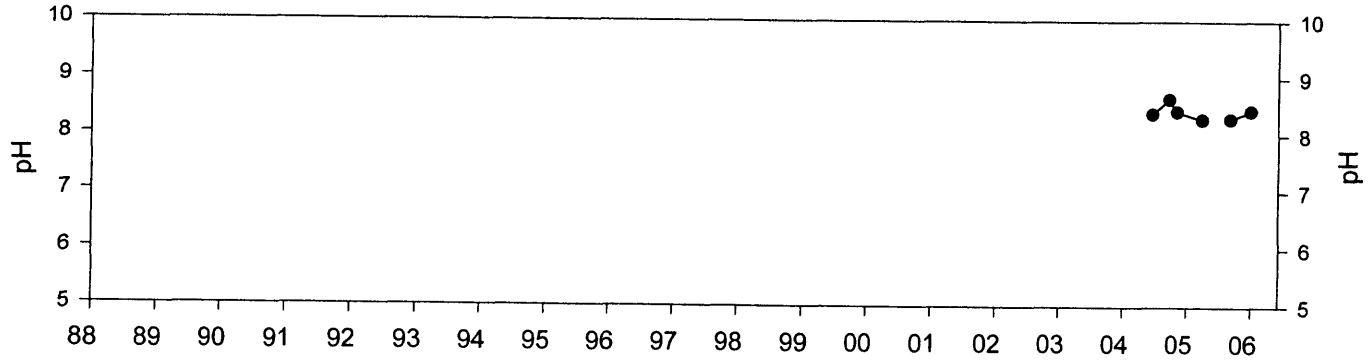


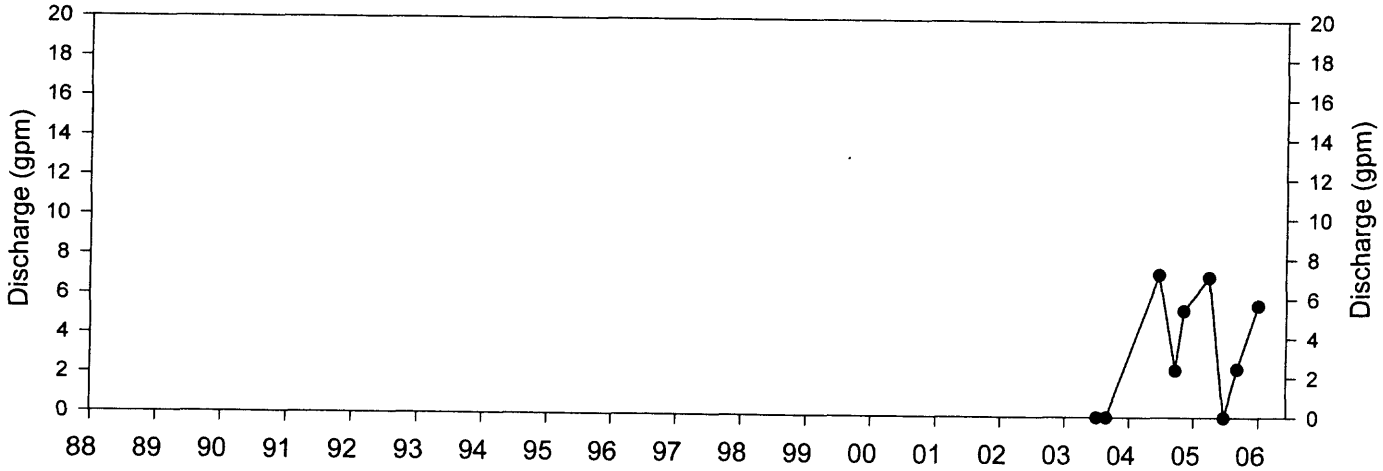
Little Bear Creek

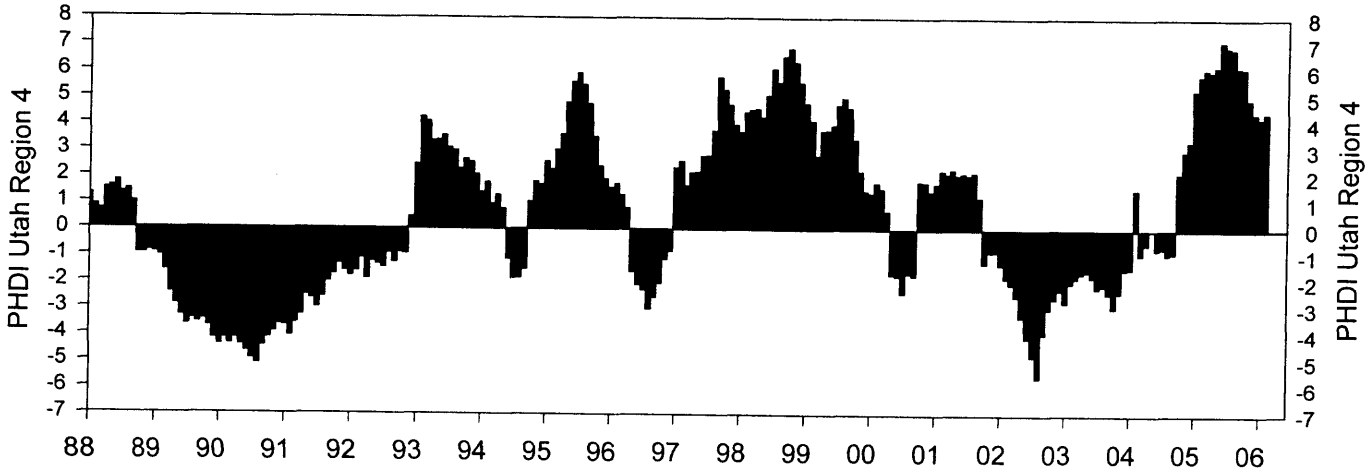


Section 4 Creek

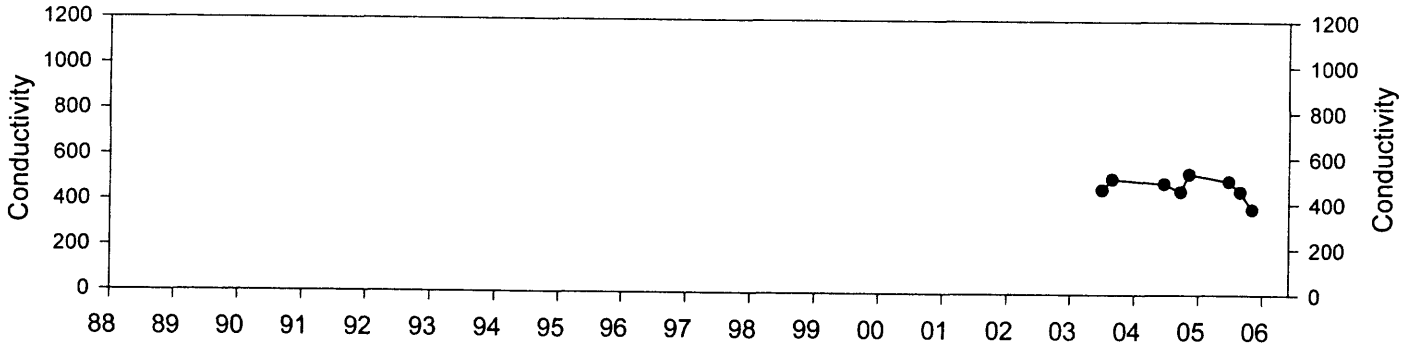


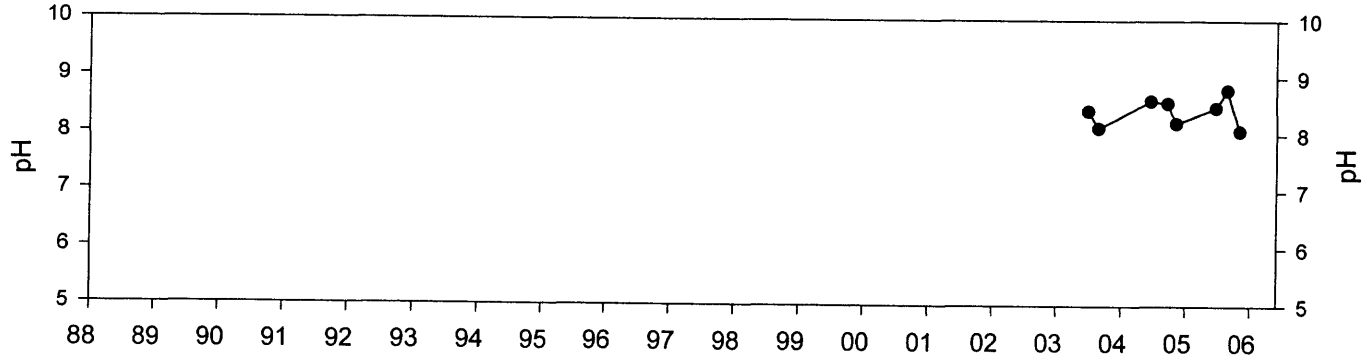


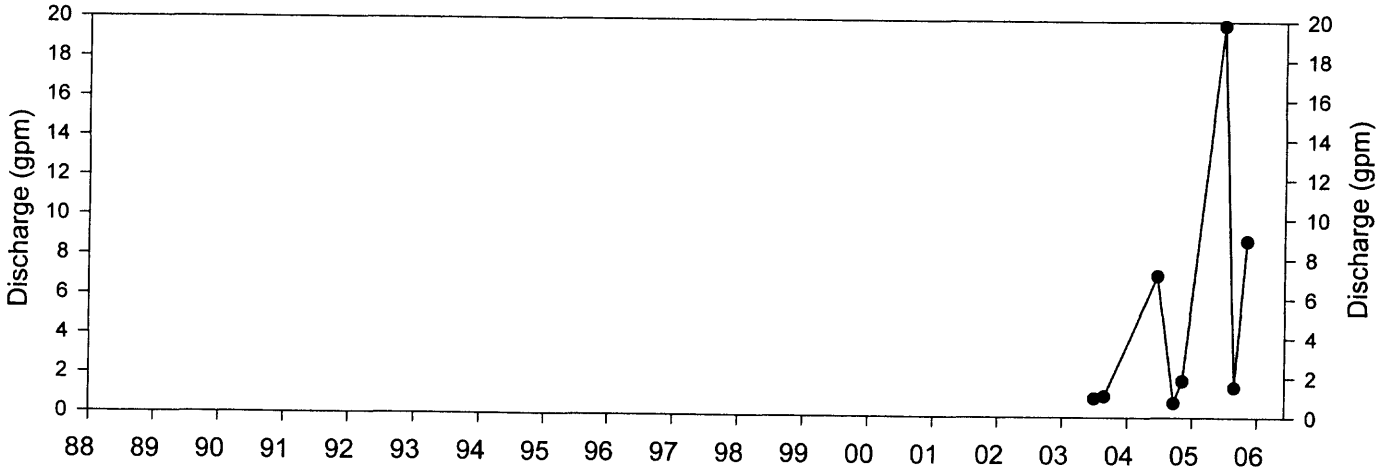


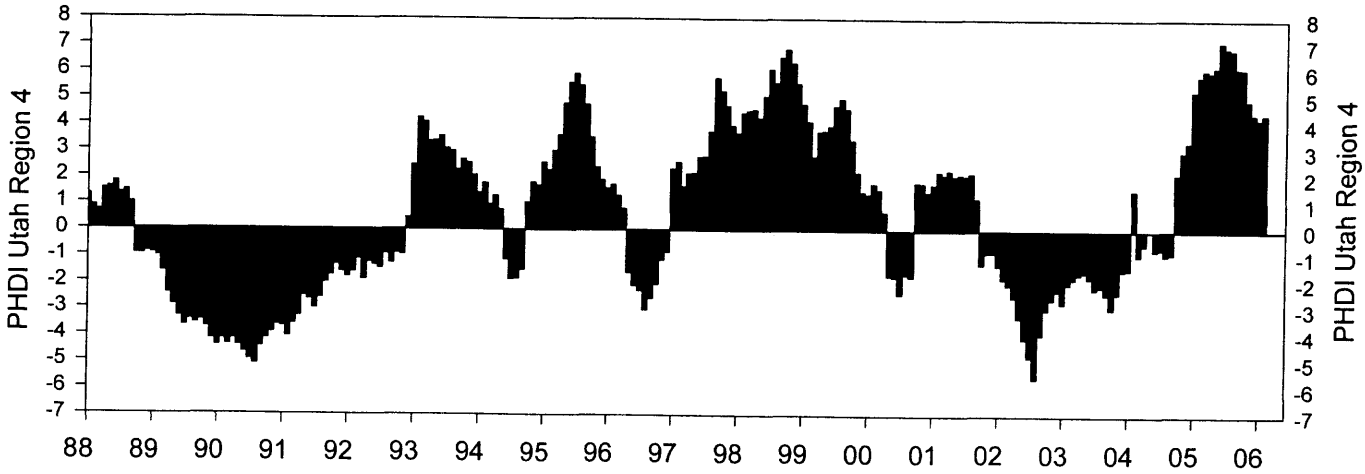


Section 5 Creek

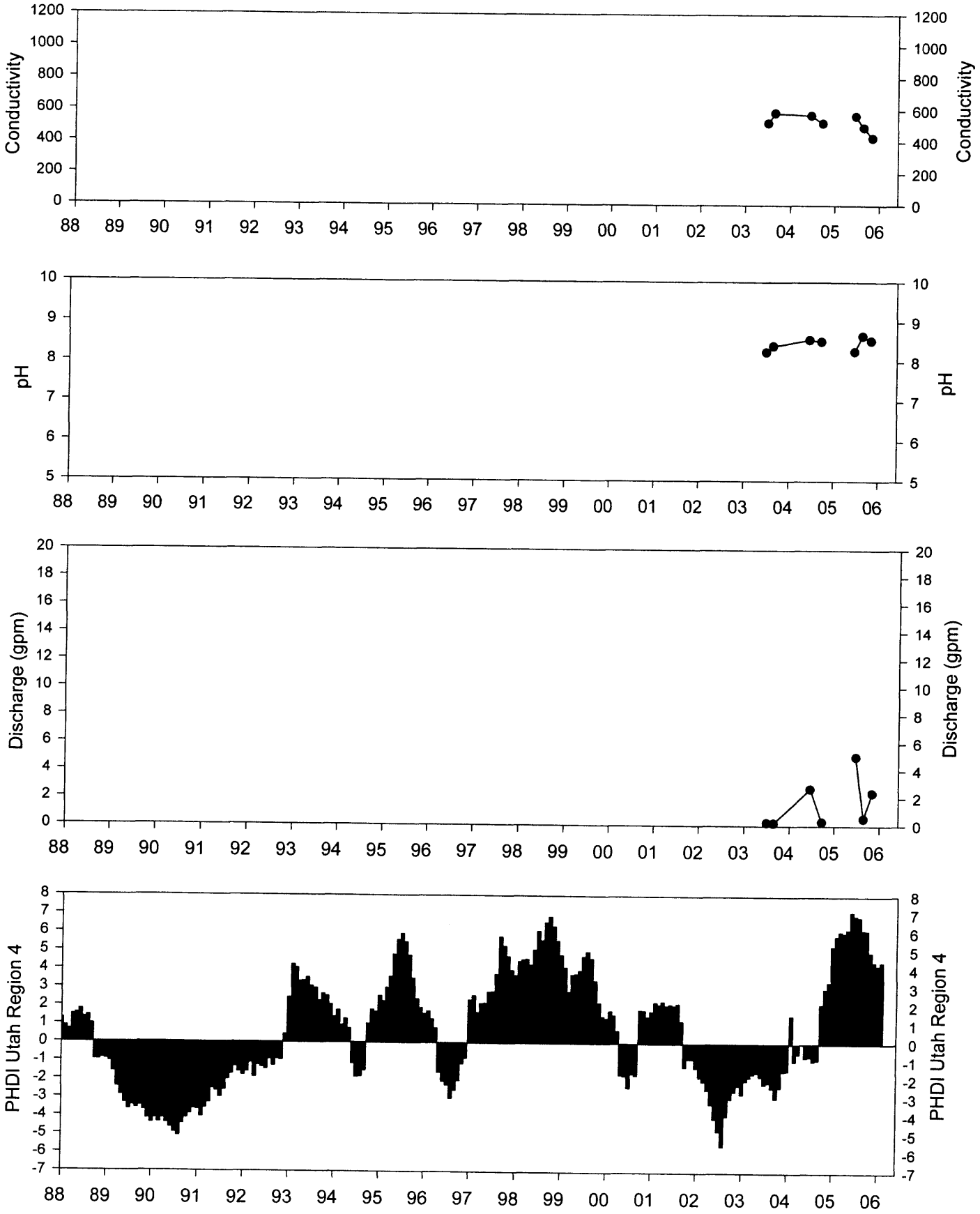




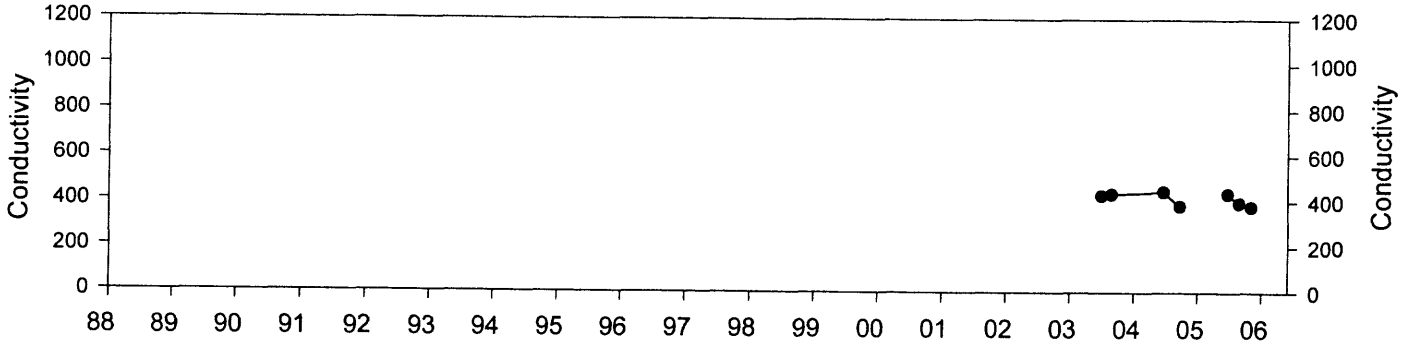


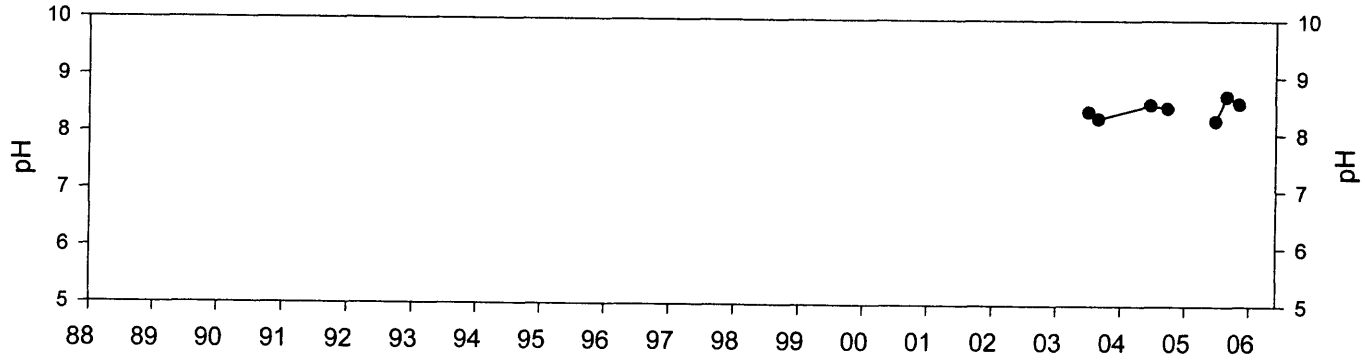


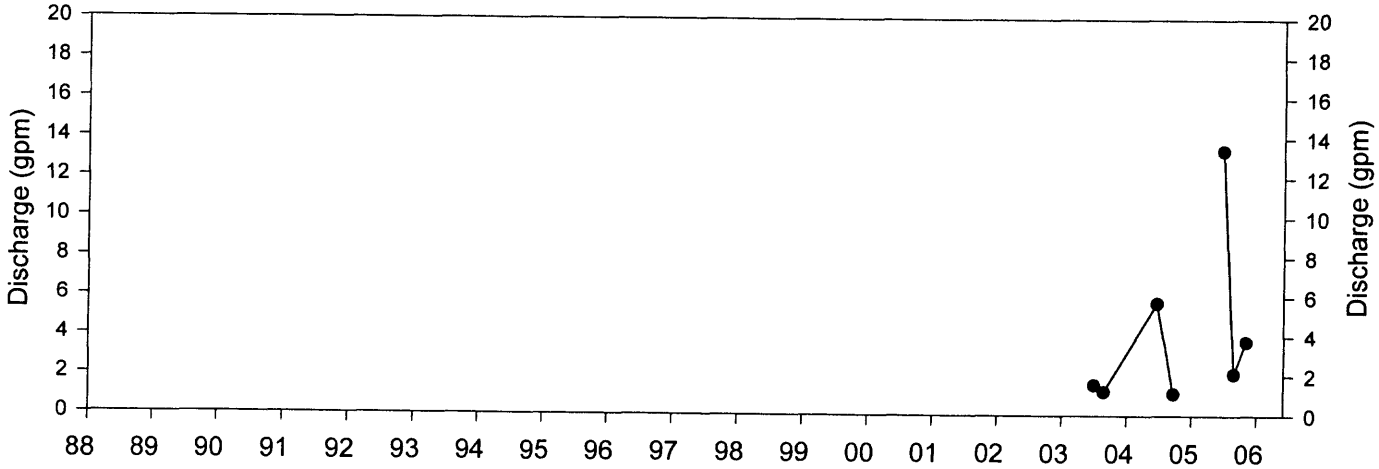
Section 5 U.R. Creek

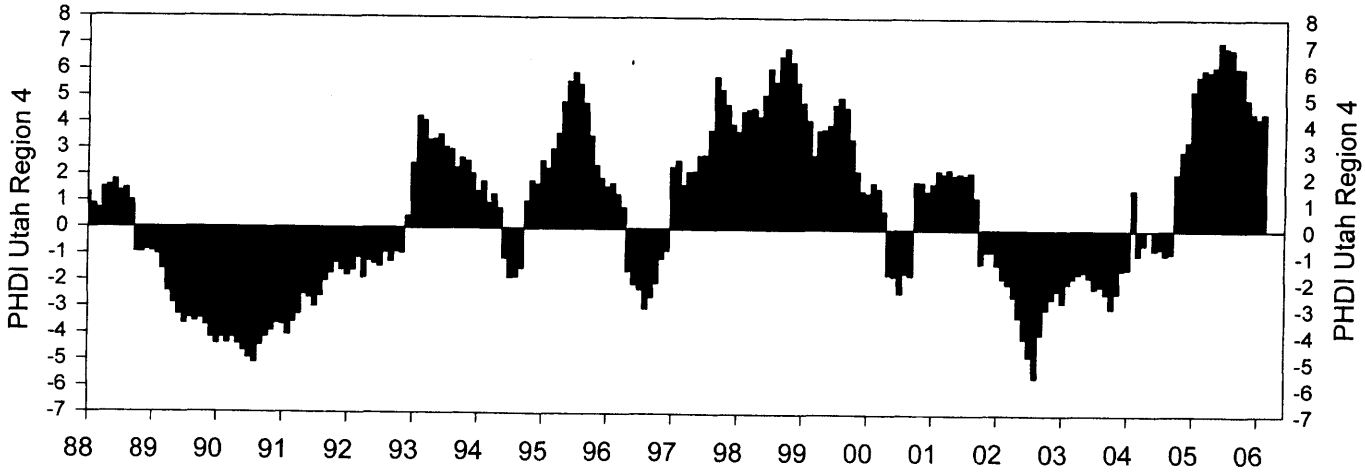


Section 5 U.L. Creek

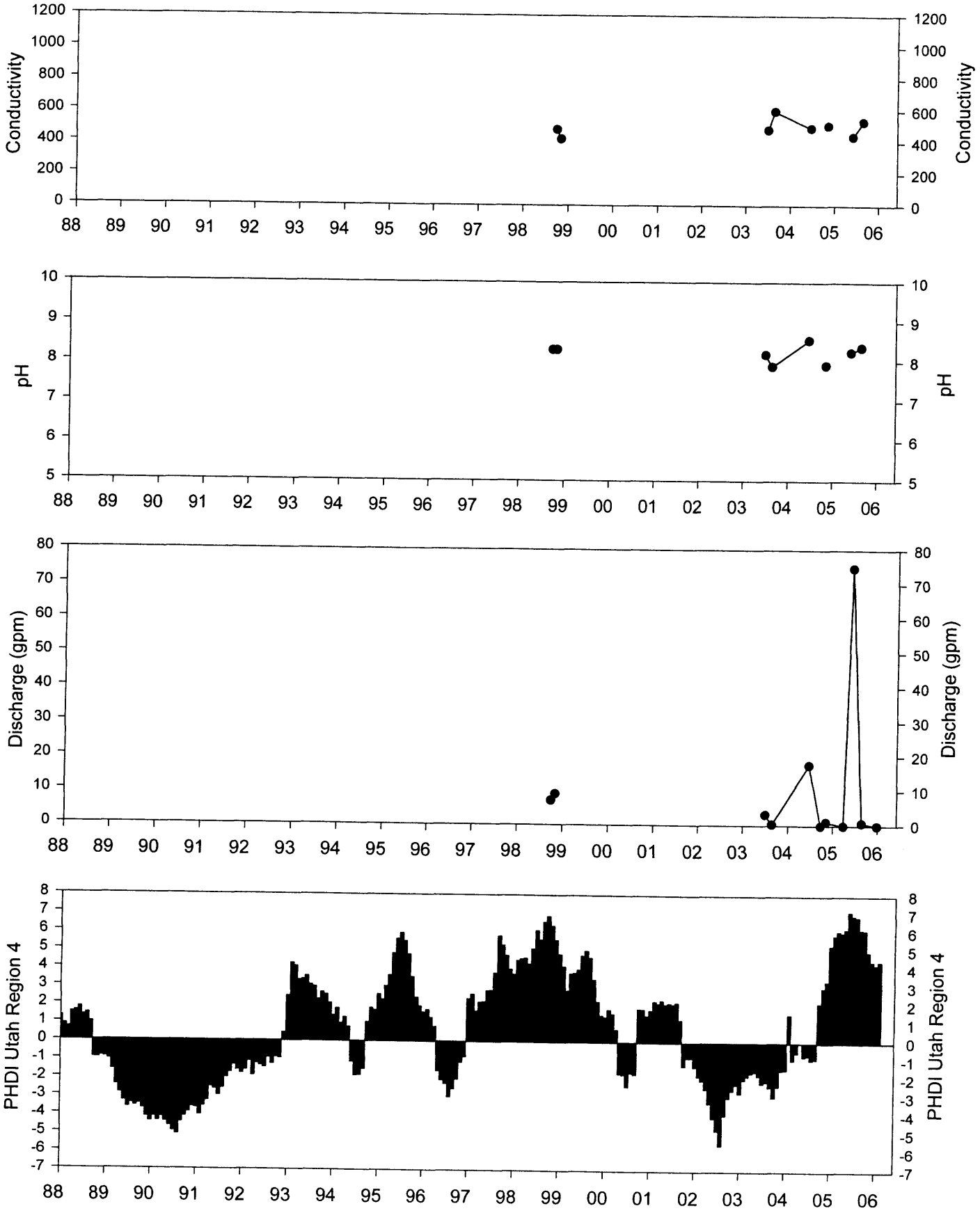








IBC-1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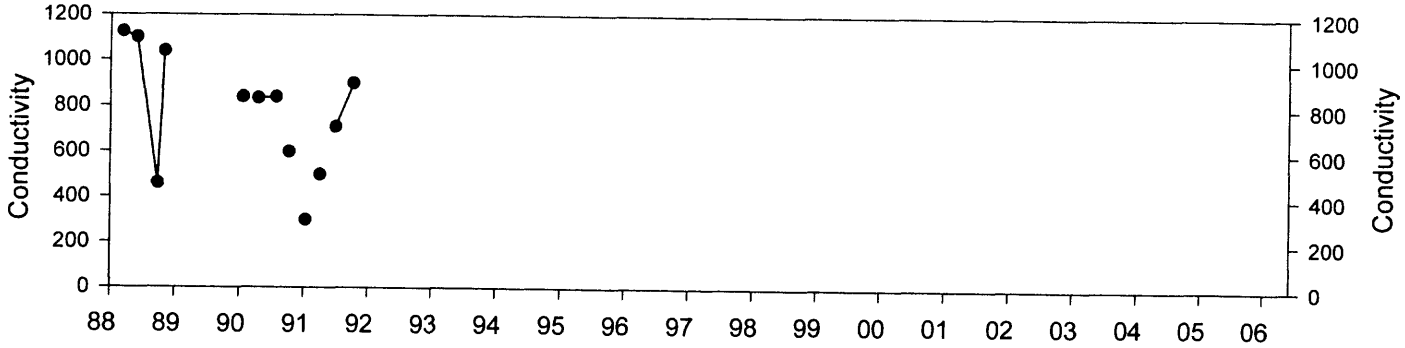
1200
1000
800
600
400
200
0
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
pH
10
9
8
7
6
5
Discharge (gpm)
80
70
60
50
40
30
20
10
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7

DH-1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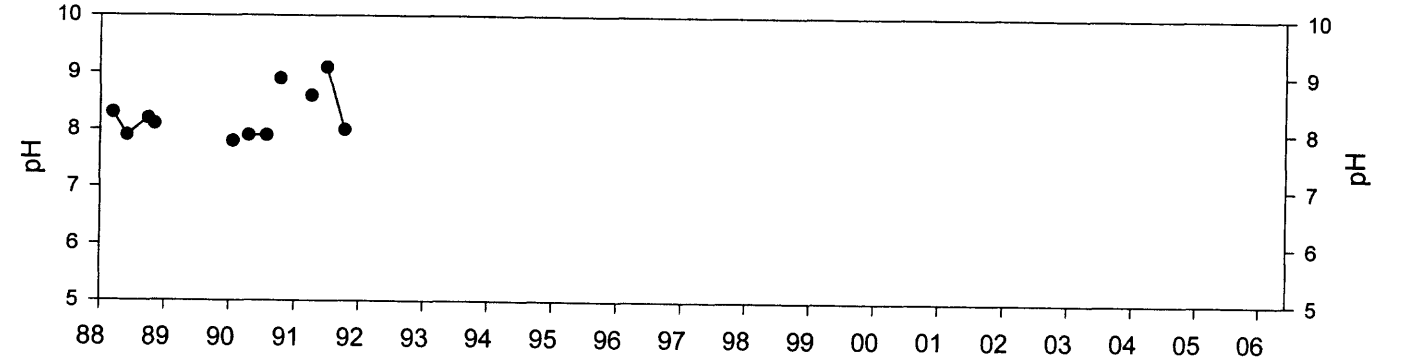
pH
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9
8
7
6
5
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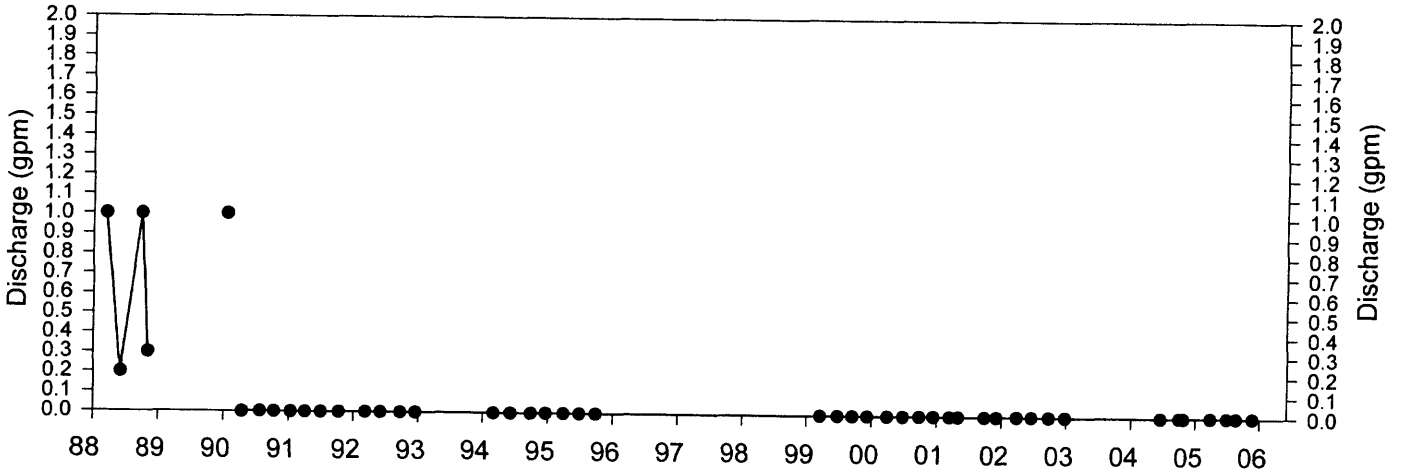
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1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
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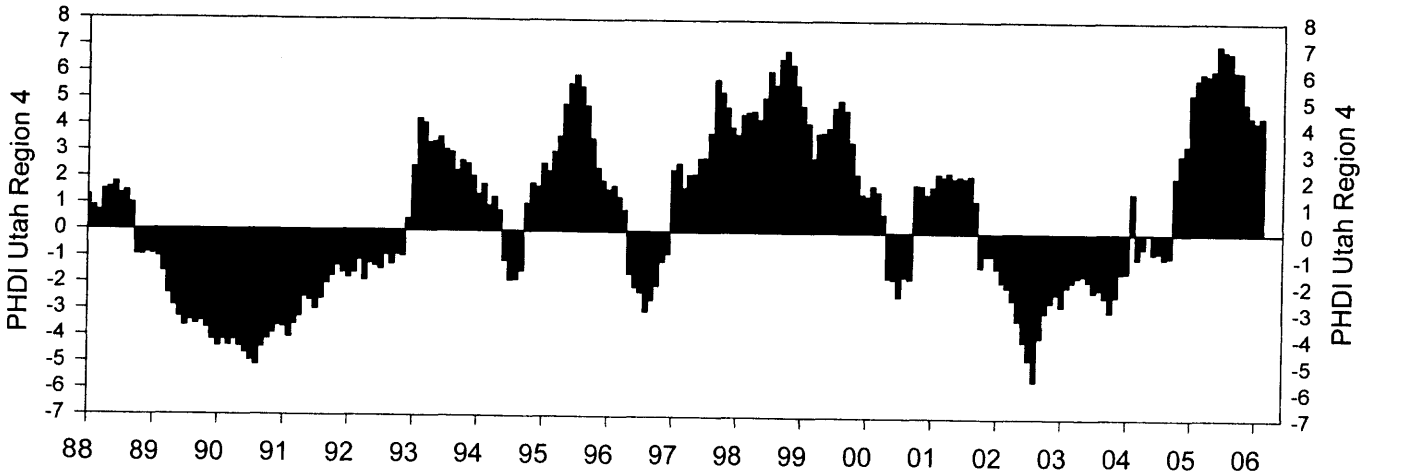
PHDI Utah Region 4
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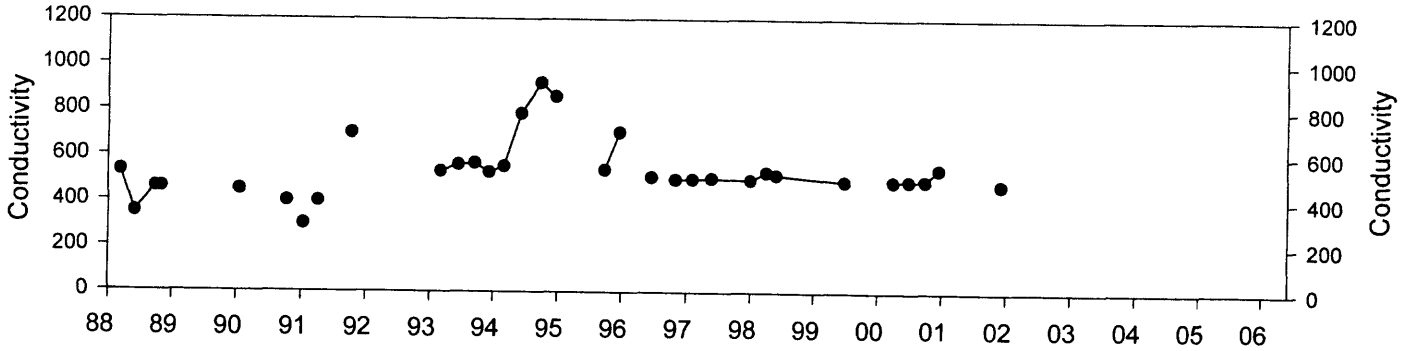
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06

MW-1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200
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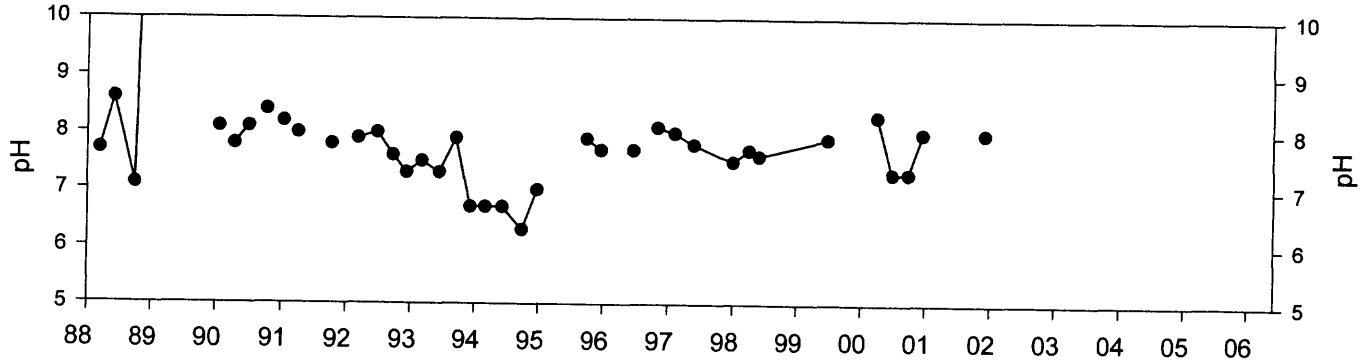
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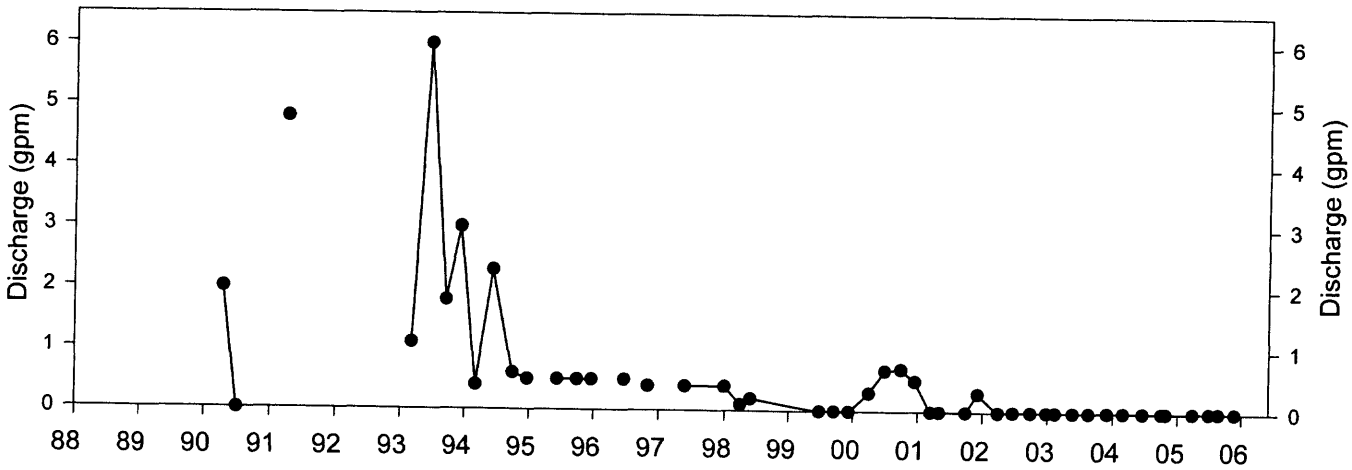
Discharge (gpm)
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2
1
0
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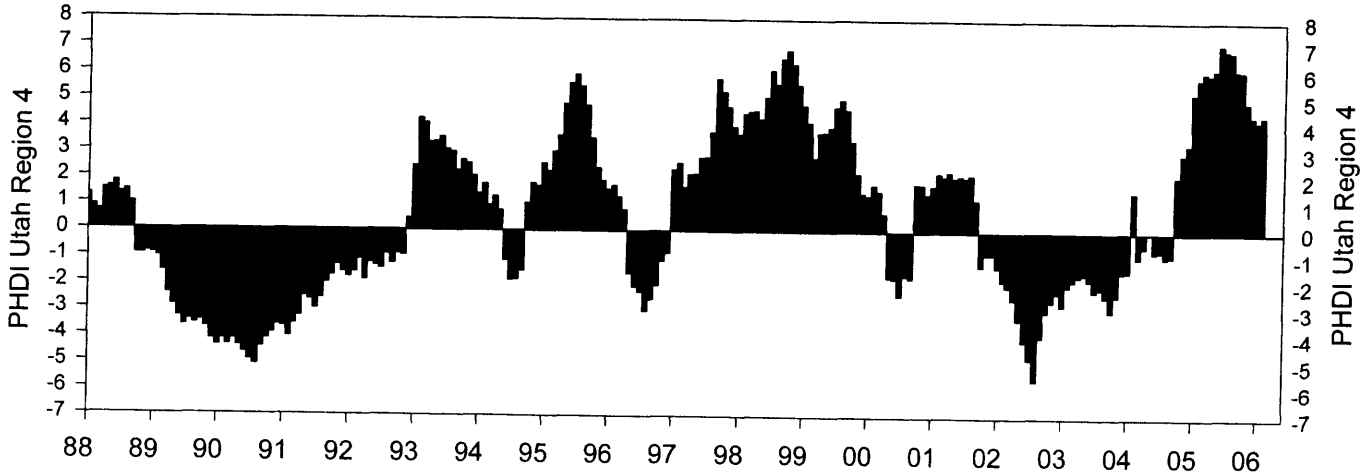
PHDI Utah Region 4
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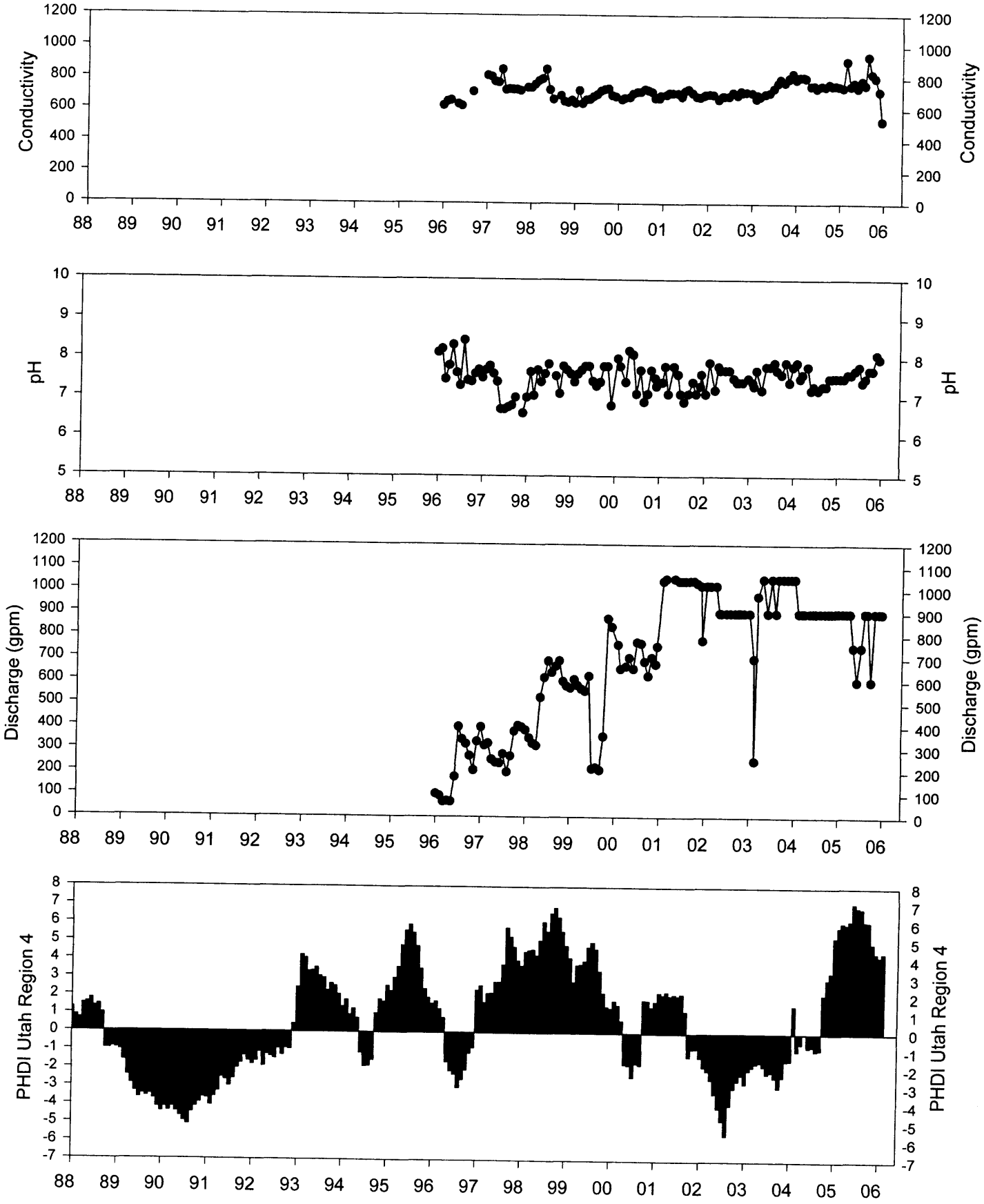
UPDES 002


Conductivity
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1000
800
600
400
200
0
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pH
10
9
8
7
6
5
Discharge (gpm)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
PHDI Utah Region 4
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-1
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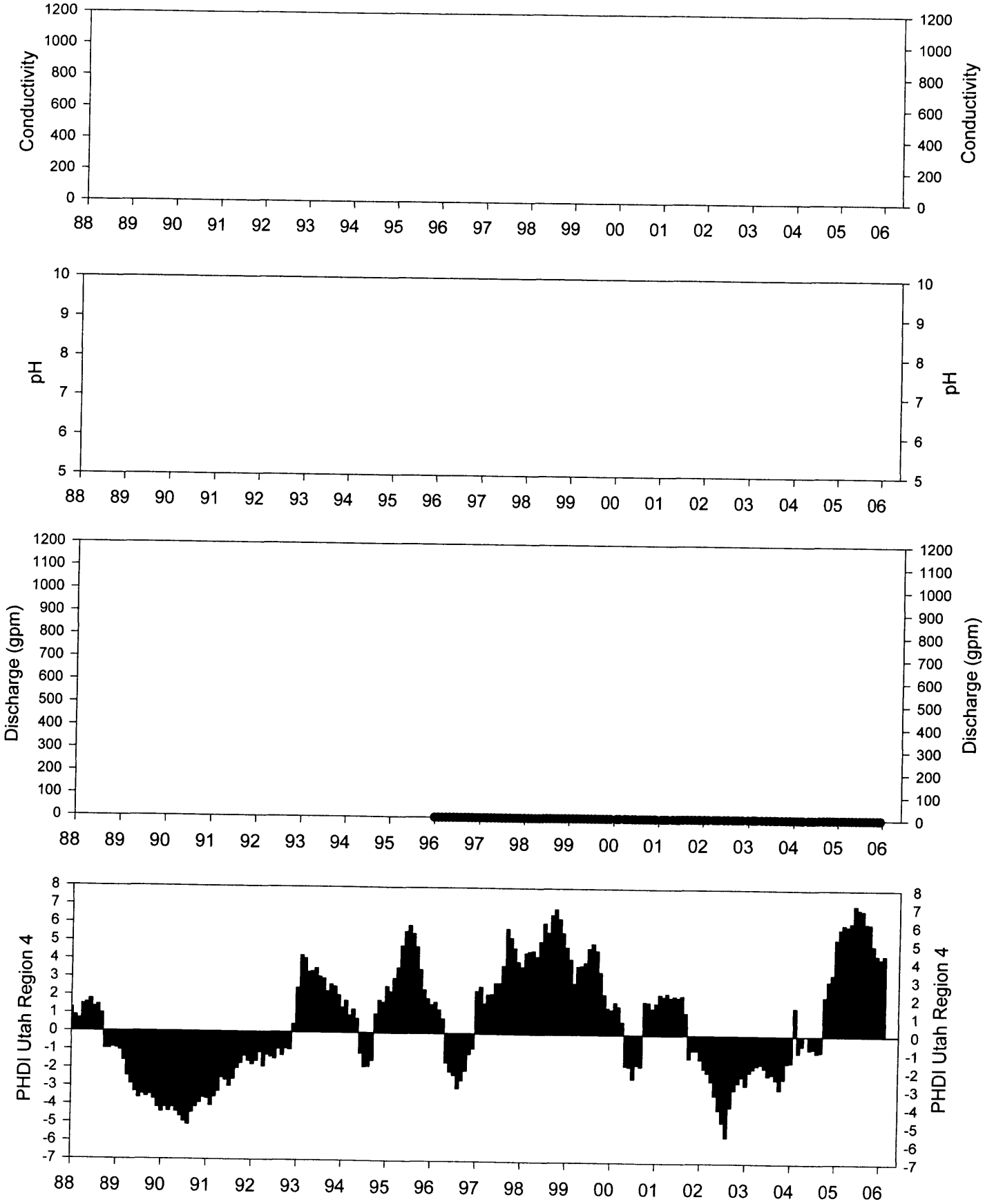
-4
-5
-6
-7

UPDES 001


Conductivity
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400
200
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pH
10
9
8
7
6
5
Discharge (gpm)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
PHDI Utah Region 4
8
7
6
5
4
3
2
1
0
-1
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-4
-5
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