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NATURAL SODA

Comprehensive Monitoring Plan
July 2010

Prepared for:

Natural Soda, Inc.
Piceance Creek Basin
Rio Blanco County, Colorado

Prepared by:

Daub & Associates, Inc.
Grand Junction, Colorado

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

1.0 Introduction

This comprehensive monitoring plan was prepared for the Bureau of Land Management (BLM), Environmental Protection Agency (EPA) and the Colorado Division of Reclamation, Mining and Safety (DRMS) pursuant to BLM, EPA, and DRMS requirements concerning Natural Soda, Inc's (NSI) commercial scale nahcolite solution mining operations in Rio Blanco County Colorado.

NSI operates, monitors, and reports in accordance with the most current stipulations of the BLM's Record of Decision (ROD), the EPA's Area Underground Injection Control Permit (UIC) CO30358-00000, the DRMS Permit M-1983-194, and any subsequent conditions of approval and required mitigation. NSI submits routine reports to the BLM, EPA and DRMS. Should there be a discrepancy between the ROD, UIC or DRMS Permit (Permits) and this Monitoring Plan, the Permits will take precedence. The BLM, EPA, and DRMS mandated monitoring programs are comprehensive, intended to provide the agencies with a means of determining NSI's surface and subsurface environmental impacts. The proposed monitoring plan is designed to enable detection and/or evaluation of biologic and hydrologic impacts.

The Permits were approved for the operational life of the project. The mine has been successfully operating for more than 17 years without any significant environmental issues. The regulatory agencies and NSI continue to proceed on a phased approach based upon an updated (June 2010) Mine Plan, which provides more detailed information concerning current operations and operations anticipated in the near term, with more general plans for long term operations. The project will continue operations if monitoring results do not indicate significant negative impacts.

2.0 Ground Water Monitoring Program

2.1. Ground Water Monitoring Wells

Ground water monitoring wells are established outside the direct area of influence of well field operations and zone of influence of subsidence, as well as within the well field.

The dedicated monitoring wells are completed within a 20-foot interval within the following aquifers: Perched, A-Groove, B-Groove, and Dissolution Surface (DS). Figure 1 illustrates the location of the four aquifers of interest.

Dedicated monitoring wells are located both up-gradient (in respect to ground water flow) and down-gradient from the solution mining well field to assess the impacts of mining operations on ground water entering and leaving the area above the solution mine area. In addition to the dedicated ground water monitoring wells, specific monitoring wells were completed in the mining area to monitor more site-specific activities. Figure 2 (Natural Soda, Inc. and Rock School Leases) and Figure 3 (Natural Soda, Inc. Plant Vicinity), illustrate the locations of the monitoring wells and mining area. These figures will be periodically updated as monitor wells are either installed or plugged and abandoned if they are no longer needed.

2.2. Dedicated Ground Water Monitor Wells

Dedicated groundwater monitoring wells were established six months prior to mining immediately down-gradient of Panel 1 (Figure 3) to establish baseline data (89-1, 89-2, 89-3, and EX-1). Dedicated wells are established up-gradient from Panel 1 and the west end of Panel 2 (90-2, 90-3, 90-4, BG-1 and DS-2) and down-gradient from Panel 2 (DS-3, DS-4, BG-4, BG-5, IRI-4, 5, 6, 7, & 8), to monitor water quality and piezometric levels (Figure 3). Two former injection/recovery wells have been converted into hydrologic monitoring wells to monitor the DS Aquifer in shut in cavities (1-3A & 4A-1V).

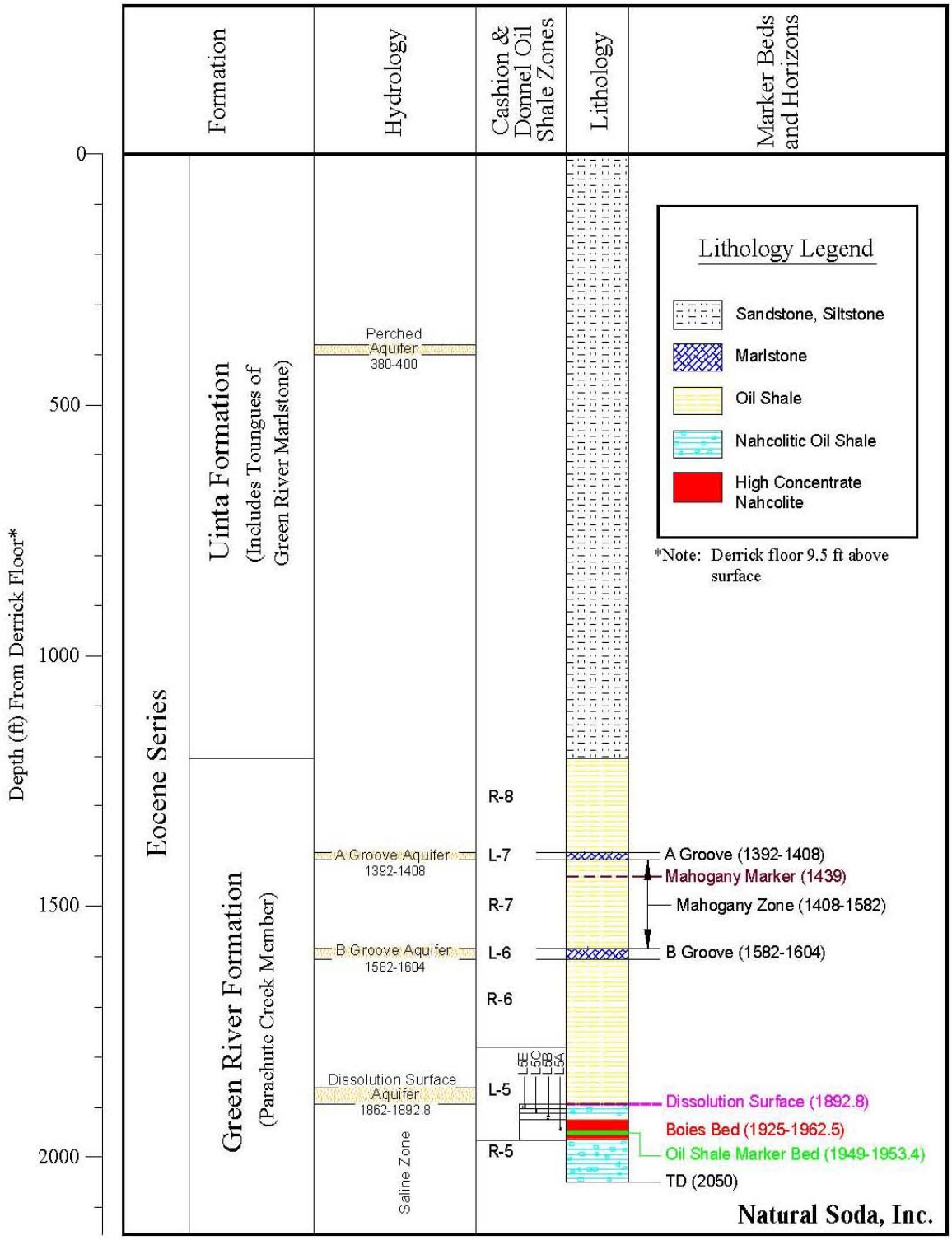


Figure 1. General Stratigraphy and Hydro-Stratigraphy at Natural Soda Inc. Based on Core Hole 88-1.

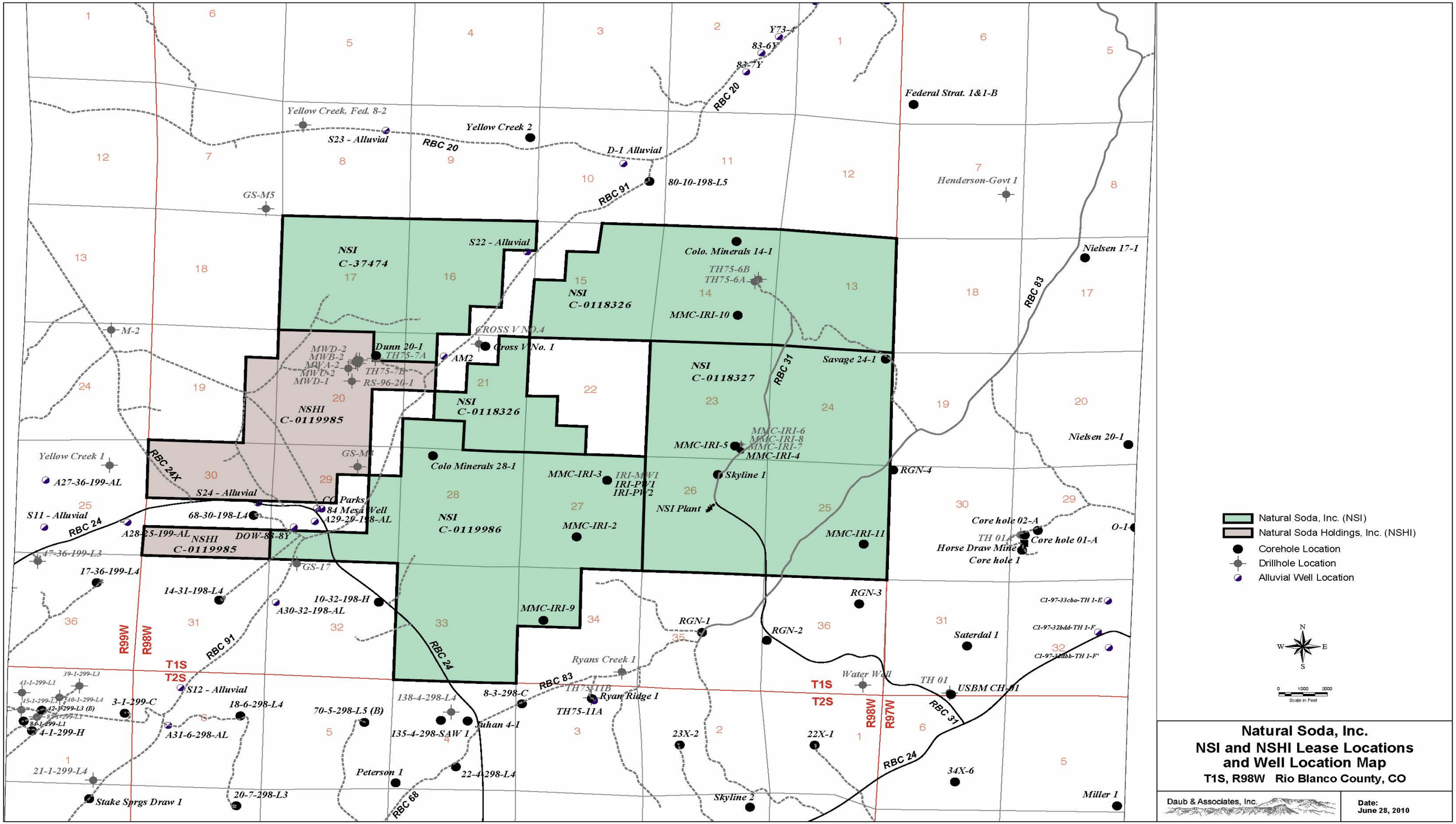


Figure 2. Sodium Lease Locations

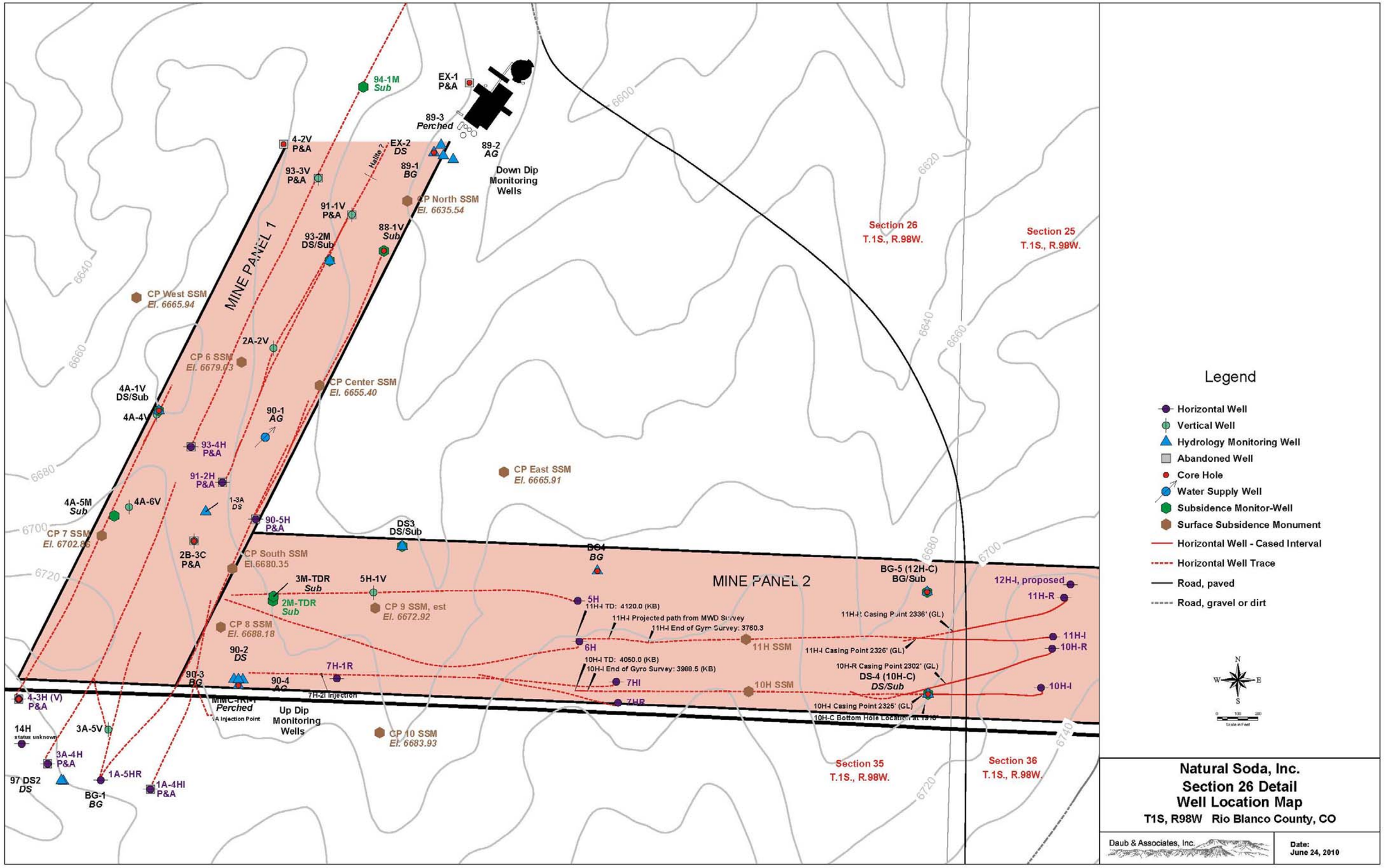


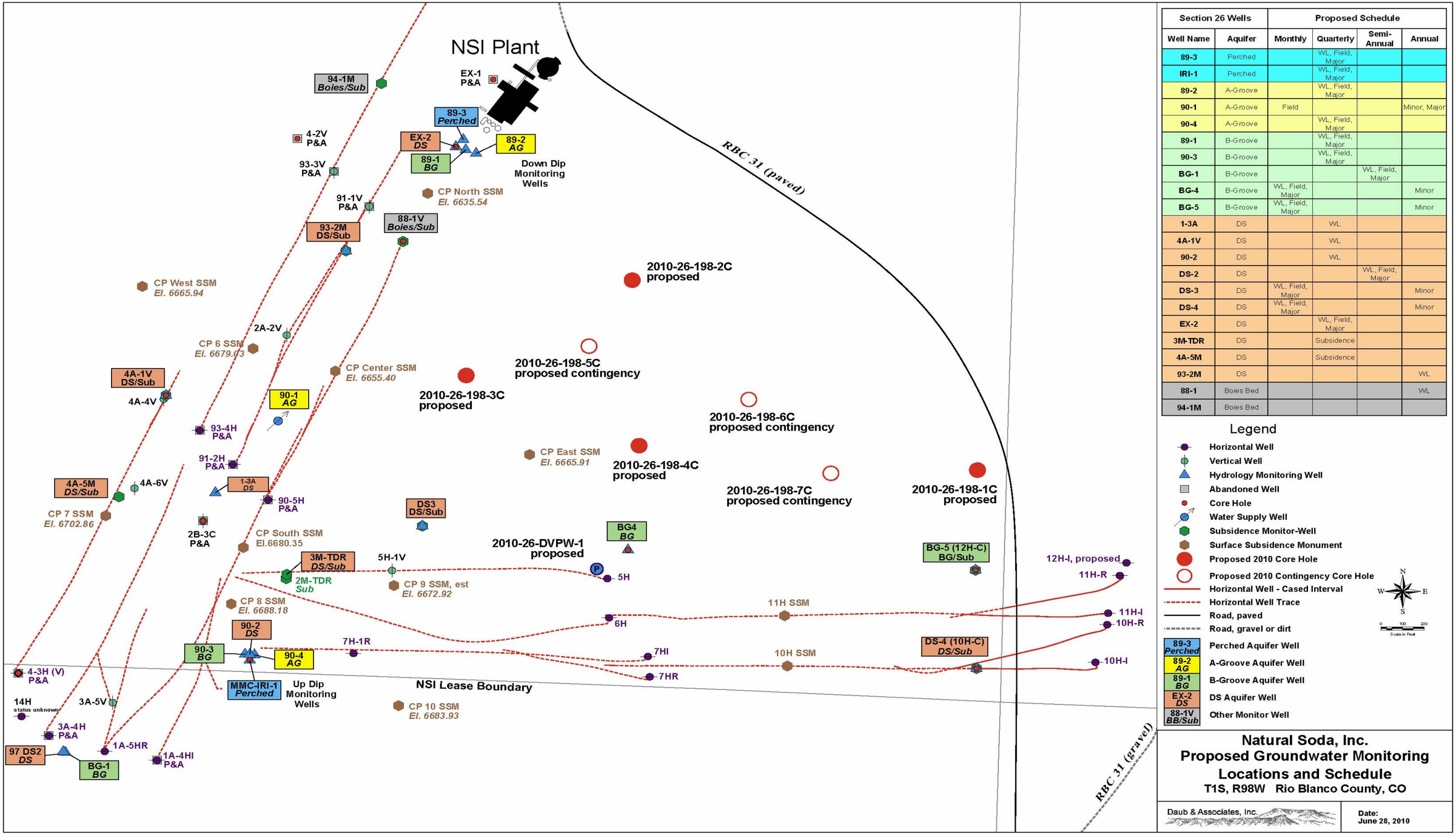
Figure 3. Natural Soda. Inc. Plant and Well Location Map

Table 1 lists the dedicated monitor wells and associated aquifers along with proposed water quality and level sampling; Figure 4 and Plate 1 show the proposed schedule in relation to the well locations. Table 2 lists the dedicated monitor wells and associated aquifers along with historically scheduled water quality and level sampling requirements, Figure 5 and Plate 2 show the historic schedule in relation to well locations. Tables 1 and/or 2 will be updated (as necessary) as monitor wells are installed, converted, no longer needed, or plugged and abandoned.

The proposed monitoring schedule incorporates NSI's plans for future mining operations, and takes into account the substantial twenty year historical baseline data set (Appendix A) established by past sampling conducted since 1990. The proposed sampling plan reduces sampling in NSI's dormant mining areas and remote monitoring wells, and concentrates sampling around current mining areas and future operations. NSI also proposes reducing constituent sampling by eliminating minor constituents from the required analyses for wells outside of the active mining areas. The twenty plus year historical data (Appendix A) indicates no anomalies have been identified and a minor constituent baseline has been established. Due to the nature of the hydrologic system and the solution mining process, anomalies will be detected in the DS and B-Groove aquifers first. Any significant departure from baseline in any of the sampled parameters will result in a focused monitoring program to determine cause of the departure and the appropriate remedial action. NSI is also aware of potential natural gas drilling by Williams Energy Services that may occur in close proximity to the lease in near future and for some ten plus years in the future. Ground water monitoring will be adjusted if needed to ensure the natural gas drilling is not affecting NSI's solution mining intervals and the local groundwater system. This may include specific monitoring, in select NSI monitoring wells, for a tracer dye called uranine that is a sodium fluorescein dye, which is used by Williams to monitor annular fluid and drilling mud. Material Safety Data Sheets (MSDS) for uranine dye may be found in Appendix B.

Groundwater Monitoring Wells and Proposed Monitoring Frequency							
Wells	**Aquifer**	**Location**	**Monthly Parameters**	**Quarterly Parameters**	**Annual Parameters**	**Semi-Annual Parameters**	**Pressure Transducer**
EX-2	Dissolution	Immediately Down-gradient		Water level			Yes
89-1	B-Groove	Immediately Down-gradient		Water level Field, Major			Yes
89-2	A-Groove	Immediately Down-gradient		Water level Field, Major			Yes
89-3	Perched	Immediately Down-gradient		Water level Field, Major			Yes
90-2	Dissolution	Immediately Up-gradient		Water level Field, Major			Yes
90-3	B-Groove	Immediately Up-gradient		Water level Field, Major			Yes
90-4	A-Groove	Immediately Up-gradient		Water level Field, Major			Yes
IRI-1	Perched	Immediately Up-gradient		Water level Field, Major			Yes
DS-2	Dissolution	Up-gradient (Off lease)		Water level Field, Major			Yes
BG-1	B-Groove	Up-gradient (Off lease)		Water level Field, Major			Yes
IRI-4	A-Groove	Remote Down-gradient			Water Level Field, Major		No
IRI-5	Perched	Remote Down-gradient			Water Level Field, Major		No
IRI-6	B-Groove	Remote Down-gradient			Water Level Field, Major		No
IRI-7	Dissolution	Remote Down-gradient			Water Level Field, Major		No
IRI-8	Perched	Remote Down-gradient			Water Level		No
3M-TDR	Subsidence	Panel 2		Readings			No
4A-5M	Subsidence	Panel 1		Readings			No
88-1	Subsidence	Down-gradient			Water Level		No
93-2M	Subsidence	Panel 1			Water Level		No
94-1M	Subsidence	Panel 1					No
IRI-9	Dissolution	Up-gradient (Off lease)			Water Level		No
IRI-10	Dissolution	Down-gradient			Water Level		No
IRI-11	B-Grove	Down-gradient			Water Level		No
IRI-PW1	Dissolution	Rock School			Water Level		No
IRI-PW2	Dissolution	Rock School			Water Level		No
MWD-1	Dissolution	Rock School			Water Level		No
MWD-2	Dissolution	Rock School			Water Level		No
MWB-2	B-Groove	Rock School			Water Level		No
MWA-2	A-Groove	Rock School			Water Level		No
MU-2	Perched	Rock School			Water Level		No
1-3A	Dissolution	Panel 1		Water Level			Yes
90-1	A-Groove	Water Well	Field		Minor & Major		No
DS-3	Dissolution	Panel 2 – West	Water level Field, Major		Minor		Yes
BG-4	B-Groove	Panel 2 – West	Water level Field, Major		Minor		Yes
DS-4	Dissolution	Panel 2 – East	Water level Field, Major		Minor		Yes
BG-5	B-Groove	Panel 2 – East	Water level Field, Major		Minor		Yes
4A-1V	Dissolution	Panel 1		Water Level			Yes
TH75-6A		Remote			Water Level		No
TH75-6B		Remote			Water Level		No
TH75-11A		Remote			Water Level		No
TH75-11B		Remote			Water Level		No
IRI-MW1		Remote			Water Level		No
IRI-3		Remote			Water Level		No

Table 1. Groundwater Monitoring Wells and Proposed Monitoring Frequency



Section 26 Wells		Proposed Schedule			
Well Name	Aquifer	Monthly	Quarterly	Semi-Annual	Annual
89-3	Perched		WL, Field, Major		
IRI-1	Perched		WL, Field, Major		
89-2	A-Groove		WL, Field, Major		
90-1	A-Groove	Field			Minor, Major
90-4	A-Groove		WL, Field, Major		
89-1	B-Groove		WL, Field, Major		
90-3	B-Groove		WL, Field, Major		
BG-1	B-Groove			WL, Field, Major	
BG-4	B-Groove	WL, Field, Major			Minor
BG-5	B-Groove	WL, Field, Major			Minor
1-3A	DS		WL		
4A-1V	DS		WL		
90-2	DS		WL		
DS-2	DS			WL, Field, Major	
DS-3	DS	WL, Field, Major			Minor
DS-4	DS	WL, Field, Major			Minor
EX-2	DS		WL, Field, Major		
3M-TDR	DS		Subsidence		
4A-5M	DS		Subsidence		
93-2M	DS				WL
88-1	Boies Bed				WL
94-1M	Boies Bed				

Legend

- Horizontal Well
- Vertical Well
- Hydrology Monitoring Well
- Abandoned Well
- Core Hole
- Water Supply Well
- Subsidence Monitor-Well
- Surface Subsidence Monument
- Proposed 2010 Core Hole
- Proposed 2010 Contingency Core Hole
- Horizontal Well - Cased Interval
- Horizontal Well Trace
- Road, paved
- Road, gravel or dirt
- 89-3 Perched — Perched Aquifer Well
- 89-2 AG — A-Groove Aquifer Well
- 89-1 BG — B-Groove Aquifer Well
- EX-2 DS — DS Aquifer Well
- 88-1V BB/Sub — Other Monitor Well

N W E S

0 100 200 Scale in Feet

Natural Soda, Inc.
Proposed Groundwater Monitoring Locations and Schedule
T1S, R98W Rio Blanco County, CO

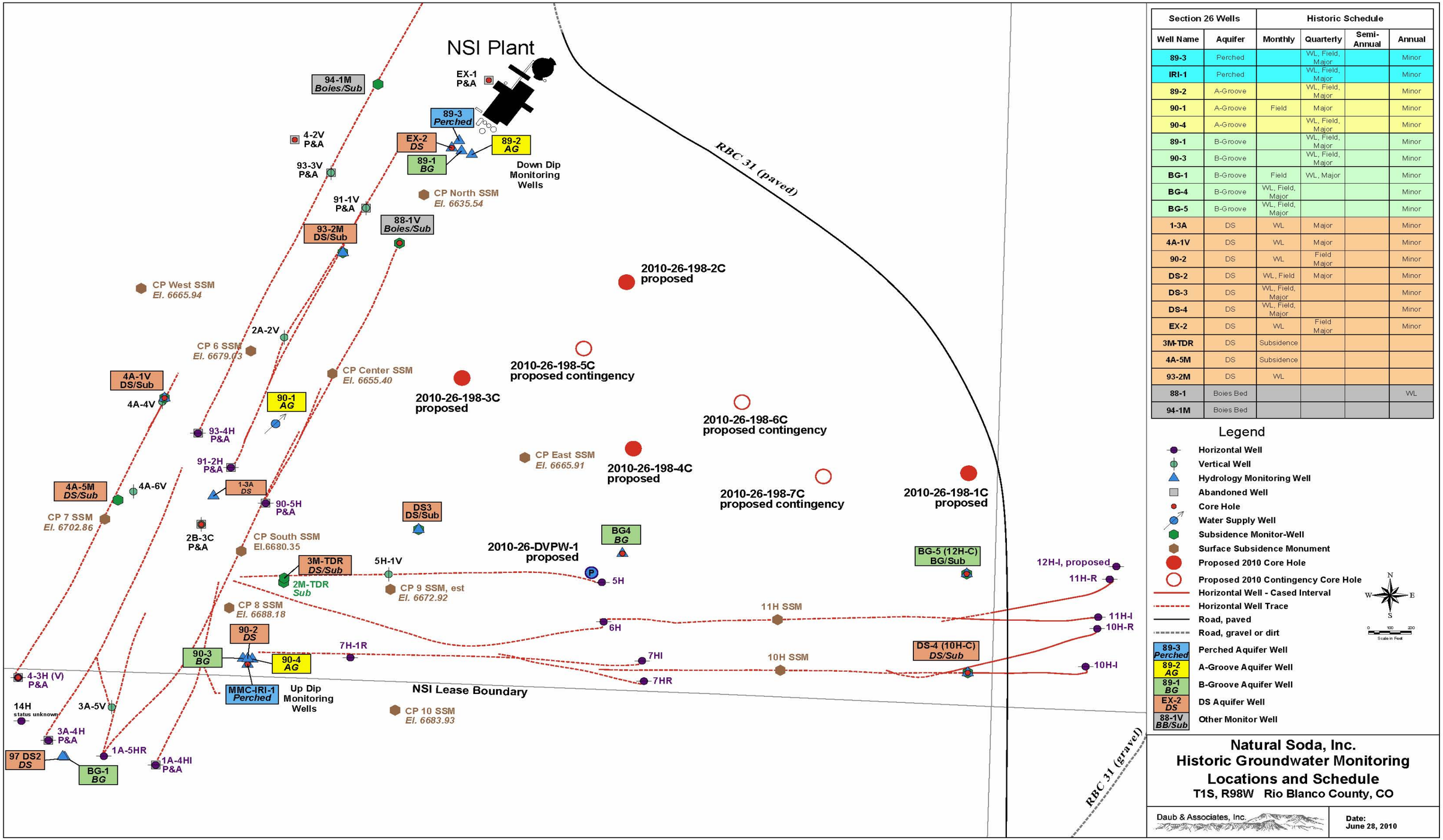
Daub & Associates, Inc.

Date: June 28, 2010

Figure 4. Section 26 Detail Proposed Monitoring Schedule.

Groundwater Monitoring Wells and Historic Monitoring Frequncy Per EPA UIC Permit and BLM R.O.D.							
Wells	**Aquifer**	**Location**	**Monthly Parameters**	**Quarterly Parameters**	**Annual Parameters**	**Semi-Annual Parameters**	**Pressure Transducer**
EX-2	Dissolution	Immediately Down-gradient	Water Level				Yes
89-1	B-Groove	Immediately Down-gradient		Water Level Field, Major	Minor		Yes
89-2	A-Groove	Immediately Down-gradient		Water Level Field, Major	Minor		Yes
89-3	Perched	Immediately Down-gradient		Water Level Field, Major	Minor		Yes
90-2	Dissolution	Immediately Up-gradient	Water Level	Field Major	Minor		Yes
90-3	B-Groove	Immediately Up-gradient		Water Level Field, Major	Minor		Yes
90-4	A-Groove	Immediately Up-gradient		Water Level Field, Major	Minor		Yes
IRI-1	Perched	Immediately Up-gradient		Water Level Field, Major	Minor		Yes
DS-2	Dissolution	Up-gradient (Off lease)	Water Level Field	Major	Minor		Yes
BG-1	B-Groove	Up-gradient (Off lease)	Field	Water Level Major	Minor		Yes
IRI-4	A-Groove	Remote Down-gradient		Water Level	Major, Minor	Field	No
IRI-5	Perched	Remote Down-gradient		Water Level	Major, Minor	Field	No
IRI-6	B-Groove	Remote Down-gradient		Water Level	Major, Minor	Field	No
IRI-7	Dissolution	Remote Down-gradient		Water Level	Major, Minor	Field	No
IRI-8	Perched	Remote Down-gradient		Water Level			No
3M-TDR	Subsidence	Panel 2	Readings				No
4A-5M	Subsidence	Panel 1	Readings				No
88-1	Subsidence	Down-gradient				Water Level	No
93-2M	Subsidence	Panel 1	Water Level	Major			Yes
94-1M	Subsidence	Panel 1					No
IRI-9	Dissolution	Rock School			Water Level		No
IRI-10	Dissolution	Rock School			Water Level		No
IRI-11	B-Grove	Rock School			Water Level		No
IRI-PW1	Dissolution	Rock School			Water Level		No
IRI-PW2	Dissolution	Rock School			Water Level		No
MWD-1	Dissolution	Rock School			Water Level		No
MWD-2	Dissolution	Rock School			Water Level		No
MWB-2	B-Groove	Rock School			Water Level		No
MWA-2	A-Groove	Rock School			Water Level		No
MU-2	Perched	Rock School			Water Level		No
1-3A	Dissolution	Panel 1	Water Level	Major	Minor		Yes
90-1	A-Groove	Water Well	Field	Major	Minor		No
DS-3	Dissolution	Panel 2 – West	Water Level Field, Major		Minor		Yes
BG-4	B-Groove	Panel 2 – West	Water Level Field, Major		Minor		Yes
DS-4	Dissolution	Panel 2 – East	Water Level Field, Major		Minor		Yes
BG-5	B-Groove	Panel 2 – East	Water Level Field, Major		Minor		Yes
4A-1V	Dissolution	Panel 1	Water Level	Major	Minor		Yes
TH75-6A		Outside Mining Area			Water Level		No
TH75-6B		Outside Mining Area			Water Level		No
TH75-11A		Outside Mining Area			Water Level		No
TH75-11B		Outside Mining Area			Water Level		No
IRI-MW1		Outside Mining Area			Water Level		No
IRI-3		Outside Mining Area			Water Level		No

Table 2. Groundwater Monitoring Wells and Historic Monitoring Plan per EPA UIC Permit



Section 26 Wells		Historic Schedule			
Well Name	Aquifer	Monthly	Quarterly	Semi-Annual	Annual
89-3	Perched		WL, Field, Major		Minor
IRI-1	Perched		WL, Field, Major		Minor
89-2	A-Groove		WL, Field, Major		Minor
90-1	A-Groove	Field	Major		Minor
90-4	A-Groove		WL, Field, Major		Minor
89-1	B-Groove		WL, Field, Major		Minor
90-3	B-Groove		WL, Field, Major		Minor
BG-1	B-Groove	Field	WL, Major		Minor
BG-4	B-Groove	WL, Field, Major			Minor
BG-5	B-Groove	WL, Field, Major			Minor
1-3A	DS	WL	Major		Minor
4A-1V	DS	WL	Major		Minor
90-2	DS	WL	Field Major		Minor
DS-2	DS	WL, Field	Major		Minor
DS-3	DS	WL, Field, Major			Minor
DS-4	DS	WL, Field, Major			Minor
EX-2	DS	WL	Field Major		Minor
3M-TDR	DS	Subsidence			
4A-5M	DS	Subsidence			
93-2M	DS	WL			
88-1	Boies Bed				WL
94-1M	Boies Bed				

Legend

- Horizontal Well
- Vertical Well
- Hydrology Monitoring Well
- Abandoned Well
- Core Hole
- Water Supply Well
- Subsidence Monitor-Well
- Surface Subsidence Monument
- Proposed 2010 Core Hole
- Proposed 2010 Contingency Core Hole
- Horizontal Well - Cased Interval
- Horizontal Well Trace
- Road, paved
- Road, gravel or dirt

89-3 Perched	Perched Aquifer Well
89-2 AG	A-Groove Aquifer Well
89-1 BG	B-Groove Aquifer Well
EX-2 DS	DS Aquifer Well
88-1V BB/Sub	Other Monitor Well

Natural Soda, Inc.
Historic Groundwater Monitoring Locations and Schedule
T1S, R98W Rio Blanco County, CO

Daub & Associates, Inc.

Date: June 28, 2010

Figure 5. Section 26 Detail Historic Monitoring Schedule

2.3. In Field Solution Mining Ground Water Monitoring Wells

As mining proceeds, two wells will be completed or re-completed as groundwater monitoring wells within each mining panel. Generally, one Dissolution Surface and one B-Groove ground water monitor well will be completed for each panel; however, additional monitor wells may be completed, dependent upon the size of the panel and it's configuration in relation to the flow of the aquifer being monitored. Details of either the completion or re-completion will be provided to DRMS and BLM for approval.

Should the results of the monitoring program identify potential impacts to the groundwater aquifers due to mining related activities, an investigation will be conducted to determine the source of the impact and the overall extent of the impact, if it proves to be mining related. This may include additional sampling, or the installation of additional wells in the DS, B-Groove or A-Groove aquifers. At the appropriate time NSI will prepare an action plan for review and approval by the agencies.

Currently, two solution mining wells have been recompleted as groundwater monitor wells; the 1-3A and the 4A-1V. Pressure transducers were installed to continuously monitor groundwater levels. In-field ground water monitoring wells and their associated aquifers are listed in Table 1 and will be updated as monitor wells are installed, modified, or plugged and abandoned.

2.4. Solution Mining Production Wells

The solution mining production and recovery wells and the combined recovery flow and pregnant liquor lines are equipped with flow meters. Well field fluid flow is monitored, utilizing the best available technology (BAT) and "good engineering practices". In addition, pressure transducers in the ground water monitor wells are continuously monitored to insure that the solution mined cavities are not losing or gaining fluid.

Pressure transducers will be installed in new, in-field monitor wells within two (2) months of ground water monitor well completion.

Spent production wells not utilized for monitoring will be abandoned (at a minimum) by the following steps:

Plug #1: The lowest plug shall span the entire Dissolution Surface aquifer from the CIBP, the water producing zone plus fifty feet above.
Plug #2: The second plug shall begin fifty feet below the water producing zone of the B-Groove aquifer, bridge the entire aquifer and extend fifty feet above the aquifer.
Plug #3: The third plug shall begin fifty feet below the water producing zone of the A-Groove Aquifer, bridge the entire aquifer and extend fifty feet above.
Plug #4: The forth plug shall begin fifty feet below the Perched Aquifer, bridge the entire aquifer and extend fifty feet above.
Plug #5: The final plug shall be from one hundred sixty feet below ground surface to ground surface. A 9.2 ppg plugging gel, Bentonite mud, or cement shall be placed between each plug.

The casing will be cut off below grade, a P&A marker with well data will be installed and reclamation activities shall commence per BLM specifications. Other cement plugs or revised plugging procedures may be required, based upon analysis of the cement evaluation logs. An appropriate surface-hole location marker will be installed at each well. Notice of intent for well plugging and abandonment will be submitted to the appropriate regulatory agencies 15 days before any planned activity.

2.5. Ground Water Monitoring Methodology

2.5.1. **Ground Water Levels**

Wells containing pressure transducers for continuous readings are identified on Table 1. Each pressure transducer is wired to a data logger, which submits the information via telemetry to the control room. If potentiometric levels are outside the expected range based upon NSI's twenty plus year historic database, a manual measurement will be taken with a depth sounder to verify accuracy. Should the water level abnormality be verified, action will be taken to identify and correct the problem, (as necessary). All

other potentiometric levels for the Perched, A-Groove, and B-Groove aquifers will be taken twice per year.

Water levels taken by depth sounder are obtained through visual and/or audio response of the instrument. In the active mining areas, the DS pressure transducers will be verified monthly. Outside the active mining area, manual water levels are collected at least annually to calibrate the pressure transducers.

The manual water level measurement schedule is identified in Table 1.

2.5.2. **Groundwater Quality**

All groundwater monitor wells (Figures 2 and 3 show locations) will be sampled pursuant to NSI's Sampling Analysis Plan (SAP) on the frequency and for constituents identified in Table 1. Field data (pH, temperature and conductivity) and direct observations will be recorded whenever a well is sampled. In addition, select monitor wells (Table 1) may be analyzed for both major and minor constituents. A list of the major and minor constituents is provided in Table 3. The analytical lists will be updated as required by any of the three regulatory agencies. For dedicated monitor wells located outside the well field, sampling will continue for a minimum of three years after project cessation. Sampling frequency will be on an annual basis. NSI will submit a request to discontinue sampling for in-field wells no sooner than three (3) years after cessation of mining within the panel/block which is being monitored.

2.5.3. **Water Monitoring Plan**

NSI personnel will draw groundwater samples using dedicated samplers from approved completion zones. Dedicated water quality monitoring wells will be equipped with a nitrogen gas-lift type well sampling device, or other EPA approved sampling method.

The sampling methods are discussed in detail in NSI's Sampling Analysis Plan (SAP).

2.5.4. **Monitoring/Reporting Contingency Plan**

The monitoring frequency will be increased to at least once per month if effects from the mining operation on the monitored zones are recorded. These samples will be analyzed for the field measurements and major constituents, with the first sample to include minor constituents.

Analyte List		
Field Measurements:		
pH	Conductivity	Temperature °C
Major Analytes:		
TDS	Alkalinity	Sodium
Silica	pH	Chloride
Potassium	Bicarbonate	Magnesium
Fluoride	Conductivity	Carbonate
Calcium	Sulfate	Boron
Strontium	Hardness	
Minor Analytes:		
Arsenic	Aluminum	Cadmium
COD	Manganese	Selenium
Barium	SAR in water	Chromium
Nickel	Copper	Lead
Ammonia	Molybdenum	Mercury
Vanadium	Cation-Anion Balance	Beryllium
Bromide	Zinc	Lithium
Iron	Total Phosphorus	Nitrate as N
Nitrate/Nitrite as N	Nitrogen, total	Kjeldahl Nitrogen
Nitrate as N		

Table 3. Analyte List.

An outside certified laboratory will analyze the ground water samples and data will be returned to NSI for review and compilation. If any given water quality parameter should be deemed to have a reading which differs from historical baseline data, NSI will require the lab to reanalyze the parameter in question. If subsequent testing in the well

indicates a second elevated reading for the same parameter, NSI will notify the BLM and the DRSM of the situation. If the anomaly is significant, regional water quality data from Solvay, Shell, C-b, C-a, and USGS historical data will be utilized to determine if the parameter anomaly is significant and requires additional sampling frequency and/or analyses. Water quality sampling will focus on the affected aquifer; the affected aquifer at the nearest down gradient monitoring well will also be monitored. Weekly manual water levels will be obtained for wells sampled for water quality. The BLM, DRMS, and EPA will be consulted to develop site-specific rational and monitoring requirements, and if necessary, will determine extent/duration of subsequent monitoring.

3.0 Surface Water Monitoring Plan

3.1. Seeps, Springs and Meteorologic Precipitation

All seeps and springs located within the projected cone of depression of the water supply well have been inventoried and monitored per the BLM ROD. In compliance with this stipulation, Wright Water Engineers modeled and determined the extent of the cone of depression resulting from pumping the water supply well. The basis for the modeling and projection of the cone of depression was nearly four times the actual average pumping rate through 2002. The cone of depression was projected to extend to the south to Ryan Gulch, but not to the location of any known springs or seeps. In addition, a field and literature survey was conducted to determine whether any springs or seeps existed within the cone of depression. No springs or seeps were found to exist within the cone of depression; consequently, no monitoring plan for seeps and springs was required.

NSI will monitor meteorologic precipitation and collect data with at least one station on the sodium lease area.

3.2. Stream Gauging Stations

NSI, through a cooperative agreement with the USGS, provides funding via Rio Blanco County for the operation of four stream gauging stations. Stations are located upstream and downstream of the NSI operation on Piceance and Yellow creeks, Figure 6 illustrates the locations of the stations. USGS personnel collect stream flow, field measurements, and water quality samples for periodic analyses which are detailed in Table 4.

The gauging stations have an extensive, long-term database of over twenty-five years. Natural or artificial control devices are utilized to obtain water level readings, with a continuous level recording unit.

If the water quality deviates significantly from historical baseline conditions, sampling frequency may increase as directed by the BLM. NSI will propose monitoring changes if variations in water quality or flows are not natural fluctuations and are attributed to, or a direct result of NSI mining operations.

3.3. Monitoring Reports

Because of the delay in laboratory analysis and reporting of surface water data, the reports are submitted annually and generally 9-12 months after the end of the water year or September 30. This report will be submitted to the BLM in the annual report. Pursuant to BLM stipulations, NSI will notify the authorized officer within 10 days of the occurrence of any significant changes to the hydrologic system.

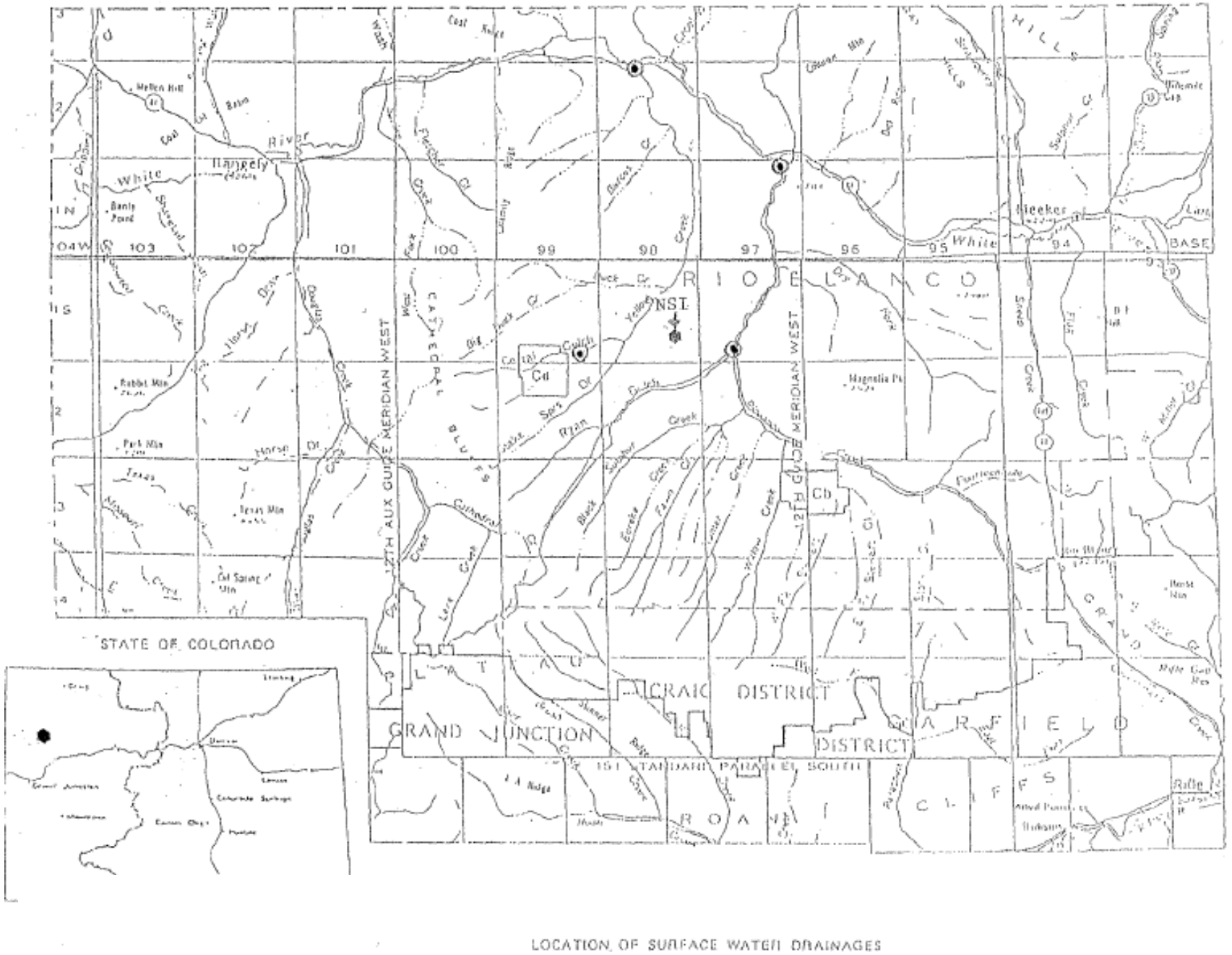


Figure 6. Location of Surface Water Gauging Stations

USGS SURFACE WATER SAMPLING PARAMETERS		
QUARTERLY PARAMETERS		
Calcium, Dissolved	Magnesium, Dissolved	Potassium, Dissolved
Silica, Dissolved	Sodium, Dissolved	Strontium, Dissolved
pH, Laboratory	Conductivity, Laboratory	Alkalinity, total as CaCO3
Boron, Dissolved	Chloride, Dissolved, IC	Sulfate, Dissolved, IC
Fluoride, Dissolved	TDS	
SEMI-ANNUAL PARAMETERS		
Barium, Dis.	Lithium, Dis.	Manganese, Dis.
Zinc, Dis.	Molybdenum, Dis.	Arsenic, Dis.
Iron, Dis.	Cobalt, GFAA, Dis.	Nickel, GFAA, Dis.
Phosphorus, Dis.	Phosphorus, Dis., Ortho as P	Nitr., Dis., NO2 as N
Nitr., Dis., NO2 +NO3 - N	Nitr., Dis., NH4 + ORG - N	Nitr., Dis., NH4 as N

Table 4. USGS Surface Water Sampling Parameters

4.0 Subsidence Monitoring Plan

The Natural Soda, Inc. (NSI) subsidence monitoring plan includes both surface and subsurface monitoring of the potential vertical ground movement resulting from solution mining at the NSI Lease. Subsidence monitoring will be performed throughout the commercial operating life of the Natural Soda solution mining operations and for a period of three years following cessation of mining activities. Results of the subsidence monitoring (both surface and subsurface) will be checked periodically, as needed, to verify and calibrate numerical models used in the design of the well field layout. Surface monitoring will be conducted by establishing permanent surveying monument locations. Subsurface monitoring will be conducted by periodic borehole geophysical logging of the well bores and strata overlying the cavities produced by the solution mining activities.

Pursuant to BLM and EPA stipulations, NSI Inc. will perform the following activities:

a. Determine extent of caving

b. Determine impacts of caving and/or pillar failure on aquifers and Mahogany Zone

c. Measure surface subsidence biannually

d. NSI will continue to pursue methods to determine cavity configuration and submit the findings with the annual report.

The monitoring plan will be implemented throughout the operation of the mine, and up to three years following cessation of mining. Any revisions or updates to the monitoring plan will be submitted, to appropriate agencies, for review and approval prior to implementation.

4.1. Subsurface Monitoring

The purpose of the subsurface monitoring is to ascertain movement of strata overlying the solution cavities. Borehole geophysical techniques will be employed for

determination of subsurface movement of strata. In pre-existing solution mining areas in Panel 1 and the west side of Panel 2, Time Domain Reflectometry (TDR) has been employed. Currently NSI monitors these TDR locations on a monthly basis and also by an independent third party on a quarterly basis. This method of subsidence monitoring has proven to be problematic. The data has been unreliable and this method is not as robust as was originally expected. Some of the cables were infiltrated with water and compromised. Due to operational difficulty, unreliability, and the propensity for failure, TDR will not be used by NSI to address subsurface monitoring issues in the east side of Panel 2 and in future mining areas. The operator has already established an alternative to the TDR method which is considered a Minor Modification to the EPA UIC permit. The following subsection details an alternative to the TDR methodology currently in use by NSI for monitoring subsurface movement.

4.1.1. **Borehole Geophysics**

Borehole geophysical logs will be run periodically in each subsidence monitor well in service associated with active solution mining and compared to an original baseline geophysical log. A natural gamma and casing collar locator (CCL) log will be used to detect subsurface movement. Due to elemental differences in the chemical compositions of nahcolite and oil shale, distinct gamma ray signatures for each material can be readily identified. Changes in the nature and/or depth of these signatures can be used to determine the extent of subsidence (Figure 7). Likewise, changes in the position of a casing collar as identified on a casing collar locator log can be used to monitor the extent of subsidence, as the casing string may subside or fail along with the rock strata. A gamma ray log will be run: immediately following completion of the well to establish a credible baseline; during mining of the cavity associated with the well; and following cessation of cavity mining.

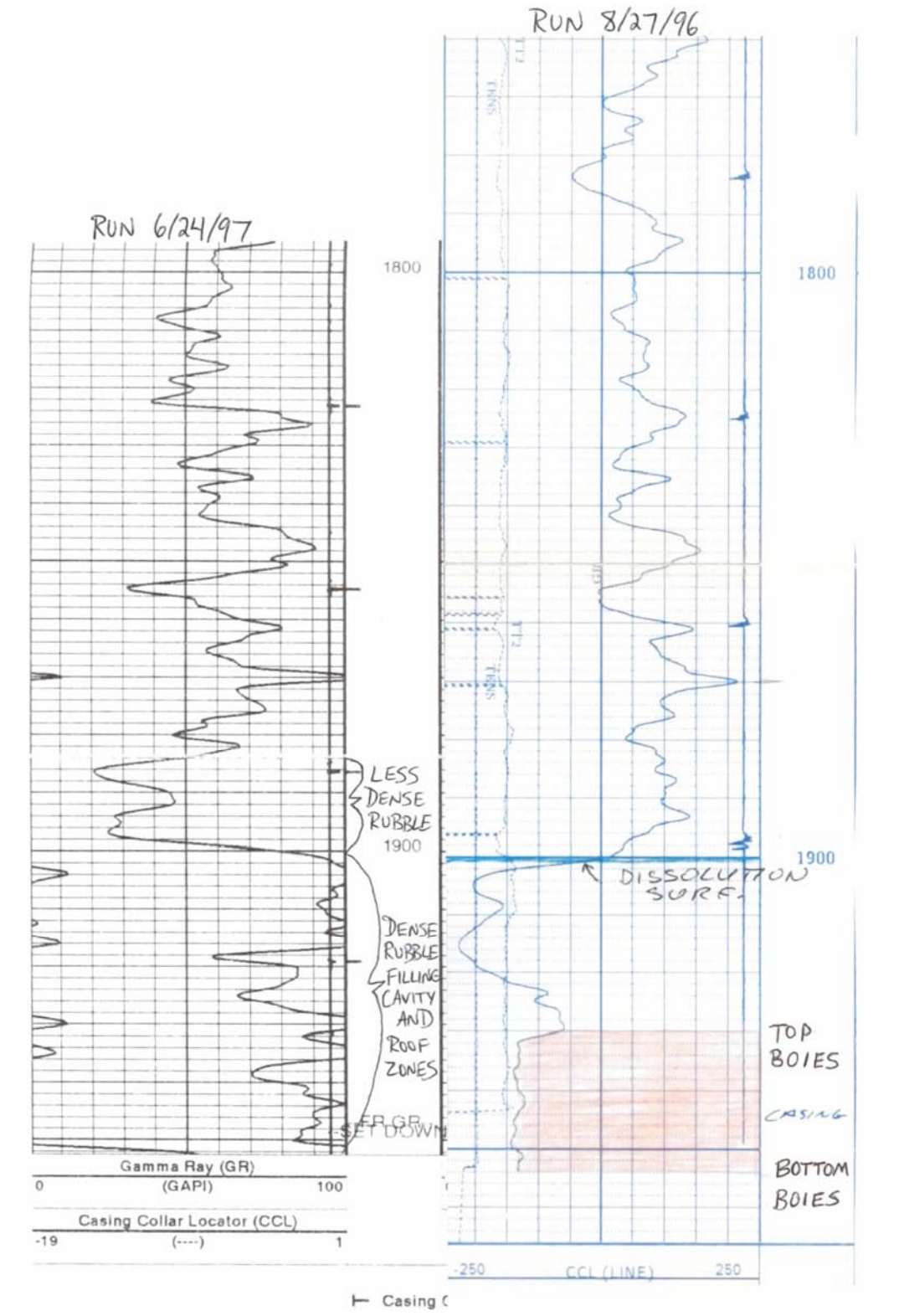


Figure 7. Example of Changes in Gamma Ray/CCL Log Signatures to Identify Subsidence.

4.1.2. **Extensometer or TDR Wells**

Due to installation and operational difficulties, NSI currently does not anticipate continuing to use the Time Domain Reflectometry (TDR) technology. Two multi-point borehole extensometers are currently in use: 4A-5M in Panel 1 (not currently being mined) and 3M-TDR in Panel 2 (mining in progress). Measurements from these devices will be collected quarterly during active mining and for 3 years after cessation of mining within the panel, or until they fail, whichever occurs first. If ground movement is detected at 55 feet above the DS, NSI will notify EPA, BLM, and DRMS and initiate an investigation. If caving should occur 75 feet above the DS, NSI will notify the EPA, BLM, and DRMS and detail the remedial actions NSI will take to slow or arrest further caving. If caving is detected 95 feet above the DS, the EPA, BLM, and DRMS will be notified, and all mining will stop until regulatory agencies approve alternatives.

4.1.3. **Subsurface Monitoring Frequency and Duration**

The DS 4 (10H-C) borehole will be utilized as a subsidence monitor well pursuant to the NSI UIC permit and will suffice for cavities 10 and 11. Borehole geophysical logging will be conducted three times for each well in service, during the life of an injection well: (1) a baseline log following initial drilling of the well, (2) after a combined production of 100,000 tons of nahcolite from the 10 and/or 11 cavities and future cavity pairs, and (3) after retirement of either cavity. Future well-cavity pairs would have a similar subsidence monitor well associated with every two cavities pursuant to the EPA's UIC permit requirements.

NSI proposes to reduce the frequency of the NSI TDR monitoring in the inactive mining areas from monthly to semi-annually for a period of one year, after which the period would be annually for a period of three years or until the TDR method fails completely. If no additional mining were to occur in this area NSI proposes to not monitor in these inactive areas and only monitor in the active mining panels/areas. However, all of the existing TDR subsidence monitor wells will be used until they fail or a period of three years is reached. In areas where there has been no active mining for a period of six

months, NSI will modify the TDR monitoring to a frequency of two times per year unless there is some indication of subsurface subsidence.

4.2. Surface Subsidence

To date, no surface subsidence has been detected. The purpose of the surface monitoring is to determine if there is any surface movement resulting from solution mining. No significant surface subsidence is anticipated. The surface monitoring plan has been designed to ascertain the surface subsidence, should there be any over the solution-mined cavities. The accuracy of the surveys for the surface monument elevations will be to the 0.01 foot.

4.2.1. **Monument Locations for the Initial Mining Area**

Figure 3 shows the locations of twelve surface subsidence monuments across the mining area. These 12 existing monuments will be included in the database for the mining area shown in Figure 3. The subsidence monument arrangement in Figure 3 is designed to identify any surface subsidence.

4.2.2. **Surface Monitoring Frequency and Duration**

Surface monument elevation measurements will be conducted once every two years. Monitoring of surface monuments will continue for the duration of the Natural Soda solution mining operations. Upon reclamation of a well field panel (or area), monitoring will continue for five years. If surface movement is detected, subsidence monitoring will continue for a period of five years following the last detected movement. The surface subsidence monitoring frequency beyond the cessation of commercial operations at the NSI Lease will be determined by BLM and NSI prior to lease relinquishment.

The surface monuments consist of a survey pin cemented to bedrock within a casing. The completion is intended to eliminate frost heaving.

4.3. Cavity Configuration

Cavity growth, size and geometry will be monitored throughout the operating life of the wells according to the procedures listed below:

A monthly mass balance calculation of cavity volume based on daily measurement of injection/recovery fluid parameters (flow, temperature, and density).

The periodic use of a mass balance leaching simulation model with volume calculation, to predict cavity development (shape and size).

In addition, NSI will continue to research alternative state of the art mapping technology.

5.0 Production Well Mechanical Integrity

In compliance with BLM and EPA stipulations, Natural Soda will perform a two component-monitoring plan to demonstrate mechanical integrity of injection and recovery wells.

5.1. Casing Pressure Tests

Initial and periodic pressure tests will be conducted on active injection wells at least every five years to demonstrate mechanical integrity per EPA regulations.

5.2. Temperature Logs

Baseline ambient temperature logs are run in the injection wells immediately following completion. Hot water is then circulated from the injection well to the production/recovery well for a period of at least 72 hours. Next, circulation is discontinued, and temperature logs (three passes) are run over a five hour "cool down" period to establish a series of temperature profiles that can identify if significant fluid movement is present through vertical channels in the well bore annulus. The

temperature logs are analyzed and compared to the baseline temperature logs to demonstrate mechanical integrity. Reports pertaining to the temperature logging results will be submitted to the BLM and EPA within 10 days after the data are obtained.

6.0 Biological Monitoring

Pursuant to the BLM and Colorado Division of Reclamation Mining & Safety (DRMS) requirements, a biology-monitoring program was prepared to address the following items:

a. Evaluate reclaimed areas for vegetative production, crown cover and composition, versus representative control sites.

b. Inventory raptor-breeding activity in proposed well development field for mitigation or protection strategies.

c. Assess mule deer habitat losses, if any, associated with well field development and mine facilities. Develop and implement mitigation measures in cooperation with BLM and Division of Wildlife to offset habitat loss.

6.1. Vegetation Program

Vegetation monitoring will be conducted on sites which were disturbed and revegetated and on undisturbed or control locations. Monitoring techniques assess the progress of the re-established vegetation, with progress evaluated by comparison with representative control sites.

Visual observation and gross herbaceous evaluation will be conducted the first two years after final reclamation activities on a site, as identification is difficult and weedy species are numerous. In the third year, the sampling program will be initiated. All revegetation areas of adequate size for monitoring (>1.0 acre) will be fenced with four strand barbed wire in order to eliminate domestic livestock grazing.

6.1.1. **Scope**

Each revegetation site and control locations will be sampled during the growing season near the time of peak growth (June - August 15). Monitoring will include inventory measurements of the herbaceous biomass production, percent crown cover (herbaceous, shrub and tree), and species diversity or composition. At the time of the sampling, visual inspection for vegetation condition, vigor, reproduction and phenology will be made. Additional sampling may be required in control locations to evaluate early forb growth, i.e. May - June.

6.1.2. **Objectives**

The objective of the revegetation program is not to recreate original plant communities, but rather to establish a vegetation type which is similar in structure and diversity, and is at least as productive as the pre-disturbance vegetation. The monitoring of revegetated areas, in conjunction with baseline studies and terrestrial vegetation, will determine if that objective is met.

6.1.3. **Sampling Design**

Sampling for species diversity, percent cover and production will be conducted using a quadrate method. In revegetation areas at least 20 (9.6 sq. ft.) quadrates will be randomly located for sampling. A visual estimate of cover will be made for individual species, rock, bare ground, litter, lichens and moss. The number of species per 9.6 square foot quadrate will be used to determine the diversity of the vegetation. Also, a visual evaluation of soil erosion will be noted, based on evidence of sheet, rill or gully erosion and deposition of soil particles.

A double sampling technique will be used in order to determine herbaceous production. At least five of the 20 quadrates, per sample unit (i.e. revegetation area or control), will be clipped and individual species bagged. The clipped vegetation will be returned to the lab, oven dried and weighed to the nearest 0.01 gram. A correlation between oven dry

weights and ocular estimates will be made, and all ocular estimates will be adjusted accordingly. Control vegetation sites will be similarly sampled for comparison.

6.1.4. **Method of Analysis**

Reference areas or representative control sites will be used for comparison to revegetated area. The particular reference area to be used for comparison will be dependent on what particular vegetation type occupied the revegetation area prior to disturbance. Sagebrush/pinyon-juniper vegetation types will be utilized for panel #1 mining area. Reference areas will be at least 500 meters from the plant site and selected per the following criteria: representative of disturbed vegetation type, similar aspect, soil type and within the same range allotment.

6.1.5. **Reclamation Evaluation**

The goal of the revegetation program is to establish a diverse, effective (for post disturbance use), and long-lasting vegetative cover that is capable of self-regeneration without continued dependence on cultural practices, i.e. irrigation, fertilizer or soil amendments. Remedial measures will be required if the following are not present:

a. Production of herbaceous perennial species (forbs, grass) at greater than 70% of the representative control areas.

b. Shrubs comprise greater than 12 percent and perennial forbs greater than four percent of the established plant composition by cover.

c. Perennial crown cover is greater than representative control areas.

d. Soil erosion evaluation less than representative control areas.

6.2. Raptor Breeding Activity

NSI will conduct annual raptor breeding activity inventories in pinyon-juniper habitats affected by well field development through mine life. If raptor-nesting activity is jeopardized by well field development, emergency or remedial mitigation will be implemented as directed by the BLM and U.S. Fish and Wildlife Service.

6.2.1. **Scope**

Raptor surveys will be conducted from April to June of each year. The study area is comprised of that portion of the well field, which will be affected by the next two years of mining activity plus a 500-foot buffer around the principal study area.

6.2.2. **Objectives**

Monitoring of raptor (emphasizing accipiter hawks) breeding activity is to identify raptor-breeding area/nests prior to well field development. Therefore, mitigation or modification of drilling activity can be developed prior to disturbance.

6.2.3. **Sampling Design**

Based on maps of planned well field development, areas in pinion pine habitat within 500 feet of the principal study area will be sampled. Line transects, 200 yards apart will be established within the study area. One inventory will be conducted along the transects, and a second will be conducted at a 90 degree angle from the first inventory. Taped raptor calls may also be utilized to enhance raptor response/sightings. If raptors are observed while performing the survey, additional days of sampling will be conducted. April to June sample dates were selected to correspond with early and late stages of nesting. Throughout the year, all raptors observed in the lease area will be noted.

6.2.4. **Method of Analysis**

Data analysis of breeding activity will utilize professional judgment and possibly non-parametric tests.

6.3. Mule Deer Habitat Loss Assessment

Winter habitat loss for mule deer is considered cumulatively significant, as adjacent winter use areas are occupied and increasingly affected by development. Therefore, NSI is required to determine the impacts from the project on mule deer.

6.3.1. **Scope**

All disturbed areas will be mapped and acreage reported in the annual report. Habitat losses will be the basis for formulating habitat enhancement measures deemed appropriate in offsetting short-term habitat losses. Mitigation or modification of drilling activity can be developed prior to disturbance.

6.3.2. **Reporting**

Habitat loss will be documented in the annual report each year. Habitat loss will be identified by the extent and increments of disturbance, alteration stage, i.e. planned, active, and revegetated.

6.3.3. **Objectives**

Utilize reported habitat loss acreage to implement measures for habitat enhancement at approximate 5-year intervals through mine life. The BLM and Division of Wildlife (CDOW) in cooperation with Natural Soda, Inc. will evaluate habitat losses and formulate habitat enhancement measures.

6.3.4. **Method of Analysis**

Maps of habitat losses will be of a scale sufficient to identify all disturbed areas. The annual report will summarize past, current and planned disturbance. Based on the annual information NSI will implement or cooperate with the BLM/CDOW on habitat enhancement measures.

6.3.5. **Mule Deer Impact Evaluation**

In addition to habitat loss evaluation/mitigation Natural Soda, Inc. will note vehicle/deer collisions resulting from employees, vendors and subcontractors. Notices will be posted to notify all employees, vendors and subcontractors to report deer collisions and locations.

Car-pooling to reduce vehicle traffic will be encouraged. Hunting will be discouraged near the mine site by limiting access. Deer proof fencing around the evaporation ponds has been erected to eliminate entrapment. Poaching will be reported immediately to the appropriate authority.

6.4. Process/Waste Pond Mitigation

The process and waste ponds are checked for presence of waterfowl. The utilization of owl decoys, propane cannon, pistol cartridges and human presence discourage aquatic birds from utilizing the process and waste ponds.

7.0 Groundwater Sampling Protocol and QA/QC

Groundwater monitoring is required to ensure that mining operations do not degrade groundwaters of the State. Groundwater monitoring wells are sampled pursuant to the SAP monthly, quarterly and/or annually, as identified in Table 1. Groundwater monitoring wells must be labeled, covered to prevent migration of surface contaminants to the groundwater, and secured to restrict access.

A brief discussion of sampling protocol and QA/QC follows; complete details may be found in NSI's Sampling Analysis Plan (SAP).

7.1. Sampling and Analysis

Components of sampling and analysis include:

- Field Measurements
- Sample Collection Procedures
- Laboratory Analyses
- Reporting
- QA/QC methodology will be implemented for all Sampling and Analysis procedures

7.1.1. **Field Measurements**

Prior to collection of the groundwater parameters or samples, information regarding the well and previous sampling events will be recorded in a permanently bound notebook. Once a ground water monitor well has been located and properly identified, field measurements will be recorded in the bound field notebook and in the field data sheet(s). Groundwater monitoring well sampling procedures will include:

- Water level
- Low flow purging of stagnant water
- Field measurements of: temperature, ph and conductivity
- Collection of laboratory samples
- Data record generation

7.1.2. **Laboratory Analyses**

Analysis shall be performed by a certified laboratory (ACZ). All laboratory analysis must meet the following criteria:

The most sensitive analytical method specified or approved in either 40 CFR 136.3 or SW·846 must be used. Regulatory agencies will approve the analytical method, as necessary.

Each parameter shall have detection at or below the permit limits or the method detection limit as defined in the analytical method. The facility is considered in compliance if the reported results are less than the established permit limit.

7.2. QA/QC Water Samples

Field Quality Control is a part of the overall project Quality Assurance/Quality Control (QA/QC) program and in accordance with the NSI SAP. QC samples are those samples prepared in the field or prior to field work for the purpose of accounting for the reliability of field procedures, such as equipment decontamination and sample preparation (e.g., rinsate, spikes, and blank samples). QA samples are those samples prepared in the field that account for reliability of laboratory procedures, based on precision (e.g., duplicate samples).

7.3. Sample Custody and Documentation

A stringent, established program of sample chain-of-custody procedures shall be followed during field sample collection and handling activities and transfer of the samples to the analytical laboratory. Laboratory supplied chains-of-custody shall be utilized to maintain control over access to samples during collection, preparation, transportation, and delivery. All samples will have a unique identification label. Sample containers and shipping containers will have custody seals. A Chain of Custody record will accompany the samples.

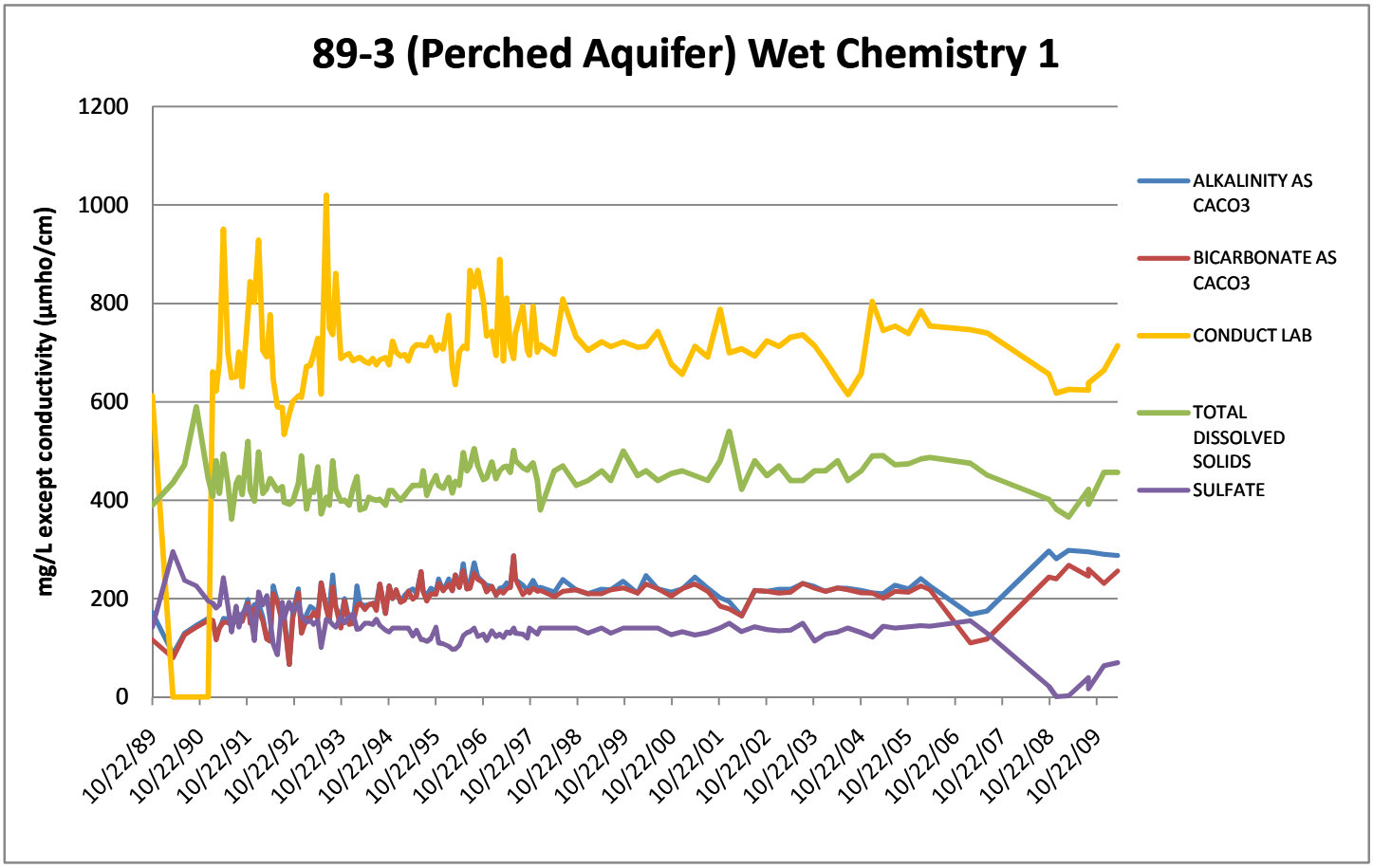
8.0 Summary of Reporting Requirements

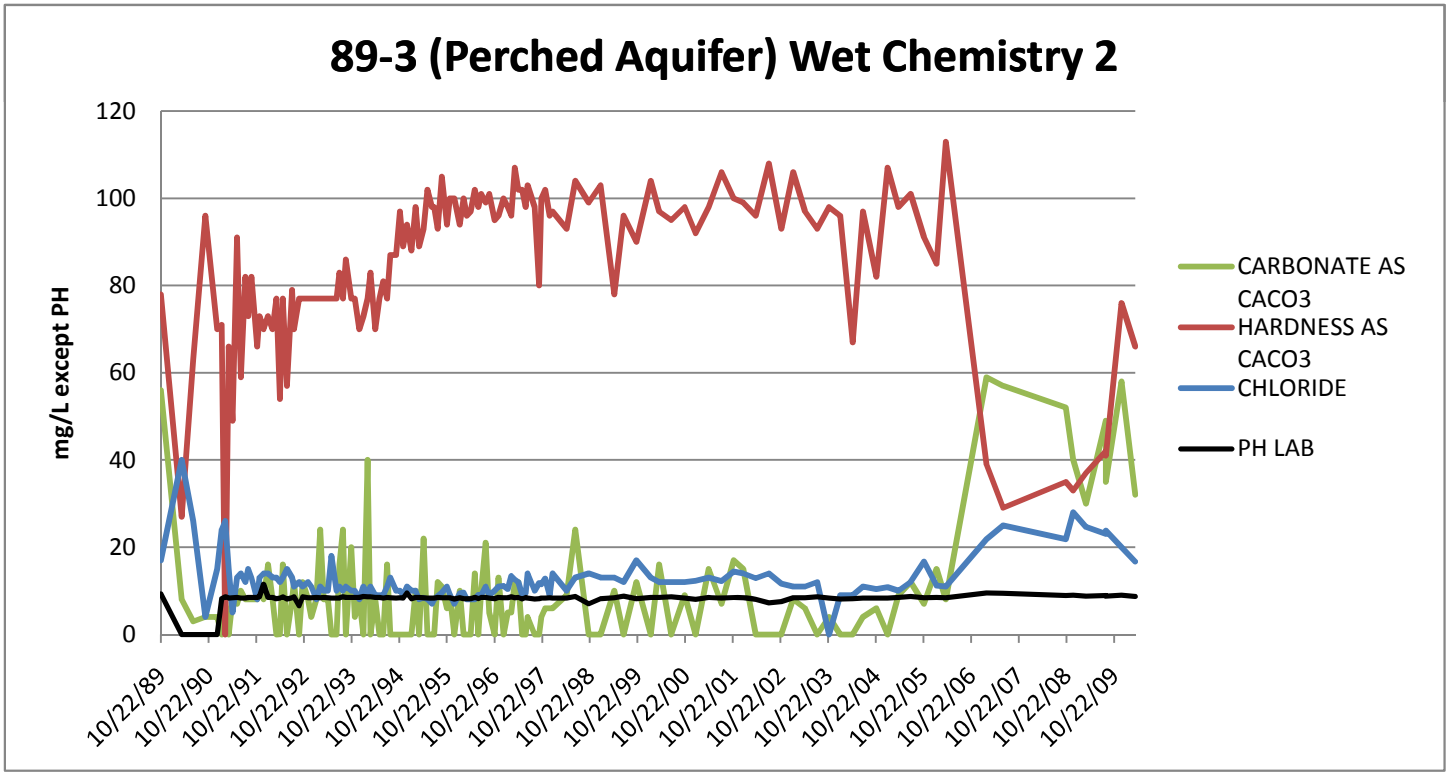
NSI is required to submit monitoring results to the BLM Monthly, EPA quarterly and BLM, EPA and DRMS Annually. Analytical data and monitoring results will be summarized and/or in table format for presentation. Quarterly reports must be submitted on the 28th day of the month following the third month of each quarter (January, April, July, and October reporting periods). Annual reports must be submitted by January 31st of the following year. Quarterly and annual reporting periods are based on the standard annual calendar cycle, January 1 through December 31. If a monitoring well is dry, it will be reported as 'dry'.

Natural Soda, Inc. will report all non-compliance issues that may endanger health or environment to the EPA within 24 hours. A written submission shall also be provided to the EPA within five days, including a description of the noncompliance, it's cause, the period of noncompliance, anticipated time of correction if not already, and steps planned to reduce or eliminate future noncompliance. Notice of intent to abandon production wells will be provided to the BLM 30 days prior to the planned activity. Routine process and environmental data will be provided in a monthly report to the BLM. Monthly hydrology summary reports will be submitted to the BLM, and quarterly hydrology summary reports will be provided to the EPA. An annual summary report, submitted to the BLM, EPA, and DRSM, will provide information on the past year's activities, planned activities for the forthcoming year, and a summary environmental and reclamation monitoring.

Appendix A

Historic Groundwater Quality Data


89-3 (Perched Aquifer) Wet Chemistry 1
mg/L except conductivity (µmho/cm)
1200
1000
800
600
400
200
0
10/22/89
10/22/90
10/22/91
10/22/92
10/22/93
10/22/94
10/22/95
10/22/96
10/22/97
10/22/98
10/22/99
10/22/00
10/22/01
10/22/02
10/22/03
10/22/04
10/22/05
10/22/06
10/22/07
10/22/08
10/22/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS
SULFATE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mg/L except PH
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100
80
60
40
20
0
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10/22/90
10/22/91
10/22/92
10/22/93
10/22/94
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10/22/97
10/22/98
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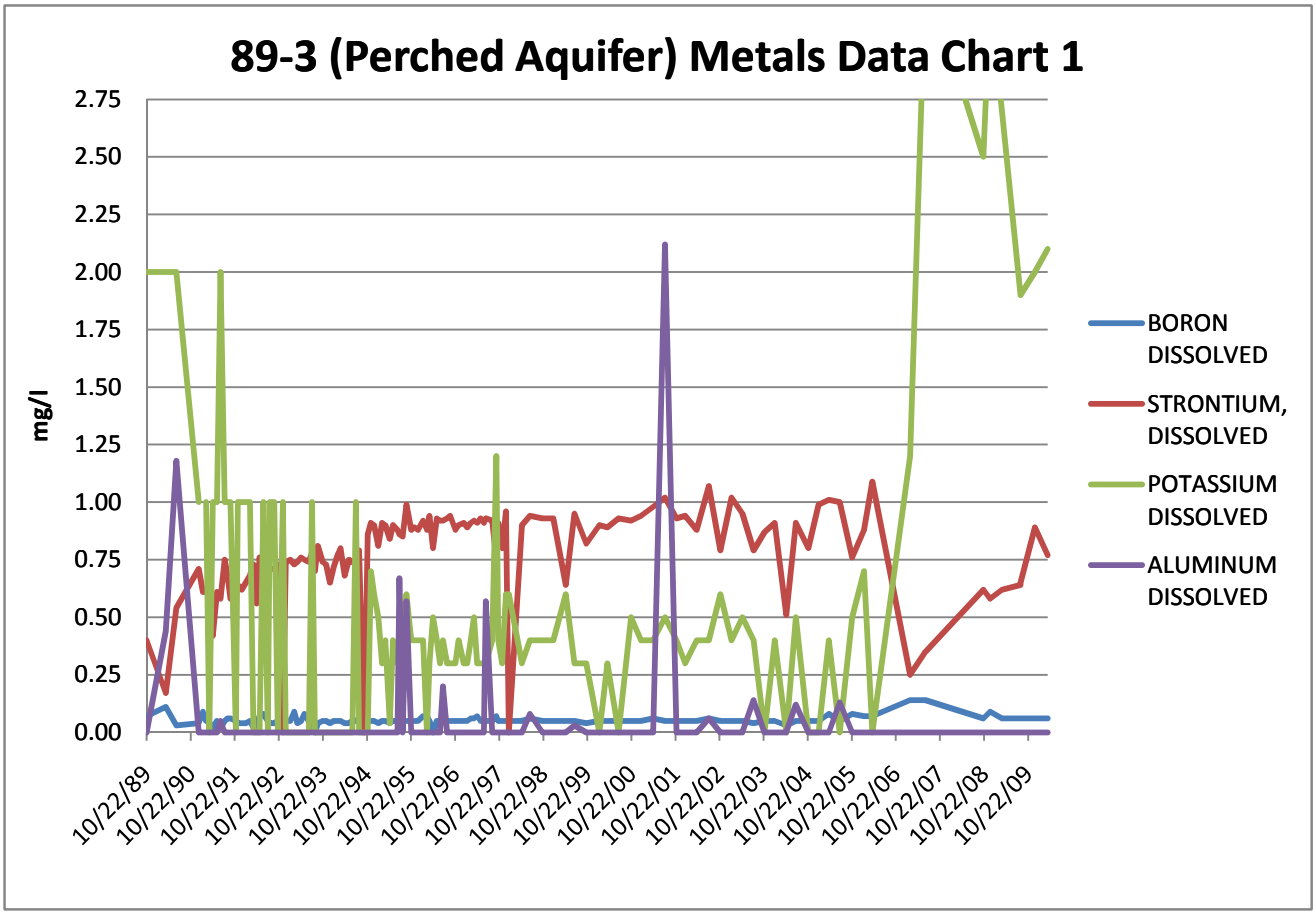
10/22/01
10/22/02
10/22/03
10/22/04
10/22/05
10/22/06
10/22/07
10/22/08
10/22/09
CARBONATE AS CACO3
HARDNESS AS CACO3
CHLORIDE
PH LAB


89-3 (Perched Aquifer) Metals Data Chart 1
mg/l
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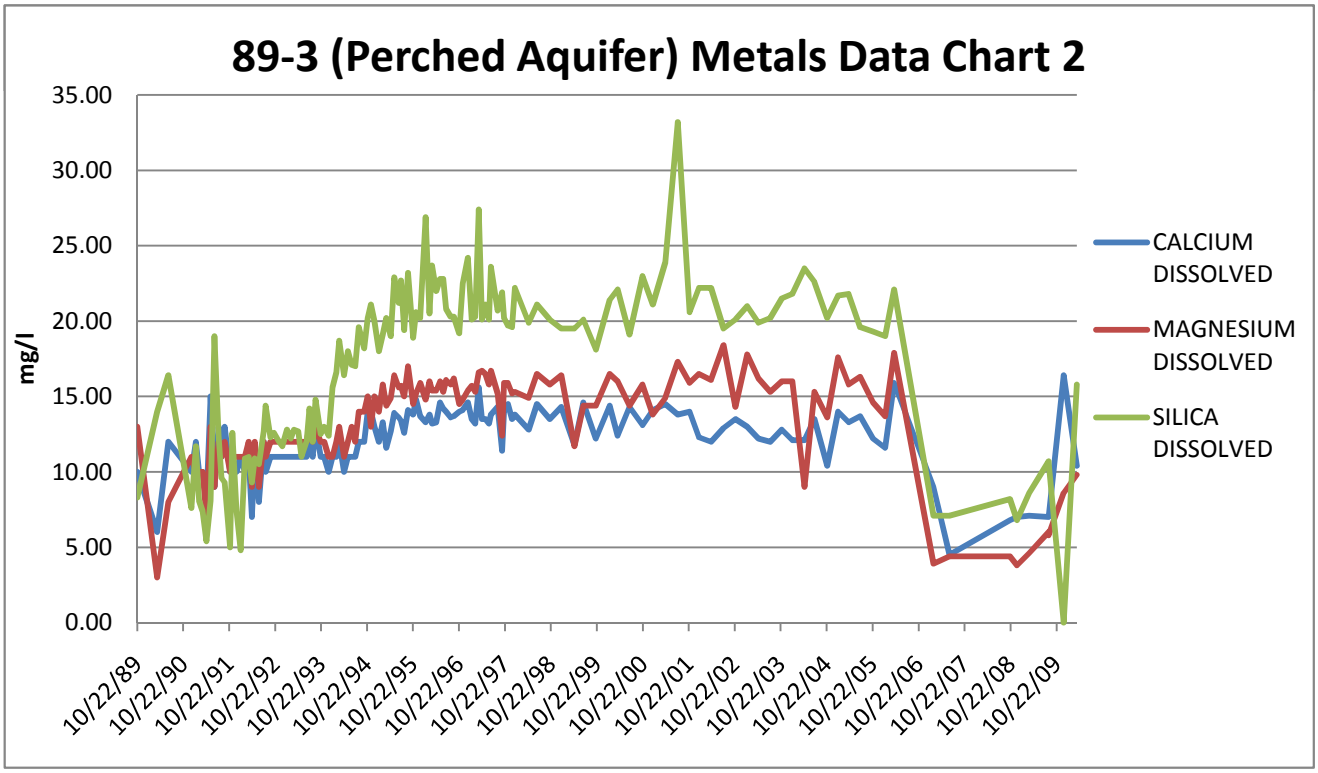
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
10/22/89
10/22/90
10/22/91
10/22/92
10/22/93
10/22/94
10/22/95
10/22/96
10/22/97
10/22/98
10/22/99
10/22/00
10/22/01
10/22/02
10/22/03
10/22/04
10/22/05
10/22/06
10/22/07
10/22/08
10/22/09
BORON DISSOLVED
STRONTIUM, DISSOLVED
POTASSIUM DISSOLVED
ALUMINUM DISSOLVED


89-3 (Perched Aquifer) Metals Data Chart 2
mg/l
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
10/22/89
10/22/90
10/22/91
10/22/92
10/22/93
10/22/94
10/22/95
10/22/96
10/22/97
10/22/98
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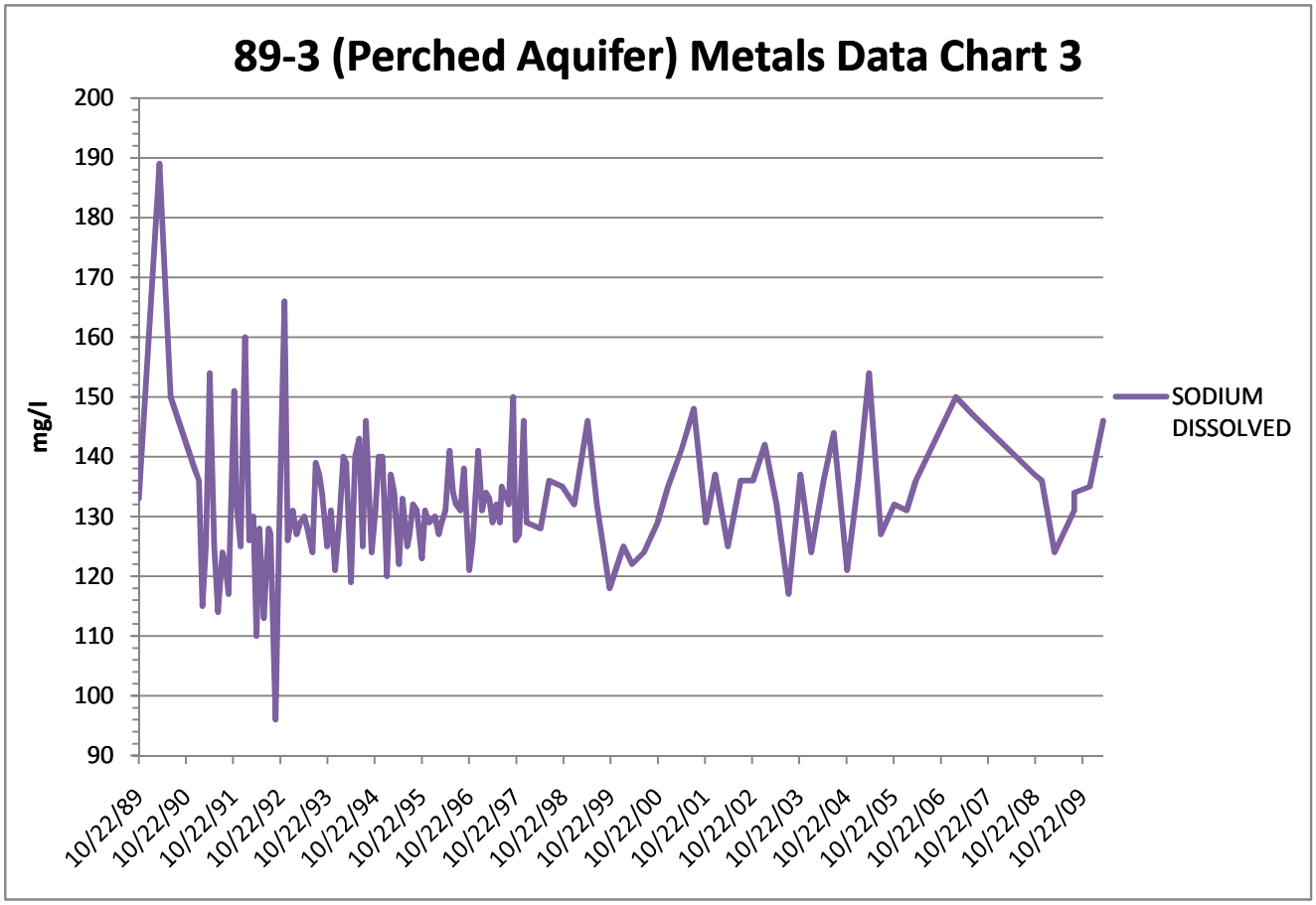
10/22/01
10/22/02
10/22/03
10/22/04
10/22/05
10/22/06
10/22/07
10/22/08
10/22/09
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
SILICA DISSOLVED


89-3 (Perched Aquifer) Metals Data Chart 3
mg/l
200
190
180
170
160
150
140
130
120
110
100
90
10/22/89
10/22/90
10/22/91
10/22/92
10/22/93
10/22/94
10/22/95
10/22/96
10/22/97
10/22/98
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10/22/02
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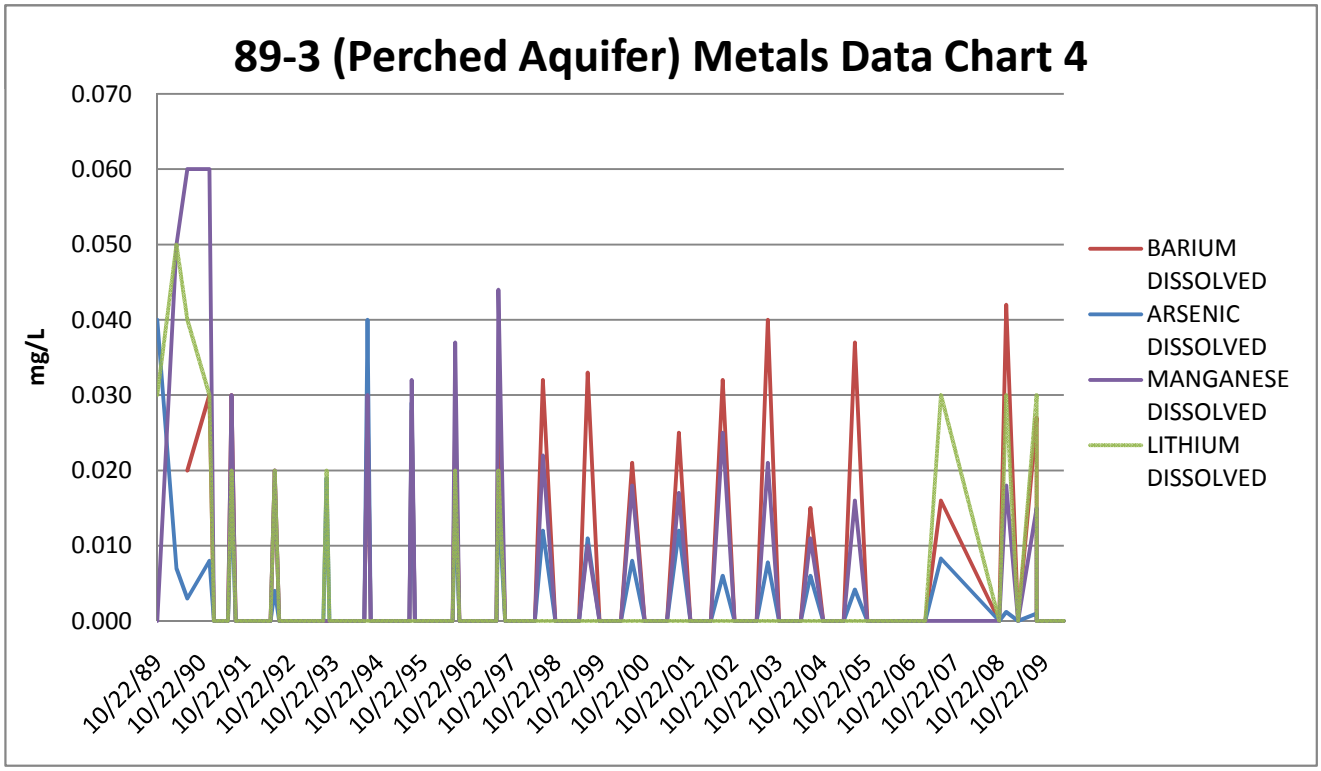
10/22/07
10/22/08
10/22/09
SODIUM DISSOLVED


89-3 (Perched Aquifer) Metals Data Chart 4
mg/L
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0.020
0.010
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10/22/90
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10/22/02
10/22/03
10/22/04
10/22/05
10/22/06
10/22/07
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10/22/09
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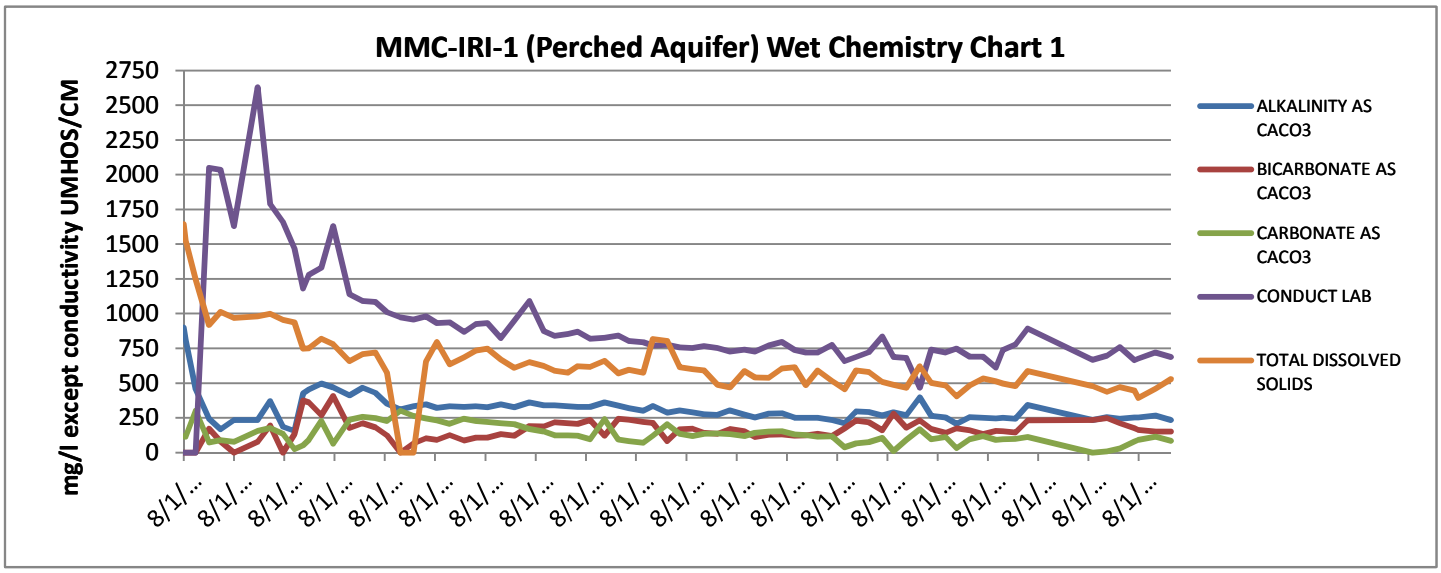
ARSENIC DISSOLVED
MANGANESE DISSOLVED
LITHIUM DISSOLVED


MMC-IRI-1 (Perched Aquifer) Wet Chemistry Chart 1
mg/l except conductivity UMHOS/CM
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2500
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1750
1500
1250
1000
750
500
250
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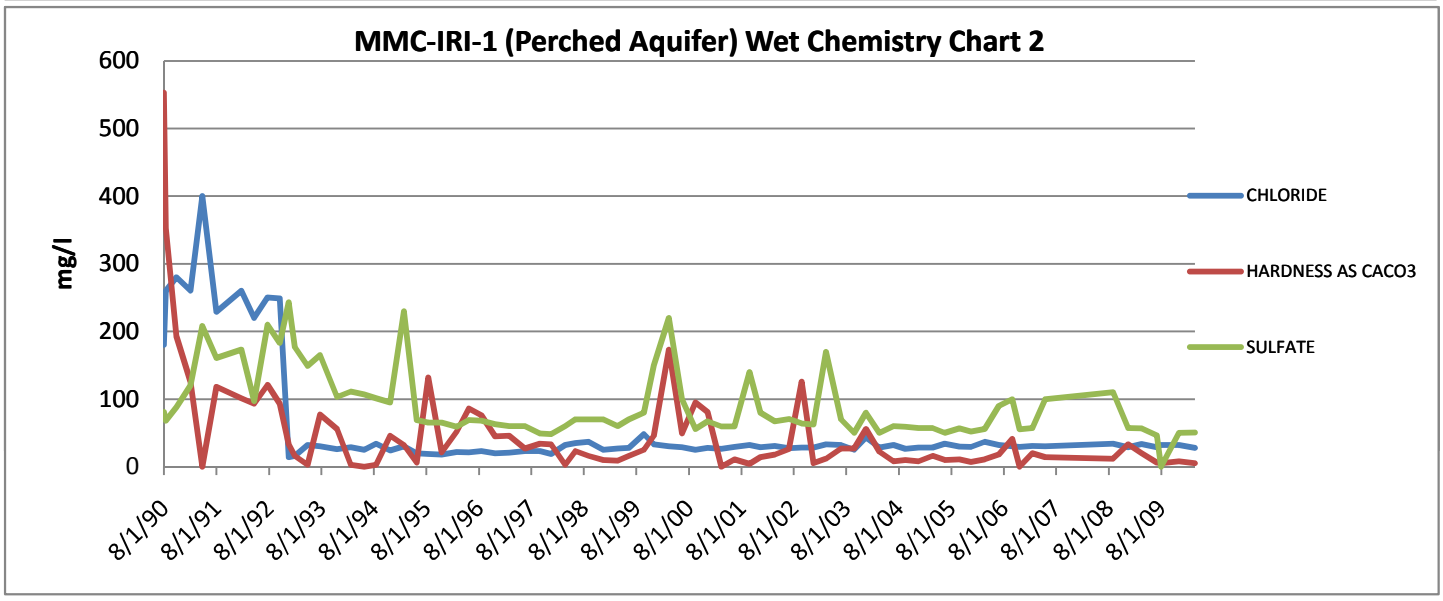
8/1/...
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS


MMC-IRI-1 (Perched Aquifer) Wet Chemistry Chart 2
mg/l
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500
400
300
200
100
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8/1/90
8/1/91
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8/1/99
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8/1/03
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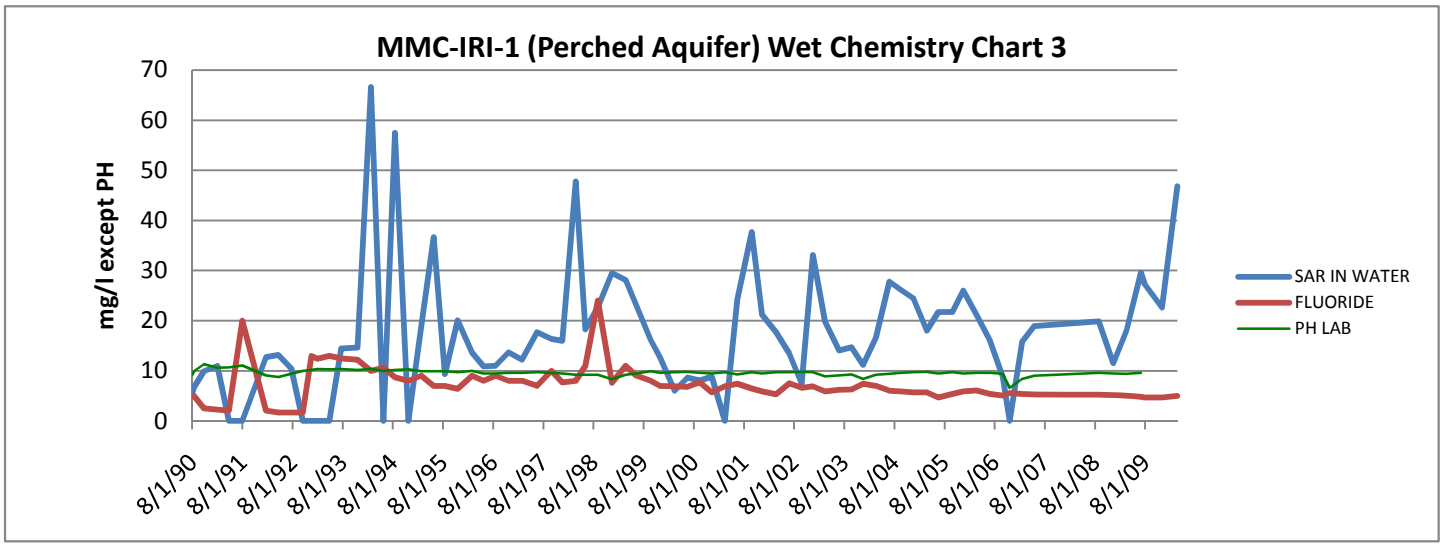
8/1/07
8/1/08
8/1/09
CHLORIDE
HARDNESS AS CACO3
SULFATE


MMC-IRI-1 (Perched Aquifer) Wet Chemistry Chart 3
mg/l except PH
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40
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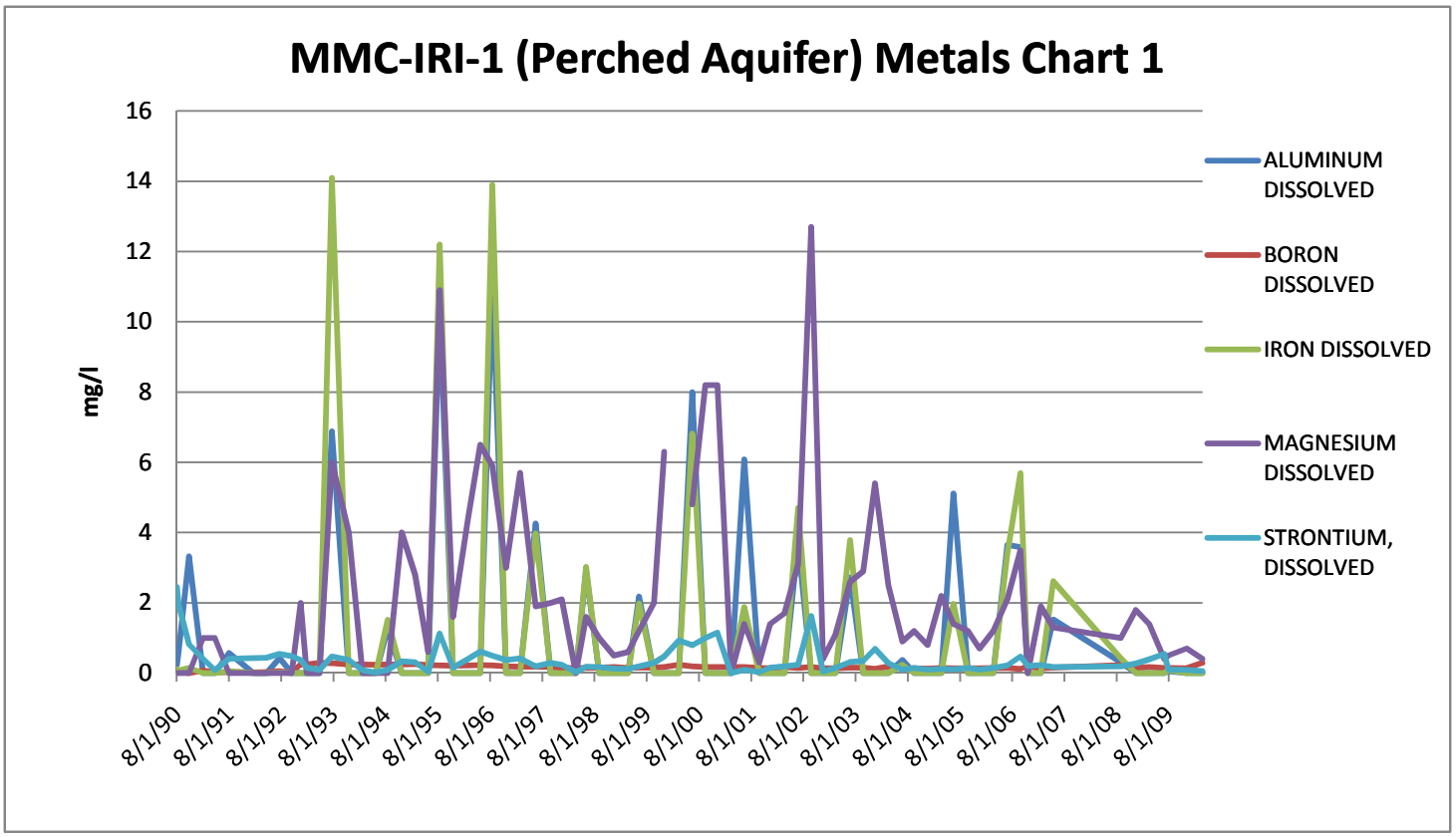
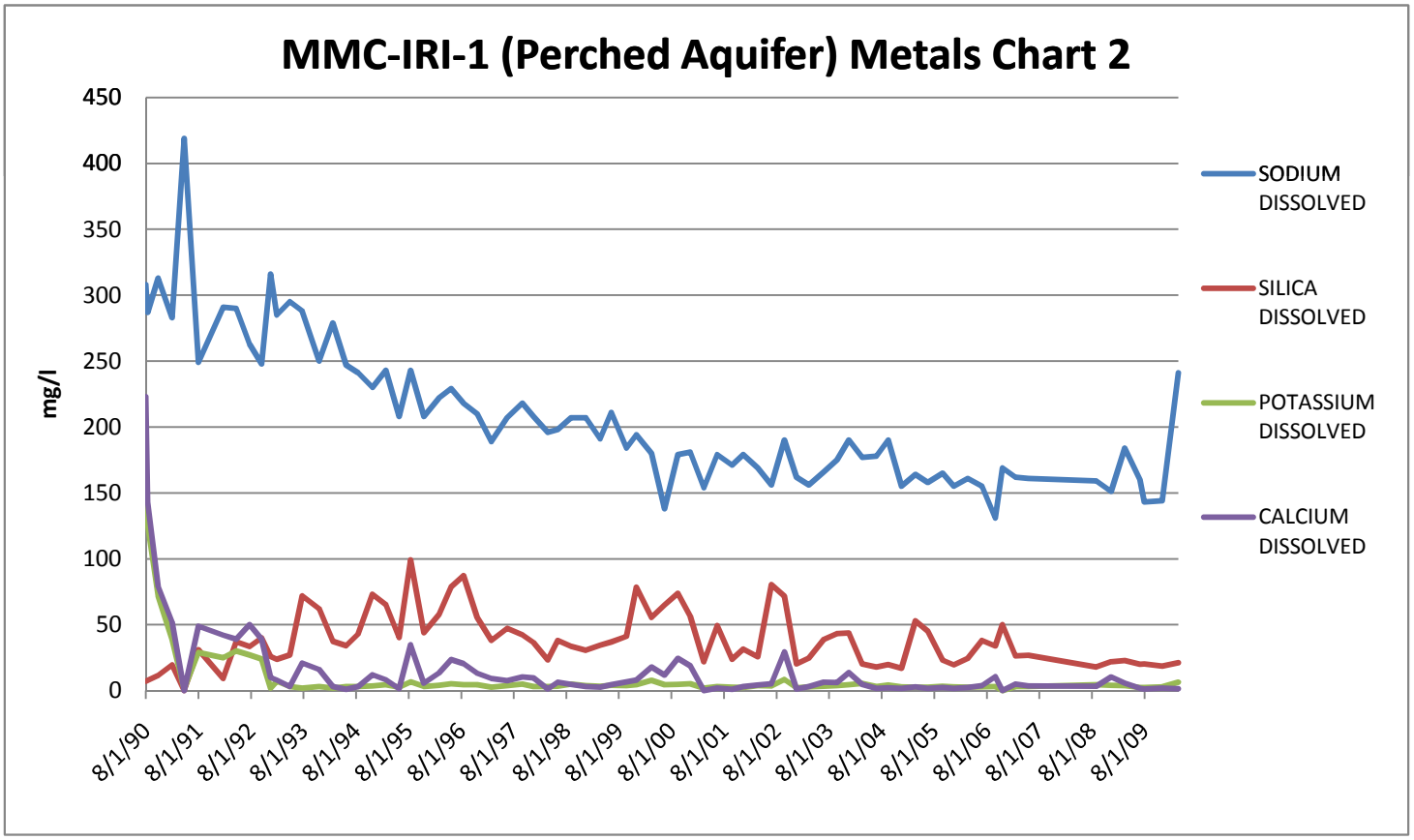
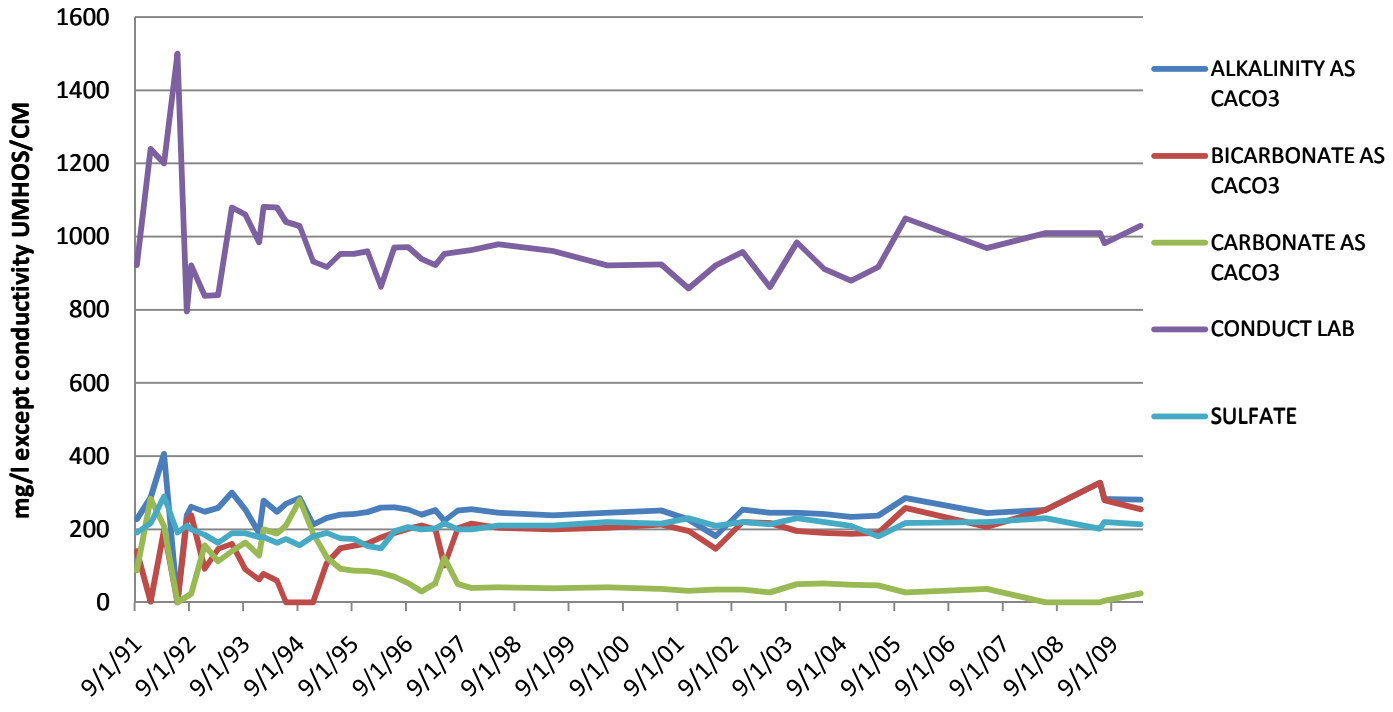
8/1/07
8/1/08
8/1/09
SAR IN WATER
FLUORIDE
PH LAB

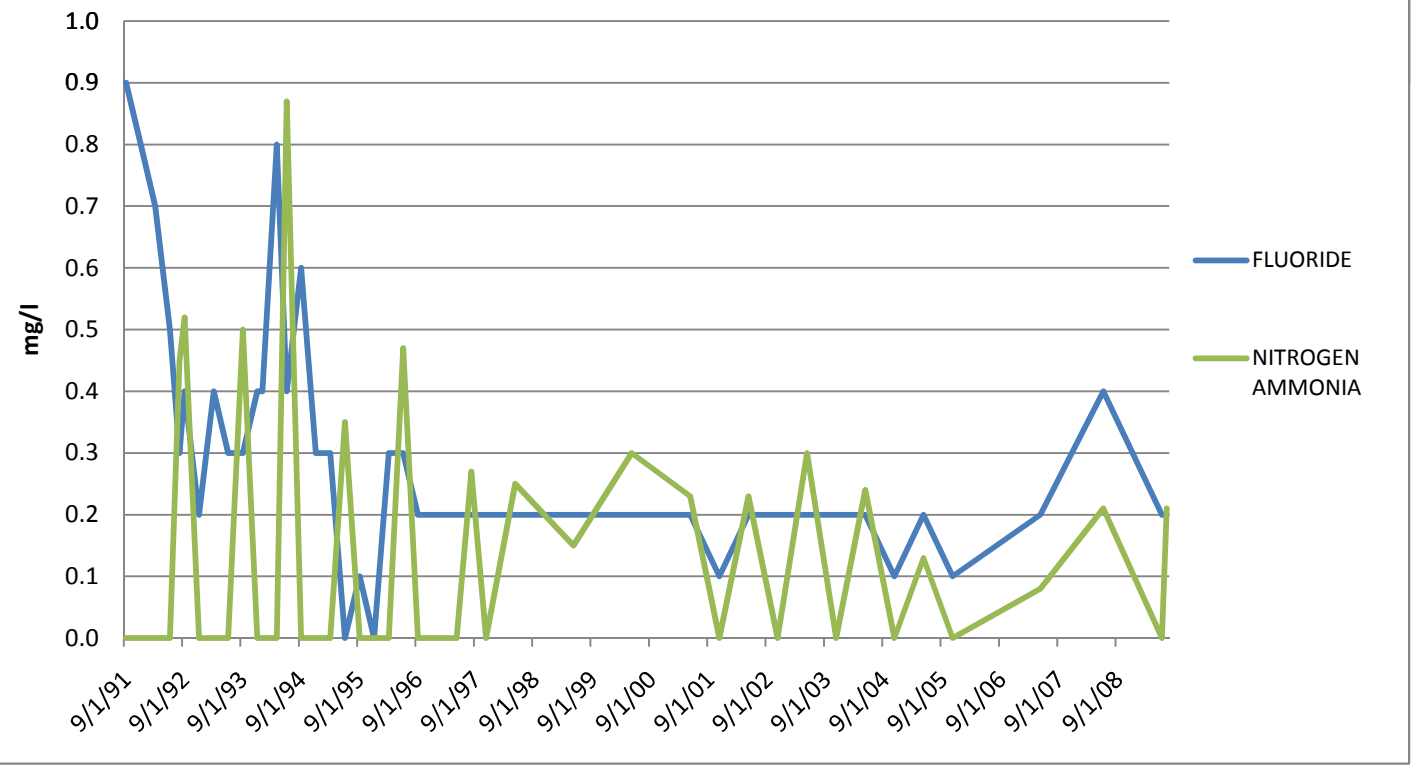

MMC-IRI-1 (Perched Aquifer) Metals Chart 1
mg/l
16
14
12
10
8
6
4
2
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
ALUMINUM DISSOLVED
BORON DISSOLVED
IRON DISSOLVED
MAGNESIUM DISSOLVED
STRONTIUM, DISSOLVED

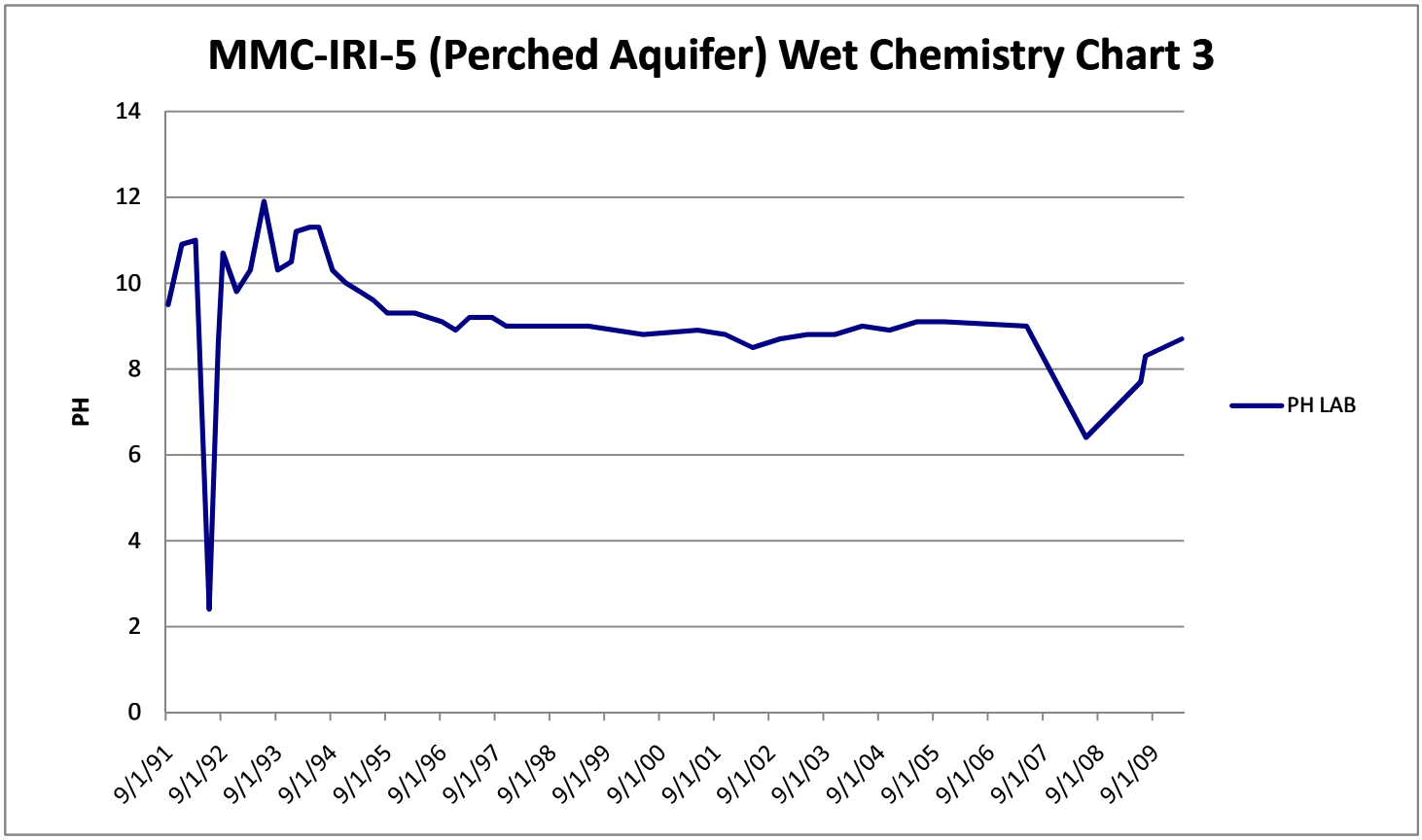

MMC-IRI-1 (Perched Aquifer) Metals Chart 2
mg/l
450
400
350
300
250
200
150
100
50
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
SODIUM DISSOLVED
SILICA DISSOLVED
POTASSIUM DISSOLVED
CALCIUM DISSOLVED

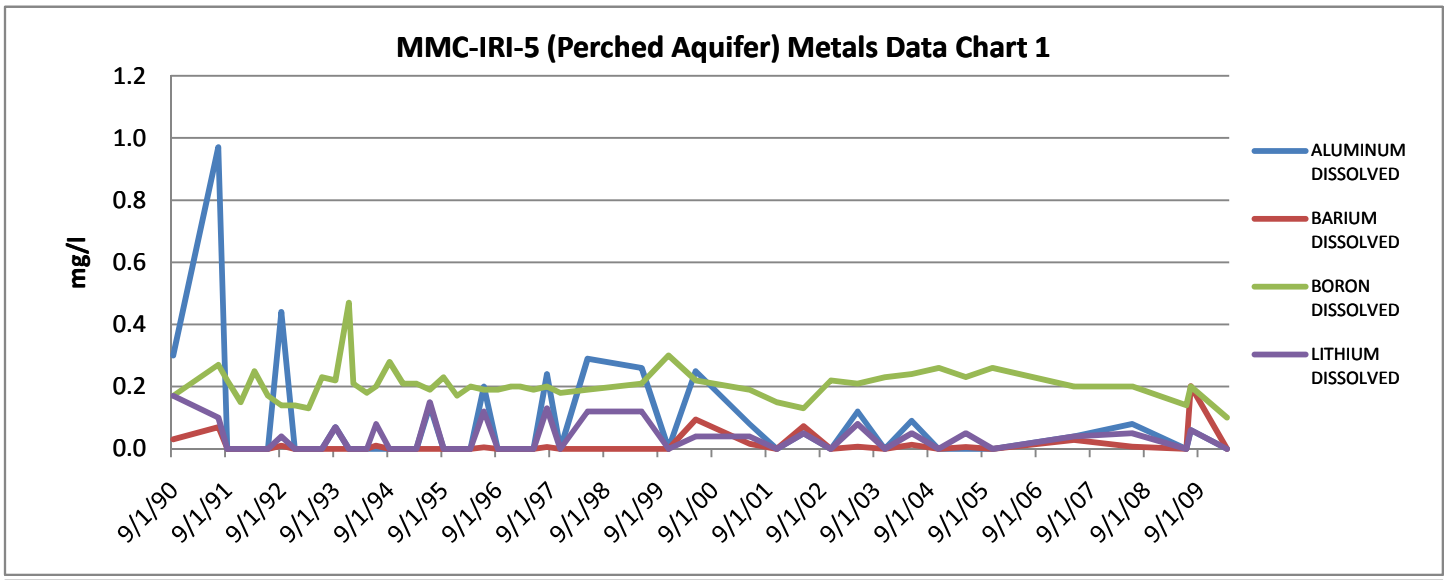
MMC-IRI-5 (Perched Aquifer) Wet Chemistry Chart 1

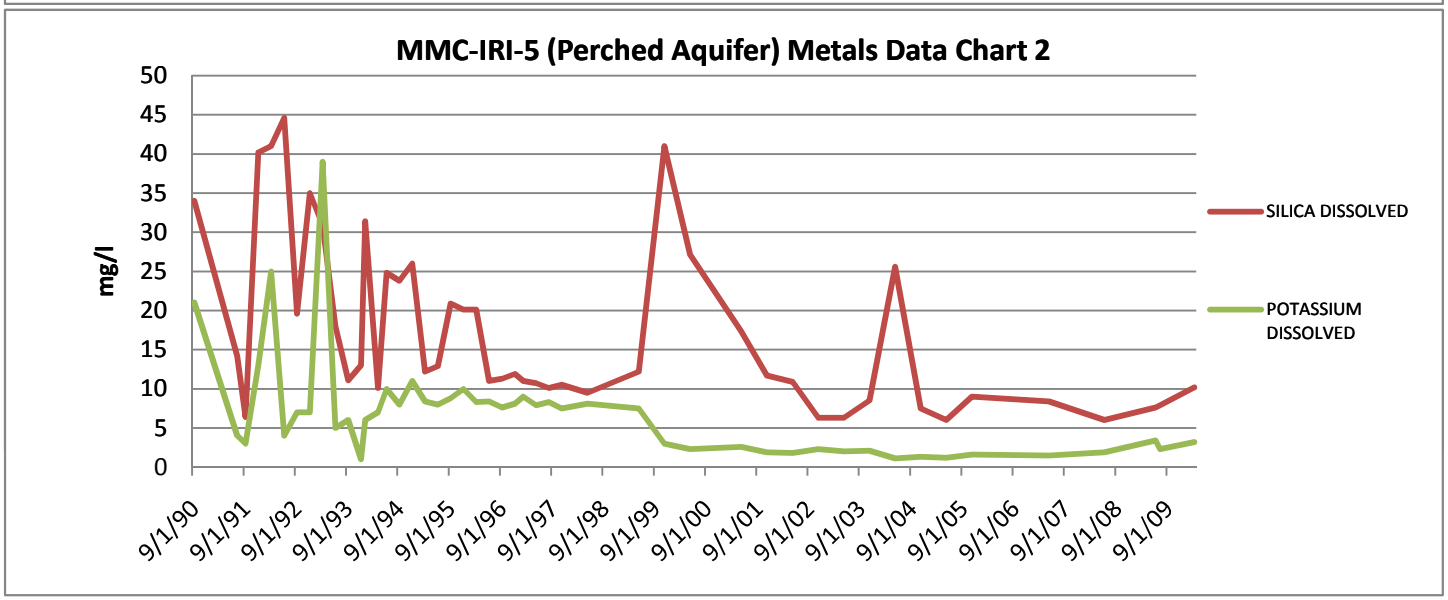


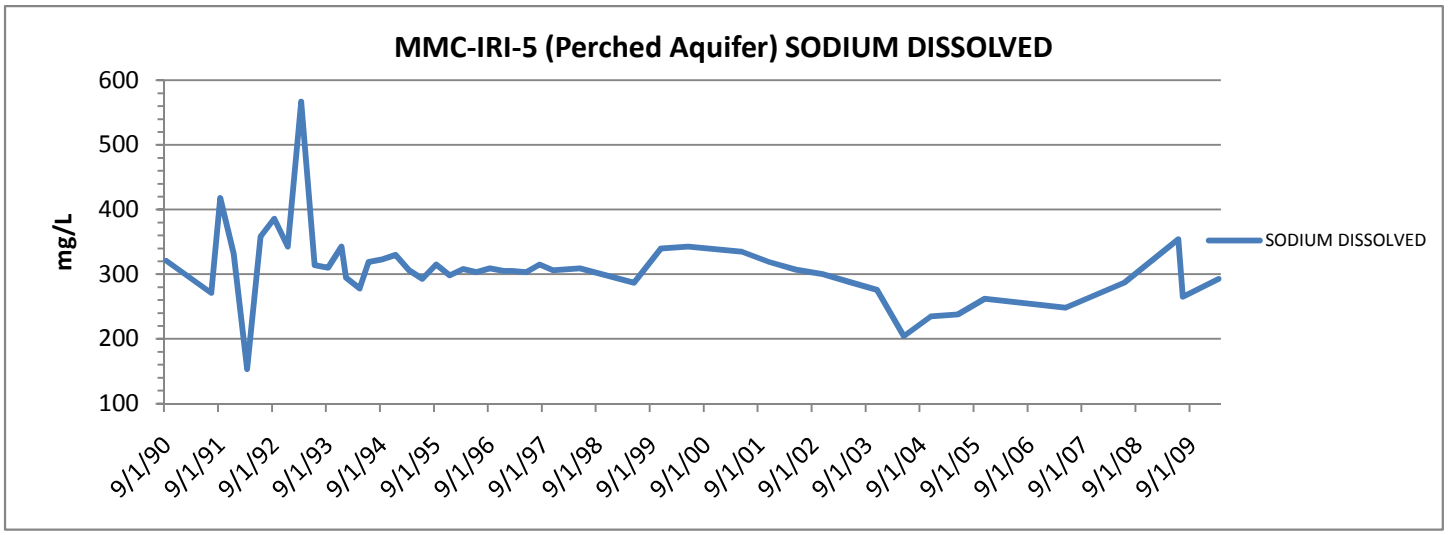
MMC-IRI-5 (Perched Aquifer) Wet Chemistry Chart 2

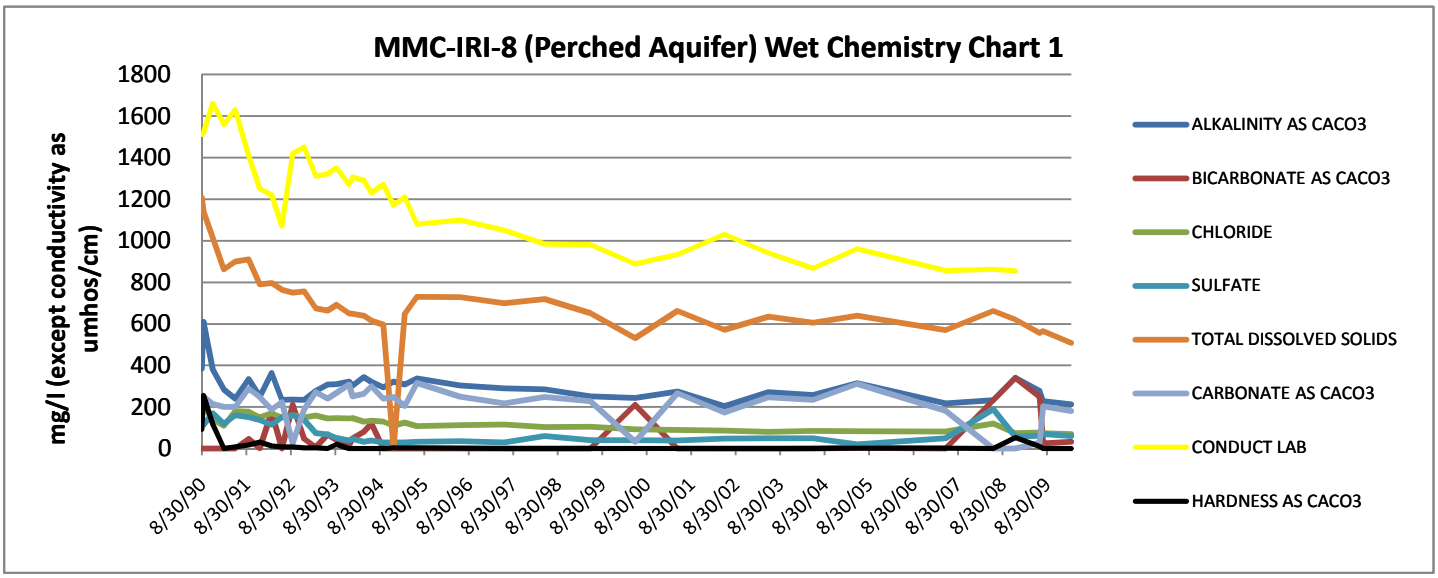


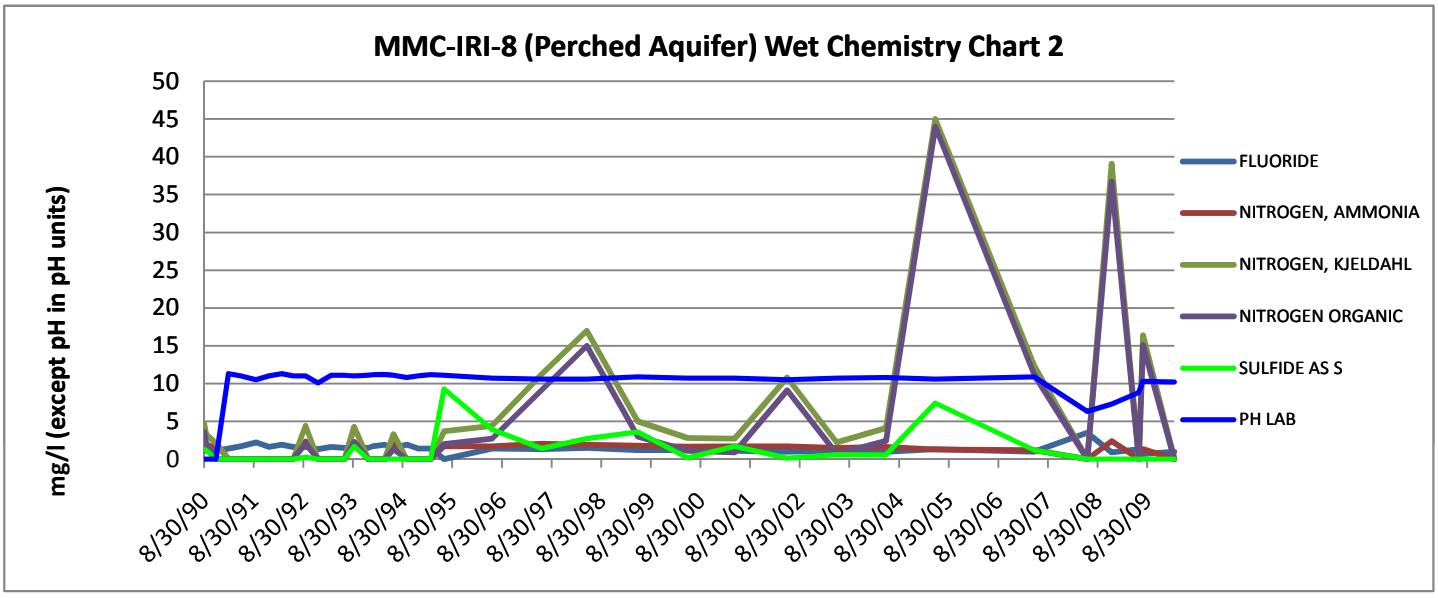

MMC-IRI-5 (Perched Aquifer) Wet Chemistry Chart 3
PH
14
12
10
8
6
4
2
0
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
PH LAB

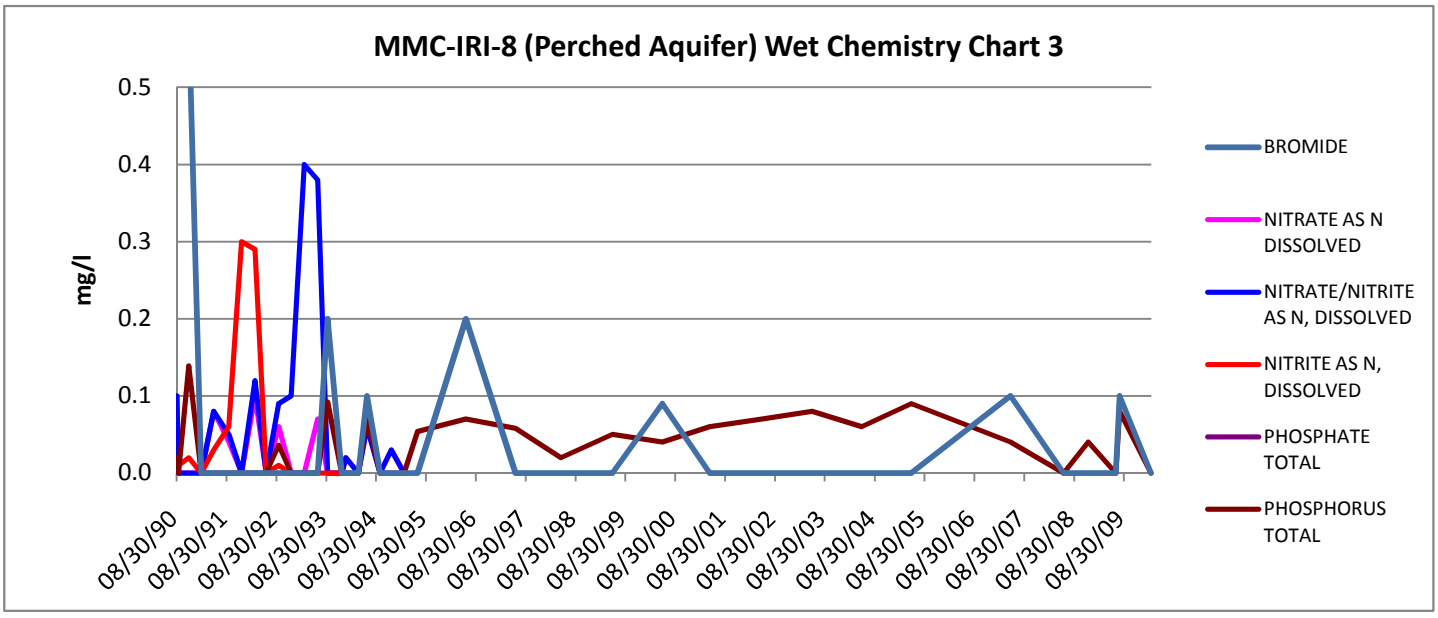

MMC-IRI-5 (Perched Aquifer) Metals Data Chart 1
mg/l
1.2
1.0
0.8
0.6
0.4
0.2
0.0
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
ALUMINUM DISSOLVED
BARIUM DISSOLVED
BORON DISSOLVED
LITHIUM DISSOLVED

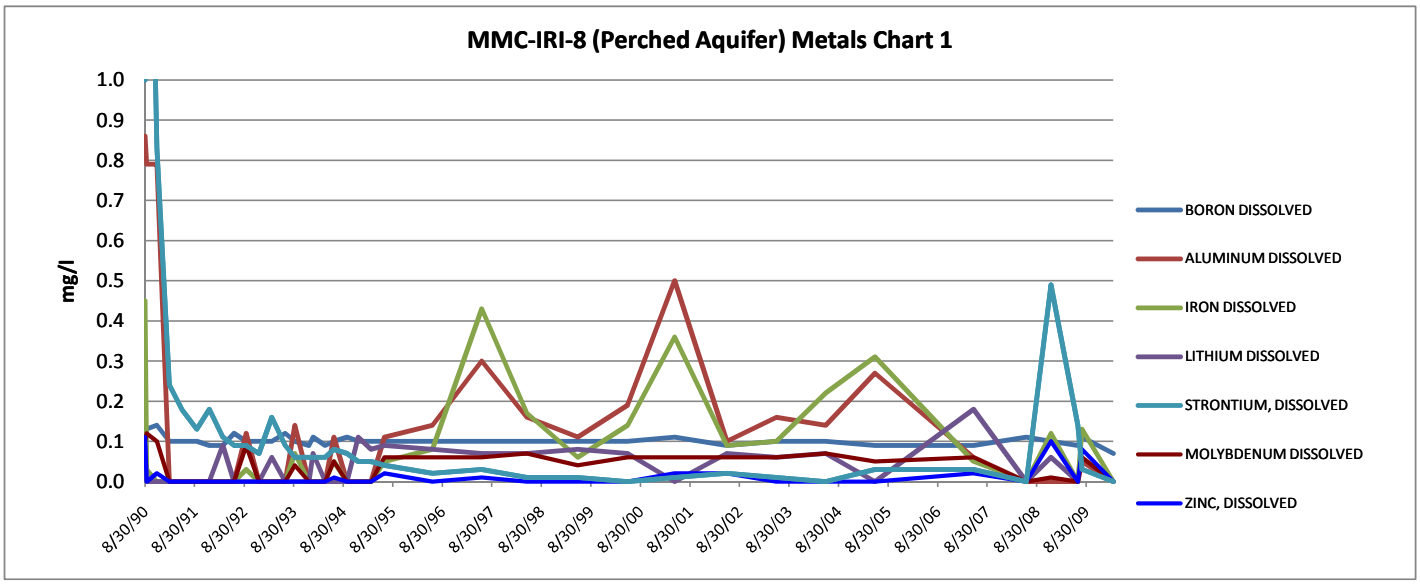

MMC-IRI-5 (Perched Aquifer) Metals Data Chart 2
mg/l
50
45
40
35
30
25
20
15
10
5
0
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
SILICA DISSOLVED
POTASSIUM DISSOLVED

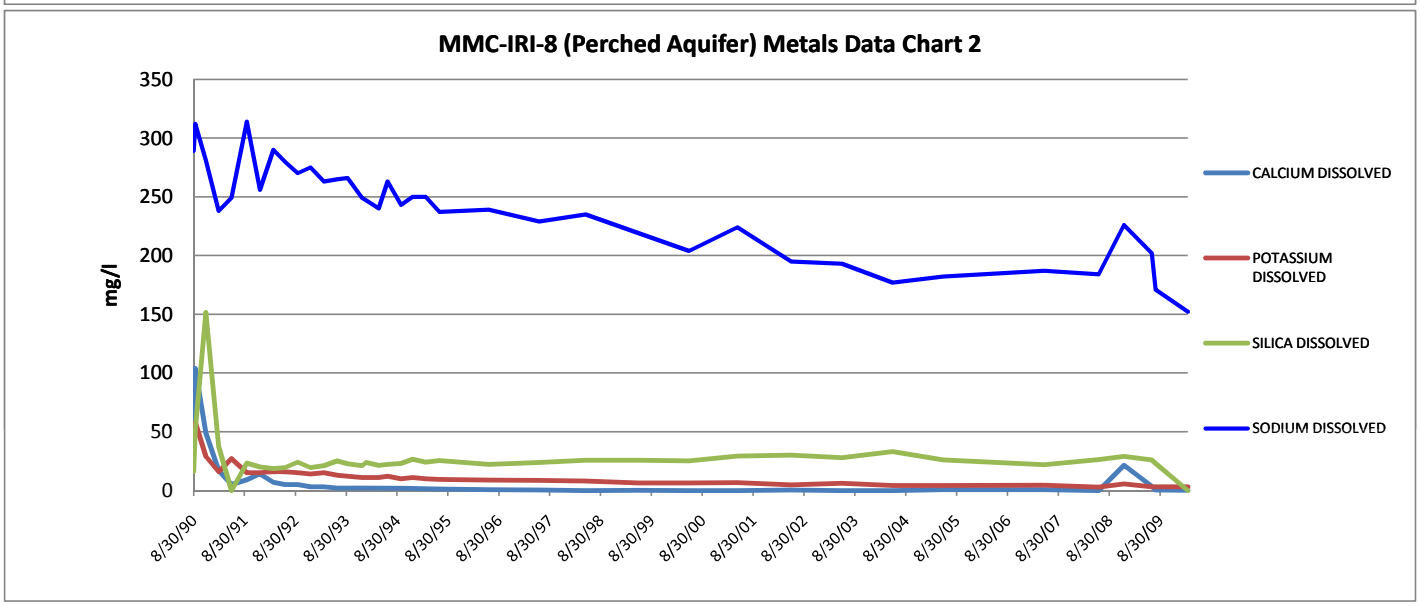

MMC-IRI-5 (Perched Aquifer) SODIUM DISSOLVED
mg/L
600
500
400
300
200
100
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
SODIUM DISSOLVED

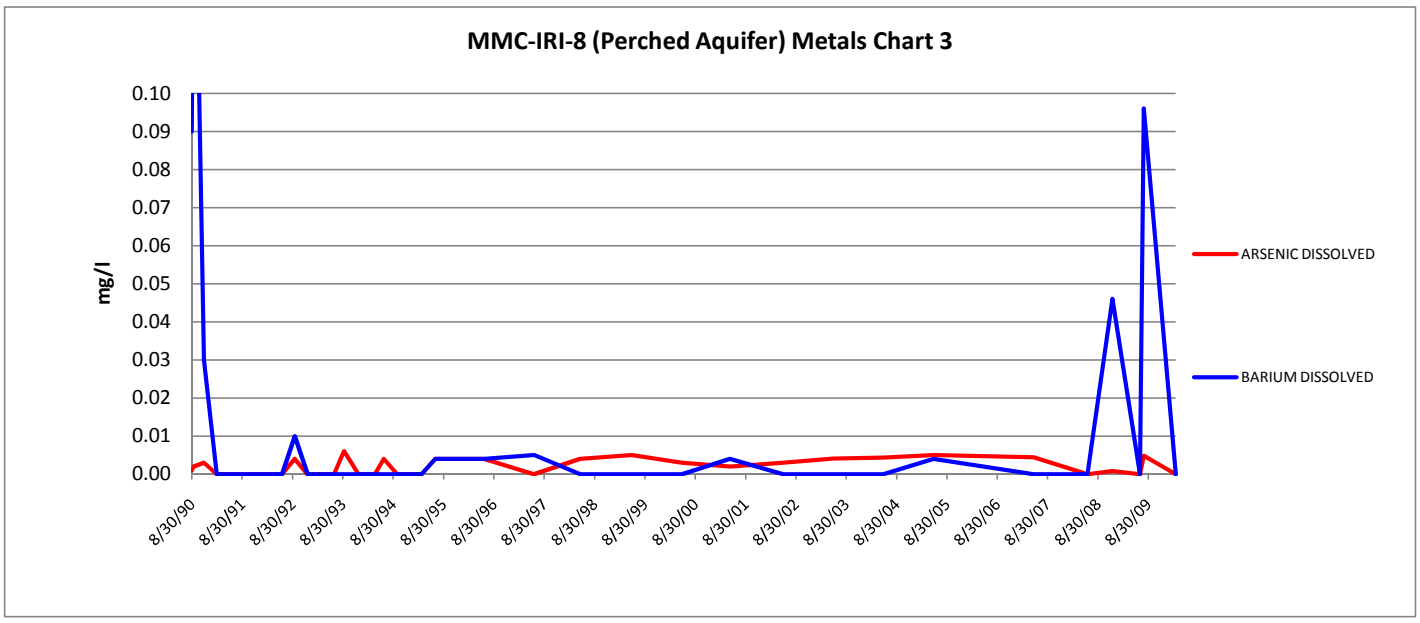

MMC-IRI-8 (Perched Aquifer) Wet Chemistry Chart 1
mg/l (except conductivity as umhos/cm)
1800
1600
1400
1200
1000
800
600
400
200
0
8/30/90
8/30/91
8/30/92
8/30/93
8/30/94
8/30/95
8/30/96
8/30/97
8/30/98
8/30/99
8/30/00
8/30/01
8/30/02
8/30/03
8/30/04
8/30/05
8/30/06
8/30/07
8/30/08
8/30/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CHLORIDE
SULFATE
TOTAL DISSOLVED SOLIDS
CARBONATE AS CACO3
CONDUCT LAB
HARDNESS AS CACO3

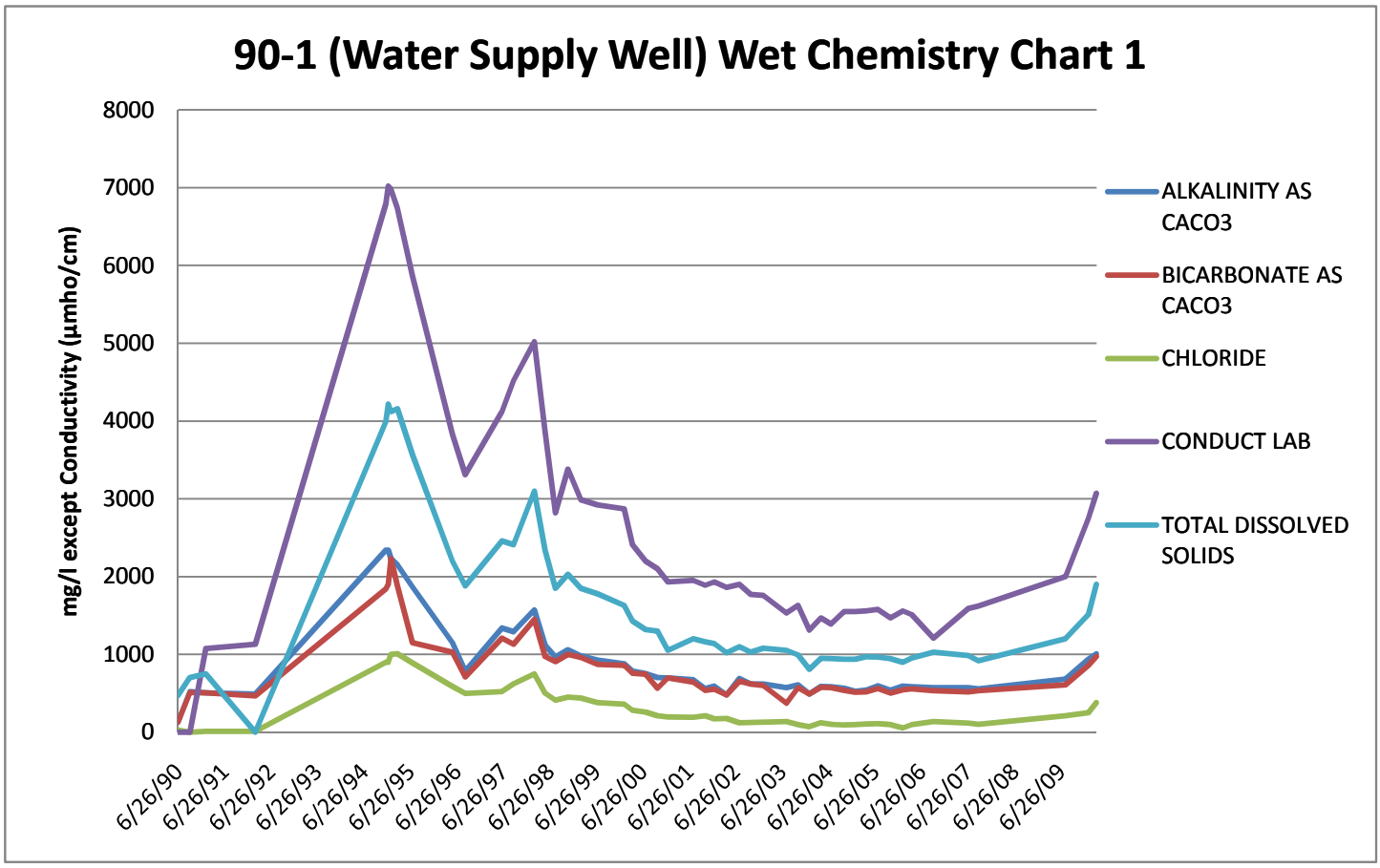

MMC-IRI-8 (Perched Aquifer) Wet Chemistry Chart 2
mg/l (except pH in pH units)
50
45
40
35
30
25
20
15
10
5
0
8/30/90
8/30/91
8/30/92
8/30/93
8/30/94
8/30/95
8/30/96
8/30/97
8/30/98
8/30/99
8/30/00
8/30/01
8/30/02
8/30/03
8/30/04
8/30/05
8/30/06
8/30/07
8/30/08
8/30/09
FLUORIDE
NITROGEN, AMMONIA
NITROGEN, KJELDAHL
NITROGEN ORGANIC
SULFIDE AS S
PH LAB

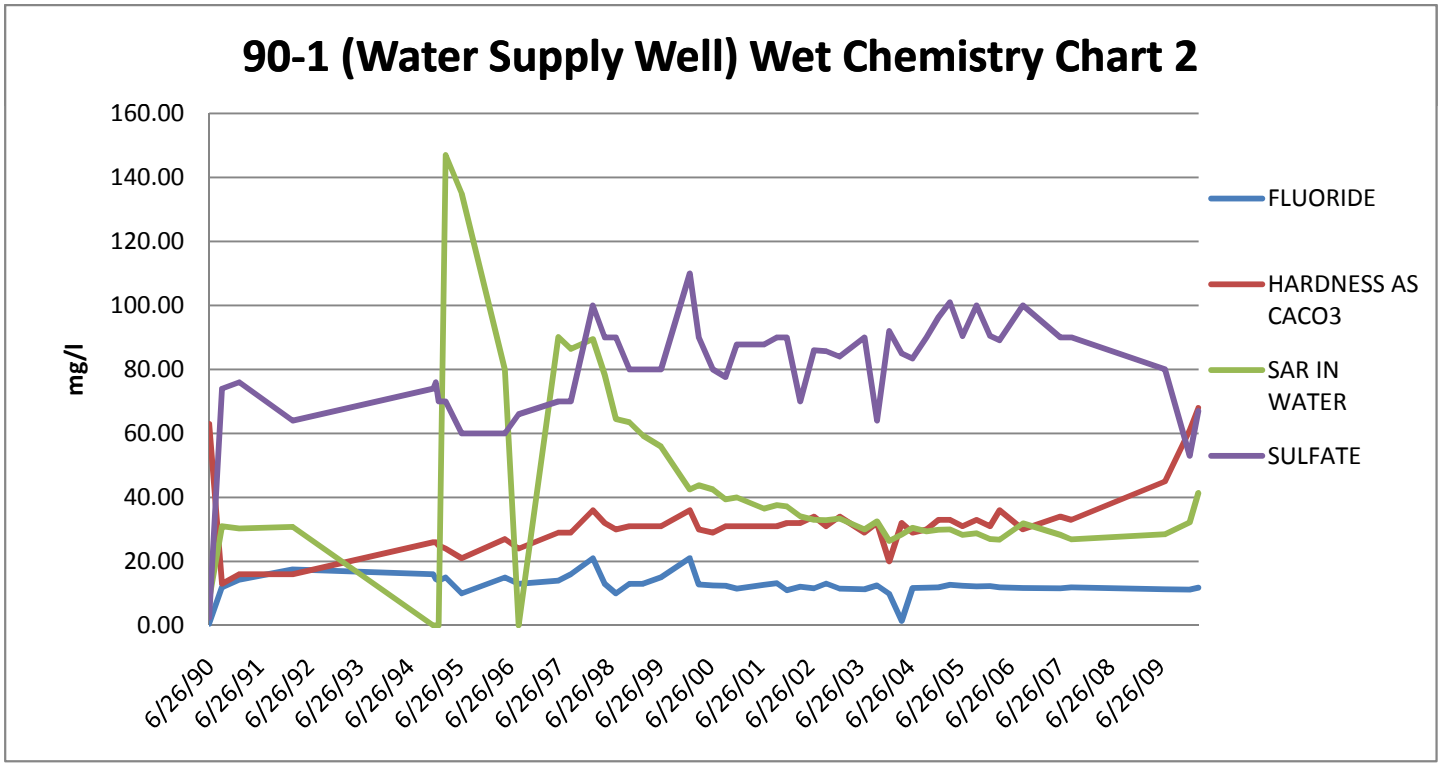

MMC-IRI-8 (Perched Aquifer) Wet Chemistry Chart 3
mg/l
0.5
0.4
0.3
0.2
0.1
0.0
08/30/90
08/30/91
08/30/92
08/30/93
08/30/94
08/30/95
08/30/96
08/30/97
08/30/98
08/30/99
08/30/00
08/30/01
08/30/02
08/30/03
08/30/04
08/30/05
08/30/06
08/30/07
08/30/08
08/30/09
BROMIDE
NITRATE AS N DISSOLVED
NITRATE/NITRITE AS N, DISSOLVED
NITRITE AS N, DISSOLVED
PHOSPHATE TOTAL
PHOSPHORUS TOTAL

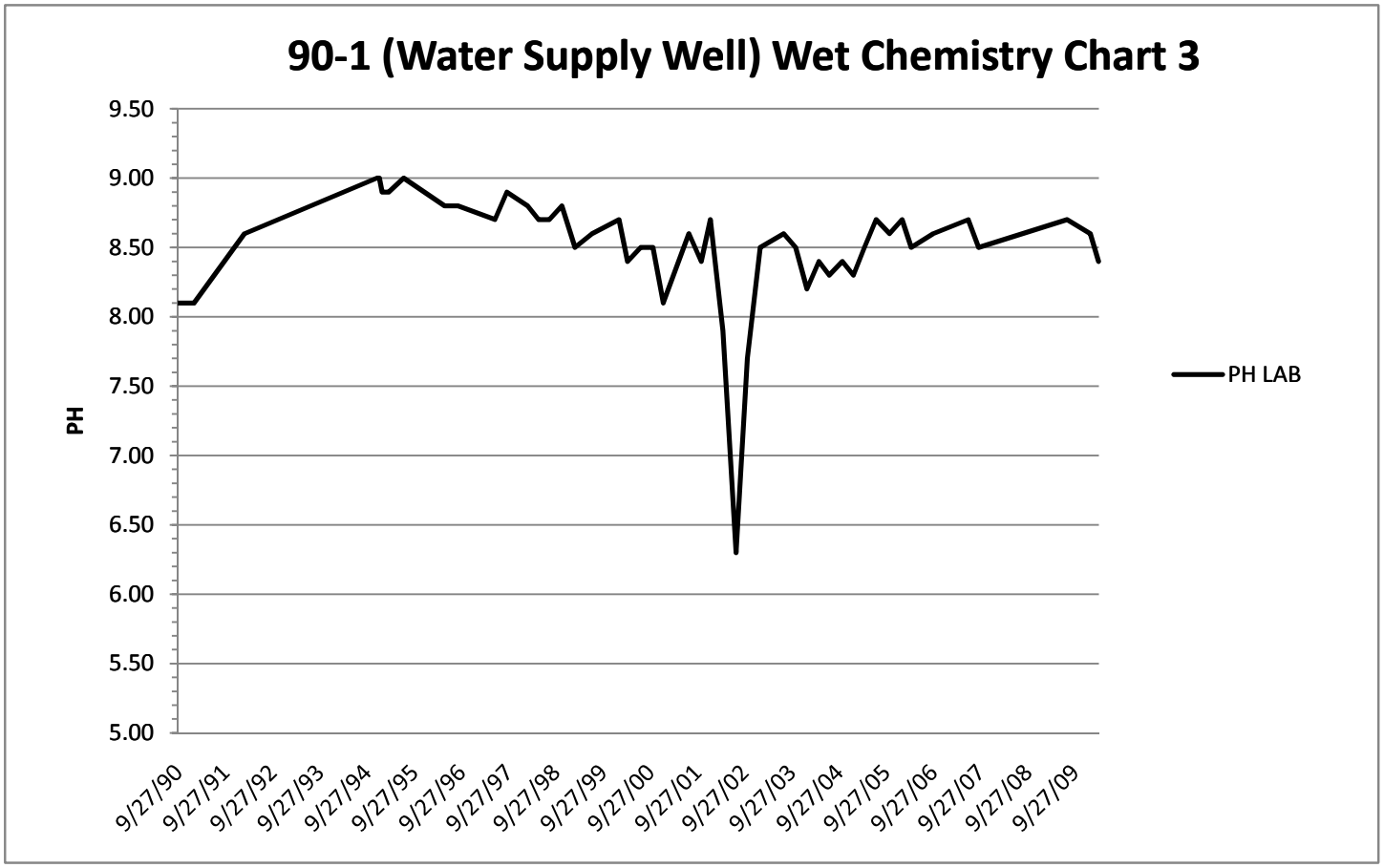

MMC-IRI-8 (Perched Aquifer) Metals Chart 1
mg/l
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
8/30/90
8/30/91
8/30/92
8/30/93
8/30/94
8/30/95
8/30/96
8/30/97
8/30/98
8/30/99
8/30/00
8/30/01
8/30/02
8/30/03
8/30/04
8/30/05
8/30/06
8/30/07
8/30/08
8/30/09
BORON DISSOLVED
ALUMINUM DISSOLVED
IRON DISSOLVED
LITHIUM DISSOLVED
STRONTIUM, DISSOLVED
MOLYBDENUM DISSOLVED
ZINC, DISSOLVED

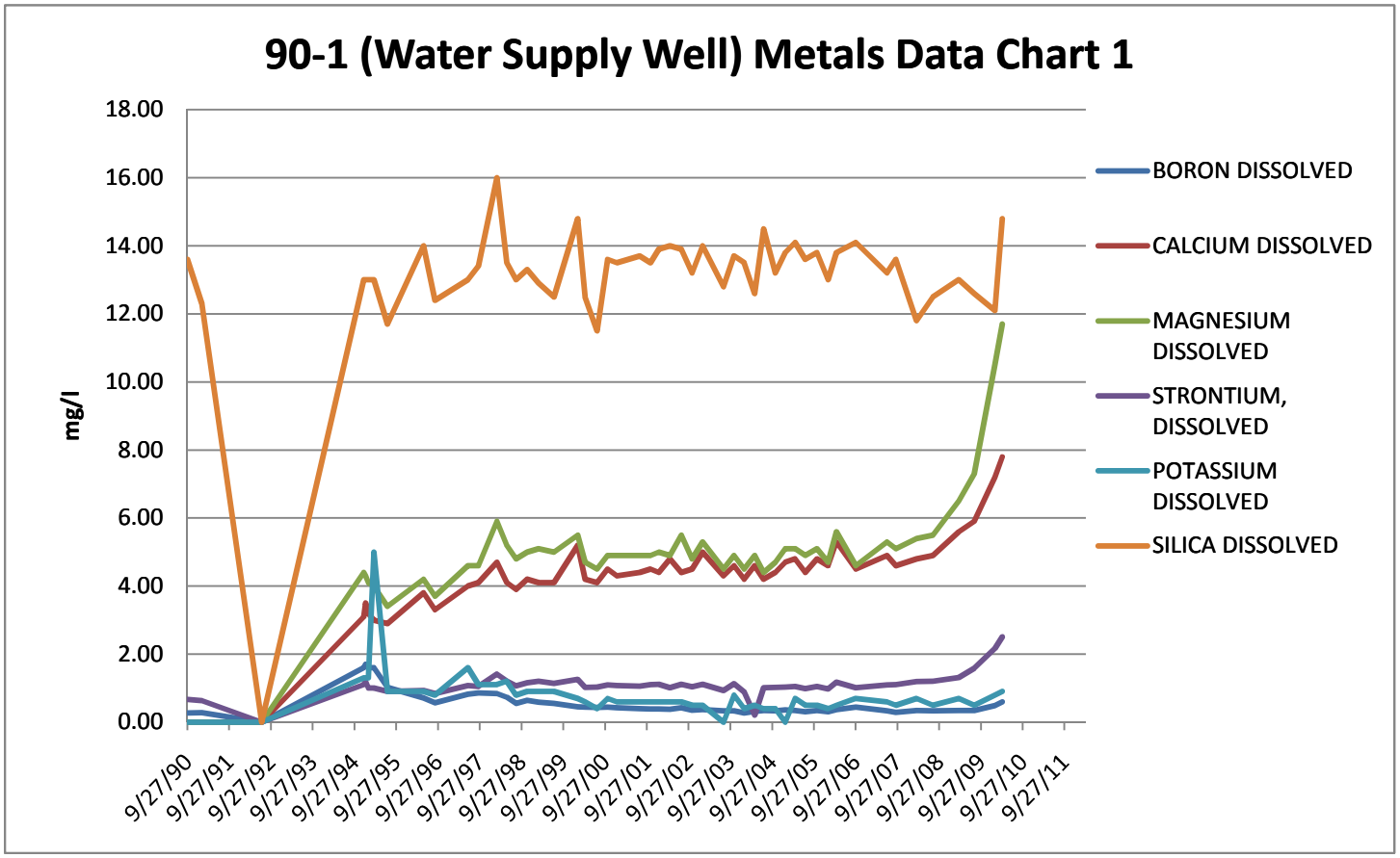

MMC-IRI-8 (Perched Aquifer) Metals Data Chart 2
mg/l
350
300
250
200
150
100
50
0
8/30/90
8/30/91
8/30/92
8/30/93
8/30/94
8/30/95
8/30/96
8/30/97
8/30/98
8/30/99
8/30/00
8/30/01
8/30/02
8/30/03
8/30/04
8/30/05
8/30/06
8/30/07
8/30/08
8/30/09
CALCIUM DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED
SODIUM DISSOLVED

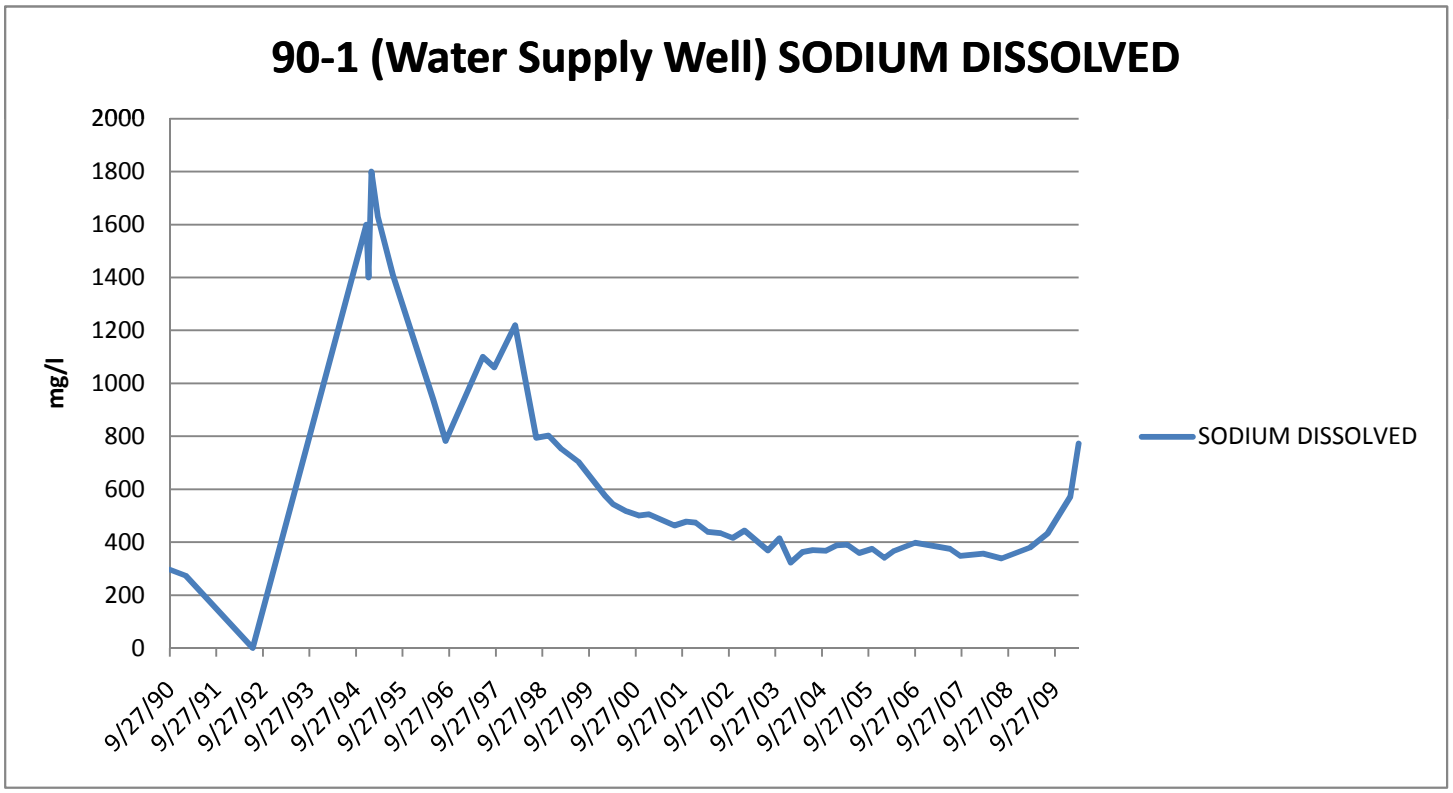

MMC-IRI-8 (Perched Aquifer) Metals Chart 3
mg/l
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
8/30/90
8/30/91
8/30/92
8/30/93
8/30/94
8/30/95
8/30/96
8/30/97
8/30/98
8/30/99
8/30/00
8/30/01
8/30/02
8/30/03
8/30/04
8/30/05
8/30/06
8/30/07
8/30/08
8/30/09
ARSENIC DISSOLVED
BARIUM DISSOLVED

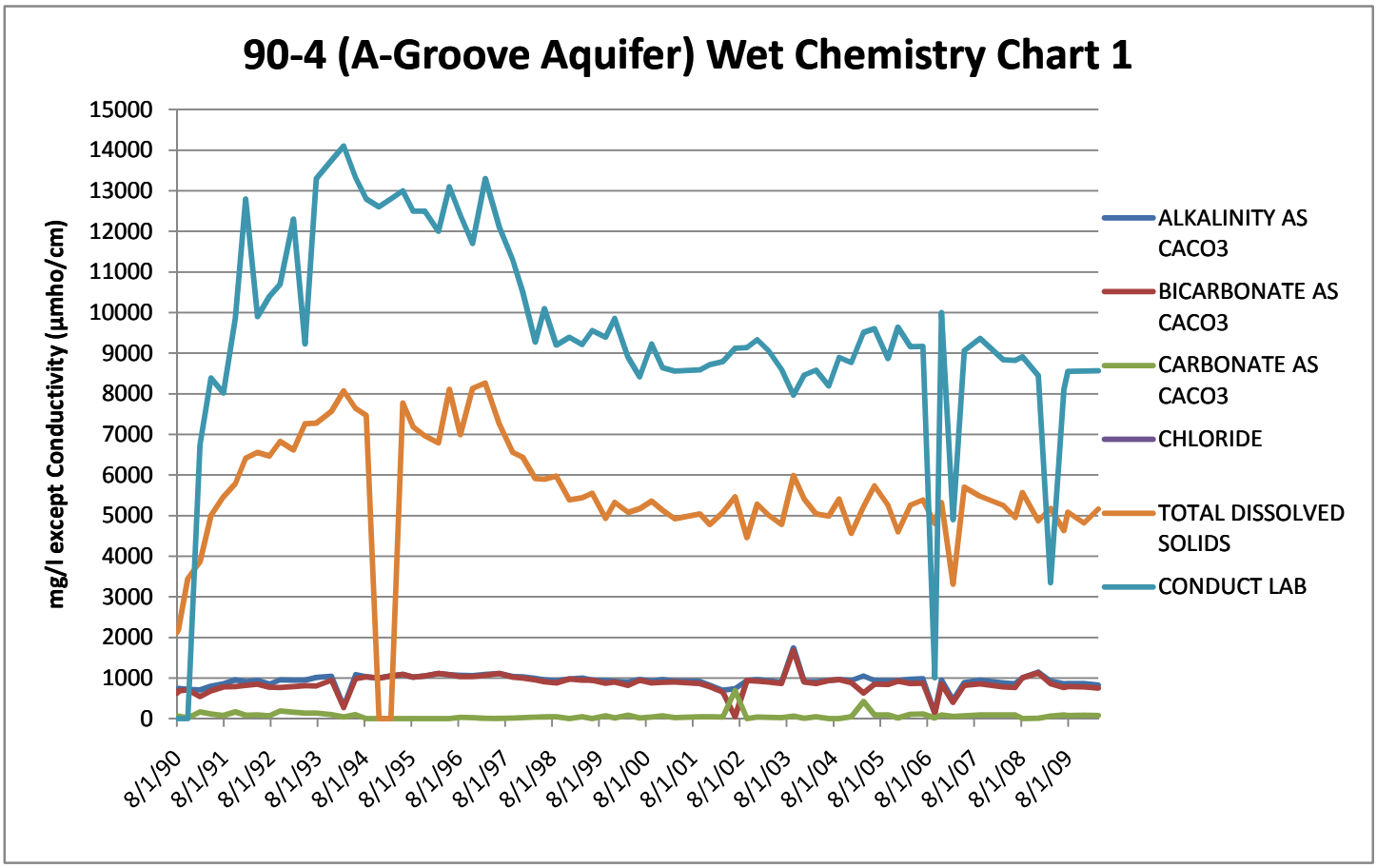

90-1 (Water Supply Well) Wet Chemistry Chart 1
mg/l except Conductivity (µmho/cm)
8000
7000
6000
5000
4000
3000
2000
1000
0
6/26/90
6/26/91
6/26/92
6/26/93
6/26/94
6/26/95
6/26/96
6/26/97
6/26/98
6/26/99
6/26/00
6/26/01
6/26/02
6/26/03
6/26/04
6/26/05
6/26/06
6/26/07
6/26/08
6/26/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CHLORIDE
CONDUCT LAB
TOTAL DISSOLVED SOLIDS

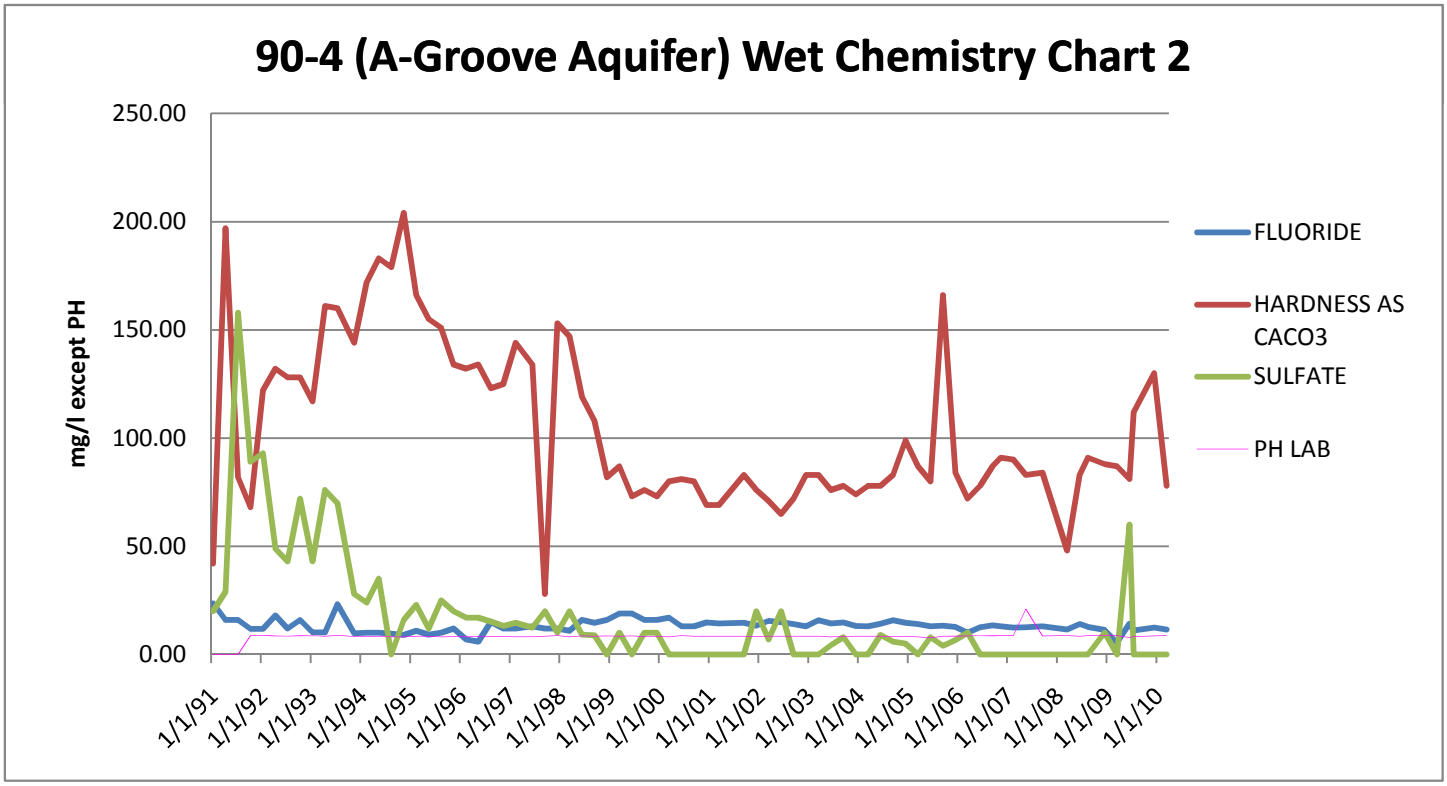

90-1 (Water Supply Well) Wet Chemistry Chart 2
mg/l
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
6/26/90
6/26/91
6/26/92
6/26/93
6/26/94
6/26/95
6/26/96
6/26/97
6/26/98
6/26/99
6/26/00
6/26/01
6/26/02
6/26/03
6/26/04
6/26/05
6/26/06
6/26/07
6/26/08
6/26/09
FLUORIDE
HARDNESS AS CACO3
SAR IN WATER
SULFATE

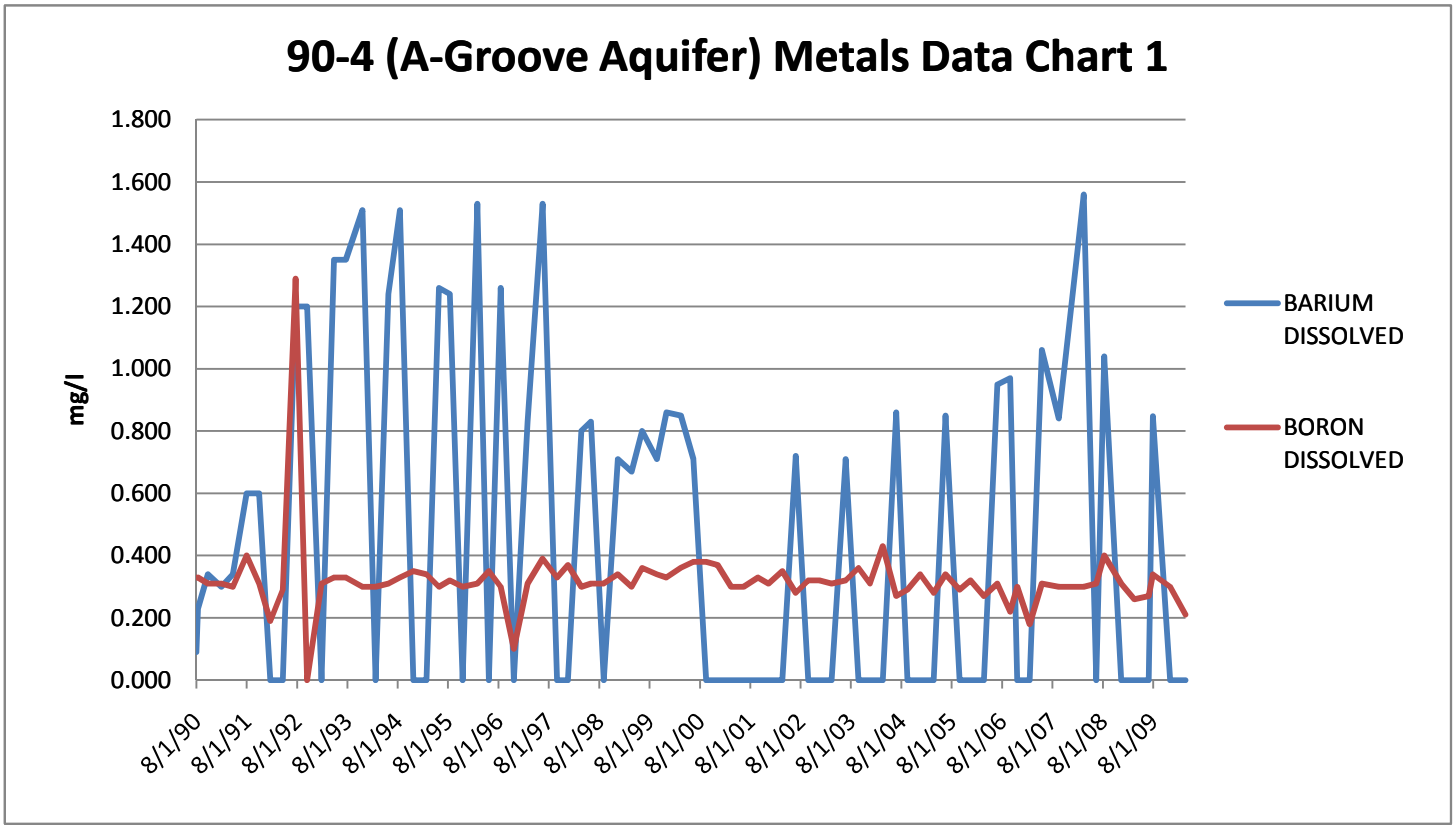

90-1 (Water Supply Well) Wet Chemistry Chart 3
PH
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
9/27/90
9/27/91
9/27/92
9/27/93
9/27/94
9/27/95
9/27/96
9/27/97
9/27/98
9/27/99
9/27/00
9/27/01
9/27/02
9/27/03
9/27/04
9/27/05
9/27/06
9/27/07
9/27/08
9/27/09
PH LAB

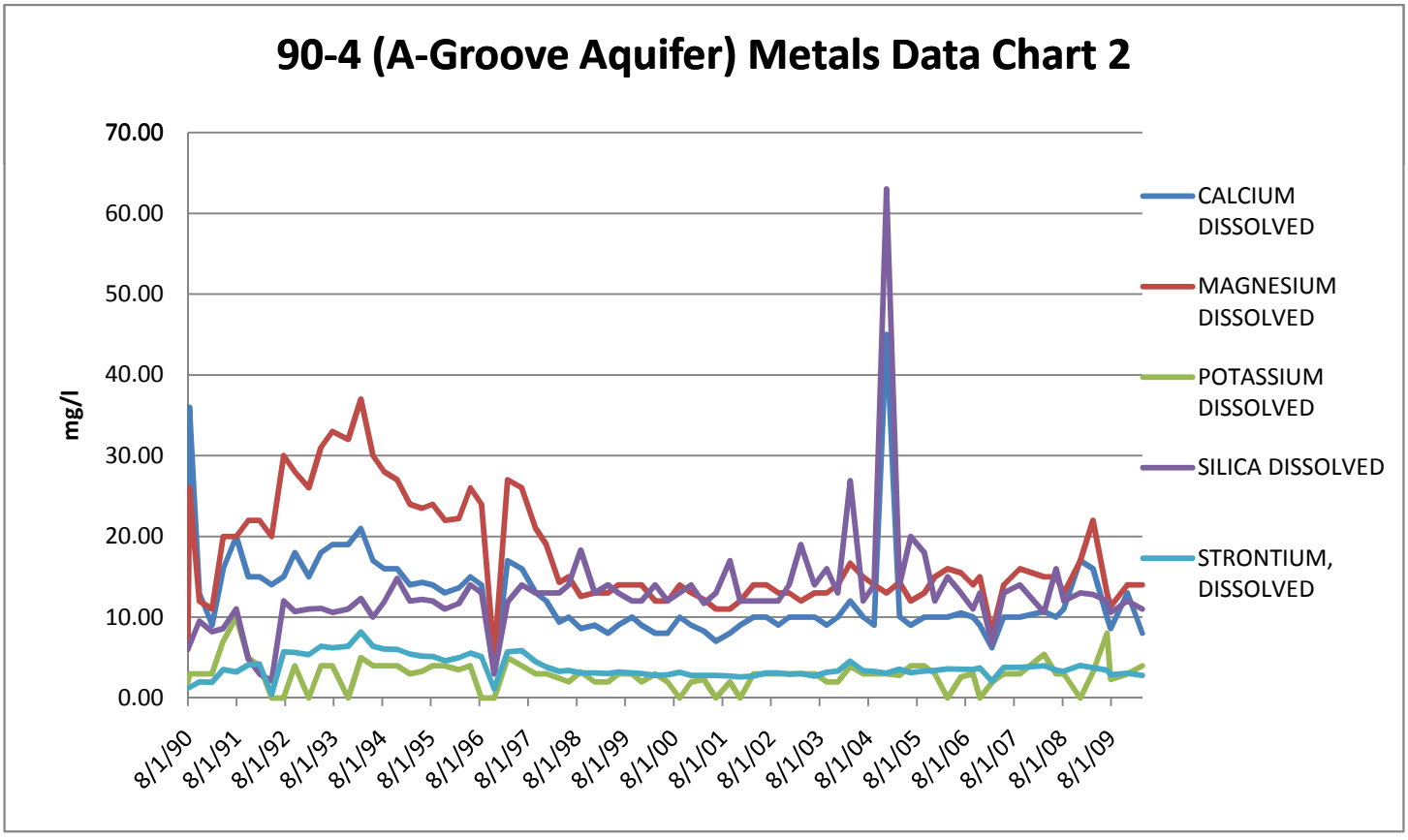

90-1 (Water Supply Well) Metals Data Chart 1
mg/l
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
9/27/90
9/27/91
9/27/92
9/27/93
9/27/94
9/27/95
9/27/96
9/27/97
9/27/98
9/27/99
9/27/00
9/27/01
9/27/02
9/27/03
9/27/04
9/27/05
9/27/06
9/27/07
9/27/08
9/27/09
9/27/10
9/27/11
BORON DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
STRONTIUM, DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED

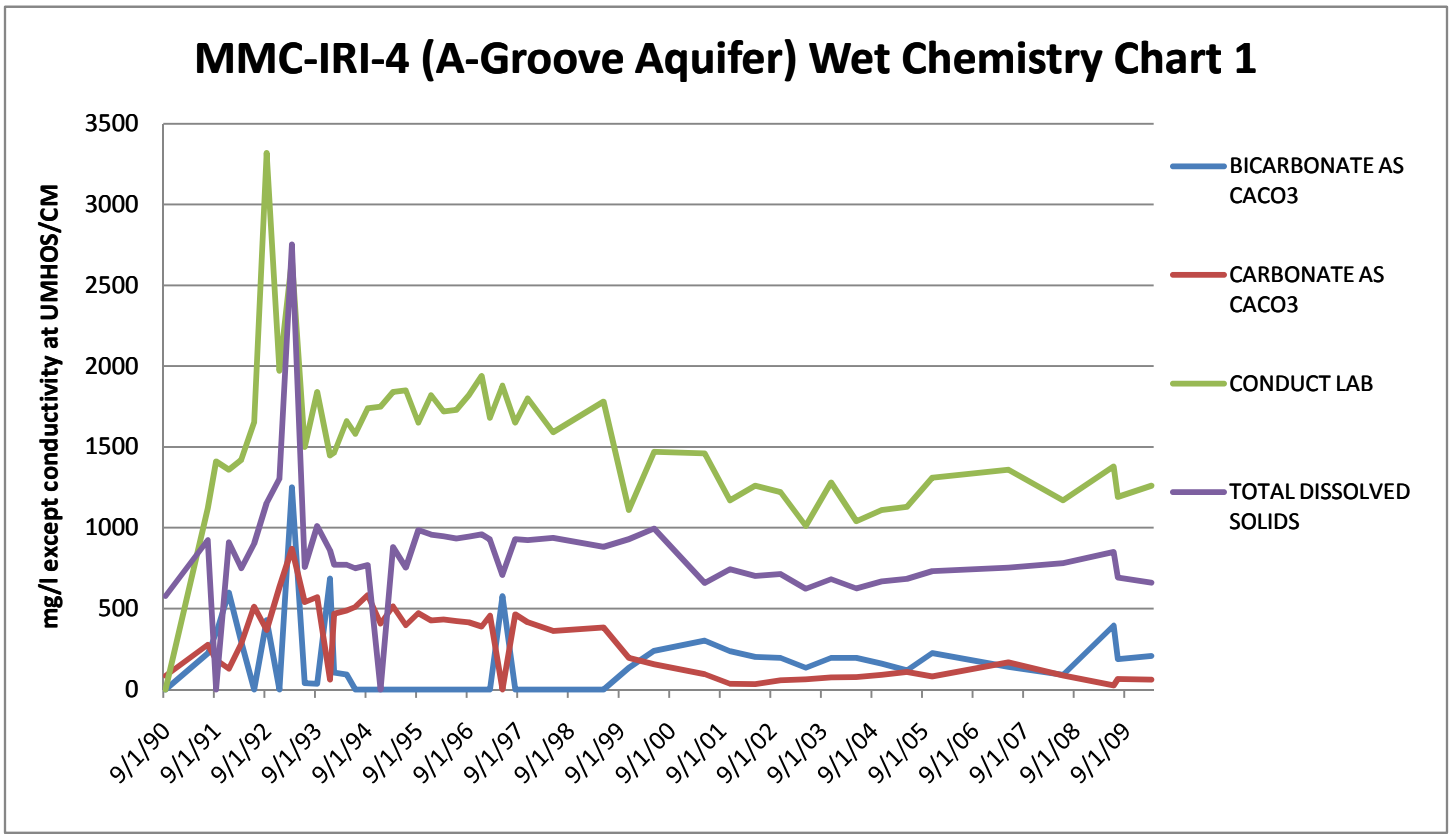

90-1 (Water Supply Well) SODIUM DISSOLVED
mg/l
2000
1800
1600
1400
1200
1000
800
600
400
200
0
9/27/90
9/27/91
9/27/92
9/27/93
9/27/94
9/27/95
9/27/96
9/27/97
9/27/98
9/27/99
9/27/00
9/27/01
9/27/02
9/27/03
9/27/04
9/27/05
9/27/06
9/27/07
9/27/08
9/27/09
SODIUM DISSOLVED

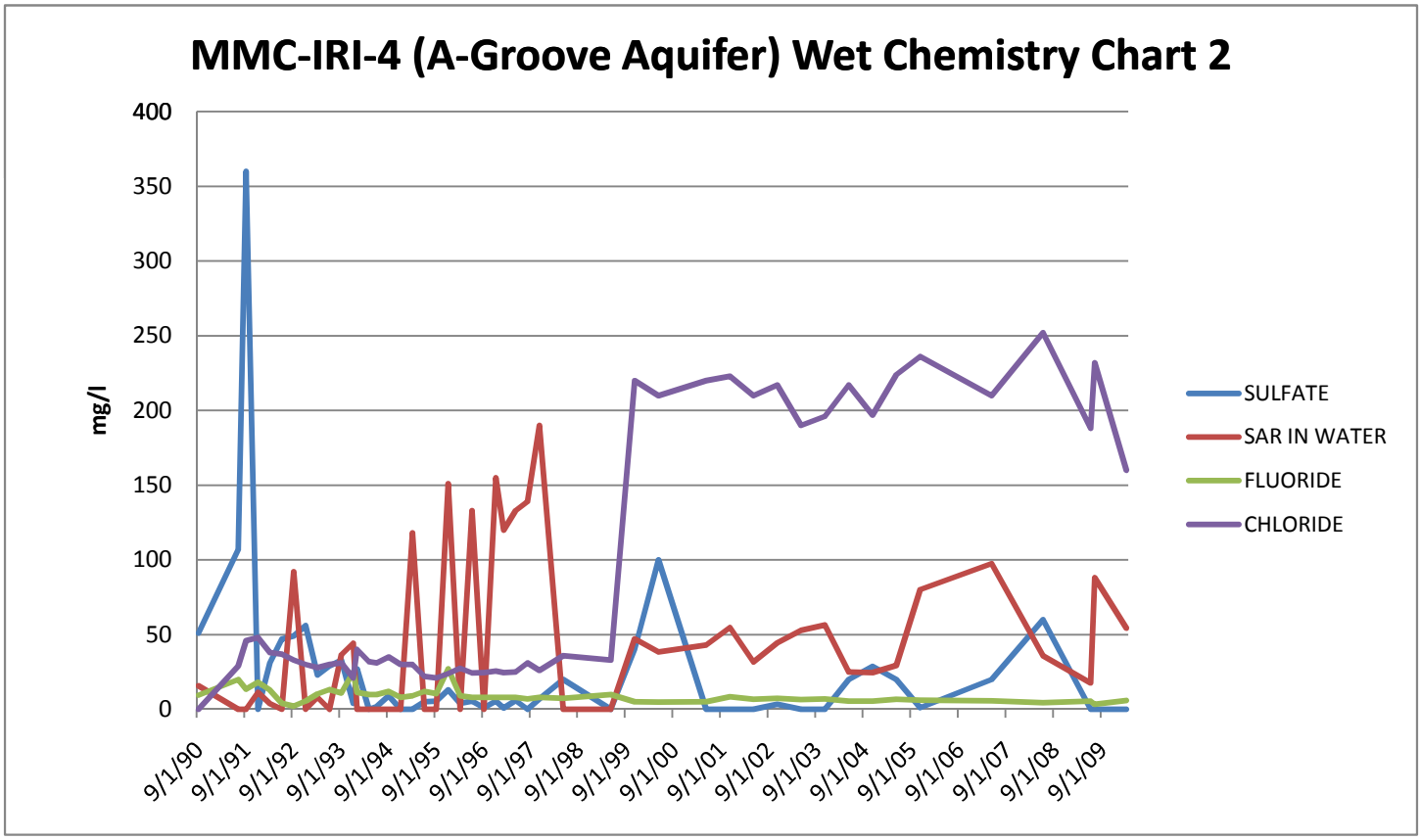

90-4 (A-Groove Aquifer) Wet Chemistry Chart 1
mg/l except Conductivity (µmho/cm)
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CHLORIDE
TOTAL DISSOLVED SOLIDS
CONDUCT LAB

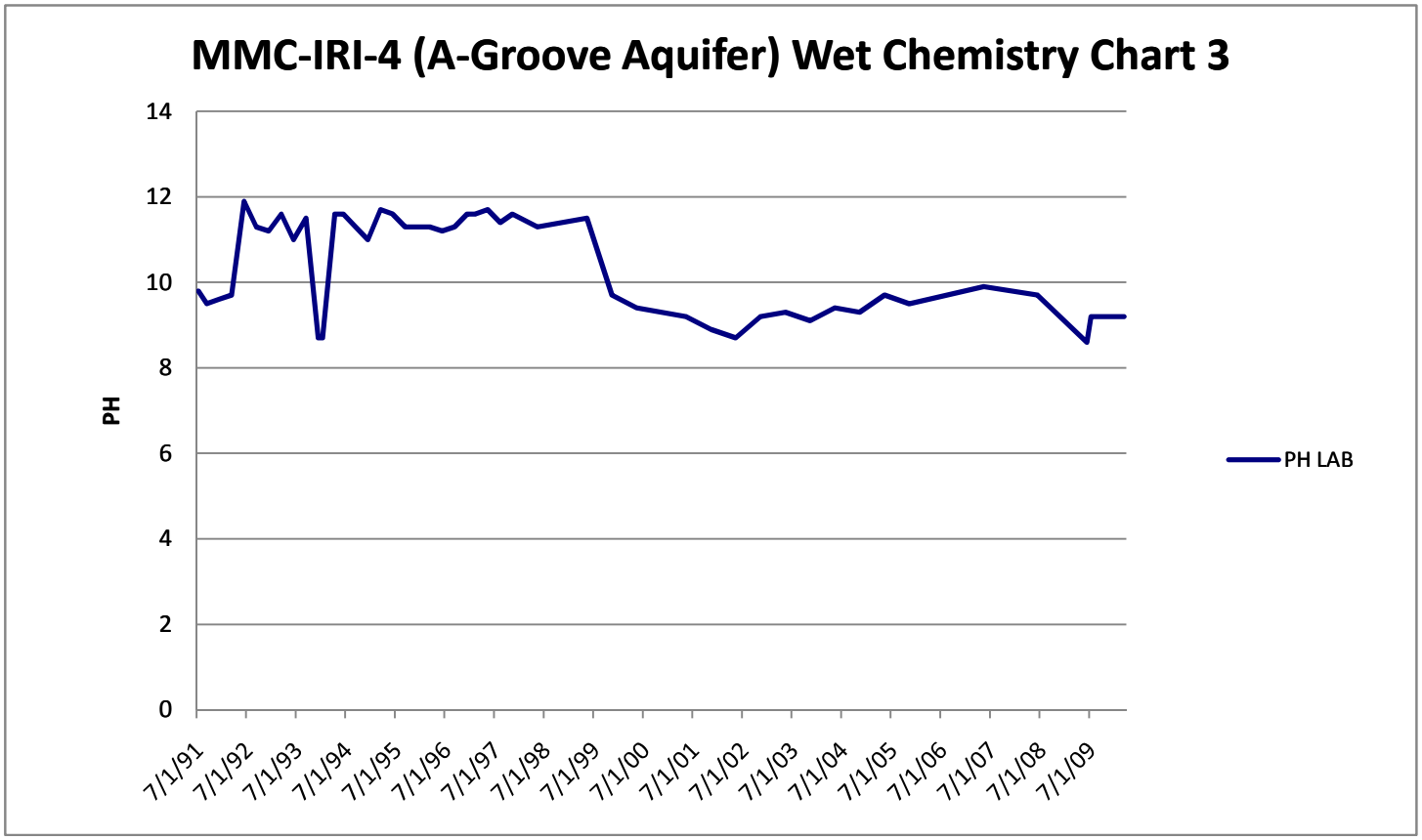

90-4 (A-Groove Aquifer) Wet Chemistry Chart 2
mg/l except PH
250.00
200.00
150.00
100.00
50.00
0.00
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
FLUORIDE
HARDNESS AS CACO3
SULFATE
PH LAB

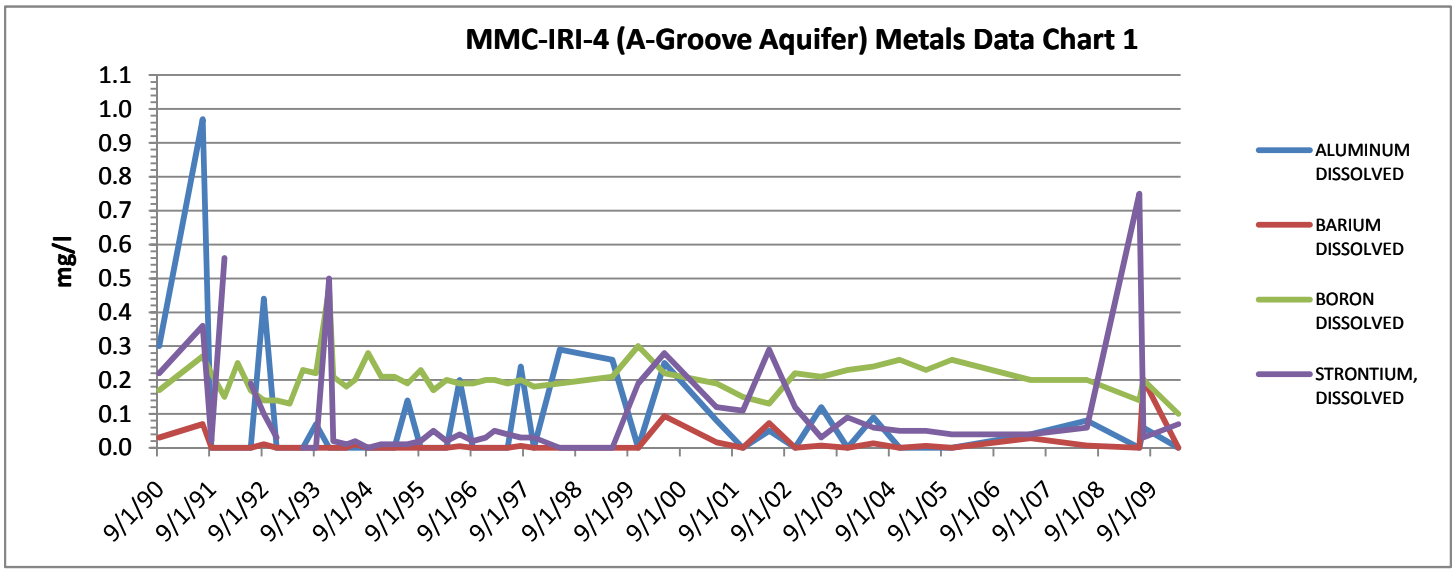

90-4 (A-Groove Aquifer) Metals Data Chart 1
mg/l
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
BARIUM DISSOLVED
BORON DISSOLVED

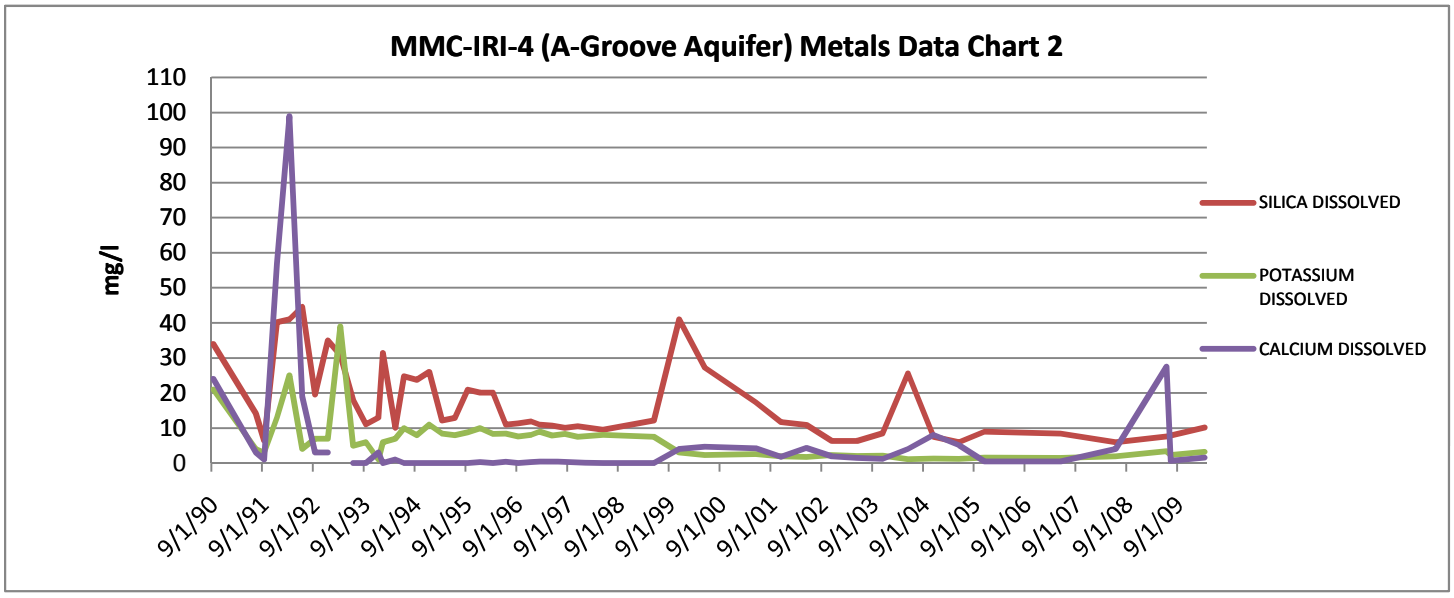

90-4 (A-Groove Aquifer) Metals Data Chart 2
mg/l
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED
STRONTIUM, DISSOLVED

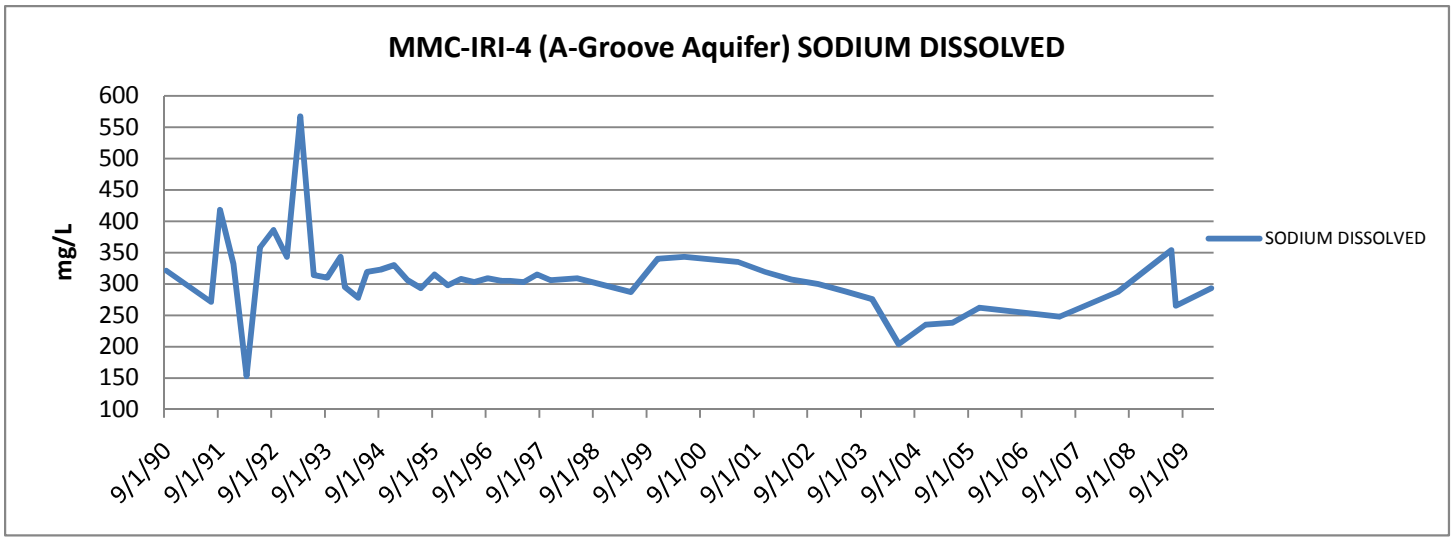

MMC-IRI-4 (A-Groove Aquifer) Wet Chemistry Chart 1
mg/l except conductivity at UMHOS/CM
3500
3000
2500
2000
1500
1000
500
0
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS

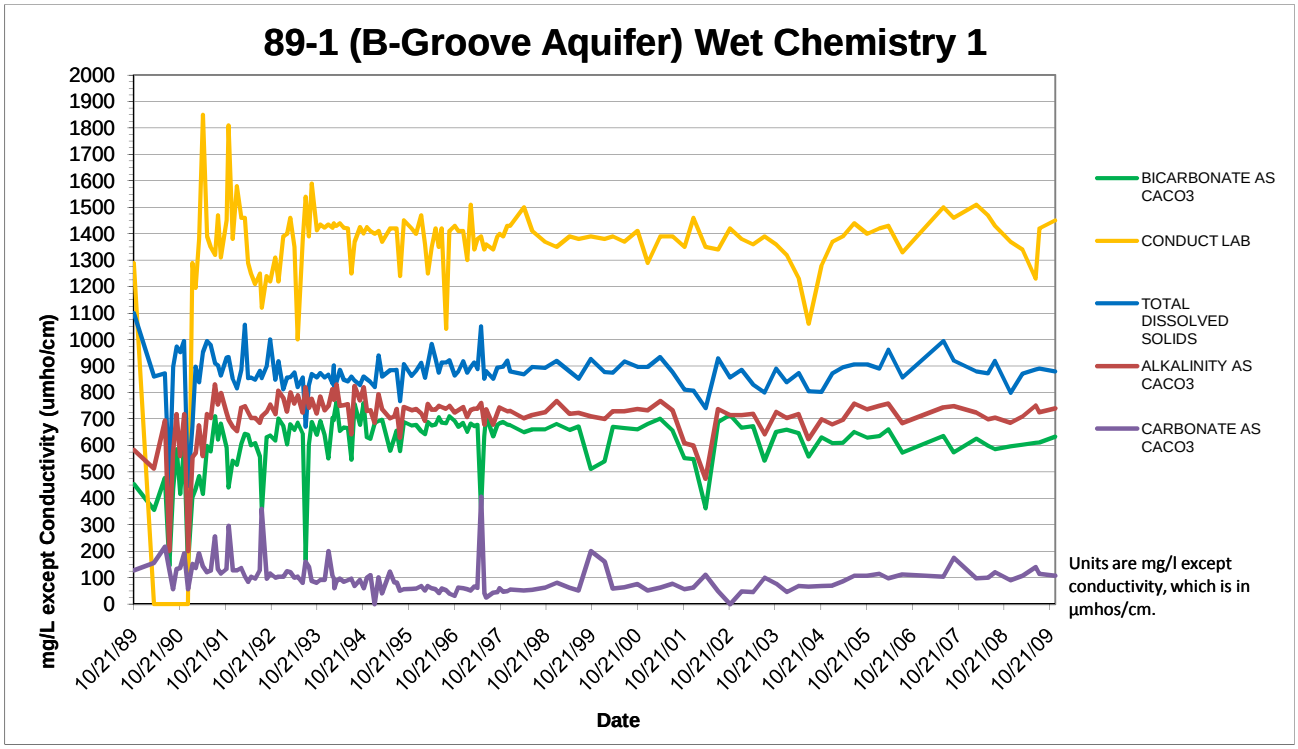

MMC-IRI-4 (A-Groove Aquifer) Wet Chemistry Chart 2
mg/l
400
350
300
250
200
150
100
50
0
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
SULFATE
SAR IN WATER
FLUORIDE
CHLORIDE

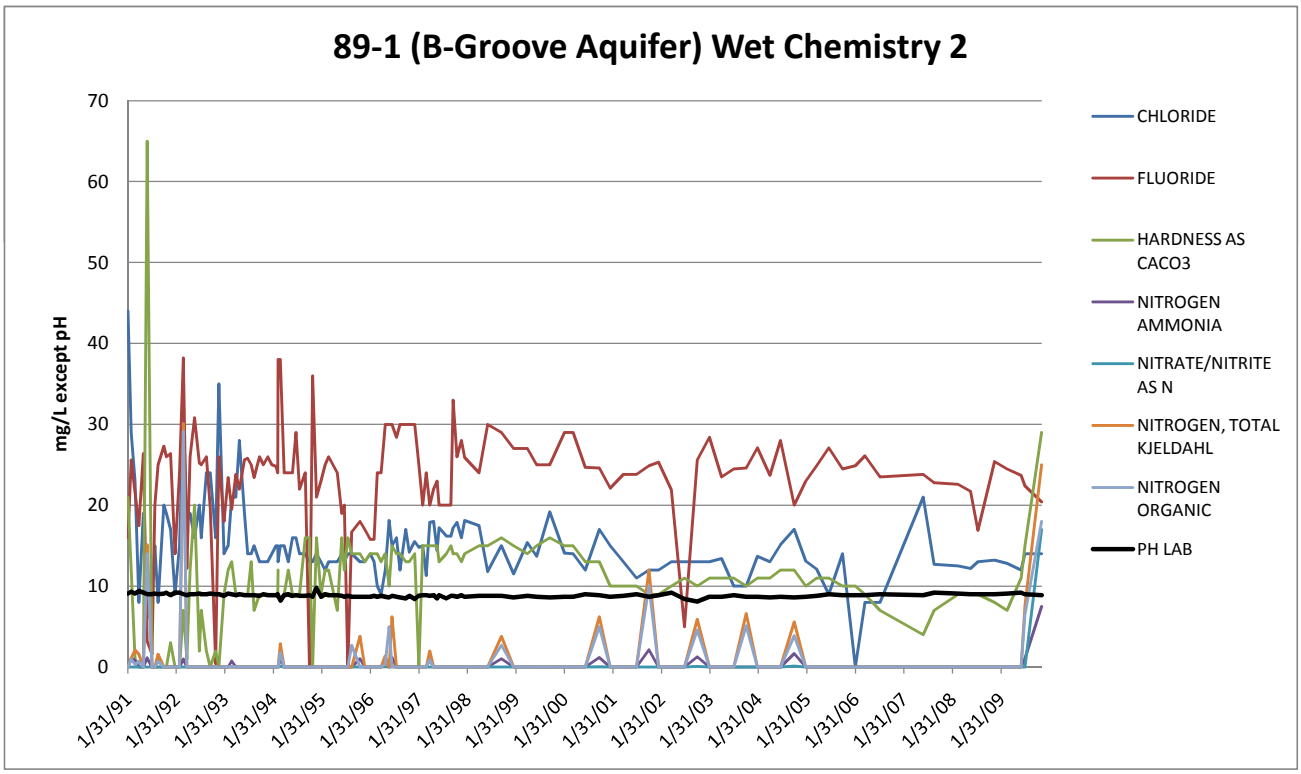

MMC-IRI-4 (A-Groove Aquifer) Wet Chemistry Chart 3
PH
14
12
10
8
6
4
2
0
7/1/91
7/1/92
7/1/93
7/1/94
7/1/95
7/1/96
7/1/97
7/1/98
7/1/99
7/1/00
7/1/01
7/1/02
7/1/03
7/1/04
7/1/05
7/1/06
7/1/07
7/1/08
7/1/09
PH LAB

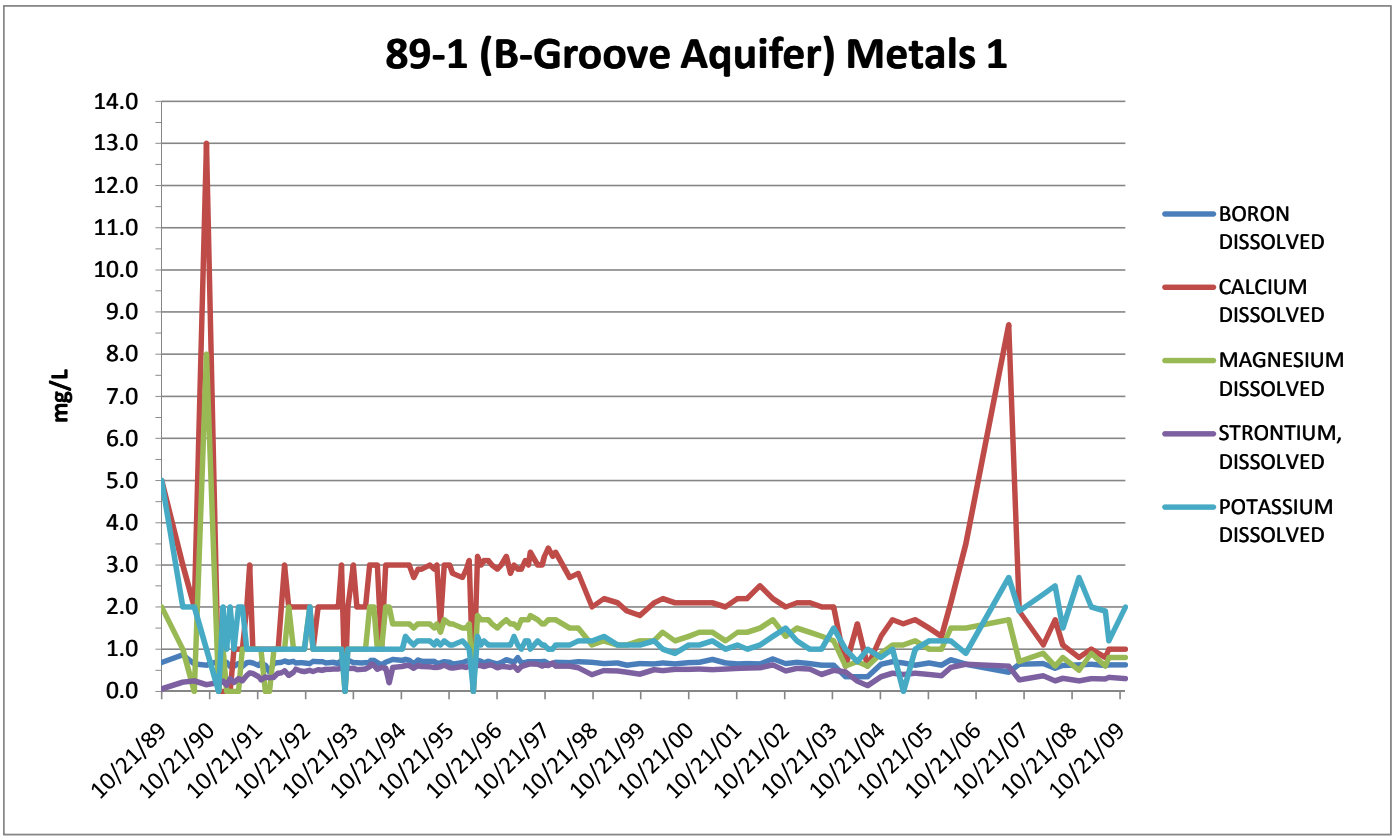

MMC-IRI-4 (A-Groove Aquifer) Metals Data Chart 1
mg/l
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
ALUMINUM DISSOLVED
BARIUM DISSOLVED
BORON DISSOLVED
STRONTIUM, DISSOLVED

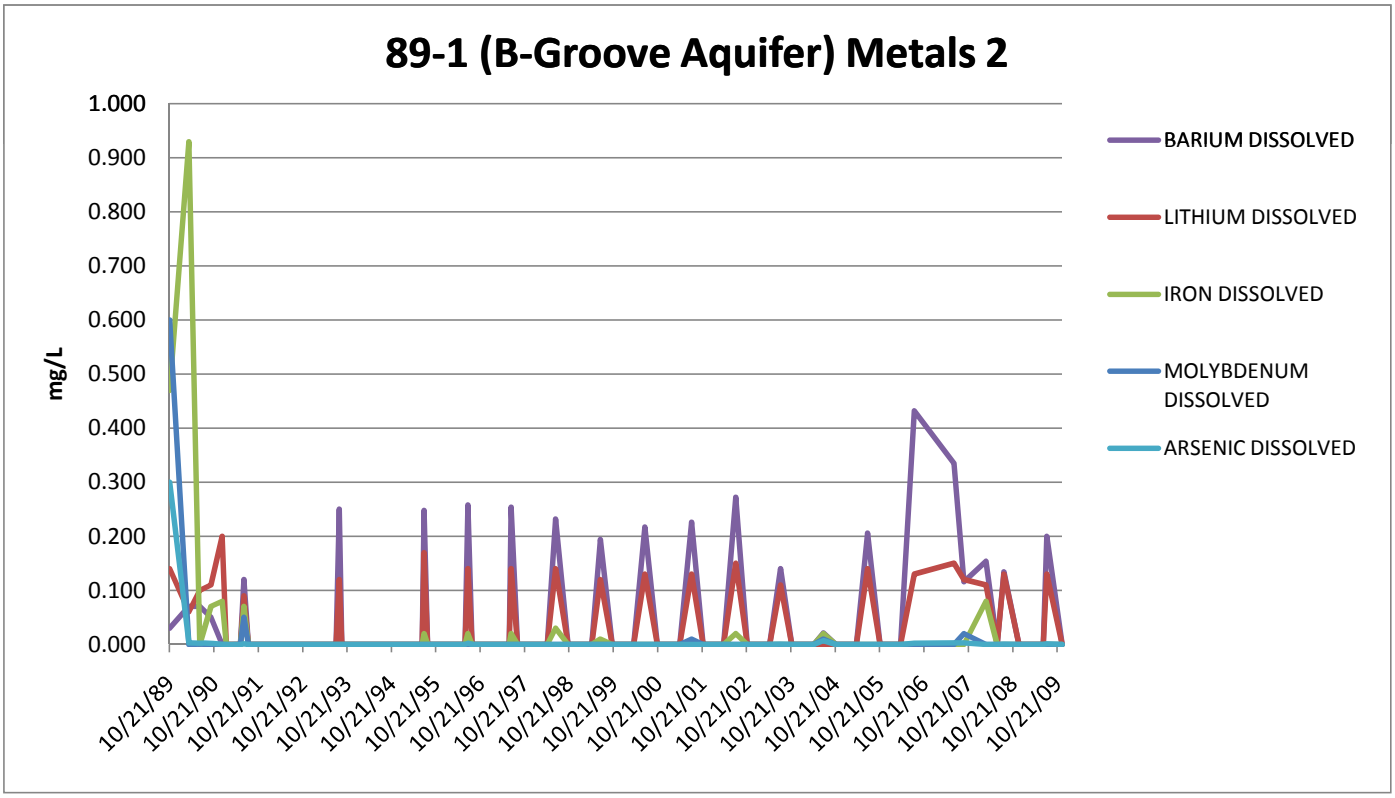

MMC-IRI-4 (A-Groove Aquifer) Metals Data Chart 2
mg/l
110
100
90
80
70
60
50
40
30
20
10
0
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
SILICA DISSOLVED
POTASSIUM DISSOLVED
CALCIUM DISSOLVED

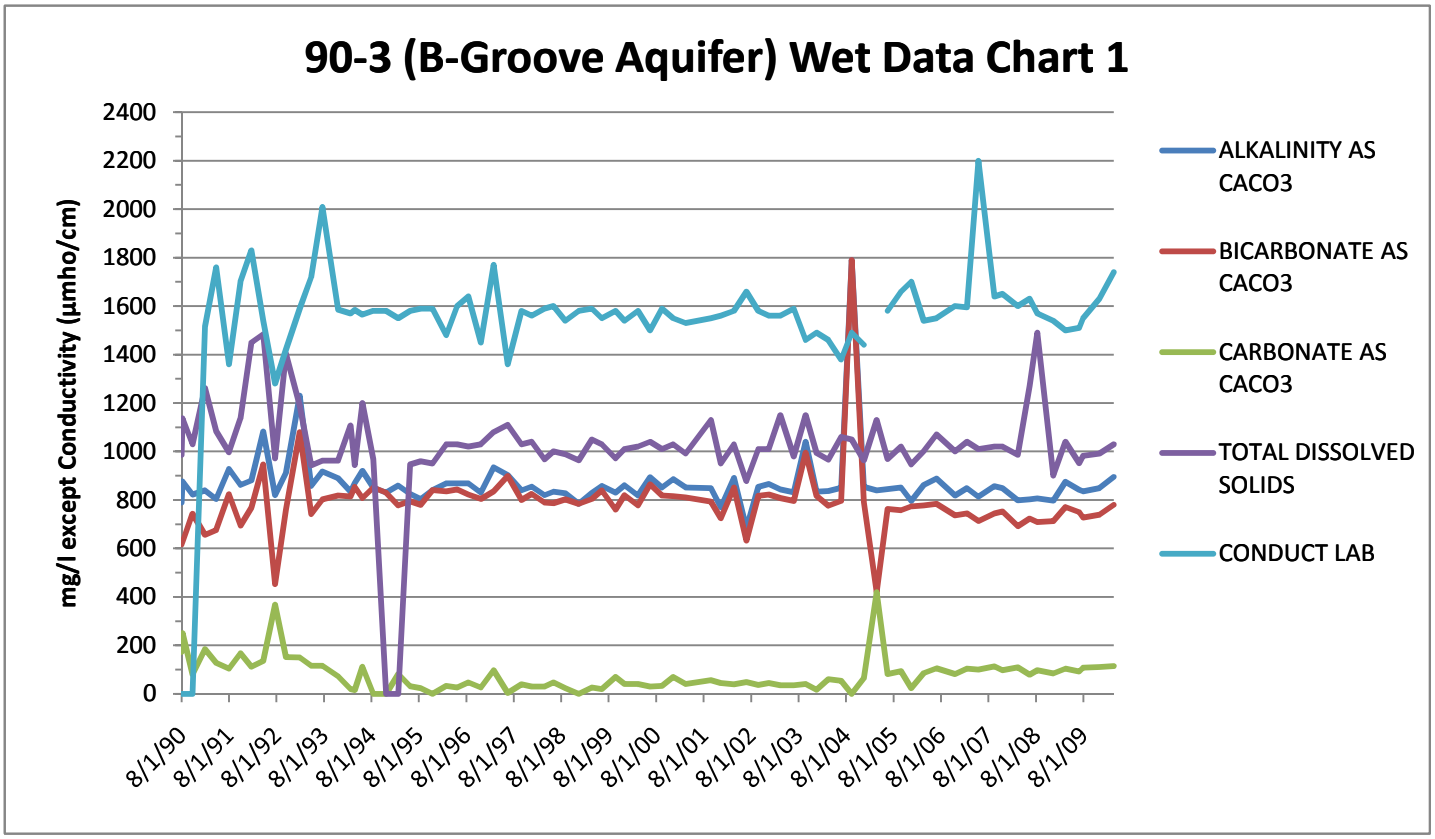

MMC-IRI-4 (A-Groove Aquifer) SODIUM DISSOLVED
mg/L
600
550
500
450
400
350
300
250
200
150
100
9/1/90
9/1/91
9/1/92
9/1/93
9/1/94
9/1/95
9/1/96
9/1/97
9/1/98
9/1/99
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
9/1/08
9/1/09
SODIUM DISSOLVED

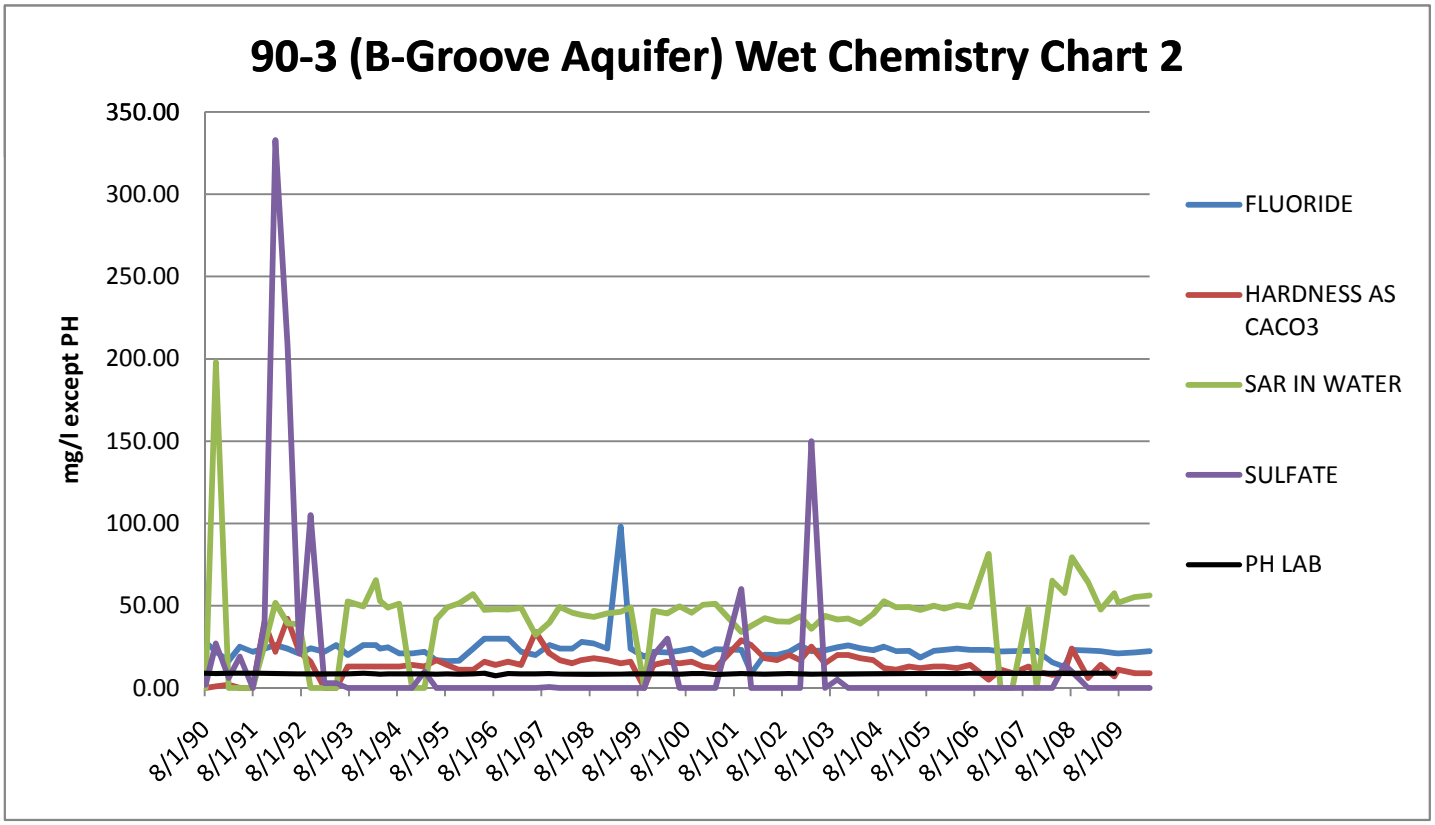

89-1 (B-Groove Aquifer) Wet Chemistry 1
mg/L except Conductivity (umho/cm)
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
10/21/89
10/21/90
10/21/91
10/21/92
10/21/93
10/21/94
10/21/95
10/21/96
10/21/97
10/21/98
10/21/99
10/21/00
10/21/01
10/21/02
10/21/03
10/21/04
10/21/05
10/21/06
10/21/07
10/21/08
10/21/09
Date
BICARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS
ALKALINITY AS CACO3
CARBONATE AS CACO3
Units are mg/l except conductivity, which is in µmhos/cm.

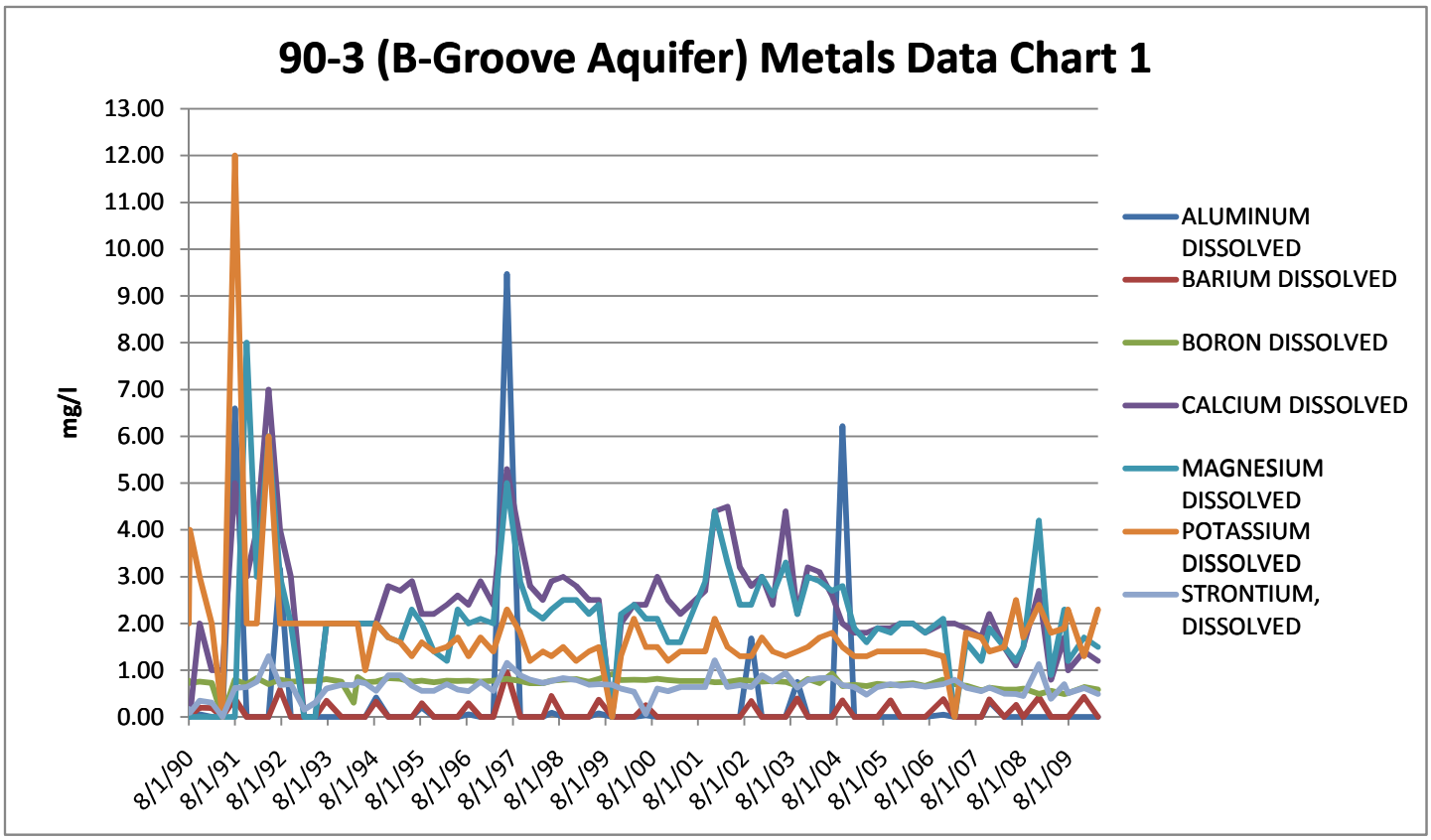

89-1 (B-Groove Aquifer) Wet Chemistry 2
mg/L except pH
70
60
50
40
30
20
10
0
1/31/91
1/31/92
1/31/93
1/31/94
1/31/95
1/31/96
1/31/97
1/31/98
1/31/99
1/31/00
1/31/01
1/31/02
1/31/03
1/31/04
1/31/05
1/31/06
1/31/07
1/31/08
1/31/09
CHLORIDE
FLUORIDE
HARDNESS AS CACO3
NITROGEN AMMONIA
NITRATE/NITRITE AS N
NITROGEN, TOTAL KJELDAHL
NITROGEN ORGANIC
PH LAB

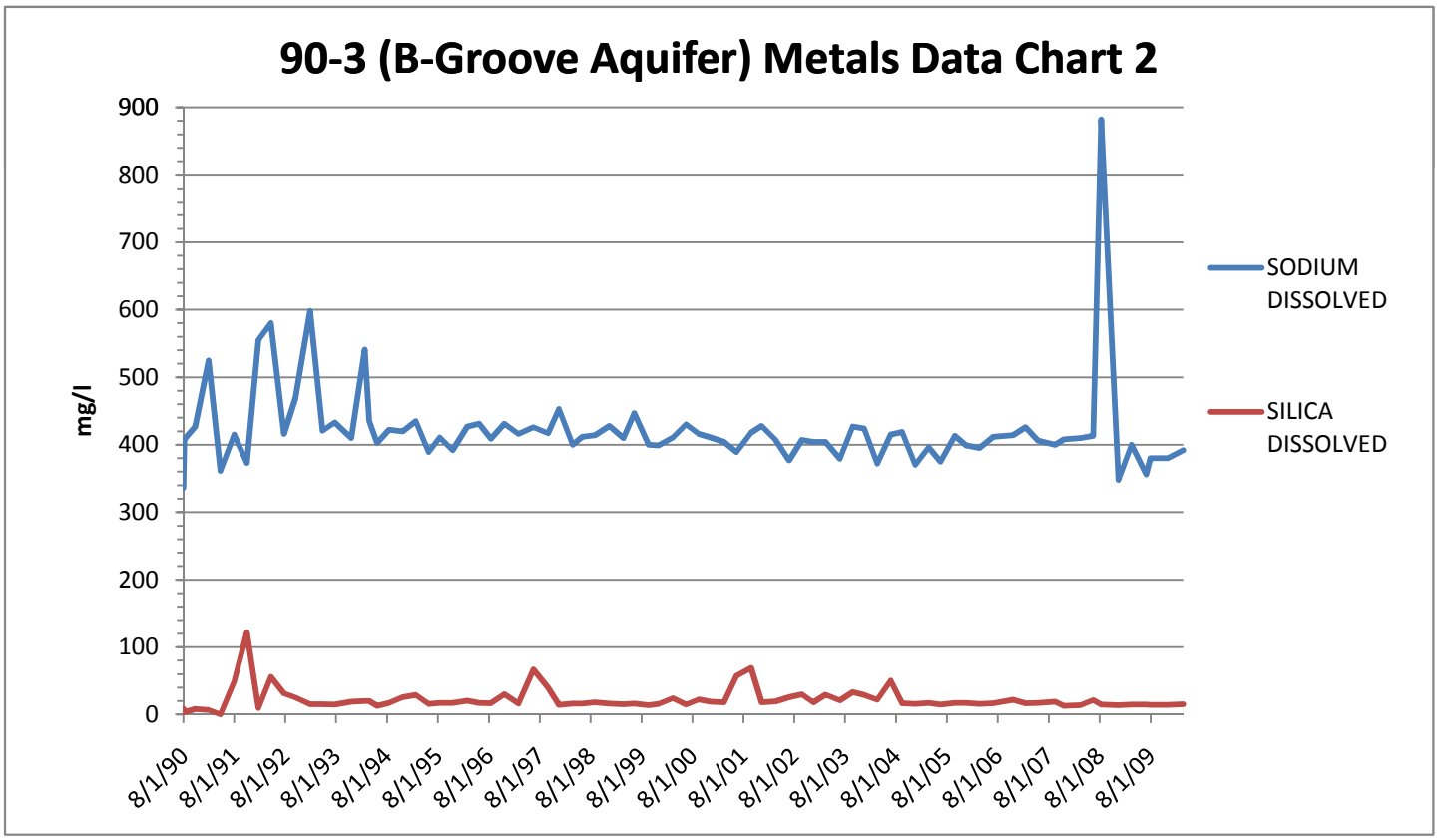

89-1 (B-Groove Aquifer) Metals 1
mg/L
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
10/21/89
10/21/90
10/21/91
10/21/92
10/21/93
10/21/94
10/21/95
10/21/96
10/21/97
10/21/98
10/21/99
10/21/00
10/21/01
10/21/02
10/21/03
10/21/04
10/21/05
10/21/06
10/21/07
10/21/08
10/21/09
BORON DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
STRONTIUM, DISSOLVED
POTASSIUM DISSOLVED

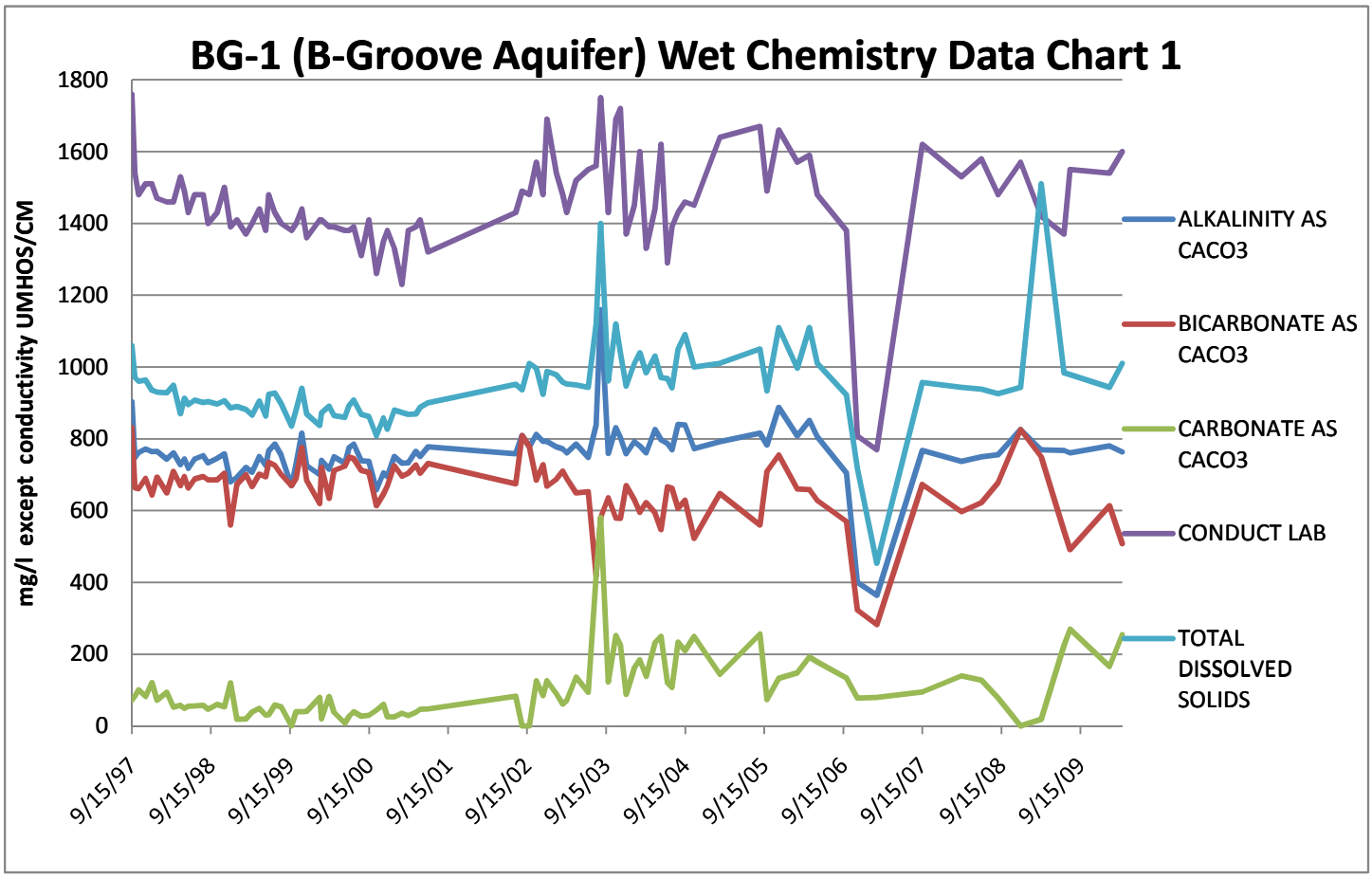

89-1 (B-Groove Aquifer) Metals 2
mg/L
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
10/21/89
10/21/90
10/21/91
10/21/92
10/21/93
10/21/94
10/21/95
10/21/96
10/21/97
10/21/98
10/21/99
10/21/00
10/21/01
10/21/02
10/21/03
10/21/04
10/21/05
10/21/06
10/21/07
10/21/08
10/21/09
BARIUM DISSOLVED
LITHIUM DISSOLVED
IRON DISSOLVED
MOLYBDENUM DISSOLVED
ARSENIC DISSOLVED

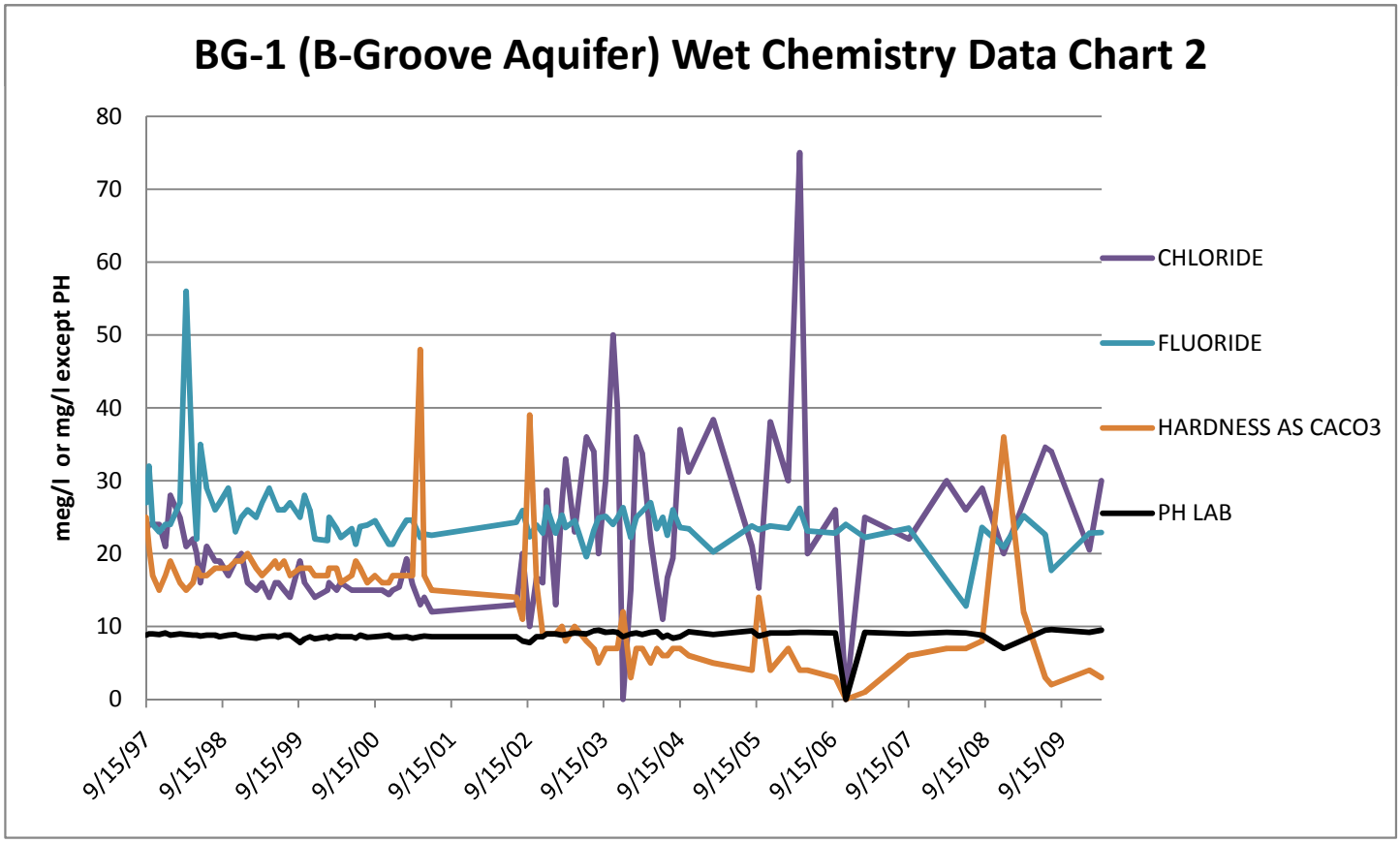

90-3 (B-Groove Aquifer) Wet Data Chart 1
mg/l except Conductivity (µmho/cm)
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
TOTAL DISSOLVED SOLIDS
CONDUCT LAB

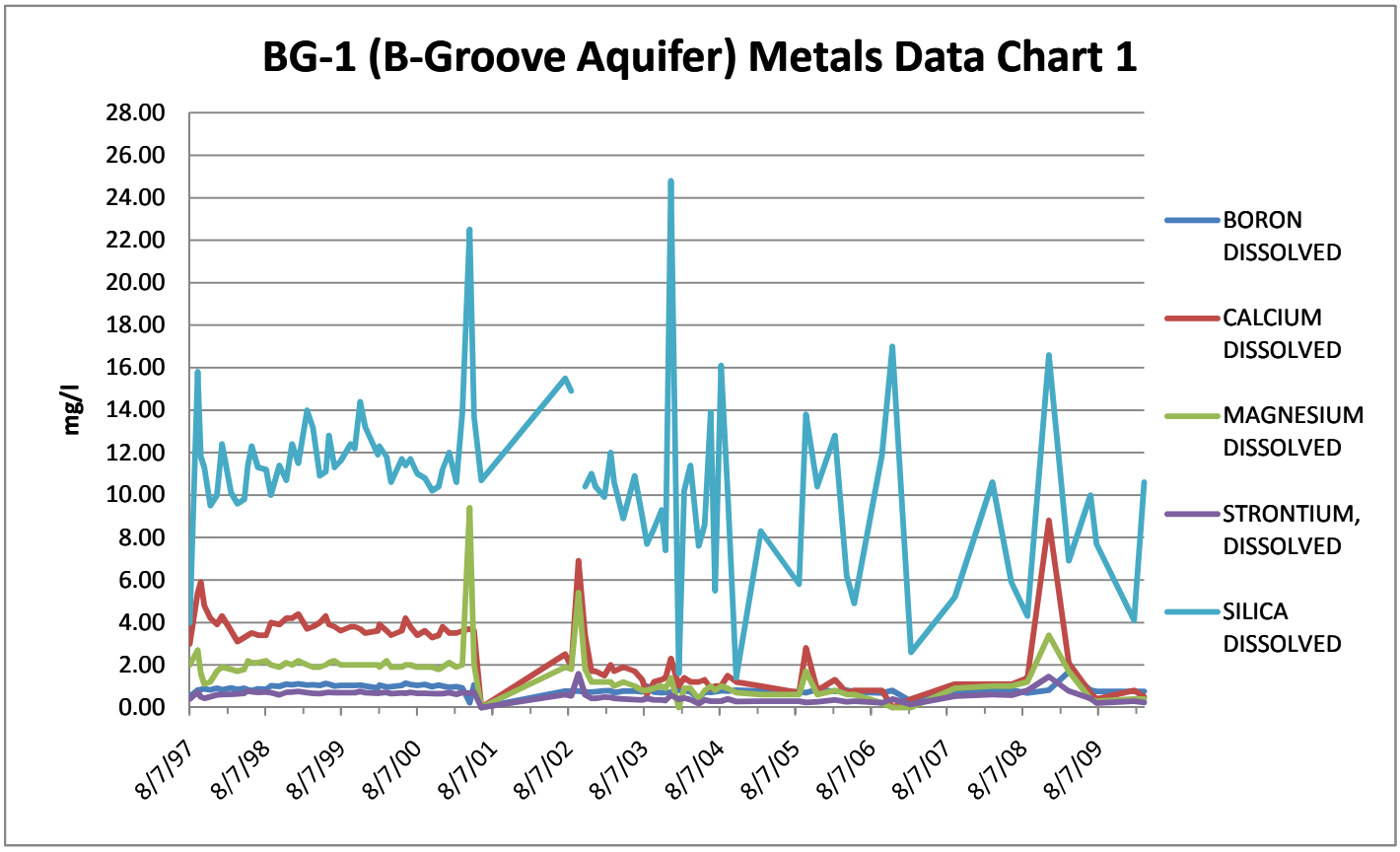

90-3 (B-Groove Aquifer) Wet Chemistry Chart 2
mg/l except PH
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
FLUORIDE
HARDNESS AS CACO3
SAR IN WATER
SULFATE
PH LAB

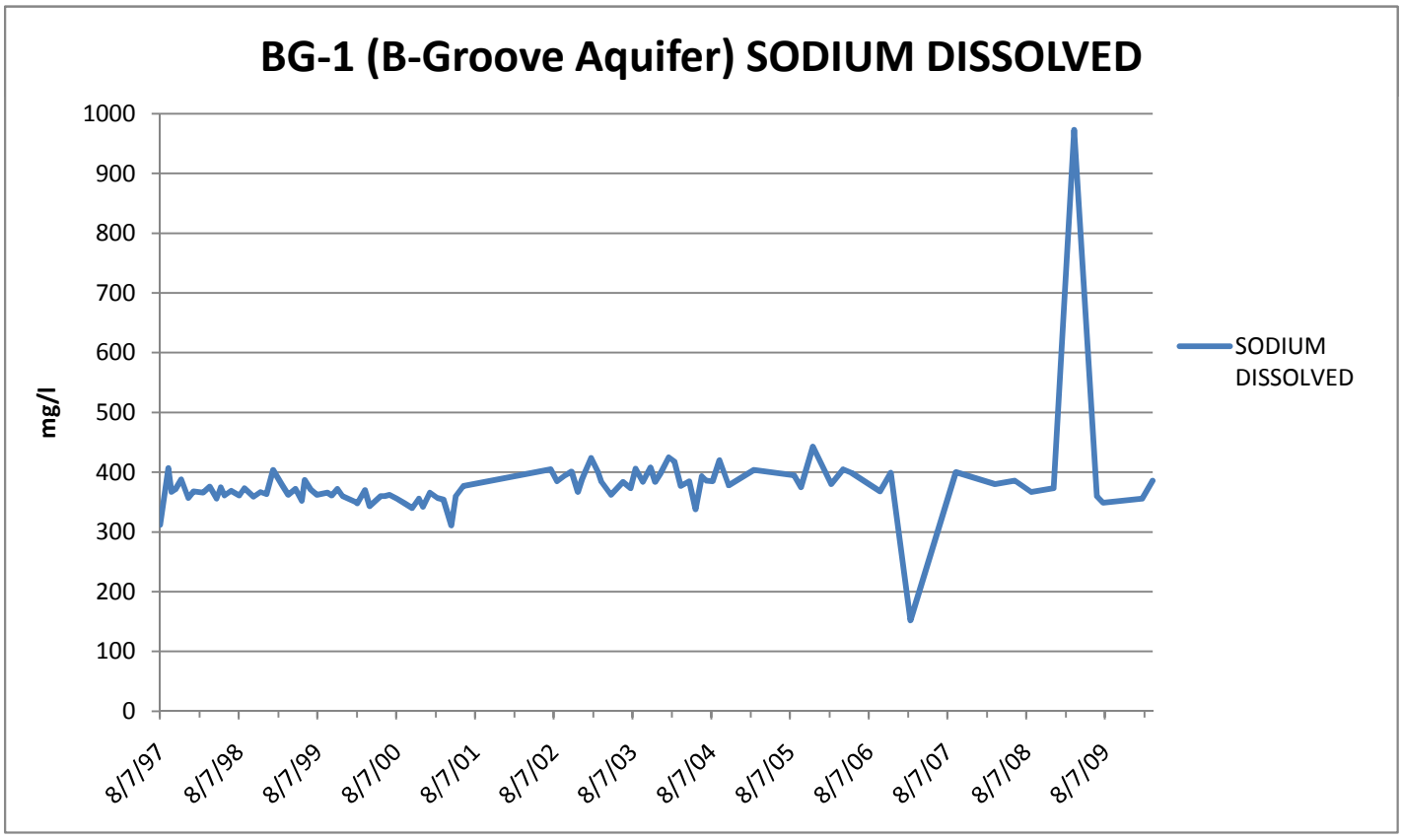

90-3 (B-Groove Aquifer) Metals Data Chart 1
mg/l
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
ALUMINUM DISSOLVED
BARIUM DISSOLVED
BORON DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
POTASSIUM DISSOLVED
STRONTIUM, DISSOLVED

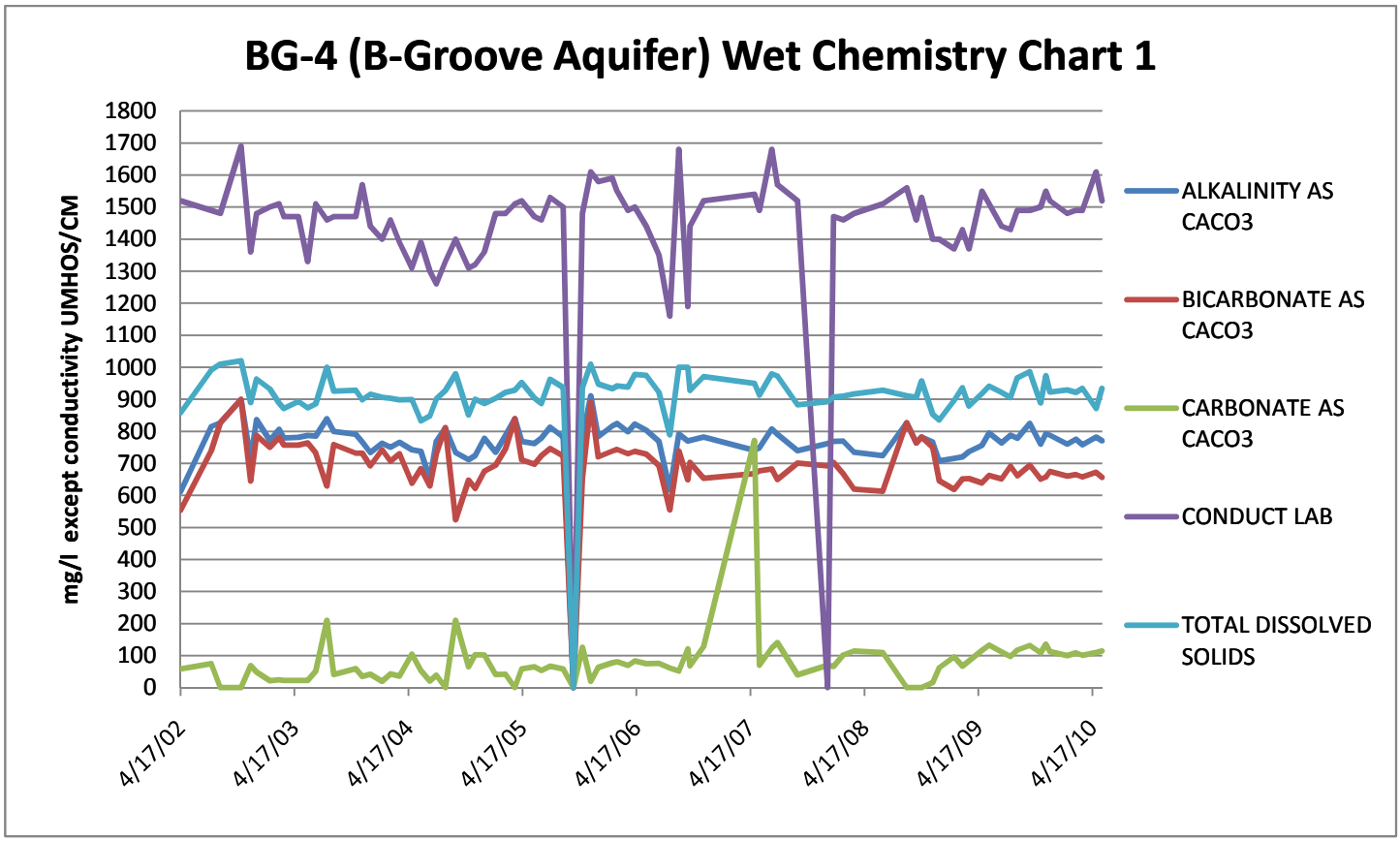

90-3 (B-Groove Aquifer) Metals Data Chart 2
mg/l
900
800
700
600
500
400
300
200
100
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
SODIUM DISSOLVED
SILICA DISSOLVED

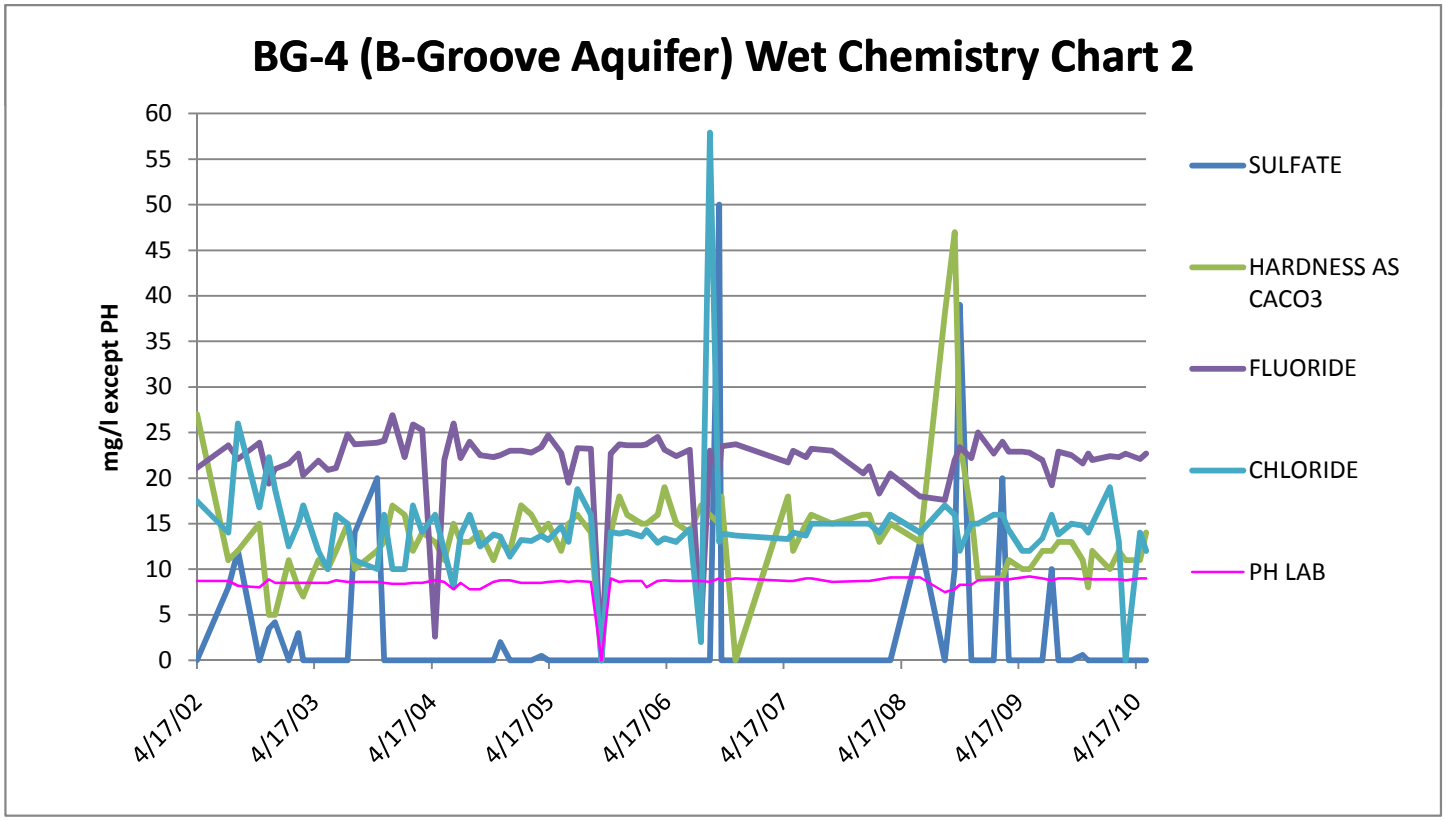

BG-1 (B-Groove Aquifer) Wet Chemistry Data Chart 1
mg/l except conductivity UMHOS/CM
1800
1600
1400
1200
1000
800
600
400
200
0
9/15/97
9/15/98
9/15/99
9/15/00
9/15/01
9/15/02
9/15/03
9/15/04
9/15/05
9/15/06
9/15/07
9/15/08
9/15/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS

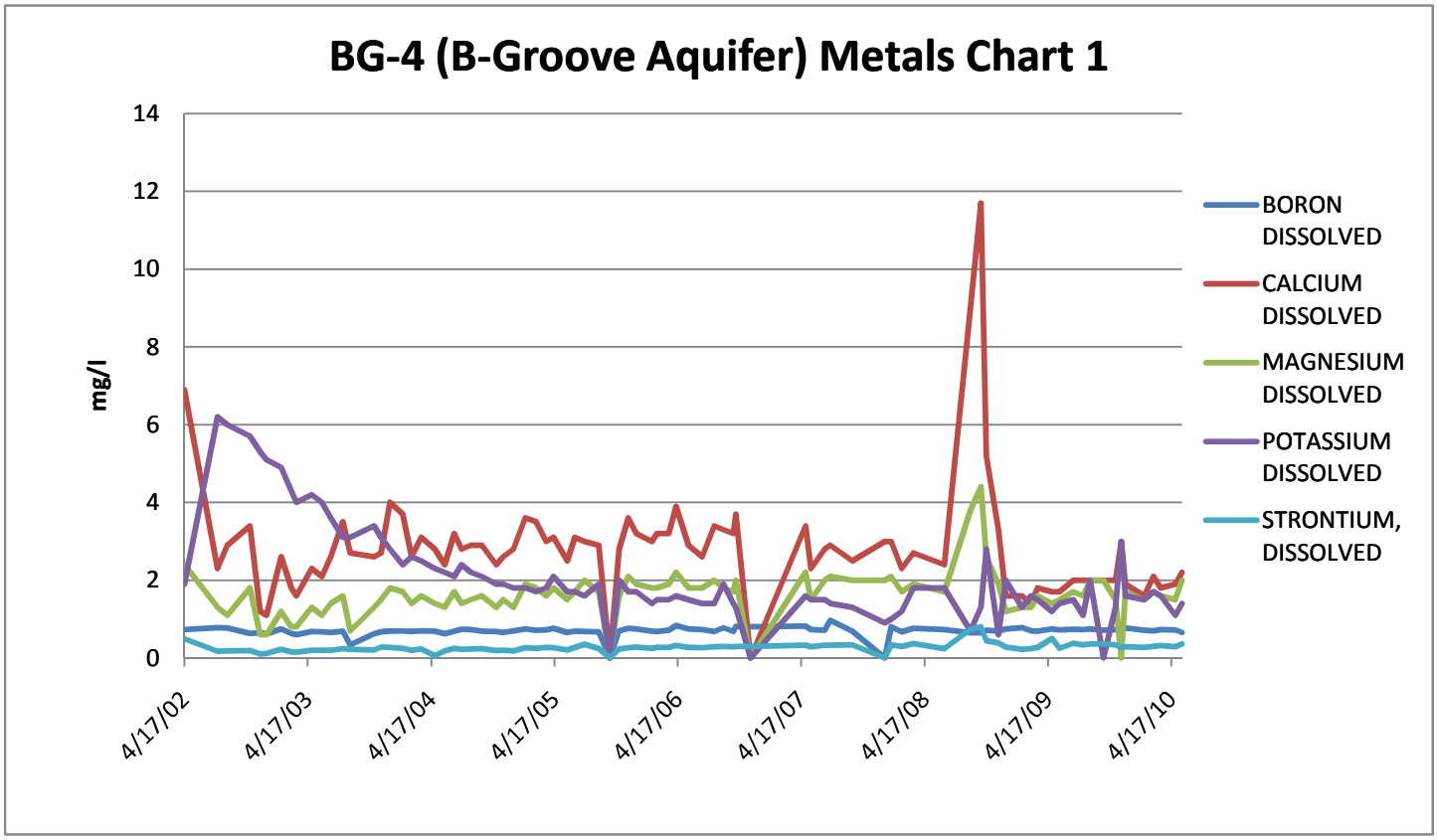

BG-1 (B-Groove Aquifer) Wet Chemistry Data Chart 2
meg/l or mg/l except PH
80
70
60
50
40
30
20
10
0
9/15/97
9/15/98
9/15/99
9/15/00
9/15/01
9/15/02
9/15/03
9/15/04
9/15/05
9/15/06
9/15/07
9/15/08
9/15/09
CHLORIDE
FLUORIDE
HARDNESS AS CACO3
PH LAB

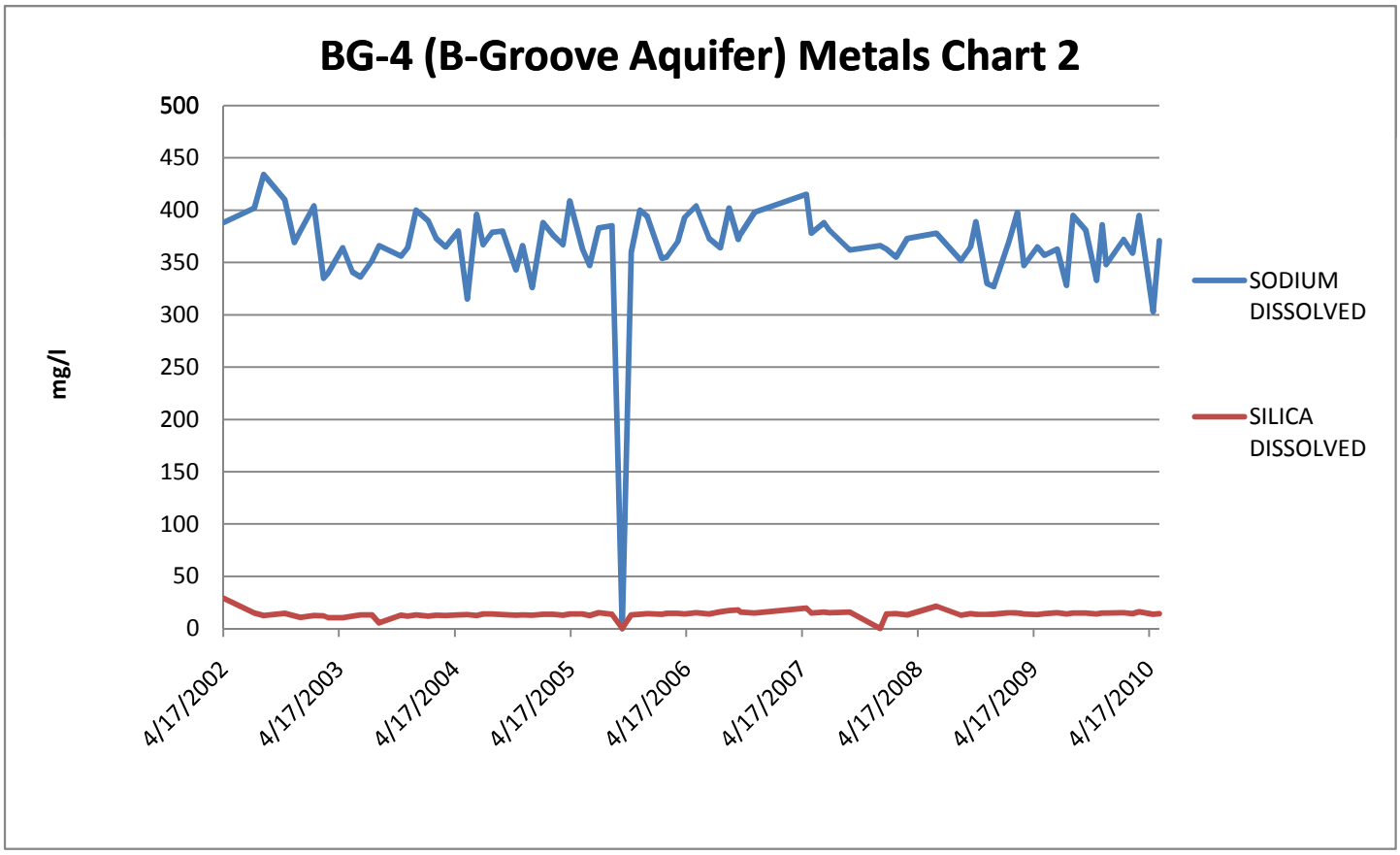

BG-1 (B-Groove Aquifer) Metals Data Chart 1
mg/l
28.00
26.00
24.00
22.00
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
8/7/97
8/7/98
8/7/99
8/7/00
8/7/01
8/7/02
8/7/03
8/7/04
8/7/05
8/7/06
8/7/07
8/7/08
8/7/09
BORON DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
STRONTIUM, DISSOLVED
SILICA DISSOLVED

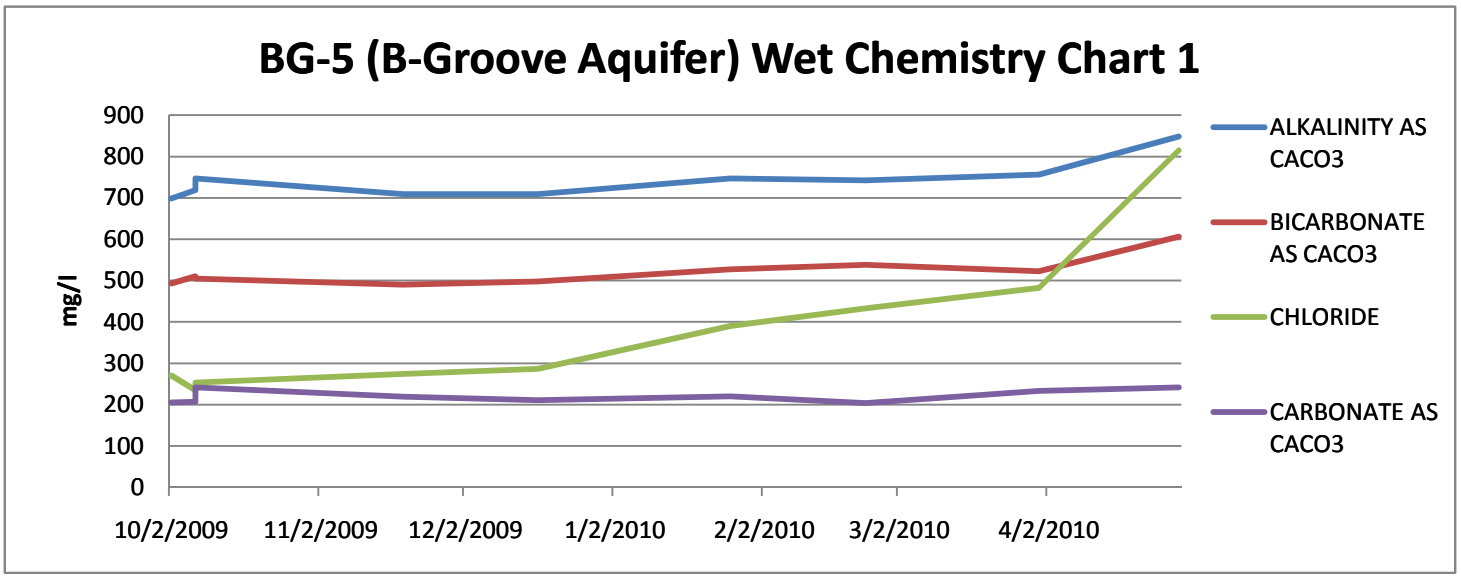

BG-1 (B-Groove Aquifer) SODIUM DISSOLVED
mg/l
1000
900
800
700
600
500
400
300
200
100
0
8/7/97
8/7/98
8/7/99
8/7/00
8/7/01
8/7/02
8/7/03
8/7/04
8/7/05
8/7/06
8/7/07
8/7/08
8/7/09
SODIUM DISSOLVED

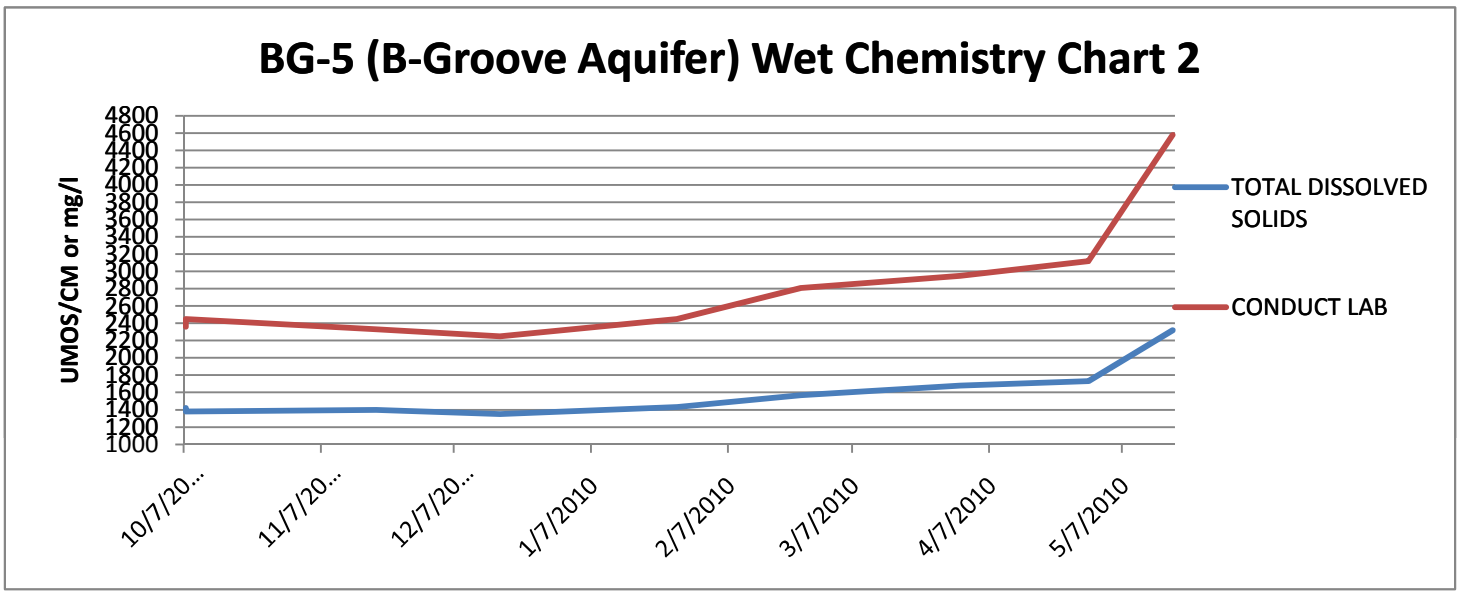

BG-4 (B-Groove Aquifer) Wet Chemistry Chart 1
mg/l except conductivity UMHOS/CM
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
4/17/02
4/17/03
4/17/04
4/17/05
4/17/06
4/17/07
4/17/08
4/17/09
4/17/10
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS

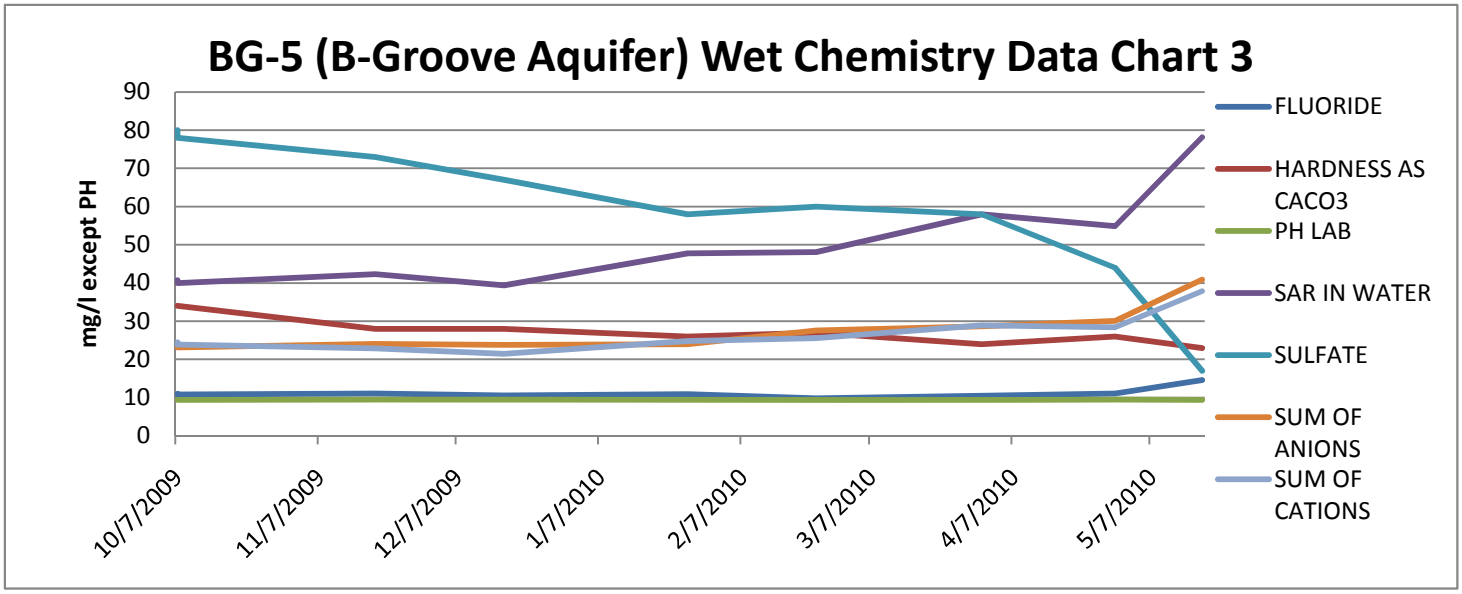

BG-4 (B-Groove Aquifer) Wet Chemistry Chart 2
mg/l except PH
60
55
50
45
40
35
30
25
20
15
10
5
0
4/17/02
4/17/03
4/17/04
4/17/05
4/17/06
4/17/07
4/17/08
4/17/09
4/17/10
SULFATE
HARDNESS AS CACO3
FLUORIDE
CHLORIDE
PH LAB

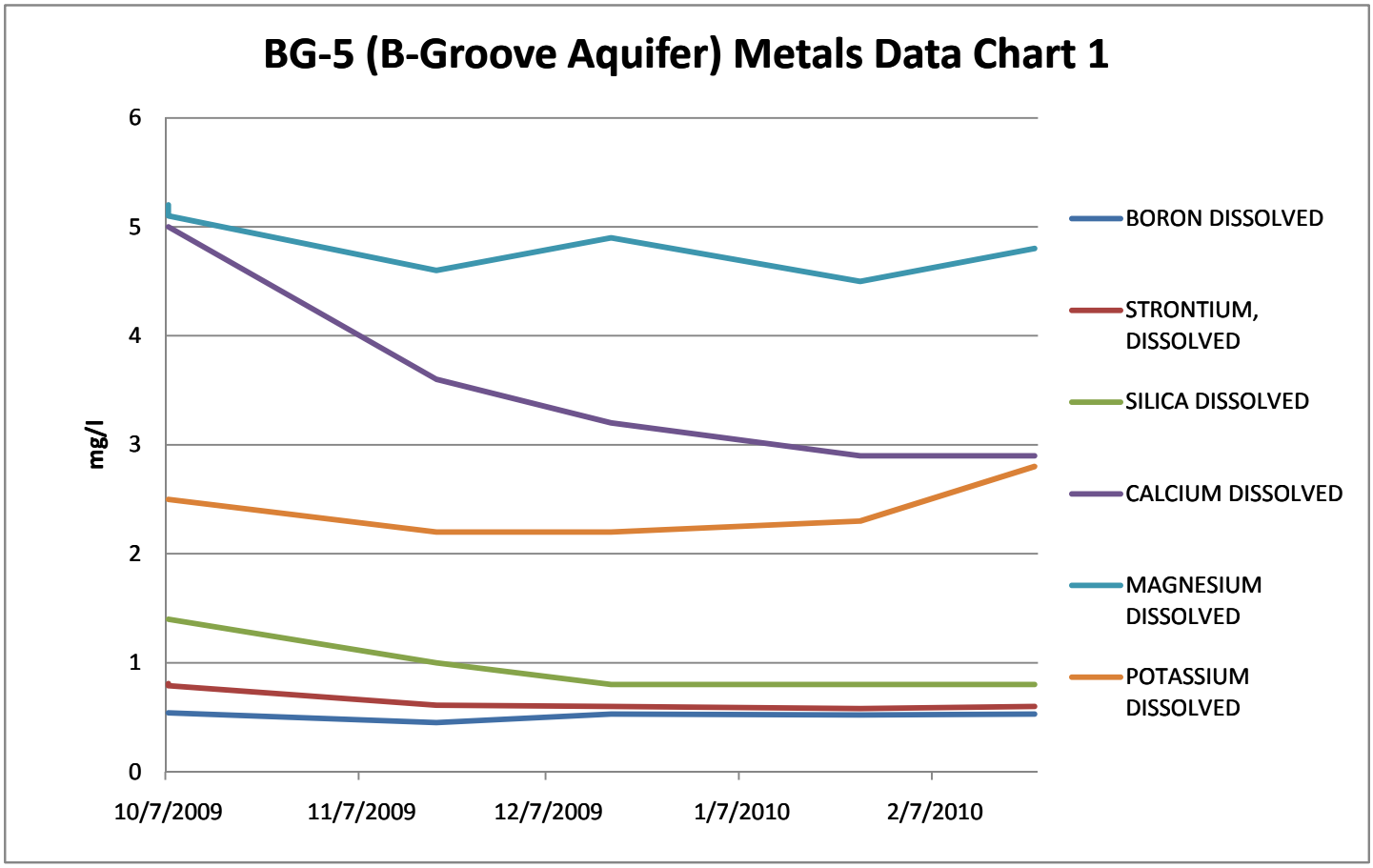

BG-4 (B-Groove Aquifer) Metals Chart 1
mg/l
14
12
10
8
6
4
2
0
4/17/02
4/17/03
4/17/04
4/17/05
4/17/06
4/17/07
4/17/08
4/17/09
4/17/10
BORON DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
POTASSIUM DISSOLVED
STRONTIUM, DISSOLVED

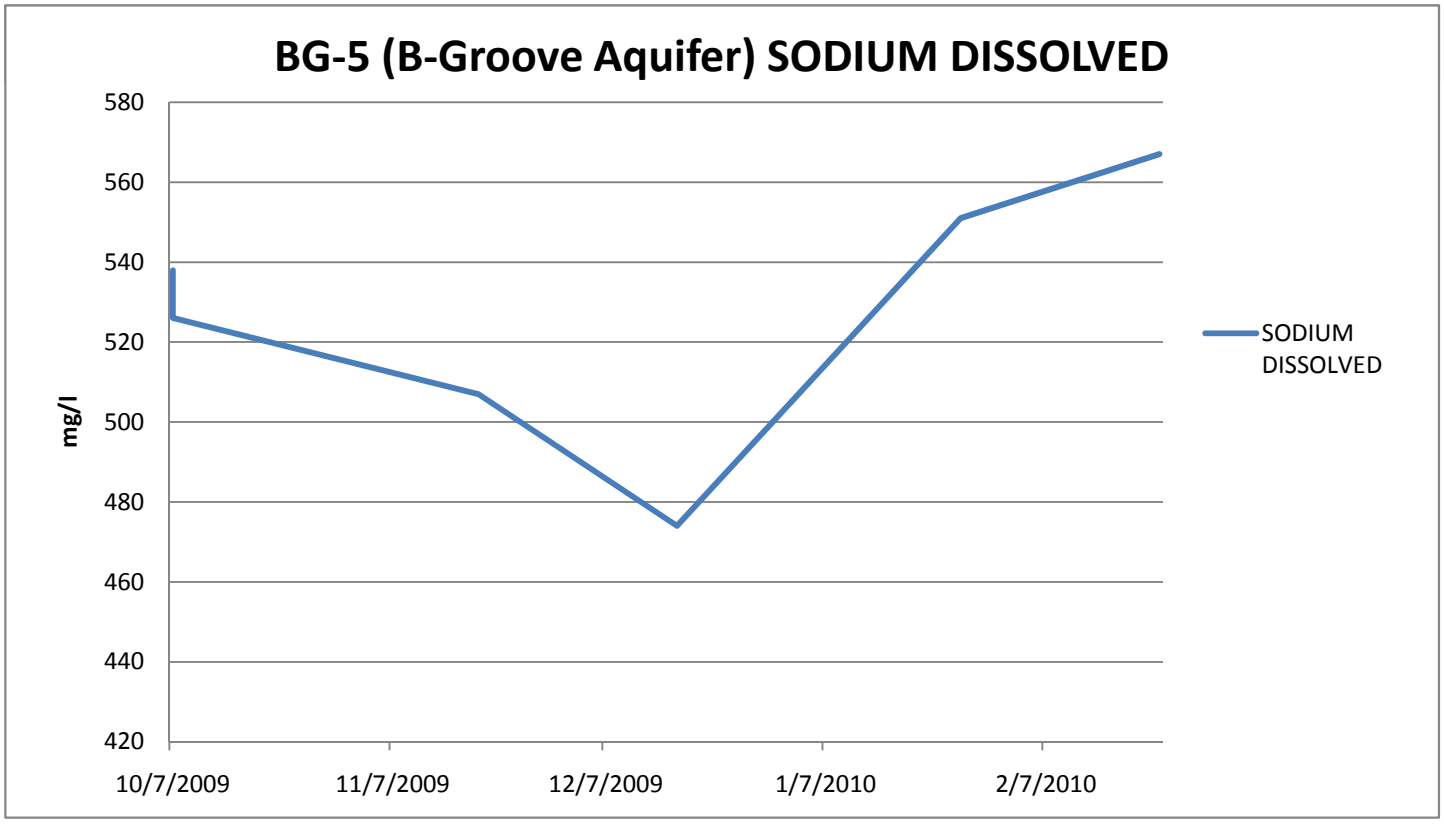

BG-4 (B-Groove Aquifer) Metals Chart 2
mg/l
500
450
400
350
300
250
200
150
100
50
0
4/17/2002
4/17/2003
4/17/2004
4/17/2005
4/17/2006
4/17/2007
4/17/2008
4/17/2009
4/17/2010
SODIUM DISSOLVED
SILICA DISSOLVED


BG-5 (B-Groove Aquifer) Wet Chemistry Chart 1
mg/l
900
800
700
600
500
400
300
200
100
0
10/2/2009
11/2/2009
12/2/2009
1/2/2010
2/2/2010
3/2/2010
4/2/2010
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CHLORIDE
CARBONATE AS CACO3

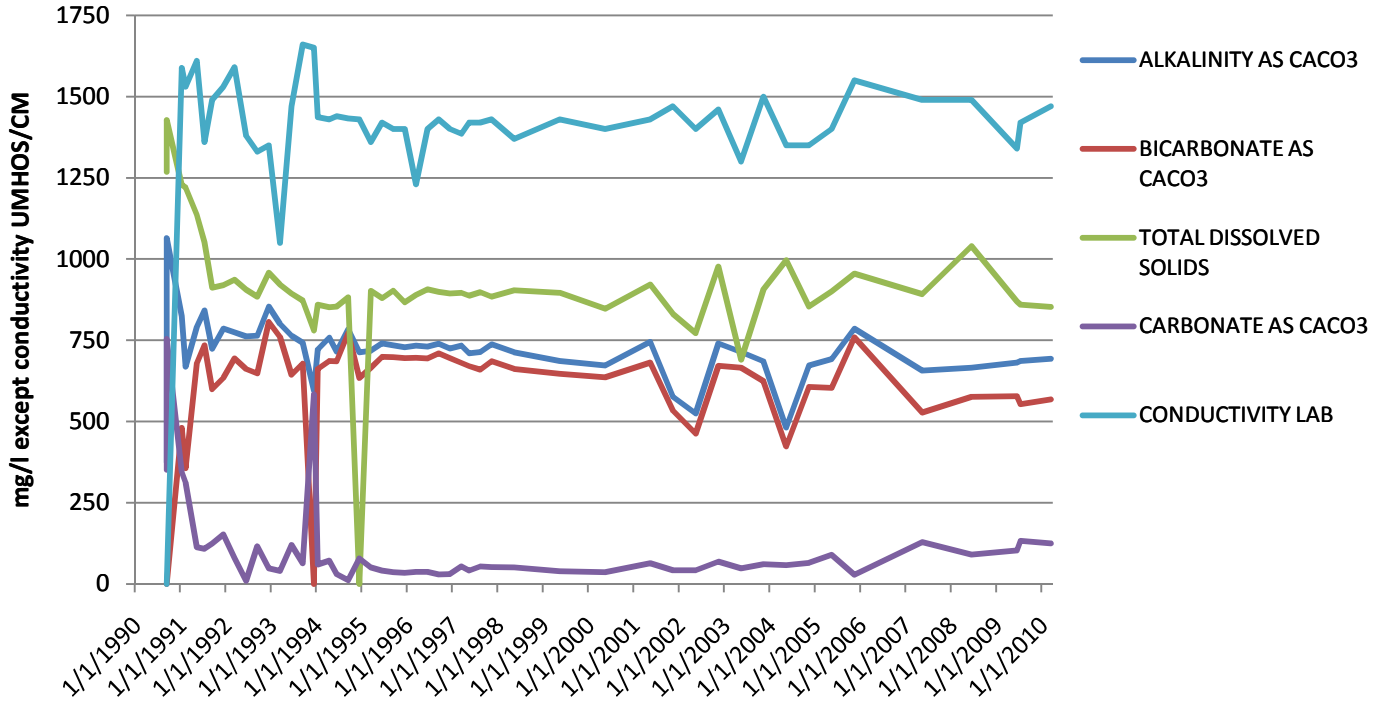

BG-5 (B-Groove Aquifer) Wet Chemistry Chart 2
UMOS/CM or mg/l
4800
4600
4400
4200
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
10/7/20...
11/7/20...
12/7/20...
1/7/2010
2/7/2010
3/7/2010
4/7/2010
5/7/2010
TOTAL DISSOLVED SOLIDS
CONDUCT LAB


BG-5 (B-Groove Aquifer) Wet Chemistry Data Chart 3
mg/l except PH
90
80
70
60
50
40
30
20
10
0
10/7/2009
11/7/2009
12/7/2009
1/7/2010
2/7/2010
3/7/2010
4/7/2010
5/7/2010
FLUORIDE
HARDNESS AS CACO3
PH LAB
SAR IN WATER
SULFATE
SUM OF ANIONS
SUM OF CATIONS

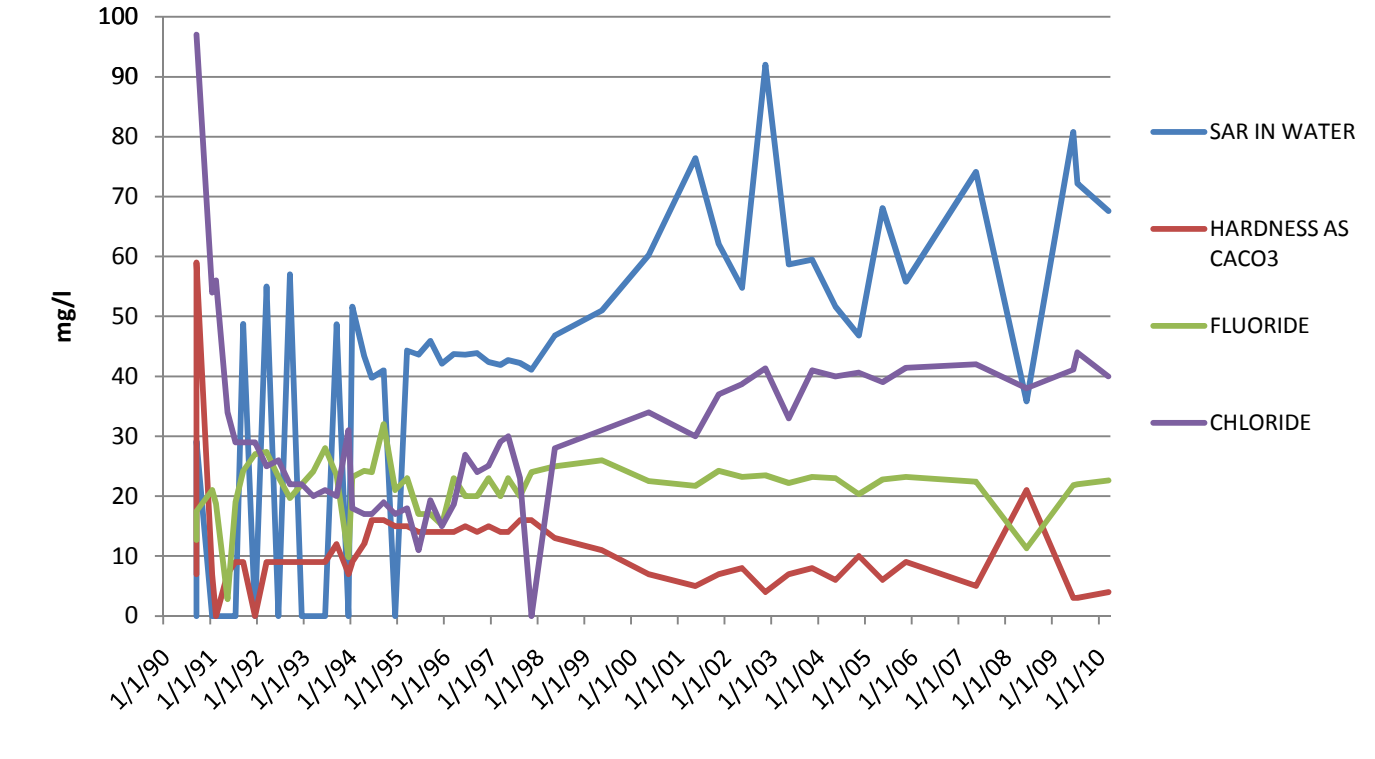

BG-5 (B-Groove Aquifer) Metals Data Chart 1
mg/l
6
5
4
3
2
1
0
10/7/2009
11/7/2009
12/7/2009
1/7/2010
2/7/2010
BORON DISSOLVED
STRONTIUM, DISSOLVED
SILICA DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
POTASSIUM DISSOLVED

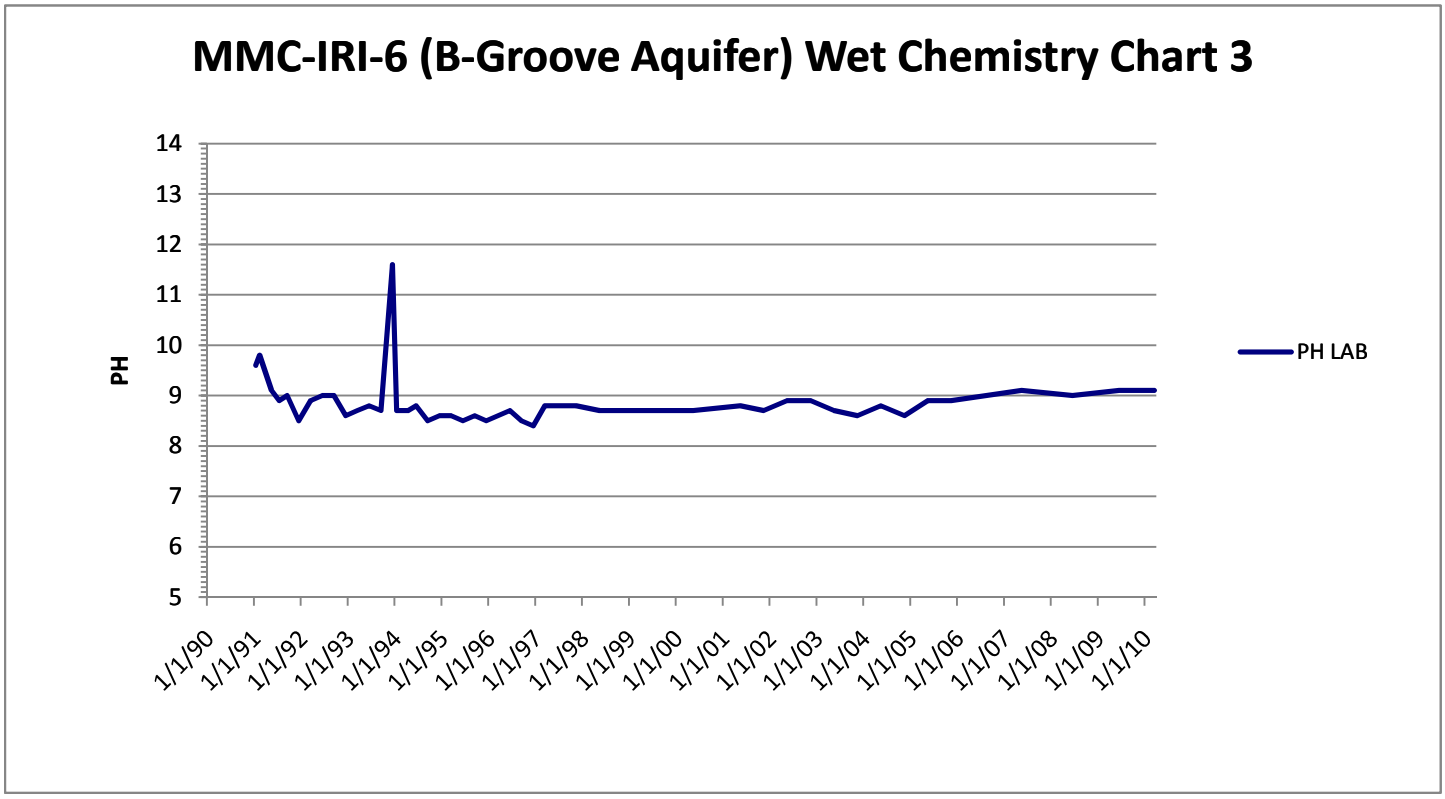

BG-5 (B-Groove Aquifer) SODIUM DISSOLVED
mg/l
580
560
540
520
500
480
460
440
420
10/7/2009
11/7/2009
12/7/2009
1/7/2010
2/7/2010
SODIUM DISSOLVED

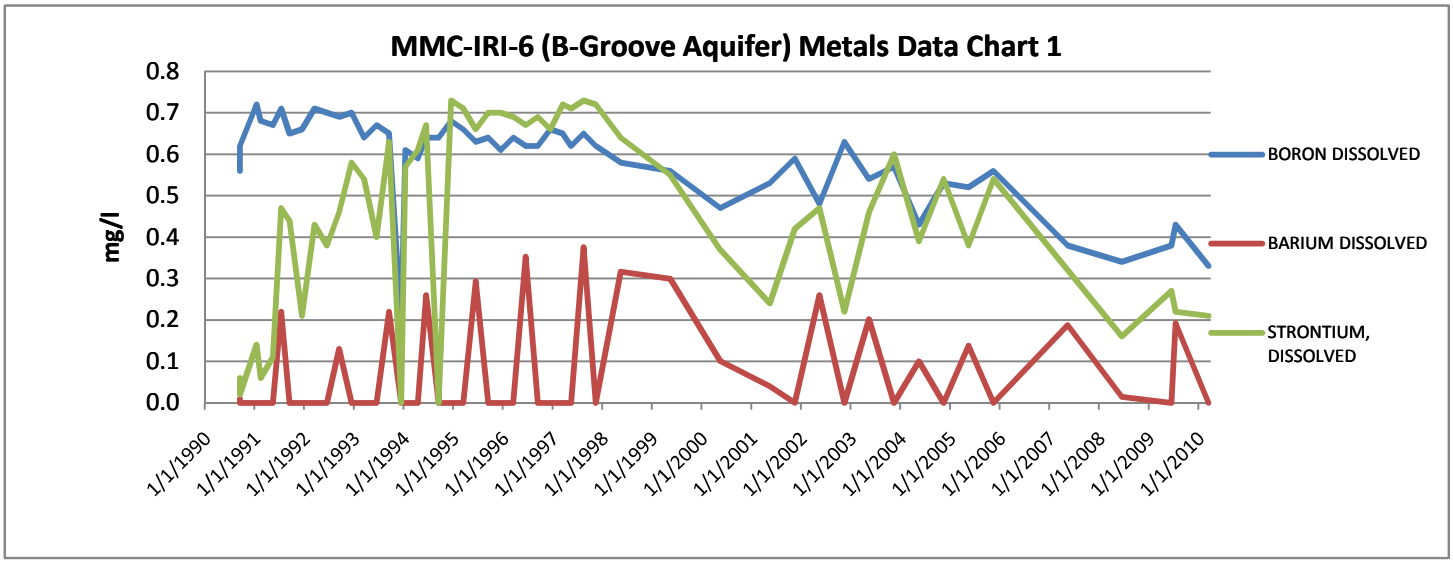
MMC-IRI-6 (B-Groove Aquifer) Wet Chemistry Chart 1

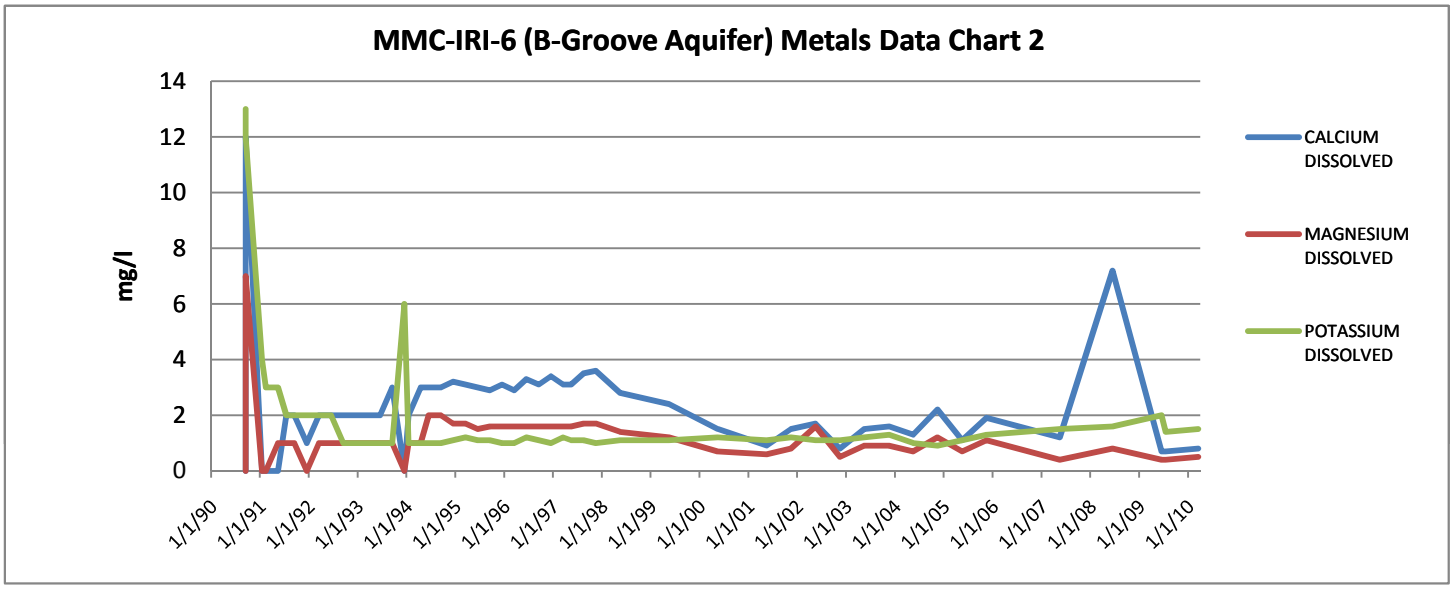


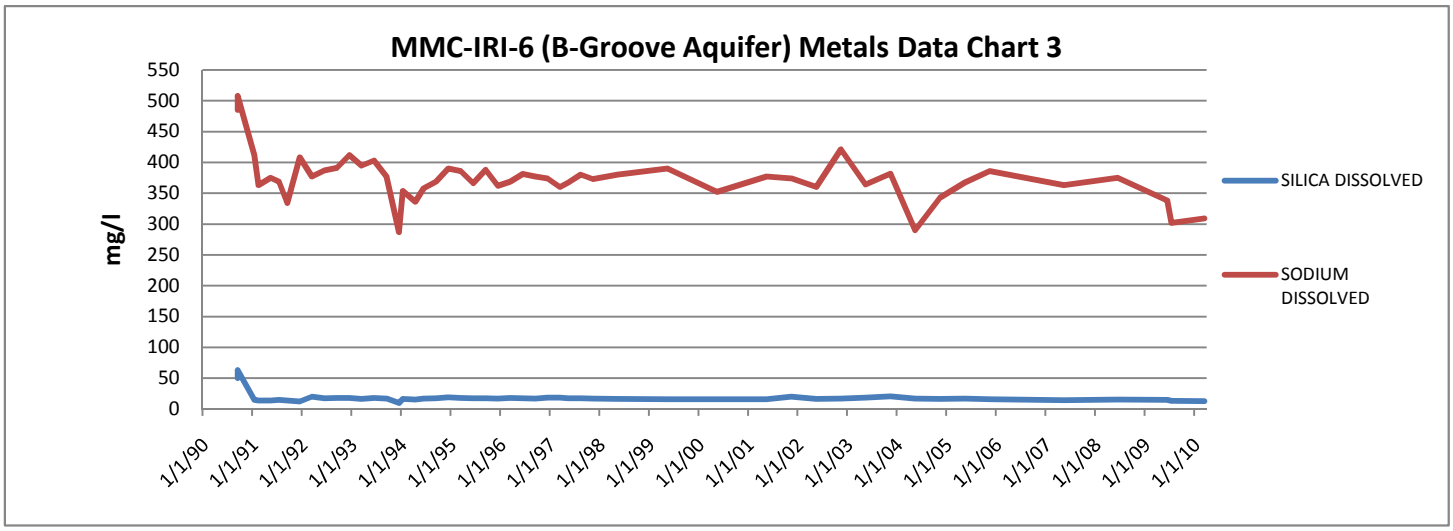
MMC-IRI-6 (B-Groove Aquifer) Wet Chemistry Chart 2

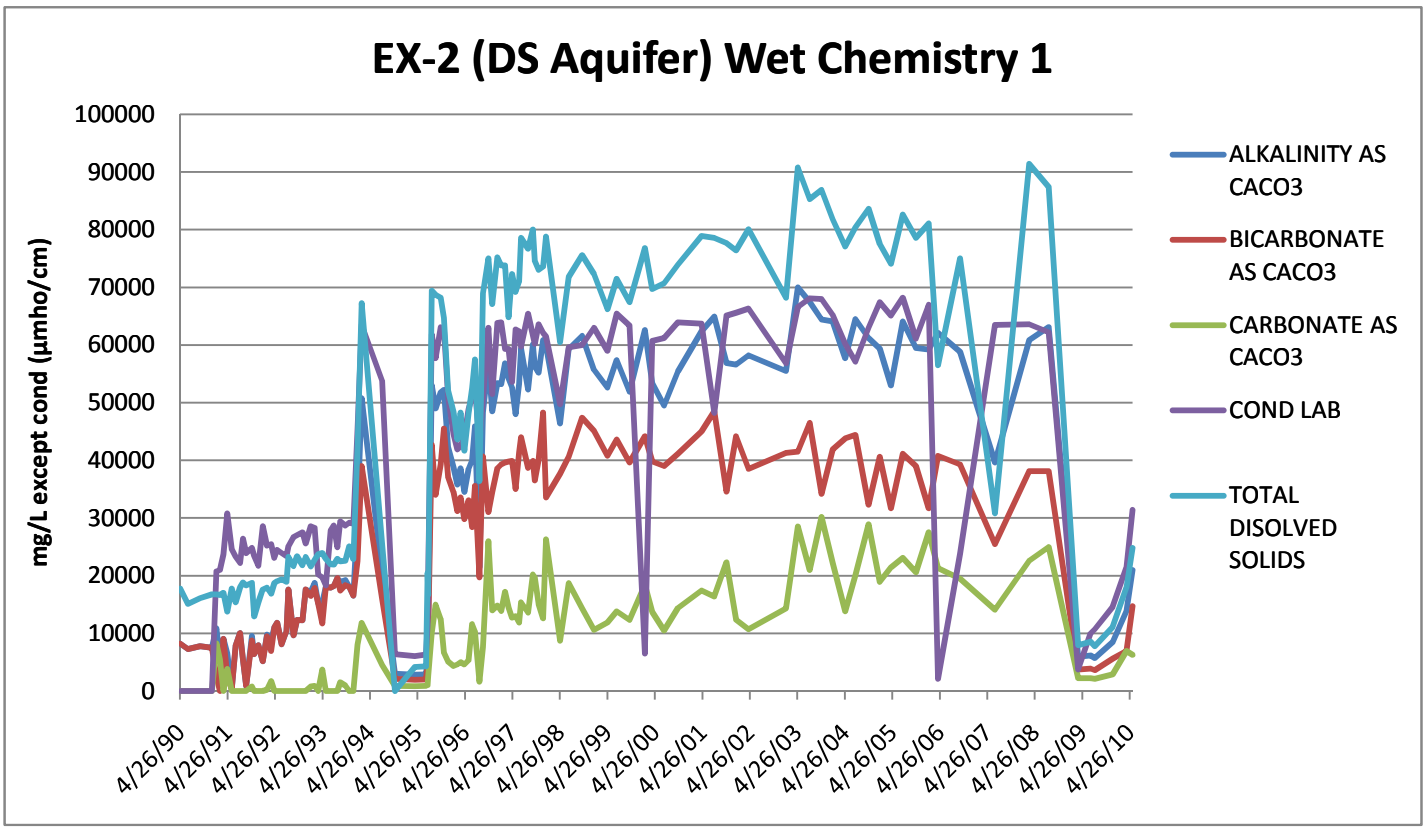


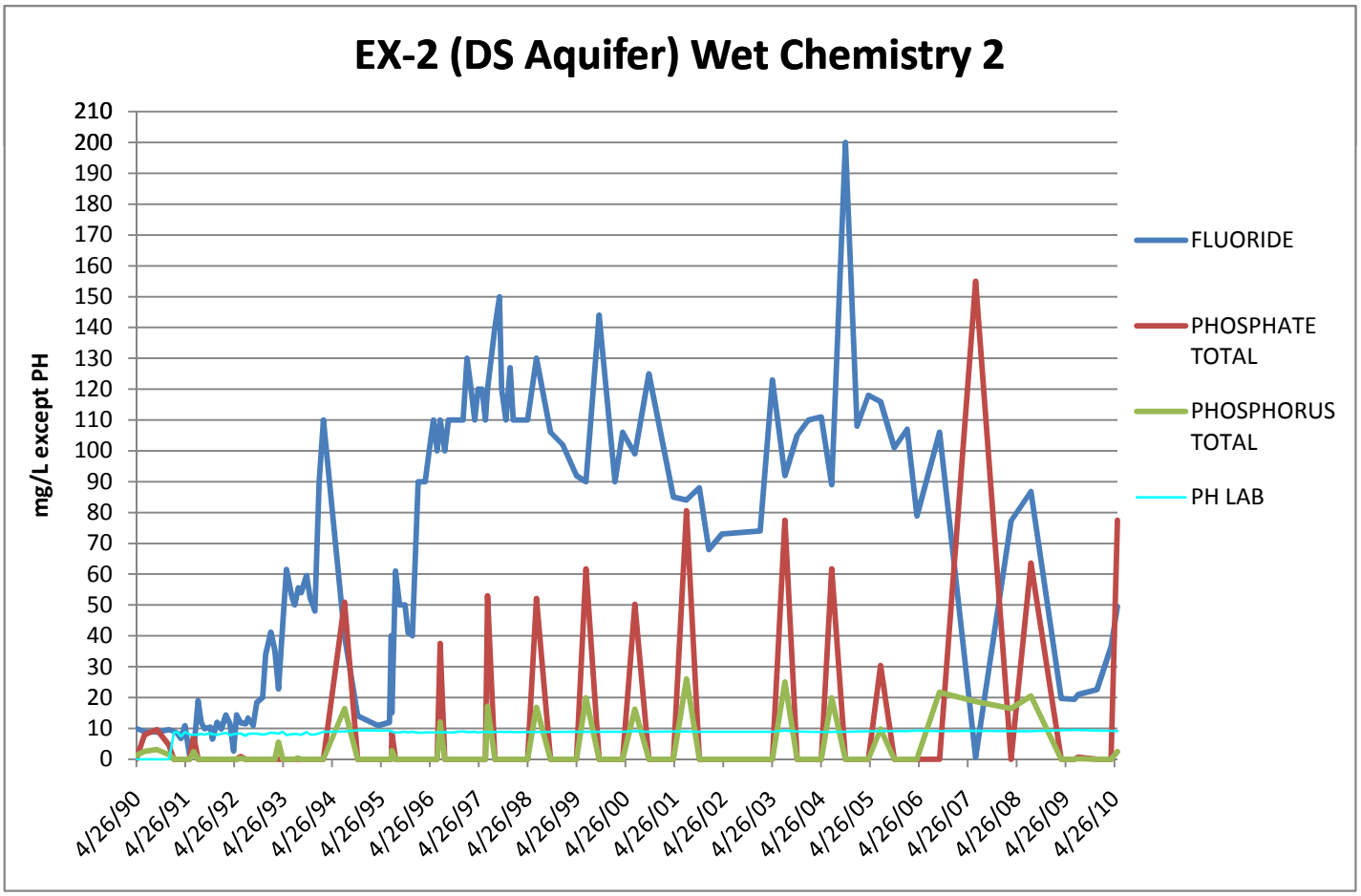

MMC-IRI-6 (B-Groove Aquifer) Wet Chemistry Chart 3
PH
14
13
12
11
10
9
8
7
6
5
1/1/90
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
PH LAB

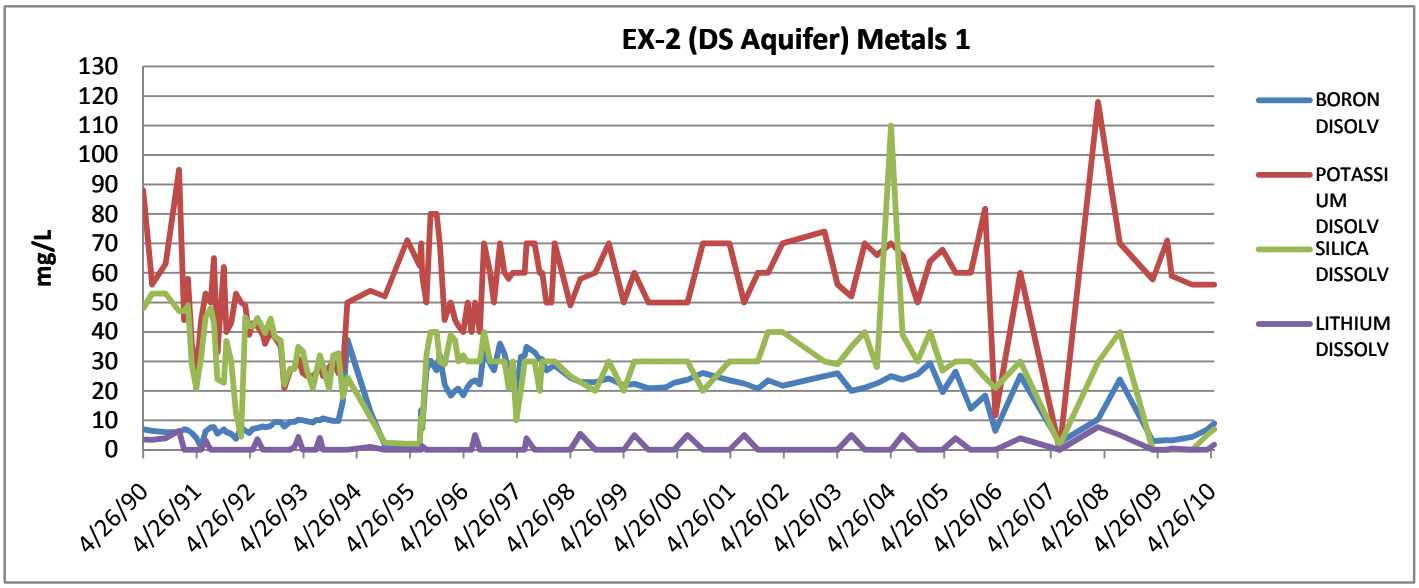

MMC-IRI-6 (B-Groove Aquifer) Metals Data Chart 1
mg/l
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1/1/1990
1/1/1991
1/1/1992
1/1/1993
1/1/1994
1/1/1995
1/1/1996
1/1/1997
1/1/1998
1/1/1999
1/1/2000
1/1/2001
1/1/2002
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
BORON DISSOLVED
BARIUM DISSOLVED
STRONTIUM, DISSOLVED

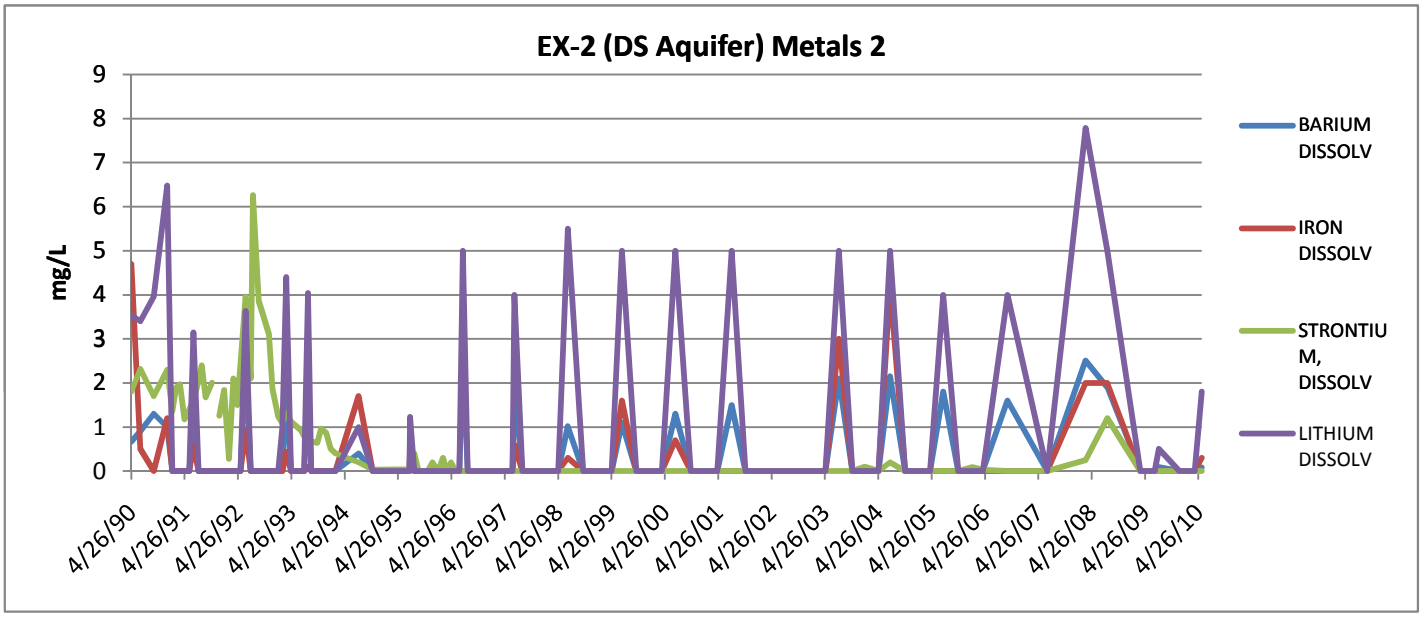

MMC-IRI-6 (B-Groove Aquifer) Metals Data Chart 2
mg/l
14
12
10
8
6
4
2
0
1/1/90
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
POTASSIUM DISSOLVED

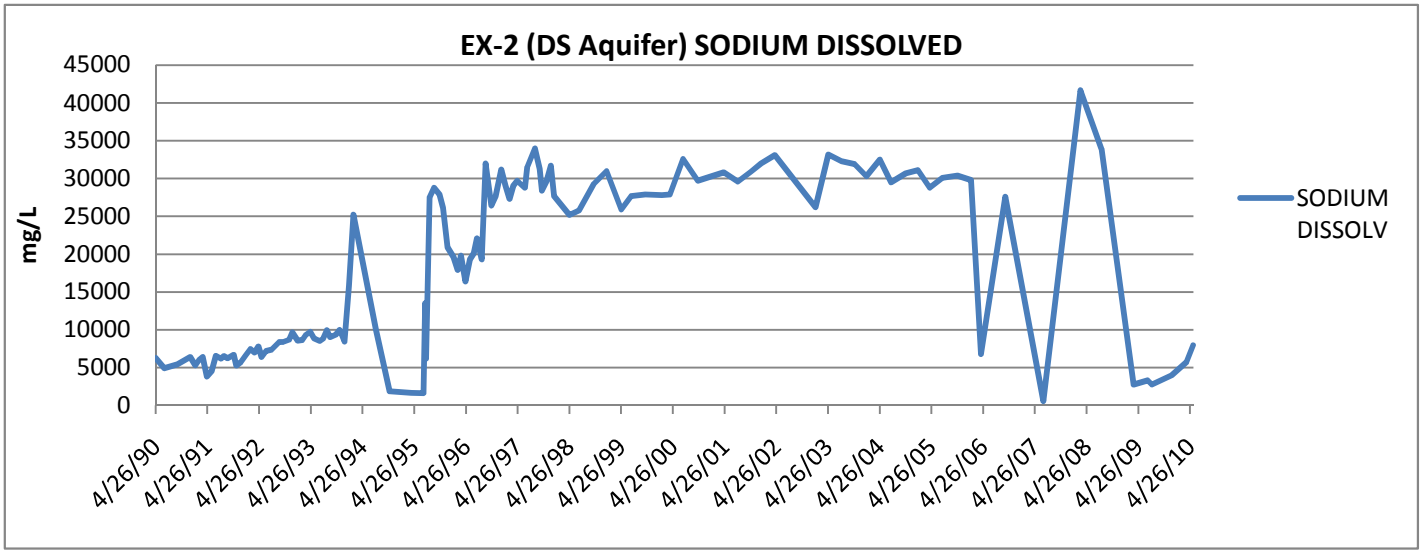

MMC-IRI-6 (B-Groove Aquifer) Metals Data Chart 3
mg/l
550
500
450
400
350
300
250
200
150
100
50
0
1/1/90
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
SILICA DISSOLVED
SODIUM DISSOLVED

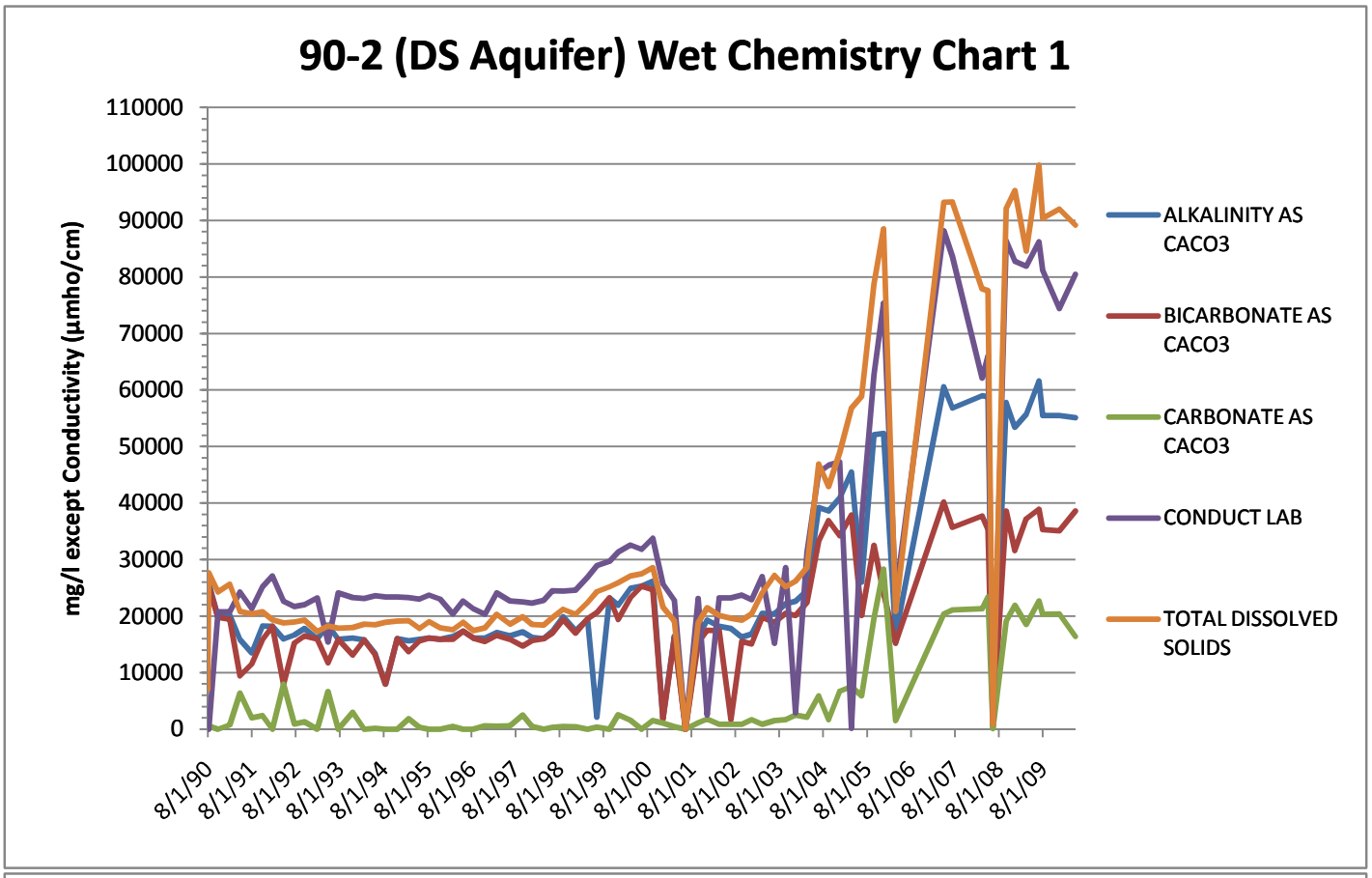

EX-2 (DS Aquifer) Wet Chemistry 1
mg/L except cond (µmho/cm)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
4/26/90
4/26/91
4/26/92
4/26/93
4/26/94
4/26/95
4/26/96
4/26/97
4/26/98
4/26/99
4/26/00
4/26/01
4/26/02
4/26/03
4/26/04
4/26/05
4/26/06
4/26/07
4/26/08
4/26/09
4/26/10
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
COND LAB
TOTAL DISOLVED SOLIDS

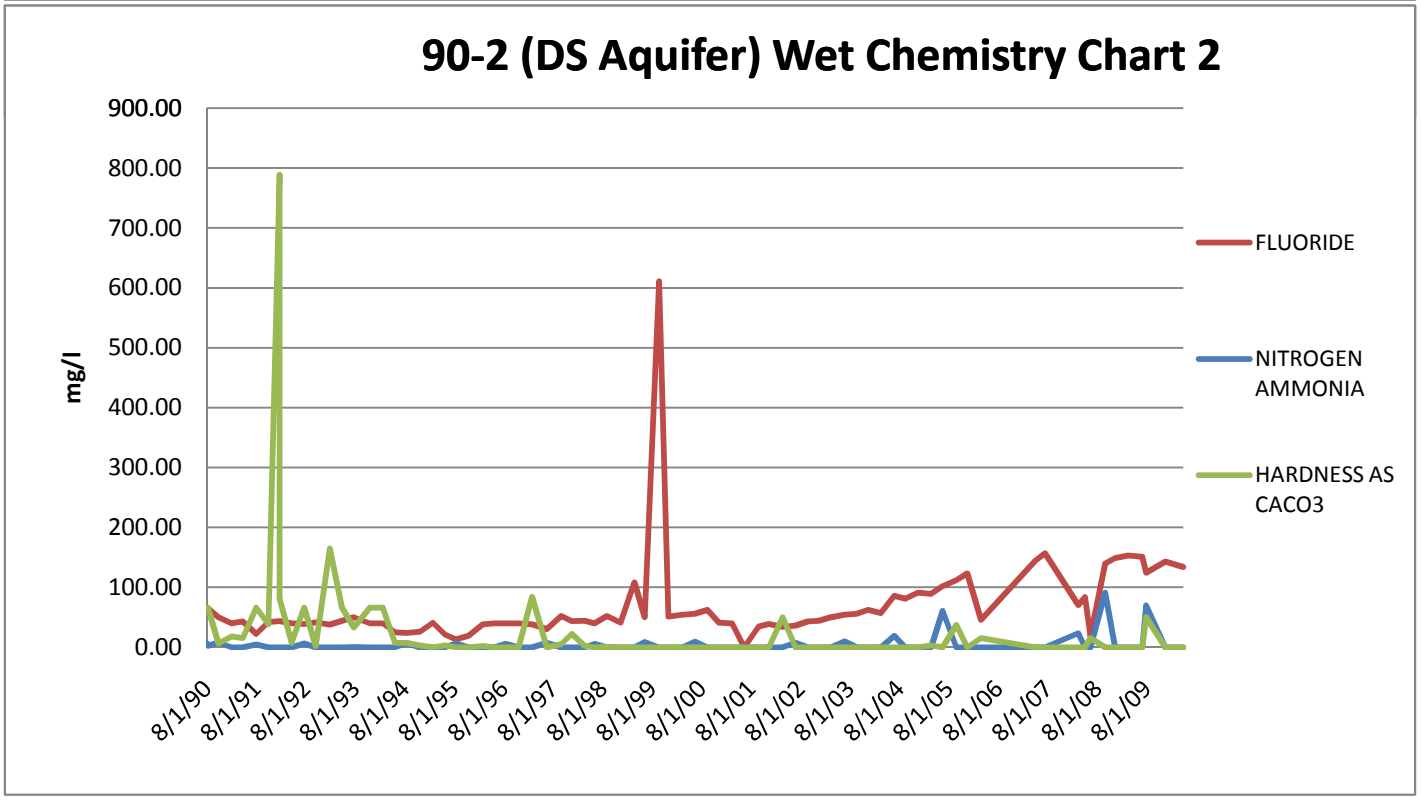

EX-2 (DS Aquifer) Wet Chemistry 2
mg/L except PH
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
4/26/90
4/26/91
4/26/92
4/26/93
4/26/94
4/26/95
4/26/96
4/26/97
4/26/98
4/26/99
4/26/00
4/26/01
4/26/02
4/26/03
4/26/04
4/26/05
4/26/06
4/26/07
4/26/08
4/26/09
4/26/10
FLUORIDE
PHOSPHATE TOTAL
PHOSPHORUS TOTAL
PH LAB

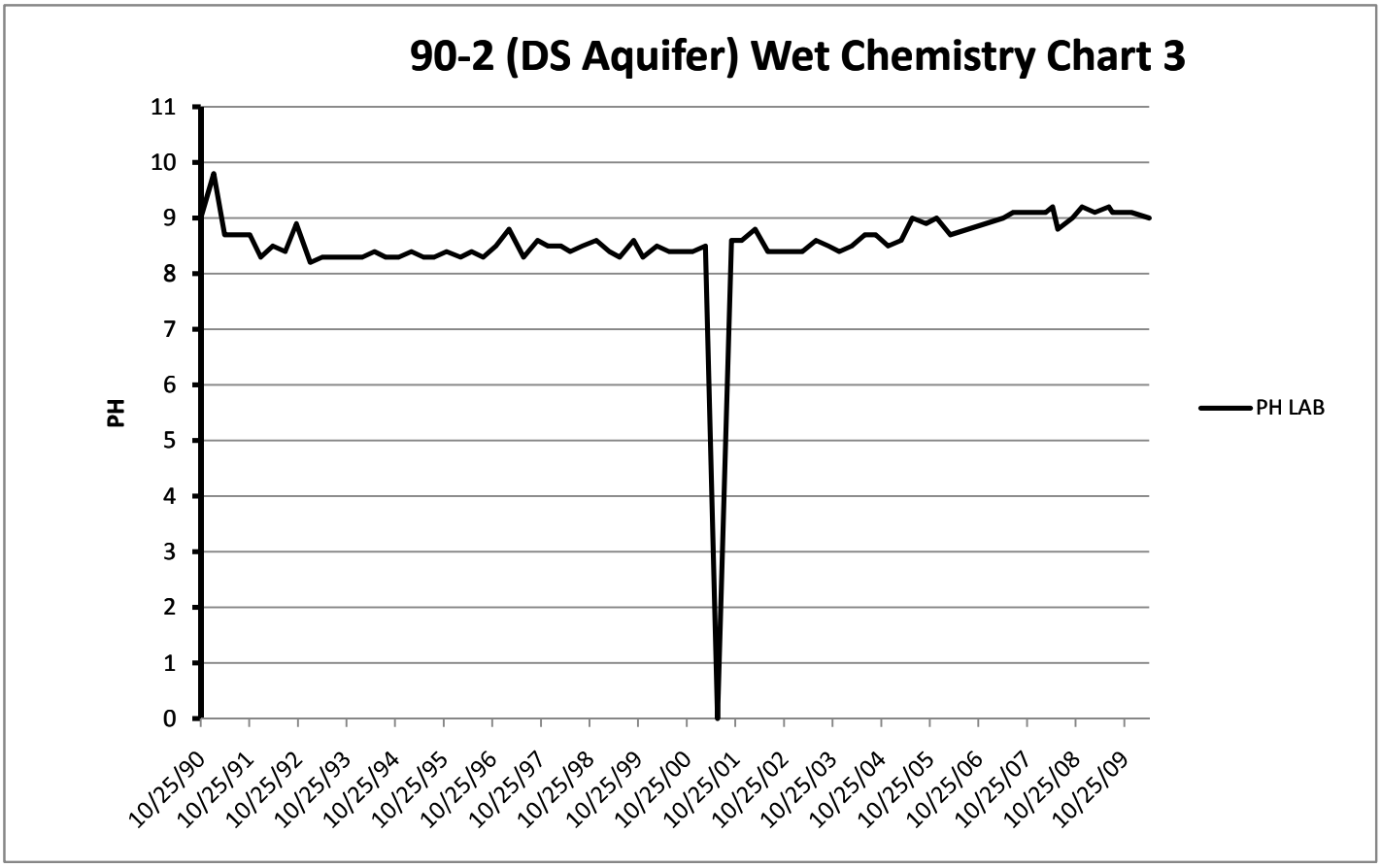

EX-2 (DS Aquifer) Metals 1
mg/L
130
120
110
100
90
80
70
60
50
40
30
20
10
0
4/26/90
4/26/91
4/26/92
4/26/93
4/26/94
4/26/95
4/26/96
4/26/97
4/26/98
4/26/99
4/26/00
4/26/01
4/26/02
4/26/03
4/26/04
4/26/05
4/26/06
4/26/07
4/26/08
4/26/09
4/26/10
BORON DISOLV
POTASSIUM DISOLV
SILICA DISSOLV
LITHIUM DISSOLV

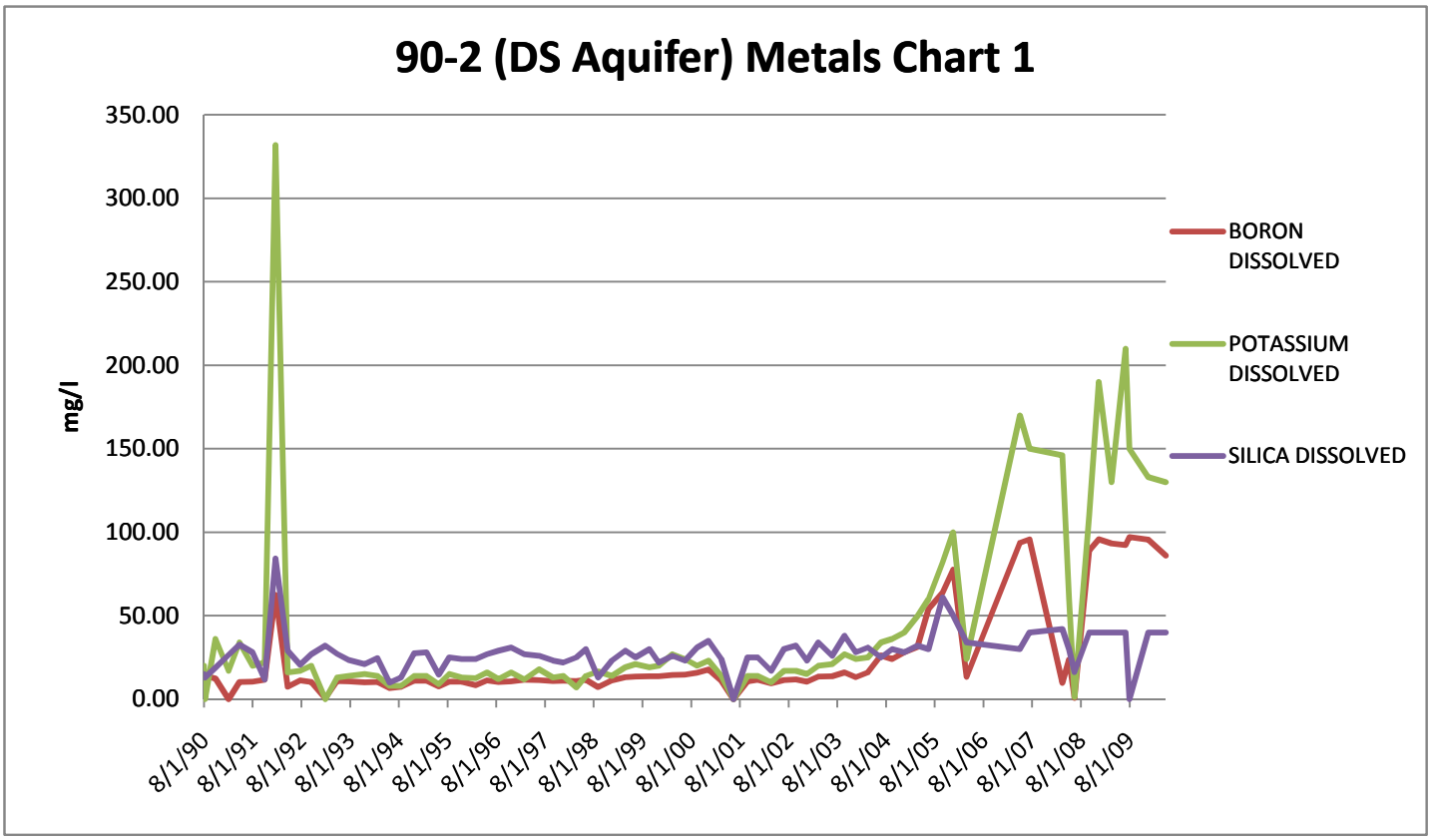

EX-2 (DS Aquifer) Metals 2
mg/L
9
8
7
6
5
4
3
2
1
0
4/26/90
4/26/91
4/26/92
4/26/93
4/26/94
4/26/95
4/26/96
4/26/97
4/26/98
4/26/99
4/26/00
4/26/01
4/26/02
4/26/03
4/26/04
4/26/05
4/26/06
4/26/07
4/26/08
4/26/09
4/26/10
BARIUM DISSOLV
IRON DISSOLV
STRONTIUM, DISSOLV
LITHIUM DISSOLV

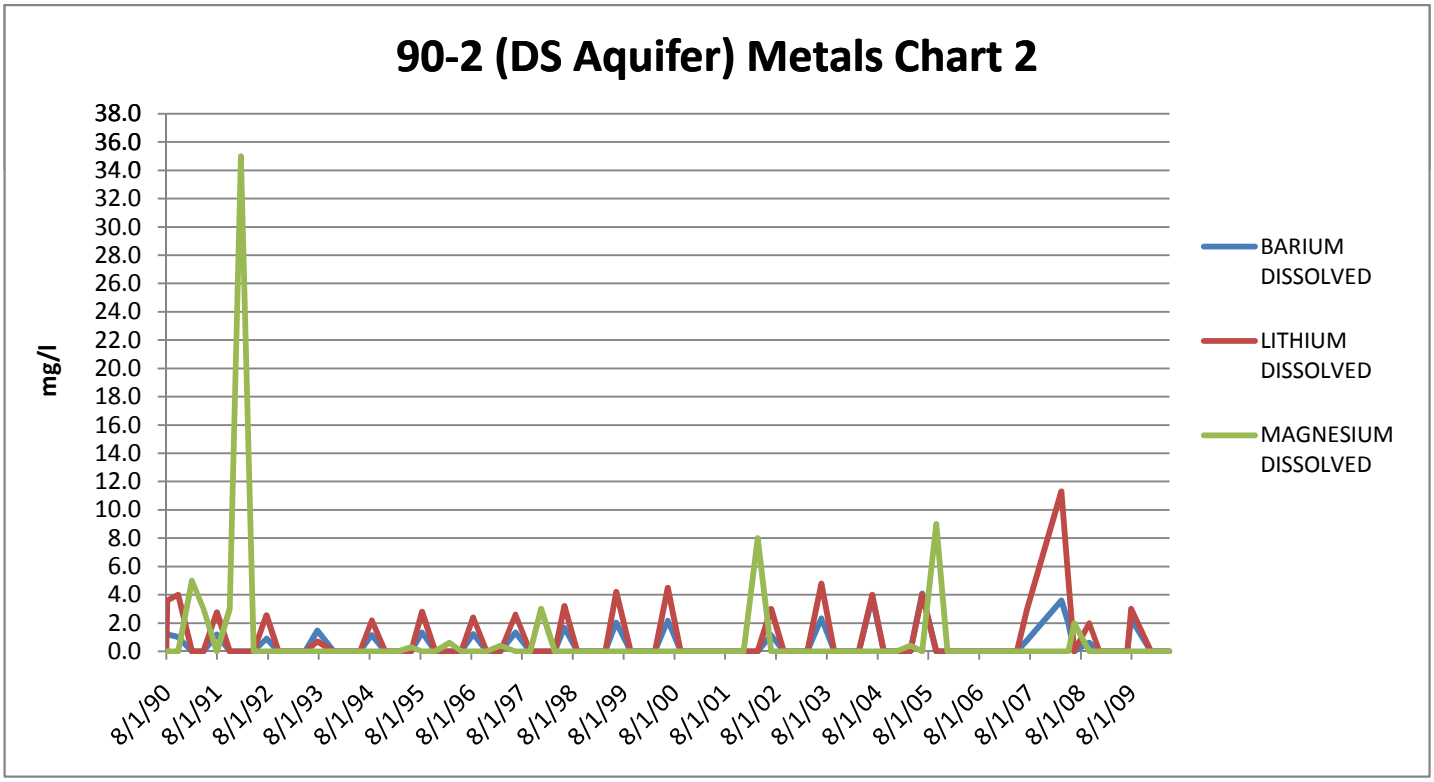

EX-2 (DS Aquifer) SODIUM DISSOLVED
mg/L
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
4/26/90
4/26/91
4/26/92
4/26/93
4/26/94
4/26/95
4/26/96
4/26/97
4/26/98
4/26/99
4/26/00
4/26/01
4/26/02
4/26/03
4/26/04
4/26/05
4/26/06
4/26/07
4/26/08
4/26/09
4/26/10
SODIUM DISSOLV

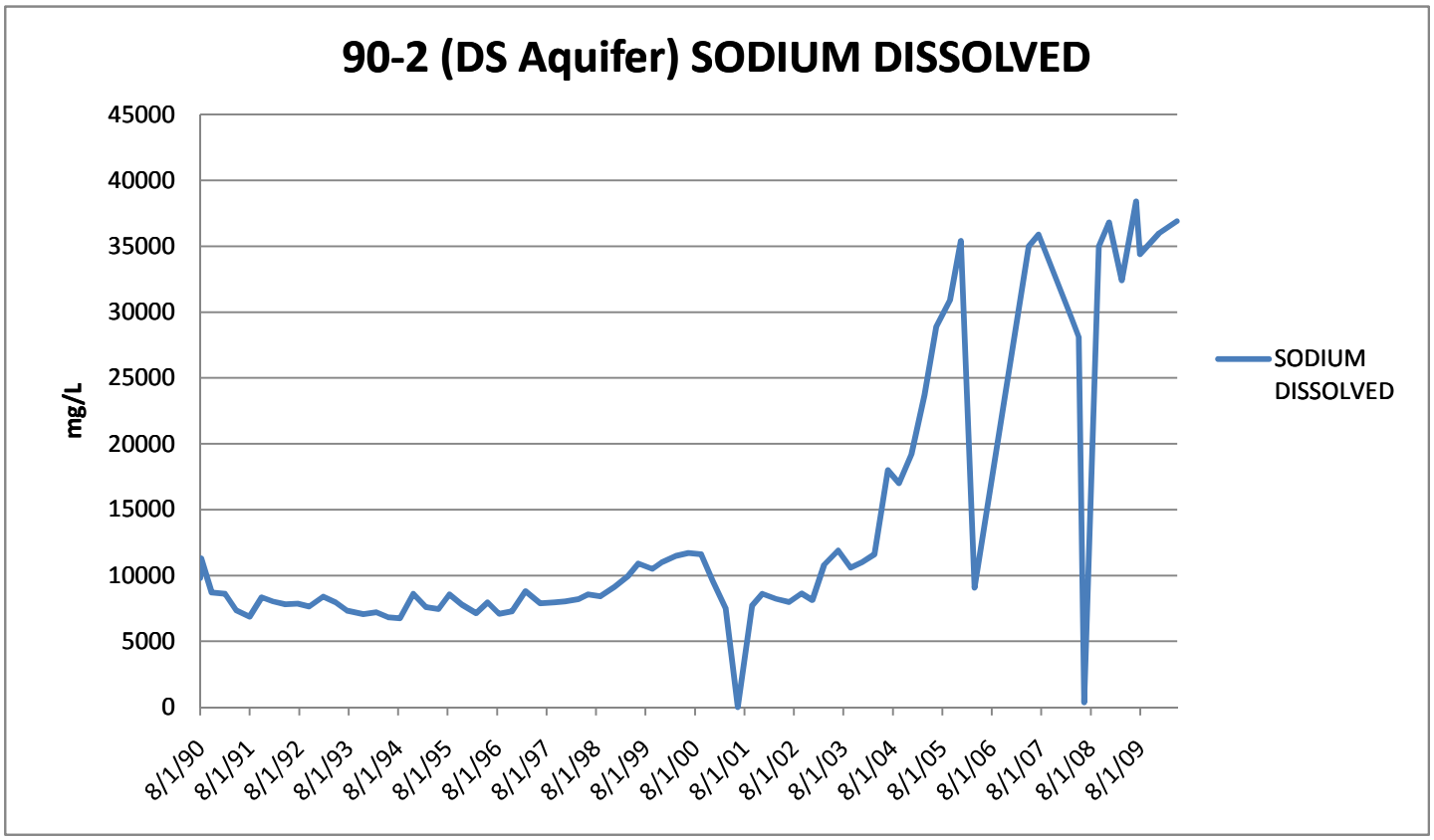

90-2 (DS Aquifer) Wet Chemistry Chart 1
mg/l except Conductivity (µmho/cm)
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS

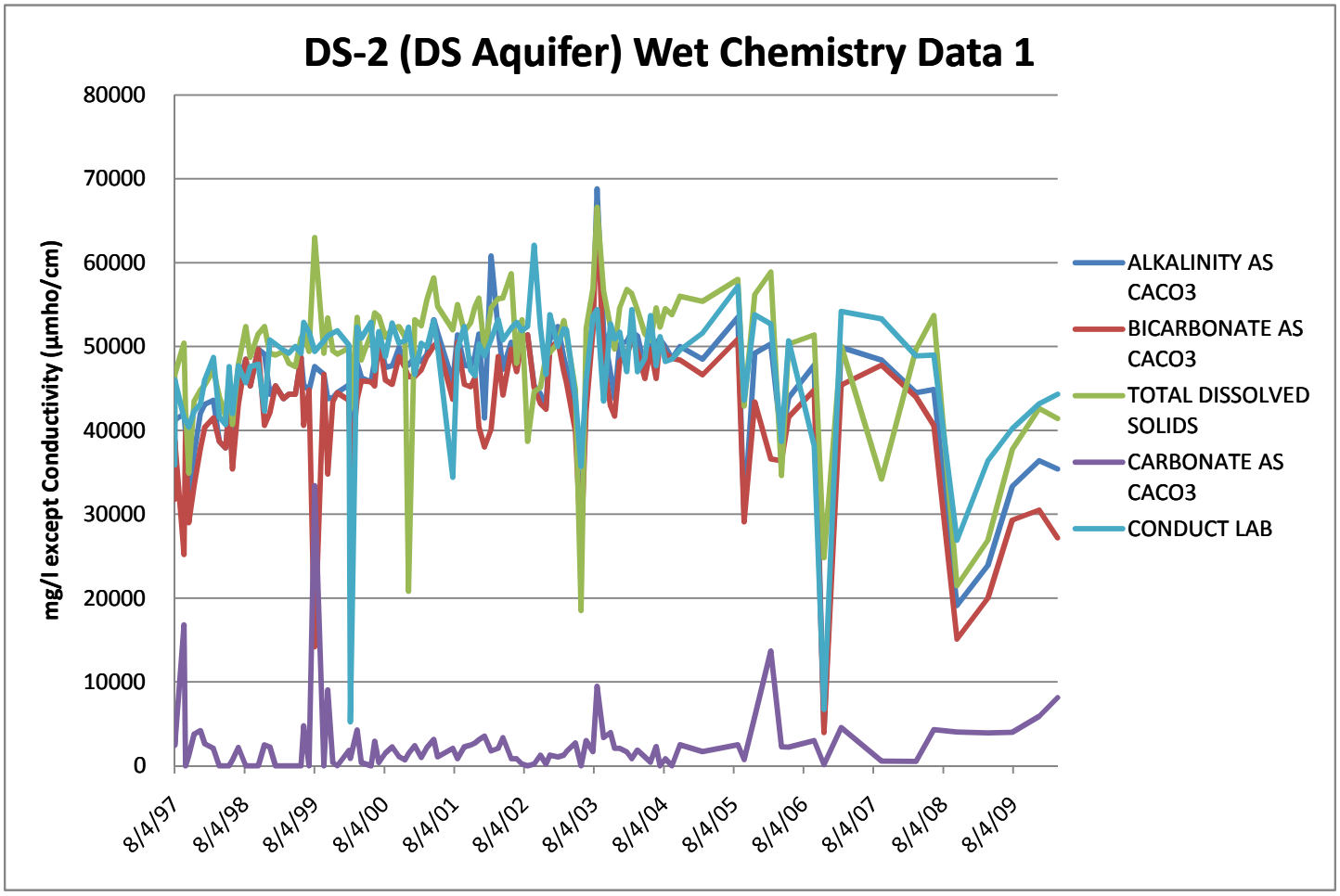

90-2 (DS Aquifer) Wet Chemistry Chart 2
mg/l
900.00
800.00
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
FLUORIDE
NITROGEN AMMONIA
HARDNESS AS CACO3

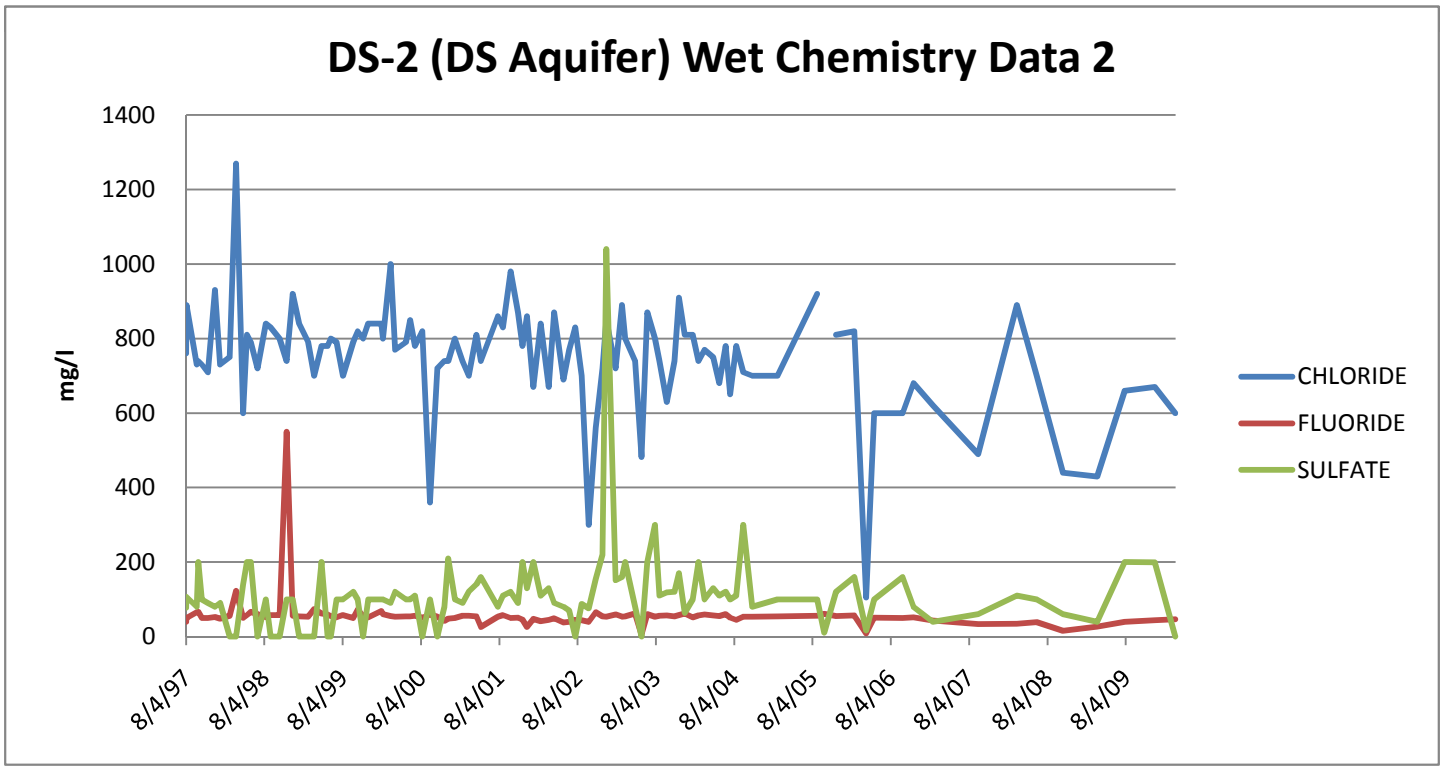

90-2 (DS Aquifer) Wet Chemistry Chart 3
PH
11
10
9
8
7
6
5
4
3
2
1
0
10/25/90
10/25/91
10/25/92
10/25/93
10/25/94
10/25/95
10/25/96
10/25/97
10/25/98
10/25/99
10/25/00
10/25/01
10/25/02
10/25/03
10/25/04
10/25/05
10/25/06
10/25/07
10/25/08
10/25/09
PH LAB

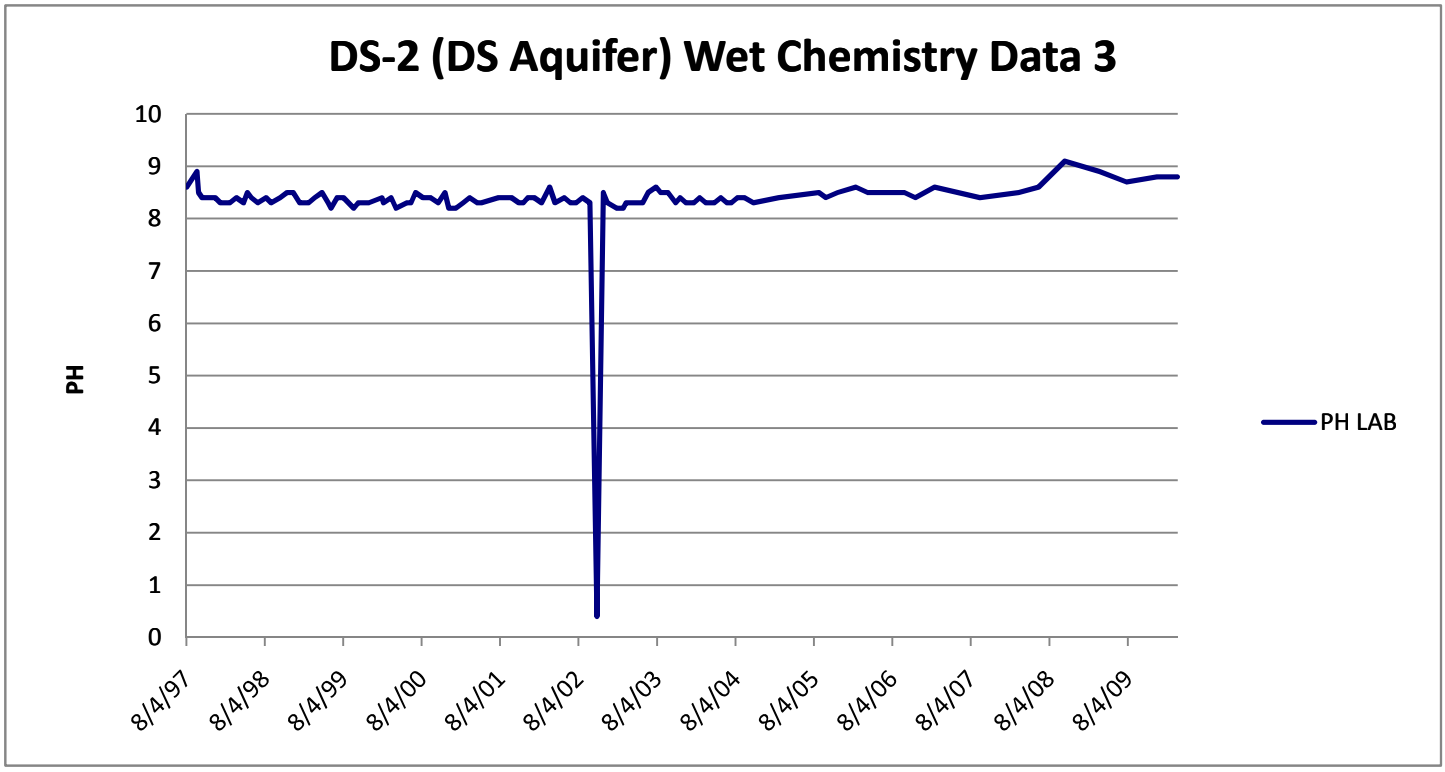

90-2 (DS Aquifer) Metals Chart 1
mg/l
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
BORON DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED

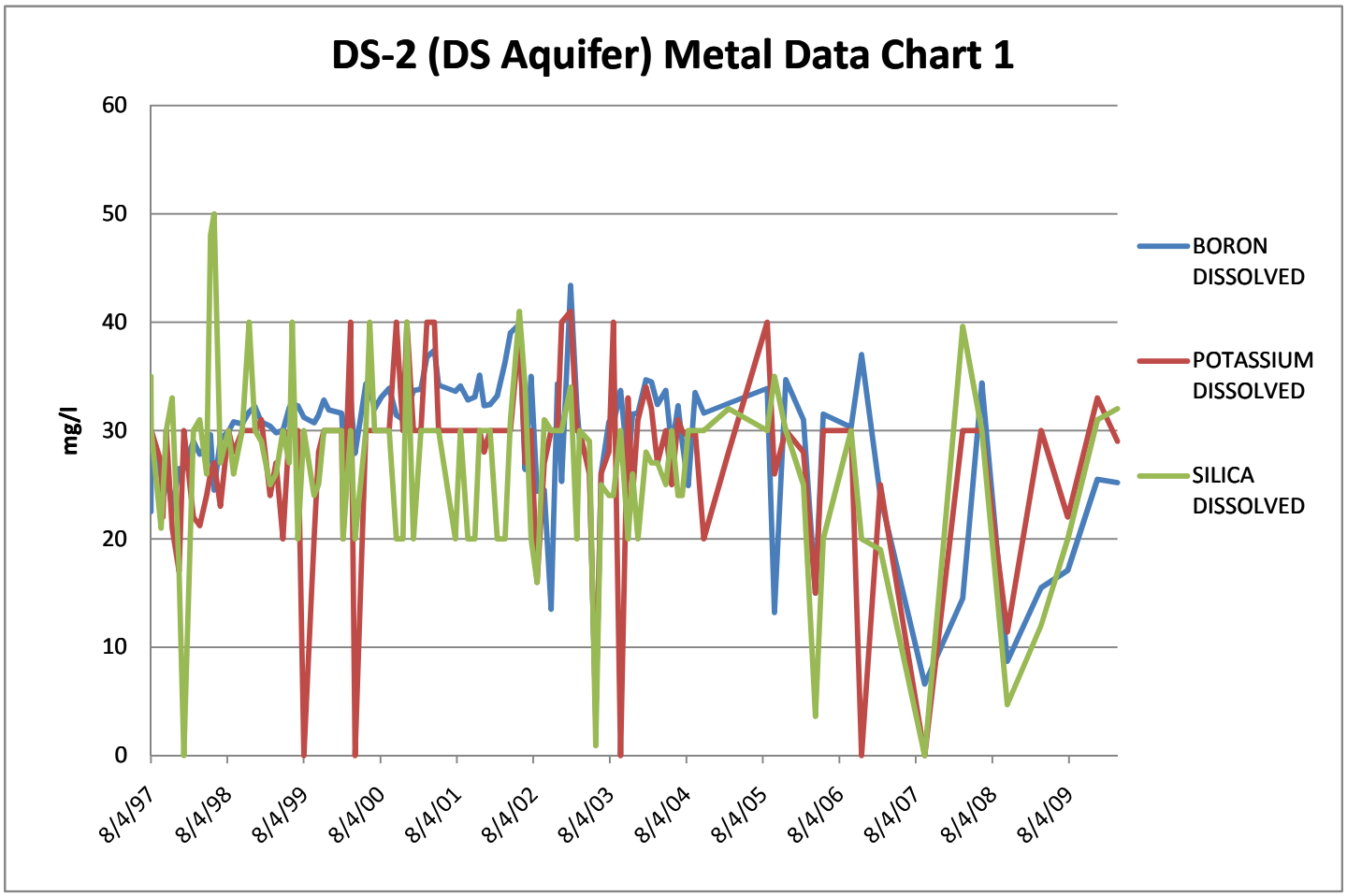

90-2 (DS Aquifer) Metals Chart 2
mg/l
38.0
36.0
34.0
32.0
30.0
28.0
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
BARIUM DISSOLVED
LITHIUM DISSOLVED
MAGNESIUM DISSOLVED

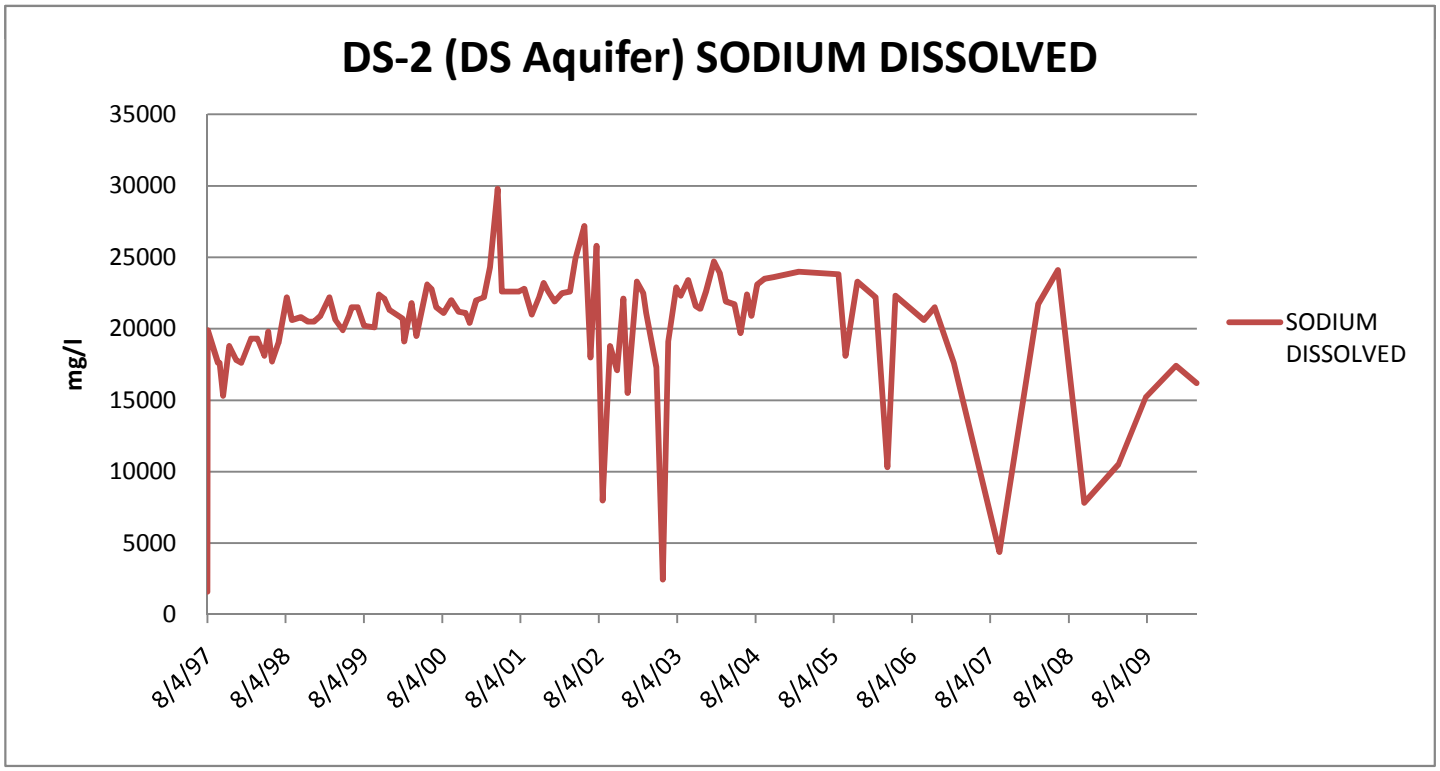

90-2 (DS Aquifer) SODIUM DISSOLVED
mg/L
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
8/1/90
8/1/91
8/1/92
8/1/93
8/1/94
8/1/95
8/1/96
8/1/97
8/1/98
8/1/99
8/1/00
8/1/01
8/1/02
8/1/03
8/1/04
8/1/05
8/1/06
8/1/07
8/1/08
8/1/09
SODIUM DISSOLVED

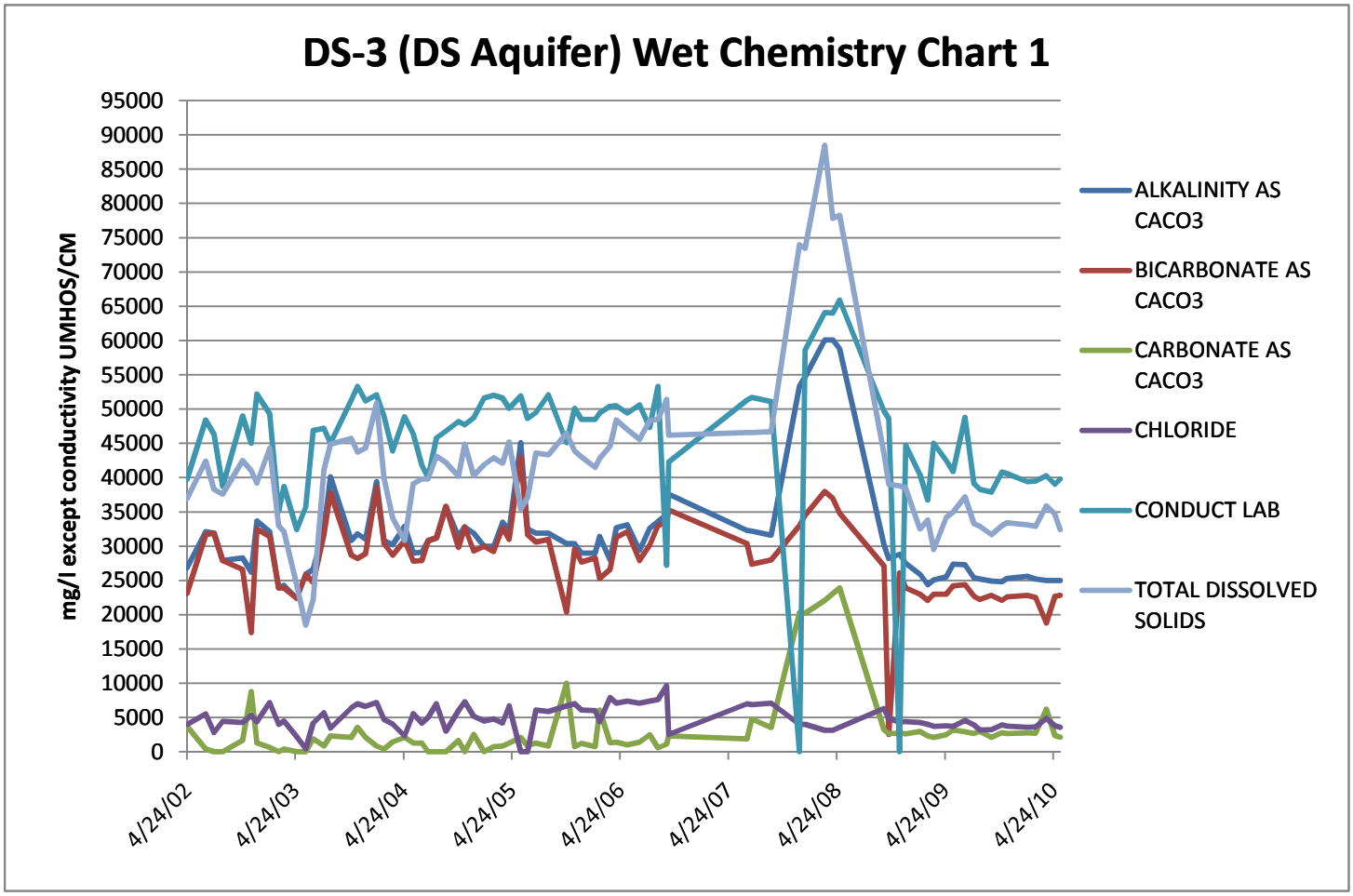

DS-2 (DS Aquifer) Wet Chemistry Data 1
mg/l except Conductivity (µmho/cm)
80000
70000
60000
50000
40000
30000
20000
10000
0
8/4/97
8/4/98
8/4/99
8/4/00
8/4/01
8/4/02
8/4/03
8/4/04
8/4/05
8/4/06
8/4/07
8/4/08
8/4/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
TOTAL DISSOLVED SOLIDS
CARBONATE AS CACO3
CONDUCT LAB

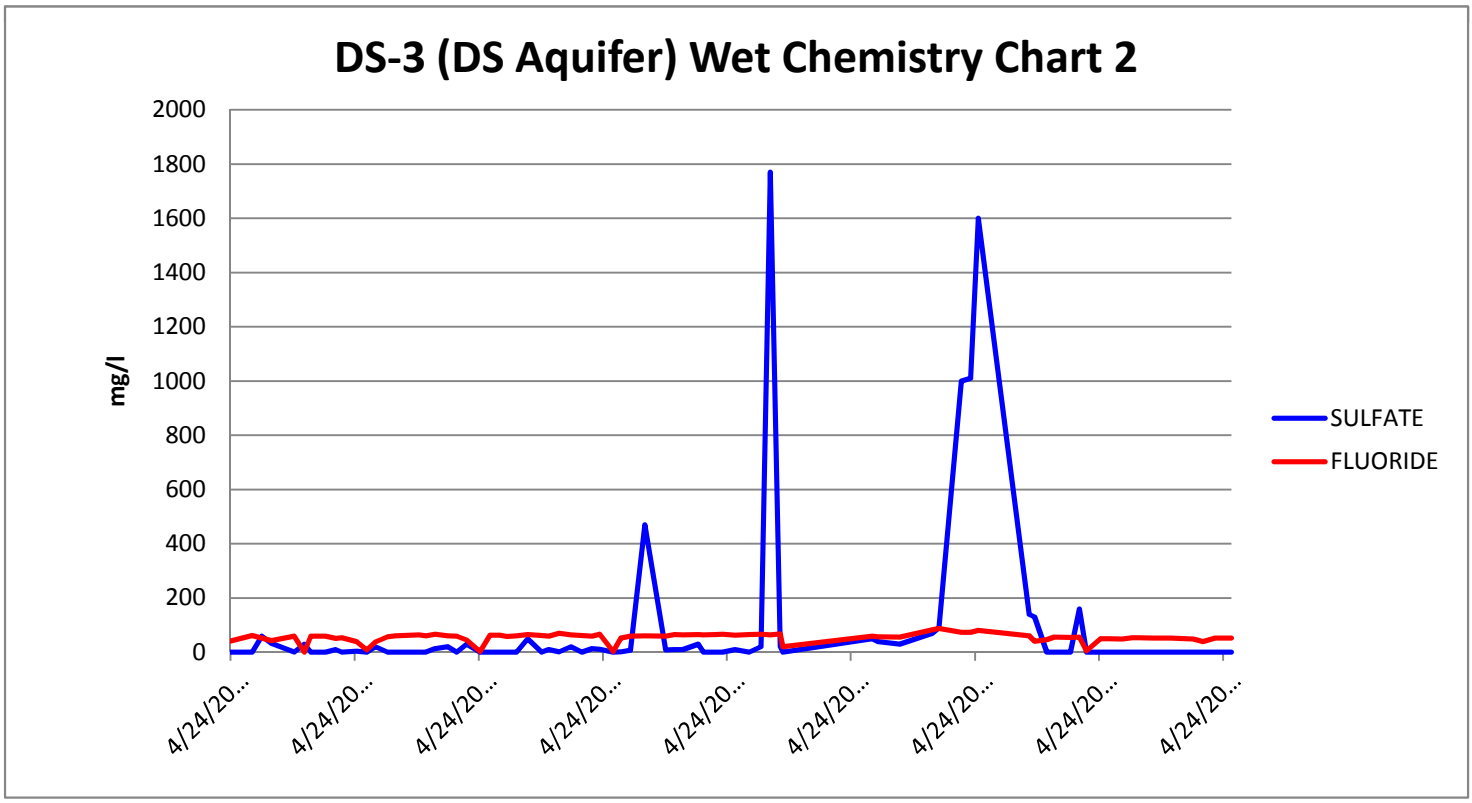

DS-2 (DS Aquifer) Wet Chemistry Data 2
mg/l
1400
1200
1000
800
600
400
200
0
8/4/97
8/4/98
8/4/99
8/4/00
8/4/01
8/4/02
8/4/03
8/4/04
8/4/05
8/4/06
8/4/07
8/4/08
8/4/09
CHLORIDE
FLUORIDE
SULFATE

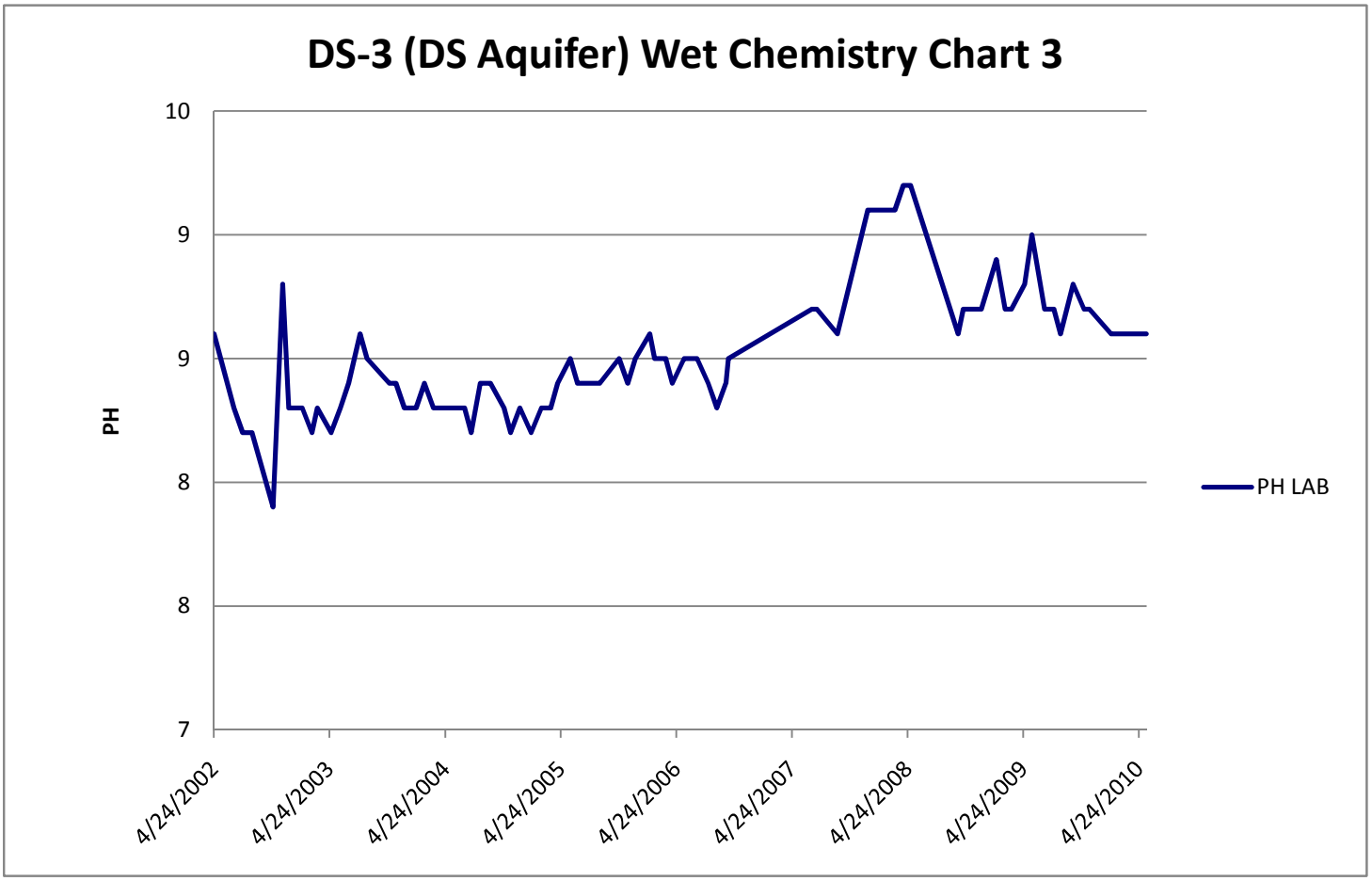

DS-2 (DS Aquifer) Wet Chemistry Data 3
PH
10
9
8
7
6
5
4
3
2
1
0
8/4/97
8/4/98
8/4/99
8/4/00
8/4/01
8/4/02
8/4/03
8/4/04
8/4/05
8/4/06
8/4/07
8/4/08
8/4/09
PH LAB

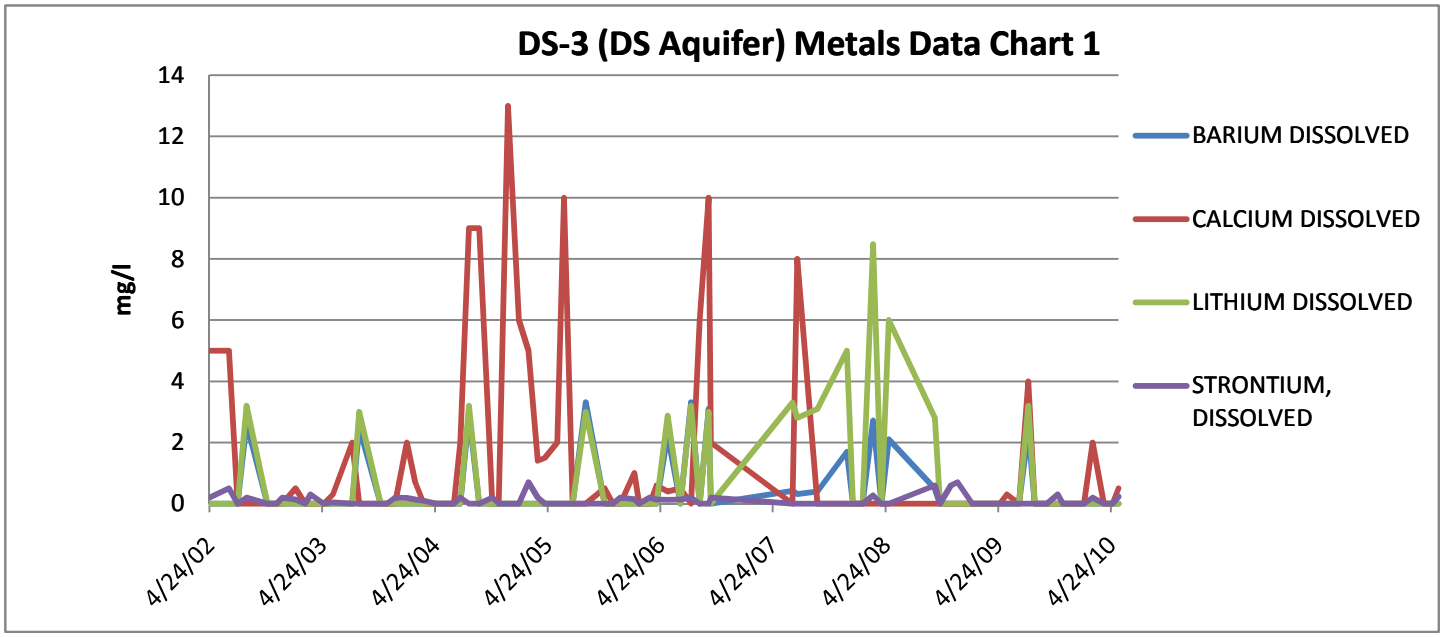

DS-2 (DS Aquifer) Metal Data Chart 1
mg/l
60
50
40
30
20
10
0
8/4/97
8/4/98
8/4/99
8/4/00
8/4/01
8/4/02
8/4/03
8/4/04
8/4/05
8/4/06
8/4/07
8/4/08
8/4/09
BORON DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED

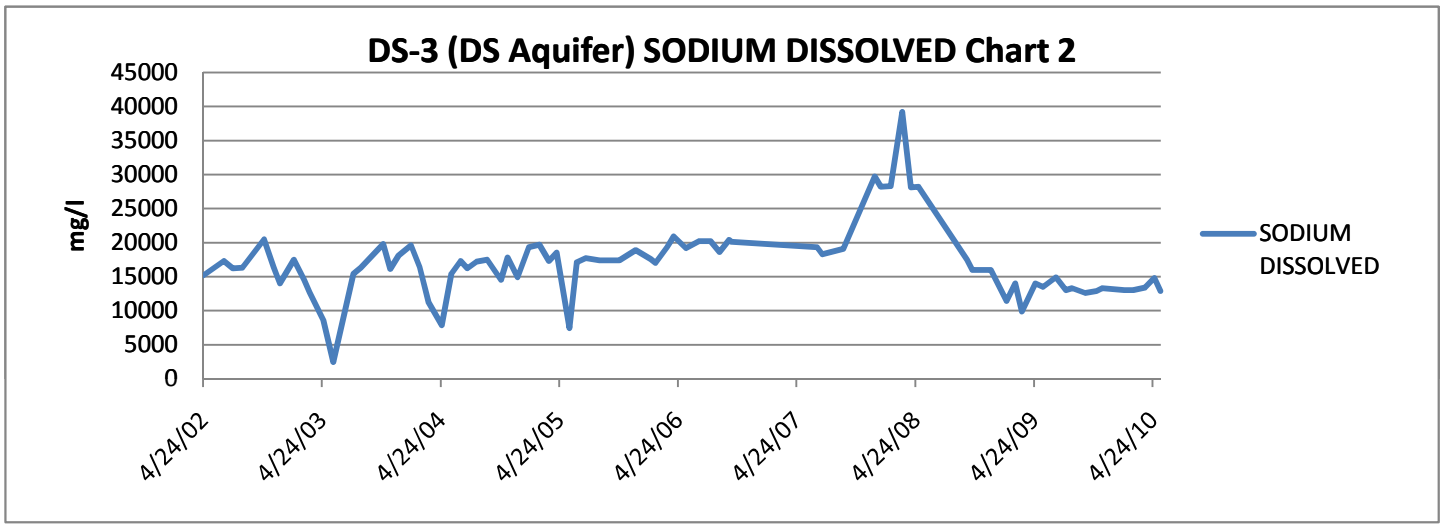

DS-2 (DS Aquifer) SODIUM DISSOLVED
mg/l
35000
30000
25000
20000
15000
10000
5000
0
8/4/97
8/4/98
8/4/99
8/4/00
8/4/01
8/4/02
8/4/03
8/4/04
8/4/05
8/4/06
8/4/07
8/4/08
8/4/09
SODIUM DISSOLVED

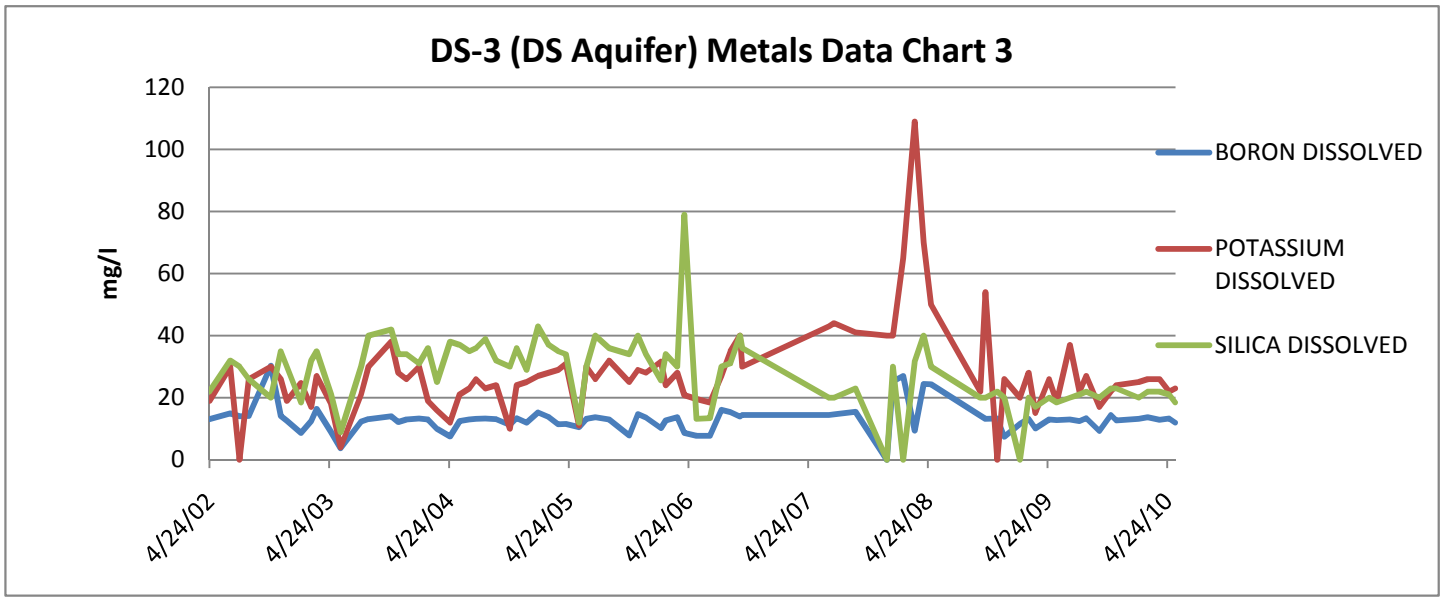

DS-3 (DS Aquifer) Wet Chemistry Chart 1
mg/l except conductivity UMHOS/CM
95000
90000
85000
80000
75000
70000
65000
60000
55000
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
4/24/02
4/24/03
4/24/04
4/24/05
4/24/06
4/24/07
4/24/08
4/24/09
4/24/10
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CHLORIDE
CONDUCT LAB
TOTAL DISSOLVED SOLIDS

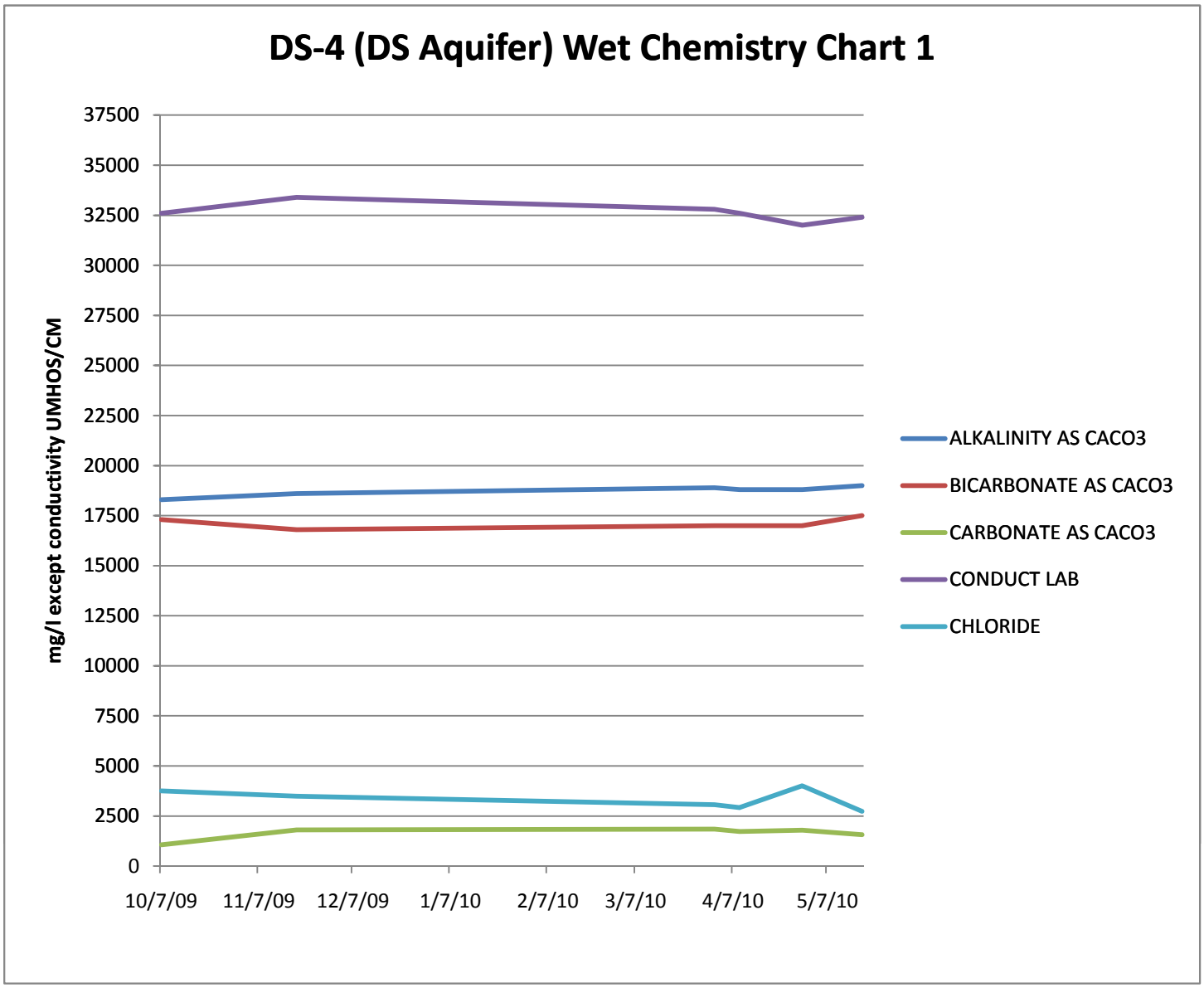

DS-3 (DS Aquifer) Wet Chemistry Chart 2
mg/l
2000
1800
1600
1400
1200
1000
800
600
400
200
0
4/24/20...
4/24/20...
4/24/20...
4/24/20...
4/24/20...
4/24/20...
4/24/20...
4/24/20...
4/24/20...
SULFATE
FLUORIDE

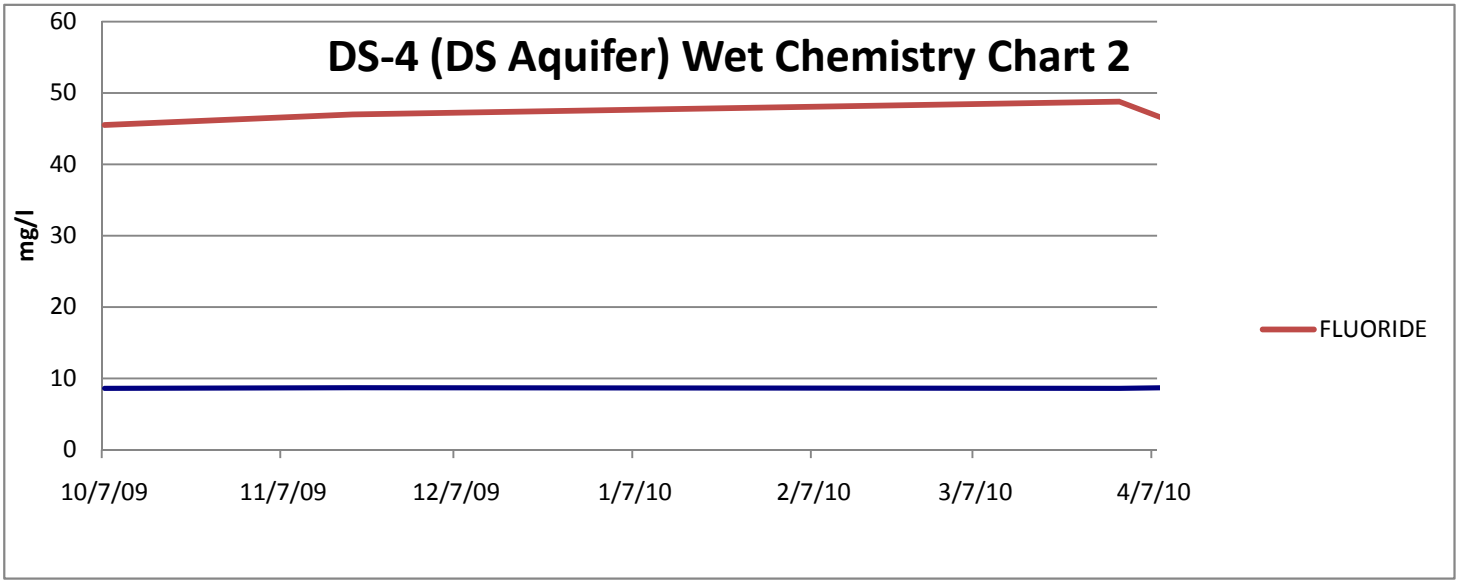

DS-3 (DS Aquifer) Wet Chemistry Chart 3
PH
10
9
9
8
8
7
4/24/2002
4/24/2003
4/24/2004
4/24/2005
4/24/2006
4/24/2007
4/24/2008
4/24/2009
4/24/2010
PH LAB

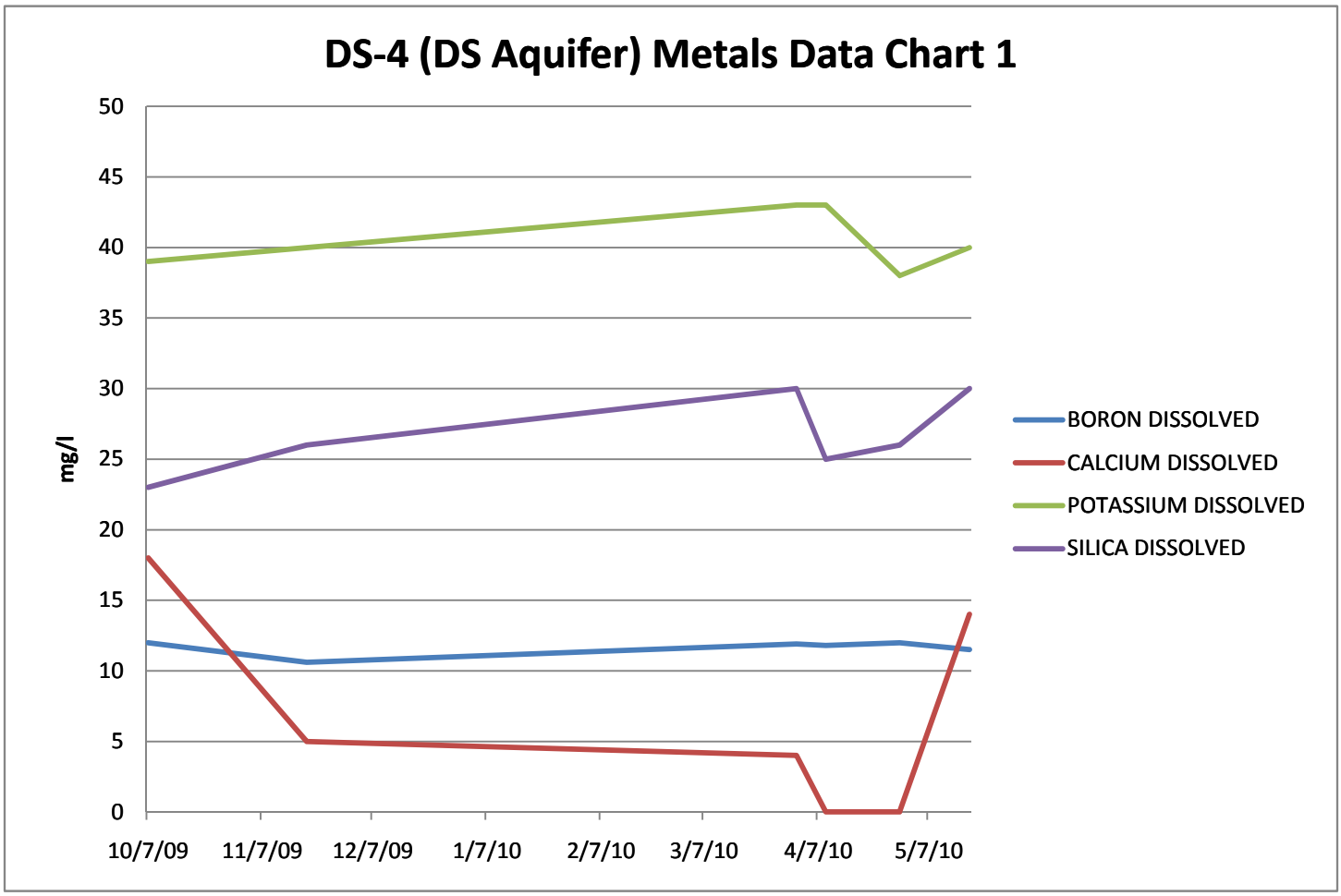

DS-3 (DS Aquifer) Metals Data Chart 1
mg/l
14
12
10
8
6
4
2
0
4/24/02
4/24/03
4/24/04
4/24/05
4/24/06
4/24/07
4/24/08
4/24/09
4/24/10
BARIUM DISSOLVED
CALCIUM DISSOLVED
LITHIUM DISSOLVED
STRONTIUM, DISSOLVED

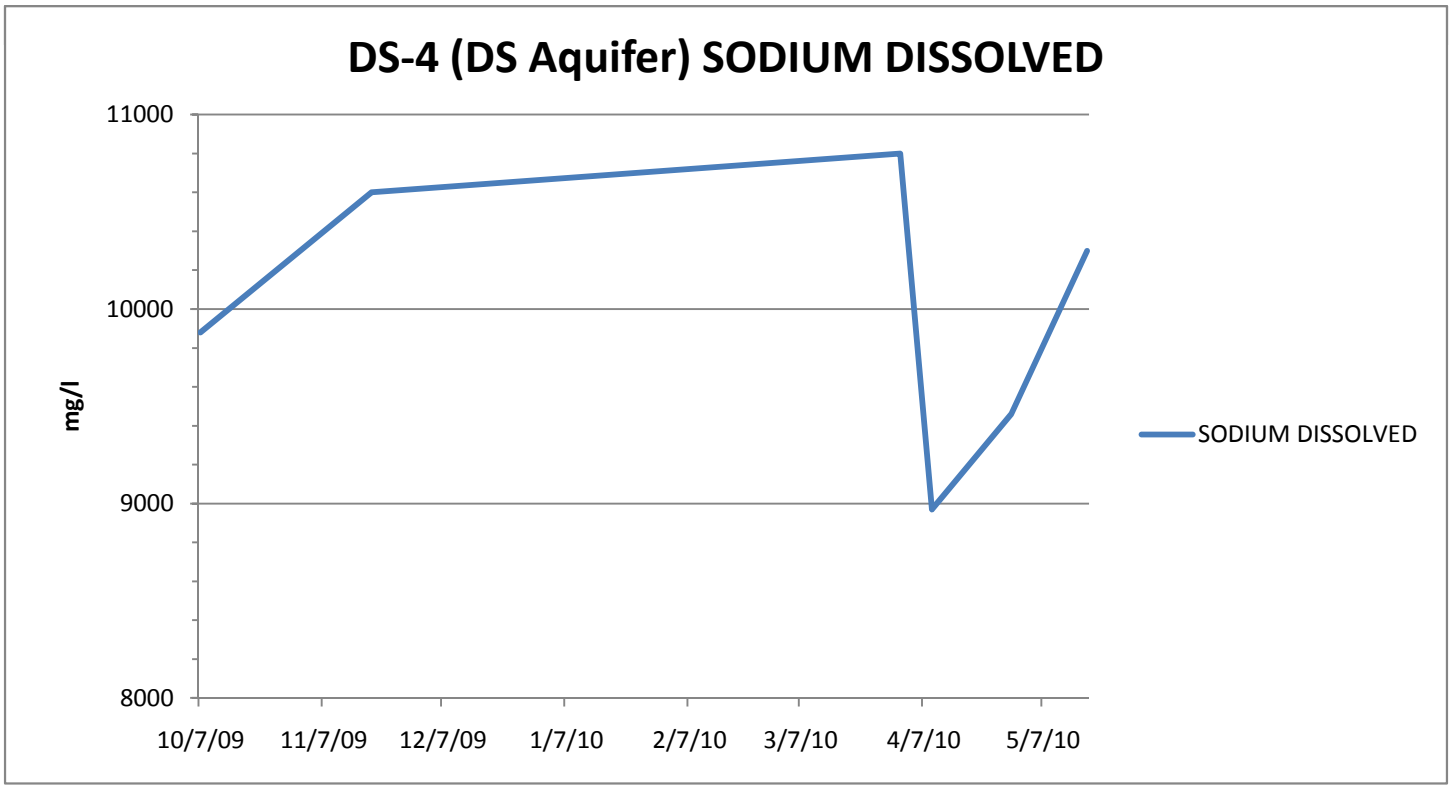

DS-3 (DS Aquifer) SODIUM DISSOLVED Chart 2
mg/l
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
4/24/02
4/24/03
4/24/04
4/24/05
4/24/06
4/24/07
4/24/08
4/24/09
4/24/10
SODIUM DISSOLVED

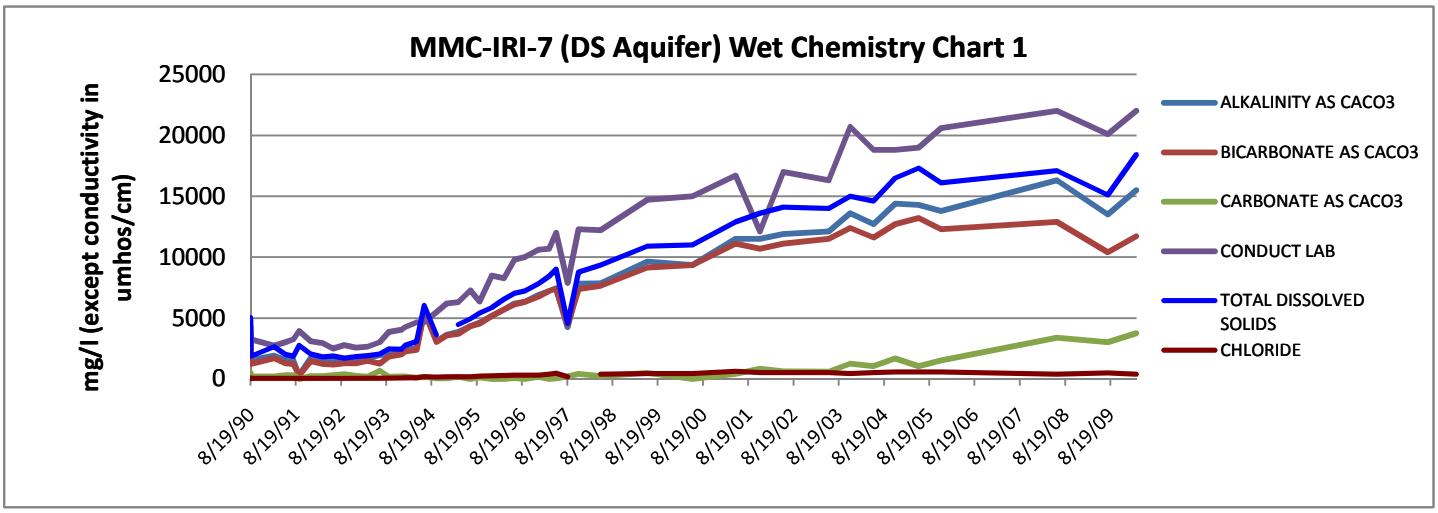

DS-3 (DS Aquifer) Metals Data Chart 3
mg/l
120
100
80
60
40
20
0
4/24/02
4/24/03
4/24/04
4/24/05
4/24/06
4/24/07
4/24/08
4/24/09
4/24/10
BORON DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED

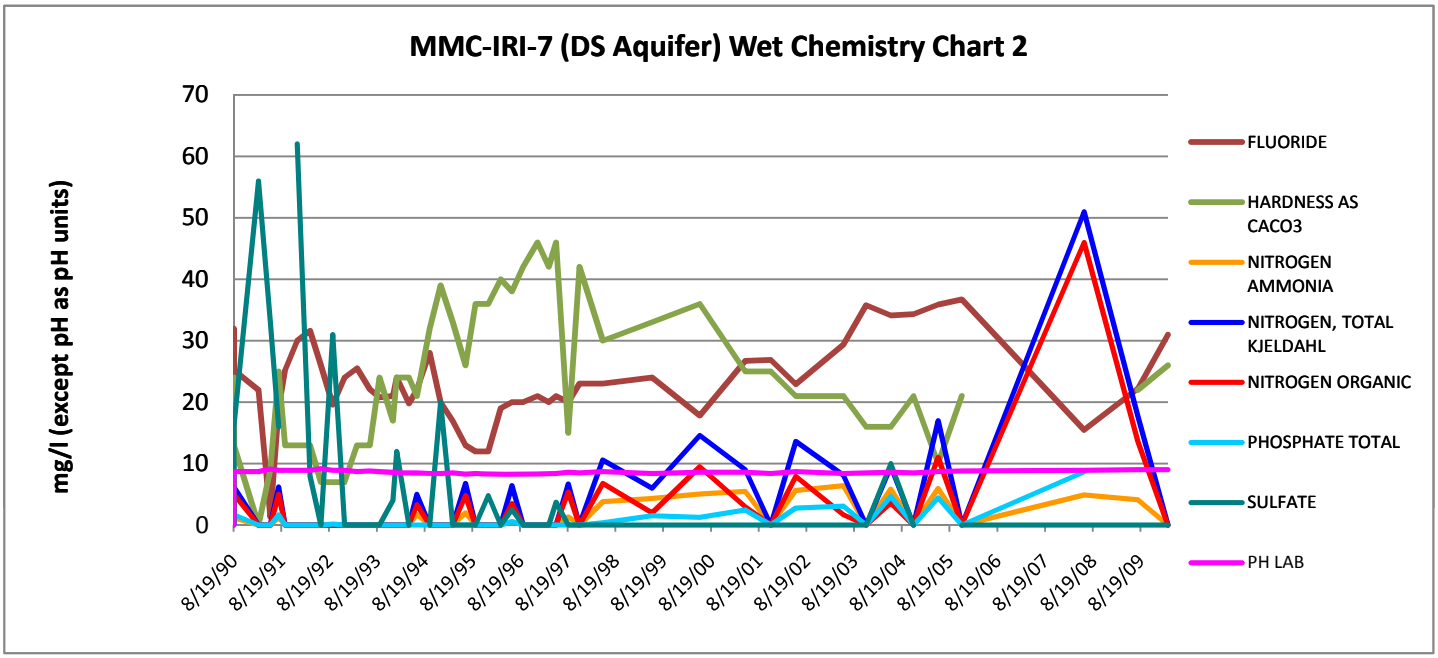

DS-4 (DS Aquifer) Wet Chemistry Chart 1
mg/l except conductivity UMHOS/CM
37500
35000
32500
30000
27500
25000
22500
20000
17500
15000
12500
10000
7500
5000
2500
0
10/7/09
11/7/09
12/7/09
1/7/10
2/7/10
3/7/10
4/7/10
5/7/10
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
CHLORIDE

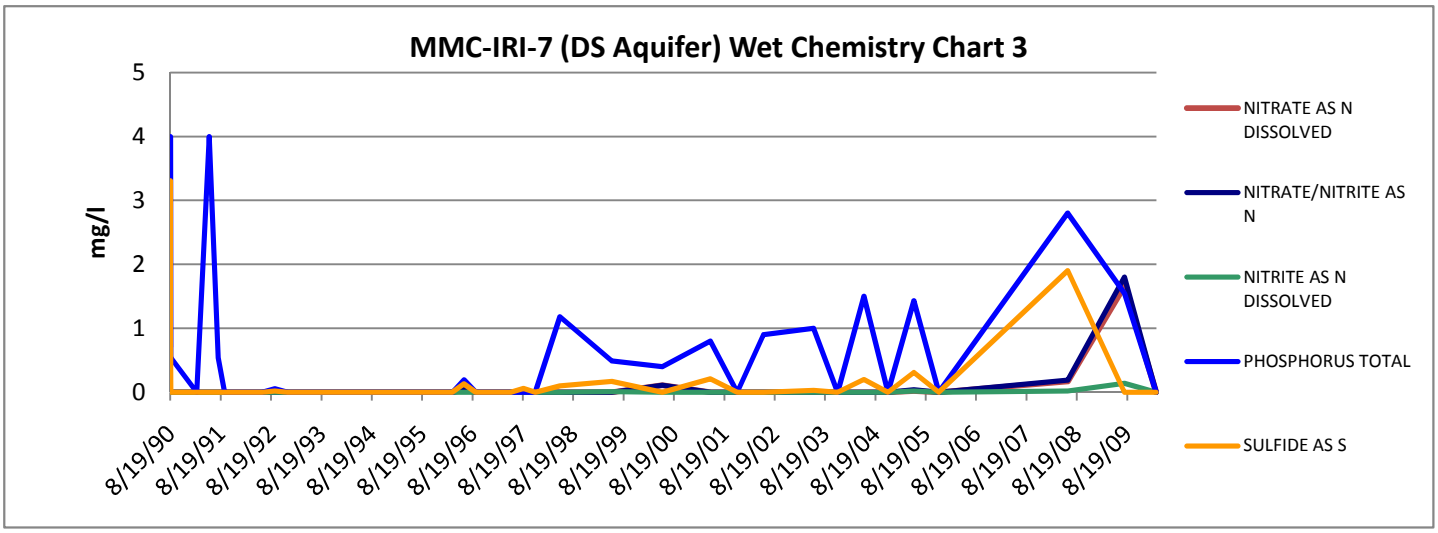

DS-4 (DS Aquifer) Wet Chemistry Chart 2
mg/l
60
50
40
30
20
10
0
10/7/09
11/7/09
12/7/09
1/7/10
2/7/10
3/7/10
4/7/10
FLUORIDE

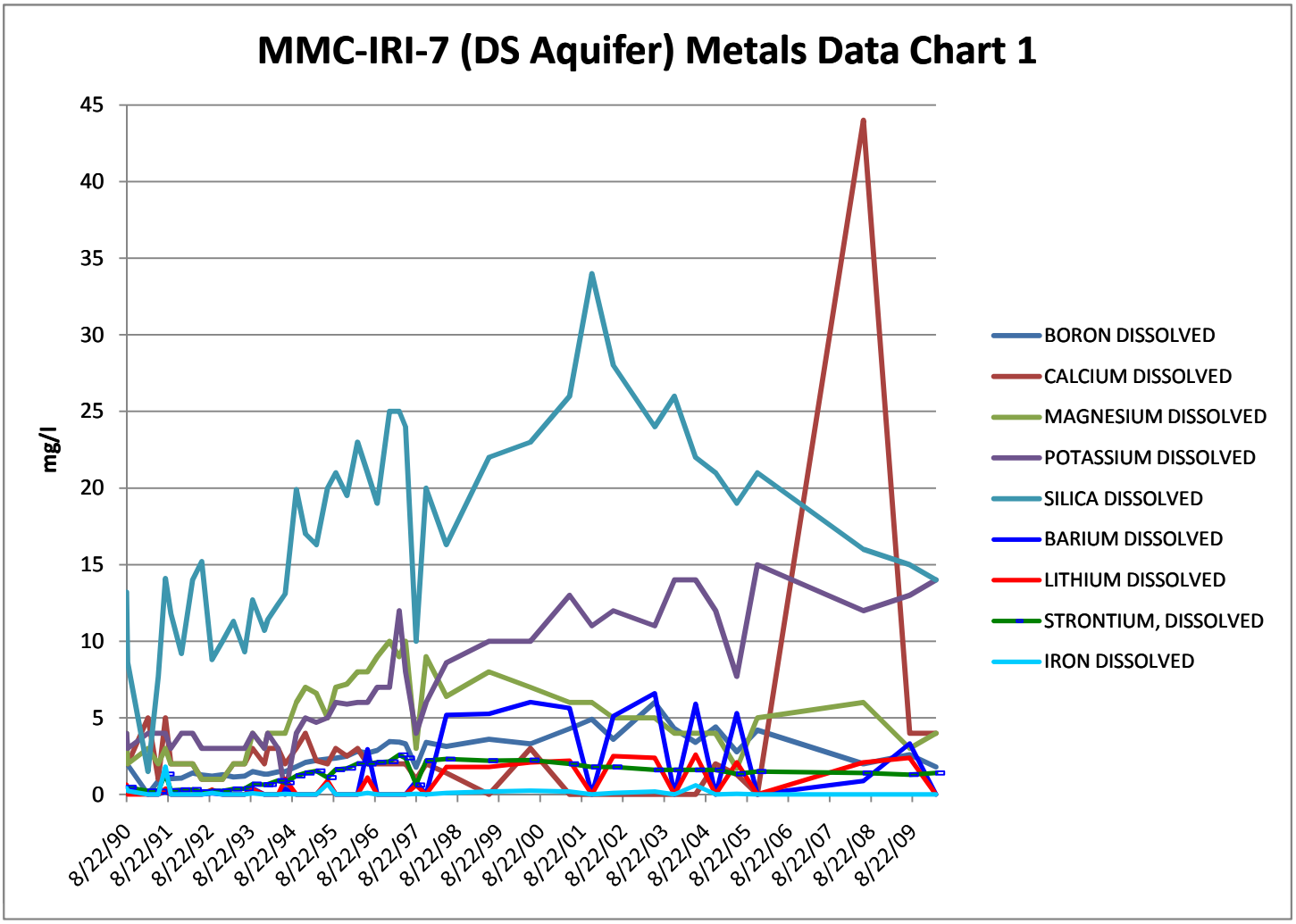

DS-4 (DS Aquifer) Metals Data Chart 1
mg/l
50
45
40
35
30
25
20
15
10
5
0
10/7/09
11/7/09
12/7/09
1/7/10
2/7/10
3/7/10
4/7/10
5/7/10
BORON DISSOLVED
CALCIUM DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED

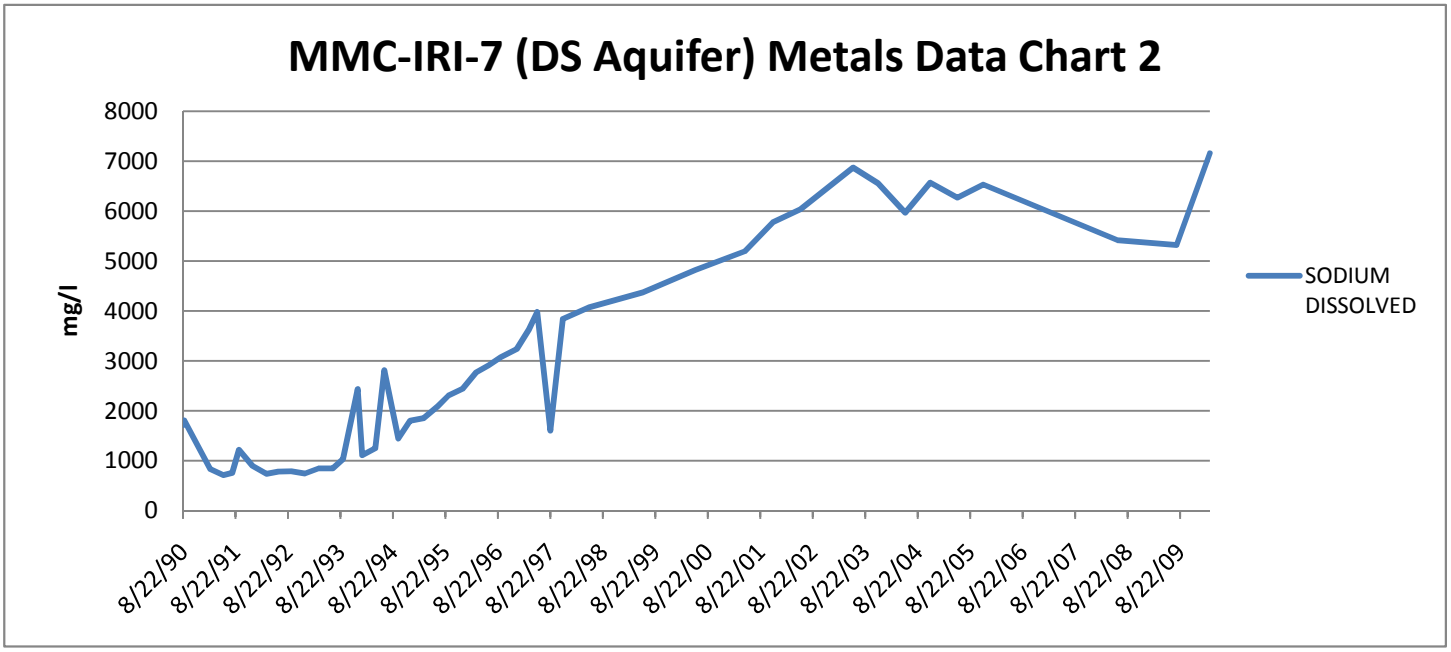

DS-4 (DS Aquifer) SODIUM DISSOLVED
mg/l
11000
10000
9000
8000
10/7/09
11/7/09
12/7/09
1/7/10
2/7/10
3/7/10
4/7/10
5/7/10
SODIUM DISSOLVED


MMC-IRI-7 (DS Aquifer) Wet Chemistry Chart 1
mg/l (except conductivity in umhos/cm)
25000
20000
15000
10000
5000
0
8/19/90
8/19/91
8/19/92
8/19/93
8/19/94
8/19/95
8/19/96
8/19/97
8/19/98
8/19/99
8/19/00
8/19/01
8/19/02
8/19/03
8/19/04
8/19/05
8/19/06
8/19/07
8/19/08
8/19/09
ALKALINITY AS CACO3
BICARBONATE AS CACO3
CARBONATE AS CACO3
CONDUCT LAB
TOTAL DISSOLVED SOLIDS
CHLORIDE


MMC-IRI-7 (DS Aquifer) Wet Chemistry Chart 2
mg/l (except pH as pH units)
70
60
50
40
30
20
10
0
8/19/90
8/19/91
8/19/92
8/19/93
8/19/94
8/19/95
8/19/96
8/19/97
8/19/98
8/19/99
8/19/00
8/19/01
8/19/02
8/19/03
8/19/04
8/19/05
8/19/06
8/19/07
8/19/08
8/19/09
FLUORIDE
HARDNESS AS CACO3
NITROGEN AMMONIA
NITROGEN, TOTAL KJELDAHL
NITROGEN ORGANIC
PHOSPHATE TOTAL
SULFATE
PH LAB


MMC-IRI-7 (DS Aquifer) Wet Chemistry Chart 3
mg/l
5
4
3
2
1
0
8/19/90
8/19/91
8/19/92
8/19/93
8/19/94
8/19/95
8/19/96
8/19/97
8/19/98
8/19/99
8/19/00
8/19/01
8/19/02
8/19/03
8/19/04
8/19/05
8/19/06
8/19/07
8/19/08
8/19/09
NITRATE AS N DISSOLVED
NITRATE/NITRITE AS N
NITRITE AS N DISSOLVED
PHOSPHORUS TOTAL
SULFIDE AS S


MMC-IRI-7 (DS Aquifer) Metals Data Chart 1
mg/l
45
40
35
30
25
20
15
10
5
0
8/22/90
8/22/91
8/22/92
8/22/93
8/22/94
8/22/95
8/22/96
8/22/97
8/22/98
8/22/99
8/22/00
8/22/01
8/22/02
8/22/03
8/22/04
8/22/05
8/22/06
8/22/07
8/22/08
8/22/09
BORON DISSOLVED
CALCIUM DISSOLVED
MAGNESIUM DISSOLVED
POTASSIUM DISSOLVED
SILICA DISSOLVED
BARIUM DISSOLVED
LITHIUM DISSOLVED
STRONTIUM, DISSOLVED
IRON DISSOLVED


MMC-IRI-7 (DS Aquifer) Metals Data Chart 2
mg/l
8000
7000
6000
5000
4000
3000
2000
1000
0
8/22/90
8/22/91
8/22/92
8/22/93
8/22/94
8/22/95
8/22/96
8/22/97
8/22/98
8/22/99
8/22/00
8/22/01
8/22/02
8/22/03
8/22/04
8/22/05
8/22/06
8/22/07
8/22/08
8/22/09
SODIUM DISSOLVED

Appendix B

Material Safety Data Sheets

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **URANINE A-833**

Revision Date: 04-Jan-2010

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: URANINE A-833
Synonyms: None
Chemical Family: Not applicable
Application: Dye

Manufacturer/Supplier
Halliburton Energy Services
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: (281) 575-5000

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Sodium fluorescein	518-47-8	60 - 100%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May be harmful if swallowed.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media	All standard firefighting media.
Special Exposure Hazards	Decomposition in fire may produce toxic gases.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.
NFPA Ratings:	Health 1, Flammability 0, Reactivity 0
HMIS Ratings:	Health 1, Flammability 0, Reactivity 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures	None known.
Procedure for Cleaning / Absorption	Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.
Storage Information	Store in a cool, dry location. Store away from acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area.
Respiratory Protection	Dust/mist respirator. (95%)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Red-orange
Odor:	Odorless
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	Not Determined
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	Not Determined

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point/Range (F):	554
Boiling Point/Range (C):	290
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	376.28

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong acids.
Hazardous Decomposition Products	Hydrogen fluoride.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	May cause damage to bones and teeth.
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	Prolonged or repeated exposure may result in fluorosis. Symptoms include nausea, vomiting, loss of appetite, diarrhea, and/or constipation. Fluorosis also results in bone density increase.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: 3200 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined

Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Slowly biodegradable
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D2B Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information	For additional information on the use of this product, contact your local Halliburton representative. For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.
Disclaimer Statement	This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

Plate 1: NSI Lease Area Proposed Monitoring Schedule

Plate 2: NSI Lease Area Historic Monitoring Schedule