


TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL 
DATE: JUNE 16, 2009

**AGENDA ITEM
E-5
JUNE 24, 2009**

WELL LEVEL MONITORING AND REPORTING

ITEM

DISCUSS EXISTING WELL LEVEL MONITORING AND REPORTING PROGRAM [PROVIDE POLICY GUIDANCE].

BACKGROUND

The District measures groundwater surface elevations in District wells on a monthly basis using either the sounding tape method or the pressure reading method. In addition, the groundwater surface elevation in several of the District's wells can be monitored remotely. The Board directed staff to review the District's existing program and develop a protocol to ensure that the groundwater surface elevation data being collected by the District is accurate and relevant.

The District hired Michael LeBrun, M.S. LeBrun Environmental Engineering, to review the District's current procedure for well data collection and reporting, develop a measurement protocol and provide a recommendation for monitoring improvements. The attached Technical Memorandum outlines Mr. LeBrun's findings and recommendations.

As discussed in the Technical Memorandum, not all of the well measurement methods are available at all of the District's wells and accuracy of the existing methods is limited. Several of the wells cannot be measured using a tape since there is no sounding tube installed and the well casing is crowded with well pump related equipment. Several of the wells do not have dedicated air lines utilized for the direct pressure reading method and the gauges used for this method limit accuracy to plus or minus 23 feet. The surface mounted pressure transducers utilized for the remote monitoring method need to be calibrated but since not all measurement methods are available at each well and the accuracy/repeatability of the current methods is low, it is difficult to compare measurements between the various methods to validate the groundwater surface elevation data.

The Technical Memorandum recommends that the District focus its efforts to collect groundwater surface elevation and drawdown data for the production wells to be able to determine and use specific capacity for each well to track well health and supply system readiness. The report also provides a summary of improvements recommended for each well. The types of improvements recommended vary by well and include installing an access tube for a dedicated airline and to allow use of a sounding tape, installing a dedicated air line, installing an accurate pressure gauge, and installing a down-hole pressure transducer. Furthermore, the report recommends that the remote well level monitoring system be calibrated at each well. This can be performed once the new air gauges are installed at all of the wells and once the dedicated air lines are installed where necessary.

FISCAL IMPACT

The cost to prepare the staff report involves the use of budgeted staff time and approximately \$3500 in budgeted consultant costs to M.S. LeBrun Environmental Engineering. The cost to implement the well level measuring improvements is estimated at approximately \$23,000 and the cost to calibrate the remote monitoring system is estimated at approximately \$8000 for the

eight existing production wells equipped with the remote monitoring system. Funding for these costs is not currently budgeted.

RECOMMENDATION

Staff recommends that your Honorable Board discuss the staff report, Technical Memorandum and provide policy guidance.

ATTACHMENTS

- Technical Memorandum Measuring Groundwater Surface Elevations in District Wells dated June 11, 2009

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Technical Memorandum

To: Bruce Buel
General Manager
Nipomo Community Service District

From: Michael LeBrun, PE 55787 *Michael LeBrun*

Copy: Peter Sevcik, District Engineer
Tina Grietens, Utility Superintendent

Date: June 11, 2009

Subject: Measuring Groundwater Surface Elevations in District Wells

This Memorandum responds to Request for Services Task Order #09-001, *Supply Well Level Monitoring Protocol*, dated March 6, 2009.

Background

Nipomo Community Services District (District) has thirteen wells. Eleven of the District's wells are completed in the Nipomo Mesa Management Area (NMMA) aquifer, a sub area to the Santa Maria Groundwater Basin; two are completed in the Nipomo Valley Aquifer. Currently, nine of the wells are available for supplying the District's fresh water distribution system. See Table 1, below, for a summary of well status.

Table 1: District Wells

Well	Use Priority	Approximate Flow Rate (GPM)	Aquifer
Eureka	Primary	1000	NMMA
Via Concha	Primary	750	NMMA
Sundale	Primary	1000	NMMA
Knollwood	Primary	240	NMMA
Black Lake #3	Primary	165	NMMA
Black Lake #4	Primary	375	NMMA
Bevington	Secondary	370	NMMA
Olympic	Secondary	130	NMMA
Cheyenne	Not Available	100	NMMA
Mandi	Not Available	100	NMMA
Omiya	O.O.S.	Not Applicable	NMMA
Church	Tertiary	120	NVA
Savage	O.O.S.	Not Applicable	NVA

Notes:

GPM = Gallons per minute

O.O.S. = Out of Service

NMMA = Nipomo Mesa Management Area (of the Santa Maria Groundwater Basin)

NVA = Nipomo Valley Aquifer

Groundwater from the NMMA provides nearly 100% of District water supply needs (a small fraction of supply is provided by the Nipomo Valley Aquifer). Therefore, the health of the Nipomo Mesa Management Area aquifer and the operational readiness of the District's production wells are issues of paramount importance to the District.

Groundwater surface elevation (GSE) is measured in District wells regularly and reported to the Board of Directors monthly to inform District understanding of NMMA aquifer health.

The District desires this GSE information to be as accurate and informative as possible in regard to overall basin and individual well, health and readiness. Therefore, this review of the District's current GSE data collection and reporting methods has been undertaken.

Status

GSE measurements, which are reported to the Board, are made by one of two methods:

1. Direct tape measurement: An audible sounding tape is lowered down the well and a measurement is made relative to fixed reference point at the top of the well casing.
2. Pressure reading method: An air pressure reading at the well is converted to a depth measurement. A pressure reading is obtained by bleeding air through an air line of a *known* length that is secured within the well casing. The backpressure developed in the hose is read off a gauge and is directly proportional to the depth of water above the hose end. Knowing the length of the air line, the GSE is calculated to a fixed reference at top of casing.

In both cases, the staff technician notes the well pumps operational status (on/off) along with the GSE measurement. To provide a comparison between wells and a 'picture' of basin health, the GSE is referenced to mean sea level, and reported.

The District also has remote GSE monitoring at a number of wells, as further discussed below. This remote system utilizes a pressure reading method. Readings from this system are not typically included in the monthly GSE report to the Board.

Table 2. (below) summarizes the status of each well's available method(s) of GSE measurement. In Table 2., reference to "non-dedicated air line" indicates the well has a single access tube/line which is normally used for chlorine injection. Once a month, the chlorine injector is disconnected from the line and a pressure measurement is obtained by connecting the compressor outlet. The pressure gauge is read directly and recorded. Chlorine injection is reconnected and the air compressor is secured. *In the absence of a dedicated air line, only manual pressure readings can be made – remote/continuous GSE monitoring is not available.*

Table 2. District Well Measurement

Well	Measurement Method
Eureka	Non-dedicated air line. Direct pressure measurements only. Will not accept sounding tape.
Via Concha	Non-dedicated air line. Direct pressure measurements only. Will not accept sounding tape.
Sundale	Direct and remote pressure readings. Sounding tape access is limited by pump/motor configuration.
Knollwood	Out of service during this reporting period. Direct and remote pressure measurements and tape measurements will be available.
Black Lake #3	All methods (direct and remote pressure, tape access). Dedicated air line.
Black Lake #4	All methods (direct and remote pressure, tape access). Dedicated air line.
Bevington	Non-dedicated air line. Direct pressure measurements only. Will not accept sounding tape.
Olympic	All methods (direct and remote pressure, tape). Dedicated air line.
Cheyenne	Sounding tape readings only. Well is equipped with a pressure line and gauge. No compressor or remote monitoring capability since the well has not yet been placed in service and power to the well is normally off.
Mandi	Sounding tape readings only. Well is equipped with a pressure line and gauge. No compressor or remote monitoring capability since the well has not yet been placed in service and power to the well is normally off.
Omiya	Well is out of service. GSE is not measured.
Church	Direct pressure gauge measurements only. Will not accept sounding tape. No telemetry for remote monitoring. Well is used sparingly.
Savage	Direct tape measurement only. No air line or telemetry system. Well is not connected to supply system.

Measurement Method Limitations and Accuracy

Measuring tapes and air lines can be difficult or impossible to deploy in production wells, which are often crowded by the pump discharge line, the drive shaft or electrical power lines, and the chlorine injection line. It is not uncommon for sounding tapes to become lodged, and in some cases 'lost', down a well. It is nearly impossible to run an air line down a well from surface. A dedicated sounding tube (typically ½ to 1-inch PVC pipe) running from surface to near the well pump eliminates the access problem in both cases. Generally, sounding tubes must be installed during pump installation/removal events. Most District wells that are measured by tape have 3/4"-PVC sounding tubes.

Production wells with surface motors driving pumps through deep shafts (i.e. District wells; Eureka, Via Concha, Bevington, and Sundale wells), use food-grade oil for lubrication. This lubrication oil can build up on the water surface within the well casing and interfere with tape and pressure readings.

Sounding tapes can only be read manually, thus staffing resources limit the frequency of monitoring by this method. It takes approximately 5-staff hours to read and record GSE in all thirteen District wells. Tapes are easily read, accurate to a fraction of an inch, and repeatable with good precision.

Accuracy of the current pressure gauges limit direct pressure readings to plus or minus 10-psi (23.1-feet). This gauge limitation means manual pressure readings are difficult to repeat and have low precision and accuracy.

Both pressure methods require a pressure source; The District uses small 110vac compressors, fixed at the well head. Setting the compressor and airflow rate properly for a steady pressure reading and/or continuous remote monitoring is challenging and presents an additional opportunity to introduce error. Pressure transducers, used for remote measurements, require regular calibration. If properly sized and calibrated, these devices can be quite accurate. The calibration of the District's pressure transducers is being performed by a consultant and was not understood by District staff. Current calibration methods of the remote GSE monitoring system was not further investigated during the preparation of this memorandum.

Contraction/expansion or meander of the air line over the 300-500 foot run can introduce error on the order of inches or feet. An error of this type should remain fixed over time and therefore only effects inter-well comparisons.

For inter-well comparison, the accuracy of both methods is directly dependent on the accuracy of the wellhead's reference to mean sea level. Reference elevations are obtained by survey, GPS reading, or published topographic maps/data. Depending on method used, reference elevation accuracy can be as low as +/- 20 feet. District well elevations were obtained by GPS/Survey methods and are reported to the 1/100th of an inch.

Table 3. (below) presents a comparison of GSE measurements taken in District wells *Black Lake #3* and *Black Lake #4*. Elevations were recorded manually by sounding tape, by direct reading of the pressure gauge at the well head, and by reviewing data collected by the District's remote monitoring system. All readings were made within minutes of each other and the pump in each well was in a steady state *operating* condition. These data illustrate the potential for variance between the measurement methods. A worksheet supporting these data is included as Appendix 1 to this Memorandum.

Table 3. GSE Measurement Comparisons, Black Lake #3, and Black Lake #4

Well (Surveyed elevation)	Tape	Direct Pressure	Remote Pressure
Black Lake #3 (319.1)	-68	-16	-22
Black Lake #4 (301.4)	-58	-72	-20

*Notes:**Measurements taken May 7, 2009**All measurements in feet, referenced to mean sea level.*Measurement Method Options

An additional means of obtaining a pressure driven GSE measurement is by use of a direct reading down-hole pressure transducer. The device is lowered directly into the well, via an access tube, and produces an electrical signal calibrated to feet of water.

Early in this review process it was assumed the District's current method of obtaining remote GSE readings (back pressure reading on down hole air lines) was ineffective and should be replaced with down-hole direct reading pressure transducers. Upon review of the District's system and direct reading down-hole transducers, a wholesale change of equipment is not recommended at this time, for the following reasons:

- There is nothing inherently wrong with the District's current system or anything necessarily superior about the down-hole transducer system. Both require regular maintenance and upkeep.
- Equipment costs per well for down-hole direct reading pressure transducers is about \$3,000.00. These devices require a minimum 1"-PVC access tube to ensure ready deployment and recovery.

The District may consider outfitting a well or two with a down-hole transducer and making a field comparison of the two approaches (see Recommendation, Page 9)

Well Drawdown and Specific Capacity

A general limitation of measuring GSE in production wells is drawdown. Drawdown is defined as the difference between a well's static or non-operating GSE and its GSE during production. Drawdown is caused by an aquifer's resistance to flow, and a well's resistance to flow, and is directly proportional to pumping rate. Drawdown can range from tens of feet or to 100-feet or more. Recovery of the water table can take minutes to weeks. Clearly, drawdown can introduce significant error when static and operational GSE data are directly compared. Therefore, production well GSE data must be carefully collected and considered.

While drawdown complicates the use of production well GSE data in a basin wide context, tracking drawdown in a production well does provide important information about individual well health. A well's Specific Capacity is defined as the amount of drawdown for a given flow rate. Since aquifer characteristics of conductivity and transmissivity can be considered constant over time, changes in well Specific Capacity or changes in the time it takes to achieve steady

state static and pumping GSEs, indicates a change in the well health. For this reason, measuring well Specific Capacity (drawdown/flow rate) on a regular basis and tracking changes over time is highly recommended for public supply wells.

Measuring drawdown is accomplished by measuring depth to water at steady state with the pump off (or on) turning the pump on (or off) measuring depth at regular time intervals until depth again stabilizes. Specific capacity of the well is computed by dividing the flow rate by the steady state drawdown.

When a well is equipped with continuous GSE monitoring, as is the case with five District wells (Black Lake 3, Black Lake 4, Olympic, Sundale, Knollwood – See Table 2. above), the well's operational history can be reviewed for periods of well idle and run time where depth readings stabilize. A cursory review of District remote monitoring records for May 2009 provides interesting data, worthy of further investigation (Table 4, below). This information must be considered preliminary since the District's remote pressure/GSE monitoring system is not well understood.

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Table 4. Preliminary Drawdown and Recovery Data

Well	Date: Summary of Raw Data	Notes
Black Lake #3	<p>5/2-3/9: Steady state (SS) pumping GSE 345 feet from top of casing. Pump idled for 2-hours. No change in GSE.</p> <p>5/4/9: SS pumping GSE 344-feet. Pump idled for 2-hours. GSE climbs to SS 330-feet in .75 hours. Following pump start up, GSE returns to SS 344-feet in 2-hours.</p> <p>5/6/9: SS pumping GSE 345-feet. Pump idled for 2 hours. GSE climbs to 320-feet (may not be steady) in 2 hours. Following pump start up, GSE returns to 345-feet in 2-hours.</p> <p>5/9/9: SS pumping GSE 345-feet. Pump idled for 2 hours. GSE climbs to SS 314-feet in <u>5-minutes</u>. Following pump start up, GSE returns to 345-feet in 30 minutes.</p>	<p>Readings are erratic and of limited use.</p> <p>Appears to be 15-25 feet of drawdown. Recovery/establishment of drawdown appears quite rapid.</p>
Black Lake #4	<p>5/1/9: SS idle GSE 262-feet below top of casing. 4.5 hours after pump start up, GSE SS at 321-feet.</p> <p>5/2/9: SS pumping GSE 320-feet. Pump is idled for three hours. GSE readings somewhat variable during idle period (265-290 feet). Three hours following pump restart, GSE is SS at 319-feet.</p> <p>5/4/9: SS pumping GSE 319-feet. Pump is idled for three hours. GSE climbs to SS 262-feet in 1.25 hours. Following pump start up, GSE returns to SS 319-feet in two hours.</p> <p>5/9/9: SS pumping GSE 321-feet. Pump is idled for 2.75 hours. GSE climbs to SS 265-feet in 2-hours. Following pump start up, GSE returns to SS 321-feet in 2-hours.</p>	<p>These appear to be the most dependable data based on the repeatability.</p> <p>Drawdown in this well appears to be on the order of 60-feet. Recovery and reestablishment of drawdown takes on the order of two-hours.</p>
Olympic	<p>4/1/9: SS idle GSE 287-feet. GSE drops to 330-feet in 5 minutes. GSE is not considered steady state. Measurements by tape.</p> <p>5/9-10/9: SS pumping GSE 335-feet. GSE climbs to 299-feet in 1 minute. GSE 273-feet and still climbing 1-foot/hour at pump start up. Following pump start up, GSE drops to 333-feet in 4.5 hours.</p>	<p>Remote readings for this well became available on May 9, 2009. Data is limited.</p> <p>Drawdown appears to be on the order of 35-45 feet. Recovery and establishment of drawdown appears to occur quite quickly.</p>

Notes:

- All GSEs are considered to be 'top of casing' (no reference to mean sea level) and are not comparable between wells.
- Raw data (Appendix 2) and graphs of flow rate and well GSE (Appendix 3a. and 3b.) for Black Lake #4, May 2009, are attached.

The preliminary data presented in Table 4. indicate relatively rapid drawdown and recovery in the Nipomo Mesa Management Area wells. The quick recovery suggests a high hydraulic conductivity in the aquifer, while the large drawdown may indicate fouling of the upper portions of the well screen or a low aquifer transmissivity (variability of conductivity vertically across the aquifer).

Clearly, 60-feet of drawdown in Blacklake Well #4 significantly changes the depth readings summarized in Table 3., above.

Using the District's remote monitoring interface proved cumbersome. Some of the difficulty is attributable to a lack of the investigator's familiarity with the system and some to the sheer volume of data being collected. Upgrades to the graphical interface are planned.

Well Interference

When production wells are located in close proximity, drawdown in one well can lower GSE and compound drawdown in an adjacent well. Well interference can introduce error to GSE readings and increase the cost of pumping water (it requires more energy to lift water from greater depths). The District's primary supply wells are located in an area of the NMMA known for high groundwater yield. A number of other water purveyors and overlying users also have production wells in this area. Therefore, the possibility of well interference in this area is considered high, and this fact further limits the usefulness of District GSE measurements as an indicator of overall basin health.

In addition to providing important information about individual well health, a firm understanding of a well's drawdown and recovery characteristics, developed by making accurate and regular readings over time, may aid the District in identifying potentially significant well interference or other localized basin irregularities.

Summary

The District's current approach to monthly GSE measurement and reporting utilizes sounding tape measurements and direct pressure gauge measurements. These data are presented monthly in table and graphical format for historical consideration.

Some wells have only a single, low accuracy method available for measuring GSE (direct pressure readings). Some of the wells have three measurement methods available, however the various methods are not compared or calibrated on a regular basis.

The District's GSE data has limited utility for defining basin health since well drawdown and well interference are not well understood or considered. Since many of the District's wells are located in an area where other utilities and private entities also operate large production wells, these wells may not be useful as basin health indicators despite improvements in data collection methods.

The District's current method of GSE data collection and reporting does not provide well drawdown and recovery information that might prove vital in maintaining well field readiness.

The District has telemetry and remote GSE data collection infrastructure in place at most well sites. The District has accurate reference level survey information for eleven of its thirteen well sites.

Recommendations

The District should focus on establishing the means for accurately collecting well GSE and drawdown information on its primary production wells, for the purpose of tracking and maintaining well health and supply system readiness.

Determination of overall basin health is a complicated task that requires careful data collection and analysis across the entire management area and its boundaries. The Nipomo Mesa Management Area Technical Group is carefully studying this matter. The group includes a number of experts in hydrogeology who are analyzing data from multiple sources. As the District refines its well GSE collection practices, some of the data collected may become of interest to the Technical Group. The District has two wells that may be strategically positioned for monitoring basin health, the Mandi and Cheyenne wells. These wells have never been used as production wells. The NMMA Technical Group may find data from these wells (or other District wells) useful.

The following recommendations are presented in order of priority (see Table 5. below for a summary the recommendations summarized by well):

1. Replace or augment the existing air line pressure gauges with more accurate gauges capable of reading +/- .5 psi (1.15 foot) at all well sites.
2. Establish sounding tubes and dedicated air lines in District primary production wells.
3. Establish continuous remote GSE monitoring in District primary production wells. Consider using direct reading down-hole transducers in at least one primary well.
4. Survey the elevation of Mandi and Cheyenne wells.
5. Establish remote monitoring capability at Mandi and Cheyenne wells.
6. Investigate the accuracy of the pressure transducers used by the remote GSE monitoring system. Calibrate and train on operation of this system.
7. Measure and record the Specific Capacity of each production well.
8. Establish a single, comprehensive record for each production well that includes:
 - o Hours each well is operated. Pumping rate and volume of each well.
 - o Static and pumping water GSEs. Well specific capacity.
 - o Discharge Pressure. Water Quality information
 - o Annual pump efficiency testing results.
 - o Well completion information (date drilled, diameter, screen size and length).
 - o Pump information (type, manufacture, model, service history).
9. Refurbish/install clear well head reference elevation markers.

Table 5. Recommendations Summarized by Well

Well	Recommendations	Estimated Cost
Eureka	Install access tube for air line and measuring tape. Install dedicated air line. Install accurate pressure gauge. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pull well, install access tube - \$5,000.00. Pressure gauge - \$200.00 Down-hole transducer –(optional) - \$3,000.00
Via Concha	Install access tube for air line and measuring tape. Install dedicated air line. Install accurate pressure gauge. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pull well, install access tube - \$5,000.00. Pressure gauge - \$200.00
Sundale	Install accurate pressure gauge. Planned/ongoing changes to well configuration need to insure ready access to sounding tube and a dedicated air line are available. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pressure gauge - \$200.00
Knollwood	Install accurate pressure gauge. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pressure gauge - \$200.00
Black Lake #3	Install accurate pressure gauge. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pressure gauge - \$200.00
Black Lake #4	Install accurate pressure gauge. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pressure gauge - \$200.00
Bevington	Install access tube for air line and measuring tape. Install dedicated air line. Install accurate pressure gauge. Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pull well, install access tube - \$5,000.00. Pressure gauge - \$200.00
Olympic	Install accurate pressure gauge.	Pressure gauge - \$200.00
Cheyenne	Confirm gauge accuracy, upgrade if needed. Establish remote monitoring (may require power to well, air source, other). Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pressure gauge - \$200.00 Compressor - \$500.00
Mandi	Confirm gauge accuracy, upgrade if needed. Establish remote monitoring (may require power to well, air source, other). Calibrate remote GSE monitoring. Measure drawdown and recovery and calculate Specific Capacity.	Pressure gauge - \$200.00 Compressor - \$500.00
Omiya	None (Well is out of service. GSE is not being monitored.)	\$0
Church	Install access tube for measuring tape. Measure drawdown and recovery and calculate Specific Capacity.	Pull well, install access tube - \$2,000.00
Savage	Continue manual tape readings. (Well is out of service)	\$0
Total Estimated Costs:		\$23,000.00

Once a system for collecting accurate and continuous well GSE readings is established (recommendations #s 1-3 implemented), regular monthly well capacity (drawdown/flow rate) and recovery readings can be taken.

GSE Measurement Protocol

Well drawdown should be measured monthly in each primary production well with Specific Capacity calculated. GSE readings (static) can be ascertained from each wells continuous monitoring record by reviewing the wells operational status during the month and selecting a period of well idle when GSE is stabilized. Manual GSE measurements by tape and direct pressure readings would be made monthly in wells that do not have remote capability and periodically in wells with remote monitoring to verify/calibrate the remote monitoring system.

Once ‘typical’ drawdown at each well is understood, the District may consider appending its historical GSE data with a drawdown correction factor.

Once efficient operation of the District’s continuous GSE monitoring and data collection system is established; the system, its operation, and data should be reviewed with the Technical Group. The District’s telemetry system has good coverage on the Mesa and additional capacity. There may be an opportunity for the District to host and otherwise facilitate real time GSE data collection with remote data retrieval for the Technical Group’s NMMA basin health tracking effort.

Once the remote monitoring system is up and running, the demand on staff resources will be equivalent or less than the current practice of manually collecting and reporting well GSE data on a monthly basis. As important, the data collected will be of much greater value to the District and may be useful in a basin-wide context.

APPENDICES
Task Order 09-001

Appendix 1

Appendix 2

Appendix 3a & 3b

Table 3. Worksheet

Table 4. Raw Data

iPAAC Graphs

Levels taken May 7, 2009

Well	Surveyed Elevation (msl)	Flow Volume (Gal per Min)	Sounding Tape	Sounding Tape to msl	Gauge Pressure (psi)	Air Line Length	Level above line end	Depth to Water	Depth to Water msl	Remote level read	Remote read msl
Black Lake #3	319.1	160	387	-67.9	28	400	65	335	-16	341	-22
Black Lake #4	301.4	350	359	-57.6	20	420	46	374	-72	321	-20

Date/Time	FLOW	Date/Time	Table	Date/Time	FLOW	Date/Time	Table
		5/10/09 10:47	345			5/5/09 11:38	344.94
		5/10/09 10:32	345			5/5/09 11:23	344.94
		5/10/09 10:17	345			5/5/09 11:08	344.94
		5/10/09 10:02	345			5/5/09 10:53	344.94
		5/10/09 9:47	344.94			5/5/09 10:38	345
5/10/09 9:31	138.59	5/10/09 9:32	344.72			5/5/09 10:23	344.94
		5/10/09 9:17	344.83			5/5/09 10:08	344.94
		5/10/09 9:02	345			5/5/09 9:53	344.83
		5/10/09 8:47	345			5/5/09 9:38	344.94
5/10/09 8:31	138.47	5/10/09 8:32	345			5/5/09 9:23	344.94
		5/10/09 8:17	345			5/5/09 9:08	344.94
		5/10/09 8:02	344.66			5/5/09 8:53	344.83
		5/10/09 7:47	344.77			5/5/09 8:38	344.83
5/10/09 7:31	137.98	5/10/09 7:32	344.83			5/5/09 8:23	344.83
		5/10/09 7:17	344.94			5/5/09 8:08	344.94
		5/10/09 7:01	345			5/5/09 7:53	344.83
		5/10/09 6:46	344.83			5/5/09 7:38	344.83
5/10/09 6:31	138.35	5/10/09 6:31	344.66			5/5/09 7:23	344.83
		5/10/09 6:16	344.72			5/5/09 7:08	344.83
		5/10/09 6:01	344.77			5/5/09 6:53	344.77
		5/10/09 5:46	344.94			5/5/09 6:37	344.83
5/10/09 5:31	138.47	5/10/09 5:31	345			5/5/09 6:22	344.83
		5/10/09 5:16	344.94			5/5/09 6:07	344.77
		5/10/09 5:01	344.72			5/5/09 5:52	344.77
		5/10/09 4:46	344.66			5/5/09 5:37	344.72
5/10/09 4:31	138.47	5/10/09 4:31	344.77			5/5/09 5:22	344.72
		5/10/09 4:16	344.94			5/5/09 5:07	344.72
		5/10/09 4:01	345			5/5/09 4:52	344.72
		5/10/09 3:46	345			5/5/09 4:37	344.72
5/10/09 3:31	138.59	5/10/09 3:31	344.94			5/5/09 4:22	344.66
		5/10/09 3:16	344.77			5/5/09 4:07	344.66
		5/10/09 3:01	344.94			5/5/09 3:52	344.66
		5/10/09 2:46	345			5/5/09 3:37	344.66
5/10/09 2:31	138.96	5/10/09 2:31	345			5/5/09 3:22	344.55
		5/10/09 2:16	345			5/5/09 3:07	344.66
		5/10/09 2:01	345			5/5/09 2:52	344.66
		5/10/09 1:46	345			5/5/09 2:37	344.55
5/10/09 1:30	138.23	5/10/09 1:31	345			5/5/09 2:22	344.49
		5/10/09 1:16	345			5/5/09 2:07	344.44
		5/10/09 1:01	345			5/5/09 1:52	344.38
		5/10/09 0:46	345			5/5/09 1:37	344.44
5/10/09 0:30	138.35	5/10/09 0:31	345			5/5/09 1:22	344.38
		5/10/09 0:16	345			5/5/09 1:07	344.27
		5/10/09 0:00	345			5/5/09 0:52	344.38
		5/9/09 23:45	345			5/5/09 0:37	344.38
5/9/09 23:30	138.47	5/9/09 23:30	345			5/5/09 0:22	344.27
		5/9/09 23:18	345			5/5/09 0:06	344.27
		5/9/09 23:03	345			5/4/09 23:51	344.27
		5/9/09 22:48	345			5/4/09 23:36	344.27
5/9/09 22:33	138.35	5/9/09 22:33	345			5/4/09 23:21	344.21
		5/9/09 22:18	345			5/4/09 23:06	344.21
		5/9/09 22:03	345			5/4/09 22:51	344.16
		5/9/09 21:48	345			5/4/09 22:36	344.16
5/9/09 21:33	138.59	5/9/09 21:33	345			5/4/09 22:21	344.1
		5/9/09 21:18	345			5/4/09 22:06	344.1
		5/9/09 21:03	345			5/4/09 21:51	344.1
		5/9/09 20:48	345			5/4/09 21:36	343.99
5/9/09 20:33	138.84	5/9/09 20:33	345			5/4/09 21:21	343.82
		5/9/09 20:19	345			5/4/09 21:06	343.82
		5/9/09 20:04	345			5/4/09 20:51	343.7
		5/9/09 19:49	345			5/4/09 20:36	343.65
5/9/09 19:49	138.84	5/9/09 19:34	345			5/4/09 20:21	343.54
		5/9/09 19:19	345	5/4/09 20:12	139.45	5/4/09 20:06	343.37
		5/9/09 19:04	345			5/4/09 19:51	343.14
5/9/09 18:49	139.57	5/9/09 18:49	345			5/4/09 19:36	342.86
		5/9/09 18:34	345			5/4/09 19:21	342.47
		5/9/09 18:19	345	5/4/09 19:12	140.43	5/4/09 19:06	343.03
		5/9/09 18:04	345			5/4/09 18:51	342.86
5/9/09 17:49	139.45	5/9/09 17:49	345			5/4/09 18:36	342.75
5/9/09 17:35	139.45	5/9/09 17:35	345			5/4/09 18:21	342.18
		5/9/09 17:20	345	5/4/09 18:12	144.35	5/4/09 18:06	330.13
		5/9/09 17:05	345	5/4/09 18:12	115.59	5/4/09 17:51	330.92
		5/9/09 16:50	345			5/4/09 17:36	330.02
5/9/09 16:35	139.45	5/9/09 16:35	345	5/4/09 17:15	-0.88	5/4/09 17:21	329.28
		5/9/09 16:28	344.94			5/4/09 17:06	329.17
		5/9/09 16:13	345			5/4/09 16:51	330.18
5/9/09 15:58	138.59	5/9/09 15:58	345			5/4/09 16:36	332.89
		5/9/09 15:43	345	5/4/09 16:15	1.45	5/4/09 16:20	337.73
		5/9/09 15:28	345	5/4/09 16:15	18.45	5/4/09 16:05	344.44
		5/9/09 15:13	345	5/4/09 16:15	56.26	5/4/09 15:50	344.44
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		5/9/09 14:01	345	5/4/09 11:34	140.06	5/4/09 13:50	344.44
		5/9/09 13:46	345	5/4/09 10:34	139.08	5/4/09 13:35	344.44
		5/9/09 13:31	345	5/4/09 9:34	139.45	5/4/09 13:20	344.44
5/9/09 13:19	139.08	5/9/09 13:16	344.94	5/4/09 8:40	140.19	5/4/09 13:05	344.38
		5/9/09 13:01	344.77	5/4/09 8:23	138.84	5/4/09 12:50	344.38
		5/9/09 12:45	344.83	5/4/09 7:23	138.96	5/4/09 12:35	344.38
		5/9/09 12:30	344.94	5/4/09 6:23	140.19	5/4/09 12:20	344.38
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		5/9/09 12:00	345	5/4/09 4:23	140.06	5/4/09 11:50	344.27
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		5/9/09 11:30	345	5/4/09 2:23	139.45	5/4/09 11:20	344.27
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		5/9/09 11:00	344.66	5/4/09 0:22	139.45	5/4/09 10:49	344.21
		5/9/09 10:45	344.72	5/3/09 23:22	139.57	5/4/09 10:34	344.21
		5/9/09 10:30	344.77	5/3/09 22:22	139.57	5/4/09 10:19	344.21
5/9/09 10:19	138.84	5/9/09 10:15	344.94	5/3/09 21:22	140.31	5/4/09 10:04	344.16
		5/9/09 10:00	344.94	5/3/09 20:22	139.82	5/4/09 9:49	344.16
		5/9/09 9:45	345	5/3/09 19:22	139.45	5/4/09 9:34	344.16
		5/9/09 9:30	344.83	5/3/09 18:22	140.43	5/4/09 9:25	344.16
5/9/09 9:19	139.21	5/9/09 9:15	344.66	5/3/09 17:22	140.19	5/4/09 9:10	344.21
		5/9/09 9:00	344.49	5/3/09 16:22	140.19	5/4/09 8:55	344.16
		5/9/09 8:45	344.55	5/3/09 15:22	139.57	5/4/09 8:40	344.16
		5/9/09 8:30	344.55	5/3/09 14:22	140.31	5/4/09 8:29	344.1
5/9/09 8:19	138.96	5/9/09 8:15	344.55	5/3/09 13:22	139.7	5/4/09 8:14	344.1
		5/9/09 8:00	344.55	5/3/09 12:22	139.82	5/4/09 7:59	344.16
		5/9/09 7:45	344.55	5/3/09 11:22	139.82	5/4/09 7:43	344.1
		5/9/09 7:30	344.55	5/3/09 10:22	140.43	5/4/09 7:28	343.99
5/9/09 7:19	139.7	5/9/09 7:15	344.1	5/3/09 9:22	139.82	5/4/09 7:13	343.99
		5/9/09 7:00	343.7	5/3/09 8:22	138.59	5/4/09 6:58	343.93
		5/9/09 6:45	343.7	5/3/09 7:21	138.59	5/4/09 6:43	343.93
		5/9/09 6:29	343.54	5/3/09 6:21	139.21	5/4/09 6:28	343.87
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		5/9/09 4:44	314.41			5/4/09 4:13	343.87
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		5/9/09 4:14	314.64			5/4/09 3:43	343.87
		5/9/09 3:59	314.86			5/4/09 3:28	343.87
		5/9/09 3:44	315.26			5/4/09 3:13	343.82
5/9/09 3:24	6.34	5/9/09 3:29	314.13			5/4/09 2:58	343.87
5/9/09 3:24	28.73					5/4/09 2:43	343.87
5/9/09 3:24	81.7					5/4/09 2:28	343.87
		5/9/09 3:14	345			5/4/09 2:13	343.87
		5/9/09 2:59	345			5/4/09 1:58	343.93
		5/9/09 2:44	344.94			5/4/09 1:43	343.93
5/9/09 2:26	137.98	5/9/09 2:29	345			5/4/09 1:28	343.87
		5/9/09 2:14	345			5/4/09 1:13	343.87
		5/9/09 1:59	345			5/4/09 0:57	343.87
		5/9/09 1:44	345			5/4/09 0:42	343.93
5/9/09 1:26	137.98	5/9/09 1:29	345			5/4/09 0:27	343.93
		5/9/09 1:14	345			5/4/09 0:12	343.93
		5/9/09 0:58	345			5/3/09 23:57	343.93
		5/9/09 0:43	345			5/3/09 23:42	343.93
5/9/09 0:25	138.96	5/9/09 0:28	345			5/3/09 23:27	343.93
		5/9/09 0:13	345			5/3/09 23:12	343.93
		5/8/09 23:58	345			5/3/09 22:57	343.93
		5/8/09 23:43	345			5/3/09 22:42	343.99
5/8/09 23:25	137.98	5/8/09 23:28	345			5/3/09 22:27	343.99
		5/8/09 23:13	344.83			5/3/09 22:12	343.93
		5/8/09 22:58	345			5/3/09 21:57	343.99
		5/8/09 22:43	345			5/3/09 21:42	343.99
5/8/09 22:25	138.35	5/8/09 22:28	345			5/3/09 21:27	343.93
		5/8/09 22:13	345			5/3/09 21:12	343.93
		5/8/09 21:58	345			5/3/09 20:57	343.93
		5/8/09 21:43	345			5/3/09 20:42	343.93
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		5/8/09 21:13	344.94			5/3/09 20:12	343.93
		5/8/09 20:58	345			5/3/09 19:57	343.93
		5/8/09 20:43	345			5/3/09 19:42	343.93
5/8/09 20:25	139.21	5/8/09 20:28	345			5/3/09 19:27	343.93
		5/8/09 20:13	345			5/3/09 19:12	343.93
		5/8/09 19:58	345			5/3/09 18:57	343.93
		5/8/09 19:43	345			5/3/09 18:41	343.93
5/8/09 19:25	138.59	5/8/09 19:28	344.83			5/3/09 18:26	343.93
		5/8/09 19:13	344.72			5/3/09 18:11	343.93

		5/8/09 18:58	344.83			5/3/09 17:56	343.87
		5/8/09 18:42	344.94			5/3/09 17:41	343.93
5/8/09 18:25	139.82	5/8/09 18:27	345			5/3/09 17:26	343.87
5/8/09 17:25	139.57	5/8/09 18:12	345			5/3/09 17:11	343.87
5/8/09 16:25	140.06	5/8/09 17:57	345			5/3/09 16:56	343.87
5/8/09 15:25	139.82	5/8/09 17:42	344.94			5/3/09 16:41	343.93
5/8/09 14:25	139.08	5/8/09 17:27	344.72			5/3/09 16:26	343.93
5/8/09 13:25	140.31	5/8/09 17:12	344.83			5/3/09 16:11	343.93
5/8/09 12:25	140.19	5/8/09 16:57	344.94			5/3/09 15:56	343.93
5/8/09 11:25	140.31	5/8/09 16:42	344.94			5/3/09 15:41	343.93
5/8/09 10:25	139.7	5/8/09 16:27	345			5/3/09 15:26	343.93
5/8/09 9:25	139.45	5/8/09 16:12	345			5/3/09 15:11	343.93
5/8/09 8:25	139.57	5/8/09 15:57	345			5/3/09 14:56	343.99
5/8/09 7:25	138.96	5/8/09 15:42	345			5/3/09 14:41	343.93
5/8/09 6:25	139.57	5/8/09 15:27	344.94			5/3/09 14:26	343.93
5/8/09 5:25	139.21	5/8/09 15:12	344.77			5/3/09 14:11	343.93
5/8/09 4:25	138.59	5/8/09 14:57	344.83			5/3/09 13:56	343.87
5/8/09 4:07	138.96	5/8/09 14:42	344.94			5/3/09 13:41	343.93
5/8/09 3:06	139.08	5/8/09 14:27	345			5/3/09 13:26	343.93
5/8/09 2:06	139.7	5/8/09 14:12	345			5/3/09 13:11	343.93
5/8/09 1:06	138.96	5/8/09 13:57	345			5/3/09 12:56	343.93
5/8/09 0:06	139.57	5/8/09 13:42	344.77			5/3/09 12:41	343.93
5/7/09 23:06	138.59	5/8/09 13:26	344.72			5/3/09 12:25	343.93
5/7/09 22:06	139.08	5/8/09 13:11	344.83			5/3/09 12:10	343.93
5/7/09 21:06	139.21	5/8/09 12:56	345			5/3/09 11:55	343.93
5/7/09 20:06	138.84	5/8/09 12:41	345			5/3/09 11:40	343.93
5/7/09 19:06	139.7	5/8/09 12:26	345			5/3/09 11:25	343.87
5/7/09 18:06	139.82	5/8/09 12:11	344.83			5/3/09 11:10	343.87
5/7/09 17:06	140.43	5/8/09 11:56	344.72			5/3/09 10:55	343.93
5/7/09 16:06	139.7	5/8/09 11:41	344.72			5/3/09 10:40	343.93
5/7/09 15:06	139.57	5/8/09 11:26	344.77			5/3/09 10:25	343.93
5/7/09 14:06	140.19	5/8/09 11:11	344.83			5/3/09 10:10	343.87
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5/7/09 12:06	140.92	5/8/09 10:41	345			5/3/09 9:40	343.87
5/7/09 11:06	139.82	5/8/09 10:26	345			5/3/09 9:25	343.87
5/7/09 10:06	140.06	5/8/09 10:11	345			5/3/09 9:10	343.82
5/7/09 9:06	140.06	5/8/09 9:56	344.66			5/3/09 8:55	343.82
5/7/09 8:06	139.57	5/8/09 9:41	344.49			5/3/09 8:40	343.82
5/7/09 7:05	139.45	5/8/09 9:26	344.66			5/3/09 8:25	343.82
5/7/09 6:05	139.45	5/8/09 9:11	344.72			5/3/09 8:10	343.87
5/7/09 5:05	139.21	5/8/09 8:56	344.77			5/3/09 7:55	343.87
		5/8/09 8:40	344.83			5/3/09 7:40	343.87
		5/8/09 8:25	344.83			5/3/09 7:25	343.82
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		5/8/09 7:55	344.83			5/3/09 6:55	343.82
		5/8/09 7:40	344.66			5/3/09 6:40	343.82
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		5/8/09 4:55	344.27			5/3/09 3:54	343.37
		5/8/09 4:40	344.21			5/3/09 3:39	343.31
		5/8/09 4:25	344.21			5/3/09 3:24	343.25
		5/8/09 4:14	344.72			5/3/09 3:09	343.03
		5/8/09 3:59	344.49			5/3/09 2:54	342.86
		5/8/09 3:44	344.38			5/3/09 2:39	342.69
		5/8/09 3:29	344.21	5/3/09 2:21	138.96	5/3/09 2:24	345
		5/8/09 3:14	344.27			5/3/09 2:09	345
		5/8/09 2:59	344.38			5/3/09 1:54	345
		5/8/09 2:44	344.49			5/3/09 1:39	345
		5/8/09 2:29	344.55	5/3/09 1:21	143.24	5/3/09 1:24	345
		5/8/09 2:14	344.66	5/3/09 1:21	112.54	5/3/09 1:09	345
		5/8/09 1:59	344.72			5/3/09 0:54	344.66
		5/8/09 1:44	344.83			5/3/09 0:39	344.77
		5/8/09 1:29	344.66	5/3/09 0:24	-0.27	5/3/09 0:24	345
		5/8/09 1:13	344.55			5/3/09 0:09	343.03
		5/8/09 0:58	344.49			5/2/09 23:54	340.83
		5/8/09 0:43	344.38			5/2/09 23:39	339.76
		5/8/09 0:28	344.49	5/2/09 23:24	0.96	5/2/09 23:24	343.59
		5/8/09 0:13	344.55	5/2/09 23:23	13.56	5/2/09 23:08	344.66
		5/7/09 23:58	344.72	5/2/09 23:23	52.95	5/2/09 22:53	344.66
		5/7/09 23:43	344.83	5/2/09 23:20	139.08	5/2/09 22:38	344.66
		5/7/09 23:28	344.83	5/2/09 22:20	139.45	5/2/09 22:23	344.66
		5/7/09 23:13	344.94	5/2/09 21:20	139.21	5/2/09 22:08	344.72
		5/7/09 22:58	344.94	5/2/09 20:20	139.21	5/2/09 21:53	344.72
		5/7/09 22:43	344.66	5/2/09 19:20	139.82	5/2/09 21:38	344.66
		5/7/09 22:28	344.49	5/2/09 18:20	140.43	5/2/09 21:23	344.66
		5/7/09 22:13	344.66	5/2/09 17:20	140.43	5/2/09 21:08	344.72

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		5/7/09 21:28	345		5/2/09 14:20	139.45	5/2/09 20:23	344.66
		5/7/09 21:13	345		5/2/09 13:20	140.31	5/2/09 20:08	344.66
		5/7/09 20:58	345		5/2/09 12:20	140.67	5/2/09 19:53	344.66
		5/7/09 20:43	345		5/2/09 11:20	140.19	5/2/09 19:38	344.66
		5/7/09 20:28	344.77		5/2/09 10:20	140.19	5/2/09 19:23	344.72
		5/7/09 20:13	344.72		5/2/09 9:20	139.7	5/2/09 19:08	344.66
		5/7/09 19:58	344.94		5/2/09 8:20	140.06	5/2/09 18:53	344.66
		5/7/09 19:43	344.94		5/2/09 7:19	139.57	5/2/09 18:38	344.72
		5/7/09 19:28	345		5/2/09 6:19	140.19	5/2/09 18:23	344.72
		5/7/09 19:13	345		5/2/09 5:19	139.82	5/2/09 18:08	344.72
		5/7/09 18:58	345		5/2/09 4:19	140.43	5/2/09 17:53	344.66
		5/7/09 18:43	345		5/2/09 3:19	140.19	5/2/09 17:38	344.72
		5/7/09 18:28	345		5/2/09 2:19	140.19	5/2/09 17:23	344.72
		5/7/09 18:13	345		5/2/09 1:19	139.45	5/2/09 17:08	344.72
		5/7/09 17:57	344.77		5/2/09 0:19	138.96	5/2/09 16:53	344.66
		5/7/09 17:42	344.77		5/1/09 23:19	139.82	5/2/09 16:37	344.72
		5/7/09 17:27	344.83		5/1/09 22:19	139.57	5/2/09 16:22	344.72
		5/7/09 17:12	345		5/1/09 21:19	139.45	5/2/09 16:07	344.72
		5/7/09 16:57	345		5/1/09 20:19	139.57	5/2/09 15:52	344.77
		5/7/09 16:42	345		5/1/09 19:19	139.21	5/2/09 15:37	344.72
		5/7/09 16:27	345		5/1/09 18:19	139.82	5/2/09 15:22	344.72
		5/7/09 16:12	344.94		5/1/09 17:19	140.43	5/2/09 15:07	344.72
		5/7/09 15:57	344.83		5/1/09 16:50	139.82	5/2/09 14:52	344.77
		5/7/09 15:42	344.77		5/1/09 15:59	140.8	5/2/09 14:37	344.83
		5/7/09 15:27	344.83		5/1/09 14:59	140.8	5/2/09 14:22	344.83
		5/7/09 15:12	344.77		5/1/09 13:59	139.7	5/2/09 14:07	344.77
		5/7/09 14:57	344.49		5/1/09 12:59	139.7	5/2/09 13:52	344.77
		5/7/09 14:42	341.34		5/1/09 11:59	139.82	5/2/09 13:37	344.77
		5/7/09 14:27	341.39		5/1/09 10:59	140.43	5/2/09 13:22	344.83
		5/7/09 14:12	341.39		5/1/09 9:59	139.82	5/2/09 13:07	344.77
		5/7/09 13:57	341.39		5/1/09 8:59	139.57	5/2/09 12:52	344.83
		5/7/09 13:42	341.34		5/1/09 7:59	139.7	5/2/09 12:37	344.83
		5/7/09 13:27	341.39		5/1/09 6:59	138.35	5/2/09 12:22	344.83
		5/7/09 13:12	341.45		5/1/09 5:59	137.62	5/2/09 12:07	344.83
		5/7/09 12:57	341.39		5/1/09 4:59	137.98	5/2/09 11:52	344.83
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		5/7/09 12:27	341.45				5/2/09 11:22	344.83
		5/7/09 12:12	341.39				5/2/09 11:07	344.94
		5/7/09 11:57	341.34				5/2/09 10:52	344.94
		5/7/09 11:41	341.34				5/2/09 10:37	344.83
		5/7/09 11:26	341.28				5/2/09 10:22	344.94
		5/7/09 11:11	341.17				5/2/09 10:07	344.94
		5/7/09 10:56	341.11				5/2/09 9:51	344.94
		5/7/09 10:41	341.06				5/2/09 9:36	344.94
		5/7/09 10:26	341				5/2/09 9:21	345
		5/7/09 10:11	340.89				5/2/09 9:06	344.94
		5/7/09 9:56	340.83				5/2/09 8:51	345
		5/7/09 9:41	338.63				5/2/09 8:36	345
		5/7/09 9:26	345				5/2/09 8:21	345
		5/7/09 9:11	345				5/2/09 8:06	344.94
		5/7/09 8:56	345				5/2/09 7:51	345
		5/7/09 8:41	345				5/2/09 7:36	345
		5/7/09 8:26	345				5/2/09 7:21	345
		5/7/09 8:11	345				5/2/09 7:06	345
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		5/7/09 7:26	345				5/2/09 6:21	345
		5/7/09 7:11	345				5/2/09 6:06	345
		5/7/09 6:56	345				5/2/09 5:51	345
		5/7/09 6:41	345				5/2/09 5:36	345
		5/7/09 6:26	345				5/2/09 5:21	345
		5/7/09 6:11	345				5/2/09 5:06	345
		5/7/09 5:56	345				5/2/09 4:51	345
		5/7/09 5:41	345				5/2/09 4:36	345
		5/7/09 5:26	345				5/2/09 4:21	345
		5/7/09 5:11	345				5/2/09 4:06	345
		5/7/09 4:56	345				5/2/09 3:51	345
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		5/7/09 4:25	345				5/2/09 3:20	345
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		5/7/09 3:55	345				5/2/09 2:50	345
		5/7/09 3:40	345				5/2/09 2:35	345
		5/7/09 3:25	345				5/2/09 2:20	345
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		5/7/09 2:55	345				5/2/09 1:50	345
		5/7/09 2:40	345				5/2/09 1:35	345
		5/7/09 2:25	345				5/2/09 1:20	345
5/7/09 2:05	139.45	5/7/09 2:10	345				5/2/09 1:05	345
		5/7/09 1:55	345				5/2/09 0:50	345
		5/7/09 1:40	345				5/2/09 0:35	345
		5/7/09 1:25	345				5/2/09 0:20	345
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		5/7/09 0:40	345		5/1/09 23:35	345
		5/7/09 0:25	345		5/1/09 23:20	345
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		5/6/09 23:55	345		5/1/09 22:50	345
		5/6/09 23:40	345		5/1/09 22:35	345
		5/6/09 23:25	345		5/1/09 22:20	345
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		5/6/09 22:55	345		5/1/09 21:50	345
		5/6/09 22:40	345		5/1/09 21:35	345
		5/6/09 22:25	345		5/1/09 21:20	345
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		5/6/09 21:54	345		5/1/09 20:49	345
		5/6/09 21:39	345		5/1/09 20:34	345
		5/6/09 21:24	345		5/1/09 20:19	345
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		5/6/09 20:54	345		5/1/09 19:49	345
		5/6/09 20:39	344.83		5/1/09 19:34	345
		5/6/09 20:24	344.49		5/1/09 19:19	345
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5/6/09 20:03	130.64	5/6/09 19:54	344.94		5/1/09 18:49	345
		5/6/09 19:39	344.83		5/1/09 18:34	345
		5/6/09 19:24	344.72		5/1/09 18:19	345
5/6/09 19:04	151.32	5/6/09 19:09	342.58		5/1/09 18:04	345
5/6/09 19:04	140.43	5/6/09 18:54	320.21		5/1/09 17:49	345
5/6/09 19:04	109.48	5/6/09 18:39	324.1		5/1/09 17:34	345
		5/6/09 18:24	326.24		5/1/09 17:19	345
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		5/6/09 17:39	331.87		5/1/09 16:36	345
		5/6/09 17:24	336.04		5/1/09 16:21	345
5/6/09 17:10	2.43	5/6/09 17:09	345		5/1/09 16:06	345
5/6/09 17:10	18.45				5/1/09 15:51	345
5/6/09 17:09	68.61				5/1/09 15:36	345
5/6/09 17:05	139.21				5/1/09 15:21	345
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		5/6/09 16:39	345		5/1/09 14:51	345
		5/6/09 16:24	345		5/1/09 14:36	345
5/6/09 16:05	139.21	5/6/09 16:09	345		5/1/09 14:21	345
		5/6/09 15:53	345		5/1/09 14:06	345
		5/6/09 15:38	345		5/1/09 13:51	345
		5/6/09 15:23	345		5/1/09 13:36	345
5/6/09 15:05	138.59	5/6/09 15:08	345		5/1/09 13:21	345
5/6/09 14:05	138.96	5/6/09 14:53	345		5/1/09 13:06	345
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5/6/09 10:05	139.21	5/6/09 13:53	345		5/1/09 12:06	345
5/6/09 9:05	139.21	5/6/09 13:38	345		5/1/09 11:50	345
5/6/09 8:05	138.59	5/6/09 13:23	345		5/1/09 11:35	345
5/6/09 7:05	138.23	5/6/09 13:08	345		5/1/09 11:20	345
5/6/09 6:05	138.96	5/6/09 12:53	345		5/1/09 11:05	345
5/6/09 5:05	138.47	5/6/09 12:38	345		5/1/09 10:50	345
5/6/09 4:05	139.08	5/6/09 12:23	345		5/1/09 10:35	345
5/6/09 3:05	139.45	5/6/09 12:08	345		5/1/09 10:20	345
5/6/09 2:05	138.35	5/6/09 11:53	345		5/1/09 10:05	345
5/6/09 1:05	138.96	5/6/09 11:38	345		5/1/09 9:50	345
5/6/09 0:05	138.59	5/6/09 11:23	345		5/1/09 9:35	345
5/5/09 23:05	138.96	5/6/09 11:08	345		5/1/09 9:20	345
5/5/09 22:04	139.45	5/6/09 10:53	345		5/1/09 9:05	344.94
5/5/09 21:04	139.45	5/6/09 10:38	345		5/1/09 8:50	344.83
5/5/09 20:04	139.08	5/6/09 10:23	345		5/1/09 8:35	344.83
5/5/09 19:04	139.7	5/6/09 10:08	345		5/1/09 8:20	344.83
5/5/09 18:04	139.45	5/6/09 9:53	345		5/1/09 8:05	344.77
5/5/09 17:04	139.7	5/6/09 9:37	345		5/1/09 7:50	344.72
5/5/09 16:04	139.82	5/6/09 9:22	345		5/1/09 7:35	344.66
5/5/09 15:04	139.45	5/6/09 9:07	345		5/1/09 7:20	344.66
5/5/09 14:04	138.35	5/6/09 8:52	345		5/1/09 7:05	344.16
5/5/09 13:13	139.57	5/6/09 8:37	345		5/1/09 6:50	343.7
5/5/09 12:12	139.21	5/6/09 8:22	345		5/1/09 6:35	343.7
5/5/09 11:12	139.82	5/6/09 8:07	345		5/1/09 6:19	343.65
5/5/09 10:12	139.21	5/6/09 7:52	345		5/1/09 6:04	343.54
5/5/09 9:12	139.45	5/6/09 7:37	345		5/1/09 5:49	343.42
5/5/09 8:12	139.21	5/6/09 7:22	345		5/1/09 5:34	343.42
5/5/09 7:12	139.7	5/6/09 7:07	345		5/1/09 5:19	343.31
5/5/09 6:12	139.7	5/6/09 6:52	345		5/1/09 5:04	343.31
5/5/09 5:12	139.08	5/6/09 6:37	345		5/1/09 4:49	343.25
5/5/09 4:12	138.96	5/6/09 6:22	345		5/1/09 4:34	343.14
5/5/09 3:12	139.45	5/6/09 6:07	345		5/1/09 4:19	343.08
5/5/09 2:12	139.08	5/6/09 5:52	345		5/1/09 4:04	343.03
5/5/09 1:12	139.21	5/6/09 5:37	345		5/1/09 3:49	342.8
5/5/09 0:12	137.86	5/6/09 5:22	345		5/1/09 3:34	342.69
5/4/09 23:12	138.35	5/6/09 5:07	345		5/1/09 3:19	342.75
5/4/09 22:12	138.96	5/6/09 4:52	345		5/1/09 3:04	343.14

5/4/09 21:12	138.47	5/6/09 4:37	345	5/1/09 2:49	343.99
		5/6/09 4:22	345	5/1/09 2:34	344.94
		5/6/09 4:07	345	5/1/09 2:19	345
		5/6/09 3:52	345	5/1/09 2:04	345
		5/6/09 3:37	345	5/1/09 1:49	345
		5/6/09 3:22	345	5/1/09 1:34	345
		5/6/09 3:06	345	5/1/09 1:19	343.93
		5/6/09 2:51	345	5/1/09 1:03	341.11
		5/6/09 2:36	345	5/1/09 0:48	338.47
		5/6/09 2:21	345	5/1/09 0:33	336.61
		5/6/09 2:06	345	5/1/09 0:18	337.17
		5/6/09 1:51	345	5/1/09 0:03	339.87
		5/6/09 1:36	345		
		5/6/09 1:21	345		
		5/6/09 1:06	345		
		5/6/09 0:51	345		
		5/6/09 0:36	345		
		5/6/09 0:21	345		
		5/6/09 0:06	345		
		5/5/09 23:51	345		
		5/5/09 23:36	345		
		5/5/09 23:21	345		
		5/5/09 23:06	345		
		5/5/09 22:51	345		
		5/5/09 22:36	345		
		5/5/09 22:21	345		
		5/5/09 22:06	345		
		5/5/09 21:51	345		
		5/5/09 21:35	345		
		5/5/09 21:20	345		
		5/5/09 21:05	345		
		5/5/09 20:50	345		
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		5/5/09 20:20	345		
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		5/5/09 18:35	345		
		5/5/09 18:20	345		
		5/5/09 18:05	345		
		5/5/09 17:50	345		
		5/5/09 17:35	345		
		5/5/09 17:20	345		
		5/5/09 17:05	345		
		5/5/09 16:50	345		
		5/5/09 16:35	345		
		5/5/09 16:19	345		
		5/5/09 16:04	345		
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		5/5/09 15:34	345		
		5/5/09 15:19	345		
		5/5/09 15:04	345		
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		5/5/09 14:34	345		
		5/5/09 14:19	345		
		5/5/09 14:04	345		
		5/5/09 13:54	345		
		5/5/09 13:39	345		
		5/5/09 13:24	345		
		5/5/09 13:09	345		

Time	Table (feet)	Flow (GPM)	Date/Time	Table (Feet)	Date/Time	Flow (GPM)	
5/9/09 17:49	322.67		5/4/09 14:50	319.76			
5/9/09 17:35	322.13		5/4/09 14:35	319.54	5/4/09 14:34	351.94	
5/9/09 17:20	322.34		5/4/09 14:20	319.81	5/4/09 13:34	351.36	
5/9/09 17:05	322.45		5/4/09 14:05	319.76	5/4/09 12:34	353.11	
5/9/09 16:50	322.61		5/4/09 13:50	319.7	5/4/09 11:34	352.82	
5/9/09 16:35	322.4		5/4/09 13:35	319.76	5/4/09 10:34	352.82	
5/9/09 16:28	322.45		5/4/09 13:20	319.7	5/4/09 9:34	352.53	
5/9/09 16:13	322.67		5/4/09 13:05	319.54	5/4/09 8:40	351.65	
5/9/09 15:58	322.4	5/9/09 15:58	350.48	5/4/09 12:50	319.7	5/4/09 7:42	351.65
5/9/09 15:43	322.13		5/4/09 12:35	319.54	5/4/09 6:41	350.48	
5/9/09 15:28	321.91		5/4/09 12:20	319.49	5/4/09 5:41	351.65	
5/9/09 15:13	321.86		5/4/09 12:05	319.65	5/4/09 4:41	351.36	
5/9/09 14:58	322.07	5/9/09 14:58	349.01	5/4/09 11:50	319.49	5/4/09 3:41	351.65
5/9/09 14:45	322.13		5/4/09 11:34	319.38	5/4/09 2:41	351.65	
5/9/09 14:30	321.91	5/9/09 14:26	348.72	5/4/09 11:19	319.49	5/4/09 1:41	351.36
5/9/09 14:15	321.7		5/4/09 11:04	319.27	5/4/09 0:41	352.82	
5/9/09 14:00	321.86		5/4/09 10:49	319.49	5/3/09 23:41	351.65	
5/9/09 13:45	321.97		5/4/09 10:34	319.38	5/3/09 22:41	352.53	
5/9/09 13:30	322.13	5/9/09 13:25	348.72	5/4/09 10:19	319.22	5/3/09 21:41	352.53
5/9/09 13:15	322.24		5/4/09 10:04	319.38	5/3/09 20:41	353.11	
5/9/09 13:00	322.34		5/4/09 9:49	319.27	5/3/09 19:41	352.53	
5/9/09 12:45	322.4		5/4/09 9:34	319.16	5/3/09 18:41	353.99	
5/9/09 12:30	322.07	5/9/09 12:25	348.42	5/4/09 9:25	319.22	5/3/09 17:41	354.87
5/9/09 12:15	321.86		5/4/09 9:10	319.27	5/3/09 16:41	354.87	
5/9/09 12:00	321.64		5/4/09 8:55	319.16	5/3/09 15:41	354.58	
5/9/09 11:45	321.54		5/4/09 8:40	319.11	5/3/09 14:41	354.29	
5/9/09 11:30	321.64	5/9/09 11:25	349.6	5/4/09 8:30	319	5/3/09 13:41	354.29
5/9/09 11:15	321.81		5/4/09 8:14	319.11	5/3/09 12:41	353.99	
5/9/09 11:00	321.7		5/4/09 7:59	318.95	5/3/09 11:41	354.29	
5/9/09 10:45	321.81		5/4/09 7:44	319	5/3/09 10:41	353.99	
5/9/09 10:29	321.86	5/9/09 10:25	350.18	5/4/09 7:29	318.9	5/3/09 9:41	353.41
5/9/09 10:14	321.91		5/4/09 7:14	318.9	5/3/09 8:41	351.94	
5/9/09 9:59	321.7		5/4/09 6:59	318.73	5/3/09 7:41	352.53	
5/9/09 9:44	321.54		5/4/09 6:44	318.57	5/3/09 6:40	351.65	
5/9/09 9:29	321.37	5/9/09 9:25	350.48	5/4/09 6:29	318.68	5/3/09 5:40	353.11
5/9/09 9:14	321.27		5/4/09 6:14	318.63	5/3/09 4:40	353.41	
5/9/09 8:59	320.89		5/4/09 5:59	318.63	5/3/09 3:40	353.41	
5/9/09 8:44	320.73		5/4/09 5:44	318.46			
5/9/09 8:29	320.51	5/9/09 8:25	347.55	5/4/09 5:29	318.63		
5/9/09 8:14	320.35		5/4/09 5:14	318.57			
5/9/09 7:59	320.35		5/4/09 4:59	318.46			
5/9/09 7:44	320.03		5/4/09 4:44	318.63			
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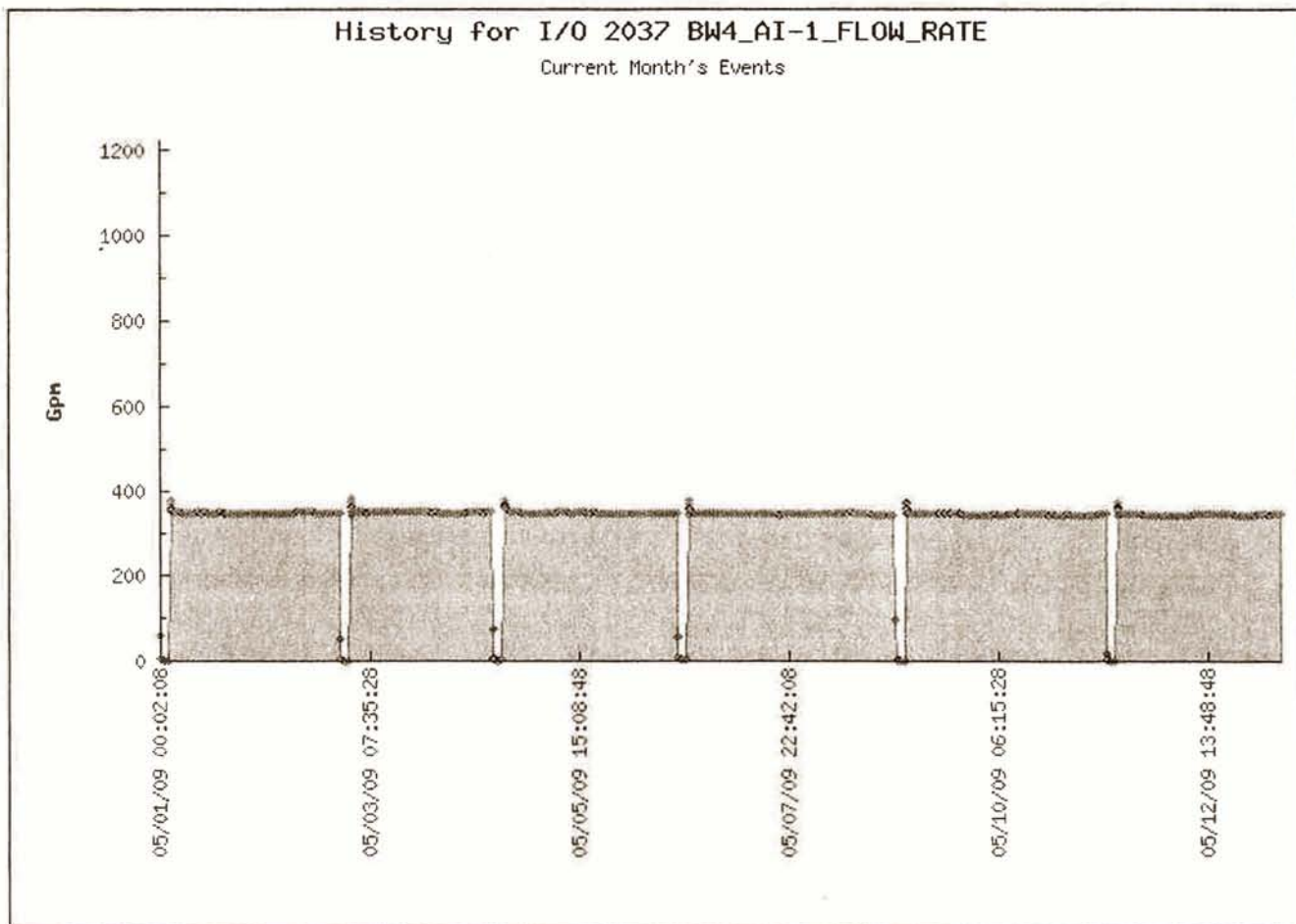
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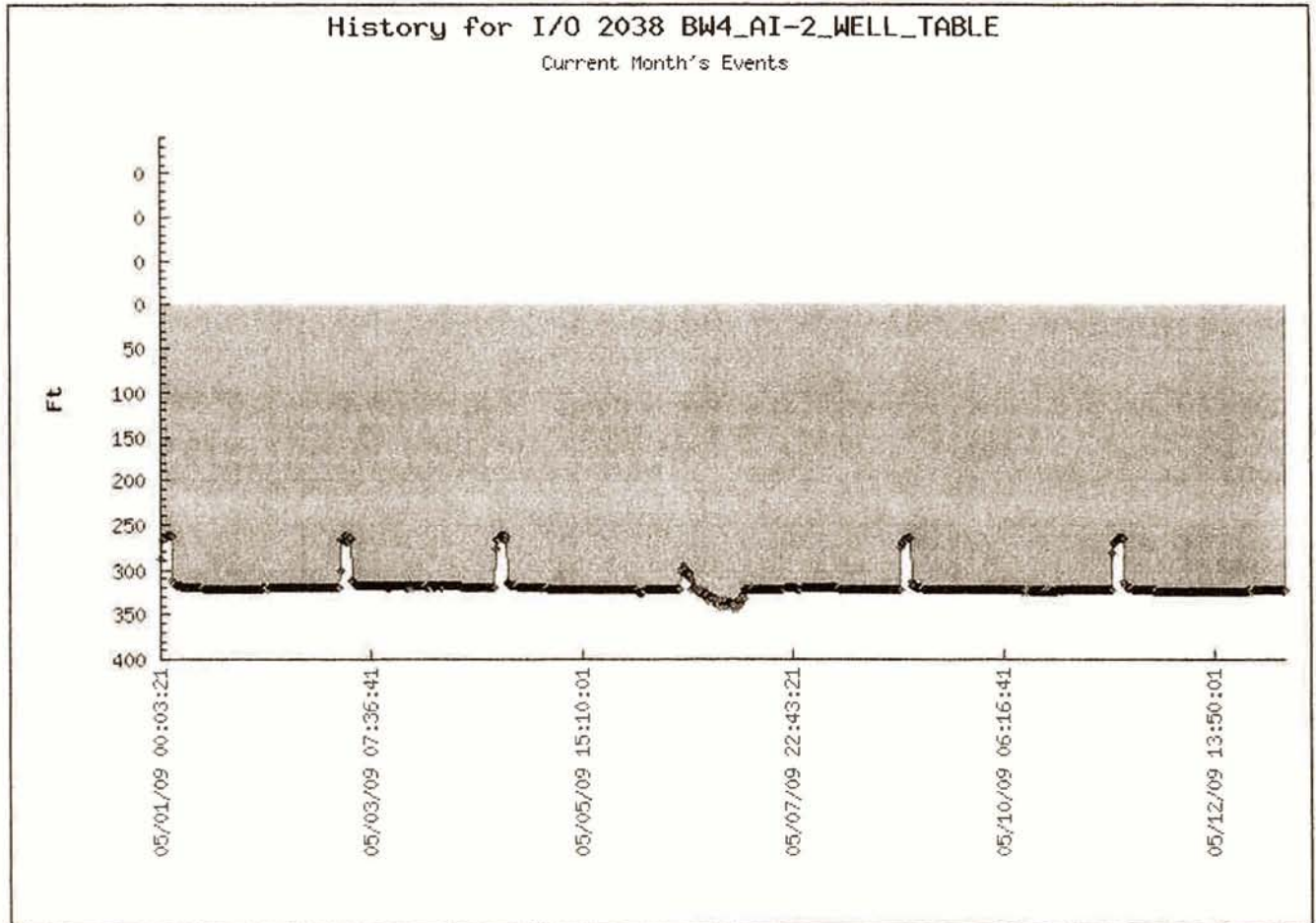
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