APPENDIX C
Bishop Mill Hydrogeology Investigation (SRK, 2010)

2010 Report of Waste Discharge, Bishop Mill Project

SRK Consulting (U.S.), Inc.
5250 Neil Road
Suite 300
Reno, NV 89502

reno@srk.com
www.srk.com

Tel: +1.775.828.6800
Fax: +1.775.828.6820

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Sent via e-mail:

Mr. Don Wedman, President and Chief Executive Officer
CMC Metals Ltd.
Suite 305, 369 Terminal Avenue
Vancouver, B.C. V6A 4C4
Canada

cmcmetals@shaw.ca

RE: Bishop Mill Hydrogeology Investigation, Inyo County, California

Dear Mr. Wedman:

SRK Consulting (SRK), has prepared this letter to report the findings of the 2010 hydrogeology investigation. The 2010 investigation was conducted to address the Lahontan Regional Water Quality Control Board's (Board) comments 2.52 and 2.6, and comment 6.1.2, regarding additional characterization of the groundwater resources beneath the proposed Group A Waste Management Unit (WMU) at the Bishop Mill site, Inyo County, California. The Board has identified the following items related to groundwater characterization in the 2010 Report of Waste Discharge, Bishop Mill Project, which require additional data and/or further clarification before the Board can act on the application:

- Groundwater flow direction and gradient;
- Permeability and hydraulic conductivity of the aquifer;
- Pumping rate and capacity of the well proposed for process make-up water (PW-3);
- Drawdown extent and potential radius of influence based on the proposed pumping rate of the PW-3 production well;
- Affect of drawdown on the aquifer over time; and
- Background groundwater quality to complying with Title 27, section 20414(e)(6).

1. Scope of Work

The hydrogeology investigation initially began in August and was completed in October of 2010. During the week of August 9th, 2010, SRK visited the Bishop Mill site for the specific purpose of re-developing the existing monitoring wells (MW-1 and MW-2) to evaluate their usefulness and collect water level measurements and samples for water quality analyses. This information was used to develop a work plan to identify fore-mentioned items requiring clarification. The Work Plan was approved by the Board on September 27, 2010. The hydrogeology investigation proposed in the Work Plan was immediately initiated, and was completed on October 4, 2010. The Work Plan included completion of the following tasks:

- permitting monitoring well installation, development, sampling, and pumping test;

- Installation and development of groundwater monitoring wells;
- Hydraulic testing of the aquifer below the WMU;
- Sampling of the site monitoring well network;
- Data analysis; and
- Reporting.

These items were completed as detailed in the Work Plan. Deviations from the Work Plan included a decrease in the maximum sustainable pumping rate from 100 gallons per minute (gpm) to approximately 87 gpm during the course of the pumping test. The drilling method used to advance the boreholes was different than the method specified in the Work Plan. In addition, the development of groundwater monitoring wells MW-3 and MW-4 was initiated but not fully completed. Additional information pertaining to these deviations is provided in the sections below.

The appropriate permits were acquired prior to monitoring well installation and commencement of the pumping test. These permits included Inyo County Well Permits (approved by Andrew Kirk – Inyo Co. Health Department prior to drilling), Board well location approval (Tammy Lundquist – Board approved on September 27, 2010), State Wide Discharge to Land Permit (Harold Singer – Board approved on September 29, 2010). Well completion details are provided in **Attachment 1** to this letter and will be copied to the Board.

1.1. Monitoring Well Installation and Development

Drilling activities and monitoring well construction was completed by a California licensed driller (Reeves Drilling Company contracted by CMC Metals Ltd.) in accordance with Title 27 of the California Code of Regulations (CCR) Sections 20923 and 20925. Drill holes were advanced using mud rotary drilling techniques and wells were installed under the direct supervision of Inyo County, SRK, and CMC Metals Ltd (CMC).

On September 29, 2010 a borehole was advanced into groundwater to a total depth of 93 feet below ground surface (bgs) at the location shown on **Figure 1,** but it collapsed to a total depth of 88 feet bgs. MW-3 was completed in this borehole to a total depth of 88 feet bgs, and consists of 2-inch box thread, flush joint, schedule 40 PVC pipe with 0.01-inch factory perforations through the bottom 30 feet of the well. Well completion methods followed details laid out in the Work Plan. Well completion details and sanitary seal depth for MW-3 are provided in **Attachment 1** and summarized in **Table 1**.

On September 30, 2010 a borehole was advanced to a total depth of 53 feet below ground surface (bgs) at the location shown on **Figure 1**. MW-4 was completed in this borehole to a total depth of 53feet bgs, and consists of 2-inch, box thread, flush joint, schedule 40 PVC pipe, with 0.01-inch factory perforations through the bottom 30 feet of the well. Well completion methods were administered as detailed in the Work Plan. Well completion details and sanitary seal depth for MW-4 are provided in **Attachment 1,** and summarized in **Table 1**.

The drilling company was contracted to complete the development of wells MW-3 and MW-4 with approved methods. Development of MW-3 began on September 30, 2010 via airlifting techniques; however, it was observed that this technique was not an effective method due to the static groundwater level and submergence depth necessary to achieve a desirable airlift for well development. SRK advised the use of bailers or a swabbing tool would be more effective for development of the wells. Consequently, water was bailed from MW-3, totaling approximately 30 gallons, and from MW-4 totaling about 10 gallons, in efforts to develop the two wells. The drilling contractor was not able to accommodate additional well development due to lack of equipment. SRK advises additional well development be conducted in the future.

Existing wells MW-1, MW-2 and PW-3 were also used during pump testing in PW-3. Well construction logs for existing wells are included with new logs for MW-3 and MW-4 in **Attachment 1**.

Table 1: Well Completion Details

Well ID	Static Water Level (feet bgs)	Borehole Diameter (in)	Well Diameter (in)	Total Depth (feet bgs)	Blank Casing (ft bgs)	Screen (ft bgs)	Filter Pack (ft bgs)	Sanitary Seal (ft bgs)
MW-1	35.5	12	5	50	0-40	40-50	22-50	0-22
MW-2	40.95	10	4	50	0-30	30-50	20-50	0-20
MW-3	64.59	8.5	2	88	0-58	58-88	54-88	0-54
MW-4	42.8	8.5	2	53	0-23	23-53	22-53	0-22
PW-3	47.45	--	12	130	0-30	30-130	30-130	0-30

MW-1 and MW-2 were constructed with schedule 40 PVC pipe, perforation sizes are unknown, and the filter pack consist of Birdseye gravel.

MW-3 and MW-4 were constructed with 2'' box thread, flush joint, schedule 40 PVC pipe, perforations are 0.010 inch factory slots, the filter pack consist of 2/12 washed, kiln dried, silica sand.

PW-3 well completion materials are unknown; screen interval, filter pack, and sanitary seal have been estimated.

1.2. Slug Tests

Slug tests were conducted in monitoring wells MW-1, MW-2, MW-3, and MW-4 by applying a known volume (slug) of water to each monitoring well, then measuring the rate of groundwater recovery to static conditions induced by displacement from the slug. All slug tests were initiated and completed on October 1, 2010. Prior to initiation of the slug tests, static water levels were measured with a water level indicator and recorded for each respective monitoring well. In addition, prior to testing, individual In-Situ LevelTroll 700® pressure transducers were programmed to monitor changes in pressure and head over time and placed at the bottom of each respective well via a direct-read cable. A water level indicator was used to determine when the groundwater returned to the pre-test static level, at which time the transducer was removed from the well and data downloaded for analysis.

1.3. Pumping Test

A 24-hour pumping test was designed to identify the characteristics of the aquifer beneath the proposed WMU. The pumping test was conducted via pumping in the PW-3 well (current production well) while monitoring for changes in water elevation in MW-1, MW-2, MW-3, and MW-4(observation wells). Specifically, the pumping test was conducted to determine the hydraulic conductivity of the aquifer in which the PW-3 well is screened, in addition to defining the pumping rate, maximum yield, specific yield, drawdown, and the radius of influence induced by the PW-3 well.

Initial calculations and discussion with the Board identified a recommended discharge rate of 100 gpm to quantify the characteristics identified above. Prior to initiation of the pumping test, CMC removed the old pump and conducted additional development of the PW-3 well. CMC followed the PW-3 well development with the installation of a 5-hp Grundfos submersible pump designed with a pump capacity of over 100 gpm. In addition, a totalizing flow meter was fixed at the discharge point to measure immediate flow rates and the accumulated discharge. The discharge pipe was aligned and fixed to discharge water into the facility permitted by the Board under the General State Wide Discharge to Land Permit.

Prior to initiation of the pumping test, static water levels were measured with a water level indicator and recorded for all site wells. Individual In-Situ LevelTroll 700® pressure transducers were programmed to monitor changes in pressure and head over time and placed at the bottom of each respective observation well via a readout cable.

Once the transducers were programmed and installed the power feed to the pump was turned on. Initial pumping of the PW-3 well began on October 1, 2010. Discharge measurements were recorded from the flow

meter and initial water levels were measured in the PW-3 well. The pumping test was terminated after a 15-minute period due to the failure of the electrical circuitry of the pump. SRK terminated the recording of data on the pressure transducers. The aquifer was subsequently left overnight to recover to static conditions before reinitiating the pumping test the next day. On October 2, 2010 the pressure transducers were reprogrammed to record changes in head through the duration of the pumping test. An additional pressure transducer was programmed and installed in the PW-3 well during pumping. Pumping activities began at 8:23 on October 2, 2010 and were terminated at 8:23 on October 3, 2010.

Water levels were recorded by hand via a water level indicator in both the site observation wells and the pumping well throughout the duration of the pumping test, to support the pressure transducer data. In addition, the pumping test discharge was periodically recorded at the flow meter, and measurements of pH, total dissolved solids, electrical conductivity, and temperature were recorded from the discharge water though the duration of the discharge portion of the test. Visual inspections of the discharge containment facility were done throughout the operation for signs of erosion or embankment failure. No erosion or embankment failures occurred during the discharge. The average discharge was approximately 87 gpm and the total volume of the discharge was approximately 125,280 gallons, which was fully contained with approximately 5 feet of freeboard within the containment facility. The discharge water was left in the facility to be evaporated or infiltrate back into the system and had no noticeable impact on the pumping test.

Once pumping was terminated in Pw-3, the aquifer was left to recover to pre-measured static groundwater levels. Pressure transducers continued to record measurements throughout the recovery period. Water level measurements via a water level indicator assisted in determining when aquifer recovery had been completed. The recovery period was terminated at approximately 7:00 on October 4, 2010 when it was determined that the aquifer had sufficiently recovered to static conditions. At this time the pressure transducers in PW-3 and the observation wells were removed and the data was retrieved for analysis.

1.4. Data Analysis and Interpretation

1.4.1. Analysis of Slug Test

The retrieved slug test data were analyzed as falling head recovery tests, using the Hvorslev method (1951) for analyzing rising and falling-head (slug test) data to determine hydraulic conductivity (K).

According to the Hvorslev method, the logarithm of the ratio of residual drawdown to total drawdown, (H-h)/(H-H0) is plotted versus time (t) on an arithmetic scale. Hydraulic conductivity is then derived using a value of t_0 when recovery has reached 37 percent of the initial, maximum drawdown. Alternatively, the same analysis can be conducted by plotting the same relationship over time using data collected from the rate of a falling head of water throughout the test interval (i.e., falling-head slug test), which is the method chosen for this exercise. The results of these analyses, including the curves generated from the tests, are provided in **Attachment 2**. The hydraulic conductivities generated from these slug tests are tabulated in **Table 2**.

1.4.2. Analysis of Pumping Test

The data collected from the PW-3 pumping well and observation wells (MW-1, MW-2, MW-3, and MW-4) were plotted to show the respective residual drawdown and subsequent recovery resulting from the 24-hour pumping test. These plots are provided in **Attachment 2**. The average discharge from the PW-3 pumping well was approximately 87 gpm. The pump and recovery curve of tPW-3 show a flattening trend occurring from middle to late pumping periods. This trend suggests that no additional drawdown would occur and that steady state conditions were approximated during the test. A total drawdown of 5 feet was recorded in PW-3.

This information was used in tandem with the assumed well completion information for the PW-3 well to calculate the maximum yield and specific capacity of the well, and the hydraulic conductivity of the aquifer in which PW-3 is screened.

Hydraulic conductivity (K) was calculated from water level recovery data recorded in PW-3 following constant-rate pumping using the Theis straight-line recovery method (as described in Kruseman and DeRidder, 1970). Residual drawdown was plotted against the logarithm of the ratio of total time to recovery

time (T/t'). Typically, recovery curves show an early portion representing well-bore storage affects, followed in time (to the left on the graph) by a linear segment whose slope, along with pumping rate, can be used to estimate transmissivity of the test interval. These curves and an estimate of (K) are provided in **Attachment 2**. The K value is also shown in **Table 2**.

1.4.3. Calculations

In addition to the calculations and data interpretation methods described above for calculating hydraulic conductivity values, the following analysis were conducted (as described in C.W. Fetter, 2001) to determine groundwater flow direction, gradient, permeability, maximum yield and specific capacity of the PW-3 well, and radius of influence of the PW-3 well at the pumping rate of 87 gpm.

- **Flow direction:**

  Calculated form AutoCAD groundwater elevation contours based on current groundwater measurements used to generate a potentiometric surface, where the flow direction is perpendicular to the groundwater contour lines from high to low head as shown on **Figure 1**.

- **Gradient:**

  Calculated between groundwater contours and well pairs, where the gradient

  (i) = $(h_2-h_1)/L$

- **Permeability**

  Defined from the relationship between hydraulic conductivity and permeability, where permeability (Ki) = Kμ/Pg

- **Maximum Yield** of PW-3:

  Yield = SC x Drawdown

- **Specific Capacity (SC)** of PW-3:

  SC = Yield/Drawdown, where the Yield = the pumping rate

- **Drawdown**

  Depth to Pumping Water Level – Static Water Level

- **Radius of Influence**:

  Defined by the distance at which the head remains at h_o where, the radius of influence (R) can be derived from the Thiem Solution as shown below:

  $$h - h_0 = \frac{Q}{2\pi T} \ln\left(\frac{r}{R}\right)$$

  $R = r/\mathrm{Exp}(h-h_o/(Q/2\pi T))$

  Notations

L	Linear distance between h_1 and h_2
(i)	Gradient
K	Hydraulic Conductivity
P	Density of water = 62lbs/ft^3
g	Acceleration of gravity = 32.174 ft/sec^2
μ	Dynamic viscosity = 0.000673lbs/ft-sec
Q	Discharge = 87 gpm
T	Transmissivity (for radius of influence calculation assume MW-4 = 21.47 ft²/day)
$h-h_o$	Drawdown at the radial distance form (R)
R	Radius of influence
r	radial distance from pumping well
SC	Specific Capacity

1.4.4. Interpretation of Data

Table 2 presents a summary of test results analyzed as part of the Bishop Mill Hydrogeology Study. **Figure 1** shows the location of the wells, the general flow direction, groundwater contours, and the radius of influence of the PW-3.

Table 2: Aquifer Summary Table

Aquifer Parameter	MW-1	MW-2	MW-3	MW-4	PW-3
Depth to Water (feet bgs)	35.5	40.95	64.59	42.8	47.45
Approximate Surface Elevation (feet amsl)	4244.1	4249.2	4276.5	4250.0	4258.0
Approximate Groundwater Elevation (feet amsl)	4208.6	4208.3	4211.9	4207.2	4210.6
Flow Direction	87°				
Gradient (feet/foot)	0.013				
Permeability (Darcy)	1.25E-07	8.80E-08	7.34E-09	1.22E-08	6.22E-06
Hydraulic Conductivity (ft/day)	1.02	0.72	0.06	0.10	50.60
Pumping Rate of PW-3 Pump (gpm)					87
Maximum Yield PW-3 (gpm)					86.3
Specific Capacity of PW-3 (gpm/ft)					17.3
Drawdown (feet)	0.48	0.33	3.18	0.40	5.00
Radius of Influence of PW-3 (ft)					95
Proximity from WMU	Cross Gradient	Down and Cross Gradient	Up Gradient	Down Gradient	Cross Gradient
Approximate Linear Distance to WMU (ft)	230	130	80	90	80

Generally, the aquifer beneath the WMU flows from west to east, toward the valley floor at an average gradient of 0.013 feet/foot, from an elevation of 4,211.9 feet above mean sea level (amsl) shown in the upgradient MW-3 monitoring well to 4,207.2 feet amsl in the downgradient monitoring well MW-4. Groundwater is approximately 25 feet below the bottom elevation of the proposed WMU as shown in **Figure 2**.

The PW-3 well yielded a discharge of 87 gpm during the pumping test with a maximum yield of 86.3 gpm. Drawdown resulting from the 24-hour pumping test was observed in all wells. In PW-3, the maximum drawdown was 5 feet; with a resultant specific capacity of 17.3 gpm/ft. The radius of influence is calculated to be 95 feet. Generally, drawdown significantly decreased to less than 0.5 feet outside the radius of influence with the exception of MW-3.

As shown in **Attachment 2**, the pump and recovery curves generated from the MW-3 pressure transducer show a constant downward trend through the duration of the pumping test and a flattening trend during the recovery period. This data indicate that the well had probably not fully reached static conditions due to latent recovery of the water table after well installation and conditioning. Therefore, the drawdown shown in **Table 2** for MW-3 is probably not representative of the actual drawdown that would have occurred had the water level been stable. The end of recovery water level corresponding to the flattening trend in the MW-3 curve was measured at 64.59 feet bgs and was determined to be representative of the aquifer upgradient of the WMU.

Hydraulic conductivity was calculated for each well and ranged from 0.06 ft/day in MW-3 to 50.60 ft/day in PW-3. Well development most likely influenced the resulting hydraulic conductivity calculated for MW-3 due to the "well skin" created from drilling polymer which had not fully been removed from well development. Therefore, the MW-3 hydraulic conductivity was not considered in the sites average distribution of hydraulic conductivities due to its anomalous nature. In MW-1, MW-2, and MW-4 the average hydraulic conductivity is approximately 0.40 ft/day, significantly less than the hydraulic conductivity calculated from the PW-3 pumping well of 50.60 ft/day. **Figure 2** presents a cross-section through the proposed WMU showing the surface and approximate groundwater elevation. MW-3, MW-4, and PW-3 are projected in the cross-section. The bottom elevations of the monitoring wells are similar and are screened through the upper portions of the aquifer beneath the proposed WMU, whereas the bottom elevation of the PW-3 well is significantly deeper than the monitoring wells and screened through a deeper more robust portion of the aquifer, resulting in the distinct difference in hydraulic conductivity values. This distribution suggests a gradational increase in hydraulic conductivity with depth, where the material in the upper portions of the aquifer directly beneath the WMU has relatively low permeability.

1.5. Water Quality

Groundwater samples were collected from all site wells. A groundwater sample of the PW-3 discharge was collected during the middle of the pumping tests, the remaining monitoring wells were sampled post pumping test recovery on October 4, 2010. The samples were collected in accordance with U.S. Environmental Protection Agency (EPA) ground water sampling procedures, via bailing with single use disposable bailers. Well volumes were respectively calculated. Approximately three well volumes were evacuated prior to collecting samples. In addition, measurements of pH, total dissolved solids, electrical conductivity, and temperature were recorded throughout the process of evacuating water from each well and prior to sampling. Water quality samples in addition to one Quality Control sample were submitted to a California certified laboratory for analysis - Western Environmental Testing Laboratory (WET). The samples were analyzed for constituents including dissolved metals and inorganic constituents identified by Inyo Co. Human Health Services. The results of the analyses have been tabulated in **Table 3** and have been compared to previous water quality analytical results for each respective well in addition to comparative values of EPA and California Maximum Contaminant Level (MCL) for drinking water.

Based on available analytical results from samples of groundwater collected from the aquifer at the Bishop Mill site, the groundwater quality generally meets EPA and California MCL. However, analytical results indicate exceedances of the drinking water MCL for Aluminum, Arsenic, and Lead in the upgradient monitoring well MW-3.

Table 3: Water Quality

Parameters	U.S. EPA Drinking Water MCL	California Drinking Water (MCL)	3rd Qtr 2008			3rd Qtr 2010		4th Qtr 2010				
Name of Certified Lab	--	--	Test America	Test America	Test America	WET	WET	WET	WET	WET	WET	WET
Lab Reference #	--	--	MW-1	MW-2	PW-3	MW-1	MW-2	MW-1	MW-2	MW-3	MW-4	PW-3
Sample Date	--	--	8/26/2008	8/26/2008	8/26/2008	8/9/2010	8/9/2010	10/4/2010	10/4/2010	10/4/2010	10/4/2010	10/2/2010
Lab Test Date	--	--	N/A	N/A	N/A	8/10/2010	8/10/2010	10/5/2010	10/5/2010	10/5/2010	10/5/2010	10/5/2010
pH, Lab-su	--	--	--	--	--	8.22	8.22	7.75	7.82	8.21	7.73	7.76
Bicarbonate (HCO3),	--	--	ND	ND	ND	150	180	150	150	360	150	160
Carbonate (CO3),	--	--	ND	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH),	--	--	ND	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Alkalinity,	--	--	ND	ND	ND	130	150	120	120	290	120	130
Chloride,	--	--	ND	ND	ND	24	22	24	24	56	22	35
Fluoride,	2[b]	2	ND	ND	ND	0.44	0.48	0.36	0.44	0.91	0.4	0.34
Sulfate,	--	--	ND	ND	ND	160	150	160	160	430	160	210
NO2 & NO3,	10	10	ND	ND	ND	0.25	0.26	0.27	0.29	0.23	0.3	0.3
Total Dissolved Solids,	--	--	--	--	--	490	460	480	480	1400	450	560
WAD Cyanide,	0.2	0.15	ND	ND	ND	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Aluminum,	0.05 to 0.2[b]	0.2[b]	ND	ND	ND	<0.045	<0.045	<0.045	<0.045	4.4	<0.045	<0.045
Barium,	2	1	0.032	0.03	0.046	0.028	0.029	0.031	0.031	0.064	0.022	0.036
Beryllium,	0.004	0.004	ND	ND	ND	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010
Bismuth,	--	--	ND	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Boron,	--	--	ND	ND	ND	0.24	0.24	0.2	0.21	0.2	0.23	0.20
Cadmium,	0.005	0.005	ND	ND	ND	<0.0010	<0.0010	<0.0010	<0.0010	0.0017	<0.0010	<0.0010
Calcium,	--	--	ND	ND	ND	52	46	56	49	47	50	75
Chromium,	0.1	0.05	ND	ND	ND	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cobalt,	--	--	ND	ND	ND	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper,	1.3[d]	1.3[d]	ND	ND	ND	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Gallium,	--	--	ND	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Iron,	--	--	ND	ND	ND	<0.010	<0.010	<0.010	<0.010	4.9	<0.010	<0.010
Lithium,	--	--	ND	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium,	--	--	ND	ND	ND	3.7	3.6	4	3.9	9.2	3.7	4.9
Manganese,	--	--	ND	ND	ND	<0.0050	<0.0050	<0.0050	<0.0050	0.42	<0.0050	<0.0050
Molybdenum,	--	--	0.015	0.016	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nickel,	--	0.1	ND	ND	ND	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus,	--	--	ND	ND	ND	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Potassium,	--	--	ND	ND	ND	12	12	12	12	9.8	11	12
Scandium,	--	--	ND	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver,	--	--	ND	ND	ND	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium,	--	--	ND	ND	ND	79	79	69	71	320	71	75
Strontium,	--	--	ND	ND	ND	0.51	0.44	0.49	0.43	0.41	0.43	0.57
Tin,	--	--	ND	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium,	--	--	ND	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Vanadium,	--	--	ND	0.0053	0.0056	0.012	0.013	<0.010	<0.010	0.02	<0.010	<0.010
Zinc,	--	--	ND	ND	0.18	<0.010	<0.010	<0.010	<0.010	0.094	<0.010	0.11
Mercury,	0.002	0.002	ND	ND	ND	0.00016	0.00024	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Antimony,	0.006	0.006	0.010	0.0087	0.0052	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic,	0.010	0.010	ND	0.0068	ND	0.0053	0.0062	<0.0050	0.0055	0.015	0.0054	<0.0050
Lead,	0.015[d]	0.015[d]	ND	ND	ND	<0.0025	<0.0025	<0.0025	<0.0025	0.019	<0.0025	<0.0025
Selenium,	0.05	0.05	ND	ND	ND	<0.0050	<0.0050	<0.0050	<0.0050	0.0091	<0.0050	<0.0050
Thallium,	0.002	0.002	ND	ND	ND	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Anions, meq/L	--	--	--	--	--	6.51	6.74	6.5	6.51	16.5	6.45	8.02
Cations, meq/L	--	--	--	--	--	6.64	6.34	6.43	6.16	18	6.17	7.72
Error, %	--	--	--	--	--	1	3.1	<1.0	2.8	4.5	2.2	1.9
VOCs	--	--	ND	ND	ND	ND	ND	--	--	--	--	--

Note
MCL and Anylitical Results in (mg/L) unless otherwise specified, pH in s.u.
ND = Not detected at the reporting limit.
b. Secondary MCL

d. Regulatory Action Level; if system exceeds, it must take certain actions such as additional monitoring, corrosion control studies and treatment, and for lead, a public education program; replaces MCL

2. Conclusions and Recommendations

The items identified by the Board in the July 2010 Report of Waste Discharge for the Bishop Mill Project related to groundwater characterization that require additional data and/or further clarification before the Board can act on the application have been addressed in the hydrogeology investigation discussed herein. The results have been tabulated and discussed in the above sections. In summary:

- **Groundwater flow direction and gradient:**
  - 87° from west to east at 0.013 feet/foot
- **Permeability and hydraulic conductivity of the aquifer**:
  - Upper aquifer – 0.40 ft/day, lower aquifer – 50.6 ft/day
- **Pumping rate and capacity of the well proposed for process make-up water (PW-3):**
  - Pumping rate is 87 gpm with a capacity of 17.3 gallons/ft
- **Drawdown extent and potential radius of influence based on the proposed pumping rate of the PW-3 production well:**
  - Drawdown of 5 feet with a potential radius of influence of 95 feet
- **Affect of drawdown on the aquifer over time:**
  - No affect on drawdown outside the radius of influence at the maximum capacity and no affect on drawdown assumed based on the operational pumping rate of 20 gpm.
- **Background groundwater quality to complying with Title 27, section 20414(e)(6):**
  - Generally meets EPA and California drinking water MCL

SRK recommends additional well development be conducted on both groundwater monitoring wells MW-3 and MW-4.

3. References

Hvorslev, M.J., 1951, *Time lag and soil permeability in groundwater observations*. U.S.Army Corps of Engineers Waterways Experimentaion Station, Bulletin 36.

Kruseman, G.P., and DeRidder, N.A., 1970, *Analysis and Evaluation of Pumping Test Data, 2nd edition*. International Institute for Land Reclamation and Improvement, Publication 47.

Fetter, C.W., 2001, *Applied Hydrogeology Fourth Edition*.

SRK appreciates the opportunity to continue to work with CMC on this project. Should you have any questions regarding this investigation, please call me at 775.828.6800.

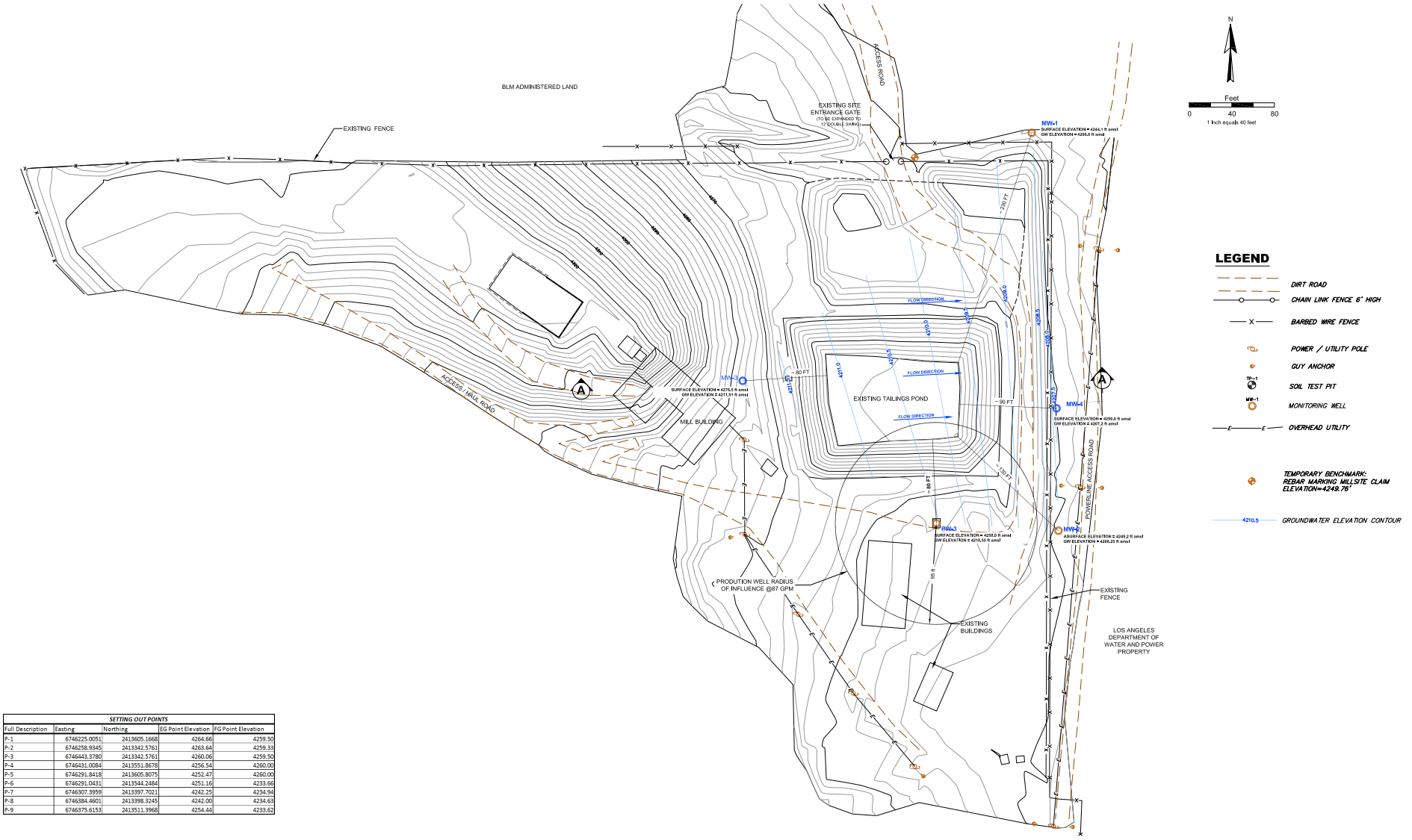
Regards,

Matt Banta
SRK Project Hydrogeologist

Attachments:
Attachment 1 – Well Completion Details
Attachment 2 – Slug and Pump Test Curves and Test Results
Attachment 3 – Laboratory Analytical Results

Figures:
Figure - 1 Wells, Flow Direction, Groundwater Contours, and Radius of Influence
Figure – 2 Cross-Section of Proposed WMU Showing Approximate Groundwater Elevations

FIGURES



SETTING OUT POINTS

Full Description	Easting	Northing	EG Point Elevation	FG Point Elevation
P-1	6746225.0051	2413605.1668	4264.66	4259.50
P-2	6746258.9345	2413342.5761	4263.64	4259.33
P-3	6746443.3780	2413342.5761	4260.06	4259.50
P-4	6746431.0084	2413551.8678	4256.54	4260.00
P-5	6746291.8418	2413605.8075	4252.47	4260.00
P-6	6746291.0431	2413544.2484	4251.16	4233.66
P-7	6746307.3959	2413397.7021	4242.25	4234.94
P-8	6746384.4601	2413398.3245	4242.00	4234.63
P-9	6746375.6153	2413511.3968	4254.44	4233.62

DRAWING TITLE	NO.	ISSUE PURPOSE	AUTH. BY	DATE	REV.	DESCRIPTION	CHK'D	APP'D	DATE
REFERENCE DRAWINGS		ISSUE AUTHORIZATION				REVISIONS			

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

PREPARED FOR:

0877887 B.C. LTD.

(A WHOLLY-OWNED SUBSIDIARY OF CMC METALS)

DRAWING TITLE:

EXISTING TOPOGRAPHY AND HYDROGEOLOGY MAP

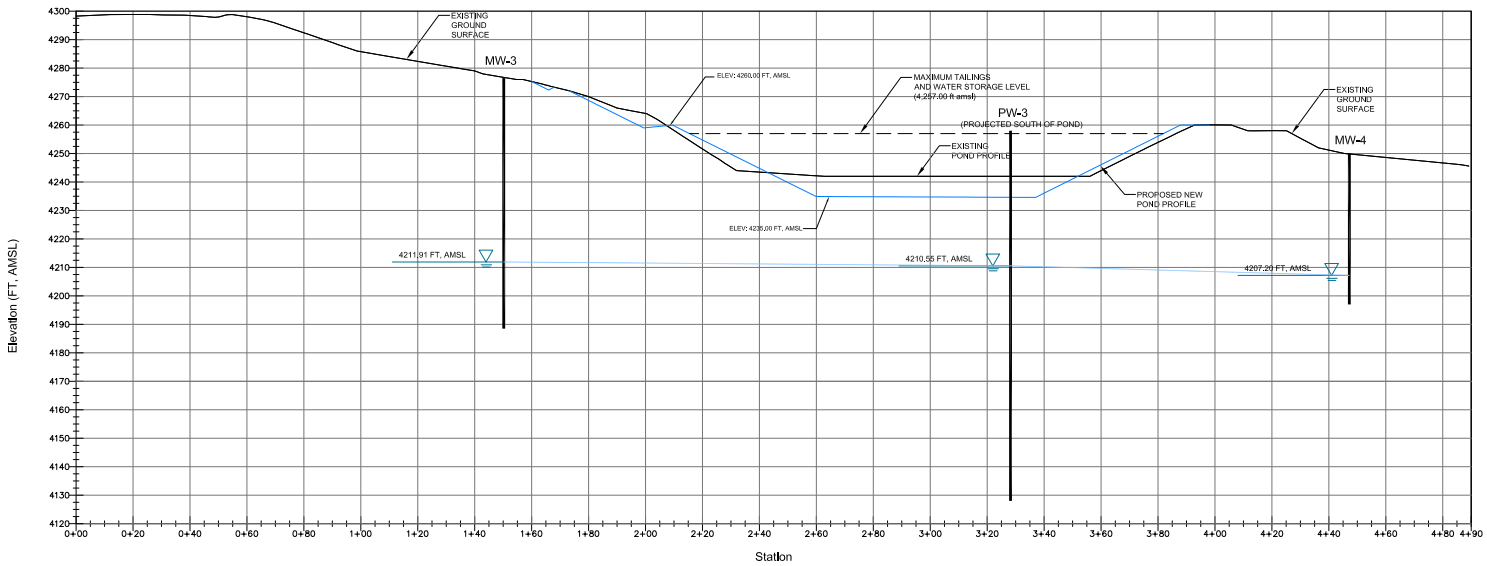
DRAWING NO. **FIGURE 1**

SHEET 1 OF 1

REVISION NO. A

SRK JOB NO.: 204600.010

H:\CMC Metals (Bishop Mill)\204600.010_Bishop_Mill_Waste_Discharge_Permit\040_Drafting\Bishop_Mill_Fig_1_Hydro_SY_20101022.dwg



POND CROSS-SECTION A-A (A)
SCALE: 1"=40'

Well	tatic Wat (feet
MW-:	64.5
MW-4	42.
PW-3	47.4

Notes
MW-: W-4 were
Kiln d a sand.
Belov Surface
PW-3 npletion

NO.	ISSUE PURPOSE	AUTH. BY	DATE	REV.	DESCRIPTION	CHK'D	APP'D	DATE
				A	REPORT OF WASTE DISCHARGE	DB	RBB	6/28/10

DRAWING TITLE | REFERENCE DRAWINGS | ISSUE AUTHORIZATION | REVISIONS

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

PREPARED FOR:
0877887 B.C. LTD.
(A WHOLLY-OWNED SUBSIDIARY OF CMC METALS)

DRAWING TITLE:
CROSS-SECTION OF PROPOSED WASTE MANAGEMENT UNIT AND GROUNDWATER ELEVATIONS

DRAWING NO. **FIGURE 2** | SHEET 1 OF 1 | REVISION NO. A

SRK JOB NO.: 204600.010

H:\CMC Metals (Bishop Mill)\204600.010_Bishop_Mill_Waste_Discharge_Permit\040_Drafting\Bishop_Mill_TSF_SY_20101022.dwg

ATTACHMENT 1

ORIGINAL
File with DWR

Page ___ of ___
Owner's Well No. ___
Date Work Began ___ Ended ___
Local Permit Agency Inyo County Environmental
Permit No. 06-049 Permit Date ___

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 1091061

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	5	SAND
5	20	Pumice
20	40	Coarse Gravel & SAND
40	45	Clay
45	50	Sand & Gravel

TOTAL DEPTH OF BORING ___ (Feet)
TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER
Name Gordon Stavils & Rodger Smith
Mailing Address P.O. Box 1661
City Bishop State CA Zip 93515

WELL LOCATION
Address Bishop (Multisite)
City Bishop California
County Inyo County
APN Book 010 Page 140 Parcel 10B
Township ___ Range ___ Section ___
Lat ___ N DEG. MIN. SEC. Long ___ W DEG. MIN. SEC.

LOCATION SKETCH
NORTH / WEST / EAST / SOUTH
Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING X
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL
DEPTH TO FIRST WATER 22' (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	30	10	✓				PVC - SCH 200	6"	CL200	
30	50	10		✓			~~SCH 200~~	6"	CL200	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20	✓			
20	50			✓	Bird's eye

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME Reeve Drilling Inc (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS P.O. Box 1624 CITY Bishop STATE CA ZIP 93515
Signed Ralph Reeve C-57 LICENSED WATER WELL CONTRACTOR
DATE SIGNED 10/24/06
C-57 LICENSE NUMBER 621193

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03 78836

ORIGINAL
File with DWR

Page ___ of ___
Owner's Well No. ___
Date Work Began 10/16/06 Ended 10/16/06
Local Permit Agency Inyo County Environmental Health
Permit No. ___ Permit Date ___

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 1091072

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	5	Sand
5	20	Pumice
20	40	Coarse Gravel w/Sand
40	45	Clay
45	52	Sand & Gravel
52	60	Clay

TOTAL DEPTH OF BORING 60 (Feet)
TOTAL DEPTH OF COMPLETED WELL 50 (Feet)

WELL OWNER
Name Hallenbeck Running Corp
Mailing Address P.O. Box 661 CA 93514
City Bishop State Zip

WELL LOCATION
Address 4 miles N. Thibaud Rd.
City Bishop
County Inyo County
APN Book 010 Page 140 Parcel 106
Township 6S Range 33E Section 4SW
Lat ___ DEG. ___ MIN. ___ SEC. N Long ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH
NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING
TEST WELL
CATHODIC PROTECTION
HEAT EXCHANGE
DIRECT PUSH
INJECTION
VAPOR EXTRACTION
SPARGING
REMEDIATION
OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL
DEPTH TO FIRST WATER 22 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 25 (Ft.) & DATE MEASURED 9/16/06
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	30	12"	X				PVC	6"	Cl. 200	
30	50	12"		X			PVC	6"	Cl. 200	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20	X			
20	50			X	Bird's eye Grade

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME Reese Drilling Inc (PERSON, FIRM OR CORPORATION) (TYPED OR PRINTED)
ADDRESS P.O. Box 1627 CITY Bishop STATE Ca ZIP 935
Signed ___ C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED ___ C-57 LICENSE NUMBER 621

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 0

SRK Consulting
Engineers and Scientists

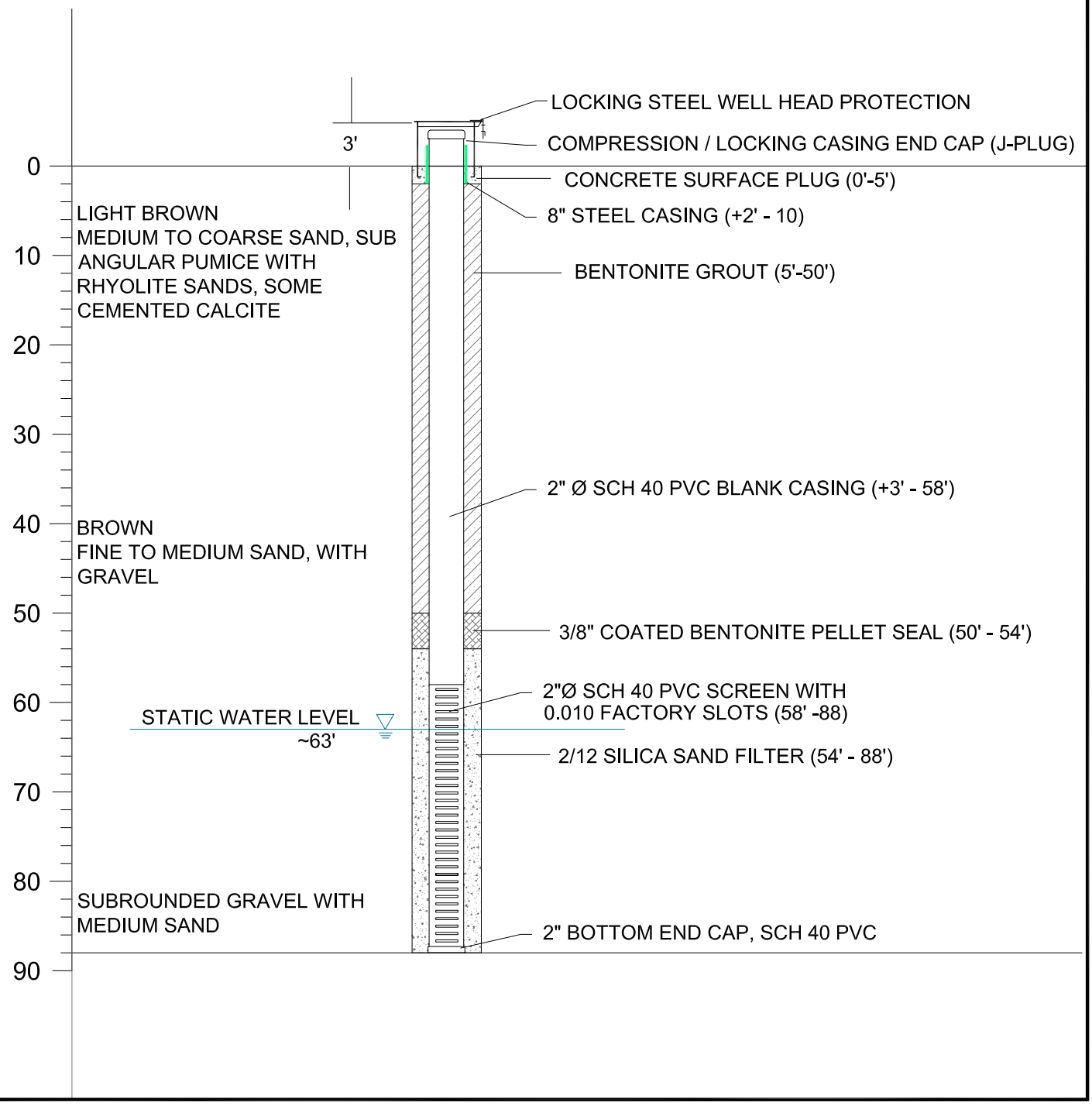
COMPLETION LOG

PROJECT: BISHOP MILL
PROJECT NO.: 204600.010
TOTAL DEPTH OF CASING: 88'

LOGGED BY	MATT BANTA	DRILLER	REEVES DRILLING CO.	FLUID USED	POLYMER
DATE FINISH:	9/29/10	DRILL METHOD	MUD ROTARY	GROUT MATERIAL	BENTONITE GROUT
GROUND WATER ENCOUNTERED:	52	HOLE DIAMETER	8.5"	SEAL MATERIAL	BENTONITE PELLETS
GROUND WATER STATIC:	63	SCREEN SIZE	0.010" FACTORY SLOTS	FILTER MATERIAL	2/12 SILICA SAND
		CASING MATERIAL	2" SCH 40 PVC	OVERDRILL MATERIAL	NONE

DEPTH (feet) 88'

WELL CONSTRUCTION **MW-3**



SRK Consulting
Engineers and Scientists

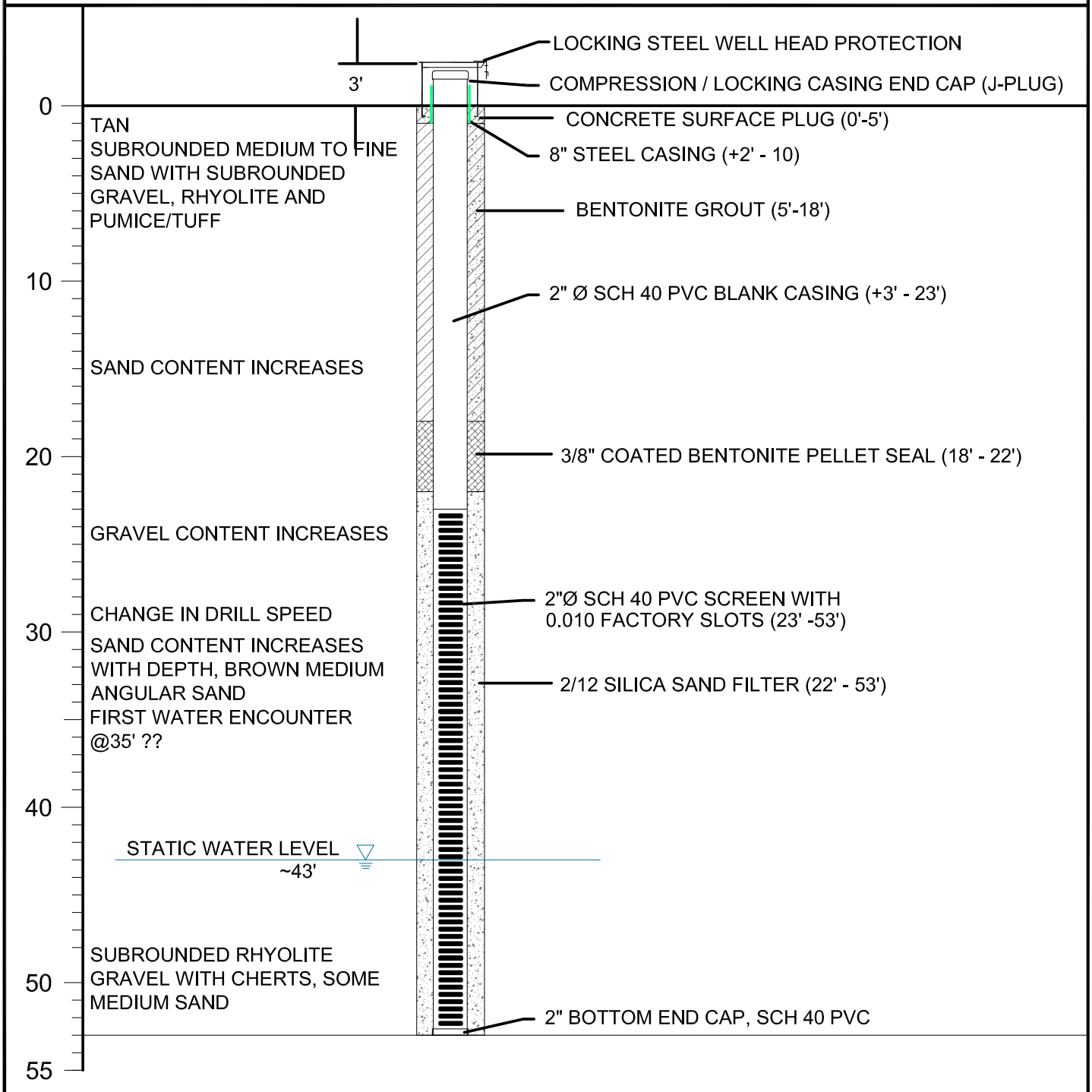
COMPLETION LOG

PROJECT: BISHOP MILL
PROJECT NO.: 204600.010
TOTAL DEPTH OF CASING: 53'

LOGGED BY	MATT BANTA	DRILLER	REEVES DRILLING CO.	FLUID USED	POLYMER
DATE FINISH:	9/30/10	DRILL METHOD	MUD ROTARY	GROUT MATERIAL	BENTONITE GROUT
GROUND WATER ENCOUNTERED:	35	HOLE DIAMETER	8.5"	SEAL MATERIAL	BENTONITE PELLETS
GROUND WATER STATIC:	43'	SCREEN SIZE	0.010" FACTORY SLOTS	FILTER MATERIAL	2/12 SILICA SAND
		CASING MATERIAL	2" SCH 40 PVC	OVERDRILL MATERIAL	NONE

DEPTH (feet) 53'

WELL CONSTRUCTION **MW-4**



ORIGINAL
File with DWR

Page ___ of ___
Owner's Well No. ___
Date Work Began 10/13/06 Ended 10/13/06
Local Permit Agency Inyo County Environmental
Permit No. ___ Permit Date 3/9/06

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 1091073

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	5	Sand
5	20	Pumice
20	40	Sand Gravel
40	45	Clay
45	50	Sand & Gravel
50	65	Sand & Gravel

TOTAL DEPTH OF BORING 65' (Feet)
TOTAL DEPTH OF COMPLETED WELL 50 (Feet)

WELL OWNER

Name Mammoth Lakes Mining Co
Mailing Address PO Box 661
City Bishop State Ca. Zip 93514

WELL LOCATION

Address 4 miles N of Laws, Rte 6 Ph. Co.
City Bishop
County Inyo County
APN Book 012 Page 140 Parcel 10 B
Township 6S Range 33E Section 4 SW
Lat ___ DEG. ___ MIN. ___ SEC. N Long ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 22' (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 31' (Ft.) & DATE MEASURED 9/18/06
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CORR-OSION RESISTANT	FULL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	40	12"	X				PVC	5"	CL 200	
40	50	12"		X			PVC	5"	CL 200	.032

DEPTH FROM SURFACE Ft.	to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PAC (TYPE/SIZE
0	22	X			
22	50				Bkfs Gravel

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

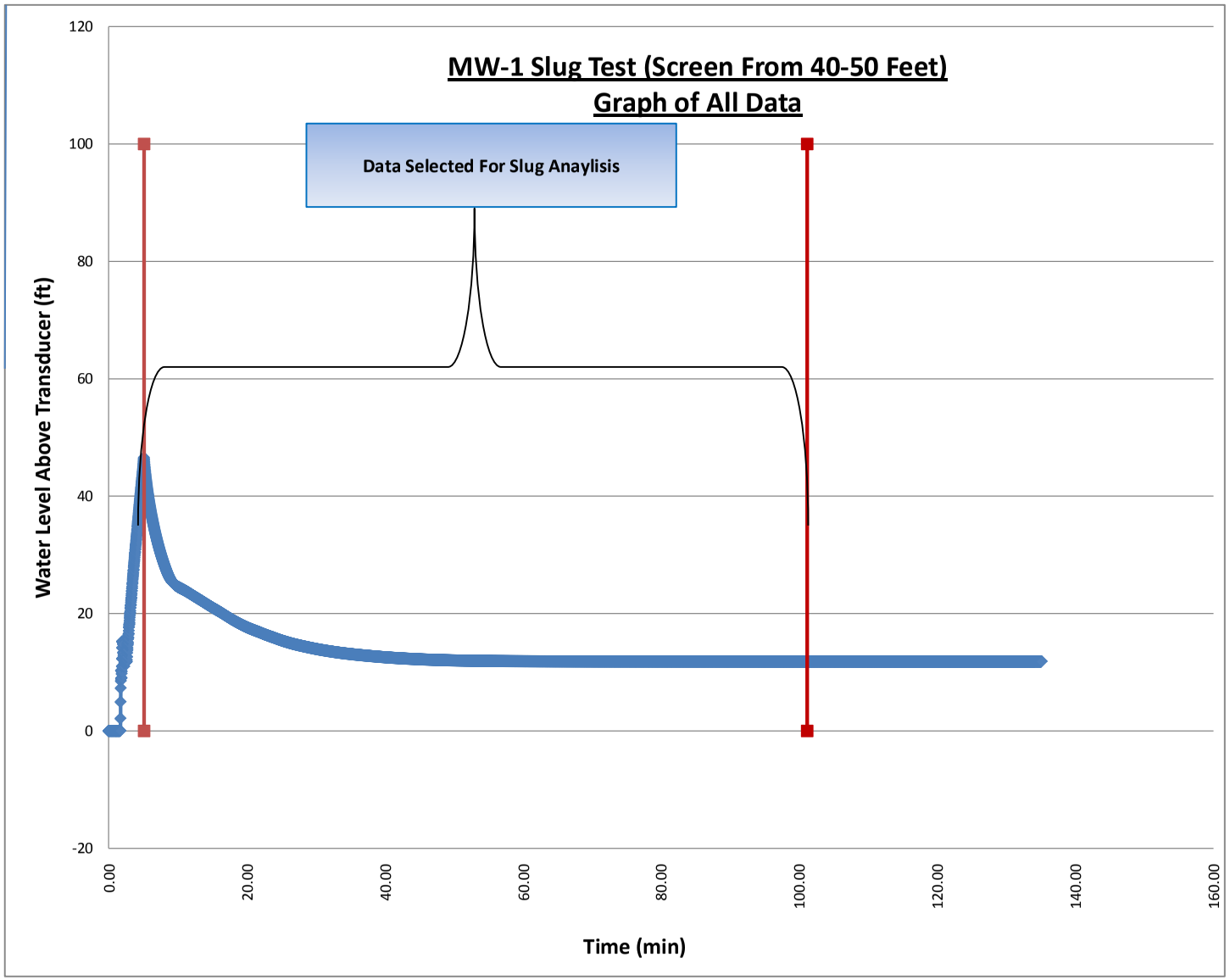
CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

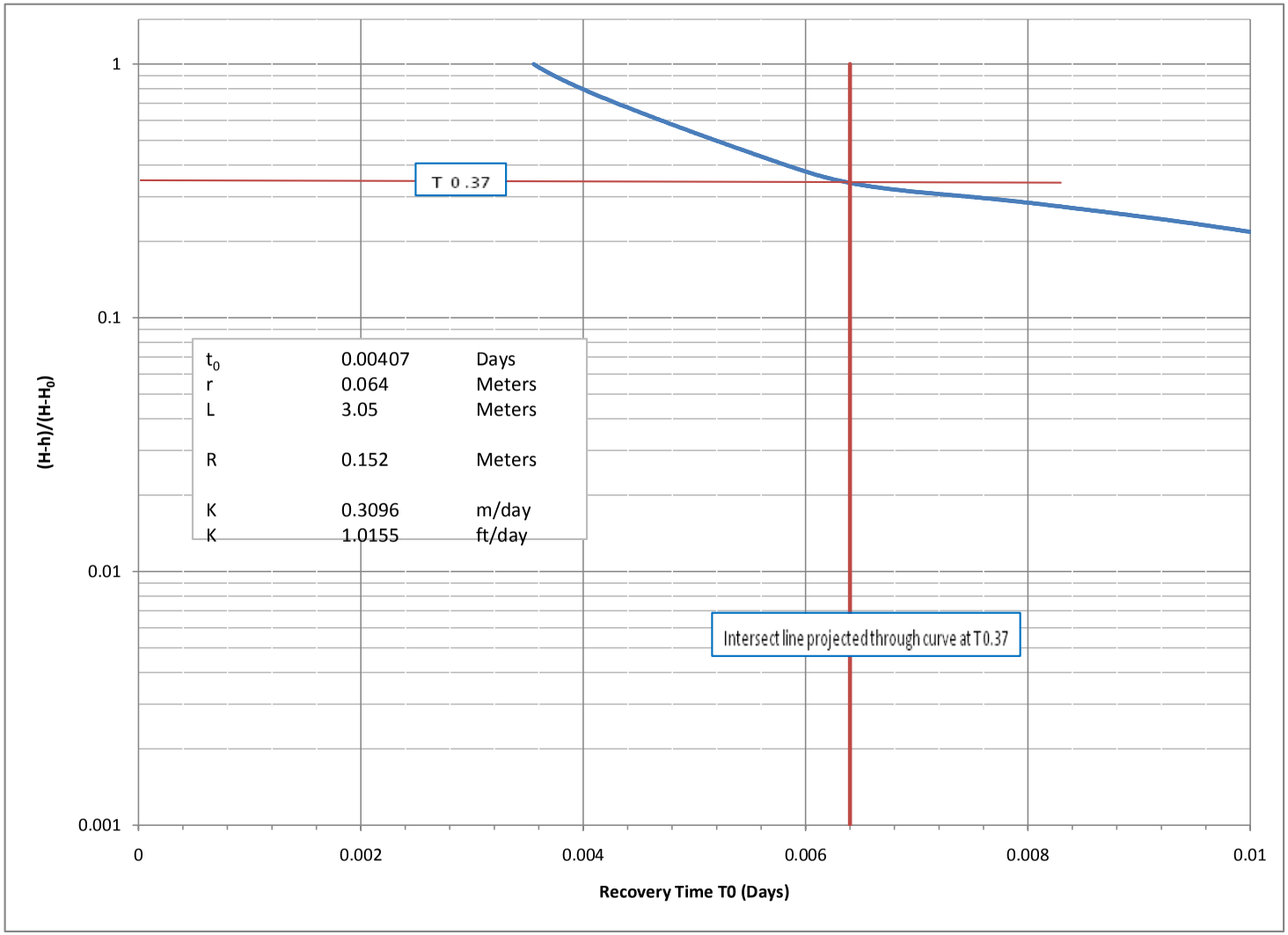
NAME Reeve Drilling Inc. (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS PO Box 1624 CITY Bishop STATE Ca. ZIP 93514
Signed Ralph Reeve (C-57 LICENSED WATER WELL CONTRACTOR) DATE SIGNED 10/21/06 G-57 LICENSE NUMBER

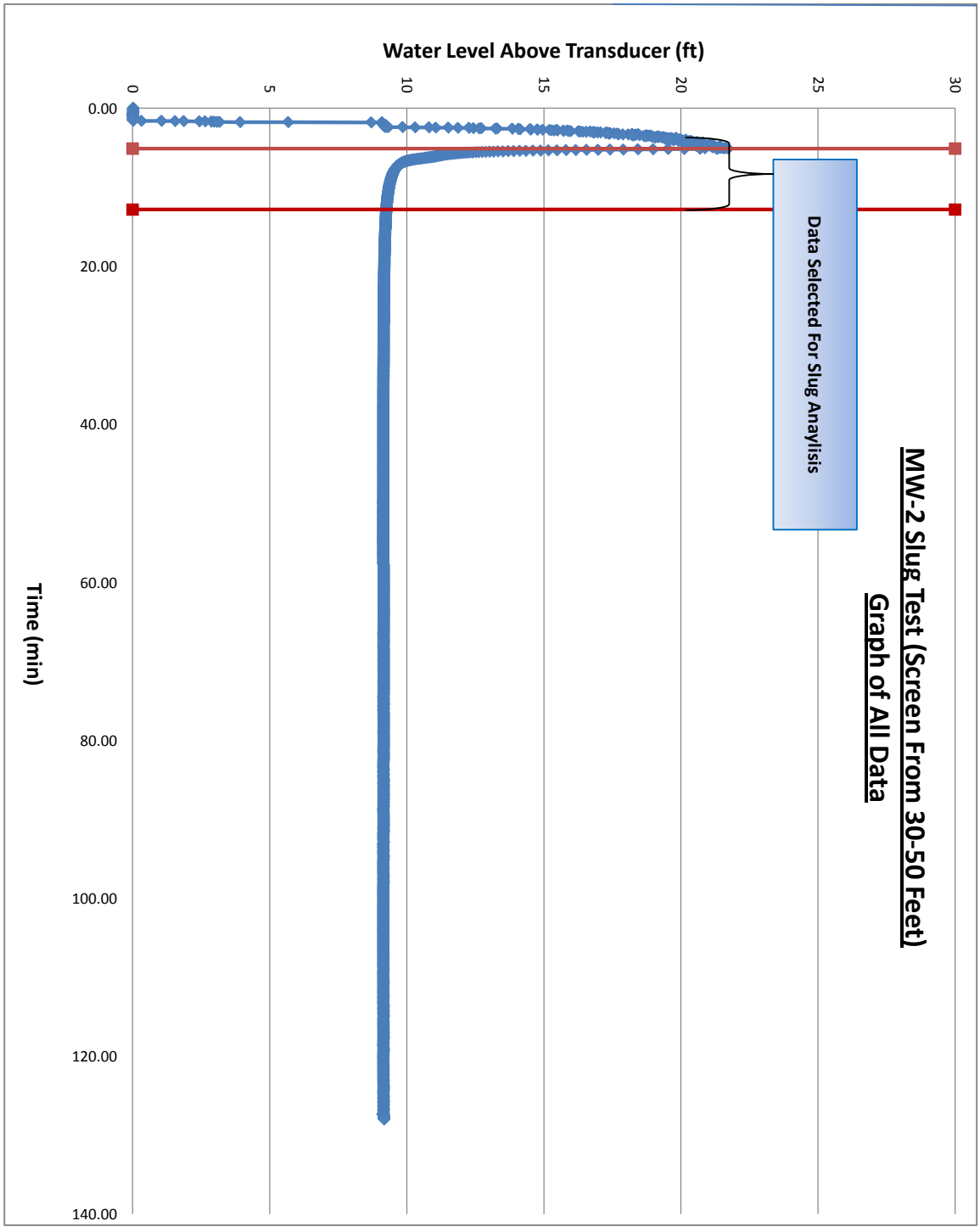
DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03

ATTACHMENT 2

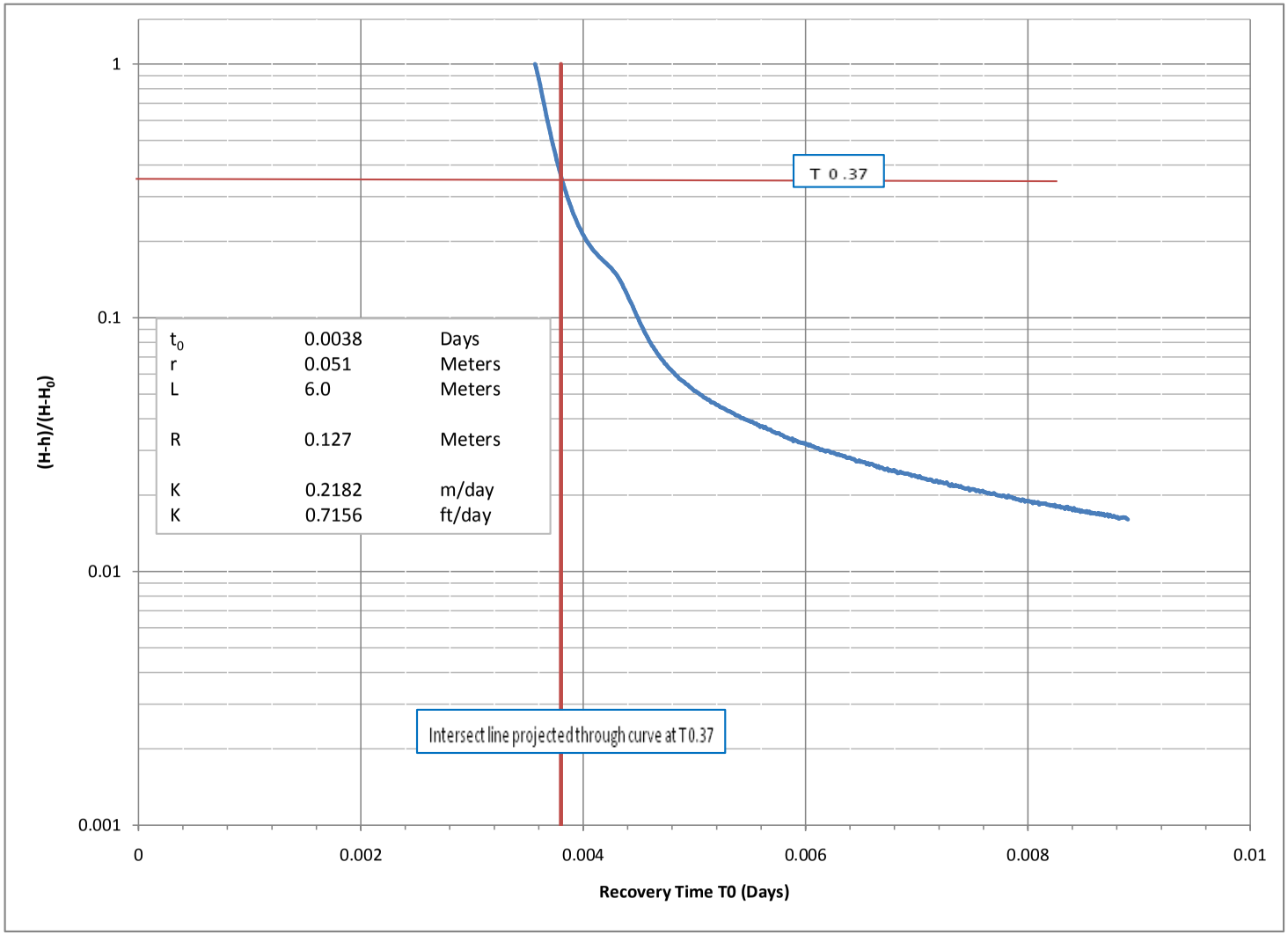

MW-1 Slug Test (Screen From 40-50 Feet)
Graph of All Data
Data Selected For Slug Anaylisis
Water Level Above Transducer (ft)
120
100
80
60
40
20
0
-20
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
Time (min)

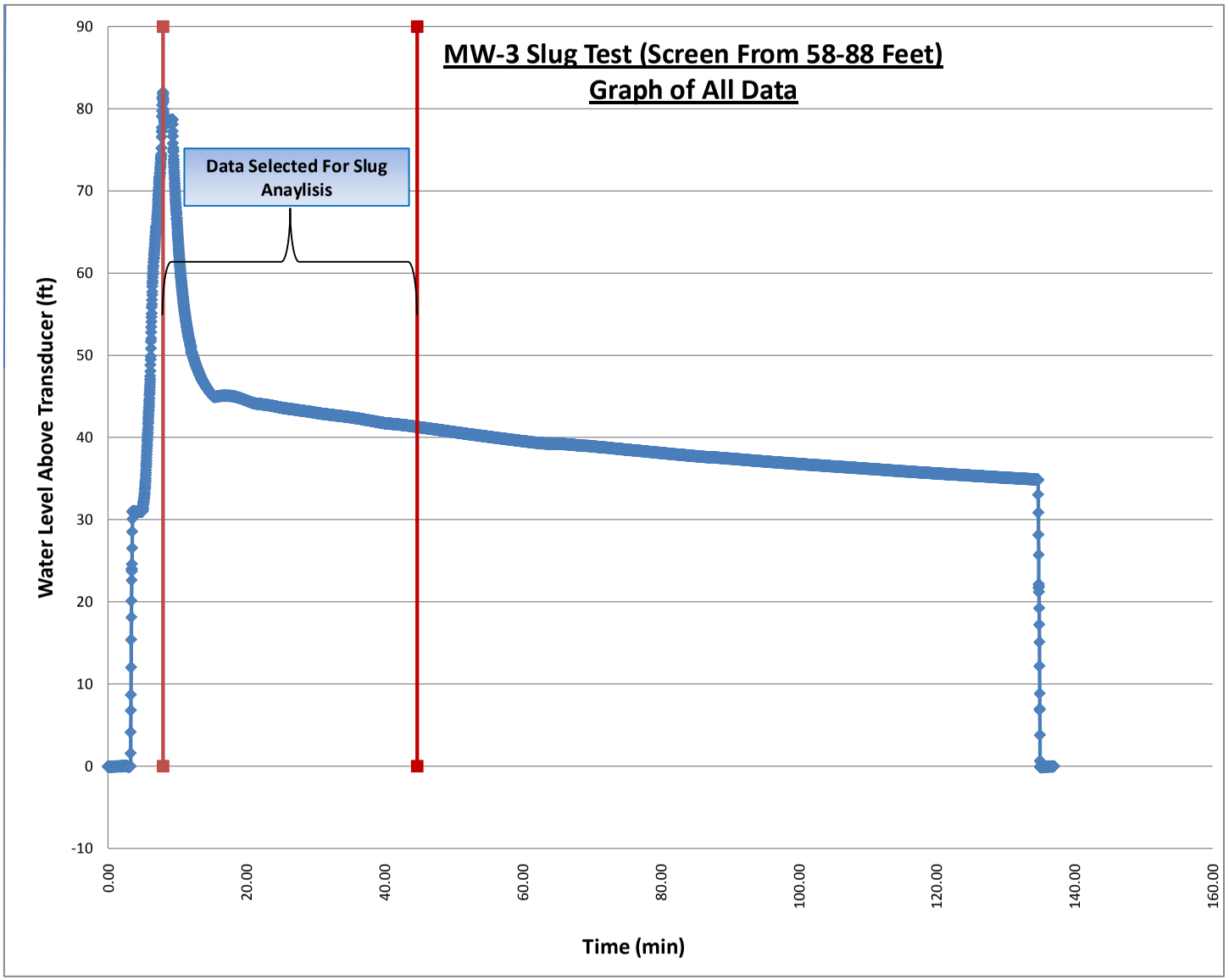
MW-1 Slug Test



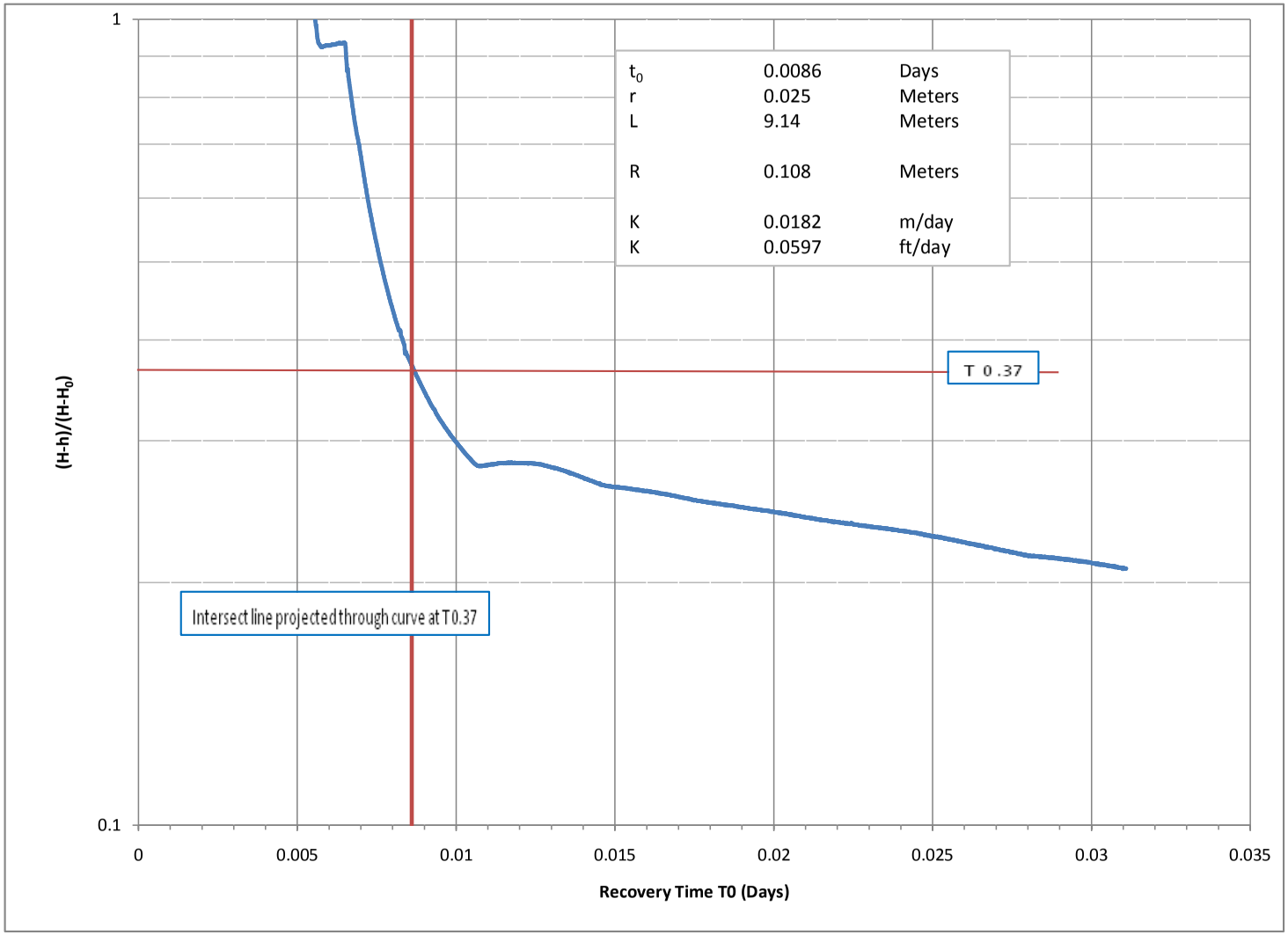

Water Level Above Transducer (ft)
0
5
10
15
20
25
30
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
Time (min)
Data Selected For Slug Anaylisis
MW-2 Slug Test (Screen From 30-50 Feet)
Graph of All Data

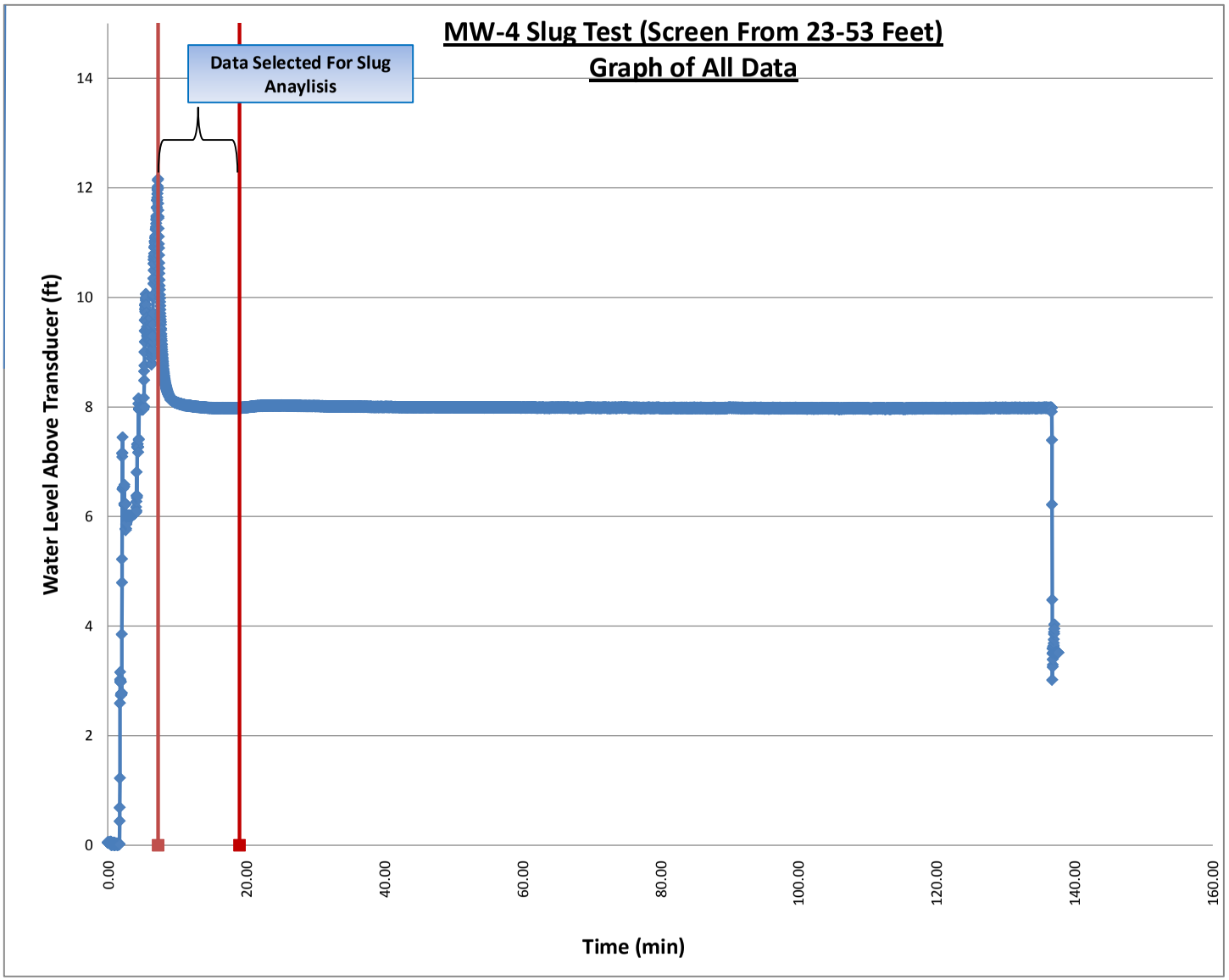
MW-2 Slug Test



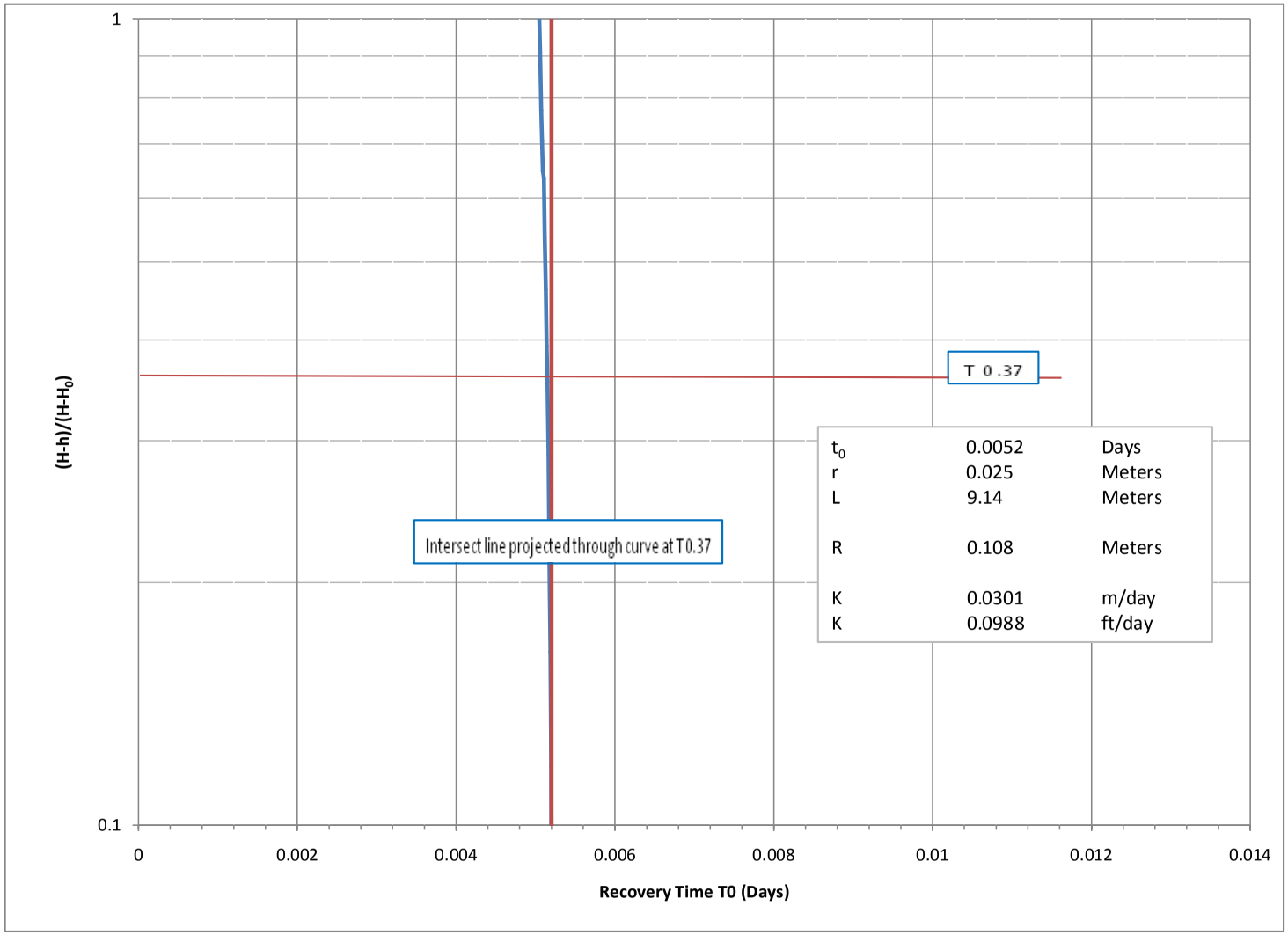

MW-3 Slug Test (Screen From 58-88 Feet)
Graph of All Data
Data Selected For Slug Anaylisis
Water Level Above Transducer (ft)
90
80
70
60
50
40
30
20
10
0
-10
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
Time (min)

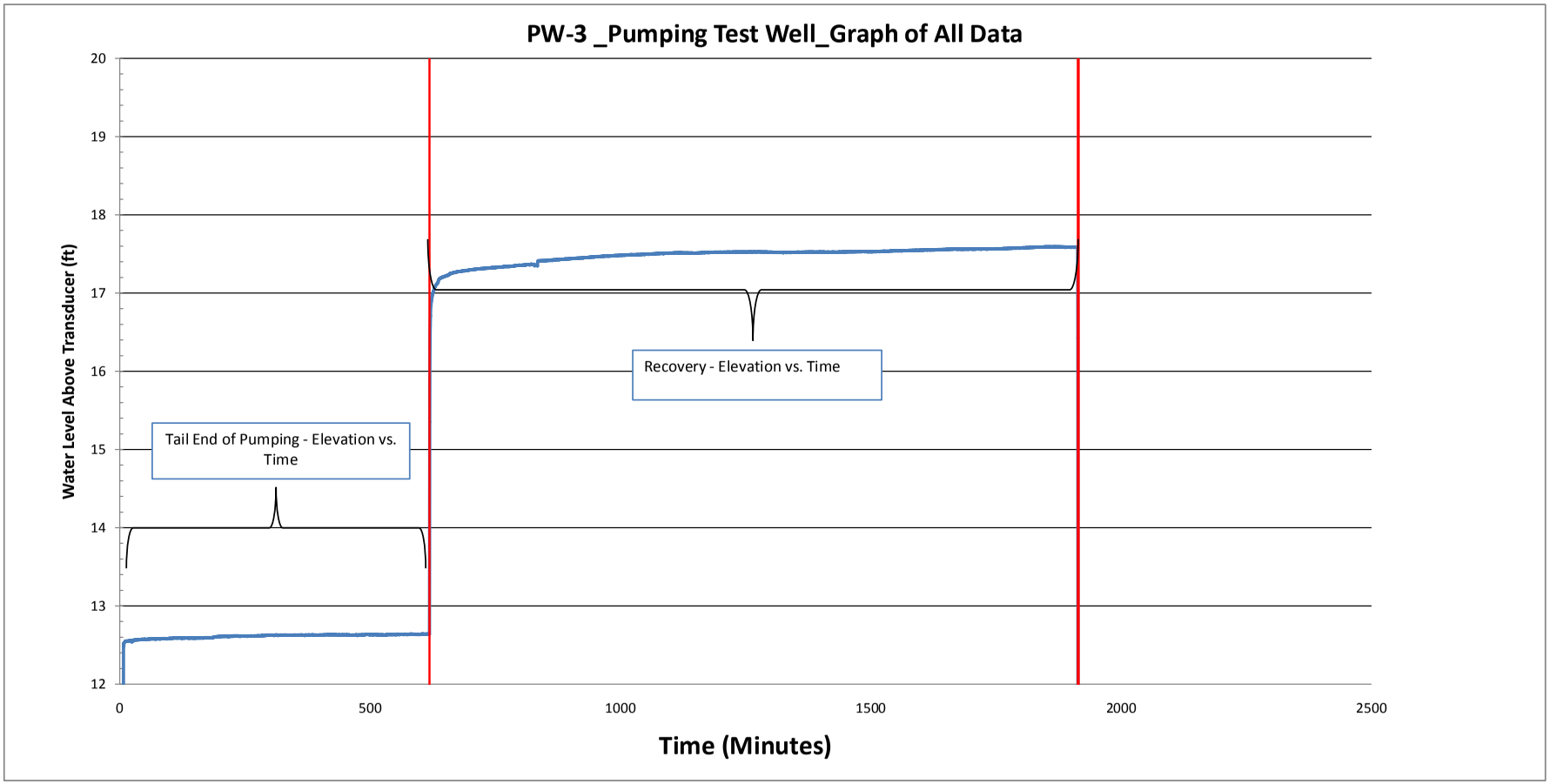
MW-3 Slug Test

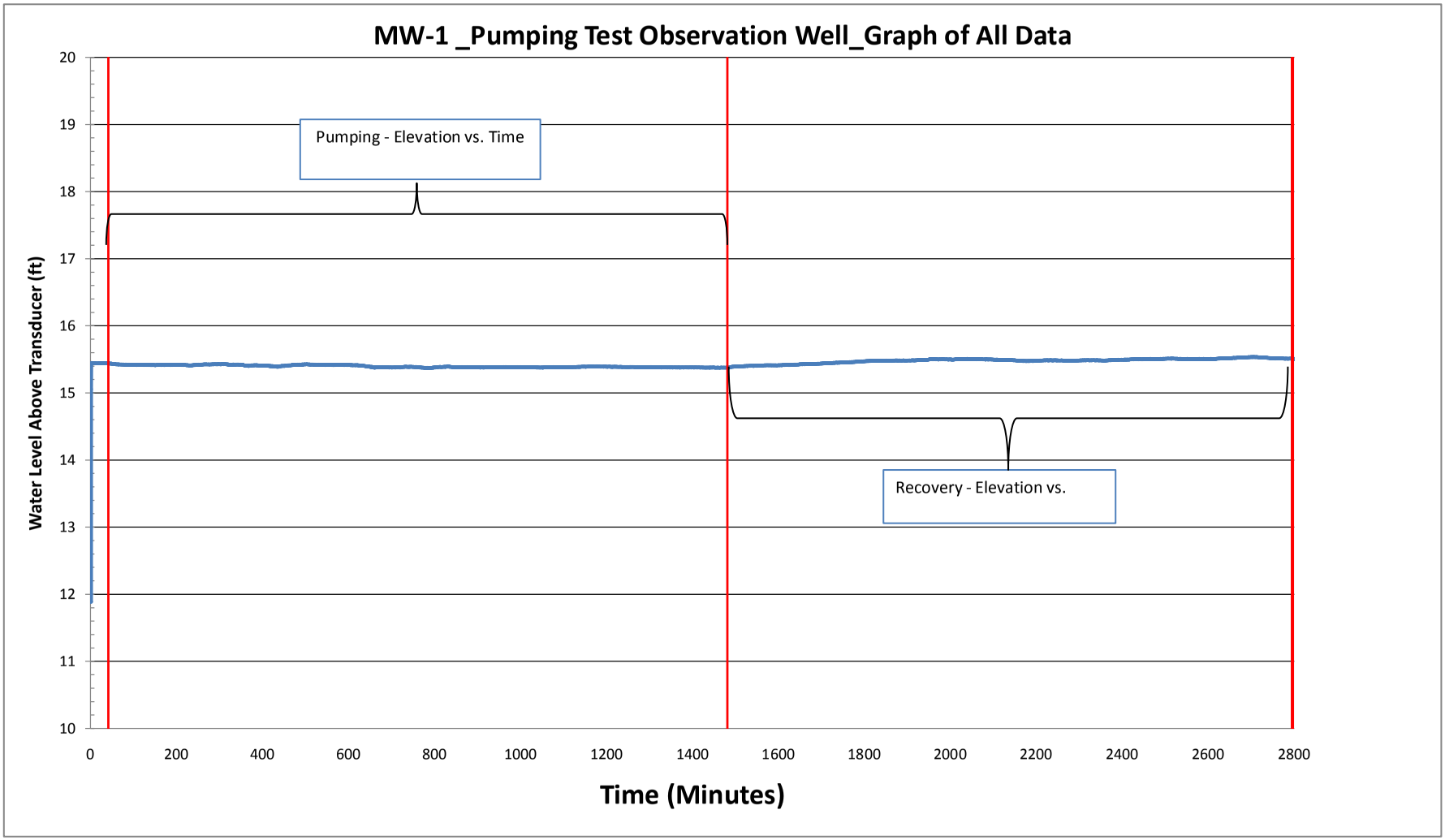


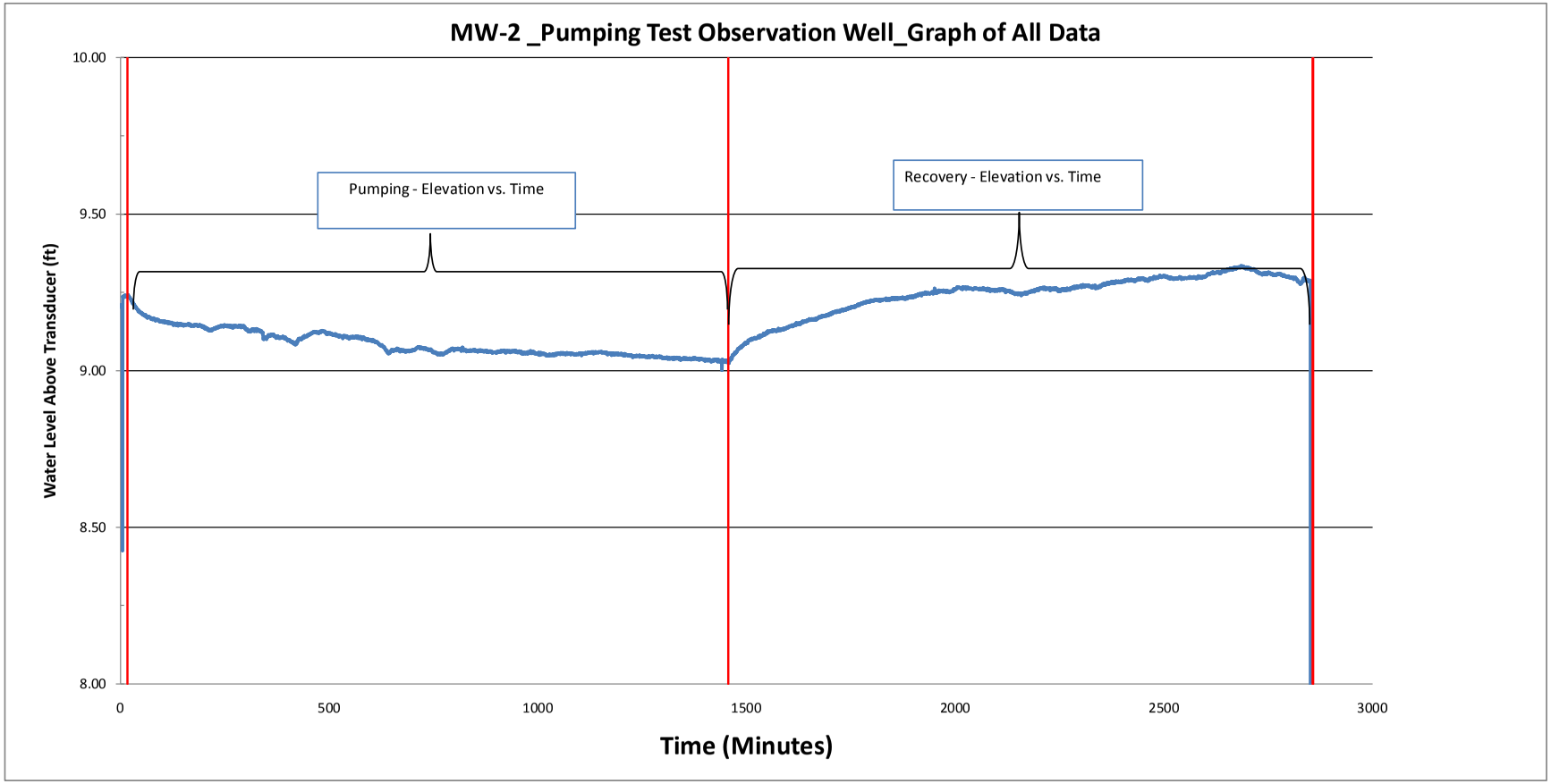

MW-4 Slug Test (Screen From 23-53 Feet)
Graph of All Data
Data Selected For Slug Anaylisis
Water Level Above Transducer (ft)
0
2
4
6
8
10
12
14
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
Time (min)

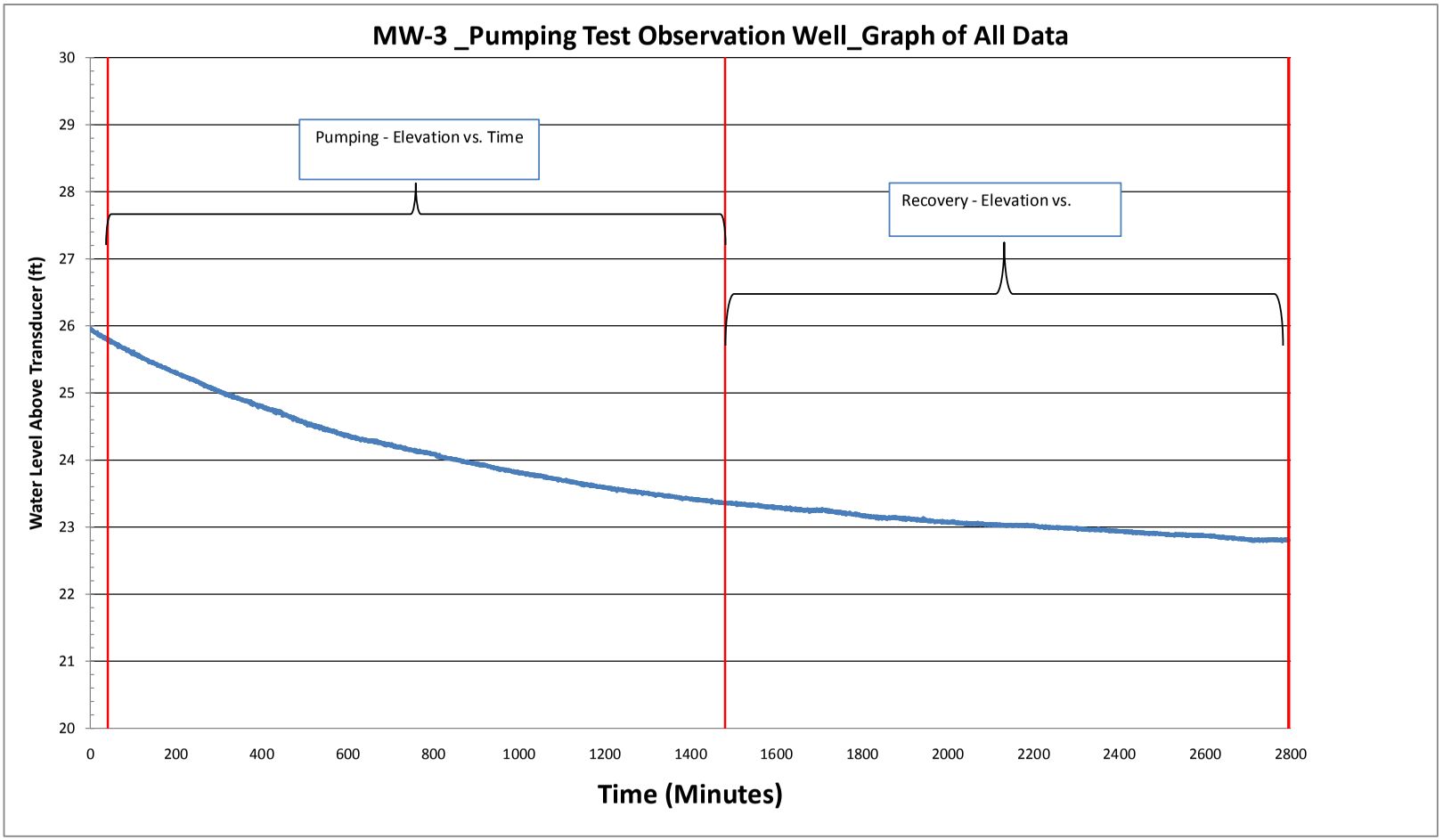
MW-4 Slug Test

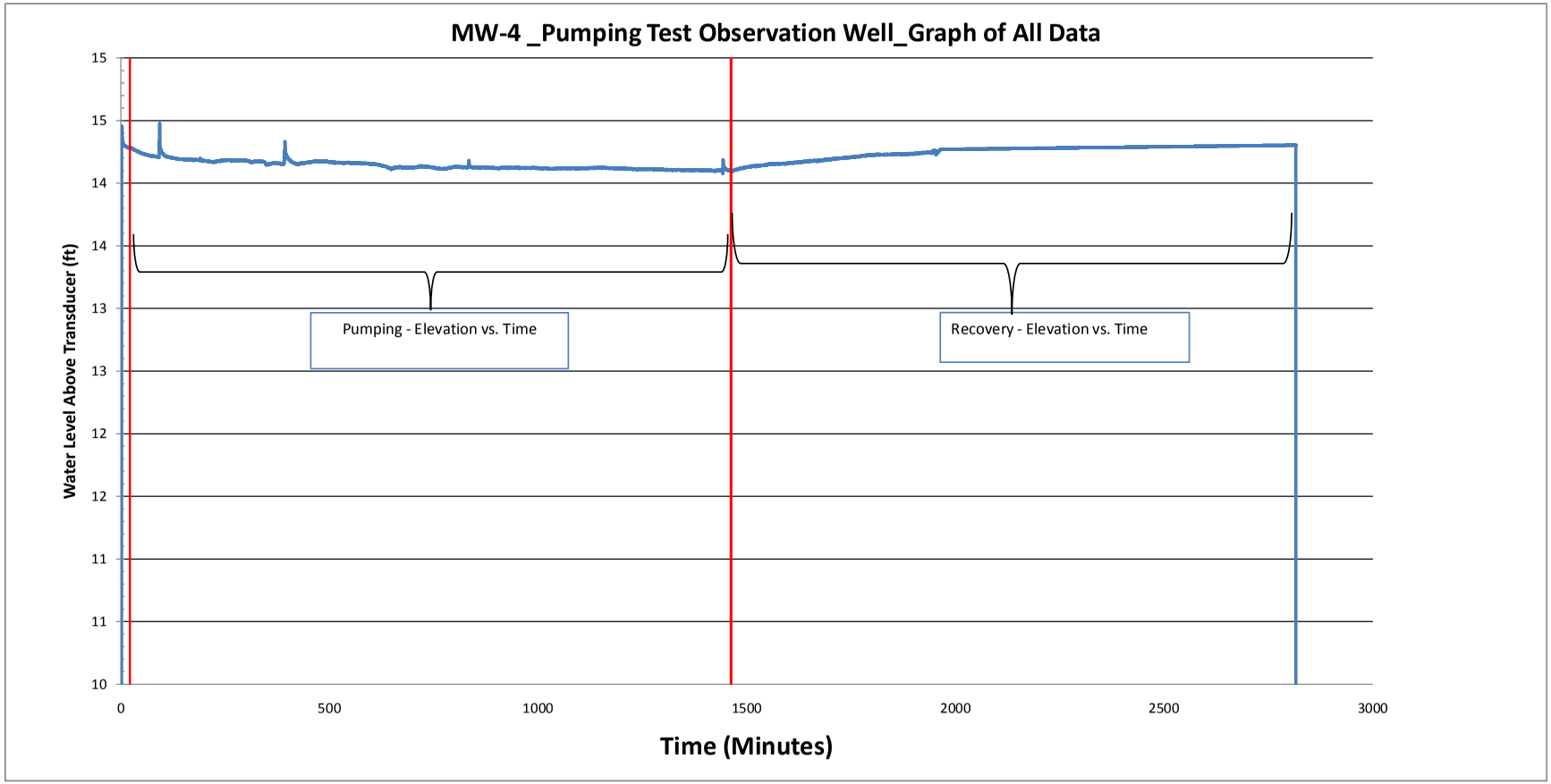



PW-3 _Pumping Test Well_Graph of All Data
Water Level Above Transducer (ft)
20
19
18
17
16
15
14
13
12
0
500
1000
1500
2000
2500
Time (Minutes)
Recovery - Elevation vs. Time
Tail End of Pumping - Elevation vs. Time


MW-1 _Pumping Test Observation Well_Graph of All Data
Water Level Above Transducer (ft)
20
19
18
17
16
15
14
13
12
11
10
Pumping - Elevation vs. Time
Recovery - Elevation vs.
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
Time (Minutes)


MW-2 _Pumping Test Observation Well_Graph of All Data
Water Level Above Transducer (ft)
10.00
9.50
9.00
8.50
8.00
Pumping - Elevation vs. Time
Recovery - Elevation vs. Time
0
500
1000
1500
2000
2500
3000
Time (Minutes)


MW-3 _Pumping Test Observation Well_Graph of All Data
Water Level Above Transducer (ft)
30
29
28
27
26
25
24
23
22
21
20
Pumping - Elevation vs. Time
Recovery - Elevation vs.
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
Time (Minutes)


MW-4 _Pumping Test Observation Well_Graph of All Data
Water Level Above Transducer (ft)
15
15
14
14
13
13
12
12
11
11
10
0
500
1000
1500
2000
2500
3000
Time (Minutes)
Pumping - Elevation vs. Time
Recovery - Elevation vs. Time