AECOM

Appendix E

Worthington 2008

REPORT ON

KARST INVESTIGATIONS
AT THE
PROPOSED ST MARYS
FLAMBOROUGH QUARRY

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1. Introduction

This reports addresses the issue of karstification of the bedrock at the proposed St Marys Flamborough Quarry and supplements the hydrogeological reports compiled by Gartner Lee and by Lotowater Technical Services.

Traditional studies of karstification have focussed on the studies of caves and large springs (White, 1988; Ford and Williams, 1989). The extent to which most carbonate (i.e. dolostone and limestone) aquifers become karstified has been open to question for two reasons. The first reason is that there have been few studies of karstication using data from wells. The second reason is that the processes by which karst aquifers are formed used to be poorly understood. However, in recent years there have been great advances in understanding in both fields. There have been a number of studies to understand how karstification is manifested in well data (e.g. Worthington and Ford, 1995; Worthington, 1999), and lab experiments on dissolution rates (e.g. Plummer and Wigley, 1976) have provided the foundation for numerical models that show how karstic permeability evolves over time (e.g. Dreybrodt, 1996).

The numerical modelling has given many insights on karstifiction, and one of the most important parameters has been found to be the type of recharge to the aquifer. Two types are shown in Figure 1. The first type occurs where a creek flows off another rock onto carbonates. Such flows often have low concentrations of dissolved calcite and dolomite, and Figure 1a assumes a value of zero (i.e. $c_{in}=0$). In this case, solution is focussed along a small number of pathways through the aquifer. This results in most of the flow through the aquifer being via a small number of large channels which may reach cave size (i.e. big enough for a person to enter). There are good examples at the Eramosa Karst Conservation Area in Hamilton where there are several sinking streams that flow off thick overburden deposits onto the Eramosa Member of the Lockport Formation. One of these sinks into a cave with a cross-section of about 1 m^2. The cave has been mapped for a distance of 300 m to a point where the passage dips below the water table (Buck et al., 2003). The sinking streams reappear at the surface at springs that have peak flows of at least some tens of litres per second.

The other end member is where there is percolation recharge. Most of the dissolution of the bedrock takes place close to the bedrock surface, often enlarging fractures in the top few metres

of the bedrock to form a weathered zone or epikarst. Water percolating downwards below the weathered zone is then close to saturation with respect to calcite or dolomite. With dissolved calcium carbonate initially at 98% of saturation (c_{in}=0.98), Figure 1b shows how many fractures in the bedrock are enlarged at similar rates, resulting in an interconnected network of many solutionally-enlarged fractures, or channels. Channels start by being slightly-enlarged fractures and evolve towards having an elliptical shape and eventually to a circular shape when their diameter exceeds 10 cm. Boreholes typically intersect a number of channels of different sizes, with the larger ones often having apertures of at least several millimetres. Where the groundwater flows to the surface there are likely to be many seeps or small springs Such a situation is shown in Figure 1b. This latter type of karst aquifer is far more predictable than the former type. Boreholes typically intersect one or more channels. The large number of small channels means that aquifer responses to pumping are much more predictable than where sinking streams provide most of the recharge to the aquifer.

Field work was carried out to determine which of these two types the Amabel aquifer at the site is closest to. Accordingly, the identification of modes or recharge to the aquifer and discharge from the aquifer was the focus of the field work.

The second part of the karst work involved reviewing the well data to identify the nature and location of preferential flow horizons in the aquifer, in order to determine the extent of preferential flow through channels and whether these are clustered at particular stratigraphic horizons, elevations above sea level, or depth below the surface.

2. Surface features at the site

Topographic maps with 1 m contour intervals from 2006 mapping by Harrington and Hoyle Ltd. and from 2002 mapping on the City of Hamilton web site were used to identify the locations of closed depressions and valleys (Figure 2). In general, overburden thickness at the site is up to five metres and there are areas with exposed bedrock. Given the variable thickness of overburden, there is the potential for the development of sinking streams. Consequently all closed depressions and valleys on the site were visited to check for the presence of localized recharge to the aquifer via sinkholes or sinking streams and also for the presence of discharge from the aquifer via seeps or springs.

The creeks were first checked in October 2007, when groundwater levels, spring flows and creek flows were close to their lowest levels. The only perennial flow at the site was found to be a branch of Mountsberg Creek which crosses the site close to its western extremity (Figure 2). Tributary A and Tributary D were both found to be dry on October 22, 2007 (Figures 3 and 4). In the case of Tributary D, the online pond was almost dry as well. The bottom of this pond is 1-2 m below the level of the creek.

The majority of the field work was carried out during the spring freshet of 2008 when water levels were at their highest and when any ephemeral sinking streams and springs were most likely to be flowing. No springs of any significance were found on the site. The largest discharges of groundwater were at three seeps that have been monitored by Stantec and are designated S3, S3a and S5a. The measured flows of these seeps on April 25, 2008.were extremely low: 0.05/s, 0, and 0.08 L/s, respectively (Figure 5). The minor flows from these seeps are suggestive of a flow pattern as shown in Figure 1b, with the aquifer having very many small channels.

Close to the south-west boundary of the site, there are many small enclosed depressions with water ponded in them when visited on April 14 (Figure 6). Depressions 1 and 2 (Figure 2) are the largest, but there are any smaller and shallower ones. In the open fields there are a number of shallow enclosed depressions (3, 4, 5, 9, 10, 11) and these all held water for about two weeks after snowmelt; depression 10 (Figure 7) is typical. The largest enclosed depression on the site (#12) had a lake that was 300 m in length but less than 1 m in depth on April 22, but by May 9 it was much smaller (Figure 8); by May 25 it was reduced to one shallow pool less than 20 m in length. In wooded areas to the north and east of the site there are a number of closed depressions (6, 7, 8, 9, 13, 14, 15, 16, 17, 18) that had no indications that they ever hold standing water.

The pattern of flooding of depressions in low-lying areas and over low-permeability overburden during the spring freshet is common in southern Ontario. In none of the depressions or dry valleys visited was there any evidence found for concentrated recharge to the aquifer. Along Tributary A, discharge from the aquifer to the surface is via small seeps. The combination of percolation recharge to the aquifer and seepage discharge from the aquifer indicates that flow in the aquifer is likely to be similar to the pattern in Figure 1b rather than Figure 1a. Consequently, there are likely to be many channels of moderate dimensions in the aquifer.

3. Analysis of borehole data

Gamma logs for almost the whole thickness of the Amabel Formation are available from 16 wells (Lotowater, 2007). There are no distinctive gamma features within the Amabel Formation that can be traced between boreholes, indicating a lack of argillaceous units. This has a bearing on karstification as channels often form at the boundary between pure and argillaceous dolomites. The absence of argillaceous units implies that channelling is unlikely to be focussed at any particular horizons within the Amabel Formation.

Downhole videos are available for 21 boreholes (Lotowater, 2007). Three major types of void can be distinguished from the downhole videos. Side-scan shots are invaluable for viewing these features. Zones of fractured rock are found in some boreholes. These can collapse into the borehole, causing difficulties in lowering instruments. Often these fractured-rock zones are associated with little flow into the well. However, in BHB13 there is such a zone at a depth of -7.4 m to -13.5 m which appears to be producing nearly all the flow into the well.

Nodules of gypsum up to several centimetres in diameter are commonly found in the bedrock. Gypsum is roughly ten times as soluble as dolomite and these nodules have often been dissolved, leaving vugs. These are isolated permeability features and so provide minimal contribution to the permeability of the aquifer.

Channels are the third type of void. These are substantial dissolutional widenings of fractures which provide pathways for preferential flow. Occasionally channels are intersected that have heights in the centimetre range; Figure 9 shows the largest channel seen in any of the videos from the site . However, the largest channels intercepted in most boreholes are a only few millimetres in height and have width/height ratios that are typically 2 to 10 (Figures 10-12). Most of the boreholes on site have flow from a number of horizons when they are being pumped (Lotowater, 2007) and in most cases the flow can be seen to be from channels. The implication is that there are very many channels in the bedrock and it is these that provide almost all the permeability in the aquifer.

Almost all the channels seen in the boreholes are developed along near-horizontal bedding planes, though a few are seen on near-vertical fractures (Figure 13. However, this is almost certainly due to sampling bias as the near-vertical boreholes are parallel to channels developed on the near-

vertical fractures. The channels on the vertical and horizontal fractures are interconnected, forming channel networks, as in a three-dimensional version of Figure 1b.

Flow meter, electrical conductivity, temperature, caliper and video data all contribute to showing the location of flows into the borehole while it is being pumped (Lotowater, 2007). Plots of inflows to the boreholes with respect to stratigraphic horizons, to elevations above sea level, and to depth below the surface show that there is no clustering of major flows in the aquifer at particular stratigraphic horizons, elevation above sea level, or depth below the surface (Figure 14).

Monitoring wells 15, 18 and 22 are all within 200 m of each other and all have major inflows 5-7 m above the base of the Amabel Formation. However, nearby wells 10 and 14 have their major inflows 32 m and 12 m above the base of the Amabel, respectively. Thus it appears that there is no trend across the site with respect to the location of channels within the Amabel Formation. Rather, at any location high permeability could be found anywhere within the Amabel and so for numerical modelling it is best treated as a single high-permeability layer.

It should be noted that the data shown in Figure 14 refer only to the horizons in each borehole with the largest discharges. In addition there are usually at least several other horizons in each borehole with measurable flow from smaller channels.

4. Conclusions

The surface data collected from the site shows that recharge to the aquifer is exclusively by percolation, and no evidence for concentrated recharge via sinking streams was found. Discharge from the aquifer observed on site is by small seeps. This suggests that flow in the aquifer is likely to be via many channels of moderate dimensions. The well data bear this out. Most wells intersects a number of horizons with channels. Thus the conceptual model for the aquifer is that the majority of flow is via channels that mostly have apertures in the millimetre range, with some having apertures of several centimetres. The channels form an interconnected network, as in Figure 1b. The aquifer does not behave exactly like a porous medium, but its behaviour is similar enough so that numerical models based on porous medium assumptions will give reasonable estimates for flow and water levels in the aquifer.

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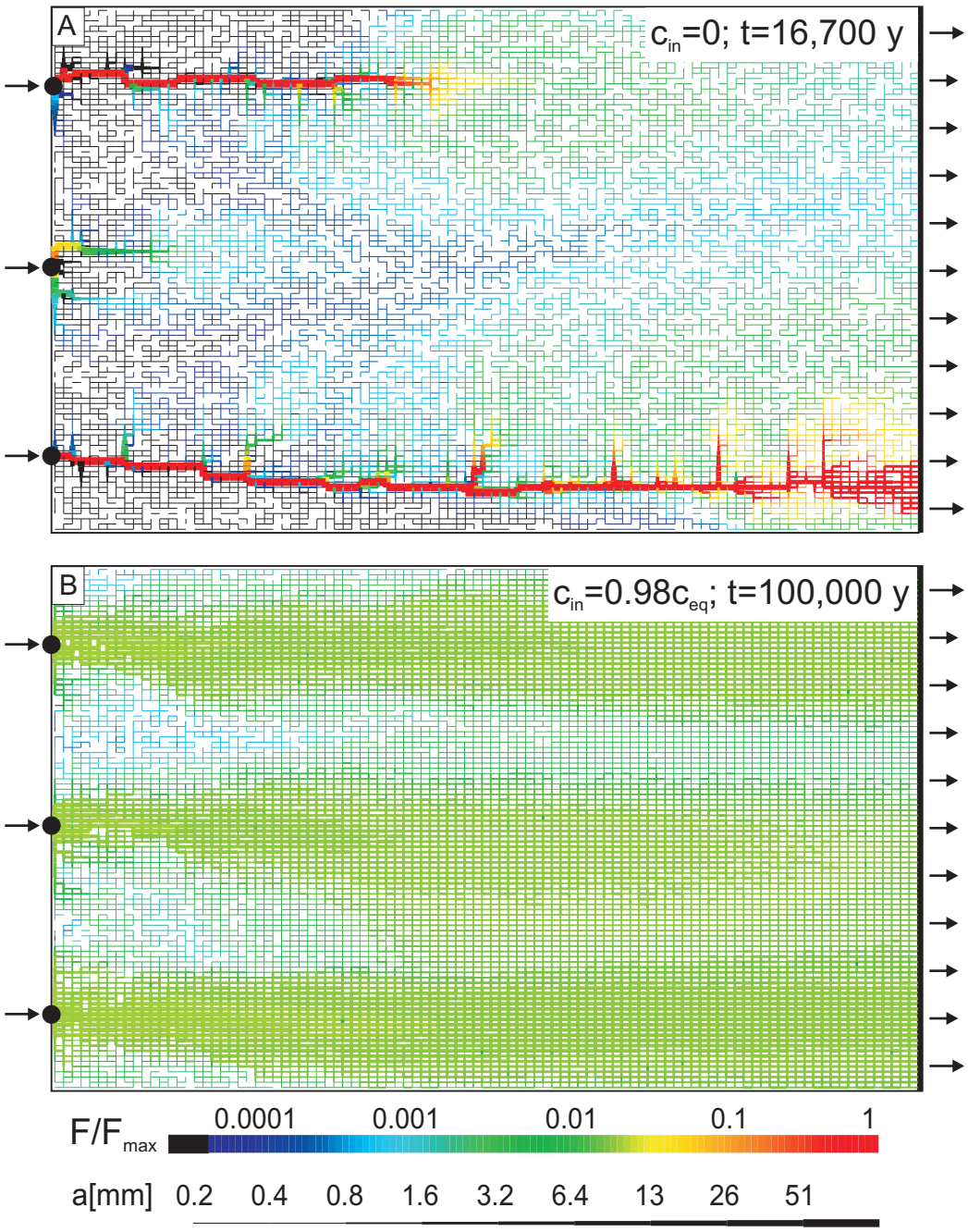


Figure 1. Numerical simulations of fracture enlargements in an aquifer 2 km long and 0.5 km wide, with recharge at 0% saturation (A, top) and 98% saturation (B, bottom) with respect to calcium carbonate, with PCO2 = 0.05. Recharge is at three points on the left boundary and discharge is at all fractures on the right boundary. The colours represent solution rates as a fraction of the maximum solution rate (F/Fmax), which is 4E-12 mol cm-2 s-1. Line thicknesses represent the aperture a, in mm. The top simulation results in great enlargement of few fractures whereas the lower simulation results in moderate enlargement of many fractures (figures provided by F. Gabrovsek, from Dreybrodt et al., 2005, Figure 4.46).

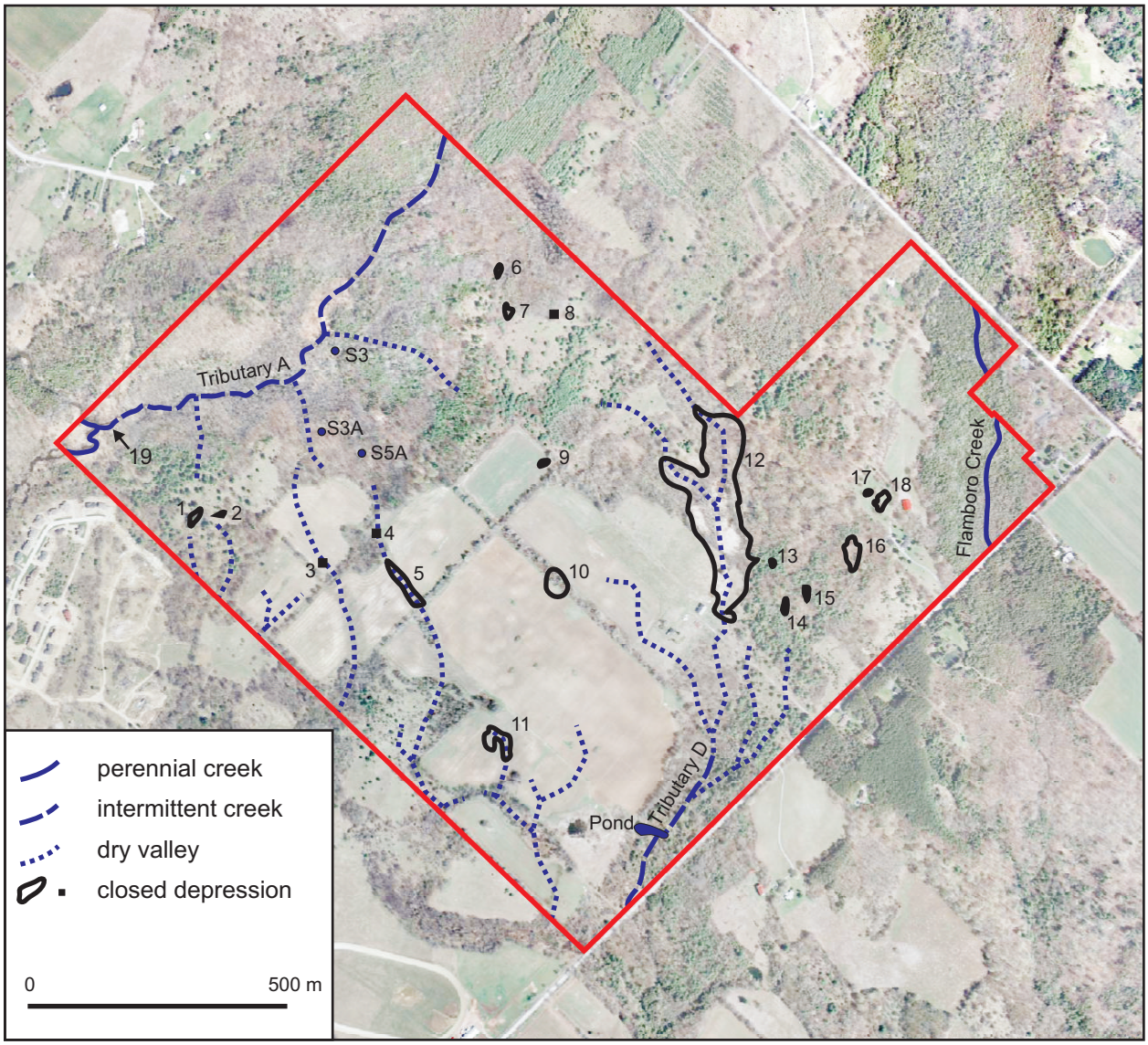


Figure 2. Map of the site showing closed depressions, dry valleys, and major seeps.

Figure 3. Tributary A at the monitoring station (location 19 on Figure 3), showing zero flow on October 22, 2007 (left), and substantial flow on May 25, 2008 (right)

Figure 4. The inline pond on Tributary D on October 22, 2007 looking west (left) and on May 25, 2008 looking east (right).

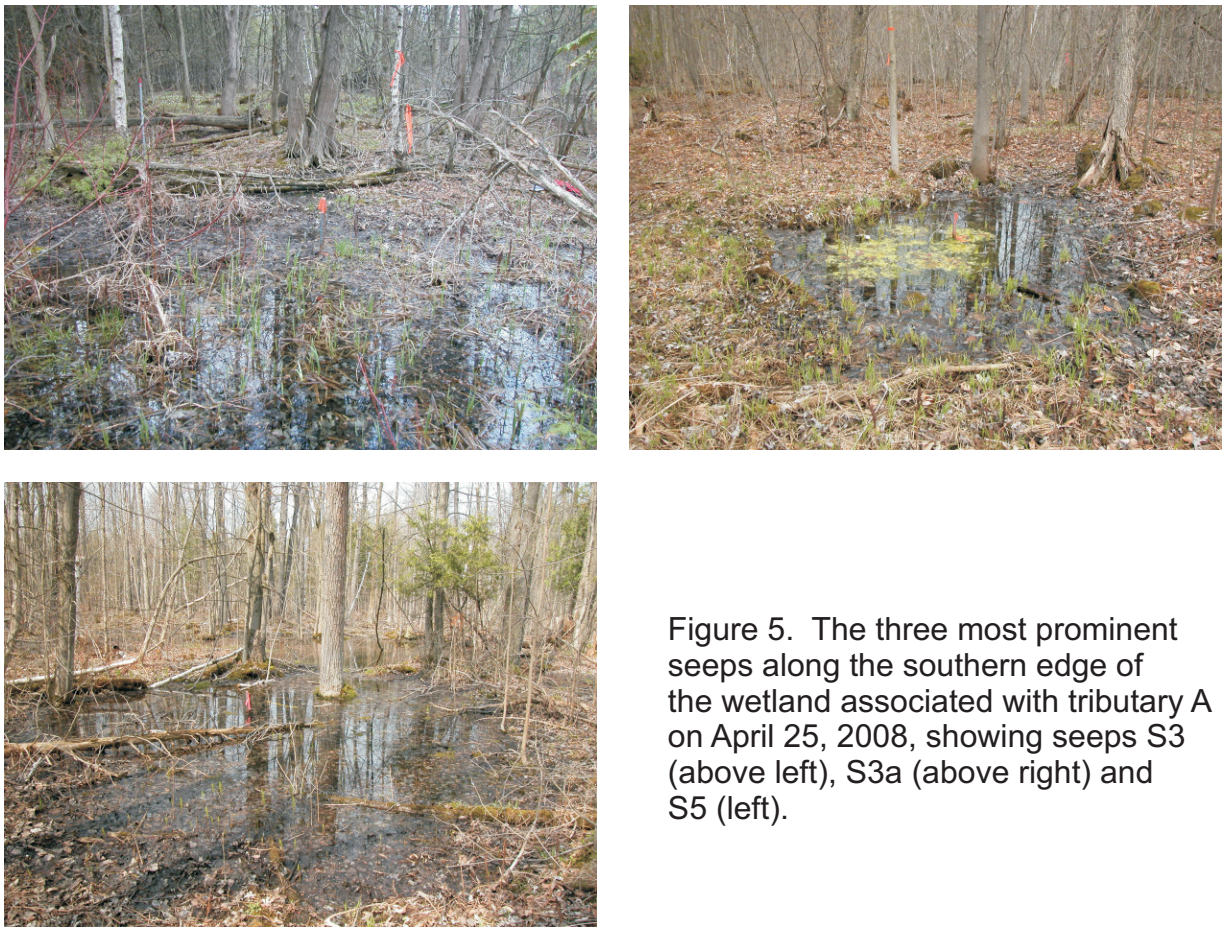


Figure 5. The three most prominent seeps along the southern edge of the wetland associated with tributary A on April 25, 2008, showing seeps S3 (above left), S3a (above right) and S5 (left).

Figure 6. Undulating area at depression 1 (see Figure 2) on April 14, 2008, with water ponded in small depressions

Figure 7. Looking southeast to depression 10 (see Figure 3) on April 7, 2008 (left) and on May 25, 2008

Figure 8. Looking north from the southern limit of depression 12 (see Figure 3) on April 22, 2008 (left) and on May 9, 2008

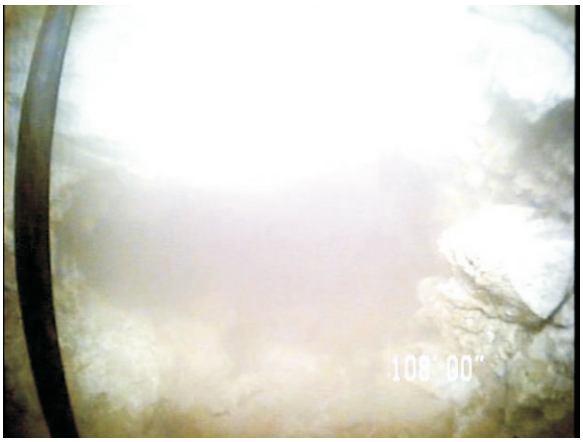


Figure 9. Horizontal shot at a depth of 108' (32.9 m) in TW15 when the well was being pumped at 11.6 L/s. An estimated 65% of the flow came from this channel, which is estimated to be about 8 cm high and 12 cm wide. The dark line on the left is a camera support; its apparent curvature is due to distortion caused by the wide-angle camera lens.

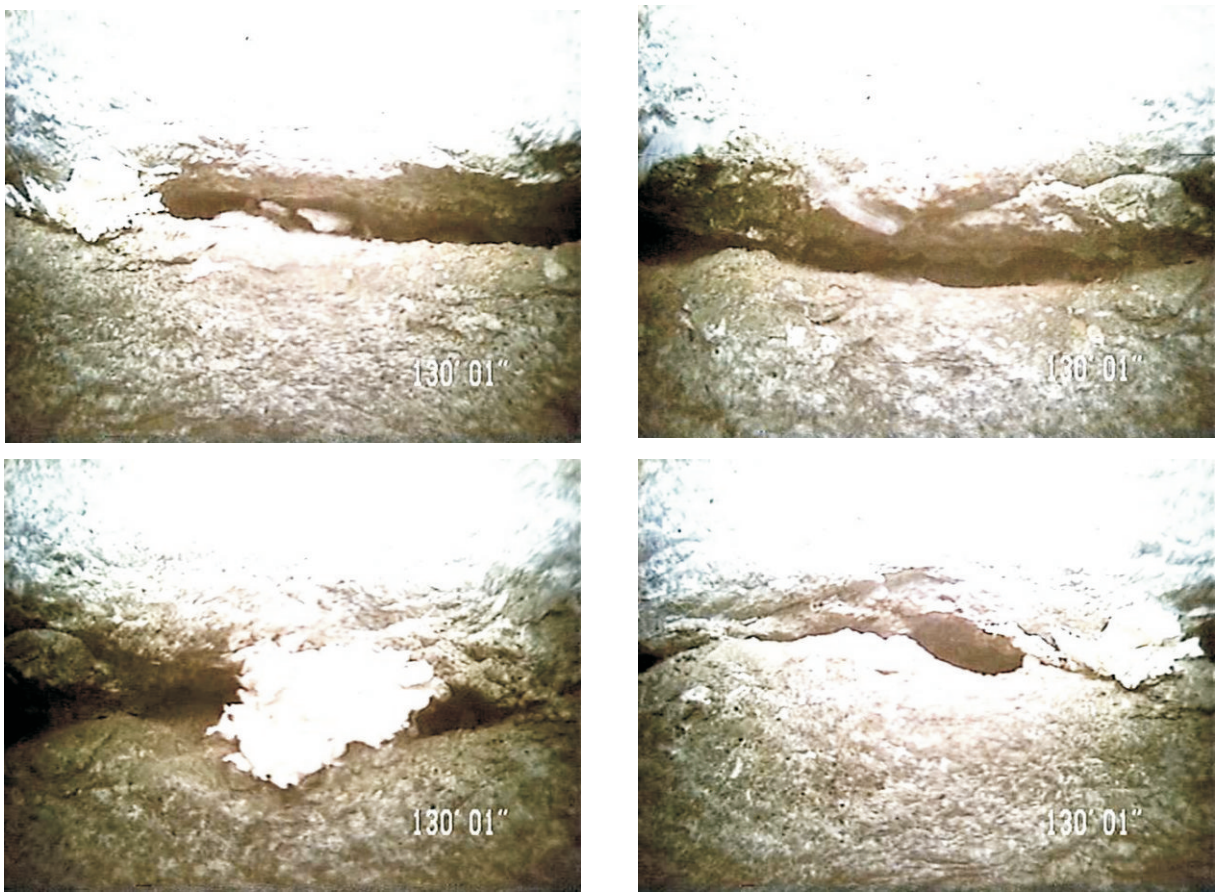
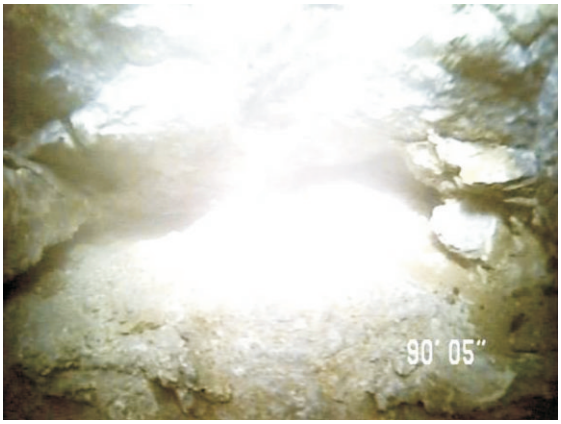
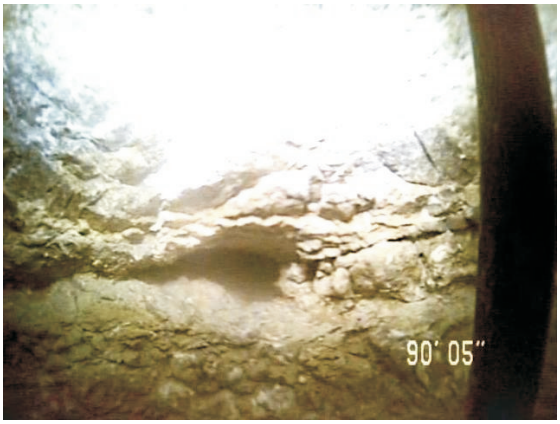


Figure 10. Four horizontal shots that together give a 360o view of a bedding plane at a depth of 130' 1" (39.6 m) in MWB20-II when the well was being pumped at 3 l/s. Dissolution has resulted in the aperture varying substantially, with a maximum of about 5 mm in the lower right picture. The two white objects are pieces of PVC and are remnants of tubing in the well that was removed. This horizon was one of at least five productive horizons in the well (Lotowater, 2007, p. 16).

Figure 11. Horizontal photo in MWB21 at a depth of 134' 11" (41.1 m). The maximum height of the opening is about 3 mm.





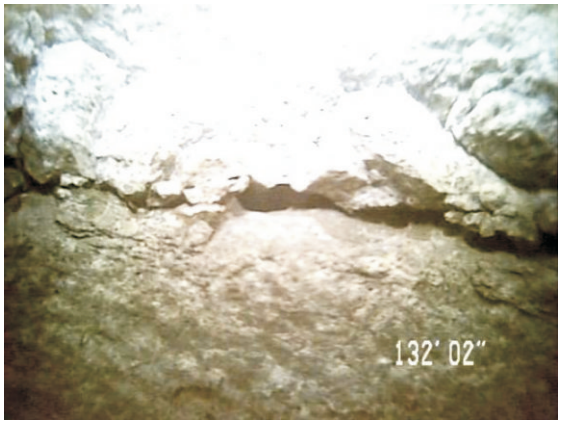


Figure 12. Three horizontal shots from MWB22-II while the well was being pumped at 6.1 L/s. The two shots at 90' 5" (27.6 m) show turbid flow from channels that are 3-5 mm in height. The shot at 132' 2" (40.3 m) show maximum apertures of about 3 mm.

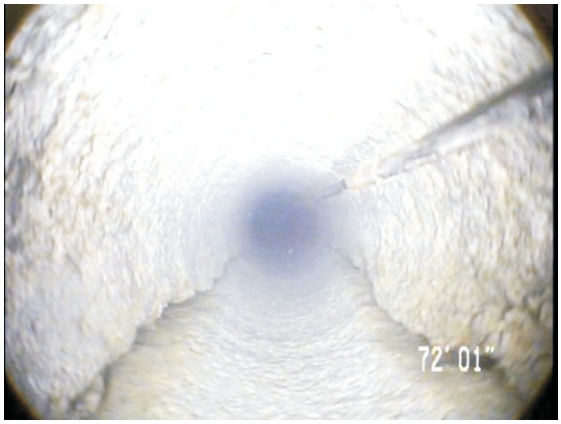
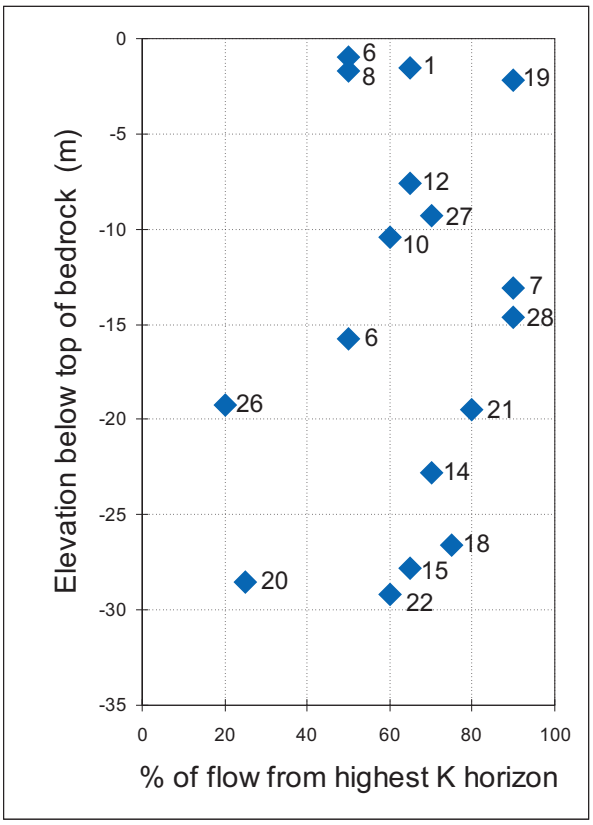
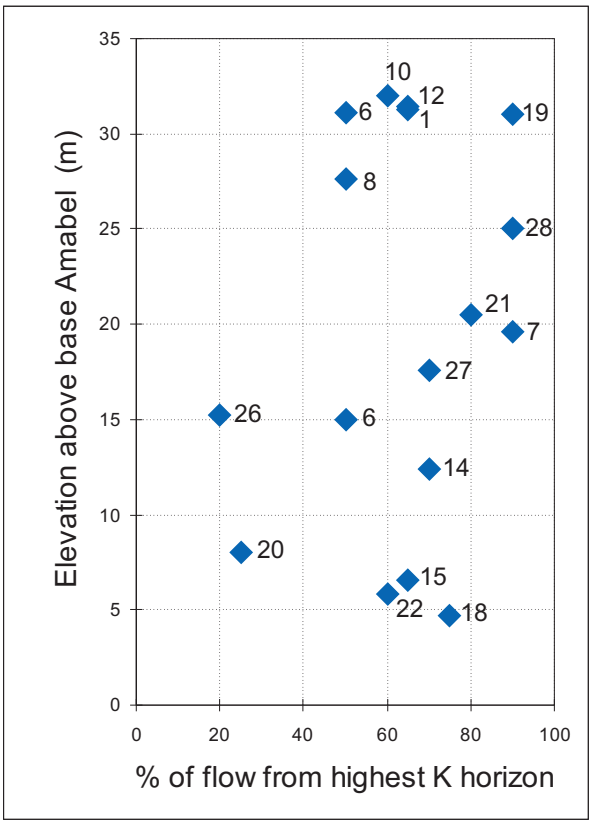


Figure 13. Vertical shot looking down MWB26-II. The cable for the flow meter is seen in the upper right of the photo. The well has intersected a near-vertical fracture, which is seen at the bottom of the photo.





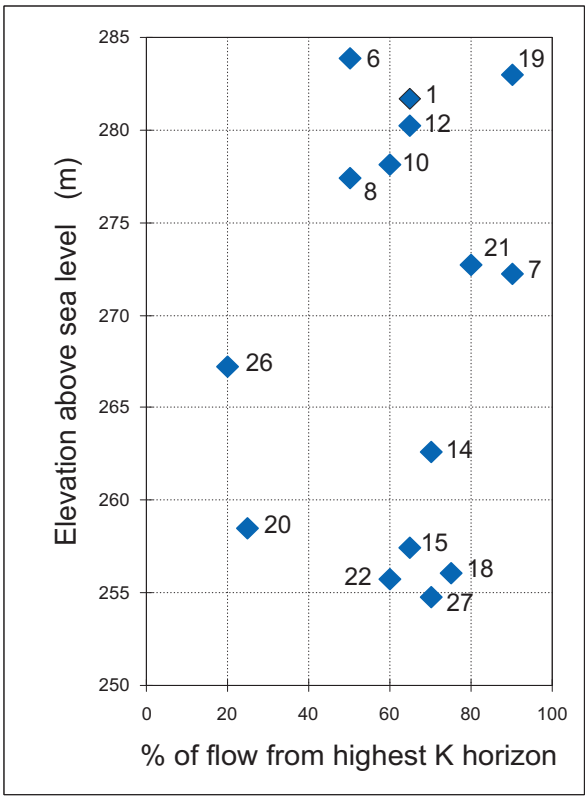


Figure 14. Location of the major inflows into monitoring wells at the site with respect to depth below the top of bedrock (top left), elevation above the base of the Amabel Formation (top right), and elevation above sea level (left).

Appendix F

Aquifer Properties

F1. Packer Test Results (Feb/Mar 2004)

F1-1 Summary Table of Packer Test Results
F1-2 Vertical Permeability Profiles
F1-3 Lotowater Geophysical Logging and Testing Results, July 2007
F1-4 Lotowater 2006/2007 Packer Testing and Depth Specific Water Quality Sampling, July 2007

F2. Pumping Test Results

F2-1 April 2004 72-Hour Pumping Test
- F2-1-1 Hydrographs
- F2-1-2 Aquifer Properties Analysis
- F2-1-3 Water Level Tables

F2-2 Nov/Dec 2004 168-Hour Pumping Test
- F2-2-1 Hydrographs and Temperature Graphs
- F2-2-2 Aquifer Properties Analysis
- F2-2-3 Water Level Tables

F2-3 July 2008 192-Hour Pumping Test Addendum to Phase 1 Pumping Test Report Pumping Test Data Interpretation

F3. Slug Test Results

F3-1. Overburden Wells (2006)
F3-2. Bedrock Wells (2007/2008)
F3-3 S.S. Papadopulos & Associates Interpretation of Slug Re-Tests, June 2008
F3-4 S.S. Papadopulos & Associates Review of 2007 Slug Interpretations, April 2008

Appendix F

Well Testing and Geophysical Logging

Various field procedures were implemented during and after borehole advancement and well installation, to assist with the characterization of the geologic units and collect information on the hydraulic behaviour of the overburden and bedrock formations. This included: packer, slug and pumping tests to evaluate the hydraulic properties of the overburden and bedrock; and, down hole geophysics and video logging for vertical profiling of the bedrock to confirm bedrock unit contacts, and to examine secondary features including voids, fractures and solution-enlarged cavities. The information, which was collected, was used to identify suitable depths for well installations and subsequently provided the framework around which conceptual model of the geology and hydrogeology was developed.

A description of the testing programs in the sequence in which they were completed is presented in the following sections. **Table D4 should be consulted for cross-referencing of identifiers.**

F1. Packer Test Results (Feb/Mar 2004)

F1-1 Summary Table of Packer Test Results
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F1-4 Lotowater 2006/2007 Packer Testing and Depth Specific Water Quality Sampling, July 2007

F1-1 Summary Table of Packer Test Results

Appendix F1-1

Packer Test Results (Feb/Mar 2004)

F1-1.1 Purpose of Test

Pump-in packer tests were conducted for all boreholes in 2004 to estimate the vertical permeability profile of the primary rock formation at the site. The permeability estimated primarily accounts for water percolation through fractures, joints, faults and cavities i.e. in situ structural defects in sound rocks rather than flow through the actual pores of intact rock. Pump-in tests were performed using a single packer for the bottom 3 m of the borehole during the course of rock coring. The tests were carried out following the completion of every 3 m of coring until the final depth of the borehole was reached. The field tests were carried out by Lang Drilling and supervised by GLL hydrogeologists.

F1-1.2 Methodology

The packer was first inflated under a sufficient pressure to ensure that no leakage would occur under higher water pressures from the test section to the rest of the borehole. Clear water was then pumped into the test section and a constant water pressure was maintained for five minutes. Each test was carried out at increasing water pressures for three time periods of five minutes. The water volume flowing into the rock within the test section over each five minute period was recorded using a flow meter. The methodology of field testing and calculation of rock permeability from data collected is based on Earth Manual, Second Edition, 1974, published by US Department of the Interior.

A total of 96 sections have been packer-tested in the ten boreholes. Each test was repeated three times to verify the test result for a total of 288 tests. In general, the test sections in each borehole started from the water table and extended down to about the elevation of the borehole seal level.

F1-1.3 Results

Figure F1-2-1 illustrates the boreholes selected for the packer testing. A number of the borehole locations, 9 out of ten, (BH-B, BH-D, BH-F, BH1-I, BH4-I, BH6-I, BH7-I, BH8-I, and BH9-I) exhibit a relatively higher permeability at the 15 to 25 metre depth range. Close inspection of the pumping test responses at these locations confirmed the hydraulic connectivity of some of these locations to the respective pumping wells.

Appendix F1-1 and F1-2 contain the packer testing results complete with graphical presentation of the vertical permeability profiles for the respective borehole locations.

The key finding with respect to the extensive packer testing completed at this site is that the bedrock formation does have the potential to exhibit relatively high permeability zones within an otherwise tight rock matrix. The hydraulic conductivity range determined from the discrete interval packer testing is from a low of $1e^{-10}$ m/s to a high of $1e^{-3}$m/s. Coupled with the pumping testing and the geologic interpretations it appears that the dolostone at this location is comprised of two distinct hydrostratigraphic units that yield different groundwater flux capabilities. This information was useful in formulating the hydrostratigraphic geometry for the hydrogeologic modelling investigation.

F1-1.4 Discussion

The results of packer testing are summarized in Appendix F1-1. The hydraulic conductivity of the formation is considered to be variable, reflecting the predictably chaotic nature of the limestone bedrock. The mean hydraulic conductivity obtained from the packer testing analysis ranged from $5.5x10^{-3}$ m/s to $6.9x10^{-9}$ m/s.

The hydraulic conductivity data determined from the packer testing has some significant limitations. For example, the hydraulic conductivity estimates are largely a function of test scale. The interval being tested reflects the rock directly surrounding the borehole, and may not reflect the conductivity of the entire hydrostratigraphic unit. In general, the larger the test (i.e., large pumping tests) the greater the perturbed volume of groundwater and ultimately a greater aquifer heterogeneity is encountered and the more reliable the results. The analytical methods used assume that permeability adjacent to the borehole is derived from an aquifer of infinite extent. This assumption is likely not correct, as the fracture network within the bedrock may act as either recharge or barrier condition with respect to groundwater flow. This fact is obvious when examining the discrete fracture flow evident on the exposed faces of known quarries in this formation.

Fractured bedrock typically exhibits a dual-porosity, that is, groundwater can be contributed from either fractures or the rock matrix. If the borehole does not intersect a permeable fracture, the packer testing may reflect only matrix or small-scale porosity. Therefore, unless the borehole encountered a fracture zone, the hydraulic conductivity and subsequent groundwater flow estimates may be lower than the actual groundwater encountered during active quarry excavation.

We do however consider the packer test data to be a good representation of the discrete nature of the hydraulic conductivity exhibited by this rock formation. The values obtained are consistent with the observed groundwater potential of the Amabel formation.

Gartner Lee

Table F1-1-1

Borehole No : GLL1-D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec
	r					**L**									**H**					**Q**	
Surface Casing set at ft																					
6-Apr-04	0.072	107.5	117.5	32.77	35.81	3.05	1	0.65	0.78	0.66	2.26	2.91	50	35.16	38.07	1916.5	1917.1	0.6	0.12	0.009	4.66E-08
	0.072	107.5	117.5	32.77	35.81	3.05	2	0.65	0.78	0.66	2.26	2.91	60	42.19	45.10	1917.1	1917.9	0.8	0.16	0.012	5.25E-08
	0.072	107.5	117.5	32.77	35.81	3.05	3	0.65	0.78	0.66	2.26	2.91	70	49.22	52.13	1917.9	1919.0	1.1	0.22	0.017	6.24E-08
	0.072	97.5	107.5	29.72	32.77	3.05	1	0.65	0.77	0.67	2.26	2.91	30	21.10	24.01	1919.5	1920.9	1.4	0.28	0.021	1.73E-07
	0.072	97.5	107.5	29.72	32.77	3.05	2	0.65	0.77	0.67	2.26	2.91	40	28.13	31.04	1920.9	1922.6	1.7	0.34	0.026	1.62E-07
	0.072	97.5	107.5	29.72	32.77	3.05	3	0.65	0.77	0.67	2.26	2.91	50	35.16	38.07	1922.6	1924.5	1.9	0.38	0.029	1.48E-07
	0.072	87.5	97.5	26.67	29.72	3.05	1	0.65	0.77	0.69	1.35	2.00	30	21.10	23.10	1924.7	1926.1	1.4	0.28	0.021	1.79E-07
	0.072	87.5	97.5	26.67	29.72	3.05	2	0.65	0.77	0.69	1.35	2.00	40	28.13	30.13	1926.1	1927.7	1.6	0.32	0.024	1.57E-07
	0.072	87.5	97.5	26.67	29.72	3.05	3	0.65	0.77	0.69	1.35	2.00	50	35.16	37.16	1927.7	1929.4	1.7	0.34	0.026	1.35E-07
	0.072	77.5	87.5	23.62	26.67	3.05	1	0.65	0.77	0.76	1.35	2.00	4	2.81	4.81	1939.0	1967.3	28.3	5.66	0.429	1.74E-05
	0.072	77.5	87.5	23.62	26.67	3.05	2	0.65	0.77	0.76	1.35	2.00	5	3.52	5.52	1967.3	1999.5	32.2	6.44	0.488	1.73E-05
	0.072	77.5	87.5	23.62	26.67	3.05	3	0.65	0.77	0.76	1.35	2.00	6	4.22	6.22	1999.5	2034.3	34.8	6.96	0.527	1.66E-05
	0.072	67.5	77.5	20.57	23.62	3.05	1	0.65	0.74	0.73	1.35	2.00	4	2.81	4.81	2037.4	2066.9	29.5	5.90	0.447	1.81E-05
	0.072	67.5	77.5	20.57	23.62	3.05	2	0.98	2.56	2.69	1.35	2.33	5	3.52	5.85	2066.9	2099.9	33	6.60	0.500	1.67E-05
	0.072	67.5	77.5	20.57	23.62	3.05	2	0.98	2.56	2.69	1.35	2.33	6	4.22	6.55	2099.9	2135.8	35.9	7.18	0.544	1.62E-05
	0.072	57.5	67.5	17.53	20.57	3.05	1	0.64	0.72	0.72	1.35	1.99	4	2.81	4.80	2138.4	2149.4	11	2.20	0.167	6.78E-06
	0.072	57.5	67.5	17.53	20.57	3.05	2	0.64	0.72	0.72	1.35	1.99	6	4.22	6.21	2149.4	2161.9	12.5	2.50	0.189	5.96E-06
	0.072	57.5	67.5	17.53	20.57	3.05	3	0.64	0.72	0.72	1.35	1.99	8	5.63	7.62	2161.9	2174.9	13	2.60	0.197	5.05E-06
	0.072	47.5	57.5	14.48	17.53	3.05	1	0.64	0.74	0.74	1.35	1.99	4	2.81	4.80	2177.5	2194.3	16.8	3.36	0.255	1.04E-05
	0.072	47.5	57.5	14.48	17.53	3.05	2	0.64	0.74	0.74	1.35	1.99	6	4.22	6.21	2194.3	2214.9	20.6	4.12	0.312	9.82E-06
	0.072	47.5	57.5	14.48	17.53	3.05	3	0.64	0.74	0.74	1.35	1.99	8	5.63	7.62	2214.9	2238.8	23.9	4.78	0.362	9.29E-06

Gartner Lee

Table F1-1-2

Borehole No : GLL4-D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set at 9.75 ft																						
7-Apr-04	0.072	112.5	122.5	34.29	37.34	3.05	1	0.74	1.77	1.58	0.76	1.50	90	63.29	64.79	2241.5	2241.7	0.2	0.04	0.003	9.14E-09	300
	0.072	112.5	122.5	34.29	37.34	3.05	2	0.74	1.77	1.58	0.76	1.50		0.00	1.50			0	0.00	0.000		300
	0.072	112.5	122.5	34.29	37.34	3.05	3	0.74	1.77	1.58	0.76	1.50		0.00	1.50			0	0.00	0.000		300
	0.072	102.5	112.5	31.24	34.29	3.05	1	0.74	1.77	1.72	0.76	1.50	10	7.03	8.53	2242.1	2247.9	5.8	1.16	0.088	2.01E-06	300
	0.072	102.5	112.5	31.24	34.29	3.05	2	0.74	1.77	1.72	0.76	1.50	20	14.06	15.56	2247.9	2255.7	7.8	1.56	0.118	1.48E-06	300
	0.072	102.5	112.5	31.24	34.29	3.05	3	0.74	1.77	1.72	0.76	1.50	30	21.10	22.60	2255.7	2265.0	9.3	1.86	0.141	1.22E-06	300
	0.072	92.5	102.5	28.19	31.24	3.05	1	0.74	1.77	1.82	0.76	1.50	10	7.03	8.53	2267.0	2281.4	14.4	2.88	0.218	4.99E-06	280
	0.072	92.5	102.5	28.19	31.24	3.05	2	0.74	1.77	1.82	0.76	1.50	15	10.55	12.05	2281.4	2298.9	17.5	3.50	0.265	4.30E-06	280
	0.072	92.5	102.5	28.19	31.24	3.05	3	0.74	1.77	1.82	0.76	1.50	20	14.06	15.56	2298.9	2318.8	19.9	3.98	0.302	3.78E-06	280
	0.072	82.5	92.5	25.15	28.19	3.05	1	0.74	1.78	1.88	0.76	1.50	5	3.52	5.02	2324.3	2346.7	22.4	4.48	0.339	1.32E-05	280
	0.072	82.5	92.5	25.15	28.19	3.05	2	0.74	1.78	1.88	0.76	1.50	6	4.22	5.72	2346.7	2369.8	23.1	4.62	0.350	1.20E-05	280
	0.072	82.5	92.5	25.15	28.19	3.05	3	0.74	1.78	1.88	0.76	1.50	7	4.92	6.42	2369.8	2395.6	25.8	5.16	0.391	1.19E-05	280
	0.072	72.5	82.5	22.10	25.15	3.05	1	0.74	2.18	2.31	0.76	1.50	10	7.03	8.53	2397.4	2409.2	11.8	2.36	0.179	4.09E-06	280
	0.072	72.5	82.5	22.10	25.15	3.05	2	0.74	2.18	2.31	0.76	1.50	15	10.55	12.05	2409.2	2422.3	13.1	2.62	0.199	3.22E-06	280
	0.072	72.5	82.5	22.10	25.15	3.05	3	0.74	2.18	2.31	0.76	1.50	20	14.06	15.56	2422.3	2436.5	14.2	2.84	0.215	2.70E-06	280
	0.072	62.5	72.5	19.05	22.10	3.05	1	0.74	1.78	1.81	0.76	1.50	10	7.03	8.53	2438.8	2449.1	10.3	2.06	0.156	3.57E-06	280
	0.072	62.5	72.5	19.05	22.10	3.05	2	0.74	1.78	1.81	0.76	1.50	15	10.55	12.05	2449.1	2461.7	12.6	2.52	0.191	3.09E-06	280
	0.072	62.5	72.5	19.05	22.10	3.05	3	0.74	1.78	1.81	0.76	1.50	20	14.06	15.56	2461.7	2475.5	13.8	2.76	0.209	2.62E-06	280
	0.072	52.5	62.5	16.00	19.05	3.05	1	0.75	1.78	1.8	0.76	1.51	10	7.03	8.54	2477.5	2497.7	20.2	4.04	0.306	7.00E-06	280
	0.072	52.5	62.5	16.00	19.05	3.05	2	0.75	1.78	1.80	0.76	1.51	15	10.55	12.06	2497.7	2518.5	20.8	4.16	0.315	5.10E-06	280
	0.072	52.5	62.5	16.00	19.05	3.05	3	0.75	1.78	1.80	0.76	1.51	20	14.06	15.57	2518.5	2542.8	24.3	4.86	0.368	4.62E-06	280
	0.072	42.5	52.5	12.95	16.00	3.05	1	0.45	1.49	1.48	0.76	1.21	5	3.52	4.73	2546.0	2566.6	20.6	4.12	0.312	1.29E-05	280
	0.072	42.5	52.5	12.95	16.00	3.05	2	0.45	1.49	1.48	0.76	1.21	6	4.22	5.43	2566.6	2599.7	33.1	6.62	0.502	1.80E-05	280
	0.072	42.5	52.5	12.95	16.00	3.05	3	0.45	1.49	1.48	0.76	1.21	7	4.92	6.13	2599.7	2613.5	13.8	2.76	0.209	6.66E-06	280
	0.072	32.5	42.5	9.91	12.95	3.05	Skiped test section because lower packer would be crossing the cavity.															
	0.072	32.5	42.5	9.91	12.95	3.05																
	0.072	32.5	42.5	9.91	12.95	3.05																
	0.072	22.5	32.5	6.86	9.91	3.05	1	0.74	1.77	1.72	0.76	1.50	5	3.52	5.02	2614.6	2624.2	9.6	1.92	0.145	5.66E-06	270
	0.072	22.5	32.5	6.86	9.91	3.05	2	0.74	1.77	1.72	0.76	1.50	10	7.03	8.53	2624.2	2636.8	12.6	2.52	0.191	4.37E-06	270
	0.072	22.5	32.5	6.86	9.91	3.05	3	0.74	1.77	1.72	0.76	1.50	15	10.55	12.05	2636.8	2653.3	16.5	3.30	0.250	4.05E-06	270

Gartner Lee

Table F1-1-3

Borehole No : GLL6-D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					**L**									**H**					**Q**		
Surface Casing set at	**10.5**	**ft**																				
5-Apr-04	0.072	107.25	117.25	32.69	35.74	3.05	1	0.95	2.58	2.51	2.26	3.21	3	2.11	5.32	1255.5	1286.9	31.4	6.28	0.476	1.75E-05	300
	0.072	107.25	117.25	32.69	35.74	3.05	2	0.95	2.58	2.51	2.26	3.21	6	4.22	7.43	1286.9	1323.5	36.6	7.32	0.555	1.46E-05	300
	0.072	107.25	117.25	32.69	35.74	3.05	3	0.95	2.58	2.51	2.26	3.21	9	6.33	9.54	1323.5	1366.3	42.8	8.56	0.649	1.33E-05	300
	0.072	97.25	107.25	29.64	32.69	3.05	1	0.97	2.45	2.40	2.26	3.23	20	14.06	17.29	1369.0	1370.5	1.5	0.30	0.023	2.57E-07	300
	0.072	97.25	107.25	29.64	32.69	3.05	2	0.97	2.45	2.40	2.26	3.23	30	21.10	24.33	1370.5	1372.4	1.9	0.38	0.029	2.31E-07	300
	0.072	97.25	107.25	29.64	32.69	3.05	3	0.97	2.45	2.40	2.26	3.23	40	28.13	31.36	1372.4	1374.5	2.1	0.42	0.032	1.98E-07	300
	0.072	87.25	97.25	26.59	29.64	3.05	1	0.96	2.49	2.48	1.35	2.31	10	7.03	9.34	1375.6	1383.7	8.1	1.62	0.123	2.57E-06	300
	0.072	87.25	97.25	26.59	29.64	3.05	2	0.96	2.49	2.48	1.35	2.31	20	14.06	16.37	1383.7	1393.9	10.2	2.04	0.155	1.84E-06	300
	0.072	87.25	97.25	26.59	29.64	3.05	3	0.96	2.49	2.48	1.35	2.31	30	21.10	23.41	1393.9	1405.9	12	2.40	0.182	1.52E-06	300
	0.072	77.25	87.25	23.55	26.59	3.05	1	0.97	2.49	2.49	1.35	2.32	20	14.06	16.38	1407.4	1411.1	3.7	0.74	0.056	6.68E-07	300
	0.072	77.25	87.25	23.55	26.59	3.05	2	0.97	2.49	2.49	1.35	2.32	30	21.10	23.42	1411.1	1415.8	4.7	0.94	0.071	5.94E-07	300
	0.072	77.25	87.25	23.55	26.59	3.05	3	0.97	2.49	2.49	1.35	2.32	40	28.13	30.45	1415.8	1421.2	5.4	1.08	0.082	5.25E-07	300
	0.072	67.25	77.25	20.50	23.55	3.05	1	0.98	2.56	2.69	1.35	2.33	10	7.03	9.36	1424.2	1476.9	52.7	10.54	0.799	1.67E-05	300
	0.072	67.25	77.25	20.50	23.55	3.05	2	0.98	2.56	2.69	1.35	2.33	14	9.84	12.17	1476.9	1536.5	59.6	11.92	0.903	1.45E-05	300
	0.072	57.25	67.25	17.45	20.50	3.05	1	0.98	2.57	2.7	1.35	2.33	3	2.11	4.44	1543.5	1577.8	34.3	6.86	0.520	2.29E-05	300
	0.072	57.25	67.25	17.45	20.50	3.05	2	0.98	2.57	2.7	1.35	2.33	4	2.81	5.14	1577.8	1616.0	38.2	7.64	0.579	2.20E-05	300
	0.072	57.25	67.25	17.45	20.50	3.05	3	0.98	2.57	2.7	1.35	2.33	5	3.52	5.85	1616.0	1655.9	39.9	7.98	0.605	2.02E-05	300
	0.072	47.25	57.25	14.40	17.45	3.05	1	0.95	2.59	2.65	1.35	2.30	10	7.03	9.33	1658.8	1675.9	17.1	3.42	0.259	5.42E-06	300
	0.072	47.25	57.25	14.40	17.45	3.05	2	0.95	2.59	2.65	1.35	2.30	15	10.55	12.85	1675.9	1699.6	23.7	4.74	0.359	5.46E-06	300
	0.072	47.25	57.25	14.40	17.45	3.05	3	0.95	2.59	2.65	1.35	2.30	20	14.06	16.36	1699.6	1732.9	33.3	6.66	0.505	6.02E-06	300
	0.072	37.25	47.25	11.35	14.40	3.05	1	0.97	2.61	2.66	1.35	2.32	10	7.03	9.35	1734.5	1743.5	9	1.80	0.136	2.85E-06	300
	0.072	37.25	47.25	11.35	14.40	3.05	2	0.97	2.61	2.66	1.35	2.32	15	10.55	12.87	1743.5	1757.2	13.7	2.74	0.208	3.15E-06	300
	0.072	37.25	47.25	11.35	14.40	3.05	3	0.97	2.61	2.66	1.35	2.32	20	14.06	16.38	1757.2	1775.8	18.6	3.72	0.282	3.36E-06	300
	0.072	27.25	37.25	8.31	11.35	3.05	1	0.96	2.59	2.53	1.35	2.31	10	7.03	9.34	1777.0	1779.2	2.2	0.44	0.033	6.97E-07	290
	0.072	27.25	37.25	8.31	11.35	3.05	2	0.96	2.59	2.53	1.35	2.31	20	14.06	16.37	1779.2	1782.5	3.3	0.66	0.050	5.96E-07	290
	0.072	27.25	37.25	8.31	11.35	3.05	3	0.96	2.59	2.53	1.35	2.31	30	21.10	23.41	1782.5	1785.9	3.4	0.68	0.052	4.30E-07	290
	0.072	17.25	27.25	5.26	8.31	3.05	1	0.95	2.58	2.51	1.35	2.30	3	2.11	4.41	1791.5	1826.8	35.3	7.06	0.535	2.37E-05	260
	0.072	17.25	27.25	5.26	8.31	3.05	2	0.95	2.58	2.51	1.35	2.30	4	2.81	5.11	1826.8	1868.7	41.9	8.38	0.635	2.43E-05	260
	0.072	17.25	27.25	5.26	8.31	3.05	3	0.95	2.58	2.51	1.35	2.30	5	3.52	5.82	1868.7	1913.7	45	9.00	0.682	2.29E-05	260

Gartner Lee

Table F1-1-4

Borehole No : GLL7-D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set at																						
31-Mar-04	0.072	113.5	123.5	34.60	37.64	3.05	1	0.48		2.54	2.20	2.68	30	21.10	23.78	8.0	10.1	2.1	0.42	0.032	2.61E-07	300
	0.072	113.5	123.5	34.60	37.64	3.05	2	0.48		2.54	2.20	2.68	40	28.13	30.81	10.1	12.5	2.4	0.48	0.036	2.31E-07	300
	0.072	113.5	123.5	34.60	37.64	3.05	3	0.48		2.54	2.20	2.68	50	35.16	37.84	12.5	15.7	3.2	0.64	0.048	2.50E-07	300
	0.072	103.5	113.5	31.55	34.60	3.05	1	0.48	2.20	2.10	2.20	2.68	22	15.47	18.15	19.0	24.7	5.7	1.14	0.086	9.29E-07	300
	0.072	103.5	113.5	31.55	34.60	3.05	2	0.48	2.20	2.10	2.20	2.68	32	22.50	25.18	24.7	34.4	9.7	1.94	0.147	1.14E-06	300
	0.072	103.5	113.5	31.55	34.60	3.05	3	0.48	2.20	2.10	2.20	2.68	42	29.53	32.21	34.4	46.5	12.1	2.42	0.183	1.11E-06	300
	0.072	93.5	103.5	28.50	31.55	3.05	1	0.48	2.23	2.25	2.20	2.68	10	7.03	9.71	49.0	59.8	10.8	2.16	0.164	3.29E-06	300
	0.072	93.5	103.5	28.50	31.55	3.05	2	0.48	2.23	2.25	2.20	2.68	20	14.06	16.74	59.8	72.3	12.5	2.50	0.189	2.21E-06	300
	0.072	93.5	103.5	28.50	31.55	3.05	3	0.48	2.23	2.25	2.20	2.68	30	21.10	23.78	72.3	88.0	15.7	3.14	0.238	1.95E-06	300
1-Apr-04	0.072	83.5	93.5	25.45	28.50	3.05	1	0.46	2.51	2.18	2.20	2.66	10	7.03	9.69	102.0	118.7	16.7	3.34	0.253	5.10E-06	300
	0.072	83.5	93.5	25.45	28.50	3.05	2	0.46	2.51	2.18	2.20	2.66	15	10.55	13.21	118.7	138.6	19.9	3.98	0.302	4.46E-06	300
	0.072	83.5	93.5	25.45	28.50	3.05	3	0.46	2.51	2.18	2.20	2.66	20	14.06	16.72	138.6	161.0	22.4	4.48	0.339	3.96E-06	300
	0.072	73.5	83.5	22.40	25.45	3.05	1	0.45	2.18	2.31	2.20	2.65	30	21.10	23.75	167.2	168.1	0.9	0.18	0.014	1.12E-07	290
	0.072	73.5	83.5	22.40	25.45	3.05	2	0.45	2.18	2.31	2.20	2.65	40	28.13	30.78	168.1	169.3	1.2	0.24	0.018	1.15E-07	290
	0.072	73.5	83.5	22.40	25.45	3.05	3	0.45	2.18	2.31	2.20	2.65	50	35.16	37.81	169.3	170.5	1.2	0.24	0.018	9.39E-08	290
	0.072	63.5	73.5	19.36	22.40	3.05	1	0.45	2.25	2.66	2.20	2.65	5	3.52	6.17	171.0	174.6	3.6	0.72	0.055	1.73E-06	280
	0.072	63.5	73.5	19.36	22.40	3.05	2	0.45	2.25	2.66	2.20	2.65	10	7.03	9.68	174.6	179.1	4.5	0.90	0.068	1.38E-06	280
	0.072	63.5	73.5	19.36	22.40	3.05	3	0.45	2.25	2.66	2.20	2.65	15	10.55	13.20	179.1	184.6	5.5	1.10	0.083	1.23E-06	280
	0.072	53.5	63.5	16.31	19.36	3.05	1	0.45	2.44	2.66	2.20	2.65	5	3.52	6.17	185.2	187.5	2.3	0.46	0.035	1.10E-06	280
	0.072	53.5	63.5	16.31	19.36	3.05	2	0.45	2.44	2.66	2.20	2.65	10	7.03	9.68	187.5	191.0	3.5	0.70	0.053	1.07E-06	280
	0.072	53.5	63.5	16.31	19.36	3.05	3	0.45	2.44	2.66	2.20	2.65	15	10.55	13.20	191.0	195.2	4.2	0.84	0.064	9.42E-07	280
	0.072	43.5	53.5	13.26	16.31	3.05	1	0.45	2.63	2.64	2.20	2.65	5	3.52	6.17	197.5	236.9	39.4	7.88	0.597	1.89E-05	280
	0.072	43.5	53.5	13.26	16.31	3.05	2	0.45	2.63	2.64	2.20	2.65	10	7.03	9.68	236.9	290.7	53.8	10.76	0.815	1.64E-05	280
	0.072	43.5	53.5	13.26	16.31	3.05	3	0.45	2.63	2.64	2.20	2.65	13.6	9.56	12.21	290.7	352.5	61.8	12.36	0.936	1.50E-05	280
	0.072	33.5	43.5	10.21	13.26	3.05	1	0.48	2.64	2.64	2.20	2.68	3	2.11	4.79	360.0	398.9	38.9	7.78	0.589	2.40E-05	280
	0.072	33.5	43.5	10.21	13.26	3.05	2	0.48	2.64	2.64	2.20	2.68	5	3.52	6.20	398.9	444.8	45.9	9.18	0.696	2.19E-05	280
	0.072	33.5	43.5	10.21	13.26	3.05	3	0.48	2.64	2.64	2.20	2.68	7	4.92	7.60	444.8	495.3	50.5	10.10	0.765	1.97E-05	280
	0.072	23.5	33.5	7.16	10.21	3.05	1	0.48	2.64	2.6	2.20	2.68	3	2.11	4.79	499.5	513.0	13.5	2.70	0.205	8.34E-06	260
	0.072	23.5	33.5	7.16	10.21	3.05	2	0.48	2.64	2.6	2.20	2.68	5	3.52	6.20	513.0	526.4	13.4	2.68	0.203	6.40E-06	260
	0.072	23.5	33.5	7.16	10.21	3.05	3	0.48	2.64	2.6	2.20	2.68	7	4.92	7.60	526.4	540.0	13.6	2.72	0.206	5.29E-06	260
	0.072	13.5	23.5	4.11	7.16	3.05	1	0.47	2.64	2.45	2.2	2.67	3	2.11	4.78	543.0	561.7	18.7	3.74	0.236	9.64E-06	260
	0.072	13.5	23.5	4.11	7.16	3.05	2	0.47	2.64	2.45	2.2	2.67	6	4.22	6.89	561.7	582.9	21.2	4.24	0.267	7.58E-06	260
	0.072	13.5	23.5	4.11	7.16	3.05	3	0.47	2.64	2.45	2.2	2.67	9	6.33	9.00	582.9	606.3	23.4	4.68	0.295	6.41E-06	260

Gartner Lee

Table F1-1-5

Borehole No : GLL8-D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set at 9.5 ft																						
8-Apr-04	0.072	99.5	109.5	30.33	33.38	3.05	1	0.68	2.47	2.40	5.73	6.41	8	5.63	12.04	2655.8	2660.3	4.5	0.90	0.068	1.11E-06	310
	0.072	99.5	109.5	30.33	33.38	3.05	2	0.68	2.47	2.40	5.73	6.41	10	7.03	13.44	2660.3	2688.6	28.3	5.66	0.429	6.23E-06	310
	0.072	99.5	109.5	30.33	33.38	3.05	3	0.68	2.47	2.40	5.73	6.41	12	8.44	14.85	2688.6	2718.4	29.8	5.96	0.452	5.94E-06	310
	0.072	89.5	99.5	27.28	30.33	3.05	1	0.68	2.40	2.41	5.73	6.41	5	3.52	9.93	2722.0	2756.3	34.3	6.86	0.520	1.02E-05	300
	0.072	89.5	99.5	27.28	30.33	3.05	2	0.68	2.40	2.41	5.73	6.41	6	4.22	10.63	2756.3	2792.4	36.1	7.22	0.547	1.01E-05	300
	0.072	89.5	99.5	27.28	30.33	3.05	3	0.68	2.40	2.41	5.73	6.41	7	4.92	11.33	2792.4	2830.7	38.3	7.66	0.580	1.00E-05	300
	0.072	79.5	89.5	24.23	27.28	3.05	1	0.68	2.41	2.39	5.73	6.41	10	7.03	13.44	2832.3	2841.0	8.7	1.74	0.132	1.92E-06	300
	0.072	79.5	89.5	24.23	27.28	3.05	2	0.68	2.41	2.39	5.73	6.41	15	10.55	16.96	2841.0	2851.6	10.6	2.12	0.161	1.85E-06	300
	0.072	79.5	89.5	24.23	27.28	3.05	3	0.68	2.41	2.39	5.73	6.41	20	14.06	20.47	2851.6	2863.4	11.8	2.36	0.179	1.71E-06	300
	0.072	69.5	79.5	21.18	24.23	3.05	1	0.68	2.43	2.44	5.73	6.41	5	3.52	9.93	2865.5	2883.6	18.1	3.62	0.274	5.40E-06	300
	0.072	69.5	79.5	21.18	24.23	3.05	2	0.68	2.43	2.44	5.73	6.41	10	7.03	13.44	2883.6	2907.3	23.7	4.74	0.359	5.22E-06	300
	0.072	69.5	79.5	21.18	24.23	3.05	3	0.68	2.43	2.44	5.73	6.41	15	10.55	16.96	2907.3	2937.8	30.5	6.10	0.462	5.32E-06	300
	0.072	59.5	69.5	18.14	21.18	3.05	1	0.67	2.44	2.49	5.73	6.40	5	3.52	9.92	2940.0	2966.7	26.7	5.34	0.405	7.97E-06	300
	0.072	59.5	69.5	18.14	21.18	3.05	2	0.67	2.44	2.49	5.73	6.40	7	4.92	11.32	2966.7	2996.9	30.2	6.04	0.458	7.89E-06	300
	0.072	59.5	69.5	18.14	21.18	3.05	3	0.67	2.44	2.49	5.73	6.40	9	6.33	12.73	2996.9	3028.9	32	6.40	0.485	7.44E-06	300
	0.072	49.5	59.5	15.09	18.14	3.05	1	0.68	2.46	2.45	5.73	6.41	5	3.52	9.93	3031.0	3069.2	38.2	7.64	0.579	1.14E-05	280
	0.072	49.5	59.5	15.09	18.14	3.05	2	0.68	2.46	2.45	5.73	6.41	6	4.22	10.63	3069.2	3110.4	41.2	8.24	0.624	1.15E-05	280
	0.072	49.5	59.5	15.09	18.14	3.05	3	0.68	2.46	2.45	5.73	6.41	7	4.92	11.33	3110.4	3154.2	43.8	8.76	0.664	1.14E-05	280
	0.072	39.5	49.5	12.04	15.09	3.05	1	0.68	2.48	2.52	5.73	6.41	5	3.52	9.93	3156.9	3209.8	52.9	10.58	0.802	1.58E-05	280
	0.072	39.5	49.5	12.04	15.09	3.05	2	0.68	2.48	2.52	5.73	6.41	6	4.22	10.63	3209.8	3244.7	34.9	6.98	0.529	9.72E-06	280
	0.072	39.5	49.5	12.04	15.09	3.05	3	0.68	2.48	2.52	5.73	6.41	7	4.92	11.33	3244.7	3293.3	48.6	9.72	0.736	1.27E-05	280
	0.072	39.5	49.5	12.04	15.09	3.05	4	0.68	2.48	2.52	5.73	6.41	5	3.52	9.93	3293.3	3336.6	43.3	8.66	0.656	1.29E-05	280
	0.072	29.5	39.5	8.99	12.04	3.05	1	0.68	2.49	2.5	5.73	6.41	5	3.52	9.93	3339.9	3381.4	41.5	8.30	0.629	1.24E-05	280
	0.072	29.5	39.5	8.99	12.04	3.05	2	0.68	2.49	2.50	5.73	6.41	6	4.22	10.63	3381.4	3426.3	44.9	8.98	0.680	1.25E-05	280
	0.072	29.5	39.5	8.99	12.04	3.05	3	0.68	2.49	2.50	5.73	6.41	7	4.92	11.33	3426.3	3473.9	47.6	9.52	0.721	1.24E-05	280
	0.072	19.5	29.5	5.94	8.99	3.05	1	0.68	2.47	2.45	5.73	6.41	5	3.52	9.93	3481.6	3488.1	6.5	1.30	0.098	1.94E-06	280
	0.072	19.5	29.5	5.94	8.99	3.05	2	0.68	2.47	2.45	5.73	6.41	10	7.03	13.44	3488.1	3497.7	9.6	1.92	0.145	2.11E-06	280
	0.072	19.5	29.5	5.94	8.99	3.05	3	0.68	2.47	2.45	5.73	6.41	15	10.55	16.96	3497.7	3508.9	11.2	2.24	0.170	1.95E-06	280

Gartner Lee

Table F1-1-6

Borehole No : GLL9-D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set at 17.5 ft																						
2-Apr-04	0.072	104.5	114.5	31.85	34.90	3.05	1	1.12	2.40	3.10	1.35	2.47	20	14.06	16.53	623.4	625.8	2.4	0.48	0.036	4.30E-07	300
	0.072	104.5	114.5	31.85	34.90	3.05	2	1.12	2.40	3.10	1.35	2.47	30	21.10	23.57	625.8	629.8	4	0.80	0.061	5.02E-07	300
	0.072	104.5	114.5	31.85	34.90	3.05	3	1.12	2.40	3.10	1.35	2.47	40	28.13	30.60	629.8	635.3	5.5	1.10	0.083	5.32E-07	300
	0.072	94.5	104.5	28.80	31.85	3.05	1	1.12	2.53	3.16	1.35	2.47	40	28.13	30.60	636.3	639.7	3.4	0.68	0.052	3.29E-07	300
	0.072	94.5	104.5	28.80	31.85	3.05	2	1.12	2.53	3.16	1.35	2.47	50	35.16	37.63	639.7	643.2	3.5	0.70	0.053	2.75E-07	300
	0.072	94.5	104.5	28.80	31.85	3.05	3	1.12	2.53	3.16	1.35	2.47	60	42.19	44.66	643.2	647.2	4	0.80	0.061	2.65E-07	300
	0.072	84.5	94.5	25.76	28.80	3.05	1	1.12	3.05	2.52	1.35	2.47	20	14.06	16.53	647.7	649.8	2.1	0.42	0.032	3.76E-07	300
	0.072	84.5	94.5	25.76	28.80	3.05	2	1.12	3.05	2.52	1.35	2.47	30	21.10	23.57	649.8	652.7	2.9	0.58	0.044	3.64E-07	300
	0.072	84.5	94.5	25.76	28.80	3.05	3	1.12	3.05	2.52	1.35	2.47	40	28.13	30.60	652.7	656.3	3.6	0.72	0.055	3.48E-07	300
	0.072	74.5	84.5	22.71	25.76	3.05	1	1.13	2.85	2.10	1.35	2.48	30	21.10	23.58	656.9	658.2	1.3	0.26	0.020	1.63E-07	300
	0.072	74.5	84.5	22.71	25.76	3.05	2	1.13	2.85	2.10	1.35	2.48	40	28.13	30.61	658.2	659.7	1.5	0.30	0.023	1.45E-07	300
	0.072	74.5	84.5	22.71	25.76	3.05	3	1.13	2.85	2.10	1.35	2.48	50	35.16	37.64	659.7	661.5	1.8	0.36	0.027	1.42E-07	300
	0.072	64.5	74.5	19.66	22.71	3.05	1	1.13	2.77	2.87	1.35	2.48	10	7.03	9.51	695.0	716.6	21.6	4.32	0.327	6.72E-06	290
	0.072	64.5	74.5	19.66	22.71	3.05	2	1.13	2.77	2.87	1.35	2.48	15	10.55	13.03	716.6	743.9	27.3	5.46	0.414	6.20E-06	290
	0.072	64.5	74.5	19.66	22.71	3.05	3	1.13	2.77	2.87	1.35	2.48	20	14.06	16.54	743.9	775.7	31.8	6.36	0.482	5.69E-06	290
	0.072	54.5	64.5	16.61	19.66	3.05	1	1.12	2.74	2.96	1.35	2.47	10	7.03	9.50	779.0	807.0	28	5.60	0.424	8.72E-06	280
	0.072	54.5	64.5	16.61	19.66	3.05	2	1.12	2.74	2.96	1.35	2.47	15	10.55	13.02	807.0	845.0	38	7.60	0.576	8.64E-06	280
	0.072	54.5	64.5	16.61	19.66	3.05	3	1.12	2.74	2.96	1.35	2.47	20	14.06	16.53	845.0	891.0	46	9.20	0.697	8.23E-06	280
	0.072	44.5	54.5	13.56	16.61	3.05	1	1.12	2.91	2.88	1.35	2.47	5	3.52	5.99	893.0	920.0	27	5.40	0.409	1.33E-05	280
	0.072	44.5	54.5	13.56	16.61	3.05	2	1.12	2.91	2.88	1.35	2.47	7	4.92	7.39	920.0	954.0	34	6.80	0.515	1.36E-05	280
	0.072	44.5	54.5	13.56	16.61	3.05	3	1.12	2.91	2.88	1.35	2.47	9	6.33	8.80	954.0	991.0	37	7.40	0.561	1.24E-05	280
	0.072	34.5	44.5	10.52	13.56	3.05	1	1.12	2.70	2.76	1.35	2.47	25	17.58	20.05	997.0	1017.0	20	4.00	0.303	2.95E-06	280
	0.072	34.5	44.5	10.52	13.56	3.05	2	1.12	2.70	2.76	1.35	2.47	35	24.61	27.08	1017.0	1045.5	28.5	5.70	0.432	3.11E-06	280
	0.072	34.5	44.5	10.52	13.56	3.05	3	1.12	2.70	2.76	1.35	2.47	45	31.64	34.11	1045.5	1080.5	35	7.00	0.530	3.04E-06	280
	0.072	24.5	34.5	7.47	10.52	3.05	1	1.12	2.61	2.40	1.35	2.47	4	2.81	5.28	1139.0	1161.0	22	4.40	0.333	1.23E-05	280
	0.072	24.5	34.5	7.47	10.52	3.05	2	1.12	2.61	2.40	1.35	2.47	6	4.22	6.69	1161.0	1187.5	26.5	5.30	0.402	1.17E-05	280
	0.072	24.5	34.5	7.47	10.52	3.05	3	1.12	2.61	2.40	1.35	2.47	8	5.63	8.10	1187.5	1218.0	30.5	6.10	0.462	1.11E-05	280

Gartner Lee

Table F1-1-7

Borehole No : JEGEL BH B

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set at 5' 10"																						
12-Apr-04	0.072	113.25	123.25	34.52	37.57	3.05	1	0.53	5.04	5.12	4.49	5.02	10	7.03	12.05	3513.9	3536.3	22.4	4.48	0.339	5.50E-06	270
	0.072	113.25	123.25	34.52	37.57	3.05	2	0.53	5.04	5.12	4.49	5.02	15	10.55	15.57	3536.3	3559.4	23.1	4.62	0.350	4.39E-06	270
	0.072	113.25	123.25	34.52	37.57	3.05	3	0.53	5.04	5.12	4.49	5.02	20	14.06	19.08	3559.4	3585.3	25.9	5.18	0.392	4.02E-06	270
	0.072	103.25	113.25	31.47	34.52	3.05	1	0.52	5.01	5.12	4.49	5.01	6	4.22	9.23	3591.6	3631.8	40.2	8.04	0.609	1.29E-05	260
	0.072	103.25	113.25	31.47	34.52	3.05	2	0.52	5.01	5.12	4.49	5.01	8	5.63	10.64	3631.8	3675.4	43.6	8.72	0.661	1.21E-05	260
	0.072	103.25	113.25	31.47	34.52	3.05	3	0.52	5.01	5.12	4.49	5.01	10	7.03	12.04	3675.4	3721.9	46.5	9.30	0.705	1.14E-05	260
	0.072	93.25	103.25	28.42	31.47	3.05	1	0.52	5.06	5.17	4.49	5.01	10	7.03	12.04	3727.5	3744.3	16.8	3.36	0.255	4.13E-06	250
	0.072	93.25	103.25	28.42	31.47	3.05	2	0.52	5.06	5.17	4.49	5.01	15	10.55	15.56	3744.3	3764.0	19.7	3.94	0.299	3.75E-06	250
	0.072	93.25	103.25	28.42	31.47	3.05	3	0.52	5.06	5.17	4.49	5.01	20	14.06	19.07	3764.0	3785.1	21.1	4.22	0.320	3.27E-06	250
	0.072	83.25	93.25	25.37	28.42	3.05	1	0.52	5.05	5.13	4.49	5.01	10	7.03	12.04	3786.4	3790.4	4	0.80	0.061	9.83E-07	240
	0.072	83.25	93.25	25.37	28.42	3.05	2	0.52	5.05	5.13	4.49	5.01	20	14.06	19.07	3790.4	3794.4	4	0.80	0.061	6.21E-07	240
	0.072	83.25	93.25	25.37	28.42	3.05	3	0.52	5.05	5.13	4.49	5.01	40	28.13	33.14	3794.4	3799.9	5.5	1.10	0.083	4.91E-07	240
	0.072	73.25	83.25	22.33	25.37	3.05	1	0.52	5.05	5.01	4.49	5.01	50	35.16	40.17	3800.7	3801.9	1.2	0.24	0.018	8.84E-08	230
	0.072	73.25	83.25	22.33	25.37	3.05	2	0.52	5.05	5.01	4.49	5.01	60	42.19	47.20	3801.9	3803.2	1.3	0.26	0.020	8.15E-08	230
	0.072	73.25	83.25	22.33	25.37	3.05	3	0.52	5.05	5.01	4.49	5.01	70	49.22	54.23	3803.2	3804.2	1	0.20	0.015	5.46E-08	230
	0.072	63.25	73.25	19.28	22.33	3.05	1	0.5	5.05	4.96	4.49	4.99	6	4.22	9.21	3807.8	3832.7	24.9	4.98	0.377	8.00E-06	220
	0.072	63.25	73.25	19.28	22.33	3.05	2	0.5	5.05	4.96	4.49	4.99	8	5.63	10.62	3832.7	3859.5	26.8	5.36	0.406	7.47E-06	220
	0.072	63.25	73.25	19.28	22.33	3.05	3	0.5	5.05	4.96	4.49	4.99	10	7.03	12.02	3859.5	3888.6	29.1	5.82	0.441	7.16E-06	220
	0.072	53.25	63.25	16.23	19.28	3.05	1	0.5	5.04	4.96	4.49	4.99	6	4.22	9.21	3891.7	3941.6	49.9	9.98	0.756	1.60E-05	210
	0.072	53.25	63.25	16.23	19.28	3.05	2	0.5	5.04	4.96	4.49	4.99	7	4.92	9.91	3941.6	3993.7	52.1	10.42	0.789	2.26E-04	210
	0.072	53.25	63.25	16.23	19.28	3.05	3	0.5	5.04	4.96	4.49	4.99	8	5.63	10.62	3993.7	4047.8	54.1	10.82	0.820	1.51E-05	210
	0.072	43.25	53.25	13.18	16.23	3.05	1	0.5	5.04	4.96	4.49	4.99	6	4.22	9.21	4059.6	4091.4	31.8	6.36	0.482	1.02E-05	210
	0.072	43.25	53.25	13.18	16.23	3.05	2	0.5	5.04	4.96	4.49	4.99	7	4.92	9.91	4091.4	4124.1	32.7	6.54	0.496	9.76E-06	210
	0.072	43.25	53.25	13.18	16.23	3.05	3	0.5	5.04	4.96	4.49	4.99	8	5.63	10.62	4124.1	4158.0	33.9	6.78	0.514	9.45E-06	210
	0.072	33.25	43.25	10.13	13.18	3.05	1	0.5	5.03	4.96	4.49	4.99	6	4.22	9.21	4160.0	4172.6	12.6	2.52	0.191	4.05E-06	210
	0.072	33.25	43.25	10.13	13.18	3.05	2	0.5	5.03	4.96	4.49	4.99	8	5.63	10.62	4172.6	4185.2	12.6	2.52	0.191	3.51E-06	210
	0.072	33.25	43.25	10.13	13.18	3.05	3	0.5	5.03	4.96	4.49	4.99	12	8.44	13.43	4185.2	4198.6	13.4	2.68	0.203	2.95E-06	210
	0.072	23.25	33.25	7.09	10.13	3.05	1	0.51	5.03	4.94	4.49	5.00	6	4.22	9.22	4241.0	4281.4	40.4	8.08	0.612	1.30E-05	210
	0.072	23.25	33.25	7.09	10.13	3.05	2	0.51	5.03	4.94	4.49	5.00	7	4.92	9.92	4281.4	4323.5	42.1	8.42	0.638	3.77E-04	210
	0.072	23.25	33.25	7.09	10.13	3.05	3	0.51	5.03	4.94	4.49	5.00	8	5.63	10.63	4323.5	4366.6	43.1	8.62	0.653	1.20E-05	210

Gartner Lee

Table F1-1-8

Borehole No : JEGEL BH C

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set a 15.5 ft																						
14-Apr-04	0.072	111.5	121.5	33.99	37.03	3.05	1	0.8	2.05	20.30	1.53	2.33	10	7.03	9.36	5207.3	5218.0	10.7	2.14	0.162	3.38E-06	150
	0.072	111.5	121.5	33.99	37.03	3.05	2	0.8	2.05	20.30	1.53	2.33	15	10.55	12.88	5218.0	5231.4	13.4	2.68	0.203	3.08E-06	150
	0.072	111.5	121.5	33.99	37.03	3.05	3	0.8	2.05	20.30	1.53	2.33	20	14.06	16.39	5231.4	5247.5	16.1	3.22	0.244	2.91E-06	150
	0.072	101.5	111.5	30.94	33.99	3.05	1	0.81	1.95	1.94	1.53	2.34	7	4.92	7.26	5251.0	5292.2	41.2	8.24	0.624	1.68E-05	150
	0.072	101.5	111.5	30.94	33.99	3.05	2	0.81	1.95	1.94	1.53	2.34	8	5.63	7.97	5292.2	5335.6	43.4	8.68	0.658	1.61E-05	150
	0.072	101.5	111.5	30.94	33.99	3.05	3	0.81	1.95	1.94	1.53	2.34	9	6.33	8.67	5335.6	5381.3	45.7	9.14	0.693	1.56E-05	150
	0.072	91.5	101.5	27.89	30.94	3.05	1	0.81	1.84	1.85	1.53	2.34	6	4.22	6.56	5383.8	5395.1	11.3	2.26	0.171	5.10E-06	150
	0.072	91.5	101.5	27.89	30.94	3.05	2	0.81	1.84	1.85	1.53	2.34	9	6.33	8.67	5395.1	5407.1	12	2.40	0.182	4.10E-06	150
	0.072	91.5	101.5	27.89	30.94	3.05	3	0.81	1.84	1.85	1.53	2.34	12	8.44	10.78	5407.1	5419.8	12.7	2.54	0.192	3.49E-06	150
	0.072	81.5	91.5	24.84	27.89	3.05	1	0.8	1.86	1.86	1.53	2.33	6	4.22	6.55	5421.5	5444.8	23.3	4.66	0.353	1.05E-05	150
	0.072	81.5	91.5	24.84	27.89	3.05	2	0.8	1.86	1.86	1.53	2.33	7	4.92	7.25	5444.8	5469.2	24.4	4.88	0.370	9.96E-06	150
	0.072	81.5	91.5	24.84	27.89	3.05	3	0.8	1.86	1.86	1.53	2.33	8	5.63	7.96	5469.2	5494.5	25.3	5.06	0.383	9.41E-06	150
	0.072	71.5	81.5	21.79	24.84	3.05	1	0.81	1.83	1.83	1.53	2.34	6	4.22	6.56	5496.0	5504.9	8.9	1.78	0.135	4.02E-06	150
	0.072	71.5	81.5	21.79	24.84	3.05	2	0.81	1.83	1.83	1.53	2.34	9	6.33	8.67	5504.9	5514.9	10	2.00	0.152	3.41E-06	150
	0.072	71.5	81.5	21.79	24.84	3.05	3	0.81	1.83	1.83	1.53	2.34	12	8.44	10.78	5514.9	5526.3	11.4	2.28	0.173	3.13E-06	150
	0.072	61.5	71.5	18.75	21.79	3.05	1	0.81	1.87	1.87	1.53	2.34	10	7.03	9.37	5527.5	5535.7	8.2	1.64	0.124	2.59E-06	150
	0.072	61.5	71.5	18.75	21.79	3.05	2	0.81	1.87	1.87	1.53	2.34	15	10.55	12.89	5535.7	5547.4	11.7	2.34	0.177	2.69E-06	150
	0.072	61.5	71.5	18.75	21.79	3.05	3	0.81	1.87	1.87	1.53	2.34	20	14.06	16.40	5547.4	5562.5	15.1	3.02	0.229	2.72E-06	150
	0.072	51.5	61.5	15.70	18.75	3.05	1	0.81	1.87	2.31	1.53	2.34	10	7.03	9.37	5563.3	5576.7	13.4	2.68	0.203	4.23E-06	140
	0.072	51.5	61.5	15.70	18.75	3.05	2	0.81	1.87	2.31	1.53	2.34	15	10.55	12.89	5576.7	5599.7	23	4.60	0.349	5.28E-06	140
	0.072	51.5	61.5	15.70	18.75	3.05	3	0.81	1.87	2.31	1.53	2.34	20	14.06	16.40	5599.7	5632.7	33	6.60	0.500	5.95E-06	140
	0.072	41.5	51.5	12.65	15.70	3.05	1	0.81	1.83	1.63	1.53	2.34	6	4.22	6.56	5634.4	5646.2	11.8	2.36	0.179	5.32E-06	150
	0.072	41.5	51.5	12.65	15.70	3.05	2	0.81	1.83	1.63	1.53	2.34	9	6.33	8.67	5646.2	5663.9	17.7	3.54	0.268	6.04E-06	150
	0.072	41.5	51.5	12.65	15.70	3.05	3	0.81	1.83	1.63	1.53	2.34	12	8.44	10.78	5663.9	5688.6	24.7	4.94	0.374	6.78E-06	150
	0.072	31.5	41.5	9.60	12.65	3.05	1	0.81	1.88	1.73	1.53	2.34	6	4.22	6.56	5691.7	5701.0	9.3	1.86	0.141	4.20E-06	150
	0.072	31.5	41.5	9.60	12.65	3.05	2	0.81	1.88	1.73	1.53	2.34	10	7.03	9.37	5701.0	5713.0	12	2.40	0.182	3.79E-06	150
	0.072	31.5	41.5	9.60	12.65	3.05	3	0.81	1.88	1.73	1.53	2.34	14	9.84	12.18	5713.0	5727.9	14.9	2.98	0.226	3.62E-06	150
	0.072	21.5	31.5	6.55	9.60	3.05	1	0.8	1.87	1.71	1.53	2.33	9	6.33	8.66	5729.0	5736.8	7.8	1.56	0.118	2.67E-06	150
	0.072	21.5	31.5	6.55	9.60	3.05	2	0.8	1.87	1.71	1.53	2.33	10	7.03	9.36	5736.8	5748.2	11.4	2.28	0.173	3.60E-06	150
	0.072	21.5	31.5	6.55	9.60	3.05	3	0.8	1.87	1.71	1.53	2.33	14	9.84	12.17	5748.2	5761.7	13.5	2.70	0.205	3.28E-06	150

Gartner Lee

Table F1-1-9

Borehole No : JEGEL BH D

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set a 11 ft																						
13-Apr-04	0.072	121.5	131.5	37.03	40.08	3.05	1	0.86	2.40	2.41	1.53	2.39	6	4.22	6.61	4372.5	4398.3	25.8	5.16	0.391	1.16E-05	260
	0.072	121.5	131.5	37.03	40.08	3.05	2	0.86	2.40	2.41	1.53	2.39	7	4.92	7.31	4398.3	4426.8	28.5	5.70	0.432	1.15E-05	260
	0.072	121.5	131.5	37.03	40.08	3.05	3	0.86	2.40	2.41	1.53	2.39	8	5.63	8.02	4426.8	4456.6	29.8	5.96	0.452	1.10E-05	260
	0.072	111.5	121.5	33.99	37.03	3.05	1	0.86	2.38	2.37	1.53	2.39	6	4.22	6.61	4459.2	4473.9	14.7	2.94	0.223	6.58E-06	250
	0.072	111.5	121.5	33.99	37.03	3.05	2	0.86	2.38	2.37	1.53	2.39	9	6.33	8.72	4486.9	4503.1	16.2	3.24	0.245	5.50E-06	250
	0.072	111.5	121.5	33.99	37.03	3.05	3	0.86	2.38	2.37	1.53	2.39	12	8.44	10.83	4503.1	4523.9	20.8	4.16	0.315	5.68E-06	250
	0.072	101.5	111.5	30.94	33.99	3.05	1	0.86	2.37	2.36	1.53	2.39	6	4.22	6.61	4526.0	4557.9	31.9	6.38	0.483	1.43E-05	240
	0.072	101.5	111.5	30.94	33.99	3.05	2	0.86	2.37	2.36	1.53	2.39	7	4.92	7.31	4557.9	4592.2	34.3	6.86	0.520	1.39E-05	240
	0.072	101.5	111.5	30.94	33.99	3.05	3	0.86	2.37	2.36	1.53	2.39	8	5.63	8.02	4592.2	4628.7	36.5	7.30	0.553	1.35E-05	240
	0.072	91.5	101.5	27.89	30.94	3.05	1	0.86	2.36	2.34	1.53	2.39	6	4.22	6.61	4631.4	4671.2	39.8	7.96	0.603	1.78E-05	230
	0.072	91.5	101.5	27.89	30.94	3.05	2	0.86	2.36	2.34	1.53	2.39	7	4.92	7.31	4684.2	4726.3	42.1	8.42	0.638	5.27E-03	230
	0.072	91.5	101.5	27.89	30.94	3.05	3	0.86	2.36	2.34	1.53	2.39	8	5.63	8.02	4726.3	4771.2	44.9	8.98	0.680	1.66E-05	230
	0.072	81.5	91.5	24.84	27.89	3.05	1	0.86	2.36	2.33	1.53	2.39	6	4.22	6.61	4774.0	4800.8	26.8	5.36	0.406	1.20E-05	220
	0.072	81.5	91.5	24.84	27.89	3.05	2	0.86	2.36	2.33	1.53	2.39	7	4.92	7.31	4800.8	4829.5	28.7	5.74	0.435	1.16E-05	220
	0.072	81.5	91.5	24.84	27.89	3.05	3	0.86	2.36	2.33	1.53	2.39	8	5.63	8.02	4829.5	4860.3	30.8	6.16	0.467	1.14E-05	220
	0.072	71.5	81.5	21.79	24.84	3.05	1	0.86	2.33	2.31	1.53	2.39	6	4.22	6.61	4862.0	4900.2	38.2	7.64	0.579	1.71E-05	210
	0.072	71.5	81.5	21.79	24.84	3.05	2	0.86	2.33	2.31	1.53	2.39	7	4.92	7.31	4900.2	4944.2	44	8.80	0.667	2.92E-04	210
	0.072	71.5	81.5	21.79	24.84	3.05	3	0.86	2.33	2.31	1.53	2.39	8	5.63	8.02	4944.2	4989.4	45.2	9.04	0.685	1.67E-05	210
	0.072	61.5	71.5	18.75	21.79	3.05	1	0.86	2.33	2.31	1.53	2.39	10	7.03	9.42	4996.0	5012.3	16.3	3.26	0.247	5.12E-06	210
	0.072	61.5	71.5	18.75	21.79	3.05	2	0.86	2.33	2.31	1.53	2.39	15	10.55	12.94	5012.3	5032.7	20.4	4.08	0.309	4.67E-06	210
	0.072	61.5	71.5	18.75	21.79	3.05	3	0.86	2.33	2.31	1.53	2.39	20	14.06	16.45	5038.0	5062.7	24.7	4.94	0.374	4.44E-06	210
	0.072	51.5	61.5	15.70	18.75	3.05	1	0.86	2.35	2.32	1.53	2.39	10	7.03	9.42	5063.5	5069.0	5.5	1.10	0.083	1.73E-06	210
	0.072	51.5	61.5	15.70	18.75	3.05	2	0.86	2.35	2.32	1.53	2.39	15	10.55	12.94	5069.0	5077.0	8	1.60	0.121	1.83E-06	210
	0.072	51.5	61.5	15.70	18.75	3.05	3	0.86	2.35	2.32	1.53	2.39	20	14.06	16.45	5077.0	5091.1	14.1	2.82	0.214	2.54E-06	210
	0.072	41.5	51.5	12.65	15.70	3.05	1	0.86	2.34	2.34	1.53	2.39	10	7.03	9.42	5092.0	5101.5	9.5	1.90	0.144	2.98E-06	210
	0.072	41.5	51.5	12.65	15.70	3.05	2	0.86	2.34	2.34	1.53	2.39	15	10.55	12.94	5101.5	5112.5	11	2.20	0.167	2.52E-06	210
	0.072	41.5	51.5	12.65	15.70	3.05	3	0.86	2.34	2.34	1.53	2.39	20	14.06	16.45	5112.5	5125.2	12.7	2.54	0.192	2.28E-06	210
	0.072	31.5	41.5	9.60	12.65	3.05	1	0.86	2.33	2.35	1.53	2.39	6	4.22	6.61	5127.0	5139.4	12.4	2.48	0.188	5.55E-06	210
	0.072	31.5	41.5	9.60	12.65	3.05	2	0.86	2.33	2.35	1.53	2.39	9	6.33	8.72	5139.4	5154.4	15	3.00	0.227	5.09E-06	210
	0.072	31.5	41.5	9.60	12.65	3.05	3	0.86	2.33	2.35	1.53	2.39	12	8.44	10.83	5154.4	5171.3	16.9	3.38	0.256	4.62E-06	210
	0.072	21.5	31.5	6.55	9.60	3.05	1	0.86	2.38	2.36	1.53	2.39	10	7.03	9.42	5173.6	5180.5	6.9	1.38	0.105	2.17E-06	210
	0.072	21.5	31.5	6.55	9.60	3.05	2	0.86	2.38	2.36	1.53	2.39	15	10.55	12.94	5180.5	5190.4	9.9	1.98	0.150	2.26E-06	210
	0.072	21.5	31.5	6.55	9.60	3.05	3	0.86	2.38	2.36	1.53	2.39	20	14.06	16.45	5190.4	5204.6	14.2	2.84	0.215	2.55E-06	210

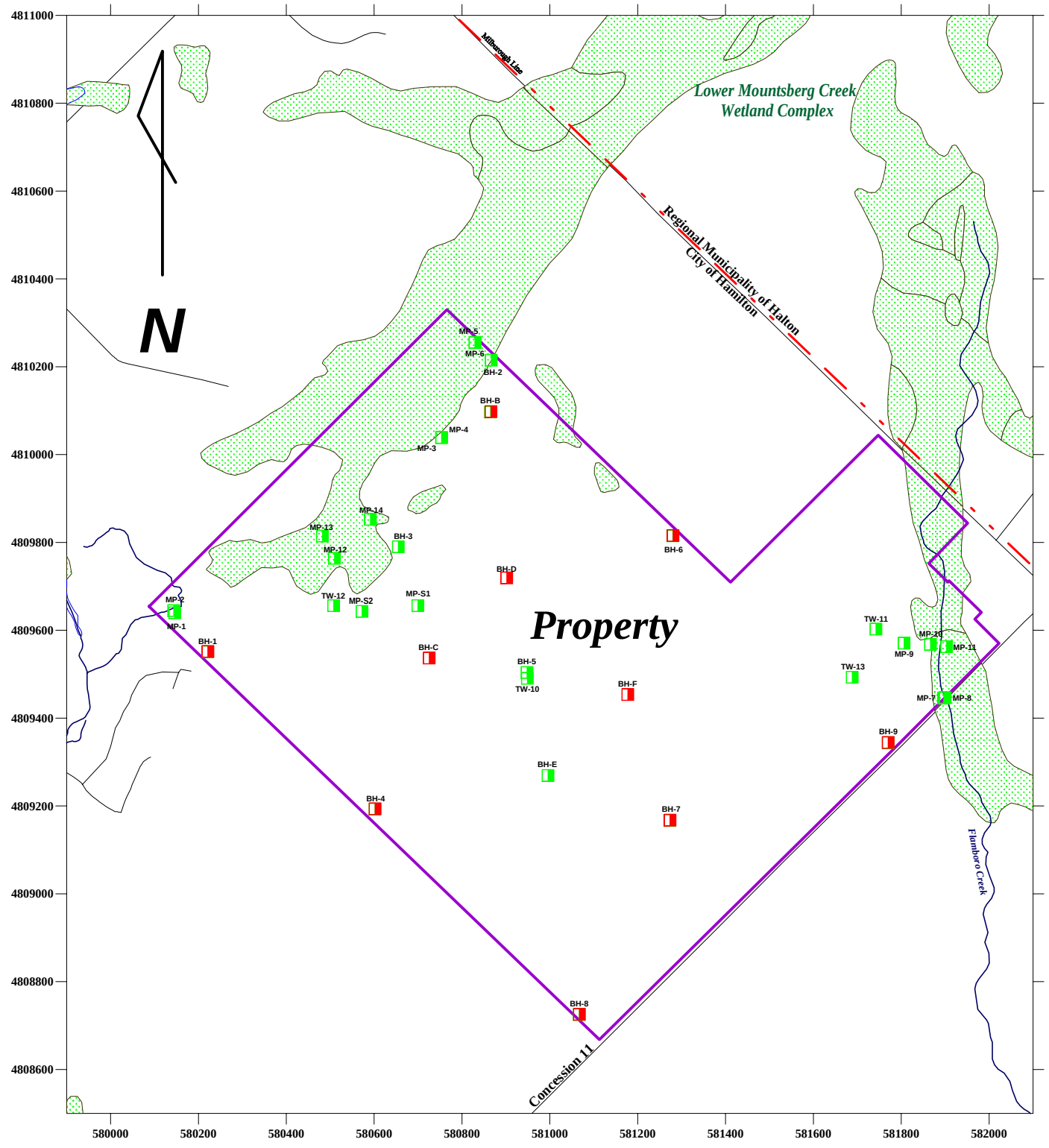
Gartner Lee

Table F1-1-10

Borehole No : JEGEL BH F

Date	Borehole	Test Secton		Test Secton		Test	Test	Stickup	Water Level		Water	Gravity	Water Pressure	Pressure	Total Head	Flow	Flow	Volume	Flow	Flow	Hydraulic Conductivity	Gas Pressure
	Radius	From	To	From	To	Interval	No	of Rod	bef. Infla.	Aft. Infla.	Table	Head	Reading	Head	H	at o min	at 5 mins		Q	Q	K	Reading
	m	ft	ft	m	m	m		mAGL	mBTOP	mBTOP	mBGL	mBTOP	PSI	mATOP	mASTL	igal	igal	igal	igpm	(L/sec)	m/sec	PSI
	r					L									H					Q		
Surface Casing set a ft																						
15-Apr-04	0.072	126.5	136.5	38.56	41.61	3.05	1	1.42	10.49	10.23	9.07	10.49	6	4.22	14.71	5767.0	5793.3	26.3	5.26	0.399	5.29E-06	160
	0.072	126.5	136.5	38.56	41.61	3.05	2	1.42	10.49	10.23	9.07	10.49	7	4.92	15.41	5793.3	5815.5	22.2	4.44	0.336	4.26E-06	160
	0.072	126.5	136.5	38.56	41.61	3.05	3	1.42	10.49	10.23	9.07	10.49	9	6.33	16.82	5815.5	5834.4	18.9	3.78	0.286	3.33E-06	160
	0.072	126.5	136.5	38.56	41.61	3.05	1	1.42	10.49	10.23	9.07	10.49	10	7.03	17.52	5836.5	5857.3	20.8	4.16	0.315	3.51E-06	160
	0.072	126.5	136.5	38.56	41.61	3.05	2	1.42	10.49	10.23	9.07	10.49	12	8.44	18.93	5857.3	5877.3	20	4.00	0.303	3.13E-06	160
	0.072	126.5	136.5	38.56	41.61	3.05	3	1.42	10.49	10.23	9.07	10.49	15	10.55	21.04	5877.3	5899.0	21.7	4.34	0.329	3.05E-06	160
	0.072	116.5	126.5	35.51	38.56	3.05	1	1.42	10.43	10.21	9.07	10.49	7	4.92	15.41	5902.3	5937.5	35.2	7.04	0.533	6.76E-06	160
	0.072	116.5	126.5	35.51	38.56	3.05	2	1.42	10.43	10.21	9.07	10.49	8	5.63	16.12	5937.5	5971.5	34	6.80	0.515	6.24E-06	160
	0.072	116.5	126.5	35.51	38.56	3.05	3	1.42	10.43	10.21	9.07	10.49	9	6.33	16.82	5971.5	6007.4	35.9	7.18	0.544	6.32E-06	160
	0.072	106.5	116.5	32.46	35.51	3.05	1	1.43	10.45	10.21	9.07	10.50	6	4.22	14.72	6011.4	6028.8	17.4	3.48	0.264	3.50E-06	160
	0.072	106.5	116.5	32.46	35.51	3.05	2	1.43	10.45	10.21	9.07	10.50	8	5.63	16.13	6028.8	6048.0	19.2	3.84	0.291	3.52E-06	160
	0.072	106.5	116.5	32.46	35.51	3.05	3	1.43	10.45	10.21	9.07	10.50	10	7.03	17.53	6048.0	6067.7	19.7	3.94	0.299	3.33E-06	160
	0.072	96.5	106.5	29.41	32.46	3.05	1	1.43	10.45	10.41	9.07	10.50	7	4.92	15.42	6069.2	6083.5	14.3	2.86	0.217	2.74E-06	160
	0.072	96.5	106.5	29.41	32.46	3.05	2	1.43	10.45	10.41	9.07	10.50	10	7.03	17.53	6083.5	6097.2	13.7	2.74	0.208	2.31E-06	160
	0.072	96.5	106.5	29.41	32.46	3.05	3	1.43	10.45	10.41	9.07	10.50	15	10.55	21.05	6097.2	6112.0	14.8	2.96	0.224	2.08E-06	160
	0.072	86.5	96.5	26.37	29.41	3.05	1	1.43	10.37	10.41	9.07	10.50	20	14.06	24.56	6114.1	6114.7	0.6	0.12	0.009	7.23E-08	160
	0.072	86.5	96.5	26.37	29.41	3.05	2	1.43	10.37	10.41	9.07	10.50	40	28.13	38.63	6114.7	6116.7	2	0.40	0.030	1.53E-07	160
	0.072	86.5	96.5	26.37	29.41	3.05	3	1.43	10.37	10.41	9.07	10.50	60	42.19	52.69	6116.7	6118.9	2.2	0.44	0.033	1.24E-07	160
	0.072	76.5	86.5	23.32	26.37	3.05	1	1.42	10.44	10.34	9.07	10.49	20	14.06	24.55	6120.4	6121.3	0.9	0.18	0.014	1.08E-07	160
	0.072	76.5	86.5	23.32	26.37	3.05	2	1.42	10.44	10.34	9.07	10.49	40	28.13	38.62	6121.3	6122.8	1.5	0.30	0.023	1.15E-07	160
	0.072	76.5	86.5	23.32	26.37	3.05	3	1.42	10.44	10.34	9.07	10.49	60	42.19	52.68	6124.1	6125.8	1.7	0.34	0.026	9.55E-08	160
	0.072	66.5	76.5	20.27	23.32	3.05	1	1.42	10.52	10.54	9.07	10.49	5	3.52	14.01	6128.3	6189.9	61.6	12.32	0.933	1.30E-05	160
	0.072	66.5	76.5	20.27	23.32	3.05	2	1.42	10.52	10.54	9.07	10.49	6	4.22	14.71	6189.9	6254.5	64.6	12.92	0.979	1.30E-05	160
	0.072	66.5	76.5																		7.94E-04	
	0.072	56.5	66.5	17.22	20.27	3.05	1	1.44	10.5	10.49	9.07	10.51	10	7.03	17.54	6259.3	6263.4	4.1	0.82	0.062	6.92E-07	160
	0.072	56.5	66.5	17.22	20.27	3.05	2	1.44	10.50	10.49	9.07	10.51	15	10.55	21.06	6263.4	6267.5	4.1	0.82	0.062	5.76E-07	160
	0.072	56.5	66.5	17.22	20.27	3.05	3	1.44	10.50	10.49	9.07	10.51	20	14.06	24.57	6267.5	6271.8	4.3	0.86	0.065	5.18E-07	160
	0.072	46.5	56.5	14.17	17.22	3.05	1	1.42	10.49	10.51	9.07	10.49	5	3.52	14.01	6277.0	6341.5	64.5	12.90	0.977	1.36E-05	150
	0.072	46.5	56.5																		2.72E-03	
	0.072	46.5	56.5																			
	0.072	36.5	46.5	11.13	14.17	3.05	1	1.42	10.49	10.5	9.07	10.49	5	3.52	14.01	6350.0	6399.3	49.3	9.86	0.747	1.04E-05	150
	0.072	36.5	46.5	11.13	14.17	3.05	2	1.42	10.49	10.50	9.07	10.49	6	4.22	14.71	6399.3	6448.2	48.9	9.78	0.741	9.84E-06	150
	0.072	36.5	46.5	11.13	14.17	3.05	3	1.42	10.49	10.50	9.07	10.49	7	4.92	15.41	6448.2	6498.3	50.1	10.02	0.759	9.62E-06	150

F1-2 Vertical Permeability Profiles



Legend

- Surface Drainage Features
- Water Bodies
- Wetlands
- Active Model Domain
- Property Boundary
- Tested Wells
- Non-Tested Wells

SOURCE: Base mapping produced by Gartner Lee Limited under license with the Ministry of Natural Resources, Queen's Printer 1997 - Reproduced 2004.

PROPOSED DOLOSTONE QUARRY	Figure F1-2-1
PACKER TEST - TESTED WELLS	
Project # 23827, Hydrogeological Modeling Investigation	
Gartner Lee Limited	
	Scale 1:13,000

:11/13/08:\ N:\Projects\2003\23827\2005\WIP\Level 2 Report\Appendices\Ap E\E-1\Figure E-1-1.srf

Figure F1-2-2
Hydraulic Conductivity Profile - GLL BH-1-D

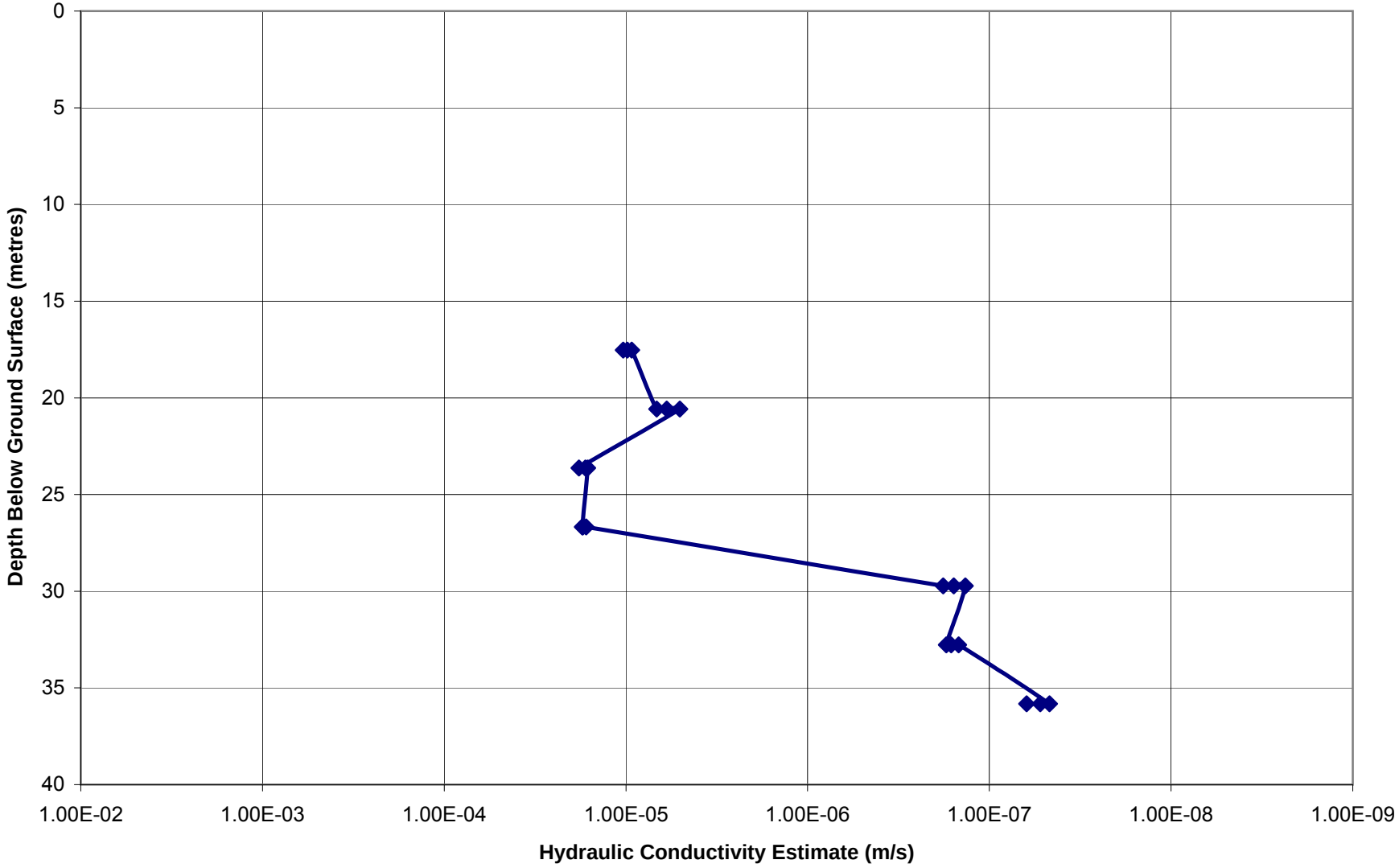


Figure F1-2-3
Hydraulic Conductivity Profile - GLL BH-4-D

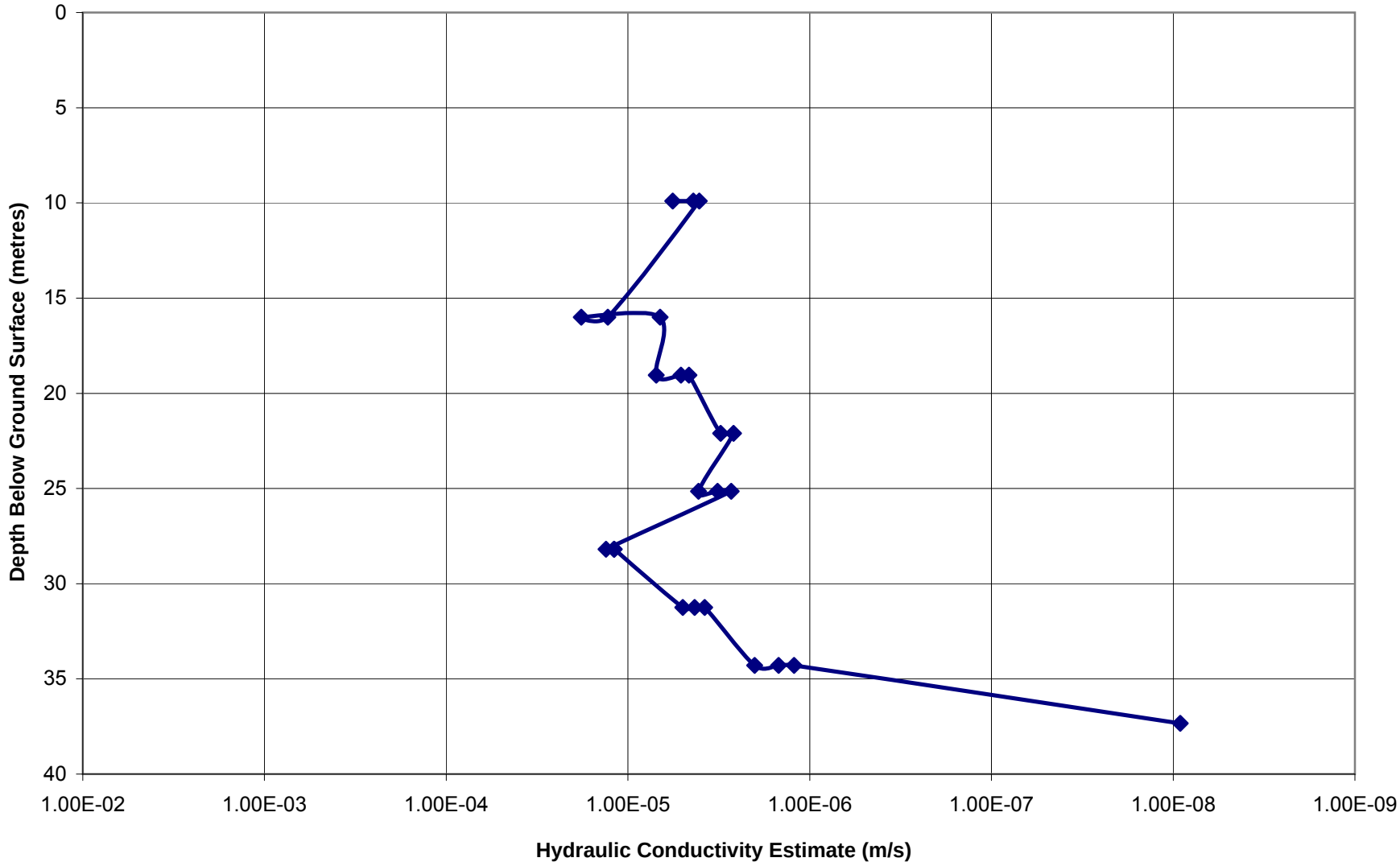


Figure F1-2-4
Hydraulic Conductivity Profile - GLL BH-6-D

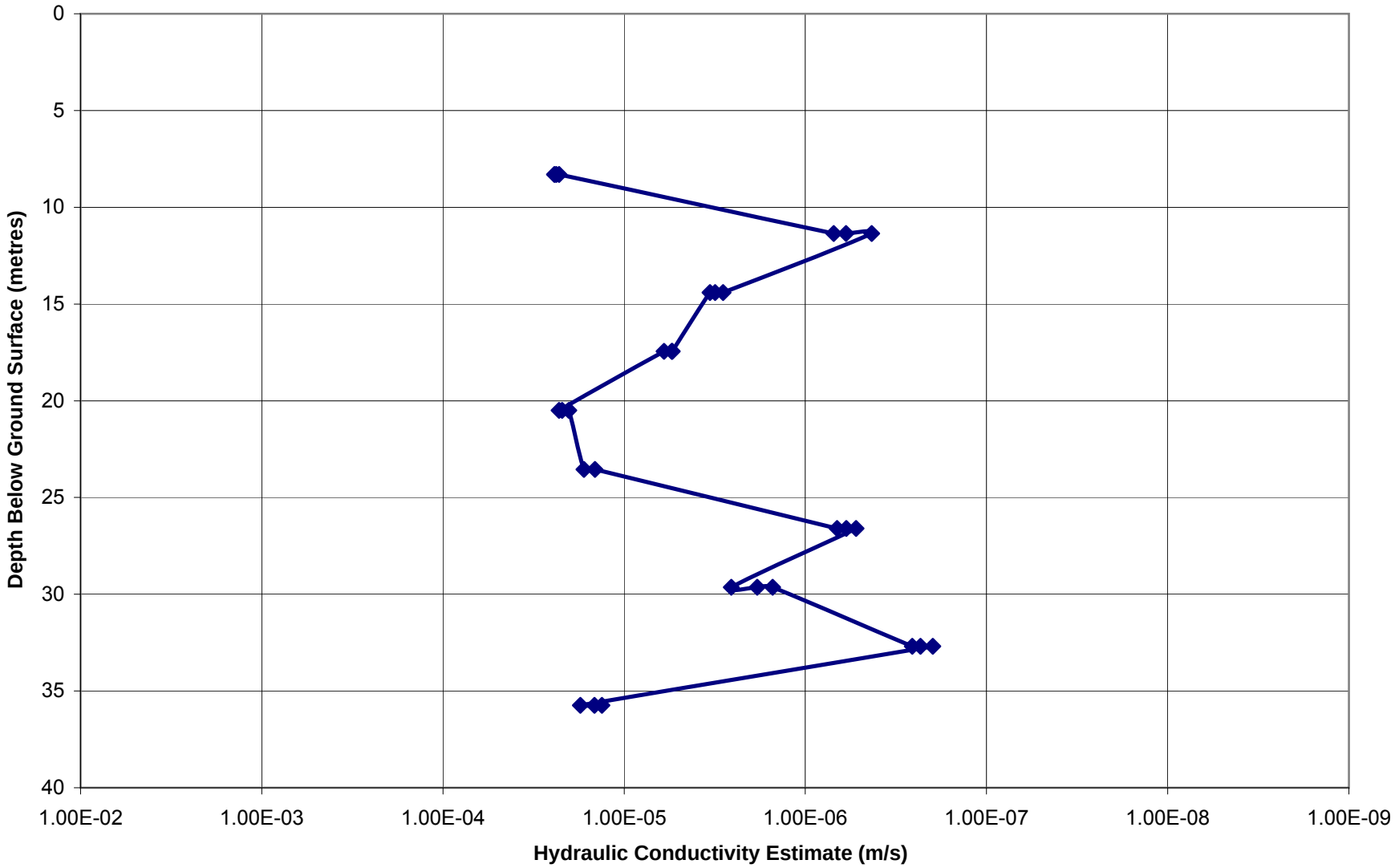


Figure F1-2-5
Hydraulic Conductivity Profile - GLL BH-7-D

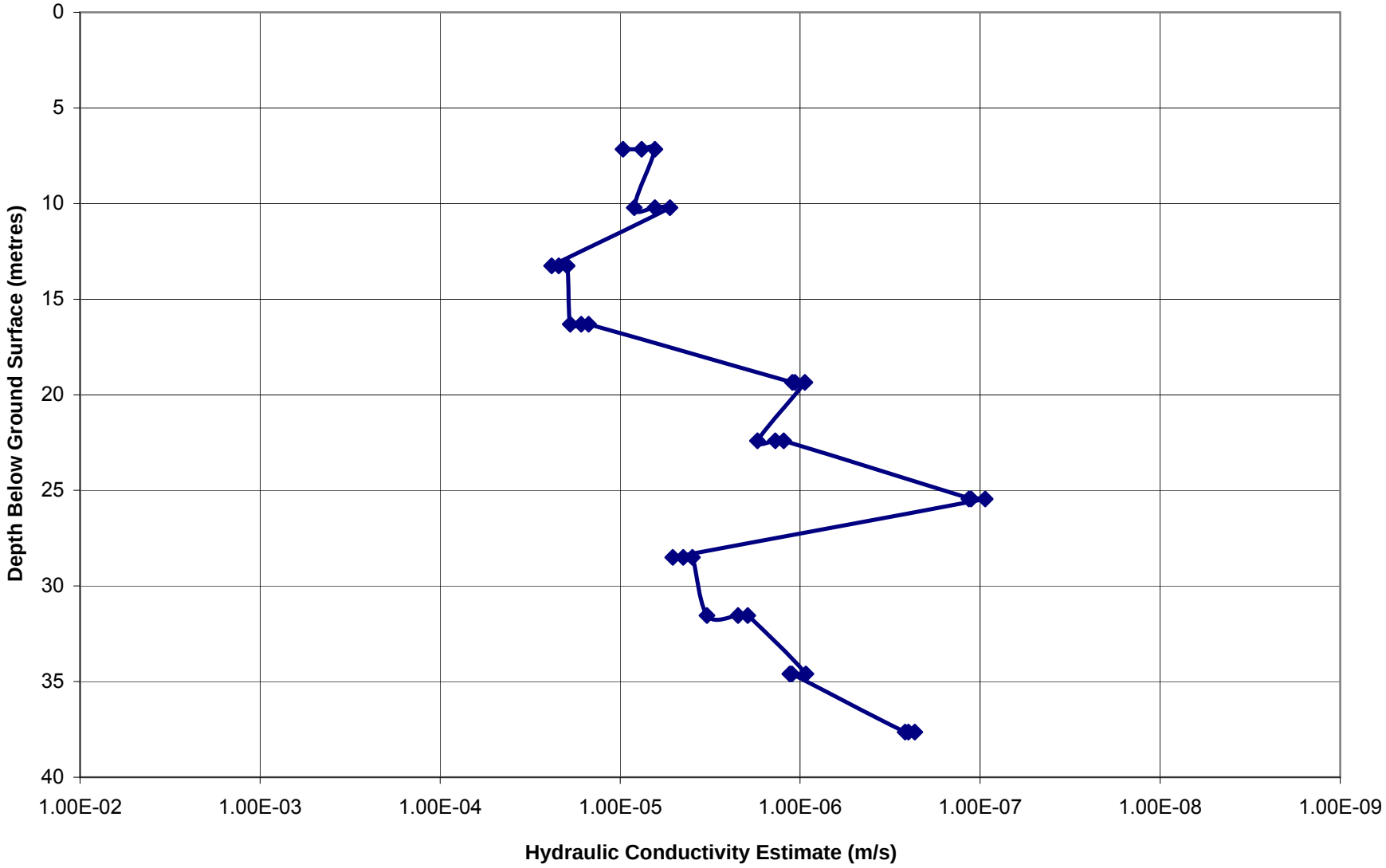


Figure F1-2-6
Hydraulic Conductivity Profile - GLL BH-8-D

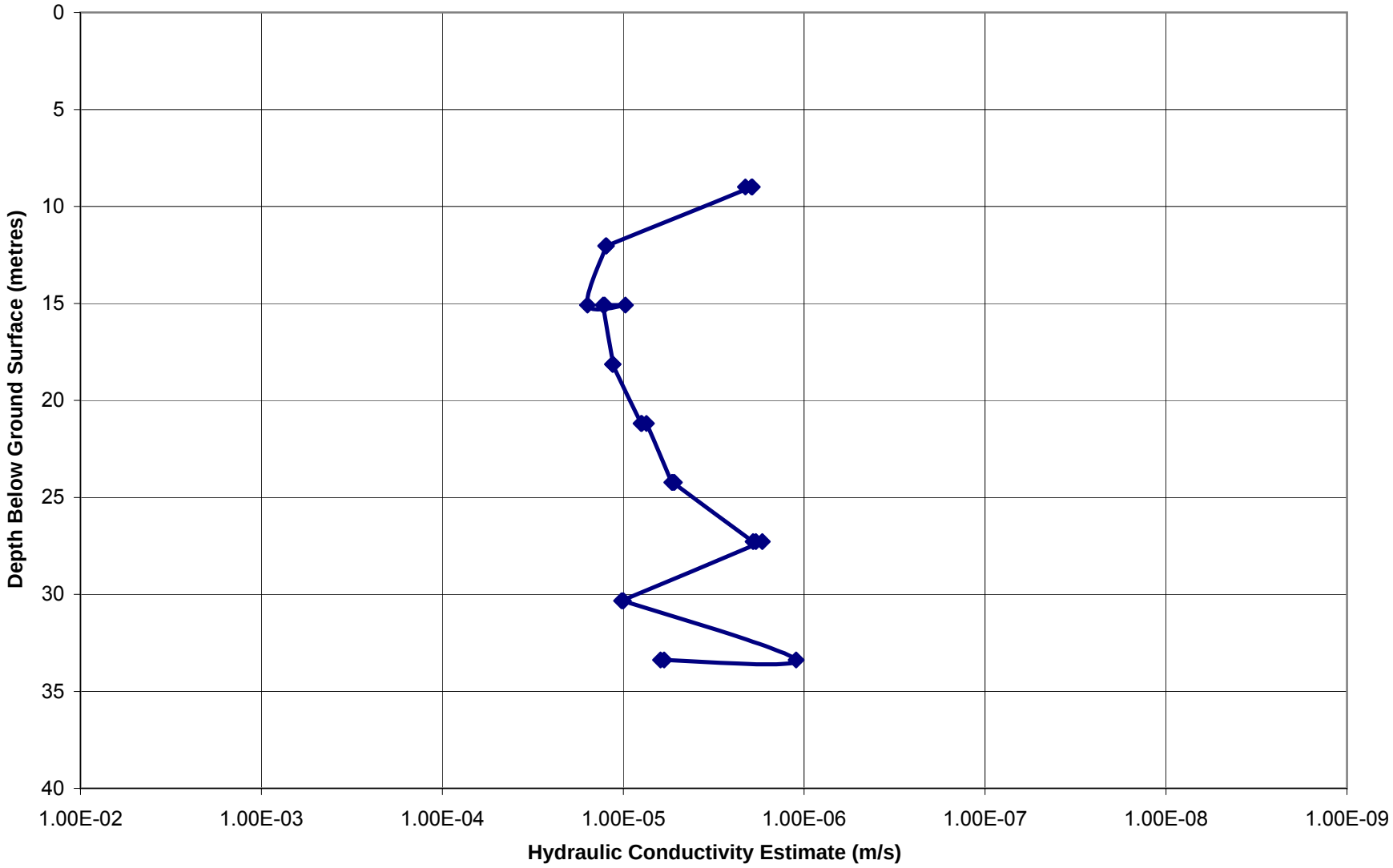


Figure F1-2-7
Hydraulic Conductivity Profile - GLL BH-9-D

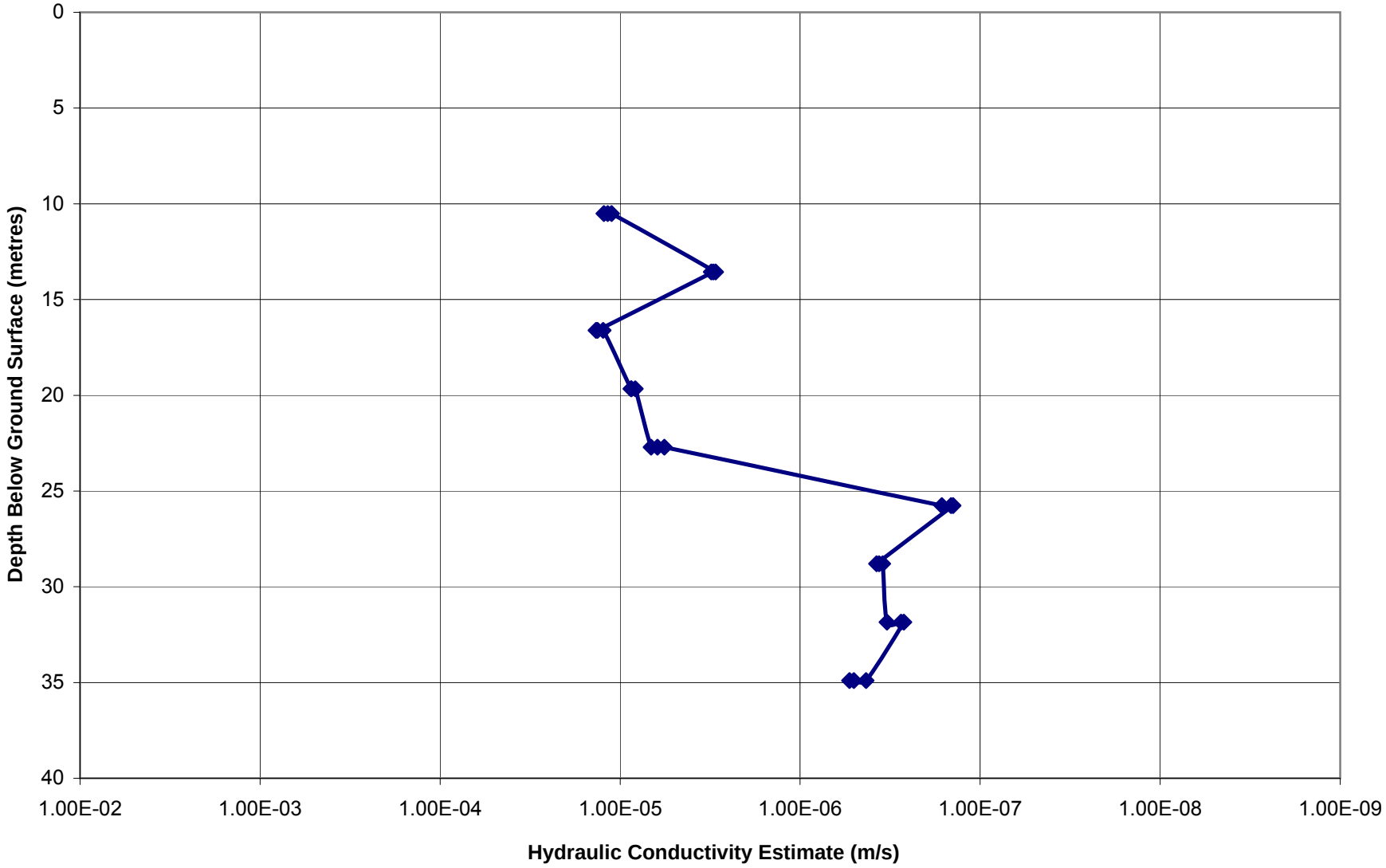


Figure F1-2-8
Hydraulic Conductivity Profile - JEGEL BH-B

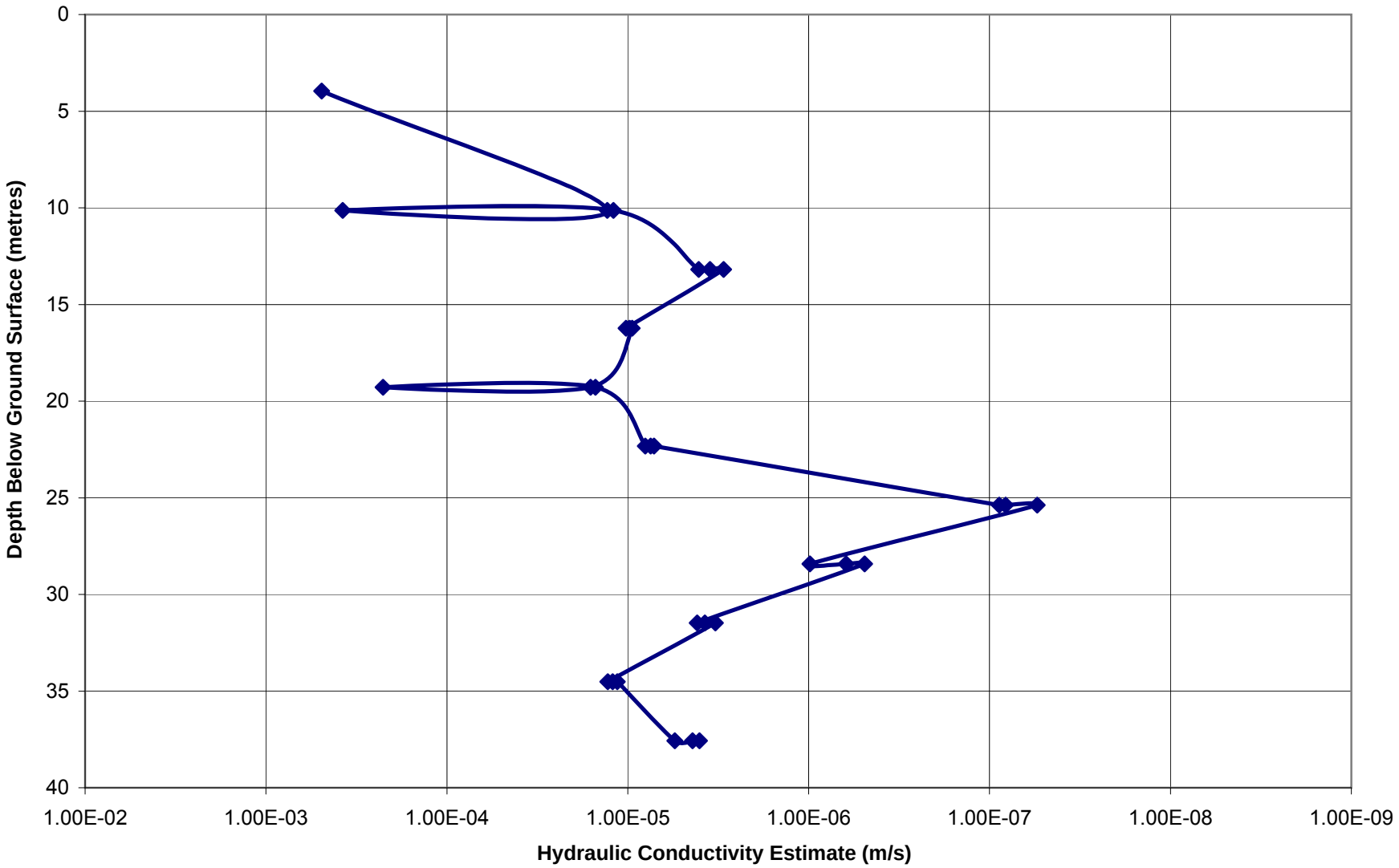


Figure F1-2-9
Hydraulic Conductivity Profile - JEGEL BH-C

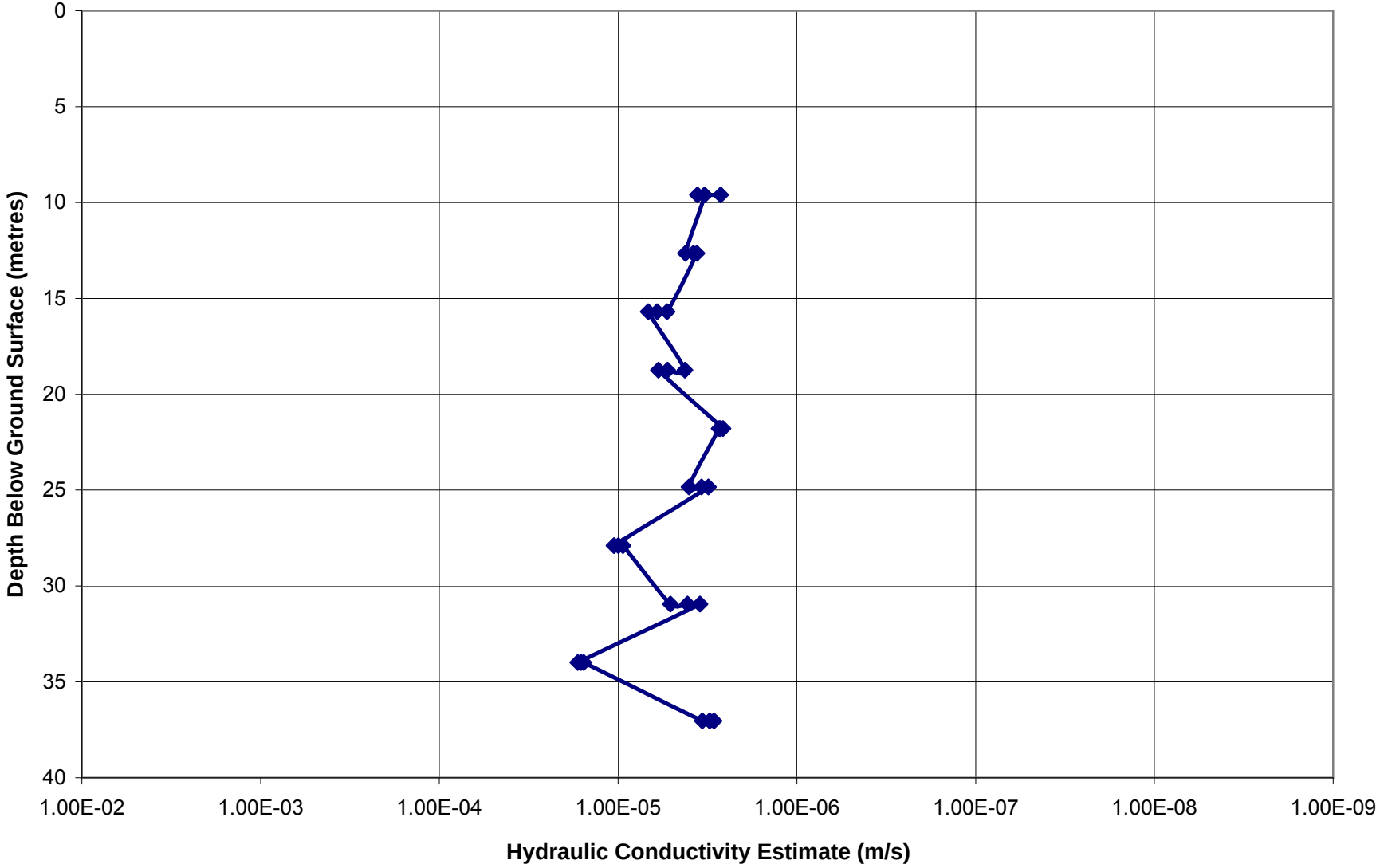


Figure F1-2-10
Hydraulic Conductivity Profile - JEGEL BH-D

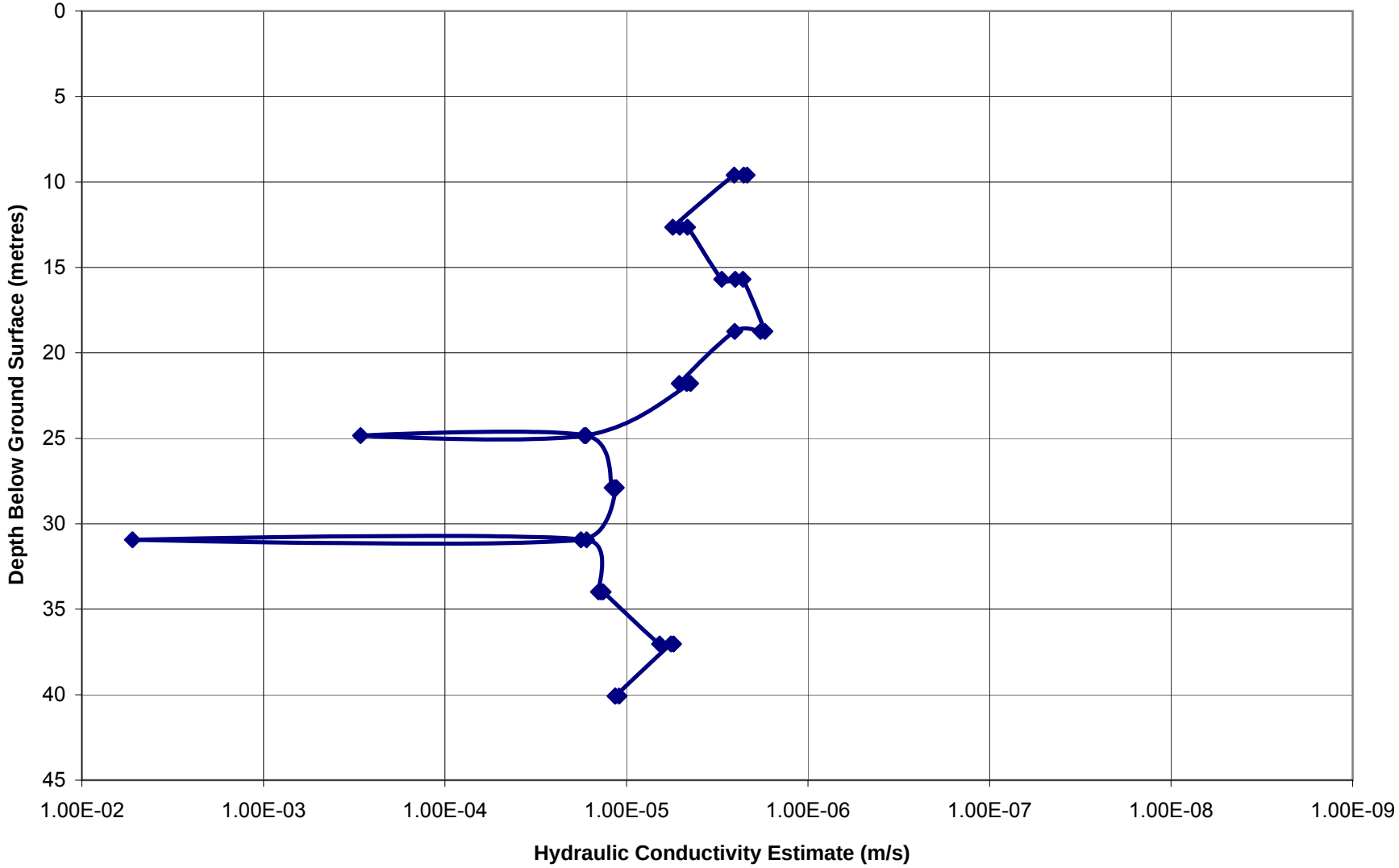
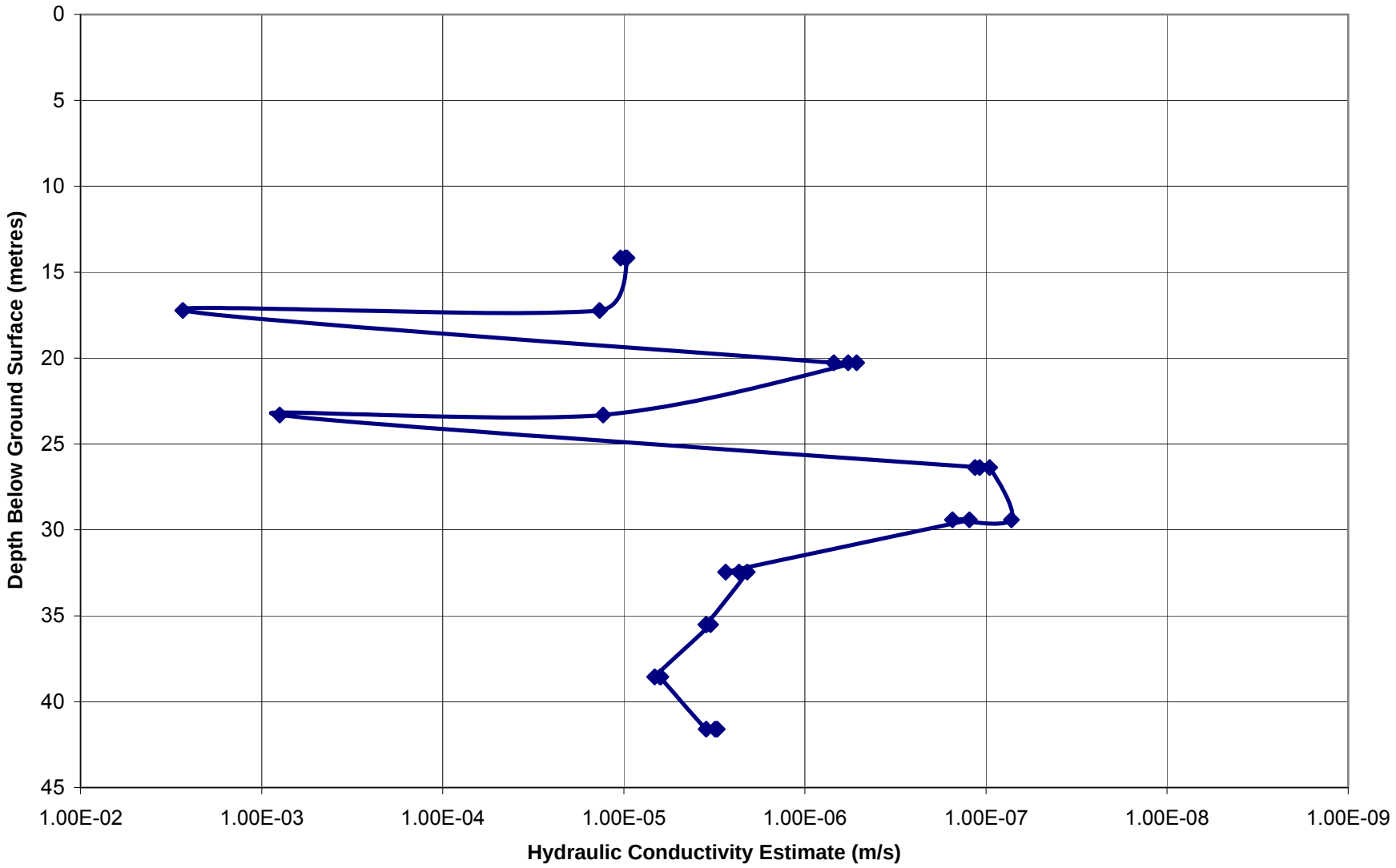


Figure F1-2-11
Hydraulic Conductivity Profile - JEGEL BH-F



F1-3 Lotowater Geophysical Logging and Testing Results, July 2007

Appendix F1-3

Geophysical Logging (2006/2007)

Lotowater Technical Services Inc. was retained to provide video and geophysical logging of the deep boreholes installed in 2006/2007 and a number of the 2004 boreholes/well installations, following removal of the well construction materials. The wells selected included three test wells installed in 2004, which at that time were referred to as TW10 (MWB10 under the new nomenclature), TW12 (MWB12) and TW13 (MWB13). Also included, were two newly installed test wells TW14 and TW15, which were installed at the Groundwater Recirculation System (GRS) test site. The purpose of the work was to identify and test potentially productive water bearing zones within the Amabel Formation. The well locations are shown in Figure 2.1 (Volume 1). The boreholes, which were logged, are listed in the table below.

Summary of Available Information for Deep Boreholes Installations

Borehole ID		Available Information		
Initial Borehole ID at Time Borehole Installed	Revised Borehole Identifier	Rock Core	Geophysics	Packer Testing
B	MWB17	X		X
C*	MWB18	X	X	X
D*	MWB19	X	X	X
E*	MWB20-II	X		
F*	MWB21	X		X
Hydro #1*	MWB1-II	X	X	X
Hydro #2	MWB2-II	X	Borehole collapsed after drilling	
Hydro #3*	MWB3R	X	X	
Hydro #4*	MWB4-II	X	X	X
Hydro #5	MWB10-II	Not Logged, initially intended to be a test well		
Hydro #6*	MWB6-II	X	X	X
Hydro #7*	MWB7-II	X	X	X
Hydro #8*	MWB8-II	X	X	X
Hydro #9	MWB9-II	X		X
TW10	MWB10-II		X	X
TW11	MWB11		X	X
TW12	MWB12		X	X
TW13	MWB13			
TW14	TW14	X		X
TW15	TW15	X	X	X
TW16	TW16	X		X
MW1	MWB22-I		X	
MW2	MWB23-II		X	
MW3	MWB24-II	X	partial array	
MW4D	MWB25-III	X	partial array	
MW5	MWB26-II	X	X	
MW6-D	MWB27-II		X	
na	MWB28		X	

Notes: (*) Installation reamed to remove the existing well installation to facilitate downhole geophysical survey.

The geophysical logging at most locations consisted of:

a) Mechanical Caliper;
b) Natural Gamma;
c) Single Point Resistivity and Resistivity;
d) Temperature;
e) Acoustic Televiewer; and,
f) Flow Distribution profiling;

In some instances, it was not possible to complete the logging to the full depth of the borehole due to the presence of obstructions caused by material sloughing off the borehole walls. Where this occurred, it was necessary to mobilize the drill rig to the location to remove the obstacle on more than one occasion. For this reason, more than one partially completed log is available at some locations.

A description of the methodology employed, the logging results and an interpretation of the results on a borehole specific basis are provided in the Lotowater Technical Services Inc. report (2007b), which is presented in full in Appendix F1-3. Results for borehole MWB28 are provided in Appendix D3-5.

The information obtained was used to identify productive water-yielding features or zones in the individual boreholes for the purposes of well installation. Depending on borehole diameter, up to three 52 mm well installations could be accommodated in each borehole.

FLAMBOROUGH QUARRY

GEOPHYSICAL LOGGING AND TESTING RESULTS FOR MONITORING AND TEST WELLS

Prepared for:

CBM ST MARYS CEMENT

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Lotowater
TECHNICAL SERVICES INC.

Date: July 24, 2007

Reference: 147-009

CBM ST MARYS CEMENT

FLAMBOROUGH QUARRY
GEOPHYSICAL LOGGING AND TESTING RESULTS
FOR MONITORING AND TEST WELLS

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4.22 MWB27-II (MW6) 18

TABLES

1 Geophysical Log and Testing Inventory

FIGURES

1 Site Plan
2 General Flow Profile Equipment Setup

APPENDIX 1

Pumping Videos (DVD Attachments)

APPENDIX 2

Video Log Summaries

2a. MWB1-II (GLL1)
2b. MWB3 (GLL3)
2c. MWB4-II (GLL4)
2d. MWB6-II (GLL6)
2e. MWB7-II (GLL7)
2f. MWB8-II (GLL8)
2g. MWB10-I (TW10)
2h. MWB12 (TW12)
2i. MWB13 (TW13)
2j(a) TW14
2j(b) TW14
2k TW15
2l. TW16
2m. MWB18 (BHC)
2n. MWB19 (BHD)
2o. MWB20-II (BHE)
2p. MWB21 (BHF)
2q. MWB22-II (MW1)
2r. MWB23-II (MW2)
2s. MWB24-II (MW3)
2t MWB26-II (MW5)
2u. MWB27-II (MW6)

APPENDIX 3

Geophysical Logs

3a. MWB1-II (GLL1)
3b. MWB6-II (GLL6)
3c. MWB7-II (GLL7)
3d. MWB8-II (GLL8)
3e. MWB10-I (TW10)
3f. MWB12 (TW12)
3g. MWB13 (TW13)
3h. TW14
3i. TW15
3j. TW16
3k. MWB18 (BHC)
3l. MWB19 (BHD)
3m. MWB20-II (BHE)
3n. MWB21 (BHF)
3o. MWB22-II (MW1)
3p. MWB24-II (MW3)
3q. MWB25-III (MW4)
3r. MWB26-II (MW5)
3s. MWB27-II (MW6)

APPENDIX 4

Acoustic Televiewer Logs

4a. MWB10-I (TW10)
4b. MWB12 (TW12)
4c. TW14
4d. TW15
4e. MWB24-II (MW3)
4f. MWB25-III (MW4)
4g. MWB26-II (MW5)

1.0 INTRODUCTION

This report describes the geophysical logging and testing performed at the proposed CBM St Marys Flamborough Quarry Site near the town of Carlisle, Ontario during the Fall/Winter of 2006/2007. Logging and testing was performed by Lotowater Technical Services Inc. (Lotowater) on a total of 22 existing and newly constructed monitoring and test wells. Downhole logs performed include; caliper, natural gamma, resistivity, fluid conductivity, temperature, flow profiles and pumping well videos. In addition, acoustic televiewer logs were performed on 8 wells. Well locations are shown in **Figure 1**.

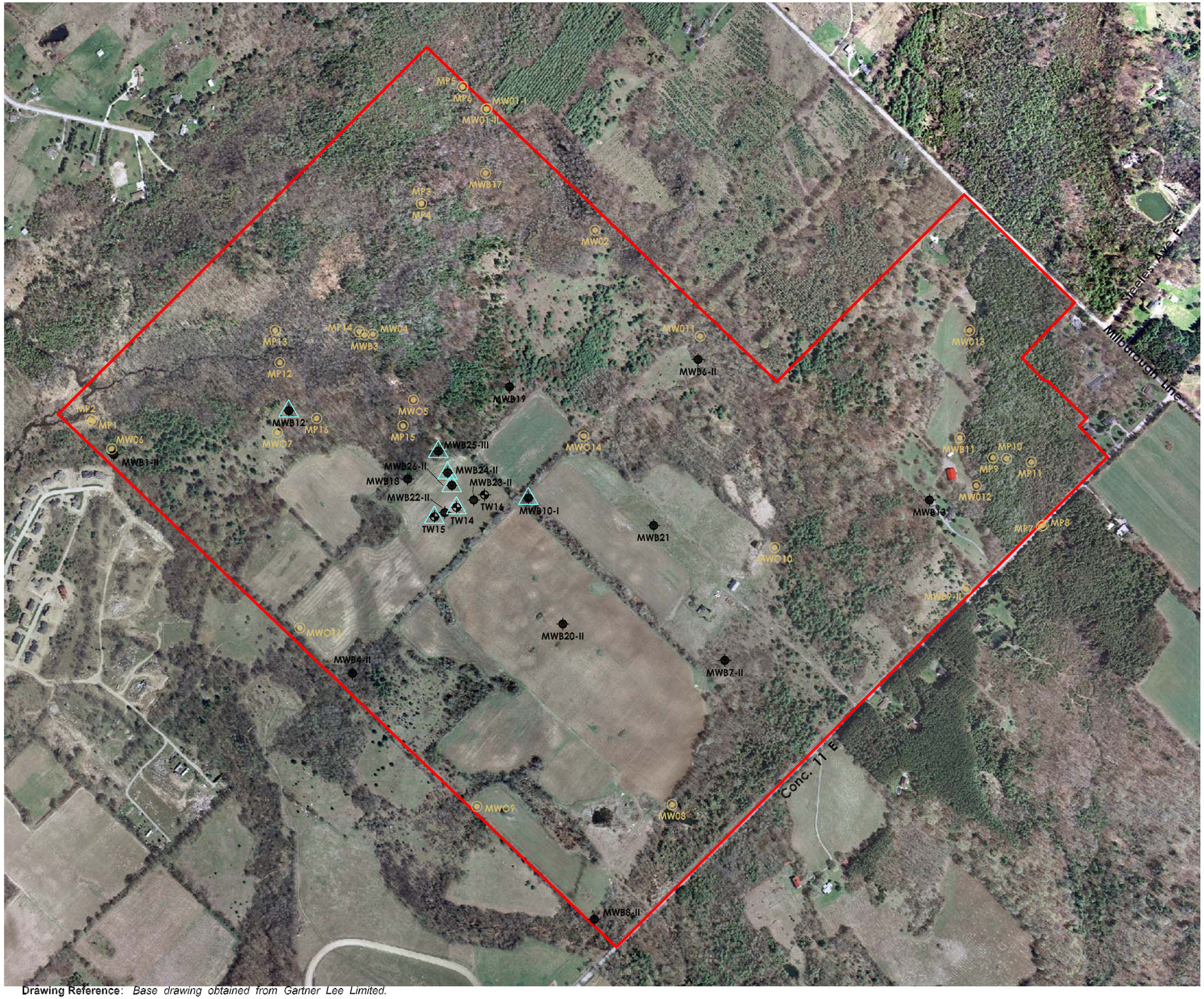
The main purpose of this logging was to identify the location of the major water producing features of each borehole. This information was ultimately used to guide the screen placements for new multilevel monitors at each borehole.

Logging was performed at 22 new and existing monitoring and test wells. Nine new wells were constructed in the fall and spring of 2006/2007. These included three new 250 mm diameter test wells and six new 150 mm diameter monitoring wells.

Thirteen of the wells were previously constructed as part of the 2004 Gartner Lee Limited (GLL) investigation "*Preliminary Hydrogeologic Assessment, Proposed Dolostone Quarry, Township of Flamborough*". Ten of the original 13 wells were originally constructed as single 150 mm diameter monitors but were drilled out in early 2007 to allow for the construction of multilevel monitors in their place. These monitors were logged and tested after they were drilled out but before being converted to multilevel monitors. Three of the original thirteen wells are 250 mm diameter test wells. These three test wells were converted to multilevel monitoring wells after they were logged and tested.

The wells were all generally constructed in the same manner, with a steel casing set through the overburden, to the top of the bedrock, and then left uncased through the bedrock portion of the hole. The two exceptions to this were at wells MWB13 and TW16. At MWB13, the upper portion of the borehole was screened, with a mill slot casing in 2004, as this portion of the well would not stay open without support. Similarly TW16 was also unstable and was cased in 2007 with a 250 mm slotted PVC casing to approximately 38.1 m to keep the borehole open. These wells were logged after the casings were installed.

Complete sets of logs could not be conducted at all of the wells due to the presence of obstructions created by material sloughing off the borehole walls over fractured zones in specific boreholes. In addition, some of the wells that were drilled out had shards of PVC lodged in them at the time of logging, which prevented all or some of the logs from being performed. Attempts were made to clear these obstructions but there are several instances where, after multiple attempts, the wells could not be cleared. For this reason, there are partially completed or no logs for some wells. In other instances, where the proximity of boreholes was close to one another, complete sets of logs were not completed on every well to eliminate redundant data. The list of wells and logs completed at each well are shown in **Table 1**.



Drawing Reference: *Base drawing obtained from Gartner Lee Limited.*

LEGEND

- Logged Monitoring Well Location
- Logged Test Well Location
- Acoustic Televiewer Location
- Other Well Locations
- Site Boundary

NOTE

Monitoring Well MWB27 Outside Map Boundary

Lotowater TECHNICAL SERVICES INC.

CLIENT

CBM ST MARYS CEMENT

TITLE

Flamborough Quarry
Site Plan

G:\Autocad Drawings\147 Gartner Lee Ltd\009\Geophys. Testing Report\Site Plan.dwg

DESIGN	BP	07/07/05
DRAWN	AG	07/07/16
CHECKED	BP	07/07/18

PROJECT No. **147-009**

REVISION No. 1

SCALE **1 : 7,000**

SCALE (m) 0 100 200 400

FIGURE

1

TABLE 1

CBM ST MARYS CEMENT

Flamborough Quarry
Geophysical Log and Testing Inventory

Well Name	MP[1] *(m)*	MP[2] *(m)*	Caliper 1 *core hole*	Caliper 2 *test hole*	Gamma	Resistivity	Fluid Conductivity & Temperature	Acoustic	Video[5]	Flow Profile	Packer Test[6]	Notes
MWB10-I (TW10)	NA	0.72	NA	06/09/06	06/09/06	06/09/06	06/10/31	06/08/30	06/10/06	06/10/06 (IF)	06/11/03	
MWB12 (TW12)	NA	1.00	NA	06/09/07	06/09/07	06/09/07	06/10/31	06/08/30	06/10/05	06/10/05	06/11/01	
MWB13 (TW13)	NA	0.50	NA	06/09/06	06/09/06	06/09/06	06/11/02	06/08/29[7]	06/10/03	06/10/04 (IF)	06/10/30	
MWB22-II (MW1)	NA	0.67	NR	06/11/30	NR	NR	NR	NR	06/11/30	06/11/30	NR	
MWB23-II (MW2)	NA	0.69	NR						07/04/27[3]	NR	NR	Obstruction at 8.4 m
MWB24-II (MW3)	0.63	0.62	06/11/13				06/11/02	06/11/02	07/01/23	NR	NR	Bridged at 21 m, able to caliper log to TD
MWB25-III (MW4)	0.58	NA	06/11/09	NA	06/11/09	06/11/09	06/11/02	06/11/02	NR	NR	NR	
MWB26-II (MW5)	0.65	0.51	06/11/13	NA	06/11/13	06/11/13	06/10/31	06/11/02	06/12/20	06/12/20	NR	
MWB27-II (MW6)	0.56	NA	07/05/11	07/05/11	07/05/11	07/05/11	NR	NR	07/05/11	07/05/11	NR	
TW14	0.58	0.47	06/11/13	07/02/12	06/11/13	06/11/13	06/10/31	06/11/02	07/02/12	07/02/12	07/02/16	
TW15	0.60	0.45	06/11/09	07/01/25	06/11/09	06/11/09	06/10/31	06/11/02	07/01/29	07/01/29	07/02/07	
TW16	0.56	0.53			07/05/07		07/04/16		07/01/24[3]	07/04/30		Bridged at 16 m, partial logs, Well drilled out and 250mm pvc liner installed and flow profile performed
MWB1-II (GLL1)	0.50	NA	07/04/18	NA	07/04/18	07/04/18	07/05/15	NR	07/04/20	07/04/20	NR	
MWB3A (GLL3)	0.59	NA		NA				NR	07/05/04[3]		NR	Bridged with rock at 6.7m
MWB4-II (GLL4)	0.45	NA		NA				NR	07/05/07[3]	07/05/07 (IF)	NR	PVC obstructions at 17.7 m 07/04/23
MWB6-II (GLL6)	0.65	NA	07/04/18	NA	07/04/18	07/04/18	07/05/15	NR	07/05/28	07/04/20	NR	
MWB7-II (GLL7)	0.33	NA	07/04/18	NA	07/04/18	07/04/18	07/05/15	NR	07/05/28	07/04/19	NR	
MWB8-II (GLL8)	0.62	NA	07/04/16	NA	07/04/03	07/04/03	07/05/15	NR	07/04/16	07/04/19	NR	
MWB18 (BHC)	0.58	NA	07/04/18	NA	07/05/07	07/05/07	07/05/16	NR	07/05/04[3]	07/04/20	NR	PVC obstructions throughout 07/05/07
MWB19 (BHD)	0.75	NA	07/04/17	NA	07/04/17	07/04/17	07/05/15	NR	07/04/17	07/04/20	NR	
MWB20-II (BHE)	0.40	NA	07/05/07	NA	07/05/07	07/05/07	07/05/15	NR	07/04/23	07/04/23	NR	
MWB21 (BHF)	0.55	NA	07/04/17	NA	07/04/17	07/04/17	07/05/15	NR	07/04/19	07/04/19	NR	

Notes:

= Unable to complete due to borehole obstruction

NR = Not requested in original scope of work

NA = Not Applicable

IF = Flow log attempted but an insufficient flow was available to activate the flow tool

MP[1] = 100 mm core hole measuring point elevation of top of casing above ground

MP[2] = 250 mm test hole measuring point elevation of top of casing above ground

07/04/23[3] = Video only completed to top of obstruction

07/04/23[4] = Flow profile attempted but unable to complete due to obstruction

Video[5] = Date of video, multiple videos exist for some wells on different dates

Packer Test[6] = Packer test data reported in separate report

06/08/29[7] = Data unreliable due to changes in borehole diameter

2.0 METHODOLOGY AND PROCEDURES

The following provides a brief description of the logging and testing equipment used.

2.1 Video Log

The video log is useful for examining the interior of an open borehole or cased well. The well video is used for many applications including documenting basic well construction details, identifying fractures, visually examining screen and borehole conditions, identifying water producing zones, and any use where visual examination is necessary.

Lotowater's downhole camera equipment consists of a Laval R-2000 dual camera, a mini winch with video cable, a video control box with a joystick, a TV monitor and a VHS recorder. The downhole equipment uses a colour video camera with two separate lenses. One lens always points downward in the well and is referred to as the down scan. The other lens point points directly perpendicular to the borehole wall or well casing and is referred to as the side scan. The side scan camera can rotate 360° for side viewing. The camera technician can switch between the two lenses, as well as rotate the camera, using a toggle and joystick from the surface. The camera is capable of recording to a depth of 300 m in a 100 mm diameter or larger well. The image is recorded in a super VHS format. The depth of the camera is measured continuously and displayed on the video screen. The displayed screen depth image is referenced to the middle of the screen in side scan mode.

Standard operating procedure includes a down scan while lowering the camera to the bottom of the well and a side scan while raising the camera back to surface. At significant features during the up run, the camera is stopped and rotated 360° to provide a better understanding of the feature. The video logs are an excellent way to visually inspect a well. There may be discrepancies in the reported depths shown between the same features based on which camera the feature is viewed with. Depth references made in the down scan mode are about 0.3-0.6 m less, depending on the diameter of the well, compared to the side scan readings on the way up for the same feature. This is due to the viewing perspective differences between the two lenses and because the down scan camera is situated below the side scan camera. The depth accuracy for the side scan image can be as much as 5 cm per 30 m of depth logged. For determining feature depth with more accuracy, a weighted tape is lowered in the well until the bottom of the tape is visually seen at the specific feature with the camera. Alternatively a well caliper log is also used to accurately determine feature depths.

Videos are usually performed under pumping conditions using a small sample pump but in some cases larger pumps that stress the well closer to its full capacity are used. Pumping the well during the video provides two main purposes. First, it clears the well of turbid water which provides a clear image. Second, small particles can often be seen entering or exiting the well at specific water producing features of the well. This often provides valuable qualitative information on the water producing zones of the well.

2.2 Geophysical Logging

Geophysical well logs can be used to interpret various sub-surface features including lithology, borehole geometry and water producing zones. In general, characteristics of the rock or soil, the water within these zones and the well construction can be interpreted using geophysical logging techniques. Geophysical logging includes lowering instruments into a borehole and recording some parameter. For more information on geophysical logging see Techniques of Water-Resources Investigations of the United States Geological Survey Application of Borehole Geophysics to Water-Resources Investigations (Keys and MacCary, 1971).

Lotowater employs Mount Sopris instruments for all of our geophysical logging. The equipment is a state of the art fully digital system that is relatively compact and easily portable. The primary system consists of a power winch with 800 m of single conductor armoured cable, MGXII digital logging console, caliper probe, gamma probe, polyelectric probe, impeller flow meter probe and full-wave sonic probe. The probes may be used in combination to act as multi-parameter probes.

Many other probes are available and can easily be attached to the system. The depths recorded are considered accurate within 1 % of the measured depth.

2.2.1 Caliper Log

The caliper log records the hole diameter and is used for identifying fractures, solution features, and other openings in the borehole and basic well construction details such as base of casing depths.

The Mount Sopris 2PCA-1000 poly-caliper probe, used by Lotowater, measures borehole diameter with three linked arms operating a single resistive sensor. The caliper measurement is made with arms attached to a mechanical assembly with data continuously sent to the surface via a wire-line.

The tool is lowered to the bottom of the hole and slowly brought back up the hole with measurements recorded during the up run. Two successive logs are run from the total depth of the hole to ground surface. The log is run twice to provide replication and a check of recorded log traces. The instrument is moved through the borehole typically at speeds less than 7.6 m/min.

2.2.2 Natural Gamma Log

The natural gamma log measures the natural radioactivity of the soil and bedrock. The log is useful for identification of lithology and stratigraphic correlation. Increases in radioactivity in the formations are shown by higher gamma radiation counts.

A high gamma count is common in clays and shales, but is typically low in sand, gravel, limestone and dolostone. The gamma log generally confirms the stratigraphic log of the borehole, including the various overburden deposits.

The Mount Sopris 2PGA-1000 polygamma probe, used by Lotowater, provides natural gamma measurements. These measurements can be made in any borehole conditions including cased and

uncased holes and various drilling fluids. The natural gamma counts are recorded as counts per second.

The logging speed must be relatively slow to provide accurate details of the geologic formation (less than 4.6 m/min). Natural gamma measurements are recorded during both the up and down runs in the borehole or well.

2.2.3 Single Point Resistance Log

For resistance logging, a potential difference of the earth materials is measured between electrodes (in-hole and surface or 2 in-hole) and converted to resistance based on Ohm's Law (Keys and MacCary, 1971). The single point resistance log can provide stratigraphic correlation, location of bed boundaries, changes in lithology and location of fractures in resistive rock.

The Mount Sopris 2PGA-1000 polygamma probe, used by Lotowater, provides single point resistance measurements. These measurements must be run in open (uncased), fluid filled boreholes. The single point resistance measurements are accomplished by measuring the amount of current between the surface electrode and the probe electrode and then applying Ohms law to calculate the resistance between them. Single point resistance is measured in ohms.

Single point resistance measurements are recorded during both the up and down runs in the borehole or well. The instrument is moved through the borehole typically at speeds less than 4.6 m/min.

2.2.4 Resistivity Log

The electrical resistivity of a rock depends on physical properties of both the rock and the fluids it contains. Most sedimentary rocks are composed of particles having very high resistance to the flow of electrical current. When these rocks are saturated, the water filling the pore spaces is relatively conductive compared to the rock particles or matrix. The resistivity of a rock, therefore, is a function of the amount of fluid contained in the pore spaces, the salinity of that fluid, and how the pore spaces are interconnected (Keys and MacCary, 1971).

The resistivity log measures the apparent resistivity of a volume of rock surrounding the electrodes to provide data for lithological and stratigraphic correlation interpretation.

The Mount Sopris 2PEA-1000 polyelectric probe, used by Lotowater, provides (0.2, 0.4, 0.8, 1.6 m) normal resistivity measurements. The normal resistivity measurements are accomplished by measuring the amount of survey current that the logger and probe produce, between the electrode and the mudplug. Resistivity is measured in ohm-metres.

Resistivity measurements are recorded during both the up and down runs in the borehole or well. The instrument is moved through the borehole typically at speeds less than 4.6 m/min.

2.2.5 Temperature Log

Temperature logs are the continuous recording of the temperature of the environment immediately surrounding a sensor in a borehole (Keys and MacCary, 1971). A temperature log can indicate the source and movement of water in a well.

The fluid temperature measurement uses a solid-state temperature-sensing device. The electrical output of this device is proportional to the temperature of the fluid. The thermal mass of the temperature sensor is kept as low as practical so that the time required for the sensor to respond to a change in temperature is minimal.

2.2.6 Acoustic Log

Generally, an acoustic log is a record of the transit time of an acoustic pulse between transmitters and receivers in a probe (Keys and MacCary, 1971). The hole must be filled with water or mud to transmit waves from the transmitter to the formation and from the formation to the receiver. The acoustic log records the location and orientation of fractures and solution openings.

The ABI-40 slimhole acoustic televiewer is used by Lotowater for ultrasonic borehole imaging. The purpose of the tool is to provide detailed, oriented, structural information on the basis of pulse-echo ultrasonic measurements. Applications include fracture detection and evaluation, detection of thin beds, determination of bedding dip, lithological characterization, casing inspection and high resolution caliper measurements.

The tool generates an image of the borehole wall by transmitting ultrasonic pulses from a rotating sensor and recoding the amplitude and travel time of the signals reflected at the interface between the mud and borehole wall. The amplitude of these reflections is representative for the properties of the rock surrounding the borehole. The travel time represents the borehole shape and diameter and is used to provide exceptionally accurate borehole diameter measurements, which makes the tool ideal for casing inspection and structural geology.

The acoustic measurements are recorded during both down-hole and up-hole logging. For deep wells, the measurements may only be recorded during the up-hole logging. The instrument is moved through the borehole typically at speeds less than 0.9 m/min.

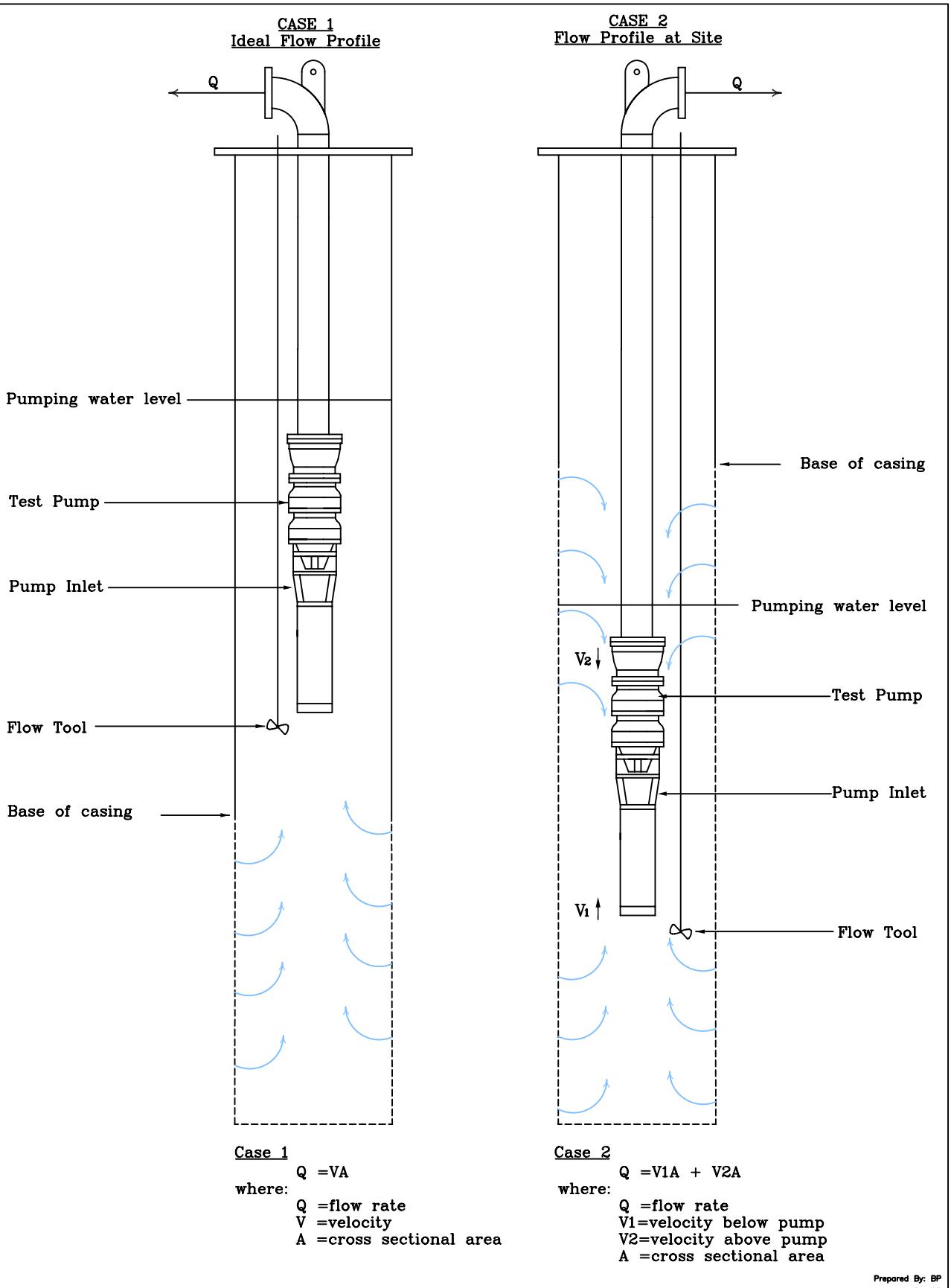
2.3 Flow Distribution Profile

A flow distribution profile is conducted to locate and quantify the water producing zones in a well or borehole. Flow profiling can be conducted in open bedrock wells to determine which features are producing water or, in screened overburden wells, to observe any variations in the aquifer permeability or well screen plugging.

Lotowater uses a spinner device manufactured by Swoffer with custom modifications for application in boreholes and wells. The tool has a small impeller that is oriented vertically. Vertical flow in the well activates the impeller which transmits a signal to a digital readout at the surface for every ½ revolution of the impeller. The velocity of fluid is directly proportional to the

rotational speed of the spinner tool. The spinner tool is regularly calibrated such that its readout is reported as a velocity in metres/second.

Flow profiling can be conducted under static conditions to indicate natural water movement between different producing zones (provided the flow is large enough) or under pumping conditions in which flow is artificially induced from the various producing zones. When used in pumping conditions the pump is ideally set above all the water producing zones in the well while the spinner is raised from the bottom of the well to the bottom of the pump. Flow measurements are recorded at a specified depth interval or whenever a change in flow is indicated. A typical flow profile equipment setup is shown in **Figure 2**.



Case 1

Q =VA

where:

Q =flow rate
V =velocity
A =cross sectional area

Case 2

Q =V1A + V2A

where:

Q =flow rate
V1=velocity below pump
V2=velocity above pump
A =cross sectional area

Prepared By: BP
Approved By: GP

CBM St MARYS CEMENT

Flamborough Quarry

General Flow Profile Equipment Setup

Lotowater Technical Services Inc.
Reference: 147-009

FIGURE 2
07/06/22

3.0 RESULTS

Geophysical logs, flow profiles and videos were conducted over a period of several months from the Fall of 2006 through the Spring of 2007. Logs were completed over multiple days at each well. Details of the specific logs conducted and the test dates are summarized in **Table 1**. This table only shows the most recent logging date for each test since several attempts were made at certain locations due to borehole obstructions.

3.1 Video Profiles

A DVD copy of each well video has been included with this report in **Appendix 1.** Video profiles are summarized in the video summary logs shown in **Appendix 2 (Tables 2a-2u)**. These logs summarize the important features of the well and focus on fractures in the bedrock with an emphasis on identifying flow zones. Particle movements were often noted in these logs indicating a potential water producing zone.

3.2 Geophysical Logs

Geophysical logging test results are presented for each well in **Appendix 3 (Figures 3a-3s)**. These figures include all the geophysical logs completed for each well excluding the acoustic televiewer logs. Acoustic televiewer logs are plotted in more detail in **Appendix 4 (Figures 4a-4g)**.

On the geophysical logs, borehole fractures are identified as either major water producing zones or potential water producing zones. This distinction was made based on a review of the well videos, flow profiles and geophysical logs. A feature was given major water producing zone designation if it produced more than 30% of the wells total flow, as defined by the flow profile. Other less significant features were identified as potential water producing zones. This designation was based on a combination of factors that included; physical appearance, flow profile log, observing particle movements in the well video or from slight changes in the temperature or conductivity logs. There may be some water producing features that were not identified, due to lack of evidence of flow, but any such features are likely not significant flow contributors.

Also noted on the geophysical logs is the static water level observed immediately prior to the flow profile, the pumping rate, pumping water level and depth of the sample pump used to pump the well during the flow profile.

3.3 Flow Profiles

Flow profile results are shown on the geophysical logs in **Appendix 3** (**Figures 3a-3s)**. The normal test procedure involves setting a pump inside the well casing so that all flow into the pump

originates from below, shown conceptually as **Case 1** in **Figure 2**. The pump is operated at a flow that produces enough velocity in the borehole to exceed the 0.05 m/s minimum threshold velocity required to activate the flow tool. Greater velocities typically provide better resolution for the tool. The flow tool is set to the bottom of the well and, as it is raised in the hole, flow velocity increases are recorded as it passes each water producing zone.

Since the initial static water levels were below the base of the well casings at many of the wells tested, it was necessary to install the pumps in the open borehole so that sufficient quantities of water could be pumped to provide the velocities required to produce adequate resolution for the flow tool. This created a condition whereby some of the potential water producing features were situated above the pump. Since physical restrictions do not allow the flow tool to fit past the pump and discharge pipe, it was impossible to perform the flow profile across all of the potential water producing zones. This condition is shown conceptually as **Case 2** in **Figure 2**.

Despite not being able to measure flow at all the potential water producing zones, we are able to make an assessment of the total flow originating from above the pump by calculating the difference in the flow measured from below the pump and subtracting this from the measured flow at the pump discharge. This is calculated by solving the following total flow equation for the unknown V_1 variable.

$$Q = (V_1 + V_2)\,A$$

Where:

Q = measured flow rate at surface
V_1 = Velocity above the pump (not measured by flow tool)
V_2 = Velocity below pump (measured by flow tool)
A = Cross sectional area of borehole

At wells MWB10-I (TW10) and MWB13 (TW13), a majority of the pumping discharge originated from the water producing zones located above the pump and there was insufficient upward velocity to meet the minimum threshold velocity of the flow tool. Therefore, it was determined that the rate of flow originating from below the pump in these wells was less than the threshold velocity times the cross sectional area.

4. 0 OBSERVATIONS

In general, each borehole intersects multiple fractures which are typically identified as an enlargement in the caliper log or in the well video. Flow profiles have shown that most of these fractures were only contributing a small portion of the total flow with the majority of the flow originating from one or two major fractures within each well.

A high gamma signature is present near the bottom of most logs. This response is likely due to the relatively high natural gamma radiation present in the shales of the Reynales and Cabot Head formations. The gamma log is useful in identifying the base of Amabel formation.

Specific observations for each well are noted as follows:

4.1 MWB1-II (GLL1)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 38.2 m, and the static water level was measured at 2.7 m on April 20, 2007.
- The well was only video logged to 23.6 m as the base of the well was too turbid to allow a clear view below this depth. This turbid water suggests little flow is originating below this depth.
- This well was pumped during the flow profile at 3.0 L/s which produced a pumping water level of 2.8 m.
- This well has several water producing features. Most of the flow appears to be originating from a feature at 4.2 m (as much as 65%) with the remaining flow distributed from approximately 7 features below.
- The gamma log exhibited a sharp peak at 36 m, indicating the approximate base of the Amabel formation.

4.2 MWB3 (GLL3)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- There is an enlargement in the borehole at around 5 m where the borehole is unstable and rock pieces from this area have fallen into the hole and created an obstruction at 6.7 m.
- A video was conducted at this well to the top of the obstruction at 6.7 m.
- No other logs were performed.

4.3 MWB4-II (GLL4)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- Pieces of the original well casing were still present in the well at the time of the logging and were lodged in the well in such a manner that logging could not proceed below 17.7 m.

- A video was conducted to the top of the obstruction at 17.7 m.
- A flow profile was attempted at this well but the flow rate was not high enough to produce the uphole velocity required to activate the flow tool.
- During the pumping video, the well was pumped at 0.95 L/s which produced a pumping water level of approximately 17 m. Cascading water was heard entering the well from above 17 m.

4.4 MWB6-II (GLL6)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 36.3 m, and the static water level was measured at 3.7 m on April 28, 2007.
- This well was pumped during the flow profile at 2.65 L/s which produced a pumping water level of 4.2 m.
- There is a major water producing feature located near the static water level in this well that could not be flow profiled. It is estimated that 50% of the wells flow is originating from this feature at 4.0 m, with the majority of the remaining flow originating from features between 18 and 22 m. Three other potential water producing features were identified near the base of the well.
- The gamma log exhibited a sharp peak at 35 m, indicating the approximate base of the Amabel formation.

4.5 MWB7-II (GLL7)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 38.4 m, and the static water level was measured at 3.4 m on May 24, 2007.
- This well was pumped during the flow profile at 3.0 L/s which produced a pumping water level of 4.6 m.
- This well has one main major water producing feature at approximately 14 m with several other less significant zones near the base of the well at 28.5, 33.2 and 35.0 m.
- The gamma log exhibited a sharp peak at 35 m, indicating the approximate base of the Amabel formation.

4.6 MWB8-II (GLL8)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 37.2 m, and the static water level was measured at 2.8 m on April 19, 2007.
- This well was pumped during the flow profile at 3.0 L/s which produced a pumping water level of 3.5 m.
- This well has one main major water producing feature from 4 to 6 m (approximately 80% of the wells flow). Several other less significant water producing features were identified.

- The gamma log exhibited a sharp peak at 33 m, indicating the approximate base of the Amabel formation.

4.7 MWB10-I (TW10)

- This well was logged to a total depth of 46.5 m, and the static water level was measured at 10.5 m on October 6, 2006.
- The well was pumped at 4.7 L/s and produced a pumping water level of 16.2 m after 30 minutes of pumping.
- Flow rates were too low at this well to activate the flow profile tool.
- Based on the flow tools threshold velocity, geophysical logs and the well videos, it is estimated that at least 60% of the wells flow is originating from a large feature around 15 m. The remaining flow is likely originating from several bedrock features below that depth.
- Monitor well MB10-II is only 2.5 m from this well and is constructed to the same depth as MWB10-I. Because MB10-II is uncased it may have caused short circuiting via fractures during testing which may have impacted flow profile results.
- The gamma log exhibited a sharp peak at 43 m, indicating the approximate base of the Amabel formation.

4.8 MWB12 (TW12)

- This well was logged to a total depth of 41.9 m, and the static water level was measured at 7.2 m on October 2, 2006.
- The well was pumped at 18.9 L/s and produced a pumping water level of 11.0 m after 30 minutes of pumping.
- The flow profile indicates that approximately 35% of the well flow originates from three distinct features from 34-38 m. The remaining 65% of the well flow is originating from a fractured zone from 11-13 m.
- The gamma log does not exhibit a sharp peak as seen on the other logs, indicating that the base of the Amabel formation might not have been reached.

4.9 MWB13 (TW13)

- This well was logged to a total depth of 41.0 m, and the static water level was measured at 6.8 m on October 4, 2006.
- The well was pumped at 26.0 L/s and produced a pumping water level of 7.9 m after 30 minutes of pumping.
- Most of the flow is coming from the upper portion of the well above the level at which the test pump was set. There was insufficient flow originating from below the pump to activate the flow tool.
- This well has a slotted well casing installed across an area of unconsolidated bedrock, above the competent bedrock, from 7.4 - 13.5 m which appears to be producing nearly all of the wells flow.
- The gamma log exhibited a sharp peak at 36 m, indicating the approximate base of the Amabel formation.

4.10 TW14

- This well was logged to a total depth of 45.4 m, and the static water level was measured at 7.2 m on February 12, 2007.
- The well was pumped at 25.2 L/s and produced a pumping water level of 31.0 m after 30 minutes of pumping on February 13, 2007. The flow profile was conducted at a lower flow rate of 10.1 L/s on February 12.
- There is a major water producing feature at 30 m which appears to produce the majority of the flow in this well.
- There is a significant borehole enlargement at 13 m which is filled with fractured rock and sediment. Despite the fractured nature of this feature it does not appear to be producing much water.
- The gamma log exhibited a sharp peak at 42.0 m, indicating the approximate base of the Amabel formation.

4.11 TW15

- This well was logged to a total depth of 42.9 m, and the static water level was measured at 5.4 m on February 1, 2007.

- The well was pumped at 25.2 L/s and produced a pumping water level of 28.2 m after 30 minutes of pumping on February 1, 2007. The flow profile was conducted at a lower flow rate of 11.6 L/s on January 29.
- There is a major water producing feature at 33 m which is estimated to produce about 65% of the wells flow.
- There is an area of the borehole from 10 - 13 m which is filled with fractured rock and sediment. Despite the fractured nature this area of the borehole it does appear to be producing much water.
- The gamma log exhibited a sharp peak at 40 m, indicating the approximate base of the Amabel formation.

4.12 TW16

- This well was logged to a total depth of 38.1 m, and the static water level was measured at 4.2 m on April 30, 2007.
- The well was pumped at 12.6 L/s and produced a pumping water level of 17.9 m after 30 minutes of pumping.
- This borehole was unstable and caved in around 16 m. Multiple attempts were made to clear the borehole out by redrilling but the well repeatedly caved at that depth.
- A 250 mm diameter PVC casing was installed in this well to approximately 38.1 m to prevent it from caving in.
- After the liner was installed gamma, fluid conductivity, temperature and flow logs were performed.
- There is a minor water producing feature at 28 m which is estimated to produce about 20% of the wells flow with the remaining flow originating from above that depth.

- The gamma log does not exhibit a sharp peak as seen on the other logs, indicating that the base of the Amabel formation might not have been reached.

4.13 MWB18 (BHC)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 39.8 m, and the static water level was measured at 2.1 m on April 20, 2007.
- The well was pumped at 3.0 L/s and produced a pumping water level of 3.5 m.
- This well had an obstruction at 16 m which prevented any geophysical logging below that depth.
- The flow profile revealed that the single major water producing zone in this well was located at a depth of 32 m.

4.14 MWB19 (BHD)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 41.5 m, and the static water level was measured at 2.3 m on April 20, 2007.
- The well was pumped at 3.0 L/s and produced a pumping water level of 2.8 m.
- There is a major water producing feature at 5.5 m which is estimated to produce at least 90% of the wells flow. The remaining flow is likely originating from several fractures between 27-35 m.
- The gamma log exhibited a sharp peak at 36 m, indicating the approximate base of the Amabel formation.

4.15 MWB20-II (BHE)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 45.6 m, and the static water level was measured at 6.2 m on April 23, 2007.
- The well was pumped at 3.0 L/s and produced a pumping water level of 7.5 m.
- This well produces the majority of its water from at least five fractures starting at 34 m and continuing upward to 15 m.
- The gamma log exhibited a sharp peak at 41 m, indicating the approximate base of the Amabel formation.

4.16 MWB21 (BHF)

- This well was originally constructed with a 150 mm diameter PVC casing which was drilled out to allow it to be converted to a multilevel monitoring well.
- This well was logged to a total depth of 45.1 m, and the static water level was measured at 9.7 m on April 19, 2007.
- The well was pumped at 3.0 L/s and produced a pumping water level of 11.0 m.

- This well produces water from a fracture at 22 m.
- The gamma log exhibited a sharp peak at 43 m, indicating the approximate base of the Amabel formation.

4.17 MWB22-II (MW1)

- This well was logged to a total depth of 43.0 m, and the static water level was measured at 5.6 m on November 30, 2007.
- The well was pumped at 6.1 L/s and produced a pumping water level of 10.9 m.
- This well produces water from several fractures, but the majority of the water is from a fracture at 35 m. It is estimated that this fracture is responsible for about 60% of the wells flow. The remaining flow is distributed between at least 6 fractures from 35-16 m.
- Geophysical logs were not conducted on this well as there were several other nearby wells at which logging was performed.

4.18 MWB23-II (MW2)

- There is an enlargement in the borehole at around 8.4 m where the borehole is unstable and rock pieces from this area have fallen into the hole and created an obstruction.
- A video was conducted at this well to the top of the obstruction at 8.4 m.
- No other logs were performed.

4.19 MWB24-II (MW3)

- This well was bridged at 22.5 m which prevented the completion of the full suite of geophysical logs. Only the caliper, conductivity and temperature logs were completed at this well.
- The caliper tool reached a total depth of 40.8 m and showed two borehole enlargements at depths of 19 m and 22 m.

4.20 MWB25-III (MW4)

- This well was logged to a total depth of 39.2 m.
- No flow profile or video was conducted at this well.
- The caliper log shows several enlargements between 16 - 21 m and a reduction at 35.3 m which are identified as potential water producing features.
- The gamma log starts to show an increase right near the bottom of the well at 39 m which could indicate the base of the Amabel formation.

4.21 MWB26-II (MW5)

- This well was logged to a total depth of 41.3 m, and the static water level was measured at 6.0 m on December 20, 2006.
- The well was pumped at 4. 7 L/s and produced a pumping water level of 13.6 m.

- The main water producing zone is from several features from 22 - 31 m which appear to be responsible for about 70% of the wells flow. Based on flow tool threshold velocities the remaining flow likely is likely originating from three fractures above 22 m at 18.0, 12.7 and 9.7 m.
- The gamma log exhibited a sharp peak at 40 m, indicating the approximate base of the Amabel formation.

4.22 MWB27-II (MW6)

- This well was logged to a total depth of 29.6 m, and the static water level was measured at 1.4 m on November 5, 2006.
- The well was pumped at 4.0 L/s and produced a pumping water level of 4.0 m.
- This well produces water from several features between 10 - 21 m. The most productive feature is at 11 m and is responsible for approximately 70% of the total measured flow. The majority of the remaining flow appears to originate from two other features located at 17.5 and 20 m.
- The gamma log exhibited a sharp peak at 29 m, indicating the approximate base of the Amabel formation.

Respectfully Submitted,
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APPENDIX 1

Pumping Videos
(DVD Attachments)

Pumping Videos (DVD) Attachments

MWB1-II (GLL1)
MWB3 (GLL3)
MWB4-II (GLL4)
MWB6-II (GLL6)
MWB7-II (GLL7)
MWB8-II (GLL8)
MWB10 (TW10)
MWB12 (TW12)
MWB13 (TW13)
TW14
TW15
TW16
MWB18 (BHC)
MWB19 (BHD)
MWB20-II (BHE)
MWB21 (BHF)
MWB22-II (MW1)
MWB23-II (MW2)
MWB24-II (MW3)
MWB26-II (MW5)
MWB27-II (MW6)

APPENDIX 2

Video Log Summaries

TABLE 2a

CBM ST MARYS CEMENT

Flamborough Quarry
MWB1-II (GLL1)
Pumping Video Summary
07/04/20

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing, in water
0:01	12' 7"	3.8	Bottom of casing
0:02	16' 0"	5.3	Pause, set pump
0:02	16' 0"	5.3	Start pump
0:18	24' 7"	7.5	Vug
0:19	30' 2"	9.2	Vug
0:21	38' 7"	11.8	Fractures
0:21	42' 11"	13.1	Fractures
0:24	54' 4"	16.6	Horizontal ring feature
0:24	55' 7"	16.9	Vug
0:24	57' 5"	17.5	Vug
0:25	60' 9"	18.5	Vugs and fractures
0:25	62' 7"	19.1	Vug
0:27	71' 2"	21.7	Horizontal ring feature, PVC remnant
0:28	73' 2"	22.3	Horizontal ring feature, flow in
0:30	74' 10"	22.8	Horizontal ring feature, increase in turbidity
0:31	77' 7"	23.6	Too turbid to continue down, start side scan
0:33	77' 4"	23.6	Vug, flow in
0:34	75' 2"	22.9	Horizontal ring feature, flow in
0:36	73' 9"	22.5	Horizontal ring feature, flow in
0:37	73' 6"	22.4	Horizontal ring feature, flow in
0:38	72' 1"	22.0	Horizontal ring feature
0:39	71' 8"	21.8	Horizontal ring feature, PVC remnant
0:41	63' 1"	19.2	Vug
0:42	62' 0"	18.9	Vug
0:43	61' 4"	18.7	Horizontal ring feature, flow in
0:43	61' 1"	18.6	Horizontal ring feature, flow in
0:44	58' 10"	17.9	Horizontal ring feature
0:45	58' 0"	17.7	Vug
0:46	56' 8"	17.3	Horizontal ring feature, flow in
0:46	56' 1"	17.1	Vug
0:47	54' 9"	16.7	Horizontal ring feature, grout remnant
0:50	44' 8"	13.6	Horizontal ring feature
0:53	39' 0"	11.9	Horizontal ring feature, flow in
0:55	35' 11"	10.9	Horizontal ring feature
0:58	30' 8"	9.3	Horizontal ring feature
1:02	21' 5"	6.5	Horizontal ring feature

TABLE 2a

CBM ST MARYS CEMENT

Flamborough Quarry
MWB1-II (GLL1)
Pumping Video Summary
07/04/20

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:03	21' 1"	6.4	Horizontal ring feature
1:04	20' 0"	6.1	Vug
1:07	12' 2"	3.7	Horizontal ring feature, grout remnant, possible water producing zone
1:07	11' 2"	3.4	Bottom of casing
1:08	2' 9"	0.8	Below top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.50 m above ground surface

TABLE 2b

CBM ST MARYS CEMENT

Flamborough Quarry
MWB3 (GLL3)
Static Video Summary
07/05/04

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	3' 10"	1.2	Static Water Level
0:03	16' 2"	4.9	Bottom of casing
0:03	16' 5"	5.0	Borehole enlargement
0:09	16' 7"	5.1	Bridged at 22' 1"
0:13	4' 0"	1.2	Static water level
0:14	2' 9"	0.8	Below top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.59 m above ground surface

TABLE 2c

CBM ST MARYS CEMENT

Flamborough Quarry
MWB4-II (GLL4)
Static Video Summary
07/05/07

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	7' 4"	2.2	Static water level
0:01	9' 8"	2.9	Bottom of casing
0:02	10' 6"	3.2	Vug
0:05	30' 10"	9.4	Vug
0:07	40' 7"	12.4	Horizontal ring feature with fractures
0:09	42' 2"	12.9	Fractures filled with broken rock, PVC remnants
0:10	45' 0"	13.7	Horizontal ring feature
0:11	53' 4"	16.3	Vug
0:12	58' 1"	17.7	Broken piece of PVC well casing obstructing bore hole

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.45 m above ground surface

TABLE 2d

CBM ST MARYS CEMENT

Flamborough Quarry
MWB6-II (GLL6)
Static Video Summary
07/05/28

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	0' 0"	0.0	Top of casing
0:03	9' 7"	2.9	Bottom of casing
0:03	11' 0"	3.4	Static water level
0:04	12' 5"	3.8	Horizontal ring feature
0:05	14' 0"	4.3	Borehole enlargement
0:06	21' 5"	6.5	Borehole enlargement
0:09	31' 2"	9.5	Horizontal ring feature
0:12	44' 0"	13.4	Horizontal ring feature start
0:12	44' 8"	13.6	Horizontal ring feature end
0:12	46' 3"	14.1	Horizontal ring feature, borehole enlargement
0:13	50' 10"	15.5	Horizontal ring feature
0:14	54' 7"	16.6	Borehole enlargement
0:14	55' 7"	16.9	Borehole enlargement start
0:15	59' 4"	18.1	Borehole enlargement end
0:16	60' 9"	18.5	Borehole enlargement start
0:17	64' 2"	19.6	Borehole enlargement end
0:17	67' 0"	20.4	Borehole enlargement
0:18	68' 9"	21.0	Borehole enlargement
0:19	72' 8"	22.1	Horizontal ring feature
0:19	75' 0"	22.9	Borehole enlargement, grout remnant
0:20	83' 4"	25.4	Horizontal ring feature
0:23	89' 8"	27.3	Horizontal ring feature
0:24	93' 0"	28.3	Horizontal ring feature, PVC remnant
0:26	98' 6"	30.0	Vugs
0:28	107' 5"	32.7	Horizontal ring feature
0:28	107' 11"	32.9	Vugs, increase in turbidity
0:30	113' 0"	34.4	Increase turbidity
0:31	110' 10"	33.8	Vug
0:33	108' 0"	32.9	Horizontal ring feature, flow in
0:36	99' 5"	30.3	Horizontal ring feature
0:36	99' 1"	30.2	Horizontal ring feature, grout remnant
0:39	93' 9"	28.6	Horizontal ring feature, grout remnant
0:43	84' 0"	25.6	Horizontal ring feature
0:44	82' 9"	25.2	Horizontal ring feature
0:46	79' 3"	24.2	Vugs
0:48	75' 9"	23.1	Horizontal ring feature, borehole enlargement, grout remnant

TABLE 2d

CBM ST MARYS CEMENT

Flamborough Quarry
MWB6-II (GLL6)
Static Video Summary
07/05/28

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:49	74' 5"	22.7	Vugs
0:50	71' 1"	21.7	Horizontal ring feature
0:52	69' 6"	21.2	Horizontal ring feature, borehole enlargement, grout remnant
0:54	68' 5"	20.9	Horizontal ring feature, borehole enlargement, grout remnant
0:56	64' 9"	19.7	Borehole enlargement start, grout remnant
0:59	61' 2"	18.6	Borehole enlargement end, grout remnant
1:00	60' 1"	18.3	Horizontal ring feature
1:00	59' 3"	18.1	Horizontal ring feature, grout remnant
1:01	58' 3"	17.8	Vertical fracture
1:02	56' 6"	17.2	Vertical fracture and borehole enlargement, grout remnant
1:03	55' 7"	16.9	Borehole enlargement, grout remnant
1:04	53' 6"	16.3	Horizontal ring feature
1:05	51' 9"	15.8	Horizontal ring feature, grout remnant
1:07	48' 8"	14.8	Horizontal ring feature
1:08	47' 0"	14.3	Horizontal ring feature
1:09	46' 0"	14.0	Horizontal ring feature start
1:11	44' 1"	13.4	Horizontal ring feature end
1:14	32' 0"	9.8	Horizontal ring feature
1:17	22' 5"	6.8	Horizontal ring feature
1:18	21' 4"	6.5	Horizontal ring feature
1:20	15' 0"	4.6	Borehole enlargement
1:21	13' 1"	4.0	Horizontal ring feature
1:22	11' 7"	3.5	Horizontal ring feature, static water level
1:23	10' 3"	3.1	Bottom of casing
1:25	0' 0"	0.0	Top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.65 m above ground surface

TABLE 2e

CBM ST MARYS CEMENT

Flamborough Quarry
MWB7-II (GLL7)
Static Video Summary
07/05/28

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	7' 3"	2.2	Bottom of casing
0:02	11' 0"	3.4	Static water level
0:03	12' 6"	3.8	Horizontal ring feature
0:03	14' 0"	4.3	Horizontal ring feature
0:07	38" 9"	11.8	Borehole enlargement
0:08	41' 0"	12.5	Horizontal ring feature
0:08	42' 7"	13.0	Vertical fractures
0:08	43' 7"	13.3	Borehole enlargement
0:08	45' 0"	13.7	Borehole enlargement
0:09	47' 7"	14.5	Borehole enlargement
0:09	51' 4"	15.6	Horizontal ring feature
0:09	52' 0"	15.8	Horizontal ring feature
0:10	52' 6"	16.0	PVC remnant
0:10	54' 7"	16.6	Horizontal ring feature
0:12	64' 3"	19.6	Horizontal ring feature
0:14	81' 9"	24.9	Horizontal ring feature
0:16	92' 9"	28.3	Borehole enlargement
0:16	94' 0"	28.7	Vugs
0:18	108' 8"	33.1	Horizontal ring feature
0:19	111' 0"	33.8	Vugs
0:19	114' 4"	34.8	Horizontal ring feature
0:19	115' 4"	35.2	Horizontal ring feature
0:20	120' 6"	36.7	PVC remnant
0:20	120' 8"	36.8	Borehole enlargement
0:21	123' 0"	37.5	Horizontal ring feature
0:21	124' 8"	38.0	Bottom of well
0:25	121' 3"	37.0	Horizontal ring feature
0:28	116' 5"	35.5	Horizontal ring feature
0:28	115' 11"	35.3	Horizontal ring feature
0:29	114' 11"	35.0	Horizontal ring feature
0:31	111' 9"	34.1	Vugs
0:31	110' 11"	33.8	Vugs
0:36	93' 1"	28.4	Vugs
0:39	80' 7"	24.6	Vugs
0:43	67' 10"	20.7	Horizontal ring feature
0:45	64' 7"	19.7	Horizontal ring feature

TABLE 2e

CBM ST MARYS CEMENT

Flamborough Quarry
MWB7-II (GLL7)
Static Video Summary
07/05/28

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:48	55' 1"	16.8	Horizontal ring feature
0:49	52' 6"	16.0	Horizontal ring feature
0:50	51' 10"	15.8	Horizontal ring feature
0:52	48' 1"	14.7	Borehole enlargement
0:54	46' 8"	14.2	Borehole enlargement
0:55	45' 0"	13.7	Borehole enlargement
0:56	44' 1"	13.4	Borehole enlargement
0:57	43' 10"	13.4	Borehole enlargement
0:57	43' 0"	13.1	Vertical fractures
0:58	41' 1"	12.5	Horizontal ring feature
1:01	28' 9"	8.8	Horizontal ring feature
1:02	22' 1"	6.7	Horizontal ring feature
1:04	14' 3"	4.3	Horizontal ring feature
1:04	13' 9"	4.2	Horizontal ring feature
1:05	13' 0"	4.0	Horizontal ring feature
1:06	11' 2"	3.4	Static water level
1:07	7' 4"	2.2	Bottom of casing
1:08	2' 9"	0.8	Below top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.44 m above ground surface

TABLE 2f

CBM ST MARYS CEMENT

Flamborough Quarry
MWB8-II (GLL8)
Pumping Video Summary
07/04/16

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	7' 5"	2.3	Static water level
0:02	11' 6"	3.5	Bottom of casing
0:04	13' 6"	4.1	Horizontal ring feature with vertical fractures
0:06	24' 3"	7.4	Horizontal ring feature
0:08	34' 6"	10.5	Horizontal ring feature
0:09	38' 6"	11.7	Horizontal ring feature
0:09	39' 10"	12.1	Vug
0:10	41' 5"	12.6	Borehole enlargement
0:10	42' 3"	12.9	Borehole enlargement, grout remnant
0:10	43' 3"	13.2	Horizontal ring feature
0:10	43' 10"	13.4	Borehole enlargement, grout remnant
0:11	45' 7"	13.9	Horizontal ring feature
0:12	46' 9"	14.2	PVC remnant
0:18	68' 2"	20.8	Vug
0:23	85' 0"	25.9	Pause, set pump, pump for clear image
0:37	72' 0"	21.9	Horizontal ring feature, flow in
0:37	74' 3"	22.6	Horizontal ring feature
0:38	79' 3"	24.2	Horizontal ring feature, flow in
0:41	90' 0"	27.4	Horizontal ring feature, flow in
0:44	100' 3"	30.6	Horizontal ring feature, flow in
0:50	101' 8"	31.0	Horizontal ring feature, flow in
0:55	90' 3"	27.5	Horizontal ring feature, flow in
0:59	79' 8"	24.3	Horizontal ring feature, flow in
1:02	72' 4"	22.0	Horizontal ring feature, flow in
1:06	59' 0"	18.0	Pause, run flow profile, pull pump
1:13	46' 0"	14.0	Horizontal ring feature, vertical fractures
1:14	44' 6"	13.6	Horizontal ring feature
1:14	43' 8"	13.3	Horizontal ring feature
1:15	42' 7"	13.0	Horizontal ring feature
1:16	39' 2"	11.9	Horizontal ring feature
1:16	38' 8"	11.8	Horizontal ring feature
1:17	34' 10"	10.6	Horizontal ring feature
1:19	24' 6"	7.5	Horizontal ring feature
1:23	13' 11"	4.2	Horizontal ring feature
1:23	11' 4"	3.5	Bottom of casing
1:24	7' 9"	2.4	Recovering water level

TABLE 2f

CBM ST MARYS CEMENT

Flamborough Quarry
MWB8-II (GLL8)
Pumping Video Summary
07/04/16

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:25	5' 0"	1.5	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.62 m above ground surface

TABLE 2g

CBM ST MARYS CEMENT

Flamborough Quarry
MWB10-I (TW10)
Pumping Video Summary
06/10/06

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:02	16' 1"	4.9	Bottom of casing
0:05	19'	5.8	Horizontal ring feature
0:06	19' 10"	6.0	Horizontal ring feature
0:08	26' 5"	8.1	Vugs
0:10	33' 4"	10.2	Static water level
0:11	40' 7"	12.4	Possible water producing zone
0:14	49' 6"	15.1	Borehole enlargement, possible water producing zone
0:16	50' 0"	15.2	Borehole enlargement, possible water producing zone
0:17	51' 0"	15.5	Possible water producing zone
0:18	52' 10"	16.1	Possible water producing zone
0:22	67' 9"	20.7	Possible water producing zone
0:29	78'-85'3"	23.8-26.0	Horizontal ring features possibly plugged water producing zone
0:32	102' 0"	31.1	Possible water producing zone
0:34	112' 0"	34.1	Possible water producing zone
	112' 5"	34.3	Confirm depth
0:41	122' 10"	37.4	Possible water producing zone
0:53	70' 0"	21.3	Pause, set pump
0:53	64' 0"	19.5	Bottom of motor
0:55	64' 0"	19.5	Pump on
1:01	64' 0"	19.5	Pump breaking suction Q = 12.6 L/s
1:02	64' 0"	19.5	Start pump, Q = 12.6 L/s
1:03	64' 0"	19.5	Pump off
1:03	64' 0"	19.5	Start pump, Q = 12.9 L/s
1:07	64' 0"	19.5	Too much drawdown
1:07	85' 0"	25.9	Pause, adjust pump
1:07	76' 0"	23.2	Below bottom of motor
1:07	76' 0"	23.2	Start pump, Q = 9.5 L/s
1:20	76' 0"	23.2	Start pump, Q = 4.7 L/s
1:31	112' 0"	34.1	Horizontal ring feature
1:38	150' 6"	45.9	Bottom of well
1:39	142' 11"	43.6	Horizontal ring feature
1:44	123' 1"	37.5	Flow in, horizontal ring feature, water producing zone

TABLE 2g

CBM ST MARYS CEMENT

Flamborough Quarry
MWB10-I (TW10)
Pumping Video Summary
06/10/06

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:45	119' 0"	36.3	Water producing zone, flow in
1:46	112' 8"	34.3	Water producing zone, flow in
1:51	87' 0"	26.5	Horizontal ring feature, flow in
1:52	84' 4"	25.7	Horizontal ring feature, possible water producing zone
1:53	82' 0"	25.0	Horizontal ring feature, flow in
1:54	79' 11"	24.4	Horizontal ring feature
1:56	76' 0"	23.2	Pause, pull pump, End of tape 1
0:01	68' 6"	20.9	Start tape 2, Horizontal ring feature, vertical ring feature, possible water producing zone
0:03	60' 9"	18.5	Vugs
0:04	55' 7"	16.9	Possible water producing zone
0:05	53' 5"	16.3	Possible water producing zone
0:06	52' 5	16.0	Possible water producing zone
0:06	52' 1"	15.9	Possible water producing zone
0:09	34' 5"	10.5	Static water level
0:10	20' 7"	6.3	Horizontal ring feature
0:11	19' 9"	6.0	Horizontal ring feature
0:12	16' 1"	4.9	Bottom of casing
0:13	2' 9"	0.8	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.72 m above ground surface

TABLE 2h

CBM ST MARYS CEMENT

Flamborough Quarry
MWB12 (TW12)
Pumping Video Summary
06/10/05

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	12' 5"	3.8	Bottom of casing
0:01	12' 6"	3.8	Horizontal ring feature
0:04	17' 0"	5.2	Horizontal ring feature
0:06	20' 9"	6.3	Horizontal ring feature
0:07	21" 10"	6.7	Static water level (turbid)
0:12	38' 8"	11.8	Possible water producing zone
	38' 11"	11.9	Confirm depth
0:17	52' 8"	16.1	Vuggy
0:18	58' 2"	8.6	Possible water producing zone
0:20	59' 8"	9.0	Possible water producing zone
0:21	62' 10"	19.2	Possible water producing zone
0:22	65' 2"	19.9	Possible water producing zone
0:23	65' 8"	20.0	Possible water producing zone
0:27	92' 1"	28.1	Possible water producing zone
0:32	111' 10"	34.1	Possible water producing zone
0:35	122' 9"	37.4	Possible water producing zone
0:38	132' 10"	40.5	Possible water producing zone
0:38	132' 10"	40.5	Flow tool, bottom at 138' 1"
0:51	50' 0"	15.2	Pause, set pump
0:53	43' 0"	13.1	Bottom of motor
0:55	43' 0'	13.1	Turbid, pump to clear image, start flow profile
0:55	43' 0"	13.1	Pump shut down
0:59	43' 0"	13.1	Start pump, Q = 18.9 L/s
1:06	43' 0"	13.1	Pause, pump problems
1:08	43' 0"	13.1	Start pump, Q = 22.1 L/s
1:50	43' 0"	13.1	Pump breaking suction during flow profile
1:09	58' 1"	17.7	Flow in
1:09	59' 8"	18.2	Flow in
1:10	62' 10"	19.2	Flow in
1:12	65' 9"	20.0	Possible flow in
1:14	76' 11"	23.4	Possible flow in
1:17	92' 0"	28.0	Possible flow in
1:19	111' 11"	34.1	Flow in
1:21	118' 10"	36.2	Flow in
1:24	122' 10"	37.4	Flow in

TABLE 2h

CBM ST MARYS CEMENT

Flamborough Quarry
MWB12 (TW12)
Pumping Video Summary
06/10/05

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:28	132' 8"	40.4	Flow in from water producing zone below tool
1:43	44' 0"	13.4	Pause, pull pump
1:45	39' 8"	12.1	Possible water producing zone
1:45	39' 2"	11.9	Possible water producing zone
1:47	26' 3"	8.0	Possible water producing zone
1:48	24' 9"	7.5	Static water level
1:49	12' 5"	3.8	Bottom of casing
1:50	2' 9"	0.8	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 1.0 m above ground surface

TABLE 2i

CBM ST MARYS CEMENT

Flamborough Quarry
MWB13 (TW13)
Pumping Video Summary
06/10/03

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	19' 10"	6.0	Static water level (turbid)
	45' 11"	14.0	Bottom of casing
0:05	55' 0"	16.8	Pause, set pump
0:06	55' 0"	16.8	Start pump, Q = 21.6 L/s
0:14	51' 0"	15.5	Pump to clear image
0:15	51' 0"	15.5	Start down hole
0:19	58' 8"	17.9	Water producing zone, flow in
0:31	84' 4"	25.7	Water producing zone, flow in
0:49	112' 2"	34.2	Water producing zone, flow in
0:56	117' 6"	35.8	Water producing zone, flow in
1:23	55' 0"	16.8	Bottom of motor, pause, pull pump
1:25	45' 11"	14.0	Bottom of casing
1:26	44' 3"	13.5	Slots in casing up to 24' 2"
1:36	22' 2"	6.8	Casing joint
1:36	19' 10"	6.0	Static water level
1:38	2' 9"	0.8	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.50 m above ground surface

TABLE 2j (a)

CBM ST MARYS CEMENT

Flamborough Quarry
TW14
Pumping Video Summary
07/02/12

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	5' 10"	1.8	Casing joint
0:02	23' 8"	7.2	Static water level (turbid)
0:04	40' 3"	12.3	Borehole enlargement
0:05	51' 6"	15.7	Borehole enlargement
0:06	63' 9"	19.4	Horizontal ring feature
0:07	70' 0"	21.3	Pause, set pump
0:08	52' 0"	25.0	Start pump
0:21	64' 0"	19.5	Horizontal ring feature, flow in with sediment
0:33	97' 0"	29.6	Flow in with sediment
0:35	103' 3"	31.5	Horizontal ring feature, flow in with sediment
0:36	110' 6"	19.6	Horizontal ring feature, flow in with sediment
0:37	112' 6"	34.3	Flow in
0:38	115' 10"	35.3	Vug
0:41	132' 6"	40.4	Horizontal ring feature, flow in
0:42	135' 4"	41.2	Vugs
0:42	138' 2"	42.1	Horizontal ring feature, flow in
0:42	139' 7"	42.5	Horizontal ring feature, flow in
0:43	142' 8"	43.5	Top of flow tool
0:44	138' 7"	42.2	Horizontal ring feature, flow in
0:56	112' 8"	34.3	Horizontal ring feature, flow in
0:56	110' 11"	33.8	Horizontal ring feature, flow in
1:00	103' 9"	31.6	Horizontal ring feature, flow in
1:02	97' 7"	29.7	Horizontal ring feature, flow in
1:07	76' 1"	23.2	Horizontal ring feature
1:07	75' 11"	23.1	Horizontal ring feature
1:10	64' 2"	19.6	Horizontal ring feature
1:14	51' 10"	15.8	Horizontal ring feature, vuggy, possible water producing zone
1:14	52' 0"	15.8	Bottom of pump

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.47 m above ground surface

TABLE 2j (b)

CBM ST MARYS CEMENT

Flamborough Quarry
TW14
Static Video Summary
07/02/08

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	5' 10"	1.8	Casing joint
0:01	20' 8"	6.3	Casing joint
0:02	32' 2"	9.8	Horizontal ring feature
0:03	39' 9"	12.1	Borehole enlargement
0:04	51' 6"	15.7	Borehole feature
0:09	89' 2"	27.2	Bridge, large rock
0:11	80' 7"	24.6	Horizontal ring feature
0:12	76' 1"	23.2	Horizontal ring feature
0:14	64' 4"	19.6	Horizontal ring feature
0:17	52' 2"	15.9	Vuggy, horizontal ring feature
0:18	46'	14.0	Horizontal ring feature
0:19	42' 5"	12.9	Borehole enlargement
0:21	33' 4"	10.2	Horizontal ring feature
0:22	29' 9"	9.1	Horizontal ring feature
0:23	29' 1"	8.9	Bottom of casing
0:24	21' 4"	6.5	Casing joint
0:25	6' 4"	1.9	Casing joint
0:26	3' 9"	1.1	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.47 m above ground surface

TABLE 2k

CBM ST MARYS CEMENT

Flamborough Quarry
TW15
Pumping Video Summary
07/01/29

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	6' 10"	2.1	Casing joint
0:01	15' 10"	4.8	Static water level (turbid)
0:07	70' 0"	21.3	Pause to set pump
0:07	50' 3"	15.3	Bottom of motor
0:13	50' 3"	15.3	Pump on, turbid
0:38	108' 2"	33.0	Flow in with sediment
0:40	111' 1"	33.9	Flow in with sediment
0:42	113' 8"	34.6	Flow in with sediment
0:52	116' 1"	35.4	Flow in
1:01	111' 2"	33.9	Flow in
1:04	108' 0"	32.9	Flow in with sediment
1:05	106' 3"	32.4	Possible water producing zone
1:13	83' 8"	25.5	Water producing zone
1:20	58' 7"	17.9	Possible water producing zone
1:21	58' 2"	17.7	Possible water producing zone
1:23	52' 2"	15.9	Horizontal ring feature
1:25	50' 6"	15.4	Pause to let well recover, run flow profile
1:26	50' 6"	15.4	Pump off
1:32	42' 4"	12.9	Possible water producing zone
1:32	38' 10"	11.8	Possible water producing zone
1:34	35' 8"	10.9	Possible water producing zone
1:34	35' 2"	10.7	Possible water producing zone
1:35	29' 11"	9.1	Bottom of casing
1:37	18' 0"	5.5	Recovering water level
1:39	7' 7"	2.3	Casing joint
1:40	4' 0"	1.2	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.45 m above ground surface

TABLE 2l

CBM ST MARYS CEMENT

Flamborough Quarry
TW16
Static Video Summary
07/01/24

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	12' 0"	3.7	Static water level (turbid)
0:01	21' 0"	6.4	Bottom of casing
0:02	22' 3"	6.8	Horizontal ring feature
0:02	23' 0"	7.0	Borehole enlargement
0:08	48' 6"	14.8	Horizontal ring feature
0:11	56' 1"	17.1	Bridge with large rock and sediment
0:37	21' 8"	6.6	Bottom of casing
0:40	13' 5"	4.1	Static water level
0:42	4' 0"	1.2	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.53 m above ground surface

TABLE 2m

CBM ST MARYS CEMENT

Flamborough Quarry
MWB18 (BHC)
Pumping Video Summary
07/05/04

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	6' 11"	2.1	Static water level
0:03	17' 2"	5.2	Bottom of casing
0:03	33' 0"	10.1	Vuggy and fractured
0:04	34' 11"	10.6	Vuggy and fractured
0:05	37' 0"	11.3	Horizontal ring feature
0:06	43' 6"	13.3	Borehole enlargement, PVC remnant
0:07	47' 1"	14.4	Pause, set pump
0:07	68' 11"	21.0	Horizontal ring feature

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.58 m above ground surface

TABLE 2n

CBM ST MARYS CEMENT

Flamborough Quarry
MWB19 (BHD)
Pumping Video Summary
07/04/17

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	7' 2"	2.2	Static water level, (turbid)
0:02	12' 10"	3.9	Bottom of casing
0:02	16' 9"	5.1	Borehole enlargement, vertical fracture
0:03	17' 8"	5.4	Borehole enlargement
0:06	26' 10"	8.2	Horizontal ring feature
0:08	37' 0"	11.3	Borehole enlargement
0:08	38' 11"	11.9	Borehole enlargement
0:08	39' 10"	12.1	Borehole enlargement
0:09	41' 2"	12.5	Borehole enlargement
0:11	51' 5"	15.7	Horizontal ring feature
0:12	55' 11"	17.0	Fracture
0:12	56' 8"	17.3	Fracture
0:12	58' 0"	17.7	Horizontal ring feature
0:13	60' 0"	18.3	Horizontal ring feature
0:15	56' 4"	17.2	Bottom of pump
0:15	56' 4"	17.2	Pump on
0:20	57' 11"	17.7	Horizontal ring feature
0:20	59' 11"	18.3	Horizontal ring feature
0:22	69' 11	21.3	Vug
0:22	72' 0"	21.9	Borehole enlargement, grout remnant
0:22	74' 0"	22.6	Horizontal ring feature
0:25	89' 3"	27.2	Horizontal ring feature, water producing zone
0:25	93' 5"	28.5	Horizontal ring feature, water producing zone
0:26	97' 6"	29.7	Horizontal ring feature, water producing zone
0:26	100' 0"	30.5	Vug
0:27	101' 0"	30.8	Vug
0:27	101' 7"	31.0	Horizontal ring feature, water producing zone
0:28	107' 0"	32.6	Vug
0:29	114' 2"	34.8	Horizontal ring feature, flow in
0:29	116' 0"	35.4	Vug
0:29	117' 5"	35.8	Vug
0:29	119' 7"	36.4	Horizontal ring feature
0:30	121' 0"	36.9	Horizontal ring feature
0:30	121' 6"	37.0	Increase turbidity
0:31	127' 8"	38.9	Flow tool
0:37	120' 2"	36.6	Horizontal ring feature

TABLE 2n

CBM ST MARYS CEMENT

Flamborough Quarry
MWB19 (BHD)
Pumping Video Summary
07/04/17

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:40	116' 8"	35.6	Fracture
0:41	114' 1"	34.8	Horizontal ring feature, flow in
0:44	107' 7"	32.8	Vug
0:47	102' 1"	31.1	Horizontal ring feature, flow in
0:51	98' 5"	30.0	Horizontal ring feature, flow in
0:52	97' 11"	29.8	Horizontal ring feature, flow in
0:54	93' 10"	28.6	Horizontal ring feature, flow in
0:57	89' 8"	27.3	Horizontal ring feature, flow in
1:05	74' 6"	22.7	Horizontal ring feature, flow in, grout remnant
1:07	70' 2"	21.4	Vug
1:12	60' 3"	18.4	Horizontal ring feature, possible water producing zone
1:13	58' 7"	17.9	Horizontal ring feature, grout remnant
1:16	56' 7"	17.2	Pause for flow profile
1:18	52' 0"	15.8	Horizontal ring feature
1:22	39' 6"	12.0	Horizontal ring feature
1:25	27' 5"	8.4	Horizontal ring feature, grout remnant
1:27	17' 11"	5.5	Horizontal ring feature
1:28	17' 0"	5.2	Fractures
1:30	13' 5"	4.1	Possible bottom of casing
1:31	13' 0"	4.0	Possible bottom of casing
1:33	7' 5"	2.3	Static water level
1:34	2' 9"	0.8	Below top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.75 m above ground surface

TABLE 2o

CBM ST MARYS CEMENT

Flamborough Quarry
MWB20-II (BHE)
Pumping Video Summary
07/04/23

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	9' 11"	3.0	Bottom of casing
0:03	20' 6"	6.2	Static water level
0:06	32' 3"	9.8	Horizontal ring feature
0:06	33' 11"	10.3	Horizontal ring feature
0:07	36' 4"	11.1	Vug
0:09	50' 0"	15.2	Vug, set pump
0:15	32' 3"	9.8	Horizontal ring feature
0:15	33' 11"	10.3	Horizontal ring feature
0:16	36' 4"	11.1	Vug
0:18	52' 0"	15.8	Horizontal ring feature
0:18	54' 5"	16.6	Horizontal ring feature
0:19	59' 11"	18.3	Horizontal ring feature
0:19	61' 3"	18.7	Horizontal ring feature
0:20	69' 0"	21.0	Horizontal ring feature
0:22	81' 1"	24.7	Vug
0:22	84' 11"	25.9	Horizontal ring feature
0:23	90' 8"	27.6	Horizontal ring feature, flow in
0:23	93' 8"	28.5	Horizontal ring feature, grout remnant
0:24	98' 3"	29.9	Horizontal ring feature, grout remnant
0:24	99' 4"	30.3	Fractures, flow in
0:25	103' 8"	31.6	Horizontal ring feature
0:25	105' 8"	32.2	Horizontal ring feature, flow in
0:25	106' 8"	32.5	Fractures
0:26	110' 4"	33.6	Horizontal ring feature, flow in
0:26	112' 6"	34.3	Vug
0:26	114' 5"	34.9	Horizontal ring feature
0:30	123' 9"	37.7	Horizontal ring feature
0:31	129' 4"	39.4	Horizontal ring feature
0:31	130' 11"	39.9	Vug
0:32	134' 10"	41.1	Horizontal ring feature
0:33	140' 6"	42.8	Turbid
0:35	136' 11"	41.7	Horizontal ring feature
0:36	136' 6"	41.6	Horizontal ring feature
0:37	135' 6"	41.3	Horizontal ring feature, flow in
0:39	130' 1"	39.6	Horizontal ring feature, flow in
0:42	124' 3"	37.9	Horizontal ring feature

TABLE 2o

CBM ST MARYS CEMENT

Flamborough Quarry
MWB20-II (BHE)
Pumping Video Summary
07/04/23

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:45	115' 4"	35.2	Horizontal ring feature, flow in
0:46	113' 8"	34.6	Vug, grout remnant
0:47	113' 1"	34.5	Vug, grout remnant
0:48	110' 11"	33.8	Horizontal ring feature, flow in
0:52	107' 4"	32.7	Fractures, flow in
0:53	106' 1"	32.3	Horizontal ring feature, flow in
0:54	104' 1"	31.7	Horizontal ring feature, grout remnant
0:56	100' 1"	30.5	Horizontal ring feature
0:57	99' 8"	30.4	Horizontal ring feature, flow in, grout remnant
1:01	94' 7"	28.8	Vug
1:02	92' 1"	28.1	Fracture, flow in
1:03	91' 2"	27.8	Fractures, grout remnant
1:06	85' 7"	26.1	Horizontal ring feature
1:11	69' 10"	21.3	Horizontal ring feature, flow in
1:14	62' 0"	18.9	Horizontal ring feature, grout remnant
1:15	60' 7"	18.5	Horizontal ring feature, grout remnant
1:17	55' 2"	16.8	Horizontal ring feature, flow in
1:18	52' 7"	16.0	Horizontal ring feature
1:20	50' 6"	15.4	Horizontal ring feature
1:24	37' 7"	11.5	Horizontal ring feature
1:25	36' 10"	11.2	Horizontal ring feature
1:26	34' 6"	10.5	Horizontal ring feature
1:28	29' 4"	8.9	Pause for flow profile
1:31	21' 6"	6.6	Recovering water level
1:33	10' 4"	3.1	Bottom of casing
1:36	2' 9"	0.8	Below top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.40 m above ground surface

TABLE 2p

CBM ST MARYS CEMENT

Flamborough Quarry
MWB21 (BHF)
Pumping Video Summary
07/04/19

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	7' 7"	2.3	Bottom of casing
0:06	31' 9"	9.7	Static water level
0:07	34' 9"	10.6	Horizontal ring feature, turbid water
0:12	43" 6"	13.3	Pumping Q = 3.0 L/s
0:22	50' 11"	15.5	Horizontal ring feature
0:23	54' 2"	16.5	Horizontal ring feature
0:27	70' 3"	21.4	Borehole enlargement, PVC remnants
0:30	71' 2"	21.7	Obstruction
0:30	73' 4"	22.4	Horizontal ring feature
0:36	105' 3"	32.1	Vugs
0:38	116' 0"	35.4	Horizontal ring feature, borehole enlargement
0:38	117' 0"	35.7	Horizontal ring feature, borehole enlargement
0:39	118' 2"	36.0	Vugs
0:39	119' 8"	36.5	Vugs
0:39	121' 8"	37.1	Vugs
0:40	123' 0"	37.5	Vugs
0:40	125' 6"	38.3	Borehole enlargement
0:40	128' 2"	39.1	Vugs
0:41	134' 5"	41.0	Horizontal ring feature
0:42	140' 3"	42.7	Horizontal ring feature
0:43	142' 5"	43.4	Bottom of well
0:44	140' 9"	42.9	Horizontal ring feature
0:45	135' 8"	41.4	Horizontal ring feature
0:46	134' 11"	41.1	Horizontal ring feature, flow in
0:48	126' 6"	38.6	Horizontal ring feature
0:49	124' 9"	38.0	Horizontal ring feature, flow in
0:53	117' 5"	35.8	Horizontal ring feature
0:54	116' 5"	35.5	Horizontal ring feature, grout remnant
1:04	73' 10"	22.5	Horizontal ring feature, borehole enlargement
1:06	72' 6"	22.1	Horizontal ring feature, borehole enlargement flow in, PVC and grout remnant
1:08	71' 0"	21.6	Borehole enlargement, flow in
1:12	54' 6"	16.6	Horizontal ring feature, grout remnant
1:13	51' 3"	15.6	Horizontal ring feature, flow in, grout remnant
1:16	47' 6"	14.5	Horizontal ring feature, possible flow in, grout remnant

TABLE 2p

CBM ST MARYS CEMENT

Flamborough Quarry
MWB21 (BHF)
Pumping Video Summary
07/04/19

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:19	36' 8"	11.2	Vugs
1:19	35' 4"	10.8	Horizontal ring feature
1:21	32' 3"	9.8	Static water level
1:24	13' 1"	4.0	Possible horizontal ring feature, grout remnant
1:26	7' 10"	2.4	Bottom of casing
1:27	2' 9"	0.8	Below top of casing

Video survey conducted by Jeff Newman

Note: Measuring point (MP) is at Top of Casing = 0.55 m above ground surface

TABLE 2q

CBM ST MARYS CEMENT

Flamborough Quarry
MWB22-II (MW1)
Pumping Video Summary
06/11/30

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:00	5' 8"	1.7	Casing joint
0:00	9' 5"	2.9	Casing joint
0:01	13' 6"	4.1	Casing joint
0:02	18' 6"	5.6	Static water level (turbid)
0:06	55' 0"	16.8	Pause, set pump
0:08	55' 0"	16.8	Pump on
0:14	55' 0"	16.8	Q = 6.1 L/s
0:43	56' 5"	17.2	Horizontal ring feature
0:46	67' 11"	20.7	Vug
0:47	72' 6"	22.1	Horizontal ring feature
0:47	73' 6"	22.4	Horizontal ring feature
0:51	89' 9"	27.4	Horizontal ring feature, flow in
0:54	100' 3"	30.6	Vug
0:56	107' 0"	32.6	Horizontal ring feature
0:58	114' 8"	35.0	Horizontal ring feature
0:58	116' 4"	35.5	Horizontal ring feature
1:02	131' 7"	40.1	Fractured rock
1:03	133' 2"	40.6	Vug
1:03	137' 2"	41.8	Horizontal ring feature
1:04	138' 4"	42.2	Horizontal ring feature
1:06	137' 7"	41.9	Horizontal ring feature, flow in
1:08	134' 4"	40.9	Horizontal ring feature
1:09	132' 2"	40.3	Horizontal ring feature, flow in
1:13	119' 1"	36.3	Horizontal ring feature
1:14	116' 11"	35.6	Horizontal ring feature, flow in
1:15	115' 5"	35.2	Horizontal ring feature, flow in
1:19	110' 6"	33.7	Horizontal ring feature
1:23	100' 9"	30.7	Horizontal ring feature, flow in
1:29	90' 5"	27.6	Horizontal ring feature, flow in
1:34	74' 3"	22.6	Horizontal ring feature, flow in
1:35	73' 2"	22.3	Horizontal ring feature, flow in
1:37	68' 8"	20.9	Vug, flow in
1:46	50' 0"	15.2	Bottom of motor

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.67 m above ground surface

TABLE 2r

CBM ST MARYS CEMENT

Flamborough Quarry
MWB23-II (MW2)
Static Video Summary
07/04/27

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:02	7' 6"	2.3	Casing joint
0:03	11' 10"	3.6	Static water level
0:04	20' 5"	6.2	Possible casing joint
0:05	23' 0"	7.0	Bottom of casing
0:08	27' 8"	8.4	Borehole enlargement, loose rocks, fractures, obstruction in bore hole, unable to go deeper
0:10	27' 8"	8.4	Possible water producing zone
0:15	24' 8"	7.5	Horizontal ring feature
0:16	23' 7"	7.2	Bottom of casing
0:19	12' 3"	3.7	Static water level
0:20	8' 0"	2.4	Casing joint
0:21	2' 9"	0.8	Below top of casing

Video survey conducted by Rodney Secor

Note: Measuring point (MP) is at Top of Casing = 0.69 m above ground surface

TABLE 2s

CBM ST MARYS CEMENT

Flamborough Quarry
MWB24-II (MW3)
Static Video Summary
07/01/23

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:02	16' 9"	5.1	Bottom of casing
0:02	17' 4"	5.3	Static water level
0:03	21' 3"	6.5	Horizontal ring feature
0:03	23' 9"	7.2	Vug
0:03	24' 7"	7.5	Vug
0:05	37' 2"	11.3	Horizontal ring feature
0:09	56' 6"	17.2	Borehole enlargement
0:20	73' 0"	22.3	Obstruction
0:22	64' 1"	19.5	Pause, set pump into MW5 (approximately 50' south of MW3) to draw turbid water out of MW3 before obstruction is drilled out
0:25	55' 9"	17.0	Start pump at MW5
0:31	61' 4"	18.7	Flow out
1:33	20' 7"	6.3	Flow in at horizontal ring feature
1:35	17' 2"	5.2	Bottom of casing
1:36	5' 0"	1.5	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.62 m above ground surface

TABLE 2t

CBM ST MARYS CEMENT

Flamborough Quarry
MWB26-II (MW5)
Pumping Video Summary
06/12/20

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2' 9"	0.8	Below top of casing
0:01	19' 7"	6.0	Static water level (turbid)
0:01	22' 9"	6.9	Bottom of casing
0:03	40' 10"	12.4	Borehole enlargement
0:05	55' 0"	16.8	Pause, set pump
0:13	50' 6"	15.4	Pump on Q = 4.7 L/s
0:18	56' 3"	17.1	Horizontal ring feature, possible flow with sediment
0:20	71' 6"	21.8	Horizontal ring feature, vertical fracture to 74'
0:21	75' 0"	22.9	Horizontal ring feature
0:21	75' 6"	23.0	Horizontal ring feature
0:22	80' 3"	24.5	Horizontal ring freature
0:22	81' 7"	24.9	Vug
0:22	81' 11"	25.0	Vug
0:26	112' 9"	34.4	Vugs
0:26	115' 2"	35.1	Vugs
0:29	132' 0"	40.2	Horizontal ring feature
0:32	132' 7"	40.4	Horizontal ring feature, flow in
0:51	84' 9"	25.8	Horizontal ring feature, flow in
0:53	82' 10"	25.2	Vug, possible flow in
0:54	82' 2"	25.0	Vug, possible flow in
0:56	81' 3"	24.8	Vuggy, horizontal ring feature, possible flow in
0:56	80' 6"	24.5	Vuggy, horizontal ring feature, possible flow in
0:59	75' 10"	23.1	Horizontal ring feature, flow in
1:00	72' 4"	22.0	Horizontal ring feature, flow in
1:05	62' 7"	19.1	Horizontal ring feature, flow in
1:07	58' 1"	17.7	Horizontal ring feature, flow in
1:08	57' 0"	17.4	Horizontal ring feature, flow in
1:09	52' 7"	16.0	Horizontal ring feature, flow in
1:14	44' 4"	13.5	Vug
1:16	42' 11"	13.1	Horizontal ring feature, possible flow in
1:17	41' 10"	12.8	Horizontal ring feature, possible flow in
1:19	38' 7"	11.8	Horizontal ring feature, flow in
1:19	37' 11"	11.6	Vug
1:23	28' 7"	8.7	Horizontal ring feature

TABLE 2t

CBM ST MARYS CEMENT

Flamborough Quarry
MWB26-II (MW5)
Pumping Video Summary
06/12/20

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:24	25' 5"	7.7	Horizontal ring feature, flow in
1:25	23' 6"	7.2	Bottom of casing
1:27	21' 8"	6.6	Static water level
1:28	3' 5"	1.0	Casing joint
1:30	3' 0"	0.9	Below top of casing

Video survey conducted by Jason Dion

Note: Measuring point (MP) is at Top of Casing = 0.51 m above ground surface

TABLE 2u

CBM ST MARYS CEMENT

Flamborough Quarry
MWB27-II (MW6)
Pumping Video Summary
07/05/11

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	0' 0"	0.0	Top of casing
0:01	4' 6"	1.4	Static water level
0:05	21' 8"	6.6	Casing joint
0:05	26' 11"	8.2	Bottom of casing
0:06	28' 3"	8.6	Vug
0:06	29' 8"	9.0	Vertical fracture
0:07	35' 0"	10.7	Multiple horizontal ring features
0:08	36' 7"	11.2	Horizontal ring feature
0:08	37' 10"	11.5	Horizontal ring feature
0:09	41' 6"	12.6	Horizontal ring feature
0:12	56' 10"	17.3	Horizontal ring feature
0:15	66' 2"	20.2	Horizontal ring feature
0:15	69' 0"	21.0	Vug
0:19	96' 8"	29.5	Bottom of well
0:20	95' 5"	29.1	Horizontal ring feature
0:21	92' 4"	28.1	Horizontal ring feature, flow in
0:23	89' 8"	27.3	Horizontal ring feature, flow in
0:25	82' 3"	25.1	Vug
0:28	71' 8"	21.8	Vugs, possible water producing zone
0:30	69' 4"	21.1	Horizontal ring feature, flow in
0:32	66' 7"	20.3	Horizontal ring feature, flow in
0:33	65' 5"	19.9	Horizontal ring feature, flow in
0:36	57' 3"	17.4	Horizontal ring feature, flow in
0:39	53' 4"	16.3	Horizontal ring feature, flow in
0:42	43' 8"	13.3	Horizontal ring feature
0:45	38' 3"	11.7	Horizontal ring feature, flow in
0:46	37' 9"	11.5	Vugs, possible water producing zone
0:47	37' 0"	11.3	Borehole enlargement, flow in
0:49	36' 5"	11.1	Borehole enlargement, flow in
0:50	36' 4"	11.1	Horizontal ring feature, flow in
0:51	36' 0"	11.0	Horizontal ring feature, flow in
0:51	35' 4"	10.8	Horizontal ring feature, flow in
0:52	34' 4"	10.5	Vugs, possible water producing zone
0:54	30' 7"	9.3	Vertical ring feature
0:57	27' 7"	8.4	Vugs, borehole enlargement, possible water producing zone
0:58	27' 4"	8.3	Bottom of casing
1:00	22' 1"	6.7	Casing joint

TABLE 2u

CBM ST MARYS CEMENT

Flamborough Quarry
MWB27-II (MW6)
Pumping Video Summary
07/05/11

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:02	17' 2"	5.2	Casing joint
1:03	12' 2"	3.7	Casing joint
1:04	5' 6"	1.7	Recovering water level
1:05	5' 2"	1.6	Casing joint
1:06	0' 1"	0.0	Top of casing

Video survey conducted by Rodney Secor

Note: Measuring point (MP) is at Top of Casing = 0.56 m above ground surface

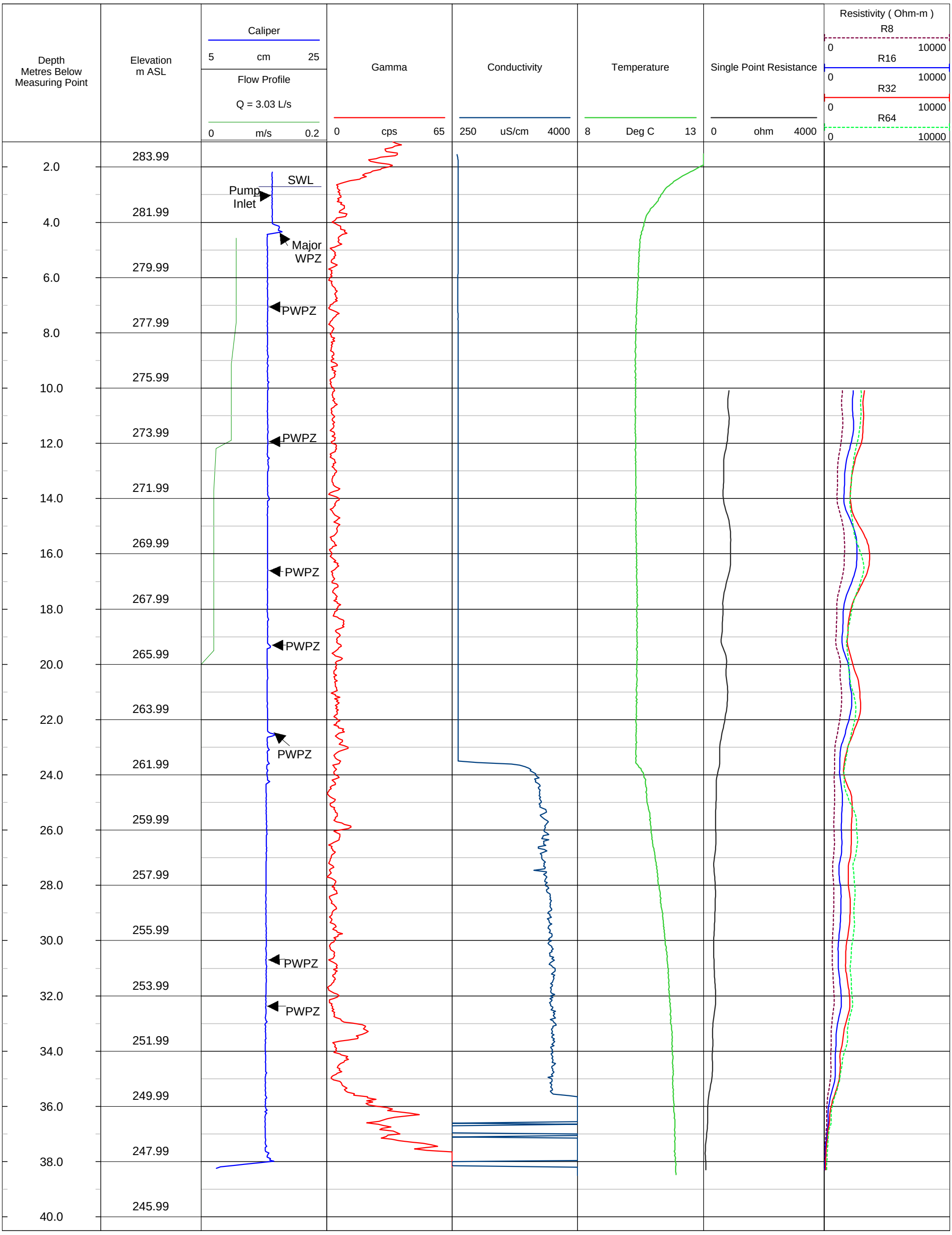
APPENDIX 3

Geophysical Logs

Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.50 m ags)
Well Name:	MWB1- II (GLL1)	Measuring Point Elev:	285.99 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

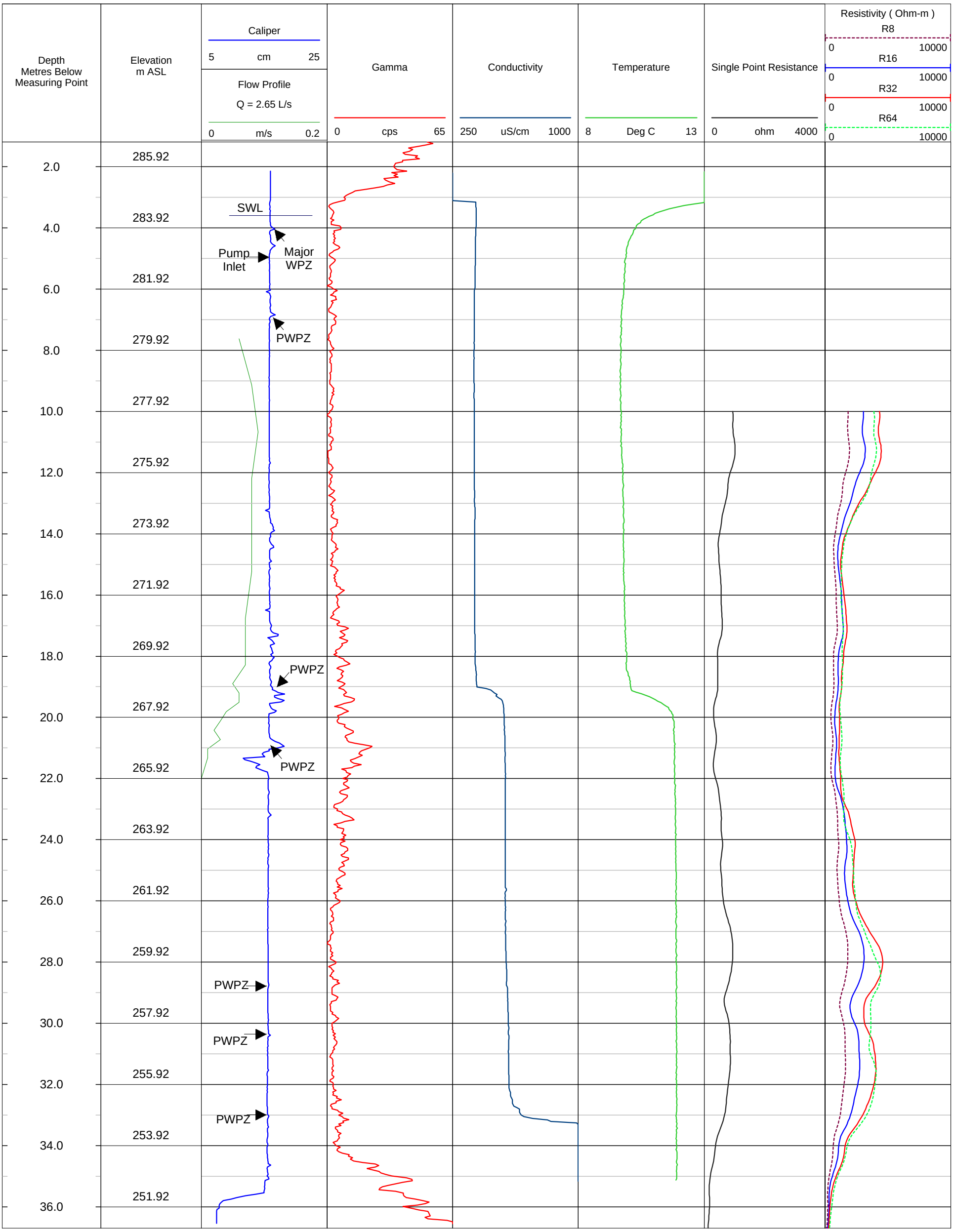
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.65 m ags)
Well Name:	MWB6-II (GLL6)	Measuring Point Elev:	287.92 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

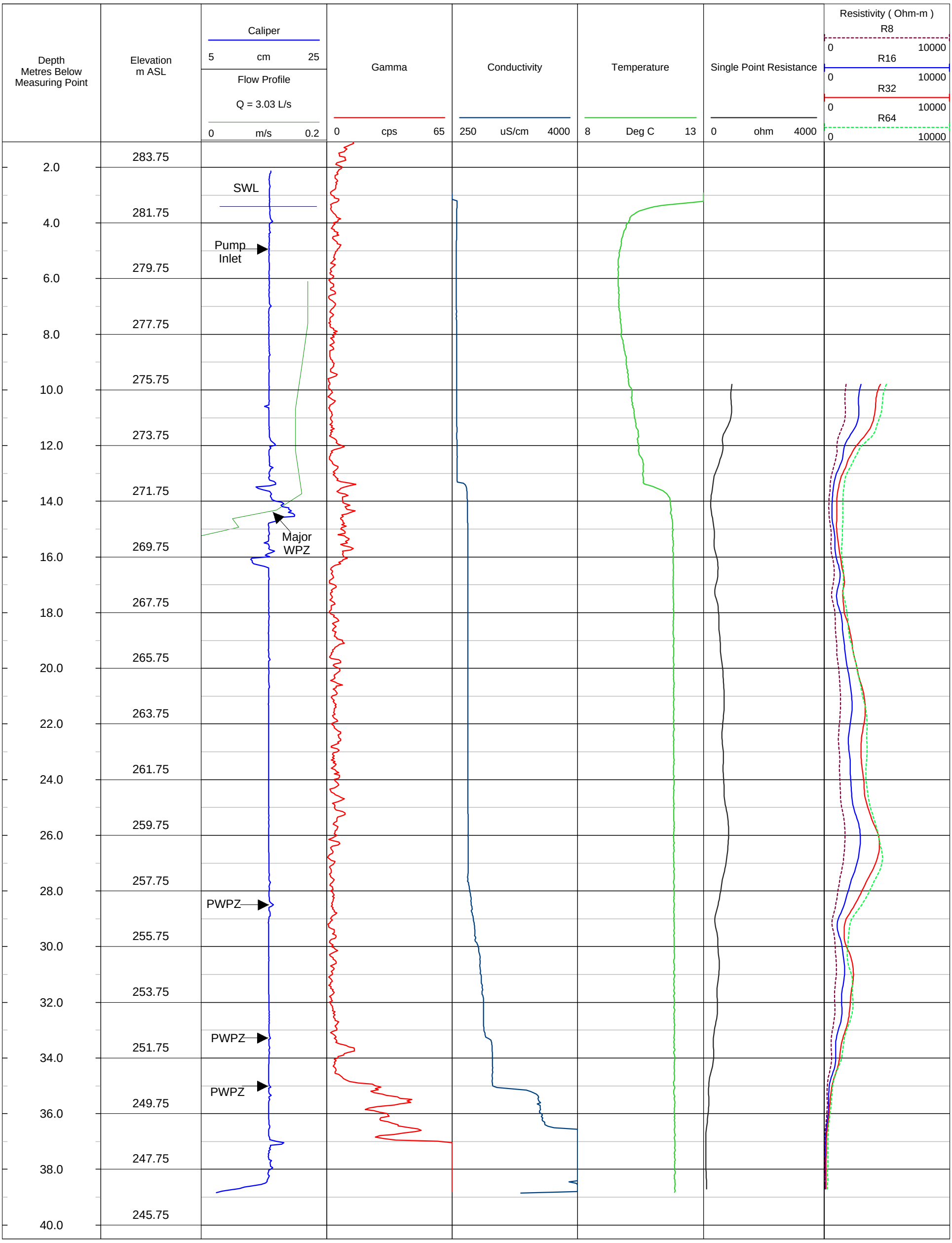
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.33 m ags)
Well Name:	MWB7-II (GLL7)	Measuring Point Elev:	285.75 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

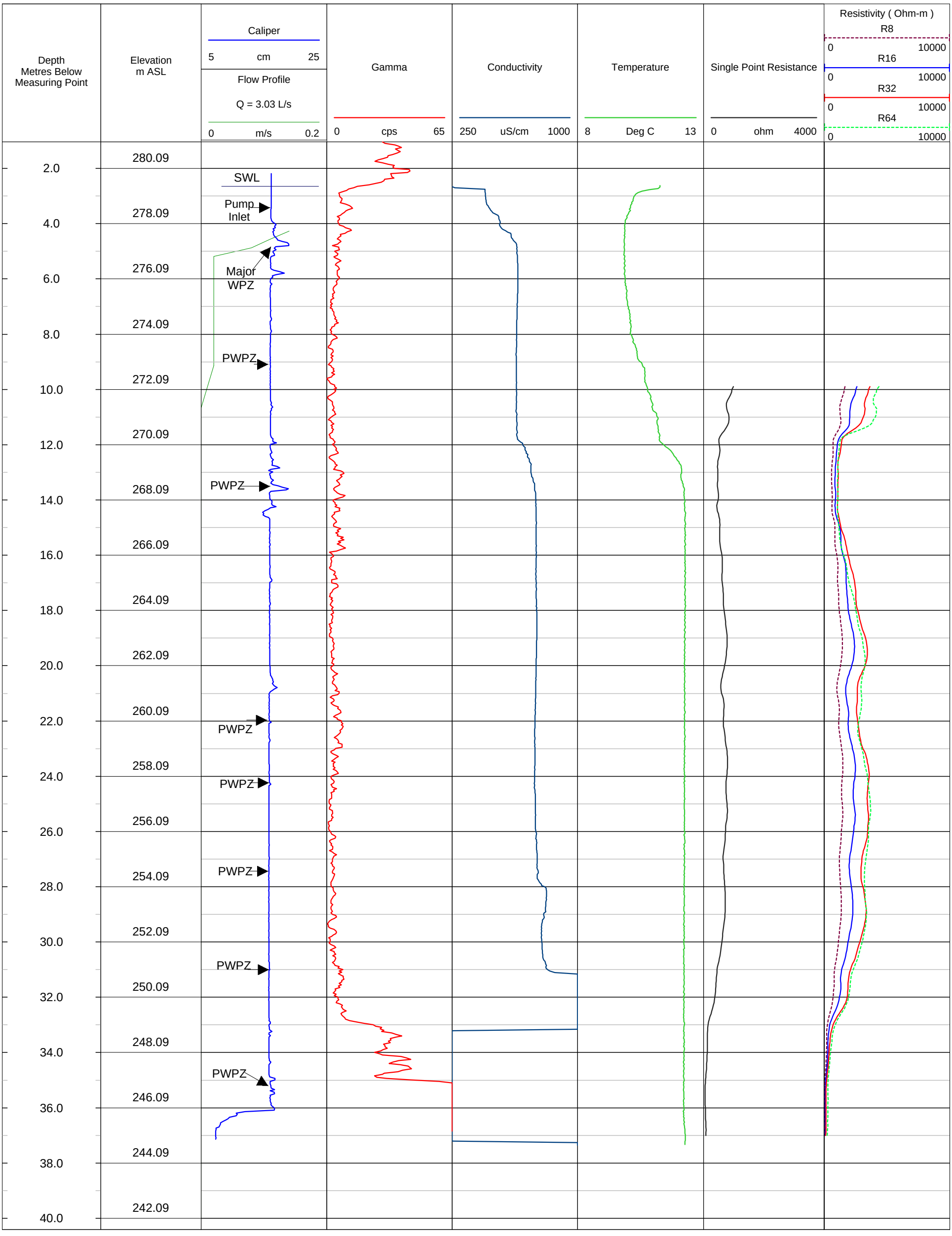
Notes:



Lotowater TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.62 m ags)
Well Name:	MWB8-II (GLL8)	Measuring Point Elev:	282.09 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

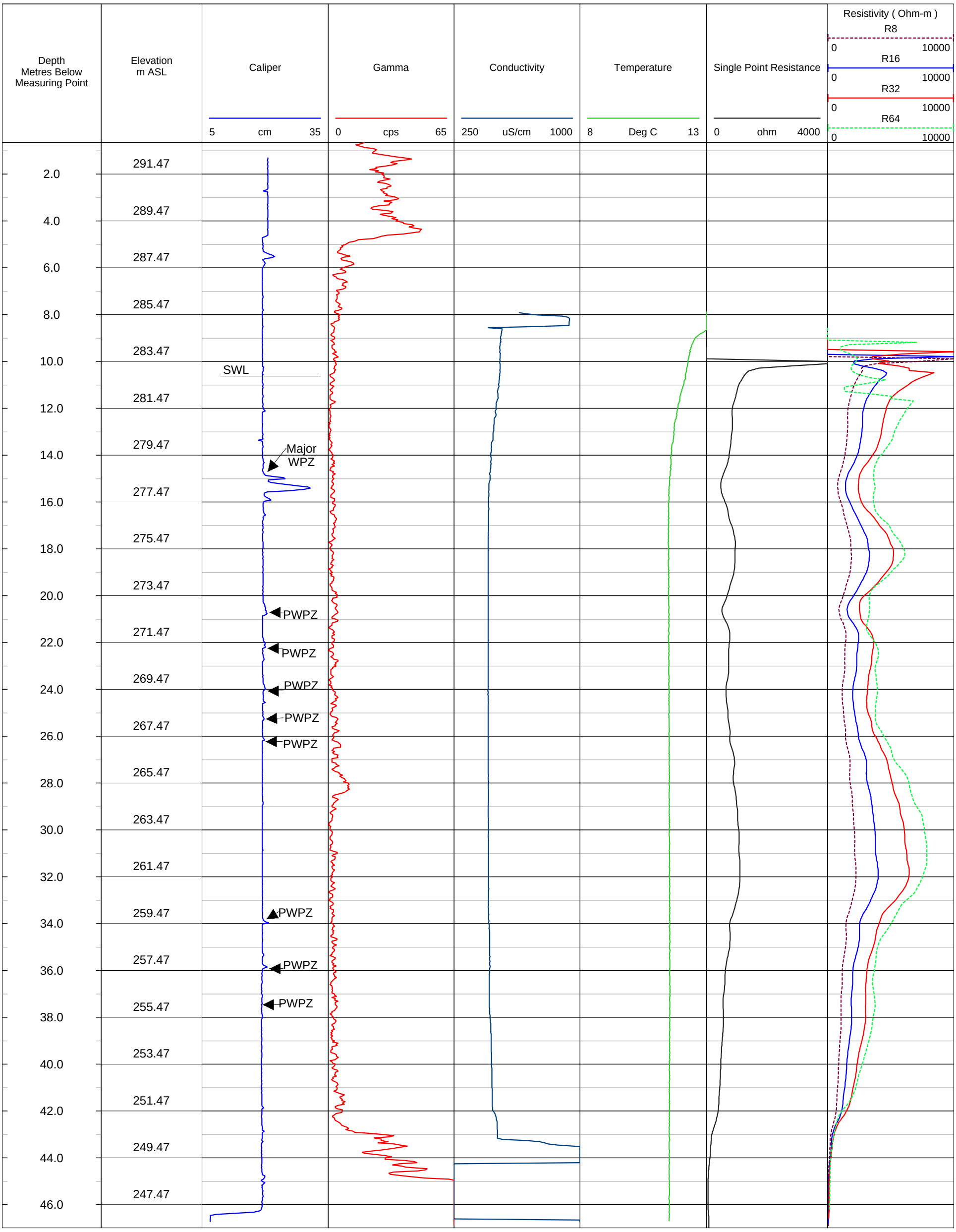
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.72 m ags)
Well Name:	MWB10-I (TW10)	Measuring Point Elev:	293.47 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Fall 2006

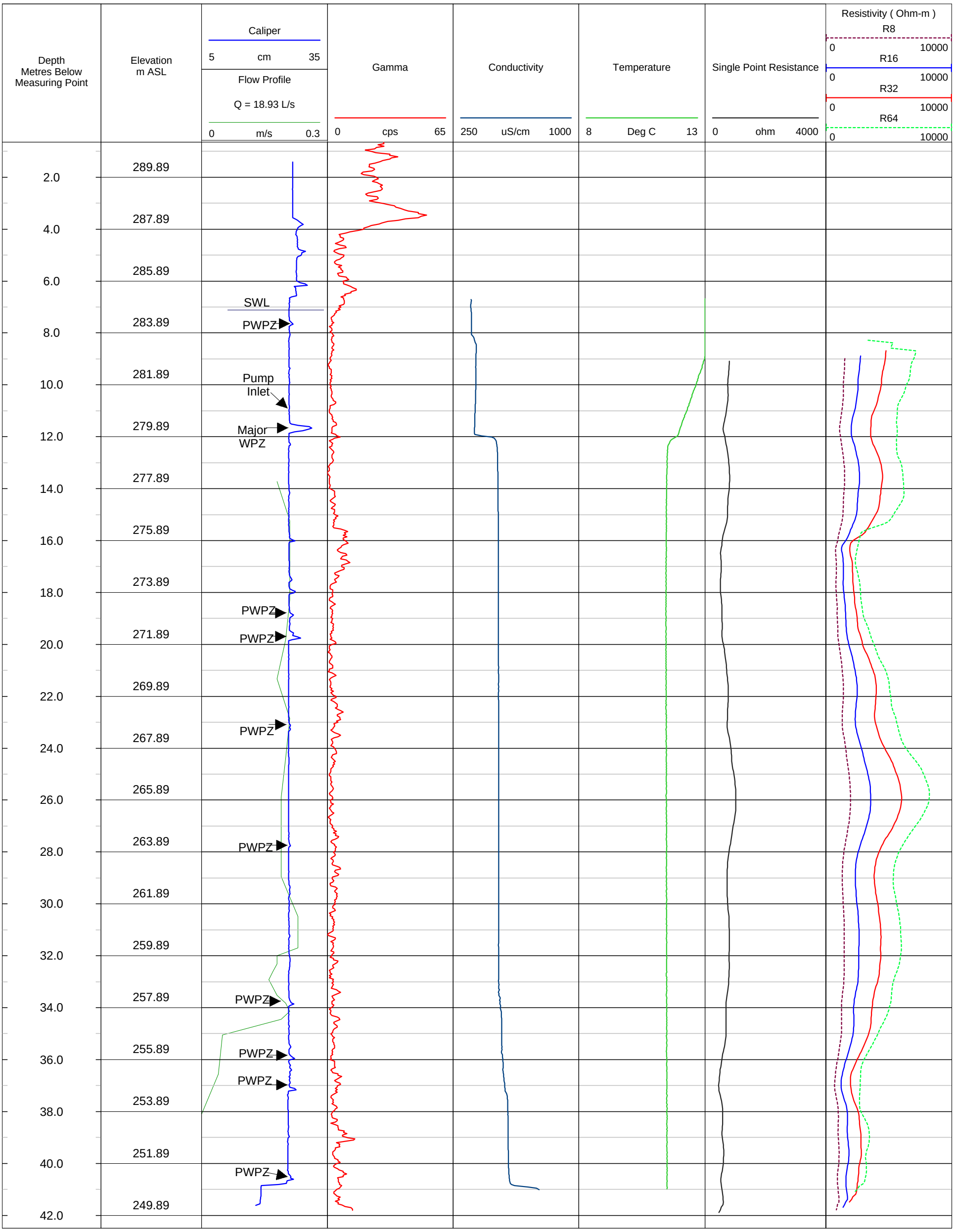
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (1.00 m ags)
Well Name:	MWB12 (TW12)	Measuring Point Elev:	291.89 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Summer 2006 - Winter 2006

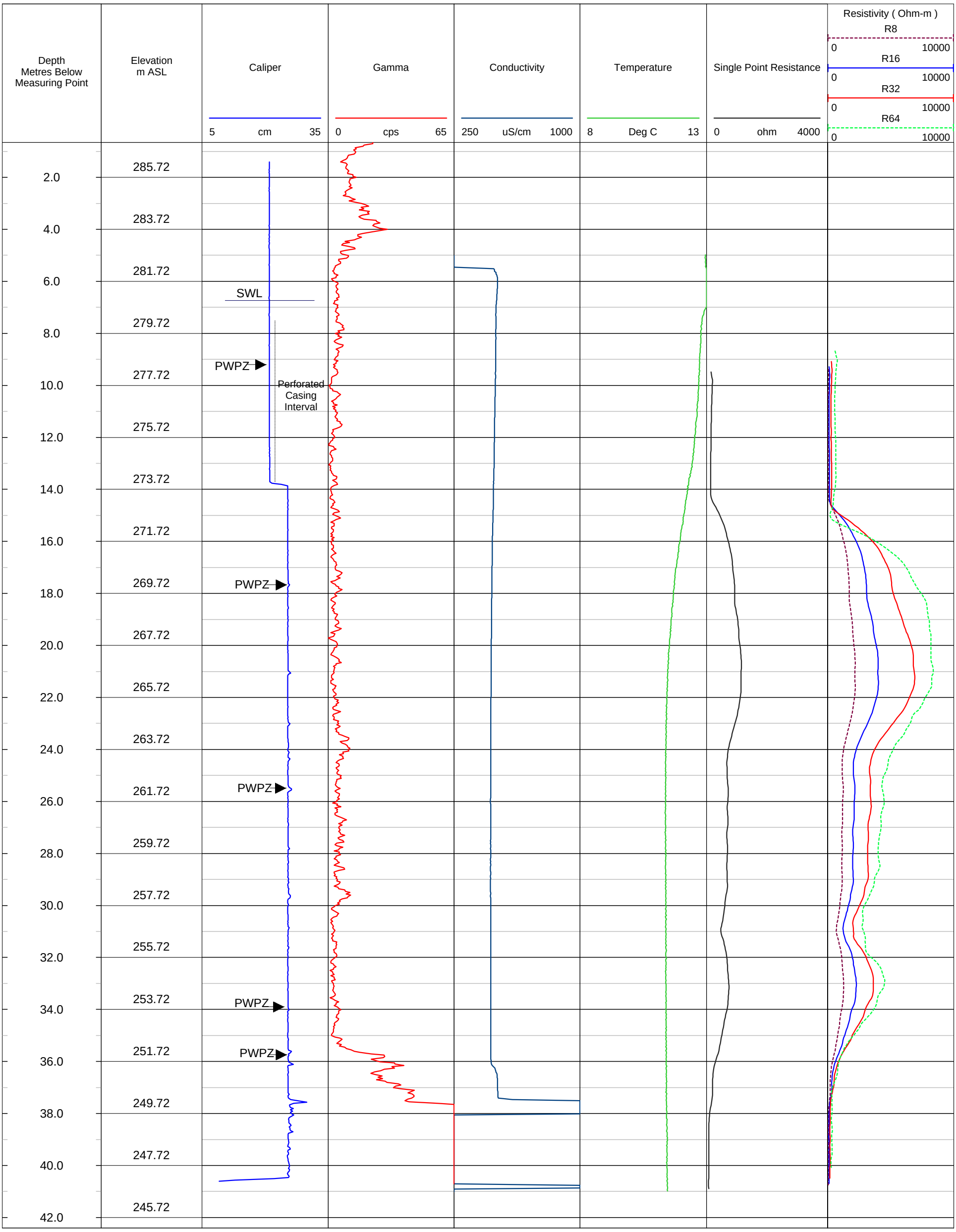
Notes:



Lotowater TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.50 m ags)
Well Name:	MWB13 (TW13)	Measuring Point Elev:	287.72 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Summer 2006 - Fall 2006

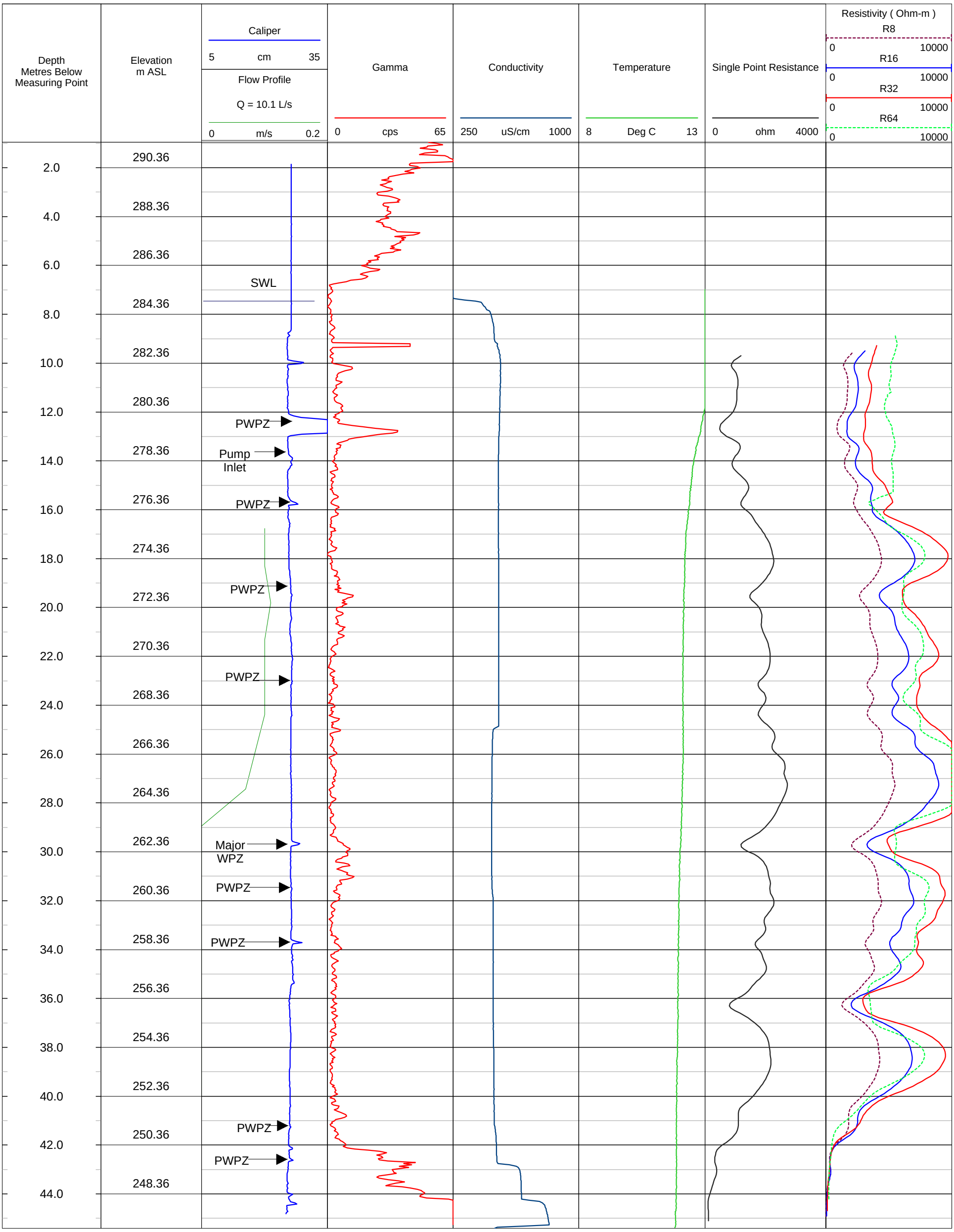
Notes: Casing perforated from 7.4m - 13.5 m



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.47 m ags)
Well Name:	TW14	Measuring Point Elev:	292.36 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Fall 2006 - Winter 2007

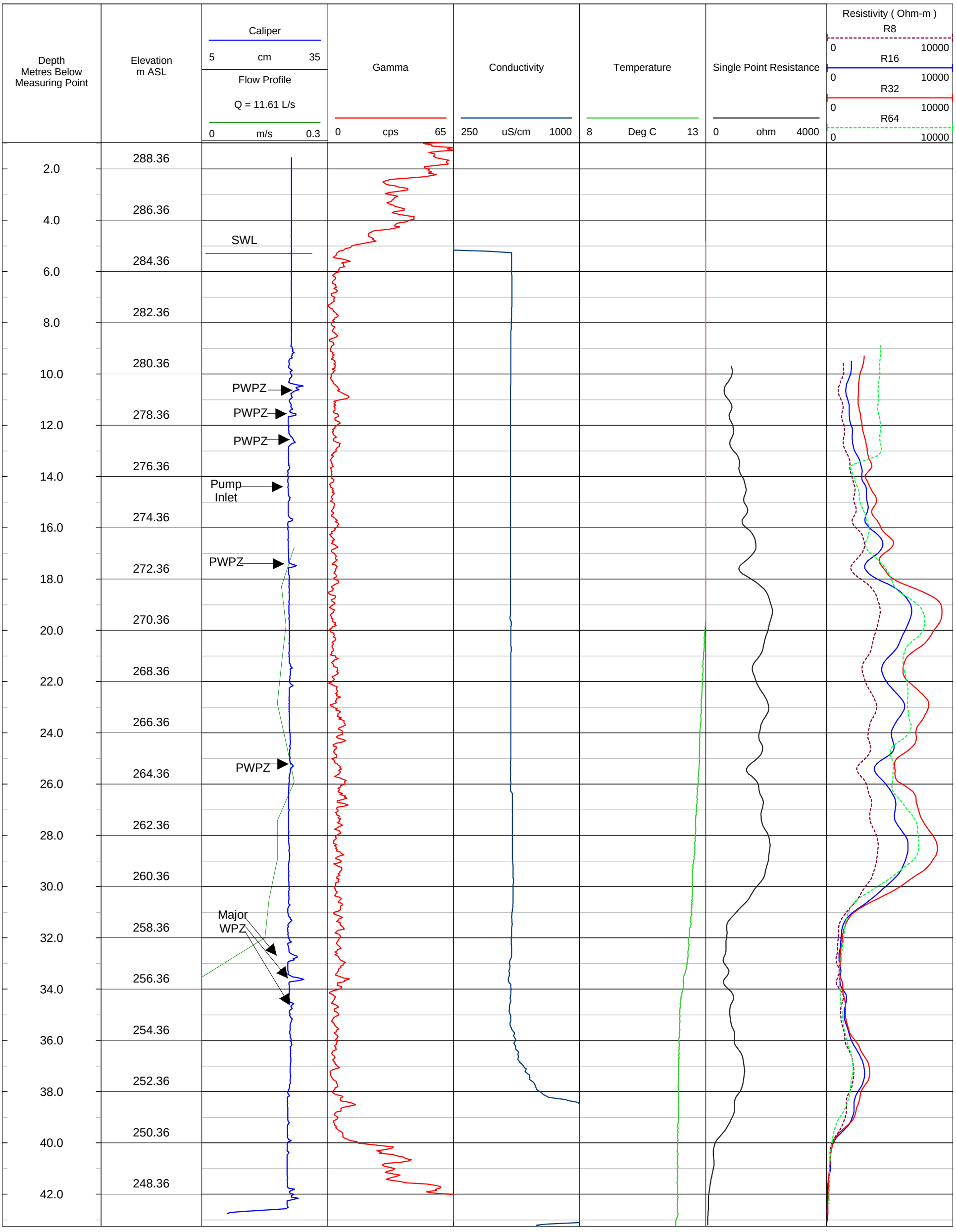
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.45 m ags)
Well Name:	TW15	Measuring Point Elev:	290.36 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Fall 2006 - Winter 2007

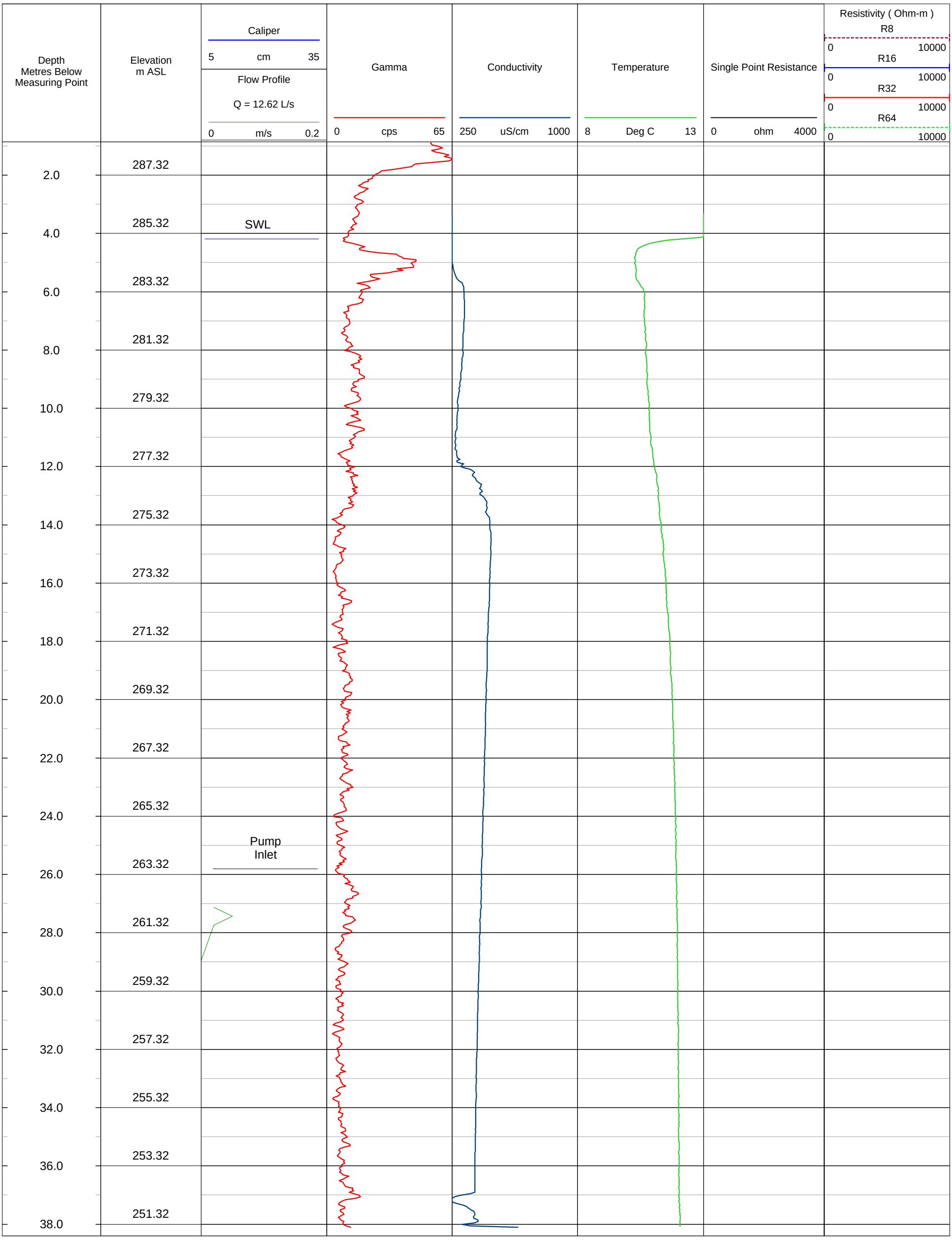
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.53 m ags)
Well Name:	TW16	Measuring Point Elev:	289.32 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Fall 2006 - Spring 2007

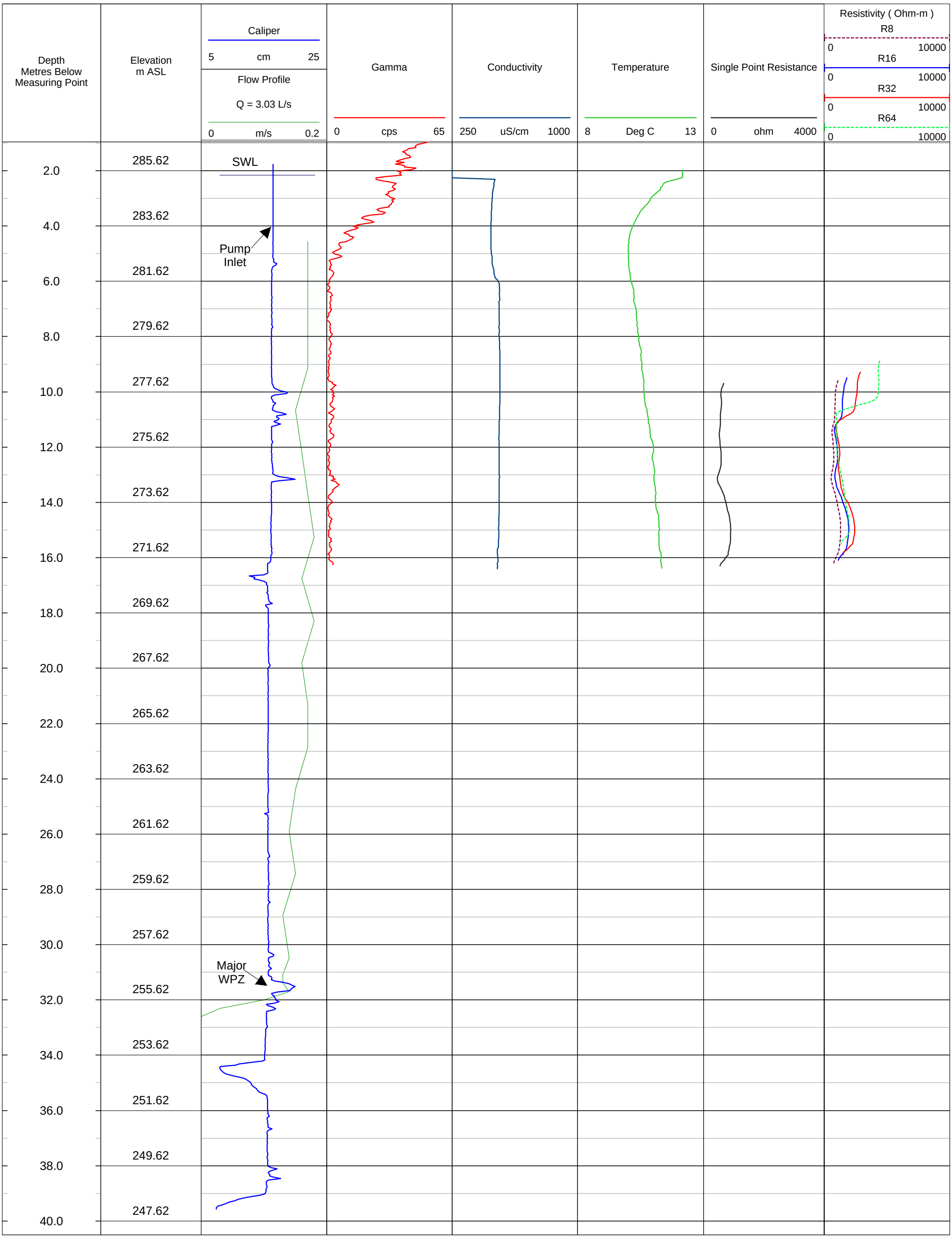
Notes: Unable to complete geophysics due to borehole conditions



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.58 m ags)
Well Name:	MWB18 (BHC)	Measuring Point Elev:	287.62 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

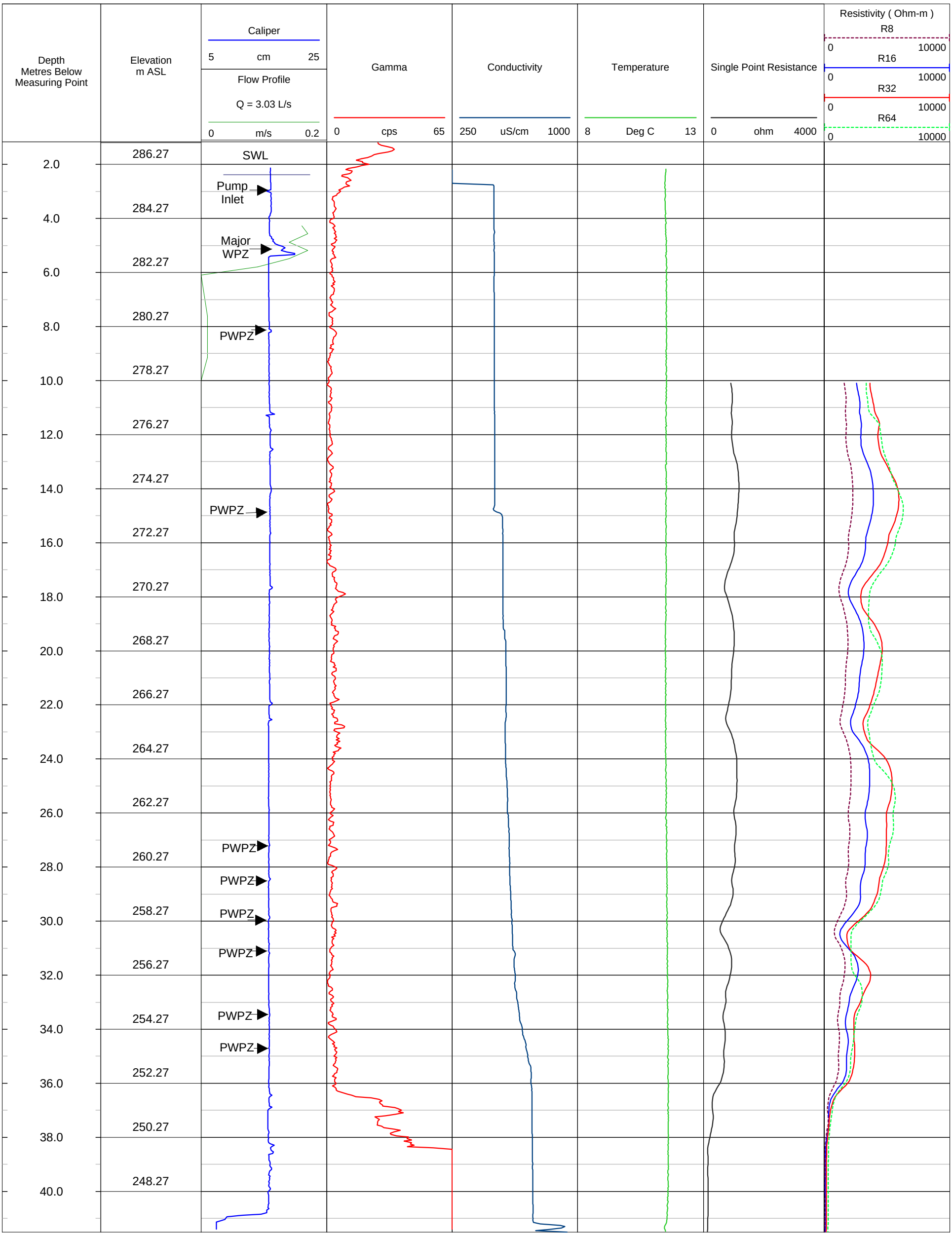
Notes: Unable to complete Geophysics due to borehole conditions



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.75 m ags)
Well Name:	MWB19 (BHD)	Measuring Point Elev:	288.27 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

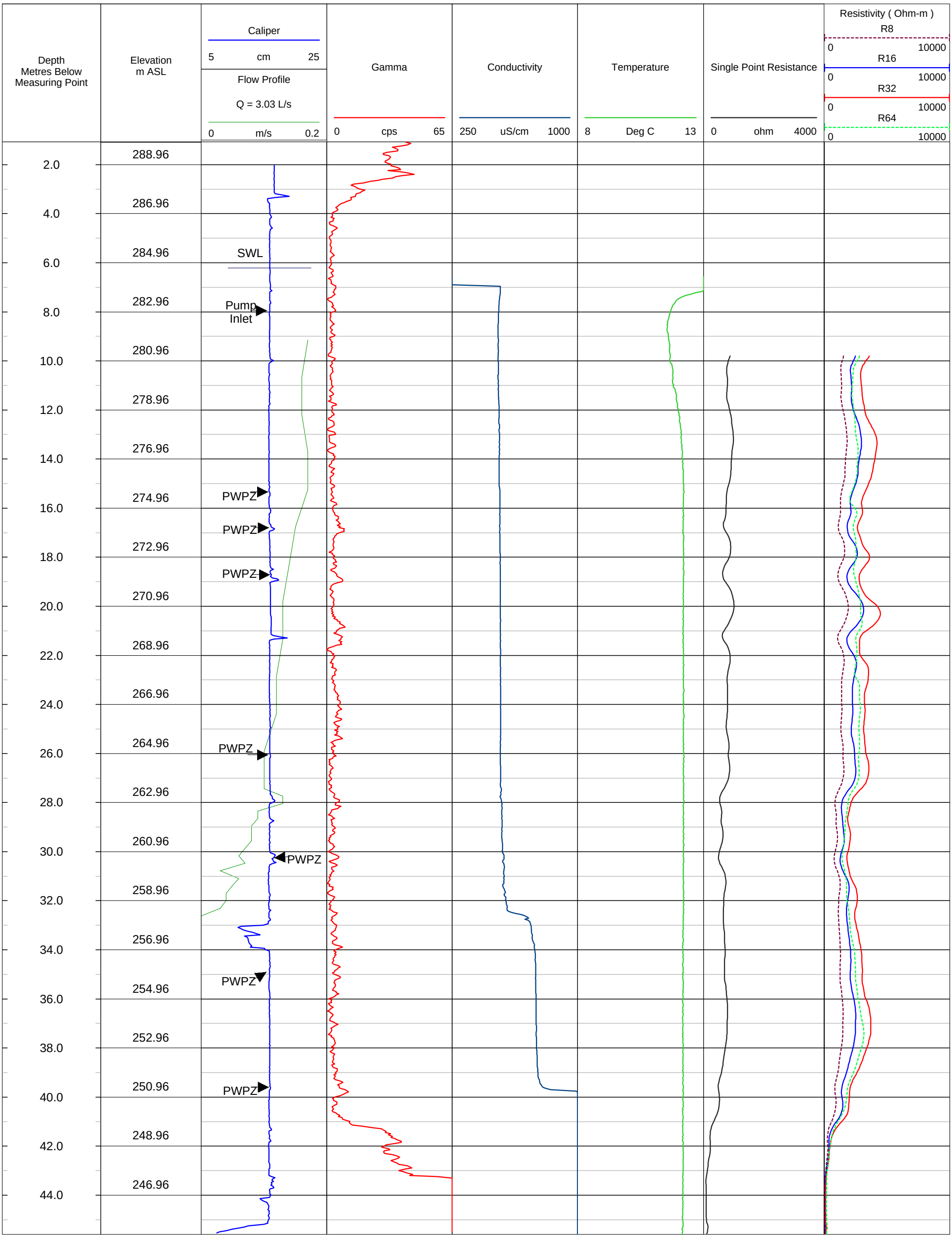
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.40 m ags)
Well Name:	MWB20-II (BHE)	Measuring Point Elev:	290.96 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Spring 2007

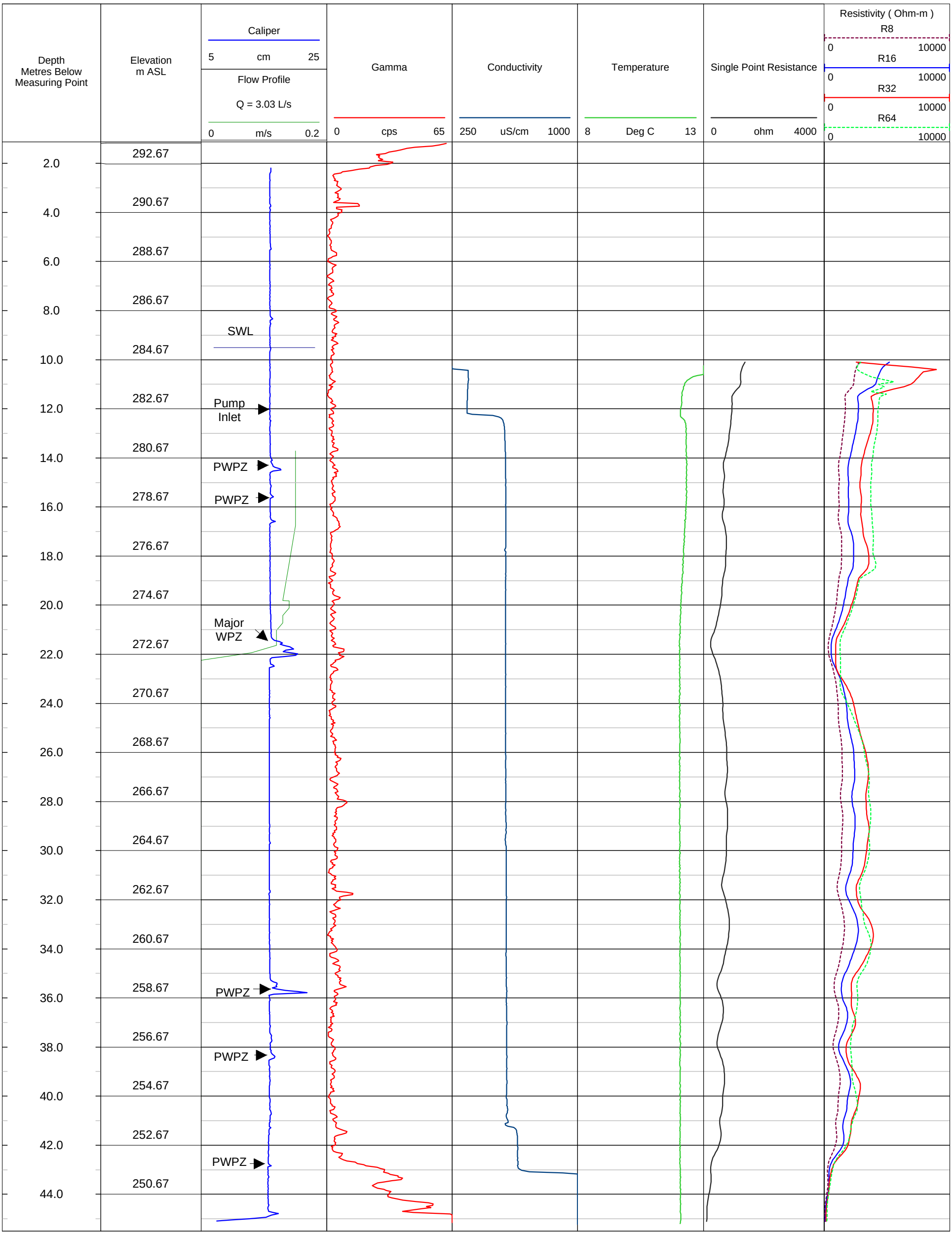
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.55 m ags)
Well Name:	MWB21 (BHF)	Measuring Point Elev:	294.67 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

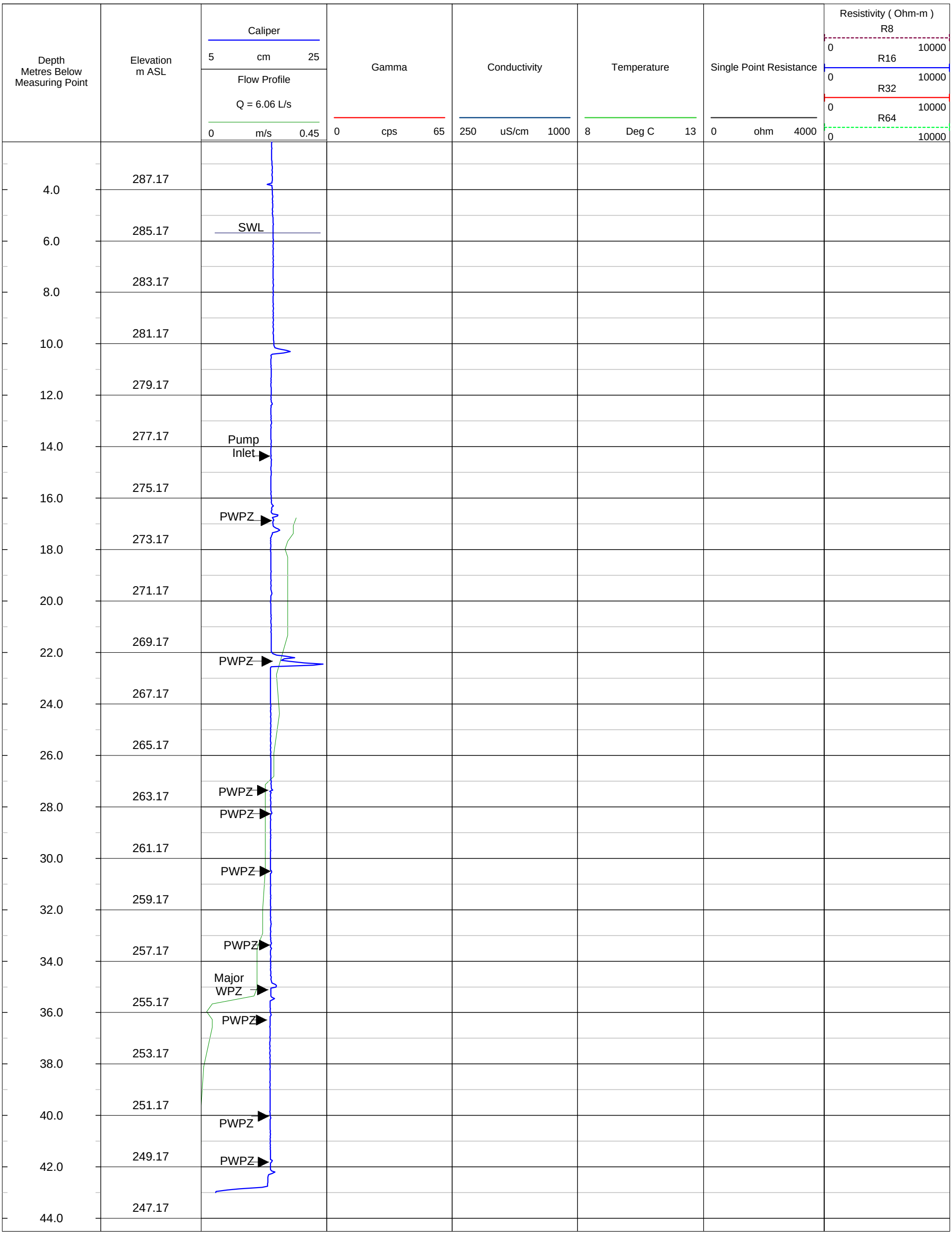
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.67 m ags)
Well Name:	MWB22-II (MW1)	Measuring Point Elev:	291.17 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Fall 2006

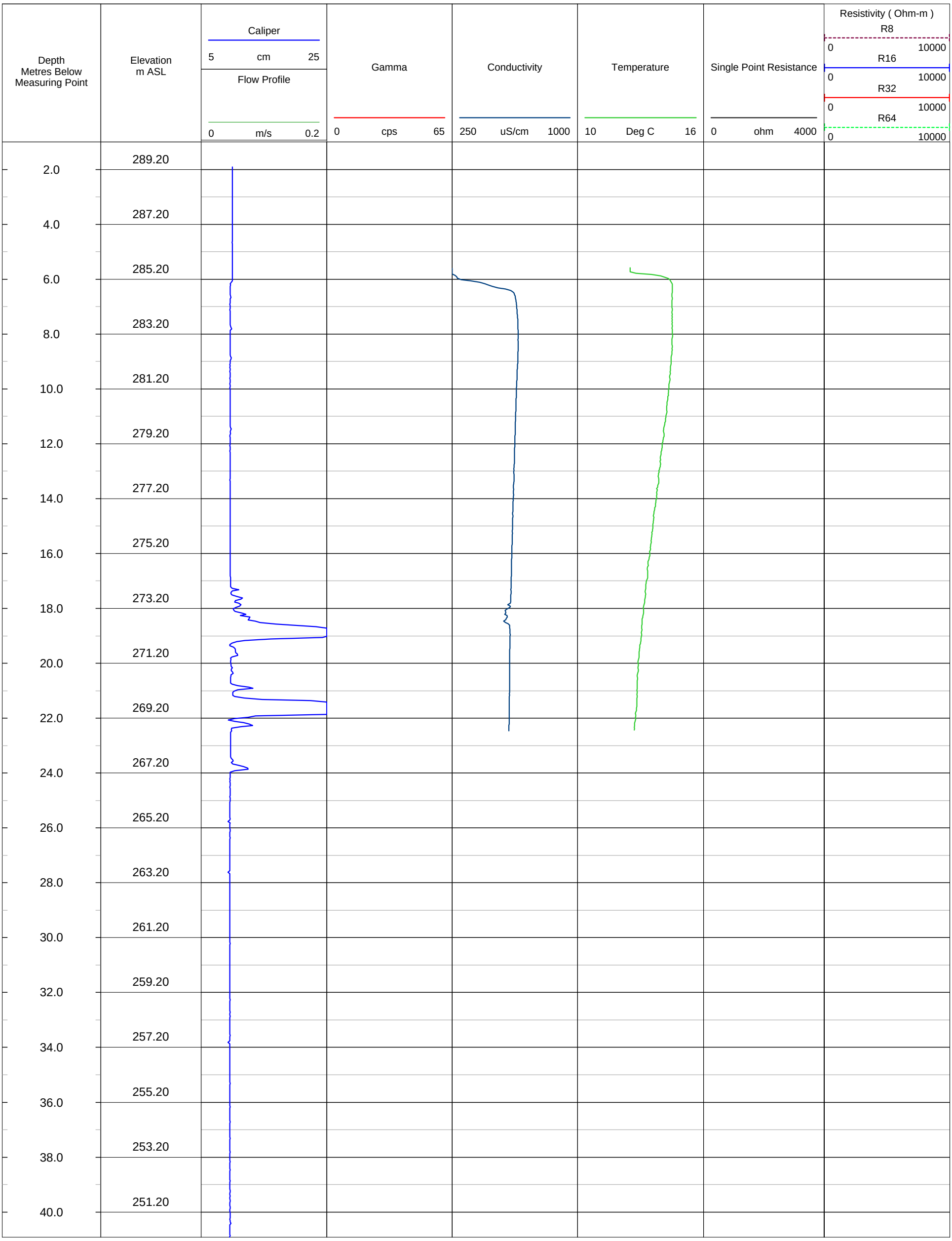
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.62 m ags)
Well Name:	MWB24-II (MW3)	Measuring Point Elev:	291.20 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	Fall 2006

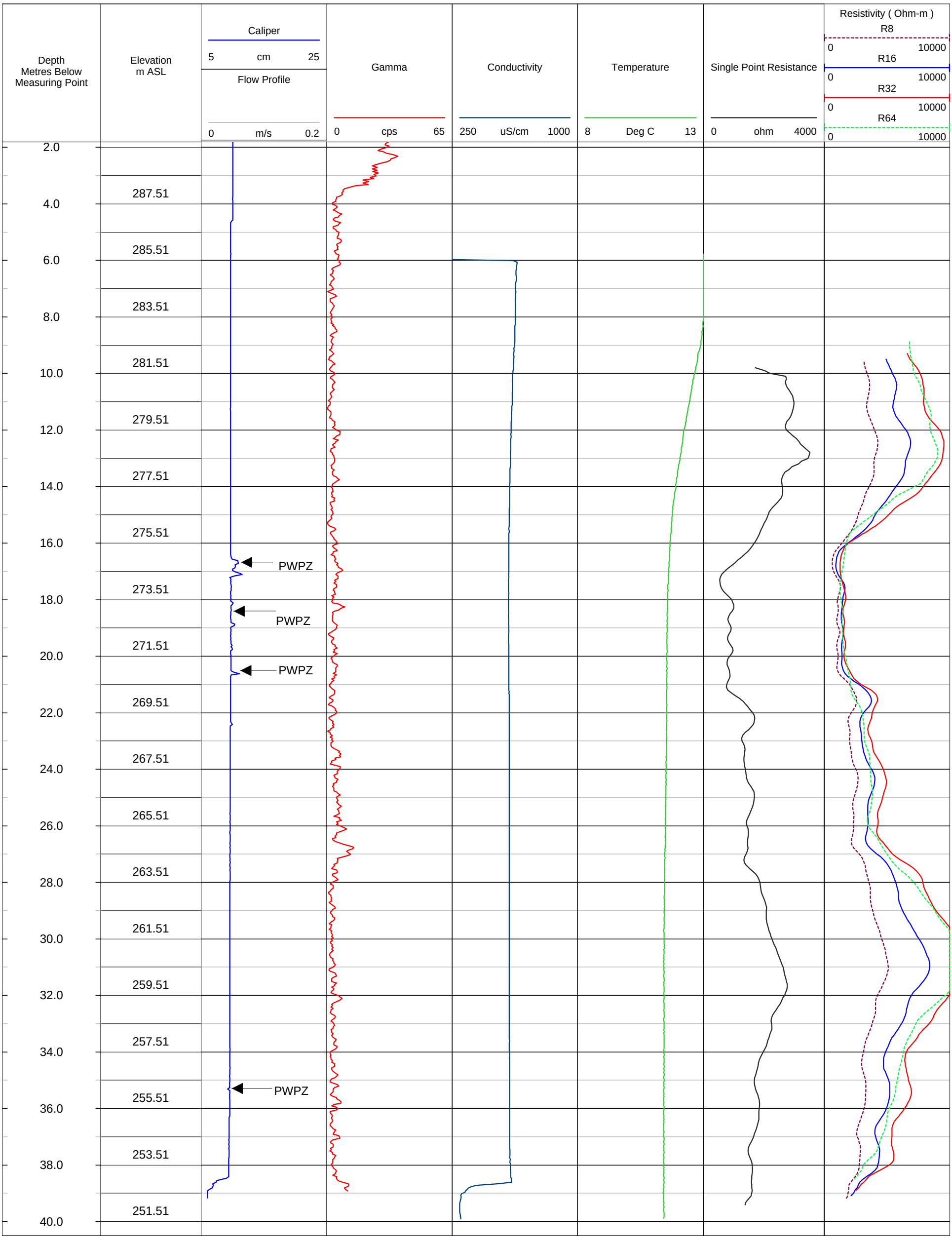
Notes: Unable to complete Geophysics due to borehole conditions



Lotowater TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.58 m ags)
Well Name:	MWB25-III (MW4)	Measuring Point Elev:	291.51 m ASL
Location:	Flamborough Quarry	Logged By:	J.Dion
Project No:	147-009	Logging Date:	Fall 2006

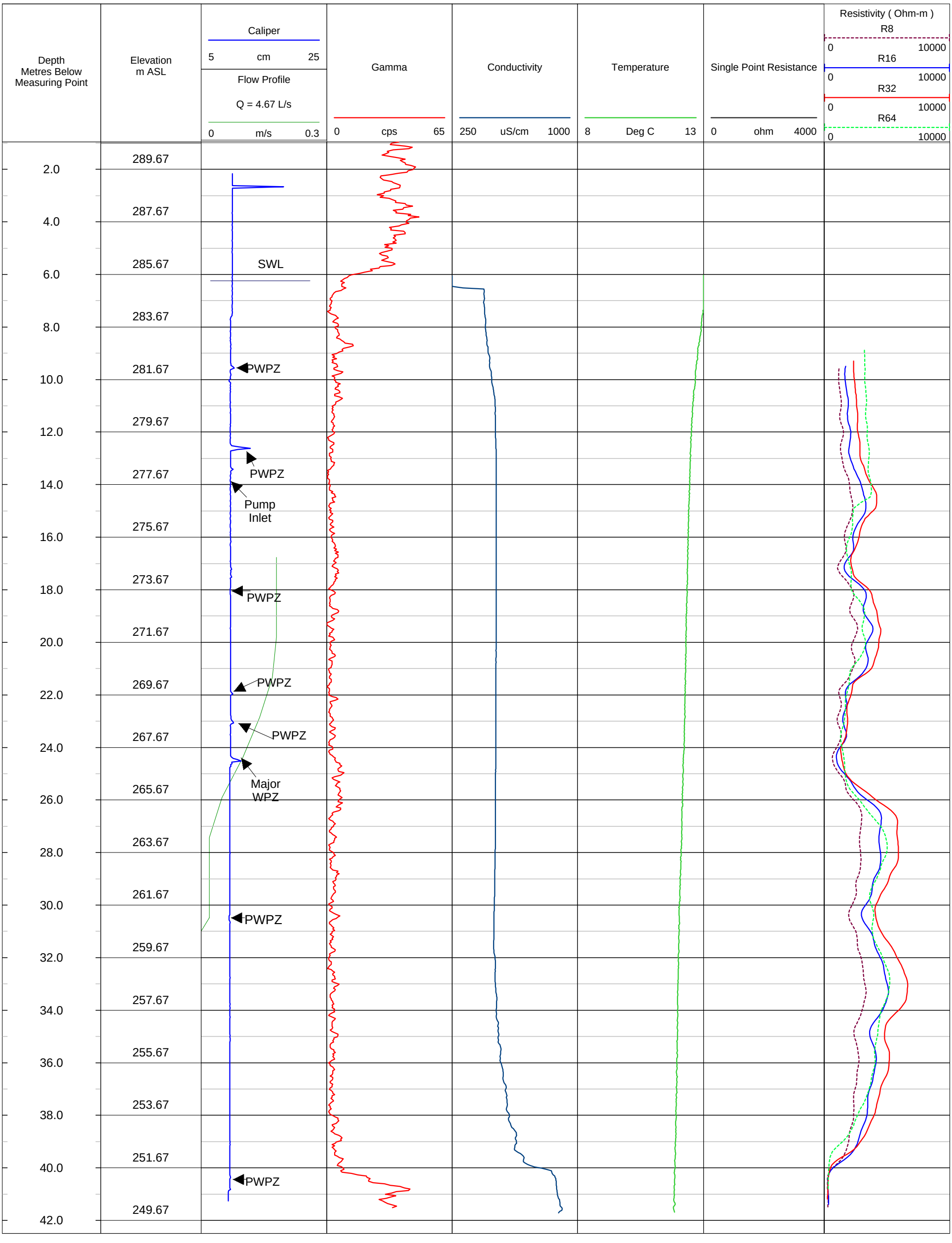
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.51 m ags)
Well Name:	MWB26-II (MW5)	Measuring Point Elev:	291.67 m ASL
Location:	Flamborough Quarry	Logged By:	J.Dion
Project No:	147-009	Logging Date:	Fall 2006

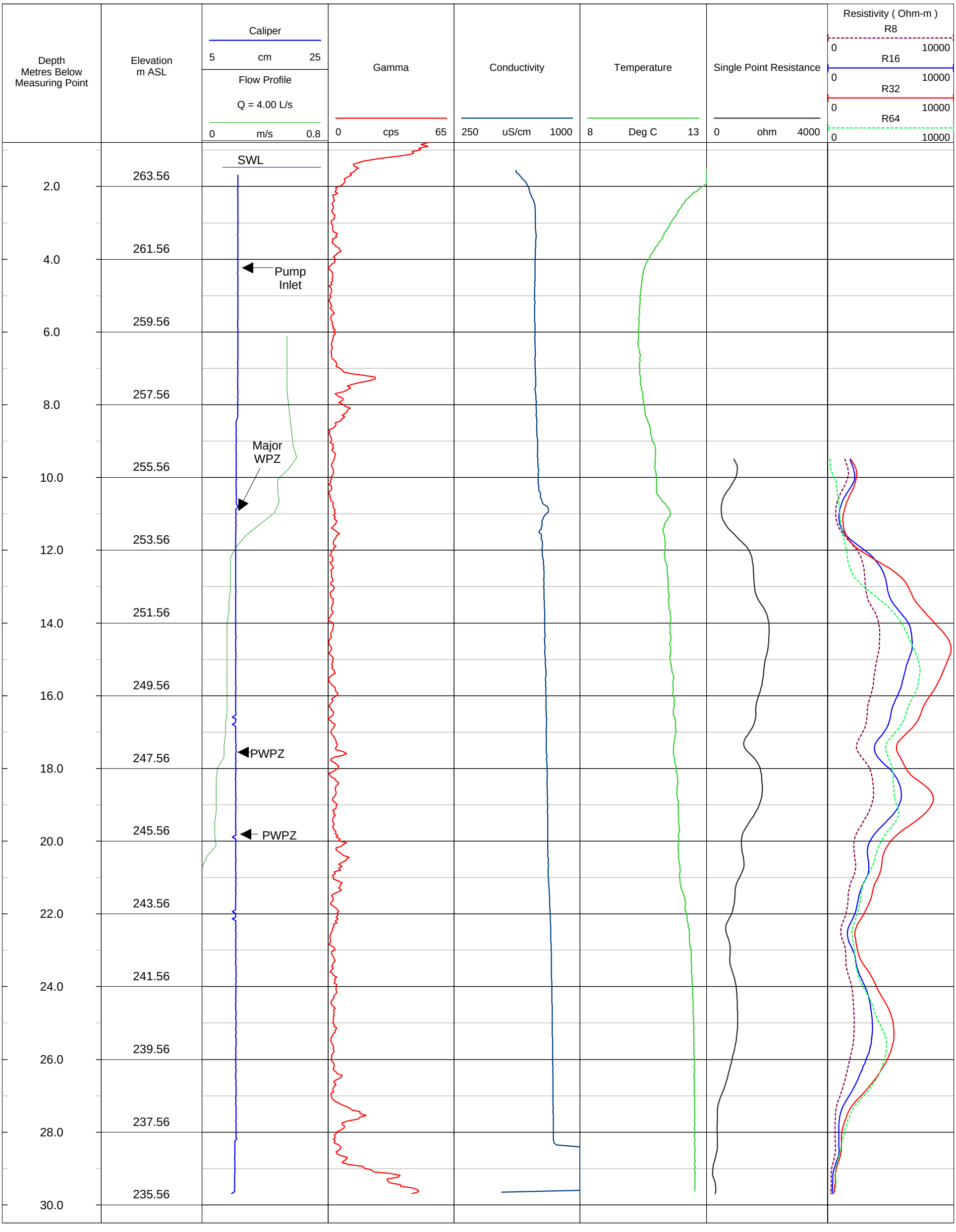
Notes:



Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.56 m ags)
Well Name:	MWB27-II (MW6)	Measuring Point Elev:	265.56 m ASL
Location:	Flamborough Quarry	Logged By:	J. Newman
Project No:	147-009	Logging Date:	Spring 2007

Notes:

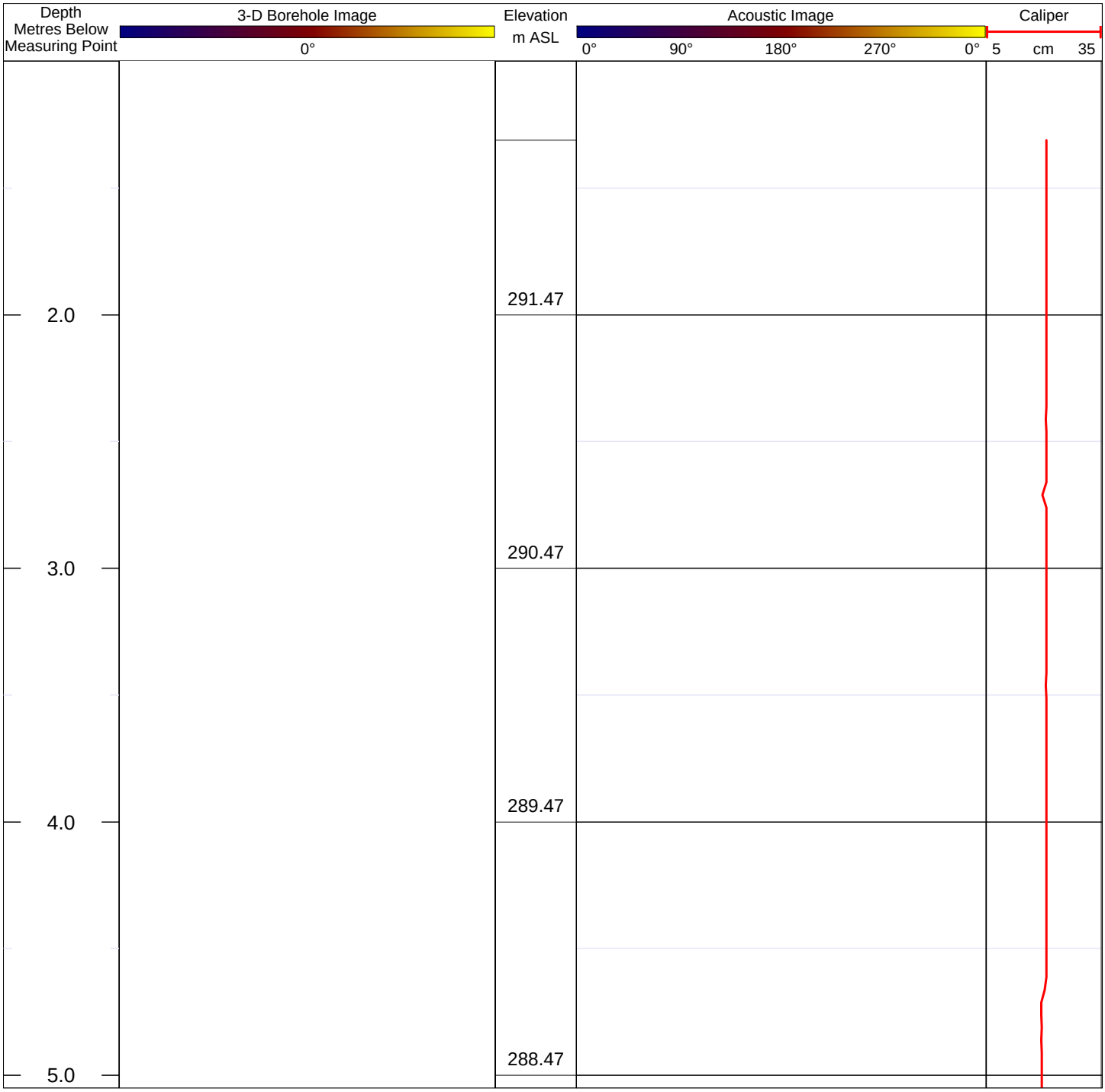


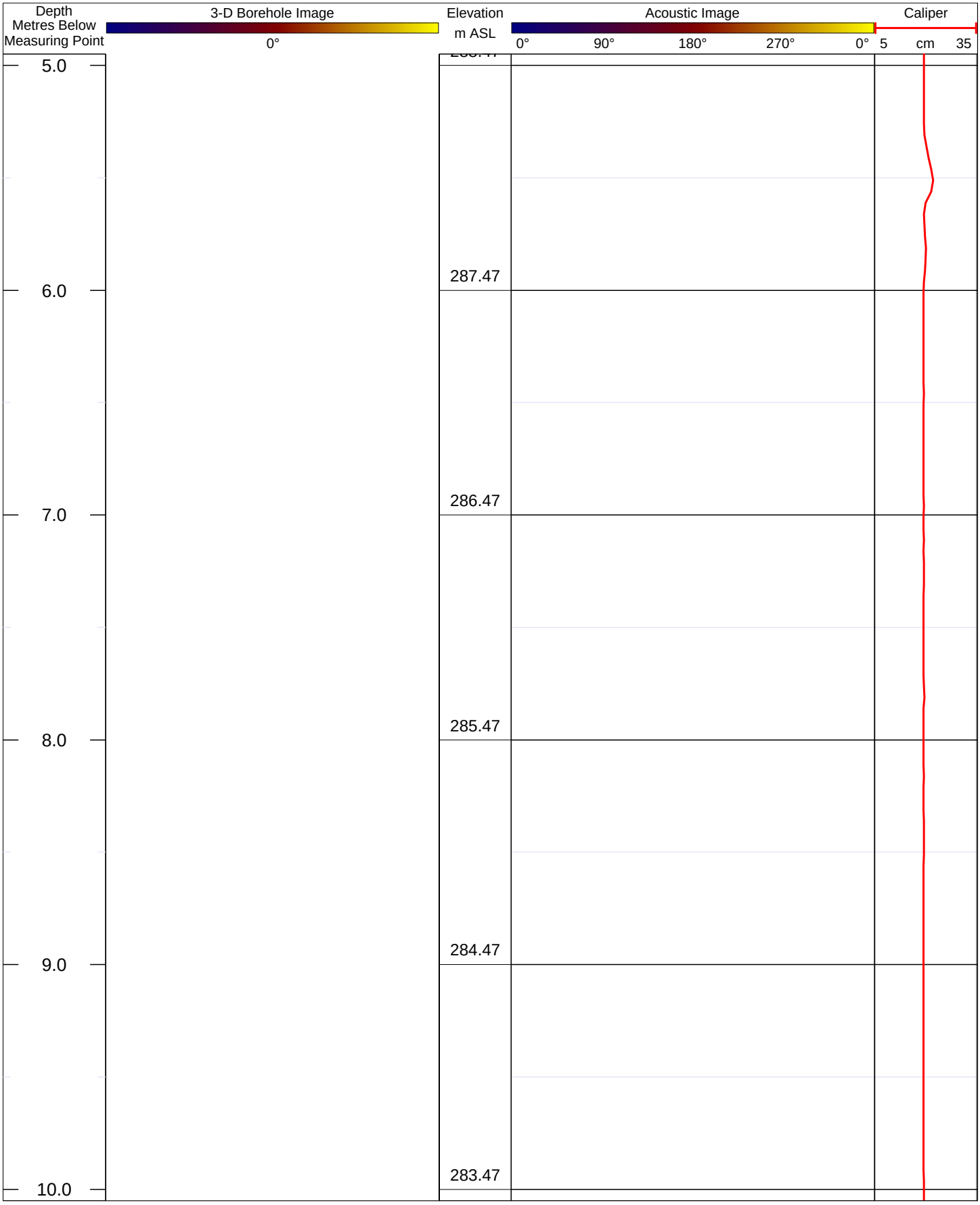
APPENDIX 4

Acoustic Televiewer Logs

Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.72 m ags)
Well Name:	MWB10-I (TW10)	Measuring Point Elev:	293.47 m ASL
Location:	Flamborough Quarry	Logged By:	J.Dion
Project No:	147-009	Logging Date:	August 30, 2006

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Elevation
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Acoustic Image
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Caliper
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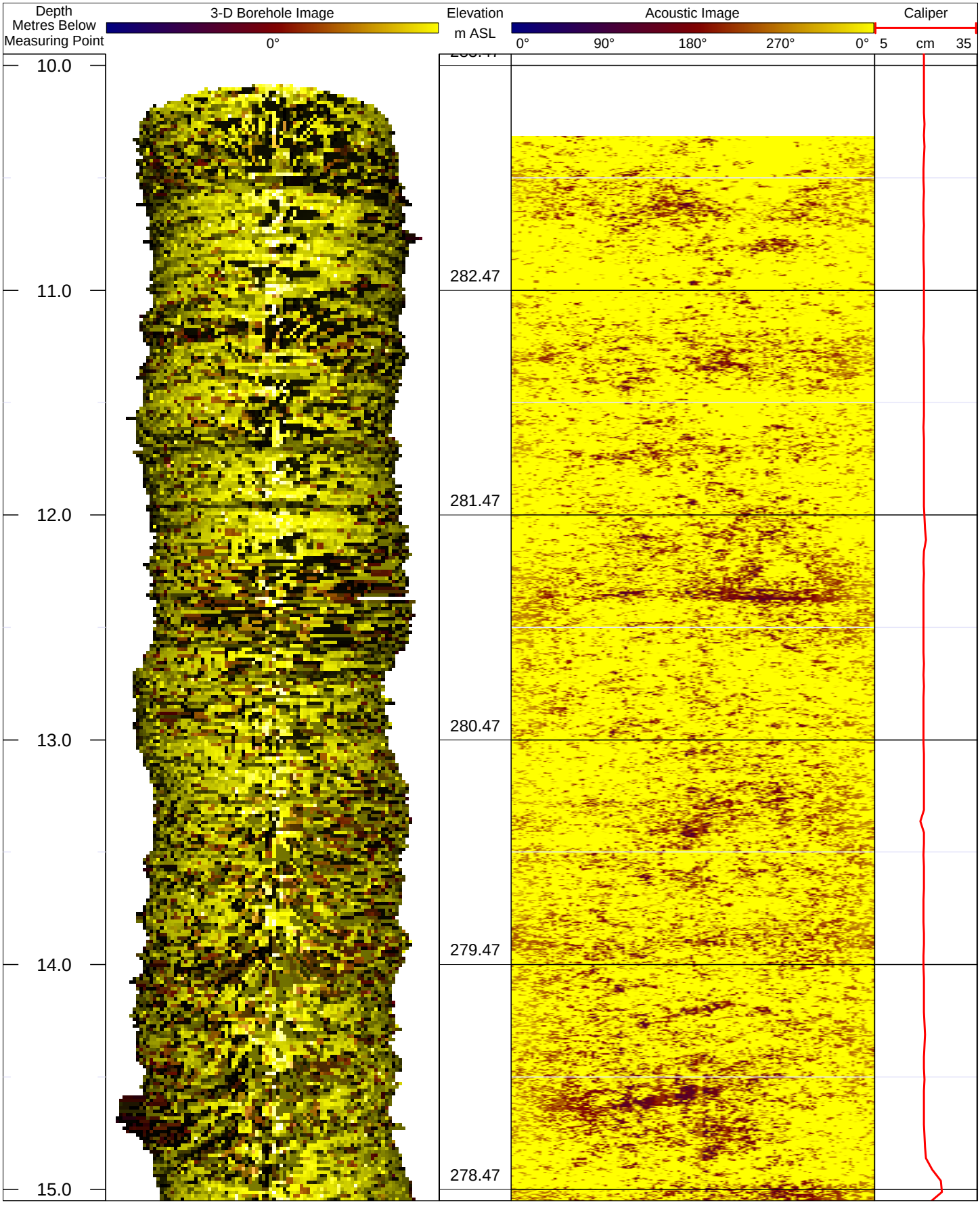
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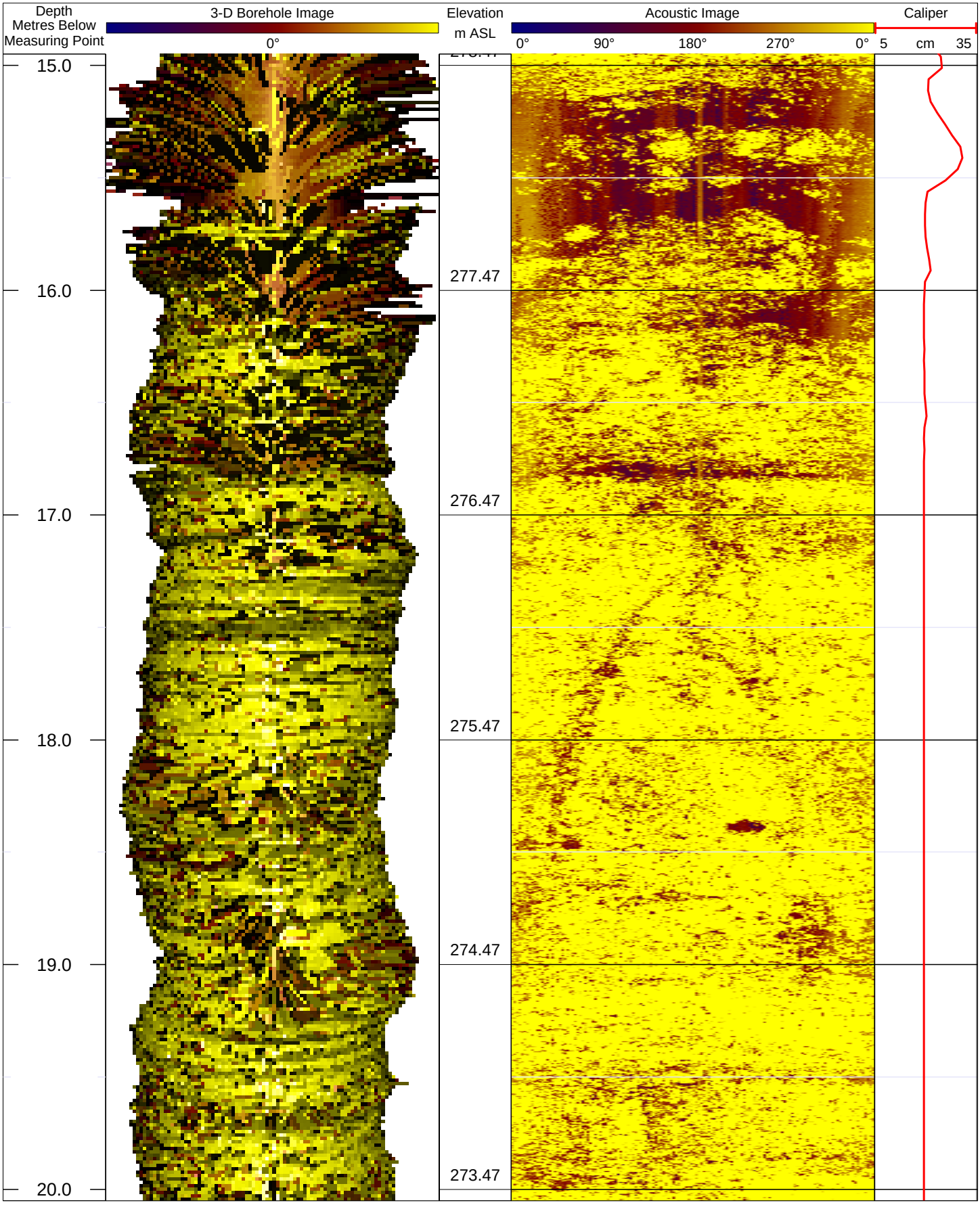
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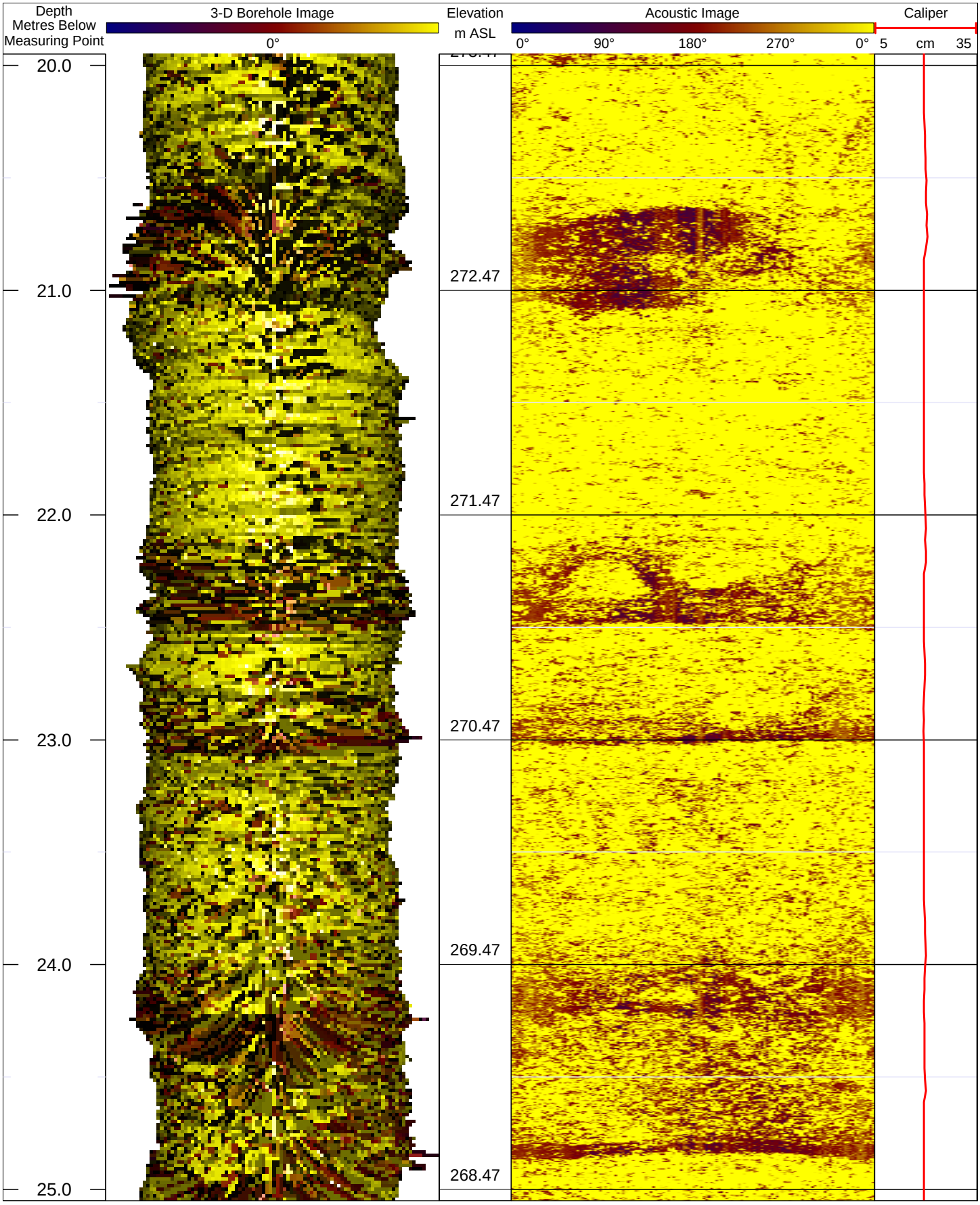
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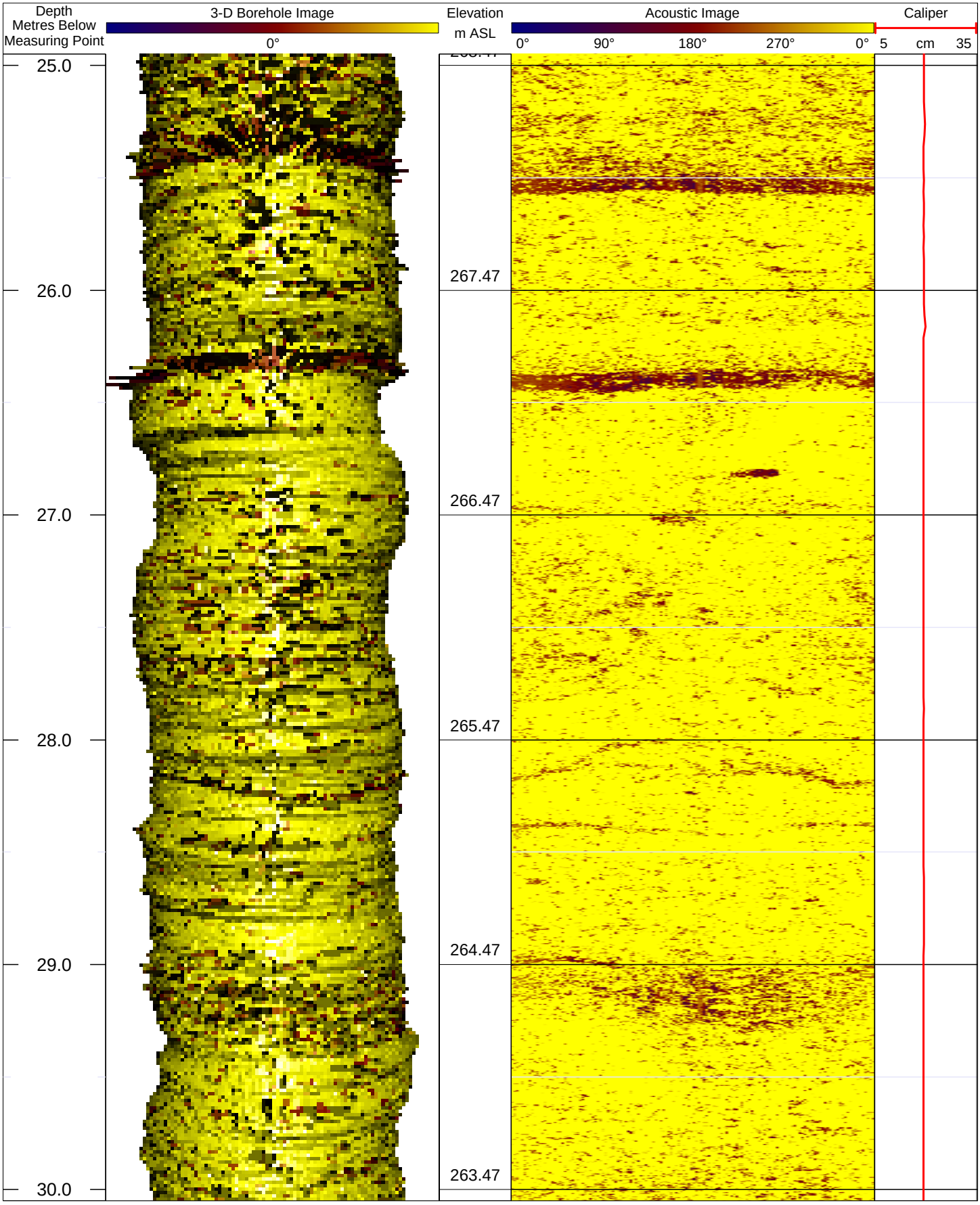
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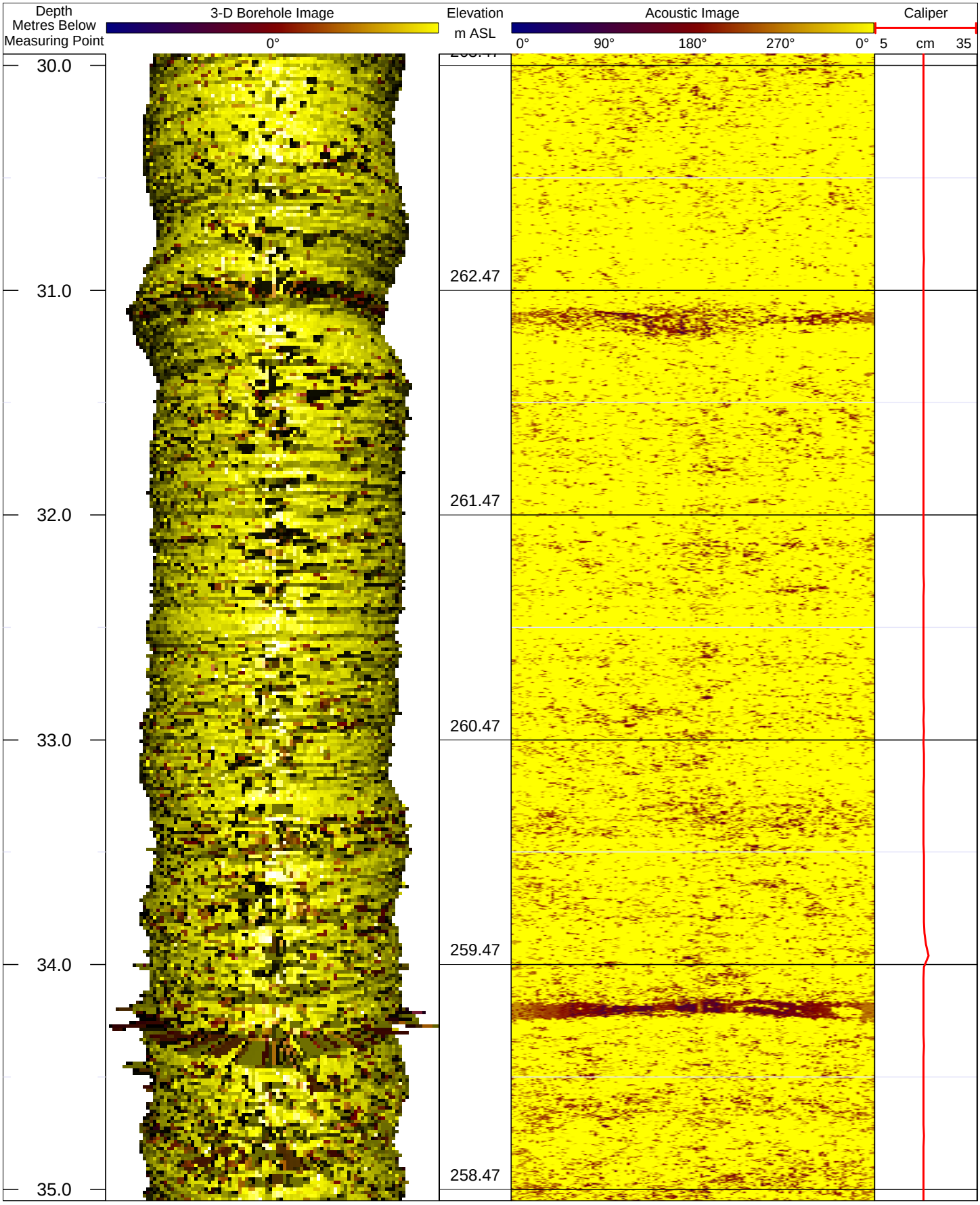
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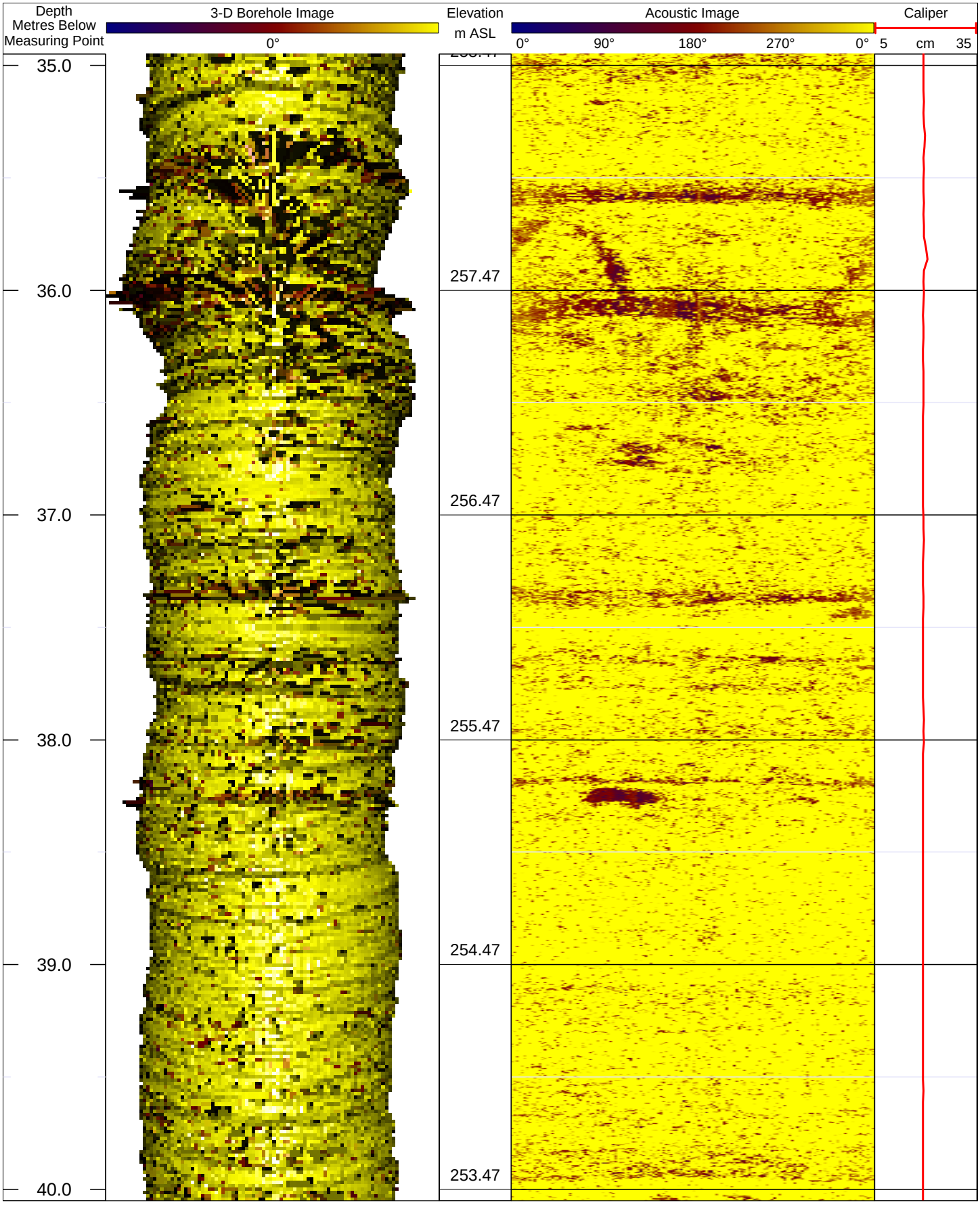
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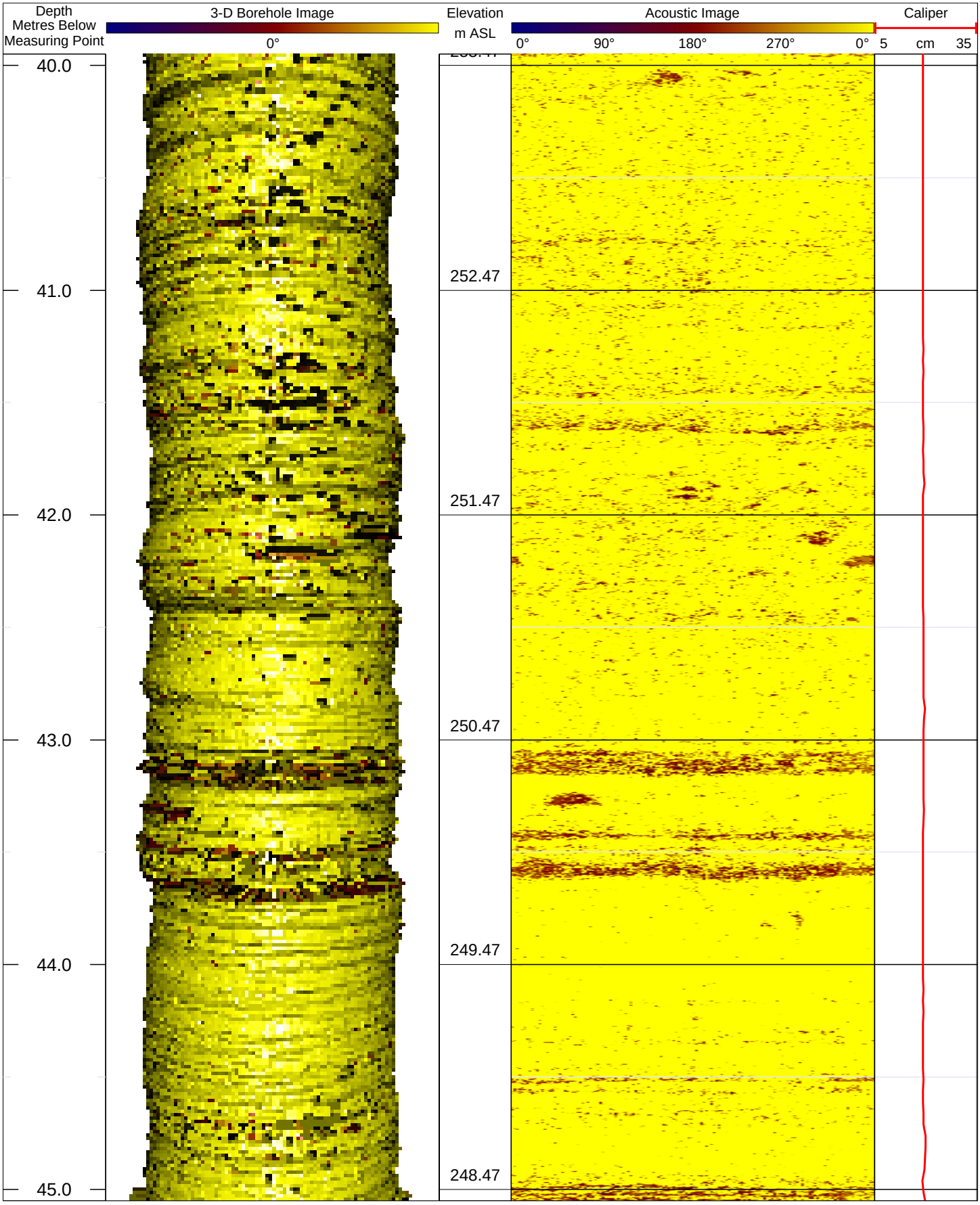
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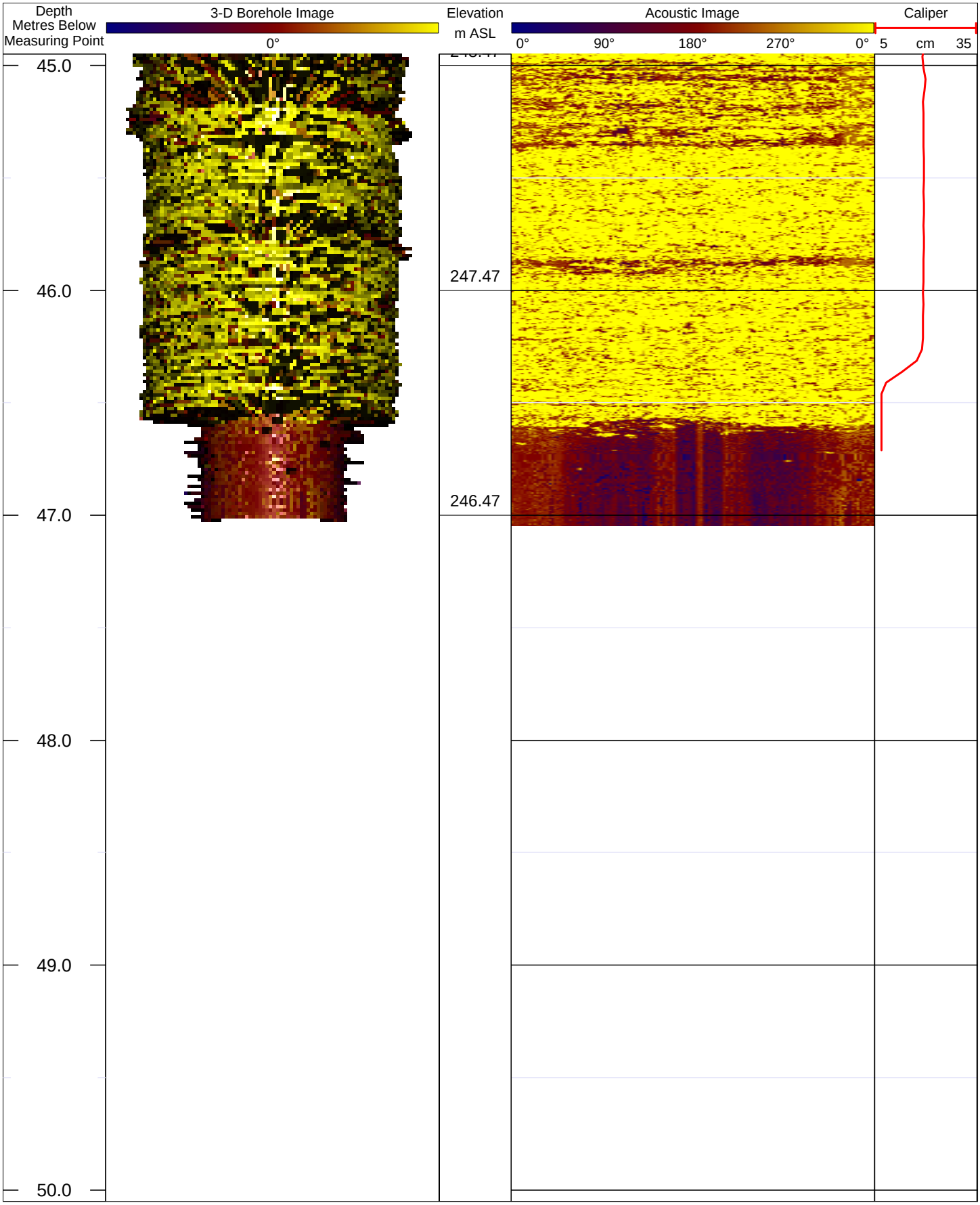
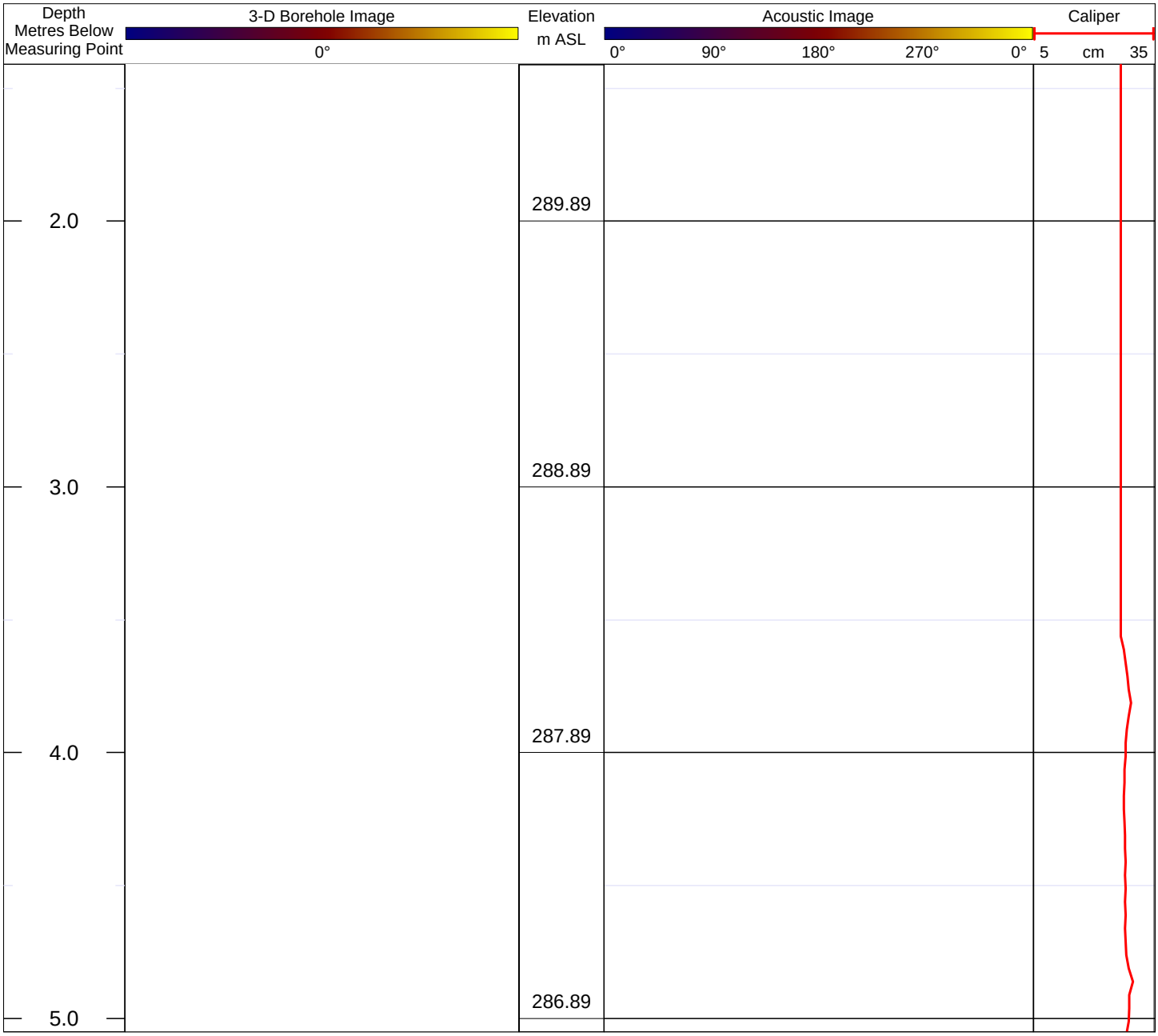


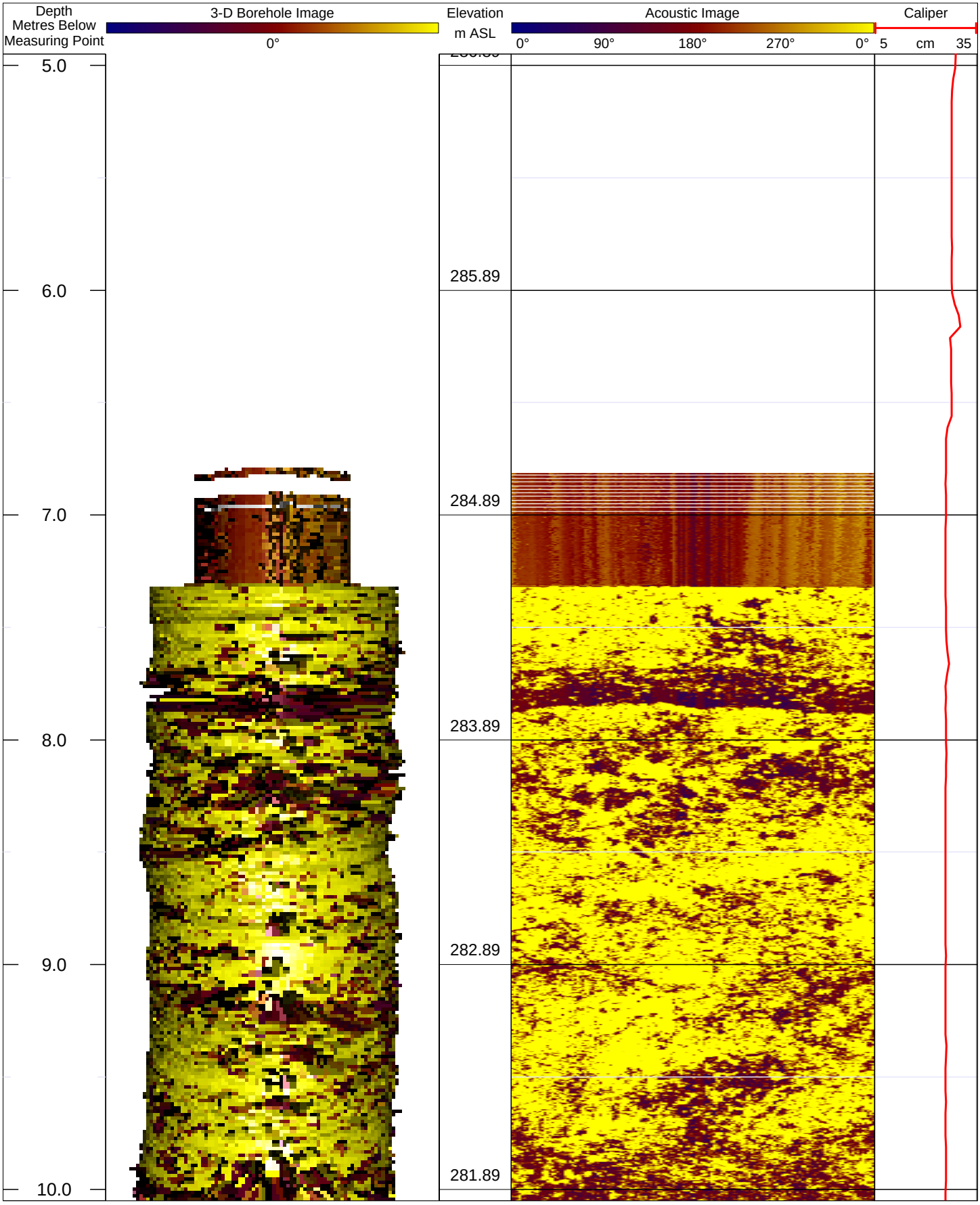
Well Name: MWB10-I

Figure 4a

Lotowater TECHNICAL SERVICES INC.

Client:	CBM / St. Mary's Cement	Measuring Point:	Top of Casing (1.00 m ags)
Well Name:	MWB12 (TW12)	Measuring Point Elev::	291.89 m ASL
Location:	Proposed Mountsberg Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	August 30, 2006

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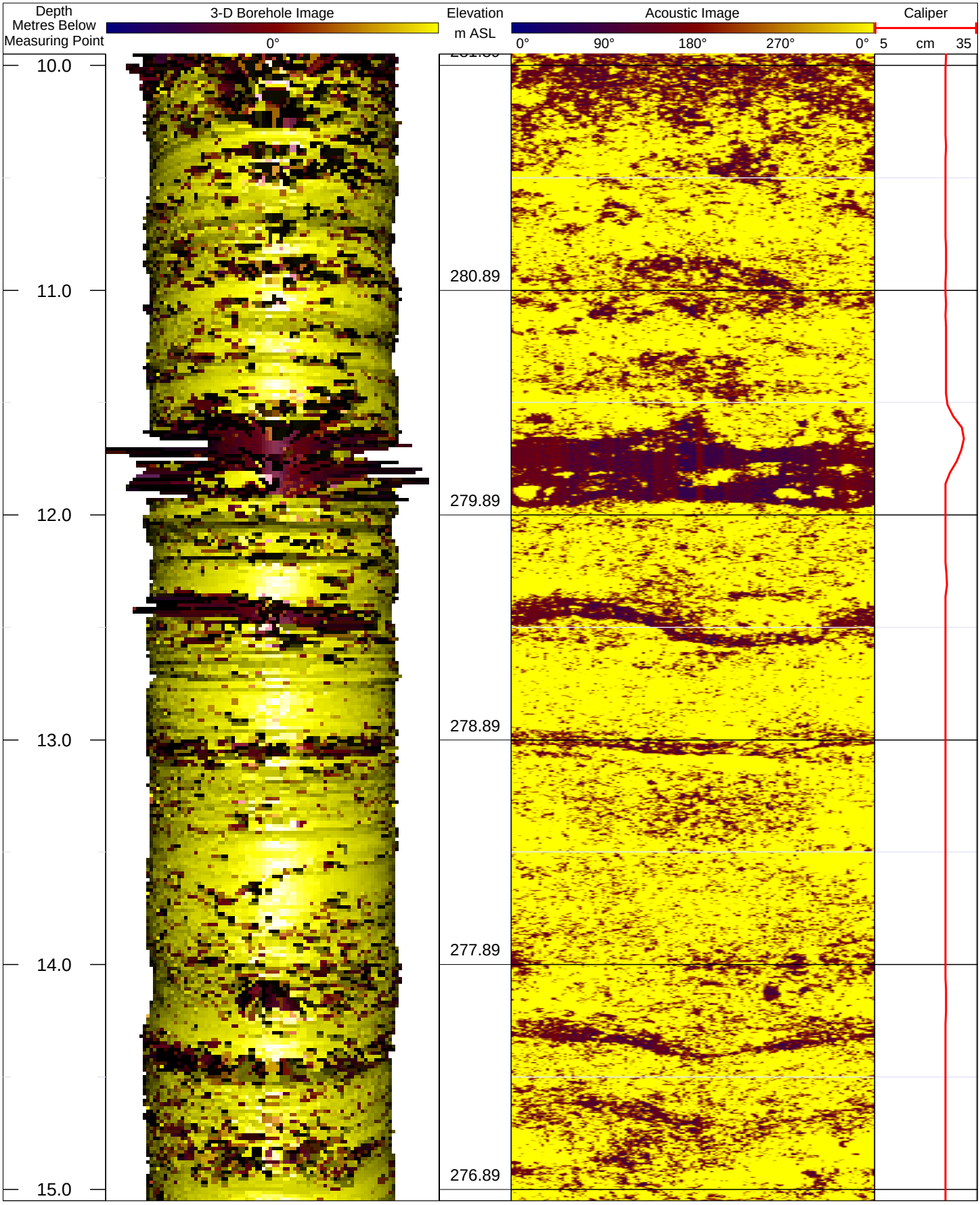
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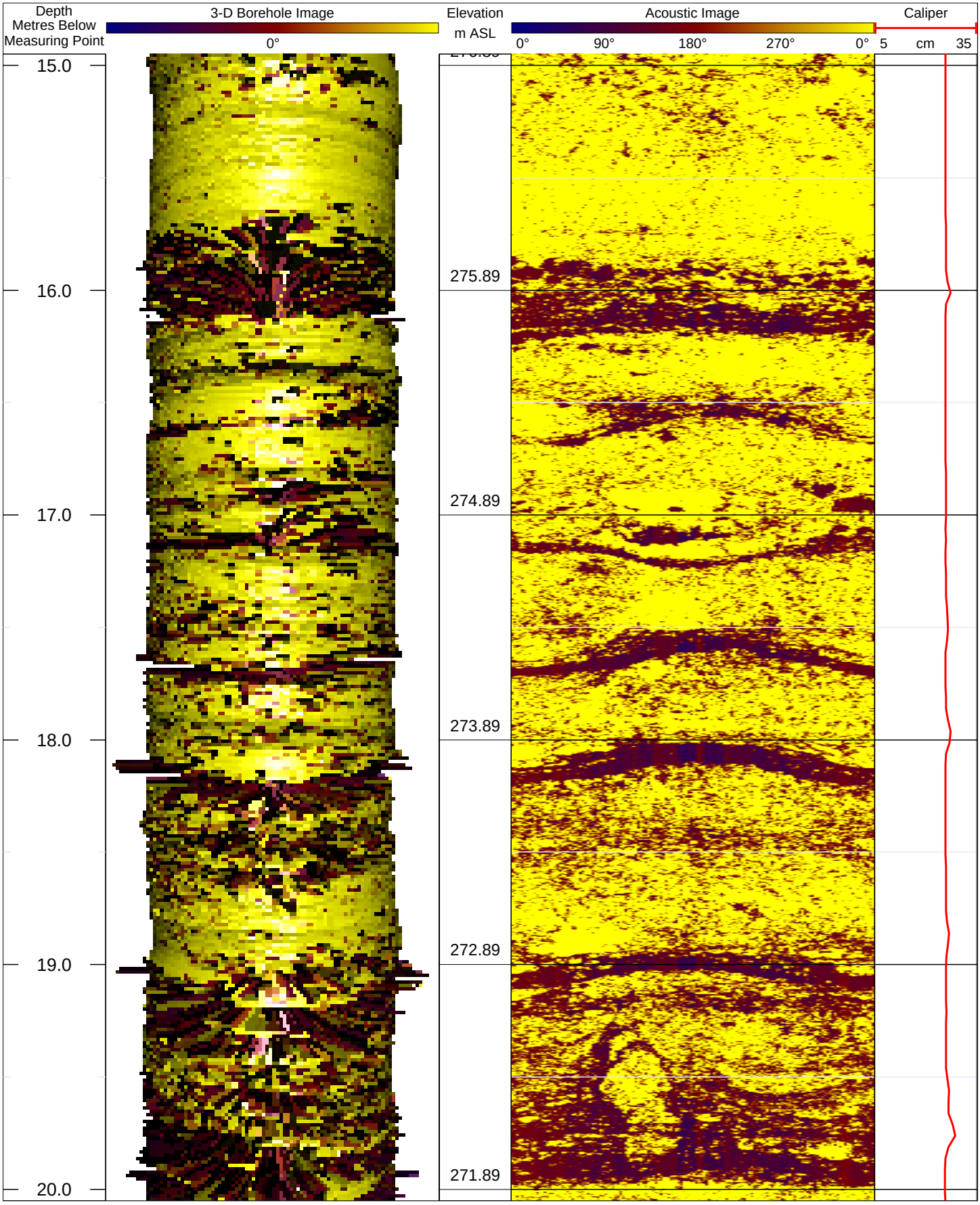
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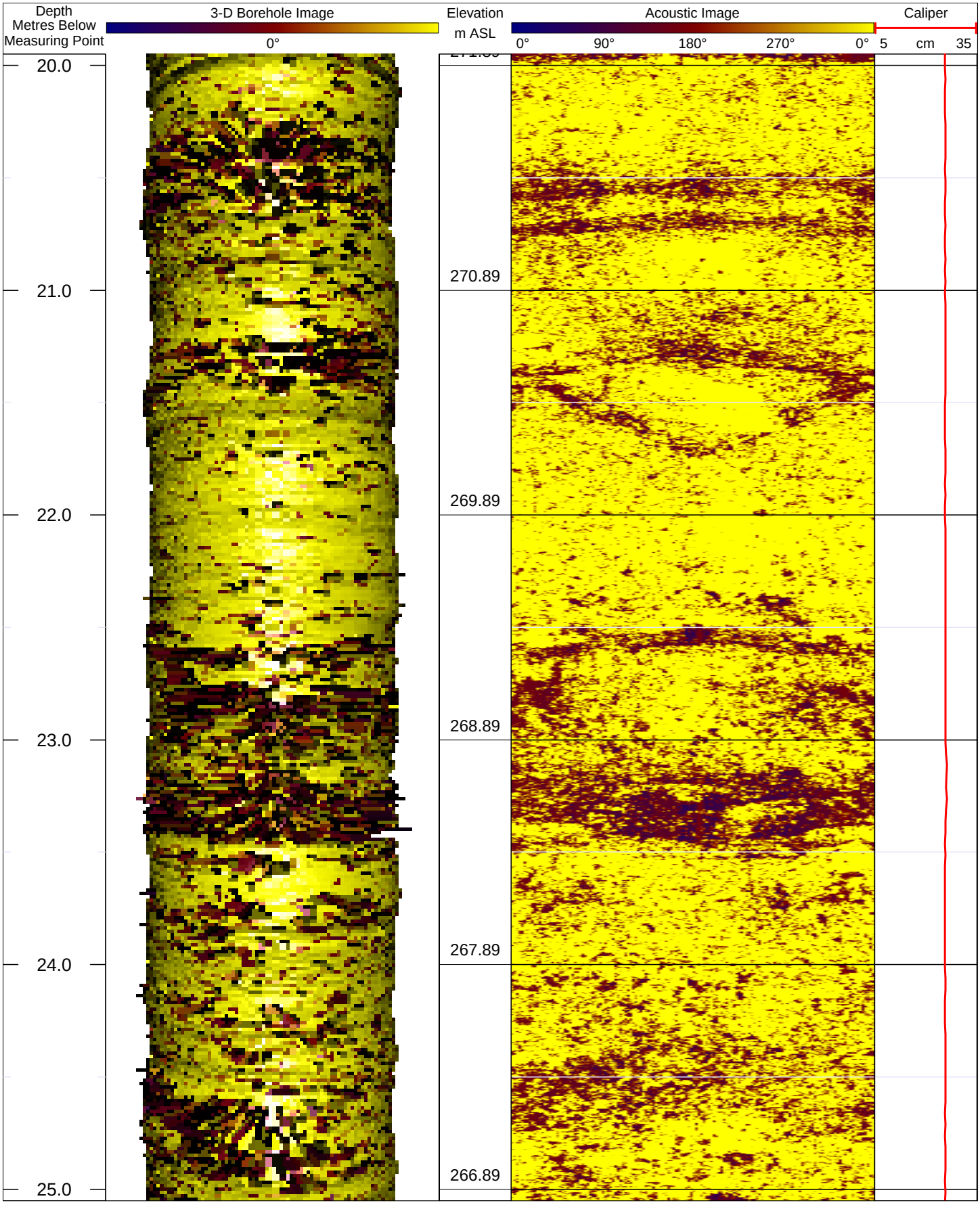
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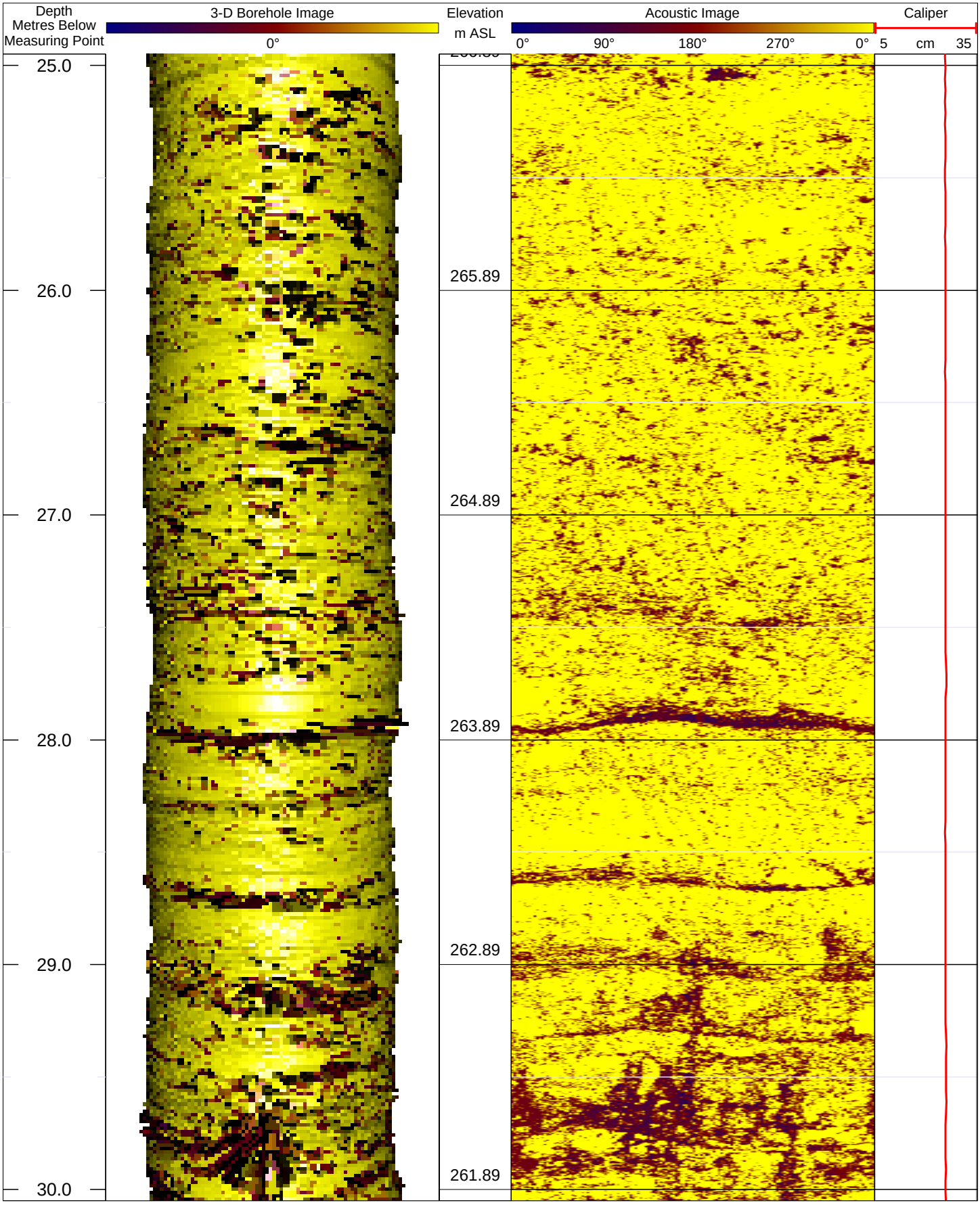
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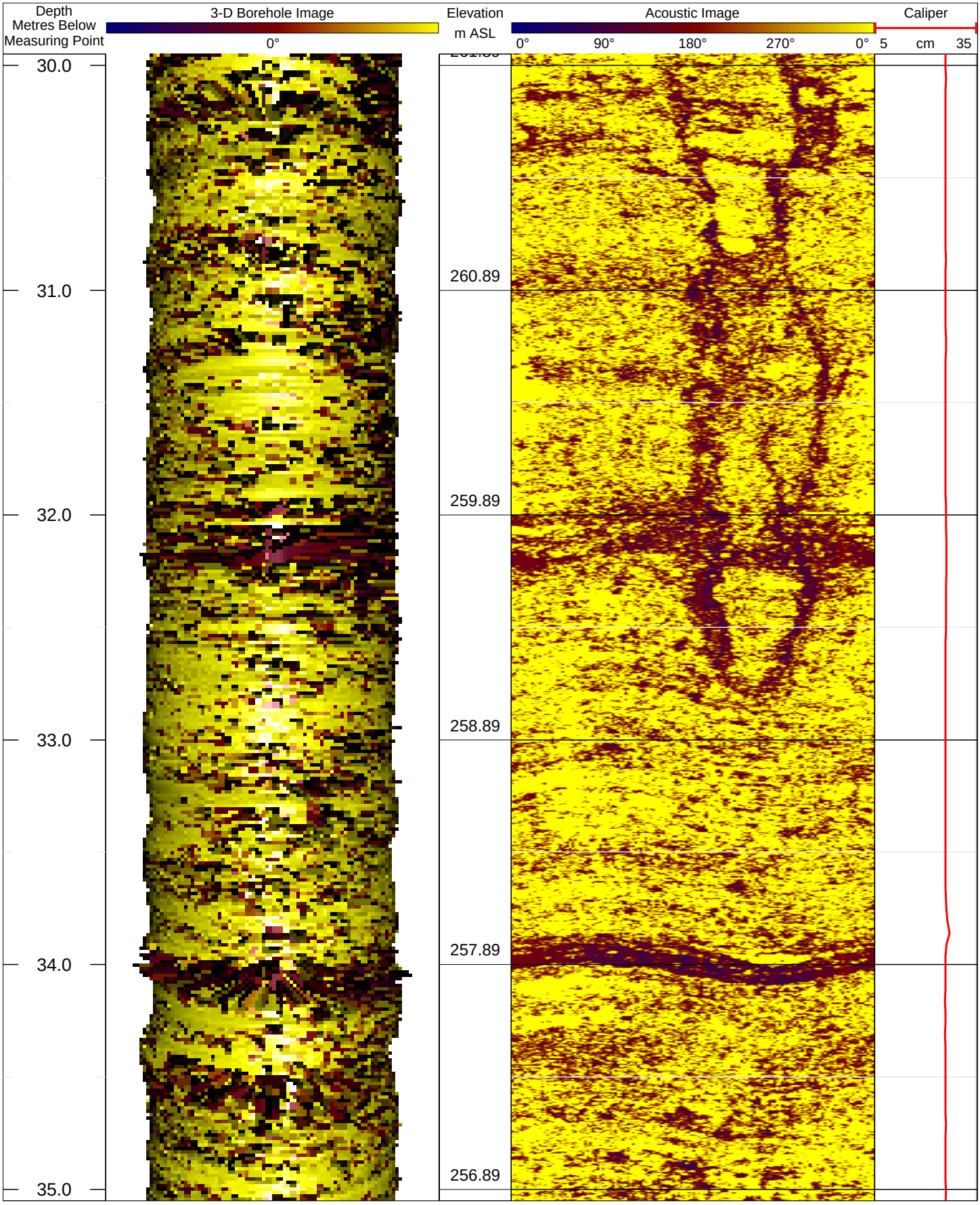
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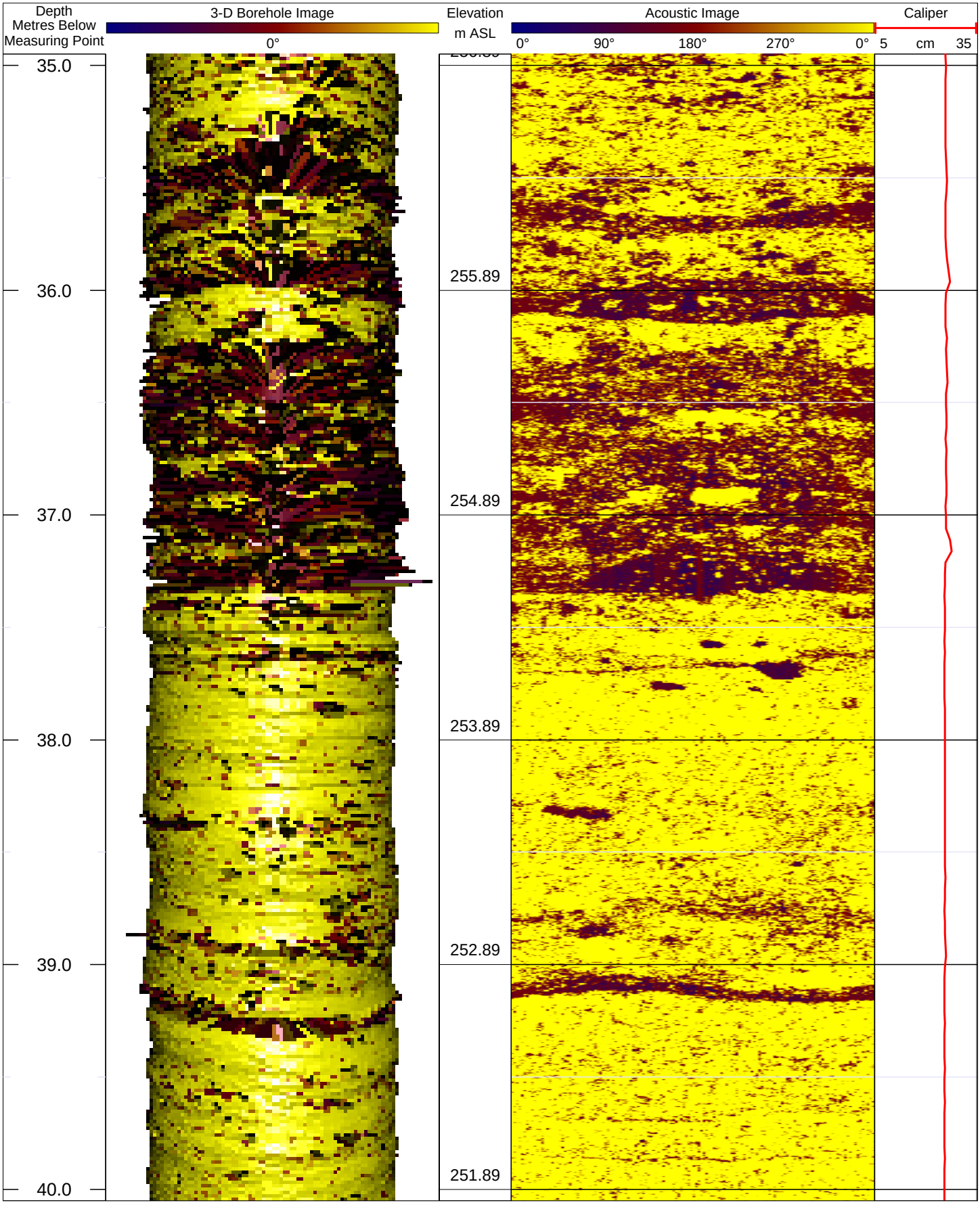
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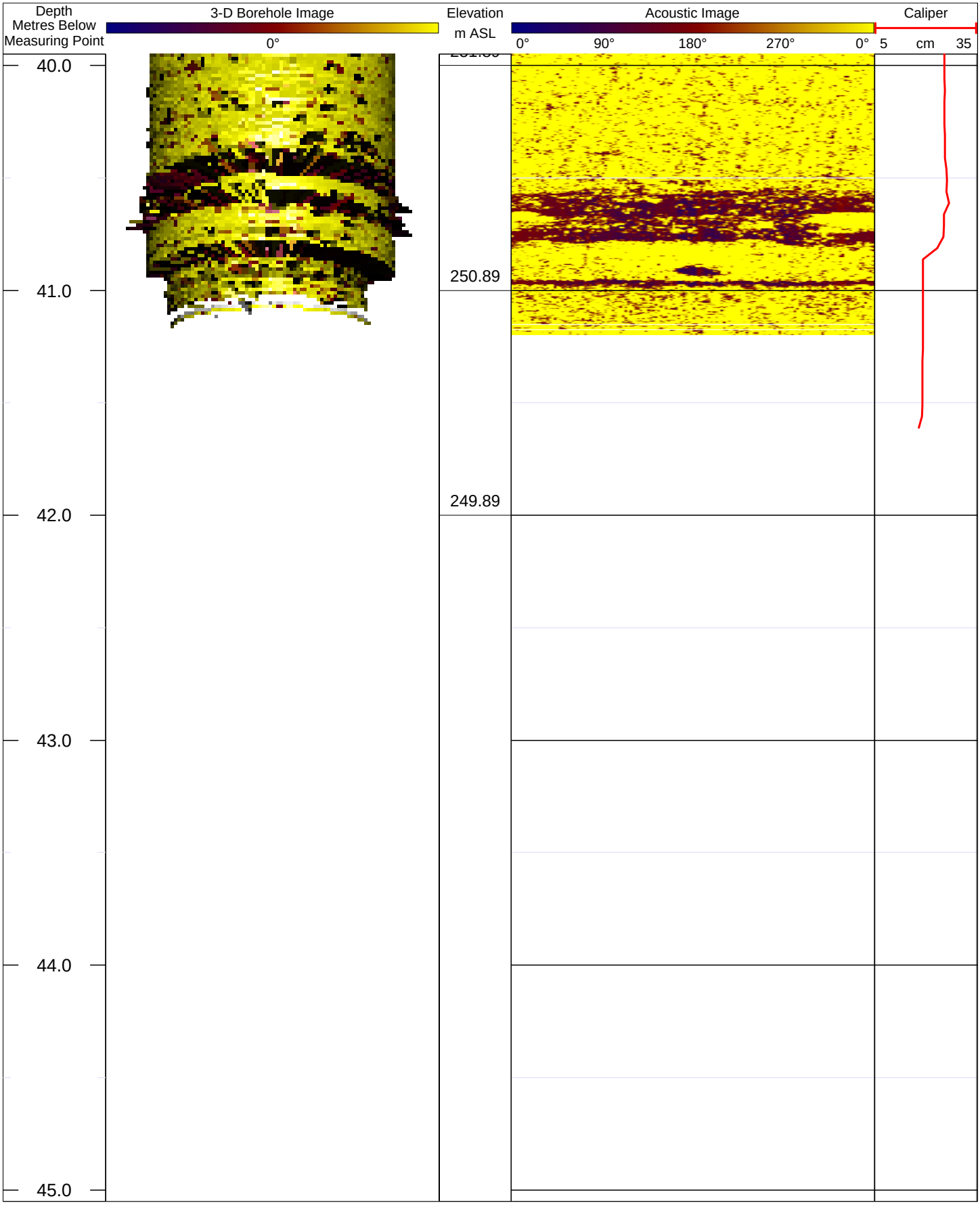
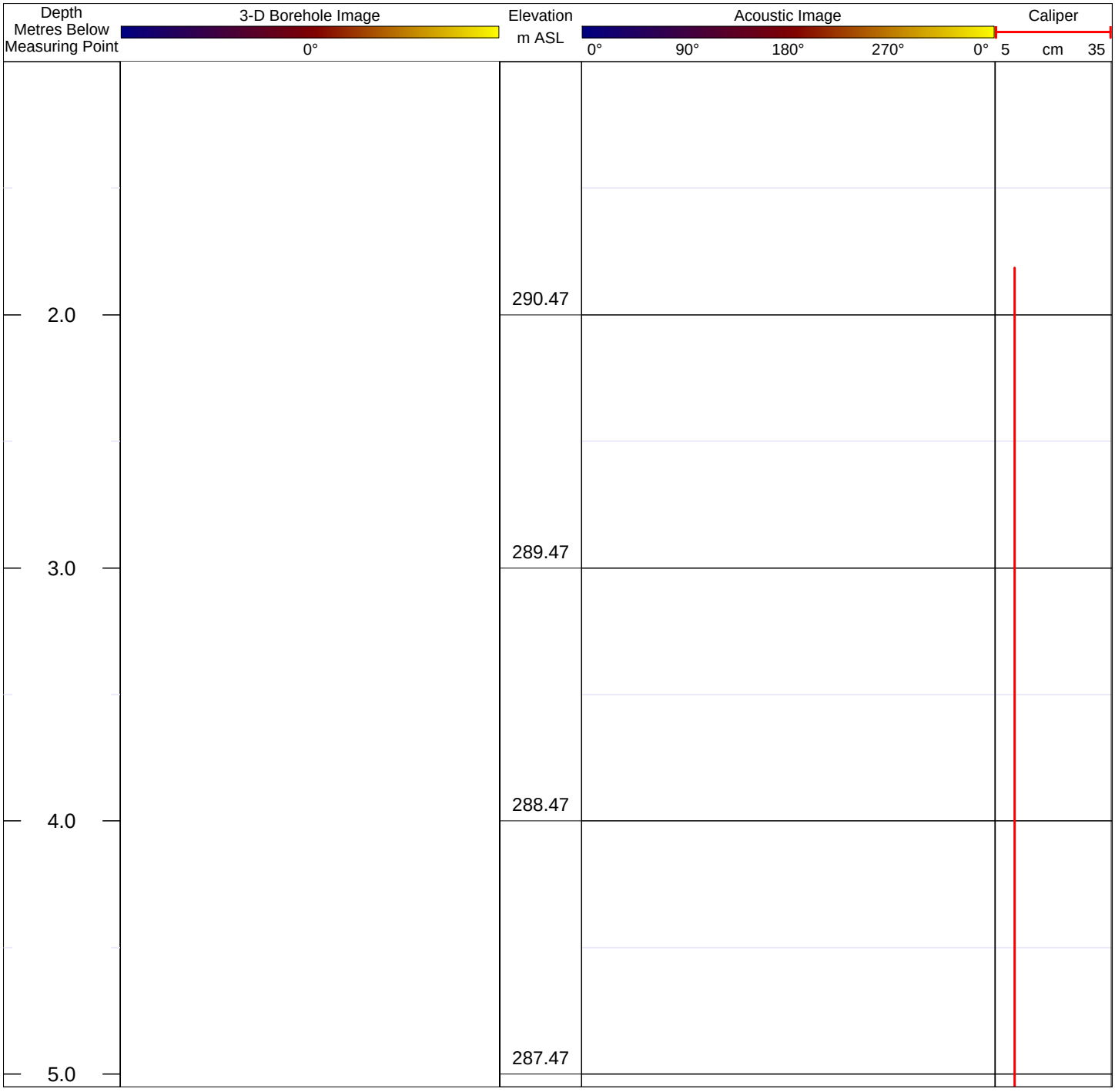


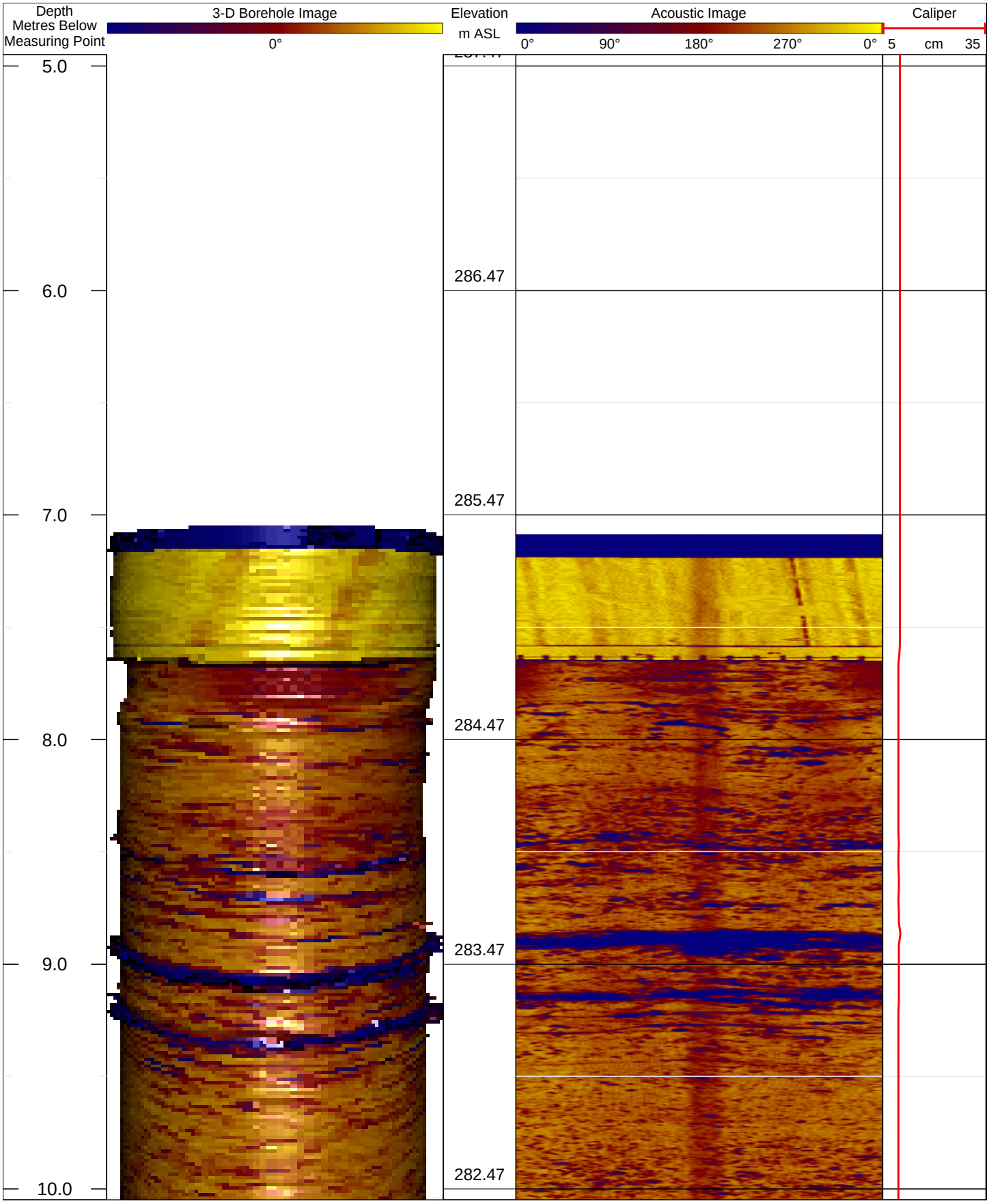
Well Name: MWB12

Figure 4b

Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.58 m ags)
Well Name:	TW14	Measuring Point Elev::	292.47 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	November 02, 2006

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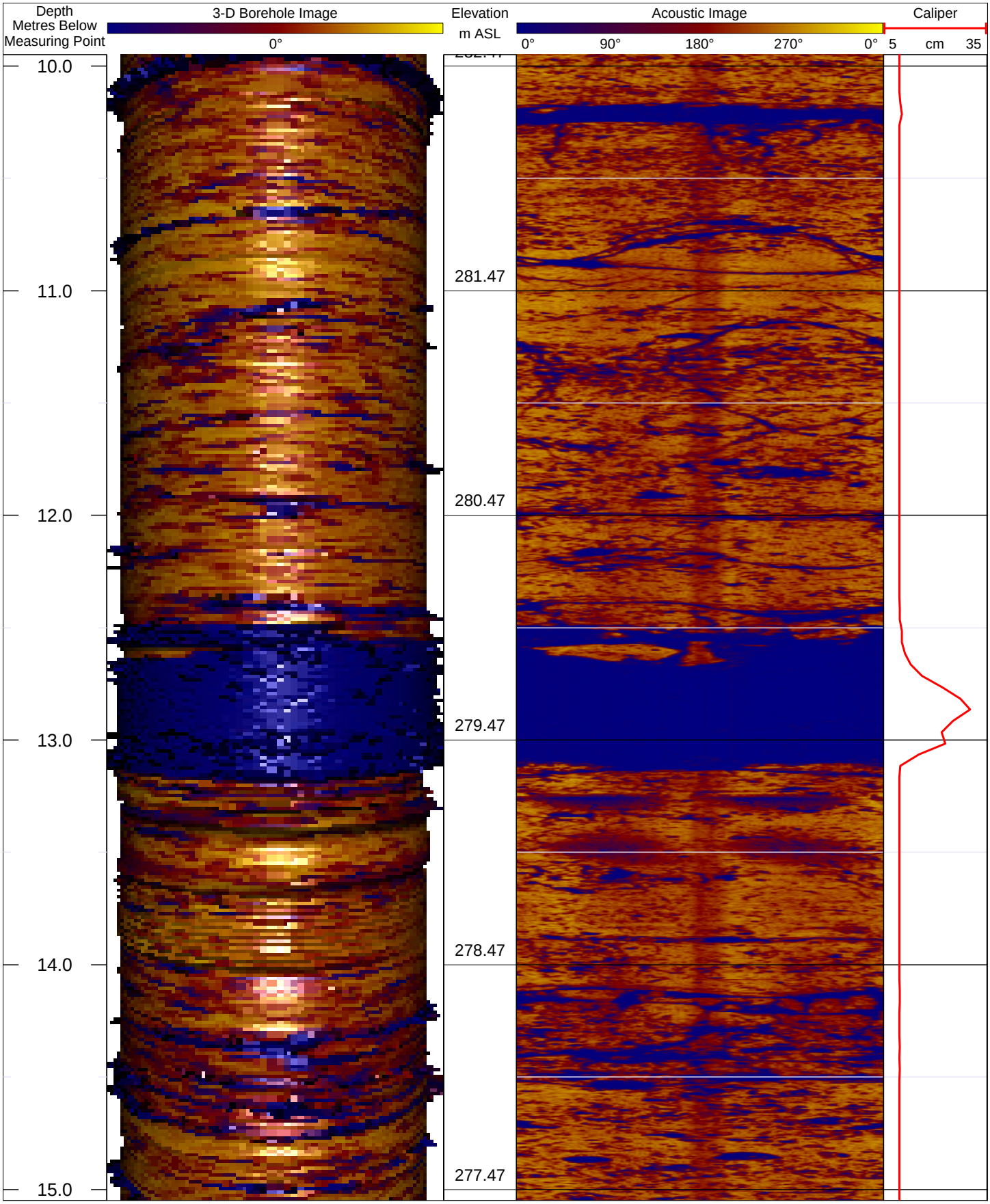
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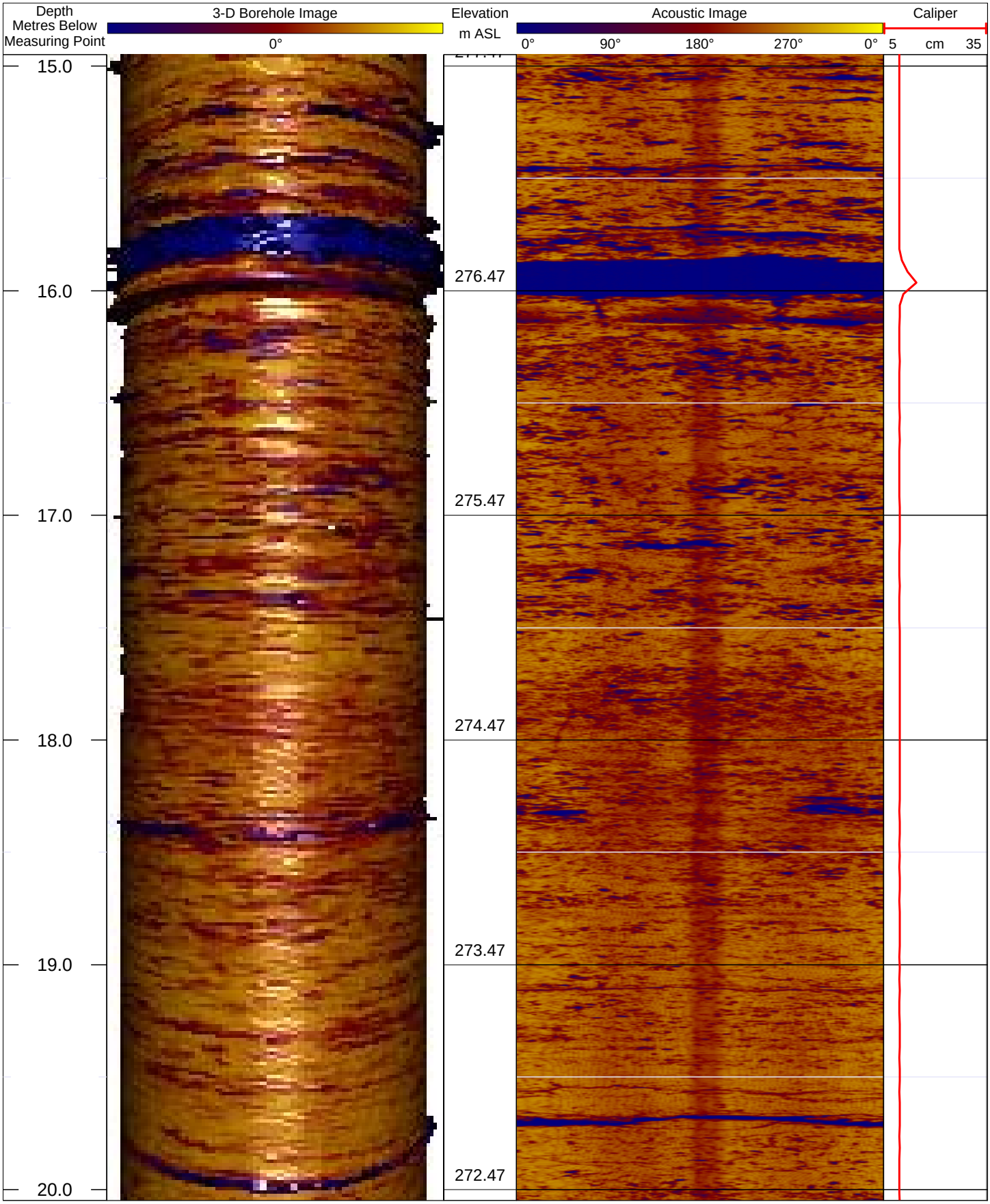
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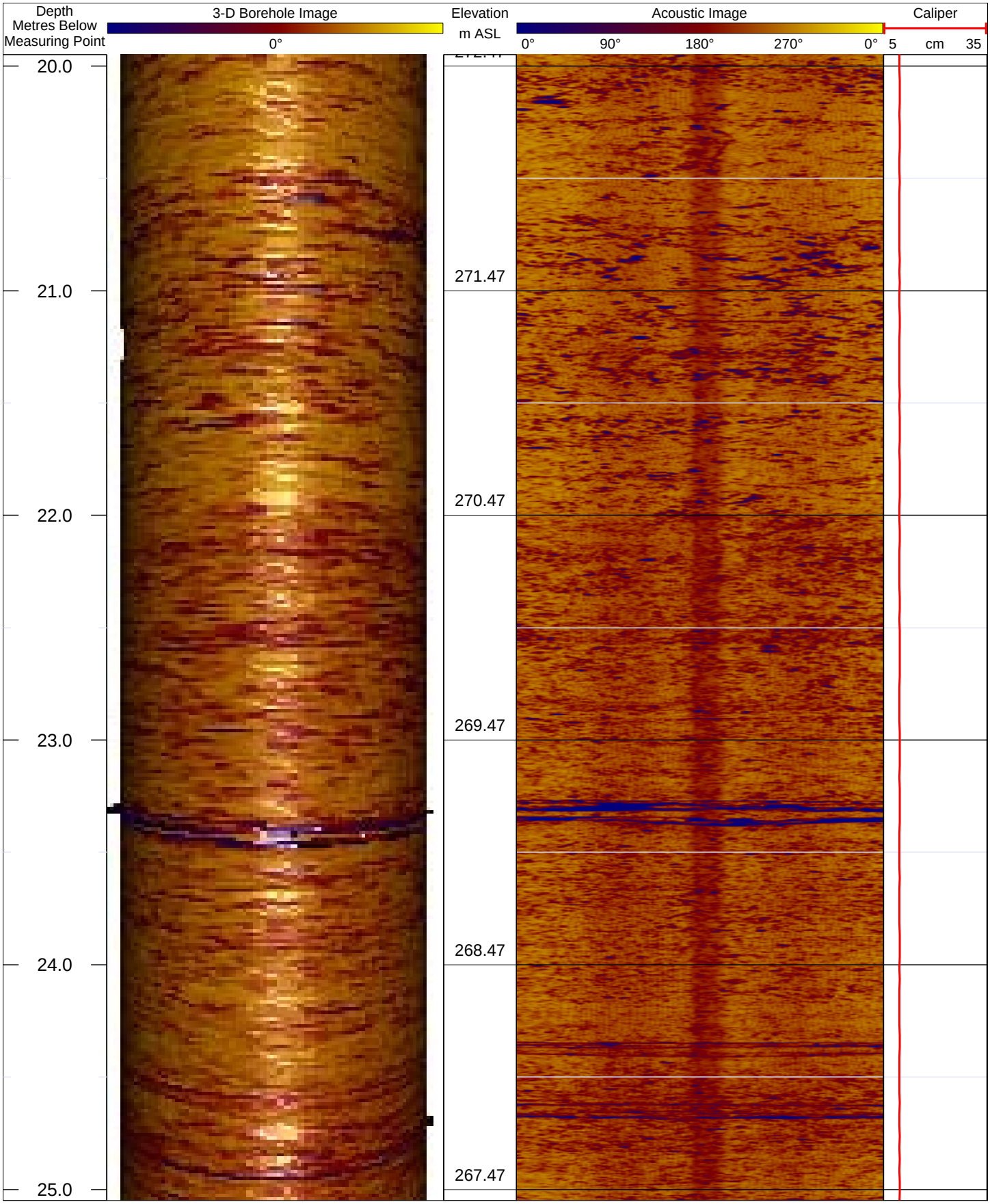
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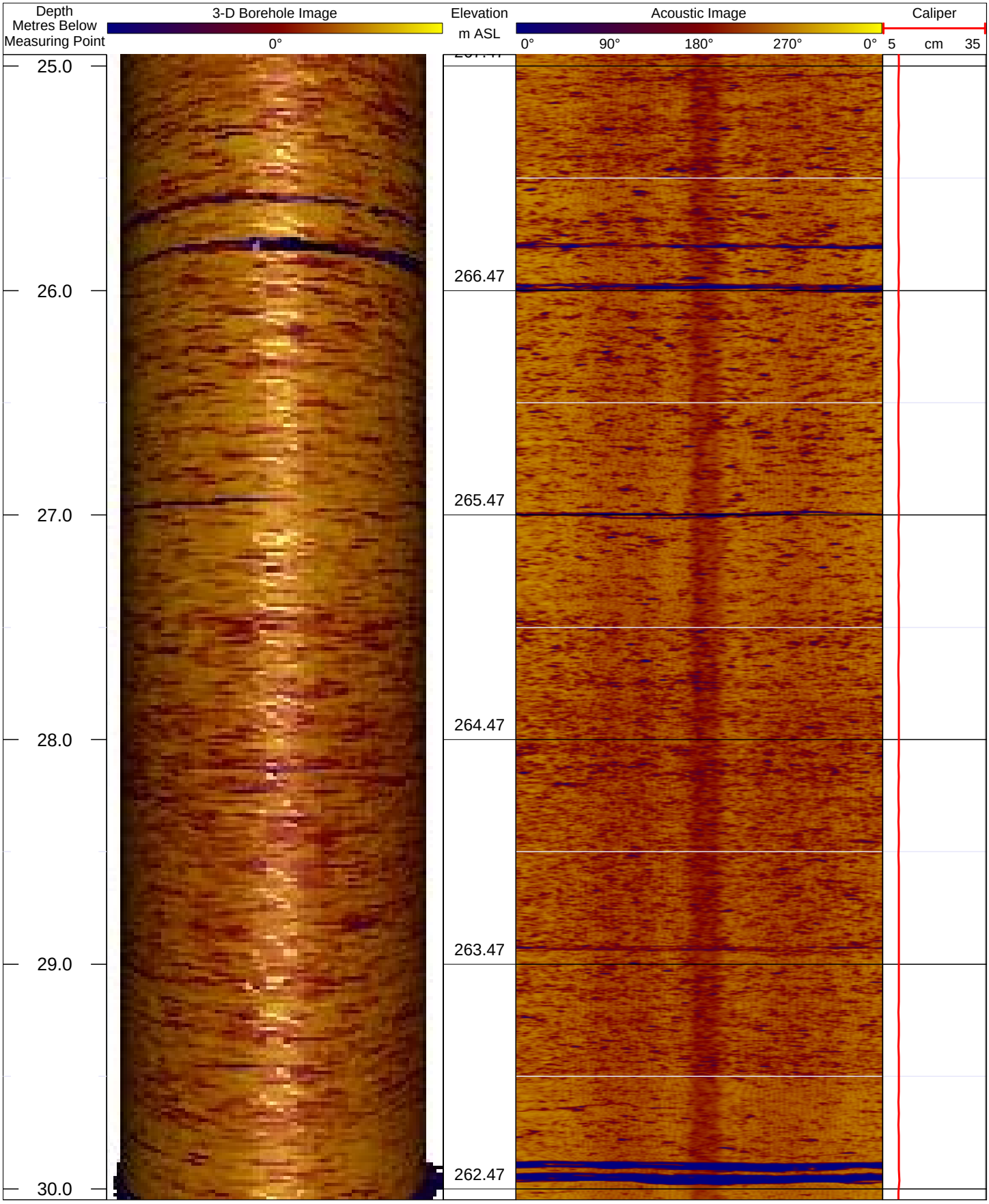
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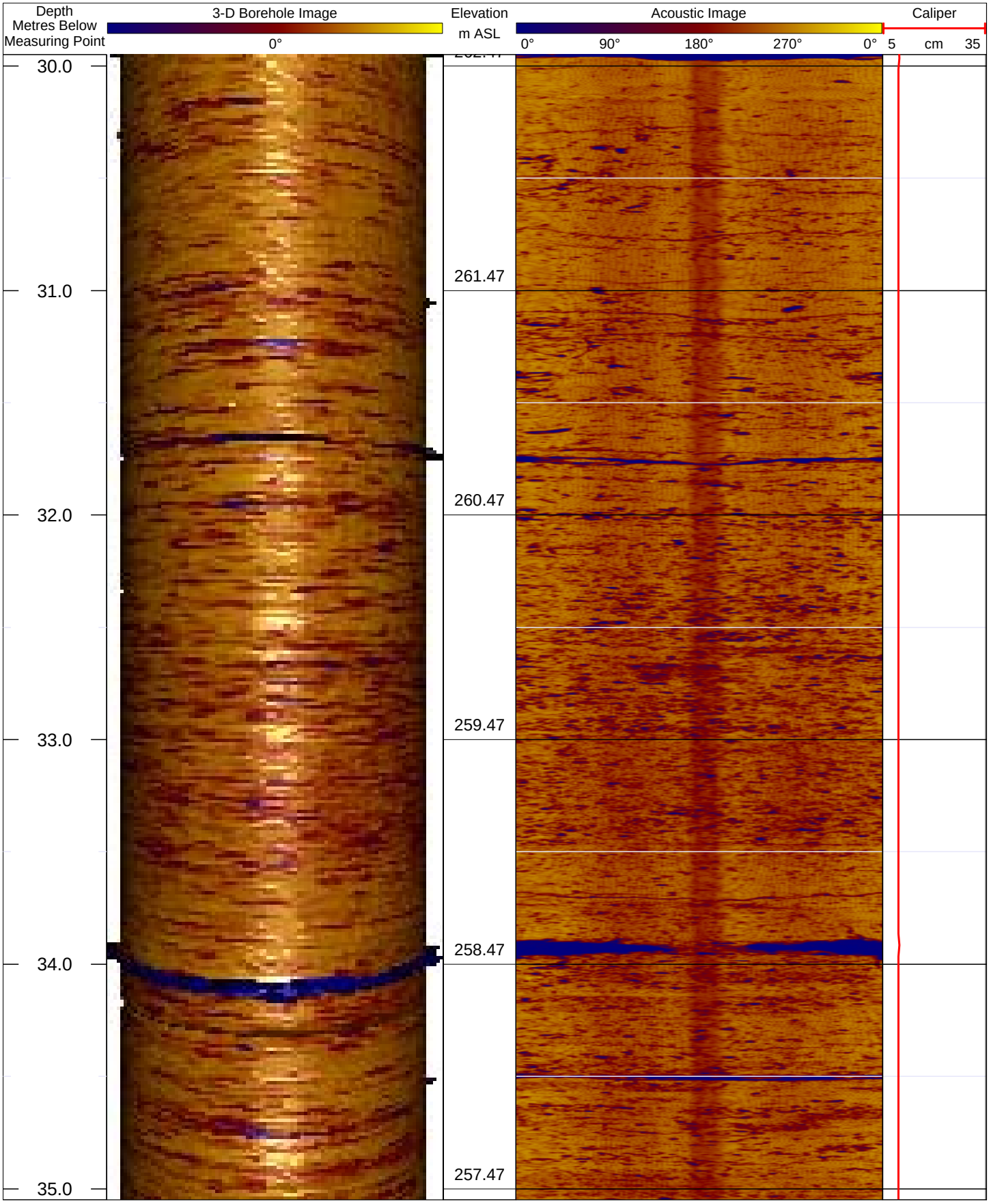
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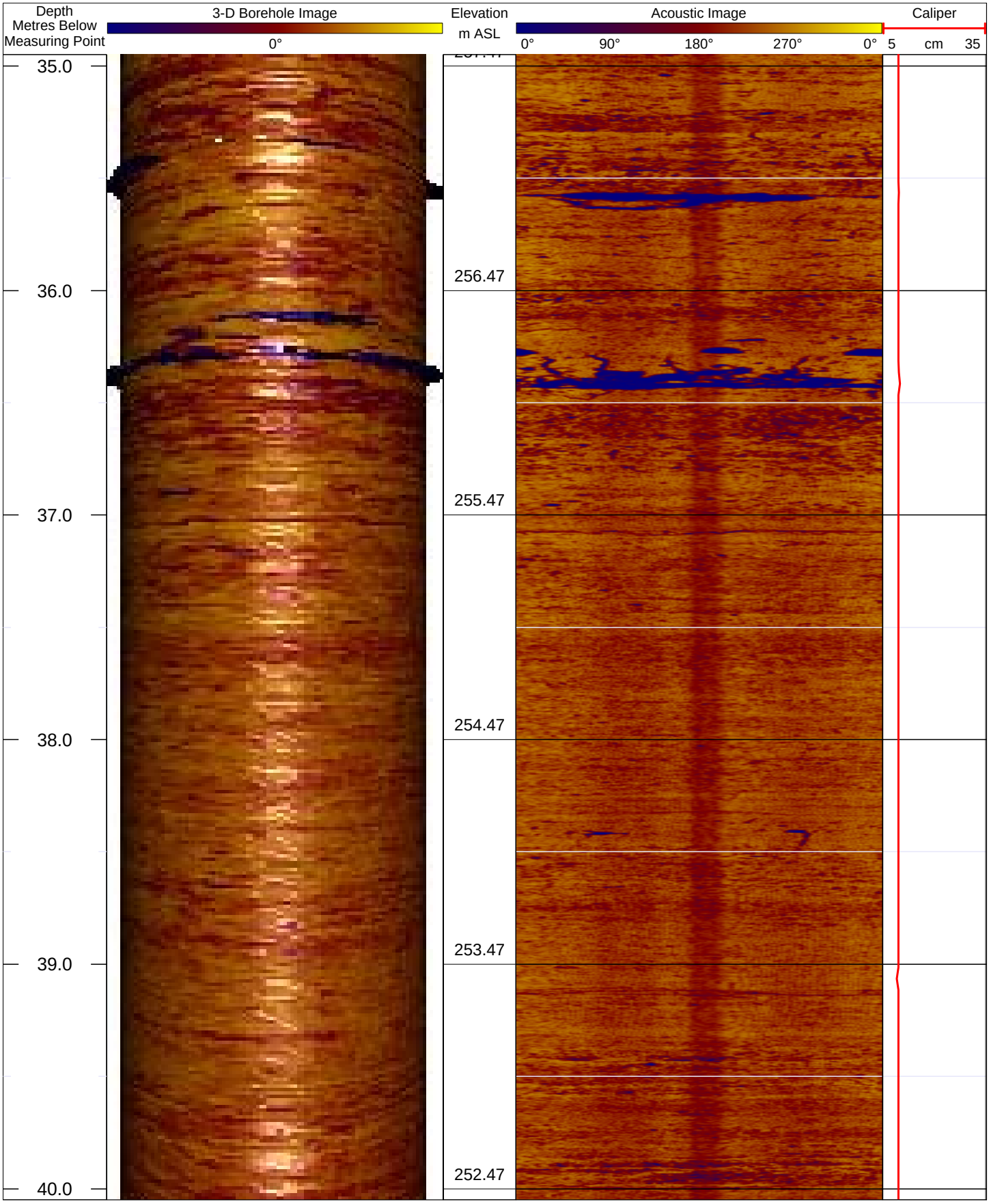
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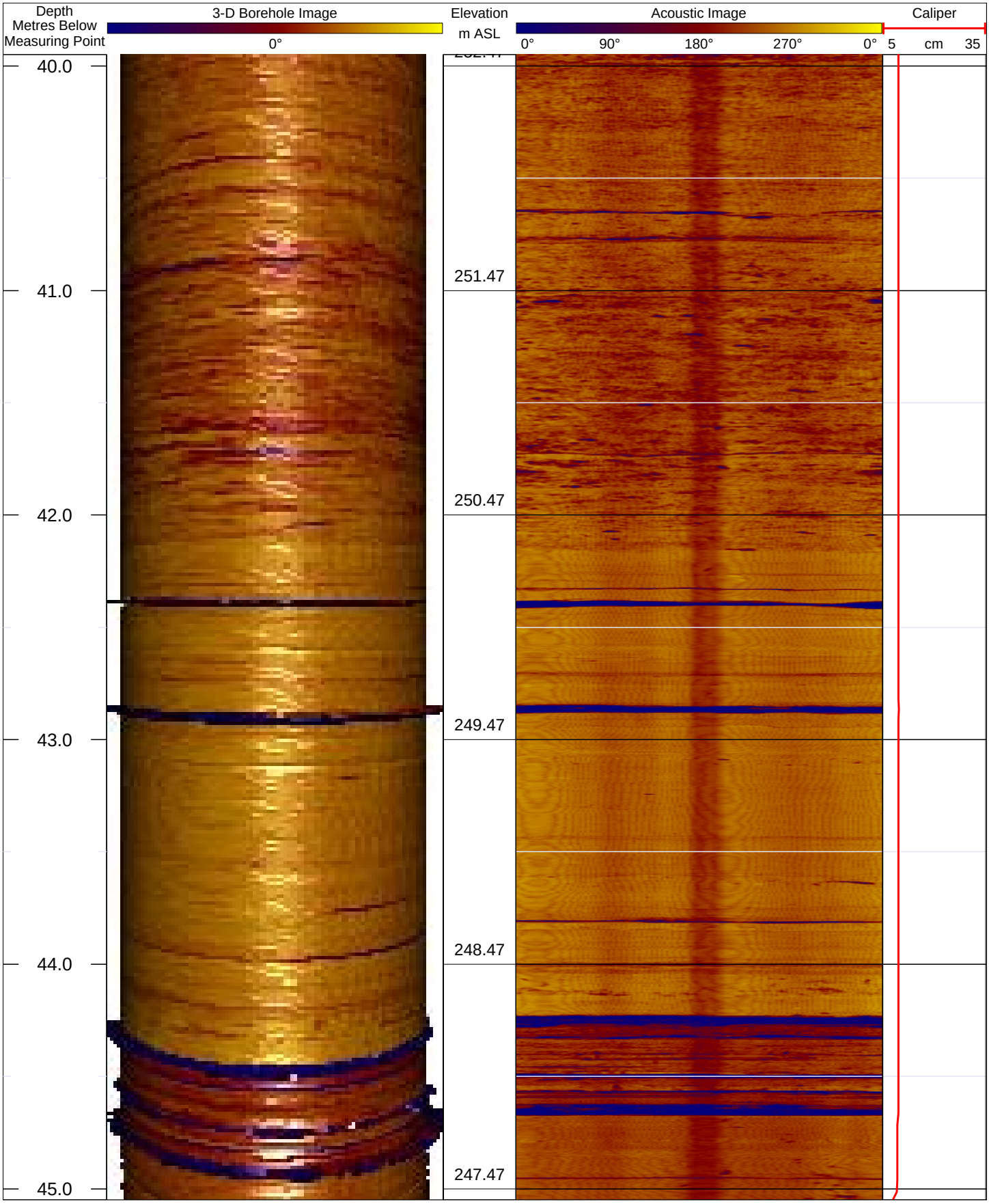
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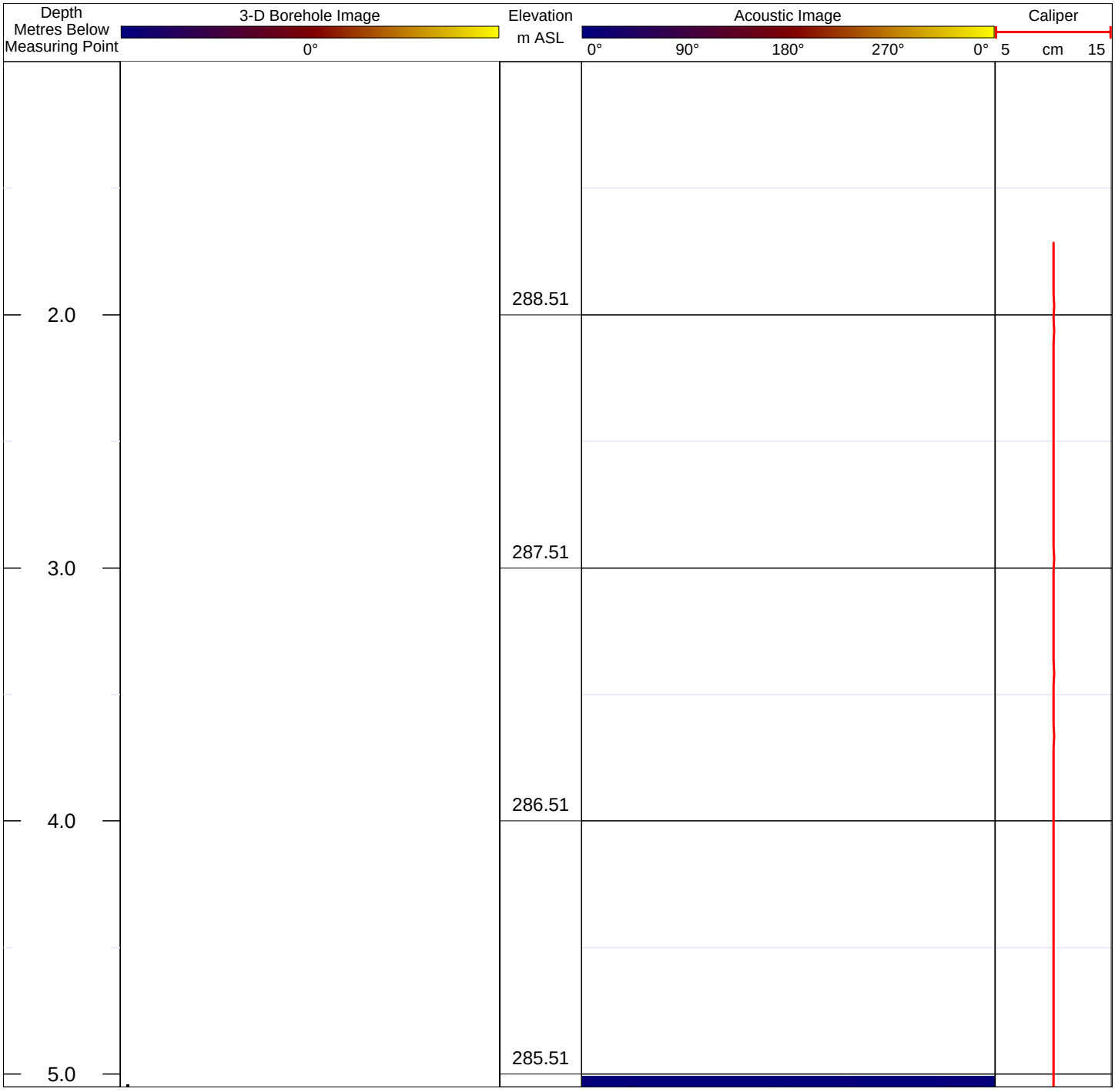
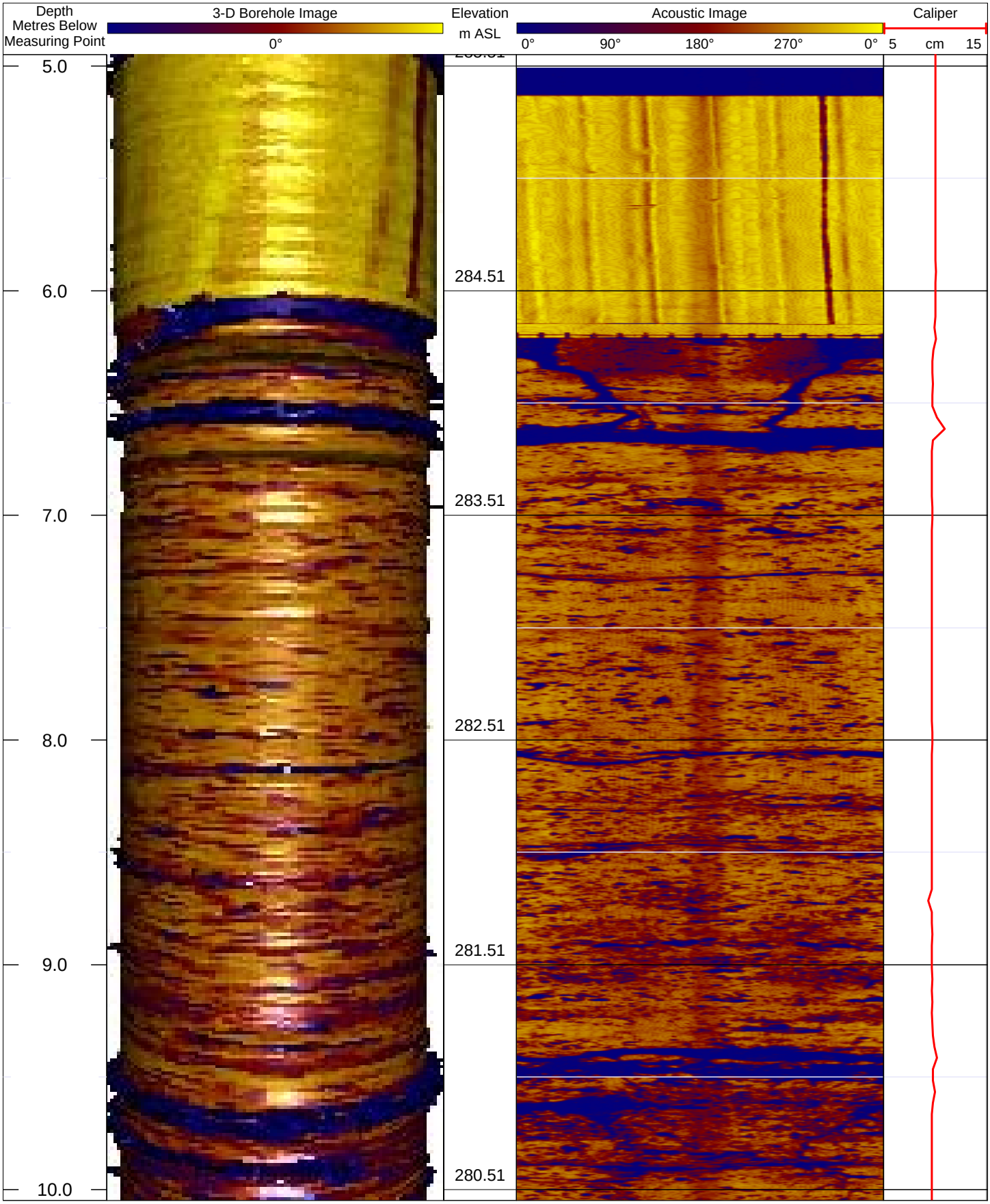
Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.60 m ags)
Well Name:	TW15	Measuring Point Elev:	290.51 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	November 02, 2006

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282.51
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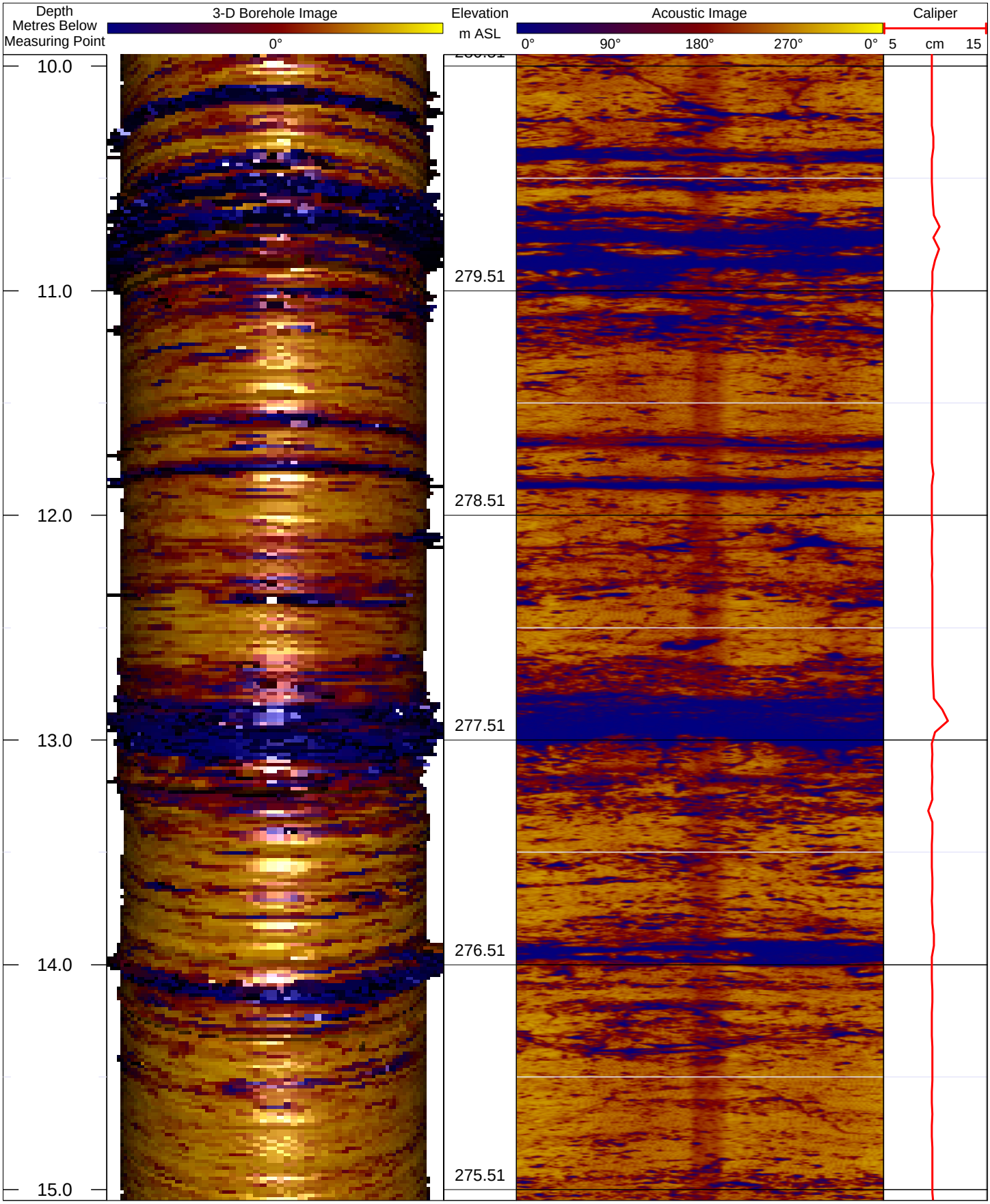
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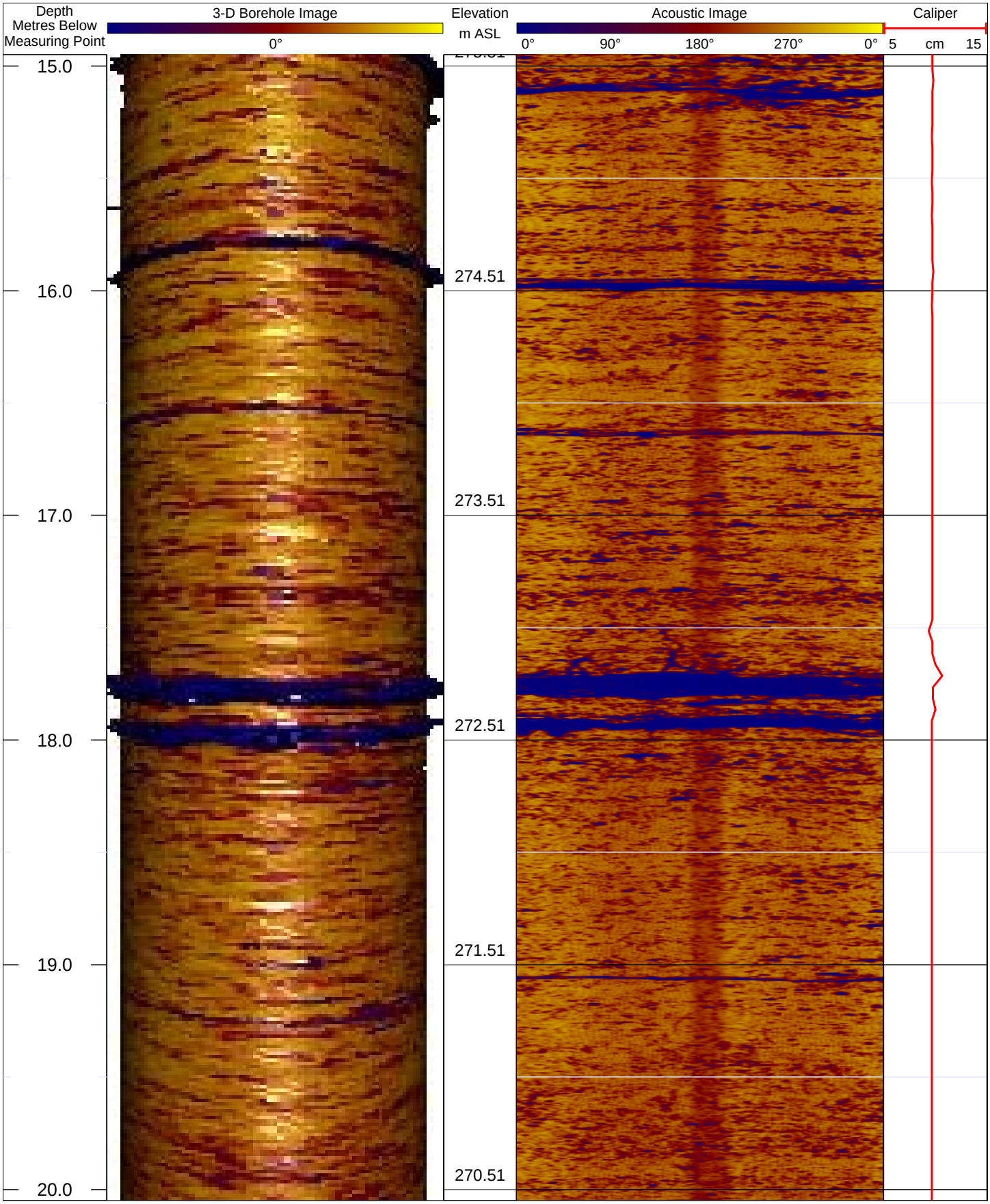
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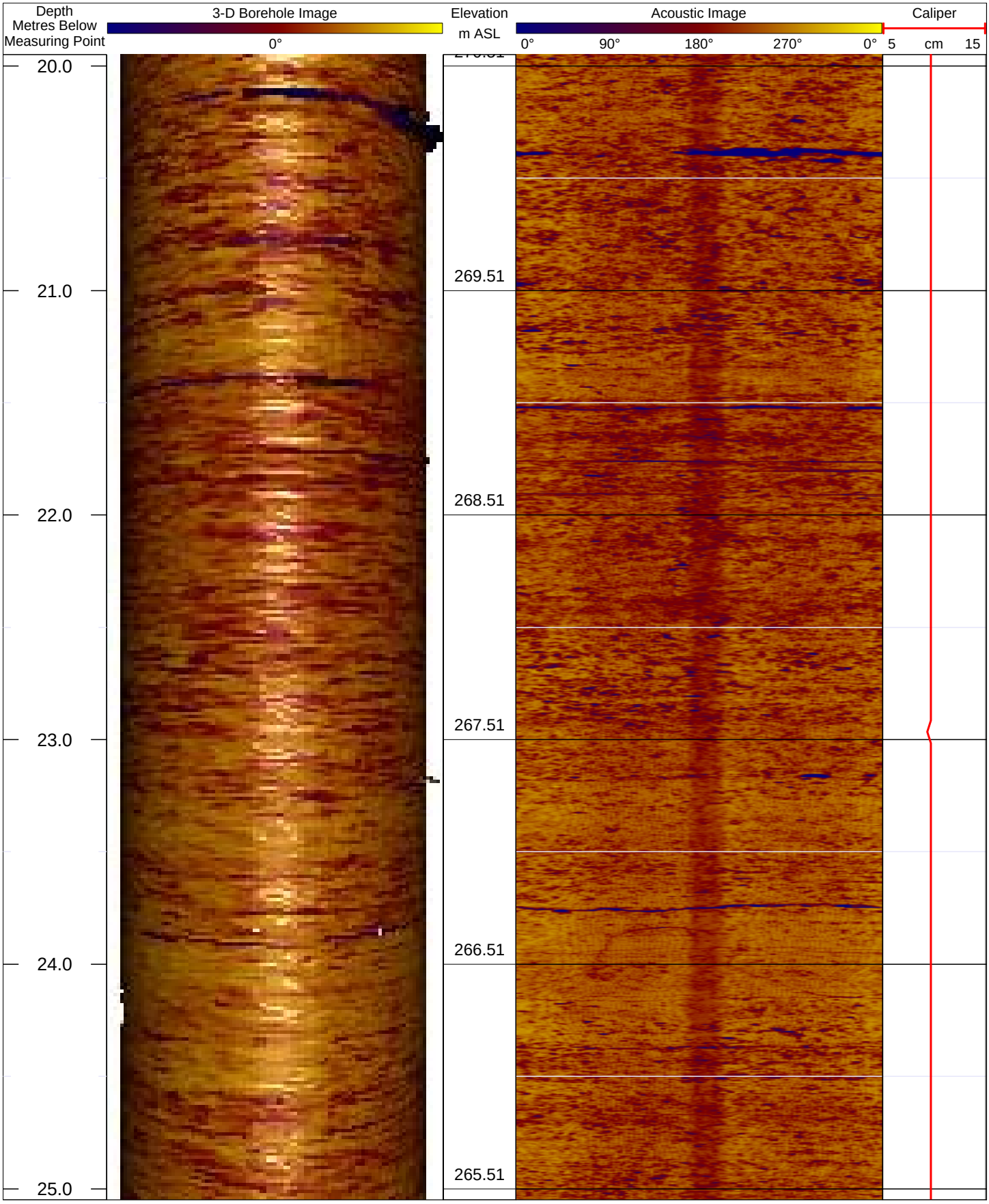
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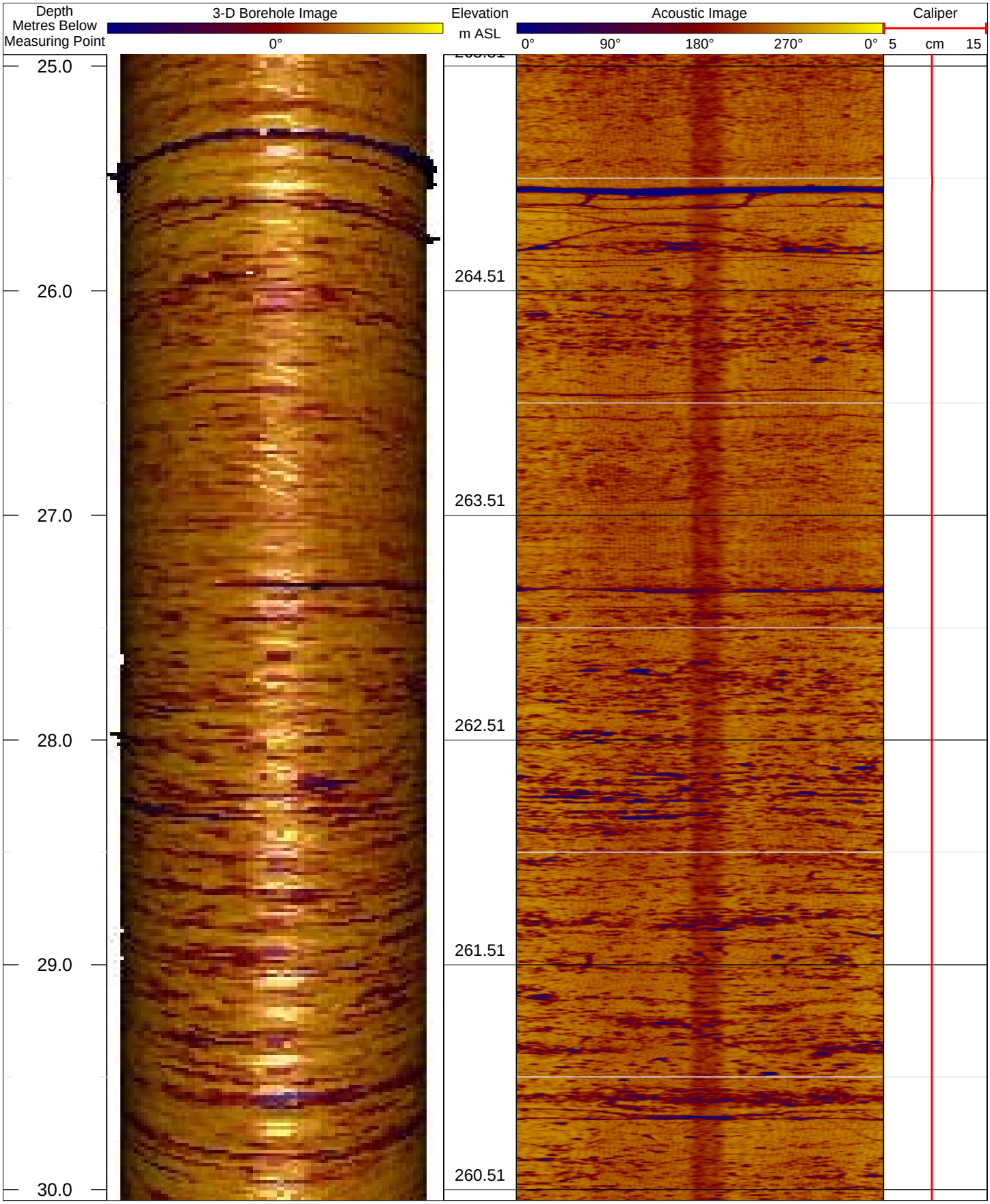
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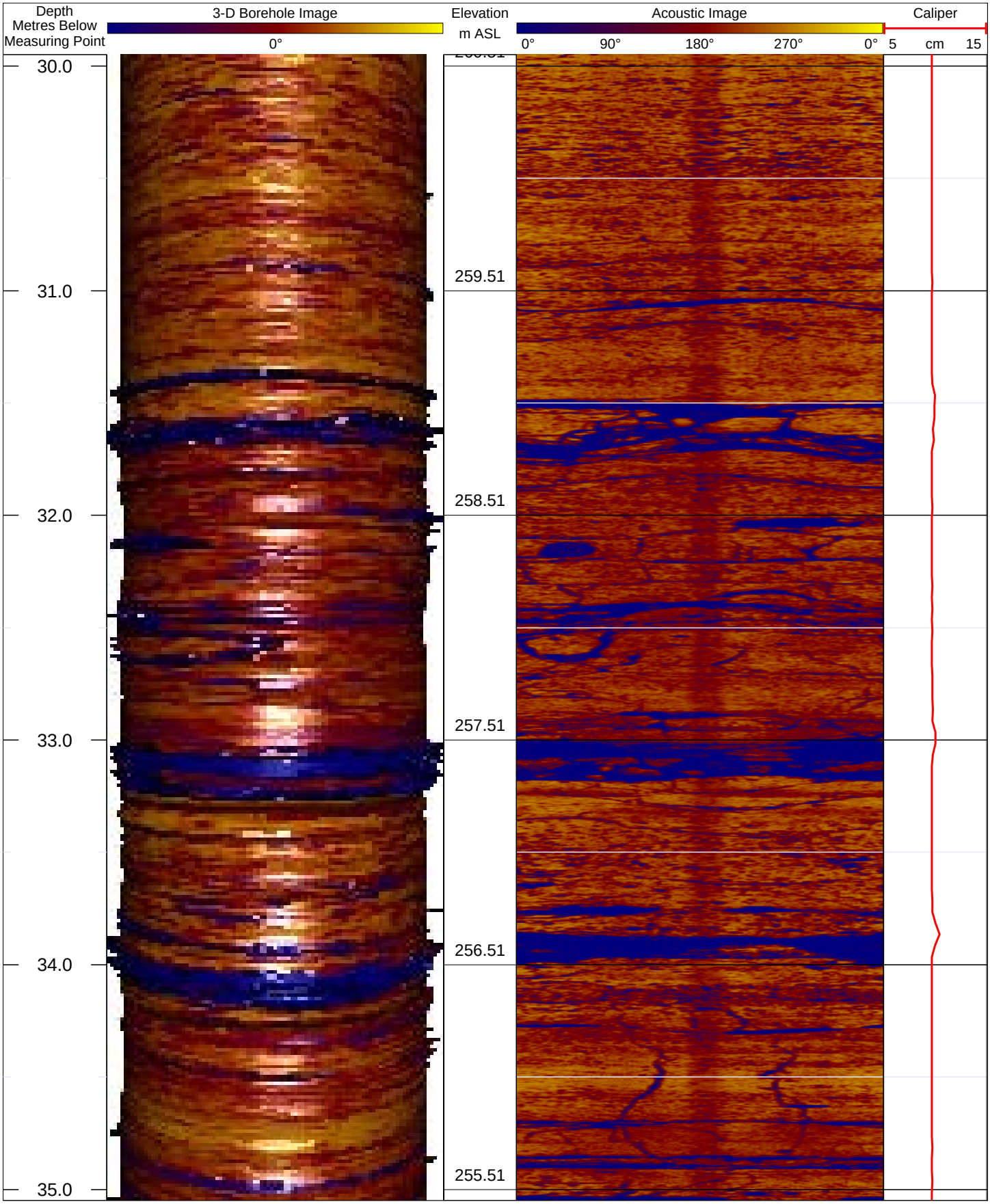
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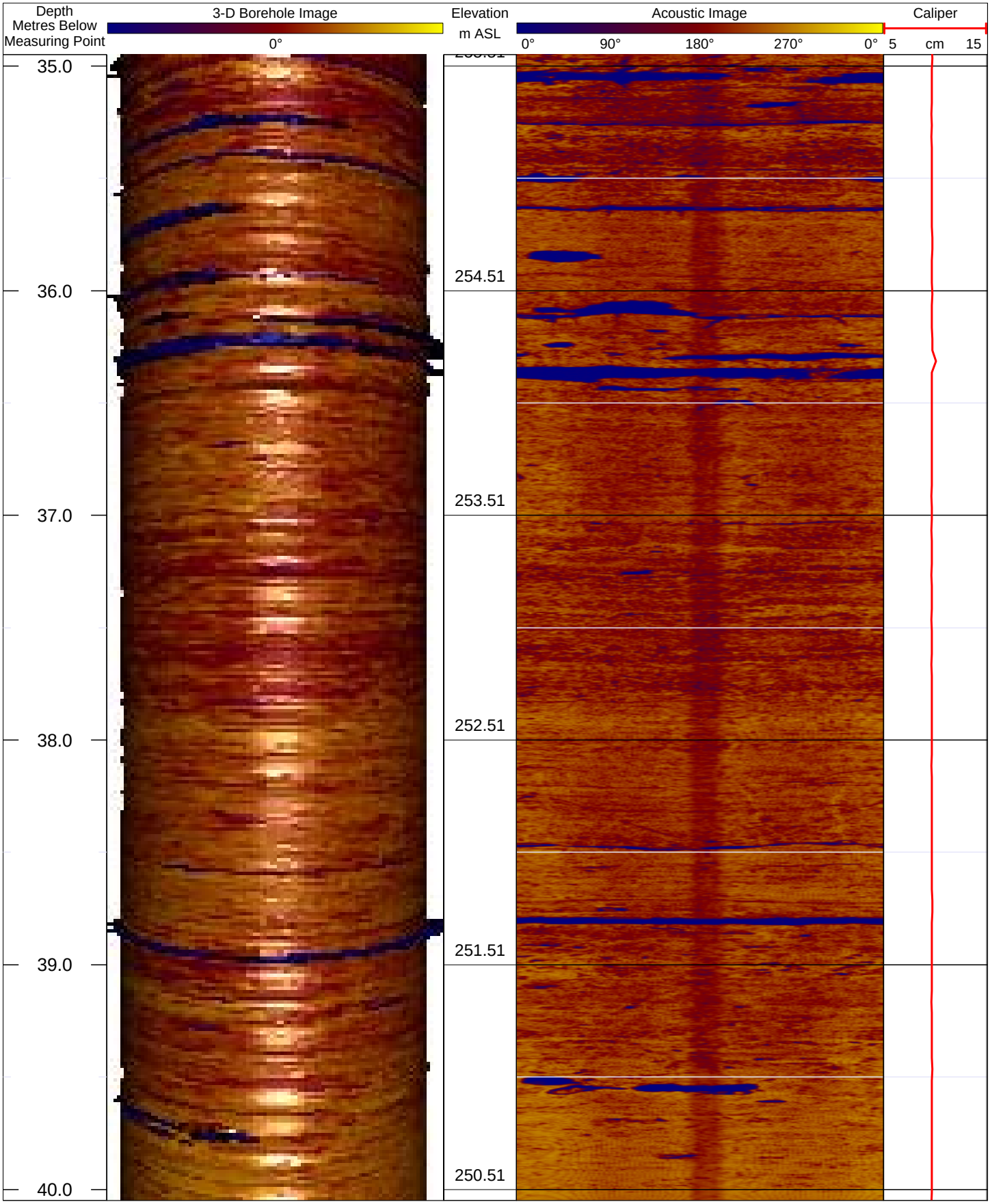
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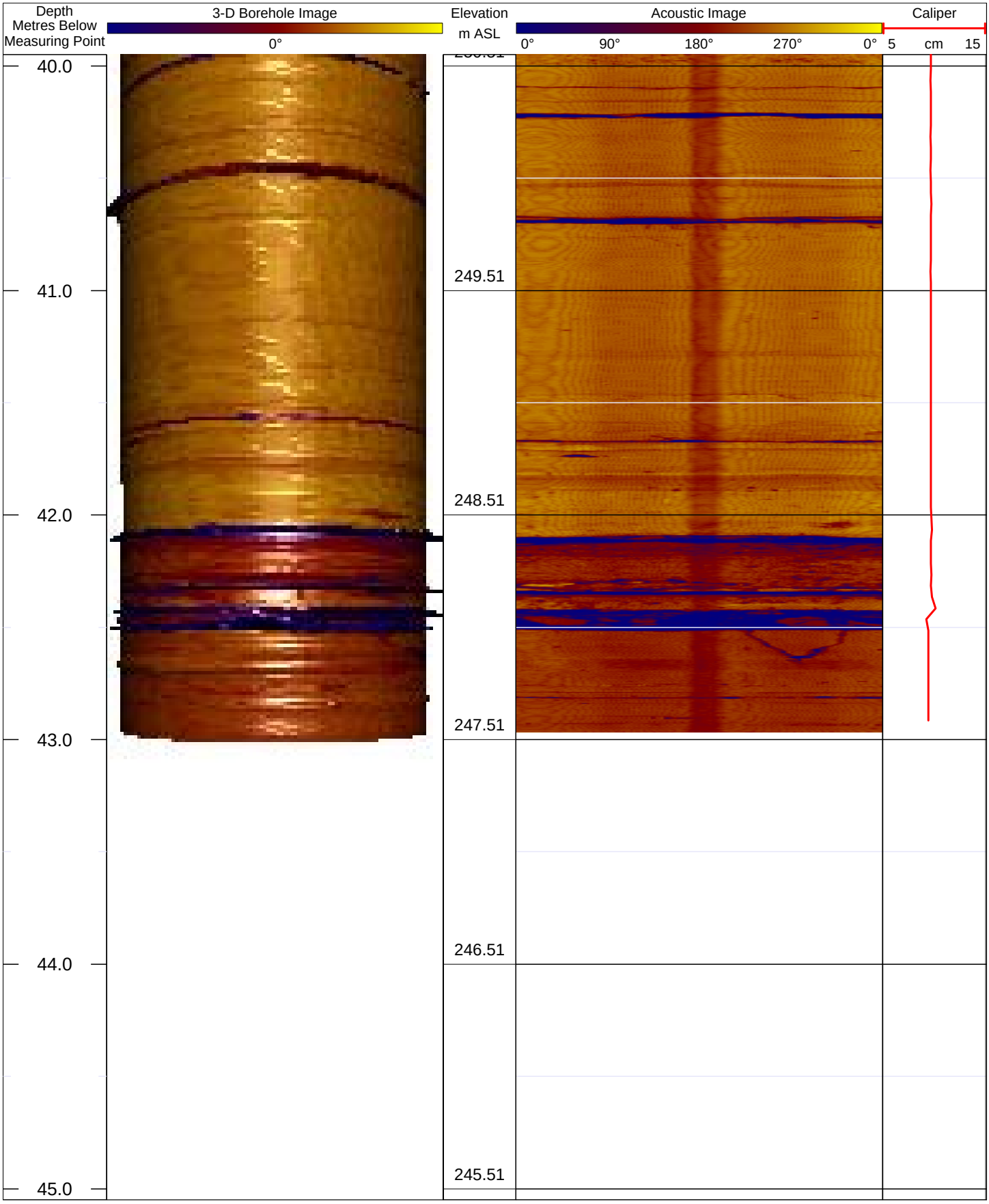
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Acoustic Image
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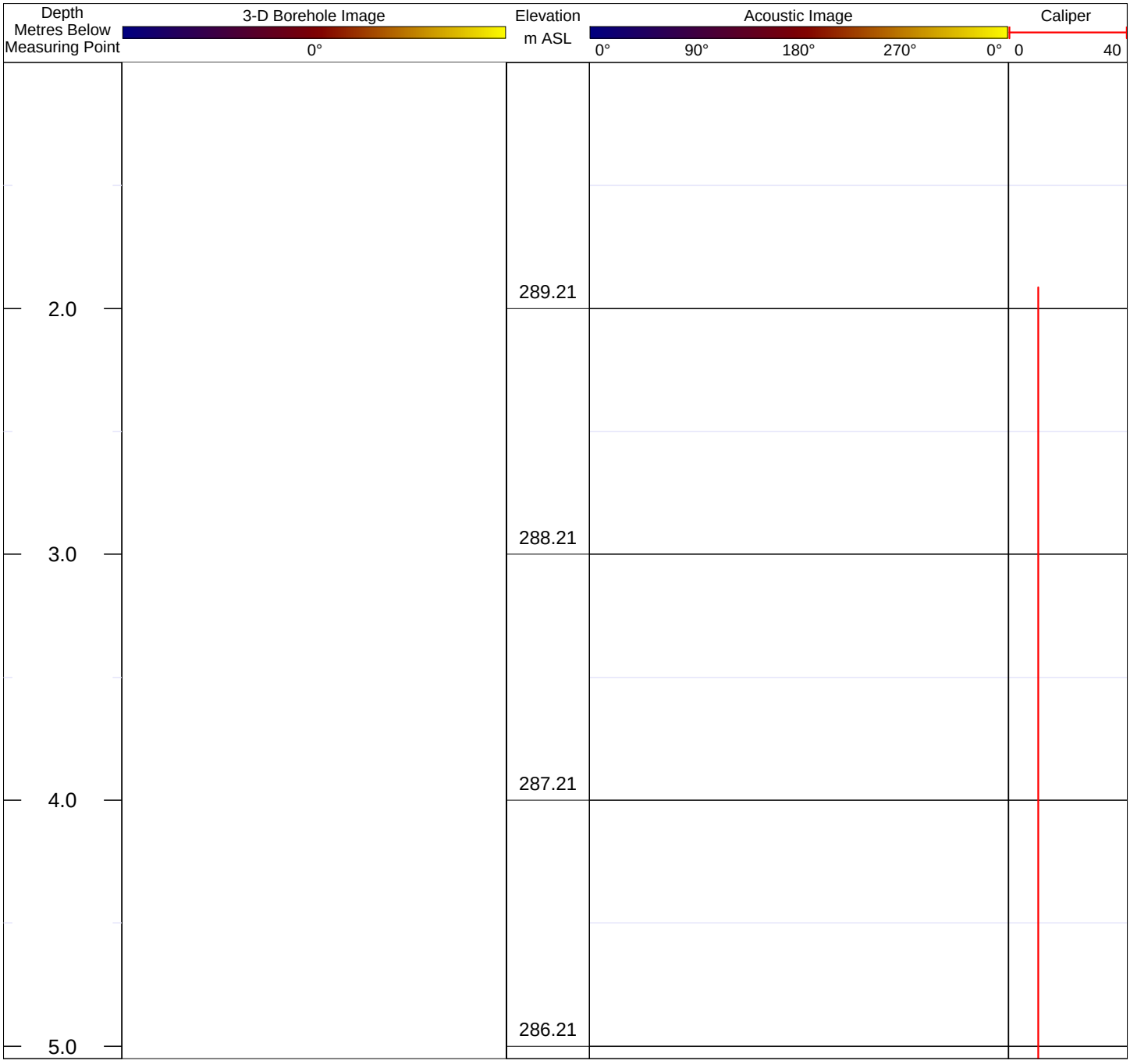
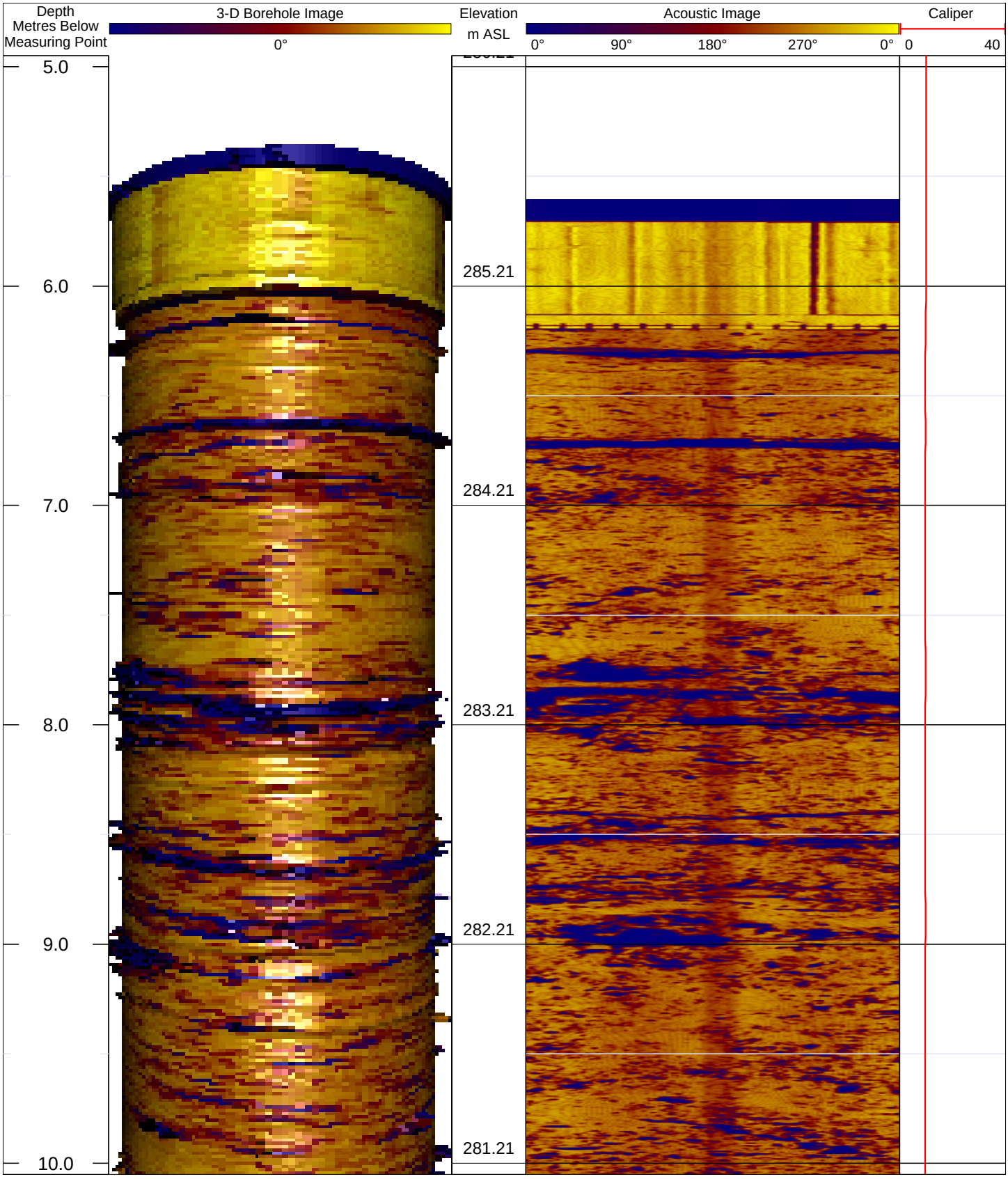
44.0
45.0
249.51
248.51
247.51
246.51
245.51

Lotowater
TECHNICAL SERVICES INC.

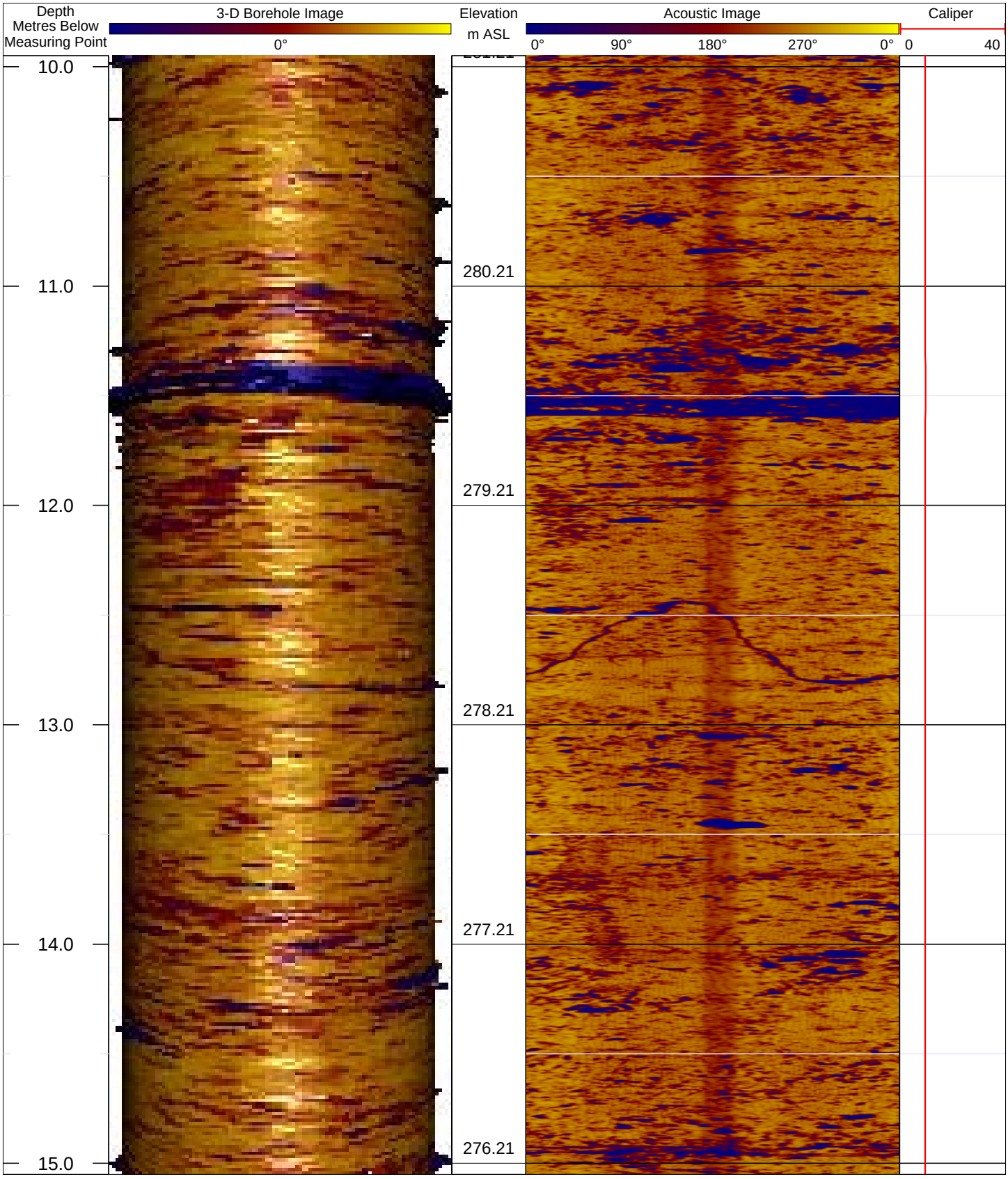
Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.63 m ags)
Well Name:	MWB24-II (MW3)	Measuring Point Elev:	291.21 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	November 02, 2006





Well Name: MWB24-II

Figure 4e


Depth
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Elevation
m ASL
Acoustic Image
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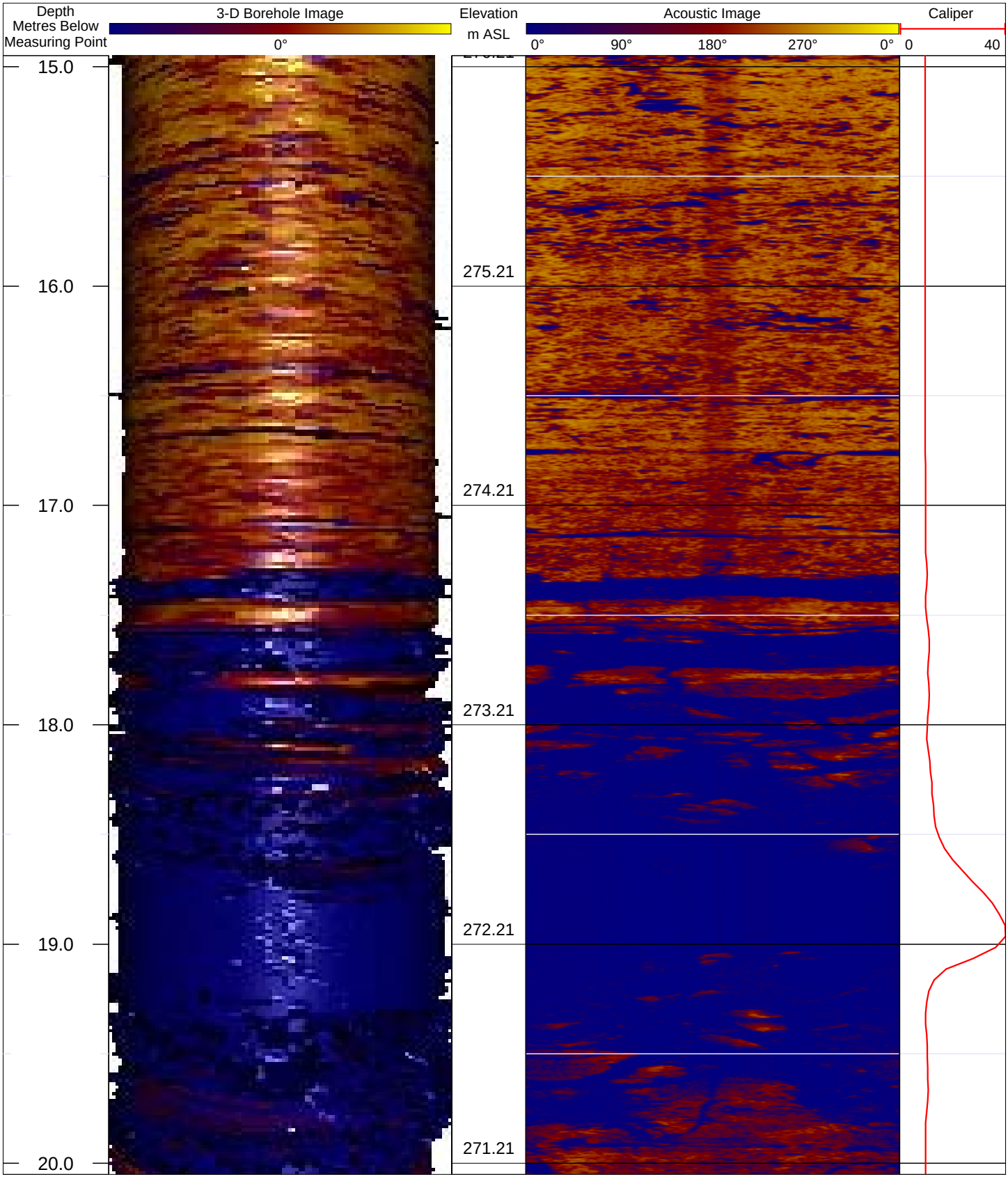
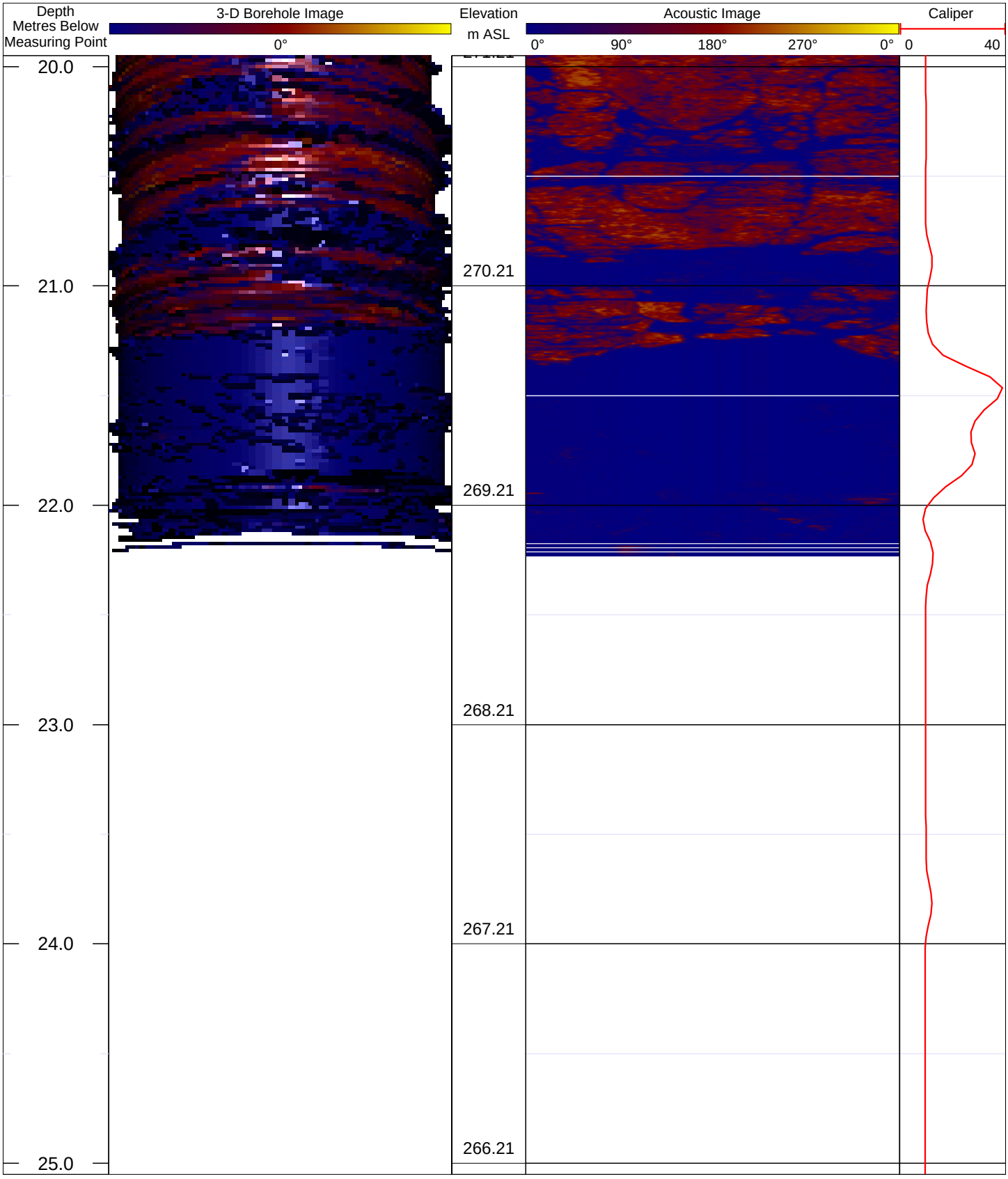


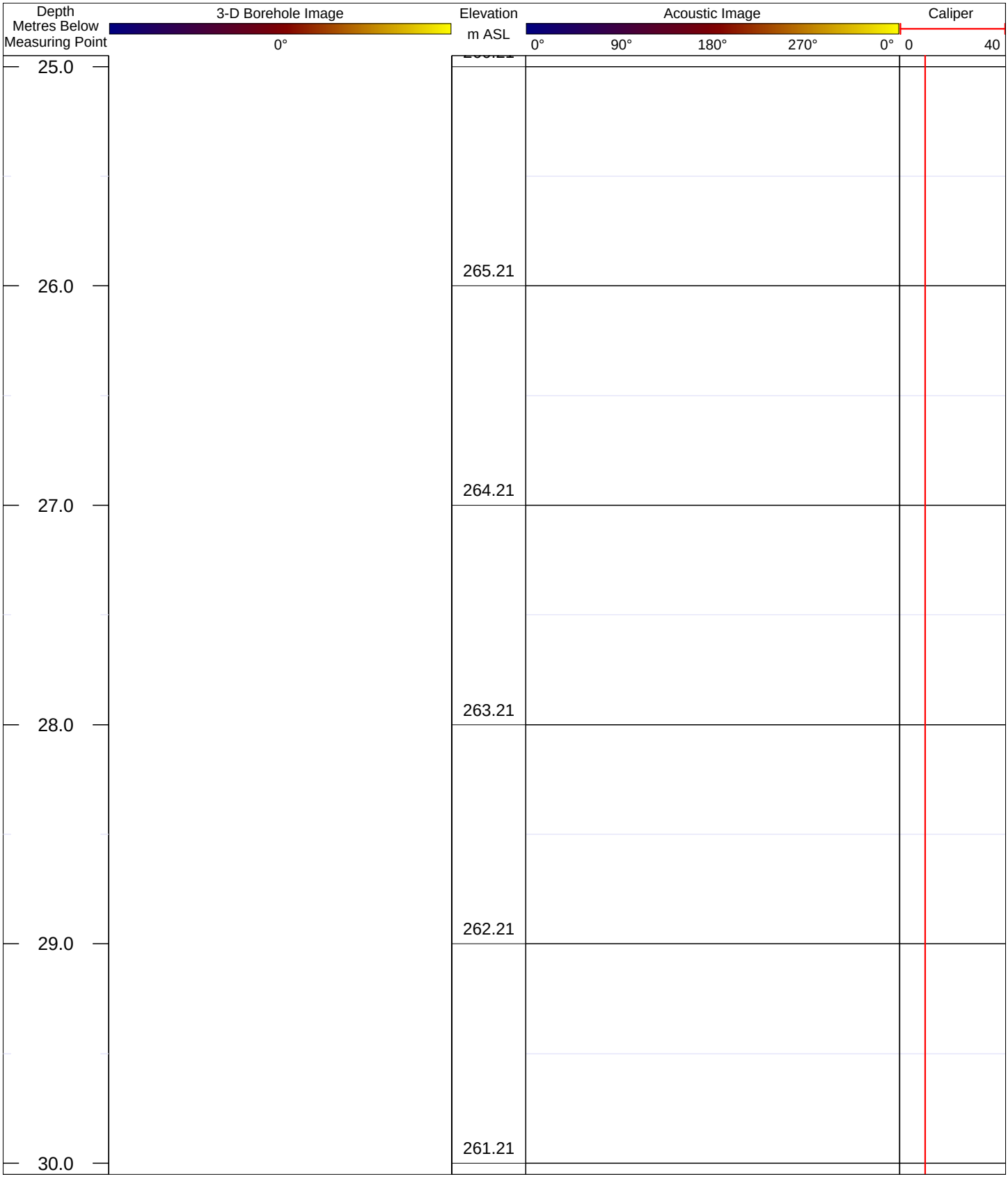
Well Name: MWB24-II

Figure 4e



Well Name: MWB24-II

Figure 4e


Depth
Metres Below
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Elevation
m ASL
Acoustic Image
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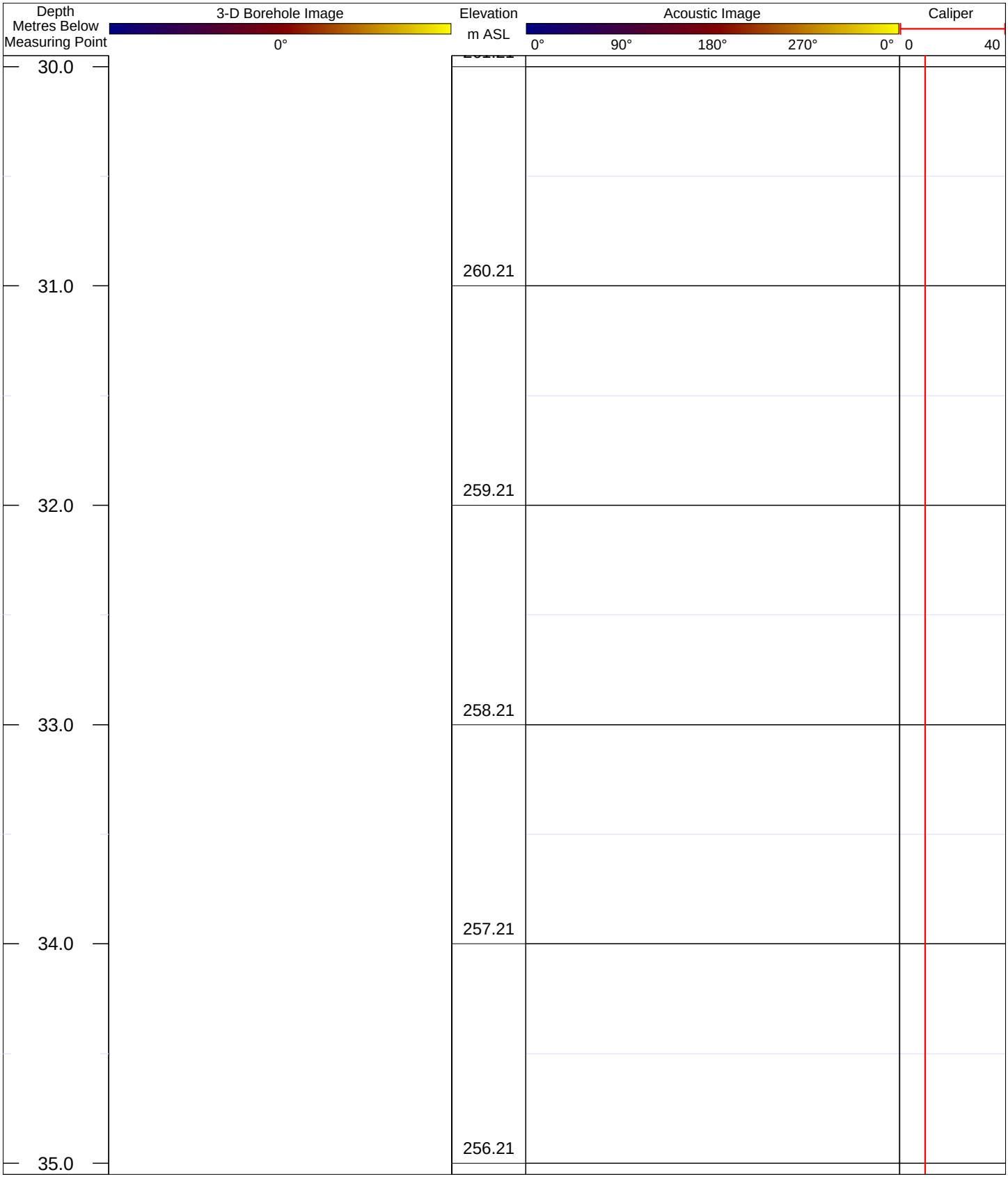
261.21


Depth
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Measuring Point
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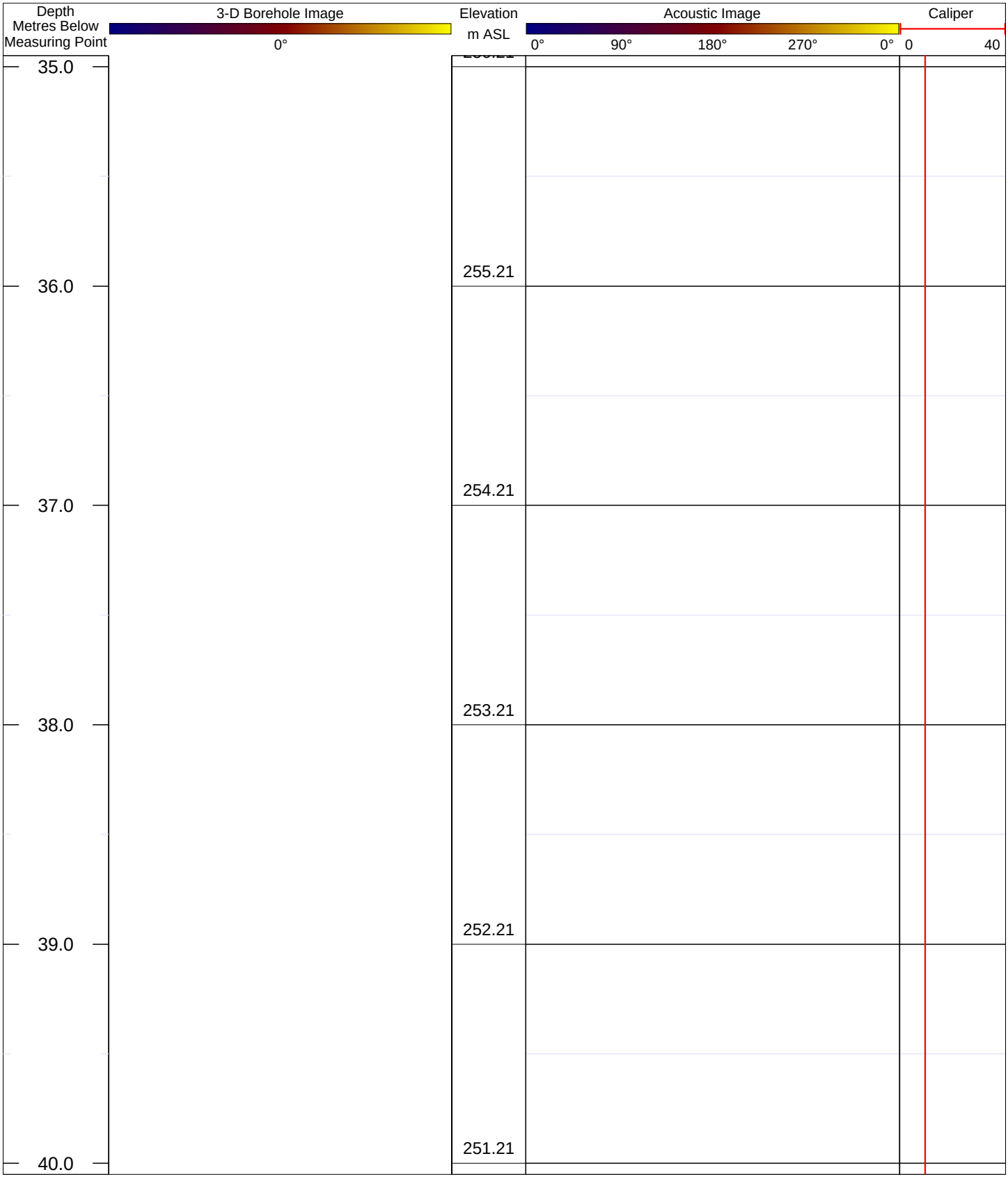
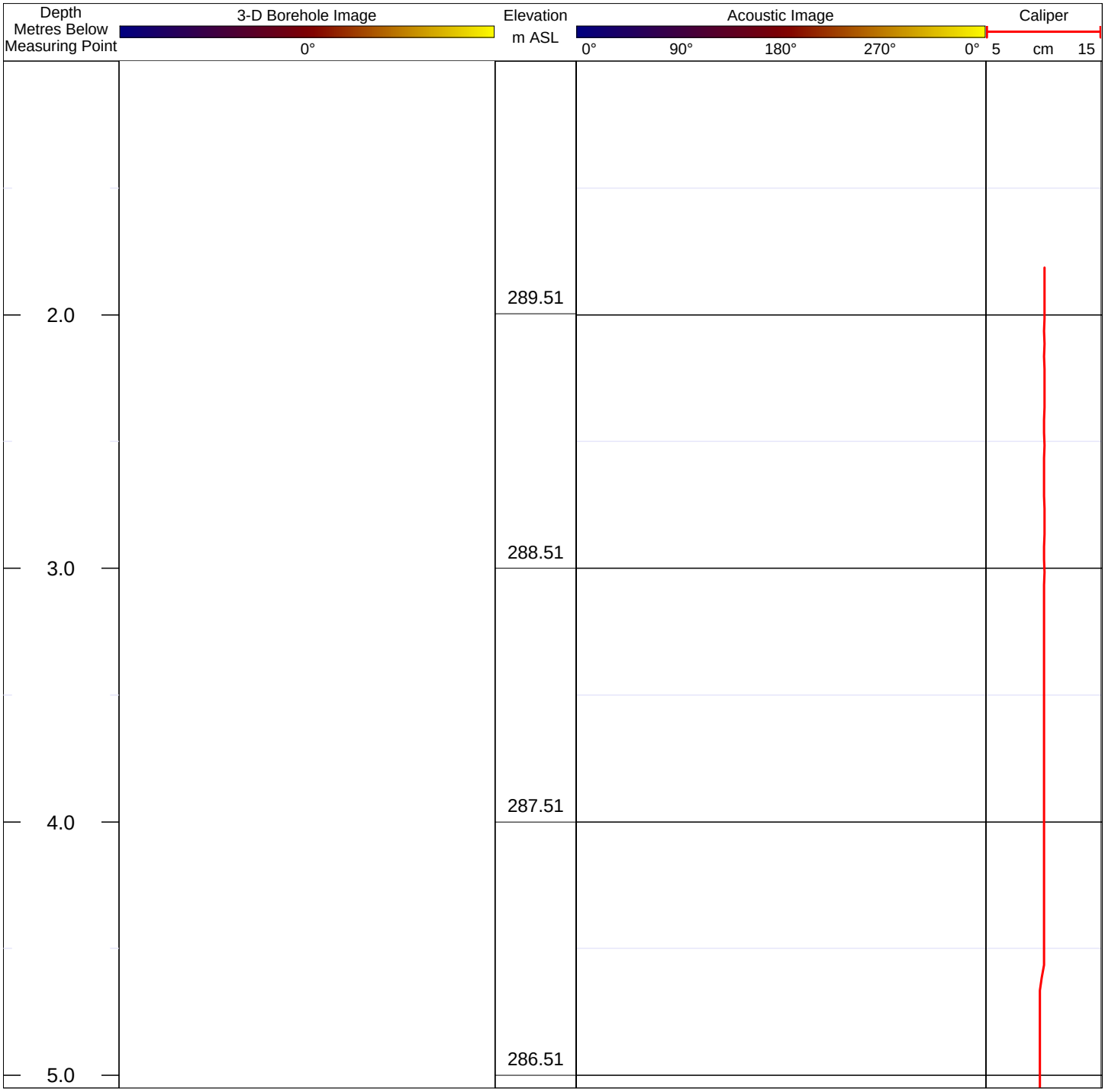


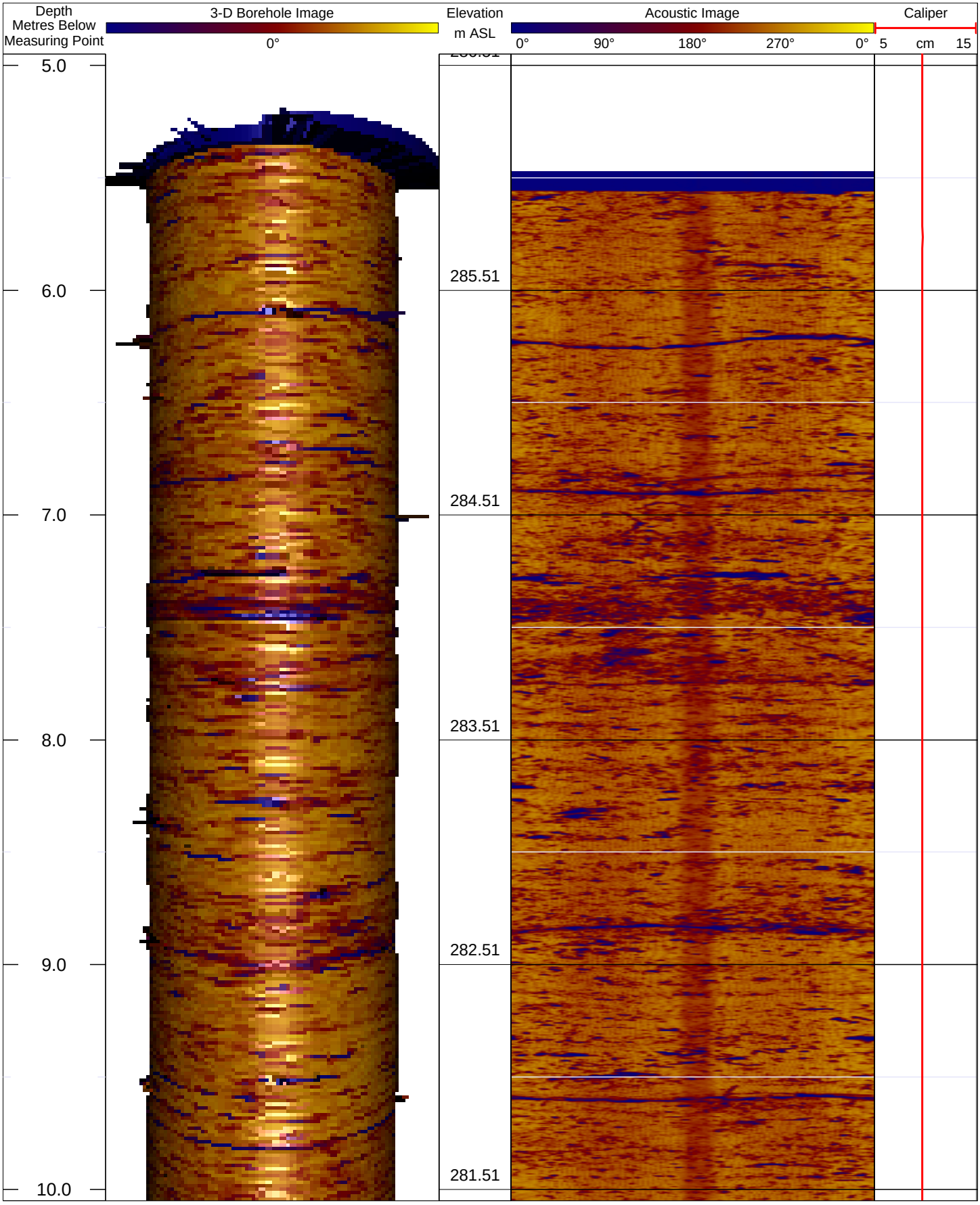
Well Name: MWB24-II

Figure 4e

Lotowater TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.58 m ags)
Well Name:	MWB25-III (MW4)	Measuring Point Elev:	291.51 m ASL
Location:	Flamborough Quarry	Logged By:	J.Dion
Project No:	147-009	Logging Date:	November 02, 2006




Depth
Metres Below
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m ASL
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Caliper
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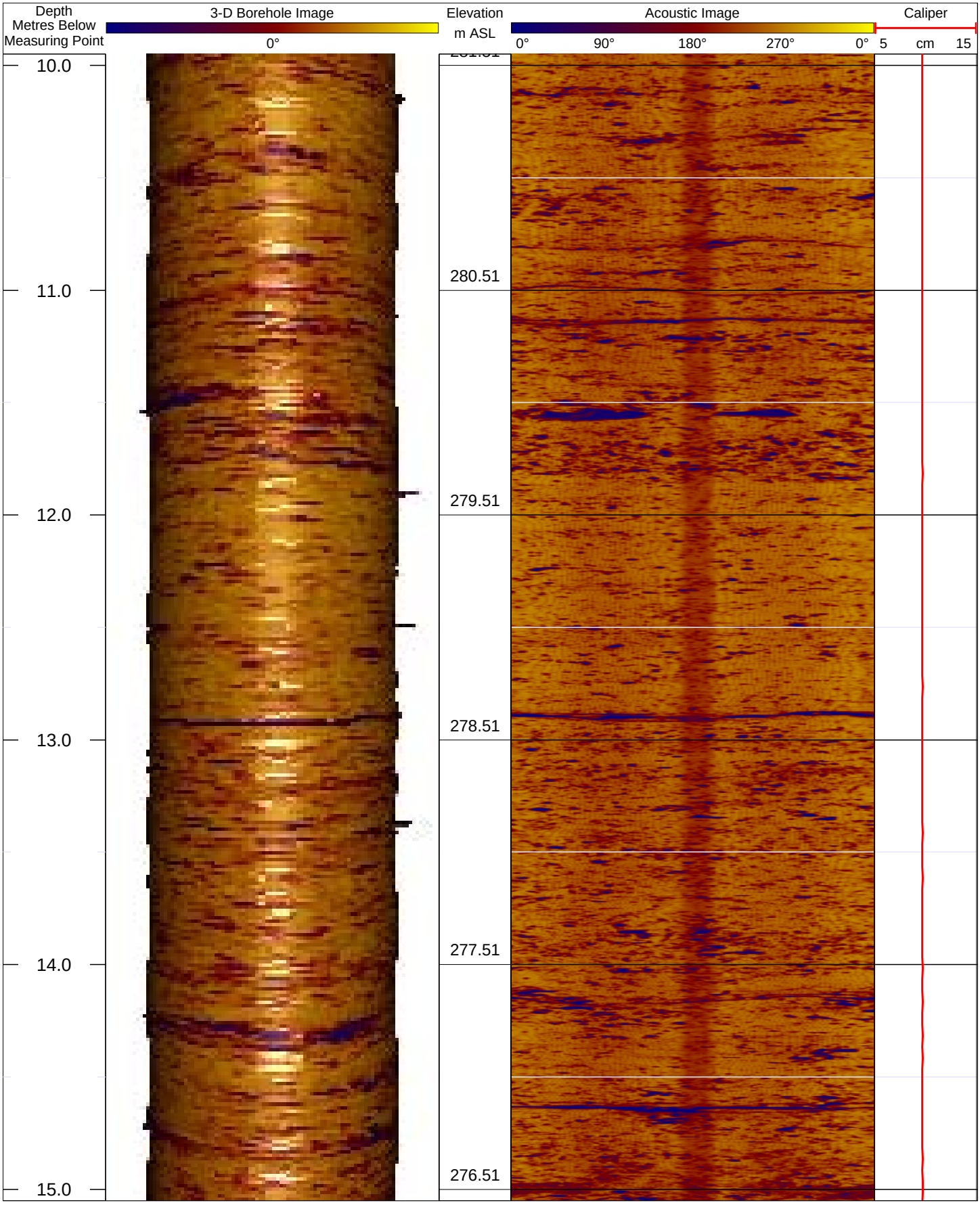
282.51
281.51


Depth
Metres Below
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3-D Borehole Image
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m ASL
Acoustic Image
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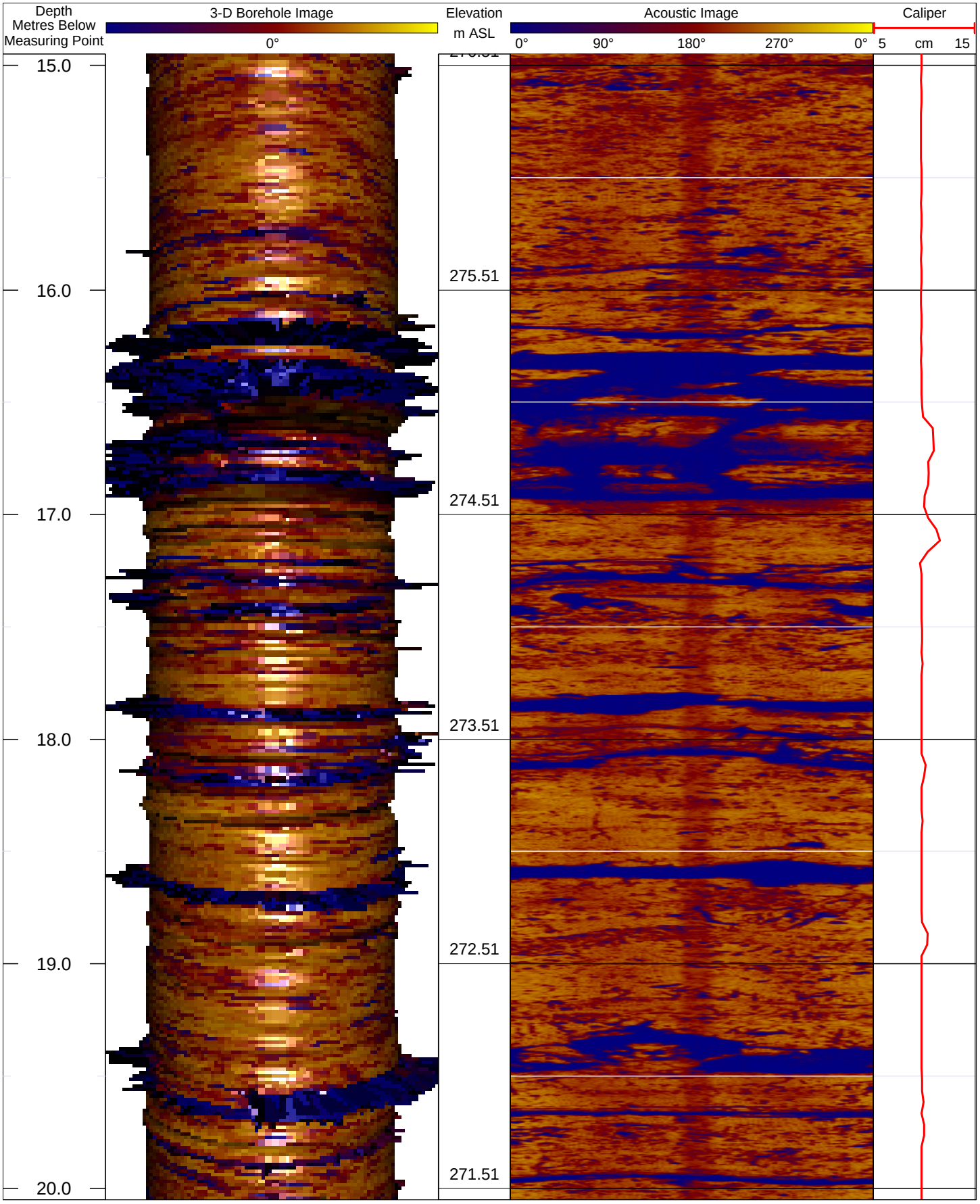
Depth
Metres Below
Measuring Point
3-D Borehole Image
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Elevation
m ASL
Acoustic Image
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Caliper
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272.51
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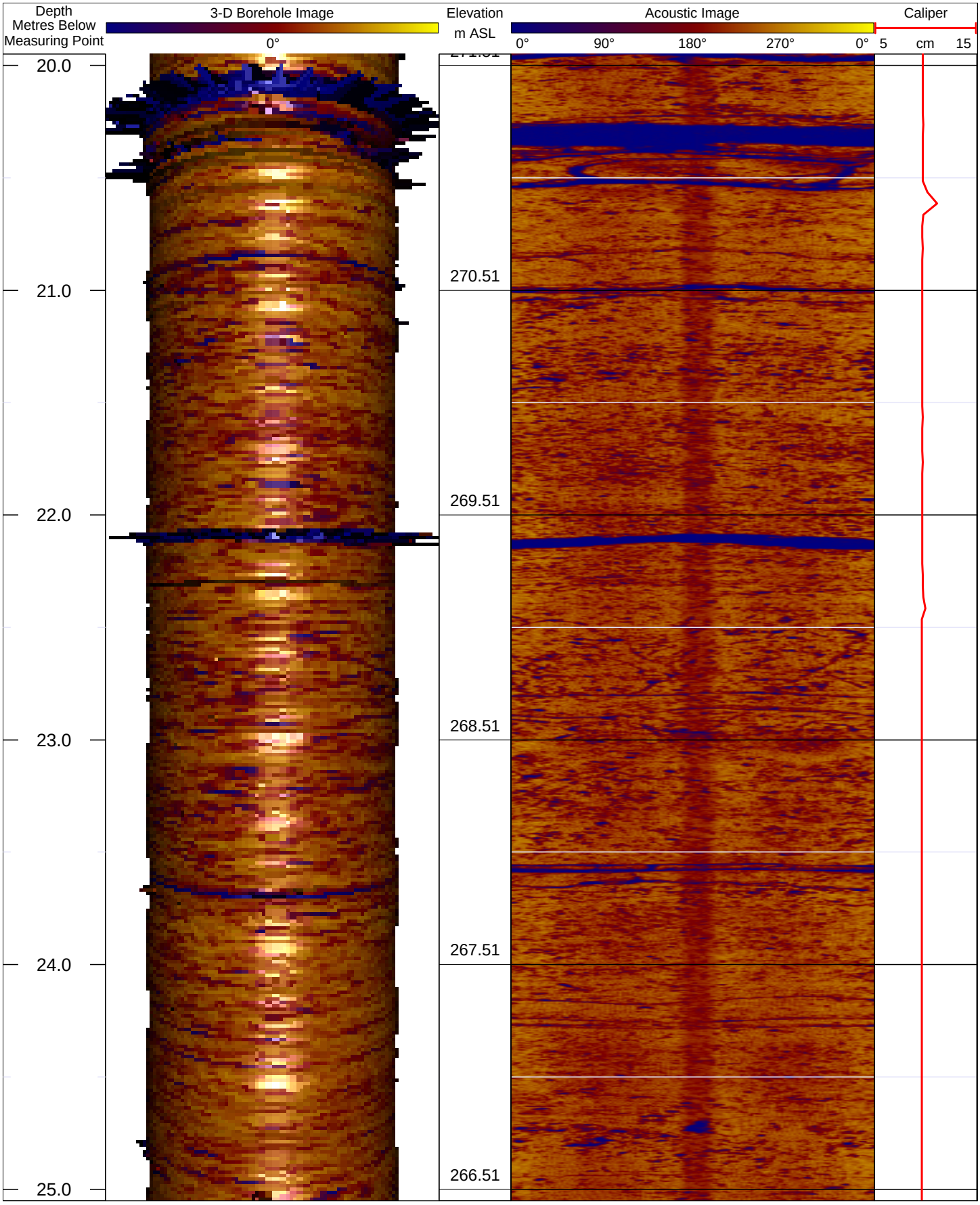
Depth
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Measuring Point
3-D Borehole Image
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Elevation
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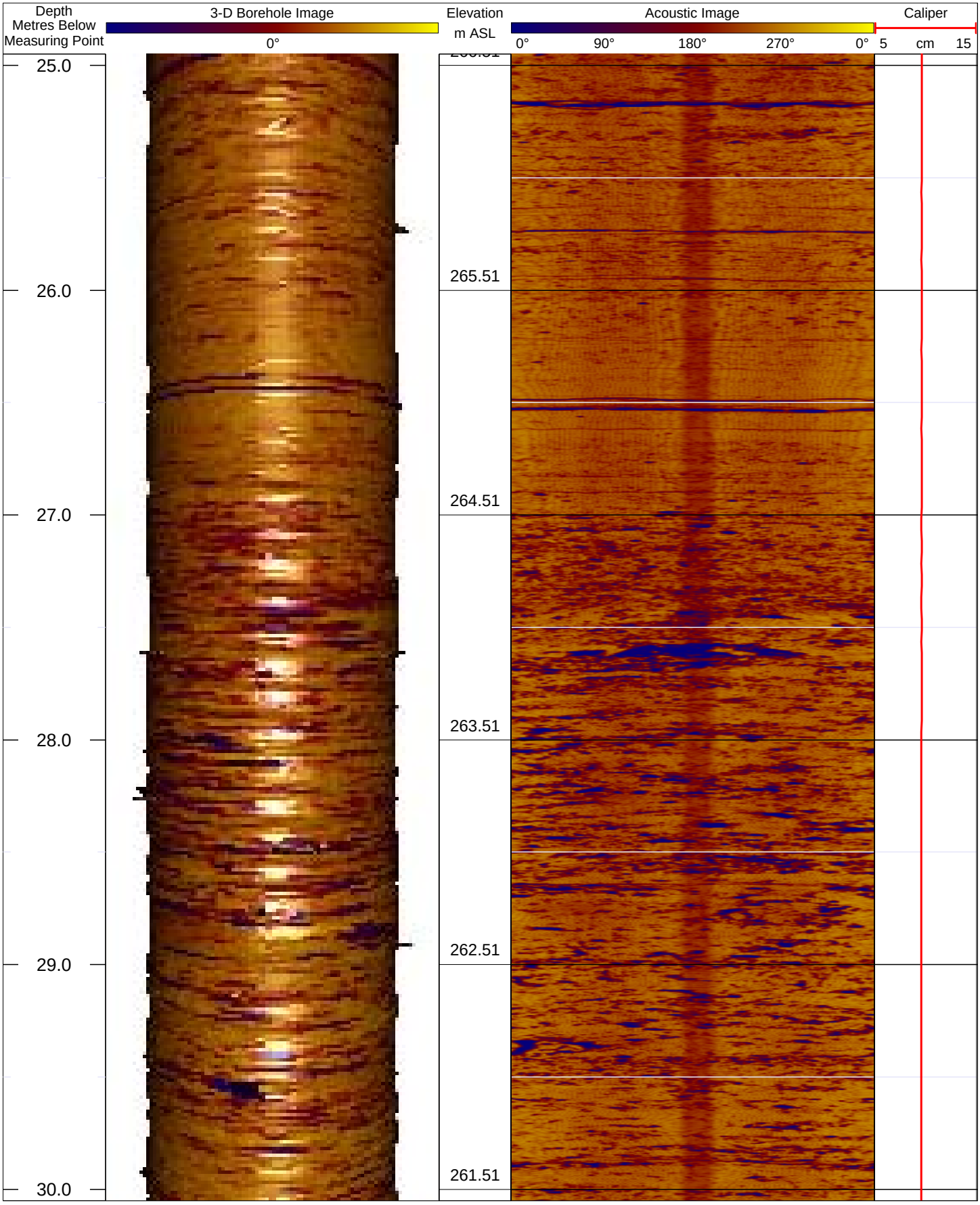
Depth
Metres Below
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3-D Borehole Image
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Elevation
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Acoustic Image
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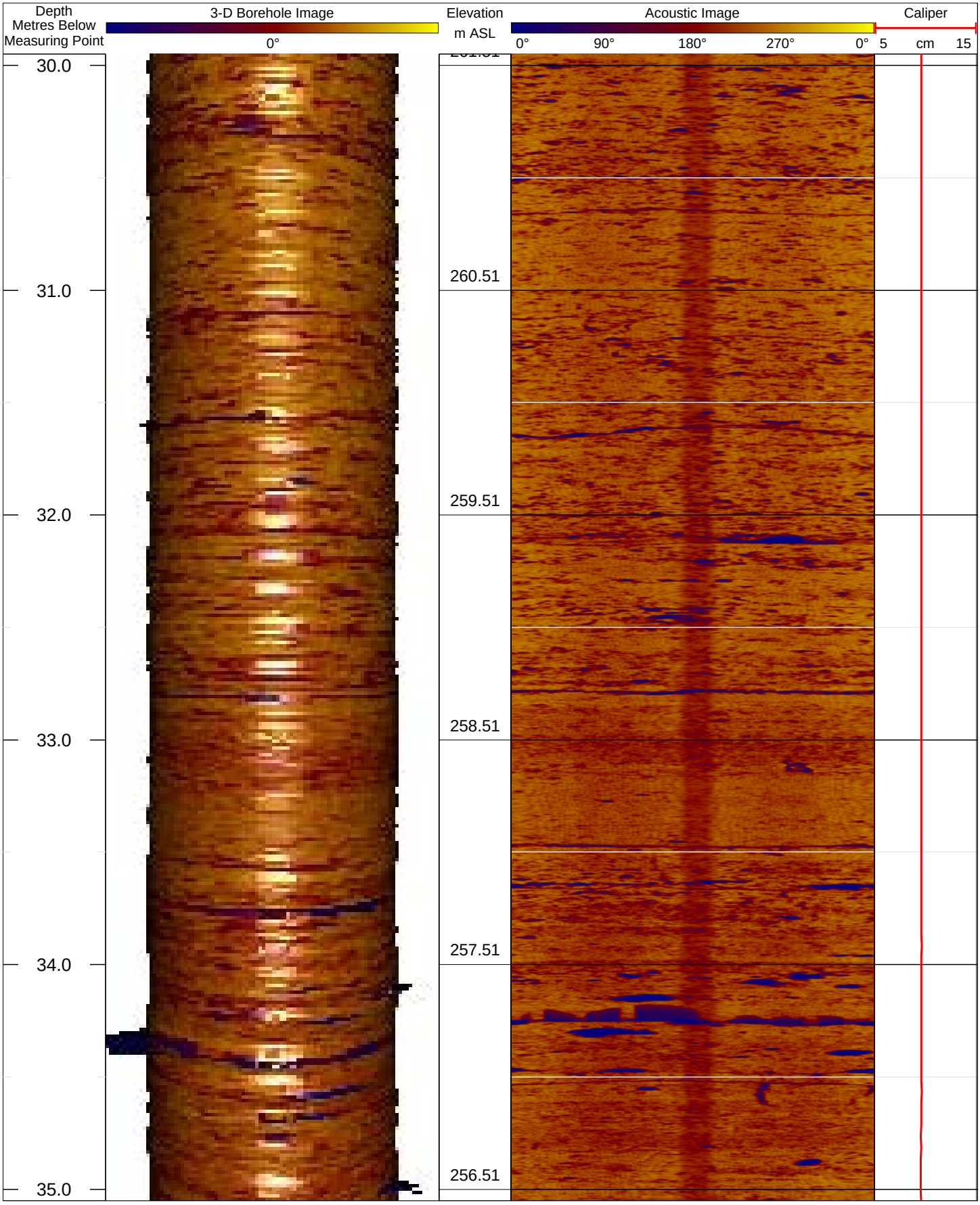
262.51
261.51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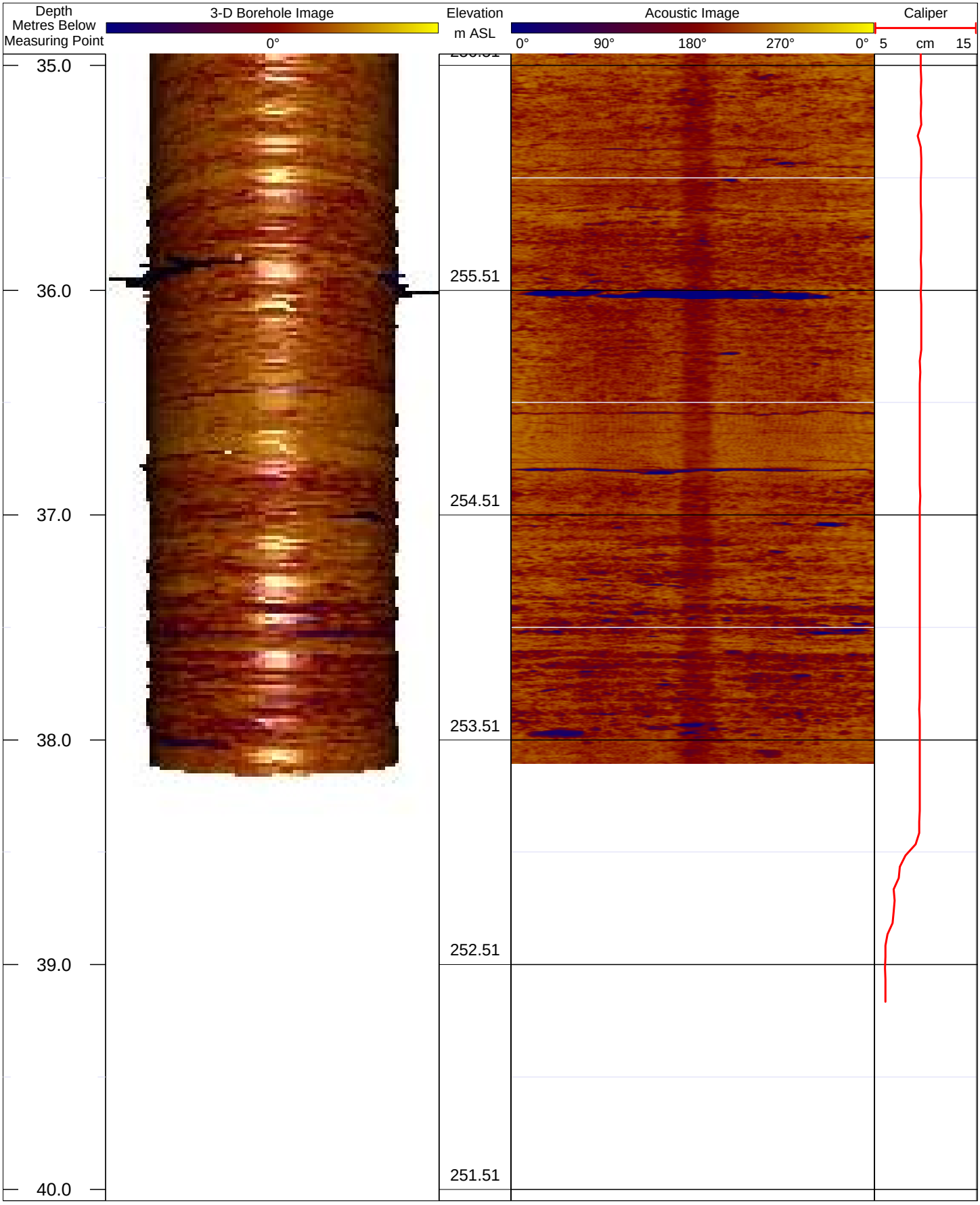
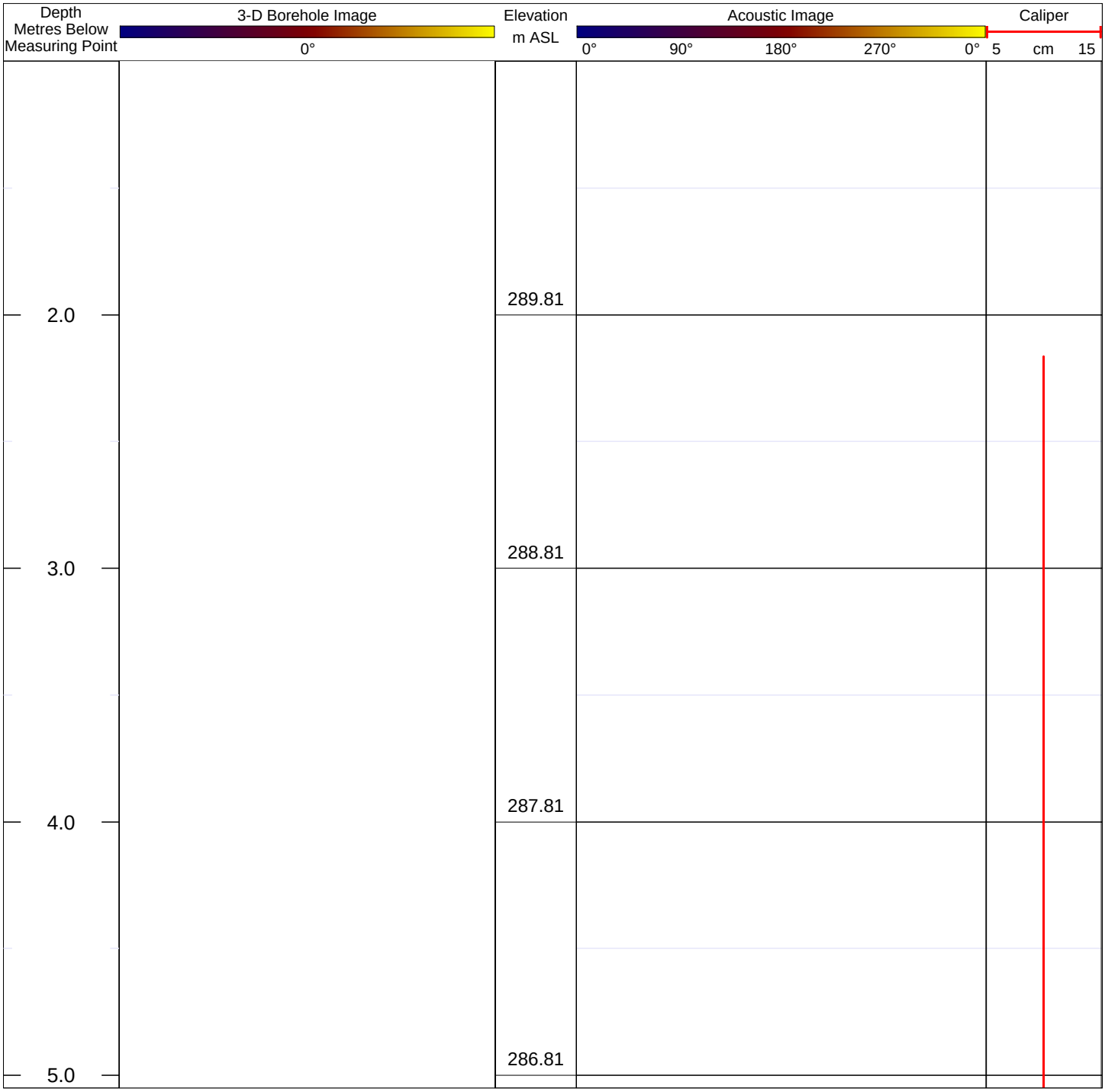


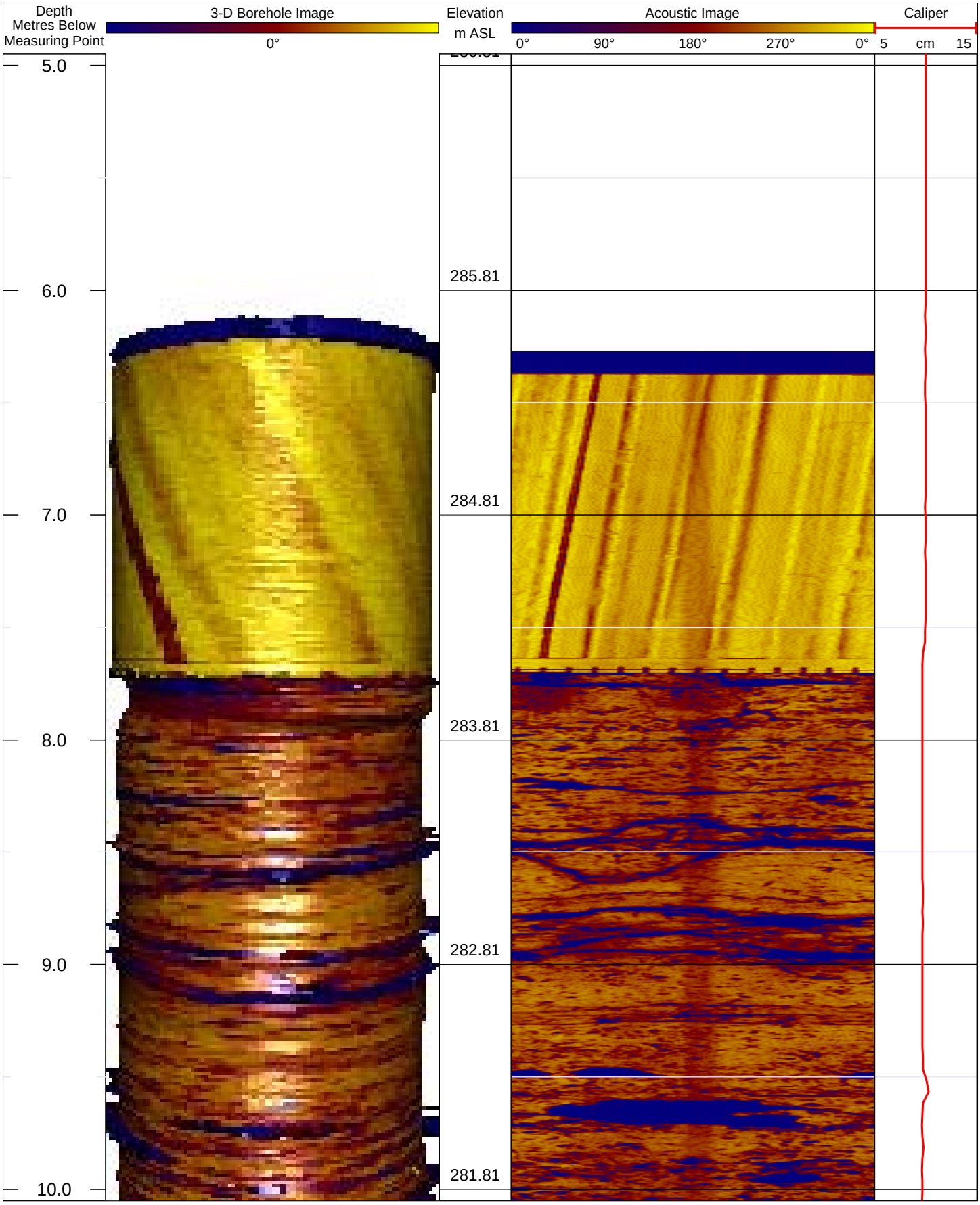
Well Name: MWB25-III

Figure 4f

Lotowater
TECHNICAL SERVICES INC.

Client:	CBM St. Marys Cement	Measuring Point:	Top of Casing (0.65 m ags)
Well Name:	MWB26-II (MW5)	Measuring Point Elev:	291.81 m ASL
Location:	Flamborough Quarry	Logged By:	J. Dion
Project No:	147-009	Logging Date:	November 02, 2006




Depth
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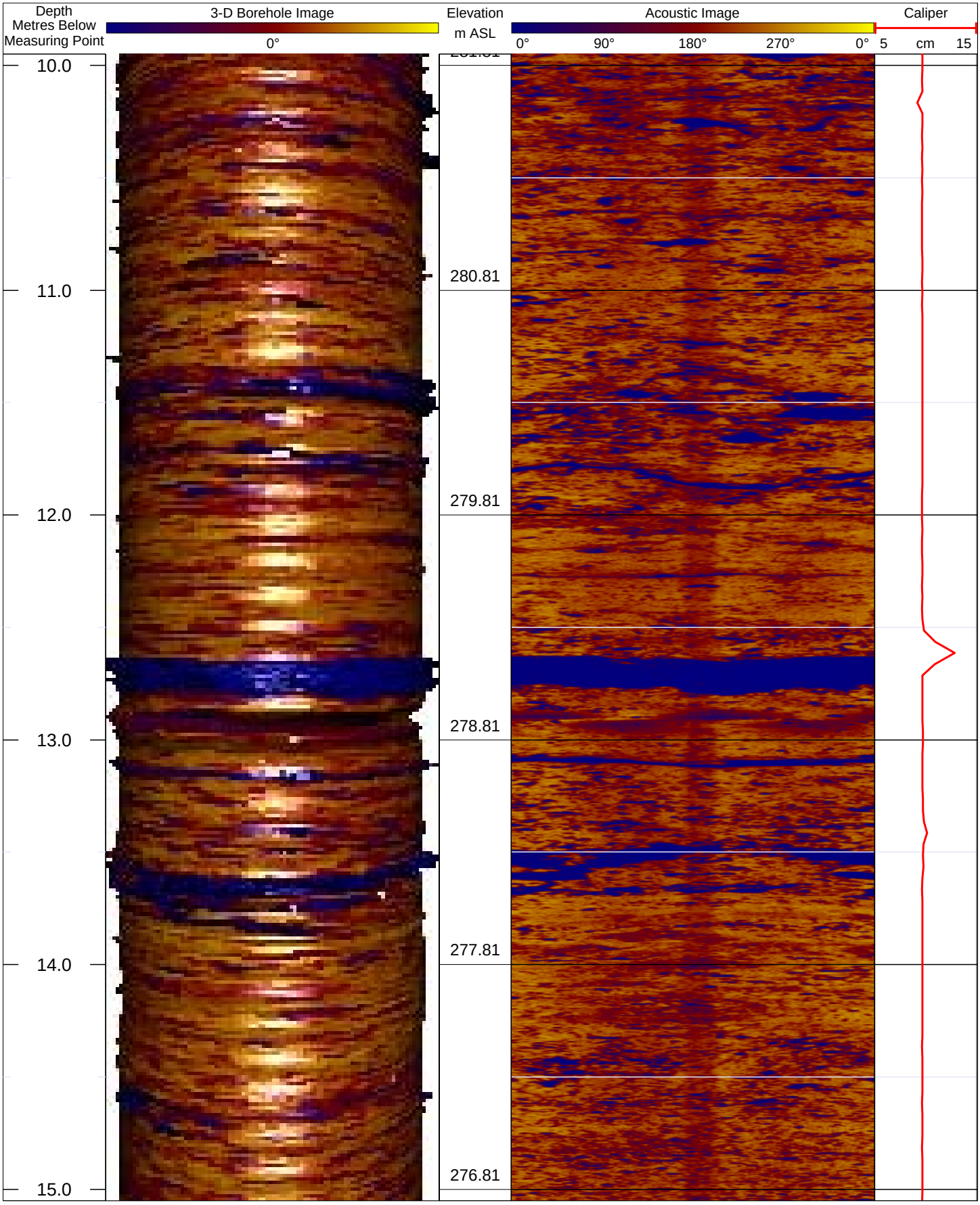
281.81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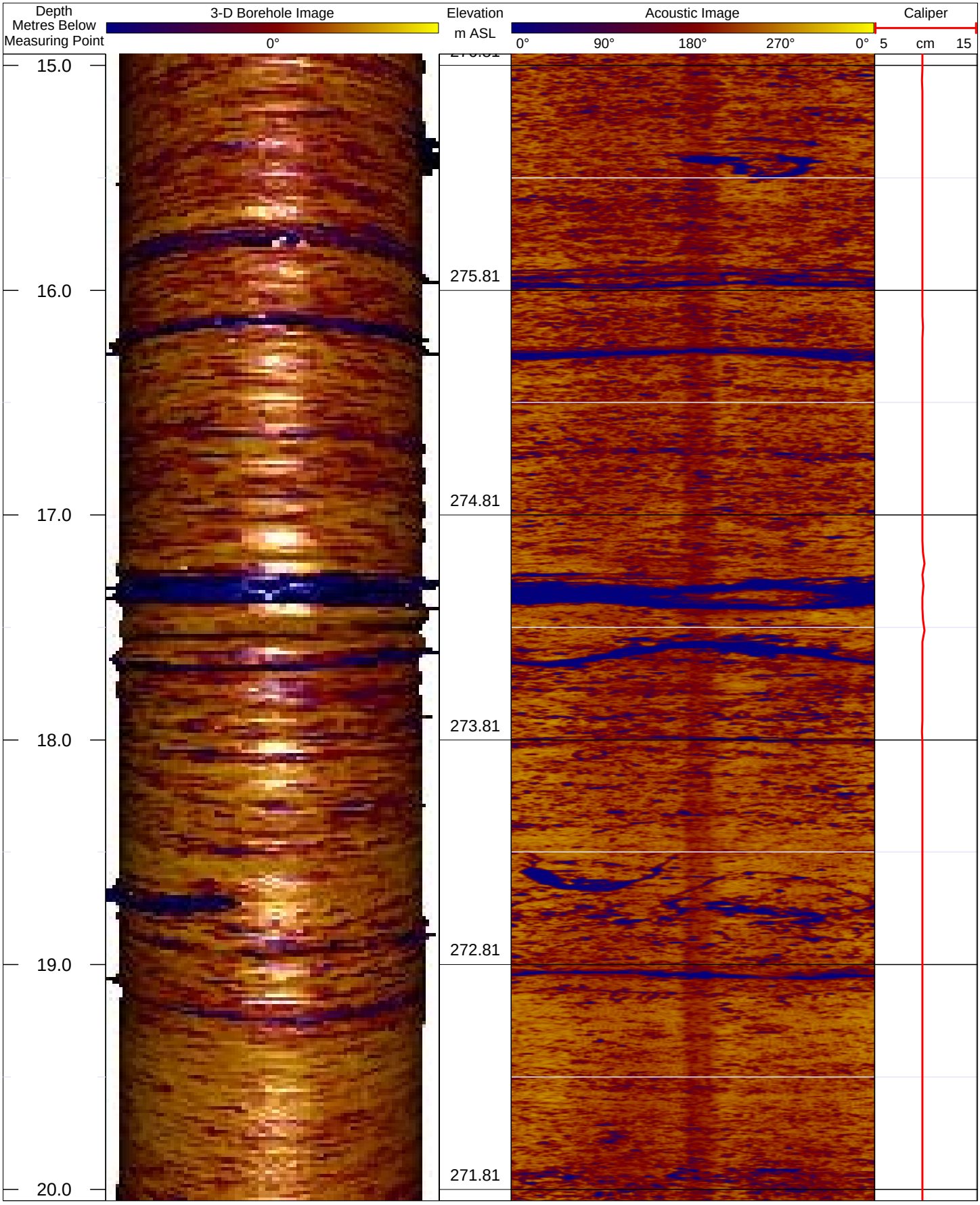
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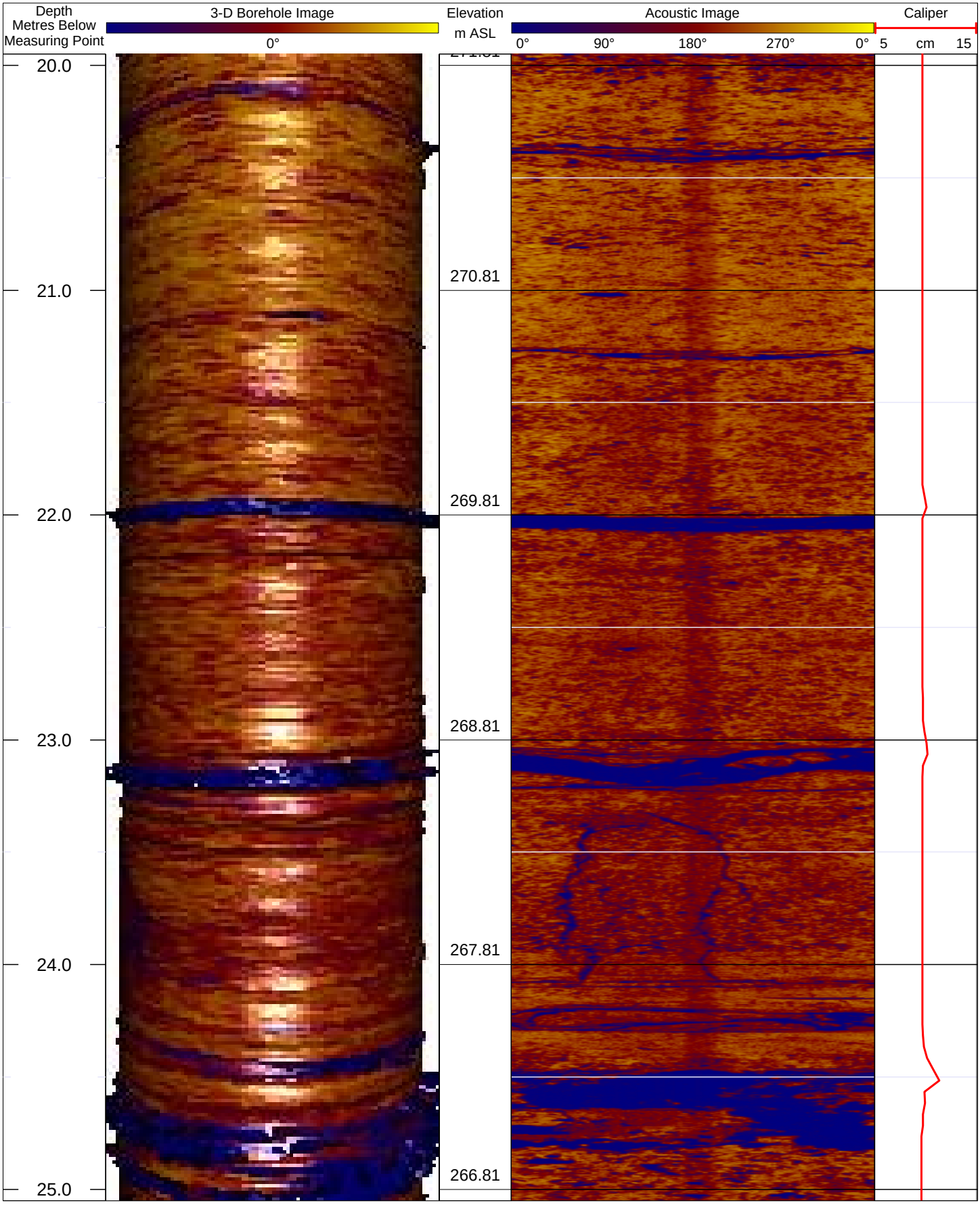
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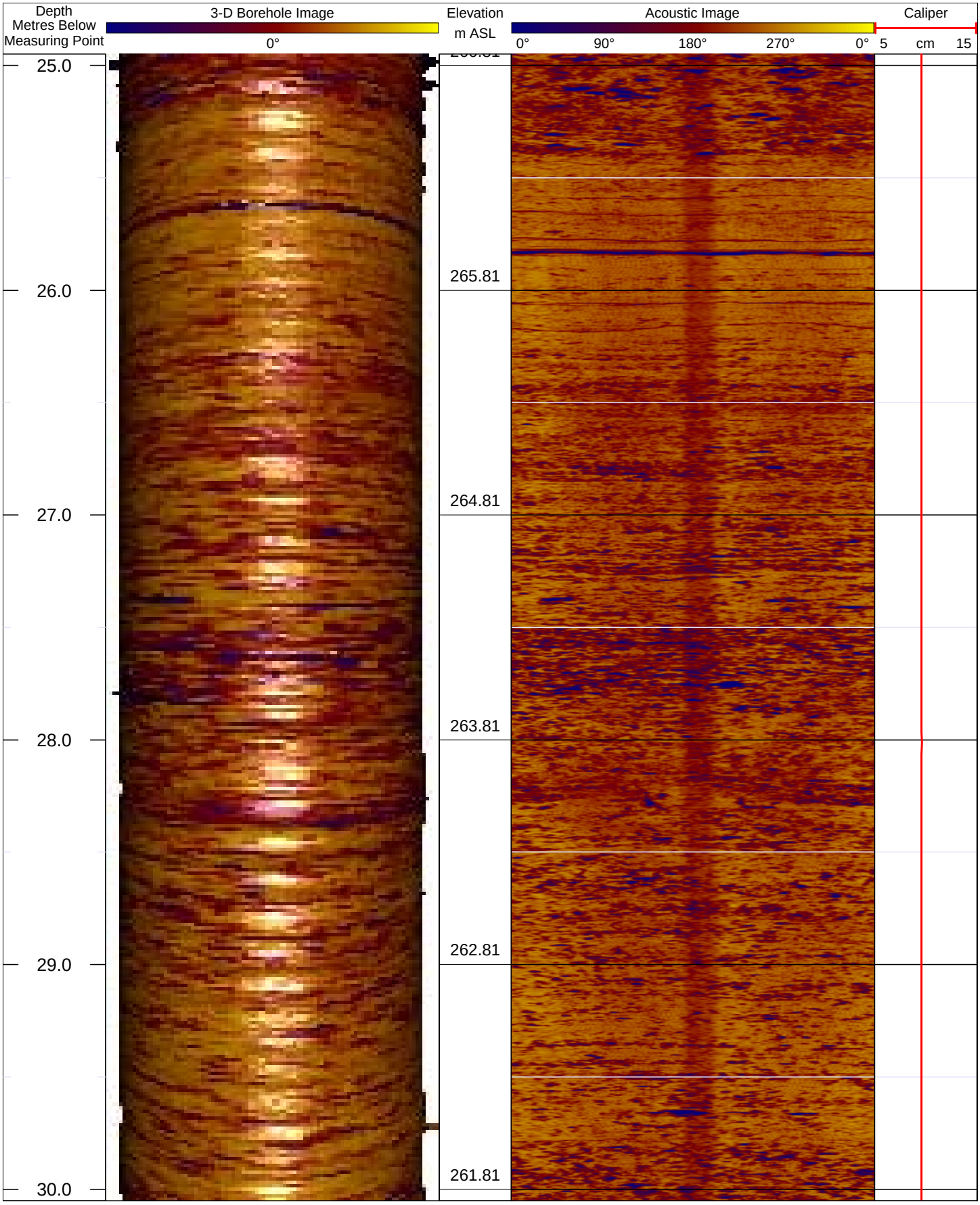
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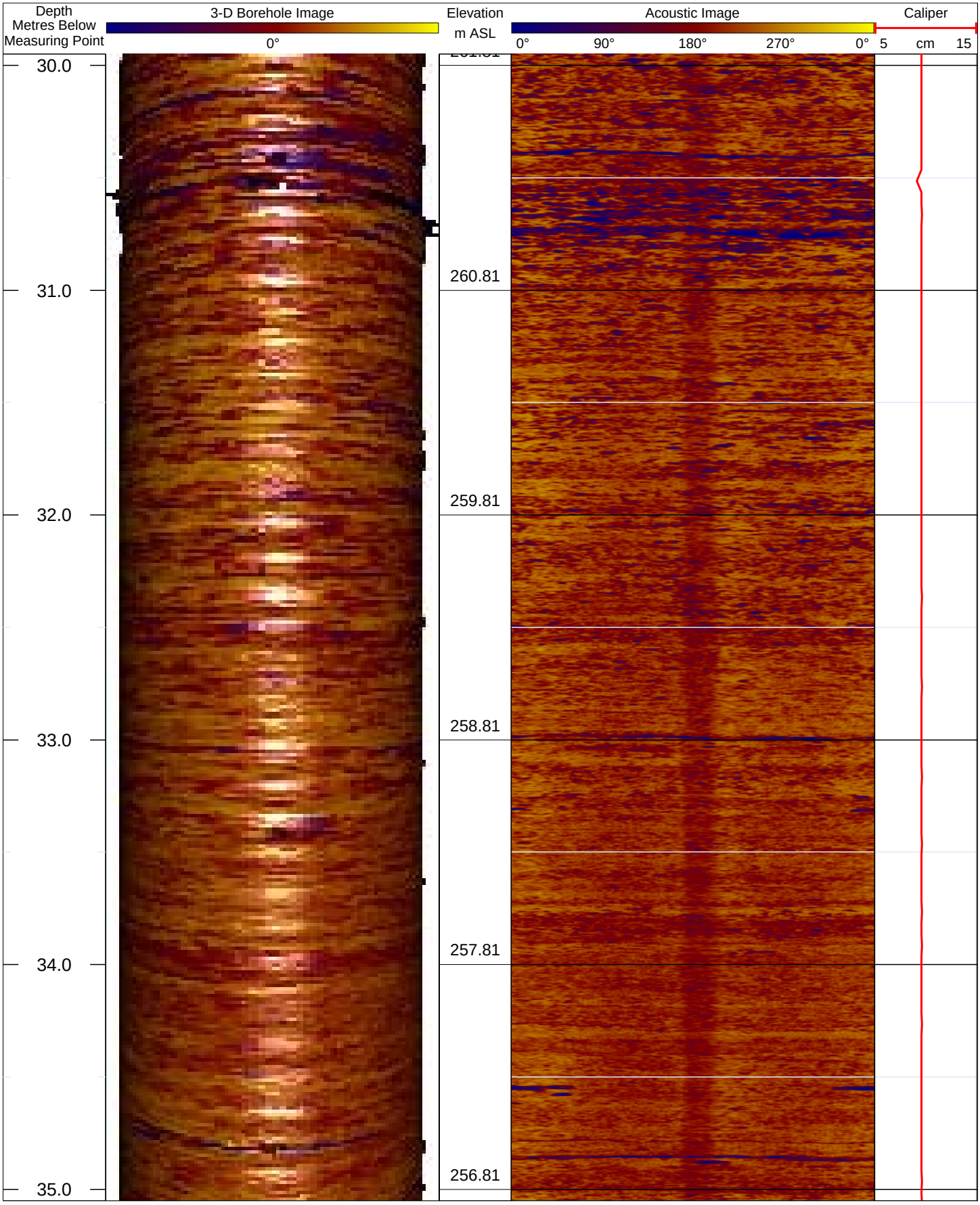
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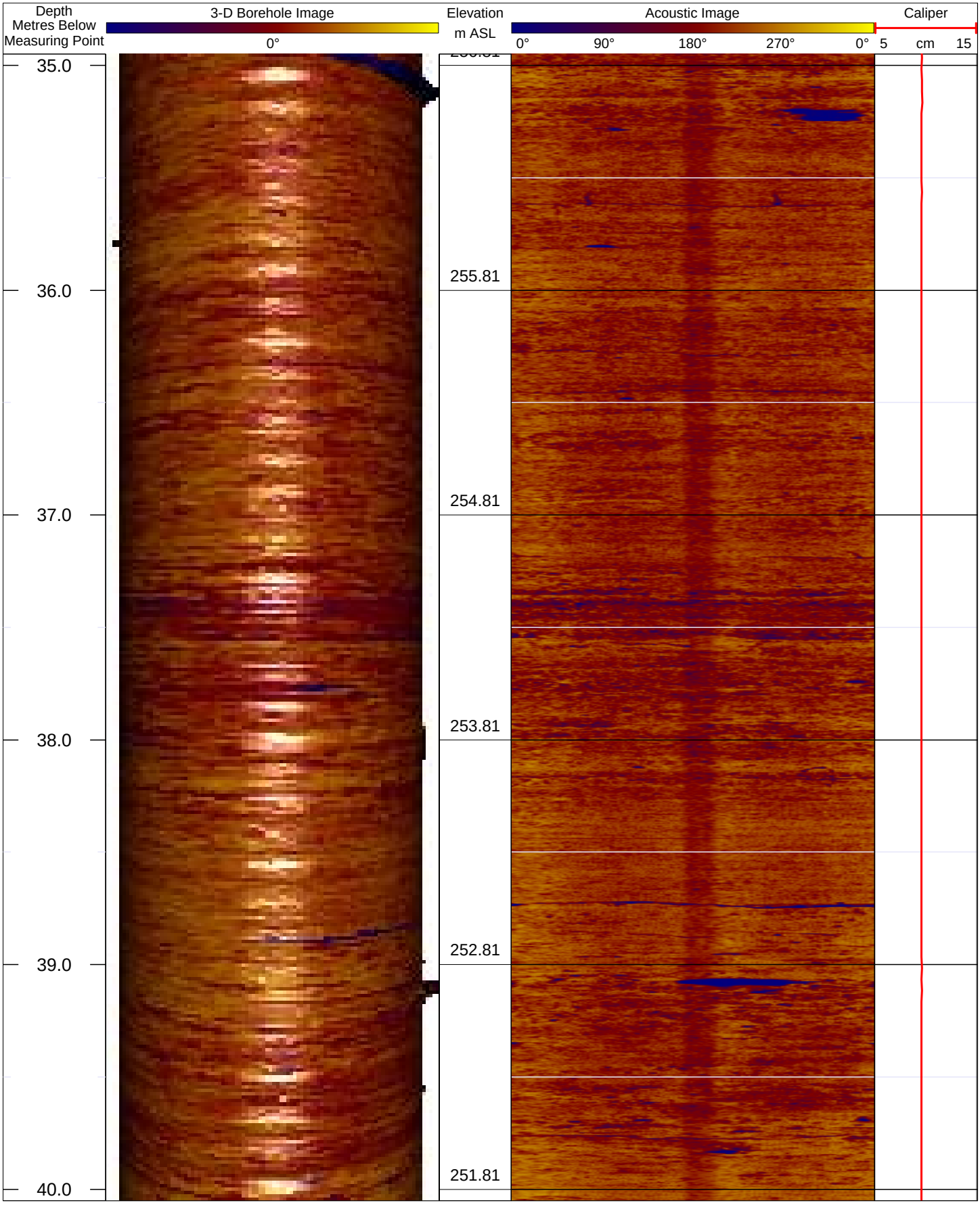
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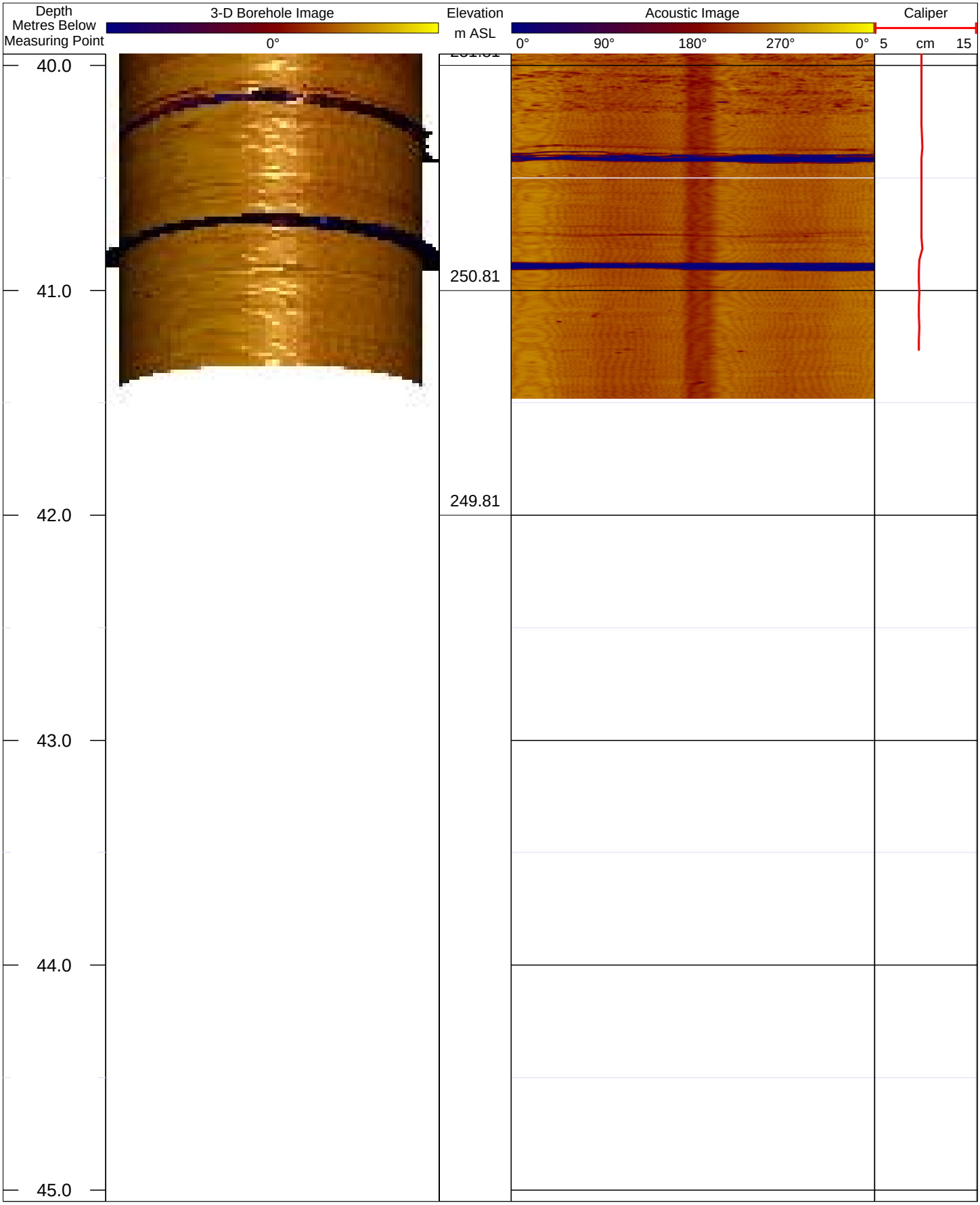
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41.0
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43.0
44.0
45.0
250.81
249.81

F1-4 Lotowater 2006/2007 Packer Testing and Depth Specific Water Quality Sampling, July 2007

Appendix F1-4

Packer Testing (2006/2007)

Lotowater Technical Services Inc. was retained to undertake geophysical and televiewer logging of five large-diameter boreholes and to complete packer testing and groundwater sampling of discrete bedrock intervals within these boreholes. The purpose of the work was to identify and test potentially productive water bearing zones within the Amabel Formation.

The wells selected included three test wells installed in 2004, which at that time were referred to as TW10 (MWB10 under the new nomenclature), TW12 (MWB12) and TW13 (MWB13).

Also included, were two newly installed test wells TW14 and TW15, which were installed at the Groundwater Recirculation System (GRS) test site. The well locations are shown in Figure 2.1 (Volume 1).

Methodology

For the packer tests, zones within each well were isolated using packers, and short-term, stepped pumping tests were conducted during which dynamic flow (spinner log) and video profiling was undertaken. Water samples were collected from the isolated zones.

A description of the methodology employed, the test results and an interpretation of the results for the five wells are presented in the technical report (Lotowater Technical Services Inc., 2007a), which is provided in Appendix F1-4.

Results

Water yielding fractures, solution cavities and bedding plane features were identified through video and geophysical logging and flow profiling. Zones or horizons in the bedrock sequence, which appear to be more transmissive, are identified below:

MWB12 (TW12) – northwest	MWB10 (TW10) – central	MWB13 (TW13) – southeast	TW14 – GRS Site	TW15 – GRS Site
281 to 279 mASL	279 to 276 mASL	282 to 276 mASL	277 to 275 mASL	281 to 276 mASL
276 to 271 mASL	273 to 267 mASL			272 to 264 mASL
258 to 254 mASL	260 to 257 mASL	263 to 258 mASL	262 to 261 mASL	258 to 256 mASL

At Test Well MWB12 (TW12), it was estimated that about 65% of the flow in the well was from features within a zone at about 281 to 279 mASL with 35% originating from features between 258 and 254 mASL. The distribution of flow at MWB10 (TW10) was similar with most of the flow (60% to 95%) originating from a cavity at the 279 to 276 mASL and the balance from below this depth. Most of the flow (89%) at MWB13 (TW13) was from features present between 282 and 276 mASL.

Two producing zone were identified at TW14, with 50% of the flow derived from a larger feature between 262 and 261 mASL, and the balance of the flow from several enlargements observed between 279 and 278 mASL. Packer testing established that the shallower zone was less transmissive.

The main producing zone at TW15 is made up of several fractures between 258 and 256 mASL. Basically, 80% of the flow during flow profiling originated from this zone. Fractures/enlargements observed in TW15 between 281 and 276 mASL were not particularly transmissive.

The transmissivity values estimated by Lotowater using the analytical procedures attributed to Cooper-Jacob (1946) and Jacob (1963) are summarized in Table F1-4.

Table F1-4 Summary of Transmissivities from 2006/2007 Packer Tests

Well ID	Zone 1	Zone 2	Zone 3
MWB10 (TW10)	Between 281 and 275 mASL T = 59.4 m^2/day	Between 269 and 265 mASL T = 20.9 m^2/day	Between 260 and 246 mASL T = 43.6 m^2/day
MWB12 (TW12)	Between 285 and 276 mASL T = 238 m^2/day	Between 274 and 270 mASL T = 13.3 m^2/day	Between 258 and 250 mASL T = 141 m^2/day
MWB13 (TW13)	Between 282 and 272 mASL T = 355 m^2/day	Between 264 and 246 mASL T = 64.6 m^2/day	Between 254 and 246 mASL T = 3.9 m^2/day
TW14	Between 284 and 274 mASL T = 18.5 m^2/day	Between 273 and 247 mASL T = 81.3 m^2/day	Between 262 and 247 mASL T = 86.3 m^2/day
TW15	Between 284 and 275 mASL T = 4.4 m^2/day	Between 273 and 247 mASL T = 96 m^2/day	Between 262 and 247 mASL T = 54 m^2/day

The key observation from this work is that there is no distinctive 'production zone' that extends across the site. Zone 1, which encompasses the shallow bedrock, is productive where the fractures are relatively open and not in-filled with sediment. This condition was observed at MWB10, MWB12 and MWB 13.

Elsewhere, the shallow zone (TW14 and TW15, at the GRS test site) is noticeably less productive, with the lower observed transmissivity related to sediment infilling of the fractures. At these two locations, most of the flow originated from features present between about 262 mASL and 256 mASL.

February 2007 Groundwater Sampling Event

Lotowater Technical Services undertook packer testing on five of the large diameter, open hole bedrock boreholes in February 2007. These included: TW10 (MWB10-I), TW12 (MWB12), MWB13 (TW13), TW14 and TW15. The borehole locations are shown in Figure 2.1.

At each well, three zones were isolated and tested, with water samples collected from each zone. The work was undertaken on February 7 and 8, 2007.

The samples were collected after 50 minutes of pumping. The samples were submitted to MAXXAM Analytics Inc. for analysis of major and minor ions, and metals. The chemistry data are present in the Lotowater (2007a) report, which is provided in full in Appendix F.1-4.

FLAMBOROUGH QUARRY PROJECT

2006/2007 PACKER TESTING AND DEPTH SPECIFIC WATER QUALITY SAMPLING RESULTS

Prepared for:

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Lotowater
TECHNICAL SERVICES INC.

Date: July 31, 2007

Reference: 147-009

CBM ST MARYS CEMENT

PROPOSED MOUNTSBERG QUARRY PROJECT
2006/2007 PACKER TESTING AND DEPTH SPECIFIC WATER QUALITY SAMPLING RESULTS

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1 Summary of Well Transmissivities

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1 Site Plan
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Transmissivity Analysis

APPENDIX 2

Packer Testing Results
- 2a. Well MWB10-I (TW10) Packer Testing
- 2b. Well MWB12 (TW12) Packer Testing
- 2c. Well MWB13 (TW13) Packer Testing
- 2d. Well TW14 Packer Testing
- 2e Well TW15 Packer Testing

APPENDIX 3

Summary of Well Water Chemistry (Laboratory)

- 3a. MWB10-I (TW10)
- 3b. MWB12 (TW12)
- 3c MWB13 (TW13)
- 3d. TW14
- 3e TW15

APPENDIX 4

Summary of Well Water Chemistry (Field)

- 4a. MWB10-I (TW10)
- 4b. MWB12 (TW12)
- 4c. MWB13 (TW13)
- 4d. TW14
- 4e. TW15

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Laboratory Reports

- MWB10-I (TW10)
- MWB12 (TW12)
- MWB13 (TW13)
- TW14
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1.0 INTRODUCTION

This report summarizes packer tests and depth specific water quality sampling conducted at the proposed CBM St Marys Flamborough Quarry site located north of the town of Carlisle, Ontario, as shown on **Figure 1**. This testing was performed to assist in the hydrogeologic characterization and feasibility of constructing a below water dolostone quarry at the subject site. Specifically this testing was performed to test the hydraulic and geochemical conditions of specific water producing fractures in five existing test wells. Information gained from these tests will be used to update the existing Gartner Lee groundwater model and to further expand the hydrogeologic understanding of the site.

The subject test wells are all constructed in open bedrock boreholes and intersect discrete fractures in the bedrock. Some of these fractures are interconnected to a larger fracture system and will produce water when the hydraulic head in the well is lowered by pumping. Separate testing performed by Lotowater Technical Services Inc. (Lotowater) in the fall/winter 2006/2007 identified the water producing fractures in these wells as well as numerous other bedrock wells in and around the proposed quarry site. A description of this testing along with results are summarized in the Lotowater 2007 report "*Flamborough Quarry Geophysical Logging and Testing Results for Monitoring and Test Wells*". These water producing fractures are of interest as they will be the conduits for dewatering and the point of connection to the regional aquifer. Understanding the hydraulic characteristics of these fractures is an important part of predicting quarry dewatering requirements as well as the impacts that the proposed development will have on the aquifer.

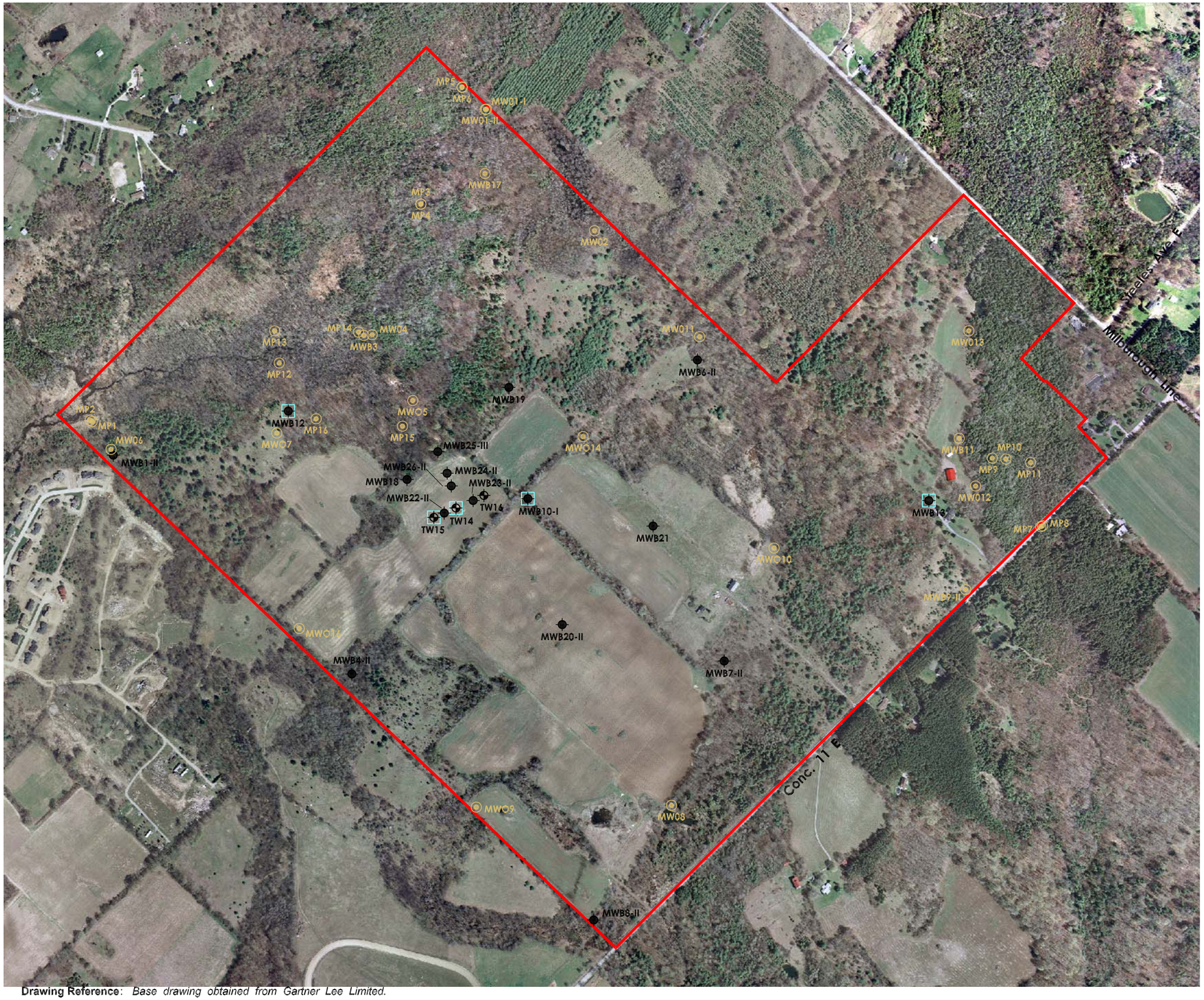
Packer testing was performed to quantify the transmissivity of the major water producing fractures/zones in each well. In addition, water quality samples were also collected from each of the sampled fractures/zones.

2.0 DESCRIPTION OF TESTING AND SAMPLING PROCEDURES

A dual inflatable packer assembly was used to isolate up to three zones in each borehole. Selection of the specific zones was based in part on water producing features identified in the flow profiles, videos and geophysical logging conducted by Lotowater in 2006/2007. A sample zone usually contained multiple water producing features or fractures and, in some cases, sample zones overlapped.

2.1 Packer Testing Procedure

Packer tests were conducted using a dual inflatable packer assembly. The assembly comprised two inflatable packers connected with a perforated section of pipe. A small sample pump was used to pump from the sample zone. Details of the packer assembly are shown in **Figure 2**. The packer assembly was operated in several ways. In Case 1, as shown in **Figure 2**, the lower packer was inflated and the well isolated into two zones, an upper sample zone and lower interval. Water was pumped from a sample pump for up to one hour from the sample zone while water levels were measured in the upper sample zone and lower test interval.



Drawing Reference: *Base drawing obtained from Gartner Lee Limited.*

LEGEND

- Logged Monitoring Well Location
- Logged Test Well Location
- Packer Test Location
- Other Well Locations
- Site Boundary

NOTE

Monitoring Well MWB27 Outside Map Boundary

Lotowater TECHNICAL SERVICES INC.

CLIENT

CBM ST MARYS CEMENT

TITLE

Flamborough Quarry
Site Plan

G:\Autocad Drawings\147 Gartner Lee Ltd\009\Packer Testing Report\Site Plan.dwg

DESIGN	BP	07/07/05
DRAWN	AG	07/07/16
CHECKED	BP	07/07/18

PROJECT No. **147-009**

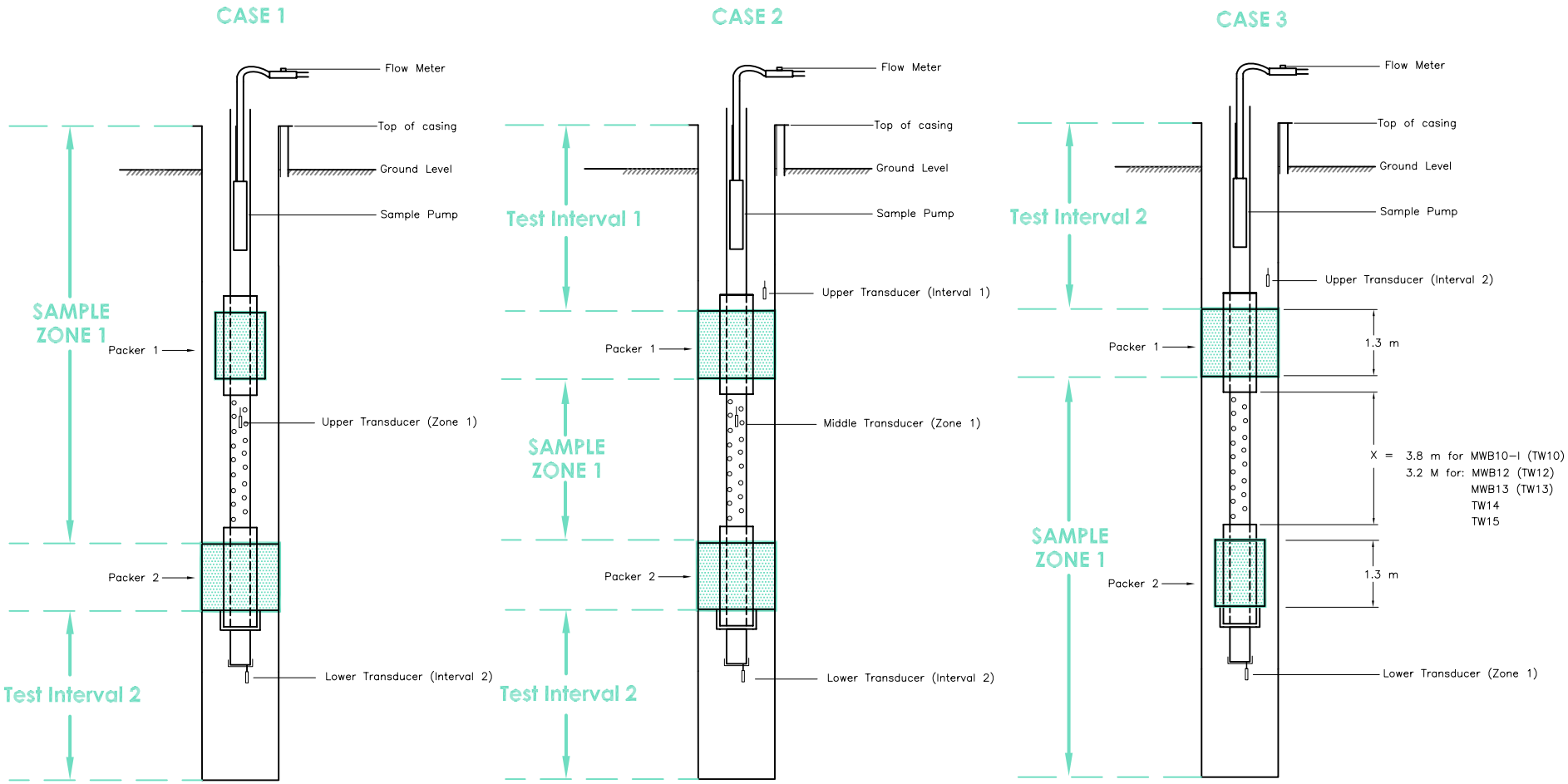
REVISION No.

SCALE **1 : 7,000**

SCALE (m) 0 100 200 400

FIGURE

1



Drawing Reference: *Base drawing generated by Lotowater Technical Services Inc.*

NOTES

1. _____
2. _____
3. _____

Lotowater TECHNICAL SERVICES INC.

CLIENT: **CBM ST MARYS CEMENT**

TITLE: **Flamborough Quarry Packer Testing Procedure**

PROJECT No. 147-009			G:\Lotowater Projects\147 Gartner Lee Ltd\009 Geophysical Testing...\Packer Testing.dwg	FIGURE 2
DESIGN	BP	June 28, 2007	REVISION No. 1	SCALE N.T.S.
DRAWN	AG	June 29, 2007		
CHECKED	BP	July 05, 2007		

In Case 2, as shown in **Figure 2**, both packers were inflated and the well was isolated into a middle sample zone and an upper and lower test interval. The sample zone was pumped for up to one hour while water levels were measured in the sample zone as well as the upper and lower test intervals.

In Case 3**,** as shown in **Figure 2,** the upper packer was inflated and the well isolated into two zones, a lower sample zone and an upper test interval. Water was pumped from the sample zone while water levels were measured in the upper test interval and lower sample zone.

2.2 Transmissivity Analysis Methods

Drawdown and recovery water level data collected during the testing was used to estimate the transmissivity of each sample zone. Water levels were measured in the pumping wells during and after pumping using a combination of pressure transducers and manual water level readings. Both drawdown and recovery data were analyzed.

Recovery data was analyzed using residual drawdown methods. A computer program (Aquifer Test Pro Version 4.1) was employed to analyze recovery data using the popular Jacob (1963) method which simplifies the curve matching procedures required for the Theis (1935) solution. This method was used in most cases as it provided a good fit with the data since boundary conditions and leaky aquifer conditions were not obvious over the short durations of these tests.

Drawdown data was analyzed at MWB10-I and MWB13 as leaky aquifer affects appear more apparent. In the case of MWB10-I this may be due to the nearby borehole MWB10-II which is only 2.5 m away and is uncased across the same interval as MWB10-I. The Hantush and Jacob (1955) leaky aquifer method was used to analyze the data at these two wells. A computer program was used (Aquifer Test Pro Version 4.1) to analyze this data.

2.3 Water Quality Sampling Procedure

Water samples were collected from each sample zone. Wells were pumped for one hour and field parameters of temperature, conductivity, pH and dissolved oxygen were taken at 5-10 minute intervals. Water samples were collected after a minimum of 50 minutes of pumping and tested at a laboratory for general chemistry, major ions and metals.

3.0 RESULTS

Transmissivity estimates for each zone are summarized in **Table 1**. An estimate of the total transmissivity of each well was made by adding up the individual zone transmissivity values as appropriate. The individual hydrographs and transmissivity calculation details are shown in **Appendix 1**. Results of the packer tests for each well are summarized in individual figures shown in **Appendix 2**. Possible water producing zones (PWPZ), identified by previous flow profiles and video logs, are identified on these figures along with the borehole caliper. The various sample zones are indicated along with hydrographs showing the various responses to pumping from each zone. The test flow rates, calculated transmissivity and field water chemistry values are also shown for each sample zone tested.

TABLE 1

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Well Transmissivities

Well Name	Zone #	Flow Rate m^3/day	Flow Rate L/s	Transmissivity m^2/day	Transmissivity m^2/sec	Top of Zone mbtc	Bottom of Zone mbtc	Analysis Method
MWB10-I (TW10)	1	185	2.1	41.3	4.78E-04	0	17.4	Hantush-Jacob (1955)
MWB10-I (TW10)	2	29	0.3	14.4	1.67E-04	23.8	27.6	Hantush-Jacob (1955)
MWB10-I (TW10)	3	181	2.1	49.2	5.69E-04	32.8	46.5	Hantush-Jacob (1955)
MWB10-I Combined Transmissivity (Zone 1+2+3)=					1.21E-03			
MWB12 (TW12)	1	273	3.2	322	3.73E-03	0	15.0	Theis-Jacob recovery
MWB12 (TW12)	2	29	0.3	6.5	7.57E-05	16.8	21.0	Theis-Jacob recovery
MWB12 (TW12)	3	185	2.1	156	1.81E-03	33.3	40.8	Theis-Jacob recovery
MWB12 Combined Transmissivity (Zone 1+2+3) =					5.61E-03			
MWB13 (TW13)	1	409	4.7	1350	1.56E-02	0	15.0	Hantush-Jacob (1955)
MWB13 (TW13)	2	180	2.1	16.2	1.88E-04	23.3	41.0	Hantush-Jacob (1955)
MWB13 (TW13)	3	114	1.3	0.75	8.68E-06	32.8	41.0	Hantush-Jacob (1955)
MWB13 Combined Transmissivity (Zone 1+2) =					1.58E-02			
TW14	1	61	0.7	5.41	6.26E-05	0	17.0	Theis-Jacob recovery
TW14	2	158	1.8	84.0	9.72E-04	18.3	45.0	Theis-Jacob recovery
TW14	3	175	1.8	84.4	9.77E-04	29.8	45.0	Theis-Jacob recovery
TW14 Combined Transmissivity (Zone 1+2) =					1.03E-03			
TW15	1	35	0.4	17.1	1.98E-04	0	15.2	Theis-Jacob recovery
TW15	2	236	2.7	115	1.33E-03	16.5	42.7	Theis-Jacob recovery
TW15	3	112	1.3	56.5	6.54E-04	27.4	42.7	Theis-Jacob recovery
TW15 Combined Transmissivity (Zone 1+2) =					1.53E-03			

Notes:

mbtc = meters below top of casing

Laboratory analyzed water chemistry is summarised and compared with Ontario Drinking Water Standards (ODWS) and existing and interim Ontario Provincial Water Quality Objectives (PWQO) in **Appendix 3**. Field water chemistry results are summarized in **Appendix 4.** Original laboratory analytical reports are included in **Appendix 5**.

4.0 OBSERVATIONS

Packer testing of the five test wells show that there are one or two fracture zones per well from which most of the water is being produced. Water chemistry is also shown to vary subtly with depth and between features, with a general increasing trend in dissolved mineral content with depth.

Specific observations for each well are discussed as follows:

4.1 MWB10-I (TW10)

The packer test results at MWB10-I show similar hydraulic responses in the intervals above and below the isolated zone in each test. Field and lab water chemistry were also similar between samples. This data suggests that the packers may be short circuited by a nearby open borehole. Well MWB10-I is constructed approximately 2.5 m away from monitor well MWB10-II which was constructed to the same depth as MWB10-I and is uncased through the bedrock. It is suspected that the nearby open borehole of MWB10-II was short circuiting the packer isolated zones in MWB10-I.

Important observations for this test well are summarized as follows:

- This well has a main water producing feature at 15 m and another at 34 m.
- The upper zone has a transmissivity of 41.3 m^2/day while the lower zone has a transmissivity of 49.2 m^2/day. There are a few other minor features but they do not appear to be significant water producers.
- There appears to be a trend of decreasing dissolved oxygen content with depth.
- There were no exceedances of the ODWS & PWQO in any of the depth specific samples for the tested parameters.

4.2 MWB12 (TW12)

This well appears to have two separate significant water producing fracture sets. The more highly transmissive set is located from approximately 11-13 metres below the top of casing (mbtc). A second fracture set of lower transmissivity is located near the bottom of the well from approximately 34 to 38 mbtc. The remaining features appear to be much less transmissive and are estimated to make up less than 5% of the wells total transmissivity.

Hydraulic and geochemical testing results suggest that the sampled fracture sets are not directly interconnected. The hydraulic response from pumping the isolated sample zones is significant and pronounced in the sample zones but very slight to non-existent in the straddling test

intervals. In addition, field and lab water chemistry results show subtle differences between zones.

Important observations for this test well are summarized as follows:

- This well has two main water producing fracture sets; one at 11-13 mbtc and a second at 34-38 mbtc.
- The upper zone has a transmissivity of 322 m^2/day while the lower zone has a transmissivity of 156 m^2/day. There are a few other minor features but they do not appear to be significant water producers.
- There appears to be a trend of decreasing dissolved oxygen content with depth.
- There appears to be a trend of increasing TDS and a slight increase in dissolved sulphur and sodium with depth.
- Sulphide concentrations in zone 1 and zone 2 are at or above the ODWS (0.05 mg/L) and zinc concentrations in zone 2 are above the interim PWQO (0.02 mg/L). Because the concentrations are lower in zone 3, and since the percentage of flow is much higher from zone 3, the combined discharge from this well should meet ODWS and PWQO limits for these parameters.

4.3 MWB13 (TW13)

The main transmissive feature of this well is located in the upper portion of the well from approximately 7.4-13.5 mbtc. This area is in a zone of fractured rock which was unstable. In order to construct a well here, perforated steel casing was installed across this interval. Flow testing indicates that this upper zone is responsible for the majority of the flow in this well. Pumping from the upper zone had no measurable impact on the hydraulic head in the lower intervals.

Hydraulic and geochemical testing results indicate that the sampled fracture sets are not directly interconnected. The hydraulic response from pumping the isolated sample zones is significant and pronounced in the sample zones but very slight to non existent in the straddling test intervals. In addition, field and lab water chemistry results show subtle differences between zones.

Important observations for this test well are summarized as follows:

- This well has one main water producing feature set which is behind perforated casing from 7.4-13.5 mbtc.
- The upper zone has a transmissivity of 1350 m^2/day. There are a few other minor features but they do not appear to be significant water producers.
- Dissolved oxygen content decreases with depth.
- There appears to be a trend of increasing TDS, dissolved sulphur and strontium with depth.
- Zinc concentrations in all three zones exceeded the interim PWQO (0.02 mg/L) but only exceeded the existing PWQO (0.03 mg/L) in zone 2.

4.4 TW14

This well has one main water producing feature located at approximately 30 mbtc. There are several sizable enlargements in the upper portion of the borehole, around 13 and 16 mbtc, but testing indicates that they are not particularly transmissive. There appears to be more vertical hydraulic response at this location compared to wells MWB12 and MWB13. However, this may be due, in part, to cross borehole influences similar to that observed at well MB10-I (TW10) since there are several uncased wells near TW14, including test well MWB22-I (approximately 22 m away) and, to a lesser extent, TW15 (approximately 45 m away). Well MWB22-I has since been screened and cased as a multilevel monitoring well.

Hydraulic testing results from test zones 2 and 3 are similar, as expected, since they both contain the major water producing feature located at 30 mbtc. There also appears to be a similar trend of increasing TDS with depth as seen at the other wells.

Important observations for this test well are summarized as follows:

- This well has one main water producing feature located at 30.0 mbtc.
- The main producing zone has a transmissivity of 84.4 m^2/day. There are a few other minor features but they do not appear to be significant water producers.
- The testing indicates some hydraulic connection between sample zones; this may be due to nearby open borehole test wells allowing short circuiting of the isolated sample zone.
- There appears to be a trend of increasing TDS, sulphate and several trace metals with depth.
- Nitrate concentrations exceed the ODWS (10 mg/L) in zone 1 and are elevated in zone 2 and 3. Because zone 1 makes up a small total of the wells flow, the total combined concentrations from this well will be less than the ODWS for this parameter.
- Arsenic concentrations in zone 3 of 0.006 mg/L exceed the interim PWQO (0.005 mg/L) but not the existing PWQO (0.1 mg/L). Because the other zones in this well do not exceed PWQO, these resulting levels of arsenic concentration of the combined output from TW14 may be acceptable.
- Zinc concentrations exceed the PWQO (0.03 mg/L) in zones 2 and 3.

4.5 TW15

This well has one main water producing zone made up of several fractures from approximately 32-34 mbtc. There are also several sizable enlargements in the upper portion of the borehole from 10-13 mbtc, but testing indicates they are not that transmissive. There appears to be more vertical hydraulic response at this location compared to wells MWB12 and MWB13. However this may be due, in part, to cross borehole influences similar to what was seen at nearby well MBW10-I (TW10) since there are several uncased wells near TW15, including test well MWB22-I (approximately 22 m away) and, to a lesser extent, TW14 (approximately 45 m away). Well MWB22-I has since been screened and cased into a multilevel monitoring well.

There are a few subtle differences in water chemistry between zones, but the differences are not as significant compared to other wells tested.

Important observations for this test well are summarized as follows:

- This well has one main water producing zone made up of several fractures from 32-34 mbtc.
- The main producing zone has a transmissivity of 115 m^2/day. There are a few other minor features but they do not appear to be significant water producers.
- Hydraulic testing indicates some hydraulic connection between sample zones; this may be due to nearby open borehole test wells allowing short circuiting of the isolated sample zone.
- There is not an obvious increasing trend in TDS with depth, as seen in the other tested wells. Some trace metals do show an increasing trend, notably strontium and uranium.
- Nitrate level are below the ODWS (10 mg/L), but are elevated.

Respectfully submitted,
Lotowater Technical Services Inc.

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Bill Beaton, M.Sc, P.Eng.
General Manager

APPENDIX 1

Transmissivity Analysis

Lotowater
TECHNICAL SERVICES INC.

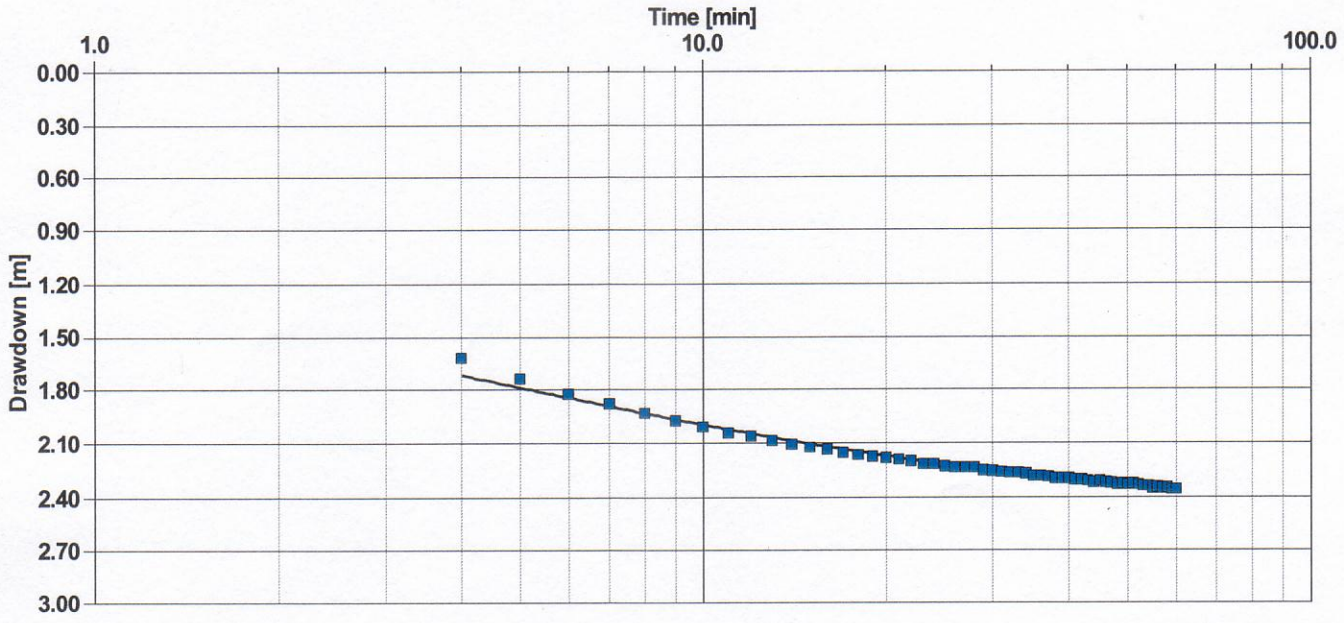
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB10 (TW10), Zone 1 (0-17.4 m)	Pumping Test: MWB10 (Zone 1)	Pumping well: MWB10
Test conducted by: Lotowater Technical Services		Test date: 06/11/2006
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge rate: 2.1 [l/s]	



Calculation after Hantush

Observation well	Transmissivity [m²/d]	Storage coefficient	Hydr. resistance [min]	Radial distance to PW [m]	
MWB10	4.13×10^{1}	1.03×10^{-1}	4.51×10^{2}	0.13	

Lotowater
TECHNICAL SERVICES INC.

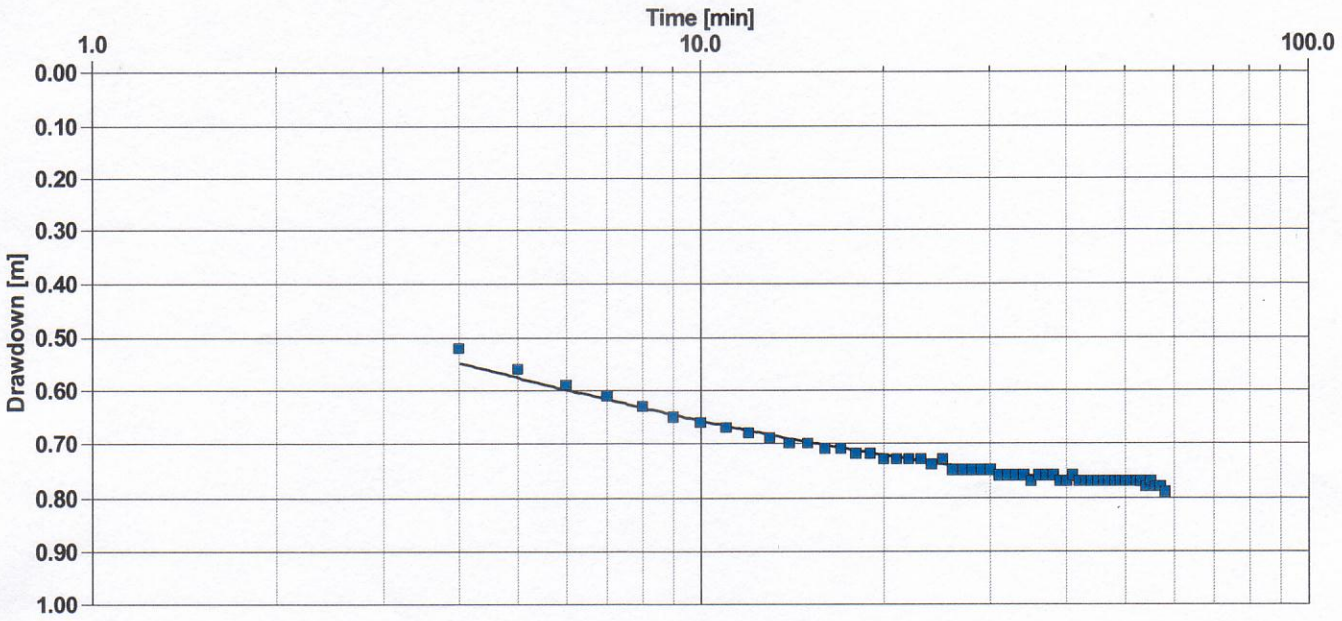
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB10 (TW10), Zone 2 (23.8-27.6 m)	Pumping Test: MWB10 (Zone 2)	Pumping well: MWB10
Test conducted by: Lotowater Technical Services		Test date: 06/11/2006
Analysis performed by: Boyd Pendleton		Analysis date: 17/07/2007
Aquifer Thickness:	Discharge rate: 0.3 [l/s]	



Calculation after Hantush

Observation well	Transmissivity [m²/d]	Storage coefficient	Hydr. resistance [min]	Radial distance to PW [m]	
MWB10	1.44×10^{1}	1.06×10^{-1}	3.30×10^{2}	0.13	

Lotowater
TECHNICAL SERVICES INC.

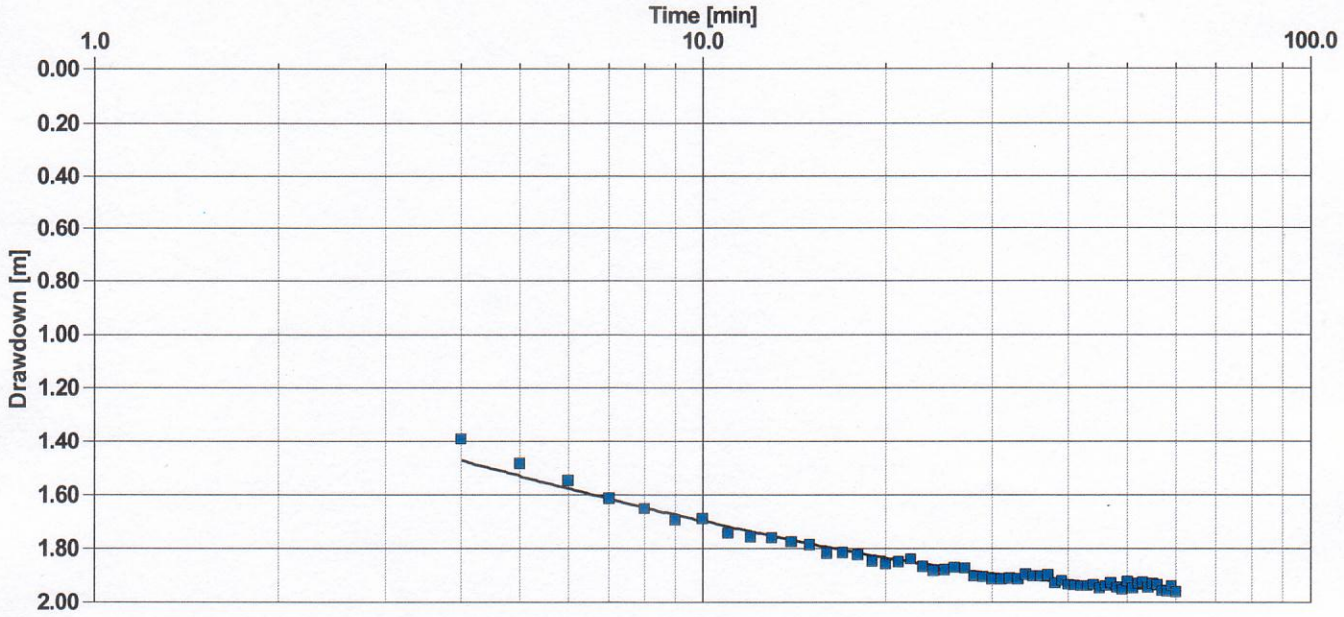
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB10 (TW10), Zone 3 (32.8-46.5 m)	Pumping Test: MWB10 (Zone 3)	Pumping well: MWB10
Test conducted by: Lotowater Technical Services		Test date: 07/11/2006
Analysis performed by: Boyd Pendleton		Analysis date: 17/07/2007
Aquifer Thickness:	Discharge rate: 2.1 [l/s]	



Calculation after Hantush

Observation well	Transmissivity [m²/d]	Storage coefficient	Hydr. resistance [min]	Radial distance to PW [m]	
MWB10	4.92×10^{1}	1.07×10^{-1}	3.30×10^{2}	0.13	

Lotowater
TECHNICAL SERVICES INC.

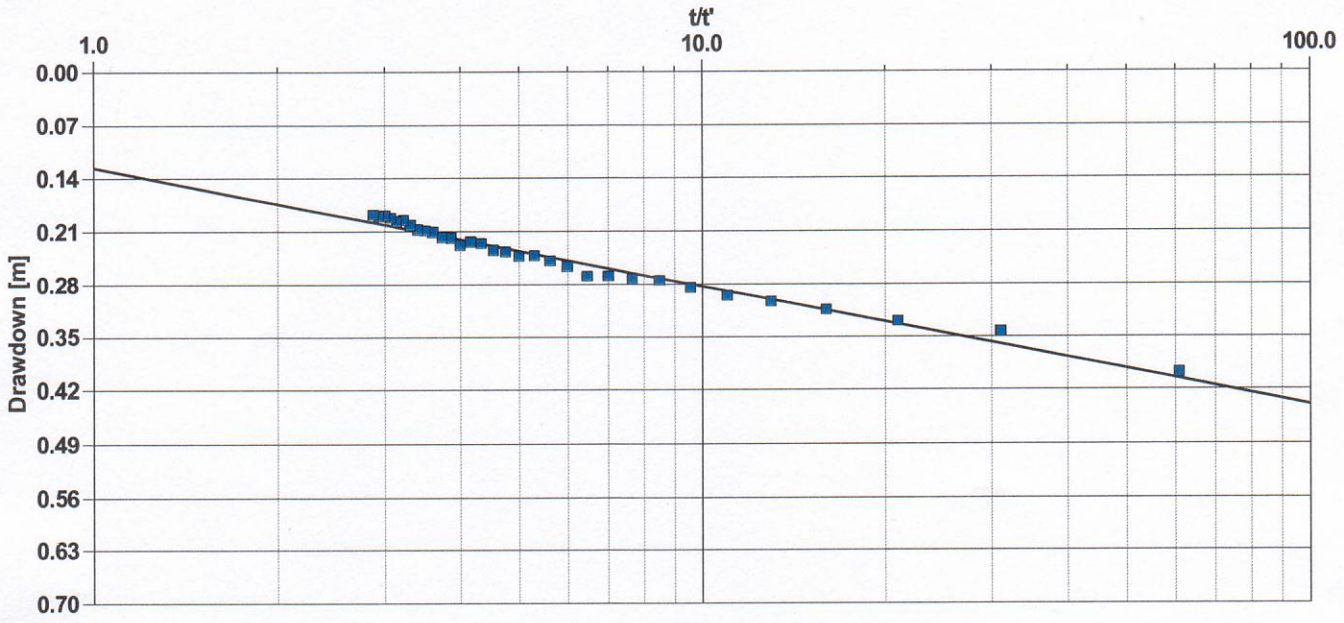
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB12 (TW12), Zone 0 (0-15.0 m)	Pumping Test: MWB12 (Zone 1)	Pumping well: MWB10
Test conducted by: Lotowater Technical Services		Test date: 01/11/2006
Analysis performed by: Boyd Pendleton		Analysis date: 17/07/2007
Aquifer Thickness:	Discharge: variable, average rate 3.2 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m^2/d]	Radial distance to PW [m]	
MWB10	3.22×10^2	0.13	

Lotowater
TECHNICAL SERVICES INC.

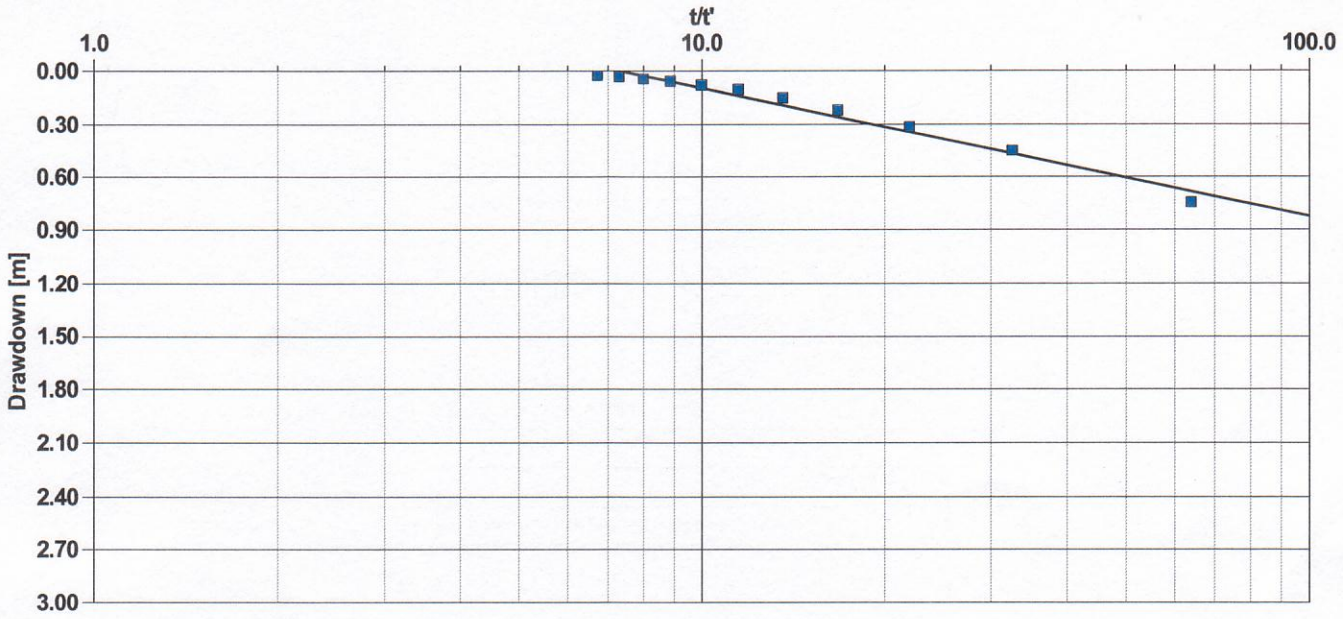
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB12 (TW12), Zone 2 (16.8-21.0 m)	Pumping Test: MWB12 (Zone 2)	Pumping well: MWB12
Test conducted by: Lotowater Technical Services		Test date: 02/11/2006
Analysis performed by: Boyd Pendleton		Analysis date: 17/07/2007
Aquifer Thickness:	Discharge: variable, average rate 0.3 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
MWB12	6.54×10^{0}	0.13	

Lotowater
TECHNICAL SERVICES INC.

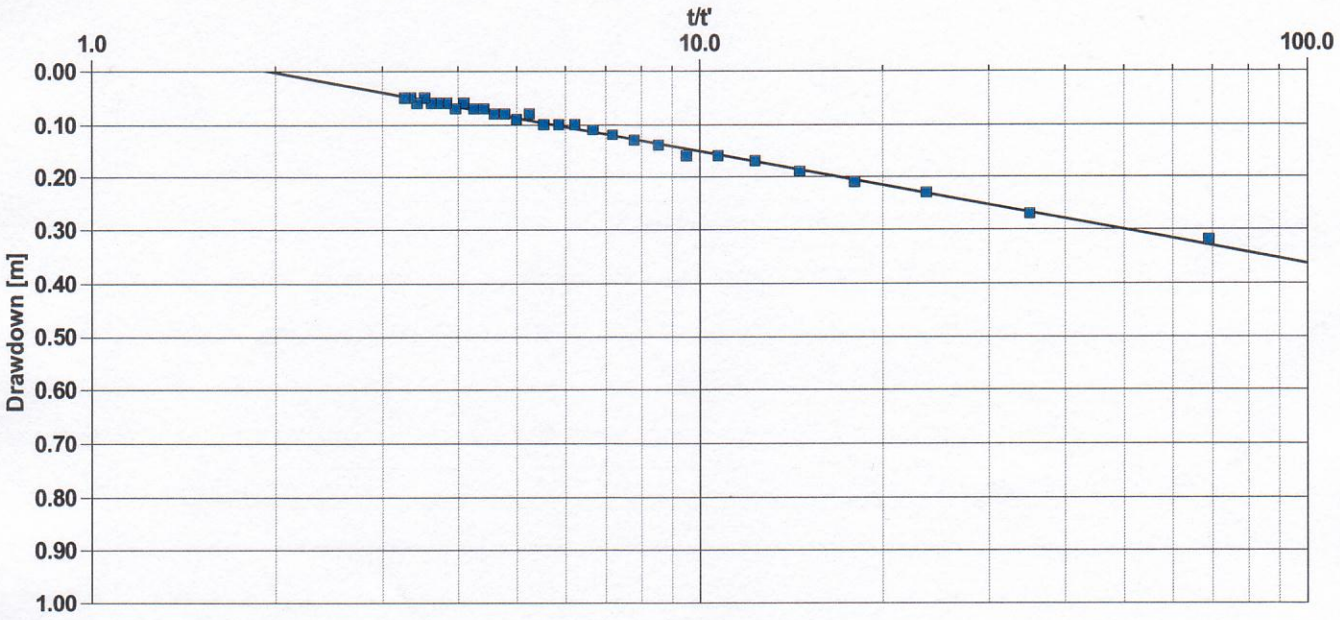
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB12 (TW12), Zone 3 (33.3-40.8 m)	Pumping Test: MWB12 (Zone 3)	Pumping well: MWB12
Test conducted by: Lotowater Technical Services		Test date: 02/11/2006
Analysis performed by: Boyd Pendleton		Analysis date: 17/07/2007
Aquifer Thickness:	Discharge: variable, average rate 2.1 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m^2/d]	Radial distance to PW [m]	
MWB12	1.56×10^2	0.13	

Lotowater
TECHNICAL SERVICES INC.

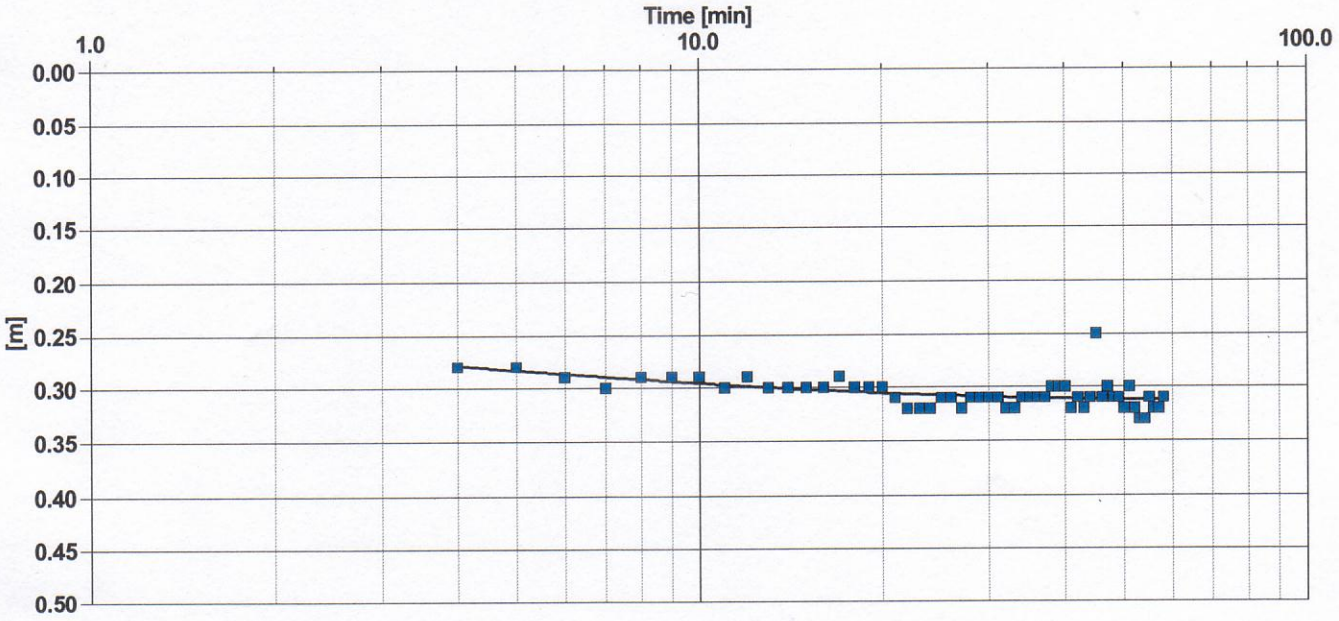
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB13 (TW13), Zone 1 (0-15.0 m)	Pumping Test: MWB13 (Zone 1)	Pumping well: MWB13
Test conducted by: Lotowater Technical Services		Test date: 30/10/2006
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 4.7 [l/s]	



Calculation after Hantush

Observation well	Transmissivity [m²/d]	Storage coefficient	Hydr. resistance [min]	Radial distance to PW [m]	
MWB13	1.35×10^{3}	3.76×10^{-3}	6.91×10^{3}	0.13	

Lotowater
TECHNICAL SERVICES INC.

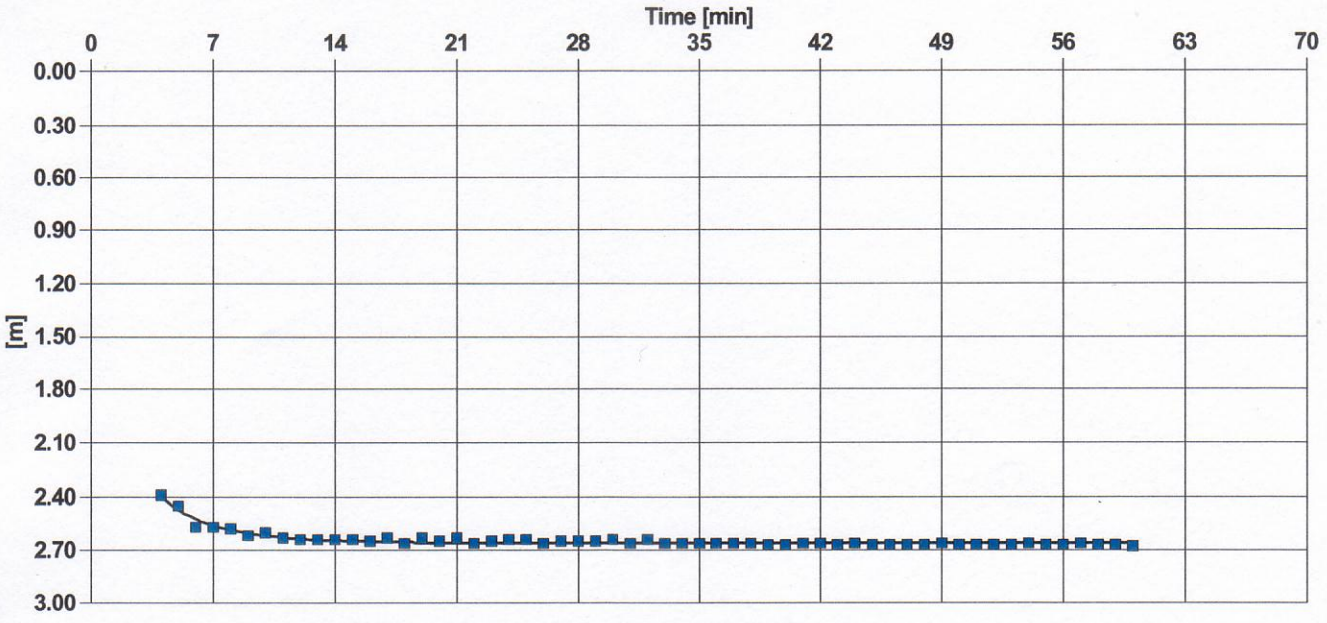
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB13 (TW13), Zone 2 (23.3-41.0 m)	Pumping Test: MWB13 (Zone 2)	Pumping well: MWB13
Test conducted by: Lotowater Technical Services		Test date: 30/10/2006
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge rate: 2.1 [l/s]	



Calculation after Hantush

Observation well	Transmissivity [m²/d]	Storage coefficient	Hydr. resistance [min]	Radial distance to PW [m]	
MWB13	1.62×10^{1}	2.25×10^{-1}	2.16×10^{1}	0.13	

Lotowater
TECHNICAL SERVICES INC.

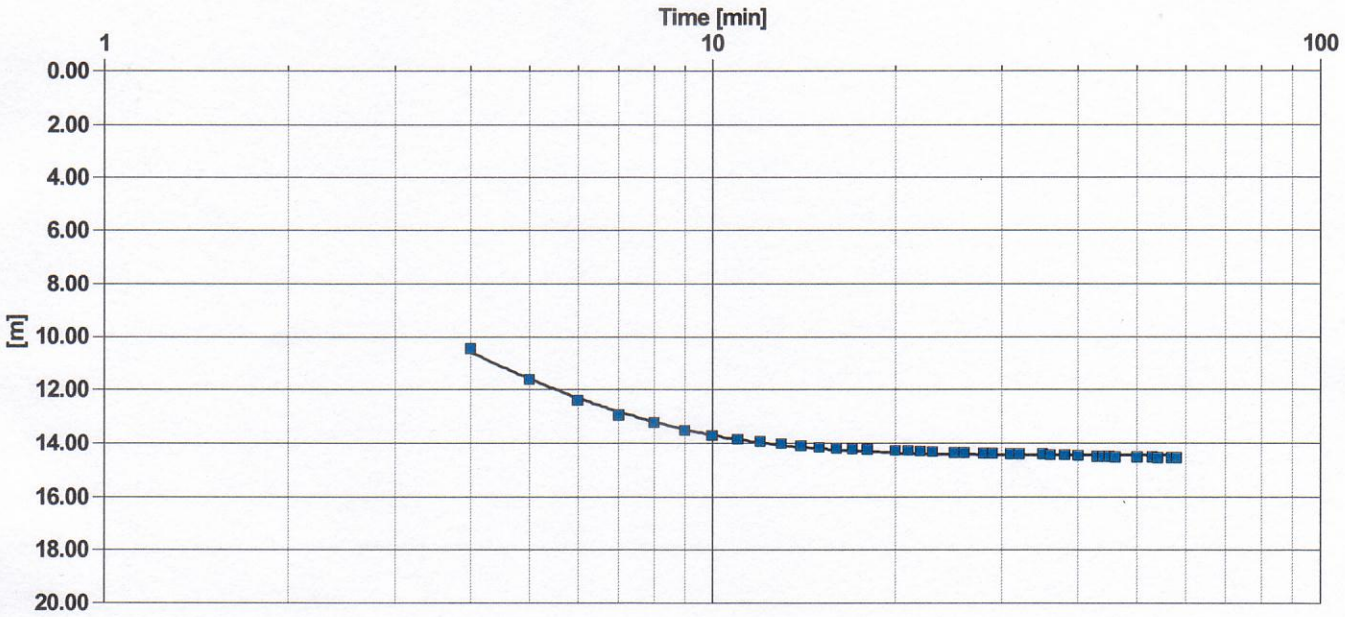
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well MWB13 (TW13), Zone 3 (32.8-41.0 m)	Pumping Test: MWB13 (Zone 3)	Pumping well: MWB13
Test conducted by: Lotowater Technical Services		Test date: 30/10/2006
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge rate: 1.3 [l/s]	



Calculation after Hantush

Observation well	Transmissivity [m²/d]	Storage coefficient	Hydr. resistance [min]	Radial distance to PW [m]	
MWB13	7.49×10^{-1}	9.87×10^{-2}	5.69×10^{1}	0.13	

Lotowater
TECHNICAL SERVICES INC.

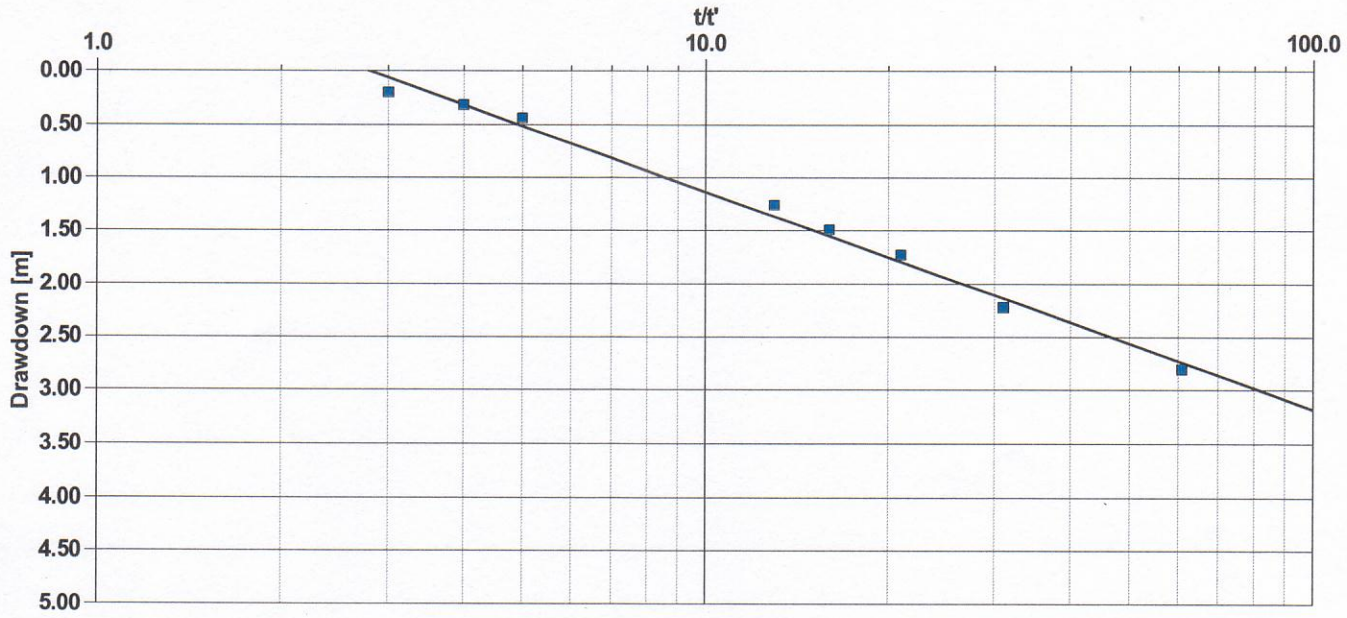
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well TW14, Zone 1 (0-17.0 m)	Pumping Test: TW14 (Zone 1)	Pumping well: TW14
Test conducted by: Lotowater Technical Services		Test date: 16/02/2007
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 0.7 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
TW14	5.41×10^{0}	0.13	

Lotowater
TECHNICAL SERVICES INC.

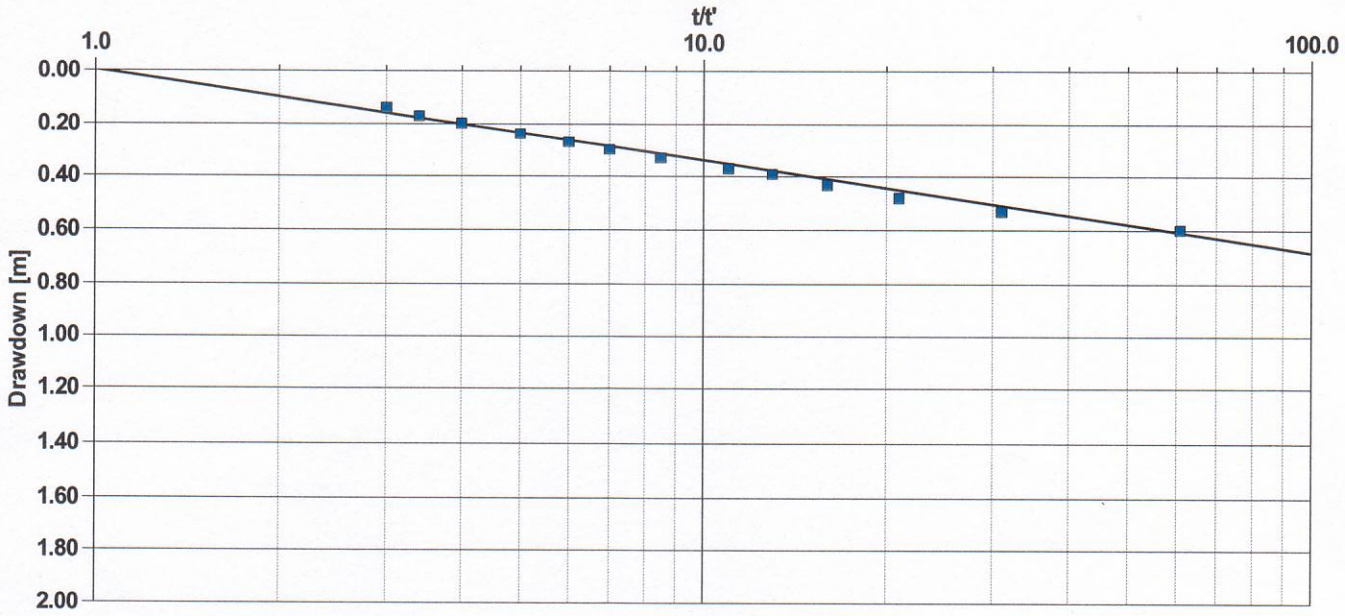
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well TW14, Zone 2 (18.3-45.0 m)	Pumping Test: TW14 (Zone 2)	Pumping well: TW14
Test conducted by: Lotowater Technical Services		Test date: 19/02/2007
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 1.83 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
TW14	8.40×10^{1}	0.13	

Lotowater
TECHNICAL SERVICES INC.

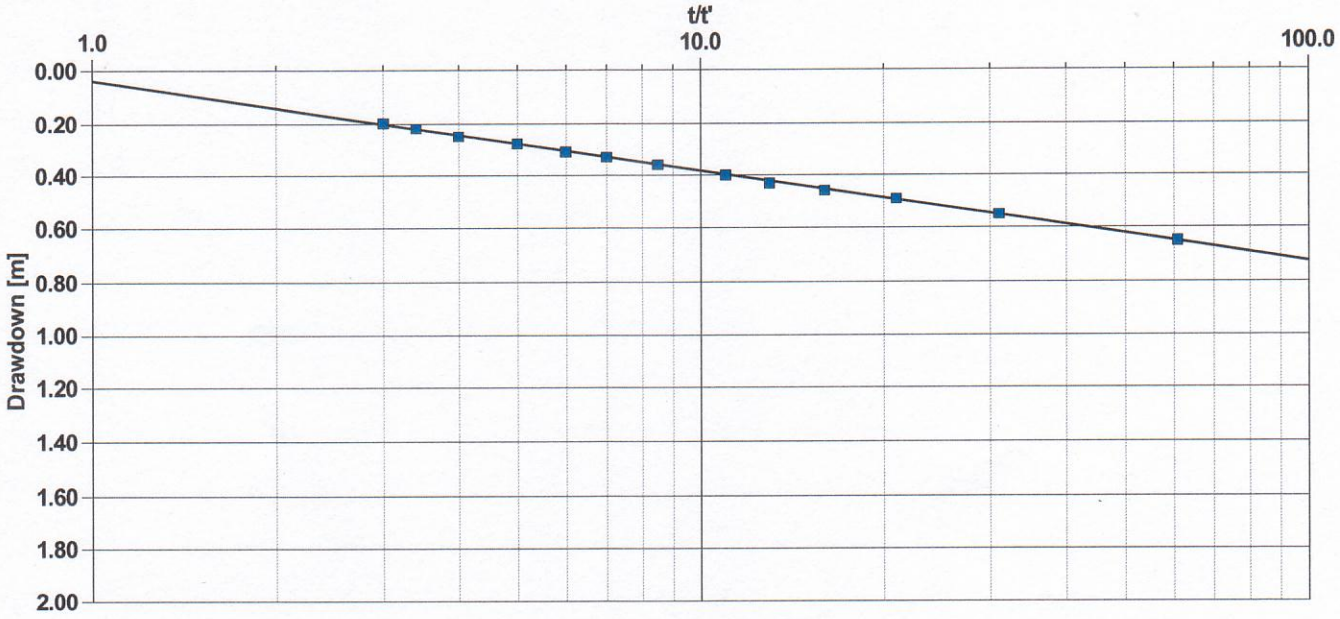
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well TW14, Zone 3 (29.8-45.0 m)	Pumping Test: TW14 (Zone 3)	Pumping well: TW14
Test conducted by: Lotowater Technical Services		Test date: 21/02/2007
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 1.83 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
TW14	8.44×10^{1}	0.13	

Lotowater
TECHNICAL SERVICES INC.

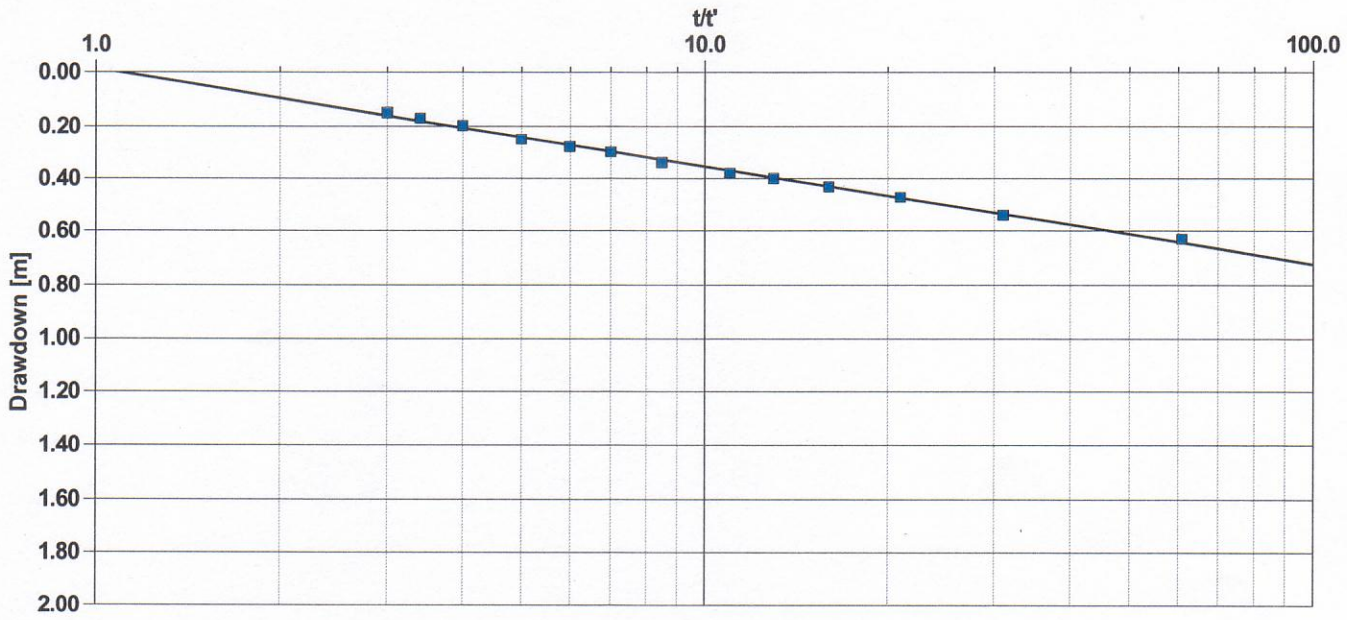
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well TW15, Zone 1 (0-15.2 m)	Pumping Test: TW15 (Zone 1)	Pumping well: TW15
Test conducted by: Lotowater Technical Services		Test date: 07/02/2007
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 0.4 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
TW15	1.71×10^{1}	0.13	

Lotowater
TECHNICAL SERVICES INC.

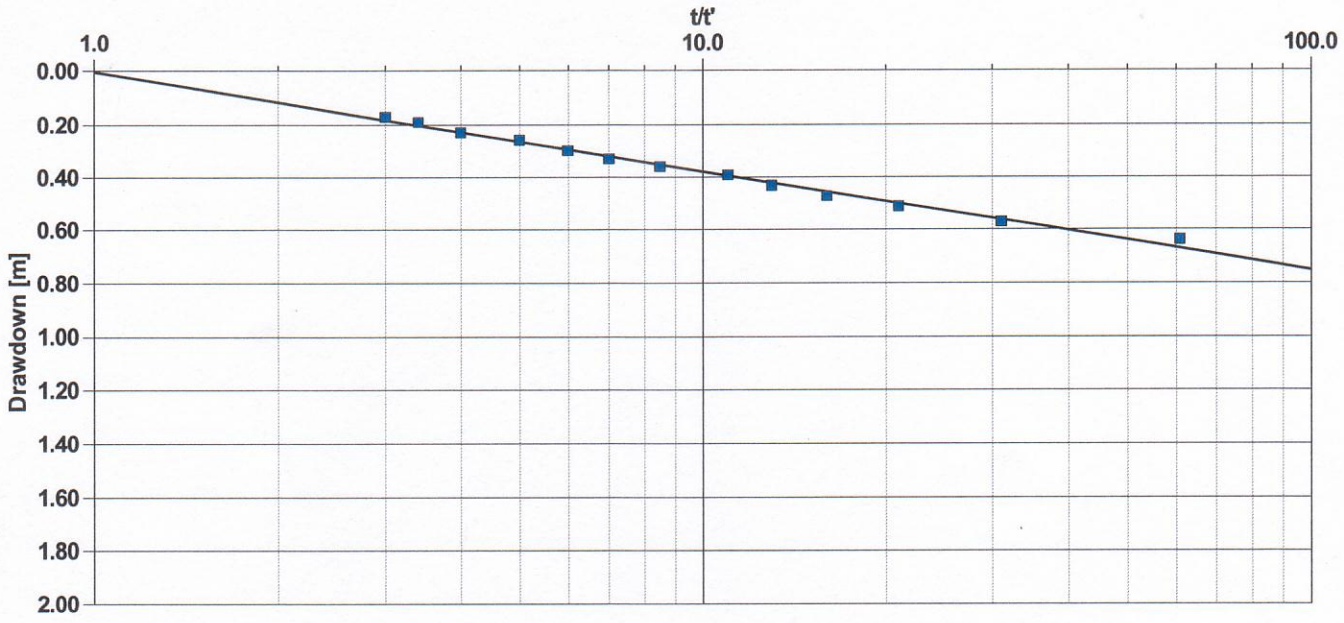
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well TW15, Zone 2 (16.5-42.7 m)	Pumping Test: TW15 (Zone 2)	Pumping well: TW15
Test conducted by: Lotowater Technical Services		Test date: 07/02/2007
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 2.7 [l/s]	



Calculation after Theis & Jacob

Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
TW15	1.15×10^2	0.13	

Lotowater
TECHNICAL SERVICES INC.

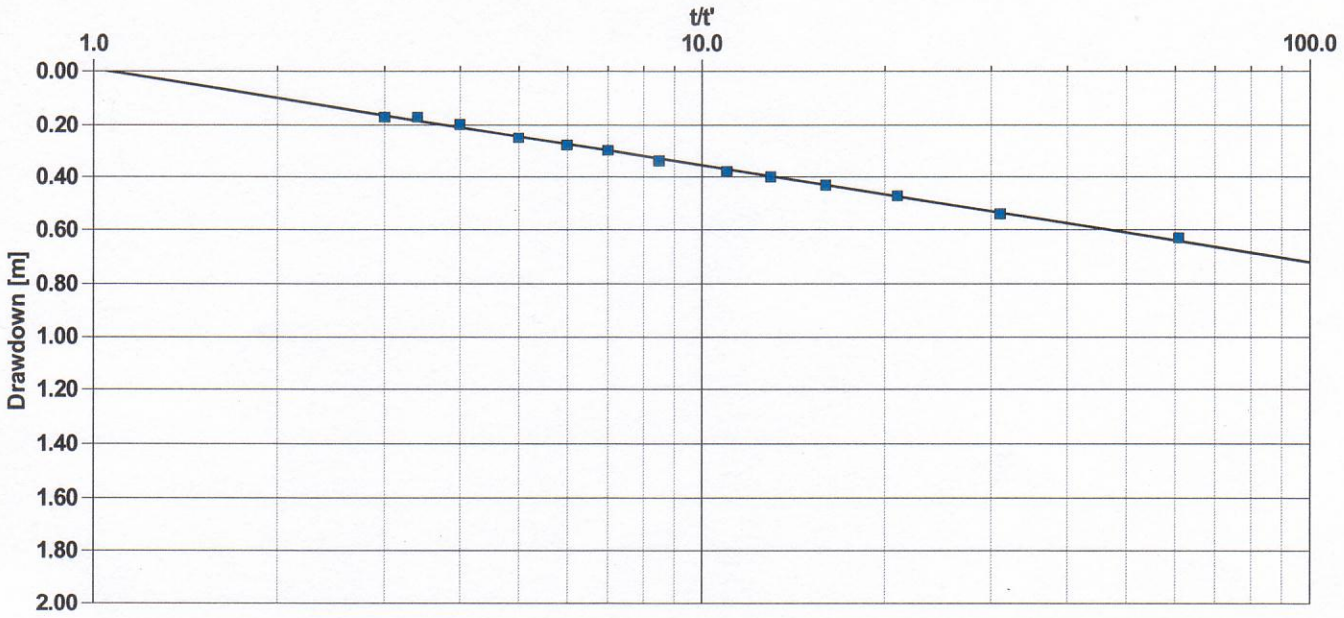
Pumping Test Analysis Report

Project: Flamborough Quarry

Number: 147-009

Client: CBM St Marys

Location: Well TW15, Zone 3 (27.4-42.7 m)	Pumping Test: TW15 (Zone 3)	Pumping well: TW15
Test conducted by: Lotowater Technical Services		Test date: 08/02/2007
Analysis performed by: Boyd Pendleton		Analysis date: 11/07/2007
Aquifer Thickness:	Discharge: variable, average rate 1.3 [l/s]	

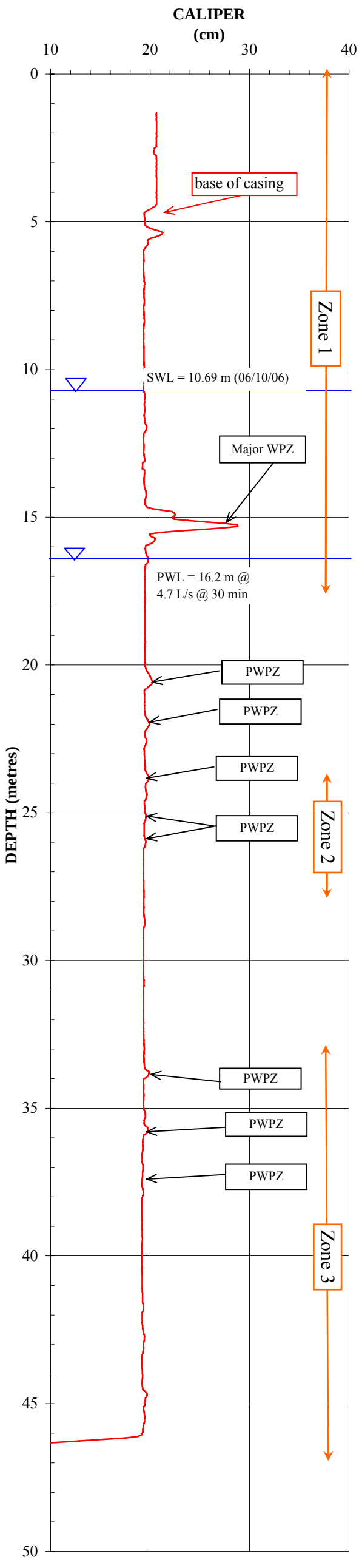


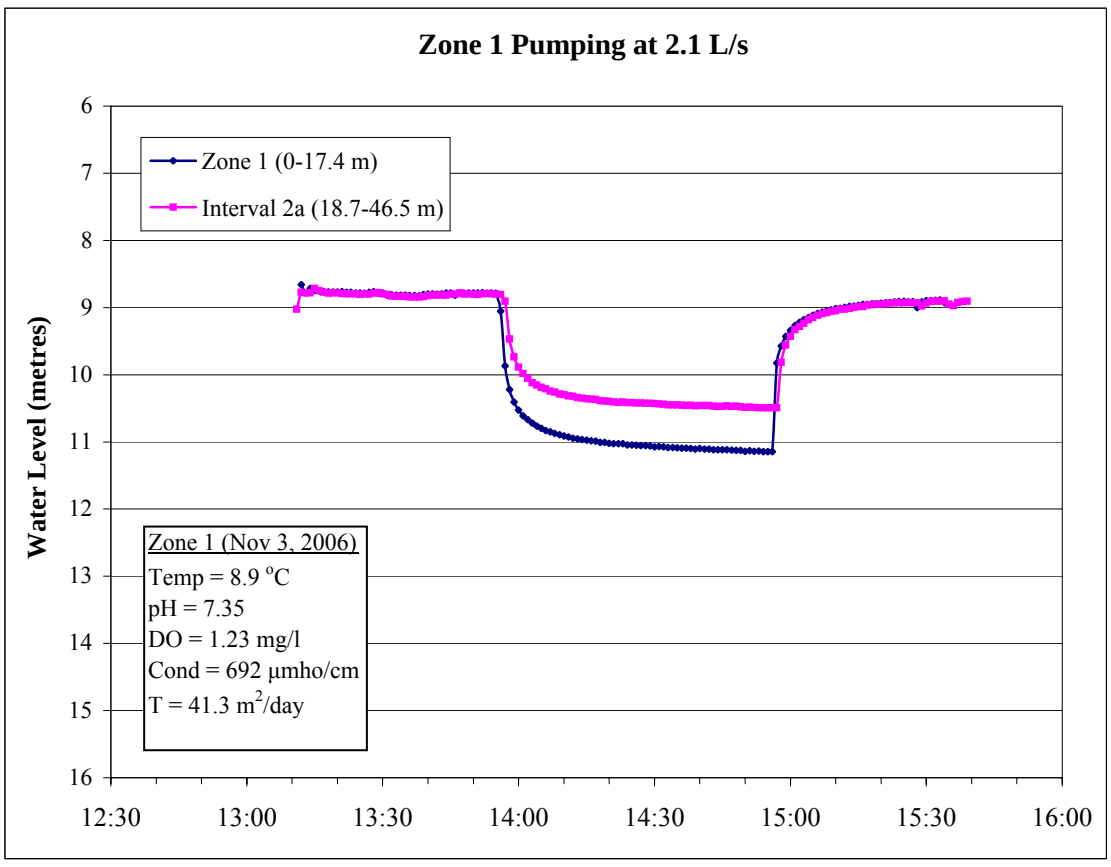
Calculation after Theis & Jacob

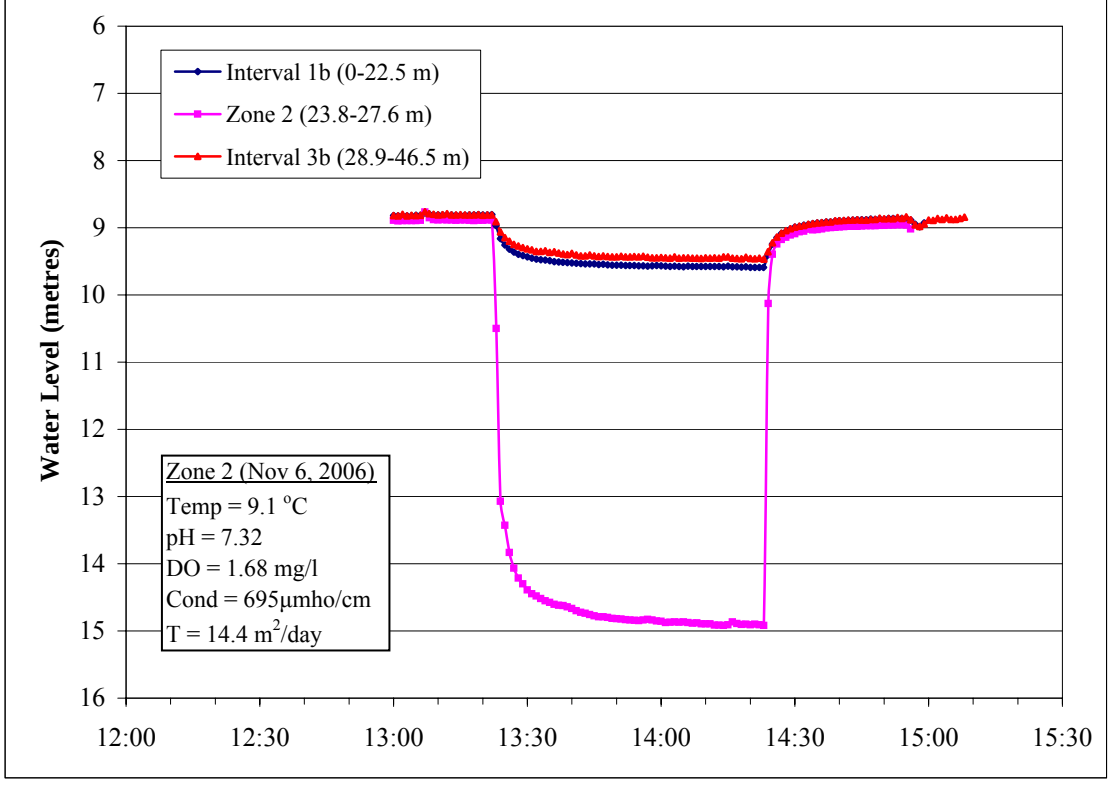
Observation well	Transmissivity [m²/d]	Radial distance to PW [m]	
TW15	5.65×10^{1}	0.13	

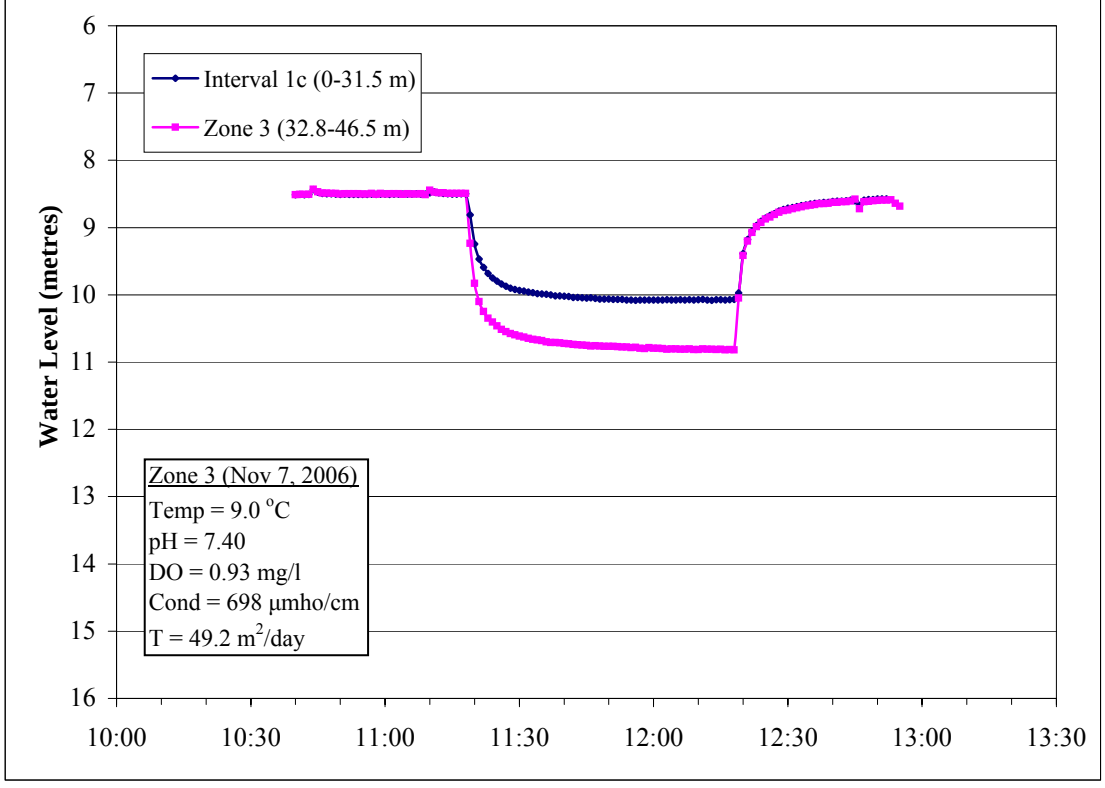
APPENDIX 2

Packer Testing Results









Notes: (1) Measuring Point: Top of Casing 0.72 m above ground

(2) Test Dates: November 3, 6 and 7, 2006

(3) PWPZ = Possible water producing zone identified in October 5 pumping video

(4) Water samples collected for lab analysis at 55 min into pumping

(5) Note nearby observation well BH5 may be short circuiting packers

(6) SWL = static water level, PWL = pumping water level

(7) Field water chemistry collected at 60 minutes

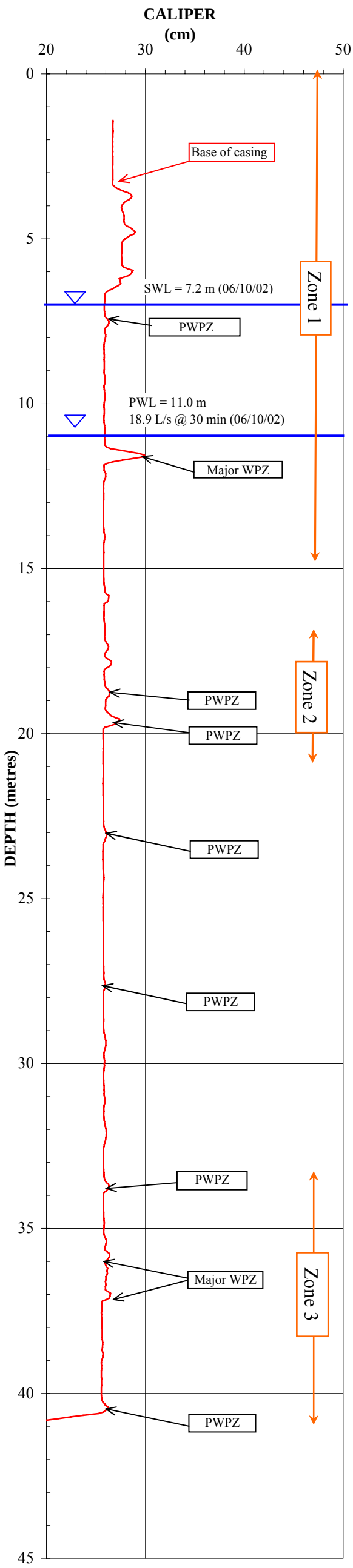
CBM ST MARYS CEMENT

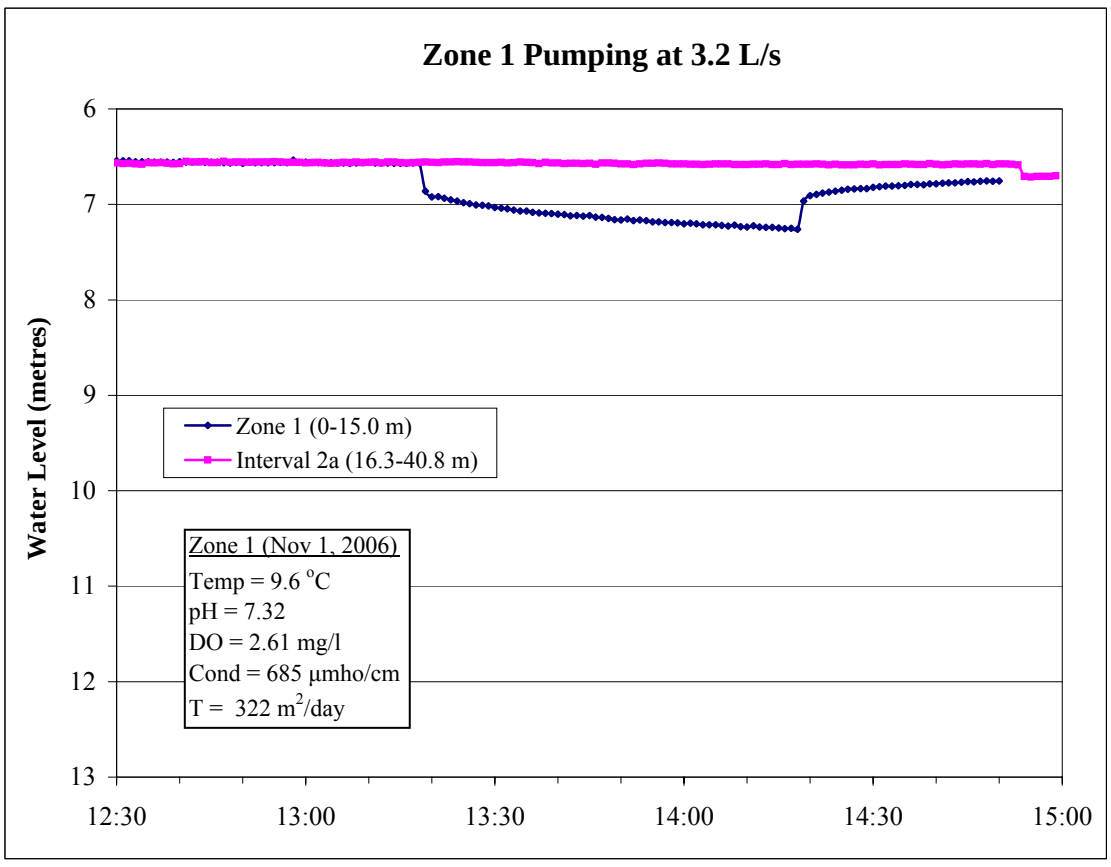
Flamborough Quarry

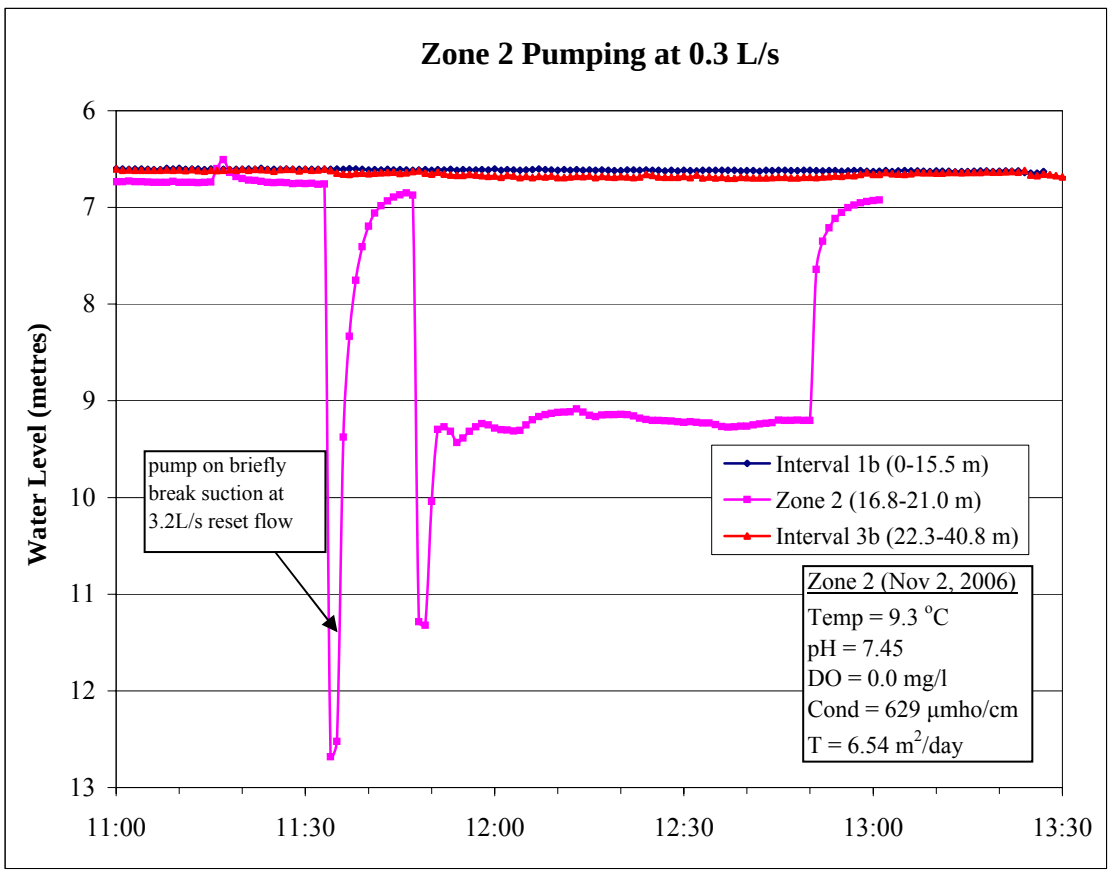
Well MWB10-I (TW10) Packer Testing

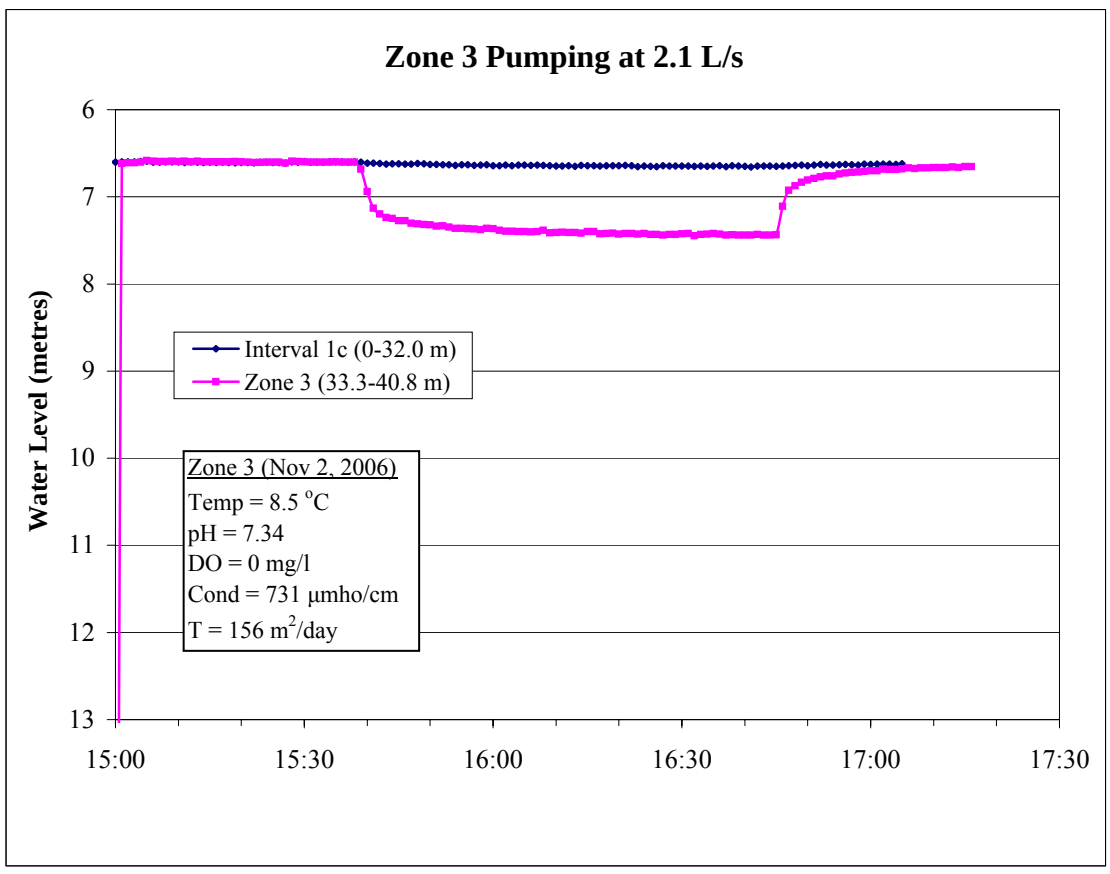
Lotowater Technical Services Inc. **Figure 2a**

Reference: 147-009 07/01/30









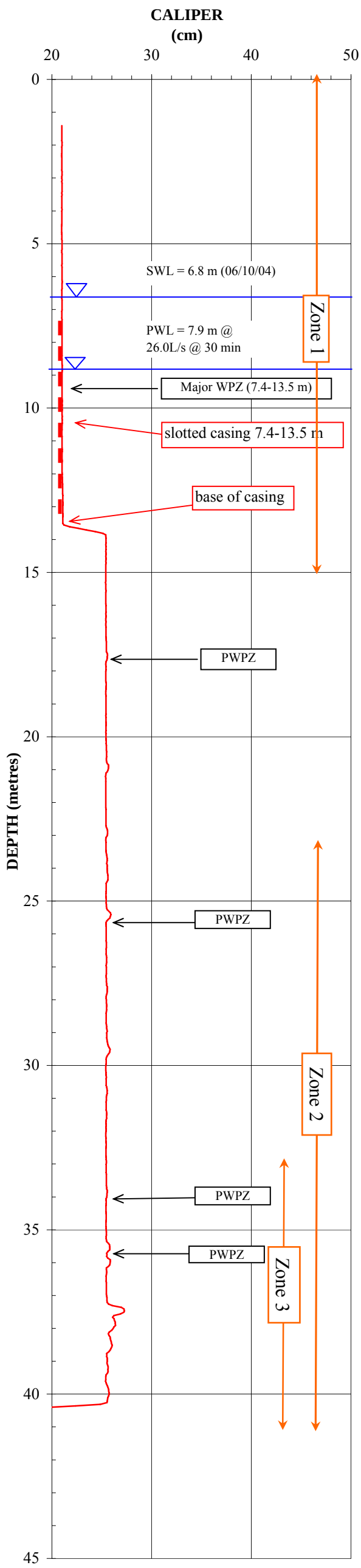
Notes: (1) Measuring Point: Top of Casing 1.0 m above ground
(2) Test Dates: November 1-2, 2006
(3) Field water chemistry collected after 60 minutes of pumping
(4) Water samples collected for lab analysis at 55 min into pumping
(5) PWPZ = Possible water producing zone identified in October 4 pumping video
(6) SWL = static water level, PWL = pumping water level

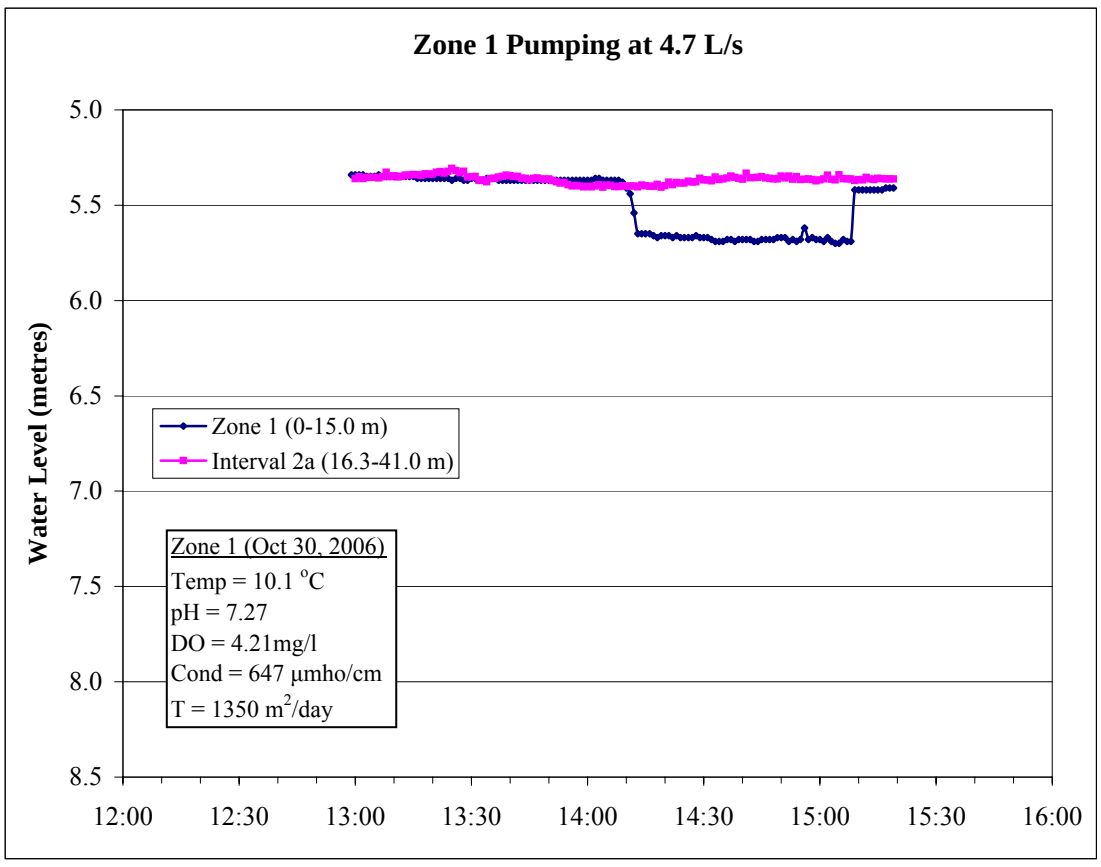
CBM ST MARYS CEMENT

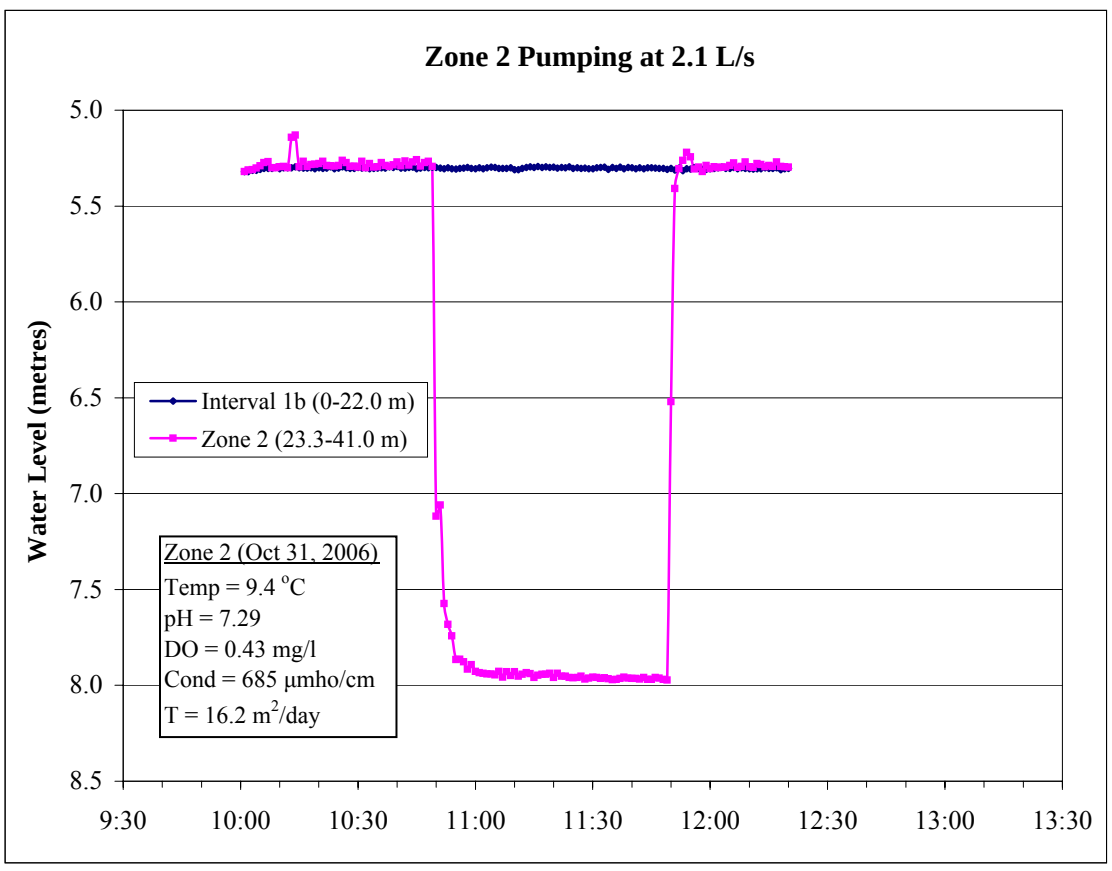
Flamborough Quarry

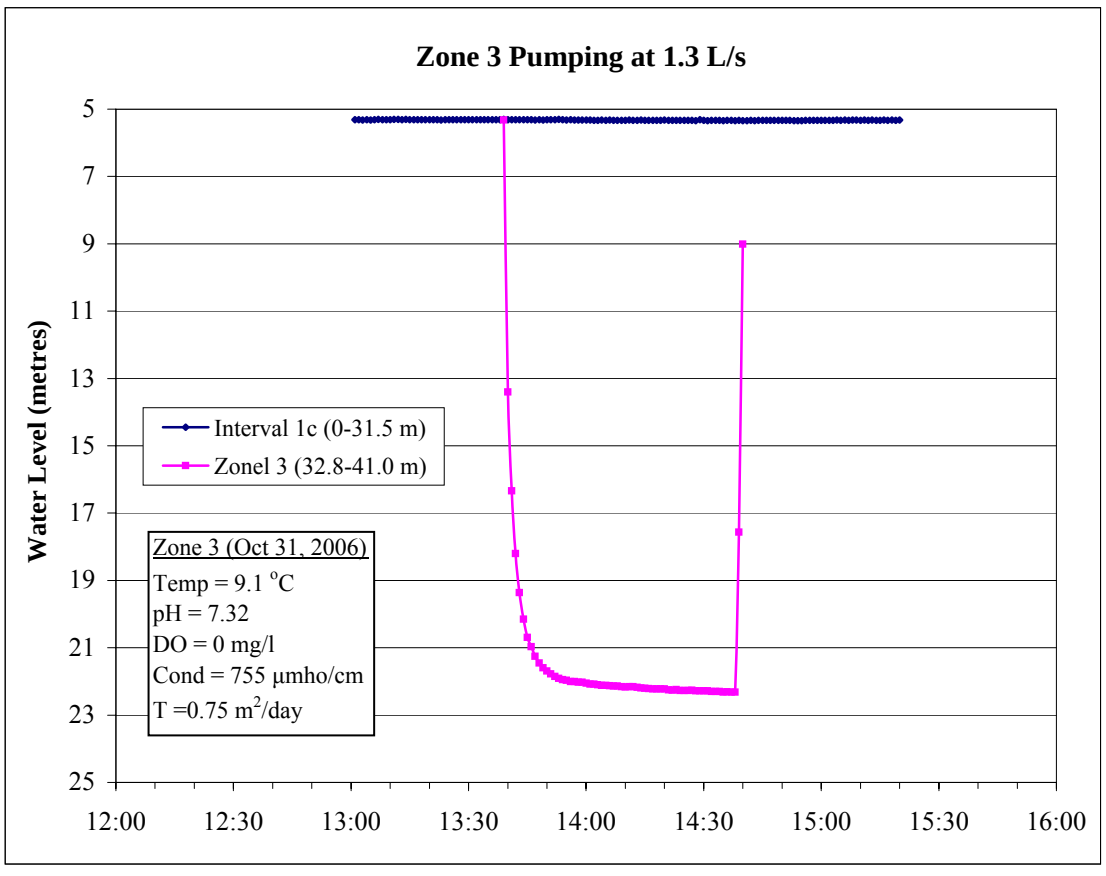
Well MWB12 (TW12) Packer Testing

Lotowater Technical Services Inc. **Figure 2b**
Reference: 147-009 06/11/01









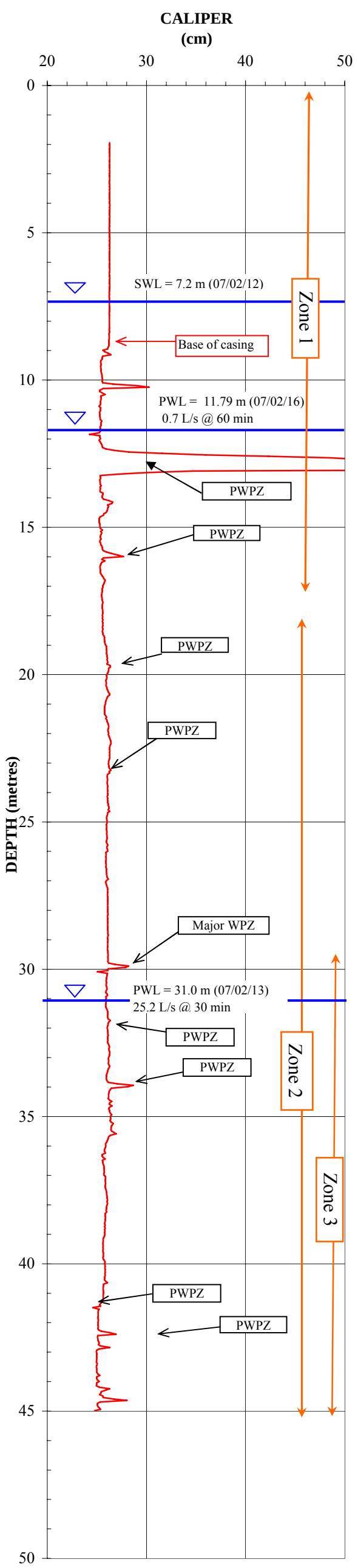
Notes: (1) Measuring Point: Top of Casing 0.50 m above ground
(2) Test Dates: October 30-31, 2006
(3) PWPZ = Possible water producing zone identified in October 3 pumping video
(4) Field water chemistry collected after 60 minutes of pumping
(5) Water samples collected for lab analysis at 50 min into pumping
(6) SWL = static water level, PWL = pumping water level

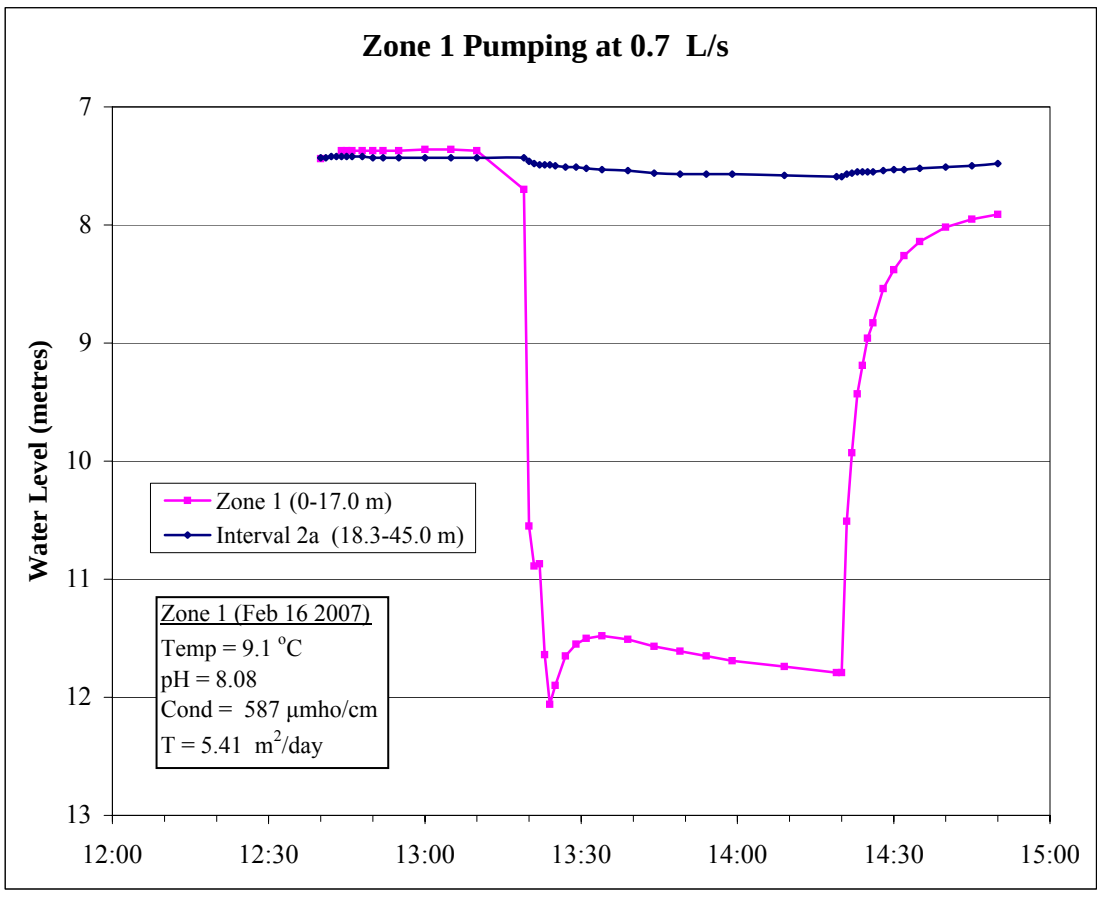
CBM ST MARYS CEMENT

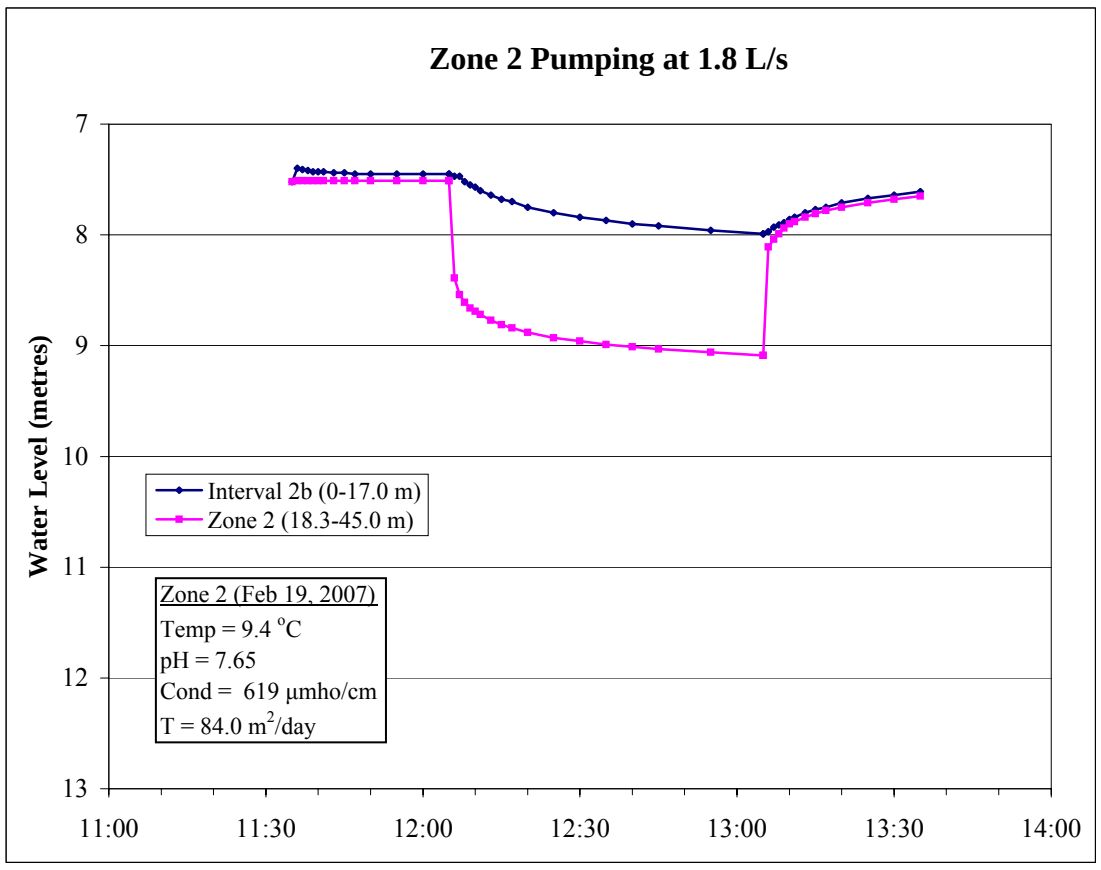
Flamborough Quarry

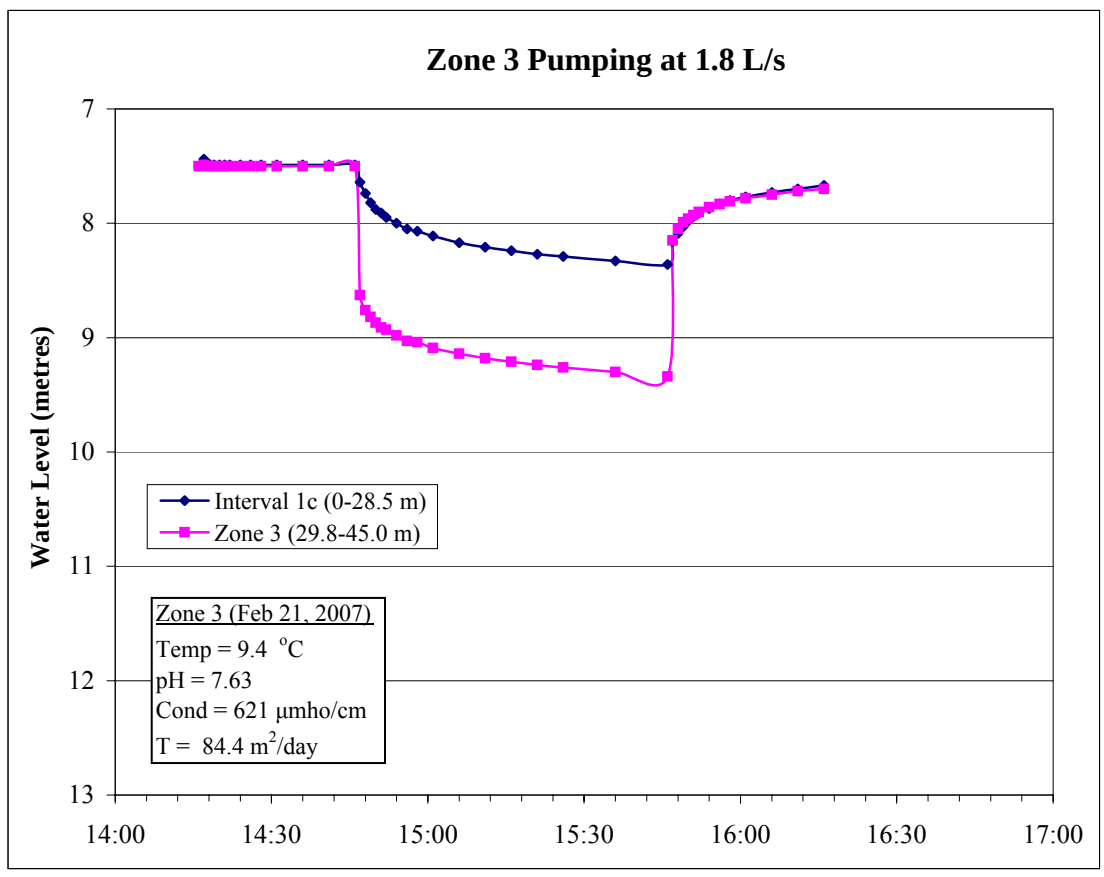
Well MWB13 (TW13) Packer Testing

Lotowater Technical Services Inc. **Figure 2c**
Reference: 147-009 06/11/01









Notes: (1) Measuring Point: Top of Casing 0.47 m above ground

(2) Test Dates: February 16-21, 2007

(3) Field water chemistry collected after 60 minutes of pumping

(4) Water samples collected for lab analysis at 50 min into pumping

(5) PWPZ = Possible water producing zone identified in February 12, 2007 pumping video and flow profile

(6) SWL = static water level, PWL = pumping water level

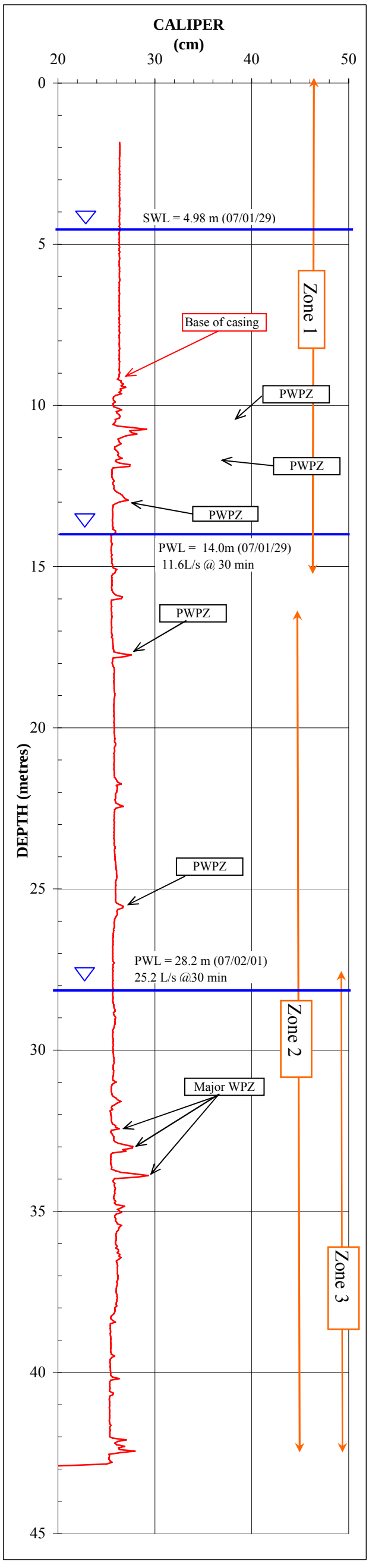
CBM ST MARYS CEMENT

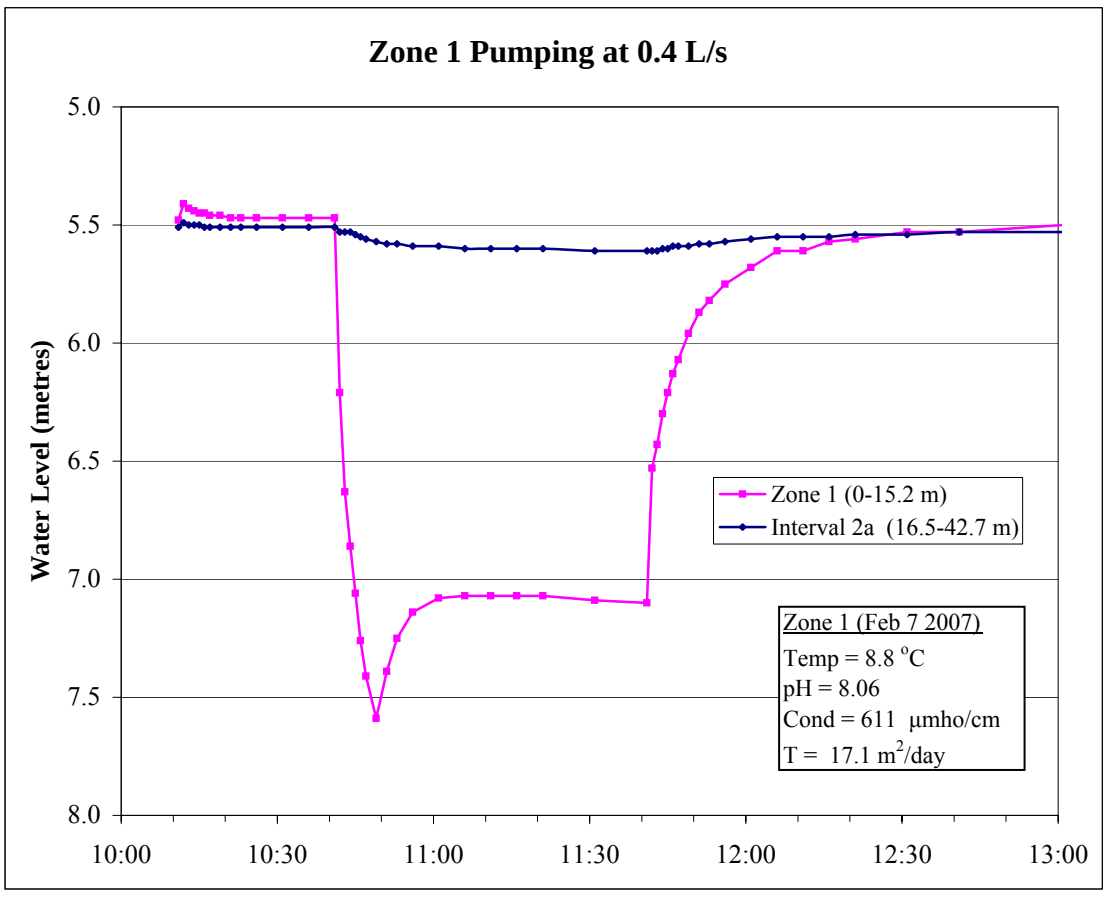
Flamborough Quarry

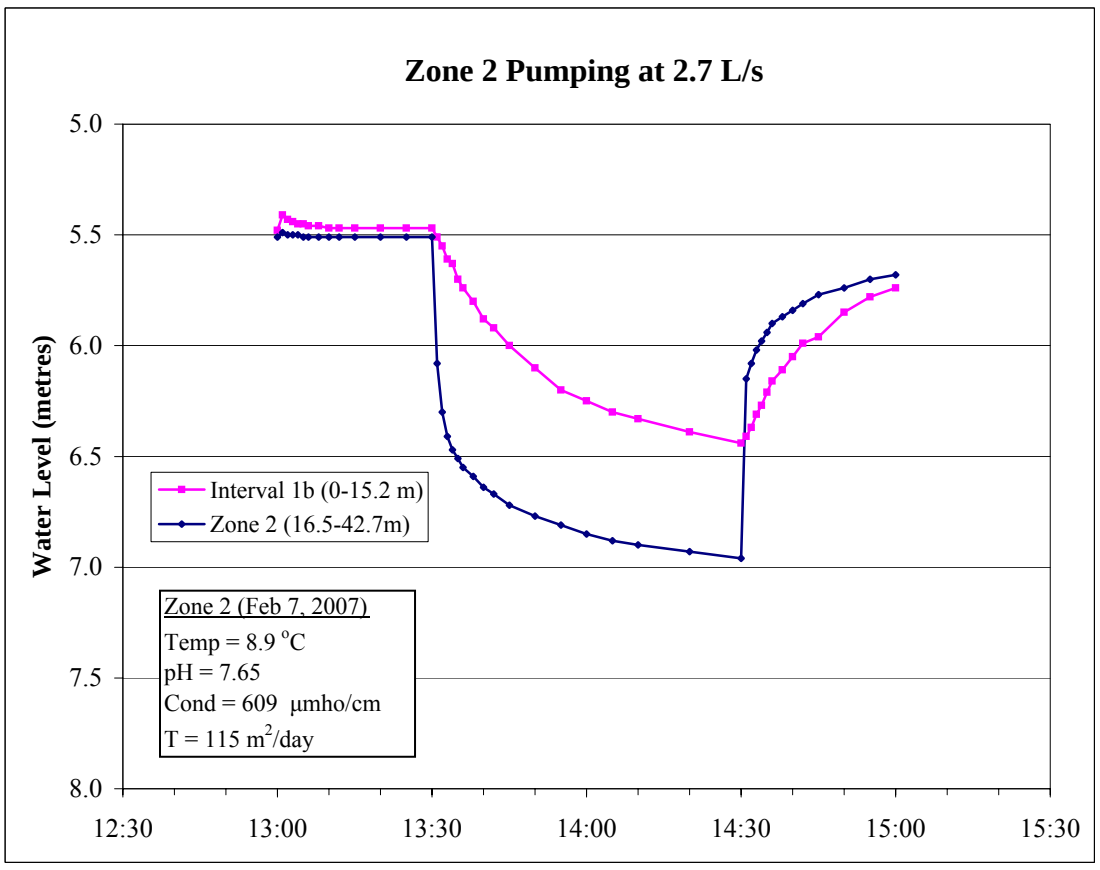
Well TW14 Packer Testing

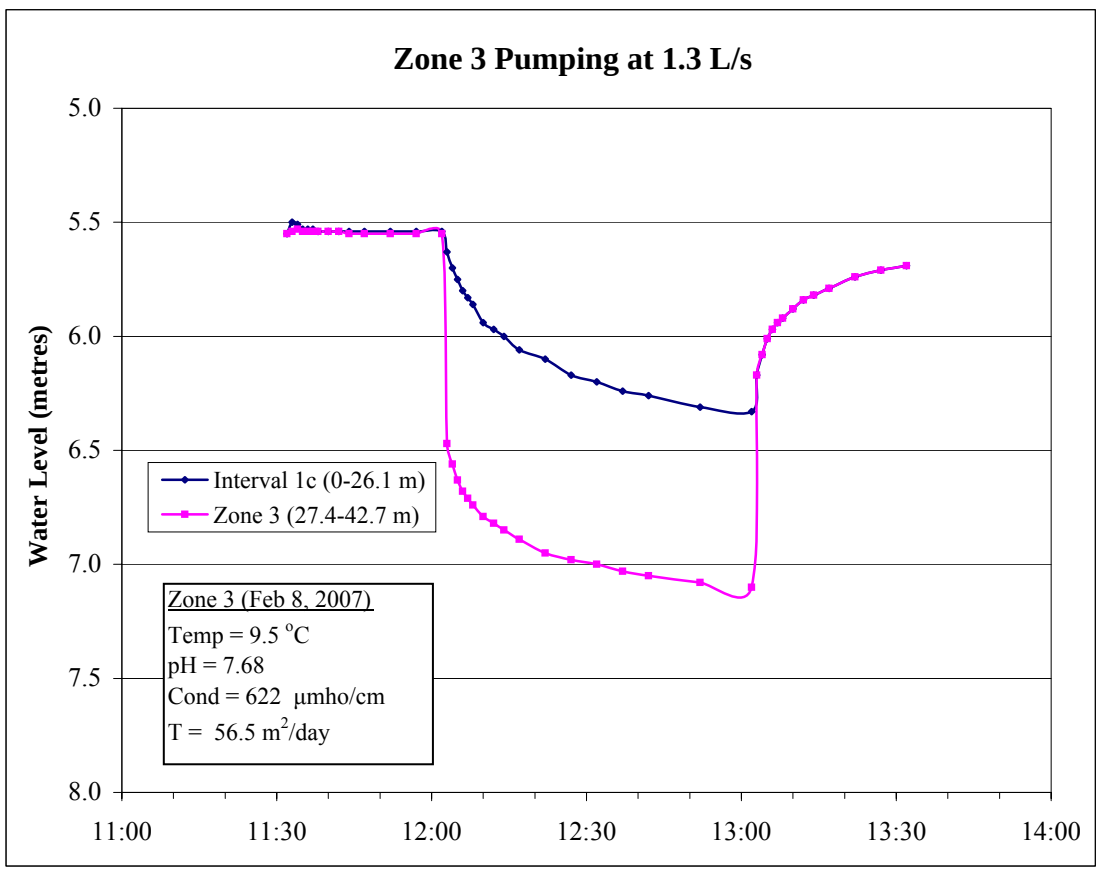
Lotowater Technical Services Inc. **Figure 2d**

Reference: 147-009 07/02/12









Notes: (1) Measuring Point: Top of Casing 0.45 m above ground
(2) Test Dates: February 7-8, 2007
(3) Field water chemistry collected after 60 minutes of pumping
(4) Water samples collected for lab analysis at 60 min into pumping
(5) PWPZ = Possible water producing zone identified in January 29, 2007 pumping video and flow profile
(6) SWL = static water level, PWL = pumping water level

CBM ST MARYS CEMENT

Flamborough Quarry

Well TW15 Packer Testing

Lotowater Technical Services Inc. **Figure 2e**
Reference: 147-009 07/02/12

APPENDIX 3

Summary of Well Water Chemistry (Laboratory)

TABLE 3a

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
MWB10-I (TW10)

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Top Depth of Zone	m			0	23.8	32.8	
Bottom Depth of Zone	m			17.4	27.6	46.5	
Flow	L/s			2.1	0.3	2.1	
Date sampled				06/11/03	06/11/06	06/11/07	
INORGANICS							
Total Ammonia-N	mg/L			0.07	0.1	0.08	0.05
Un-ionized Ammonia (7)	mg/L		0.020	<0.020	<0.020	<0.020	
Temperature (Field)	°C			8.9	9.1	9.0	
Conductivity	umho/cm			623	623	619	2
Fluoride (F-)	mg/L	1.5		ND	ND	ND	0.1
Total Organic Carbon (TOC)	mg/L			0.6	0.6	0.5	0.1
Orthophosphate (P)	mg/L			ND	ND	ND	0.01
pH	pH	6.5-8.5	6.5-8.5	8.0	8.1	8.1	N/A
Sulphide	mg/L	0.05		ND	ND	ND	0.02
Alkalinity (Total as CaCO3)	mg/L	30-500		273	271	274	1
Nitrite (N)	mg/L	1.0		ND	ND	ND	0.01
Chloride (Cl)	mg/L	250		6	7	6	1
Nitrate (N)	mg/L	10.0		2.2	3.1	1.7	0.1
Nitrate + Nitrite	mg/L	10.0		2.2	3.1	1.7	0.1
Bromide (Br-)	mg/L			ND	ND	ND	1
Sulphate (SO4)	mg/L	500		63	60	61	1
RCAP CALCULATIONS							
Bicarb. Alkalinity (as CaCO3)	mg/L			271	268	271	1
Carb. Alkalinity (as CaCO3)	mg/L			3	3	3	1
METALS							
Dissolved Aluminum (Al)	mg/L	0.1	0.075(1)	ND	ND	ND	0.1
Dissolved Antimony (Sb)	mg/L	0.006	0.02(2)	ND	ND	ND	0.2
Dissolved Arsenic (As)	mg/L	0.025	0.005(3)	ND	ND	ND	0.2
Dissolved Barium (Ba)	mg/L	1		0.09	0.09	0.1	0.02
Dissolved Beryllium (Be)	mg/L		1.1(4)	ND	ND	ND	0.005
Dissolved Bismuth (Bi)	mg/L			ND	ND	ND	0.2
Dissolved Boron (B)	mg/L	5	0.2(2)	ND	ND	ND	0.02
Dissolved Cadmium (Cd)	mg/L	0.005	0.0002	ND	ND	ND	0.005
Dissolved Calcium (Ca)	mg/L			83.7	82.1	99.2	0.05
Dissolved Chromium (Cr)	mg/L	0.05	0.001	ND	ND	ND	0.01
Dissolved Cobalt (Co)	mg/L			ND	ND	ND	0.02

TABLE 3a

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
MWB10-I (TW10)

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Dissolved Copper (Cu)	mg/L	1	0.005	ND	ND	ND	0.02
Dissolved Iron (Fe)	mg/L	0.3	0.3	ND	ND	ND	0.02
Dissolved Lead (Pb)	mg/L	0.01	0.005(5)	ND	ND	ND	0.05
Dissolved Magnesium (Mg)	mg/L			27.4	26.7	32.7	0.05
Dissolved Manganese (Mn)	mg/L	0.05		ND	ND	0.01	0.01
Dissolved Molybdenum (Mo)	mg/L			ND	ND	ND	0.02
Dissolved Nickel (Ni)	mg/L		0.025	ND	ND	ND	0.05
Dissolved Phosphorus (P)	mg/L		0.01(2)	ND	ND	ND	0.1
Dissolved Potassium (K)	mg/L			ND	ND	ND	1
Dissolved Selenium (Se)	mg/L	0.01	0.1	ND	ND	ND	0.2
Dissolved Silicon (Si)	mg/L			3.8	3.7	4.5	0.2
Dissolved Silver (Ag)	mg/L		0.0001	ND	ND	ND	0.01
Dissolved Sodium (Na)	mg/L	200		3.7	3.6	4.2	0.5
Dissolved Strontium (Sr)	mg/L			0.48	0.44	0.52	0.01
Dissolved Sulphur (S)	mg/L			20.3	19.1	24	0.5
Dissolved Tin (Sn)	mg/L			ND	ND	ND	0.2
Dissolved Titanium (Ti)	mg/L			ND	ND	ND	0.01
Dissolved Vanadium (V)	mg/L		0.006(2)	ND	ND	ND	0.01
Dissolved Zinc (Zn)	mg/L	5	0.02(6)	0.01	0.01	ND	0.01

Notes: ND = Not detected

RDL = Reportable Detection Limit

ODWS = Ontario Drinking Water Standards, Objectives and Guidelines

PWQO = Provincial Water Quality Objectives

(1) = interim PWQO for pH >6.5 to 9.0

(2) = interim PWQO

(3) = interim PWQO, PWQO is 0.1 mg/L

(4) = PWQO for hardness >75 mg/L as CaCO3

(5) = interim PWQO for hardness >80 mg/L as CaCO3

(6) = interim PWQO, PWQO is 0.03 mg/L

(7) f=1/(10pKa-pH +1), where f is the fraction of NH_3, where pKa = 0.09018 + 2729.92/T

Where: T = Kelvin = K = °C + 273.16

TABLE 3b

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
MWB12 (TW12)

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Top Depth of Zone	m			0	16.8	33.3	
Bottom Depth of Zone	m			15.0	21.0	40.8	
Flow	L/s			3.2	0.3	2.1	
Date sampled				06/11/01	06/11/02	06/11/02	
INORGANICS							
Total Ammonia-N	mg/L			0.09	0.14	0.16	0.05
Un-ionized Ammonia [(7)]	mg/L		0.020	<0.020	<0.020	<0.020	
Temperature (Field)	°C			9.6	9.3	8.5	
Conductivity	umho/cm			619	600	661	2
Fluoride (F-)	mg/L	1.5		ND	ND	ND	0.1
Total Organic Carbon (TOC)	mg/L			0.6	0.7	0.5	0.1
Orthophosphate (P)	mg/L			ND	ND	ND	0.01
pH	pH	6.5-8.5	6.5-8.5	8.1	8	8.1	N/A
Sulphide	mg/L	0.05		0.1	0.05	0.03	0.02
Alkalinity (Total as CaCO3)	mg/L	30-500		282	268	267	1
Nitrite (N)	mg/L	1.0		ND	ND	ND	0.01
Chloride (Cl)	mg/L	250		11	10	16	1
Nitrate (N)	mg/L	10.0		0.1	ND	ND	0.1
Nitrate + Nitrite	mg/L	10.0		0.1	ND	ND	0.1
Bromide (Br-)	mg/L			ND	ND	ND	1
Sulphate (SO4)	mg/L	500		54	56	77	1
RCAP CALCULATIONS							
Bicarb. Alkalinity (as CaCO3)	mg/L			278	266	264	1
Carb. Alkalinity (as CaCO3)	mg/L			3	3	3	1
METALS							
Dissolved Aluminum (Al)	mg/L	0.1	0.075(1)	ND	ND	ND	0.1
Dissolved Antimony (Sb)	mg/L	0.006	0.02(2)	ND	ND	ND	0.2
Dissolved Arsenic (As)	mg/L	0.025	0.005(3)	ND	ND	ND	0.2
Dissolved Barium (Ba)	mg/L	1		0.04	0.13	0.05	0.02
Dissolved Beryllium (Be)	mg/L		1.1(4)	ND	ND	ND	0.005
Dissolved Bismuth (Bi)	mg/L			ND	ND	ND	0.2
Dissolved Boron (B)	mg/L	5	0.2(2)	ND	ND	ND	0.02
Dissolved Cadmium (Cd)	mg/L	0.005	0.0002	ND	ND	ND	0.005
Dissolved Calcium (Ca)	mg/L			77	74	81.7	0.05
Dissolved Chromium (Cr)	mg/L	0.05	0.001	ND	ND	ND	0.01
Dissolved Cobalt (Co)	mg/L			ND	ND	ND	0.02

TABLE 3b

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
MWB12 (TW12)

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Dissolved Copper (Cu)	mg/L	1	0.005	ND	ND	ND	0.02
Dissolved Iron (Fe)	mg/L	0.3	0.3	ND	ND	ND	0.02
Dissolved Lead (Pb)	mg/L	0.01	0.005(5)	ND	ND	ND	0.05
Dissolved Magnesium (Mg)	mg/L			26.9	26	27.5	0.05
Dissolved Manganese (Mn)	mg/L	0.05		ND	0.03	0.02	0.01
Dissolved Molybdenum (Mo)	mg/L			ND	ND	0.03	0.02
Dissolved Nickel (Ni)	mg/L		0.025	ND	ND	ND	0.05
Dissolved Phosphorus (P)	mg/L		0.01(2)	ND	ND	ND	0.1
Dissolved Potassium (K)	mg/L			ND	1	1	1
Dissolved Selenium (Se)	mg/L	0.01	0.1	ND	ND	ND	0.2
Dissolved Silicon (Si)	mg/L			4.1	4.8	4.8	0.2
Dissolved Silver (Ag)	mg/L		0.0001	ND	ND	ND	0.01
Dissolved Sodium (Na)	mg/L	200		7	7.1	10.7	0.5
Dissolved Strontium (Sr)	mg/L			0.63	0.65	1.02	0.01
Dissolved Sulphur (S)	mg/L			16	17.1	25.9	0.5
Dissolved Tin (Sn)	mg/L			ND	ND	ND	0.2
Dissolved Titanium (Ti)	mg/L			ND	ND	ND	0.01
Dissolved Vanadium (V)	mg/L		0.006(2)	ND	ND	ND	0.01
Dissolved Zinc (Zn)	mg/L	5	0.02(6)	ND	0.03	ND	0.01

Notes: ND = Not detected
RDL = Reportable Detection Limit
ODWS = Ontario Drinking Water Standards, Objectives and Guidelines
PWQO = Provincial Water Quality Objectives
(1) = interim PWQO for pH >6.5 to 9.0
(2) = interim PWQO
(3) = interim PWQO, PWQO is 0.1 mg/L
(4) = PWQO for hardness >75 mg/L as CaCO3
(5) = interim PWQO for hardness >80 mg/L as CaCO3
(6) = interim PWQO, PWQO is 0.03 mg/L
(7) f=1/(10pKa-pH +1), where f is the fraction of NH_3, where pKa = 0.09018 + 2729.92/T
Where: T = Kelvin = K = °C + 273.16

TABLE 3c

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
MWB13 (TW13)

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Top Depth of Zone	m			0	23.3	32.8	
Bottom depth of Zone	m			15.0	41.0	41.0	
Flow	USgpm			75	33	21	
Date sampled				06/10/30	06/10/31	06/10/31	
INORGANICS							
Total Ammonia-N	mg/L			0.08	0.06	0.15	0.05
Un-ionized Ammonia (7)	mg/L		0.020	<0.020	<0.020	<0.020	
Temperature (Field)	°C			10.1	9.6	9.5	
Conductivity	umho/cm			619	617	677	2
Fluoride (F-)	mg/L	1.5		ND	ND	0.1	0.1
Total Organic Carbon (TOC)	mg/L			1.2	0.6	0.5	0.1
Orthophosphate (P)	mg/L			ND	ND	ND	0.01
pH	pH	6.5-8.5	6.5-8.5	8	8.1	8	N/A
Sulphide	mg/L	0.05		0.03	ND	ND	0.02
Alkalinity (Total as CaCO3)	mg/L	30-500		313	299	291	1
Nitrite (N)	mg/L	1.0		ND	ND	ND	0.01
Chloride (Cl)	mg/L	250		13	11	20	1
Nitrate (N)	mg/L	10.0		0.2	ND	ND	0.1
Nitrate + Nitrite	mg/L	10.0		0.2	ND	ND	0.1
Bromide (Br-)	mg/L			ND	ND	ND	1
Sulphate (SO4)	mg/L	500		28	39	65	1
RCAP CALCULATIONS							
Bicarb. Alkalinity (as CaCO3)	mg/L			311	295	289	1
Carb. Alkalinity (as CaCO3)	mg/L			3	3	2	1
METALS							
Dissolved Aluminum (Al)	mg/L	0.1	0.075(1)	ND	ND	ND	0.1
Dissolved Antimony (Sb)	mg/L	0.006	0.02(2)	ND	ND	ND	0.2
Dissolved Arsenic (As)	mg/L	0.025	0.005(3)	ND	ND	ND	0.2
Dissolved Barium (Ba)	mg/L	1		ND	0.03	0.04	0.02
Dissolved Beryllium (Be)	mg/L		1.1(4)	ND	ND	ND	0.005
Dissolved Bismuth (Bi)	mg/L			ND	ND	ND	0.2
Dissolved Boron (B)	mg/L	5	0.2(2)	ND	ND	0.04	0.02
Dissolved Cadmium (Cd)	mg/L	0.005	0.0002	ND	ND	ND	0.005
Dissolved Calcium (Ca)	mg/L			74	74.9	78.7	0.05
Dissolved Chromium (Cr)	mg/L	0.05	0.001	ND	ND	ND	0.01
Dissolved Cobalt (Co)	mg/L			ND	ND	ND	0.02

TABLE 3c

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
MWB13 (TW13)

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Dissolved Copper (Cu)	mg/L	1	0.005	ND	ND	ND	0.02
Dissolved Iron (Fe)	mg/L	0.3	0.3	ND	ND	ND	0.02
Dissolved Lead (Pb)	mg/L	0.01	0.005(5)	ND	ND	ND	0.05
Dissolved Magnesium (Mg)	mg/L			30.4	29.7	29.3	0.05
Dissolved Manganese (Mn)	mg/L	0.05		ND	ND	ND	0.01
Dissolved Molybdenum (Mo)	mg/L			ND	ND	ND	0.02
Dissolved Nickel (Ni)	mg/L		0.025	ND	ND	ND	0.05
Dissolved Phosphorus (P)	mg/L		0.01(2)	ND	ND	ND	0.1
Dissolved Potassium (K)	mg/L			ND	ND	ND	1
Dissolved Selenium (Se)	mg/L	0.01	0.1	ND	ND	ND	0.2
Dissolved Silicon (Si)	mg/L			2.8	2.7	2.7	0.2
Dissolved Silver (Ag)	mg/L		0.0001	ND	ND	ND	0.01
Dissolved Sodium (Na)	mg/L	200		5	4.8	10.1	0.5
Dissolved Strontium (Sr)	mg/L			0.08	0.19	0.59	0.01
Dissolved Sulphur (S)	mg/L			8.2	12	19.1	0.5
Dissolved Tin (Sn)	mg/L			ND	ND	ND	0.2
Dissolved Titanium (Ti)	mg/L			ND	ND	ND	0.01
Dissolved Vanadium (V)	mg/L		0.006(2)	ND	ND	ND	0.01
Dissolved Zinc (Zn)	mg/L	5	0.02(6)	0.02	0.04	0.02	0.01

Notes: ND = Not detected

RDL = Reportable Detection Limit

ODWS = Ontario Drinking Water Standards, Objectives and Guidelines

PWQO = Provincial Water Quality Objectives

(1) = interim PWQO for pH >6.5 to 9.0

(2) = interim PWQO

(3) = interim PWQO, PWQO is 0.1 mg/L

(4) = PWQO for hardness >75 mg/L as CaCO3

(5) = interim PWQO for hardness >80 mg/L as CaCO3

(6) = interim PWQO, PWQO is 0.03 mg/L

(7) f=1/(10pKa-pH +1), where f is the fraction of NH_3, where pKa = 0.09018 + 2729.92/T

Where: T = Kelvin = K = °C + 273.16

TABLE 3d

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
TW14

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Top Depth of Zone	m			0	18.3	29.8	
Bottom depth of Zone	m			17	45	45	
Flow	L/s			0.7	1.8	1.8	
Date sampled				07/02/16	07/02/19	07/02/21	
INORGANICS							
Total Ammonia-N	mg/L			0.22	0.09	0.16	0.05
Un-ionized Ammonia [7]	mg/L		0.020	<0.020	<0.020	<0.020	
Temperature (Field)	°C			8.8	9.4	9.5	
Conductivity	umho/cm			582	637	636	2
Fluoride (F-)	mg/L	1.5		ND	ND	ND	0.1
Total Organic Carbon (TOC)	mg/L			0.8	0.9	0.9	0.1
Orthophosphate (P)	mg/L			ND	ND	ND	0.01
pH	pH	6.5-8.5	6.5-8.5	8.1	8.2	7.9	
Sulphide	mg/L	0.05		ND	ND	ND	0.02
Alkalinity (Total as CaCO3)	mg/L	30-500		211	264	275	1
Nitrite (N)	mg/L	1.0		ND	0.03	0.04	0.1
Chloride (Cl)	mg/L	250		11	9	9	1
Nitrate (N)	mg/L	10.0		14	4.3	3.2	1
Nitrate + Nitrite	mg/L	10.0		14	4.3	3.2	1
Bromide (Br-)	mg/L			ND	ND	ND	1
Sulphate (SO4)	mg/L	500		19	49	55	1
RCAP CALCULATIONS							
Bicarb. Alkalinity (as CaCO3)	mg/L			209	261	273	1
Carb. Alkalinity (as CaCO3)	mg/L			2	4	2	1
METALS							
Dissolved Aluminum (Al)	mg/L	0.1	0.075(1)	ND	ND	ND	0.005
Dissolved Antimony (Sb)	mg/L	0.006	0.02(2)	ND	ND	ND	0.001
Dissolved Arsenic (As)	mg/L	0.025	0.005(3)	ND	0.002	0.006	0.001
Dissolved Barium (Ba)	mg/L	1		0.031	0.09	0.11	0.005
Dissolved Beryllium (Be)	mg/L		1.1(4)	ND	ND	ND	0.0005
Dissolved Bismuth (Bi)	mg/L			ND	ND	ND	0.001
Dissolved Boron (B)	mg/L	5	0.2(2)	ND	0.012	0.016	0.01
Dissolved Cadmium (Cd)	mg/L	0.005	0.0002	ND	ND	ND	0.0001
Dissolved Calcium (Ca)	mg/L			72	88	100	0.2
Dissolved Chromium (Cr)	mg/L	0.05	0.001	ND	ND	ND	0.005
Dissolved Cobalt (Co)	mg/L			ND	ND	0.001	0.0005

TABLE 3d

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
TW14

Parameters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Dissolved Copper (Cu)	mg/L	1	0.005	ND	0.001	0.002	0.001
Dissolved Iron (Fe)	mg/L	0.3	0.3	ND	ND	ND	0.05
Dissolved Lead (Pb)	mg/L	0.01	0.005(5)	ND	ND	0.0012	0.0005
Dissolved Lithium (Li)	mg/L			ND	ND	ND	0.005
Dissolved Magnesium (Mg)	mg/L			28	33	35	0.05
Dissolved Manganese (Mn)	mg/L	0.05		ND	0.006	0.016	0.002
Dissolved Molybdenum (Mo)	mg/L			ND	0.001	0.001	0.001
Dissolved Nickel (Ni)	mg/L		0.025	ND	0.002	0.002	0.001
Dissolved Potassium (K)	mg/L			0.72	1	1.4	0.2
Dissolved Selenium (Se)	mg/L	0.01	0.1	ND	ND	ND	0.002
Dissolved Silicon (Si)	mg/L			4.4	3.8	4.3	0.05
Dissolved Silver (Ag)	mg/L		0.0001	ND	ND	ND	0.0001
Dissolved Sodium (Na)	mg/L	200		2.3	4.3	5.5	0.1
Dissolved Strontium (Sr)	mg/L			0.094	0.33	0.44	0.001
Dissolved Tellurium (Te)	mg/L			ND	ND	ND	0.001
Dissolved Thallium (Tl)	mg/L		0.0003(2)	ND	ND	ND	0.00005
Dissolved Thorium (Th)	mg/L			ND	ND	ND	0.001
Dissolved Tin (Sn)	mg/L			ND	ND	ND	0.001
Dissolved Titanium (Ti)	mg/L			ND	ND	ND	0.005
Dissolved Tungsten (W)	mg/L		0.03(2)	ND	ND	ND	0.001
Dissolved Uranium (U)	mg/L	0.02	0.005(2)	0.0002	0.0008	0.001	0.0001
Dissolved Vanadium (V)	mg/L		0.006(2)	ND	ND	ND	0.001
Dissolved Zinc (Zn)	mg/L	5	0.02(6)	ND	0.034	0.038	0.005
Dissolved Zirconium (Zr)	mg/L		0.004(2)	ND	ND	ND	0.001
NUTRIENTS							
Dissolved Phosphorus (P)	mg/L		0.01(2)	ND	ND	ND	0.05

Notes: ND = Not detected
RDL = Reportable Detection Limit
ODWS = Ontario Drinking Water Standards, Objectives and Guidelines
PWQO = Provincial Water Quality Objectives
(1) = interim PWQO for pH >6.5 to 9.0
(2) = interim PWQO
(3) = interim PWQO, PWQO is 0.1 mg/L
(4) = PWQO for hardness >75 mg/L as CaCO3
(5) = interim PWQO for hardness >80 mg/L as CaCO3
(6) = interim PWQO, PWQO is 0.03 mg/L
(7) f=1/(10pKa-pH +1), where f is the fraction of NH_3, where pKa = 0.09018 + 2729.92/T
Where: T = Kelvin = K = °C + 273.16

TABLE 3e

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
TW15

Paremeters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Top Depth of Zone	m			0	16.5	27.4	
Bottom Depth of Zone	m			15.2	42.7	42.7	
Flow	L/s			0.4	2.7	1.3	
Date sampled				07/02/07	07/02/07	07/02/07	
INORGANICS							
Total Ammonia-N	mg/L			0.15	0.12	0.18	0.05
Un-ionized Ammonia [(7)]	mg/L		0.020	<0.020	<0.020	<0.020	
Temperature (Field)	°C			8.8	9.0	9.3	
Conductivity	umho/cm			635	633	639	2
Fluoride (F-)	mg/L	1.5		ND	ND	ND	0.1
Total Organic Carbon (TOC)	mg/L			0.7	0.9	0.8	0.1
Orthophosphate (P)	mg/L			ND	ND	ND	0.01
pH	pH	6.5-8.5	6.5-8.5	8.2	8.1	8.1	N/A
Sulphide	mg/L	0.05		ND	ND	ND	0.02
Alkalinity (Total as CaCO3)	mg/L	30-500		271	267	266	1
Nitrite (N)	mg/L	1.0		0.01	0.04	0.05	0.01
Chloride (Cl)	mg/L	250		12	9	10	1
Nitrate (N)	mg/L	10.0		7.9	3.3	3.1	0.1
Nitrate + Nitrite	mg/L	10.0		7.9	3.4	3.1	0.1
Bromide (Br-)	mg/L			ND	ND	ND	1
Sulphate (SO4)	mg/L	500		34	58	63	1
RCAP CALCULATIONS							
Bicarb. Alkalinity (as CaCO3)	mg/L			267	264	263	1
Carb. Alkalinity (as CaCO3)	mg/L			4	3	3	1
METALS							
Dissolved Aluminum (Al)	mg/L	0.1	0.075(1)	ND	ND	ND	0.005
Dissolved Antimony (Sb)	mg/L	0.006	0.02(2)	ND	ND	ND	0.001
Dissolved Arsenic (As)	mg/L	0.025	0.005(3)	ND	0.001	0.002	0.001
Dissolved Barium (Ba)	mg/L	1		0.035	0.09	0.094	0.005
Dissolved Beryllium (Be)	mg/L		1.1(4)	ND	ND	ND	0.0005
Dissolved Bismuth (Bi)	mg/L			ND	ND	ND	0.001
Dissolved Boron (B)	mg/L	5	0.2(2)	0.012	0.015	0.016	0.01
Dissolved Cadmium (Cd)	mg/L	0.005	0.0002	ND	ND	ND	0.0001
Dissolved Calcium (Ca)	mg/L			93	96	97	0.2
Dissolved Chromium (Cr)	mg/L	0.05	0.001	ND	ND	ND	0.005
Dissolved Cobalt (Co)	mg/L			ND	ND	ND	0.0005

TABLE 3e

CBM ST MARYS CEMENT

Flamborough Quarry
Well Water Chemistry
TW15

Paremeters	Units	ODWS	PWQO	Zone 1	Zone 2	Zone 3	RDL
Dissolved Copper (Cu)	mg/L	1	0.005	ND	0.001	0.002	0.001
Dissolved Iron (Fe)	mg/L	0.3	0.3	ND	ND	ND	0.05
Dissolved Lead (Pb)	mg/L	0.01	0.005(5)	ND	ND	ND	0.0005
Dissolved Lithium (Li)	mg/L			ND	ND	ND	0.005
Dissolved Magnesium (Mg)	mg/L			34	32	32	0.05
Dissolved Manganese (Mn)	mg/L	0.05		0.003	0.014	0.014	0.002
Dissolved Molybdenum (Mo)	mg/L			ND	0.001	0.001	0.001
Dissolved Nickel (Ni)	mg/L		0.025	ND	0.001	0.001	0.001
Dissolved Potassium (K)	mg/L			0.99	1.1	1.2	0.2
Dissolved Selenium (Se)	mg/L	0.01	0.1	ND	ND	ND	0.002
Dissolved Silicon (Si)	mg/L			4.5	4.2	4.2	0.05
Dissolved Silver (Ag)	mg/L		0.0001	ND	ND	ND	0.0001
Dissolved Sodium (Na)	mg/L	200		3.9	5.2	5.6	0.1
Dissolved Strontium (Sr)	mg/L			0.17	0.53	0.62	0.001
Dissolved Tellurium (Te)	mg/L			ND	ND	ND	0.001
Dissolved Thallium (Tl)	mg/L		0.0003(2)	ND	ND	ND	0.0001
Dissolved Thorium (Th)	mg/L			ND	ND	ND	0.001
Dissolved Tin (Sn)	mg/L			ND	ND	ND	0.001
Dissolved Titanium (Ti)	mg/L			ND	ND	ND	0.005
Dissolved Tungsten (W)	mg/L		0.03(2)	ND	ND	ND	0.001
Dissolved Uranium (U)	mg/L	0.02	0.005(2)	0.0002	0.0007	0.0008	0.0002
Dissolved Vanadium (V)	mg/L		0.006(2)	ND	ND	ND	0.001
Dissolved Zinc (Zn)	mg/L	5	0.02(6)	0.012	0.017	0.017	0.005
Dissolved Zirconium (Zr)	mg/L		0.004(2)	ND	ND	ND	0.001
NUTRIENTS							
Dissolved Phosphorus (P)	mg/L		0.01(2)	ND	ND	ND	0.05

Notes: ND = Not detected
RDL = Reportable Detection Limit
ODWS = Ontario Drinking Water Standards, Objectives and Guidelines
PWQO = Provincial Water Quality Objectives
(1) = interim PWQO for pH >6.5 to 9.0
(2) = interim PWQO
(3) = interim PWQO, PWQO is 0.1 mg/L
(4) = PWQO for hardness >75 mg/L as CaCO3
(5) = interim PWQO for hardness >80 mg/L as CaCO3
(6) = interim PWQO, PWQO is 0.03 mg/L
(7) f=1/(10pKa-pH +1), where f is the fraction of NH_3, where pKa = 0.09018 + 2729.92/T
Where: T = Kelvin = K = °C + 273.16

APPENDIX 4

Summary of Well Water Chemistry (Field)

TABLE 4a

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Field Chemistry
MWB10-I (TW10)

Zone 1: 0 - 17.4 m

Test Date: Friday, November 03, 2006 Note: Pump on at 13:52 Flow Rate: 2.1 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:52	0						Start test
13:57	5	7.34	8.7	709	1.79	0.45	
14:02	10	7.31	8.7	704	1.58	0.45	
14:12	20	7.33	8.7	701	1.49	0.45	
14:22	30	7.34	8.8	700	1.30	0.45	
14:32	40	7.34	8.7	700	1.20	0.45	
14:42	50	7.34	8.8	699	1.17	0.45	
14:45	53						Collect samples
14:52	60	7.35	8.9	692	1.23	0.44	
14:53	61						End of test

Zone 2: 23.8 - 27.6 m

Test Date: Monday, November 06, 2006 Note: Pump on at 13:20 Flow Rate: 0.3 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:20	0						Start test
13:25	5	6.86	9.2	699	0.59	0.45	
13:30	10	6.92	9.2	697	0.86	0.45	
13:40	20	6.92	9.2	694	1.44	0.44	
13:50	30	7.06	9.1	691	1.62	0.44	
14:00	40	7.29	9.1	687	1.66	0.44	
14:10	50	7.35	9.1	682	1.72	0.44	
14:15	55						Collect samples
14:20	60	7.32	9.1	695	1.68	0.44	
14:21	61						End of test

Zone 3: 32.8 - 46.5 m

Test Date: Tuesday, November 07, 2006 Note: Pump on at 11:15 Flow Rate: 2.1 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
11:15	0						Start test
11:20	5	7.37	9.0	704	0	0.45	
11:25	10	7.37	9.0	703	0.23	0.45	
11:35	20	7.37	9.0	700	0.97	0.45	
11:45	30	7.38	9.0	690	0.92	0.45	
11:55	40	7.38	9.0	698	0.93	0.45	
12:05	50	7.39	9.0	698	0.95	0.45	
12:10	55						Collect samples
12:15	60	7.40	9.0	698	0.93	0.45	
12:16	61						End of test

Notes: Cond = conductivity DO = dissolve oxygen TDS = Total dissolved solids

TABLE 4b

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Field Chemistry
MWB12 (TW12)

Zone 1:

Test Date: Wednesday, November 01, 2006 Note: Pump on at 13:15 Flow Rate: 3.2 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µmho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:15	0						Start test
13:20	5	7.21	9.5	716	1.34	0.46	
13:25	10	7.03	9.5	702	1.41	0.45	
13:35	20	7.06	9.6	698	1.82	0.45	
13:45	30	7.28	9.6	698	2.02	0.45	
13:55	40	7.37	9.6	692	2.21	0.44	
14:05	50	7.18	9.7	690	2.43	0.44	
14:10	55						Collect samples
14:15	60	7.32	9.6	685	2.61	0.42	
14:16	61						End of test

Zone 2:

Test Date: Thursday, November 02, 2006 Note: Pump on at 11:45 Flow Rate: 0.3 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µmho/cm*	DO *mg/l*	TDS *g/l*	Notes:
11:45	0						Start test
11:50	5	7.39	9.3	701	0	0.45	
11:55	10	7.38	9.3	693	0	0.44	
12:05	20	7.40	9.2	677	0	0.43	
12:15	30	7.39	9.2	668	0	0.43	
12:25	40	7.39	9.2	662	0	0.42	
12:35	50	7.41	9.3	650	0	0.41	
12:40	55						Collect samples
12:45	60	7.45	9.3	629	0	0.40	
12:46	61						End of test

Zone 3:

Test Date: Thursday, November 02, 2006 Note: Pump on at 15:35 Flow Rate: 2.1 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µmho/cm*	DO *mg/l*	TDS *g/l*	Notes:
15:35	0						Start test
15:40	5	7.39	8.6	742	0	0.47	
15:45	10	7.37	8.5	740	0	0.47	
15:55	20	7.35	8.5	736	0	0.47	
16:05	30	7.34	8.5	734	0	0.47	
16:15	40	7.34	8.6	733	0	0.46	
16:25	50	7.33	8.5	732	0	0.47	
16:30	55						Collect samples
16:35	60	7.34	8.5	731	0	0.46	
16:36	61						End of test

Notes: Cond = conductivity DO = dissolve oxygen TDS = Total dissolved solids

TABLE 4c

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Field Chemistry
MWB13 (TW13)

Zone 1:

Test Date: Monday, October 30, 2006 Note: Pump on at 14:10 Flow Rate: 4.7 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
14:10	0						Start test
14:15	5	7.13	10.2	671	6.04	0.43	
14:20	10	6.9	10.3	657	5.6	0.42	
14:30	20	7.0	10.2	640	4.19	0.41	
14:40	30	7.26	10.2	678	4.34	0.43	
14:50	40	7.28	10.1	685	4.29	0.44	
15:00	50	7.27	10.1	666	4.33	0.43	Collect samples
15:10	60	7.27	10.1	647	4.21	0.41	
15:11	61						End of test

Zone 2:

Test Date: Tuesday, October 31, 2006 Note: Pump on at 10:50 Flow Rate: 2.1 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
10:50	0						Start test
10:55	5	7.24	11.8	679	2.52	0.43	
11:00	10	7.22	10.5	683	2.01	0.44	
11:10	20	7.10	9.7	686	0.62	0.44	
11:20	30	7.12	9.8	690	0.52	0.44	
11:30	40	7.17	9.8	692	0.53	0.44	
11:40	50	7.2	9.6	693	0.42	0.44	Collect samples
11:50	60	7.29	9.4	685	0.43	0.44	
11:51	61						End of test

Zone 3:

Test Date: Tuesday, October 31, 2006 Note: Pump on at 13:43 Flow Rate: 1.3 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:43	0						Start test
13:48	5	7.19	10.0	755	0	0.48	
13:53	10	7.14	9.9	756	0	0.48	
14:03	20	7.1	9.9	754	0	0.48	
14:13	30	7.16	9.4	757	0	0.48	
14:23	40	7.26	9.4	755	0	0.48	
14:33	50	7.27	9.5	753	0	0.48	Collect samples
14:43	60	7.32	9.1	755	0	0.48	
14:44	61						End of test

Notes: Cond = conductivity DO = dissolve oxygen TDS = Total dissolved solids

TABLE 4d

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Field Chemistry
TW14

Zone 1:

Test Date: Friday, February 16, 2007 Note: Pump on at 13:19 Flow Rate: 0.7 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:19	0						Start test
13:24	5	8.23	8.6	583			
13:29	10	8.14	8.9	585			
13:34	15	8.15	8.3	588			
13:39	20	8.03	9.0	585			
13:49	30	8.08	8.9	587			
13:59	40	8.07	8.8	587			
14:09	50	8.05	8.8	584			Collect samples
14:10	60	8.08	9.1	587			End of test

Zone 2:

Test Date: Monday, February 19, 2007 Note: Pump on at 12:05 Flow Rate: 1.8 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
12:05	0						Start test
12:10	5	7.89	9.0	598			
12:15	10	7.71	9.4	585			
12:20	15	7.69	9.5	585			
12:25	20	7.65	9.5	599			
12:35	30	7.65	9.5	609			
12:45	40	7.71	9.5	612			
12:55	50	7.63	9.4	616			Collect samples
13:05	60	7.65	9.4	619			End of test

Zone 3:

Test Date: ########## Note: Pump on at 14:46 Flow Rate: 2.0 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
14:46	0						Start test
14:51	5	7.81	9.3	591			
14:56	10	7.68	9.4	589			
15:01	15	7.65	9.4	592			
15:06	20	7.64	9.4	595			
15:16	30	7.65	9.5	604			
15:26	40	7.62	9.5	612			
15:36	50	7.61	9.5	617			Collect samples
15:46	60	7.63	9.4	621			End of test

Notes: Cond = conductivity DO = dissolve oxygen TDS = Total dissolved solids

TABLE 4d

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Field Chemistry
TW14

Zone 1:

Test Date: Friday, February 16, 2007 Note: Pump on at 13:19 Flow Rate: 0.7 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:19	0						Start test
13:24	5	8.23	8.6	583			
13:29	10	8.14	8.9	585			
13:34	15	8.15	8.3	588			
13:39	20	8.03	9.0	585			
13:49	30	8.08	8.9	587			
13:59	40	8.07	8.8	587			
14:09	50	8.05	8.8	584			Collect samples
14:10	60	8.08	9.1	587			End of test

Zone 2:

Test Date: Monday, February 19, 2007 Note: Pump on at 12:05 Flow Rate: 1.8 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
12:05	0						Start test
12:10	5	7.89	9.0	598			
12:15	10	7.71	9.4	585			
12:20	15	7.69	9.5	585			
12:25	20	7.65	9.5	599			
12:35	30	7.65	9.5	609			
12:45	40	7.71	9.5	612			
12:55	50	7.63	9.4	616			Collect samples
13:05	60	7.65	9.4	619			End of test

Zone 3:

Test Date: Wednesday, February 21, 2007 Note: Pump on at 14:46 Flow Rate: 2.0 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
14:46	0						Start test
14:51	5	7.81	9.3	591			
14:56	10	7.68	9.4	589			
15:01	15	7.65	9.4	592			
15:06	20	7.64	9.4	595			
15:16	30	7.65	9.5	604			
15:26	40	7.62	9.5	612			
15:36	50	7.61	9.5	617			Collect samples
15:46	60	7.63	9.4	621			End of test

Notes: Cond = conductivity DO = dissolve oxygen TDS = Total dissolved solids

TABLE 4e

CBM ST MARYS CEMENT

Flamborough Quarry
Summary of Field Chemistry
TW15

Zone 1:

Test Date: Wednesday, February 07, 2007 Note: Pump on at 10:40 Flow Rate: 0.4 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
10:40	0						Start test
10:45	5	8.23	8.2	606			
10:50	10	8.18	8.9	597			
10:55	15	8.04	9.5	612			
11:00	20	7.97	9.2	615			
11:10	30	8.08	8.9	616			
11:20	40	8.11	8.8	613			
11:30	50	8.10	8.8	607			Collect samples
11:40	60	8.06	8.8	611			
11:44	64						End of test

Zone 2:

Test Date: Wednesday, February 07, 2007 Note: Pump on at 13:35 Flow Rate: 2.7 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
13:35	0						Start test
13:40	5	7.86	8.2	589			
13:45	10	7.78	9.2	606			
13:50	15	7.76	9.1	586			
13:55	20	7.71	9.3	591			
14:05	30	7.7	9.1	601			
14:15	40	7.68	9.1	602			
14:25	50	7.67	9.0	601			Collect samples
14:35	60	7.65	8.9	609			
14:38	63						End of test

Zone 3:

Test Date: Thursday, February 08, 2007 Note: Pump on at 12:00 Flow Rate: 1.3 L/s

Time	Elapsed Time *min*	pH	Temp *°C*	Cond *µ mho/cm*	DO *mg/l*	TDS *g/l*	Notes:
12:00	0						Start test
12:05	5	7.83	8.7	620			
12:10	10	7.73	9.3	622			
12:15	15	7.72	9.3	618			
12:20	20	7.74	9.0	602			
12:30	30	7.68	9.3	610			
12:40	40	7.69	9.1	611			
12:50	50	7.67	9.3	615			Collect samples
13:00	60	7.68	9.5	622			End of test

Notes: Cond = conductivity DO = dissolve oxygen TDS = Total dissolved solids

APPENDIX 5

Laboratory Reports

MWB10 (TW10)
And
MWB12 (TW12)

Your Project #: 147-005 PACKER TESTING
Site: CARLISLE
Your C.O.C. #: 00474480

Attention: Rodney Secor
Lotowater Technical Services Inc
PO Box 451
92 Scott Ave
Paris, ON
N3L 3T5

Report Date: 2006/11/17

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A6C0539
Received: 2006/11/07, 15:12

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	6	N/A	2006/11/09	Ont SOP 0083	SM 2320B
Carbonate, Bicarbonate and Hydroxide	6	N/A	2006/11/09		
Anions	6	N/A	2006/11/10	Ont SOP 0078	APHA-4110B
Conductivity	6	N/A	2006/11/09	Ont SOP 0071	SM 2510
Fluoride	1	2006/11/08	2006/11/09	Ont SOP-0621	APHA 4500FC
Fluoride	5	2006/11/10	2006/11/10	Ont SOP-0621	APHA 4500FC
Lab Filtered Metals Analysis by ICP	5	2006/11/09	2006/11/10	Ont SOP 0072	EPA 6010
Lab Filtered Metals Analysis by ICP	1	2006/11/16	2006/11/17	Ont SOP 0072	EPA 6010
Ammonia-N	1	N/A	2006/11/10	Ont SOP 0441	US GS I-2522-90
Ammonia-N	5	N/A	2006/11/13	Ont SOP 0441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water	6	N/A	2006/11/09	Ont SOP-0100	SM 4500 NO3 I
pH	6	N/A	2006/11/09	Ont SOP 0067	SM 4500H
Orthophosphate	6	N/A	2006/11/13	CAL SOP-0196	SM 4500 P-F
Sulphide	6	N/A	2006/11/10	Ont SOP 0623	APHA 4500
Total Organic Carbon (TOC)	6	N/A	2006/11/09	Ont SOP-0622	EPA 415.1 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

LEENA THOMAS, Project Manager
Email: leena.thomas@maxxamanalytics.com
Phone# (905) 817-5700 Ext:5798

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		P37025		P37026		
Sampling Date		2006/11/01 14:10		2006/11/02 12:40		
COC Number		00474480		00474480		
	Units	**WELL 12 ZONE 1**	**QC Batch**	**WELL 12 ZONE 2**	**RDL**	**QC Batch**
INORGANICS						
Total Ammonia-N	mg/L	0.09	1099126	0.14	0.05	1099092
Conductivity	umho/cm	619	1098074	600	2	1098074
Fluoride (F-)	mg/L	ND	1099517	ND	0.1	1099517
Total Organic Carbon (TOC)	mg/L	0.6	1098412	0.7	0.1	1098412
Orthophosphate (P)	mg/L	ND	1099668	ND	0.01	1099668
pH	pH	8.1	1098070	8.0	N/A	1098070
Sulphide	mg/L	0.10	1100019	0.05	0.02	1100019
Alkalinity (Total as CaCO3)	mg/L	282	1098076	268	1	1098076
Nitrite (N)	mg/L	ND	1098316	ND	0.01	1098316
Chloride (Cl)	mg/L	11	1098124	10	1	1098124
Nitrate (N)	mg/L	0.1	1098316	ND	0.1	1098316
Nitrate + Nitrite	mg/L	0.1	1098316	ND	0.1	1098316
Bromide (Br-)	mg/L	ND	1098124	ND	1	1098124
Sulphate (SO4)	mg/L	54	1098124	56	1	1098124
RCAP CALCULATIONS						
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	278	1098625	266	1	1098625
Carb. Alkalinity (calc. as CaCO3)	mg/L	3	1098625	3	1	1098625

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		P37027		P37028		
Sampling Date		2006/11/02 16:40		2006/11/03 14:45		
COC Number		00474480		00474480		
	Units	**WELL 12 ZONE 3**	**QC Batch**	**WELL 10 ZONE 1**	**RDL**	**QC Batch**
INORGANICS						
Total Ammonia-N	mg/L	0.16	1099126	0.07	0.05	1099627
Conductivity	umho/cm	661	1098074	623	2	1098074
Fluoride (F-)	mg/L	ND	1097969	ND	0.1	1099517
Total Organic Carbon (TOC)	mg/L	0.5	1098412	0.6	0.1	1098412
Orthophosphate (P)	mg/L	ND	1099668	ND	0.01	1099668
pH	pH	8.1	1098070	8.0	N/A	1098070
Sulphide	mg/L	0.03	1100019	ND	0.02	1100019
Alkalinity (Total as CaCO3)	mg/L	267	1098076	273	1	1098076
Nitrite (N)	mg/L	ND	1098316	ND	0.01	1097861
Chloride (Cl)	mg/L	16	1098124	6	1	1098124
Nitrate (N)	mg/L	ND	1098316	2.2	0.1	1097861
Nitrate + Nitrite	mg/L	ND	1098316	2.2	0.1	1097861
Bromide (Br-)	mg/L	ND	1098124	ND	1	1098124
Sulphate (SO4)	mg/L	77	1098124	63	1	1098124
RCAP CALCULATIONS						
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	264	1098625	271	1	1098625
Carb. Alkalinity (calc. as CaCO3)	mg/L	3	1098625	3	1	1098625

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		P37029		P37030		
Sampling Date		2006/11/06 14:15		2006/11/07 12:10		
COC Number		00474480		00474480		
	Units	**WELL 10 ZONE 2**	**QC Batch**	**WELL 10 ZONE 3**	**RDL**	**QC Batch**
INORGANICS						
Total Ammonia-N	mg/L	0.10	1099126	0.08	0.05	1099126
Conductivity	umho/cm	623	1098074	619	2	1098074
Fluoride (F-)	mg/L	ND	1099517	ND	0.1	1099517
Total Organic Carbon (TOC)	mg/L	0.6	1098412	0.5	0.1	1098412
Orthophosphate (P)	mg/L	ND	1099668	ND	0.01	1099668
pH	pH	8.1	1098070	8.1	N/A	1098070
Sulphide	mg/L	ND	1100019	ND	0.02	1100019
Alkalinity (Total as CaCO3)	mg/L	271	1098076	274	1	1098076
Nitrite (N)	mg/L	ND	1098316	ND	0.01	1097861
Chloride (Cl)	mg/L	7	1098124	6	1	1098124
Nitrate (N)	mg/L	3.1	1098316	1.7	0.1	1097861
Nitrate + Nitrite	mg/L	3.1	1098316	1.7	0.1	1097861
Bromide (Br-)	mg/L	ND	1098124	ND	1	1098124
Sulphate (SO4)	mg/L	60	1098124	61	1	1098124
RCAP CALCULATIONS						
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	268	1098625	271	1	1098625
Carb. Alkalinity (calc. as CaCO3)	mg/L	3	1098625	3	1	1098625

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		P37025	P37026	P37027		
Sampling Date		2006/11/01 14:10	2006/11/02 12:40	2006/11/02 16:40		
COC Number		00474480	00474480	00474480		
	Units	**WELL 12 ZONE 1**	**WELL 12 ZONE 2**	**WELL 12 ZONE 3**	**RDL**	**QC Batch**
METALS						
Dissolved Aluminum (Al)	mg/L	ND	ND	ND	0.1	1098542
Dissolved Antimony (Sb)	mg/L	ND	ND	ND	0.2	1098542
Dissolved Arsenic (As)	mg/L	ND	ND	ND	0.2	1098542
Dissolved Barium (Ba)	mg/L	0.04	0.13	0.05	0.02	1098542
Dissolved Beryllium (Be)	mg/L	ND	ND	ND	0.005	1098542
Dissolved Bismuth (Bi)	mg/L	ND	ND	ND	0.2	1098542
Dissolved Boron (B)	mg/L	ND	ND	ND	0.02	1098542
Dissolved Cadmium (Cd)	mg/L	ND	ND	ND	0.005	1098542
Dissolved Calcium (Ca)	mg/L	77.0	74.0	81.7	0.05	1098542
Dissolved Chromium (Cr)	mg/L	ND	ND	ND	0.01	1098542
Dissolved Cobalt (Co)	mg/L	ND	ND	ND	0.02	1098542
Dissolved Copper (Cu)	mg/L	ND	ND	ND	0.02	1098542
Dissolved Iron (Fe)	mg/L	ND	ND	ND	0.02	1098542
Dissolved Lead (Pb)	mg/L	ND	ND	ND	0.05	1098542
Dissolved Magnesium (Mg)	mg/L	26.9	26.0	27.5	0.05	1098542
Dissolved Manganese (Mn)	mg/L	ND	0.03	0.02	0.01	1098542
Dissolved Molybdenum (Mo)	mg/L	ND	ND	0.03	0.02	1098542
Dissolved Nickel (Ni)	mg/L	ND	ND	ND	0.05	1098542
Dissolved Phosphorus (P)	mg/L	ND	ND	ND	0.1	1098542
Dissolved Potassium (K)	mg/L	ND	1	1	1	1098542
Dissolved Selenium (Se)	mg/L	ND	ND	ND	0.2	1098542
Dissolved Silicon (Si)	mg/L	4.1	4.8	4.8	0.2	1098542
Dissolved Silver (Ag)	mg/L	ND	ND	ND	0.01	1098542
Dissolved Sodium (Na)	mg/L	7.0	7.1	10.7	0.5	1098542
Dissolved Strontium (Sr)	mg/L	0.63	0.65	1.02	0.01	1098542
Dissolved Sulphur (S)	mg/L	16.0	17.1	25.9	0.5	1098542
Dissolved Tin (Sn)	mg/L	ND	ND	ND	0.2	1098542
Dissolved Titanium (Ti)	mg/L	ND	ND	ND	0.01	1098542
Dissolved Vanadium (V)	mg/L	ND	ND	ND	0.01	1098542
Dissolved Zinc (Zn)	mg/L	ND	0.03	ND	0.01	1098542

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		P37028		P37029		
Sampling Date		2006/11/03 14:45		2006/11/06 14:15		
COC Number		00474480		00474480		
	Units	**WELL 10 ZONE 1**	**QC Batch**	**WELL 10 ZONE 2**	**RDL**	**QC Batch**
METALS						
Dissolved Aluminum (Al)	mg/L	ND	1103891	ND	0.1	1098542
Dissolved Antimony (Sb)	mg/L	ND	1103891	ND	0.2	1098542
Dissolved Arsenic (As)	mg/L	ND	1103891	ND	0.2	1098542
Dissolved Barium (Ba)	mg/L	0.09	1103891	0.09	0.02	1098542
Dissolved Beryllium (Be)	mg/L	ND	1103891	ND	0.005	1098542
Dissolved Bismuth (Bi)	mg/L	ND	1103891	ND	0.2	1098542
Dissolved Boron (B)	mg/L	ND	1103891	ND	0.02	1098542
Dissolved Cadmium (Cd)	mg/L	ND	1103891	ND	0.005	1098542
Dissolved Calcium (Ca)	mg/L	83.7	1103891	82.1	0.05	1098542
Dissolved Chromium (Cr)	mg/L	ND	1103891	ND	0.01	1098542
Dissolved Cobalt (Co)	mg/L	ND	1103891	ND	0.02	1098542
Dissolved Copper (Cu)	mg/L	ND	1103891	ND	0.02	1098542
Dissolved Iron (Fe)	mg/L	ND	1103891	ND	0.02	1098542
Dissolved Lead (Pb)	mg/L	ND	1103891	ND	0.05	1098542
Dissolved Magnesium (Mg)	mg/L	27.4	1103891	26.7	0.05	1098542
Dissolved Manganese (Mn)	mg/L	ND	1103891	ND	0.01	1098542
Dissolved Molybdenum (Mo)	mg/L	ND	1103891	ND	0.02	1098542
Dissolved Nickel (Ni)	mg/L	ND	1103891	ND	0.05	1098542
Dissolved Phosphorus (P)	mg/L	ND	1103891	ND	0.1	1098542
Dissolved Potassium (K)	mg/L	ND	1103891	ND	1	1098542
Dissolved Selenium (Se)	mg/L	ND	1103891	ND	0.2	1098542
Dissolved Silicon (Si)	mg/L	3.8	1103891	3.7	0.2	1098542
Dissolved Silver (Ag)	mg/L	ND	1103891	ND	0.01	1098542
Dissolved Sodium (Na)	mg/L	3.7	1103891	3.6	0.5	1098542
Dissolved Strontium (Sr)	mg/L	0.48	1103891	0.44	0.01	1098542
Dissolved Sulphur (S)	mg/L	20.3	1103891	19.1	0.5	1098542
Dissolved Tin (Sn)	mg/L	ND	1103891	ND	0.2	1098542
Dissolved Titanium (Ti)	mg/L	ND	1103891	ND	0.01	1098542
Dissolved Vanadium (V)	mg/L	ND	1103891	ND	0.01	1098542
Dissolved Zinc (Zn)	mg/L	0.01	1103891	0.01	0.01	1098542

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Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		P37030		
Sampling Date		2006/11/07 12:10		
COC Number		00474480		
	Units	**WELL 10 ZONE 3**	**RDL**	**QC Batch**
METALS				
Dissolved Aluminum (Al)	mg/L	ND	0.1	1098979
Dissolved Antimony (Sb)	mg/L	ND	0.2	1098979
Dissolved Arsenic (As)	mg/L	ND	0.2	1098979
Dissolved Barium (Ba)	mg/L	0.10	0.02	1098979
Dissolved Beryllium (Be)	mg/L	ND	0.005	1098979
Dissolved Bismuth (Bi)	mg/L	ND	0.2	1098979
Dissolved Boron (B)	mg/L	ND	0.02	1098979
Dissolved Cadmium (Cd)	mg/L	ND	0.005	1098979
Dissolved Calcium (Ca)	mg/L	99.2	0.05	1098979
Dissolved Chromium (Cr)	mg/L	ND	0.01	1098979
Dissolved Cobalt (Co)	mg/L	ND	0.02	1098979
Dissolved Copper (Cu)	mg/L	ND	0.02	1098979
Dissolved Iron (Fe)	mg/L	ND	0.02	1098979
Dissolved Lead (Pb)	mg/L	ND	0.05	1098979
Dissolved Magnesium (Mg)	mg/L	32.7	0.05	1098979
Dissolved Manganese (Mn)	mg/L	0.01	0.01	1098979
Dissolved Molybdenum (Mo)	mg/L	ND	0.02	1098979
Dissolved Nickel (Ni)	mg/L	ND	0.05	1098979
Dissolved Phosphorus (P)	mg/L	ND	0.1	1098979
Dissolved Potassium (K)	mg/L	ND	1	1098979
Dissolved Selenium (Se)	mg/L	ND	0.2	1098979
Dissolved Silicon (Si)	mg/L	4.5	0.2	1098979
Dissolved Silver (Ag)	mg/L	ND	0.01	1098979
Dissolved Sodium (Na)	mg/L	4.2	0.5	1098979
Dissolved Strontium (Sr)	mg/L	0.52	0.01	1098979
Dissolved Sulphur (S)	mg/L	24.0	0.5	1098979
Dissolved Tin (Sn)	mg/L	ND	0.2	1098979
Dissolved Titanium (Ti)	mg/L	ND	0.01	1098979
Dissolved Vanadium (V)	mg/L	ND	0.01	1098979
Dissolved Zinc (Zn)	mg/L	ND	0.01	1098979

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A6C0539
Report Date: 2006/11/17

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Ammonia-N: Ammonia recovery in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit reliable recovery calculation.

Ammonia-N: QC Batch 1099627: The recovery for Ammonia in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit a reliable recovery calculation.

Results relate only to the items tested.

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report

Maxxam Job Number: MA6C0539

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1097861	C_N	MATRIX SPIKE	Nitrite (N)	2006/11/09		102	%	75 - 125
			Nitrate (N)	2006/11/09		106	%	75 - 125
		Spiked Blank	Nitrite (N)	2006/11/09		100	%	85 - 115
			Nitrate (N)	2006/11/09		97	%	85 - 125
		Method Blank	Nitrite (N)	2006/11/09	ND, RDL=0.01		mg/L	
			Nitrate (N)	2006/11/09	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2006/11/09	ND, RDL=0.1		mg/L	
		RPD	Nitrite (N)	2006/11/09	NC		%	25
			Nitrate (N)	2006/11/09	NC		%	25
			Nitrate + Nitrite	2006/11/09	NC		%	25
1097969	SAC	MATRIX SPIKE	Fluoride (F-)	2006/11/09		106	%	75 - 125
		QC STANDARD	Fluoride (F-)	2006/11/09		100	%	85 - 115
		Method Blank	Fluoride (F-)	2006/11/09	ND, RDL=0.1		mg/L	
		RPD	Fluoride (F-)	2006/11/09	NC		%	25
1098074	YPA	QC STANDARD	Conductivity	2006/11/09		100	%	85 - 115
		Method Blank	Conductivity	2006/11/09	ND, RDL=2		umho/cm	
		RPD	Conductivity	2006/11/09	0		%	25
1098076	YPA	QC STANDARD	Alkalinity (Total as CaCO3)	2006/11/09		99	%	85 - 115
		Method Blank	Alkalinity (Total as CaCO3)	2006/11/09	ND, RDL=1		mg/L	
		RPD	Alkalinity (Total as CaCO3)	2006/11/09	0.4		%	25
1098124	FD	MATRIX SPIKE	Chloride (Cl)	2006/11/10		NC (1)	%	75 - 125
		Spiked Blank	Chloride (Cl)	2006/11/10		99	%	75 - 125
			Bromide (Br-)	2006/11/10		98	%	75 - 125
			Sulphate (SO4)	2006/11/10		99	%	75 - 125
		Method Blank	Chloride (Cl)	2006/11/10	ND, RDL=1		mg/L	
			Bromide (Br-)	2006/11/10	ND, RDL=1		mg/L	
			Sulphate (SO4)	2006/11/10	ND, RDL=1		mg/L	
		RPD	Chloride (Cl)	2006/11/10	4.8		%	25
1098316	C_N	MATRIX SPIKE	Nitrite (N)	2006/11/09		103	%	75 - 125
			Nitrate (N)	2006/11/09		86	%	75 - 125
		Spiked Blank	Nitrite (N)	2006/11/09		100	%	85 - 115
			Nitrate (N)	2006/11/09		102	%	85 - 125
		Method Blank	Nitrite (N)	2006/11/09	ND, RDL=0.01		mg/L	
			Nitrate (N)	2006/11/09	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2006/11/09	ND, RDL=0.1		mg/L	
		RPD	Nitrite (N)	2006/11/09	NC		%	25
			Nitrate (N)	2006/11/09	4.5		%	25
1098412	AHA	MATRIX SPIKE						
		[P37028-03]	Total Organic Carbon (TOC)	2006/11/09		93	%	75 - 125
		Spiked Blank	Total Organic Carbon (TOC)	2006/11/09		99	%	75 - 125
		Method Blank	Total Organic Carbon (TOC)	2006/11/09	ND, RDL=0.1		mg/L	
		RPD [P37028-03]	Total Organic Carbon (TOC)	2006/11/09	6.2		%	20
1098542	JOH	Spiked Blank	Dissolved Aluminum (Al)	2006/11/10		95	%	85 - 115
			Dissolved Antimony (Sb)	2006/11/10		88	%	85 - 115
			Dissolved Arsenic (As)	2006/11/10		95	%	85 - 115
			Dissolved Barium (Ba)	2006/11/10		98	%	85 - 115
			Dissolved Beryllium (Be)	2006/11/10		98	%	85 - 115
			Dissolved Bismuth (Bi)	2006/11/10		98	%	85 - 115
			Dissolved Boron (B)	2006/11/10		101	%	85 - 115
			Dissolved Cadmium (Cd)	2006/11/10		100	%	85 - 115
			Dissolved Calcium (Ca)	2006/11/10		103	%	85 - 115
			Dissolved Chromium (Cr)	2006/11/10		100	%	85 - 115
			Dissolved Cobalt (Co)	2006/11/10		100	%	85 - 115
			Dissolved Copper (Cu)	2006/11/10		100	%	85 - 115
			Dissolved Iron (Fe)	2006/11/10		101	%	85 - 115

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6C0539

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1098542	JOH	Spiked Blank	Dissolved Lead (Pb)	2006/11/10		101	%	85 - 115
			Dissolved Magnesium (Mg)	2006/11/10		97	%	85 - 115
			Dissolved Manganese (Mn)	2006/11/10		99	%	85 - 115
			Dissolved Molybdenum (Mo)	2006/11/10		99	%	85 - 115
			Dissolved Nickel (Ni)	2006/11/10		101	%	85 - 115
			Dissolved Phosphorus (P)	2006/11/10		105	%	85 - 115
			Dissolved Potassium (K)	2006/11/10		98	%	85 - 115
			Dissolved Selenium (Se)	2006/11/10		99	%	85 - 115
			Dissolved Silicon (Si)	2006/11/10		98	%	85 - 115
			Dissolved Silver (Ag)	2006/11/10		99	%	85 - 115
			Dissolved Sodium (Na)	2006/11/10		99	%	85 - 115
			Dissolved Strontium (Sr)	2006/11/10		96	%	85 - 115
			Dissolved Sulphur (S)	2006/11/10		99	%	85 - 115
			Dissolved Tin (Sn)	2006/11/10		100	%	85 - 115
			Dissolved Titanium (Ti)	2006/11/10		96	%	85 - 115
			Dissolved Vanadium (V)	2006/11/10		99	%	85 - 115
			Dissolved Zinc (Zn)	2006/11/10		99	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2006/11/10	ND, RDL=0.1		mg/L	
			Dissolved Antimony (Sb)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Arsenic (As)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Barium (Ba)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Beryllium (Be)	2006/11/10	ND, RDL=0.005		mg/L	
			Dissolved Bismuth (Bi)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Boron (B)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Cadmium (Cd)	2006/11/10	ND, RDL=0.005		mg/L	
			Dissolved Calcium (Ca)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Chromium (Cr)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Cobalt (Co)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Copper (Cu)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Iron (Fe)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Lead (Pb)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Magnesium (Mg)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Manganese (Mn)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Molybdenum (Mo)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Nickel (Ni)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Phosphorus (P)	2006/11/10	ND, RDL=0.1		mg/L	
			Dissolved Potassium (K)	2006/11/10	ND, RDL=1		mg/L	
			Dissolved Selenium (Se)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Silicon (Si)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Silver (Ag)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Sodium (Na)	2006/11/10	ND, RDL=0.5		mg/L	
			Dissolved Strontium (Sr)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Sulphur (S)	2006/11/10	ND, RDL=0.5		mg/L	
			Dissolved Tin (Sn)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Titanium (Ti)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Vanadium (V)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Zinc (Zn)	2006/11/10	ND, RDL=0.01		mg/L	
		RPD	Dissolved Calcium (Ca)	2006/11/10	0.5		%	25
			Dissolved Magnesium (Mg)	2006/11/10	0.3		%	25
			Dissolved Potassium (K)	2006/11/10	NC		%	25
			Dissolved Sodium (Na)	2006/11/10	0.3		%	25
1098979	JOH	Spiked Blank	Dissolved Aluminum (Al)	2006/11/10		89	%	85 - 115
			Dissolved Antimony (Sb)	2006/11/10		85	%	85 - 115
			Dissolved Arsenic (As)	2006/11/10		90	%	85 - 115
			Dissolved Barium (Ba)	2006/11/10		95	%	85 - 115

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6C0539

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1098979	JOH	Spiked Blank	Dissolved Beryllium (Be)	2006/11/10		94	%	85 - 115
			Dissolved Bismuth (Bi)	2006/11/10		88	%	85 - 115
			Dissolved Boron (B)	2006/11/10		95	%	85 - 115
			Dissolved Cadmium (Cd)	2006/11/10		96	%	85 - 115
			Dissolved Calcium (Ca)	2006/11/10		96	%	85 - 115
			Dissolved Chromium (Cr)	2006/11/10		95	%	85 - 115
			Dissolved Cobalt (Co)	2006/11/10		97	%	85 - 115
			Dissolved Copper (Cu)	2006/11/10		96	%	85 - 115
			Dissolved Iron (Fe)	2006/11/10		97	%	85 - 115
			Dissolved Lead (Pb)	2006/11/10		97	%	85 - 115
			Dissolved Magnesium (Mg)	2006/11/10		92	%	85 - 115
			Dissolved Manganese (Mn)	2006/11/10		96	%	85 - 115
			Dissolved Molybdenum (Mo)	2006/11/10		95	%	85 - 115
			Dissolved Nickel (Ni)	2006/11/10		98	%	85 - 115
			Dissolved Phosphorus (P)	2006/11/10		95	%	85 - 115
			Dissolved Potassium (K)	2006/11/10		94	%	85 - 115
			Dissolved Selenium (Se)	2006/11/10		91	%	85 - 115
			Dissolved Silicon (Si)	2006/11/10		94	%	85 - 115
			Dissolved Silver (Ag)	2006/11/10		94	%	85 - 115
			Dissolved Sodium (Na)	2006/11/10		96	%	85 - 115
			Dissolved Strontium (Sr)	2006/11/10		93	%	85 - 115
			Dissolved Sulphur (S)	2006/11/10		96	%	85 - 115
			Dissolved Tin (Sn)	2006/11/10		97	%	85 - 115
			Dissolved Titanium (Ti)	2006/11/10		93	%	85 - 115
			Dissolved Vanadium (V)	2006/11/10		95	%	85 - 115
			Dissolved Zinc (Zn)	2006/11/10		95	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2006/11/10	ND, RDL=0.1		mg/L	
			Dissolved Antimony (Sb)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Arsenic (As)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Barium (Ba)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Beryllium (Be)	2006/11/10	ND, RDL=0.005		mg/L	
			Dissolved Bismuth (Bi)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Boron (B)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Cadmium (Cd)	2006/11/10	ND, RDL=0.005		mg/L	
			Dissolved Calcium (Ca)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Chromium (Cr)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Cobalt (Co)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Copper (Cu)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Iron (Fe)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Lead (Pb)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Magnesium (Mg)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Manganese (Mn)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Molybdenum (Mo)	2006/11/10	ND, RDL=0.02		mg/L	
			Dissolved Nickel (Ni)	2006/11/10	ND, RDL=0.05		mg/L	
			Dissolved Phosphorus (P)	2006/11/10	ND, RDL=0.1		mg/L	
			Dissolved Potassium (K)	2006/11/10	ND, RDL=1		mg/L	
			Dissolved Selenium (Se)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Silicon (Si)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Silver (Ag)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Sodium (Na)	2006/11/10	ND, RDL=0.5		mg/L	
			Dissolved Strontium (Sr)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Sulphur (S)	2006/11/10	ND, RDL=0.5		mg/L	
			Dissolved Tin (Sn)	2006/11/10	ND, RDL=0.2		mg/L	
			Dissolved Titanium (Ti)	2006/11/10	ND, RDL=0.01		mg/L	
			Dissolved Vanadium (V)	2006/11/10	ND, RDL=0.01		mg/L	

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6C0539

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1098979	JOH	Method Blank	Dissolved Zinc (Zn)	2006/11/10	ND, RDL=0.01		mg/L	
		RPD	Dissolved Calcium (Ca)	2006/11/10	1.6		%	25
			Dissolved Magnesium (Mg)	2006/11/10	1.3		%	25
			Dissolved Potassium (K)	2006/11/10	NC		%	25
			Dissolved Sodium (Na)	2006/11/10	0.9		%	25
1099092	LS	MATRIX SPIKE	Total Ammonia-N	2006/11/10		NC	%	80 - 120
		Spiked Blank	Total Ammonia-N	2006/11/10		97	%	80 - 120
		Method Blank	Total Ammonia-N	2006/11/10	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2006/11/10	0		%	25
1099126	ADB	MATRIX SPIKE	Total Ammonia-N	2006/11/13		83	%	80 - 120
		Spiked Blank	Total Ammonia-N	2006/11/13		96	%	80 - 120
		Method Blank	Total Ammonia-N	2006/11/13	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2006/11/13	NC		%	25
1099517	SAC	MATRIX SPIKE	Fluoride (F-)	2006/11/10		104	%	75 - 125
		QC STANDARD	Fluoride (F-)	2006/11/10		99	%	85 - 115
		Method Blank	Fluoride (F-)	2006/11/10	ND, RDL=0.1		mg/L	
		RPD	Fluoride (F-)	2006/11/10	2.5		%	25
1099627	ADB	MATRIX SPIKE	Total Ammonia-N	2006/11/13		NC	%	80 - 120
		Spiked Blank	Total Ammonia-N	2006/11/13		95	%	80 - 120
		Method Blank	Total Ammonia-N	2006/11/13	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2006/11/13	0.3		%	25
1099668	DRM	MATRIX SPIKE	Orthophosphate (P)	2006/11/13		NC (2)	%	75 - 125
		QC STANDARD	Orthophosphate (P)	2006/11/13		105	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2006/11/13		100	%	80 - 120
		Method Blank	Orthophosphate (P)	2006/11/13	ND, RDL=0.01		mg/L	
		RPD	Orthophosphate (P)	2006/11/13	0.4		%	25
1100019	SAC	QC STANDARD	Sulphide	2006/11/10		97	%	75 - 125
		RPD	Sulphide	2006/11/10	2.1		%	25
		Method Blank	Sulphide	2006/11/10	ND, RDL=0.02		mg/L	
1103891	JOH	Spiked Blank	Dissolved Aluminum (Al)	2006/11/17		100	%	85 - 115
			Dissolved Antimony (Sb)	2006/11/17		94	%	85 - 115
			Dissolved Arsenic (As)	2006/11/17		100	%	85 - 115
			Dissolved Barium (Ba)	2006/11/17		103	%	85 - 115
			Dissolved Beryllium (Be)	2006/11/17		102	%	85 - 115
			Dissolved Bismuth (Bi)	2006/11/17		101	%	85 - 115
			Dissolved Boron (B)	2006/11/17		105	%	85 - 115
			Dissolved Cadmium (Cd)	2006/11/17		106	%	85 - 115
			Dissolved Calcium (Ca)	2006/11/17		102	%	85 - 115
			Dissolved Chromium (Cr)	2006/11/17		103	%	85 - 115
			Dissolved Cobalt (Co)	2006/11/17		104	%	85 - 115
			Dissolved Copper (Cu)	2006/11/17		105	%	85 - 115
			Dissolved Iron (Fe)	2006/11/17		105	%	85 - 115
			Dissolved Lead (Pb)	2006/11/17		105	%	85 - 115
			Dissolved Magnesium (Mg)	2006/11/17		99	%	85 - 115
			Dissolved Manganese (Mn)	2006/11/17		103	%	85 - 115
			Dissolved Molybdenum (Mo)	2006/11/17		105	%	85 - 115
			Dissolved Nickel (Ni)	2006/11/17		105	%	85 - 115
			Dissolved Phosphorus (P)	2006/11/17		100	%	85 - 115
			Dissolved Potassium (K)	2006/11/17		102	%	85 - 115
			Dissolved Selenium (Se)	2006/11/17		109	%	85 - 115
			Dissolved Silicon (Si)	2006/11/17		112	%	85 - 115
			Dissolved Silver (Ag)	2006/11/17		104	%	85 - 115
			Dissolved Sodium (Na)	2006/11/17		103	%	85 - 115
			Dissolved Strontium (Sr)	2006/11/17		101	%	85 - 115
			Dissolved Sulphur (S)	2006/11/17		103	%	85 - 115

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6C0539

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1103891	JOH	Spiked Blank	Dissolved Tin (Sn)	2006/11/17		106	%	85 - 115
			Dissolved Titanium (Ti)	2006/11/17		102	%	85 - 115
			Dissolved Vanadium (V)	2006/11/17		103	%	85 - 115
			Dissolved Zinc (Zn)	2006/11/17		103	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2006/11/17	ND, RDL=0.1		mg/L	
			Dissolved Antimony (Sb)	2006/11/17	ND, RDL=0.2		mg/L	
			Dissolved Arsenic (As)	2006/11/17	ND, RDL=0.2		mg/L	
			Dissolved Barium (Ba)	2006/11/17	ND, RDL=0.02		mg/L	
			Dissolved Beryllium (Be)	2006/11/17	ND, RDL=0.005		mg/L	
			Dissolved Bismuth (Bi)	2006/11/17	ND, RDL=0.2		mg/L	
			Dissolved Boron (B)	2006/11/17	ND, RDL=0.02		mg/L	
			Dissolved Cadmium (Cd)	2006/11/17	ND, RDL=0.005		mg/L	
			Dissolved Calcium (Ca)	2006/11/17	ND, RDL=0.05		mg/L	
			Dissolved Chromium (Cr)	2006/11/17	ND, RDL=0.01		mg/L	
			Dissolved Cobalt (Co)	2006/11/17	ND, RDL=0.02		mg/L	
			Dissolved Copper (Cu)	2006/11/17	ND, RDL=0.02		mg/L	
			Dissolved Iron (Fe)	2006/11/17	ND, RDL=0.02		mg/L	
			Dissolved Lead (Pb)	2006/11/17	ND, RDL=0.05		mg/L	
			Dissolved Magnesium (Mg)	2006/11/17	ND, RDL=0.05		mg/L	
			Dissolved Manganese (Mn)	2006/11/17	ND, RDL=0.01		mg/L	
			Dissolved Molybdenum (Mo)	2006/11/17	ND, RDL=0.02		mg/L	
			Dissolved Nickel (Ni)	2006/11/17	ND, RDL=0.05		mg/L	
			Dissolved Phosphorus (P)	2006/11/17	ND, RDL=0.1		mg/L	
			Dissolved Potassium (K)	2006/11/17	ND, RDL=1		mg/L	
			Dissolved Selenium (Se)	2006/11/17	ND, RDL=0.2		mg/L	
			Dissolved Silicon (Si)	2006/11/17	ND, RDL=0.2		mg/L	
			Dissolved Silver (Ag)	2006/11/17	ND, RDL=0.01		mg/L	
			Dissolved Sodium (Na)	2006/11/17	ND, RDL=0.5		mg/L	
			Dissolved Strontium (Sr)	2006/11/17	ND, RDL=0.01		mg/L	
			Dissolved Sulphur (S)	2006/11/17	ND, RDL=0.5		mg/L	
			Dissolved Tin (Sn)	2006/11/17	ND, RDL=0.2		mg/L	
			Dissolved Titanium (Ti)	2006/11/17	ND, RDL=0.01		mg/L	
			Dissolved Vanadium (V)	2006/11/17	ND, RDL=0.01		mg/L	
			Dissolved Zinc (Zn)	2006/11/17	ND, RDL=0.01		mg/L	
		RPD	Dissolved Calcium (Ca)	2006/11/17	0.8		%	25
			Dissolved Magnesium (Mg)	2006/11/17	0.4		%	25
			Dissolved Potassium (K)	2006/11/17	0.08		%	25
			Dissolved Sodium (Na)	2006/11/17	1		%	25

ND = Not detected
NC = Non-calculable
RPD = Relative Percent Difference
QC Standard = Quality Control Standard
SPIKE = Fortified sample

(1) Chloride recovery in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit reliable recovery calculation.

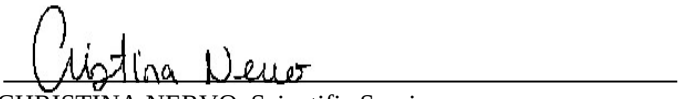
(2) Orthophosphate recovery in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit reliable recovery calculation.

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Validation Signature Page

Maxxam Job #: A6C0539

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



CHRISTINA NERVO, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

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MWB13 (TW13)

Your Project #: 147-005 CARLISLE
Site: CARLISLE
Your C.O.C. #: 00433275

Attention: Bill Beaton
Lotowater Technical Services Inc
PO Box 451
92 Scott Ave
Paris, ON
N3L 3T5

Report Date: 2006/11/09

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A6B7487
Received: 2006/10/31, 16:01

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	2	N/A	2006/11/04	Ont SOP 0083	SM 2320B
Alkalinity	1	N/A	2006/11/06	Ont SOP 0083	SM 2320B
Carbonate, Bicarbonate and Hydroxide	3	N/A	2006/11/06		
Anions	2	N/A	2006/11/07	Ont SOP 0078	APHA-4110B
Anions	1	N/A	2006/11/09	Ont SOP 0078	APHA-4110B
Conductivity	2	N/A	2006/11/04	Ont SOP 0071	SM 2510
Conductivity	1	N/A	2006/11/06	Ont SOP 0071	SM 2510
Fluoride	3	2006/11/06	2006/11/07	Ont SOP-0621	APHA 4500FC
Lab Filtered Metals Analysis by ICP	1	2006/11/06	2006/11/06	Ont SOP 0072	EPA 6010
Lab Filtered Metals Analysis by ICP	2	2006/11/06	2006/11/07	Ont SOP 0072	EPA 6010
Ammonia-N	3	N/A	2006/11/07	Ont SOP 0441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water	3	N/A	2006/11/06	Ont SOP-0100	SM 4500 NO3 I
pH	2	N/A	2006/11/04	Ont SOP 0067	SM 4500H
pH	1	N/A	2006/11/06	Ont SOP 0067	SM 4500H
Orthophosphate	3	N/A	2006/11/08	CAL SOP-0196	SM 4500 P-F
Sulphide	3	N/A	2006/11/07	Ont SOP 0623	APHA 4500
Total Organic Carbon (TOC)	3	N/A	2006/11/07	Ont SOP-0622	EPA 415.1 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

LEENA THOMAS, Project Manager
Email: leena.thomas@maxxamanalytics.com
Phone# (905) 817-5700 Ext:5798

==========

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5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

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Maxxam Job #: A6B7487
Report Date: 2006/11/09

Lotowater Technical Services Inc
Client Project #: 147-005 CARLISLE
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		P22031		P22032		
Sampling Date		2006/10/30 15:00		2006/10/31 11:40		
COC Number		00433275		00433275		
	Units	**WELL 13 - ZONE 1**	**QC Batch**	**WELL 13 - ZONE 2**	**RDL**	**QC Batch**
INORGANICS						
Total Ammonia-N	mg/L	0.08	1095877	0.06	0.05	1095877
Conductivity	umho/cm	619	1094659	617	2	1095177
Fluoride (F-)	mg/L	ND	1095568	ND	0.1	1095568
Total Organic Carbon (TOC)	mg/L	1.2	1095977	0.6	0.1	1095977
Orthophosphate (P)	mg/L	ND	1094655	ND	0.01	1094655
pH	pH	8.0	1094658	8.1	N/A	1095174
Sulphide	mg/L	0.03	1096608	ND	0.02	1096608
Alkalinity (Total as CaCO3)	mg/L	313	1094660	299	1	1095178
Nitrite (N)	mg/L	ND	1094650	ND	0.01	1094650
Chloride (Cl)	mg/L	13	1095329	11	1	1096123
Nitrate (N)	mg/L	0.2	1094650	ND	0.1	1094650
Nitrate + Nitrite	mg/L	0.2	1094650	ND	0.1	1094650
Bromide (Br-)	mg/L	ND	1095329	ND	1	1096123
Sulphate (SO4)	mg/L	28	1095329	39	1	1096123
RCAP CALCULATIONS						
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	311	1095694	295	1	1095694
Carb. Alkalinity (calc. as CaCO3)	mg/L	3	1095694	3	1	1095694

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A6B7487
Report Date: 2006/11/09

Lotowater Technical Services Inc
Client Project #: 147-005 CARLISLE
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		P22033		
Sampling Date		2006/10/31 14:35		
COC Number		00433275		
	Units	**WELL 13 - ZONE 3**	**RDL**	**QC Batch**
INORGANICS				
Total Ammonia-N	mg/L	0.15	0.05	1095866
Conductivity	umho/cm	677	2	1094659
Fluoride (F-)	mg/L	0.1	0.1	1095568
Total Organic Carbon (TOC)	mg/L	0.5	0.1	1095977
Orthophosphate (P)	mg/L	ND	0.01	1094655
pH	pH	8.0	N/A	1094658
Sulphide	mg/L	ND	0.02	1096608
Alkalinity (Total as CaCO3)	mg/L	291	1	1094660
Nitrite (N)	mg/L	ND	0.01	1094650
Chloride (Cl)	mg/L	20	1	1095329
Nitrate (N)	mg/L	ND	0.1	1094650
Nitrate + Nitrite	mg/L	ND	0.1	1094650
Bromide (Br-)	mg/L	ND	1	1095329
Sulphate (SO4)	mg/L	65	1	1095329
RCAP CALCULATIONS				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	289	1	1095694
Carb. Alkalinity (calc. as CaCO3)	mg/L	2	1	1095694

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A6B7487
Report Date: 2006/11/09

Lotowater Technical Services Inc
Client Project #: 147-005 CARLISLE
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		P22031	P22032		P22033		
Sampling Date		2006/10/30 15:00	2006/10/31 11:40		2006/10/31 14:35		
COC Number		00433275	00433275		00433275		
	Units	**WELL 13 - ZONE 1**	**WELL 13 - ZONE 2**	**QC Batch**	**WELL 13 - ZONE 3**	**RDL**	**QC Batch**
METALS							
Dissolved Aluminum (Al)	mg/L	ND	ND	1095097	ND	0.1	1095331
Dissolved Antimony (Sb)	mg/L	ND	ND	1095097	ND	0.2	1095331
Dissolved Arsenic (As)	mg/L	ND	ND	1095097	ND	0.2	1095331
Dissolved Barium (Ba)	mg/L	ND	0.03	1095097	0.04	0.02	1095331
Dissolved Beryllium (Be)	mg/L	ND	ND	1095097	ND	0.005	1095331
Dissolved Bismuth (Bi)	mg/L	ND	ND	1095097	ND	0.2	1095331
Dissolved Boron (B)	mg/L	ND	ND	1095097	0.04	0.02	1095331
Dissolved Cadmium (Cd)	mg/L	ND	ND	1095097	ND	0.005	1095331
Dissolved Calcium (Ca)	mg/L	74.0	74.9	1095097	78.7	0.05	1095331
Dissolved Chromium (Cr)	mg/L	ND	ND	1095097	ND	0.01	1095331
Dissolved Cobalt (Co)	mg/L	ND	ND	1095097	ND	0.02	1095331
Dissolved Copper (Cu)	mg/L	ND	ND	1095097	ND	0.02	1095331
Dissolved Iron (Fe)	mg/L	ND	ND	1095097	ND	0.02	1095331
Dissolved Lead (Pb)	mg/L	ND	ND	1095097	ND	0.05	1095331
Dissolved Magnesium (Mg)	mg/L	30.4	29.7	1095097	29.3	0.05	1095331
Dissolved Manganese (Mn)	mg/L	ND	ND	1095097	ND	0.01	1095331
Dissolved Molybdenum (Mo)	mg/L	ND	ND	1095097	ND	0.02	1095331
Dissolved Nickel (Ni)	mg/L	ND	ND	1095097	ND	0.05	1095331
Dissolved Phosphorus (P)	mg/L	ND	ND	1095097	ND	0.1	1095331
Dissolved Potassium (K)	mg/L	ND	ND	1095097	ND	1	1095331
Dissolved Selenium (Se)	mg/L	ND	ND	1095097	ND	0.2	1095331
Dissolved Silicon (Si)	mg/L	2.8	2.7	1095097	2.7	0.2	1095331
Dissolved Silver (Ag)	mg/L	ND	ND	1095097	ND	0.01	1095331
Dissolved Sodium (Na)	mg/L	5.0	4.8	1095097	10.1	0.5	1095331
Dissolved Strontium (Sr)	mg/L	0.08	0.19	1095097	0.59	0.01	1095331
Dissolved Sulphur (S)	mg/L	8.2	12.0	1095097	19.1	0.5	1095331
Dissolved Tin (Sn)	mg/L	ND	ND	1095097	ND	0.2	1095331
Dissolved Titanium (Ti)	mg/L	ND	ND	1095097	ND	0.01	1095331
Dissolved Vanadium (V)	mg/L	ND	ND	1095097	ND	0.01	1095331
Dissolved Zinc (Zn)	mg/L	0.02	0.04	1095097	0.02	0.01	1095331

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A6B7487
Report Date: 2006/11/09

Lotowater Technical Services Inc
Client Project #: 147-005 CARLISLE
Project name: CARLISLE
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Lotowater Technical Services Inc
Attention: Bill Beaton
Client Project #: 147-005 CARLISLE
P.O. #:
Project name: CARLISLE

Quality Assurance Report

Maxxam Job Number: MA6B7487

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1094650	ADB	MATRIX SPIKE	Nitrite (N)	2006/11/06		99	%	75 - 125
			Nitrate (N)	2006/11/06		94	%	75 - 125
		Spiked Blank	Nitrite (N)	2006/11/06		99	%	85 - 115
			Nitrate (N)	2006/11/06		97	%	85 - 125
		Method Blank	Nitrite (N)	2006/11/06	ND, RDL=0.01		mg/L	
			Nitrate (N)	2006/11/06	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2006/11/06	ND, RDL=0.1		mg/L	
		RPD	Nitrite (N)	2006/11/06	NC		%	25
			Nitrate (N)	2006/11/06	NC		%	25
			Nitrate + Nitrite	2006/11/06	NC		%	25
1094655	DRM	MATRIX SPIKE	Orthophosphate (P)	2006/11/08		95	%	75 - 125
		QC STANDARD	Orthophosphate (P)	2006/11/08		103	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2006/11/08		101	%	80 - 120
		Method Blank	Orthophosphate (P)	2006/11/08	ND, RDL=0.01		mg/L	
		RPD	Orthophosphate (P)	2006/11/08	NC		%	25
1094659	JDE	QC STANDARD	Conductivity	2006/11/04		100	%	85 - 115
		Method Blank	Conductivity	2006/11/04	ND, RDL=2		umho/cm	
		RPD	Conductivity	2006/11/04	0.1		%	25
1094660	JDE	QC STANDARD	Alkalinity (Total as CaCO3)	2006/11/04		100	%	85 - 115
		Method Blank	Alkalinity (Total as CaCO3)	2006/11/04	ND, RDL=1		mg/L	
		RPD	Alkalinity (Total as CaCO3)	2006/11/04	0.08		%	25
1095097	JOH	Spiked Blank	Dissolved Aluminum (Al)	2006/11/07		93	%	85 - 115
			Dissolved Antimony (Sb)	2006/11/07		93	%	85 - 115
			Dissolved Arsenic (As)	2006/11/07		93	%	85 - 115
			Dissolved Barium (Ba)	2006/11/07		97	%	85 - 115
			Dissolved Beryllium (Be)	2006/11/07		98	%	85 - 115
			Dissolved Bismuth (Bi)	2006/11/07		100	%	85 - 115
			Dissolved Boron (B)	2006/11/07		100	%	85 - 115
			Dissolved Cadmium (Cd)	2006/11/07		98	%	85 - 115
			Dissolved Calcium (Ca)	2006/11/07		98	%	85 - 115
			Dissolved Chromium (Cr)	2006/11/07		100	%	85 - 115
			Dissolved Cobalt (Co)	2006/11/07		99	%	85 - 115
			Dissolved Copper (Cu)	2006/11/07		100	%	85 - 115
			Dissolved Iron (Fe)	2006/11/07		99	%	85 - 115
			Dissolved Lead (Pb)	2006/11/07		100	%	85 - 115
			Dissolved Magnesium (Mg)	2006/11/07		94	%	85 - 115
			Dissolved Manganese (Mn)	2006/11/07		98	%	85 - 115
			Dissolved Molybdenum (Mo)	2006/11/07		98	%	85 - 115
			Dissolved Nickel (Ni)	2006/11/07		100	%	85 - 115
			Dissolved Phosphorus (P)	2006/11/07		99	%	85 - 115
			Dissolved Potassium (K)	2006/11/07		96	%	85 - 115
			Dissolved Selenium (Se)	2006/11/07		103	%	85 - 115
			Dissolved Silicon (Si)	2006/11/07		98	%	85 - 115
			Dissolved Silver (Ag)	2006/11/07		99	%	85 - 115
			Dissolved Sodium (Na)	2006/11/07		99	%	85 - 115
			Dissolved Strontium (Sr)	2006/11/07		96	%	85 - 115
			Dissolved Sulphur (S)	2006/11/07		97	%	85 - 115
			Dissolved Tin (Sn)	2006/11/07		97	%	85 - 115
			Dissolved Titanium (Ti)	2006/11/07		95	%	85 - 115
			Dissolved Vanadium (V)	2006/11/07		98	%	85 - 115
			Dissolved Zinc (Zn)	2006/11/07		99	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2006/11/07	ND, RDL=0.1		mg/L	
			Dissolved Antimony (Sb)	2006/11/07	ND, RDL=0.2		mg/L	
			Dissolved Arsenic (As)	2006/11/07	ND, RDL=0.2		mg/L	
			Dissolved Barium (Ba)	2006/11/07	ND, RDL=0.02		mg/L	

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Lotowater Technical Services Inc
Attention: Bill Beaton
Client Project #: 147-005 CARLISLE
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6B7487

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1095097	JOH	Method Blank	Dissolved Beryllium (Be)	2006/11/07	ND, RDL=0.005		mg/L	
			Dissolved Bismuth (Bi)	2006/11/07	ND, RDL=0.2		mg/L	
			Dissolved Boron (B)	2006/11/07	ND, RDL=0.02		mg/L	
			Dissolved Cadmium (Cd)	2006/11/07	ND, RDL=0.005		mg/L	
			Dissolved Calcium (Ca)	2006/11/07	ND, RDL=0.05		mg/L	
			Dissolved Chromium (Cr)	2006/11/07	ND, RDL=0.01		mg/L	
			Dissolved Cobalt (Co)	2006/11/07	ND, RDL=0.02		mg/L	
			Dissolved Copper (Cu)	2006/11/07	ND, RDL=0.02		mg/L	
			Dissolved Iron (Fe)	2006/11/07	ND, RDL=0.02		mg/L	
			Dissolved Lead (Pb)	2006/11/07	ND, RDL=0.05		mg/L	
			Dissolved Magnesium (Mg)	2006/11/07	ND, RDL=0.05		mg/L	
			Dissolved Manganese (Mn)	2006/11/07	ND, RDL=0.01		mg/L	
			Dissolved Molybdenum (Mo)	2006/11/07	ND, RDL=0.02		mg/L	
			Dissolved Nickel (Ni)	2006/11/07	ND, RDL=0.05		mg/L	
			Dissolved Phosphorus (P)	2006/11/07	ND, RDL=0.1		mg/L	
			Dissolved Potassium (K)	2006/11/07	ND, RDL=1		mg/L	
			Dissolved Selenium (Se)	2006/11/07	ND, RDL=0.2		mg/L	
			Dissolved Silicon (Si)	2006/11/07	ND, RDL=0.2		mg/L	
			Dissolved Silver (Ag)	2006/11/07	ND, RDL=0.01		mg/L	
			Dissolved Sodium (Na)	2006/11/07	ND, RDL=0.5		mg/L	
			Dissolved Strontium (Sr)	2006/11/07	ND, RDL=0.01		mg/L	
			Dissolved Sulphur (S)	2006/11/07	ND, RDL=0.5		mg/L	
			Dissolved Tin (Sn)	2006/11/07	ND, RDL=0.2		mg/L	
			Dissolved Titanium (Ti)	2006/11/07	ND, RDL=0.01		mg/L	
			Dissolved Vanadium (V)	2006/11/07	ND, RDL=0.01		mg/L	
			Dissolved Zinc (Zn)	2006/11/07	ND, RDL=0.01		mg/L	
		RPD	Dissolved Calcium (Ca)	2006/11/07	0.4		%	25
			Dissolved Magnesium (Mg)	2006/11/07	0.9		%	25
			Dissolved Potassium (K)	2006/11/07	NC		%	25
			Dissolved Sodium (Na)	2006/11/07	0.3		%	25
1095177	YPA	QC STANDARD	Conductivity	2006/11/06		101	%	85 - 115
		Method Blank	Conductivity	2006/11/06	ND, RDL=2		umho/cm	
		RPD	Conductivity	2006/11/06	0		%	25
1095178	YPA	QC STANDARD	Alkalinity (Total as CaCO3)	2006/11/06		101	%	85 - 115
		Method Blank	Alkalinity (Total as CaCO3)	2006/11/06	ND, RDL=1		mg/L	
		RPD	Alkalinity (Total as CaCO3)	2006/11/06	1.1		%	25
1095329	FD	MATRIX SPIKE	Chloride (Cl)	2006/11/07		117	%	75 - 125
			Bromide (Br-)	2006/11/07		107	%	75 - 125
			Sulphate (SO4)	2006/11/07		109	%	75 - 125
		Spiked Blank	Chloride (Cl)	2006/11/07		105	%	75 - 125
			Bromide (Br-)	2006/11/07		108	%	75 - 125
			Sulphate (SO4)	2006/11/07		103	%	75 - 125
		Method Blank	Chloride (Cl)	2006/11/07	ND, RDL=1		mg/L	
			Bromide (Br-)	2006/11/07	ND, RDL=1		mg/L	
			Sulphate (SO4)	2006/11/07	ND, RDL=1		mg/L	
		RPD	Chloride (Cl)	2006/11/07	1.8		%	25
			Bromide (Br-)	2006/11/07	NC		%	25
			Sulphate (SO4)	2006/11/07	1.3		%	25
1095331	JOH	Spiked Blank	Dissolved Aluminum (Al)	2006/11/06		92	%	85 - 115
			Dissolved Antimony (Sb)	2006/11/06		86	%	85 - 115
			Dissolved Arsenic (As)	2006/11/06		92	%	85 - 115
			Dissolved Barium (Ba)	2006/11/06		98	%	85 - 115
			Dissolved Beryllium (Be)	2006/11/06		94	%	85 - 115
			Dissolved Bismuth (Bi)	2006/11/06		93	%	85 - 115
			Dissolved Boron (B)	2006/11/06		94	%	85 - 115

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Lotowater Technical Services Inc
Attention: Bill Beaton
Client Project #: 147-005 CARLISLE
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6B7487

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1095331	JOH	Spiked Blank	Dissolved Cadmium (Cd)	2006/11/06		98	%	85 - 115
			Dissolved Calcium (Ca)	2006/11/06		96	%	85 - 115
			Dissolved Chromium (Cr)	2006/11/06		96	%	85 - 115
			Dissolved Cobalt (Co)	2006/11/06		99	%	85 - 115
			Dissolved Copper (Cu)	2006/11/06		98	%	85 - 115
			Dissolved Iron (Fe)	2006/11/06		97	%	85 - 115
			Dissolved Lead (Pb)	2006/11/06		100	%	85 - 115
			Dissolved Magnesium (Mg)	2006/11/06		90	%	85 - 115
			Dissolved Manganese (Mn)	2006/11/06		97	%	85 - 115
			Dissolved Molybdenum (Mo)	2006/11/06		97	%	85 - 115
			Dissolved Nickel (Ni)	2006/11/06		97	%	85 - 115
			Dissolved Phosphorus (P)	2006/11/06		93	%	85 - 115
			Dissolved Potassium (K)	2006/11/06		94	%	85 - 115
			Dissolved Selenium (Se)	2006/11/06		95	%	85 - 115
			Dissolved Silicon (Si)	2006/11/06		94	%	85 - 115
			Dissolved Silver (Ag)	2006/11/06		91	%	85 - 115
			Dissolved Sodium (Na)	2006/11/06		101	%	85 - 115
			Dissolved Strontium (Sr)	2006/11/06		98	%	85 - 115
			Dissolved Sulphur (S)	2006/11/06		92	%	85 - 115
			Dissolved Tin (Sn)	2006/11/06		92	%	85 - 115
			Dissolved Titanium (Ti)	2006/11/06		91	%	85 - 115
			Dissolved Vanadium (V)	2006/11/06		95	%	85 - 115
			Dissolved Zinc (Zn)	2006/11/06		93	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2006/11/06	ND, RDL=0.1		mg/L	
			Dissolved Antimony (Sb)	2006/11/06	ND, RDL=0.2		mg/L	
			Dissolved Arsenic (As)	2006/11/06	ND, RDL=0.2		mg/L	
			Dissolved Barium (Ba)	2006/11/06	ND, RDL=0.02		mg/L	
			Dissolved Beryllium (Be)	2006/11/06	ND, RDL=0.005		mg/L	
			Dissolved Bismuth (Bi)	2006/11/06	ND, RDL=0.2		mg/L	
			Dissolved Boron (B)	2006/11/06	ND, RDL=0.02		mg/L	
			Dissolved Cadmium (Cd)	2006/11/06	ND, RDL=0.005		mg/L	
			Dissolved Calcium (Ca)	2006/11/06	0.06, RDL=0.05		mg/L	
			Dissolved Chromium (Cr)	2006/11/06	ND, RDL=0.01		mg/L	
			Dissolved Cobalt (Co)	2006/11/06	ND, RDL=0.02		mg/L	
			Dissolved Copper (Cu)	2006/11/06	ND, RDL=0.02		mg/L	
			Dissolved Iron (Fe)	2006/11/06	ND, RDL=0.02		mg/L	
			Dissolved Lead (Pb)	2006/11/06	ND, RDL=0.05		mg/L	
			Dissolved Magnesium (Mg)	2006/11/06	ND, RDL=0.05		mg/L	
			Dissolved Manganese (Mn)	2006/11/06	ND, RDL=0.01		mg/L	
			Dissolved Molybdenum (Mo)	2006/11/06	ND, RDL=0.02		mg/L	
			Dissolved Nickel (Ni)	2006/11/06	ND, RDL=0.05		mg/L	
			Dissolved Phosphorus (P)	2006/11/06	ND, RDL=0.1		mg/L	
			Dissolved Potassium (K)	2006/11/06	ND, RDL=1		mg/L	
			Dissolved Selenium (Se)	2006/11/06	ND, RDL=0.2		mg/L	
			Dissolved Silicon (Si)	2006/11/06	ND, RDL=0.2		mg/L	
			Dissolved Silver (Ag)	2006/11/06	ND, RDL=0.01		mg/L	
			Dissolved Sodium (Na)	2006/11/06	ND, RDL=0.5		mg/L	
			Dissolved Strontium (Sr)	2006/11/06	ND, RDL=0.01		mg/L	
			Dissolved Sulphur (S)	2006/11/06	ND, RDL=0.5		mg/L	
			Dissolved Tin (Sn)	2006/11/06	ND, RDL=0.2		mg/L	
			Dissolved Titanium (Ti)	2006/11/06	ND, RDL=0.01		mg/L	
			Dissolved Vanadium (V)	2006/11/06	ND, RDL=0.01		mg/L	
			Dissolved Zinc (Zn)	2006/11/06	ND, RDL=0.01		mg/L	
		RPD	Dissolved Calcium (Ca)	2006/11/06	2.3		%	25
			Dissolved Magnesium (Mg)	2006/11/06	2.9		%	25

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Lotowater Technical Services Inc
Attention: Bill Beaton
Client Project #: 147-005 CARLISLE
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA6B7487

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1095331	JOH	RPD	Dissolved Potassium (K)	2006/11/06	NC		%	25
			Dissolved Sodium (Na)	2006/11/06	3.2		%	25
1095568	SAC	MATRIX SPIKE						
		[P22033-01]	Fluoride (F-)	2006/11/07		96	%	75 - 125
		QC STANDARD	Fluoride (F-)	2006/11/07		99	%	85 - 115
		Method Blank	Fluoride (F-)	2006/11/07	ND, RDL=0.1		mg/L	
		RPD [P22033-01]	Fluoride (F-)	2006/11/07	NC		%	25
1095866	LS	MATRIX SPIKE	Total Ammonia-N	2006/11/07		101	%	80 - 120
		Spiked Blank	Total Ammonia-N	2006/11/07		100	%	80 - 120
		Method Blank	Total Ammonia-N	2006/11/07	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2006/11/07	NC		%	25
1095877	LS	MATRIX SPIKE	Total Ammonia-N	2006/11/07		99	%	80 - 120
		Spiked Blank	Total Ammonia-N	2006/11/07		100	%	80 - 120
		Method Blank	Total Ammonia-N	2006/11/07	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2006/11/07	0.9		%	25
1095977	AHA	MATRIX SPIKE	Total Organic Carbon (TOC)	2006/11/07		NC (1)	%	75 - 125
		Spiked Blank	Total Organic Carbon (TOC)	2006/11/07		102	%	75 - 125
		Method Blank	Total Organic Carbon (TOC)	2006/11/07	0.1, RDL=0.1		mg/L	
		RPD	Total Organic Carbon (TOC)	2006/11/07	3.2		%	20
1096123	FD	MATRIX SPIKE	Chloride (Cl)	2006/11/09		109	%	75 - 125
			Bromide (Br-)	2006/11/09		106	%	75 - 125
			Sulphate (SO4)	2006/11/09		101	%	75 - 125
		Spiked Blank	Chloride (Cl)	2006/11/09		99	%	75 - 125
			Bromide (Br-)	2006/11/09		100	%	75 - 125
			Sulphate (SO4)	2006/11/09		98	%	75 - 125
		Method Blank	Chloride (Cl)	2006/11/09	ND, RDL=1		mg/L	
			Bromide (Br-)	2006/11/09	ND, RDL=1		mg/L	
			Sulphate (SO4)	2006/11/09	ND, RDL=1		mg/L	
		RPD	Chloride (Cl)	2006/11/09	0.8		%	25
			Bromide (Br-)	2006/11/09	NC		%	25
			Sulphate (SO4)	2006/11/09	1.7		%	25
1096608	SAC	QC STANDARD	Sulphide	2006/11/07		99	%	75 - 125
		RPD	Sulphide	2006/11/07	6.3		%	25
		Method Blank	Sulphide	2006/11/07	ND, RDL=0.02		mg/L	

ND = Not detected
NC = Non-calculable
RPD = Relative Percent Difference
QC Standard = Quality Control Standard
SPIKE = Fortified sample
(1) The recovery in the matrix spiked sample was not calculated since the spiking level was <2x the native concentration.

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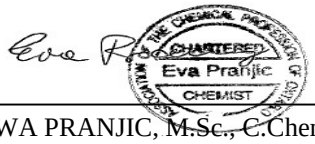
Validation Signature Page

Maxxam Job #: A6B7487

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

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TW14

Your Project #: 147-005/ PACKER TESTING
Site: CARLISLE
Your C.O.C. #: 00433268

Attention: Rodney Secor
Lotowater Technical Services Inc
PO Box 451
92 Scott Ave
Paris, ON
N3L 3T5

Report Date: 2007/03/08

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A717751
Received: 2007/02/23, 18:10

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	3	N/A	2007/02/26	Ont SOP 0083	SM 2320B
Alkalinity	1	N/A	2007/02/27	Ont SOP 0083	SM 2320B
Carbonate, Bicarbonate and Hydroxide	4	N/A	2007/02/24		
Anions	4	N/A	2007/02/28	Ont SOP 0078	APHA-4110B
Conductivity	3	N/A	2007/02/26	CAM SOP-0414	SM 2510
Conductivity	1	N/A	2007/02/27	CAM SOP-0414	SM 2510
Fluoride	4	2007/02/26	2007/02/27	Ont SOP-0621	APHA 4500FC
Lab Filtered Metals by ICPMS	4	2007/02/27	2007/02/28	CAM SOP-00447	EPA 6020
Ammonia-N	4	N/A	2007/02/28	CAM SOP 0441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water	2	N/A	2007/02/27	Ont SOP-0100	SM 4500 NO3 I
Nitrate (NO3) and Nitrite (NO2) in Water	2	N/A	2007/02/28	Ont SOP-0100	SM 4500 NO3 I
pH	3	N/A	2007/02/26	Ont SOP 0067	SM 4500H
pH	1	N/A	2007/02/27	Ont SOP 0067	SM 4500H
Orthophosphate	3	N/A	2007/02/27	SOP-00461	SM 4500 P-F
Orthophosphate	1	N/A	2007/03/01	SOP-00461	SM 4500 P-F
Sulphide	4	N/A	2007/02/27	Ont SOP 0623	APHA 4500
Total Organic Carbon (TOC)	4	N/A	2007/02/27	Ont SOP-0622	EPA 415.1 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

LEENA THOMAS, Project Manager
Email: leena.thomas@maxxamanalytics.com
Phone# (905) 817-5700 Ext:5798

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section

Your Project #: 147-005/ PACKER TESTING
Site: CARLISLE
Your C.O.C. #: 00433268

Attention: Rodney Secor
Lotowater Technical Services Inc
PO Box 451
92 Scott Ave
Paris, ON
N3L 3T5

Report Date: 2007/03/08

CERTIFICATE OF ANALYSIS

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 2

Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		R07746		
Sampling Date		2007/02/16 14:09		
COC Number		00433268		
	Units	**TW14 ZONE 1**	**RDL**	**QC Batch**
INORGANICS				
Total Ammonia-N	mg/L	0.22	0.05	1172172
Conductivity	umho/cm	582	2	1172136
Fluoride (F-)	mg/L	ND	0.1	1172490
Total Organic Carbon (TOC)	mg/L	0.8	0.1	1173372
Orthophosphate (P)	mg/L	ND	0.01	1172449
pH	pH	8.1		1172135
Sulphide	mg/L	ND	0.02	1172551
Alkalinity (Total as CaCO3)	mg/L	211	1	1176395
Nitrite (N)	mg/L	ND	0.1	1172351
Chloride (Cl)	mg/L	11	1	1174290
Nitrate (N)	mg/L	14	1	1172351
Nitrate + Nitrite	mg/L	14	1	1172351
Bromide (Br-)	mg/L	ND	1	1174290
Sulphate (SO4)	mg/L	19	1	1174290
RCAP CALCULATIONS				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	209	1	1171829
Carb. Alkalinity (calc. as CaCO3)	mg/L	2	1	1171829

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		R07747		R07748		
Sampling Date		2007/02/21 15:40		2007/02/19 12:54		
COC Number		00433268		00433268		
	Units	**TW14 ZONE 3**	**QC Batch**	**TW14 ZONE 2**	**RDL**	**QC Batch**
INORGANICS						
Total Ammonia-N	mg/L	0.16	1172172	0.09	0.05	1173718
Conductivity	umho/cm	636	1172911	637	2	1172136
Fluoride (F-)	mg/L	ND	1172490	ND	0.1	1172490
Total Organic Carbon (TOC)	mg/L	0.9	1173372	0.9	0.1	1173372
Orthophosphate (P)	mg/L	ND	1172449	ND	0.01	1172449
pH	pH	7.9	1172910	8.2		1172135
Sulphide	mg/L	ND	1172551	ND	0.02	1172551
Alkalinity (Total as CaCO3)	mg/L	275	1172912	264	1	1176395
Nitrite (N)	mg/L	0.04	1172352	0.03	0.01	1172351
Chloride (Cl)	mg/L	9	1172511	9	1	1174290
Nitrate (N)	mg/L	3.2	1172352	4.3	0.1	1172351
Nitrate + Nitrite	mg/L	3.2	1172352	4.3	0.1	1172351
Bromide (Br-)	mg/L	ND	1172511	ND	1	1174290
Sulphate (SO4)	mg/L	55	1172511	49	1	1174290
RCAP CALCULATIONS						
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	273	1171829	261	1	1171829
Carb. Alkalinity (calc. as CaCO3)	mg/L	2	1171829	4	1	1171829

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		R07749		
Sampling Date		2007/02/22 12:20		
COC Number		00433268		
	Units	**TW14 ZONE 4**	**RDL**	**QC Batch**
INORGANICS				
Total Ammonia-N	mg/L	0.14	0.05	1173352
Conductivity	umho/cm	674	2	1172136
Fluoride (F-)	mg/L	0.1	0.1	1172490
Total Organic Carbon (TOC)	mg/L	1.0	0.1	1173372
Orthophosphate (P)	mg/L	ND	0.01	1173567
pH	pH	8.2		1172135
Sulphide	mg/L	ND	0.02	1172551
Alkalinity (Total as CaCO3)	mg/L	260	1	1176395
Nitrite (N)	mg/L	0.03	0.01	1172352
Chloride (Cl)	mg/L	11	1	1174290
Nitrate (N)	mg/L	3.9	0.1	1172352
Nitrate + Nitrite	mg/L	3.9	0.1	1172352
Bromide (Br-)	mg/L	ND	1	1174290
Sulphate (SO4)	mg/L	69	1	1174290
RCAP CALCULATIONS				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	256	1	1171829
Carb. Alkalinity (calc. as CaCO3)	mg/L	4	1	1171829

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		R07746			R07747		
Sampling Date		2007/02/16 14:09			2007/02/21 15:40		
COC Number		00433268			00433268		
	Units	**TW14 ZONE 1**	**RDL**	**QC Batch**	**TW14 ZONE 3**	**RDL**	**QC Batch**
METALS							
Dissolved Aluminum (Al)	ug/L	ND	5	1177763	ND	5	1172852
Dissolved Antimony (Sb)	ug/L	ND	1	1177763	ND	1	1172852
Dissolved Arsenic (As)	ug/L	ND	1	1177763	6	1	1172852
Dissolved Barium (Ba)	ug/L	31	5	1177763	110	5	1172852
Dissolved Beryllium (Be)	ug/L	ND	0.5	1177763	ND	0.5	1172852
Dissolved Bismuth (Bi)	ug/L	ND	1	1177763	ND	1	1172852
Dissolved Boron (B)	ug/L	ND	10	1177763	16	10	1172852
Dissolved Cadmium (Cd)	ug/L	ND	0.1	1177763	ND	0.1	1172852
Dissolved Calcium (Ca)	ug/L	72000	200	1177763	100000	200	1172852
Dissolved Chromium (Cr)	ug/L	ND	5	1177763	ND	5	1172852
Dissolved Cobalt (Co)	ug/L	ND	0.5	1177763	1.0	0.5	1172852
Dissolved Copper (Cu)	ug/L	ND	1	1177763	2	1	1172852
Dissolved Iron (Fe)	ug/L	ND	50	1177763	ND	50	1172852
Dissolved Lead (Pb)	ug/L	ND	0.5	1177763	1.2	0.5	1172852
Dissolved Lithium (Li)	ug/L	ND	5	1177763	ND	5	1172852
Dissolved Magnesium (Mg)	ug/L	28000	50	1177763	35000	50	1172852
Dissolved Manganese (Mn)	ug/L	ND	2	1177763	16	2	1172852
Dissolved Molybdenum (Mo)	ug/L	ND	1	1177763	1	1	1172852
Dissolved Nickel (Ni)	ug/L	ND	1	1177763	2	1	1172852
Dissolved Potassium (K)	ug/L	720	200	1177763	1400	200	1172852
Dissolved Selenium (Se)	ug/L	ND	2	1177763	ND	2	1172852
Dissolved Silicon (Si)	ug/L	4400	50	1177763	4300	50	1172852
Dissolved Silver (Ag)	ug/L	ND	0.1	1177763	ND	0.1	1172852
Dissolved Sodium (Na)	ug/L	2300	100	1177763	5500	100	1172852
Dissolved Strontium (Sr)	ug/L	94	1	1177763	440	1	1172852
Dissolved Tellurium (Te)	ug/L	ND	1	1177763	ND	1	1172852
Dissolved Thallium (Tl)	ug/L	ND	0.05	1177763	ND	0.1	1172852
Dissolved Thorium (Th)	ug/L	ND	1	1177763	ND	1	1172852
Dissolved Tin (Sn)	ug/L	ND	1	1177763	ND	1	1172852
Dissolved Titanium (Ti)	ug/L	ND	5	1177763	ND	5	1172852
Dissolved Tungsten (W)	ug/L	ND	1	1177763	ND	1	1172852

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		R07746			R07747		
Sampling Date		2007/02/16 14:09			2007/02/21 15:40		
COC Number		00433268			00433268		
	Units	**TW14 ZONE 1**	**RDL**	**QC Batch**	**TW14 ZONE 3**	**RDL**	**QC Batch**
Dissolved Uranium (U)	ug/L	0.2	0.1	1177763	1.0	0.2	1172852
Dissolved Vanadium (V)	ug/L	ND	1	1177763	ND	1	1172852
Dissolved Zinc (Zn)	ug/L	ND	5	1177763	38	5	1172852
Dissolved Zirconium (Zr)	ug/L	ND	1	1177763	ND	1	1172852
NUTRIENTS							
Dissolved Phosphorus (P)	ug/L	ND	50	1177763	ND	50	1172852

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		R07748	R07749		
Sampling Date		2007/02/19 12:54	2007/02/22 12:20		
COC Number		00433268	00433268		
	Units	**TW14 ZONE 2**	**TW14 ZONE 4**	**RDL**	**QC Batch**
METALS					
Dissolved Aluminum (Al)	ug/L	ND	ND	5	1177763
Dissolved Antimony (Sb)	ug/L	ND	2	1	1177763
Dissolved Arsenic (As)	ug/L	2	25	1	1177763
Dissolved Barium (Ba)	ug/L	90	68	5	1177763
Dissolved Beryllium (Be)	ug/L	ND	ND	0.5	1177763
Dissolved Bismuth (Bi)	ug/L	ND	ND	1	1177763
Dissolved Boron (B)	ug/L	12	26	10	1177763
Dissolved Cadmium (Cd)	ug/L	ND	ND	0.1	1177763
Dissolved Calcium (Ca)	ug/L	88000	92000	200	1177763
Dissolved Chromium (Cr)	ug/L	ND	ND	5	1177763
Dissolved Cobalt (Co)	ug/L	ND	2.0	0.5	1177763
Dissolved Copper (Cu)	ug/L	1	ND	1	1177763
Dissolved Iron (Fe)	ug/L	ND	ND	50	1177763
Dissolved Lead (Pb)	ug/L	ND	ND	0.5	1177763
Dissolved Lithium (Li)	ug/L	ND	ND	5	1177763
Dissolved Magnesium (Mg)	ug/L	33000	33000	50	1177763
Dissolved Manganese (Mn)	ug/L	6	11	2	1177763
Dissolved Molybdenum (Mo)	ug/L	1	2	1	1177763
Dissolved Nickel (Ni)	ug/L	2	5	1	1177763
Dissolved Potassium (K)	ug/L	1000	1800	200	1177763
Dissolved Selenium (Se)	ug/L	ND	ND	2	1177763
Dissolved Silicon (Si)	ug/L	3800	4000	50	1177763
Dissolved Silver (Ag)	ug/L	ND	ND	0.1	1177763
Dissolved Sodium (Na)	ug/L	4300	7300	100	1177763
Dissolved Strontium (Sr)	ug/L	330	800	1	1177763
Dissolved Tellurium (Te)	ug/L	ND	ND	1	1177763
Dissolved Thallium (Tl)	ug/L	ND	ND	0.05	1177763
Dissolved Thorium (Th)	ug/L	ND	ND	1	1177763
Dissolved Tin (Sn)	ug/L	ND	ND	1	1177763
Dissolved Titanium (Ti)	ug/L	ND	ND	5	1177763
Dissolved Tungsten (W)	ug/L	ND	ND	1	1177763

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		R07748	R07749		
Sampling Date		2007/02/19 12:54	2007/02/22 12:20		
COC Number		00433268	00433268		
	Units	**TW14 ZONE 2**	**TW14 ZONE 4**	**RDL**	**QC Batch**
Dissolved Uranium (U)	ug/L	0.8	1.0	0.1	1177763
Dissolved Vanadium (V)	ug/L	ND	ND	1	1177763
Dissolved Zinc (Zn)	ug/L	34	10	5	1177763
Dissolved Zirconium (Zr)	ug/L	ND	ND	1	1177763
NUTRIENTS					
Dissolved Phosphorus (P)	ug/L	ND	ND	50	1177763

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A717751
Report Date: 2007/03/08

Lotowater Technical Services Inc
Client Project #: 147-005/ PACKER TESTING
Project name: CARLISLE
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005/ PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report

Maxxam Job Number: MA717751

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1172136	YPA	QC STANDARD	Conductivity	2007/02/26		101	%	85 - 115
		Method Blank	Conductivity	2007/02/26	ND, RDL=2		umho/cm	
		RPD	Conductivity	2007/02/26	0.3		%	25
1172172	C_N	MATRIX SPIKE	Total Ammonia-N	2007/02/28		101	%	80 - 120
		Spiked Blank	Total Ammonia-N	2007/02/28		105	%	80 - 120
		Method Blank	Total Ammonia-N	2007/02/28	ND, RDL=0.05		mg/L	
		RPD [R07746-02]	Total Ammonia-N	2007/02/28	NC		%	25
1172351	LS	MATRIX SPIKE	Nitrite (N)	2007/02/27		95	%	75 - 125
			Nitrate (N)	2007/02/27		94	%	75 - 125
		Spiked Blank	Nitrite (N)	2007/02/27		100	%	85 - 115
			Nitrate (N)	2007/02/27		100	%	85 - 125
		Method Blank	Nitrite (N)	2007/02/27	ND, RDL=0.01		mg/L	
			Nitrate (N)	2007/02/27	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2007/02/27	ND, RDL=0.1		mg/L	
		RPD	Nitrite (N)	2007/02/27	NC		%	25
			Nitrate (N)	2007/02/27	0.2		%	25
1172352	LS	MATRIX SPIKE	Nitrite (N)	2007/02/28		100	%	75 - 125
			Nitrate (N)	2007/02/28		95	%	75 - 125
		Spiked Blank	Nitrite (N)	2007/02/28		95	%	85 - 115
			Nitrate (N)	2007/02/28		93	%	85 - 125
		Method Blank	Nitrite (N)	2007/02/28	ND, RDL=0.01		mg/L	
			Nitrate (N)	2007/02/28	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2007/02/28	ND, RDL=0.1		mg/L	
		RPD	Nitrate (N)	2007/02/28	0.4		%	25
1172449	DRM	MATRIX SPIKE	Orthophosphate (P)	2007/02/27		93	%	N/A
		QC STANDARD	Orthophosphate (P)	2007/02/27		101	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2007/02/27		101	%	80 - 120
		Method Blank	Orthophosphate (P)	2007/02/27	ND, RDL=0.01		mg/L	
		RPD	Orthophosphate (P)	2007/02/27	NC		%	25
1172490	SAC	MATRIX SPIKE	Fluoride (F-)	2007/02/27		102	%	75 - 125
		Spiked Blank	Fluoride (F-)	2007/02/27		98	%	75 - 125
		Method Blank	Fluoride (F-)	2007/02/27	ND, RDL=0.1		mg/L	
		RPD	Fluoride (F-)	2007/02/27	0		%	25
1172511	FD	MATRIX SPIKE	Chloride (Cl)	2007/02/28		105	%	75 - 125
			Bromide (Br-)	2007/02/28		117	%	75 - 125
			Sulphate (SO4)	2007/02/28		105	%	75 - 125
		Spiked Blank	Chloride (Cl)	2007/02/28		101	%	75 - 125
			Bromide (Br-)	2007/02/28		107	%	75 - 125
			Sulphate (SO4)	2007/02/28		100	%	75 - 125
		Method Blank	Chloride (Cl)	2007/02/28	ND, RDL=1		mg/L	
			Bromide (Br-)	2007/02/28	ND, RDL=1		mg/L	
			Sulphate (SO4)	2007/02/28	ND, RDL=1		mg/L	
		RPD	Chloride (Cl)	2007/02/28	1.1		%	25
			Bromide (Br-)	2007/02/28	NC		%	25
			Sulphate (SO4)	2007/02/28	0.4		%	25
1172551	E_M	MATRIX SPIKE	Sulphide	2007/02/27		84	%	75 - 125
		Spiked Blank	Sulphide	2007/02/27		95	%	85 - 115
		RPD	Sulphide	2007/02/27	0		%	25
		Method Blank	Sulphide	2007/02/27	ND, RDL=0.02		mg/L	
1172852	HRE	MATRIX SPIKE	Dissolved Aluminum (Al)	2007/02/28		87	%	80 - 120
			Dissolved Antimony (Sb)	2007/02/28		107	%	80 - 120
			Dissolved Arsenic (As)	2007/02/28		103	%	80 - 120
			Dissolved Barium (Ba)	2007/02/28		96	%	80 - 120
			Dissolved Beryllium (Be)	2007/02/28		101	%	75 - 125
			Dissolved Bismuth (Bi)	2007/02/28		93	%	75 - 125

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005/ PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA717751

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1172852	HRE	MATRIX SPIKE	Dissolved Boron (B)	2007/02/28		105	%	75 - 125
			Dissolved Cadmium (Cd)	2007/02/28		102	%	80 - 120
			Dissolved Calcium (Ca)	2007/02/28		NC (1)	%	75 - 125
			Dissolved Chromium (Cr)	2007/02/28		99	%	80 - 120
			Dissolved Cobalt (Co)	2007/02/28		97	%	80 - 120
			Dissolved Copper (Cu)	2007/02/28		96	%	80 - 120
			Dissolved Iron (Fe)	2007/02/28		97	%	80 - 120
			Dissolved Lead (Pb)	2007/02/28		94	%	80 - 120
			Dissolved Lithium (Li)	2007/02/28		95	%	75 - 125
			Dissolved Magnesium (Mg)	2007/02/28		83	%	80 - 120
			Dissolved Manganese (Mn)	2007/02/28		96	%	80 - 120
			Dissolved Molybdenum (Mo)	2007/02/28		107	%	80 - 120
			Dissolved Nickel (Ni)	2007/02/28		96	%	80 - 120
			Dissolved Potassium (K)	2007/02/28		100	%	75 - 125
			Dissolved Selenium (Se)	2007/02/28		103	%	80 - 120
			Dissolved Silicon (Si)	2007/02/28		100	%	75 - 125
			Dissolved Silver (Ag)	2007/02/28		99	%	80 - 120
			Dissolved Sodium (Na)	2007/02/28		NC (1)	%	75 - 125
			Dissolved Strontium (Sr)	2007/02/28		99	%	80 - 120
			Dissolved Tellurium (Te)	2007/02/28		103	%	75 - 125
			Dissolved Thallium (Tl)	2007/02/28		95	%	75 - 125
			Dissolved Thorium (Th)	2007/02/28		100	%	75 - 125
			Dissolved Tin (Sn)	2007/02/28		105	%	80 - 120
			Dissolved Titanium (Ti)	2007/02/28		102	%	75 - 125
			Dissolved Tungsten (W)	2007/02/28		102	%	75 - 125
			Dissolved Uranium (U)	2007/02/28		99	%	80 - 120
			Dissolved Vanadium (V)	2007/02/28		101	%	80 - 120
			Dissolved Zinc (Zn)	2007/02/28		97	%	80 - 120
			Dissolved Zirconium (Zr)	2007/02/28		109	%	75 - 125
			Dissolved Phosphorus (P)	2007/02/28		99	%	75 - 125
		Spiked Blank	Dissolved Aluminum (Al)	2007/02/28		95	%	85 - 115
			Dissolved Antimony (Sb)	2007/02/28		103	%	85 - 115
			Dissolved Arsenic (As)	2007/02/28		102	%	85 - 115
			Dissolved Barium (Ba)	2007/02/28		99	%	85 - 115
			Dissolved Beryllium (Be)	2007/02/28		102	%	85 - 115
			Dissolved Bismuth (Bi)	2007/02/28		100	%	85 - 115
			Dissolved Boron (B)	2007/02/28		104	%	85 - 115
			Dissolved Cadmium (Cd)	2007/02/28		102	%	85 - 115
			Dissolved Calcium (Ca)	2007/02/28		109	%	85 - 115
			Dissolved Chromium (Cr)	2007/02/28		102	%	85 - 115
			Dissolved Cobalt (Co)	2007/02/28		102	%	85 - 115
			Dissolved Copper (Cu)	2007/02/28		101	%	85 - 115
			Dissolved Iron (Fe)	2007/02/28		104	%	85 - 115
			Dissolved Lead (Pb)	2007/02/28		99	%	85 - 115
			Dissolved Lithium (Li)	2007/02/28		96	%	85 - 115
			Dissolved Magnesium (Mg)	2007/02/28		107	%	85 - 115
			Dissolved Manganese (Mn)	2007/02/28		101	%	85 - 115
			Dissolved Molybdenum (Mo)	2007/02/28		103	%	85 - 115
			Dissolved Nickel (Ni)	2007/02/28		101	%	85 - 115
			Dissolved Potassium (K)	2007/02/28		106	%	85 - 115
			Dissolved Selenium (Se)	2007/02/28		101	%	85 - 115
			Dissolved Silicon (Si)	2007/02/28		107	%	85 - 115
			Dissolved Silver (Ag)	2007/02/28		100	%	85 - 115
			Dissolved Sodium (Na)	2007/02/28		104	%	85 - 115
			Dissolved Strontium (Sr)	2007/02/28		102	%	85 - 115

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Client Project #: 147-005/ PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA717751

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1172852	HRE	Spiked Blank	Dissolved Tellurium (Te)	2007/02/28		100	%	85 - 115
			Dissolved Thallium (Tl)	2007/02/28		100	%	85 - 115
			Dissolved Thorium (Th)	2007/02/28		107	%	85 - 115
			Dissolved Tin (Sn)	2007/02/28		102	%	85 - 115
			Dissolved Titanium (Ti)	2007/02/28		102	%	85 - 115
			Dissolved Tungsten (W)	2007/02/28		101	%	85 - 115
			Dissolved Uranium (U)	2007/02/28		101	%	85 - 115
			Dissolved Vanadium (V)	2007/02/28		103	%	85 - 115
			Dissolved Zinc (Zn)	2007/02/28		102	%	85 - 115
			Dissolved Zirconium (Zr)	2007/02/28		104	%	85 - 115
			Dissolved Phosphorus (P)	2007/02/28		96	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2007/02/28	ND, RDL=5		ug/L	
			Dissolved Antimony (Sb)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Arsenic (As)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Barium (Ba)	2007/02/28	ND, RDL=5		ug/L	
			Dissolved Beryllium (Be)	2007/02/28	ND, RDL=0.5		ug/L	
			Dissolved Bismuth (Bi)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Boron (B)	2007/02/28	ND, RDL=10		ug/L	
			Dissolved Cadmium (Cd)	2007/02/28	ND, RDL=0.1		ug/L	
			Dissolved Calcium (Ca)	2007/02/28	ND, RDL=200		ug/L	
			Dissolved Chromium (Cr)	2007/02/28	ND, RDL=5		ug/L	
			Dissolved Cobalt (Co)	2007/02/28	ND, RDL=0.5		ug/L	
			Dissolved Copper (Cu)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Iron (Fe)	2007/02/28	ND, RDL=50		ug/L	
			Dissolved Lead (Pb)	2007/02/28	ND, RDL=0.5		ug/L	
			Dissolved Lithium (Li)	2007/02/28	ND, RDL=5		ug/L	
			Dissolved Magnesium (Mg)	2007/02/28	ND, RDL=50		ug/L	
			Dissolved Manganese (Mn)	2007/02/28	ND, RDL=2		ug/L	
			Dissolved Molybdenum (Mo)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Nickel (Ni)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Potassium (K)	2007/02/28	ND, RDL=200		ug/L	
			Dissolved Selenium (Se)	2007/02/28	ND, RDL=2		ug/L	
			Dissolved Silicon (Si)	2007/02/28	ND, RDL=50		ug/L	
			Dissolved Silver (Ag)	2007/02/28	ND, RDL=0.1		ug/L	
			Dissolved Sodium (Na)	2007/02/28	ND, RDL=100		ug/L	
			Dissolved Strontium (Sr)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Tellurium (Te)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Thallium (Tl)	2007/02/28	ND, RDL=0.1		ug/L	
			Dissolved Thorium (Th)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Tin (Sn)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Titanium (Ti)	2007/02/28	ND, RDL=5		ug/L	
			Dissolved Tungsten (W)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Uranium (U)	2007/02/28	ND, RDL=0.2		ug/L	
			Dissolved Vanadium (V)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Zinc (Zn)	2007/02/28	ND, RDL=5		ug/L	
			Dissolved Zirconium (Zr)	2007/02/28	ND, RDL=1		ug/L	
			Dissolved Phosphorus (P)	2007/02/28	ND, RDL=50		ug/L	
		RPD	Dissolved Antimony (Sb)	2007/02/28	NC		%	25
			Dissolved Arsenic (As)	2007/02/28	NC		%	25
			Dissolved Barium (Ba)	2007/02/28	0.3		%	25
			Dissolved Beryllium (Be)	2007/02/28	NC		%	25
			Dissolved Boron (B)	2007/02/28	NC		%	25
			Dissolved Cadmium (Cd)	2007/02/28	NC		%	25
			Dissolved Chromium (Cr)	2007/02/28	NC		%	25
			Dissolved Cobalt (Co)	2007/02/28	NC		%	25

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Client Project #: 147-005/ PACKER TESTING
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Quality Assurance Report (Continued)

Maxxam Job Number: MA717751

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1172852	HRE	RPD	Dissolved Copper (Cu)	2007/02/28	NC		%	25
			Dissolved Lead (Pb)	2007/02/28	NC		%	25
			Dissolved Molybdenum (Mo)	2007/02/28	NC		%	25
			Dissolved Nickel (Ni)	2007/02/28	NC		%	25
			Dissolved Selenium (Se)	2007/02/28	NC		%	25
			Dissolved Silver (Ag)	2007/02/28	NC		%	25
			Dissolved Sodium (Na)	2007/02/28	1.9		%	25
			Dissolved Thallium (Tl)	2007/02/28	NC		%	25
			Dissolved Vanadium (V)	2007/02/28	NC		%	25
			Dissolved Zinc (Zn)	2007/02/28	0.5		%	25
1172911	YPA	QC STANDARD	Conductivity	2007/02/27		100	%	85 - 115
		Method Blank	Conductivity	2007/02/27	ND, RDL=2		umho/cm	
		RPD	Conductivity	2007/02/27	0.3		%	25
1172912	YPA	QC STANDARD	Alkalinity (Total as CaCO3)	2007/02/27		103	%	85 - 115
		Method Blank	Alkalinity (Total as CaCO3)	2007/02/27	ND, RDL=1		mg/L	
		RPD	Alkalinity (Total as CaCO3)	2007/02/27	2.1		%	25
1173352	C_N	MATRIX SPIKE	Total Ammonia-N	2007/02/28		102	%	80 - 120
		Spiked Blank	Total Ammonia-N	2007/02/28		104	%	80 - 120
		Method Blank	Total Ammonia-N	2007/02/28	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2007/02/28	NC		%	25
1173372	SAC	MATRIX SPIKE	Total Organic Carbon (TOC)	2007/02/27		94	%	75 - 125
		Spiked Blank	Total Organic Carbon (TOC)	2007/02/27		98	%	75 - 125
		Method Blank	Total Organic Carbon (TOC)	2007/02/27	ND, RDL=0.1		mg/L	
		RPD	Total Organic Carbon (TOC)	2007/02/27	2.2		%	20
1173567	DRM	MATRIX SPIKE	Orthophosphate (P)	2007/03/01		69 (2)	%	75 - 125
		QC STANDARD	Orthophosphate (P)	2007/03/01		97	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2007/03/01		97	%	80 - 120
		Method Blank	Orthophosphate (P)	2007/03/01	ND, RDL=0.01		mg/L	
		RPD	Orthophosphate (P)	2007/03/01	2.4		%	25
1173718	C_N	MATRIX SPIKE [R07748-02]	Total Ammonia-N	2007/02/28		109	%	80 - 120
		Spiked Blank	Total Ammonia-N	2007/02/28		105	%	80 - 120
		Method Blank	Total Ammonia-N	2007/02/28	ND, RDL=0.05		mg/L	
		RPD [R07748-02]	Total Ammonia-N	2007/02/28	NC		%	25
1174290	FD	MATRIX SPIKE	Chloride (Cl)	2007/03/02		107	%	75 - 125
			Bromide (Br-)	2007/03/02		89	%	75 - 125
			Sulphate (SO4)	2007/03/02		111	%	75 - 125
		Spiked Blank	Chloride (Cl)	2007/03/02		98	%	75 - 125
			Bromide (Br-)	2007/03/02		102	%	75 - 125
			Sulphate (SO4)	2007/03/02		99	%	75 - 125
		Method Blank	Chloride (Cl)	2007/03/02	ND, RDL=1		mg/L	
			Bromide (Br-)	2007/03/02	ND, RDL=1		mg/L	
			Sulphate (SO4)	2007/03/02	ND, RDL=1		mg/L	
		RPD	Chloride (Cl)	2007/03/02	0.7		%	25
			Bromide (Br-)	2007/03/02	NC		%	25
			Sulphate (SO4)	2007/03/02	1		%	25
1176395	YPA	QC STANDARD	Alkalinity (Total as CaCO3)	2007/03/05		103	%	85 - 115
		Method Blank	Alkalinity (Total as CaCO3)	2007/03/05	ND, RDL=1		mg/L	
		RPD	Alkalinity (Total as CaCO3)	2007/03/05	0.8		%	25
1177763	JBW	MATRIX SPIKE	Dissolved Aluminum (Al)	2007/03/07		103	%	80 - 120
			Dissolved Antimony (Sb)	2007/03/07		111	%	80 - 120
			Dissolved Arsenic (As)	2007/03/07		106	%	80 - 120
			Dissolved Barium (Ba)	2007/03/07		109	%	80 - 120
			Dissolved Beryllium (Be)	2007/03/07		104	%	75 - 125
			Dissolved Bismuth (Bi)	2007/03/07		102	%	75 - 125

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Quality Assurance Report (Continued)

Maxxam Job Number: MA717751

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1177763	JBW	MATRIX SPIKE	Dissolved Boron (B)	2007/03/07		97	%	75 - 125
			Dissolved Cadmium (Cd)	2007/03/07		110	%	80 - 120
			Dissolved Calcium (Ca)	2007/03/07		97	%	75 - 125
			Dissolved Chromium (Cr)	2007/03/07		107	%	80 - 120
			Dissolved Cobalt (Co)	2007/03/07		103	%	80 - 120
			Dissolved Copper (Cu)	2007/03/07		99	%	80 - 120
			Dissolved Iron (Fe)	2007/03/07		109	%	80 - 120
			Dissolved Lead (Pb)	2007/03/07		102	%	80 - 120
			Dissolved Lithium (Li)	2007/03/07		96	%	75 - 125
			Dissolved Magnesium (Mg)	2007/03/07		108	%	80 - 120
			Dissolved Manganese (Mn)	2007/03/07		104	%	80 - 120
			Dissolved Molybdenum (Mo)	2007/03/07		113	%	80 - 120
			Dissolved Nickel (Ni)	2007/03/07		100	%	80 - 120
			Dissolved Potassium (K)	2007/03/07		110	%	75 - 125
			Dissolved Selenium (Se)	2007/03/07		105	%	80 - 120
			Dissolved Silicon (Si)	2007/03/07		109	%	75 - 125
			Dissolved Silver (Ag)	2007/03/07		118	%	80 - 120
			Dissolved Sodium (Na)	2007/03/07		NC (3)	%	75 - 125
			Dissolved Strontium (Sr)	2007/03/07		108	%	80 - 120
			Dissolved Tellurium (Te)	2007/03/07		110	%	75 - 125
			Dissolved Thallium (Tl)	2007/03/07		105	%	75 - 125
			Dissolved Thorium (Th)	2007/03/07		109	%	75 - 125
			Dissolved Tin (Sn)	2007/03/07		120	%	80 - 120
			Dissolved Titanium (Ti)	2007/03/07		106	%	75 - 125
			Dissolved Tungsten (W)	2007/03/07		104	%	75 - 125
			Dissolved Uranium (U)	2007/03/07		108	%	80 - 120
			Dissolved Vanadium (V)	2007/03/07		110	%	80 - 120
			Dissolved Zinc (Zn)	2007/03/07		99	%	80 - 120
			Dissolved Zirconium (Zr)	2007/03/07		124	%	75 - 125
			Dissolved Phosphorus (P)	2007/03/07		112	%	75 - 125
		Spiked Blank	Dissolved Aluminum (Al)	2007/03/07		97	%	85 - 115
			Dissolved Antimony (Sb)	2007/03/07		110	%	85 - 115
			Dissolved Arsenic (As)	2007/03/07		98	%	85 - 115
			Dissolved Barium (Ba)	2007/03/07		101	%	85 - 115
			Dissolved Beryllium (Be)	2007/03/07		99	%	85 - 115
			Dissolved Bismuth (Bi)	2007/03/07		100	%	85 - 115
			Dissolved Boron (B)	2007/03/07		95	%	85 - 115
			Dissolved Cadmium (Cd)	2007/03/07		112	%	85 - 115
			Dissolved Calcium (Ca)	2007/03/07		100	%	85 - 115
			Dissolved Chromium (Cr)	2007/03/07		103	%	85 - 115
			Dissolved Cobalt (Co)	2007/03/07		99	%	85 - 115
			Dissolved Copper (Cu)	2007/03/07		97	%	85 - 115
			Dissolved Iron (Fe)	2007/03/07		102	%	85 - 115
			Dissolved Lead (Pb)	2007/03/07		99	%	85 - 115
			Dissolved Lithium (Li)	2007/03/07		94	%	85 - 115
			Dissolved Magnesium (Mg)	2007/03/07		109	%	85 - 115
			Dissolved Manganese (Mn)	2007/03/07		101	%	85 - 115
			Dissolved Molybdenum (Mo)	2007/03/07		109	%	85 - 115
			Dissolved Nickel (Ni)	2007/03/07		96	%	85 - 115
			Dissolved Potassium (K)	2007/03/07		99	%	85 - 115
			Dissolved Selenium (Se)	2007/03/07		99	%	85 - 115
			Dissolved Silicon (Si)	2007/03/07		102	%	85 - 115
			Dissolved Silver (Ag)	2007/03/07		108	%	85 - 115
			Dissolved Sodium (Na)	2007/03/07		107	%	85 - 115
			Dissolved Strontium (Sr)	2007/03/07		100	%	85 - 115

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Quality Assurance Report (Continued)

Maxxam Job Number: MA717751

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1177763	JBW	Spiked Blank	Dissolved Tellurium (Te)	2007/03/07		107	%	85 - 115
			Dissolved Thallium (Tl)	2007/03/07		102	%	85 - 115
			Dissolved Thorium (Th)	2007/03/07		101	%	85 - 115
			Dissolved Tin (Sn)	2007/03/07		109	%	85 - 115
			Dissolved Titanium (Ti)	2007/03/07		100	%	85 - 115
			Dissolved Tungsten (W)	2007/03/07		100	%	85 - 115
			Dissolved Uranium (U)	2007/03/07		100	%	85 - 115
			Dissolved Vanadium (V)	2007/03/07		104	%	85 - 115
			Dissolved Zinc (Zn)	2007/03/07		96	%	85 - 115
			Dissolved Zirconium (Zr)	2007/03/07		108	%	85 - 115
			Dissolved Phosphorus (P)	2007/03/07		96	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2007/03/07	ND, RDL=5		ug/L	
			Dissolved Antimony (Sb)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Arsenic (As)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Barium (Ba)	2007/03/07	ND, RDL=5		ug/L	
			Dissolved Beryllium (Be)	2007/03/07	ND, RDL=0.5		ug/L	
			Dissolved Bismuth (Bi)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Boron (B)	2007/03/07	ND, RDL=10		ug/L	
			Dissolved Cadmium (Cd)	2007/03/07	ND, RDL=0.1		ug/L	
			Dissolved Calcium (Ca)	2007/03/07	ND, RDL=200		ug/L	
			Dissolved Chromium (Cr)	2007/03/07	ND, RDL=5		ug/L	
			Dissolved Cobalt (Co)	2007/03/07	ND, RDL=0.5		ug/L	
			Dissolved Copper (Cu)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Iron (Fe)	2007/03/07	ND, RDL=50		ug/L	
			Dissolved Lead (Pb)	2007/03/07	ND, RDL=0.5		ug/L	
			Dissolved Lithium (Li)	2007/03/07	ND, RDL=5		ug/L	
			Dissolved Magnesium (Mg)	2007/03/07	ND, RDL=50		ug/L	
			Dissolved Manganese (Mn)	2007/03/07	ND, RDL=2		ug/L	
			Dissolved Molybdenum (Mo)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Nickel (Ni)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Potassium (K)	2007/03/07	ND, RDL=200		ug/L	
			Dissolved Selenium (Se)	2007/03/07	ND, RDL=2		ug/L	
			Dissolved Silicon (Si)	2007/03/07	ND, RDL=50		ug/L	
			Dissolved Silver (Ag)	2007/03/07	ND, RDL=0.1		ug/L	
			Dissolved Sodium (Na)	2007/03/07	ND, RDL=100		ug/L	
			Dissolved Strontium (Sr)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Tellurium (Te)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Thallium (Tl)	2007/03/07	ND, RDL=0.05		ug/L	
			Dissolved Thorium (Th)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Tin (Sn)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Titanium (Ti)	2007/03/07	ND, RDL=5		ug/L	
			Dissolved Tungsten (W)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Uranium (U)	2007/03/07	ND, RDL=0.1		ug/L	
			Dissolved Vanadium (V)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Zinc (Zn)	2007/03/07	ND, RDL=5		ug/L	
			Dissolved Zirconium (Zr)	2007/03/07	ND, RDL=1		ug/L	
			Dissolved Phosphorus (P)	2007/03/07	ND, RDL=50		ug/L	
		RPD	Dissolved Copper (Cu)	2007/03/07	NC		%	25
			Dissolved Iron (Fe)	2007/03/07	NC		%	25
			Dissolved Phosphorus (P)	2007/03/07	NC		%	25

ND = Not detected
N/A = Not Applicable
NC = Non-calculable
RPD = Relative Percent Difference
QC Standard = Quality Control Standard

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005/ PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA717751

SPIKE = Fortified sample
(1) The recovery in the matrix spiked sample was not calculated. Because of the high concentration in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit a reliable recovery calculation.
(2) Matrix Spike recovery for phosphate is below acceptance criteria. This may represent a low bias in some results for this particular parameter.
(3) The recovery in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit a reliable recovery calculation.

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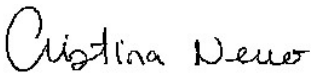
Validation Signature Page

Maxxam Job #: A717751

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



CHRISTINA NERVO, Scientific Services

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

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TW15

Your Project #: 147-005 PACKER TESTING
Site: CARLISLE
Your C.O.C. #: 00433272

Attention: Rodney Secor
Lotowater Technical Services Inc
PO Box 451
92 Scott Ave
Paris, ON
N3L 3T5

Report Date: 2007/02/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A713275
Received: 2007/02/09, 17:47

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	3	N/A	2007/02/12	Ont SOP 0083	SM 2320B
Carbonate, Bicarbonate and Hydroxide	3	N/A	2007/02/10		
Anions	3	N/A	2007/02/13	Ont SOP 0078	APHA-4110B
Conductivity	3	N/A	2007/02/12	CAM SOP-0414	SM 2510
Fluoride	3	2007/02/13	2007/02/13	Ont SOP-0621	APHA 4500FC
Lab Filtered Metals by ICPMS	3	2007/02/13	2007/02/15	CAM SOP-00447	EPA 6020
Ammonia-N	3	N/A	2007/02/15	CAM SOP 0441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water	1	N/A	2007/02/13	Ont SOP-0100	SM 4500 NO3 I
Nitrate (NO3) and Nitrite (NO2) in Water	2	N/A	2007/02/14	Ont SOP-0100	SM 4500 NO3 I
pH	3	N/A	2007/02/12	Ont SOP 0067	SM 4500H
Orthophosphate	3	N/A	2007/02/13	SOP-00461	SM 4500 P-F
Sulphide	3	N/A	2007/02/14	Ont SOP 0623	APHA 4500
Total Organic Carbon (TOC)	3	N/A	2007/02/13	Ont SOP-0622	EPA 415.1 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

LEENA THOMAS, Project Manager
Email: leena.thomas@maxxamanalytics.com
Phone# (905) 817-5700 Ext:5798

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A713275
Report Date: 2007/02/16

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		Q89198		Q89199		
Sampling Date		2007/02/07 11:30		2007/02/07 14:25		
COC Number		00433272		00433272		
	Units	**TW15 ZONE1**	**QC Batch**	**TW15 ZONE2**	**RDL**	**QC Batch**
INORGANICS						
Total Ammonia-N	mg/L	0.15	1164397	0.12	0.05	1164397
Conductivity	umho/cm	635	1164326	633	2	1164326
Fluoride (F-)	mg/L	ND	1164540	ND	0.1	1164540
Total Organic Carbon (TOC)	mg/L	0.7	1164385	0.9	0.1	1164385
Orthophosphate (P)	mg/L	ND	1164404	ND	0.01	1164561
pH	pH	8.2	1164319	8.1	N/A	1164319
Sulphide	mg/L	ND	1165442	ND	0.02	1165442
Alkalinity (Total as CaCO3)	mg/L	271	1164327	267	1	1164327
Nitrite (N)	mg/L	0.01	1165054	0.04	0.01	1165054
Chloride (Cl)	mg/L	12	1164809	9	1	1164809
Nitrate (N)	mg/L	7.9	1165054	3.3	0.1	1165054
Nitrate + Nitrite	mg/L	7.9	1165054	3.4	0.1	1165054
Bromide (Br-)	mg/L	ND	1164809	ND	1	1164809
Sulphate (SO4)	mg/L	34	1164809	58	1	1164809
RCAP CALCULATIONS						
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	267	1163531	264	1	1163531
Carb. Alkalinity (calc. as CaCO3)	mg/L	4	1163531	3	1	1163531

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A713275
Report Date: 2007/02/16

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		Q89200		
Sampling Date		2007/02/07 12:50		
COC Number		00433272		
	Units	**TW15 ZONE3**	**RDL**	**QC Batch**
INORGANICS				
Total Ammonia-N	mg/L	0.18	0.05	1164397
Conductivity	umho/cm	639	2	1164326
Fluoride (F-)	mg/L	ND	0.1	1164540
Total Organic Carbon (TOC)	mg/L	0.8	0.1	1164385
Orthophosphate (P)	mg/L	ND	0.01	1164561
pH	pH	8.1	N/A	1164319
Sulphide	mg/L	ND	0.02	1165442
Alkalinity (Total as CaCO3)	mg/L	266	1	1164327
Nitrite (N)	mg/L	0.05	0.01	1164372
Chloride (Cl)	mg/L	10	1	1164809
Nitrate (N)	mg/L	3.1	0.1	1164372
Nitrate + Nitrite	mg/L	3.1	0.1	1164372
Bromide (Br-)	mg/L	ND	1	1164809
Sulphate (SO4)	mg/L	63	1	1164809
RCAP CALCULATIONS				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	263	1	1163531
Carb. Alkalinity (calc. as CaCO3)	mg/L	3	1	1163531

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A713275
Report Date: 2007/02/16

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		Q89198	Q89199	Q89200		
Sampling Date		2007/02/07 11:30	2007/02/07 14:25	2007/02/07 12:50		
COC Number		00433272	00433272	00433272		
	Units	**TW15 ZONE1**	**TW15 ZONE2**	**TW15 ZONE3**	**RDL**	**QC Batch**
METALS						
Dissolved Aluminum (Al)	ug/L	ND	ND	ND	5	1165089
Dissolved Antimony (Sb)	ug/L	ND	ND	ND	1	1165089
Dissolved Arsenic (As)	ug/L	ND	1	2	1	1165089
Dissolved Barium (Ba)	ug/L	35	90	94	5	1165089
Dissolved Beryllium (Be)	ug/L	ND	ND	ND	0.5	1165089
Dissolved Bismuth (Bi)	ug/L	ND	ND	ND	1	1165089
Dissolved Boron (B)	ug/L	12	15	16	10	1165089
Dissolved Cadmium (Cd)	ug/L	ND	ND	ND	0.1	1165089
Dissolved Calcium (Ca)	ug/L	93000	96000	97000	200	1165089
Dissolved Chromium (Cr)	ug/L	ND	ND	ND	5	1165089
Dissolved Cobalt (Co)	ug/L	ND	ND	ND	0.5	1165089
Dissolved Copper (Cu)	ug/L	ND	1	2	1	1165089
Dissolved Iron (Fe)	ug/L	ND	ND	ND	50	1165089
Dissolved Lead (Pb)	ug/L	ND	ND	ND	0.5	1165089
Dissolved Lithium (Li)	ug/L	ND	ND	ND	5	1165089
Dissolved Magnesium (Mg)	ug/L	34000	32000	32000	50	1165089
Dissolved Manganese (Mn)	ug/L	3	14	14	2	1165089
Dissolved Molybdenum (Mo)	ug/L	ND	1	1	1	1165089
Dissolved Nickel (Ni)	ug/L	ND	1	1	1	1165089
Dissolved Potassium (K)	ug/L	990	1100	1200	200	1165089
Dissolved Selenium (Se)	ug/L	ND	ND	ND	2	1165089
Dissolved Silicon (Si)	ug/L	4500	4200	4200	50	1165089
Dissolved Silver (Ag)	ug/L	ND	ND	ND	0.1	1165089
Dissolved Sodium (Na)	ug/L	3900	5200	5600	100	1165089
Dissolved Strontium (Sr)	ug/L	170	530	620	1	1165089
Dissolved Tellurium (Te)	ug/L	ND	ND	ND	1	1165089
Dissolved Thallium (Tl)	ug/L	ND	ND	ND	0.1	1165089
Dissolved Thorium (Th)	ug/L	ND	ND	ND	1	1165089
Dissolved Tin (Sn)	ug/L	ND	ND	ND	1	1165089
Dissolved Titanium (Ti)	ug/L	ND	ND	ND	5	1165089
Dissolved Tungsten (W)	ug/L	ND	ND	ND	1	1165089

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A713275
Report Date: 2007/02/16

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		Q89198	Q89199	Q89200		
Sampling Date		2007/02/07 11:30	2007/02/07 14:25	2007/02/07 12:50		
COC Number		00433272	00433272	00433272		
	Units	**TW15 ZONE1**	**TW15 ZONE2**	**TW15 ZONE3**	**RDL**	**QC Batch**
Dissolved Uranium (U)	ug/L	0.2	0.7	0.8	0.2	1165089
Dissolved Vanadium (V)	ug/L	ND	ND	ND	1	1165089
Dissolved Zinc (Zn)	ug/L	12	17	17	5	1165089
Dissolved Zirconium (Zr)	ug/L	ND	ND	ND	1	1165089
NUTRIENTS						
Dissolved Phosphorus (P)	ug/L	ND	ND	ND	50	1165089

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A713275
Report Date: 2007/02/16

Lotowater Technical Services Inc
Client Project #: 147-005 PACKER TESTING
Project name: CARLISLE
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report

Maxxam Job Number: MA713275

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1164326	YPA	QC STANDARD	Conductivity	2007/02/12		100	%	85 - 115
		Method Blank	Conductivity	2007/02/12	ND, RDL=2		umho/cm	
		RPD	Conductivity	2007/02/12	0.5		%	25
1164327	YPA	QC STANDARD	Alkalinity (Total as CaCO3)	2007/02/12		104	%	85 - 115
		Method Blank	Alkalinity (Total as CaCO3)	2007/02/12	ND, RDL=1		mg/L	
		RPD	Alkalinity (Total as CaCO3)	2007/02/12	0.5		%	25
1164372	LS	MATRIX SPIKE	Nitrite (N)	2007/02/13		98	%	75 - 125
			Nitrate (N)	2007/02/13		89	%	75 - 125
		Spiked Blank	Nitrite (N)	2007/02/13		101	%	85 - 115
			Nitrate (N)	2007/02/13		97	%	85 - 125
		Method Blank	Nitrite (N)	2007/02/13	ND, RDL=0.01		mg/L	
			Nitrate (N)	2007/02/13	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2007/02/13	ND, RDL=0.1		mg/L	
		RPD	Nitrite (N)	2007/02/13	NC		%	25
			Nitrate (N)	2007/02/13	0.9		%	25
1164385	AHA	MATRIX SPIKE	Total Organic Carbon (TOC)	2007/02/13		92	%	75 - 125
		Spiked Blank	Total Organic Carbon (TOC)	2007/02/13		98	%	75 - 125
		Method Blank	Total Organic Carbon (TOC)	2007/02/13	ND, RDL=0.1		mg/L	
		RPD	Total Organic Carbon (TOC)	2007/02/13	1.1		%	20
1164397	C_N	MATRIX SPIKE	Total Ammonia-N	2007/02/15		NC (1)	%	80 - 120
		Spiked Blank	Total Ammonia-N	2007/02/15		107	%	80 - 120
		Method Blank	Total Ammonia-N	2007/02/15	ND, RDL=0.05		mg/L	
		RPD	Total Ammonia-N	2007/02/15	0.1		%	25
1164404	DRM	MATRIX SPIKE	Orthophosphate (P)	2007/02/13		106	%	N/A
		QC STANDARD	Orthophosphate (P)	2007/02/13		100	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2007/02/13		99	%	80 - 120
		Method Blank	Orthophosphate (P)	2007/02/13	ND, RDL=0.01		mg/L	
		RPD	Orthophosphate (P)	2007/02/13	NC		%	25
1164540	SAC	MATRIX SPIKE	Fluoride (F-)	2007/02/13		99	%	75 - 125
		Spiked Blank	Fluoride (F-)	2007/02/13		96	%	75 - 125
		Method Blank	Fluoride (F-)	2007/02/13	ND, RDL=0.1		mg/L	
		RPD	Fluoride (F-)	2007/02/13	NC		%	25
1164561	DRM	MATRIX SPIKE	Orthophosphate (P)	2007/02/13		99	%	N/A
		QC STANDARD	Orthophosphate (P)	2007/02/13		101	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2007/02/13		98	%	80 - 120
		Method Blank	Orthophosphate (P)	2007/02/13	ND, RDL=0.01		mg/L	
		RPD	Orthophosphate (P)	2007/02/13	NC		%	25
1164809	SAC	MATRIX SPIKE						
		[Q89199-01]	Chloride (Cl)	2007/02/13		103	%	75 - 125
			Bromide (Br-)	2007/02/13		105	%	75 - 125
			Sulphate (SO4)	2007/02/13		103	%	75 - 125
		Spiked Blank	Chloride (Cl)	2007/02/13		103	%	75 - 125
			Bromide (Br-)	2007/02/13		102	%	75 - 125
			Sulphate (SO4)	2007/02/13		98	%	75 - 125
		Method Blank	Chloride (Cl)	2007/02/13	ND, RDL=1		mg/L	
			Bromide (Br-)	2007/02/13	ND, RDL=1		mg/L	
			Sulphate (SO4)	2007/02/13	ND, RDL=1		mg/L	
		RPD [Q89199-01]	Chloride (Cl)	2007/02/13	9.7		%	25
			Bromide (Br-)	2007/02/13	NC		%	25
			Sulphate (SO4)	2007/02/13	1.3		%	25
1165054	LS	MATRIX SPIKE						
		[Q89199-01]	Nitrite (N)	2007/02/14		97	%	75 - 125
			Nitrate (N)	2007/02/14		81	%	75 - 125
		Spiked Blank	Nitrite (N)	2007/02/14		98	%	85 - 115
			Nitrate (N)	2007/02/14		97	%	85 - 125

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA713275

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1165054	LS	Method Blank	Nitrite (N)	2007/02/14	ND, RDL=0.01		mg/L	
			Nitrate (N)	2007/02/14	ND, RDL=0.1		mg/L	
			Nitrate + Nitrite	2007/02/14	ND, RDL=0.1		mg/L	
		RPD [Q89199-01]	Nitrite (N)	2007/02/14	NC		%	25
			Nitrate (N)	2007/02/14	0.6		%	25
			Nitrate + Nitrite	2007/02/14	0.6		%	25
1165089	AHE	MATRIX SPIKE	Dissolved Aluminum (Al)	2007/02/15		93	%	80 - 120
			Dissolved Antimony (Sb)	2007/02/15		106	%	80 - 120
			Dissolved Arsenic (As)	2007/02/15		101	%	80 - 120
			Dissolved Barium (Ba)	2007/02/15		102	%	80 - 120
			Dissolved Beryllium (Be)	2007/02/15		108	%	75 - 125
			Dissolved Bismuth (Bi)	2007/02/15		95	%	75 - 125
			Dissolved Boron (B)	2007/02/15		110	%	75 - 125
			Dissolved Cadmium (Cd)	2007/02/15		104	%	80 - 120
			Dissolved Calcium (Ca)	2007/02/15		NC (2)	%	75 - 125
			Dissolved Chromium (Cr)	2007/02/15		102	%	80 - 120
			Dissolved Cobalt (Co)	2007/02/15		100	%	80 - 120
			Dissolved Copper (Cu)	2007/02/15		99	%	80 - 120
			Dissolved Iron (Fe)	2007/02/15		100	%	80 - 120
			Dissolved Lead (Pb)	2007/02/15		95	%	80 - 120
			Dissolved Lithium (Li)	2007/02/15		99	%	75 - 125
			Dissolved Magnesium (Mg)	2007/02/15		83	%	80 - 120
			Dissolved Manganese (Mn)	2007/02/15		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2007/02/15		104	%	80 - 120
			Dissolved Nickel (Ni)	2007/02/15		97	%	80 - 120
			Dissolved Potassium (K)	2007/02/15		99	%	75 - 125
			Dissolved Selenium (Se)	2007/02/15		102	%	80 - 120
			Dissolved Silicon (Si)	2007/02/15		97	%	75 - 125
			Dissolved Silver (Ag)	2007/02/15		101	%	80 - 120
			Dissolved Sodium (Na)	2007/02/15		102	%	75 - 125
			Dissolved Strontium (Sr)	2007/02/15		100	%	80 - 120
			Dissolved Tellurium (Te)	2007/02/15		103	%	75 - 125
			Dissolved Thallium (Tl)	2007/02/15		97	%	75 - 125
			Dissolved Thorium (Th)	2007/02/15		99	%	75 - 125
			Dissolved Tin (Sn)	2007/02/15		106	%	80 - 120
			Dissolved Titanium (Ti)	2007/02/15		99	%	75 - 125
			Dissolved Tungsten (W)	2007/02/15		102	%	75 - 125
			Dissolved Uranium (U)	2007/02/15		97	%	80 - 120
			Dissolved Vanadium (V)	2007/02/15		104	%	80 - 120
			Dissolved Zinc (Zn)	2007/02/15		100	%	80 - 120
			Dissolved Zirconium (Zr)	2007/02/15		106	%	75 - 125
			Dissolved Phosphorus (P)	2007/02/15		112	%	75 - 125
		Spiked Blank	Dissolved Aluminum (Al)	2007/02/15		90	%	85 - 115
			Dissolved Antimony (Sb)	2007/02/15		101	%	85 - 115
			Dissolved Arsenic (As)	2007/02/15		99	%	85 - 115
			Dissolved Barium (Ba)	2007/02/15		99	%	85 - 115
			Dissolved Beryllium (Be)	2007/02/15		100	%	85 - 115
			Dissolved Bismuth (Bi)	2007/02/15		92	%	85 - 115
			Dissolved Boron (B)	2007/02/15		106	%	85 - 115
			Dissolved Cadmium (Cd)	2007/02/15		100	%	85 - 115
			Dissolved Calcium (Ca)	2007/02/15		95	%	85 - 115
			Dissolved Chromium (Cr)	2007/02/15		99	%	85 - 115
			Dissolved Cobalt (Co)	2007/02/15		99	%	85 - 115
			Dissolved Copper (Cu)	2007/02/15		98	%	85 - 115
			Dissolved Iron (Fe)	2007/02/15		100	%	85 - 115

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA713275

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1165089	AHE	Spiked Blank	Dissolved Lead (Pb)	2007/02/15		94	%	85 - 115
			Dissolved Lithium (Li)	2007/02/15		95	%	85 - 115
			Dissolved Magnesium (Mg)	2007/02/15		96	%	85 - 115
			Dissolved Manganese (Mn)	2007/02/15		95	%	85 - 115
			Dissolved Molybdenum (Mo)	2007/02/15		101	%	85 - 115
			Dissolved Nickel (Ni)	2007/02/15		97	%	85 - 115
			Dissolved Potassium (K)	2007/02/15		96	%	85 - 115
			Dissolved Selenium (Se)	2007/02/15		100	%	85 - 115
			Dissolved Silicon (Si)	2007/02/15		96	%	85 - 115
			Dissolved Silver (Ag)	2007/02/15		98	%	85 - 115
			Dissolved Sodium (Na)	2007/02/15		98	%	85 - 115
			Dissolved Strontium (Sr)	2007/02/15		99	%	85 - 115
			Dissolved Tellurium (Te)	2007/02/15		101	%	85 - 115
			Dissolved Thallium (Tl)	2007/02/15		96	%	85 - 115
			Dissolved Thorium (Th)	2007/02/15		96	%	85 - 115
			Dissolved Tin (Sn)	2007/02/15		102	%	85 - 115
			Dissolved Titanium (Ti)	2007/02/15		95	%	85 - 115
			Dissolved Tungsten (W)	2007/02/15		100	%	85 - 115
			Dissolved Uranium (U)	2007/02/15		94	%	85 - 115
			Dissolved Vanadium (V)	2007/02/15		101	%	85 - 115
			Dissolved Zinc (Zn)	2007/02/15		98	%	85 - 115
			Dissolved Zirconium (Zr)	2007/02/15		103	%	85 - 115
			Dissolved Phosphorus (P)	2007/02/15		98	%	85 - 115
		Method Blank	Dissolved Aluminum (Al)	2007/02/15	ND, RDL=5		ug/L	
			Dissolved Antimony (Sb)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Arsenic (As)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Barium (Ba)	2007/02/15	ND, RDL=5		ug/L	
			Dissolved Beryllium (Be)	2007/02/15	ND, RDL=0.5		ug/L	
			Dissolved Bismuth (Bi)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Boron (B)	2007/02/15	ND, RDL=10		ug/L	
			Dissolved Cadmium (Cd)	2007/02/15	ND, RDL=0.1		ug/L	
			Dissolved Calcium (Ca)	2007/02/15	ND, RDL=200		ug/L	
			Dissolved Chromium (Cr)	2007/02/15	ND, RDL=5		ug/L	
			Dissolved Cobalt (Co)	2007/02/15	ND, RDL=0.5		ug/L	
			Dissolved Copper (Cu)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Iron (Fe)	2007/02/15	ND, RDL=50		ug/L	
			Dissolved Lead (Pb)	2007/02/15	ND, RDL=0.5		ug/L	
			Dissolved Lithium (Li)	2007/02/15	ND, RDL=5		ug/L	
			Dissolved Magnesium (Mg)	2007/02/15	ND, RDL=50		ug/L	
			Dissolved Manganese (Mn)	2007/02/15	ND, RDL=2		ug/L	
			Dissolved Molybdenum (Mo)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Nickel (Ni)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Potassium (K)	2007/02/15	ND, RDL=200		ug/L	
			Dissolved Selenium (Se)	2007/02/15	ND, RDL=2		ug/L	
			Dissolved Silicon (Si)	2007/02/15	ND, RDL=50		ug/L	
			Dissolved Silver (Ag)	2007/02/15	ND, RDL=0.1		ug/L	
			Dissolved Sodium (Na)	2007/02/15	ND, RDL=100		ug/L	
			Dissolved Strontium (Sr)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Tellurium (Te)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Thallium (Tl)	2007/02/15	ND, RDL=0.05		ug/L	
			Dissolved Thorium (Th)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Tin (Sn)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Titanium (Ti)	2007/02/15	ND, RDL=5		ug/L	
			Dissolved Tungsten (W)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Uranium (U)	2007/02/15	ND, RDL=0.1		ug/L	

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Lotowater Technical Services Inc
Attention: Rodney Secor
Client Project #: 147-005 PACKER TESTING
P.O. #:
Project name: CARLISLE

Quality Assurance Report (Continued)

Maxxam Job Number: MA713275

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1165089	AHE	Method Blank	Dissolved Vanadium (V)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Zinc (Zn)	2007/02/15	ND, RDL=5		ug/L	
			Dissolved Zirconium (Zr)	2007/02/15	ND, RDL=1		ug/L	
			Dissolved Phosphorus (P)	2007/02/15	ND, RDL=50		ug/L	
		RPD	Dissolved Sodium (Na)	2007/02/15	0.5		%	25
1165442	YPA	MATRIX SPIKE	Sulphide	2007/02/14		91	%	75 - 125
		Spiked Blank	Sulphide	2007/02/14		101	%	85 - 115
		RPD	Sulphide	2007/02/14	3.6		%	25
		Method Blank	Sulphide	2007/02/14	ND, RDL=0.02		mg/L	

ND = Not detected
N/A = Not Applicable
NC = Non-calculable
RPD = Relative Percent Difference
QC Standard = Quality Control Standard
SPIKE = Fortified sample

(1) Ammonia recovery in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit reliable recovery calculation.

(2) The recovery for the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit a reliable recovery calculation.

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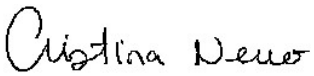
Validation Signature Page

Maxxam Job #: A713275

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



CHRISTINA NERVO, Scientific Services

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F2. Pumping Test Results

F2-1 April 2004 72-Hour Pumping Test
- F2-1-1 Hydrographs
- F2-1-2 Aquifer Properties Analysis
- F2-1-3 Water Level Tables

F2-2 Nov/Dec 2004 168-Hour Pumping Test
- F2-2-1 Hydrographs and Temperature Graphs
- F2-2-2 Aquifer Properties Analysis
- F2-2-3 Water Level Tables

F2-3 July 2008 192-Hour Pumping Test Addendum to Phase 1 Pumping Test Report Pumping Test Data Interpretation

F2-1 April 2004 72-Hour Pumping Test

F2-1-1 Hydrographs
F2-1-2 Aquifer Properties Analysis
F2-1-3 Water Level Tables

Appendix F2-1

April 2004 72 Hour Pumping Test

F2-1.1 Purpose of Test

The pumping test completed in April 2004 was designed to stress the rock formation to the extent that would provide groundwater information suitable for determining the bulk hydraulic conductivity of the entire formation. This level of testing is important for measuring hydraulic parameters such as transmissivity, horizontal hydraulic conductivity, and storage. Each of these parameters are important to the groundwater modelling and in the estimates of the local scale influence of the quarry development. It was also a preliminary test that provided insight into the hydraulic potential of the formation at this particular location. The groundwater system is substantial and as a result the pumping rate and duration specified for this test was not enough to induce a response in local surface water features connected to the groundwater system.

F2-1.2 Methodology

A 72 hour pumping test was conducted at TW10 (approximately 2.5 m from BH-5) from April 20 to April 23, 2004. Prior to the pumping test, twenty-five groundwater pressure transducers were installed in the on-site groundwater monitors. An atmospheric pressure transducer was installed on-site to correct for atmospheric pressure changes. Manual groundwater levels were recorded throughout the test to monitor the groundwater system and to ensure accurate datalogger readings.

Immediately before the pumping test, a four-staged step-test was conducted on the pumping well to determine the optimum pumping rate for the 72 hour pumping test. A 1,309 m^3/day (200 igpm) pumping rate was used for the pump test. The groundwater pressure transducer installed in the pumping well was moved to BH-5 between the step-test and the 72 hour pump test, approximately 2.5 m away from the pumping well.

The data loggers were downloaded, on April 26, 2004, upon removal from the monitoring wells. Each data set was corrected for barometric pressure using the atmospheric pressure measured during the test with an on-site atmospheric pressure transducer. The corrected water levels were plotted verses time to create hydrographs for each monitoring well, enclosed in appendix figures F2-1-2 to F2-1-24. From these hydrographs the zone of influence for the pumping well was created and the aquifer properties were evaluated.

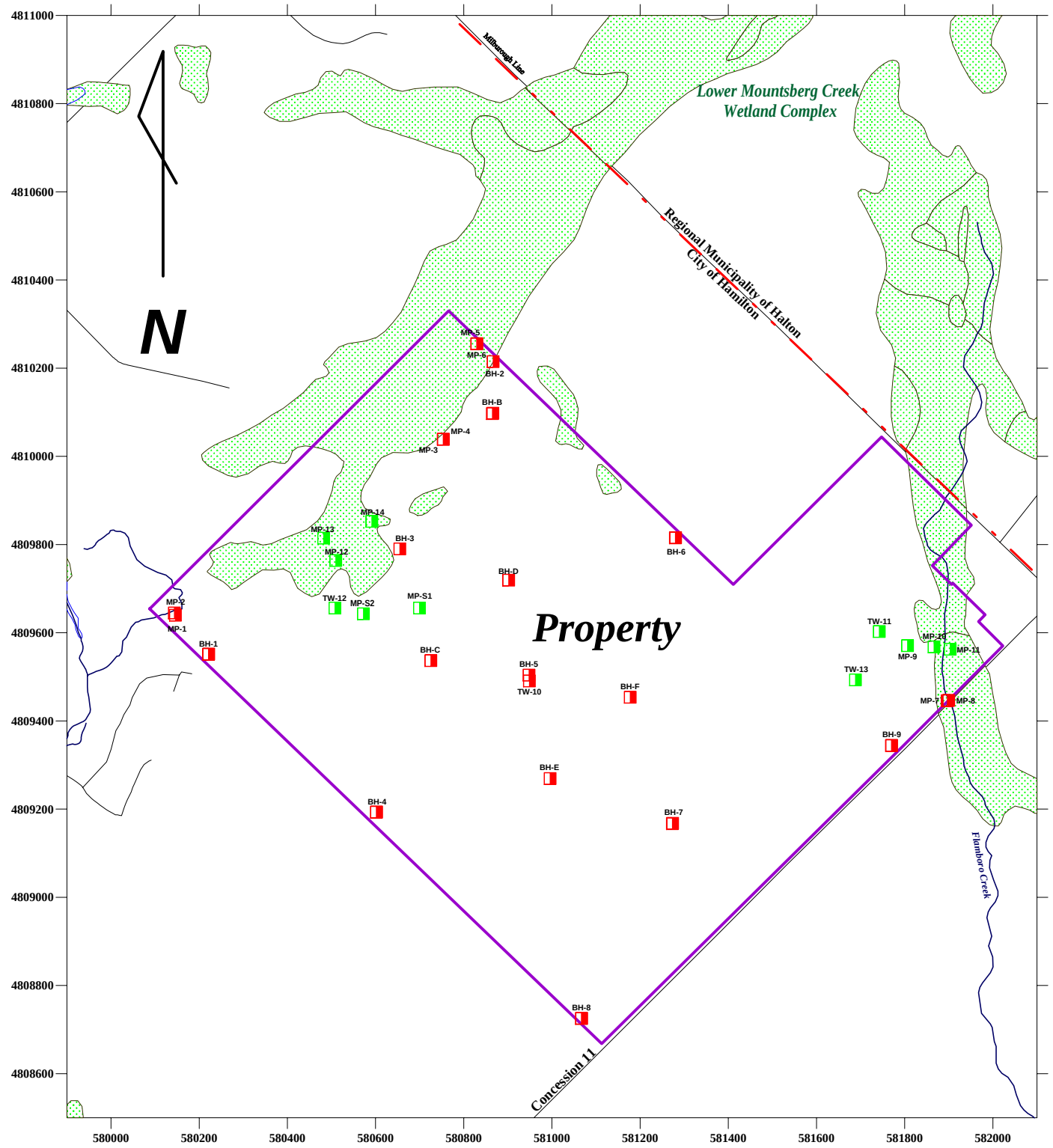
F2-1.3 Results

The drawdown created during the pumping test was calculated for each monitor from the hydrographs and plotted on Figure F2-1-37. Figure F2-1-37 shows that the zone of influence created by pumping at a rate of 1,309 m^3/day (200 igpm) does not stress the entire groundwater system of the property. While the drawdown ranges from 12.18 m at BH-5 (near the pumping well and the centre of the site), there were no obvious responses at the property boundaries near monitors BH1, BH2B, BH8, BH9. The mini-piezometers (P1, P3, P5, and P8) installed within the wetland and near the Flamboro Creek and Mountsberg Creek did not respond to the pumping test.

A number of analytical methods have been used and compared in interpreting the data from the aquifer tests and are described briefly below. It should be noted that for most of these solutions, a number of assumptions have been made in an effort to simplify the solution. Generally it is assumed that the aquifer is confined, is of infinite lateral extent, is homogeneous and uniform, and that the well is fully-penetrating, and has an infinitesimally small diameter.

The analyses methods all involve matching the drawdown data to the theoretical type curves. In an effort to simplify this process, WHI's *Aquifer Test* was employed to assist in the management and interpretation of the data. The outputs, showing the curve matching for each of the data sets and each analytical method are shown in Appendix F2-1 and Table F2-1-32 displays the calculated transmissivities and hydraulic conductivities.

The Cooper-Jacob method was used to analyze all the drawdown data. Two of the curves also were analyzed using the Hantush-Jacob (Walton) method. These type curves fit well with these data. There is little difference between the methods at these to monitors. From the analyses the average transmissivity and hydraulic conductivity for the pump test data are 2.2×10^{-3} m^2/s and 6.3×10^{-5} m/s, respectively.



Legend

- Surface Drainage Features
- Water Bodies
- Wetlands
- Active Model Domain
- Property Boundary
- Monitored Wells
- Non-monitored Wells

SOURCE: Base mapping produced by Gartner Lee Limited under license with the Ministry of Natural Resources, Queen's Printer 1997 - Reproduced 2004.

PROPOSED DOLOSTONE QUARRY | **Figure F2-1-1**

72-HOUR PUMPING TEST MONITORED WELLS

Project # 23827, Hydrogeological Modeling Investigation

Gartner Lee Limited

Scale 1:13,000

:11/13/08:\ N:\Projects\2003\23827\2005\WIP\Level 2 Report\Appendices\Ap E\E-2\Figure E-2-1.srf

Figure F2-1-2
Proposed Dolostone Quarry
72-Hour Pump Test: Atmospheric Pressure

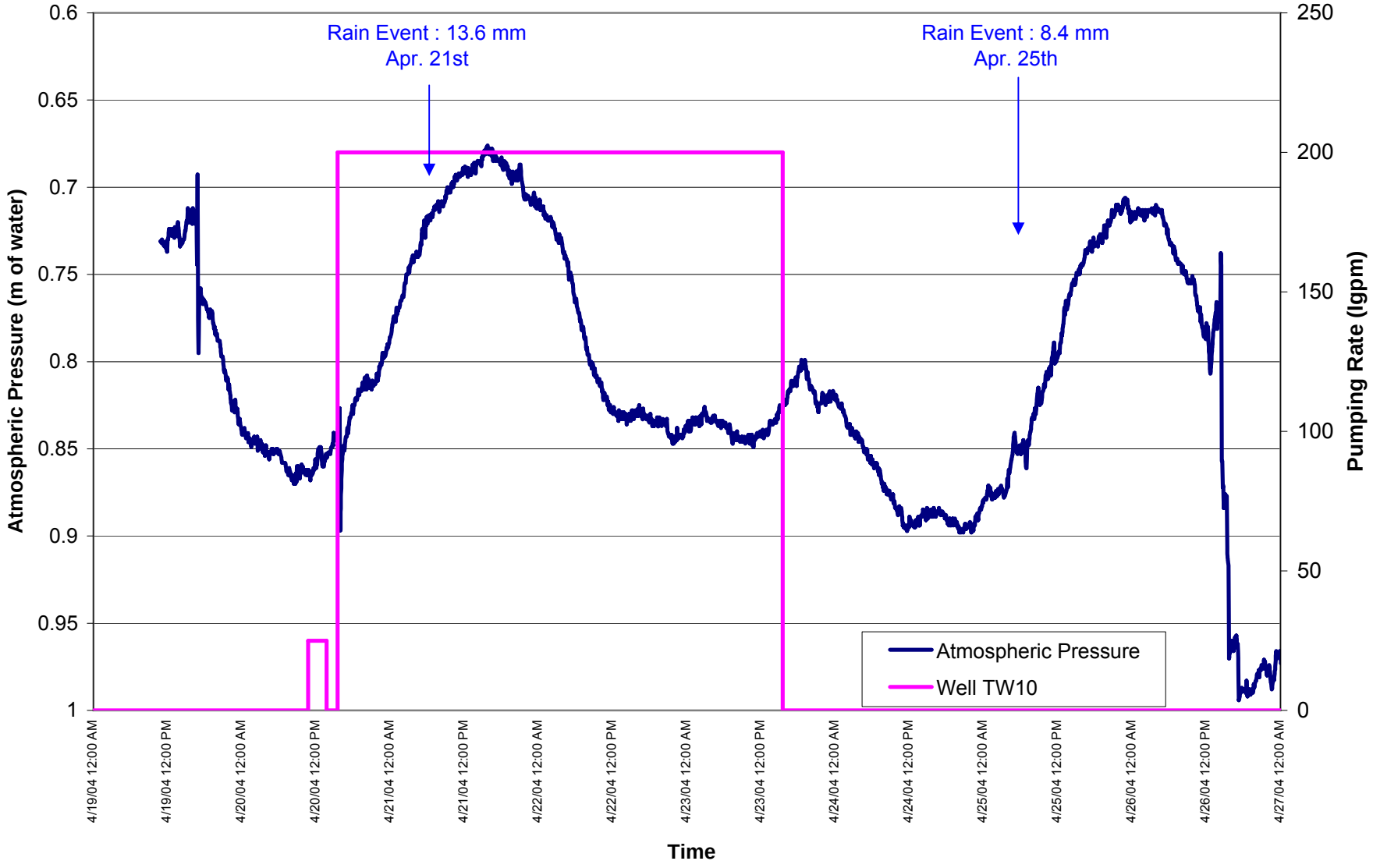


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Figure F2-1-3
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-1 Nest & Mountsberg Creek

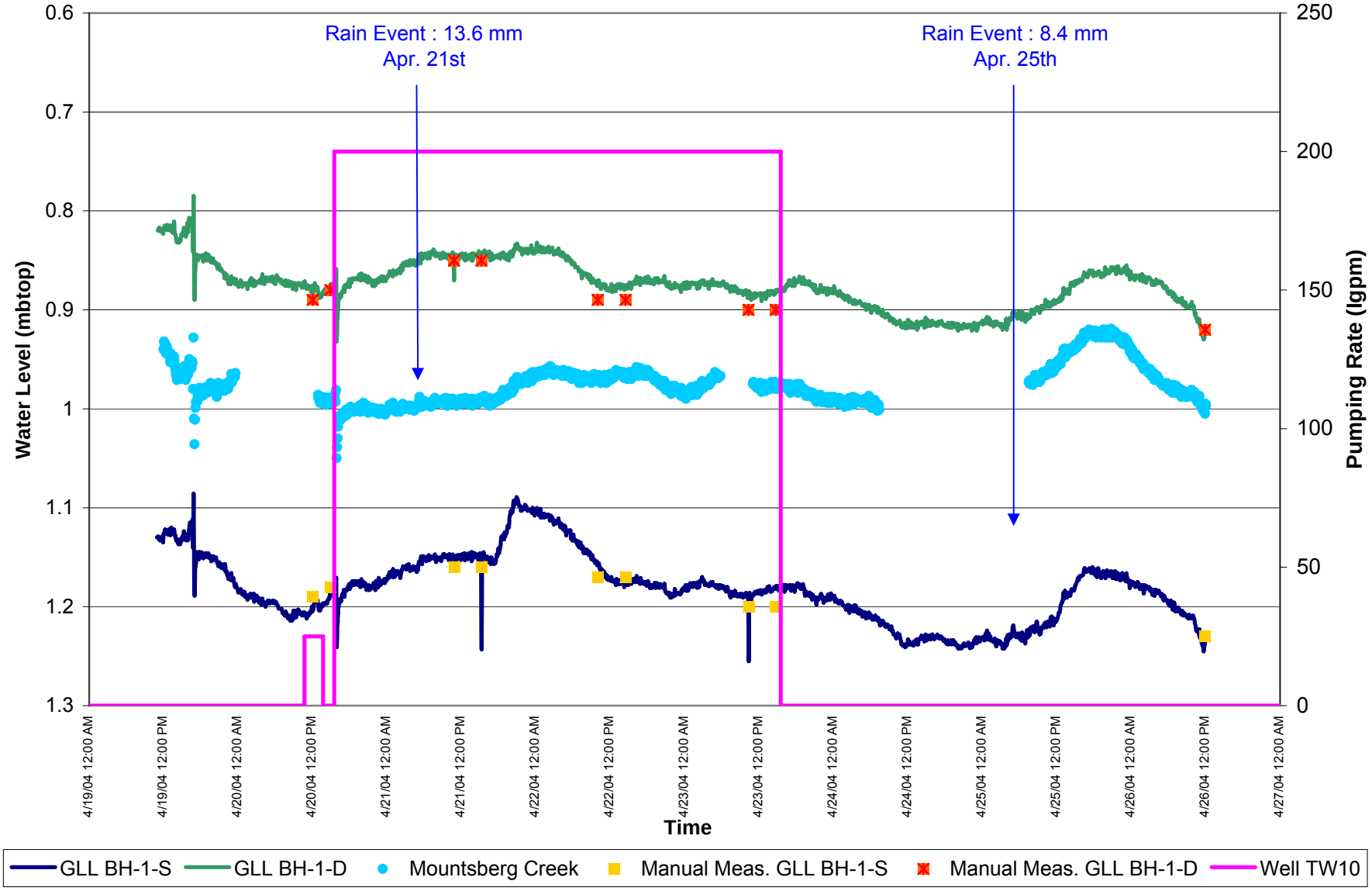

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Figure F2-1-4
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-3 Shallow

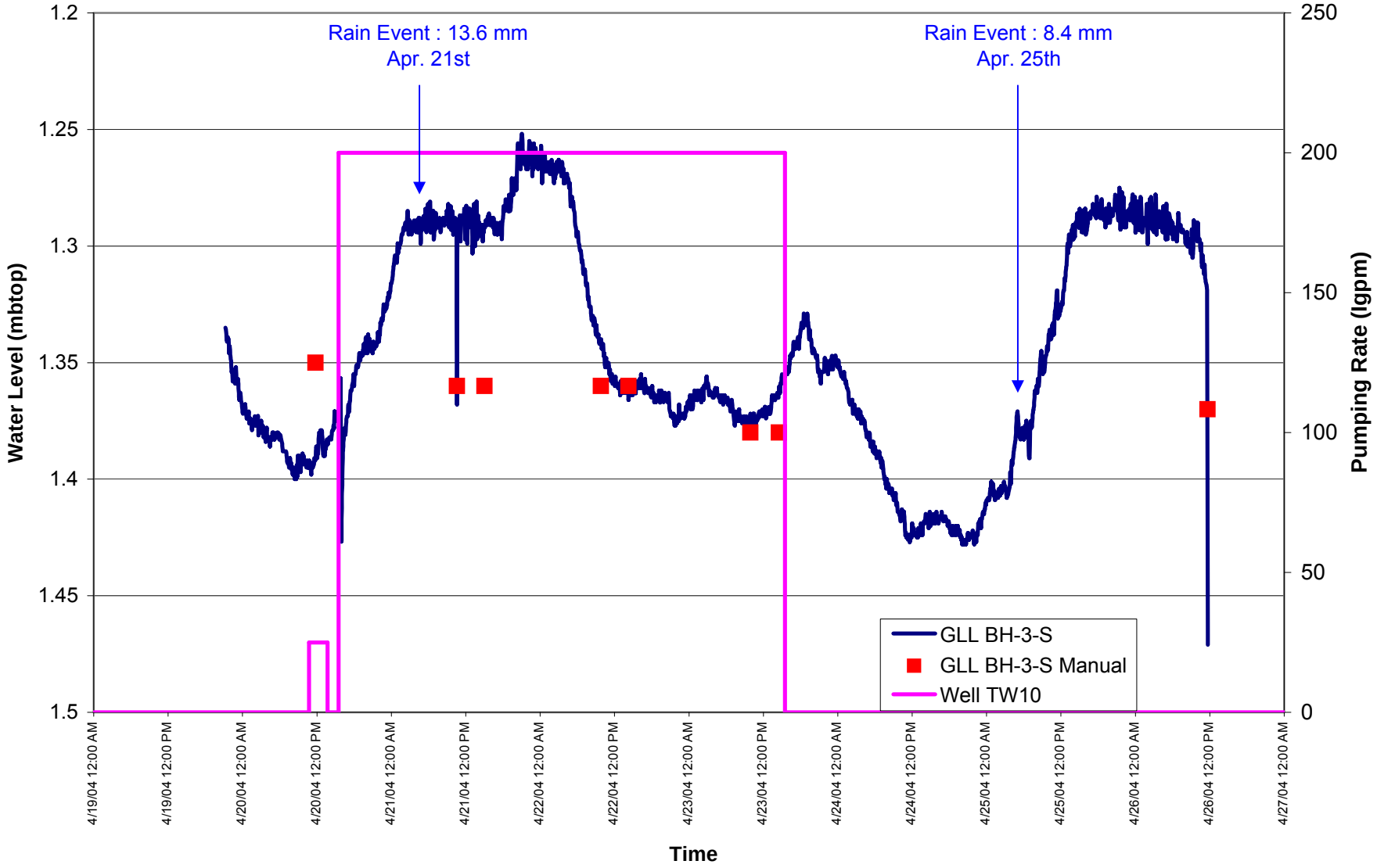

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Figure F2-1-5
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-4 Nest

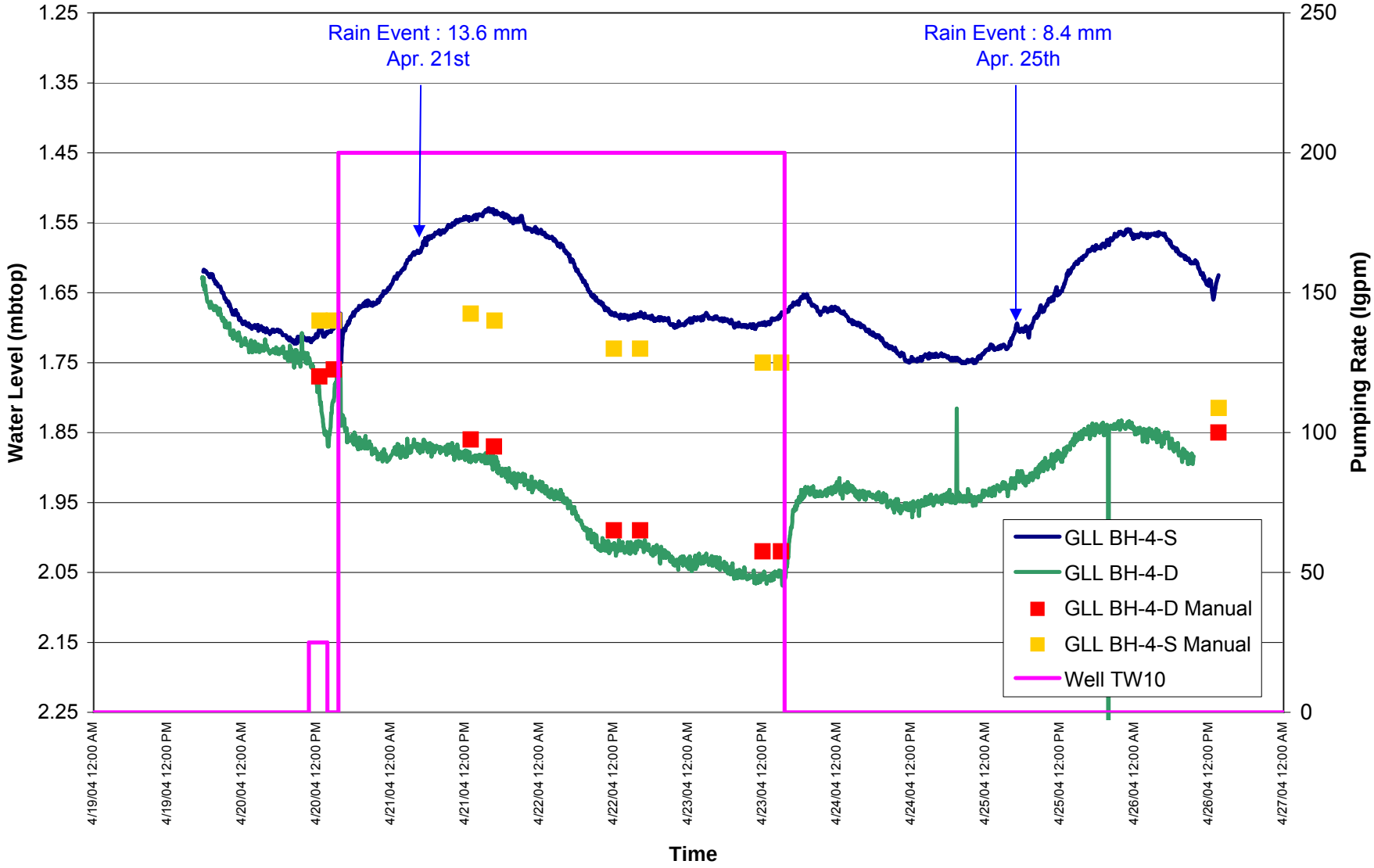

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Figure F2-1-6
Proposed Dolostone Quarry
72-Hour Pump Test: Pumping Well & GLL BH-5

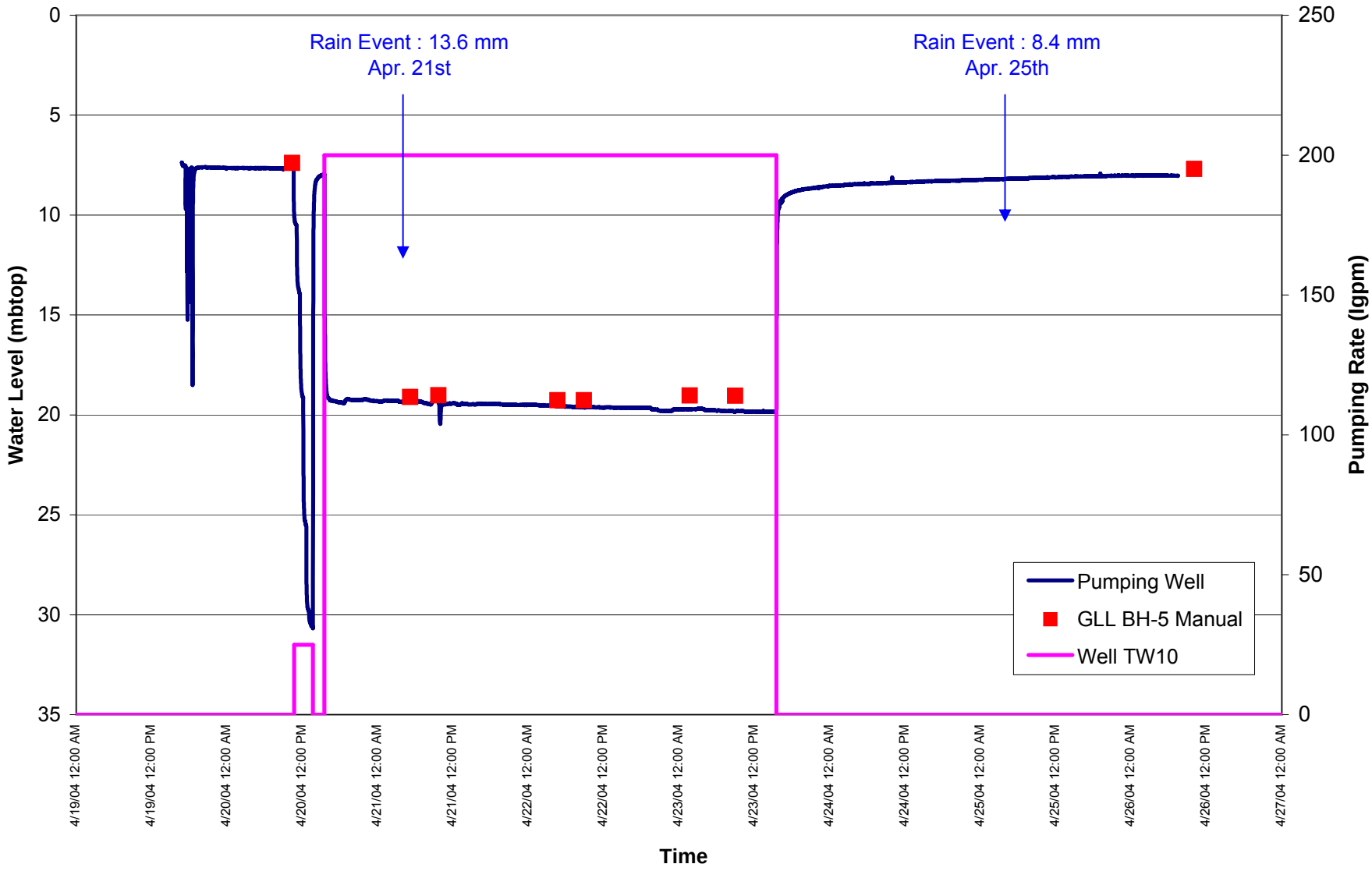

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Figure F2-1-7
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-6 Nest

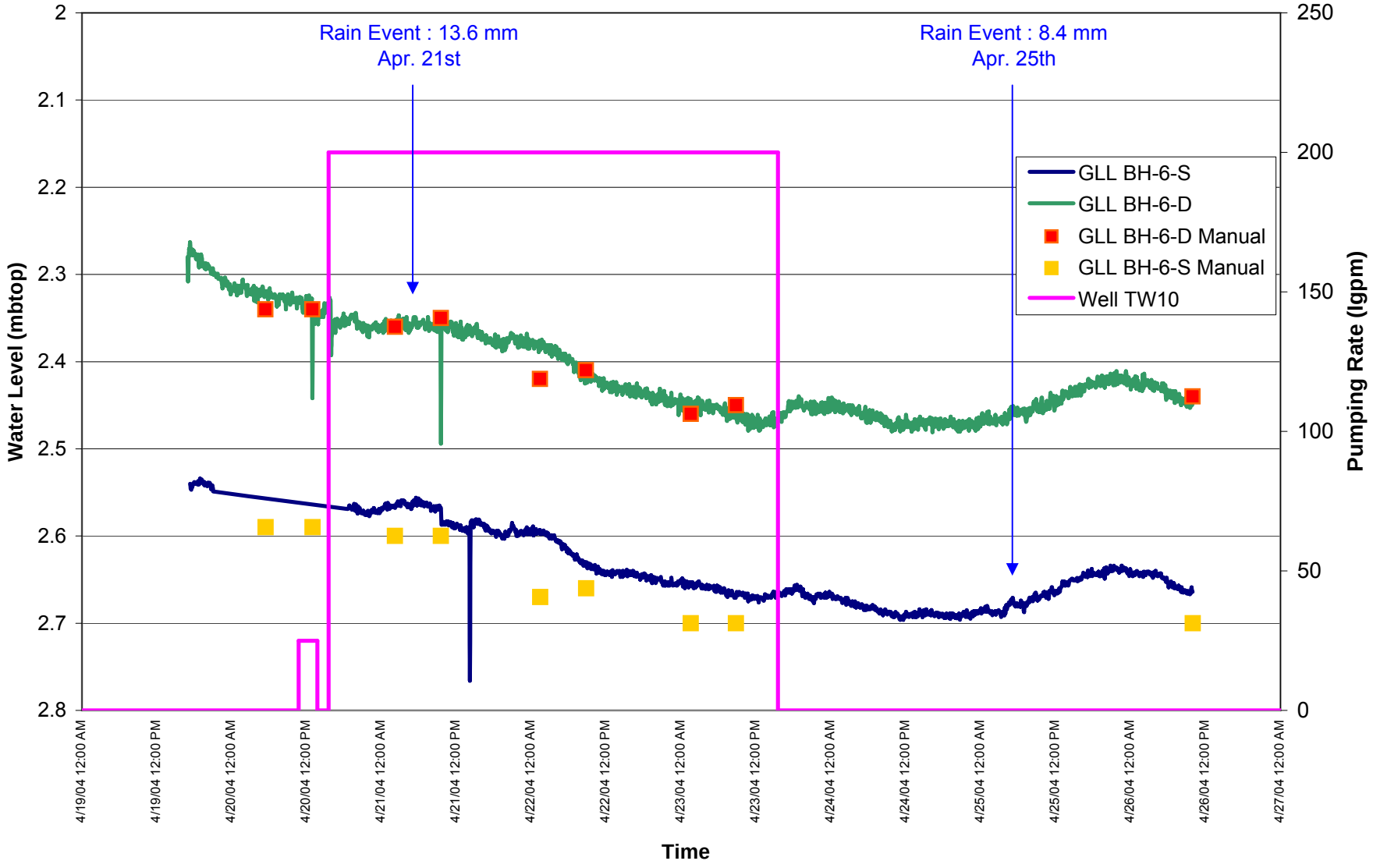

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Figure F2-1-8
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-7 Nest

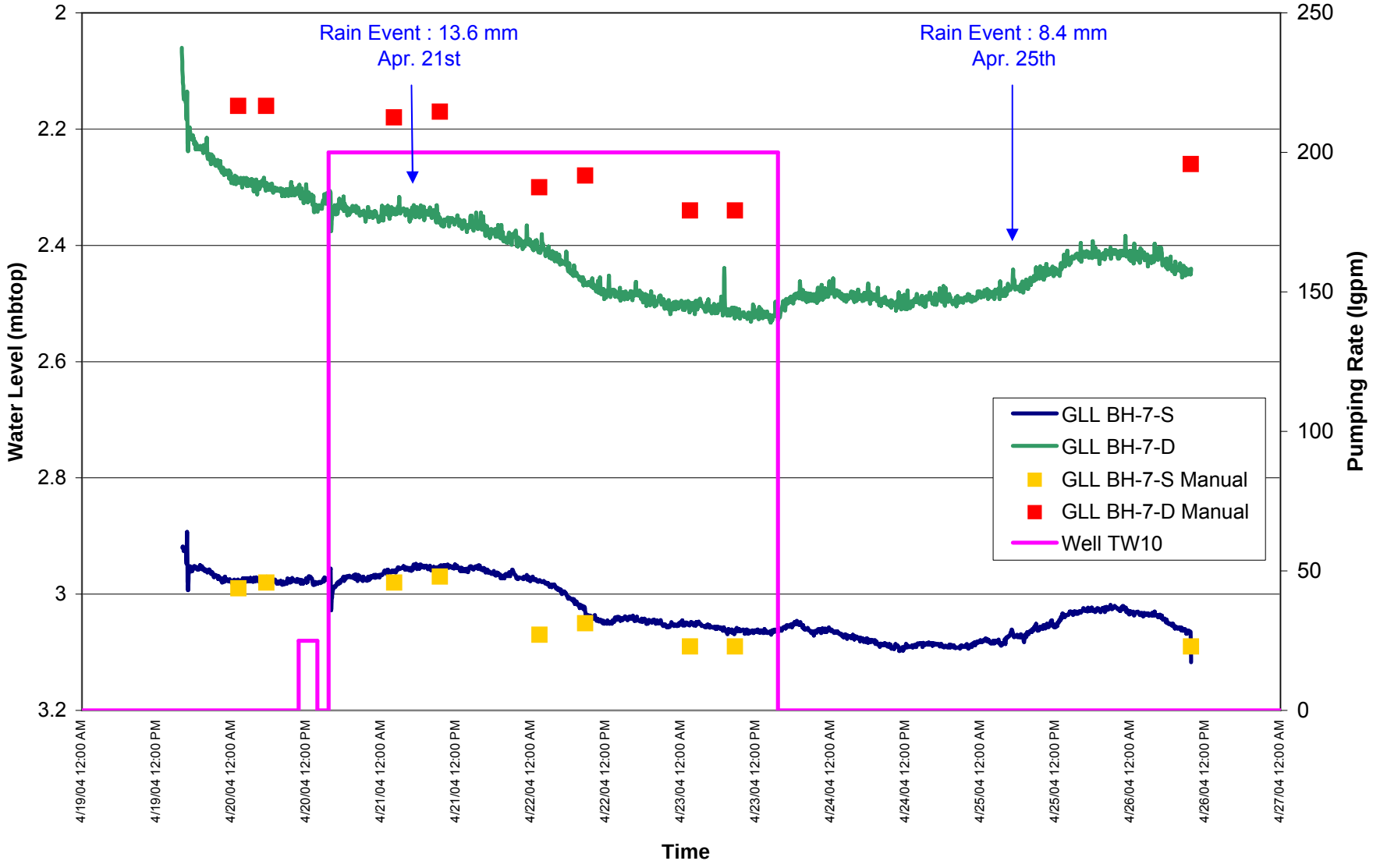

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Figure F2-1-9
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-8 Nest

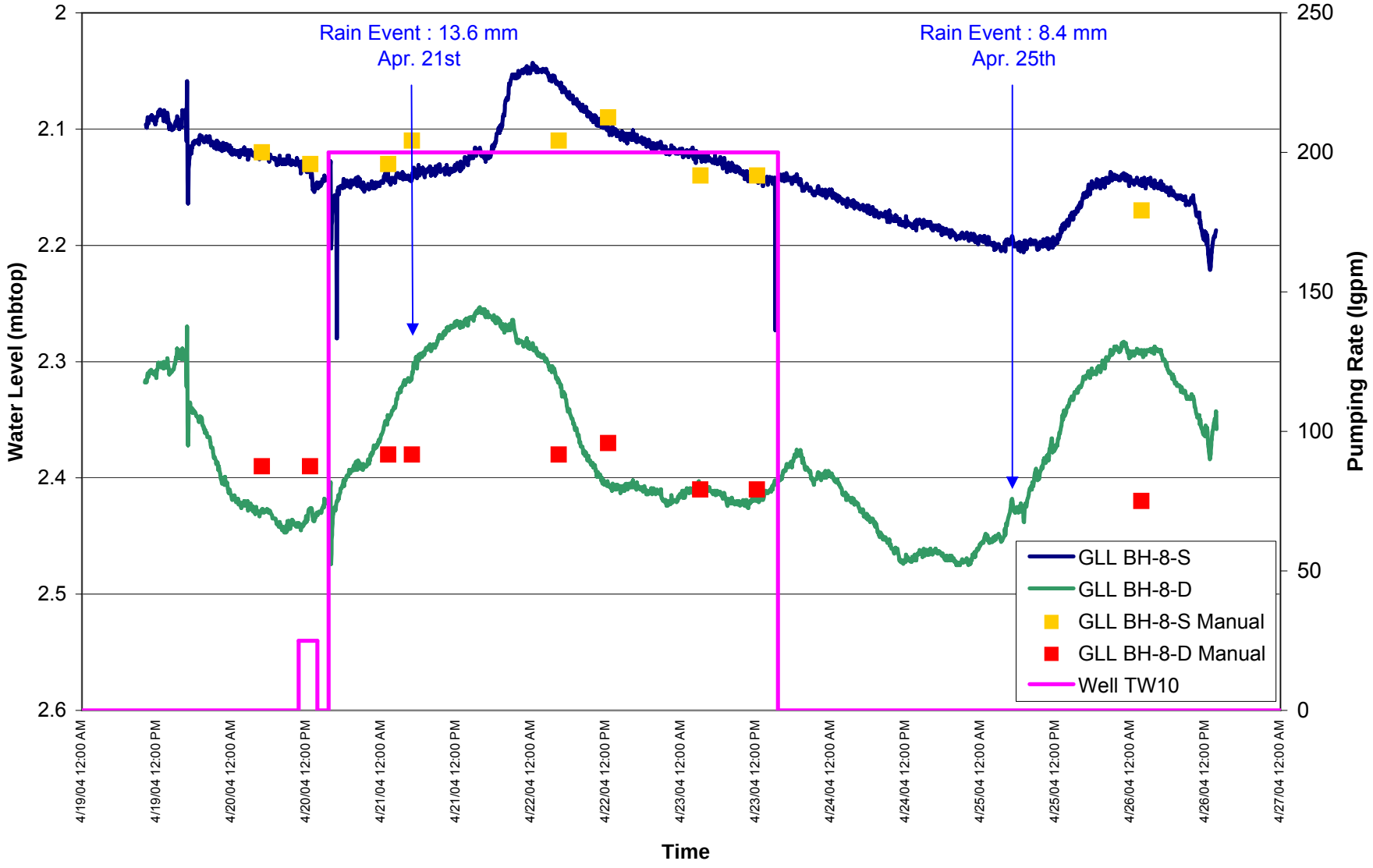

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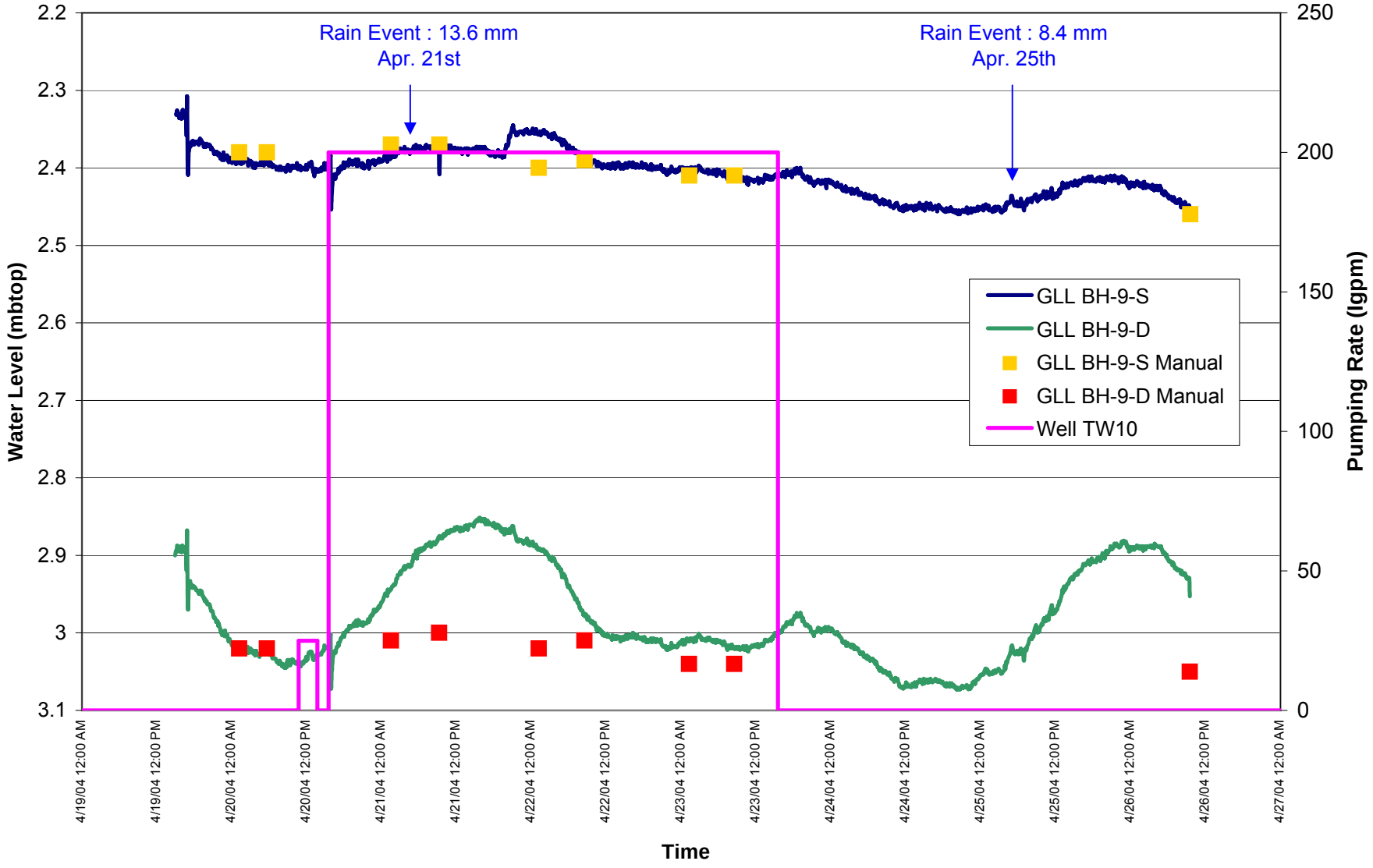
Figure F2-1-10
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-9 Nest



Project 23-827

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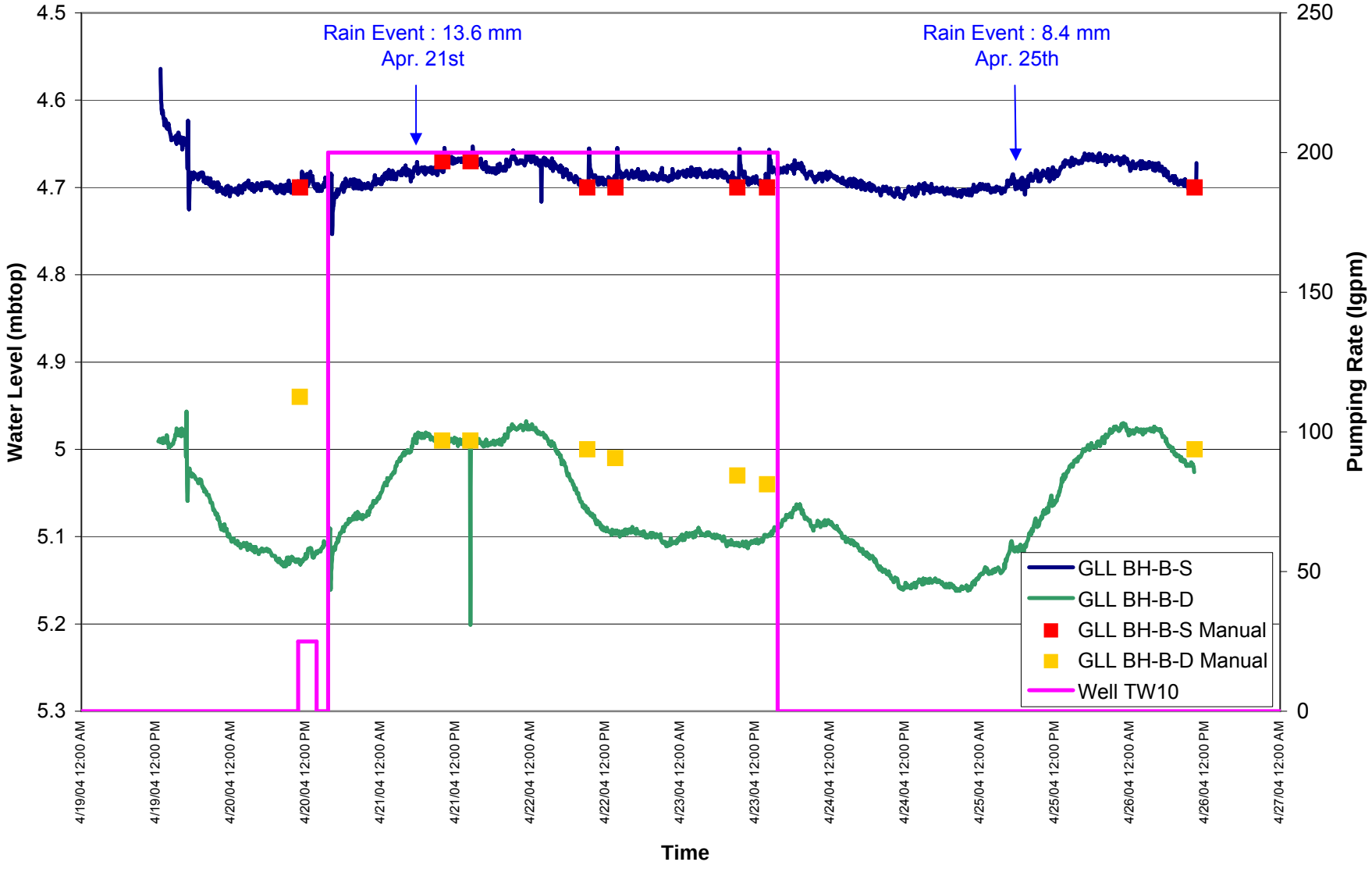
Figure F2-1-11
Proposed Dolostone Quarry
72-Hour Pump Test: GLL BH-B Nest



Project 23-827

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Figure F2-1-12
Proposed Dolostone Quarry
72-Hour Pump Test: JEGEL BH-C

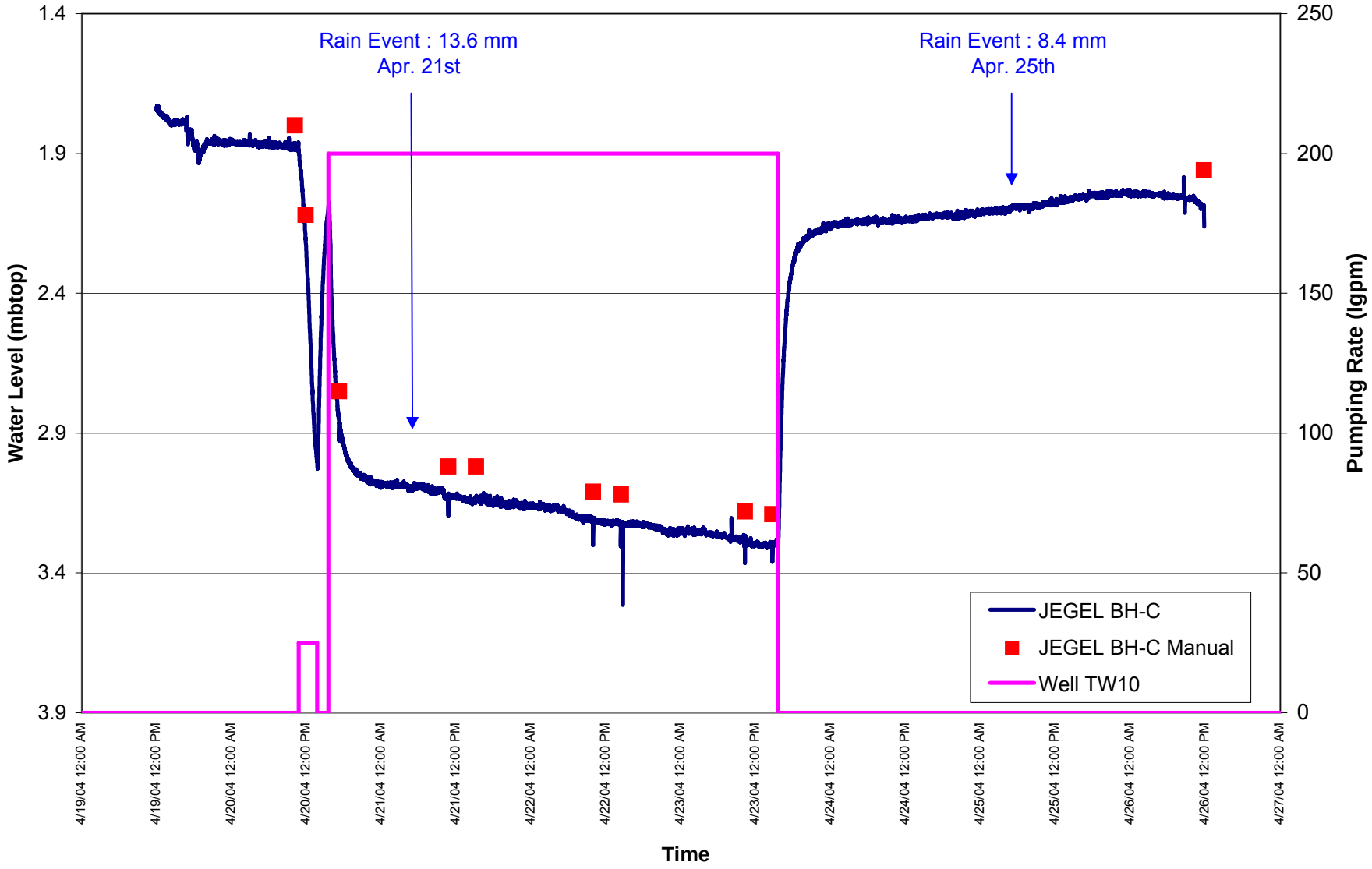

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Figure F2-1-13
Proposed Dolostone Quarry
72-Hour Pump Test: JEGEL BH D

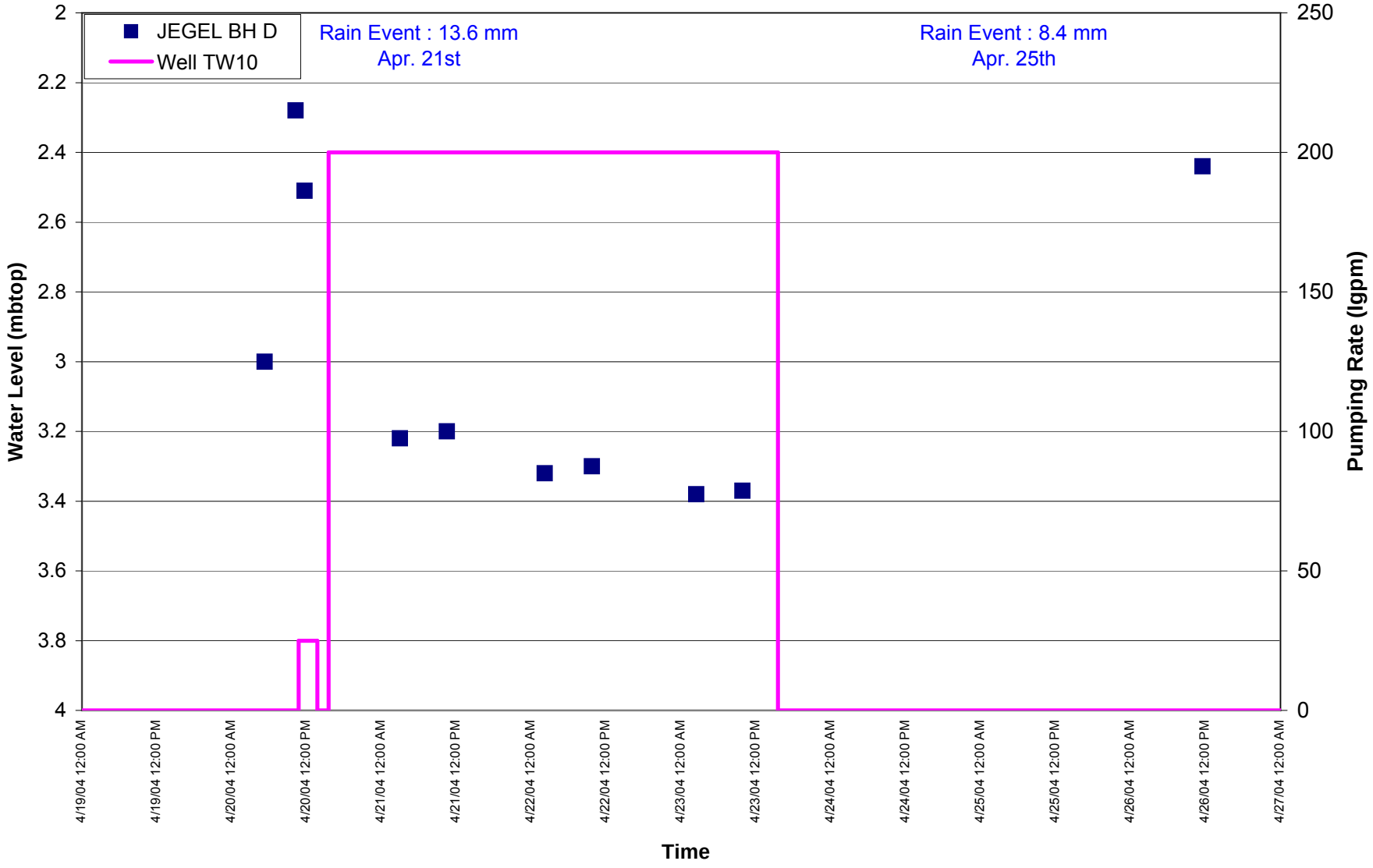

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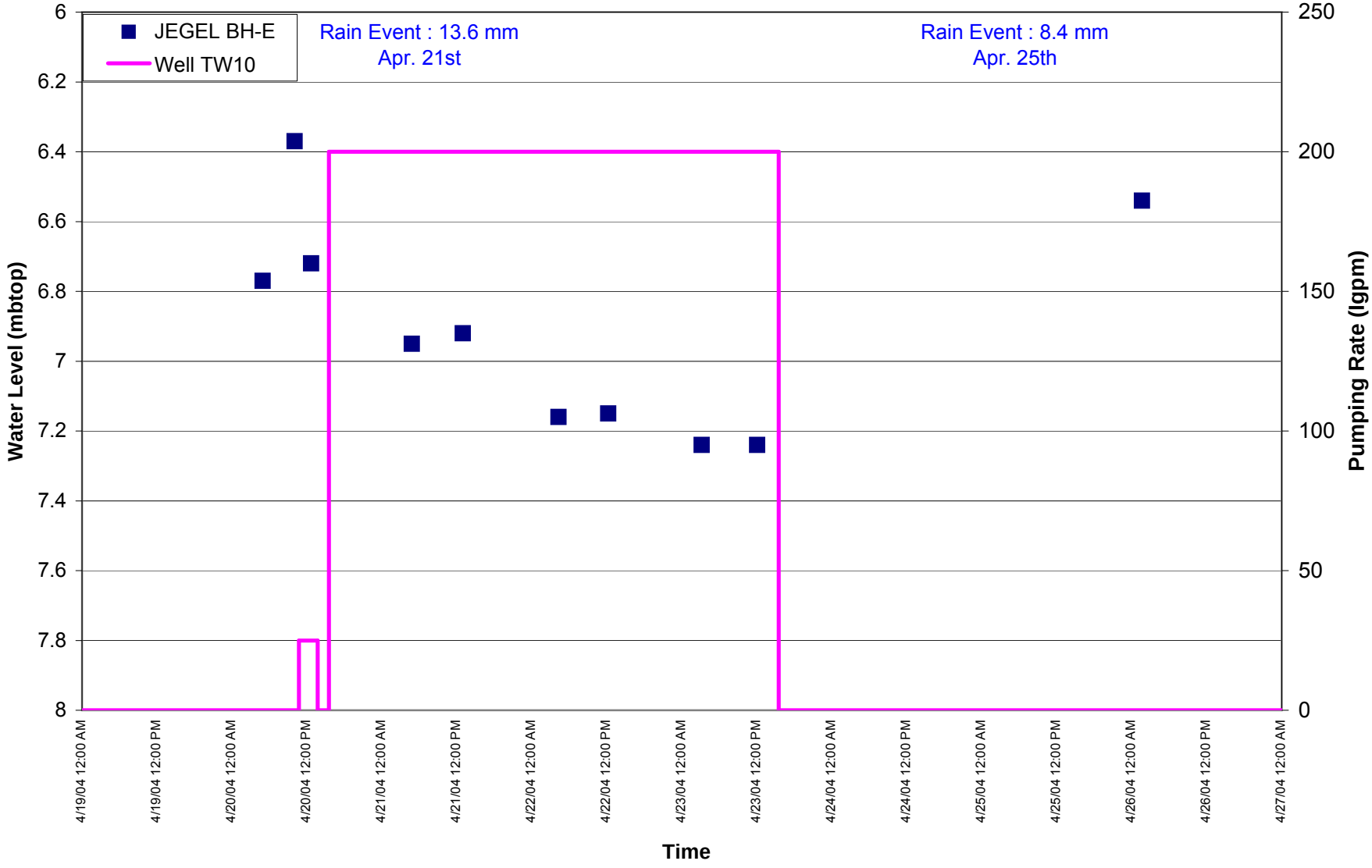
Figure F2-1-14
Proposed Dolostone Quarry
72-Hour Pump Test: JEGEL BH-E



Project 23-827

File: BH-E.xls; Tab: G-BH E

Figure F2-1-15
Proposed Dolostone Quarry
72-Hour Pump Test: JEGEL BH-F

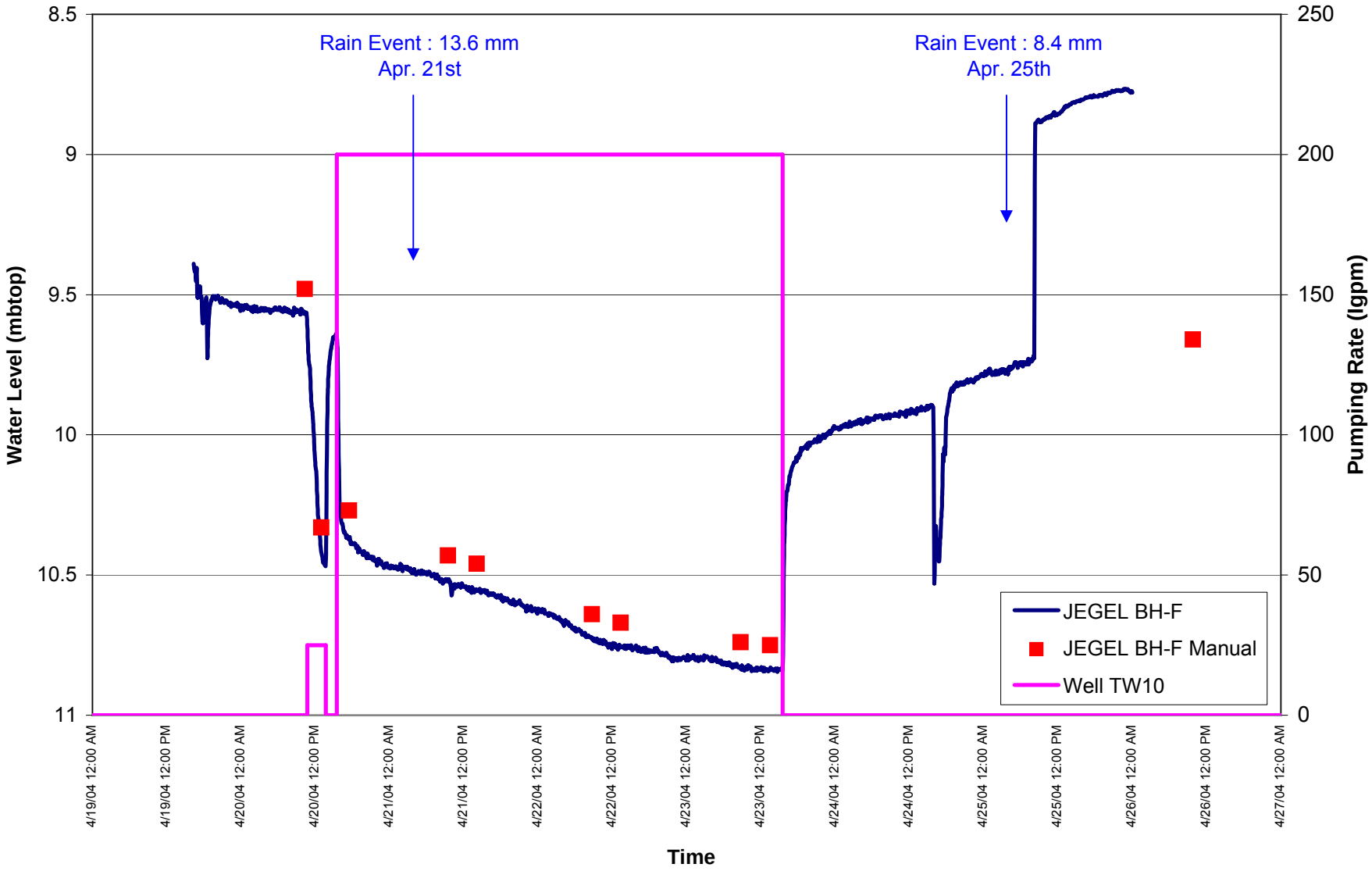


Figure F2-1-16
Proposed Dolostone Quarry
72-Hour Pump Test: Flamboro and Mountsberg Creek

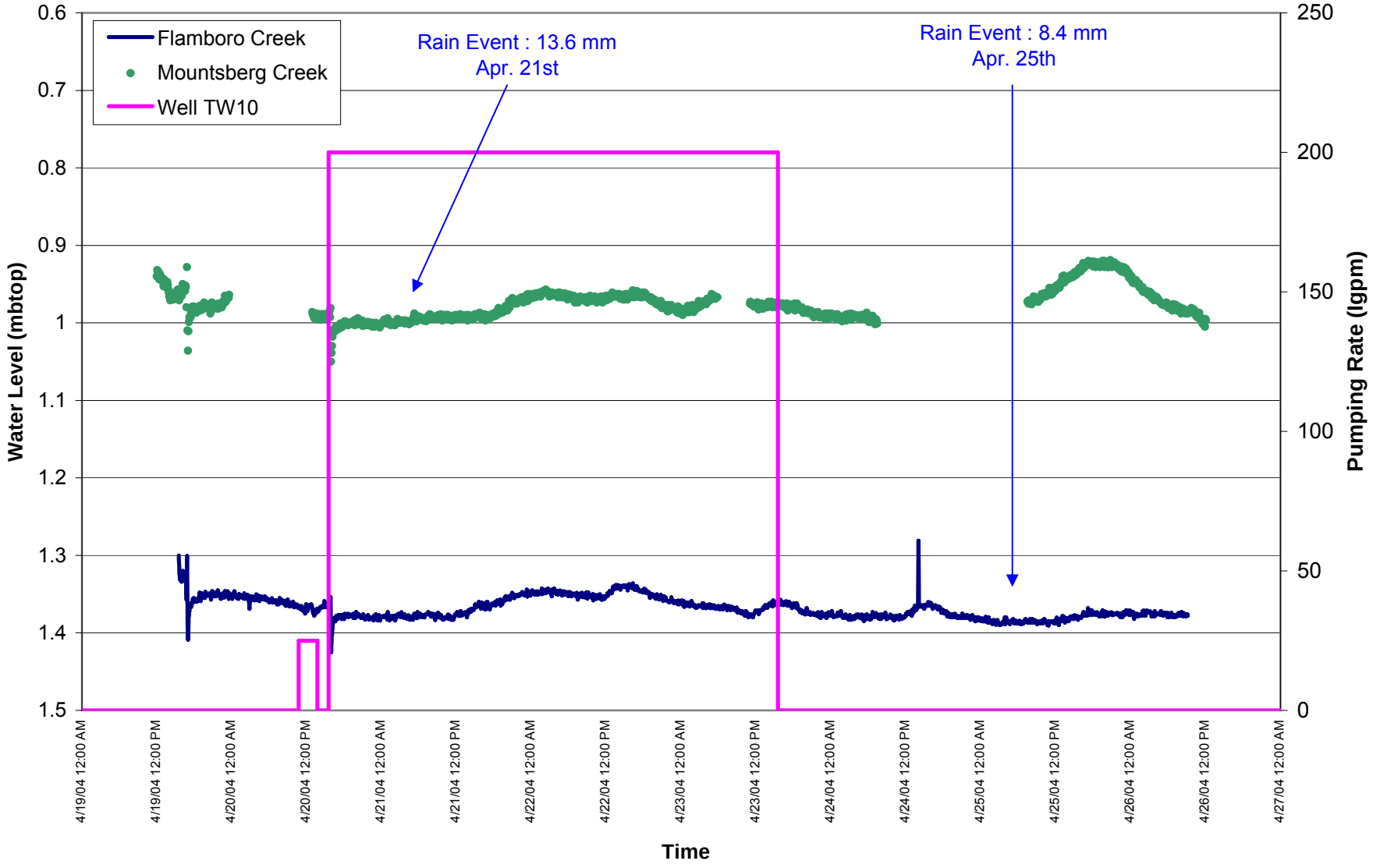


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Figure F2-1-17
Proposed Dolostone Quarry
72-Hour Pump Test: MP-1

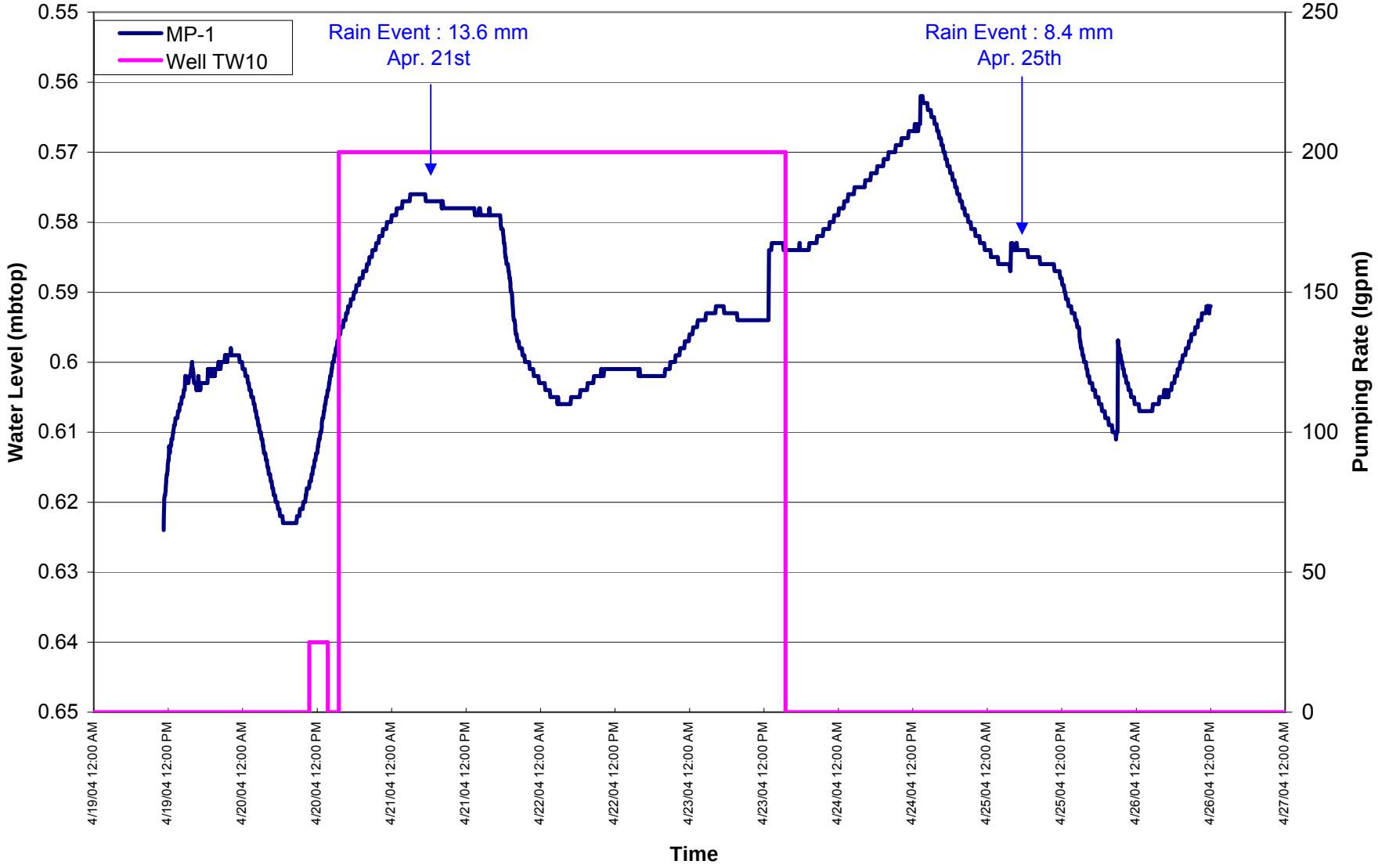


Figure F2-1-18
Proposed Dolostone Quarry
72-Hour Pump Test: MP-2

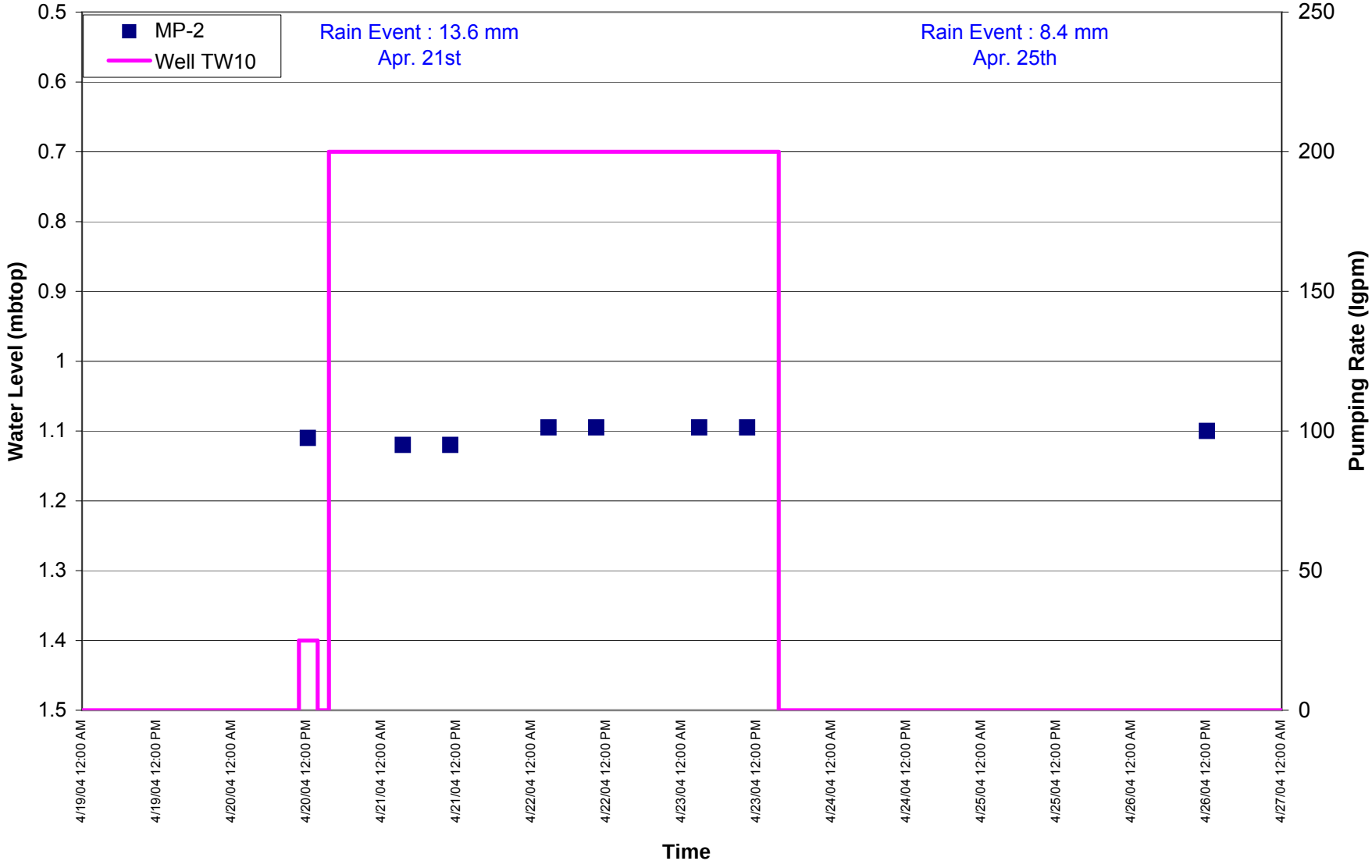


Figure F2-1-19
Proposed Dolostone Quarry
72-Hour Pump Test: MP-3

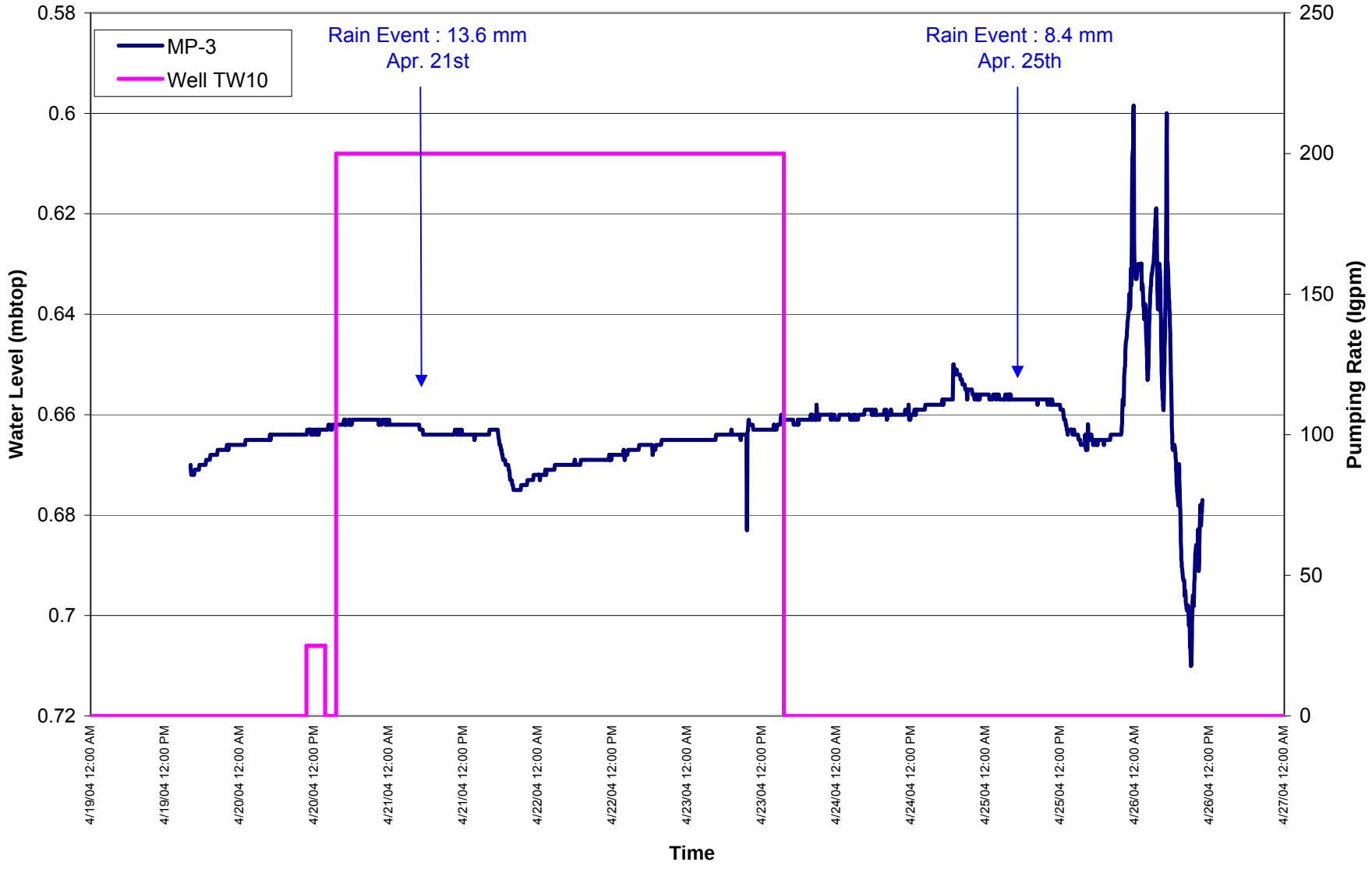


Figure F2-1-20
Proposed Dolostone Quarry
72-Hour Pump Test: MP-4

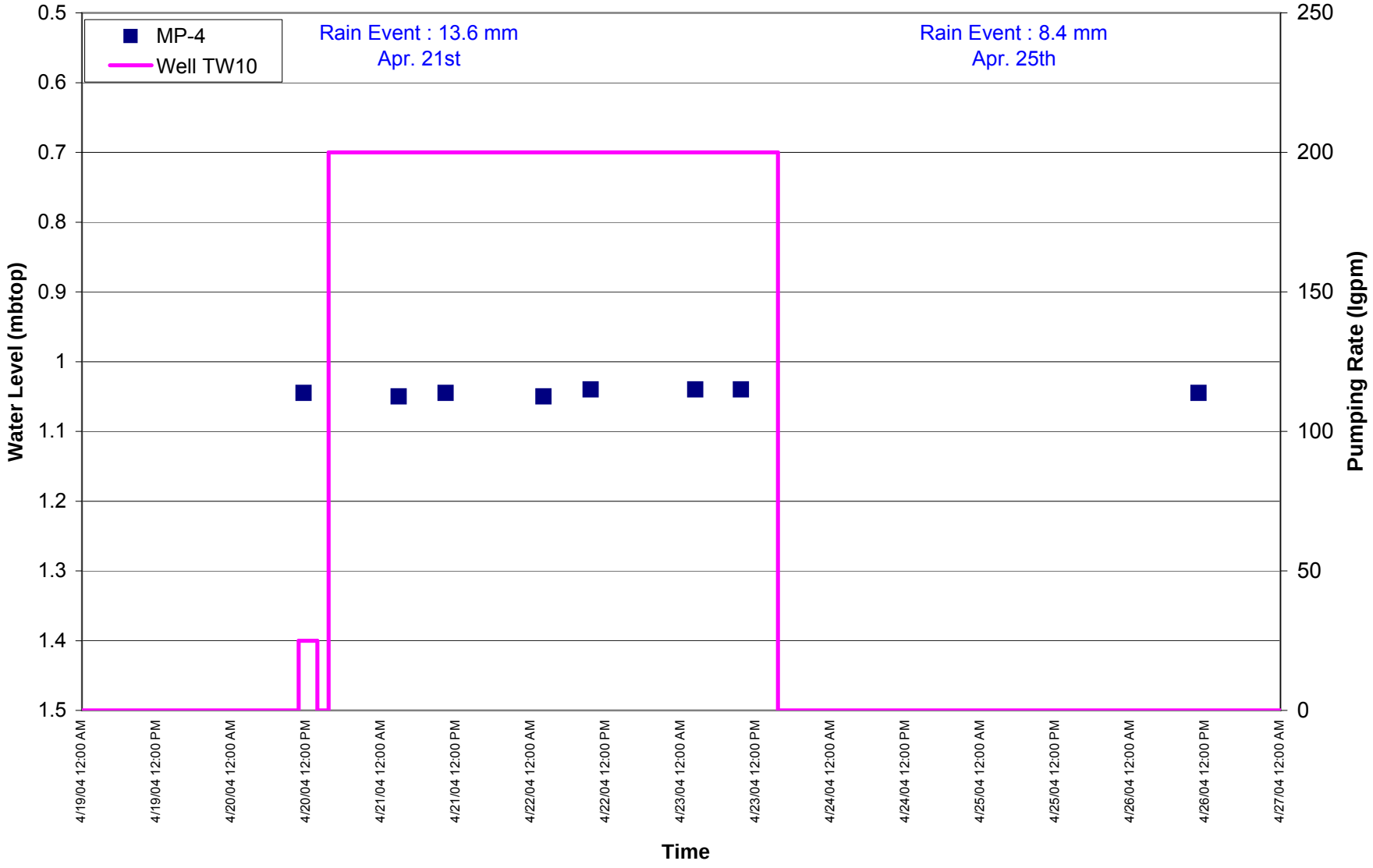


Figure F2-1-21
Proposed Dolostone Quarry
72-Hour Pump Test: MP-5

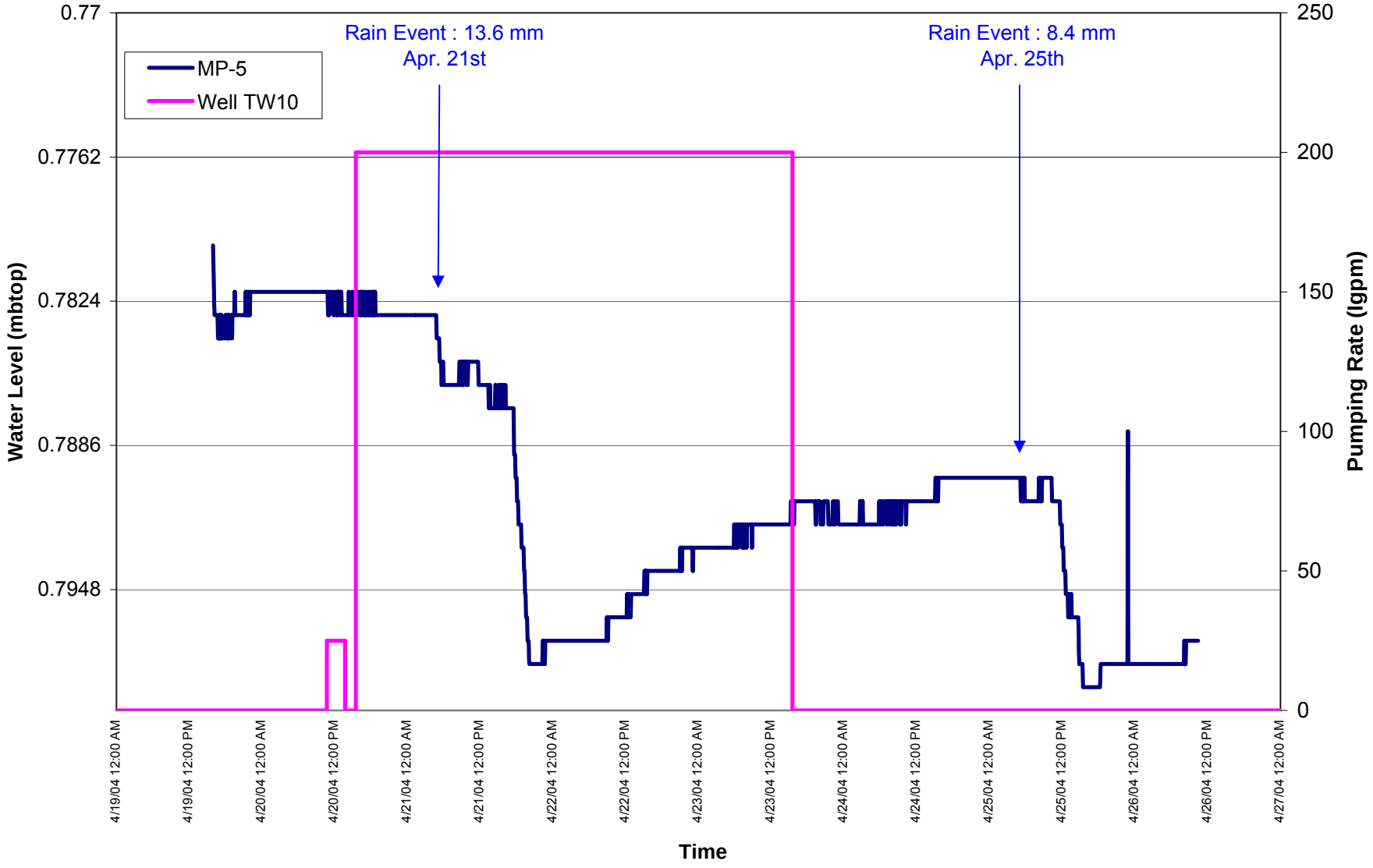


Figure F2-1-22
Proposed Dolostone Quarry
72-Hour Pump Test: MP-6

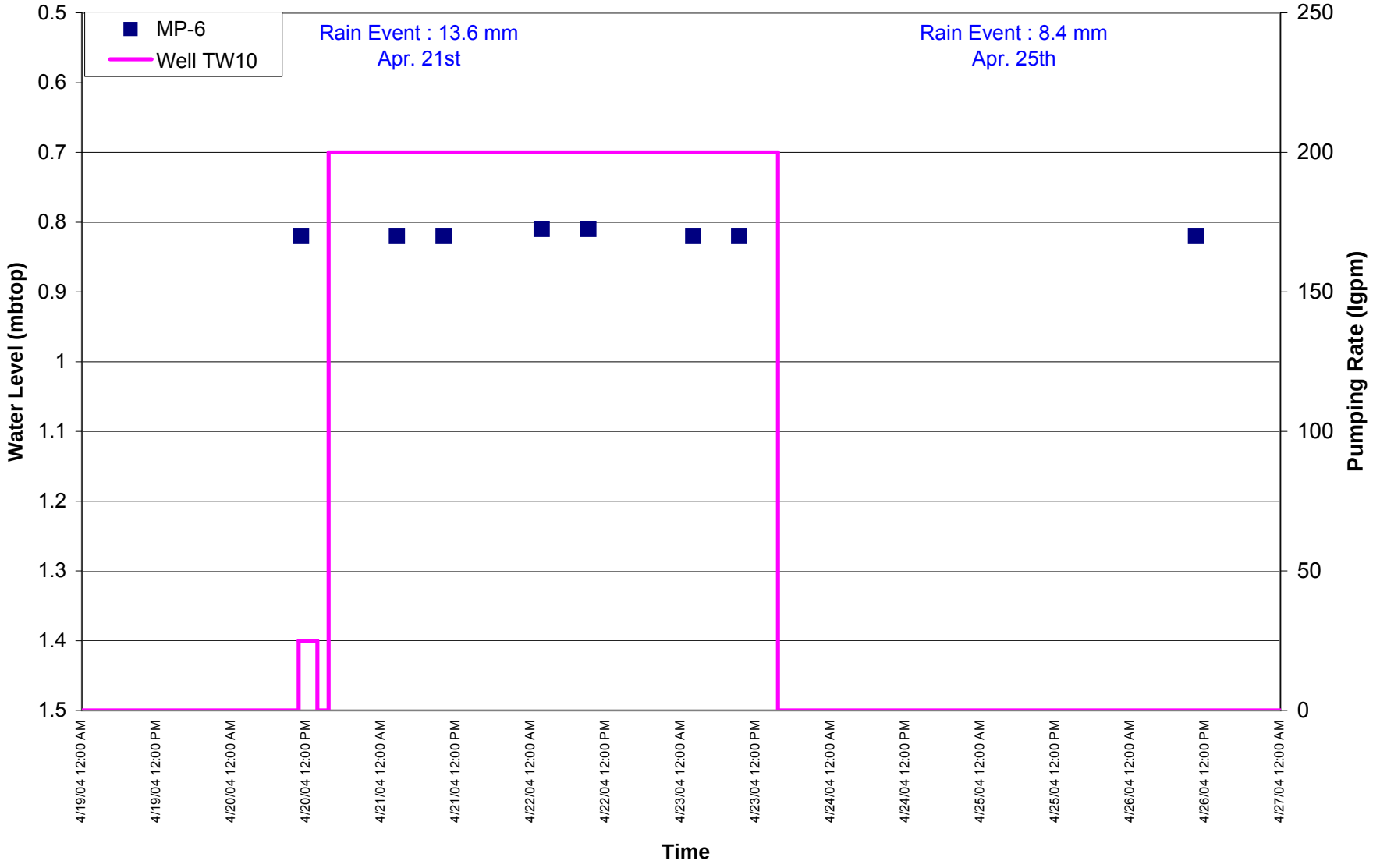


Figure F2-1-23
Proposed Dolostone Quarry
72-Hour Pump Test: MP-7

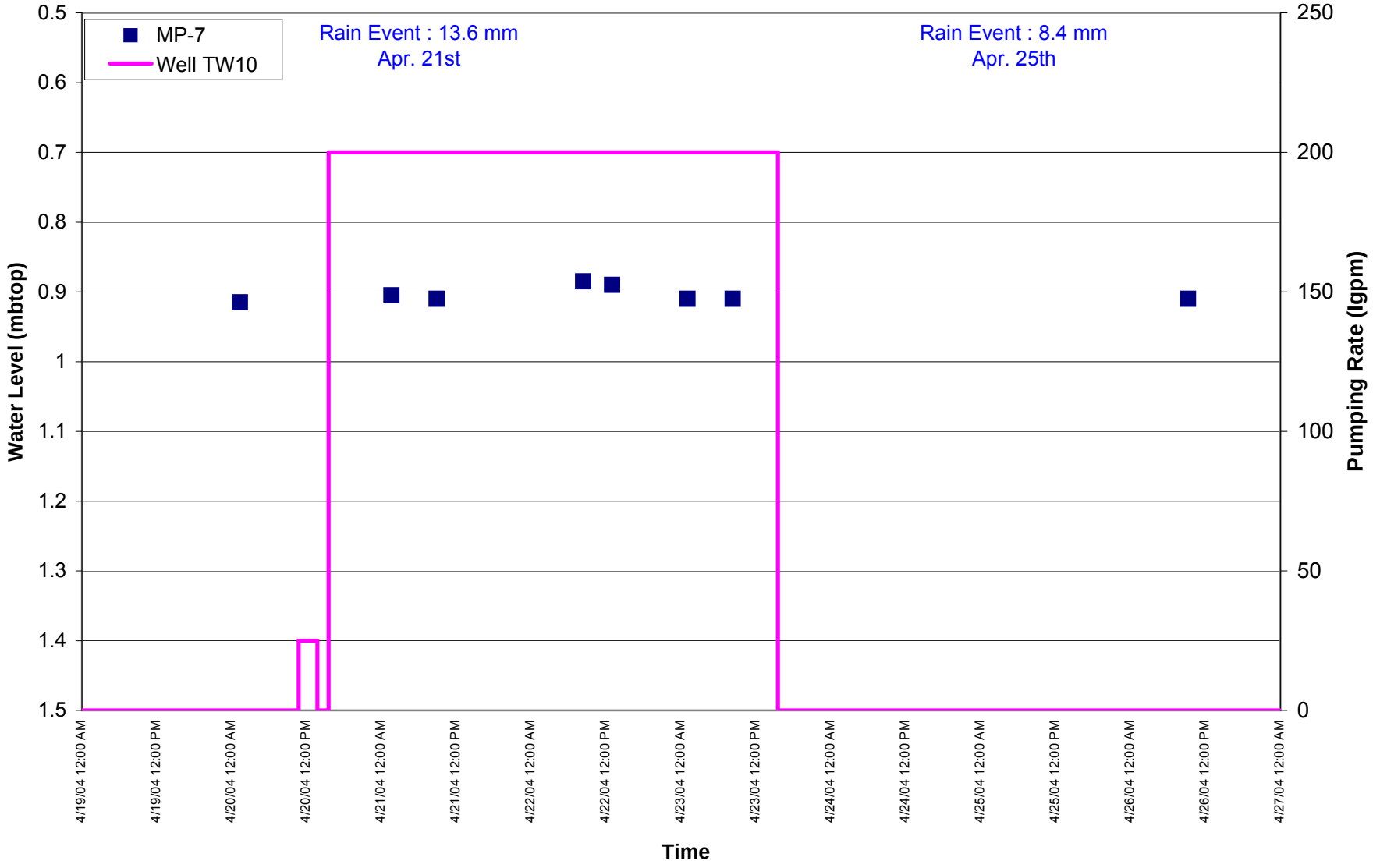
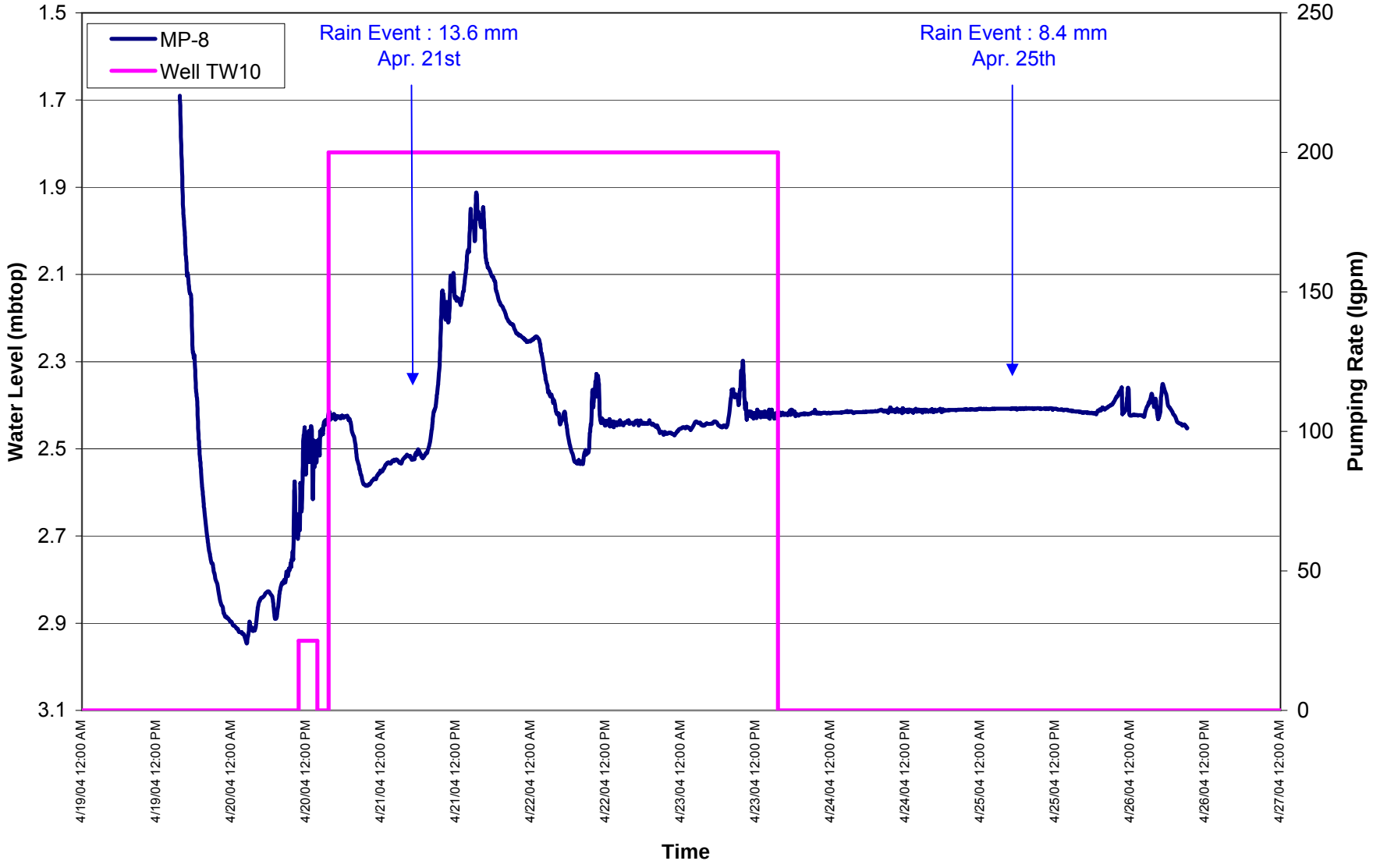


Figure F2-1-24
Proposed Dolostone Quarry
72-Hour Pump Test: MP-8



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File: P-8.xls; Tab: G-P8

Figure F2-1-25 - 72-Hour Pumping Test
GLL BH-4 - Time - Drawdown

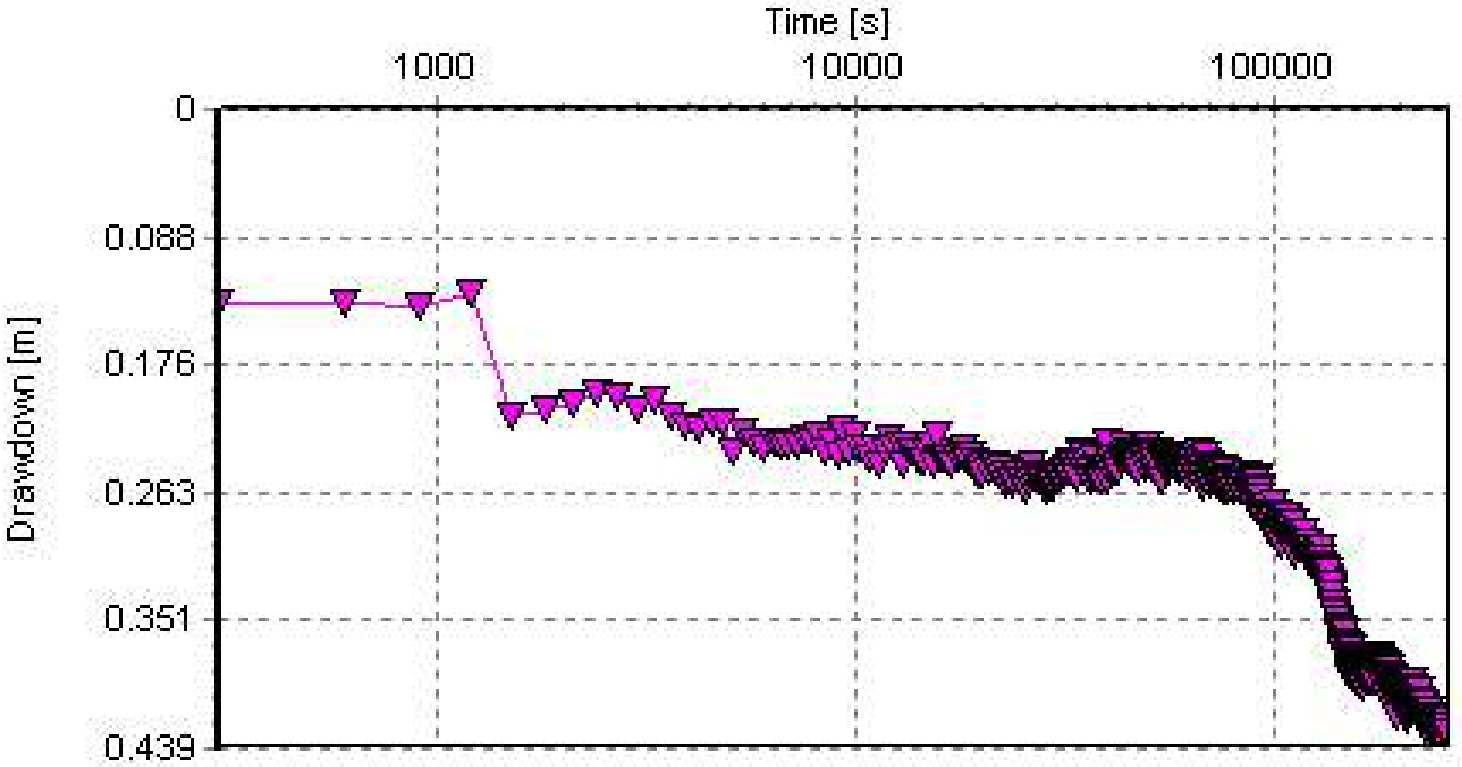
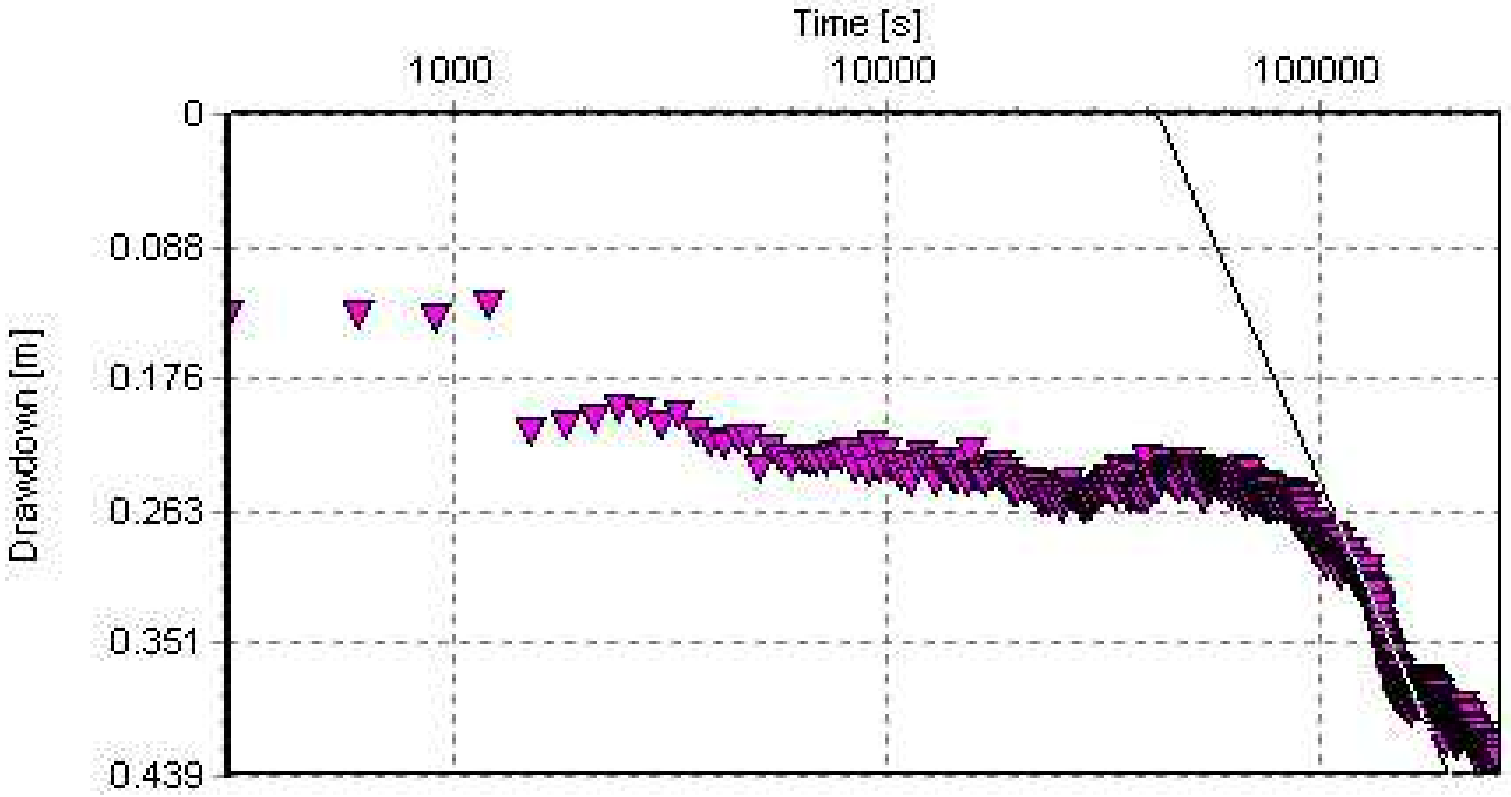


Figure F2-1-26 - 72-Hour Pumping Test
GLL BH-4 - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 4.31E-3 m²/s
Conductivity: 1.01E-4 m/s

Storativity: 1.86E-3

Figure F2-1-27 - 72-Hour Pumping Test
GLL BH-5 - Time - Drawdown

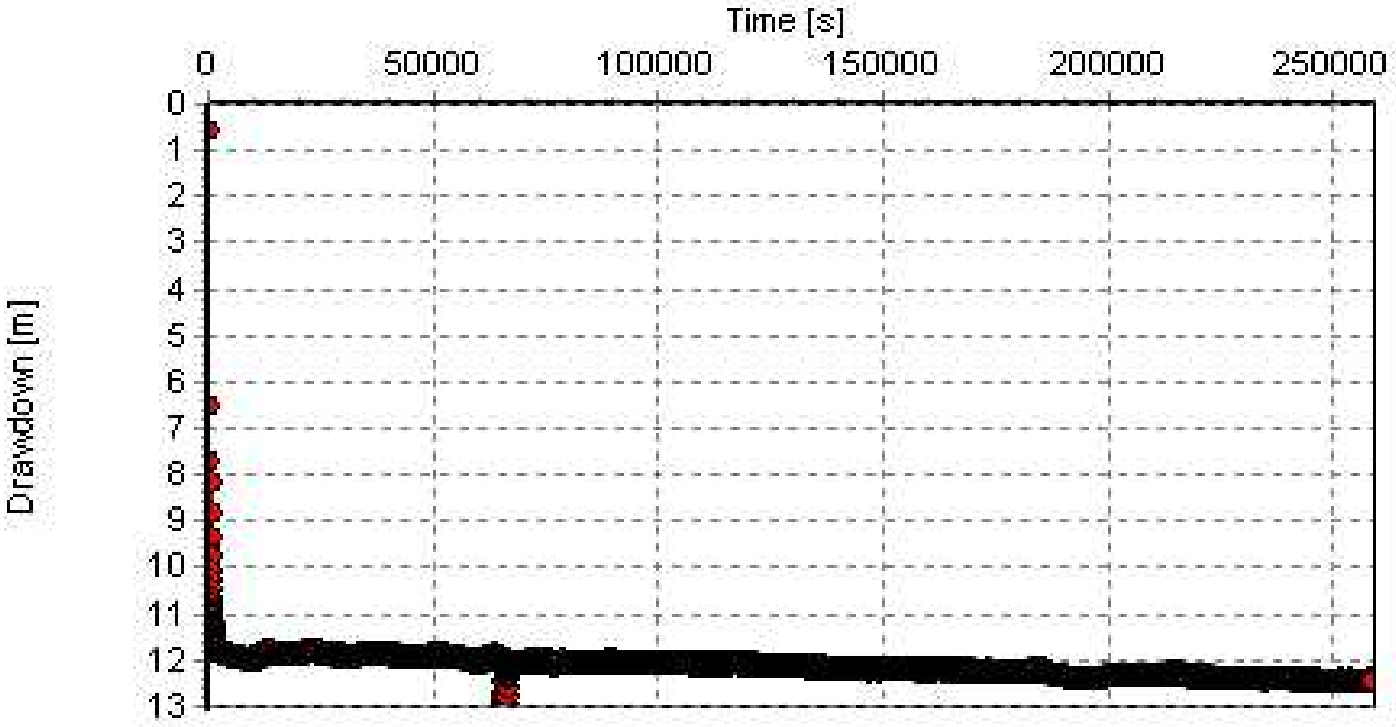
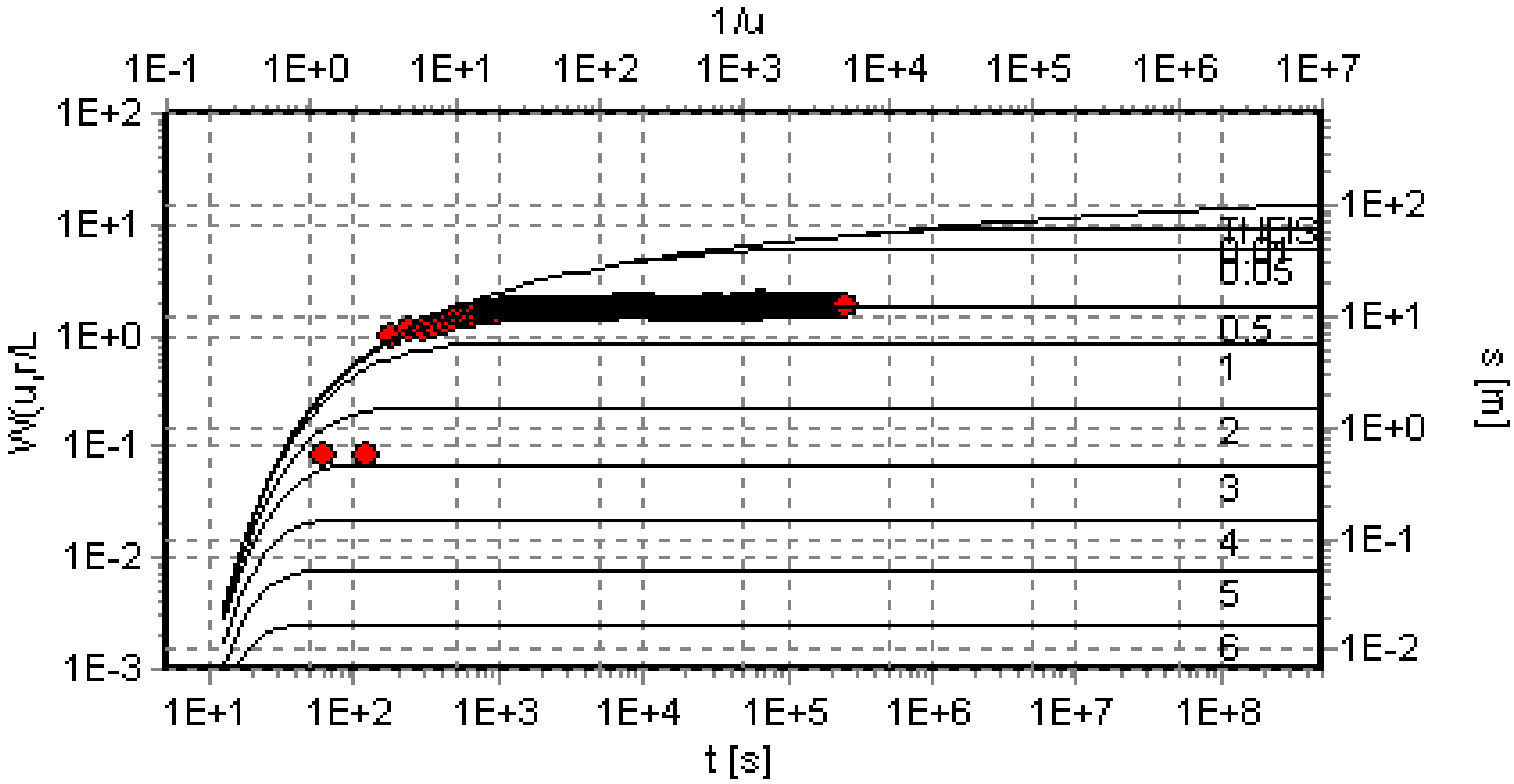


Figure F2-1-28 - 72-Hour Pumping Test
GLL BH-5 - Walton Curve Fitting



Transmissivity: 1.78E-4 m²/s
Conductivity: 4.18E-6 m/s

Storativity: 4.47E-3
c: 4.49E+8 s

Figure F2-1-29 - 72-Hour Pumping Test
GLL BH-6 - Time - Drawdown

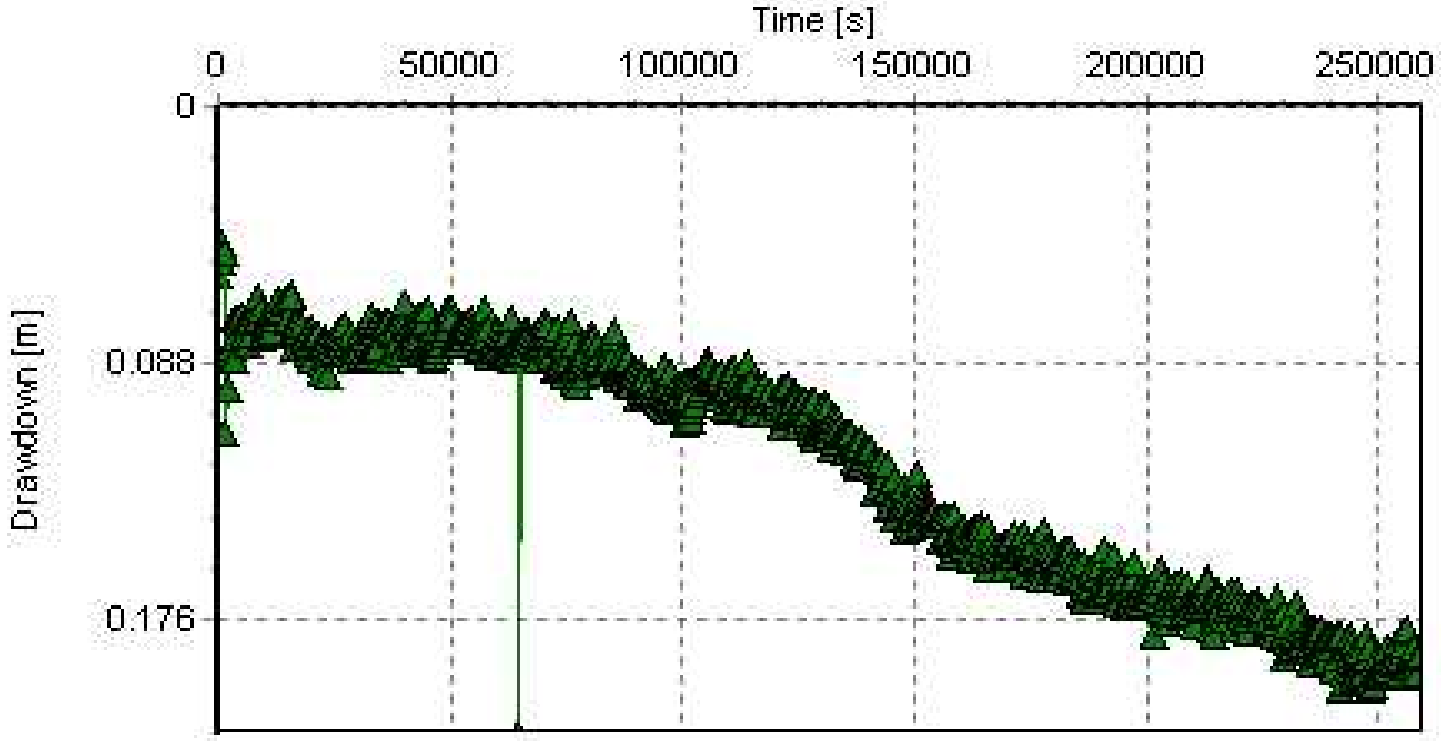
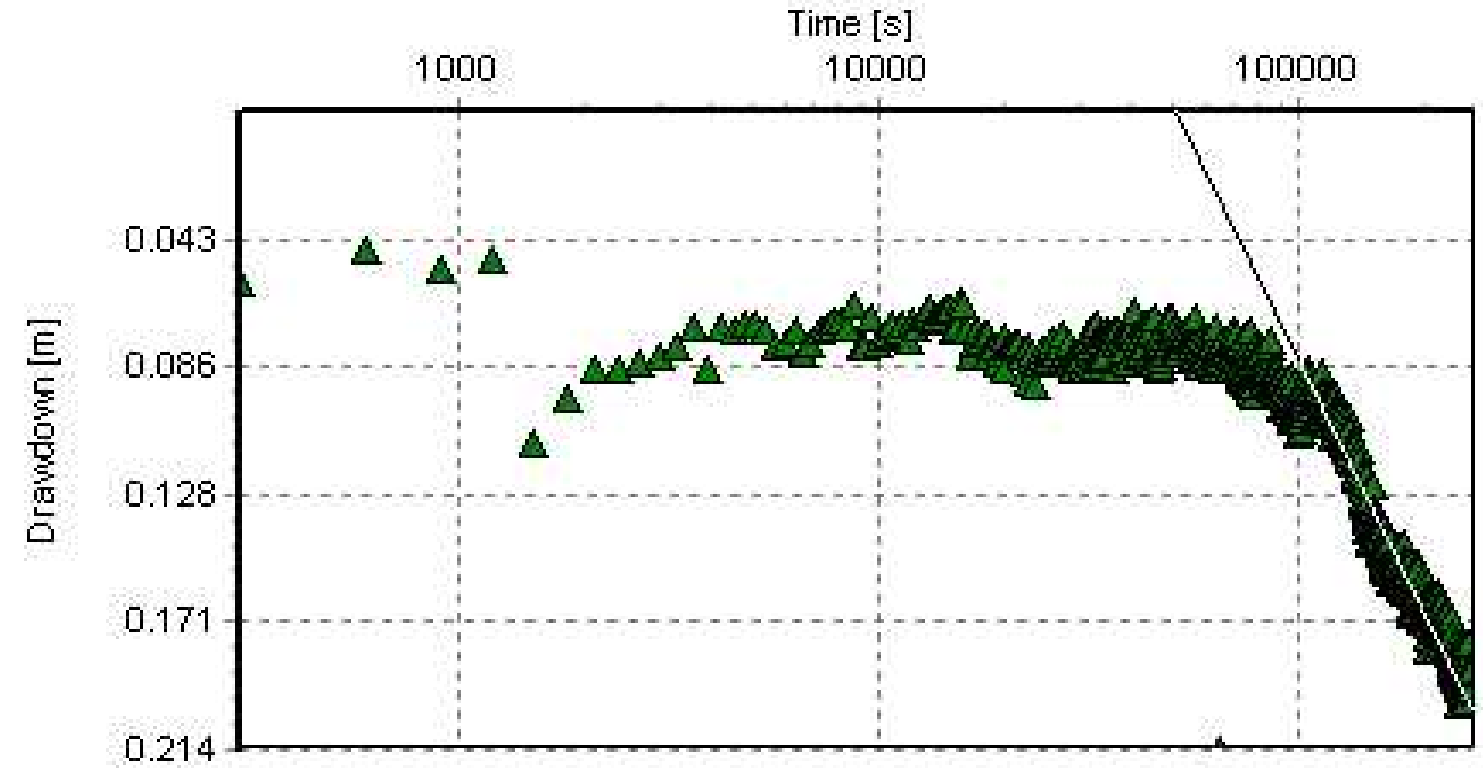


Figure F2-1-30 - 72-Hour Pumping Test
GLL BH-6 - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 9.71E-3 m²/s
Conductivity: 2.27E-4 m/s

Storativity: 5.43E-3

Figure F2-1-31 - 72-Hour Pumping Test
GLL BH-7 - Time - Drawdown

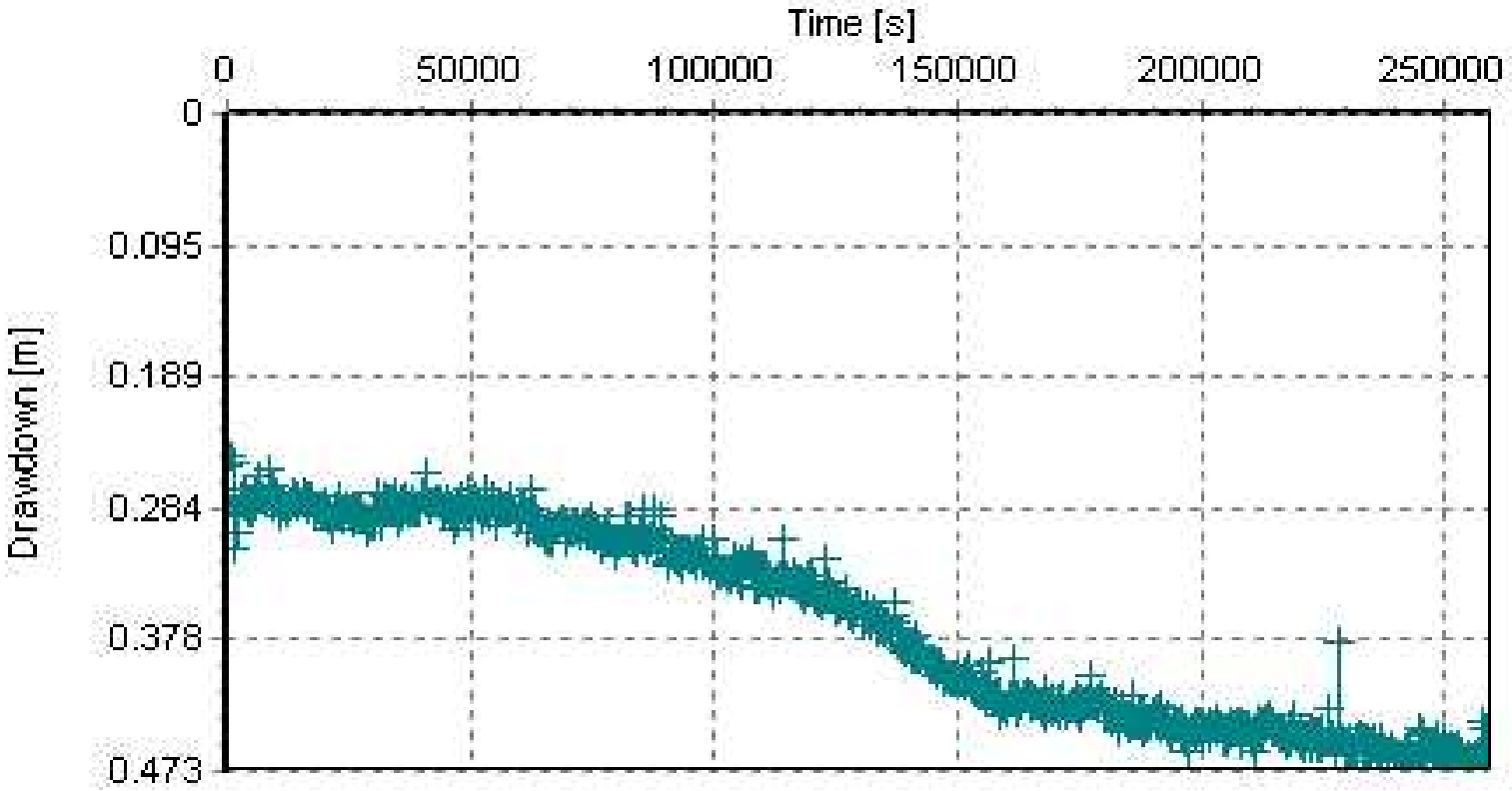
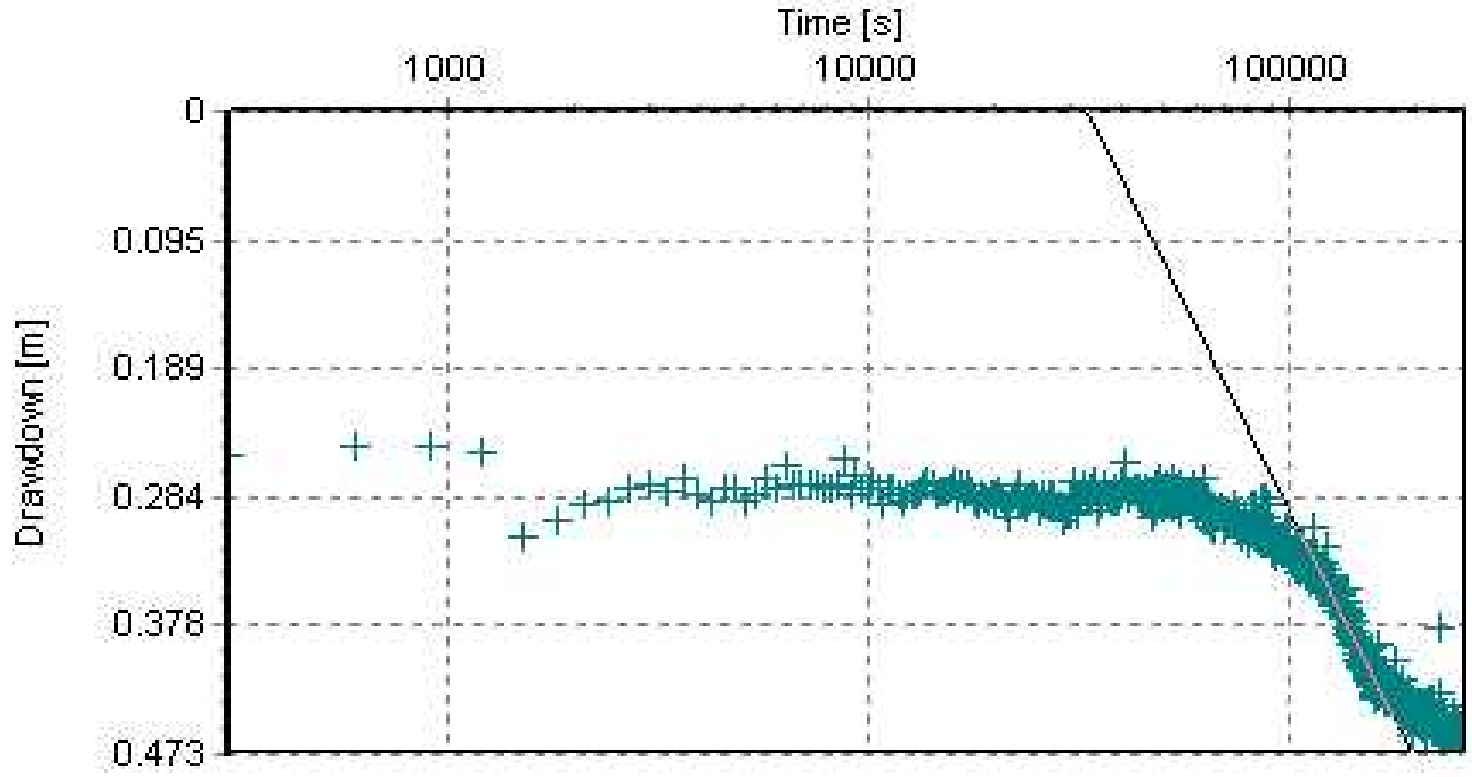


Figure F2-1-32 - 72-Hour Pumping Test
GLL BH-7 - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 4.54E-3 m²/s
Conductivity: 1.06E-4 m/s

Storativity: 1.54E-3

Figure F2-1-33 - 72-Hour Pumping Test
JEGEL BH-C - Time - Drawdown

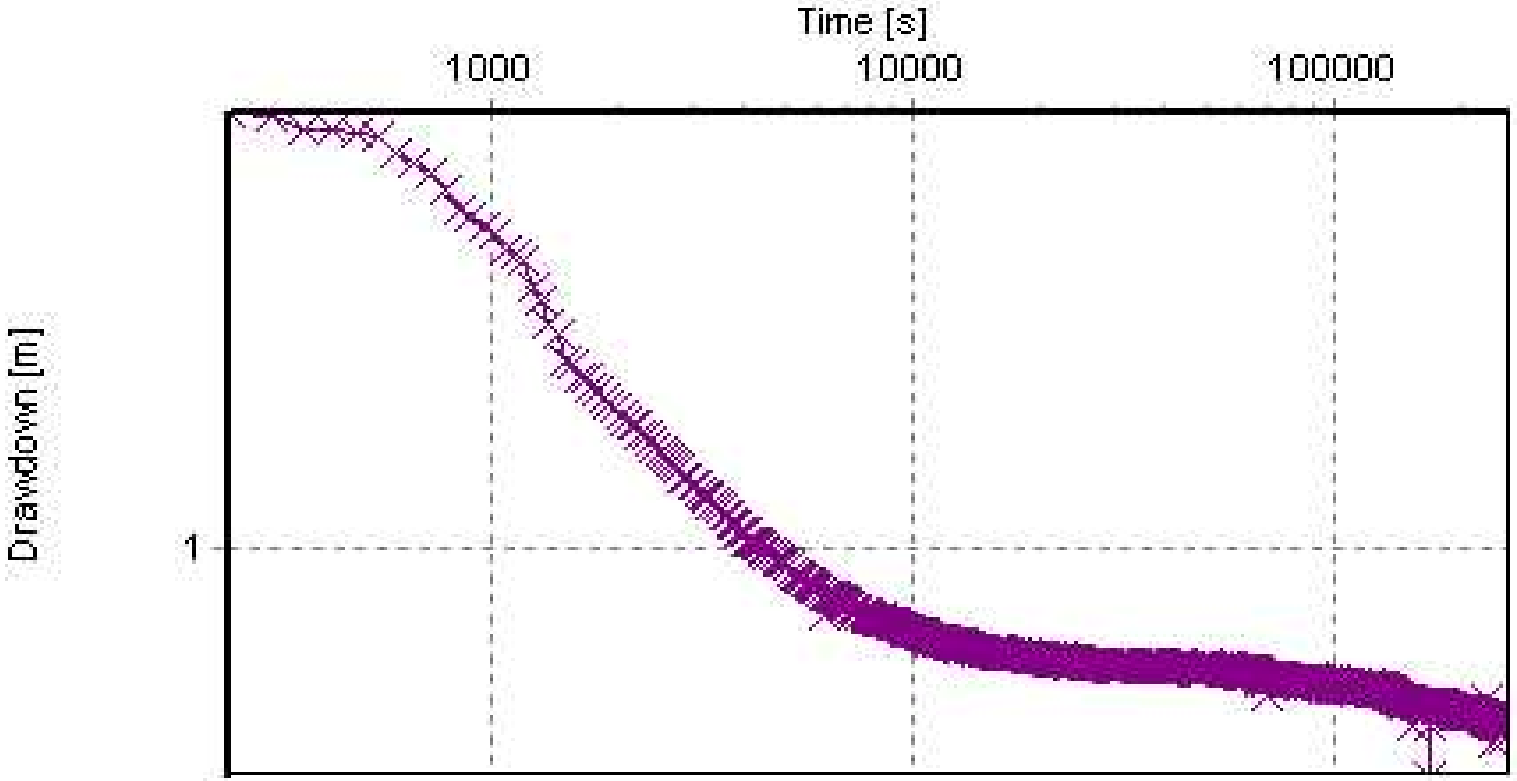
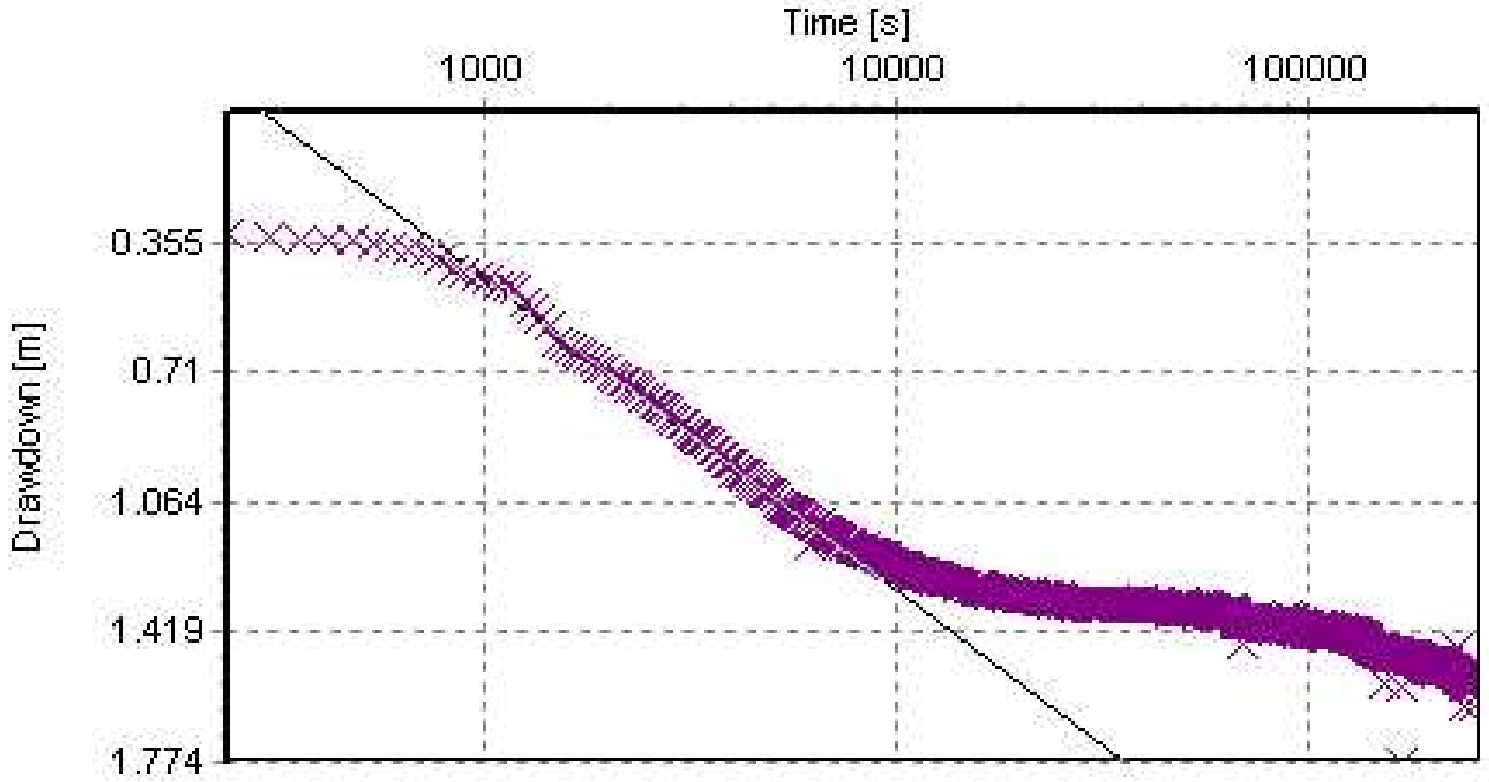


Figure F2-1-34 - 72-Hour Pumping Test
JEGEL BH-C - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 3.27E-3 m²/s
Conductivity: 7.66E-5 m/s

Storativity: 4.18E-5

Figure F2-1-35 - 72-Hour Pumping Test
JEGEL BH-F - Time - Drawdown

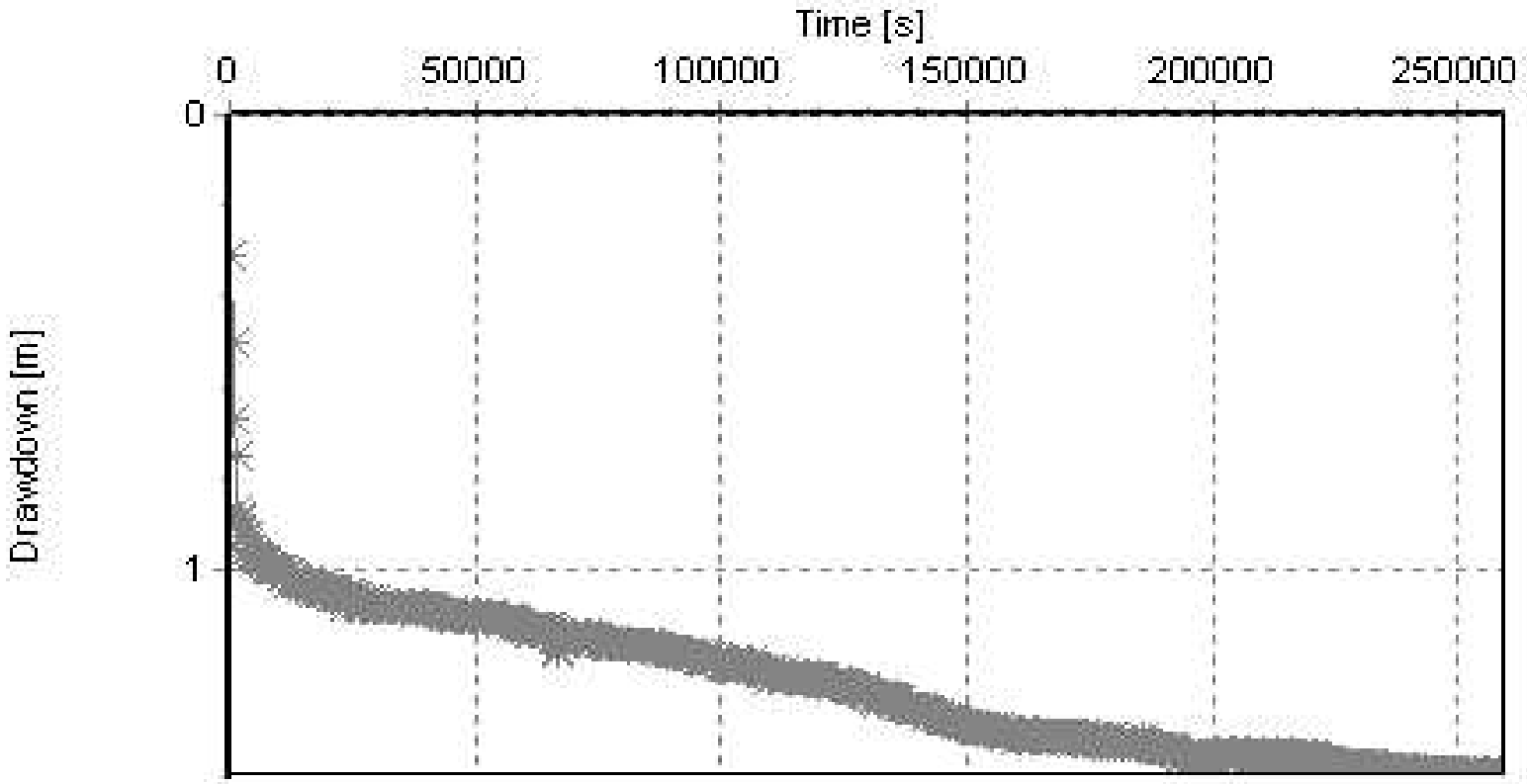
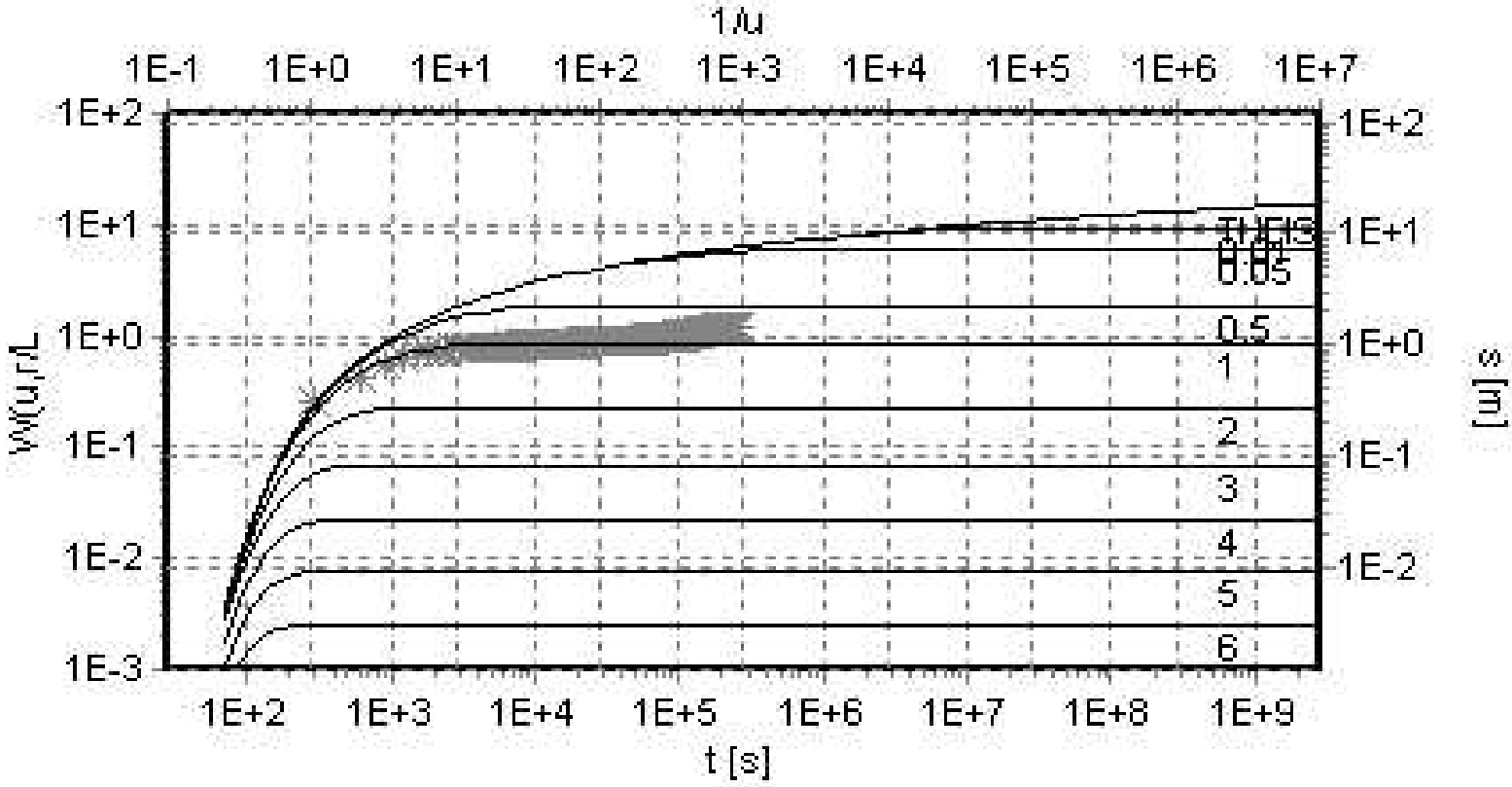


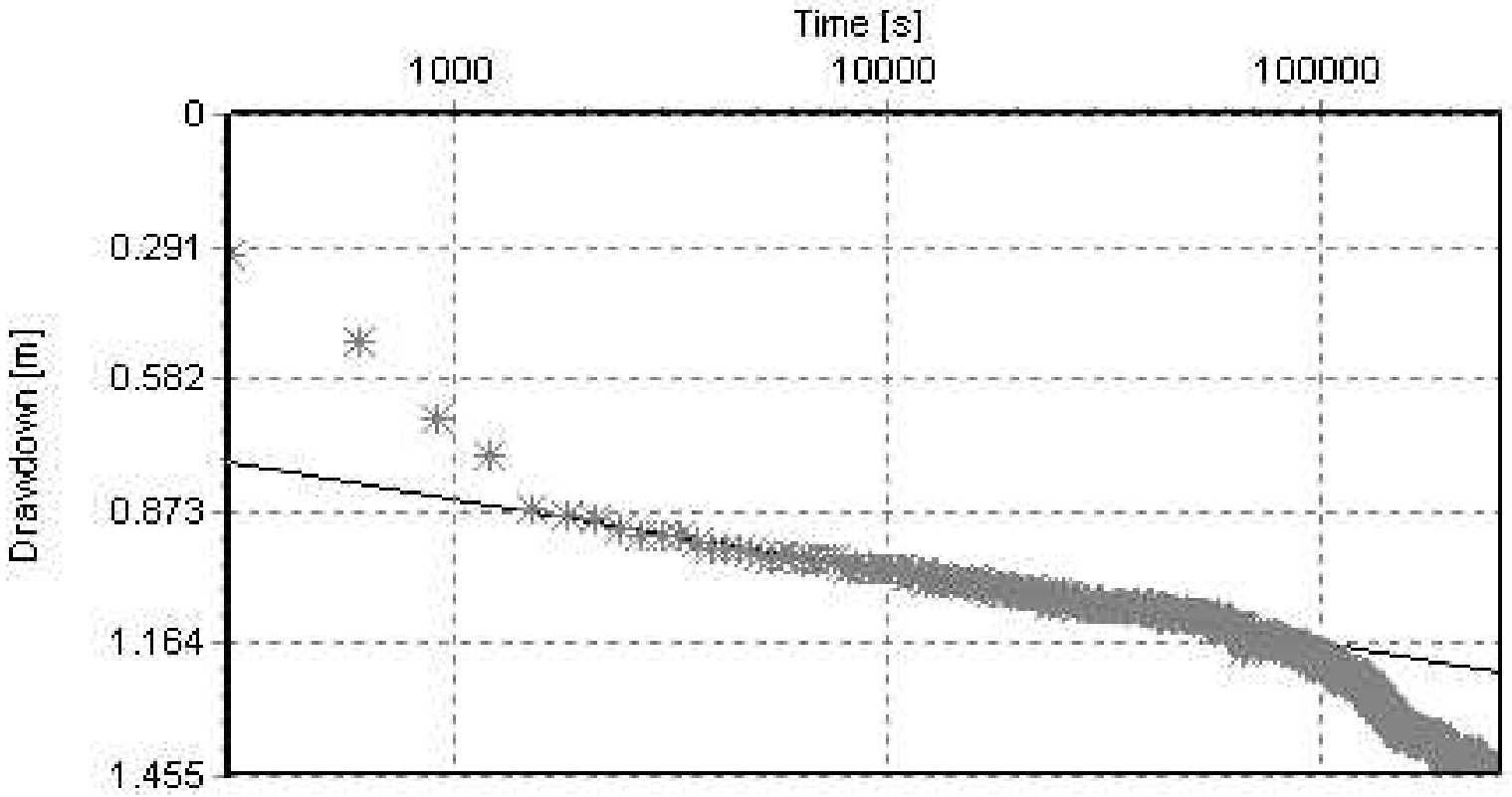
Figure F2-1-36 - 72-Hour Pumping Test
JEGEL BH-F - Walton Curve Fitting



Transmissivity: 1.00E-3 m²/s
Conductivity: 2.35E-5 m/s

Storativity: 2.07E-5
c: 5.44E+11 s

Figure E-2-37 - 72-Hour Pumping Test
JEGEL BH-F - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 1.76E-2 m²/s
Conductivity: 4.13E-4 m/s

Storativity: 3.06E-9

Gartner Lee

Table F2-1-1
Atmospheric Pressure and Temperature
72-Hour Pumping Test

No.	Date	Time	Atm. Pressure (cm)	Temperature (DegC)
1	4/19/2004	9:00:00	74.8	23.36
61	4/19/2004	14:00:00	73.4	21.41
121	4/19/2004	19:00:00	77.4	6.7
181	4/20/2004	0:00:00	84.1	5.96
241	4/20/2004	5:00:00	85	5.76
301	4/20/2004	10:00:00	86.3	5.64
361	4/20/2004	15:00:00	84.4	7.5
421	4/20/2004	20:00:00	81.3	5.58
481	4/21/2004	1:00:00	76.9	5.12
541	4/21/2004	6:00:00	71.9	5.15
601	4/21/2004	11:00:00	69.4	5.88
661	4/21/2004	16:00:00	68.1	5.7
721	4/21/2004	21:00:00	68.7	5.86
781	4/22/2004	2:00:00	71.8	5.75
841	4/22/2004	7:00:00	78.2	5.86
901	4/22/2004	12:00:00	82.7	5.9
961	4/22/2004	17:00:00	83.1	5.83
1021	4/22/2004	22:00:00	84.3	5.72
1081	4/23/2004	3:00:00	82.9	5.5
1141	4/23/2004	8:00:00	84.3	5.68
1201	4/23/2004	13:00:00	84.2	6.44
1261	4/23/2004	18:00:00	80.6	5.65
1321	4/23/2004	23:00:00	81.9	5.6
1381	4/24/2004	4:00:00	84.6	5.6
1441	4/24/2004	9:00:00	87.9	5.59
1501	4/24/2004	14:00:00	88.9	5.59
1561	4/24/2004	19:00:00	89	5.59
1621	4/25/2004	0:00:00	87.9	5.58
1681	4/25/2004	5:00:00	84.1	5.59
1741	4/25/2004	10:00:00	80.8	5.62
1801	4/25/2004	15:00:00	74.9	5.6
1861	4/25/2004	20:00:00	72.1	5.6
1921	4/26/2004	1:00:00	71.2	5.62
1981	4/26/2004	6:00:00	73	5.62
2041	4/26/2004	11:00:00	76.9	8.02
2101	4/26/2004	16:00:00	96.2	21.14
2161	4/26/2004	21:00:00	97.5	17.51
2221	4/27/2004	2:00:00	96.3	10.34
2281	4/27/2004	7:00:00	96.2	6.12

Note: Data collected every 5 mins but reported in the present table every 5 hrs.

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Table F2-1-2 - GLL BH 1-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level - Manual Meas. (mbtop)	Water Level (mbtop)
25	4/19/2004	11:00:00	9.49		
85	4/19/2004	16:00:00	6.46		0.821
145	4/19/2004	21:00:00	6.41		0.858
205	4/20/2004	2:00:00	6.4		0.869
265	4/20/2004	7:00:00	6.39		0.87
325	4/20/2004	12:00:00	6.37	0.89	0.882
385	4/20/2004	17:00:00	6.32		0.881
445	4/20/2004	22:00:00	6.35		0.876
505	4/21/2004	3:00:00	6.32		0.855
565	4/21/2004	8:00:00	6.36		0.845
625	4/21/2004	13:00:00	6.42		0.849
685	4/21/2004	18:00:00	6.42		0.844
745	4/21/2004	23:00:00	6.42		0.838
805	4/22/2004	4:00:00	6.41		0.844
865	4/22/2004	9:00:00	6.42		0.873
925	4/22/2004	14:00:00	6.42		0.877
985	4/22/2004	19:00:00	6.41		0.874
1045	4/23/2004	0:00:00	6.42		0.876
1105	4/23/2004	5:00:00	6.45		0.875
1165	4/23/2004	10:00:00	6.45		0.885
1225	4/23/2004	15:00:00	6.45		0.881
1285	4/23/2004	20:00:00	6.49		0.874
1345	4/24/2004	1:00:00	6.46		0.881
1405	4/24/2004	6:00:00	6.47		0.898
1465	4/24/2004	11:00:00	6.5		0.914
1525	4/24/2004	16:00:00	6.52		0.913
1585	4/24/2004	21:00:00	6.53		0.914
1645	4/25/2004	2:00:00	6.51		0.912
1705	4/25/2004	7:00:00	6.55		0.906
1765	4/25/2004	12:00:00	6.56		0.891
1825	4/25/2004	17:00:00	6.58		0.865
1885	4/25/2004	22:00:00	6.55		0.861
1945	4/26/2004	3:00:00	6.56		0.868
2005	4/26/2004	8:00:00	6.61		0.892

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-3 - GLL BH 1-S
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Levels - Manual Meas. (mbtop)	Water Level (mbtop)
24	4/19/2004	10:55:00	7.37	1.13	1.13
84	4/19/2004	15:55:00	5.83		1.133
144	4/19/2004	20:55:00	5.81		1.156
204	4/20/2004	1:55:00	5.77		1.189
264	4/20/2004	6:55:00	5.8		1.202
324	4/20/2004	11:55:00	5.77		1.2
384	4/20/2004	16:55:00	5.85		1.187
444	4/20/2004	21:55:00	5.87		1.178
504	4/21/2004	2:55:00	5.87		1.161
564	4/21/2004	7:55:00	5.99		1.155
624	4/21/2004	12:55:00	5.93		1.151
684	4/21/2004	17:55:00	5.86		1.144
744	4/21/2004	22:55:00	5.9		1.102
804	4/22/2004	3:55:00	5.85		1.118
864	4/22/2004	8:55:00	5.88		1.15
924	4/22/2004	13:55:00	5.86		1.174
984	4/22/2004	18:55:00	5.84		1.179
1044	4/22/2004	23:55:00	6.01		1.181
1104	4/23/2004	4:55:00	5.96		1.178
1164	4/23/2004	9:55:00	6.01		1.186
1224	4/23/2004	14:55:00	5.97		1.182
1284	4/23/2004	19:55:00	6.04		1.189
1344	4/24/2004	0:55:00	6.01		1.194
1404	4/24/2004	5:55:00	6.04		1.209
1464	4/24/2004	10:55:00	6.02		1.238
1524	4/24/2004	15:55:00	6.03		1.228
1584	4/24/2004	20:55:00	6.11		1.238
1644	4/25/2004	1:55:00	6.05		1.236
1704	4/25/2004	6:55:00	6.05		1.237
1764	4/25/2004	11:55:00	6.08		1.214
1824	4/25/2004	16:55:00	5.99		1.163
1884	4/25/2004	21:55:00	5.97		1.169
1944	4/26/2004	2:55:00	6.05		1.18
2004	4/26/2004	7:55:00	6.07		1.204

Note: Data collected every 5 mins but reported in the present table every 5 hrs

Gartner Lee

Table F2-1-4 - GLL BH 3-S
Water Levels
72-Hour Pumping Test

No.	Date	Time	Water Levels - Manual Meas. (mbtop)	Water Level (mbtop)
1	4/19/2004	21:00:00	1.33	1.33
61	4/20/2004	2:00:00		1.373
121	4/20/2004	7:00:00		1.388
181	4/20/2004	12:00:00		1.391
241	4/20/2004	17:00:00		1.373
301	4/20/2004	22:00:00		1.341
361	4/21/2004	3:00:00		1.291
421	4/21/2004	8:00:00		1.293
481	4/21/2004	13:00:00		1.287
541	4/21/2004	18:00:00		1.288
601	4/21/2004	23:00:00		1.256
661	4/22/2004	4:00:00		1.273
721	4/22/2004	9:00:00		1.338
781	4/22/2004	14:00:00		1.361
841	4/22/2004	19:00:00		1.366
901	4/23/2004	0:00:00		1.366
961	4/23/2004	5:00:00		1.366
1021	4/23/2004	10:00:00		1.374
1081	4/23/2004	15:00:00		1.355
1141	4/23/2004	20:00:00		1.345
1201	4/24/2004	1:00:00		1.354
1261	4/24/2004	6:00:00		1.386
1321	4/24/2004	11:00:00		1.423
1381	4/24/2004	16:00:00		1.417
1441	4/24/2004	21:00:00		1.423
1501	4/25/2004	2:00:00		1.404
1561	4/25/2004	7:00:00		1.38
1621	4/25/2004	12:00:00		1.327
1681	4/25/2004	17:00:00		1.286
1741	4/25/2004	22:00:00		1.287
1801	4/26/2004	3:00:00		1.294
1861	4/26/2004	8:00:00		1.296

Note: Data Collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-5 - GLL BH 4-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
101	4/19/2004	17:20:00	17.66	
161	4/19/2004	22:20:00	8.08	1.708
221	4/20/2004	3:20:00	8.1	1.729
281	4/20/2004	8:20:00	8.12	1.757
341	4/20/2004	13:20:00	8.16	1.848
401	4/20/2004	18:20:00	8.17	1.863
461	4/20/2004	23:20:00	8.16	1.892
521	4/21/2004	4:20:00	8.18	1.876
581	4/21/2004	9:20:00	8.18	1.879
641	4/21/2004	14:20:00	8.25	1.882
701	4/21/2004	19:20:00	8.24	1.92
761	4/22/2004	0:20:00	8.25	1.934
821	4/22/2004	5:20:00	8.25	1.96
881	4/22/2004	10:20:00	8.27	2.005
941	4/22/2004	15:20:00	8.25	2.013
1001	4/22/2004	20:20:00	8.27	2.029
1061	4/23/2004	1:20:00	8.27	2.041
1121	4/23/2004	6:20:00	8.27	2.051
1181	4/23/2004	11:20:00	8.28	2.054
1241	4/23/2004	16:20:00	8.28	1.998
1301	4/23/2004	21:20:00	8.3	1.937
1361	4/24/2004	2:20:00	8.29	1.933
1421	4/24/2004	7:20:00	8.3	1.95
1481	4/24/2004	12:20:00	8.29	1.962
1541	4/24/2004	17:20:00	8.28	1.939
1601	4/24/2004	22:20:00	8.3	1.954
1661	4/25/2004	3:20:00	8.28	1.926
1721	4/25/2004	8:20:00	8.28	1.914
1781	4/25/2004	13:20:00	8.27	1.87
1841	4/25/2004	18:20:00	8.31	1.85
1901	4/25/2004	23:20:00	8.29	1.841
1961	4/26/2004	4:20:00	8.3	1.87
2021	4/26/2004	9:20:00	8.28	1.895

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-6 - GLL BH 4-S
Water Levels
72-Hour Pumping Test

No.	Date	Time	Water Level (mbtop)
103	4/19/2004	17:30:00	1.618
163	4/19/2004	22:30:00	1.68
223	4/20/2004	3:30:00	1.701
283	4/20/2004	8:30:00	1.721
343	4/20/2004	13:30:00	1.708
403	4/20/2004	18:30:00	1.674
463	4/20/2004	23:30:00	1.646
523	4/21/2004	4:30:00	1.593
583	4/21/2004	9:30:00	1.554
643	4/21/2004	14:30:00	1.539
703	4/21/2004	19:30:00	1.546
763	4/22/2004	0:30:00	1.566
823	4/22/2004	5:30:00	1.608
883	4/22/2004	10:30:00	1.675
943	4/22/2004	15:30:00	1.682
1003	4/22/2004	20:30:00	1.689
1063	4/23/2004	1:30:00	1.687
1123	4/23/2004	6:30:00	1.691
1183	4/23/2004	11:30:00	1.696
1243	4/23/2004	16:30:00	1.67
1303	4/23/2004	21:30:00	1.677
1363	4/24/2004	2:30:00	1.695
1423	4/24/2004	7:30:00	1.723
1483	4/24/2004	12:30:00	1.747
1543	4/24/2004	17:30:00	1.74
1603	4/24/2004	22:30:00	1.747
1663	4/25/2004	3:30:00	1.729
1723	4/25/2004	8:30:00	1.679
1783	4/25/2004	13:30:00	1.622
1843	4/25/2004	18:30:00	1.587
1903	4/25/2004	23:30:00	1.568
1963	4/26/2004	4:30:00	1.566
2023	4/26/2004	9:30:00	1.608

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-7 - TW-10
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
470	4/19/2004	16:49:00	16.3	7.38
530	4/19/2004	17:49:00	8.61	8.078
590	4/19/2004	18:49:00	8.65	7.814
650	4/19/2004	19:49:00	8.65	7.609
710	4/19/2004	20:49:00	8.65	7.618
770	4/19/2004	21:49:00	8.68	7.624
830	4/19/2004	22:49:00	8.63	7.634
890	4/19/2004	23:49:00	8.65	7.642
950	4/20/2004	0:49:00	8.65	7.648
1010	4/20/2004	1:49:00	8.67	7.638
1070	4/20/2004	2:49:00	8.65	7.645
1130	4/20/2004	3:49:00	8.63	7.649
1190	4/20/2004	4:49:00	8.65	7.652
1250	4/20/2004	5:49:00	8.63	7.652
1310	4/20/2004	6:49:00	8.66	7.663
1370	4/20/2004	7:49:00	8.63	7.656
1430	4/20/2004	8:49:00	8.65	7.661
1490	4/20/2004	9:49:00	8.66	7.653
1550	4/20/2004	10:49:00	8.71	10.337
1610	4/20/2004	11:49:00	8.74	18.569
1670	4/20/2004	12:49:00	8.73	29.599
1730	4/20/2004	13:49:00	8.7	10.034
1797	4/20/2004	14:56:00	8.71	8.033
1857	4/20/2004	15:56:00	8.71	19.017
1917	4/20/2004	16:56:00	8.71	19.312
1977	4/20/2004	17:56:00	8.74	19.371
2037	4/20/2004	18:56:00	8.71	19.267
2097	4/20/2004	19:56:00	8.73	19.247
2157	4/20/2004	20:56:00	8.74	19.254
2217	4/20/2004	21:56:00	8.73	19.21
2277	4/20/2004	22:56:00	8.72	19.283
2337	4/20/2004	23:56:00	8.74	19.303
2397	4/21/2004	0:56:00	8.72	19.308
2457	4/21/2004	1:56:00	8.74	19.292
2517	4/21/2004	2:56:00	8.73	19.305
2577	4/21/2004	3:56:00	8.75	19.353
2637	4/21/2004	4:56:00	8.75	19.309
2697	4/21/2004	5:56:00	8.75	19.298
2757	4/21/2004	6:56:00	8.74	19.34
2816	4/21/2004	7:55:00	8.75	19.455
2876	4/21/2004	8:55:00	8.75	19.306
2936	4/21/2004	9:55:00	8.75	20.379
2996	4/21/2004	10:55:00	8.75	19.463
3056	4/21/2004	11:55:00	8.77	19.425

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Table F2-1-7 - TW-10
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
3116	4/21/2004	12:55:00	8.77	19.498
3176	4/21/2004	13:55:00	8.77	19.447
3236	4/21/2004	14:55:00	8.74	19.469
3296	4/21/2004	15:55:00	8.74	19.454
3356	4/21/2004	16:55:00	8.75	19.449
3416	4/21/2004	17:55:00	8.75	19.458
3476	4/21/2004	18:55:00	8.75	19.463
3536	4/21/2004	19:55:00	8.77	19.489
3596	4/21/2004	20:55:00	8.75	19.476
3656	4/21/2004	21:55:00	8.75	19.505
3716	4/21/2004	22:55:00	8.77	19.504
3776	4/21/2004	23:55:00	8.77	19.495
3836	4/22/2004	0:55:00	8.74	19.499
3896	4/22/2004	1:55:00	8.77	19.526
3956	4/22/2004	2:55:00	8.77	19.535
4016	4/22/2004	3:55:00	8.77	19.545
4076	4/22/2004	4:55:00	8.77	19.562
4136	4/22/2004	5:55:00	8.77	19.583
4196	4/22/2004	6:55:00	8.78	19.596
4256	4/22/2004	7:55:00	8.78	19.613
4316	4/22/2004	8:55:00	8.79	19.623
4376	4/22/2004	9:55:00	8.77	19.619
4436	4/22/2004	10:55:00	8.75	19.626
4496	4/22/2004	11:55:00	8.75	19.629
4556	4/22/2004	12:55:00	8.78	19.623
4616	4/22/2004	13:55:00	8.78	19.631
4664	4/22/2004	14:43:00	8.75	19.637
4724	4/22/2004	15:43:00	8.74	19.633
4784	4/22/2004	16:43:00	8.75	19.644
4844	4/22/2004	17:43:00	8.75	19.64
4904	4/22/2004	18:43:00	8.75	19.641
4964	4/22/2004	19:43:00	8.75	19.731
5024	4/22/2004	20:43:00	8.75	19.771
5084	4/22/2004	21:43:00	8.75	19.791
5144	4/22/2004	22:43:00	8.77	19.808
5204	4/22/2004	23:43:00	8.77	19.723
5264	4/23/2004	0:43:00	8.77	19.721
5324	4/23/2004	1:43:00	8.77	19.715
5384	4/23/2004	2:43:00	8.77	19.709
5444	4/23/2004	3:43:00	8.77	19.703
5504	4/23/2004	4:43:00	8.77	19.763
5564	4/23/2004	5:43:00	8.77	19.776
5624	4/23/2004	6:43:00	8.78	19.793
5684	4/23/2004	7:43:00	8.78	19.802
5744	4/23/2004	8:43:00	8.77	19.829

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Table F2-1-7 - TW-10
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
5804	4/23/2004	9:43:00	8.79	19.802
5864	4/23/2004	10:43:00	8.77	19.844
5924	4/23/2004	11:43:00	8.79	19.826
5984	4/23/2004	12:43:00	8.79	19.838
6044	4/23/2004	13:43:00	8.8	19.84
6104	4/23/2004	14:43:00	8.79	19.836
6164	4/23/2004	15:43:00	8.77	10.108
6224	4/23/2004	16:43:00	8.75	9.082
6284	4/23/2004	17:43:00	8.74	8.909
6344	4/23/2004	18:43:00	8.73	8.78
6404	4/23/2004	19:43:00	8.71	8.724
6464	4/23/2004	20:43:00	8.74	8.676
6524	4/23/2004	21:43:00	8.72	8.629
6584	4/23/2004	22:43:00	8.73	8.594
6644	4/23/2004	23:43:00	8.73	8.56
6704	4/24/2004	0:43:00	8.71	8.538
6764	4/24/2004	1:43:00	8.71	8.51
6824	4/24/2004	2:43:00	8.71	8.489
6884	4/24/2004	3:43:00	8.72	8.461
6944	4/24/2004	4:43:00	8.73	8.464
6992	4/24/2004	5:31:00	8.71	8.439
7052	4/24/2004	6:31:00	8.72	8.424
7112	4/24/2004	7:31:00	8.74	8.419
7172	4/24/2004	8:31:00	8.71	8.393
7232	4/24/2004	9:31:00	8.72	8.377
7292	4/24/2004	10:31:00	8.72	8.369
7352	4/24/2004	11:31:00	8.73	8.368
7412	4/24/2004	12:31:00	8.74	8.351
7472	4/24/2004	13:31:00	8.75	8.346
7532	4/24/2004	14:31:00	8.73	8.333
7592	4/24/2004	15:31:00	8.75	8.317
7652	4/24/2004	16:31:00	8.84	8.307
7712	4/24/2004	17:31:00	8.75	8.288
7772	4/24/2004	18:31:00	8.73	8.288
7832	4/24/2004	19:31:00	8.75	8.275
7892	4/24/2004	20:31:00	8.75	8.273
7952	4/24/2004	21:31:00	8.75	8.255
8012	4/24/2004	22:31:00	8.75	8.247
8072	4/24/2004	23:31:00	8.74	8.237
8132	4/25/2004	0:31:00	8.73	8.229
8192	4/25/2004	1:31:00	8.75	8.227
8252	4/25/2004	2:31:00	8.73	8.202
8312	4/25/2004	3:31:00	8.71	8.201
8372	4/25/2004	4:31:00	8.69	8.193
8432	4/25/2004	5:31:00	8.72	8.178

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Table F2-1-7 - TW-10
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
8492	4/25/2004	6:31:00	8.71	8.163
8552	4/25/2004	7:31:00	8.72	8.154
8612	4/25/2004	8:31:00	8.71	8.15
8672	4/25/2004	9:31:00	8.73	8.122
8732	4/25/2004	10:31:00	8.71	8.129
8792	4/25/2004	11:31:00	8.7	8.097
8852	4/25/2004	12:31:00	8.71	8.097
8912	4/25/2004	13:31:00	8.7	8.094
8972	4/25/2004	14:31:00	8.72	8.072
9032	4/25/2004	15:31:00	8.71	8.071
9092	4/25/2004	16:31:00	8.71	8.061
9152	4/25/2004	17:31:00	8.7	8.061
9212	4/25/2004	18:31:00	8.71	8.054
9272	4/25/2004	19:31:00	8.71	8.044
9320	4/25/2004	20:19:00	8.71	8.047
9380	4/25/2004	21:19:00	8.71	8.022
9440	4/25/2004	22:19:00	8.71	8.031
9500	4/25/2004	23:19:00	8.7	8.024
9560	4/26/2004	0:19:00	8.71	8.037
9620	4/26/2004	1:19:00	8.72	8.022
9680	4/26/2004	2:19:00	8.71	8.016
9740	4/26/2004	3:19:00	8.72	8.02
9800	4/26/2004	4:19:00	8.72	8.018
9860	4/26/2004	5:19:00	8.71	8.018
9920	4/26/2004	6:19:00	8.71	8.025
9980	4/26/2004	7:19:00	8.71	8.038
10040	4/26/2004	8:19:00	8.74	8.046
10100	4/26/2004	9:19:00	8.71	8.027

Note: Data collected every min but reported in the present table every hour

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Table F2-1-8 - GLL BH 6-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
90	4/19/2004	16:25:00	18.31	2.192
150	4/19/2004	21:25:00	5.86	2.3
210	4/20/2004	2:25:00	5.84	2.325
270	4/20/2004	7:25:00	5.84	2.325
330	4/20/2004	12:25:00	5.78	2.327
390	4/20/2004	17:25:00	5.85	2.358
450	4/20/2004	22:25:00	5.82	2.363
510	4/21/2004	3:25:00	5.82	2.351
570	4/21/2004	8:25:00	5.85	2.364
630	4/21/2004	13:25:00	5.82	2.372
690	4/21/2004	18:25:00	5.82	2.375
750	4/21/2004	23:25:00	5.77	2.385
810	4/22/2004	4:25:00	5.8	2.386
870	4/22/2004	9:25:00	5.8	2.405
930	4/22/2004	14:25:00	5.82	2.431
990	4/22/2004	19:25:00	5.84	2.436
1050	4/23/2004	0:25:00	5.83	2.448
1110	4/23/2004	5:25:00	5.82	2.451
1170	4/23/2004	10:25:00	5.85	2.461
1230	4/23/2004	15:25:00	5.82	2.467
1290	4/23/2004	20:25:00	5.88	2.453
1350	4/24/2004	1:25:00	5.94	2.458
1410	4/24/2004	6:25:00	5.92	2.462
1470	4/24/2004	11:25:00	5.95	2.469
1530	4/24/2004	16:25:00	5.93	2.475
1590	4/24/2004	21:25:00	6	2.471
1650	4/25/2004	2:25:00	6	2.472
1710	4/25/2004	7:25:00	6	2.463
1770	4/25/2004	12:25:00	6	2.445
1830	4/25/2004	17:25:00	6.02	2.423
1890	4/25/2004	22:25:00	6.03	2.421
1950	4/26/2004	3:25:00	6.02	2.431
2010	4/26/2004	8:25:00	6.06	2.448

Note: Data collected every 5 mins but reoprted in the present table every 5 hours.

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Table F2-1-9 - GLL BH 6-S
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
91	4/19/2004	16:30:00	7.91	2.547
408	4/20/2004	18:55:00	5.18	2.567
468	4/20/2004	23:55:00	5.15	2.571
528	4/21/2004	4:55:00	5.18	2.561
588	4/21/2004	9:55:00	5.19	2.584
648	4/21/2004	14:55:00	5.2	2.586
708	4/21/2004	19:55:00	5.19	2.598
768	4/22/2004	0:55:00	5.22	2.594
828	4/22/2004	5:55:00	5.22	2.62
888	4/22/2004	10:55:00	5.24	2.638
948	4/22/2004	15:55:00	5.26	2.641
1008	4/22/2004	20:55:00	5.22	2.652
1068	4/23/2004	1:55:00	5.24	2.658
1128	4/23/2004	6:55:00	5.26	2.66
1188	4/23/2004	11:55:00	5.29	2.67
1248	4/23/2004	16:55:00	5.25	2.662
1308	4/23/2004	21:55:00	5.29	2.666
1368	4/24/2004	2:55:00	5.3	2.676
1428	4/24/2004	7:55:00	5.31	2.684
1488	4/24/2004	12:55:00	5.31	2.691
1548	4/24/2004	17:55:00	5.31	2.691
1608	4/24/2004	22:55:00	5.33	2.69
1668	4/25/2004	3:55:00	5.33	2.689
1728	4/25/2004	8:55:00	5.32	2.668
1788	4/25/2004	13:55:00	5.35	2.653
1848	4/25/2004	18:55:00	5.33	2.644
1908	4/25/2004	23:55:00	5.35	2.638
1968	4/26/2004	4:55:00	5.35	2.647
2028	4/26/2004	9:55:00	5.34	2.664

Note: Data collected every 5 mins but reported in the present table every 5 hours

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Table F2-1-10 - GLL BH 7-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
85	4/19/2004	16:00:00	12.67	2.06
145	4/19/2004	21:00:00	8.37	2.247
205	4/20/2004	2:00:00	8.39	2.286
265	4/20/2004	7:00:00	8.39	2.301
325	4/20/2004	12:00:00	8.41	2.312
385	4/20/2004	17:00:00	8.39	2.342
445	4/20/2004	22:00:00	8.38	2.346
505	4/21/2004	3:00:00	8.39	2.345
565	4/21/2004	8:00:00	8.39	2.352
625	4/21/2004	13:00:00	8.39	2.367
685	4/21/2004	18:00:00	8.39	2.378
745	4/21/2004	23:00:00	8.41	2.393
805	4/22/2004	4:00:00	8.39	2.413
865	4/22/2004	9:00:00	8.38	2.467
925	4/22/2004	14:00:00	8.41	2.49
985	4/22/2004	19:00:00	8.41	2.503
1045	4/23/2004	0:00:00	8.39	2.495
1105	4/23/2004	5:00:00	8.41	2.507
1165	4/23/2004	10:00:00	8.41	2.515
1225	4/23/2004	15:00:00	8.41	2.52
1285	4/23/2004	20:00:00	8.35	2.482
1345	4/24/2004	1:00:00	8.41	2.483
1405	4/24/2004	6:00:00	8.42	2.475
1465	4/24/2004	11:00:00	8.42	2.504
1525	4/24/2004	16:00:00	8.41	2.49
1585	4/24/2004	21:00:00	8.41	2.496
1645	4/25/2004	2:00:00	8.42	2.489
1705	4/25/2004	7:00:00	8.42	2.473
1765	4/25/2004	12:00:00	8.43	2.44
1825	4/25/2004	17:00:00	8.41	2.415
1885	4/25/2004	22:00:00	8.41	2.423
1945	4/26/2004	3:00:00	8.41	2.421
2005	4/26/2004	8:00:00	8.41	2.445

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-11 - GLL BH 7-S
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
86	4/19/2004	16:05:00	8.61	2.92
146	4/19/2004	21:05:00	6.76	2.97
206	4/20/2004	2:05:00	6.74	2.978
266	4/20/2004	7:05:00	6.75	2.978
326	4/20/2004	12:05:00	6.75	2.976
386	4/20/2004	17:05:00	6.82	2.979
446	4/20/2004	22:05:00	6.83	2.974
506	4/21/2004	3:05:00	6.87	2.956
566	4/21/2004	8:05:00	6.85	2.955
626	4/21/2004	13:05:00	6.82	2.96
686	4/21/2004	18:05:00	6.83	2.966
746	4/21/2004	23:05:00	6.88	2.97
806	4/22/2004	4:05:00	6.85	2.989
866	4/22/2004	9:05:00	6.81	3.036
926	4/22/2004	14:05:00	6.85	3.04
986	4/22/2004	19:05:00	6.87	3.047
1046	4/23/2004	0:05:00	6.83	3.052
1106	4/23/2004	5:05:00	6.8	3.058
1166	4/23/2004	10:05:00	6.82	3.062
1226	4/23/2004	15:05:00	6.91	3.062
1286	4/23/2004	20:05:00	6.88	3.06
1346	4/24/2004	1:05:00	6.87	3.066
1406	4/24/2004	6:05:00	6.89	3.081
1466	4/24/2004	11:05:00	6.89	3.096
1526	4/24/2004	16:05:00	6.9	3.084
1586	4/24/2004	21:05:00	6.89	3.09
1646	4/25/2004	2:05:00	6.91	3.084
1706	4/25/2004	7:05:00	6.91	3.07
1766	4/25/2004	12:05:00	6.9	3.054
1826	4/25/2004	17:05:00	6.89	3.03
1886	4/25/2004	22:05:00	6.89	3.026
1946	4/26/2004	3:05:00	6.91	3.034
2006	4/26/2004	8:05:00	6.9	3.062

Note: Data collected every 5 mins but reported on the present table every 5 hrs

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Table F2-1-12 - GLL BH 8-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
14	4/19/2004	10:05:00	7.12	2.318
74	4/19/2004	15:05:00	5.65	2.296
134	4/19/2004	20:05:00	5.63	2.365
194	4/20/2004	1:05:00	5.66	2.423
254	4/20/2004	6:05:00	5.68	2.428
314	4/20/2004	11:05:00	5.68	2.445
374	4/20/2004	16:05:00	5.72	2.447
434	4/20/2004	21:05:00	5.68	2.388
494	4/21/2004	2:05:00	5.67	2.339
554	4/21/2004	7:05:00	5.66	2.29
614	4/21/2004	12:05:00	5.9	2.265
674	4/21/2004	17:05:00	5.84	2.262
734	4/21/2004	22:05:00	5.79	2.283
794	4/22/2004	3:05:00	5.78	2.304
854	4/22/2004	8:05:00	5.83	2.373
914	4/22/2004	13:05:00	5.84	2.406
974	4/22/2004	18:05:00	5.79	2.407
1034	4/22/2004	23:05:00	5.84	2.42
1094	4/23/2004	4:05:00	5.85	2.409
1154	4/23/2004	9:05:00	5.86	2.422
1214	4/23/2004	14:05:00	5.87	2.411
1274	4/23/2004	19:05:00	6.02	2.376
1334	4/24/2004	0:05:00	6	2.396
1394	4/24/2004	5:05:00	6.08	2.427
1454	4/24/2004	10:05:00	6.04	2.465
1514	4/24/2004	15:05:00	6.05	2.463
1574	4/24/2004	20:05:00	6.18	2.475
1634	4/25/2004	1:05:00	6.16	2.45
1694	4/25/2004	6:05:00	6.24	2.429
1754	4/25/2004	11:05:00	6.24	2.375
1814	4/25/2004	16:05:00	6.25	2.321
1874	4/25/2004	21:05:00	6.24	2.292
1934	4/26/2004	2:05:00	6.24	2.291
1994	4/26/2004	7:05:00	6.16	2.319
2054	4/26/2004	12:05:00	6.13	2.357

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-13 - GLL BH 8-S
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
15	4/19/2004	10:10:00	5.54	
75	4/19/2004	15:10:00	3.03	2.098
135	4/19/2004	20:10:00	3.08	2.112
195	4/20/2004	1:10:00	3.13	2.121
255	4/20/2004	6:10:00	3.09	2.123
315	4/20/2004	11:10:00	3.13	2.129
375	4/20/2004	16:10:00	3.23	2.168
435	4/20/2004	21:10:00	3.16	2.152
495	4/21/2004	2:10:00	3.25	2.147
555	4/21/2004	7:10:00	3.17	2.138
615	4/21/2004	12:10:00	3.18	2.13
675	4/21/2004	17:10:00	3.31	2.126
735	4/21/2004	22:10:00	3.23	2.053
795	4/22/2004	3:10:00	3.12	2.056
855	4/22/2004	8:10:00	3.22	2.08
915	4/22/2004	13:10:00	3.26	2.102
975	4/22/2004	18:10:00	3.34	2.111
1035	4/22/2004	23:10:00	3.43	2.119
1095	4/23/2004	4:10:00	3.43	2.124
1155	4/23/2004	9:10:00	3.44	2.134
1215	4/23/2004	14:10:00	3.38	2.142
1275	4/23/2004	19:10:00	3.45	2.147
1335	4/24/2004	0:10:00	3.52	2.156
1395	4/24/2004	5:10:00	3.61	2.167
1455	4/24/2004	10:10:00	3.59	2.18
1515	4/24/2004	15:10:00	3.65	2.183
1575	4/24/2004	20:10:00	3.72	2.194
1635	4/25/2004	1:10:00	3.71	2.2
1695	4/25/2004	6:10:00	3.84	2.198
1755	4/25/2004	11:10:00	3.78	2.196
1815	4/25/2004	16:10:00	3.83	2.165
1875	4/25/2004	21:10:00	3.79	2.144
1935	4/26/2004	2:10:00	3.68	2.143
1995	4/26/2004	7:10:00	3.7	2.158
2055	4/26/2004	12:10:00	3.68	2.2

Note: Data collected every 5 misn but reported in the present table every 5 hrs

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Table F2-1-14 - GLL BH 9-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
72	4/19/2004	14:55:00	10.17	2.9
132	4/19/2004	19:55:00	7.11	2.959
192	4/20/2004	0:55:00	7.15	3.019
252	4/20/2004	5:55:00	7.1	3.028
312	4/20/2004	10:55:00	7.09	3.039
372	4/20/2004	15:55:00	7.09	3.07
432	4/20/2004	20:55:00	7.06	2.987
492	4/21/2004	1:55:00	7.08	2.938
552	4/21/2004	6:55:00	7.06	2.89
612	4/21/2004	11:55:00	7.06	2.867
672	4/21/2004	16:55:00	7.03	2.855
732	4/21/2004	21:55:00	7.09	2.879
792	4/22/2004	2:55:00	7.07	2.905
852	4/22/2004	7:55:00	7.02	2.971
912	4/22/2004	12:55:00	7.05	3.009
972	4/22/2004	17:55:00	7.07	3.01
1032	4/22/2004	22:55:00	7.07	3.017
1092	4/23/2004	3:55:00	7.07	3.01
1152	4/23/2004	8:55:00	7.08	3.018
1212	4/23/2004	13:55:00	7.06	3.011
1272	4/23/2004	18:55:00	7.07	2.979
1332	4/23/2004	23:55:00	7.06	2.995
1392	4/24/2004	4:55:00	7.07	3.026
1452	4/24/2004	9:55:00	7.07	3.06
1512	4/24/2004	14:55:00	7.07	3.065
1572	4/24/2004	19:55:00	7.08	3.071
1632	4/25/2004	0:55:00	7.09	3.051
1692	4/25/2004	5:55:00	7.07	3.027
1752	4/25/2004	10:55:00	7.07	2.978
1812	4/25/2004	15:55:00	7.08	2.919
1872	4/25/2004	20:55:00	7.08	2.889
1932	4/26/2004	1:55:00	7.09	2.889
1992	4/26/2004	6:55:00	7.08	2.911

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-15 - GLL BH 9-S
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
74	4/19/2004	15:05:00	8.2	2.33
134	4/19/2004	20:05:00	5.92	2.372
194	4/20/2004	1:05:00	5.87	2.394
254	4/20/2004	6:05:00	5.76	2.391
314	4/20/2004	11:05:00	5.75	2.403
374	4/20/2004	16:05:00	5.89	2.427
434	4/20/2004	21:05:00	5.9	2.395
494	4/21/2004	2:05:00	5.75	2.385
554	4/21/2004	7:05:00	5.74	2.375
614	4/21/2004	12:05:00	5.82	2.376
674	4/21/2004	17:05:00	5.78	2.382
734	4/21/2004	22:05:00	5.75	2.354
794	4/22/2004	3:05:00	5.75	2.358
854	4/22/2004	8:05:00	5.82	2.384
914	4/22/2004	13:05:00	5.8	2.395
974	4/22/2004	18:05:00	5.79	2.395
1034	4/22/2004	23:05:00	5.78	2.406
1094	4/23/2004	4:05:00	5.81	2.405
1154	4/23/2004	9:05:00	5.86	2.412
1214	4/23/2004	14:05:00	5.77	2.415
1274	4/23/2004	19:05:00	5.84	2.4
1334	4/24/2004	0:05:00	5.81	2.418
1394	4/24/2004	5:05:00	5.78	2.435
1454	4/24/2004	10:05:00	5.86	2.45
1514	4/24/2004	15:05:00	5.81	2.451
1574	4/24/2004	20:05:00	5.87	2.458
1634	4/25/2004	1:05:00	5.87	2.449
1694	4/25/2004	6:05:00	5.86	2.447
1754	4/25/2004	11:05:00	5.81	2.434
1814	4/25/2004	16:05:00	5.88	2.417
1874	4/25/2004	21:05:00	5.88	2.412
1934	4/26/2004	2:05:00	5.83	2.421
1994	4/26/2004	7:05:00	5.84	2.443

Note: Data collected every 5 mins but reported every 5 hrs in the present table

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Table F2-1-16 - JEGEL BH B-D
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level - Manual Meas. (mbtop)	Water Level (mbtop)
41	4/19/2004	12:20:00	10.14		4.991
101	4/19/2004	17:20:00	8.04		5.022
161	4/19/2004	22:20:00	8		5.087
221	4/20/2004	3:20:00	8.07		5.112
281	4/20/2004	8:20:00	8.04		5.132
341	4/20/2004	13:20:00	8.1		5.119
401	4/20/2004	18:20:00	8.05		5.086
461	4/20/2004	23:20:00	8.07		5.059
521	4/21/2004	4:20:00	8.04		5.003
581	4/21/2004	9:20:00	8.06		4.989
641	4/21/2004	14:20:00	8.03	4.99	5.201
701	4/21/2004	19:20:00	8.02		4.995
761	4/22/2004	0:20:00	8.03		4.977
821	4/22/2004	5:20:00	8.11		5.015
881	4/22/2004	10:20:00	8.1		5.08
941	4/22/2004	15:20:00	8.03		5.096
1001	4/22/2004	20:20:00	8.04		5.1
1061	4/23/2004	1:20:00	8.08		5.1
1121	4/23/2004	6:20:00	8.04		5.102
1181	4/23/2004	11:20:00	8.04		5.105
1241	4/23/2004	16:20:00	7.99		5.081
1301	4/23/2004	21:20:00	8.07		5.088
1361	4/24/2004	2:20:00	8.02		5.1
1421	4/24/2004	7:20:00	8.04		5.129
1481	4/24/2004	12:20:00	8.02		5.157
1541	4/24/2004	17:20:00	8.04		5.15
1601	4/24/2004	22:20:00	8.03		5.161
1661	4/25/2004	3:20:00	8.02		5.141
1721	4/25/2004	8:20:00	7.92		5.093
1781	4/25/2004	13:20:00	8.04		5.029
1841	4/25/2004	18:20:00	7.96		4.997
1901	4/25/2004	23:20:00	7.95		4.976
1961	4/26/2004	4:20:00	7.97		4.977
2021	4/26/2004	9:20:00	7.94		5.018

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-17 - JEGEL BH B-S
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Levels - Manual Meas. (mbtop)	Water Level (mbtop)
42	4/19/2004	12:25:00	9.17		4.564
102	4/19/2004	17:25:00	7		4.688
162	4/19/2004	22:25:00	7		4.707
222	4/20/2004	3:25:00	7.03		4.705
282	4/20/2004	8:25:00	7.04		4.704
342	4/20/2004	13:25:00	7.03		4.699
402	4/20/2004	18:25:00	7		4.697
462	4/20/2004	23:25:00	6.98		4.691
522	4/21/2004	4:25:00	6.93		4.685
582	4/21/2004	9:25:00	6.96		4.68
642	4/21/2004	14:25:00	6.9		4.653
702	4/21/2004	19:25:00	6.9		4.676
762	4/22/2004	0:25:00	6.93		4.669
822	4/22/2004	5:25:00	6.91		4.684
882	4/22/2004	10:25:00	6.95		4.693
942	4/22/2004	15:25:00	6.95		4.69
1002	4/22/2004	20:25:00	6.93		4.684
1062	4/23/2004	1:25:00	6.93		4.677
1122	4/23/2004	6:25:00	6.91		4.688
1182	4/23/2004	11:25:00	6.9		4.689
1242	4/23/2004	16:25:00	6.87		4.681
1302	4/23/2004	21:25:00	6.87		4.69
1362	4/24/2004	2:25:00	6.87		4.699
1422	4/24/2004	7:25:00	6.86		4.701
1482	4/24/2004	12:25:00	6.9		4.702
1542	4/24/2004	17:25:00	6.88		4.703
1602	4/24/2004	22:25:00	6.88		4.701
1662	4/25/2004	3:25:00	6.88		4.702
1722	4/25/2004	8:25:00	6.84		4.689
1782	4/25/2004	13:25:00	6.79		4.671
1842	4/25/2004	18:25:00	6.8		4.667
1902	4/25/2004	23:25:00	6.81		4.671
1962	4/26/2004	4:25:00	6.81		4.681
2022	4/26/2004	9:25:00	6.82		4.7

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-18 - JEGEL BH C
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level - Manual Meas. (mbtop)	Water Level (mbtop)
169	4/19/2004	11:48:00	24.76		
229	4/19/2004	12:48:00	8.15		1.757
289	4/19/2004	13:48:00	8.16		1.782
349	4/19/2004	14:48:00	8.17		1.782
409	4/19/2004	15:48:00	8.15		1.787
469	4/19/2004	16:48:00	8.16		1.777
529	4/19/2004	17:48:00	8.18		1.861
589	4/19/2004	18:48:00	8.19		1.929
649	4/19/2004	19:48:00	8.19		1.876
709	4/19/2004	20:48:00	8.22		1.857
769	4/19/2004	21:48:00	8.21		1.858
829	4/19/2004	22:48:00	8.19		1.865
889	4/19/2004	23:48:00	8.21		1.857
949	4/20/2004	0:48:00	8.21		1.867
1009	4/20/2004	1:48:00	8.22		1.861
1069	4/20/2004	2:48:00	8.22		1.869
1129	4/20/2004	3:48:00	8.22		1.868
1189	4/20/2004	4:48:00	8.21		1.867
1249	4/20/2004	5:48:00	8.21		1.867
1309	4/20/2004	6:48:00	8.22		1.87
1369	4/20/2004	7:48:00	8.21		1.867
1429	4/20/2004	8:48:00	8.25		1.867
1489	4/20/2004	9:48:00	8.23		1.881
1549	4/20/2004	10:48:00	8.3		1.904
1609	4/20/2004	11:48:00	8.25		2.185
1669	4/20/2004	12:48:00	8.21		2.67
1729	4/20/2004	13:48:00	8.24		3.006
1789	4/20/2004	14:48:00	8.22		2.276
1849	4/20/2004	15:48:00	8.18		2.213
1909	4/20/2004	16:48:00	8.19		2.76
1969	4/20/2004	17:48:00	8.03		2.94
2029	4/20/2004	18:48:00	7.98		3.001
2089	4/20/2004	19:48:00	7.98		3.04
2149	4/20/2004	20:48:00	7.98		3.055
2209	4/20/2004	21:48:00	7.99		3.061
2269	4/20/2004	22:48:00	7.99		3.076
2329	4/20/2004	23:48:00	8		3.089
2389	4/21/2004	0:48:00	7.97		3.083
2449	4/21/2004	1:48:00	7.98		3.081
2509	4/21/2004	2:48:00	7.97		3.086
2569	4/21/2004	3:48:00	7.99		3.086
2629	4/21/2004	4:48:00	7.99		3.106
2689	4/21/2004	5:48:00	8.01		3.09
2749	4/21/2004	6:48:00	7.99		3.092

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Table F2-1-18 - JEGEL BH C
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level - Manual Meas. (mbtop)	Water Level (mbtop)
2809	4/21/2004	7:48:00	7.99		3.105
2869	4/21/2004	8:48:00	7.99		3.112
2929	4/21/2004	9:48:00	8		3.109
2989	4/21/2004	10:48:00	8.1		3.124
3049	4/21/2004	11:48:00	8.01		3.127
3109	4/21/2004	12:48:00	7.97		3.131
3169	4/21/2004	13:48:00	8		3.146
3229	4/21/2004	14:48:00	7.99		3.137
3289	4/21/2004	15:48:00	7.99		3.142
3349	4/21/2004	16:48:00	8.01		3.144
3409	4/21/2004	17:48:00	8.02		3.154
3469	4/21/2004	18:48:00	8		3.151
3529	4/21/2004	19:48:00	7.99		3.152
3589	4/21/2004	20:48:00	8		3.163
3649	4/21/2004	21:48:00	7.98		3.155
3709	4/21/2004	22:48:00	7.99		3.172
3769	4/21/2004	23:48:00	8.01		3.164
3829	4/22/2004	0:48:00	7.97		3.162
3889	4/22/2004	1:48:00	7.99		3.166
3949	4/22/2004	2:48:00	7.97		3.171
4009	4/22/2004	3:48:00	7.99		3.161
4069	4/22/2004	4:48:00	7.99		3.173
4129	4/22/2004	5:48:00	7.99		3.184
4189	4/22/2004	6:48:00	8.01		3.196
4249	4/22/2004	7:48:00	8		3.204
4309	4/22/2004	8:48:00	7.99		3.202
4369	4/22/2004	9:48:00	7.98		3.214
4429	4/22/2004	10:48:00	8.03		3.21
4489	4/22/2004	11:48:00	8		3.216
4549	4/22/2004	12:48:00	7.97		3.219
4609	4/22/2004	13:48:00	7.98		3.222
4669	4/22/2004	14:48:00	8.02		3.228
4729	4/22/2004	15:48:00	8.02		3.23
4789	4/22/2004	16:48:00	7.98		3.233
4849	4/22/2004	17:48:00	8.06		3.225
4909	4/22/2004	18:48:00	8.19		3.23
4969	4/22/2004	19:48:00	8.15		3.234
5029	4/22/2004	20:48:00	8.19		3.245
5089	4/22/2004	21:48:00	8.15		3.259
5149	4/22/2004	22:48:00	8.06		3.243
5209	4/22/2004	23:48:00	8.21		3.249
5269	4/23/2004	0:48:00	8.21		3.251
5329	4/23/2004	1:48:00	8.15		3.245
5389	4/23/2004	2:48:00	8.07		3.251

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Table F2-1-18 - JEGEL BH C
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level - Manual Meas. (mbtop)	Water Level (mbtop)
5449	4/23/2004	3:48:00	8.24		3.243
5509	4/23/2004	4:48:00	8.02		3.263
5569	4/23/2004	5:48:00	7.99		3.264
5629	4/23/2004	6:48:00	8		3.266
5689	4/23/2004	7:48:00	8		3.271
5749	4/23/2004	8:48:00	8		3.269
5809	4/23/2004	9:48:00	8		3.289
5869	4/23/2004	10:48:00	8.01		3.295
5929	4/23/2004	11:48:00	7.99		3.3
5989	4/23/2004	12:48:00	8.01		3.303
6049	4/23/2004	13:48:00	8		3.304
6109	4/23/2004	14:48:00	8.12		3.301
6169	4/23/2004	15:48:00	8.13		3.08
6229	4/23/2004	16:48:00	8.23		2.495
6289	4/23/2004	17:48:00	8.25		2.323
6349	4/23/2004	18:48:00	8.22		2.243
6409	4/23/2004	19:48:00	8.21		2.21
6469	4/23/2004	20:48:00	8.22		2.182
6529	4/23/2004	21:48:00	8.25		2.178
6589	4/23/2004	22:48:00	8.25		2.148
6649	4/23/2004	23:48:00	8.25		2.16
6709	4/24/2004	0:48:00	8.26		2.154
6769	4/24/2004	1:48:00	8.25		2.147
6829	4/24/2004	2:48:00	8.25		2.141
6889	4/24/2004	3:48:00	8.24		2.148
6949	4/24/2004	4:48:00	8.24		2.143
7009	4/24/2004	5:48:00	8.25		2.132
7069	4/24/2004	6:48:00	8.26		2.132
7129	4/24/2004	7:48:00	8.26		2.145
7189	4/24/2004	8:48:00	8.26		2.144
7249	4/24/2004	9:48:00	8.26		2.14
7309	4/24/2004	10:48:00	8.27		2.137
7369	4/24/2004	11:48:00	8.26		2.13
7429	4/24/2004	12:48:00	8.27		2.138
7489	4/24/2004	13:48:00	8.24		2.129
7549	4/24/2004	14:48:00	8.25		2.13
7609	4/24/2004	15:48:00	8.26		2.123
7669	4/24/2004	16:48:00	8.25		2.126
7729	4/24/2004	17:48:00	8.24		2.125
7789	4/24/2004	18:48:00	8.25		2.129
7849	4/24/2004	19:48:00	8.27		2.126
7909	4/24/2004	20:48:00	8.27		2.112
7969	4/24/2004	21:48:00	8.25		2.125
8029	4/24/2004	22:48:00	8.26		2.117

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Table F2-1-18 - JEGEL BH C
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level - Manual Meas. (mbtop)	Water Level (mbtop)
8089	4/24/2004	23:48:00	8.25		2.117
8149	4/25/2004	0:48:00	8.3		2.109
8209	4/25/2004	1:48:00	8.28		2.113
8269	4/25/2004	2:48:00	8.27		2.107
8329	4/25/2004	3:48:00	8.26		2.105
8389	4/25/2004	4:48:00	8.28		2.09
8449	4/25/2004	5:48:00	8.28		2.093
8509	4/25/2004	6:48:00	8.27		2.092
8569	4/25/2004	7:48:00	8.25		2.093
8629	4/25/2004	8:48:00	8.25		2.088
8689	4/25/2004	9:48:00	8.25		2.082
8749	4/25/2004	10:48:00	8.25		2.082
8809	4/25/2004	11:48:00	8.23		2.07
8869	4/25/2004	12:48:00	8.26		2.052
8929	4/25/2004	13:48:00	8.25		2.07
8989	4/25/2004	14:48:00	8.26		2.059
9049	4/25/2004	15:48:00	8.25		2.057
9109	4/25/2004	16:48:00	8.25		2.048
9169	4/25/2004	17:48:00	8.26		2.048
9229	4/25/2004	18:48:00	8.26		2.044
9289	4/25/2004	19:48:00	8.26		2.046
9349	4/25/2004	20:48:00	8.29		2.051
9409	4/25/2004	21:48:00	8.27		2.043
9469	4/25/2004	22:48:00	8.23		2.038
9529	4/25/2004	23:48:00	8.25		2.042
9589	4/26/2004	0:48:00	8.25		2.047
9649	4/26/2004	1:48:00	8.24		2.051
9709	4/26/2004	2:48:00	8.25		2.05
9769	4/26/2004	3:48:00	8.25		2.048
9829	4/26/2004	4:48:00	8.25		2.05
9889	4/26/2004	5:48:00	8.25		2.054
9949	4/26/2004	6:48:00	8.25		2.052
10009	4/26/2004	7:48:00	8.26		2.052
10069	4/26/2004	8:48:00	8.25		2.063
10129	4/26/2004	9:48:00	8.25		2.056
10189	4/26/2004	10:48:00	8.26		2.069
10249	4/26/2004	11:48:00	8.25		2.162

Note: Data collected every min but reported in the present table every hour.

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Table E-2-19 - JEGEL BH D
Water Levels
Manual Measurements
72-Hour Pumping Test

Date	Time		Water Level
20-Apr-04	10:13	4/20/04 10:13 AM	2.28
20-Apr-04	11:41	4/20/04 11:41 AM	2.51
20-Apr-04	5:17	4/20/04 5:17 AM	3
21-Apr-04	10:28	4/21/04 10:28 AM	3.2
21-Apr-04	2:57	4/21/04 2:57 AM	3.22
22-Apr-04	9:42	4/22/04 9:42 AM	3.3
22-Apr-04	2:09	4/22/04 2:09 AM	3.32
23-Apr-04	9:48	4/23/04 9:48 AM	3.37
23-Apr-04	2:26	4/23/04 2:26 AM	3.38
26-Apr-04	11:31	4/26/04 11:31 AM	2.44

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Table F2-1-20 - JEGEL BH E
Water Levels
Manual Measurements
72-Hour Pumping Test

Date	Time	Water Level (mbtop)
20-Apr-04	10:02	6.37
20-Apr-04	12:40	6.72
20-Apr-04	4:56	6.77
21-Apr-04	12:57	6.92
21-Apr-04	4:48	6.95
22-Apr-04	12:14	7.15
22-Apr-04	4:17	7.16
23-Apr-04	12:04	7.24
23-Apr-04	3:11	7.24
26-Apr-04	1:39	6.54

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Table F2-1-21 - JEGEL BH F
Water Levels and Temperature
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Levels - Manual Meas. (mbtop)	Water Level (mbtop)
89	4/19/2004	16:20:00	9.44	9.39	9.39
149	4/19/2004	21:20:00	8.71		9.53
209	4/20/2004	2:20:00	8.69		9.549
269	4/20/2004	7:20:00	8.71		9.55
329	4/20/2004	12:20:00	8.7		10.23
389	4/20/2004	17:20:00	8.72		10.368
449	4/20/2004	22:20:00	8.72		10.46
509	4/21/2004	3:20:00	8.72		10.476
569	4/21/2004	8:20:00	8.73		10.516
629	4/21/2004	13:20:00	8.66		10.543
689	4/21/2004	18:20:00	8.73		10.594
749	4/21/2004	23:20:00	8.71		10.625
809	4/22/2004	4:20:00	8.71		10.667
869	4/22/2004	9:20:00	8.73		10.737
929	4/22/2004	14:20:00	8.72		10.753
989	4/22/2004	19:20:00	8.71		10.773
1049	4/23/2004	0:20:00	8.72		10.804
1109	4/23/2004	5:20:00	8.75		10.812
1169	4/23/2004	10:20:00	8.75		10.826
1229	4/23/2004	15:20:00	8.75		10.835
1289	4/23/2004	20:20:00	8.74		10.028
1349	4/24/2004	1:20:00	8.74		9.964
1409	4/24/2004	6:20:00	8.74		9.946
1469	4/24/2004	11:20:00	8.75		9.928
1529	4/24/2004	16:20:00	8.74		10.352
1589	4/24/2004	21:20:00	8.75		9.803
1649	4/25/2004	2:20:00	8.75		9.781
1709	4/25/2004	7:20:00	8.77		9.743
1769	4/25/2004	12:20:00	8.75		8.85
1829	4/25/2004	17:20:00	8.74		8.794
1889	4/25/2004	22:20:00	8.71		8.774
1949	4/26/2004	3:20:00	8.73		8.775
2009	4/26/2004	8:20:00	8.75		8.809
2069	4/26/2004	13:20:00	13.08		14.264
2129	4/26/2004	18:20:00	22.11		9.05
2189	4/26/2004	23:20:00	15.2		15.382
2249	4/27/2004	4:20:00	10.06		19.641
2309	4/27/2004	9:20:00	20.47		11.261

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-22 - Flamboro Creek
Water Levels and Temperatures
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
79	4/19/2004	15:30:00	23.85	1.3
139	4/19/2004	20:30:00	11.92	1.351
199	4/20/2004	1:30:00	9.34	1.354
259	4/20/2004	6:30:00	7.79	1.361
319	4/20/2004	11:30:00	8.02	1.371
379	4/20/2004	16:30:00	12.03	1.38
439	4/20/2004	21:30:00	9.87	1.38
499	4/21/2004	2:30:00	7.82	1.379
559	4/21/2004	7:30:00	6.74	1.373
619	4/21/2004	12:30:00	8.36	1.373
679	4/21/2004	17:30:00	10.9	1.365
739	4/21/2004	22:30:00	10.73	1.347
799	4/22/2004	3:30:00	10.11	1.345
859	4/22/2004	8:30:00	8.94	1.352
919	4/22/2004	13:30:00	12.08	1.338
979	4/22/2004	18:30:00	13.24	1.347
1039	4/22/2004	23:30:00	10.94	1.358
1099	4/23/2004	4:30:00	9.07	1.363
1159	4/23/2004	9:30:00	7.98	1.372
1219	4/23/2004	14:30:00	12.11	1.36
1279	4/23/2004	19:30:00	12.68	1.372
1339	4/24/2004	0:30:00	9.99	1.378
1399	4/24/2004	5:30:00	7.84	1.378
1459	4/24/2004	10:30:00	7.4	1.381
1519	4/24/2004	15:30:00	13.06	1.365
1579	4/24/2004	20:30:00	11.64	1.38
1639	4/25/2004	1:30:00	9.06	1.384
1699	4/25/2004	6:30:00	7.42	1.387
1759	4/25/2004	11:30:00	6.54	1.385
1819	4/25/2004	16:30:00	6.18	1.373
1879	4/25/2004	21:30:00	5.98	1.375
1939	4/26/2004	2:30:00	6.03	1.373
1999	4/26/2004	7:30:00	6.16	1.376

Note: Data collected every 5 mins but reported in the present table every 5 hrs

Gartner Lee

Table F2-1-23 - Mountsberg Creek
Water Levels and Temperatures
72-Hour Pumping Test

No.	Date	Time	Temperature (Deg C)	Water Level (mbtop)
37	4/19/2004	12:00:00	8.95	0.94
97	4/19/2004	17:00:00	7.52	1.036
157	4/19/2004	22:00:00	7.58	0.976
376	4/20/2004	16:15:00	7.9	1.013
436	4/20/2004	21:15:00	7.93	1.001
496	4/21/2004	2:15:00	8.04	1
556	4/21/2004	7:15:00	8.12	0.994
616	4/21/2004	12:15:00	8.18	0.99
676	4/21/2004	17:15:00	8.18	0.994
736	4/21/2004	22:15:00	8.21	0.969
796	4/22/2004	3:15:00	8.27	0.965
856	4/22/2004	8:15:00	8.34	0.97
916	4/22/2004	13:15:00	8.41	0.964
976	4/22/2004	18:15:00	8.45	0.962
1036	4/22/2004	23:15:00	8.53	0.985
1096	4/23/2004	4:15:00	8.7	0.969
1217	4/23/2004	14:20:00	8.86	0.978
1277	4/23/2004	19:20:00	8.88	0.98
1337	4/24/2004	0:20:00	8.97	0.991
1397	4/24/2004	5:20:00	9.1	0.993
1745	4/25/2004	10:20:00	9.44	0.965
1805	4/25/2004	15:20:00	9.45	0.938
1865	4/25/2004	20:20:00	9.41	0.928
1925	4/26/2004	1:20:00	9.33	0.949
1985	4/26/2004	6:20:00	9.24	0.977
2045	4/26/2004	11:20:00	9.16	0.998

Note: Data collected every 5 mins but reported in the present table every 5 hrs

Gartner Lee

Table F2-1-24 - MP-1
Water Levels
72-Hour Pumping Test

Date	Time	Water Level (mbtop)
4/19/2004	11:15:00	0.624
4/19/2004	16:15:00	0.603
4/19/2004	21:15:00	0.6
4/20/2004	2:15:00	0.608
4/20/2004	7:15:00	0.623
4/20/2004	12:15:00	0.611
4/20/2004	17:15:00	0.592
4/20/2004	22:15:00	0.582
4/21/2004	3:15:00	0.576
4/21/2004	8:15:00	0.577
4/21/2004	13:15:00	0.578
4/21/2004	18:15:00	0.584
4/21/2004	23:15:00	0.602
4/22/2004	4:15:00	0.606
4/22/2004	9:15:00	0.602
4/22/2004	14:15:00	0.601
4/22/2004	19:15:00	0.602
4/23/2004	0:15:00	0.596
4/23/2004	5:15:00	0.592
4/23/2004	10:15:00	0.594
4/23/2004	15:15:00	0.584
4/23/2004	20:15:00	0.583
4/24/2004	1:15:00	0.577
4/24/2004	6:15:00	0.572
4/24/2004	11:15:00	0.568
4/24/2004	16:15:00	0.568
4/24/2004	21:15:00	0.58
4/25/2004	2:15:00	0.586
4/25/2004	7:15:00	0.585
4/25/2004	12:15:00	0.589
4/25/2004	17:15:00	0.604
4/25/2004	22:15:00	0.602
4/26/2004	3:15:00	0.606
4/26/2004	8:15:00	0.598

Note: Data collected every 5 mins but reported in the present every 5 hours

Gartner Lee

Table F2-1-25 - MP-2
Water Levels
Manual Measurements
72-Hour Pumping Test

Date	Time	Water Level (mbtop)
20-Apr-04	12:10	1.11
21-Apr-04	10:56	1.12
21-Apr-04	3:20	1.12
22-Apr-04	10:18	1.095
22-Apr-04	2:40	1.095
23-Apr-04	10:27	1.095
23-Apr-04	2:47	1.095
26-Apr-04	12:03	1.1

Gartner Lee

Table F2-1-26 - MP-3
Water Levels and Temperature
72-Hour Pumping Test

Date	Time	Temperature (Deg F)	Water Level (mbtop)
4/19/2004	13:50:00	42.55	0.714
4/19/2004	18:50:00	42.32	0.669
4/19/2004	23:50:00	42.41	0.666
4/20/2004	4:50:00	42.5	0.664
4/20/2004	9:50:00	42.59	0.664
4/20/2004	14:50:00	42.68	0.663
4/20/2004	19:50:00	42.78	0.661
4/21/2004	0:50:00	42.82	0.662
4/21/2004	5:50:00	42.89	0.664
4/21/2004	10:50:00	42.98	0.663
4/21/2004	15:50:00	43.02	0.664
4/21/2004	20:50:00	43.07	0.675
4/22/2004	1:50:00	43.14	0.671
4/22/2004	6:50:00	43.18	0.669
4/22/2004	11:50:00	43.23	0.668
4/22/2004	16:50:00	43.29	0.666
4/22/2004	21:50:00	43.36	0.665
4/23/2004	2:50:00	43.41	0.665
4/23/2004	7:50:00	43.5	0.664
4/23/2004	12:50:00	43.59	0.663
4/23/2004	17:50:00	43.68	0.662
4/23/2004	22:50:00	43.75	0.66
4/24/2004	3:50:00	43.81	0.66
4/24/2004	8:50:00	43.88	0.66
4/24/2004	13:50:00	43.97	0.659
4/24/2004	18:50:00	44.02	0.65
4/24/2004	23:50:00	44.06	0.656
4/25/2004	4:50:00	44.11	0.657
4/25/2004	9:50:00	44.18	0.657
4/25/2004	14:50:00	44.24	0.664
4/25/2004	19:50:00	44.29	0.665
4/26/2004	0:50:00	44.31	0.63
4/26/2004	5:50:00	44.31	0.655
4/26/2004	10:50:00	44.29	0.677

Note: Data collected every 5 mins but reported in the present table every 5 hrs

Gartner Lee

Table F2-1-27 - MP-4
Water Levels
Manual Measurments
72-Hour Pumping Test

Date	Time	Water Level (mbtop)
20-Apr-04	11:30	1.045
21-Apr-04	10:15	1.045
21-Apr-04	2:45	1.05
22-Apr-04	9:29	1.04
22-Apr-04	1:56	1.05
23-Apr-04	9:35	1.04
23-Apr-04	2:16	1.04
26-Apr-04	10:54	1.045

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Table F2-1-28 - MP-5
Water Levels and Temperature
72-Hour Pumping Test

Date	Time	Temperature (Deg F)	Water Level (mbtop)
4/19/2004	12:45:00	42.62	0.812
4/19/2004	17:45:00	41.94	0.784
4/19/2004	22:45:00	42.13	0.782
4/20/2004	3:45:00	42.36	0.782
4/20/2004	8:45:00	42.59	0.782
4/20/2004	13:45:00	42.76	0.783
4/20/2004	18:45:00	42.94	0.783
4/20/2004	23:45:00	43.08	0.783
4/21/2004	4:45:00	43.15	0.783
4/21/2004	9:45:00	43.24	0.786
4/21/2004	14:45:00	43.29	0.787
4/21/2004	19:45:00	43.31	0.796
4/22/2004	0:45:00	43.38	0.797
4/22/2004	5:45:00	43.41	0.797
4/22/2004	10:45:00	43.48	0.796
4/22/2004	15:45:00	43.5	0.794
4/22/2004	20:45:00	43.59	0.794
4/23/2004	1:45:00	43.69	0.793
4/23/2004	6:45:00	43.83	0.792
4/23/2004	11:45:00	43.92	0.792
4/23/2004	16:45:00	44.04	0.791
4/23/2004	21:45:00	44.11	0.792
4/24/2004	2:45:00	44.18	0.792
4/24/2004	7:45:00	44.25	0.792
4/24/2004	12:45:00	44.32	0.791
4/24/2004	17:45:00	44.41	0.79
4/24/2004	22:45:00	44.41	0.79
4/25/2004	3:45:00	44.41	0.79
4/25/2004	8:45:00	44.43	0.79
4/25/2004	13:45:00	44.48	0.796
4/25/2004	18:45:00	44.5	0.798
4/25/2004	23:45:00	44.48	0.798
4/26/2004	4:45:00	44.43	0.798
4/26/2004	9:45:00	44.34	0.797

Note: Data collected every 5 mins but reported in the present table every 5 hrs

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Table F2-1-29 - MP-6
Water Levels
Manual Measurments
72-Hour Pumping Test

Date	Time	Water Level (mbtop)
20-Apr-04	11:07	0.82
21-Apr-04	9:58	0.82
21-Apr-04	2:28	0.82
22-Apr-04	9:09	0.81
22-Apr-04	1:39	0.81
23-Apr-04	9:17	0.82
23-Apr-04	1:57	0.82
26-Apr-04	10:30	0.82

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Table F2-1-30 - MP-7
Water Levels
Manual Measurments
72-Hour Pumping Test

Date	Time	Water Level (mbtop)
20-Apr-04	1:19	0.915
21-Apr-04	8:49	0.91
21-Apr-04	1:36	0.905
22-Apr-04	8:17	0.885
22-Apr-04	12:56	0.89
23-Apr-04	8:15	0.91
23-Apr-04	1:02	0.91
26-Apr-04	9:13	0.91

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Table F2-1-31 - MP-8
Water Levels and Temperatures
Manual Measurements
72-Hour Pumping Test

Date	Time	Temperature (Deg. C)	Water Level (mbtop)
4/19/2004	15:40:00	10.5	1.69
4/19/2004	20:40:00	5.2	2.757
4/20/2004	1:40:00	5.2	2.924
4/20/2004	6:40:00	5.2	2.857
4/20/2004	11:40:00	5.3	2.452
4/20/2004	16:40:00	5.3	2.428
4/20/2004	21:40:00	5.3	2.584
4/21/2004	2:40:00	5.4	2.528
4/21/2004	7:40:00	5.4	2.49
4/21/2004	12:40:00	5.4	2.17
4/21/2004	17:40:00	5.5	2.104
4/21/2004	22:40:00	5.5	2.246
4/22/2004	3:40:00	5.5	2.392
4/22/2004	8:40:00	5.6	2.503
4/22/2004	13:40:00	5.6	2.446
4/22/2004	18:40:00	5.6	2.442
4/22/2004	23:40:00	5.7	2.455
4/23/2004	4:40:00	5.7	2.443
4/23/2004	9:40:00	5.7	2.321
4/23/2004	14:40:00	5.8	2.423
4/23/2004	19:40:00	5.8	2.419
4/24/2004	0:40:00	5.9	2.417
4/24/2004	5:40:00	5.9	2.415
4/24/2004	10:40:00	5.9	2.412
4/24/2004	15:40:00	6.0	2.412
4/24/2004	20:40:00	6.0	2.41
4/25/2004	1:40:00	6.0	2.409
4/25/2004	6:40:00	6.1	2.407
4/25/2004	11:40:00	6.1	2.409
4/25/2004	16:40:00	6.1	2.416
4/25/2004	21:40:00	6.2	2.383
4/26/2004	2:40:00	6.2	2.402
4/26/2004	7:40:00	6.2	2.44

Gartner Lee

Table F2-1-32
Summary of Aquifer Properties
72-hour Pumping Test
Lowndes Holdings Corp.

BH ID	Maximum Drawdown (m)	Distance to Pumping Well (m)	Transmissivity (m^2/s)	Hydraulic Conductivity (m/s)	Method
GLL BH-4	0.32	465	4.31E-03	1.01E-04	Cooper-Jacob Time-Drawdown
GLL BH-5	12.18	2.5	6.87E-03	1.61E-04	Cooper-Jacob Time-Drawdown
			1.78E-04	4.16E-06	Walton
GLL BH-6	0.14	460	9.71E-03	2.27E-04	Cooper-Jacob Time-Drawdown
GLL BH-7	0.22	465	4.54E-03	1.06E-04	Cooper-Jacob Time-Drawdown
JEGEL BH-C	1.4	225	3.27E-03	7.66E+05	Cooper-Jacob Time-Drawdown
JEGEL BH-F	1.28	235	1.76E-02	4.13E-04	Cooper-Jacob Time-Drawdown
			1.00E-03	2.35E-05	Walton

F2-2 Nov/Dec 2004 168-Hour Pumping Test

F2-2-1 Hydrographs and Temperature Graphs
F2-2-2 Aquifer Properties Analysis
F2-2-3 Water Level Tables

Appendix F2-2

Pumping Test B – 600 Igpm Pumping Test

F2-2.1 Purpose of Test

Upon analysis and evaluation of the first pumping test it was clear that a more rigorous test was required to establish the level of connectivity between the groundwater regime and the surface water regime. The higher level pumping test was designed to stress the groundwater system to the point where a response could be observed in deep groundwater monitors adjacent to the wetlands. Furthermore, Mini-piezometers installed for the purposes of the higher level pumping test were instrumented with pressure transducers to collect high resolution water level data to identify subtle responses in the shallow groundwater associated with wetland to the pumping test at TW12. Figure F2-2-1 illustrates the monitoring network used for the high level pumping test.

F2-2.2 Methodology

The second, higher level pumping test was designed to last 168 hours with synchronous pumping at two locations, TW12 and TW13 at up to 500 IGPM at each location. Figure F2-2-1 illustrates the location of the two pumping wells chosen for this test. The main focus of this pumping test was to stress the groundwater system as much as possible and for a duration that would identify a response under the wetland or within the wetland itself as would be identified in a response in the water level within the Mini-piezometers installed for this test.

Pressure transducers were used in each of the MPs in the north and south of the site, Mountsberg and Flamborough wetlands which are adjacent to the site. Key monitors positioned between the two pumping wells were also instrumented with pressure transducers to identify cumulative impacts or interference between the two pumping well locations. The frequency for the transducers was set to one-minute intervals to collect high-resolution water level data necessary to identify subtle responses in the shallow wetland system to the pumping in the deeper groundwater system at the respective pumping wells.

Once a response was identified in the MPs positioned within the wetlands the pumping test was closely monitored and a termination time consistent with the temporary permit requirements was selected. The pressure transducers were left in place to record the recovery in the groundwater system after termination of the pumping. The recovery data was critical to asserting the response in the shallow groundwater system associated with the wetland features. Approximately one week after terminating the pumping phase of the test the transducers were retrieved and the data was used to prepare hydrographs for the entire testing period including base line water level behaviour prior to the pumping test initiation.

F2-2.3 Results

A clear response was observed in only one of the seven mini piezometers used as monitors for the pumping test. MP-12 appeared to respond to the pumping phase of the test. However, due to a number of rain events before and during the pumping test it was unclear whether the water level response was due to pumping in the deeper groundwater system or cessation to a storm surge in the wetland. Upon termination of the pumping at TW 12 it was obvious that the water level response at MP-12 was related to the pumping activity at the TW12 location. The rapid recovery in water levels at MP-12 is evident in the hydrograph presented in Appendix F2-2.

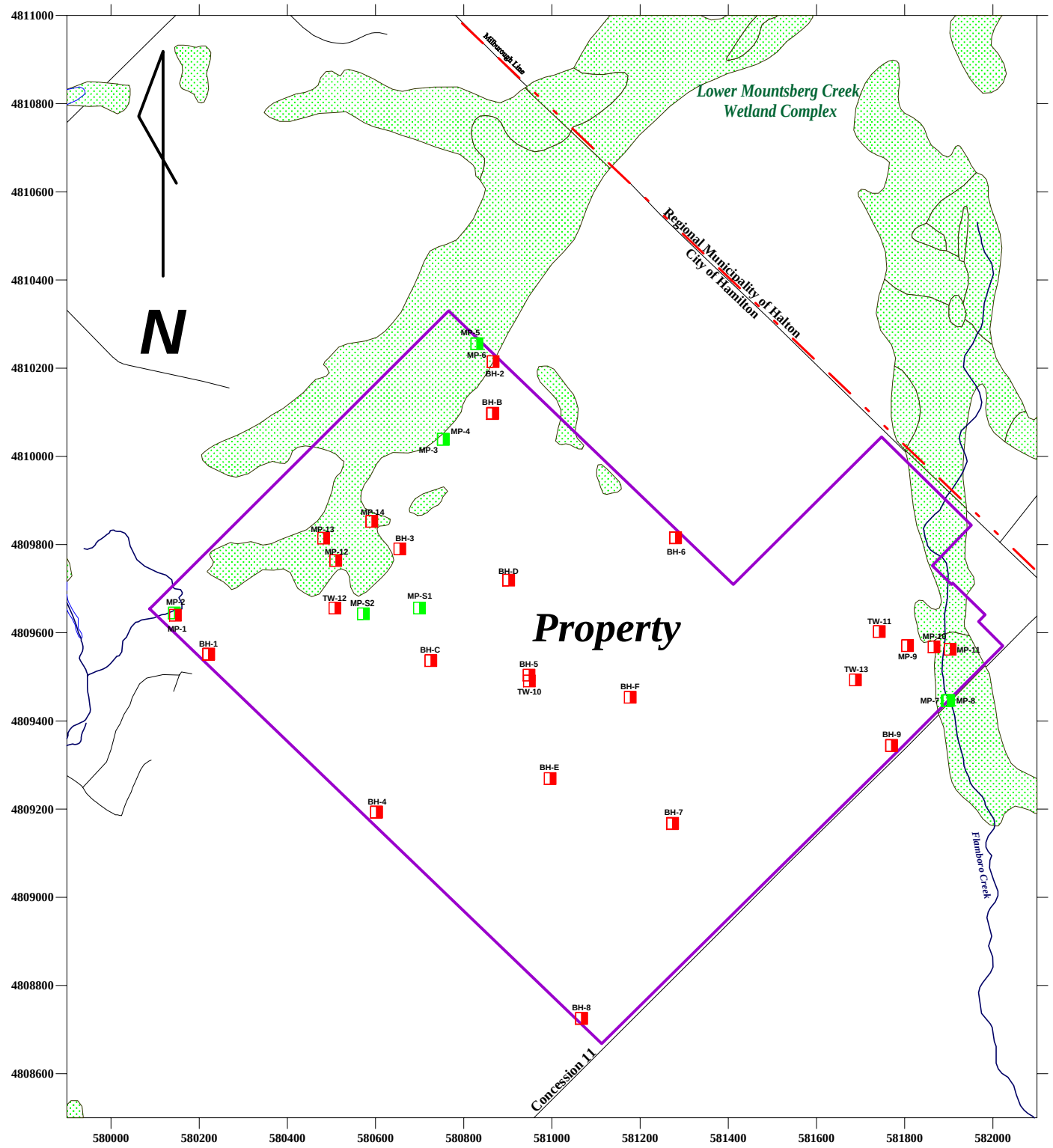
MP-9, MP-10, and MP-11 all exhibit a characteristic response to rain events as is observed in each of the hydrographs prepared for these MPs. The rain events that occurred during the pumping test are posted on each of the hydrographs to better illustrate the effect of the rain events on the water levels associated with the wetland features and the shallow groundwater system.

MP-2, located in the northwest corner of the property was just down gradient from the discharge point for TW12. The locations available for the discharge were limited and off-site discharge was not an option. The receiving stream flows at a low of 200 to 300 lps and can exhibit a high of up to 800 lps and more. As a result it was not possible to identify water level drawdown in response to the pumping test at this location.

However, some valuable information was obtained at this location. As the pumping test proceeded water levels were monitored closely at this location and it became apparent that the discharge water was surging the wetland system in the vicinity of MP-2. The transducers recorded a water level increase in the piezometer at this location in response to the pumping well. This response demonstrates the feasibility of sustaining water levels in the wetland feature in proximity to the pumping activity.

BH-C exhibited a direct correlation to pumping at TW 12. The drawdown observed at this location was 1.9 metres from pre test water levels. Recovery was rapid following termination of pumping at TW12. An important observation is that the deeper groundwater system does not respond to rain events as did the shallow MP monitors. This demonstrates somewhat of a disconnect between the shallow and deep systems.

BH9-I exhibits a response to pumping at the TW13 location of 0.67 metres. The monitor also does not respond directly to rain events as observed in the shallow MP monitors. The water level recovers rapidly following termination of the pumping at TW13.



Legend

- Surface Drainage Features
- Water Bodies
- Wetlands
- Active Model Domain
- Property Boundary
- Monitored Wells
- Non-monitored Wells

SOURCE: Base mapping produced by Gartner Lee Limited under license with the Ministry of Natural Resources, Queen's Printer 1997 - Reproduced 2004.

PROPOSED DOLOSTONE QUARRY | **Figure F2-2-1**

168-HOUR PUMPING TEST MONITORED WELLS

Project # 23827, Hydrogeological Modeling Investigation

Gartner Lee Limited

Scale 1:13,000

:11/13/08:\ N:\Projects\2003\23827\2005\WIP\Level 2 Report\Appendices\Ap E\E-3\Figure E-3-1.srf

Gartner Lee Limited

March 10, 2005

Ministry of Environment
West- Central Region
Technical Support Section, Water Resources
12th Floor
119 King Street W.
Hamilton, ON L8P 4Y7

Attention: Mr. Paul Odom, Director, Section 34

Dear Sirs:

Re: Permit To Take Water, Groundwater, Number 0714-65YNCS (November 12, 2004)

A pumping test was conducted in December 2004 on property owned by Lowndes Holdings Corp. in the City of Hamilton (geographic Township of Flamborough). This testing, which involved a 7-day pumping test using two wells, was undertaken to support a hydrogeological assessment of the property for the proposed development of a dolostone quarry.

The pumping test was completed in accordance with the conditions presented in the Ministry of the Environment Permit To Take Water Number 0714-65YNCS dated November 12, 2004. Condition 4.7 of the Permit to Take Water requires the Permit Holder "submit a report to the Director with the interpretation of the findings of the pumping test and other field data collected during the test". This letter summarizes the results of the pumping test.

1. Background

1.1 Purpose

Lowndes Holdings Corp. is proposing to establish a quarry in the Amabel Formation dolostone to supply aggregate. The proposed quarry site is located on Part of Lot 1, and Lots 2 and 3, Concession 11, Geographic Township of Flamborough, now The City of Hamilton, (Figure 1).

The site is located between Regional Road 508 (Centre Road) and Milburough Line, and is about 4 km north of the community of Carlisle. The property covers an area of about 154 ha (380 acres). The Amabel dolostone is a high quality aggregate resource, which below this property is between 27 m and 40 m thick. Quarrying of the dolostone will result in an open excavation that will extend below the water table. This requires that a below-water quarry license be obtained under the Aggregate Resources Act and that the former Town of Flamborough Official Plan and Zoning By-law be amended.

1.2 Test Objectives

Gartner Lee was retained by Lowndes Holdings Corp. to conduct a hydrogeological assessment of the property as one of the studies required to support a quarry license and Planning Act amendments applications. Information on the geology and hydrogeology of the area was assembled and reviewed as part of this assessment. In addition, a number of boreholes and test pits were advanced to collect information on the local geology, and the depth and direction of groundwater flow. This work was largely completed in the spring of 2004. Major site features and the locations of wells and other monitoring stations are shown in Figure 2.

Following a review of this information, Gartner Lee recommended that a pumping test be conducted to provide data on the hydraulic properties of the bedrock and Lowndes Holdings Corp. agreed to undertake this work. On March 29, 2004, Gartner Lee, on behalf of Lowndes Holdings Corp. submitted an application to the MOE for a Permit to Take Water (PTTW). This application was for a 72-hour pumping test using a single pumping well TW10, located in the approximate center of the proposed quarry. The MOE authorized the testing under Permit to Take Water 03-P-2402(T). The test was performed between April 20 and April 23, 2004 and involved pumping test well TW10 at a rate of 1,309 m^3/day (200 igpm).

This test was designed to stress the rock formation to provide the data needed to calculate the hydraulic parameters such as transmissivity, horizontal hydraulic conductivity, and storage for the Amabel Formation across its full thickness. This information was to be used in a groundwater model to be developed for the quarry. The water level response to pumping was recorded using pressure transducers/data loggers installed in 25 monitoring wells and piezometers. An atmospheric pressure transducer was used to correct for barometric pressure changes. Manual groundwater level measurements were completed to check the data loggers. The data loggers were downloaded on April 26th, 2004 and the data corrected for atmospheric pressure.

The maximum drawdown induced during this pumping test was 12.2 m at GLL BH5 (2.5 m distance from the pumping well TW10).

A drawdown of 1.4 m at JEGEL BHC (225 m from TW10), 1.28 m at JEGEL BHF (235 m from TW10), 0.32 m at JEGEL BH4 (465 m from TW10) and no measurable drawdown in wells (GLL BH1-D, JEGEL BHB-D, GLL BH -D and GLL BH9-D) at the property boundaries (>500 m from TW10). Mini-piezometers and stream gauges installed within the Mountsberg Creek wetland and the Flamboro Creek wetland did not respond to the pumping test.

In an effort to better simulate the potential impact of the quarry on the wetlands located on and adjacent to the property, it was proposed that a second test be completed using test wells installed closer to the wetland areas. The objective of this second test was to stress the groundwater system to the point where a response could be observed in the mini-piezometers and shallow wells located in the vicinity of the wetlands. The testing was to be terminated at the point where a response was observed.

The second pumping test as initially designed, was to continue for at least 168 hours with synchronous pumping at two locations (TW12 and TW13) at a rate of up to 500 igpm at each location. It was initially proposed that this testing be conducted during the early summer 2004. An application for a PTTW was submitted on June 10, 2004 and a temporary permit (PTTW Number 3434-62DMPQ) was issued by the MOE on July 19, 2004. The program was subsequently delayed and a new application was submitted by Gartner Lee dated September 13, 2004.

PTTW Number 0714-65YNCS was issued by the MOE on November 12, 2004. A copy of the PTTW is provided in Appendix A.

2. Pumping Wells and Monitoring Location Details

2.1 Test Well TW12

Test Well 12 was installed by Keith Lang Drilling in June 2004 within about 100 m of Mountsberg Creek. Details on well construction presented in the Water Well Record Number A006789 contained in Appendix B.

The completed well as installed, is 43.89 m deep into the Amabel Formation. The open bore of the well extends from ground surface to its depth of 43.89 m. The well ID at the time of installation was 200 mm.

Following the start-up of the test in mid November, borehole instability and poor production performance were encountered and the testing of this well was terminated.

The driller was mobilized to the site on November 29, 2004. The 200 mm casing was pulled, a 254 mm casing was set at 3.6 m and the well bore was reamed to 250 mm.

2.2 Test Well TW13

Test Well 13 was also installed by Keith Lang Drilling in June 2004. This well is about 100 m from Flamboro Creek. The Water Well Record for this well (Number A006804) is provided in Appendix B.

The well was installed to a depth of 38.70 m and is cased through the overburden into the Amabel Formation. The open bore of the well extends from the base of the casing at 6.4 m, to its terminal depth. The well ID at the time of installation was 200 mm.

Downhole instability problems were encountered during installation of the pump in TW13 as part of the testing. The driller re-entered the well on November 23, 2004, re-drilled it with a 200 mm OD bit and re-developed the well. The results were un-successful. On November 26, the driller pulled the 200 mm overburden casing, set 254 mm casing to 7.3 m and reamed the well bore to 250 mm. Slotted steel liner with a shale packer was set at a depth of 14 m to stabilize the upper rock.

2.3 Monitoring Locations

The locations of the wells/mini-piezometers and the surface water stations that were monitored during the test are shown in Figure 2. Well and piezometer construction details are provided in Table B-1, Appendix B.

Monitoring Wells: Observations of the water level response during the initial April 2004 pumping test were conducted at the boreholes advanced for the purpose of collecting bedrock core to evaluate the quality of the bedrock. These boreholes were open well bores with overburden casing. In preparation for the second test, the boreholes were equipped as monitoring wells. This involved lowering a 3 m length of 51 mm ID PVC screen attached to a riser pipe to the base of the borehole and backfilling the annular space around the screen with washed sand to a height of about 0.3 m above the screen. A cement/bentonite grout was placed above the sand pack interval by injection to fill the balance of the annular space to surface. If necessary, risers were threaded or welded onto the existing overburden casing to extend the casing to about 0.6 m above ground surface. A locking cap was added to each casing. Shallow monitoring wells were equipped with protective casing at surface.

Mini-piezometers: A total of 14 mini-piezometers were installed as part of the work program. The initial six (6) piezometers were installed in November 2003 to provide background information on shallow groundwater levels in the Mountsberg Wetlands.

An additional two (2) piezometers were installed in April 2004 along Flamboro Creek and the remaining piezometers were installed in November 2004, to evaluate the shallow groundwater responses in the wetland during the second pumping test.

The mini-piezometers employed were supplied by Solinst (Model 615) and consist of a stainless steel piezometer tip attached to steel extensions. The piezometers were manually driven into the ground to the target depth or refusal from bedrock. Water enters through screened perforations in the tip providing a groundwater level relative to the surface water feature.

Stream flow: Stream flow observations where the pumping discharge entered Mountsberg Creek and Flamboro Creek were made on a near daily basis. The tributary channels were generally dry or held standing water, with no flow being evident. There was continuous flow in the main channels of the creeks.

Groundwater Data Collection: Selected wells and mini-piezometers were instrumented with pressure transducers and data loggers to collect high-resolution water level and temperature data to identify subtle responses in the shallow groundwater associated with the wetlands. Other locations were monitored manually. The monitoring locations, zone monitored, and the method of data collection are summarized in Table 1. The data loggers were set to record data at a 1-minute interval.

2.4 Notification of Private Well Owners

Several private residential wells are located in the vicinity of the proposed quarry site. PTTW Condition 4.1 required that prior to the commencement of the pumping test that a water well survey be completed to identify all wells within the anticipated potential cone of influence, or within a 1,000 m radius of each test well. Available water well records were initially reviewed to identify residences with wells. This was followed by a door-to-door survey, where efforts were taken to contact private well owners to inform them of the proposed testing. An information sheet describing the test and a contact telephone numbers was left with the owner/occupant if encountered or in the residents' mailbox if no one was home.

Three residents agreed to have their wells monitored during the pumping test. The locations of the wells are shown in Figure 2. The results are presented in Section 4.2.

Table 1. Locations Monitored During 7-Day Pumping Test

Monitoring Location	Monitoring Zone	Method and Frequency of Data Collection	
		Data Logger ID No.	Manual
Bedrock Wells and Private Wells			
Pumping Well TW12	Deep bedrock	40045	
Pumping Well TW13	Deep Bedrock		Nov 27 to Dec 4
TW10	Deep Bedrock		Nov 27 to Dec 5
TW11	Deep Bedrock		Nov 28 to Dec 6
GLL BH1-D	Deep Bedrock	47162	Nov 27 to Dec 6
GLL BH1-S	Shallow Bedrock	46759	Nov 27 to Dec 6
GLL BH2-D	Deep Bedrock		Nov 27 to Dec 6
GLL BH2-S	Shallow Bedrock		Dec 4 to Dec 6
GLL BH3-S	Shallow Bedrock	34583	Nov 27 to Dec 6
GLL BH4-D	Deep Bedrock	53551	Nov 27 to Dec 6
GLL BH4-S	Shallow Bedrock	40663	Nov 27 to Dec 6
GLL BH5	Deep bedrock		Nov 27 to Dec 6
GLL BH6-D	Deep Bedrock		Nov 27 to Dec 6
GLL BH6-S	Shallow Bedrock		Nov 27 to Dec 6
GLL BH7-D	Deep Bedrock	41017	Nov 27 to Dec 6
GLL BH7-S	Shallow Bedrock	45241	Nov 27 to Dec 6
GLL BH8-D	Deep Bedrock		Nov 27 to Dec 6
GLL BH8-S	Shallow Bedrock		Nov 27 to Dec 6
GLL BH9-D	Deep Bedrock	53057	Nov 27 to Dec 6
GLL BH9-S	Shallow Bedrock	41019	Nov 27 to Dec 6
JEGEL BHB-D	Deep Bedrock	49013	Nov 27 to Dec 6
JEGEL BHB-S	Shallow Bedrock		Nov 27 to Dec 6
JEGEL BHC	Deep Bedrock	33974	Nov 27 to Dec 6
JEGEL BHD	Deep Bedrock		Nov 27 to Dec 6
JEGEL BHE	Deep Bedrock		Nov 27 to Dec 6
JEGEL BHF	Deep Bedrock	45280	Nov 27 to Dec 6
6 Glenron	Private Well Bedrock		Nov 27 to Dec 5
1869 Millbough	Private Well Bedrock		Nov 27 to Dec 5
353 11th Concession	Private Well Bedrock		Nov 27 to Dec 6
Mini-Piezometers			
MP-9	Overburden in Wetland	11830	
MP-10	Overburden in Wetland	11215	
MP-11	Overburden in Wetland	12142	
MP-12	Overburden in Wetland	11971	
MP-13	Overburden in Wetland	11227	
MP-14	Overburden in Wetland	11059	
MP-2	Overburden in Wetland	11962	

3. Testing Program and Equipment

The pumping test was completed by Ontario Water Well Services (Jim Wilson) using equipment supplied by this firm. Gartner Lee Limited conducted the analysis of the collected data.

Flow from well TW12 was discharged to a tributary of Mountsberg Creek and flow from TW13 was discharged to Flamboro Creek.

The test data are presented in Appendix C and discussed in Section 4 of this report.

3.1 Test Schedule

The chronology of events follows:

Test Well TW12: Testing was initiated on November 27, 2004 (at 6:00 pm) at a rate of 980 m^3/day 150 igpm. At 8:21pm the rate was increased to 1,962 m^3/day (300 igpm) and at 8:27 pm reduced to 1,635 m^3/day (250 igpm) when it became evident that the higher rate could not be sustained.

Pumping at well TW12 was terminated on November 29 at 8:30pm and the TW12 borehole was rehabilitated. The testing of TW12 was resumed on November 30 at 9:00 pm at a rate of 1,962 m^3/day (300 igpm). The rate was subsequently increased on December 1, 2004 at 8:30 am initially to 2,616 m^3/day (400 igpm) and at 9:30 am to 3,270 m^3/day (500 igpm). This pumping rate was sustained until the test was terminated on December 6 at 1:00pm.

Test Well PW13: Pumping at well TW13 was initiated on November 27, 2004 at 3:30 pm at a rate of 864 m^3/day (132 igpm) and held at this rate until the test was terminated on December 4 at 3:30 pm.

The data loggers were installed by Ontario Water Well Services staff and activated at the borehole and monitored locations indicated in Section 2.3 on November 20, 2004. The mini-piezometers were instrumented with data loggers installed by Gartner Lee limited staff. Locations not equipped with data loggers were manually monitor by Jim Wilson on a near daily basis. Data loggers were downloaded at the end of the program and compared for accuracy to manual data. Monitoring of the pressure transducers was continued until December 11, 2004 to record the recovery in the groundwater system after termination of the pumping at which time the transducers were removed and the data recovered.

3.2 Data Logging Equipment

Water level and temperature data loggers were installed at sensitive locations to ensure representative data were collected. Solinst LT Leveloggers were used to collect water level and temperature data in the test and monitoring wells. In-Situ mini-Troll data loggers were used in the mini-piezometers. These data logger probes also measure water level and water temperature.

The specifications of the data logger probes indicate a water level accuracy of +/- 0.1% for water temperatures between -10 and 40 degrees Celsius and a temperature accuracy of +/- 0.1 degrees Celsius for water temperatures between -20 and 80 degrees Celsius.

The data loggers record water level as total pressure that has not been corrected for barometric pressure. A barometric pressure logger (Solinst Barologger) was utilized to correct the recorded water levels. The compiled barometric pressure record for the test period is presented in Appendix C-1.

Results were compared to manual water level measurements and generally showed a good correlation with the levels obtained from the data loggers.

3.3 Manual Water Level Monitoring

Manual measurements were taken using a Solinst water level tape. The Solinst water level tapes have a reported accuracy of +/-3 millimetres (mm). Water levels were measured relative to a specified reference location on each well. The tape was held against the reference location and the depth to water was recorded when the measuring instrument sounded. The process was repeated at least twice at each well for each reading. Readings were compared to previous readings to check for consistency.

3.4 Pump Discharge Measurements

The recorded daily pumping rates at test well TW12 and test well TW13 are imposed on the hydrographs for each of the locations for which data were obtained (Appendix C-2 through C-5).

Pumping rates were measured during the pump start up, and on a daily basis over the course of the testing period, with an inline flow meter. There were no problems encountered with flow measurements collected during the test period.

3.5 Precipitation Data

Precipitation data for November 20, 2004 through December 10, 2004 were obtained at a weather station located in Hamilton. A total of 101.8 mm of precipitation was recorded during the period of record. The precipitation events are imposed on the hydrographs contained in Appendix C.

Significant precipitation events of more than 5 mm were recorded on November 20 (8.6 mm), November 24 (27 mm), November 28 (14 mm), November 30 (5 mm), December 1 (14.6 mm), December 7 (13.4 mm) and December 10 (10.2 mm).

4. Pumping Test Results

Hydrographs for the test wells and observation wells, and the mini-piezometers that were monitored during the testing period are presented in Appendix C-2 and Appendix C-3, respectively. Water temperature readings collected during the test are provided in Appendix C-5. The locations of the wells/mini-piezometers and the surface water stations are shown in Figure 2.

4.1 Observed Response in the Bedrock Aquifer

The hydrograph for Test Well TW12 shows an immediate response to pumping and continued to decline until pumping was terminated on December 6 at 1:00 pm. The majority of the drawdown, about 17 m, occurred within 24 hours of the start of the test and an additional 3 m over the balance of the test. Ninety percent recovery was observed within about 4 hours of the end of the test.

The hydrograph for Test Well TW13 is less well defined due to the manual collection of the water level data. Again, most of the drawdown (about 24 m) occurred within 24 hours of the start of pumping. Manual water level data were not available for the period between November 28 and December 4. Recovery was near instantaneous with termination of the test on December 4, 2004.

Analysis of the pumping and recovery data measured at TW12 was conducted using the Cooper-Jacob method. The data are plotted on logarithmic and semi-logarithmic charts, presented in Figure 1, Appendix D showing the magnitude of drawdown verses elapsed time for the drawdown data and recovery data.

The trend-line over the data points during the first day of pumping and recovery, presented in Figure 2, Appendix D shows the period of time when the recorded water levels are affected more by drawdown/recovery than by leakage.

Transmissivities of 3.25 x 10^{-3} m^2/s and 4.14 x 10^{-3} m^2/s were calculated for the drawdown and recovery data respectively for TW12. A similar analysis of the data was not completed for TW13 due to the lack of the data. Well JEGEL BHC was used in this analysis to confirm the transmissivity estimates for the formation. These results are presented in Figure 3, Appendix D.

The water level at TW12 and TW13 were drawn down to about 20 m and 24 m respectively. The drawdowns observed in the monitoring wells located in the general vicinity of the two pumping wells are listed in Table 2 and depicted in plane view in Figure 3 (deep wells) and Figure 4 (shallow wells).

4.2 Observed Response in Private Wells

Water levels were monitored in three private wells, referred to as 6 Glenron, 1869 Milborough and 353 Concession 11 during the 7-day test. The hydrographs are presented in Appendix C-4. Fluctuations observed in the hydrographs are related to pumping of the wells for residential use. There was no discernible response to water levels from the pumping test.

4.3 Observed Response at the Mini-Piezometers

The hydrographs for the mini-piezometers are presented in Appendix C-3. The drawdowns observed in the mini-piezometers located in the general vicinity of pumping wells TW12 and TW13 are listed in Table 3. The mini-piezometers show a hydraulic response to recharge from precipitation events. Only mini-piezometer MP-12 showed a discernable hydraulic response (maximum observed drawdown of 0.7 m) to pumping of TW12.

4.4 Observed Response at the Surface Water Stations

For the duration of the pumping test visual inspection of the pump discharge into the receiving water body occurred more or less on a daily basis. A visual comparison of the pump discharge to the flow observed in the receiving stream was that the pump discharge was a mere fraction of the stream flow.

Table 2. Maximum Observed Drawdown in Monitoring Wells

Borehole	Maximum Drawdown (m)	Distance and Direction from Pumping Well TW12
Deep Bedrock		
TW12	20.4 m	0 m
TW10	0.27 m	440 m southeast
GLL BH1-D	1.52 m	300 m southwest
GLL BH2-D	No discernable response	600 m north
GLL BH5	0.26 m	470 m southeast
GLL BH8-D	No discernable response	1,090 m southeast
JEGEL BHB-D	No discernable response	575 m northeast
JEGEL BHC	2.24 m	250m southeast
JEGEL BHD	0.60 m	400 m east
JEGEL BHF	No discernable response	700 m south
Shallow Bedrock		
GLL BH1-S	No discernable response	300 m west
GLL BH2-S	0.04 m	600 m north
GLL BH3-S	0.60 m	200 m to northeast
GLL BH4-S	No discernable response	475m southeast
GLL BH 8-S	No discernable response	1,090 m southeast
JEGEL BHB-S	0.16 m	575 m northeast

Borehole	Maximum Drawdown (m)	Distance and Direction from Pumping Well TW13
Deep Bedrock		
TW13	23.62m	0 m
TW11	0.23 m	120 m northeast
GLL BH6-D	No discernable response	520 m northwest
GLL BH7-D	No discernable response	520 m west
GLL BH8-D	No discernable response	990 m southeast
GLL BH9-D	0.54 m	170 m southeast
JEGEL BHE	No discernable response	720 m west
Shallow Bedrock		
GLL BH6-S	No discernable response	520 m northeast
GLL BH7-S	No discernable response	520 m west
GLL BH8-S	No discernable response	990 m southeast
GLL BH9-S	0.37 m	170 m southeast

Table 3. Maximum Observed Drawdown in Mini-Piezometers

Borehole	Maximum Drawdown (m)	Distance and Direction from Pumping Well TW12
MP-12	0.7 m	90 m northwest
MP-13	No discernable response	150 m northwest
MP-14	No discernable response	160 m northwest
MP-2	No discernable response	200 m northwest

Borehole	Maximum Drawdown (m)	Distance and Direction from Pumping Well TW13
MP-9	No discernable response	150 m southeast
MP-10	No discernable response	160 m northwest
MP-11	No discernable response	200 m northwest

4.5 Temperature Data

The temperature data recorded during the testing period is presented in graphs provided in Appendix C-5.

Bedrock Wells: During the test, groundwater temperatures in the bedrock monitoring wells ranged between 8.3 and 10.5 degrees Celsius depending on location. The largest change in temperature during the testing occurred in the shallow wells, with a decline from 10 to 8.5 degrees Celsius being observed in monitoring well GLL BH1-S. The amplitude of temperature change in the deeper wells was much less being on the order of 0.1 to 0.3 degrees Celsius.

For the most part, the water temperatures in the shallow wells decreased over the duration of the test, whereas the temperatures in the deep wells remained relatively constant, exhibiting either a slight rise or decline.

Mini-Piezometers: The water temperature records for the mini-piezometers show a steady decrease in water temperature on the order of 1.0 to 1.5 degree Celsius over the testing period that is attributed to natural cooling effects of surface water during winter conditions and is not related to the pumping test.

Surface water: The surface water temperatures were not monitored during the test. It is noted that the air temperature dropped to below 0 degrees C and snow fall replaced rain fall during the final two days of the active (pumping) portion of the test.

4.6 Interference Complaints

Shortly after the start of the testing, a resident located within the Bronte Creek Estates subdivision called the Ministry of the Environment to express concern that the pumping discharge could aggravate the high flow conditions in Mountsberg Creek and flood the resident's back yard. The high flow condition was related to a storm event. At the time of the complaint, the pumping well had not yet been activated since reaming of the well was underway and the pump was removed from the well. Close observation of the pumped discharge rate relative to the stream flow in the receiving water body was practiced over the duration of the test. The rate of the pumping test was visually estimated to be only about 5% compared to the flow observed in the stream.

5. Summary

A 7-day pumping test was initiated after stable baseline water level conditions were established. The pumping test was conducted at a maximum flow rate of 3,270 m^3/day and 864 m^3/day at pumping wells TW12 and TW13, respectively.

The drawdown response in the pumping wells was near instantaneous with a maximum drawdown of about 20 m observed at TW12 and 24 m at TW13. Post-test monitoring was conducted for a period of about 72 hours until water levels recovered and stabilized.

The hydrographs for the pumping and observation wells provide a sufficient record of water levels to assess the hydraulic impact from pumping and it is possible to separate the effects of pumping/recovery from the effects of precipitation/recharge events.

Transmissivities of 3.25 x 10^{-3} m^2/s and 4.14 x 10^{-3} m^2/s were calculated for the drawdown and recovery data respectively at the TW12. These transmissivity values are similar to the values calculated in previous tests. The transmissivity was not determined for TW13 due to a lack of measurements.

Pumping of TW12 and TW13 caused a measurable drawdown at several observation wells completed in the bedrock. The drawdown cone of influence in the Amabel Formation due to pumping of test well TW12 extended about 700 m outward in the deep bedrock and about 575 m in the shallow bedrock.

The drawdown cone due to pumping of test well TW13 extended about 170 m outward in both the shallow and deep bedrock (as measured at GLL BH9-D and GLL BH9-S). Three of the

neighbouring private wells were monitored during the test period with no responses attributed to the testing observed. Water level fluctuations observed in the hydrographs are attributed to the use of these wells during the testing period.

A discernable hydraulic response (drawdown of about 0.7 m) was measured at mini-piezometer MP-12. This mini-piezometer is located within the Mountsberg Creek wetland about 90 m northwest of TW12. The mini-piezometers located along Flamboro creek did not respond to pumping of TW13.

No discernable response to pumping (i.e., reduction in surface flow) was observed at the surface water stations. The pumping discharge contribution downstream of the discharge point was estimated at about 5% of the surface flow.

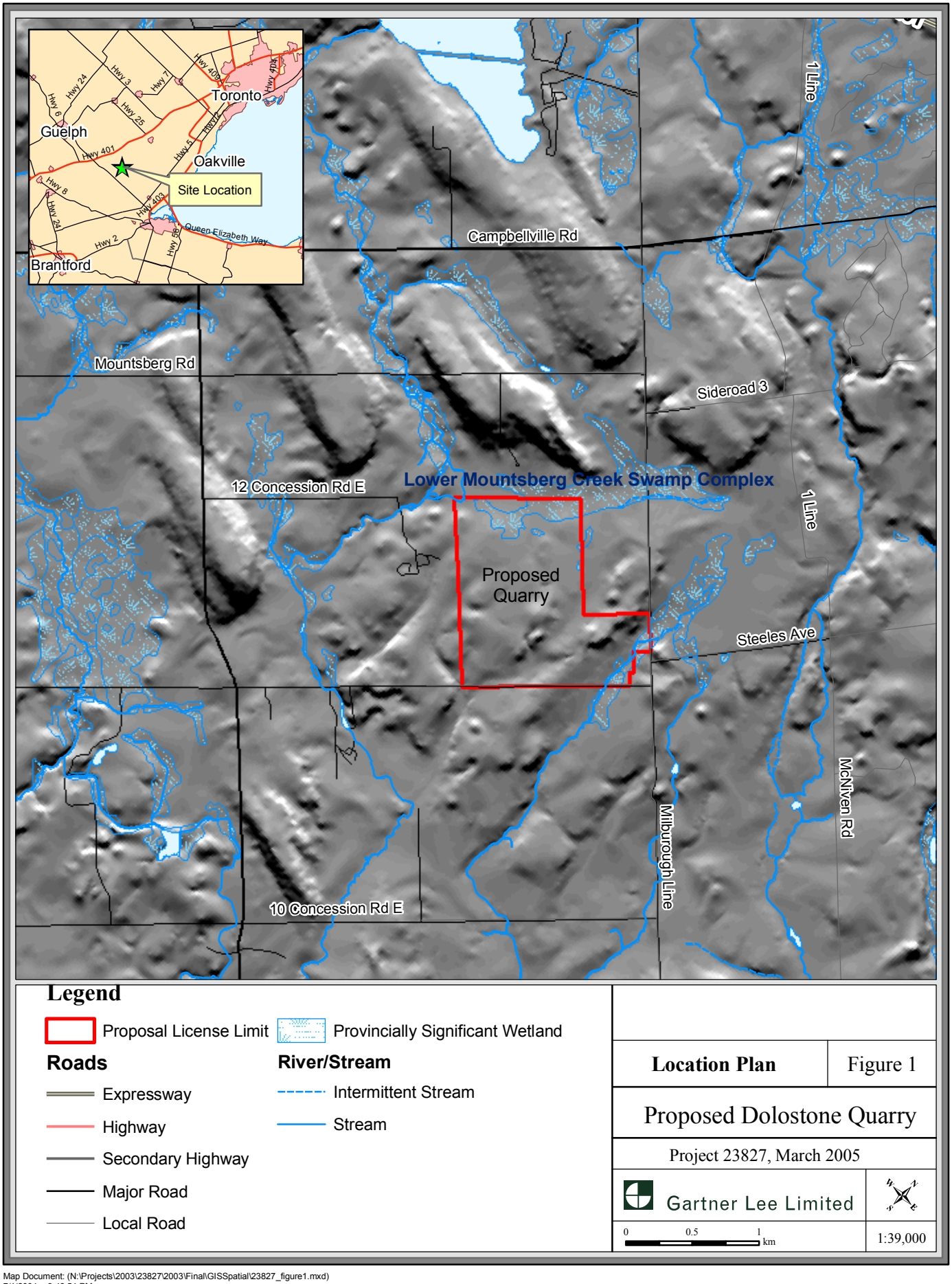
We trust this letter addresses your requirements at this time. Please call me if you have any questions.

Yours very truly,
GARTNER LEE LIMITED

Gunther Funk, P.Geo.,
Senior Hydrogeologist/Principal

GHF:ghf

Figures



Legend

- Proposal License Limit
- Provincially Significant Wetland

Roads

- Expressway
- Highway
- Secondary Highway
- Major Road
- Local Road

River/Stream

- Intermittent Stream
- Stream

Location Plan	Figure 1

Proposed Dolostone Quarry

Project 23827, March 2005

Gartner Lee Limited

0 0.5 1 km

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Map Document: (N:\Projects\2003\23827\2003\Final\GISSpatial\23827_figure1.mxd)
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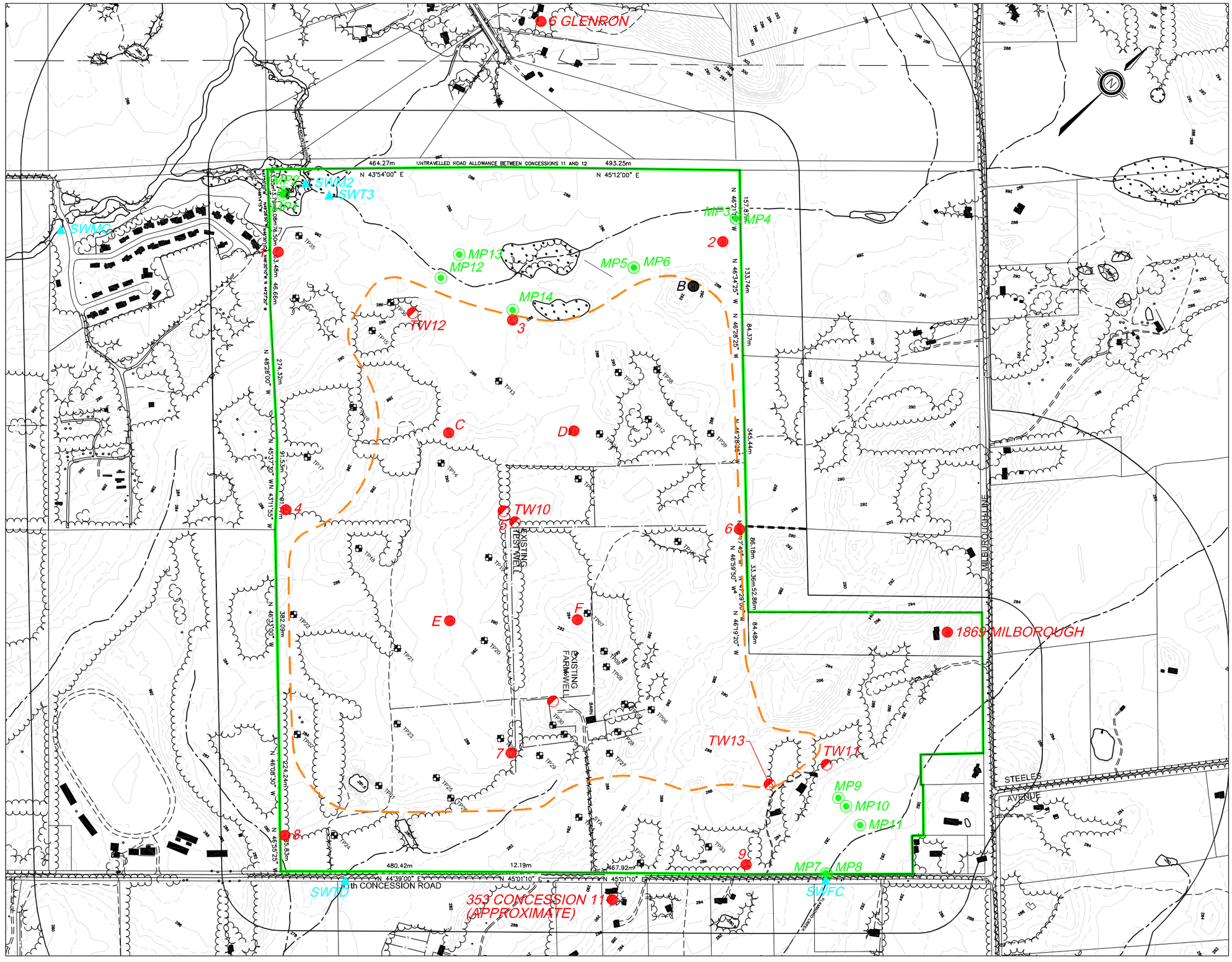


LEGEND

- PROPERTY BOUNDARY
- BOUNDARY OF AREA TO BE EXCAVATED
- 310 – EXISTING 1m CONTOURS
- 307.0 EXISTING SPOT ELEVATIONS
- EXISTING TREE COVER
- EXISTING CONIFER
- EXISTING DECIDUOUS
- EXISTING FENCE LINE
- EXISTING SURFACE DRAINAGE
- TP9 TEST PITS, 2003
- EXISTING WELL
- TW12 PRODUCTION WELL
- 1 MONITOR WELL LOCATION AND DESIGNATION
- MP8 PIEZOMETER LOCATION
- SWFC SURFACE WATER STATION

NOTE:
BASE DRAWING FROM LONG ENVIRONMENTAL CONSULTANTS INC. DRAWING 2 "EXISTING FEATURES" DATED MARCH 30, 2004.

No.	Revision	Date	Initial

SCALES
75m 0 150m 300m
Scale 1:7,500

PROPOSED DOLOSTONE QUARRY

SITE PLAN

Designed By: SB	Drawn By: JEP
Checked By: –	Approved By: –
Date Issued: MARCH 2005	Project No.: 23–827

Gartner Lee

FIGURE 2

LEGEND

- PROPERTY BOUNDARY
- BOUNDARY OF AREA TO BE EXCAVATED
- 310 – EXISTING 1m CONTOURS
- 307.0 EXISTING SPOT ELEVATIONS
- EXISTING TREE COVER
- EXISTING CONIFER
- EXISTING DECIDUOUS
- EXISTING FENCE LINE
- EXISTING SURFACE DRAINAGE
- TP9 TEST PITS, 2003
- W EXISTING WELL
- TW12 PRODUCTION WELL
- 1 MONITOR WELL LOCATION AND DESIGNATION
- MP8 PIEZOMETER LOCATION
- SWFC SURFACE WATER STATION
- (1.40) MAXIMUM DRAWDOWN (m)
- –1m– INTERPRETED DRAWDOWN CONTOURS

NOTE:
BASE DRAWING FROM LONG ENVIRONMENTAL CONSULTANTS INC. DRAWING 2 "EXISTING FEATURES" DATED MARCH 30, 2004.

No.	Revision	Date	Initial

SCALES
75m 0 150m 300m
Scale 1:7,500

PROPOSED DOLOSTONE QUARRY

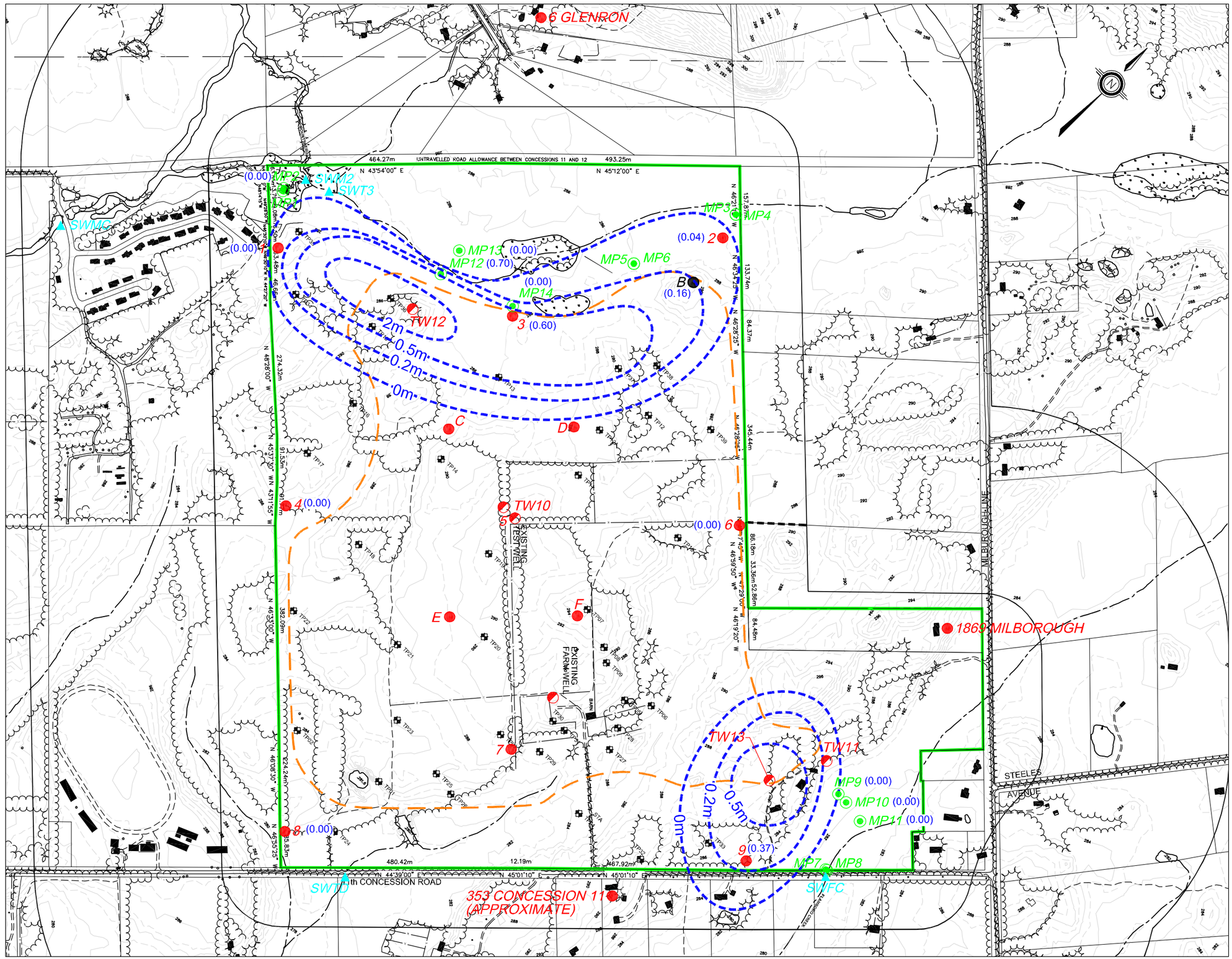
168 HOUR PUMP TEST
DEEP AQUIFER DRAWDOWN

Designed By: SB	Drawn By: JEP
Checked By: –	Approved By: –
Date Issued: MARCH 2005	Project No.: 23-827

Gartner Lee

FIGURE 3

Mar 10, 2005 – 3:43pm N:\Projects\2003\23827\2005\Final\ACAD\23827-F01.dwg



LEGEND

- PROPERTY BOUNDARY
- BOUNDARY OF AREA TO BE EXCAVATED
- 310 – EXISTING 1m CONTOURS
- 307.0 EXISTING SPOT ELEVATIONS
- EXISTING TREE COVER
- EXISTING CONIFER
- EXISTING DECIDUOUS
- EXISTING FENCE LINE
- EXISTING SURFACE DRAINAGE
- TP9 TEST PITS, 2003
- W EXISTING WELL
- TW12 PRODUCTION WELL
- 1 MONITOR WELL LOCATION AND DESIGNATION
- MP8 PIEZOMETER LOCATION
- SWFC SURFACE WATER STATION
- (1.40) MAXIMUM DRAWDOWN (m)
- –1m– INTERPRETED DRAWDOWN CONTOURS

NOTE:
BASE DRAWING FROM LONG ENVIRONMENTAL CONSULTANTS INC. DRAWING 2 "EXISTING FEATURES" DATED MARCH 30, 2004.

No.	Revision	Date	Initial

SCALES
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Scale 1:7,500

PROPOSED DOLOSTONE QUARRY

168 HOUR PUMP TEST
SHALLOW AQUIFER DRAWDOWN

Designed By: SB	Drawn By: JEP
Checked By: –	Approved By: –
Date Issued: MARCH 2005	Project No.: 23–827

Gartner Lee

FIGURE
4

Mar 10, 2005 – 3:42pm N:\Projects\2003\23827\2005\Final\ACAD\23827–F01.dwg

Figure F2-2-2
Proposed Dolostone Quarry
168-Hour Pumping Test - Barometric Pressure

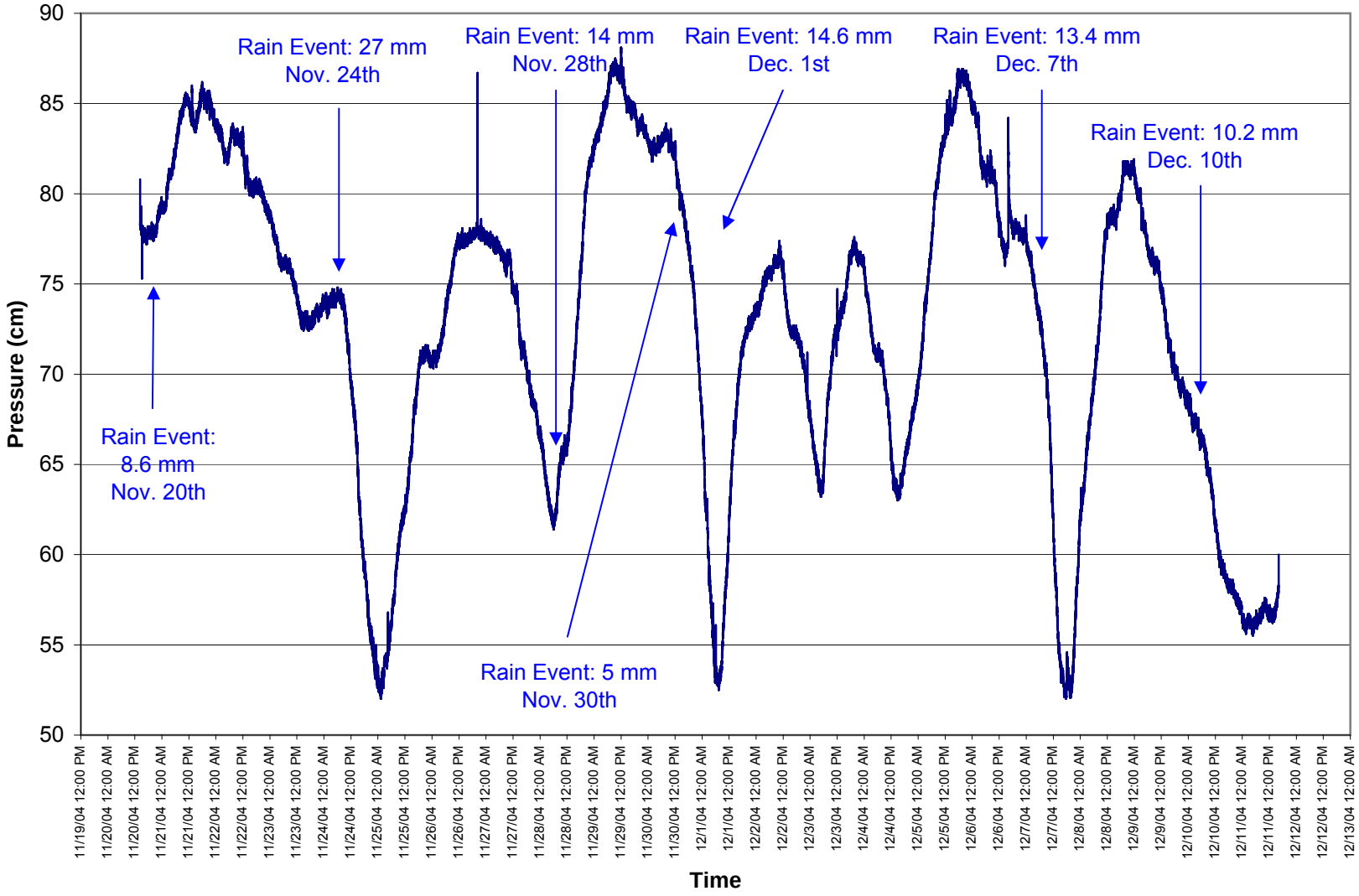

Figure F2-2-3
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 1-D

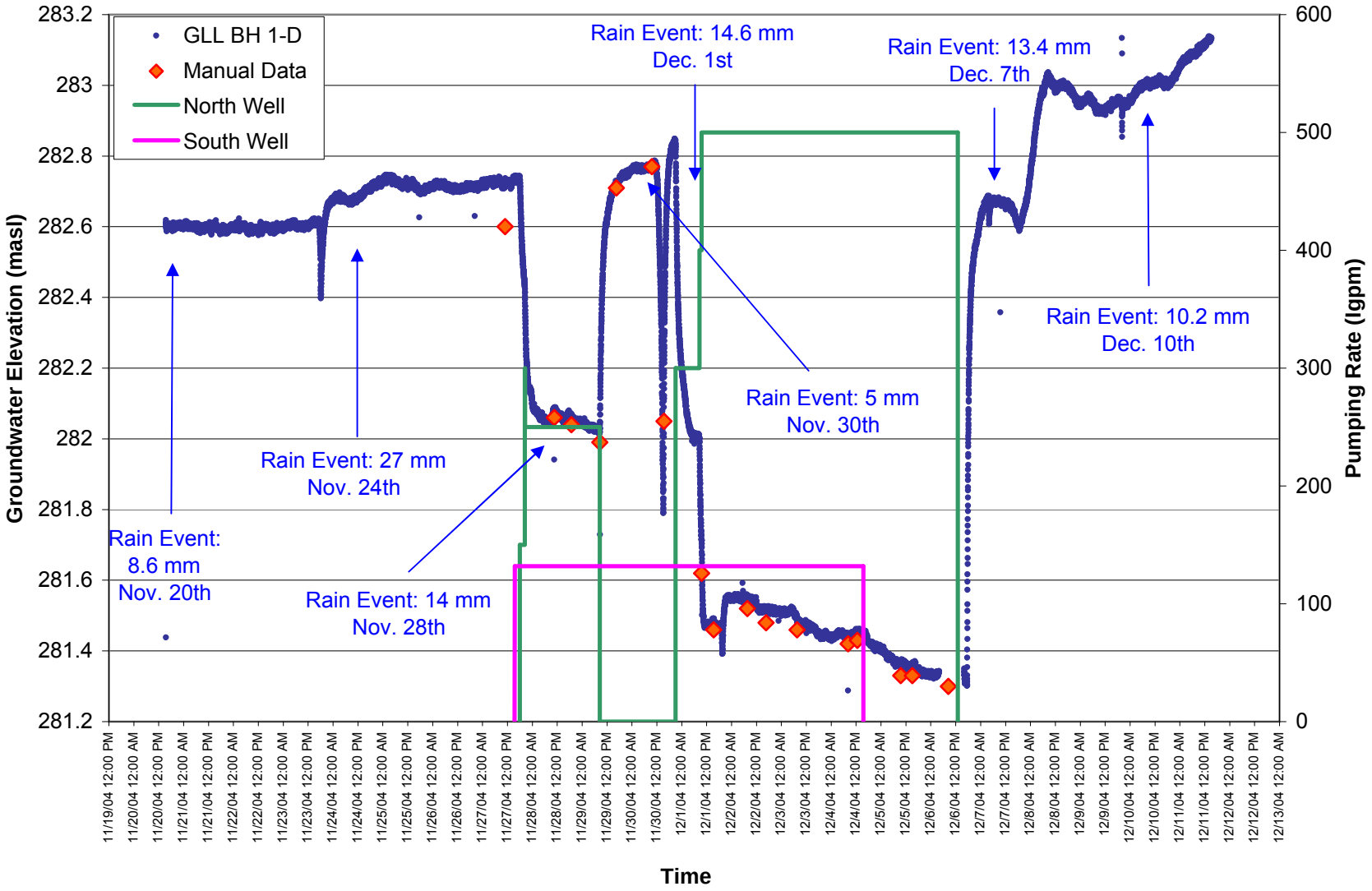

Figure F2-2-4
168-Hour Pump Test - Water Level Hydrograph
Monitor GLL BH 1-S

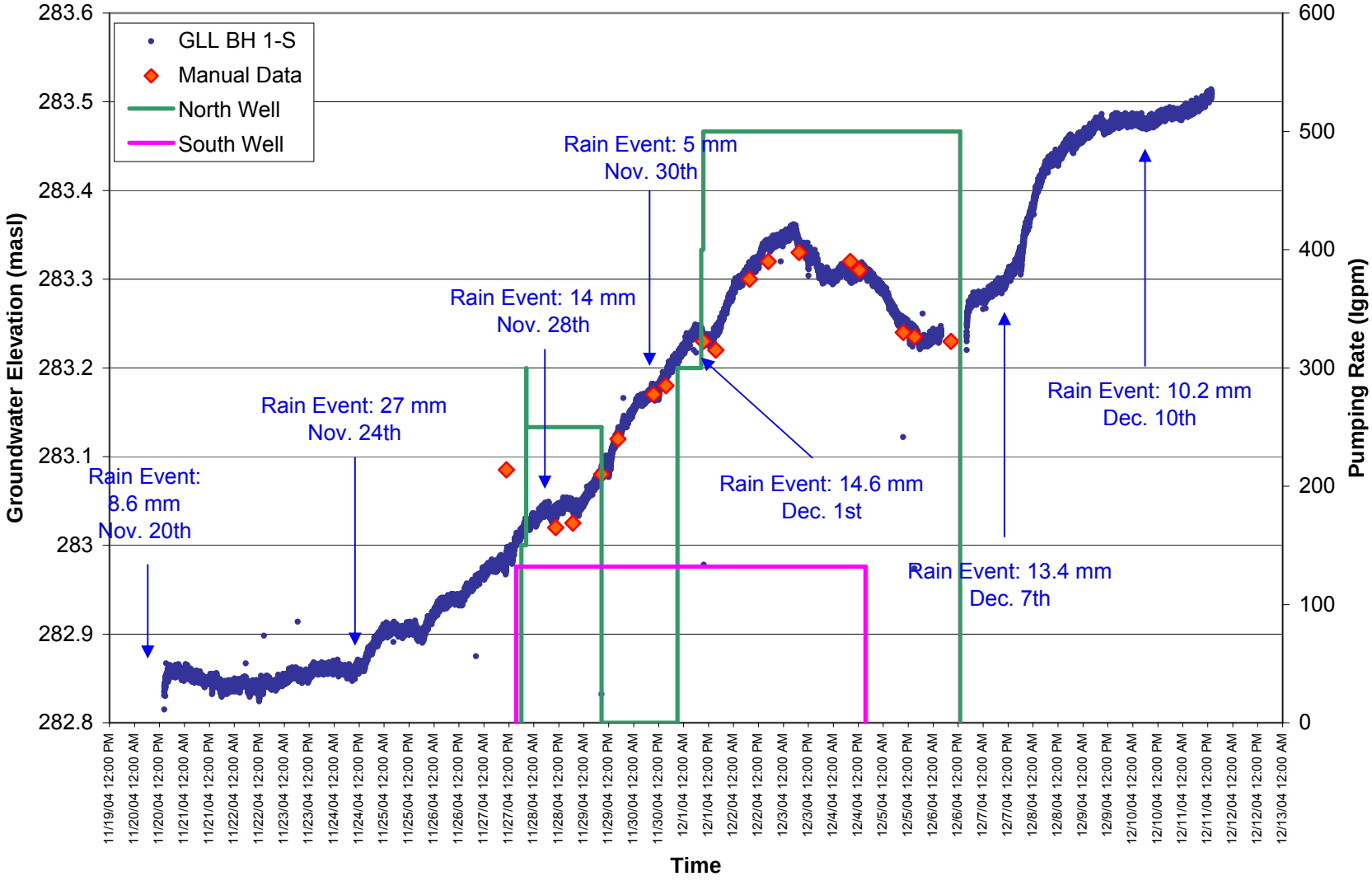

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Figure F2-2-5
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 3-S

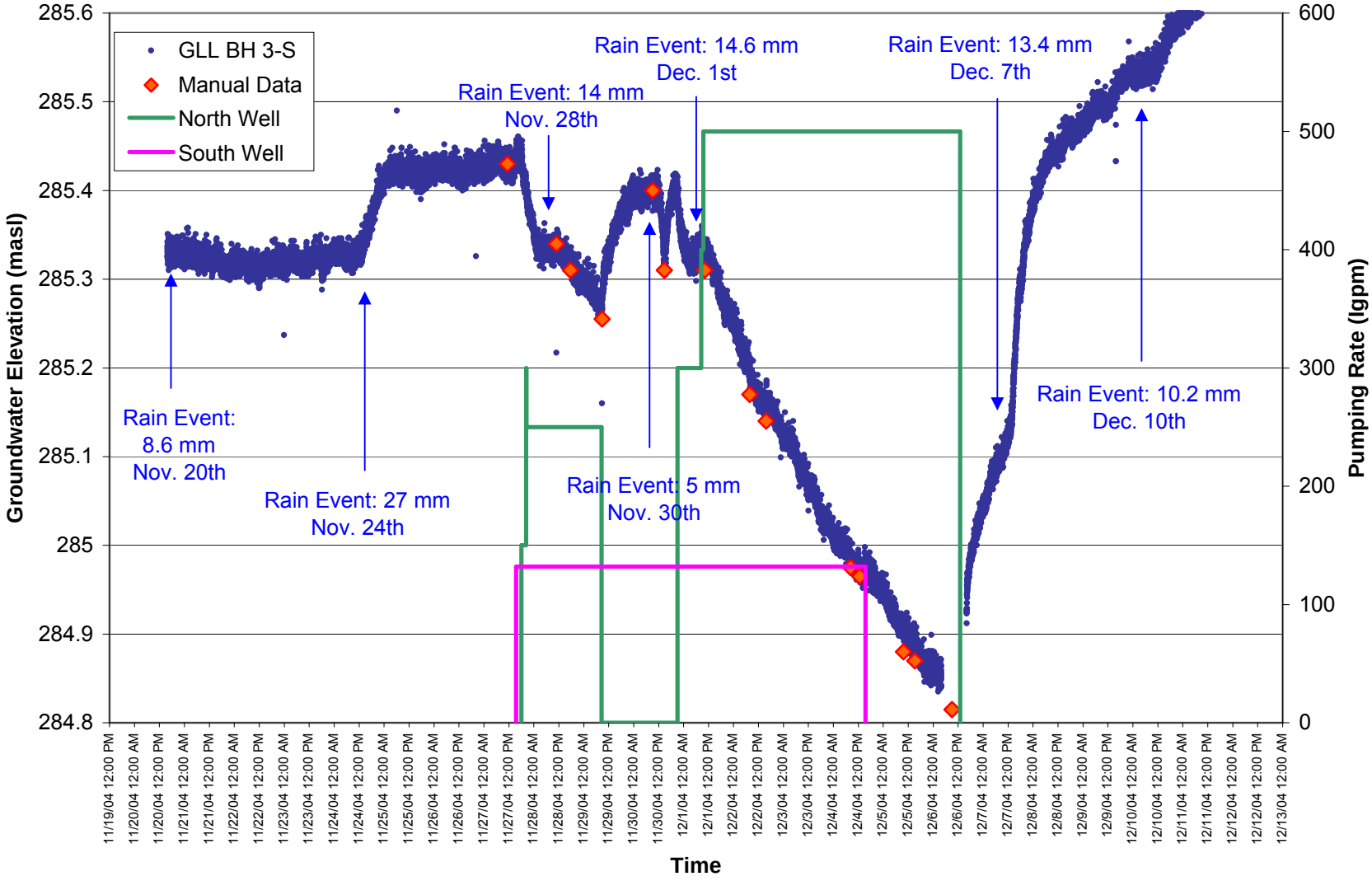

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Figure F2-2-6
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 4-D

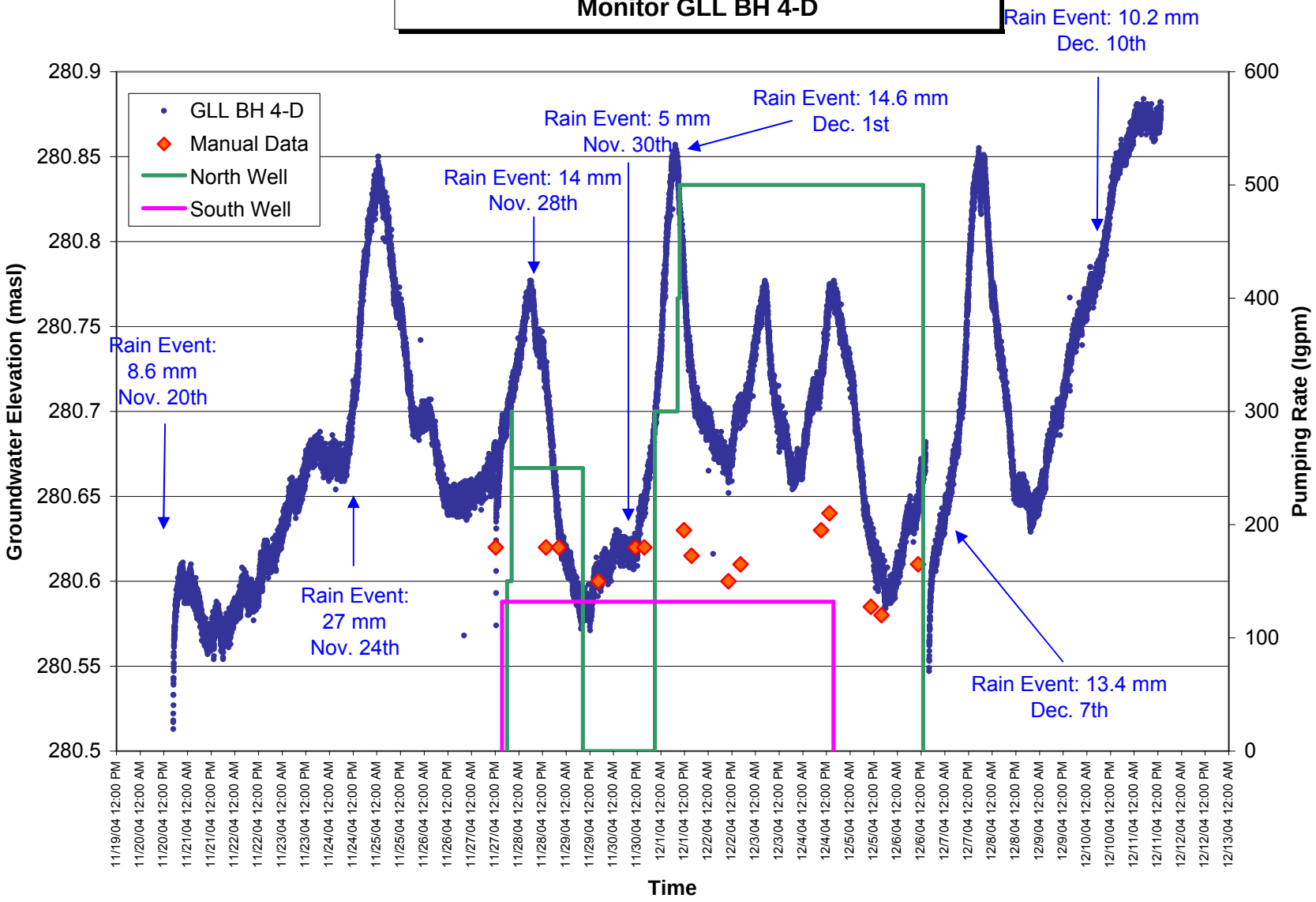
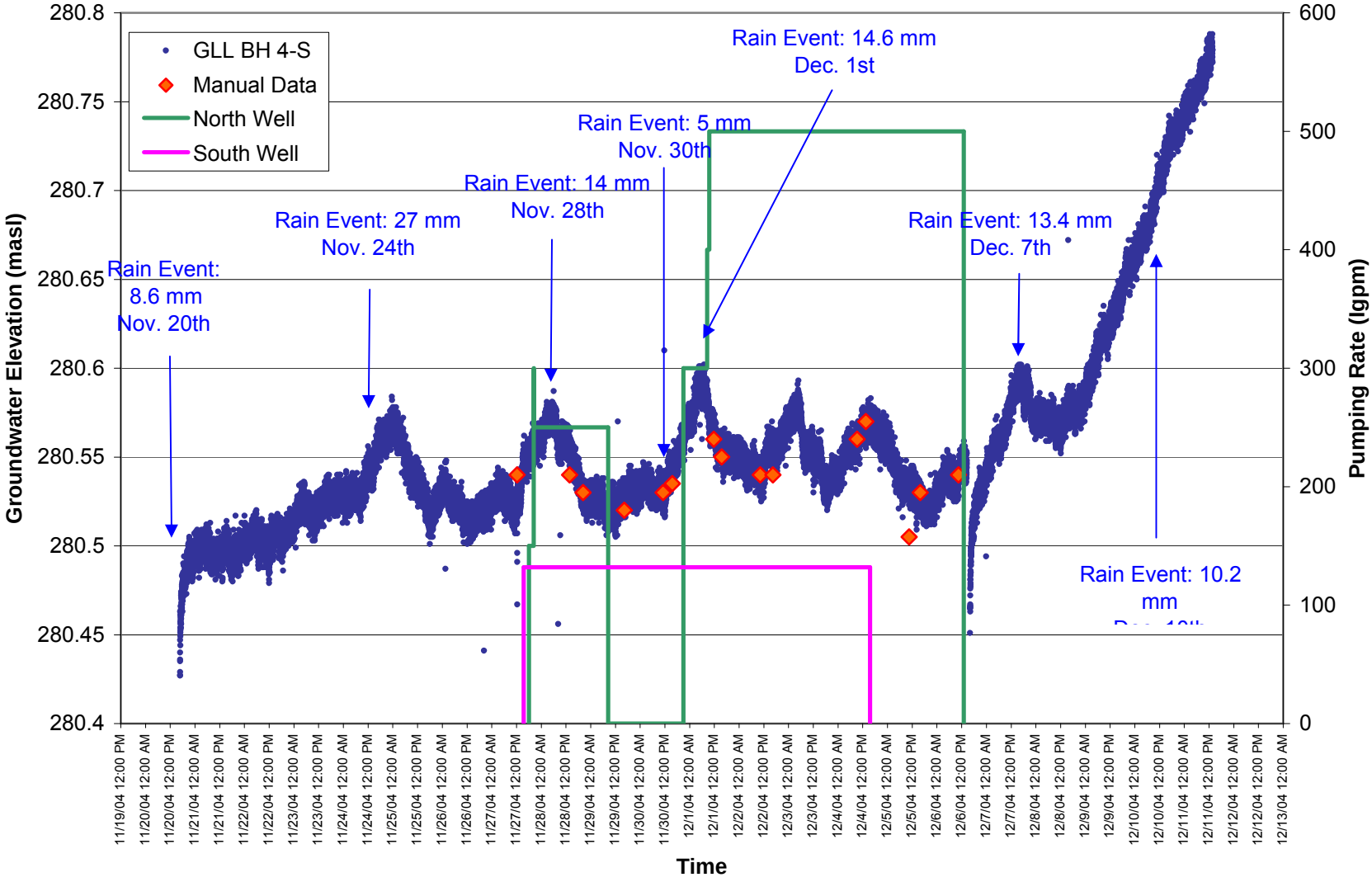


Figure F2-2-7
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 4-S



Project 23-827

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Figure F2-2-8
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 5

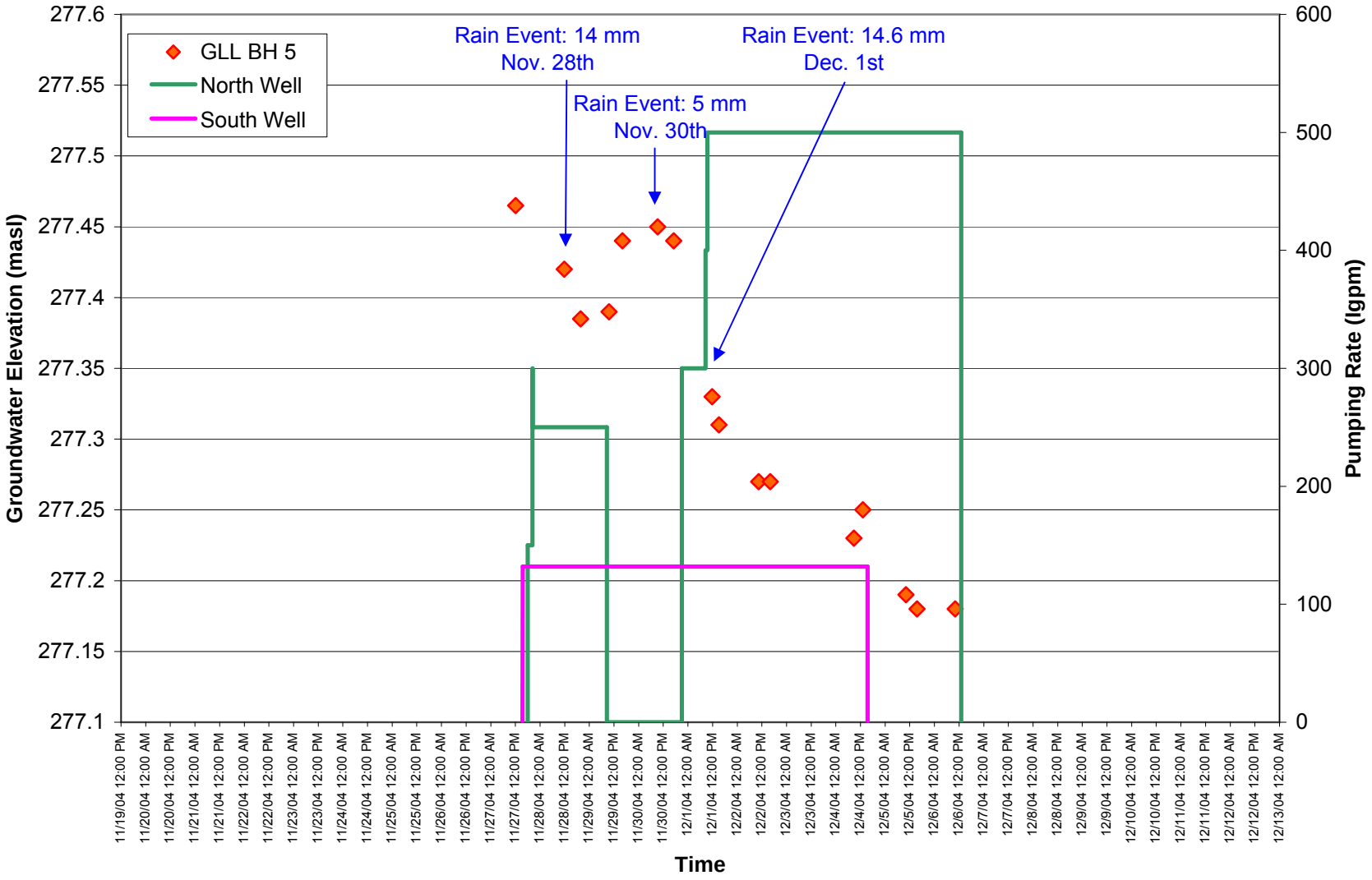


Figure F2-2-9
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 6-D

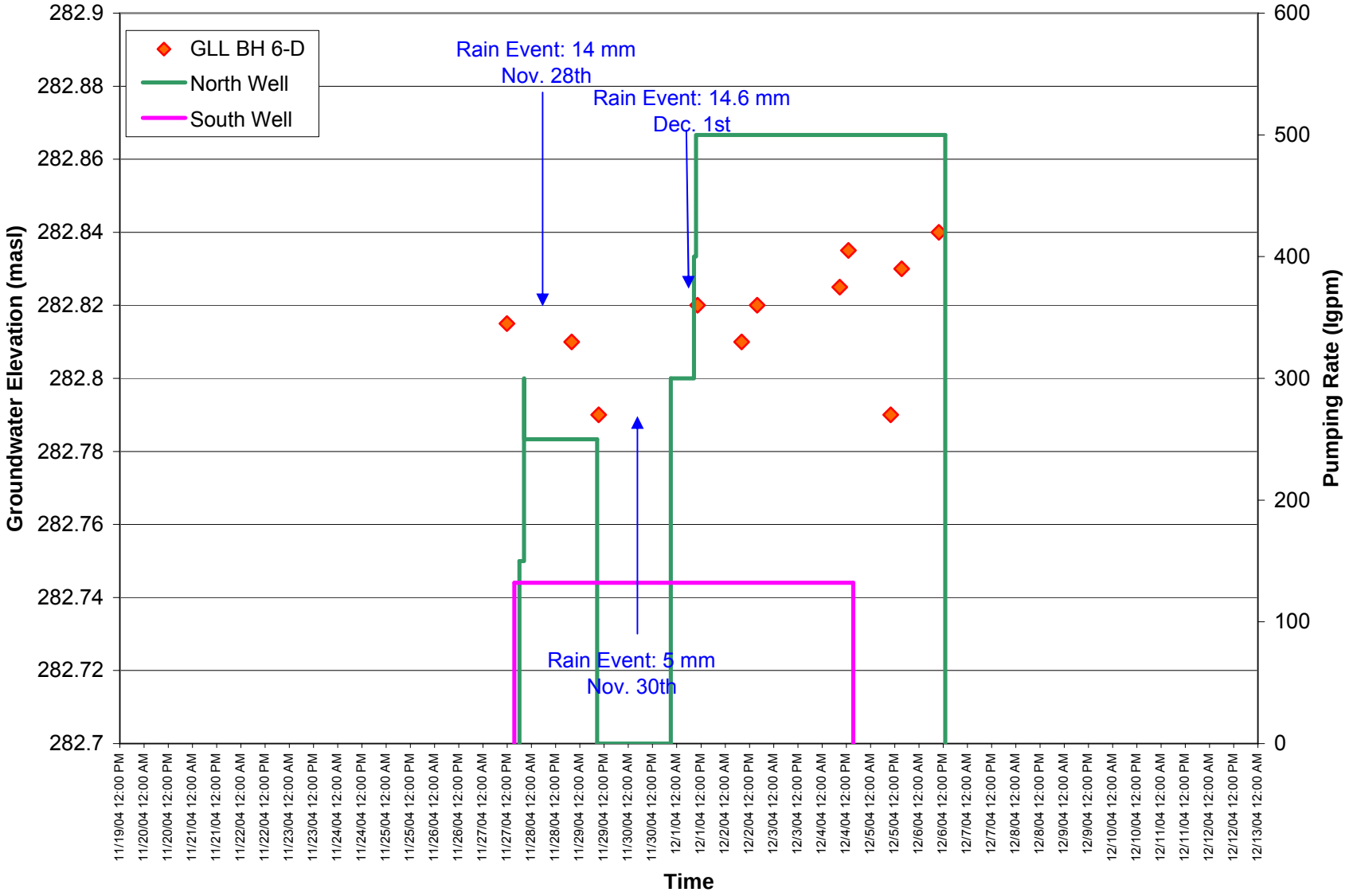


Figure F2-2-10
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 6-S

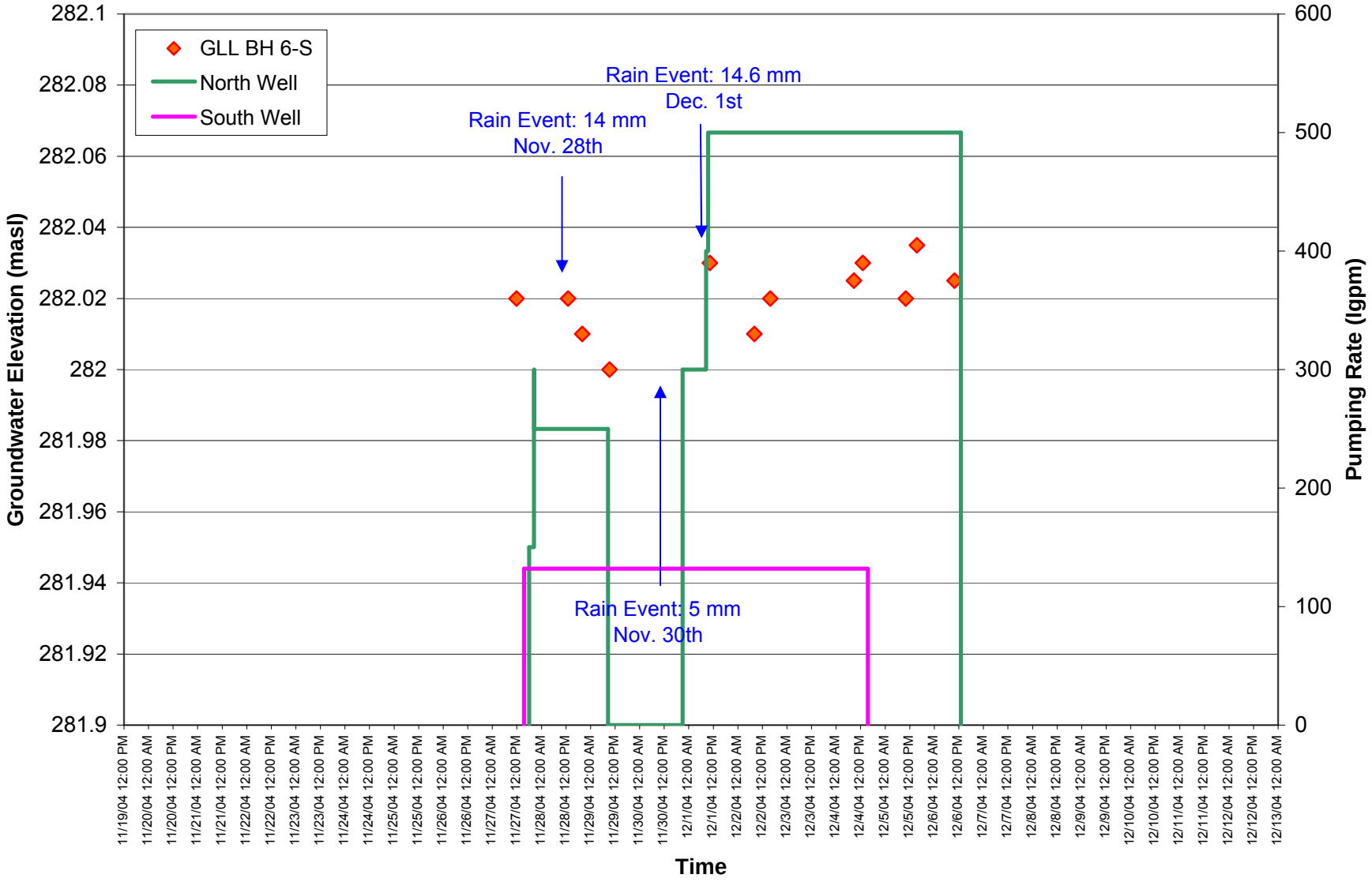
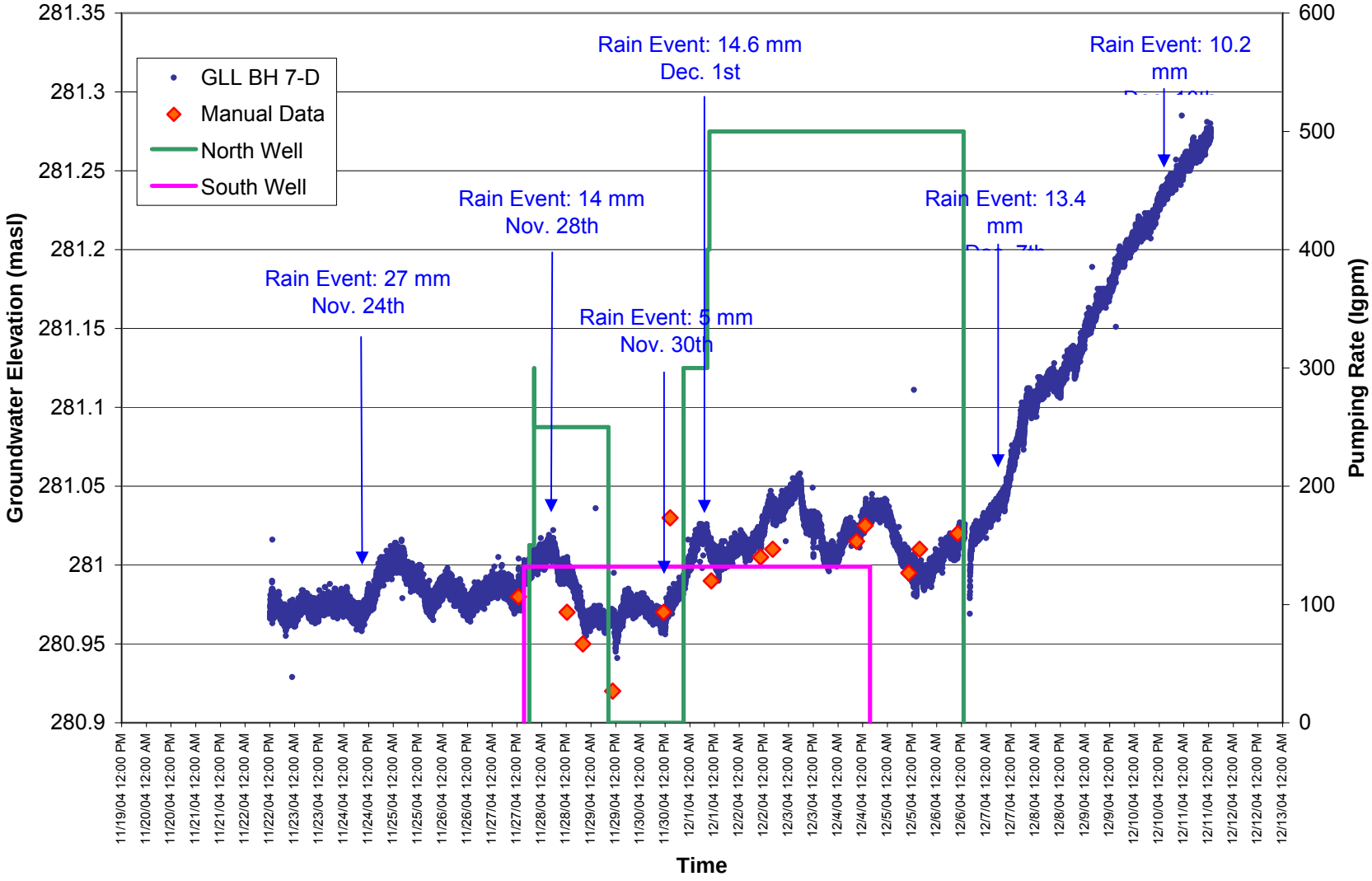


Figure F2-2-11
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 7-D



Project 23-827

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Figure F2-2-12
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 7-S

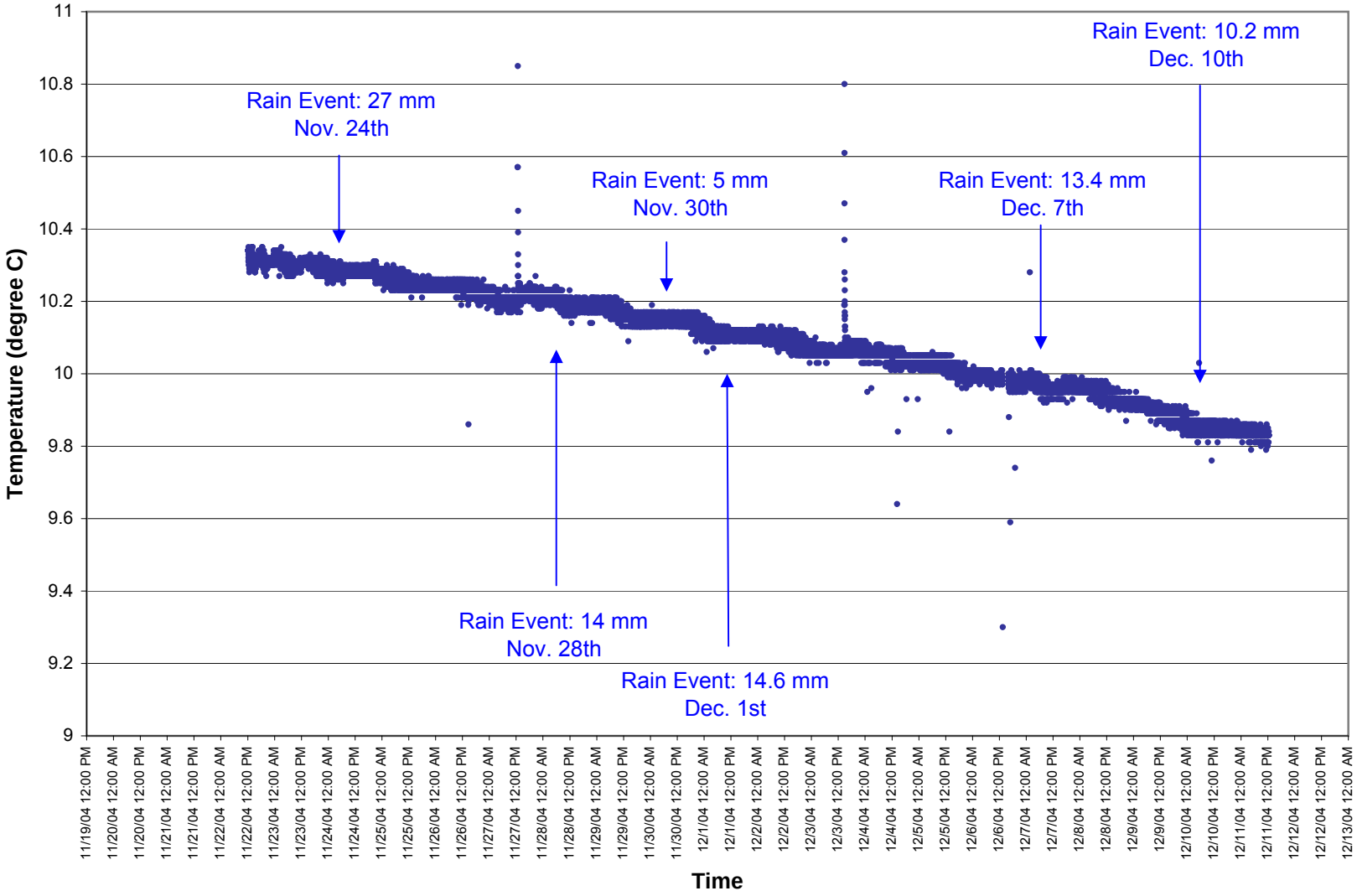
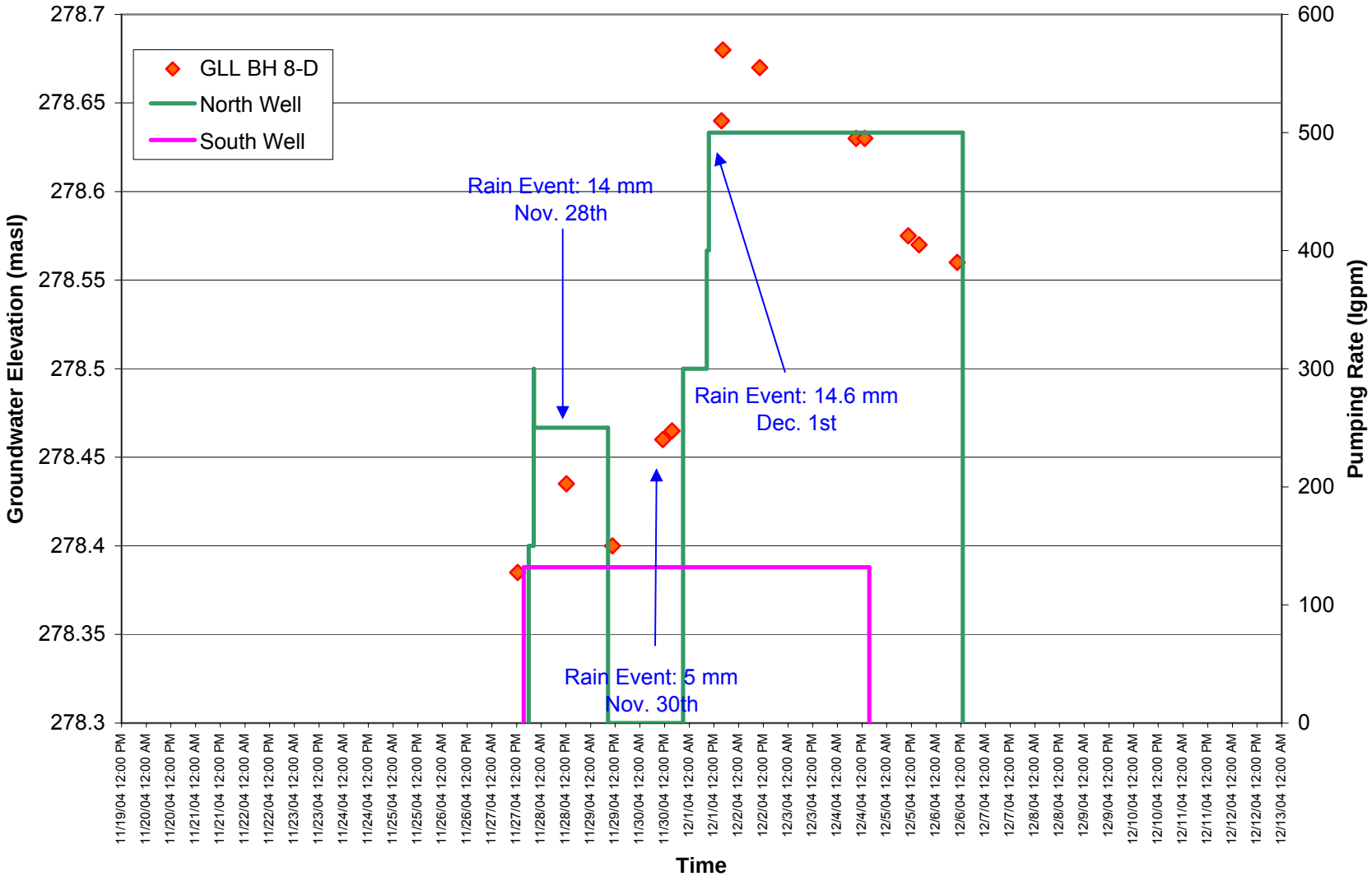


Figure F2-2-13
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 8-D



Project 23-827

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Figure F2-2-14
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 8-S

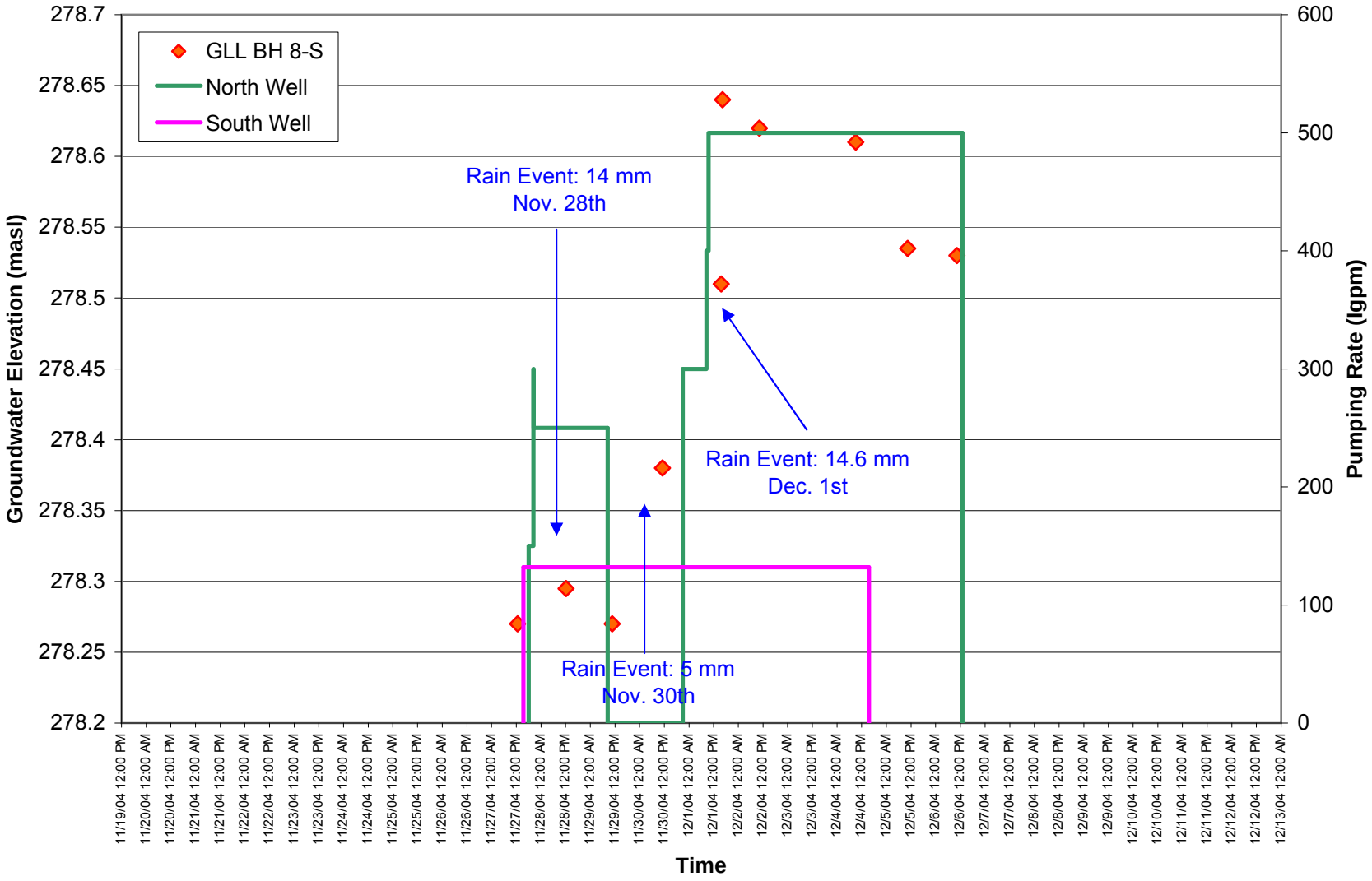
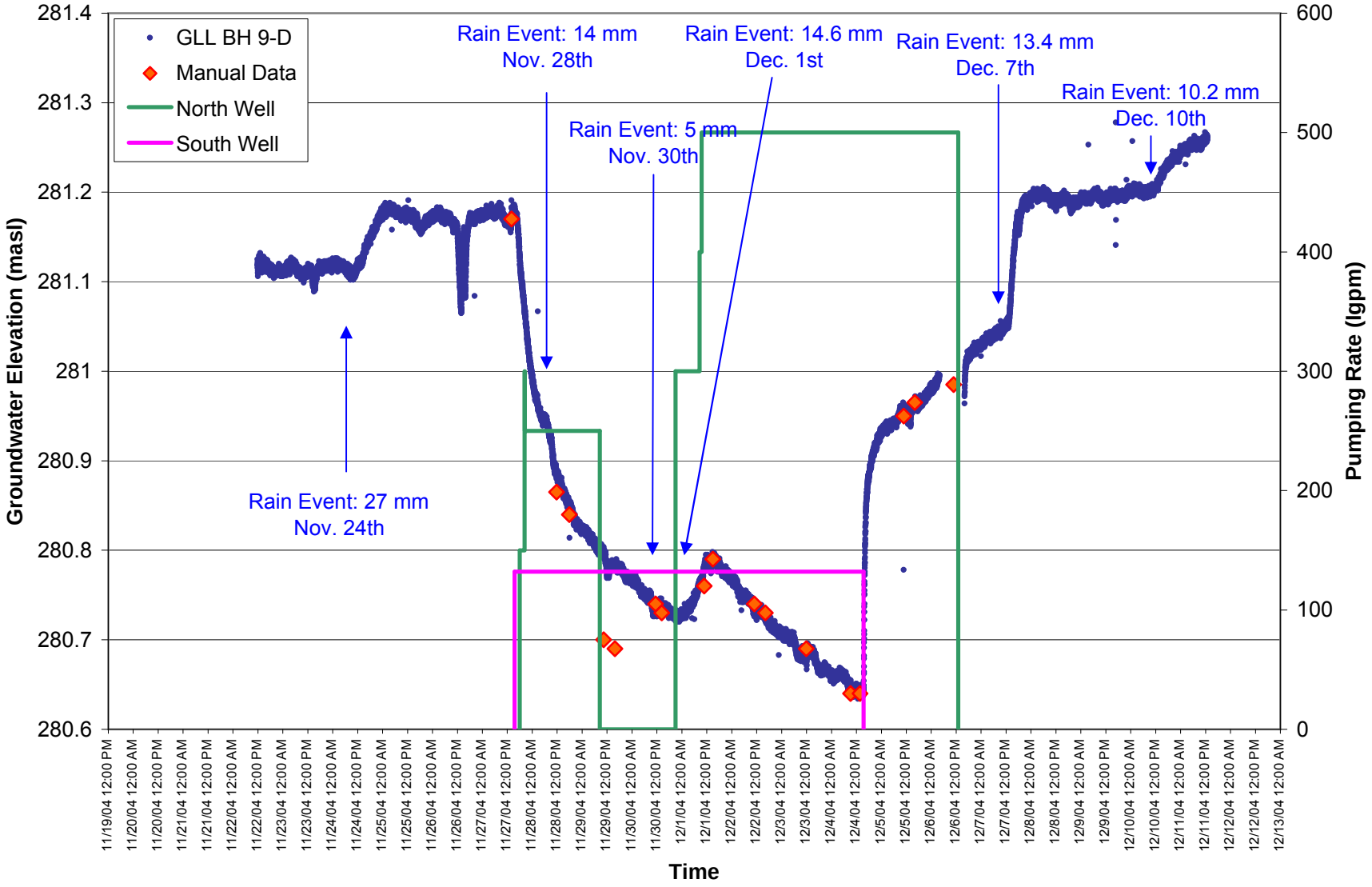


Figure F2-2-15
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 9-D



Project 23-827

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Figure F2-2-16
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 9-S

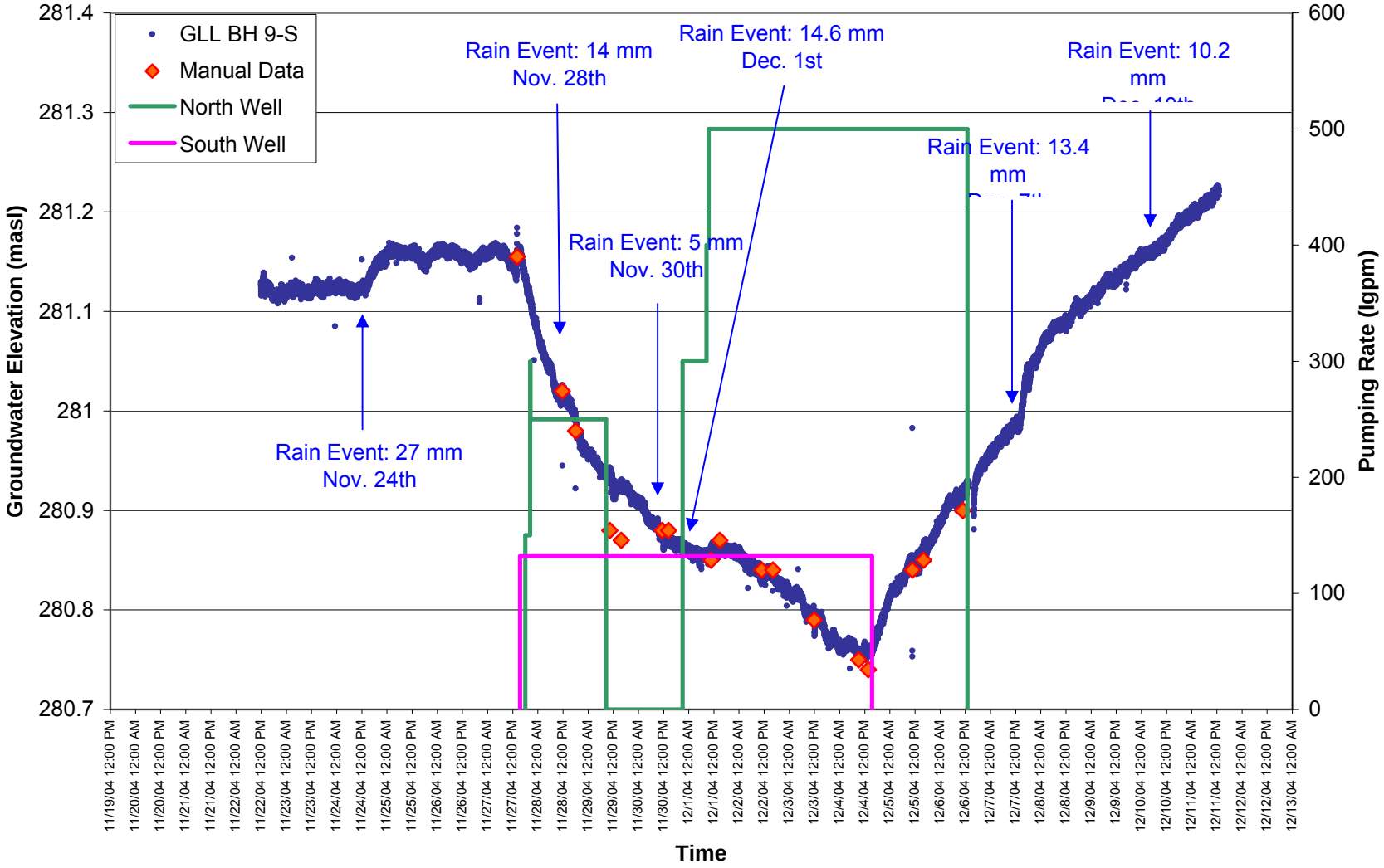
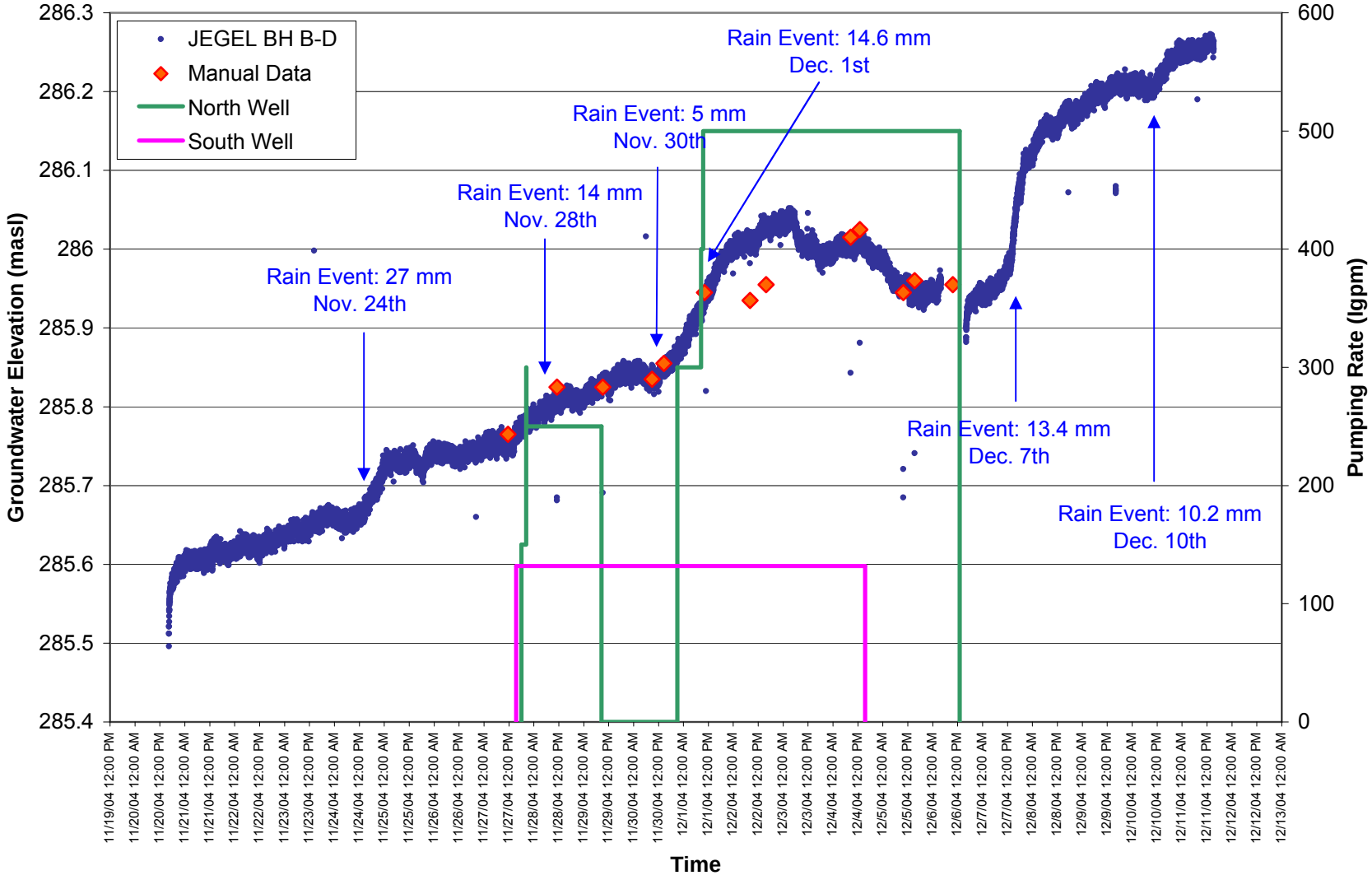


Figure F2-2-17
168-Hour Pumping Test - Water Level Hydrograph
Monitor JEGEL BH B-D



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168-Hour Pumping Test - Water Level Hydrograph
Monitor JEGEL BH B-S

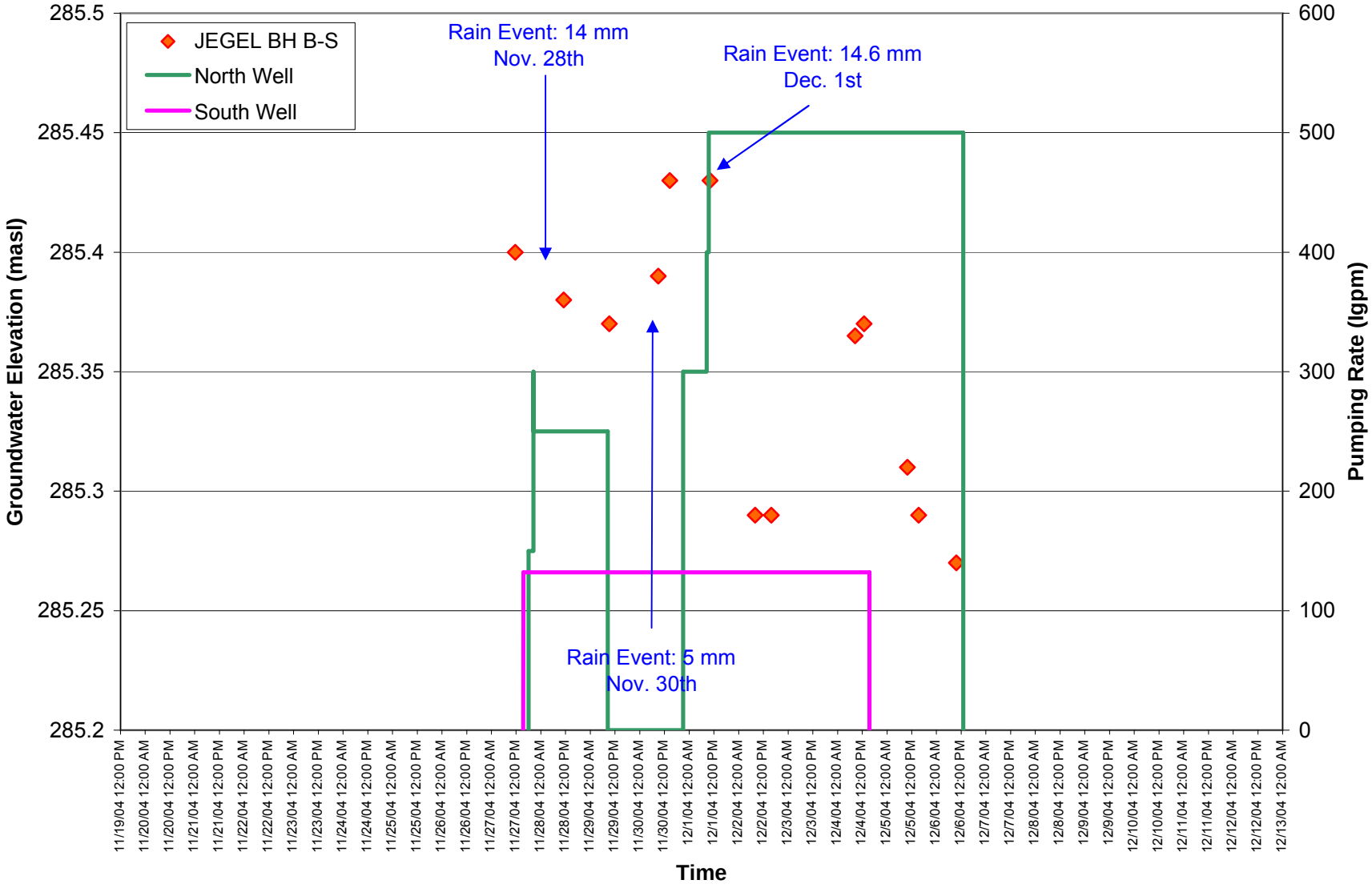
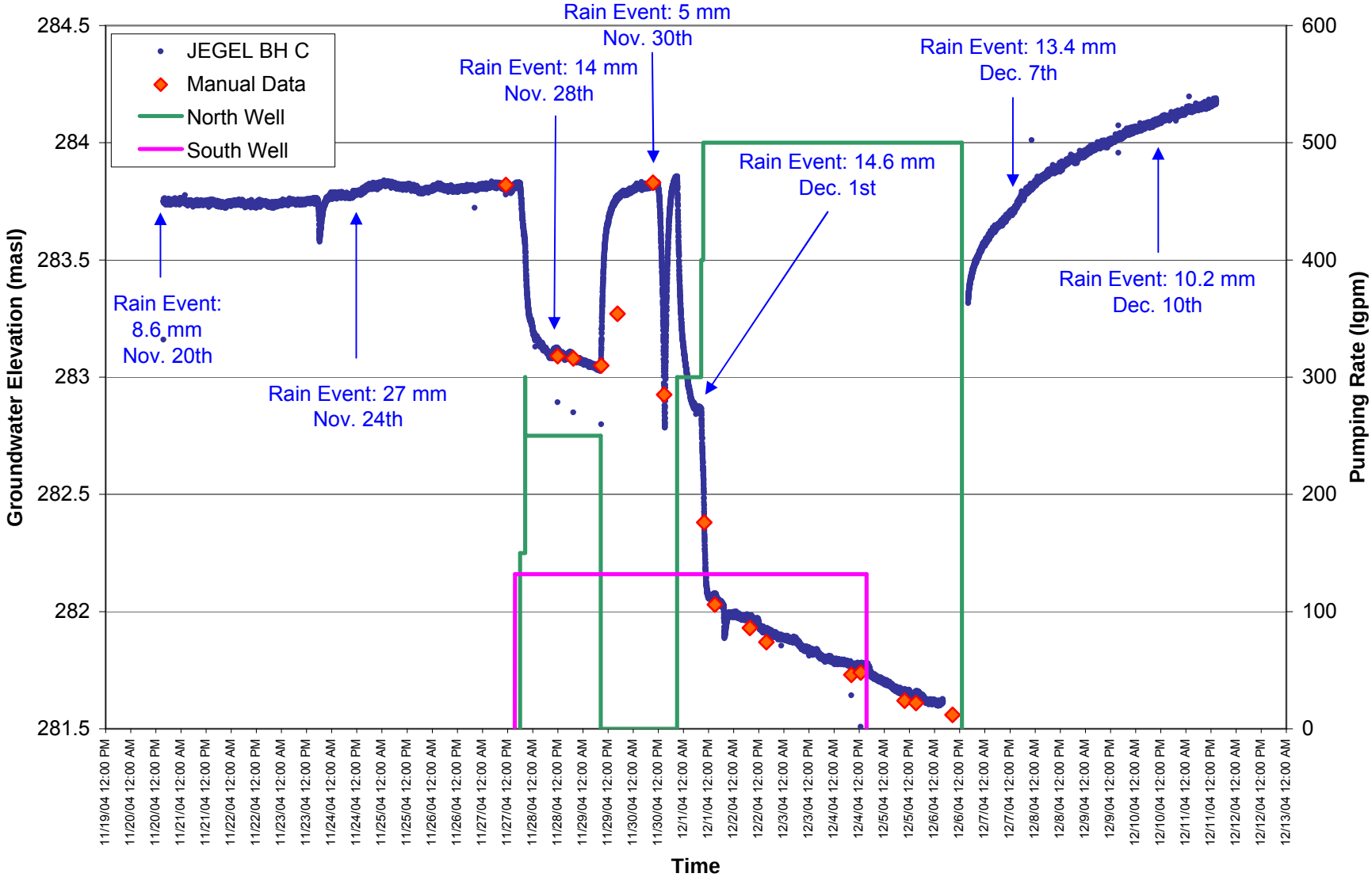


Figure F2-2-19
168-Hour Pumping Test - Water Level Hydrograph
Monitor JEGEL BH C



Project 23-827

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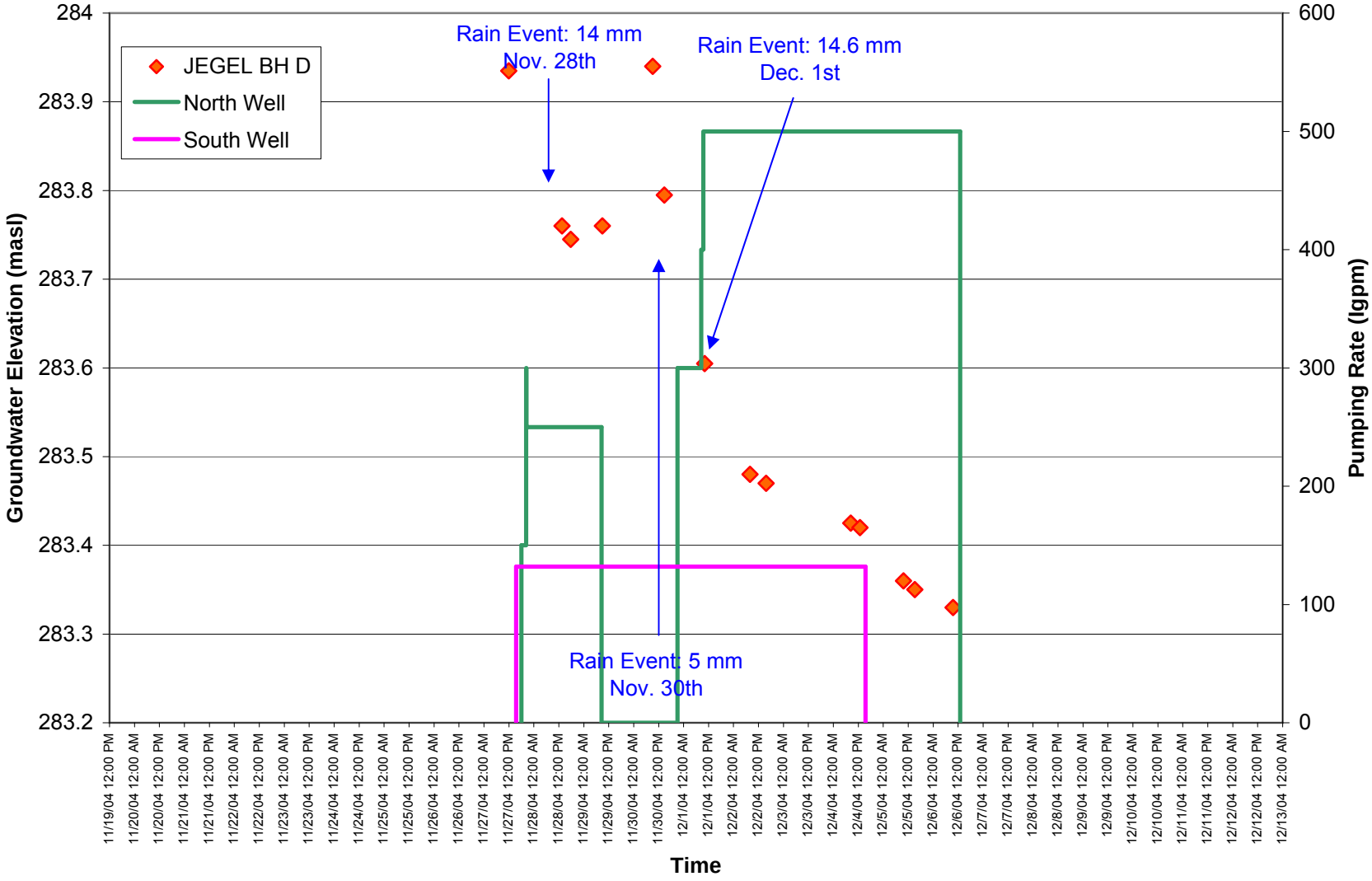
Figure F2-2-20
168-Hour Pumping Test - Water Level Hydrograph
Monitor JEGEL BH D



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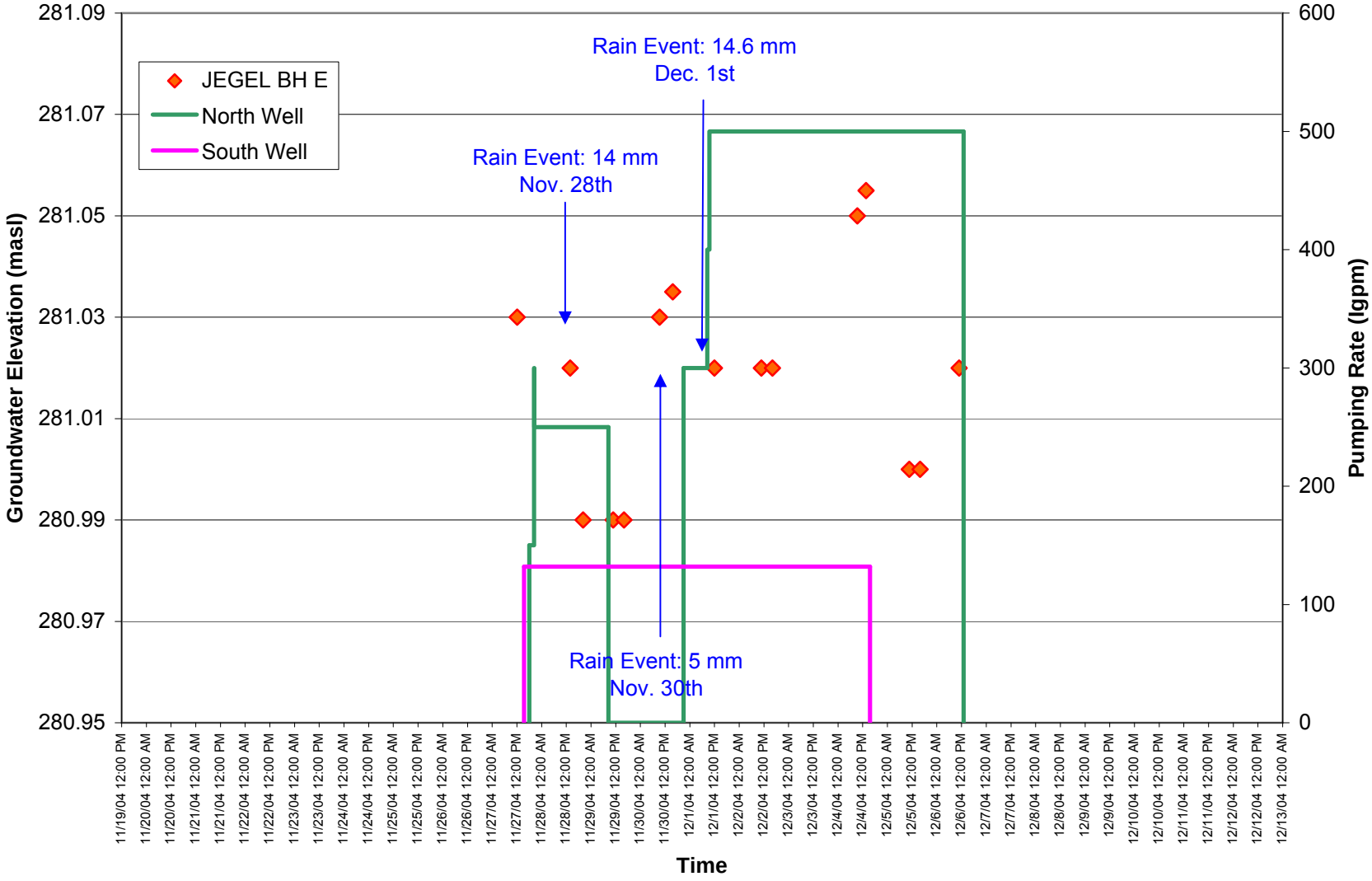
168-Hour Pumping Test - Water Level Hydrograph
Monitor JEGEL BH E



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168-Hour Pumping Test - Water Level Hydrograph
Monitor JEGEL BH F

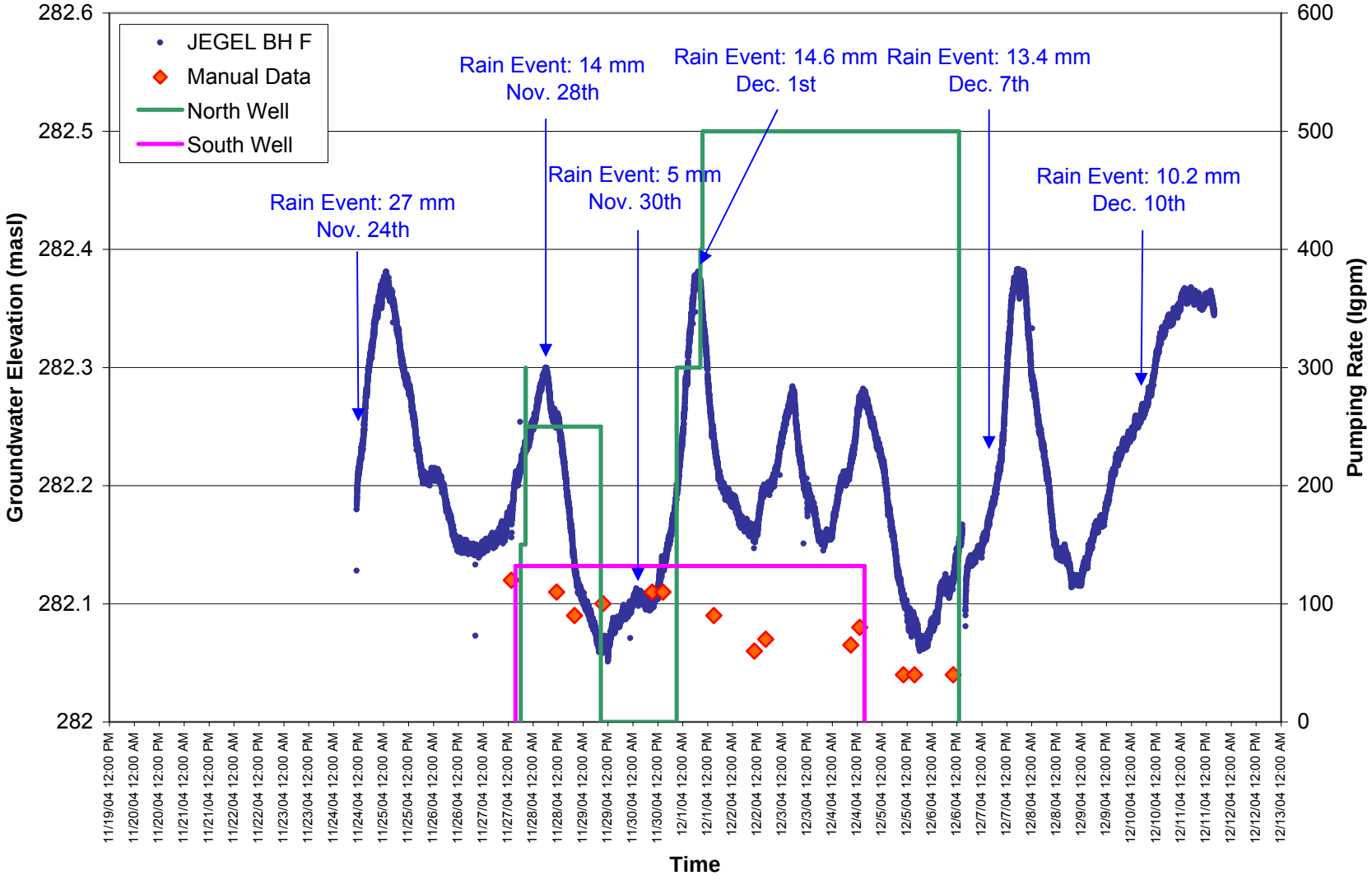

Figure F2-2-23
168-Hour Pumping Test - Water Level Hydrograph
Monitor TW 10

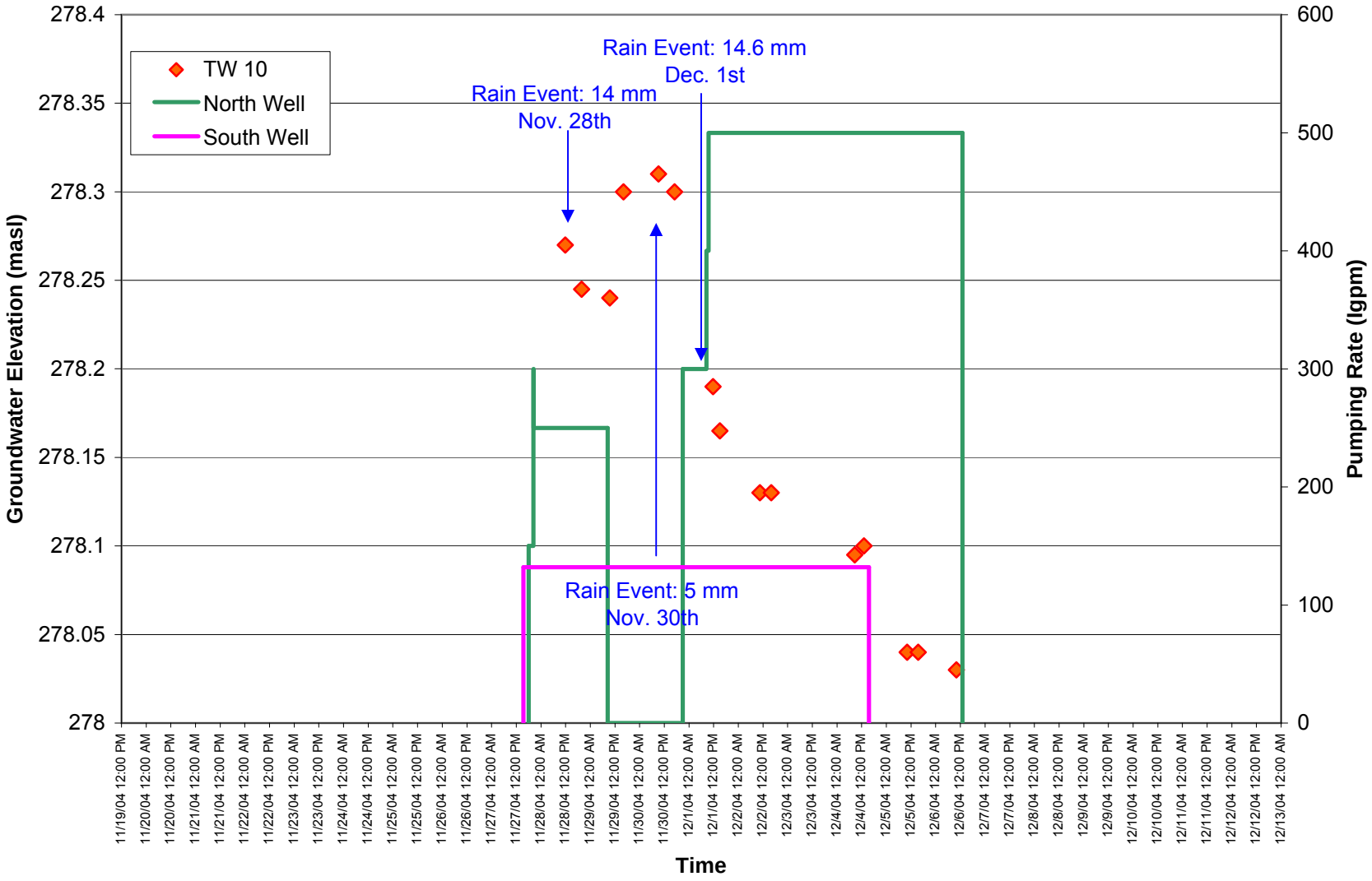

Figure F2-2-24
168-Hour Pumping Test - Water Level Hydrograph
Monitor TW 11

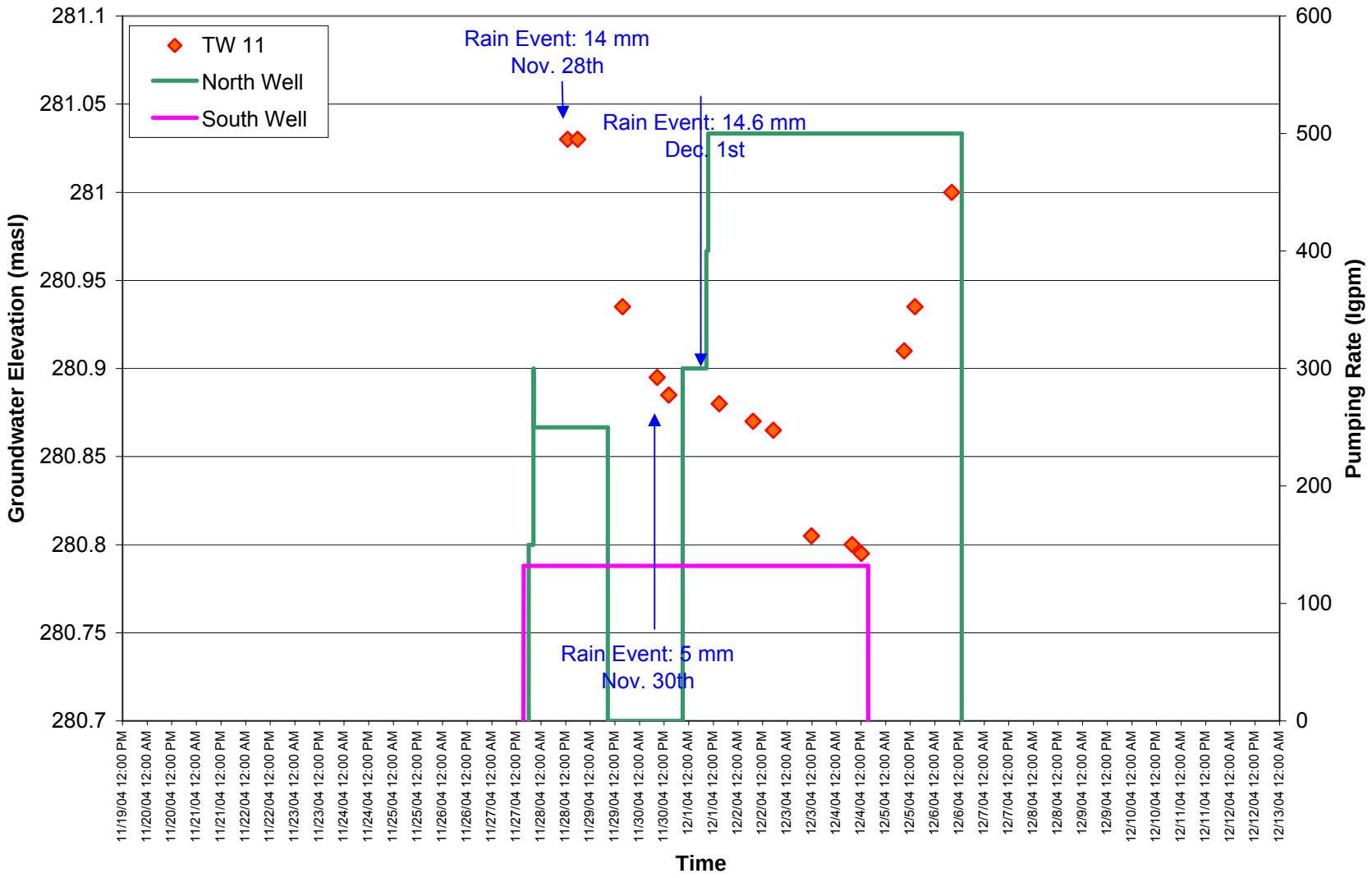

Figure F2-2-25
168-Hour Pumping Test - Water Level Hydrograph
Pumping Well TW 12

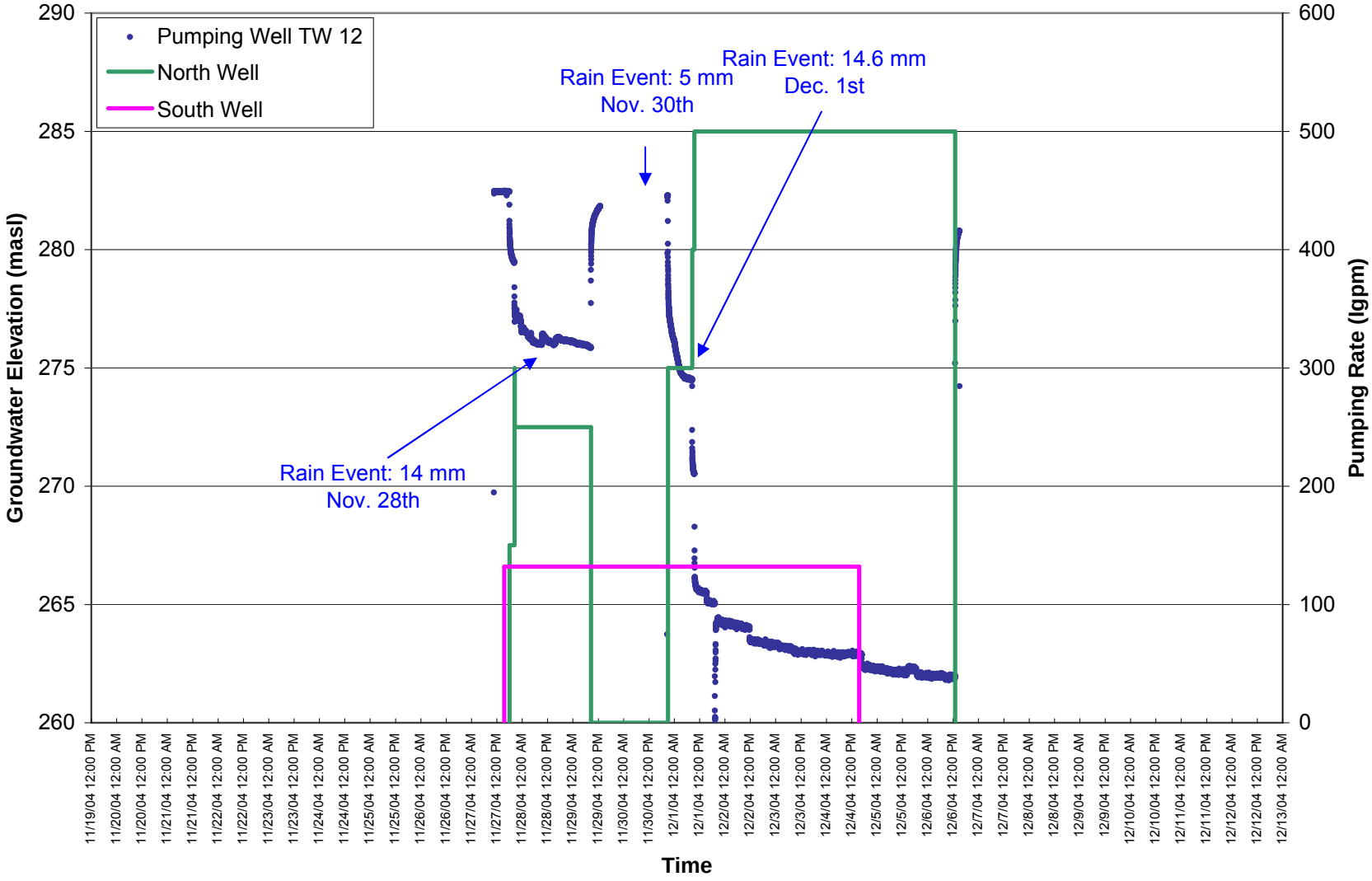

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Figure F2-2-26
168-Hour Pumping Test - Water Level Hydrograph
Pumping Well TW 13

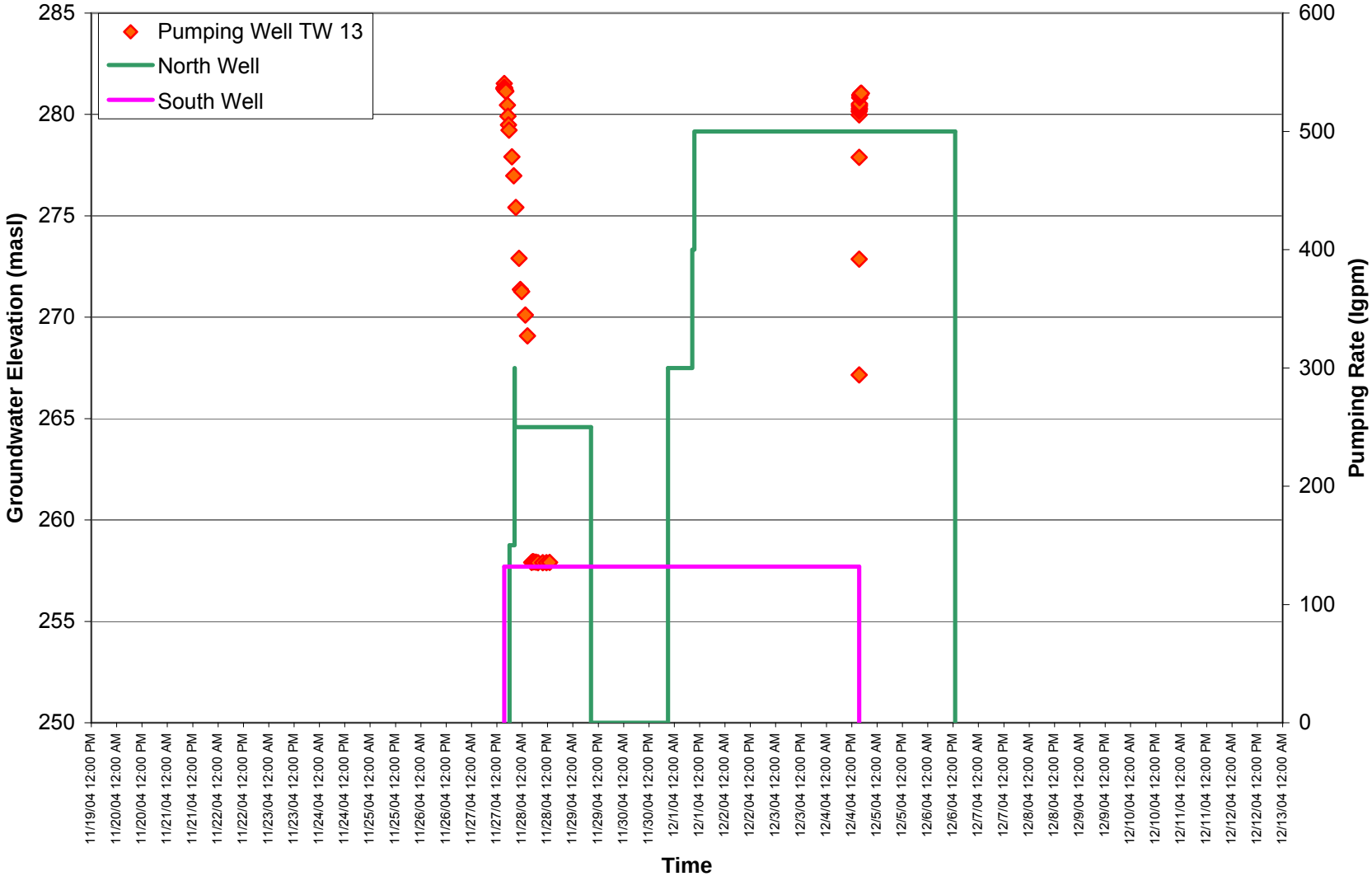


Figure F2-2-27
168-Hour Pumping Test - Water Level Hydrograph
MP-2 (Mountsberg-4)

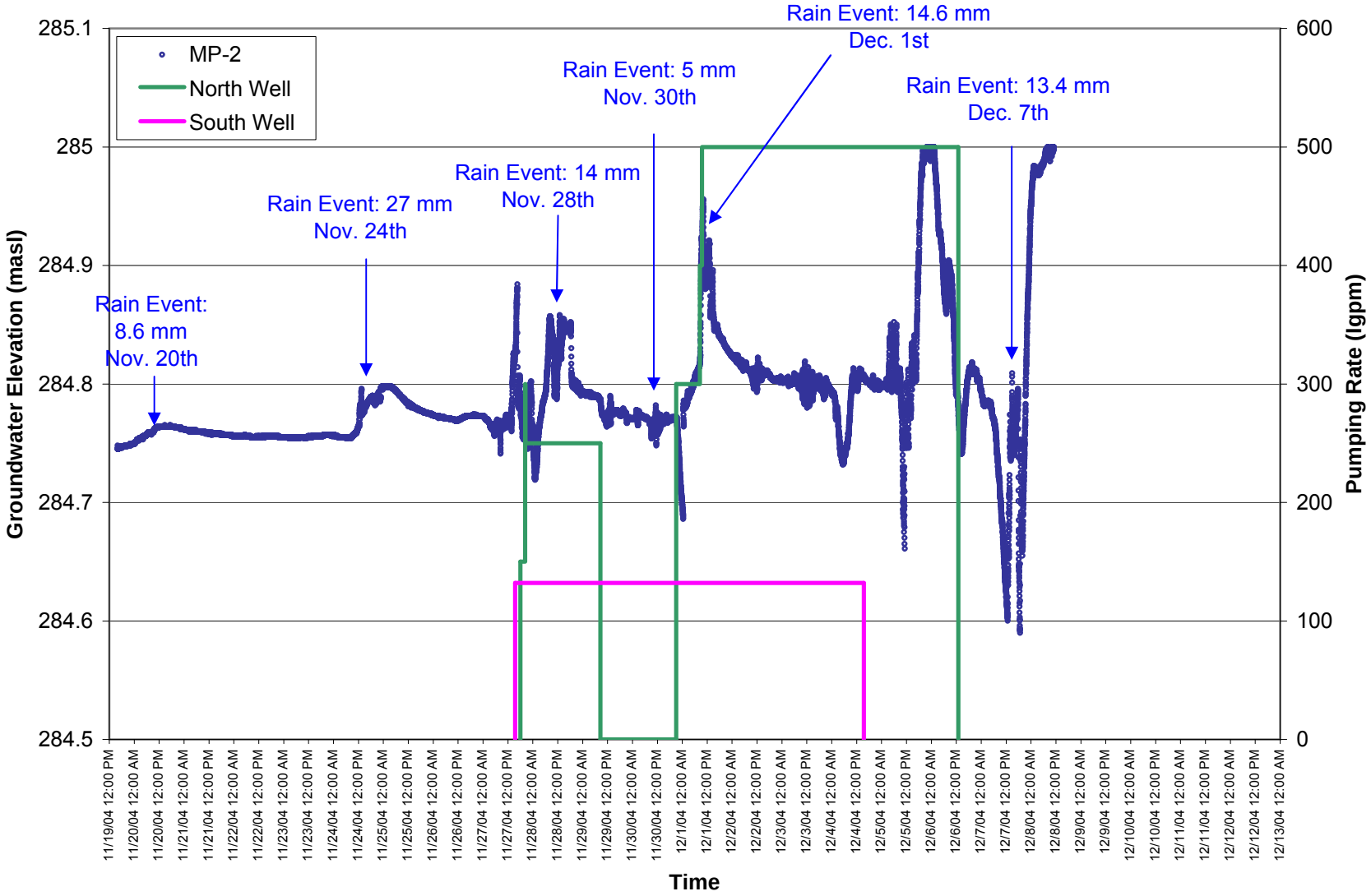


Figure F2-2-28
168-Hour Pumping Test - Water Level Hydrograph
MP-9 (Flamboro-1)

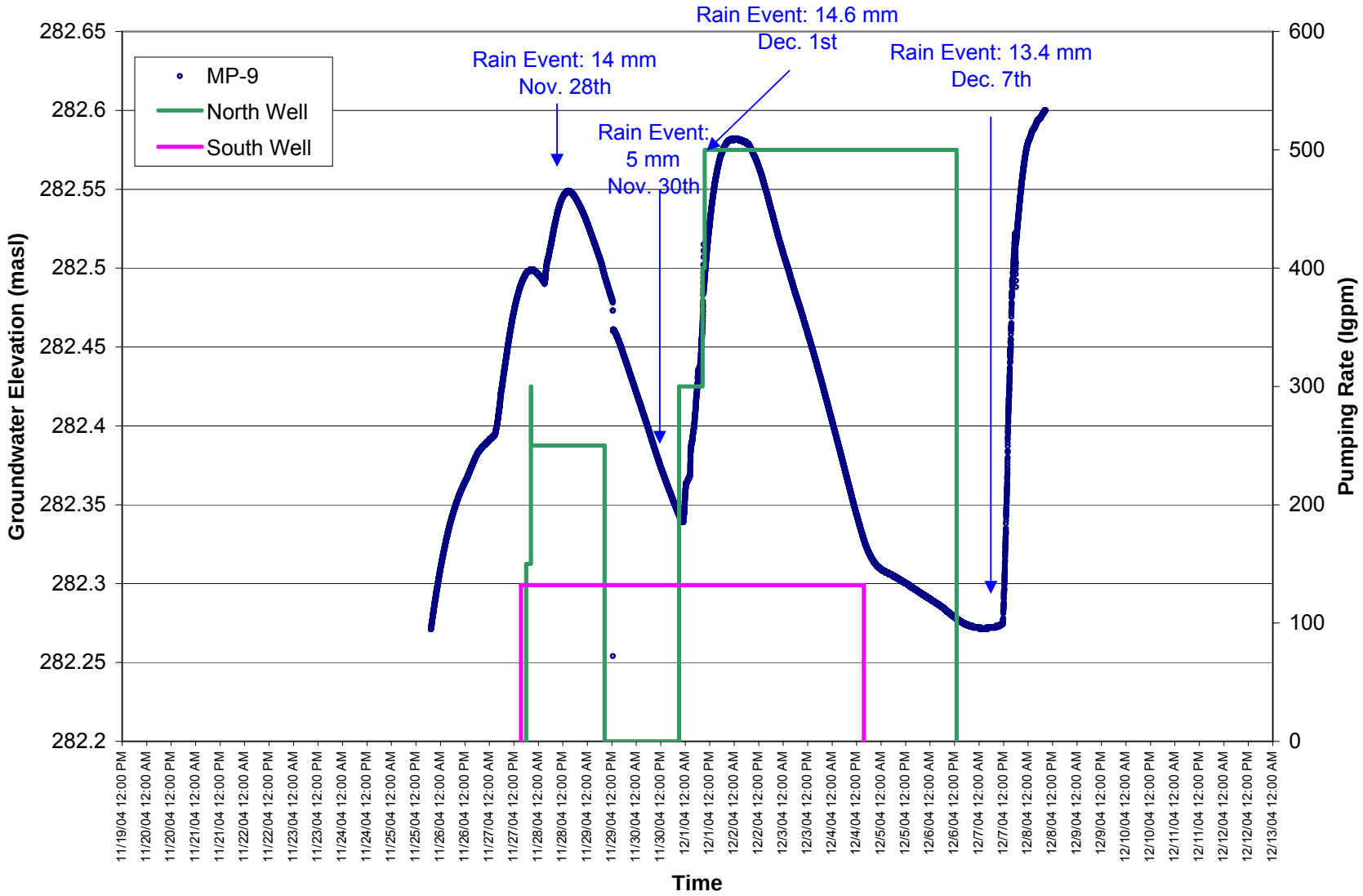


Figure F2-2-29
168-Hour Pumping Test - Water Level Hydrograph
MP-10 (Flamboro-2)

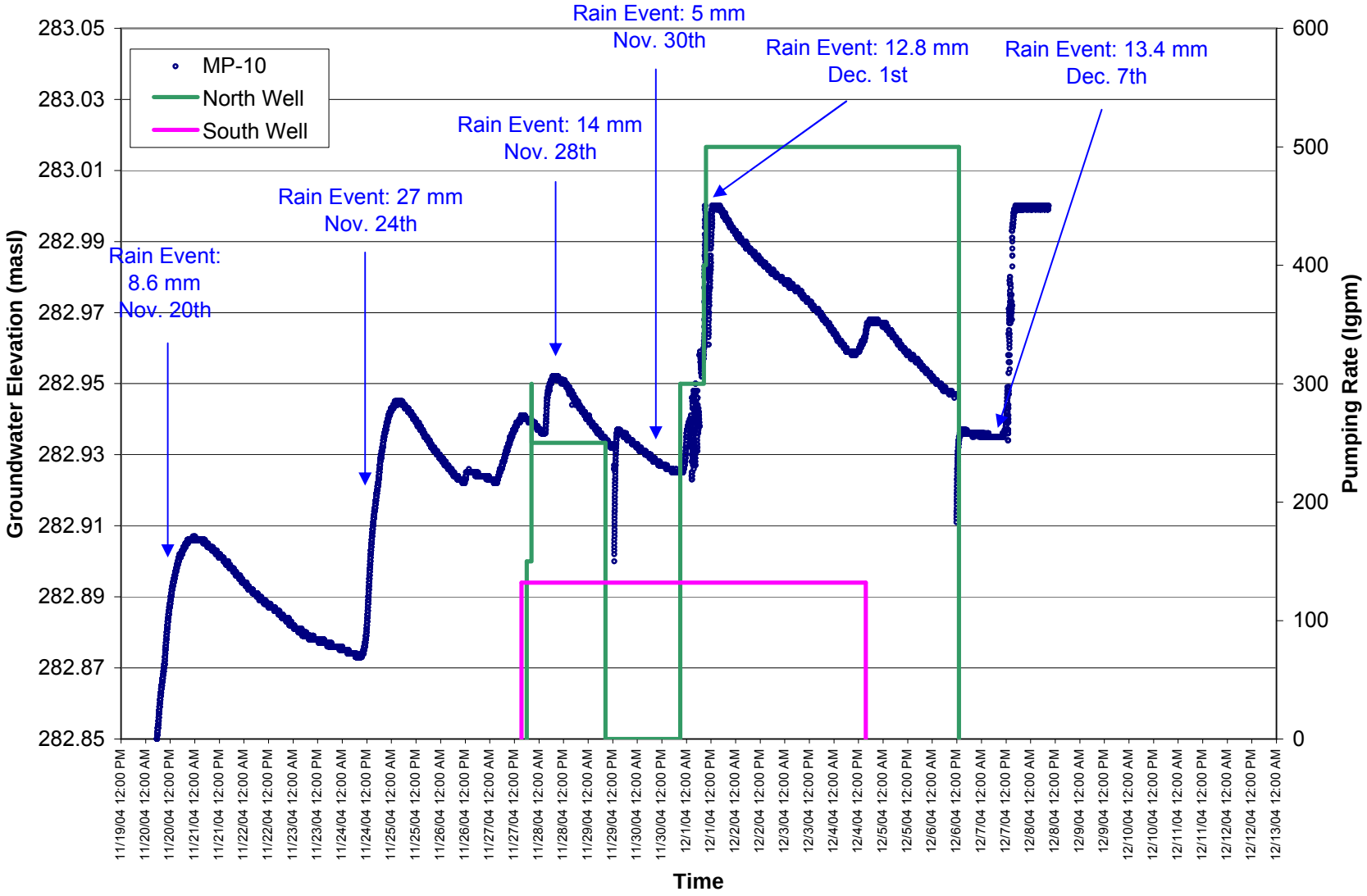


Figure F2-2-30
168-Hour Pumping Test - Water Level Hydrograph
MP-11 (Flamboro-3)

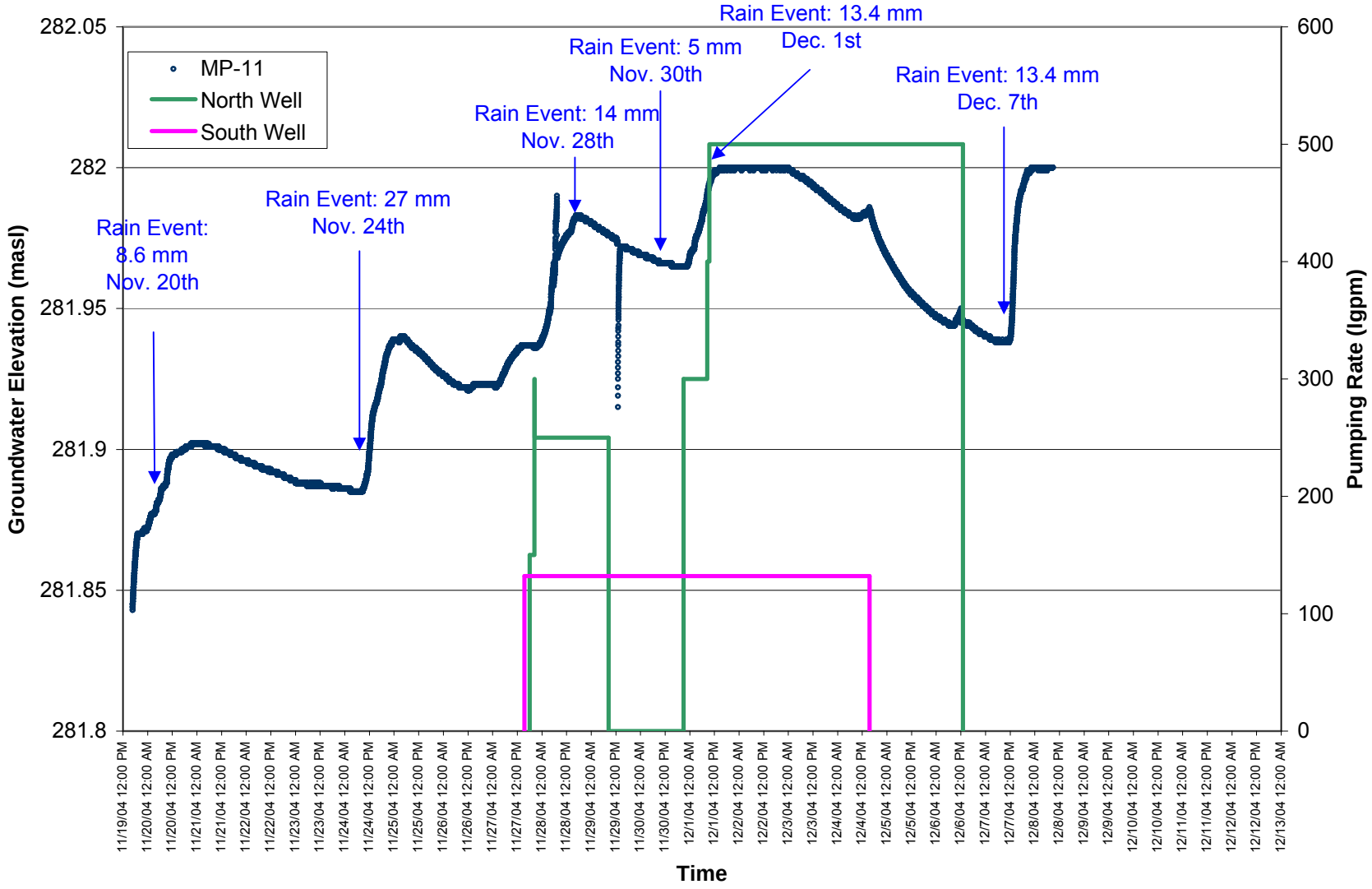


Figure F2-2-31
168-Hour Pumping Test - Water Level Hydrograph
MP-12 (Mountsburg-1)

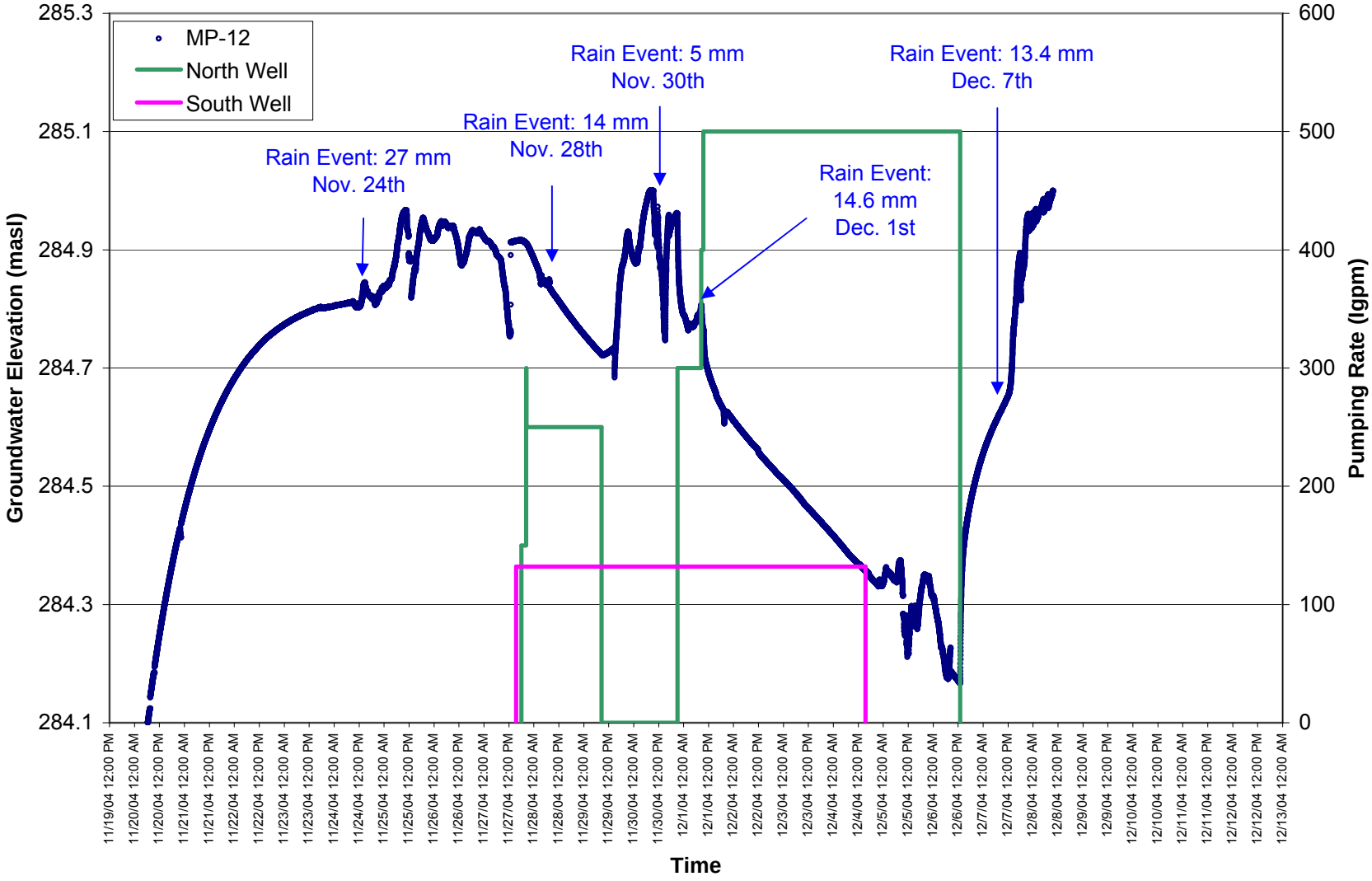


Figure F2-2-32
168-Hour Pumping Test - Water Level Hydrograph
MP-13 (Mountsberg-2)

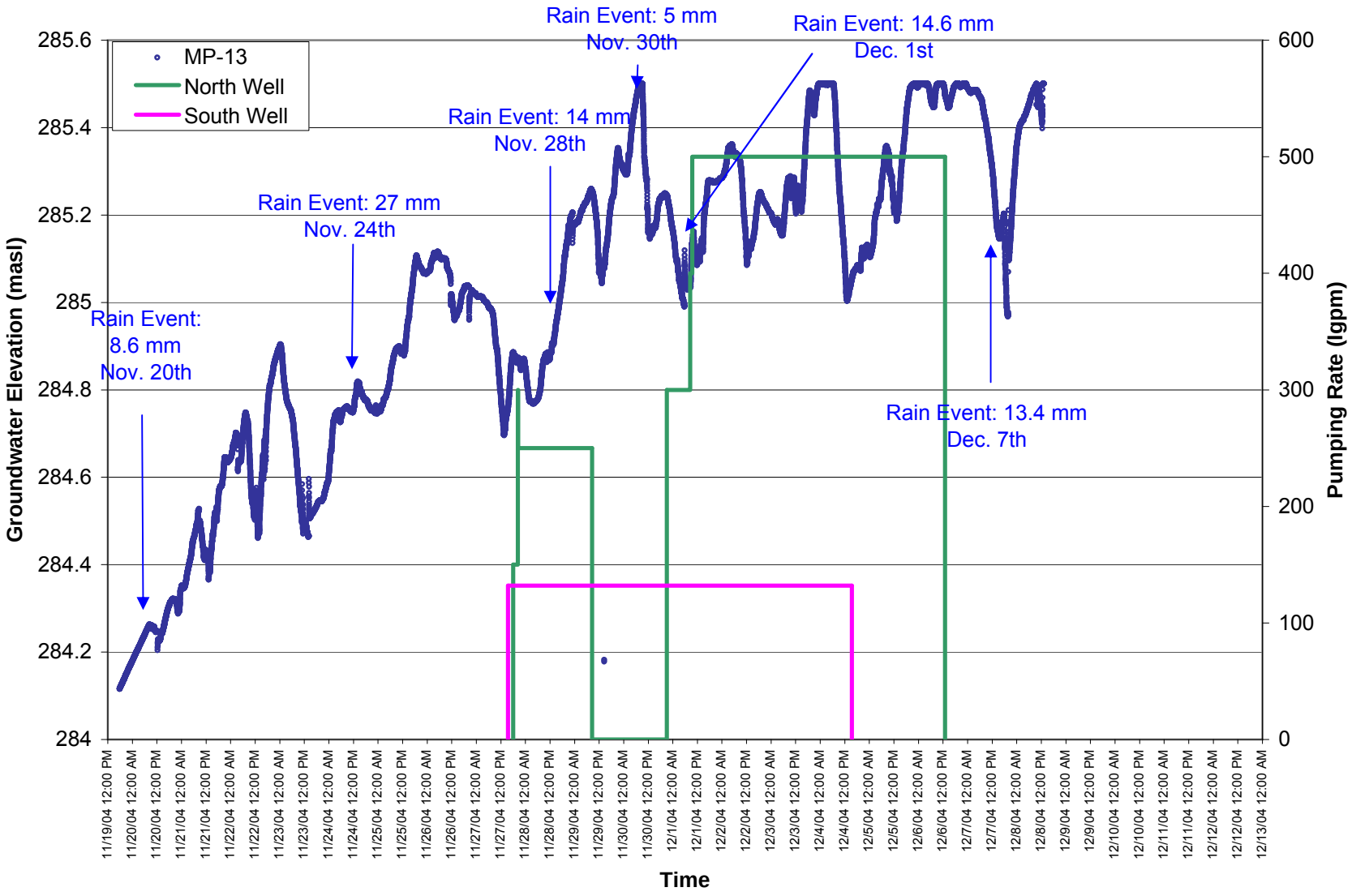
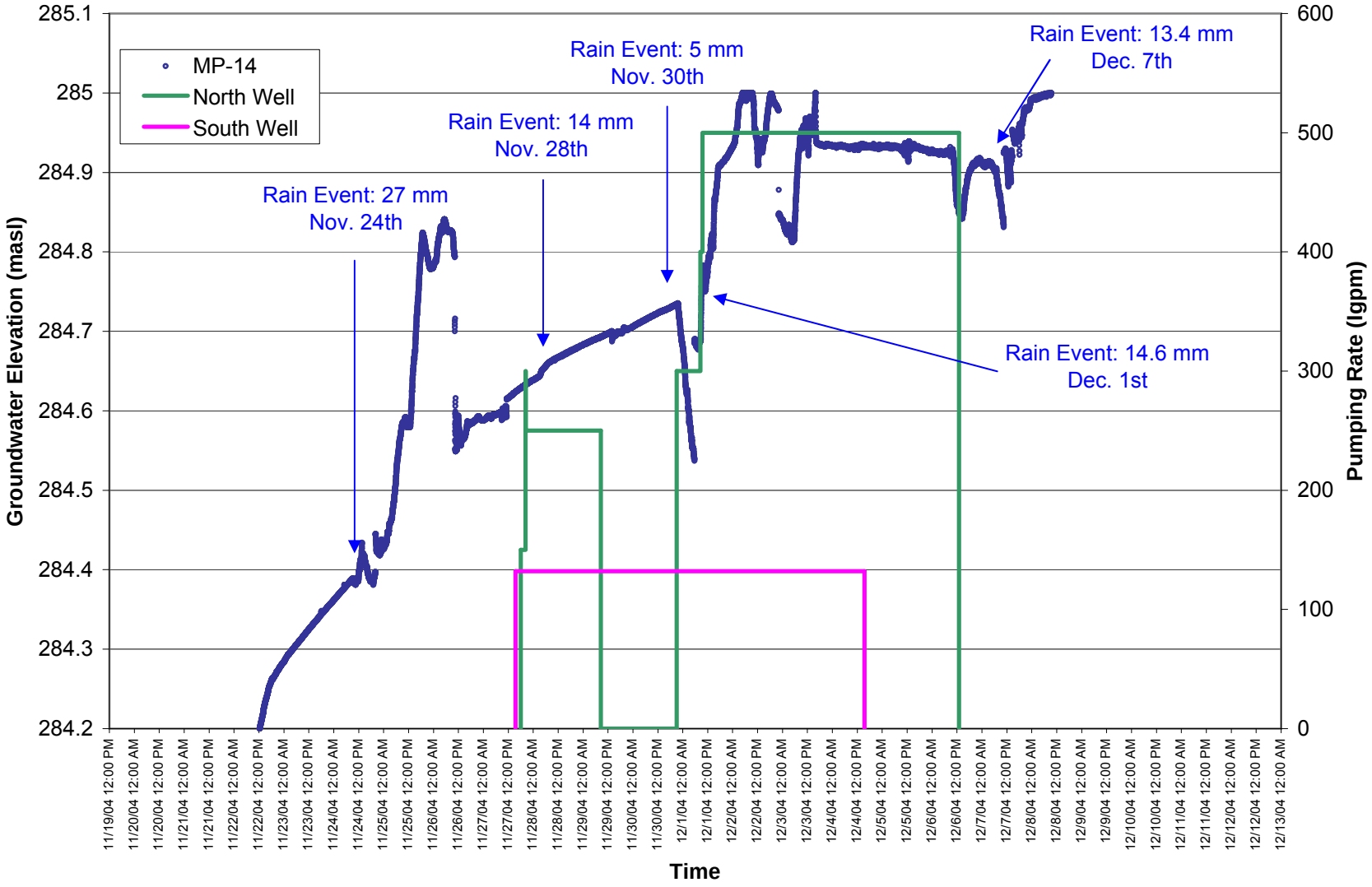
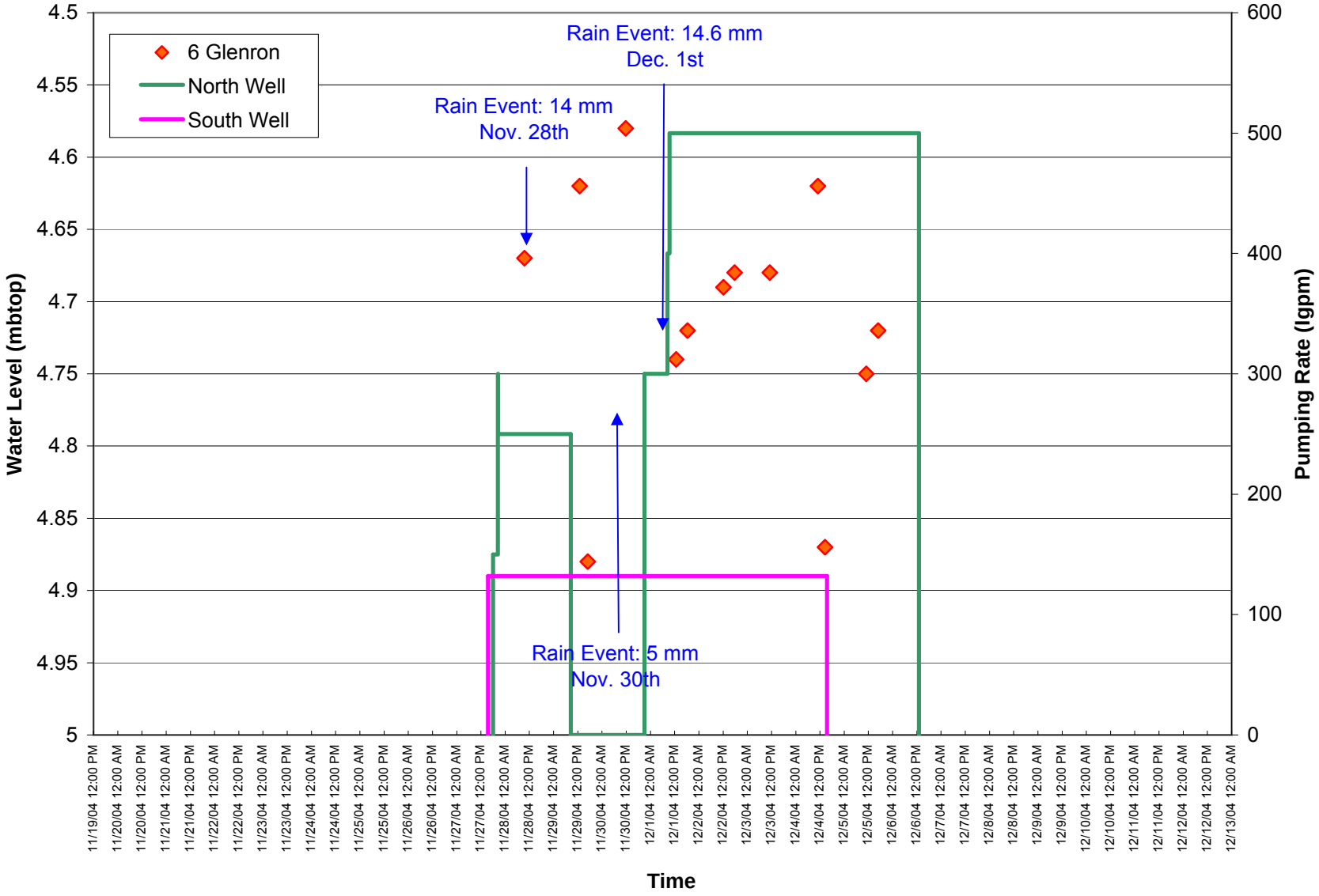


Figure F2-2-33
168-Hour Pumping Test - Water Level Hydrograph
MP-14 (Mountsberg-3)



File: MP-14.xls; Tab: G-MP-14

Figure F2-2-34
168-Hour Pumping Test - Water Level Hydrograph
Monitor 6 Glenron



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File: Monitor 6 Glenron.xls; Tab: G-6 Glenron

Figure F2-2-35
168-Hour Pumping Test - Water Level Hydrograph
Monitor 353 Concession 11

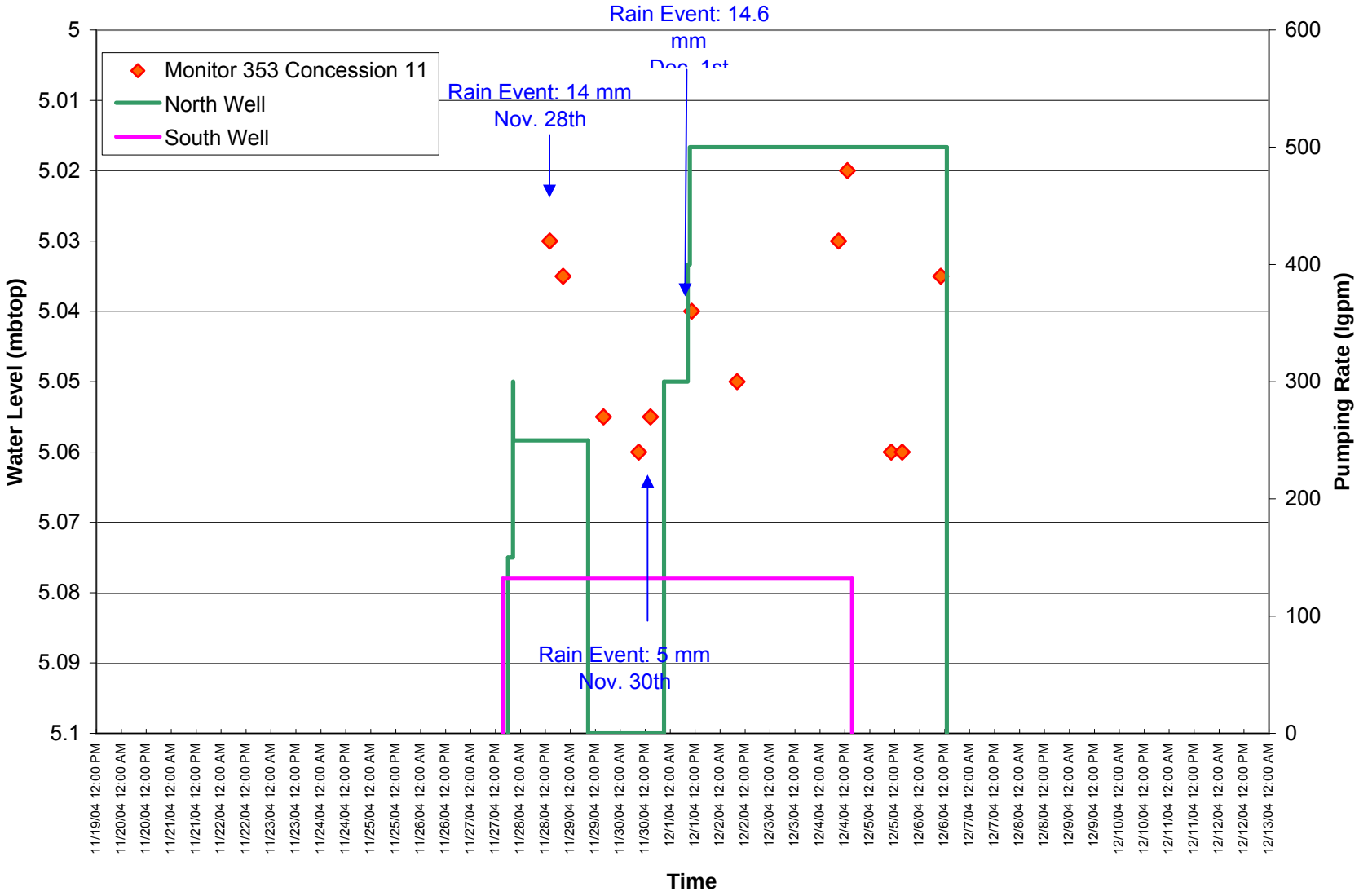
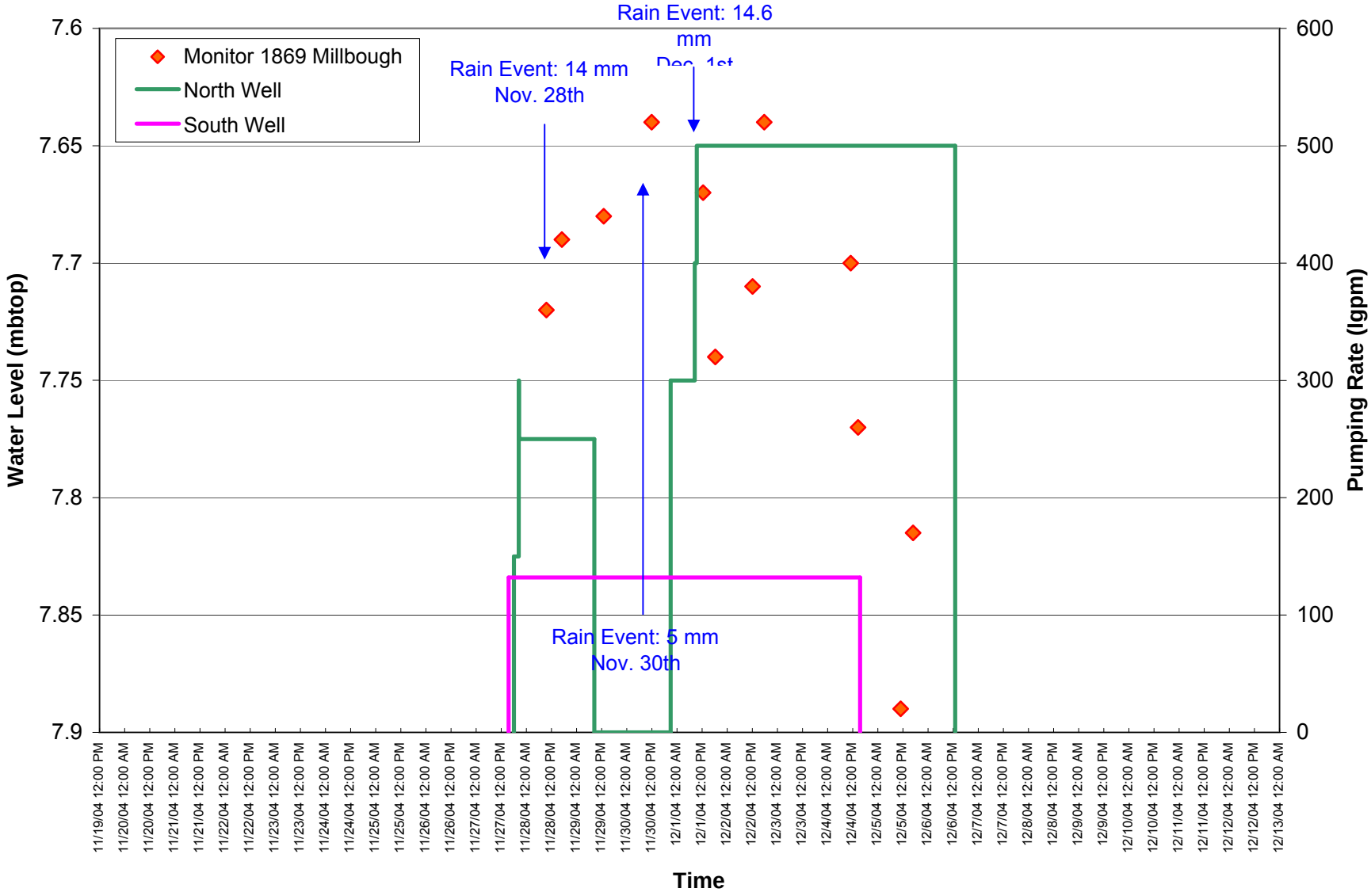


Figure F2-2-36
168-Hour Pumping Test - Water Level Hydrograph
Monitor 1869 Milburough



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File: Monitor 1869 Milburough.xls; Tab: G-1869 Millbough

Figure F2-2-37
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 1-D

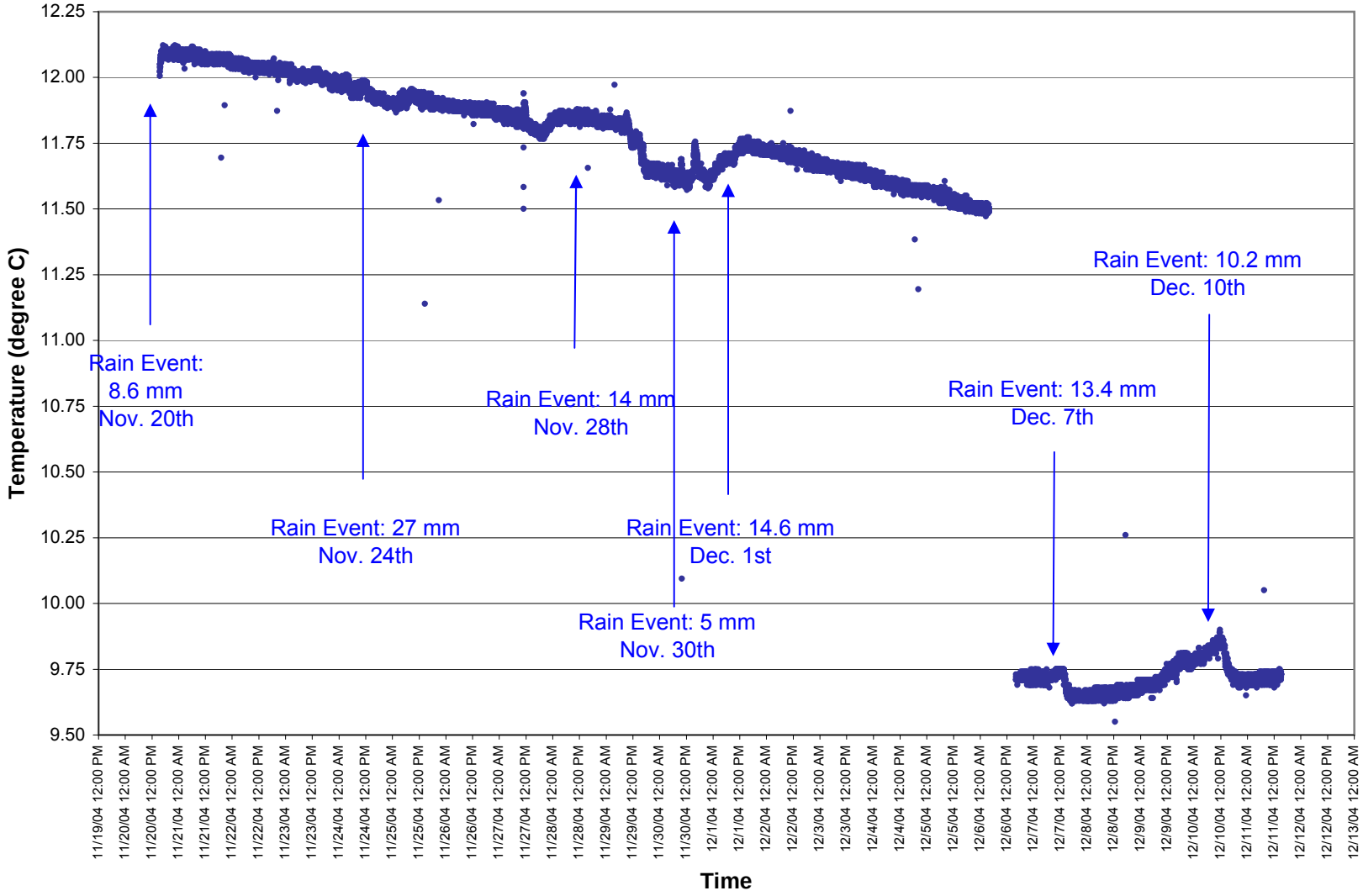


Figure F2-2-38
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 1-S

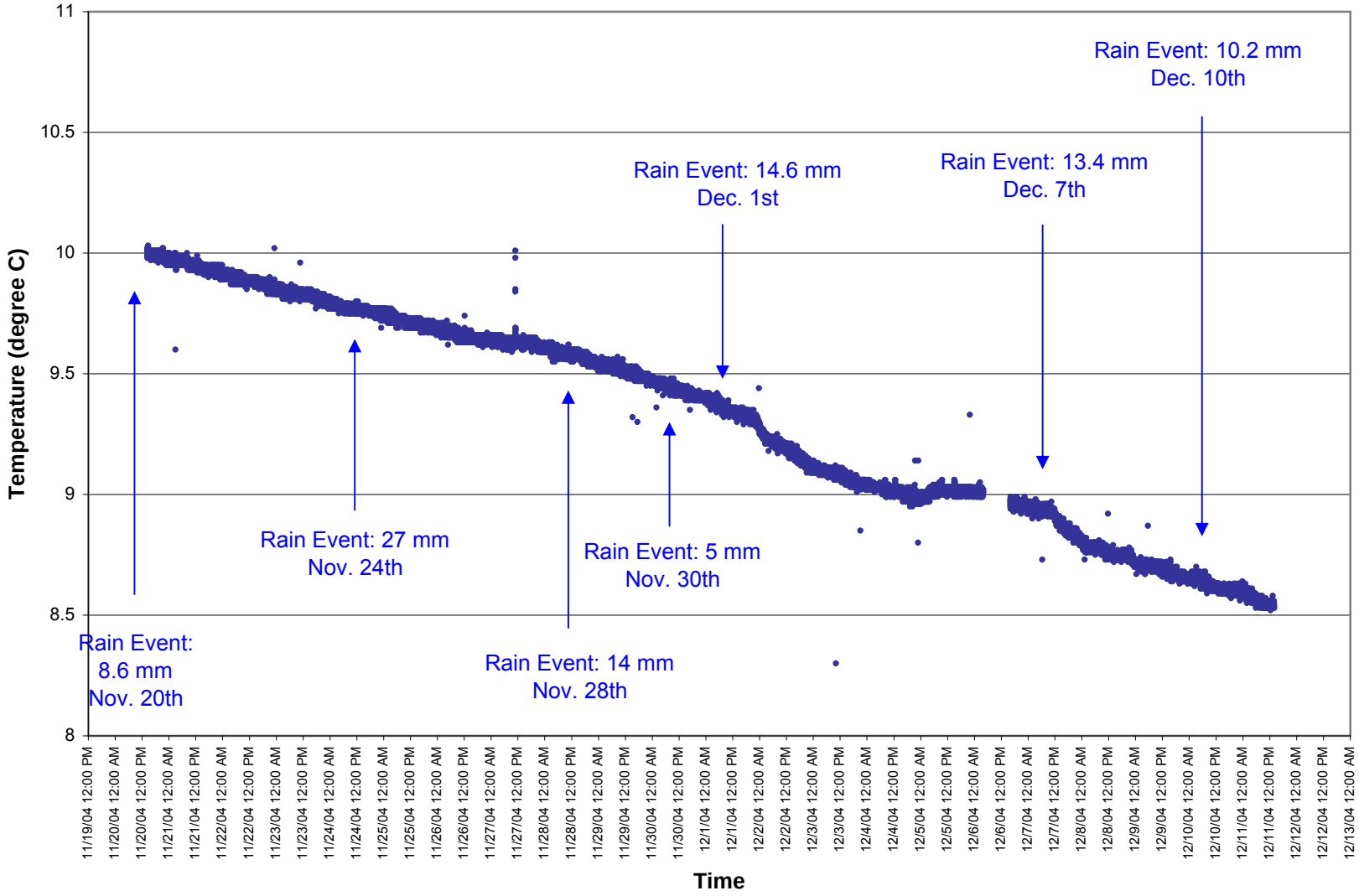


Figure F2-2-39
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 3-S

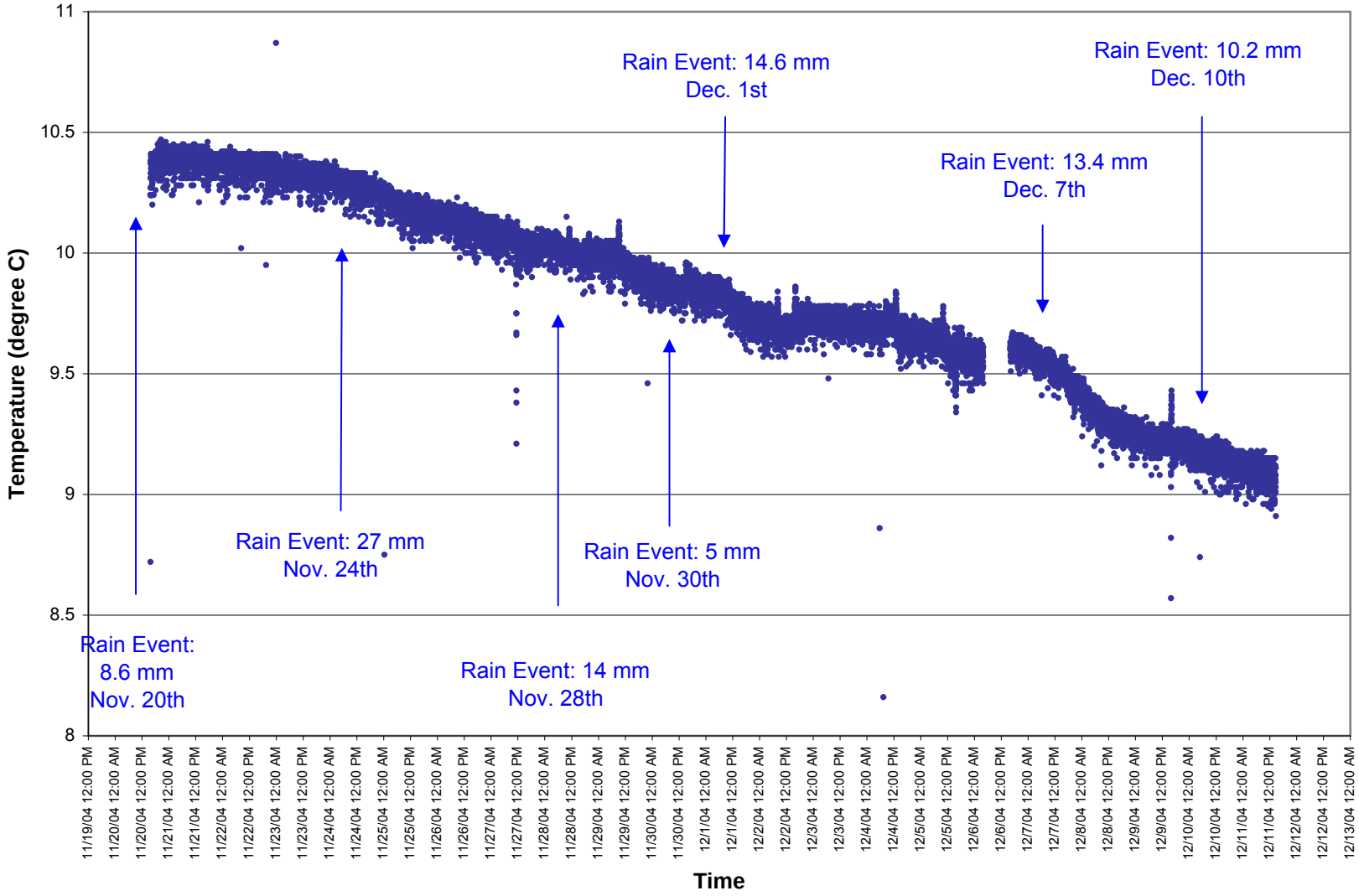


Figure F2-2-40
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 4-D

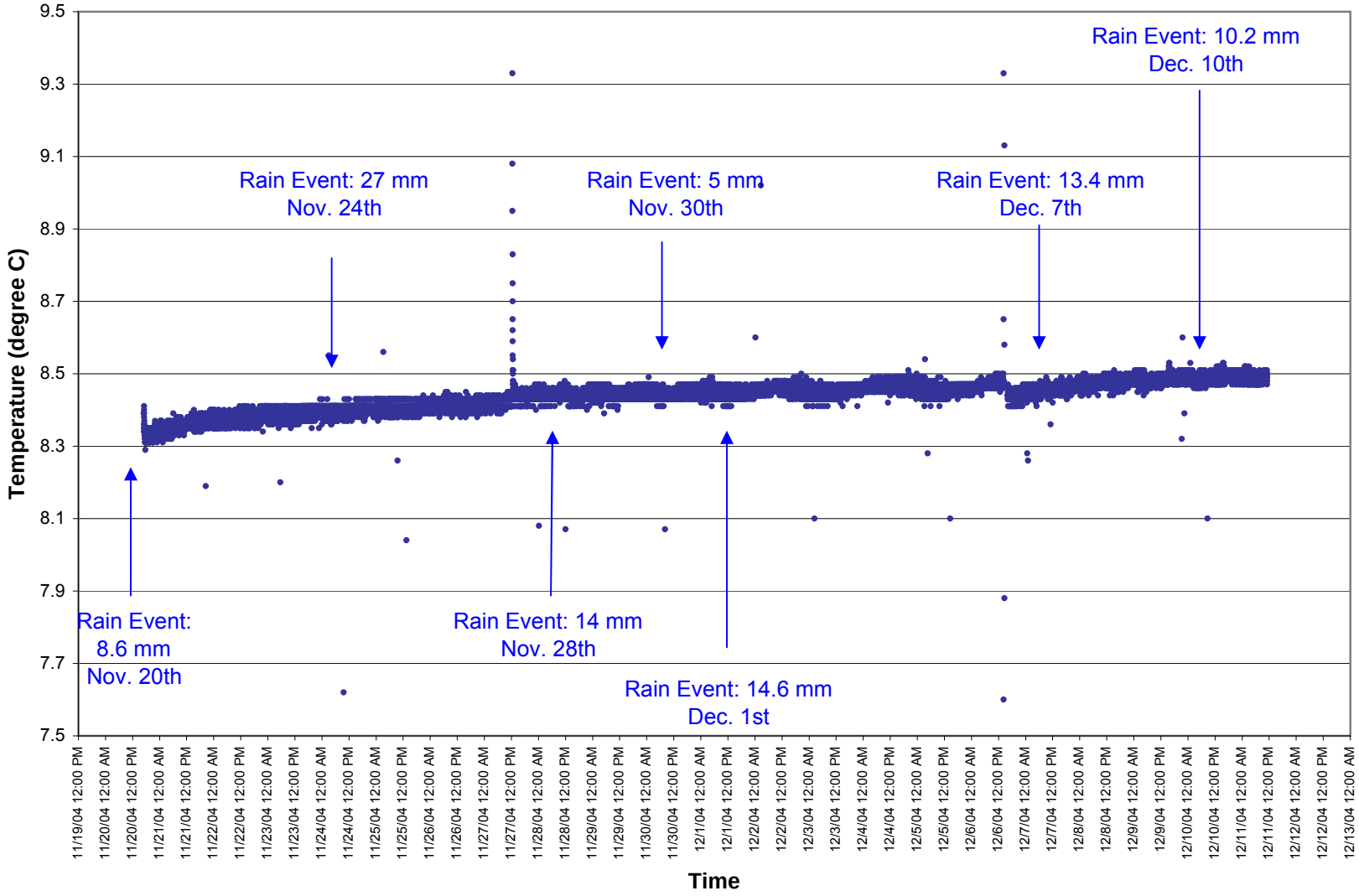


Figure F2-2-41
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 4-S

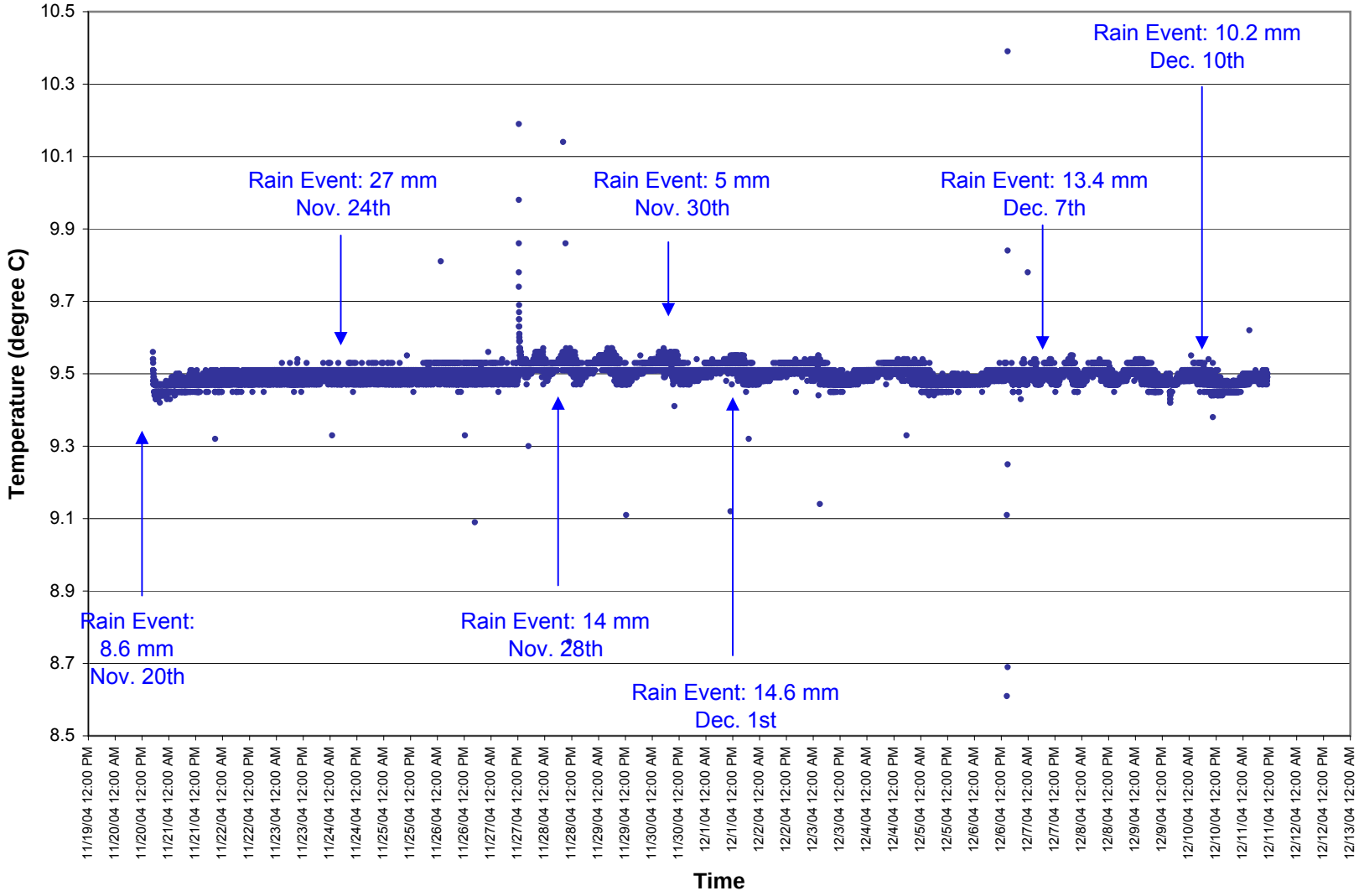


Figure F2-2-42
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 7-D

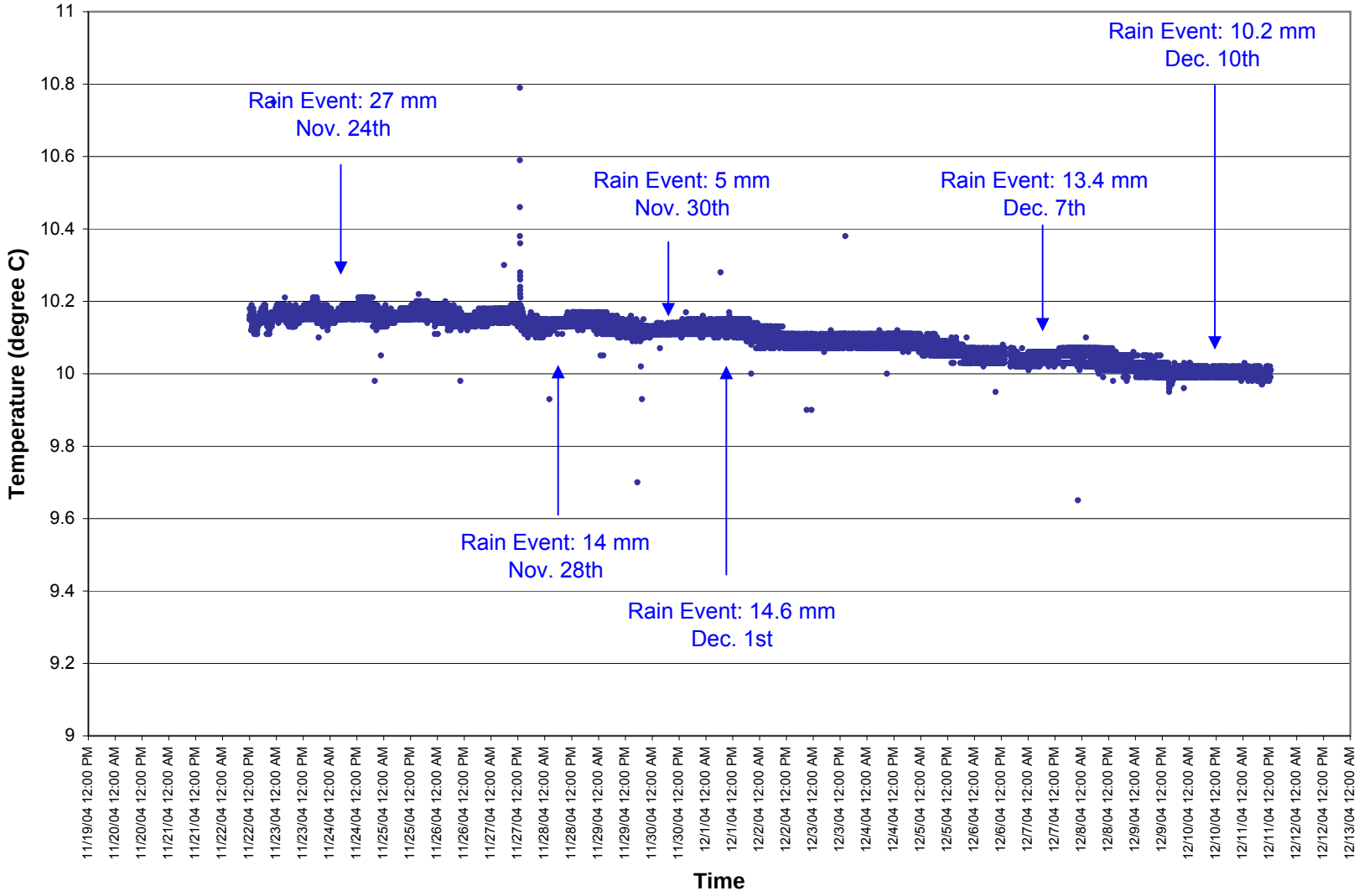
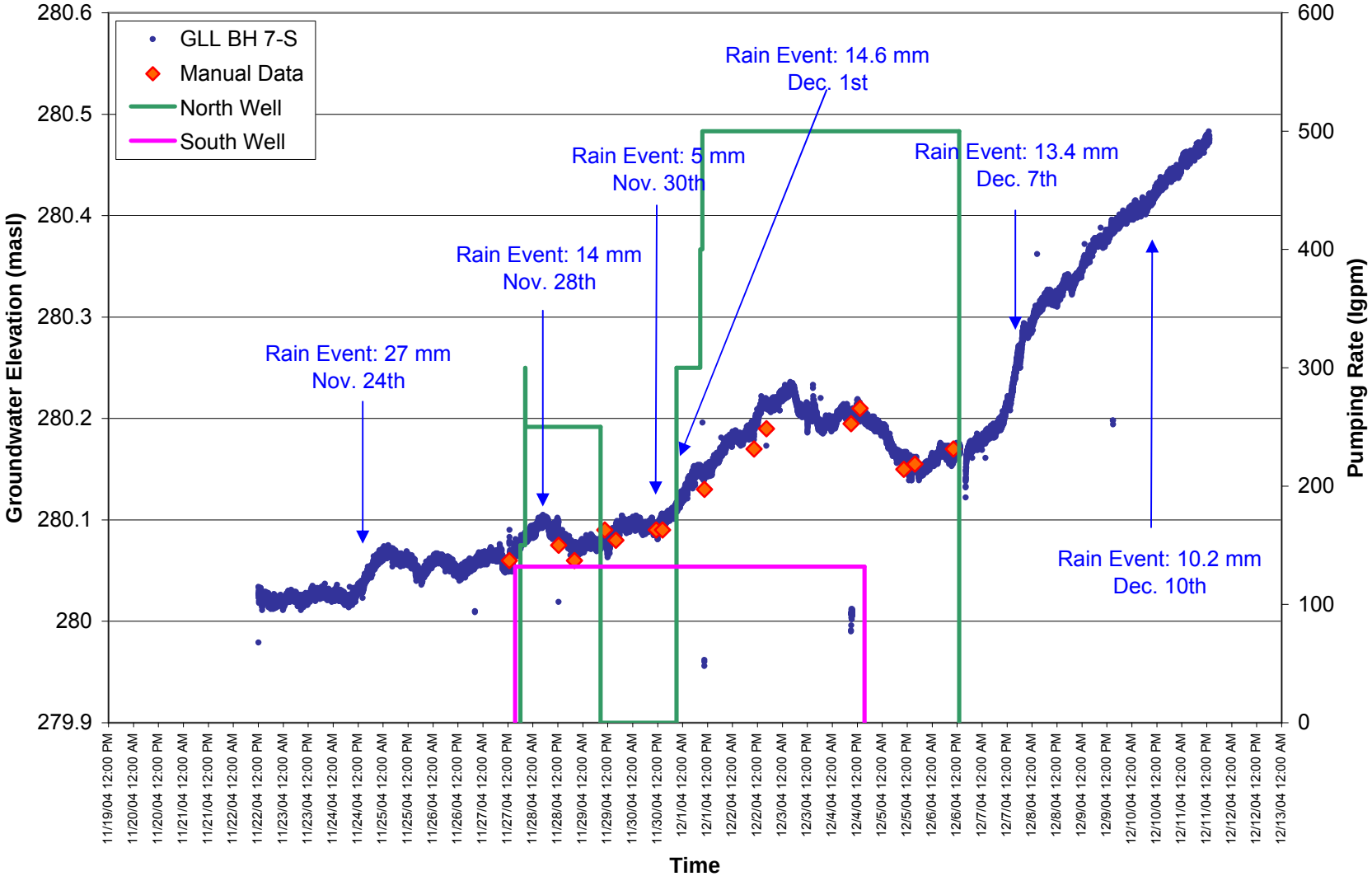


Figure F2-2-43
168-Hour Pumping Test - Water Level Hydrograph
Monitor GLL BH 7-S



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File: BH 7-S.xls; Tab: G-BH7-S

Figure F2-2-44
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 9-D

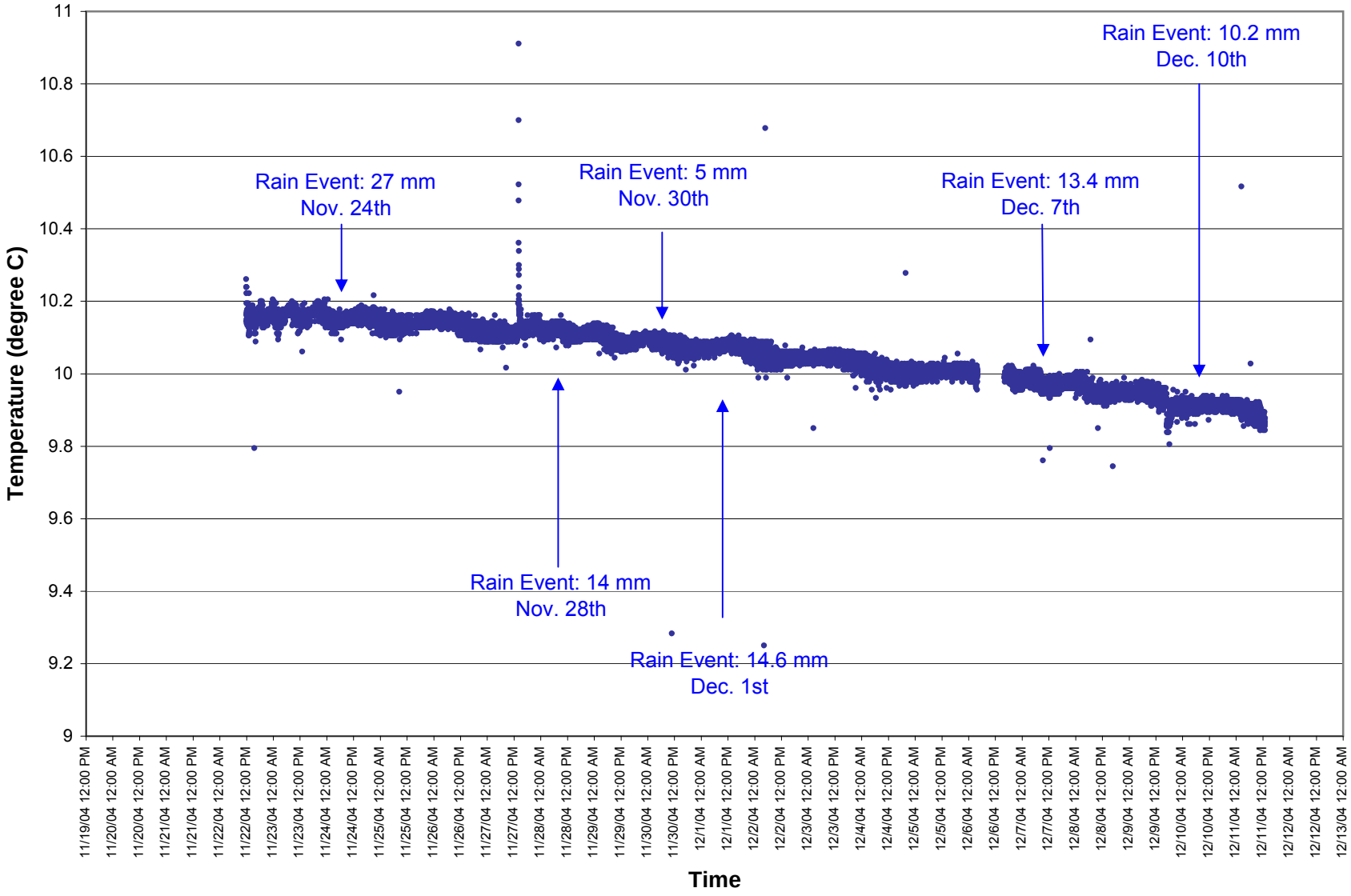


Figure F2-2-45
168-Hour Pumping Test - Temperature Profile
Monitor GLL BH 9-S

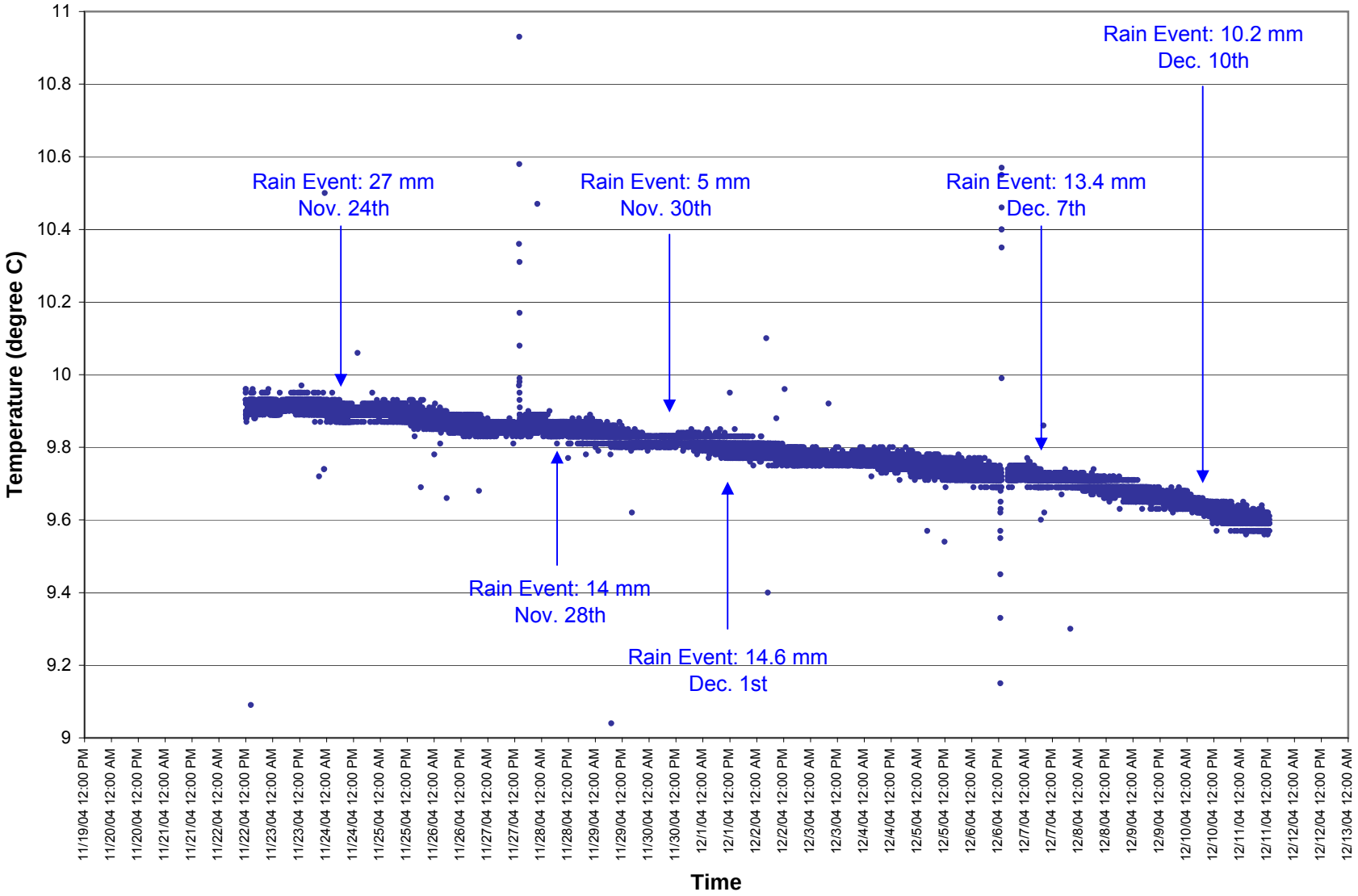


Figure F2-2-46
168-Hour Pumping Test - Temperature Profile
Monitor JEGEL BH B-D

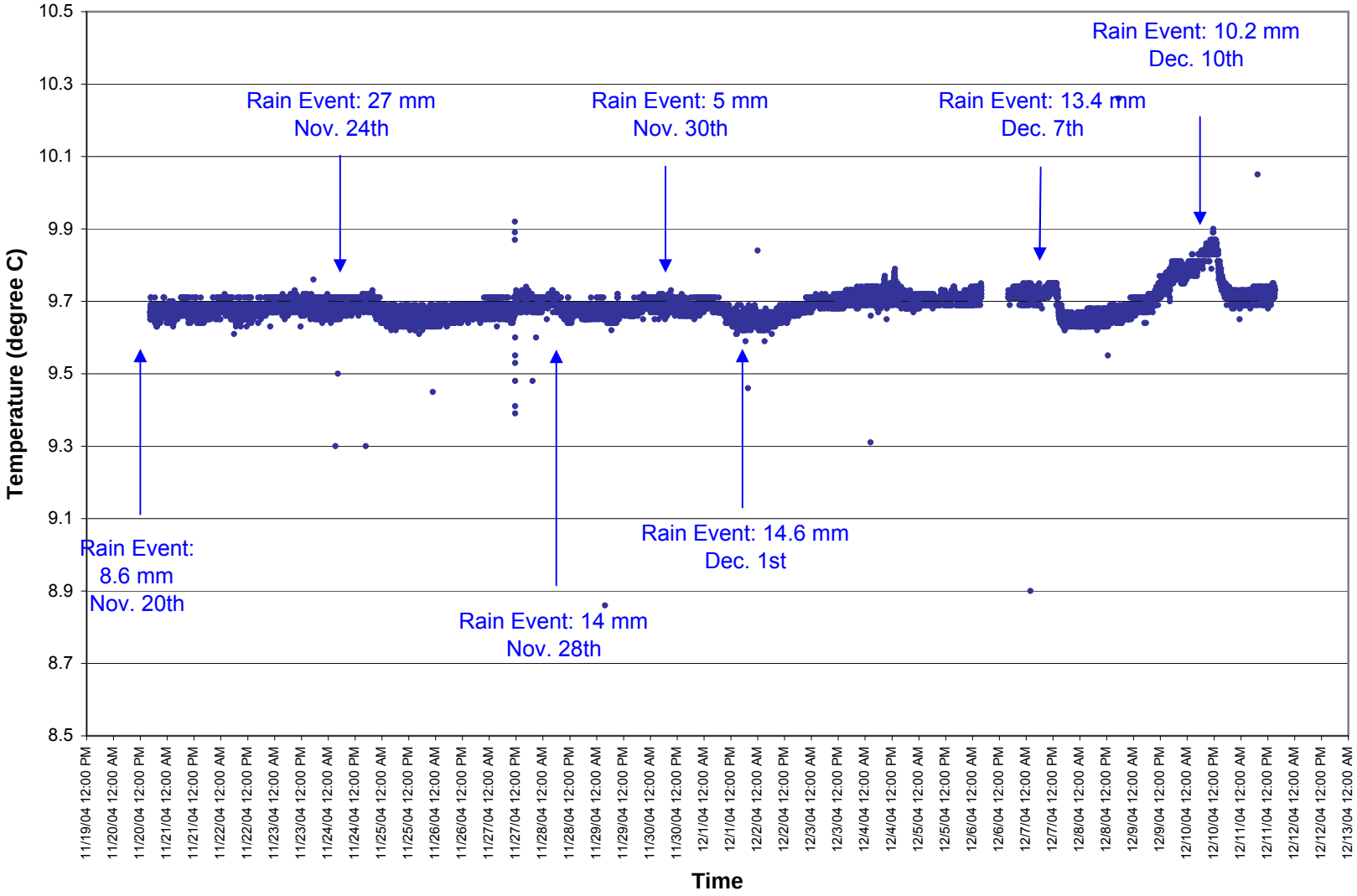


Figure F2-2-47
168-Hour Pumping Test - Temperature Profile
Monitor JEGEL BH C

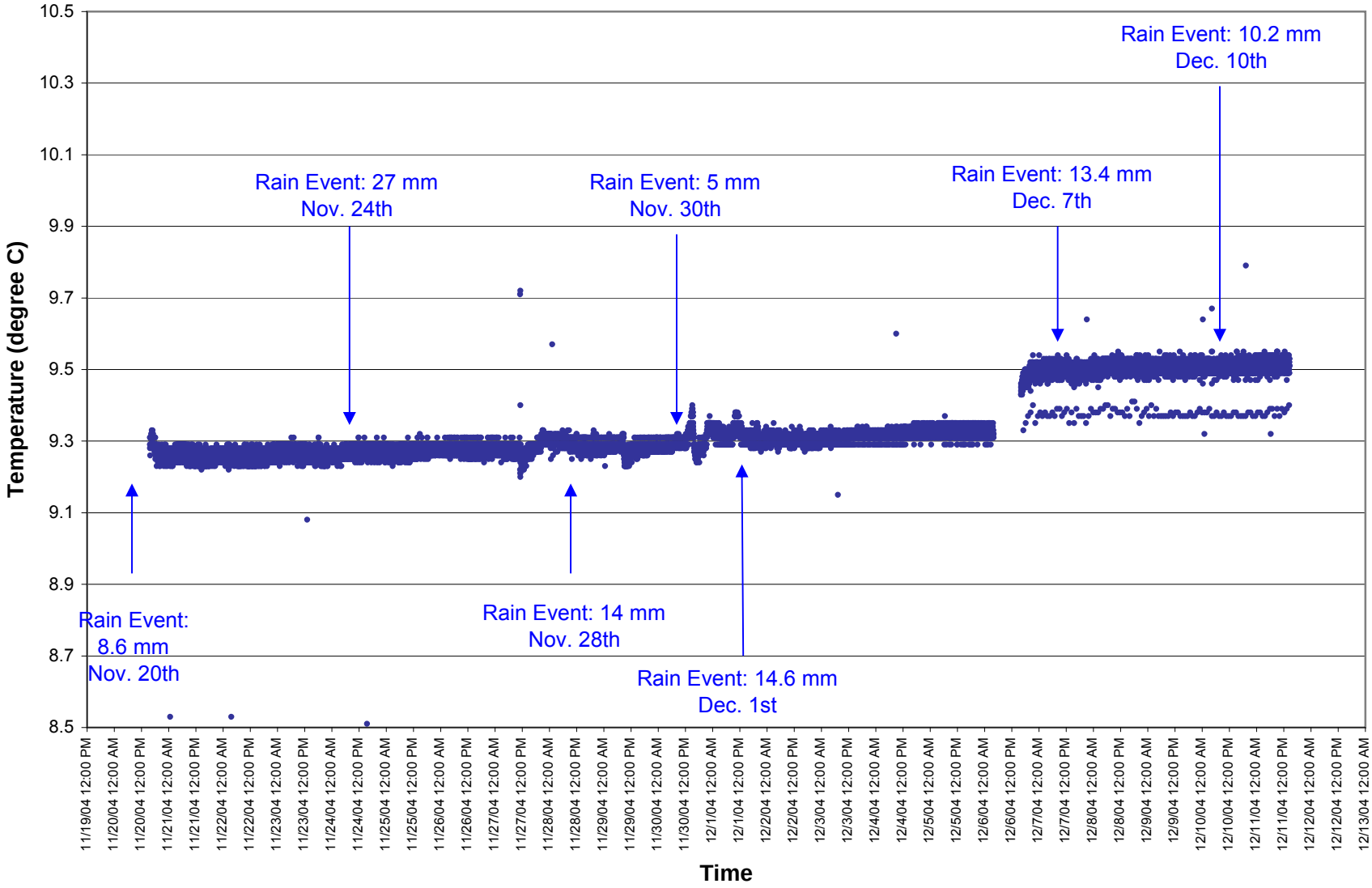


Figure F2-2-48
168-Hour Pump Test - Temperature Profile
Monitor JEGEL BH F

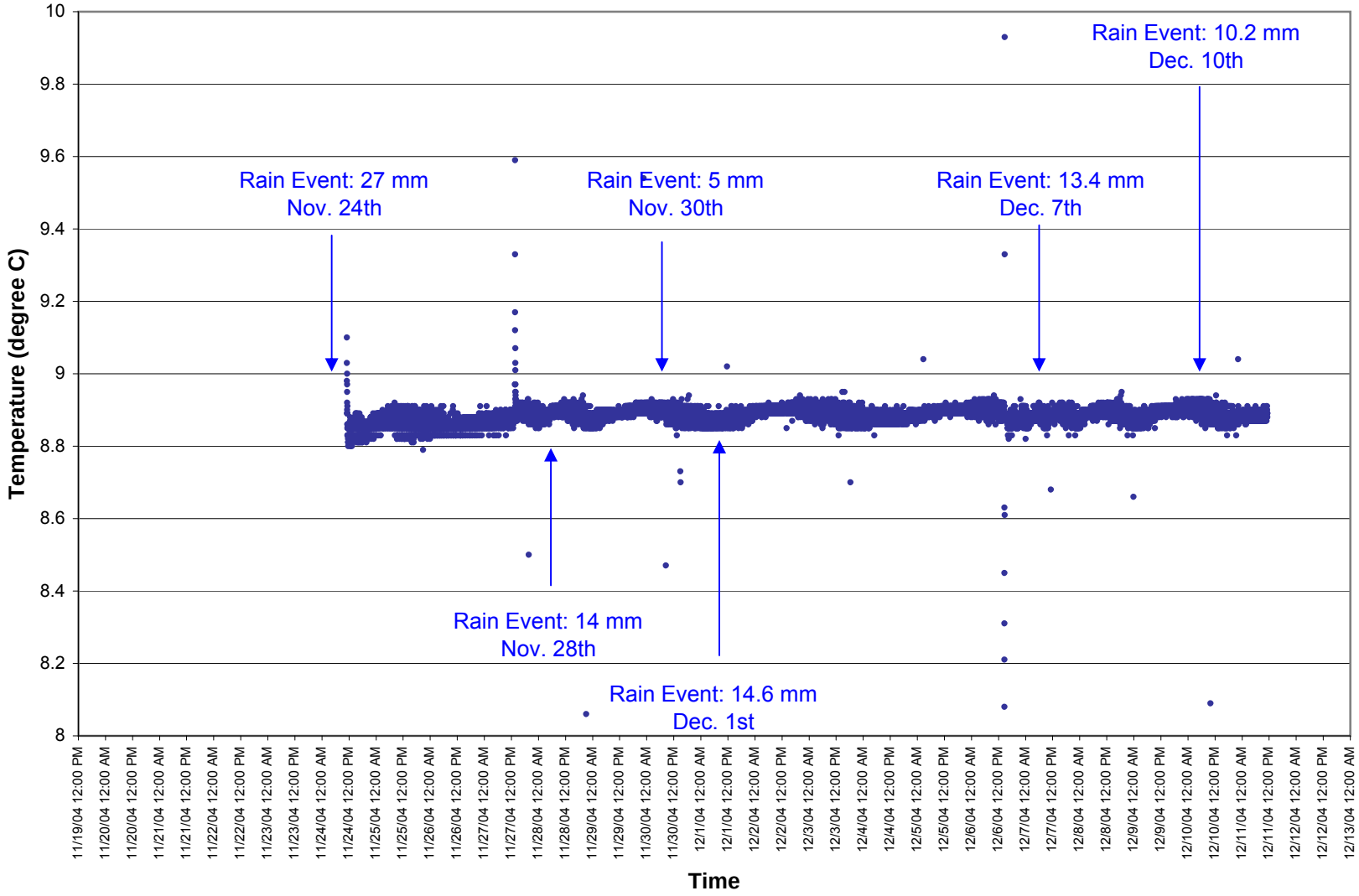
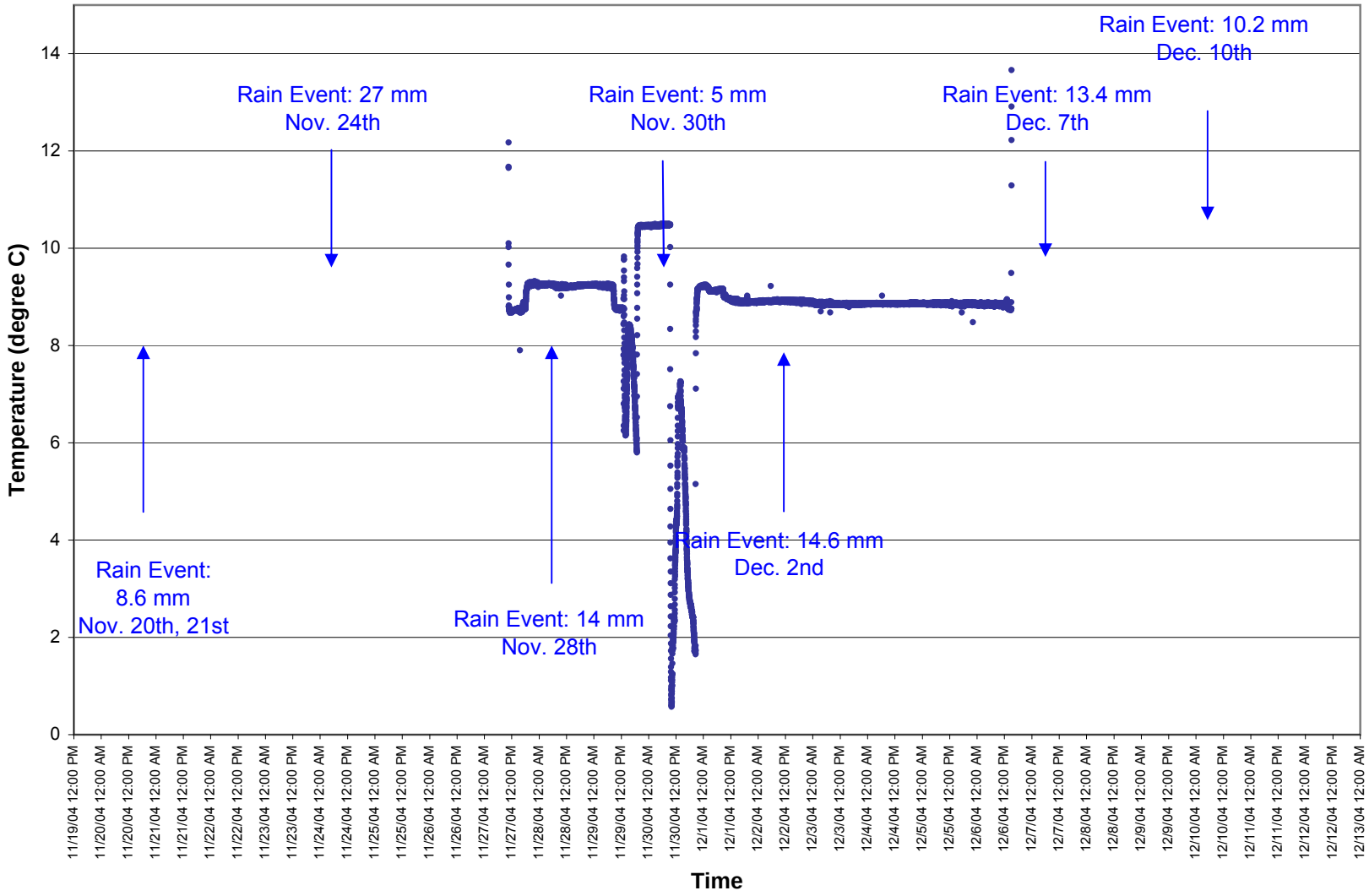


Figure F2-2-49
168-Hour Pumping Test - Temperature Profile
Pumping Well TW12



File: TW12 data.xls; Tab: G-TW12 (temperature)

Figure F2-2-50
168-Hour Pumping Test - Temperature Profile
MP-2 (Mountsberg 4)

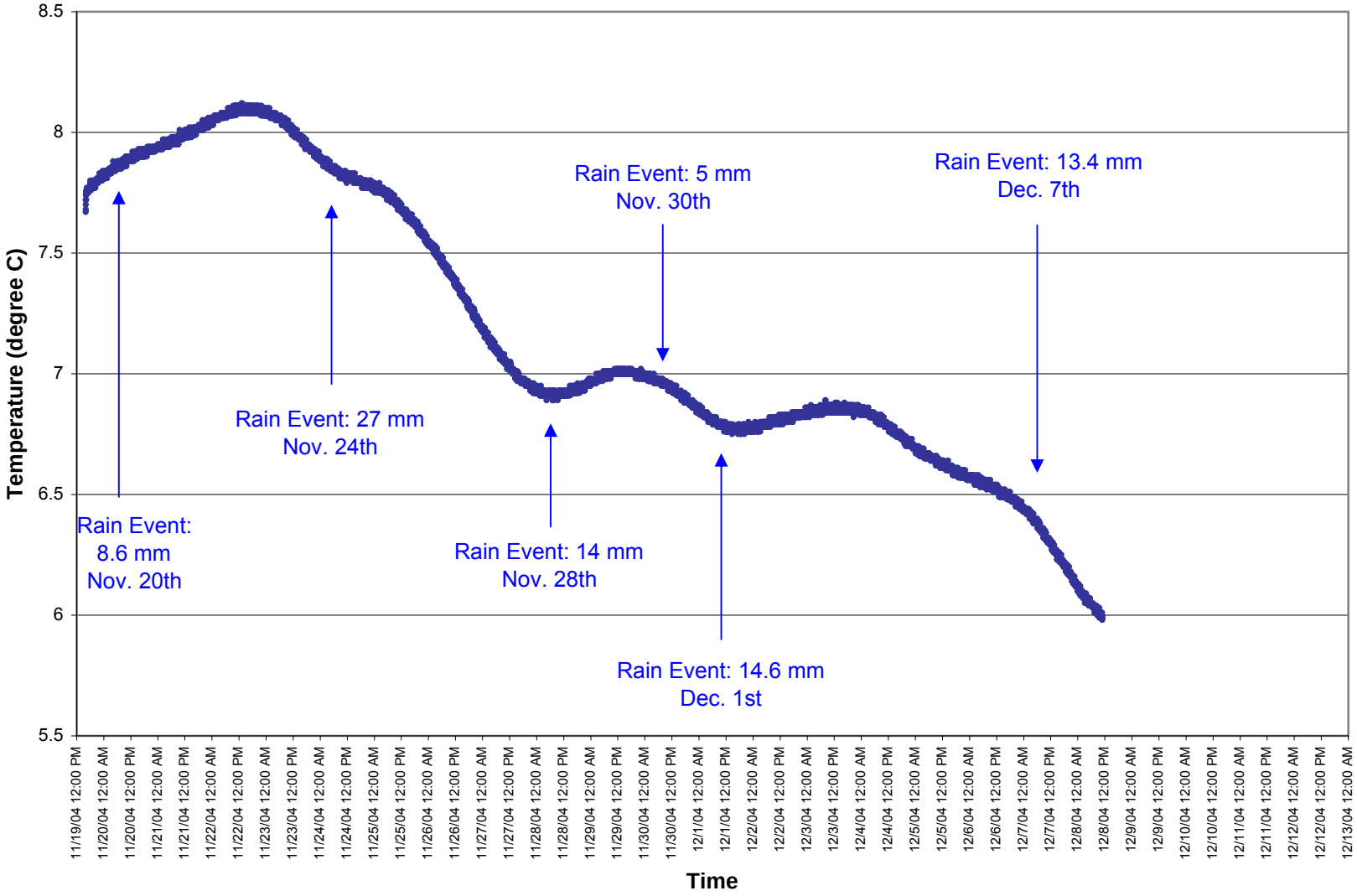


Figure F2-2-51
168-Hour Pumping Test - Temperature Profile
MP-9 (Flamboro 1)

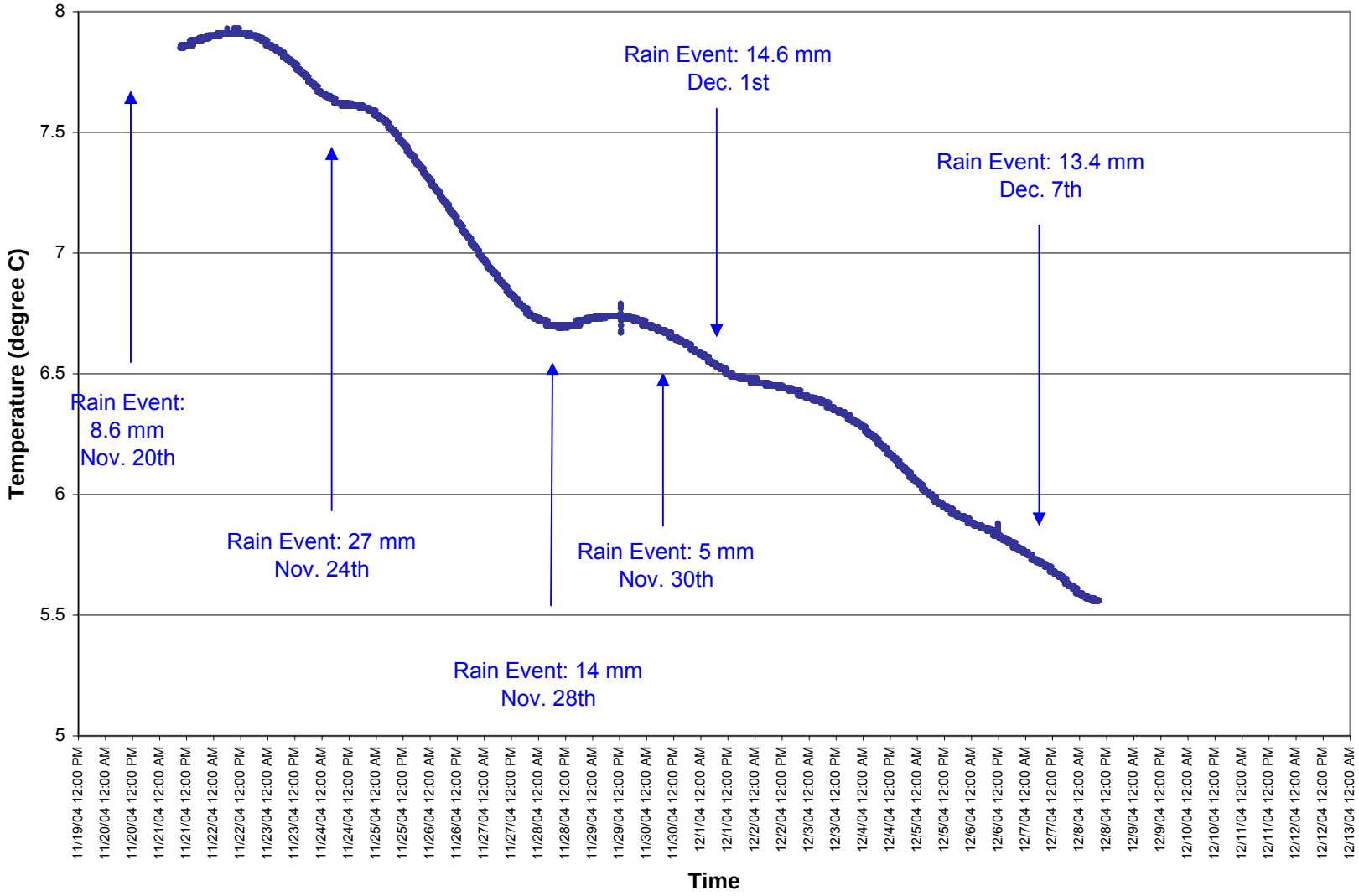


Figure F2-2-52
168-Hour Pumping Test - Temperature Profile
MP-10 (Flamboro 2)

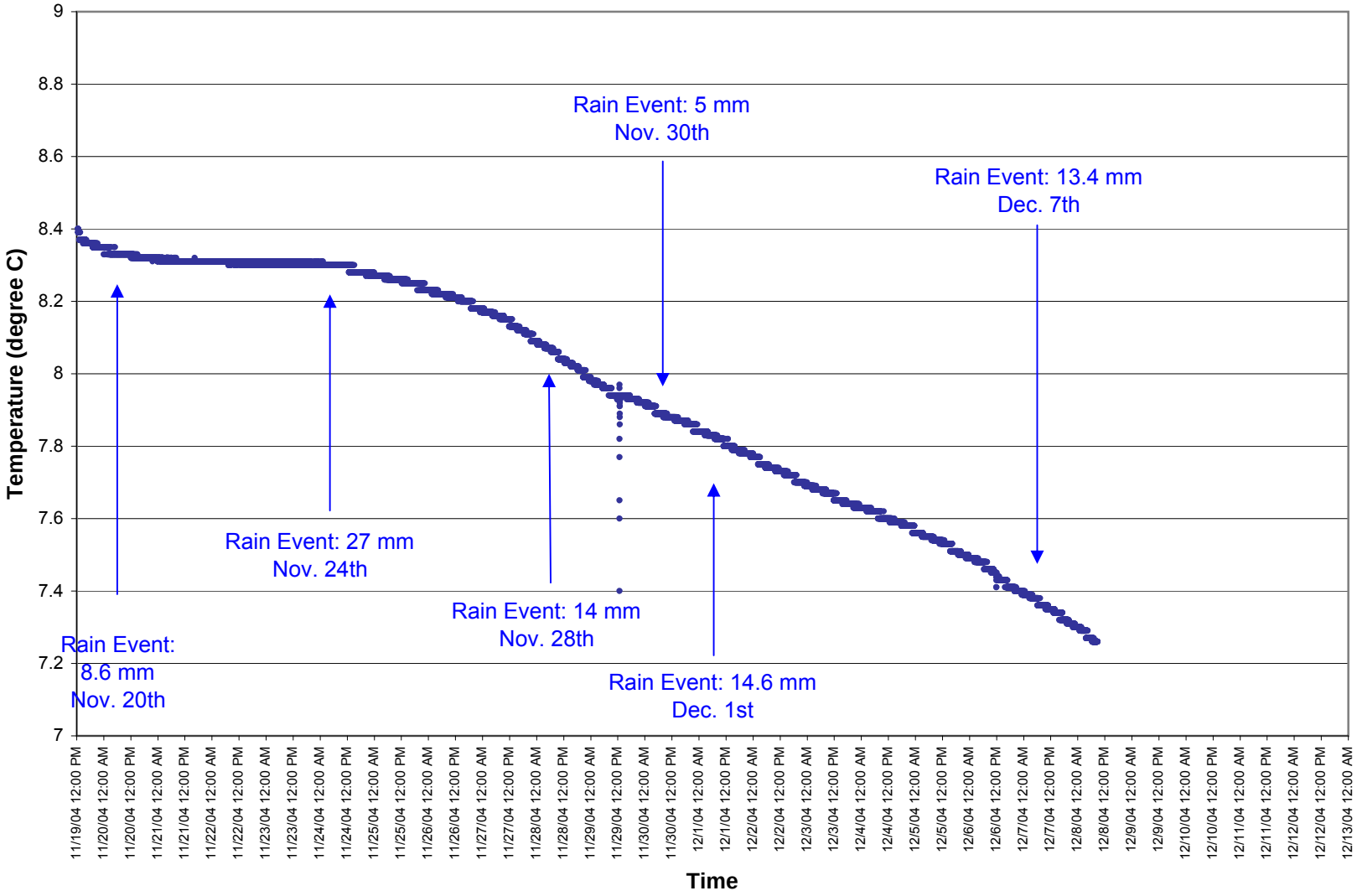


Figure F2-2-53
168-Hour Pumping Test - Temperature Profile
MP-11 (Flamboro 3)

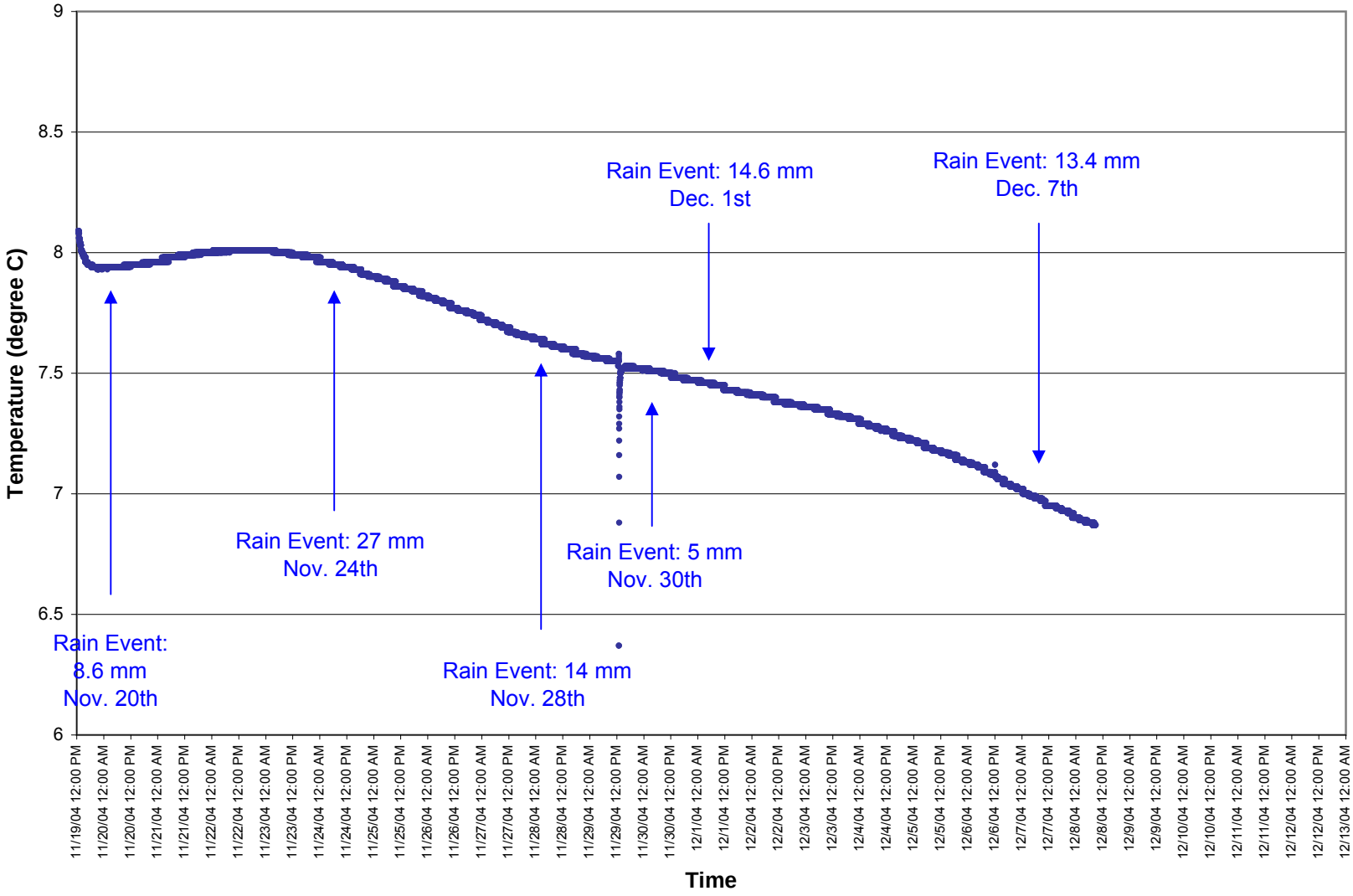


Figure F2-2-54
168-Hour Pumping Test - Temperature Profile
MP-12 (Mountsburg 1)

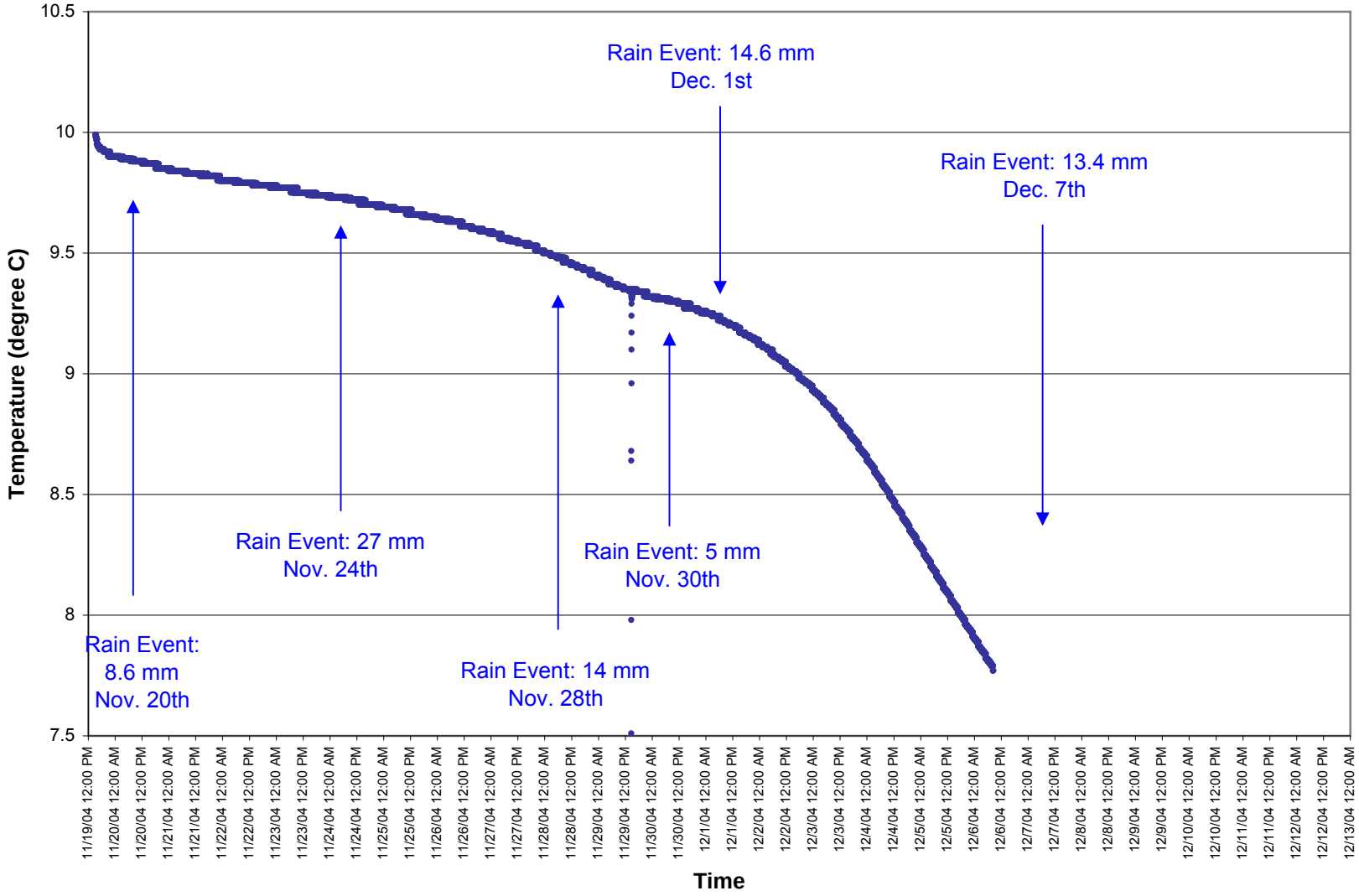


Figure F2-2-55
168-Hour Pumping Test - Temperature Profile
MP-13 (Mountsberg 2)

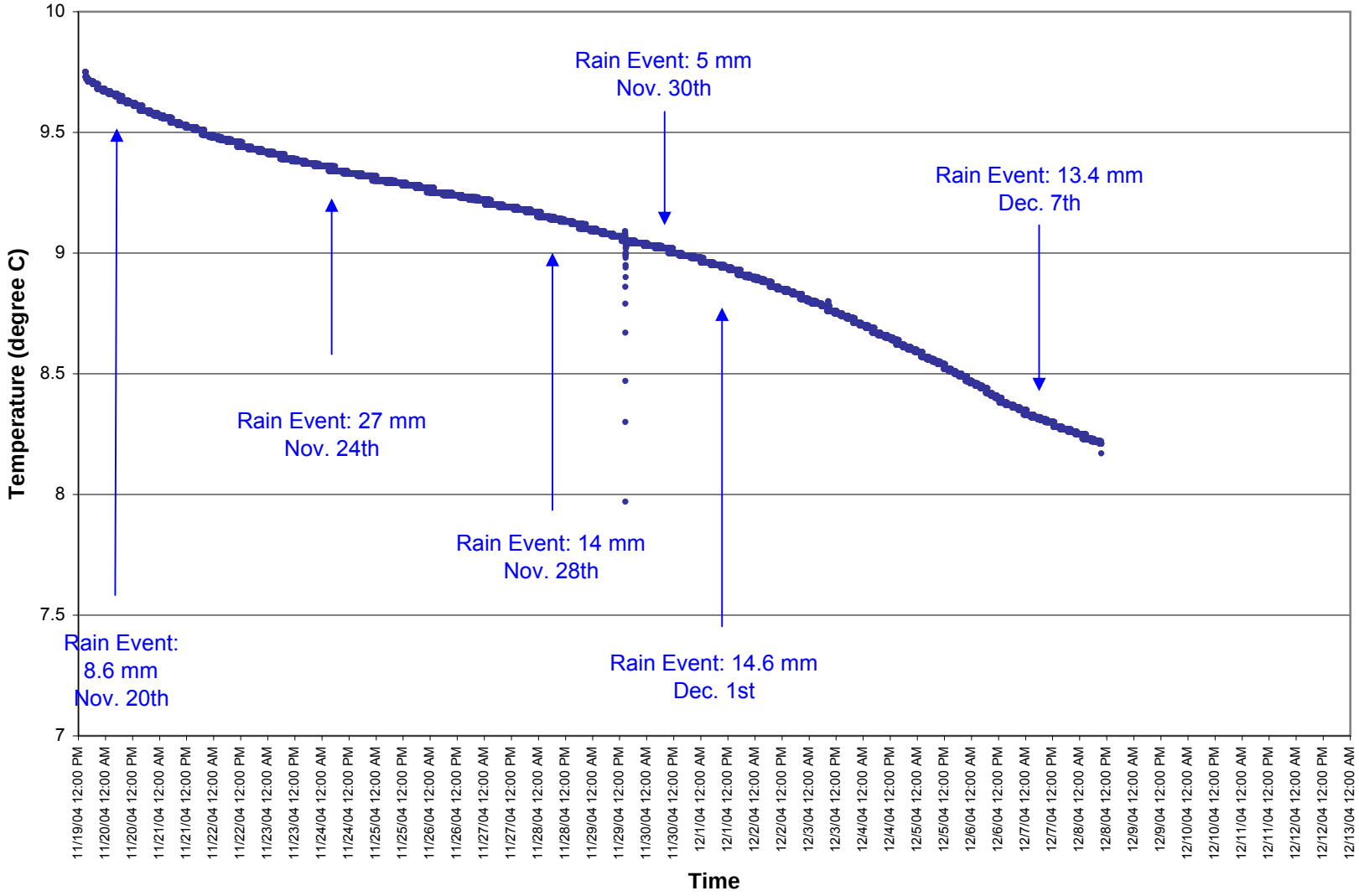


Figure F2-2-56
168-Hour Pumping Test - Temperature Profile
MP-14 (Mountsberg 3)

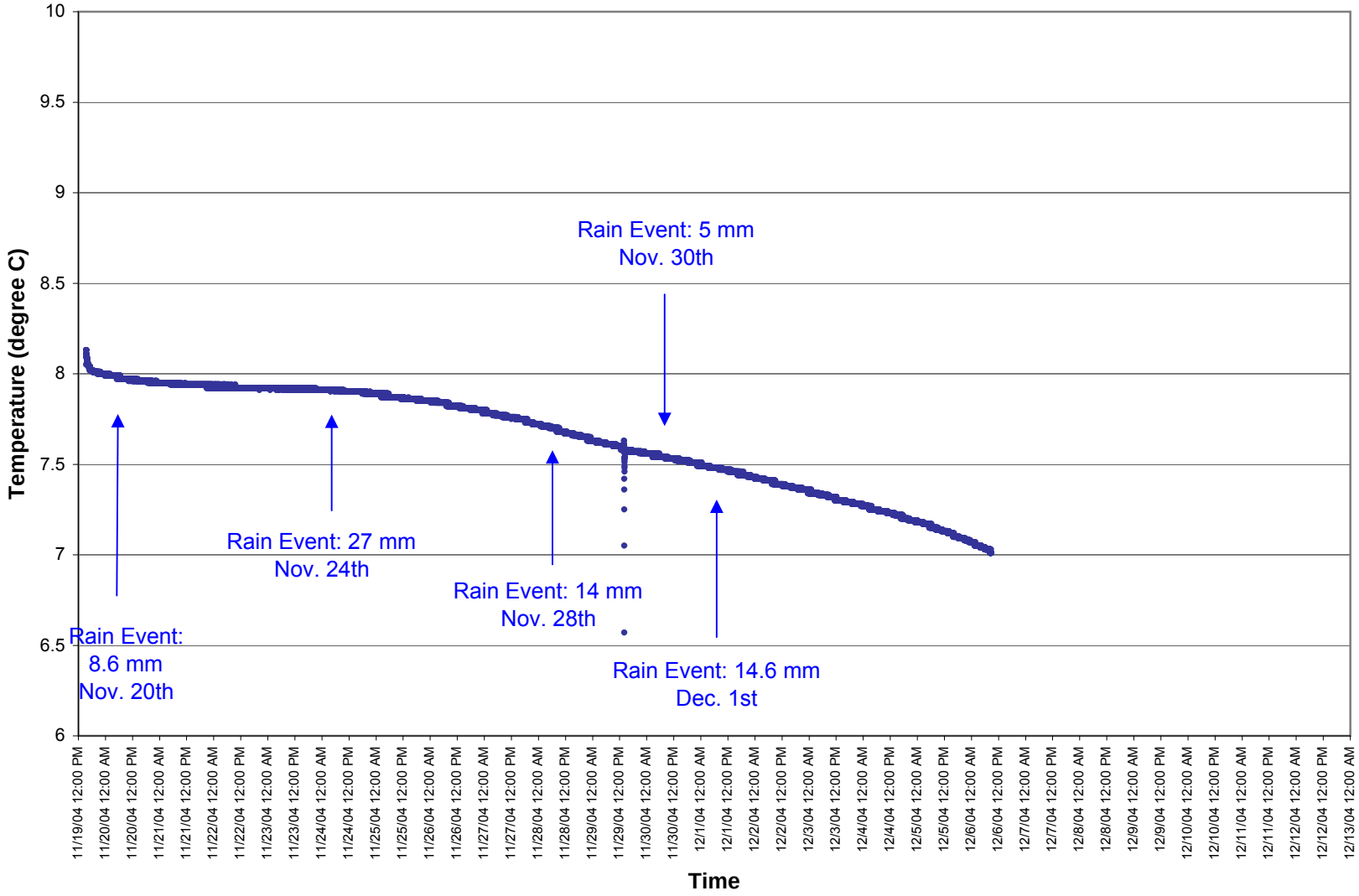
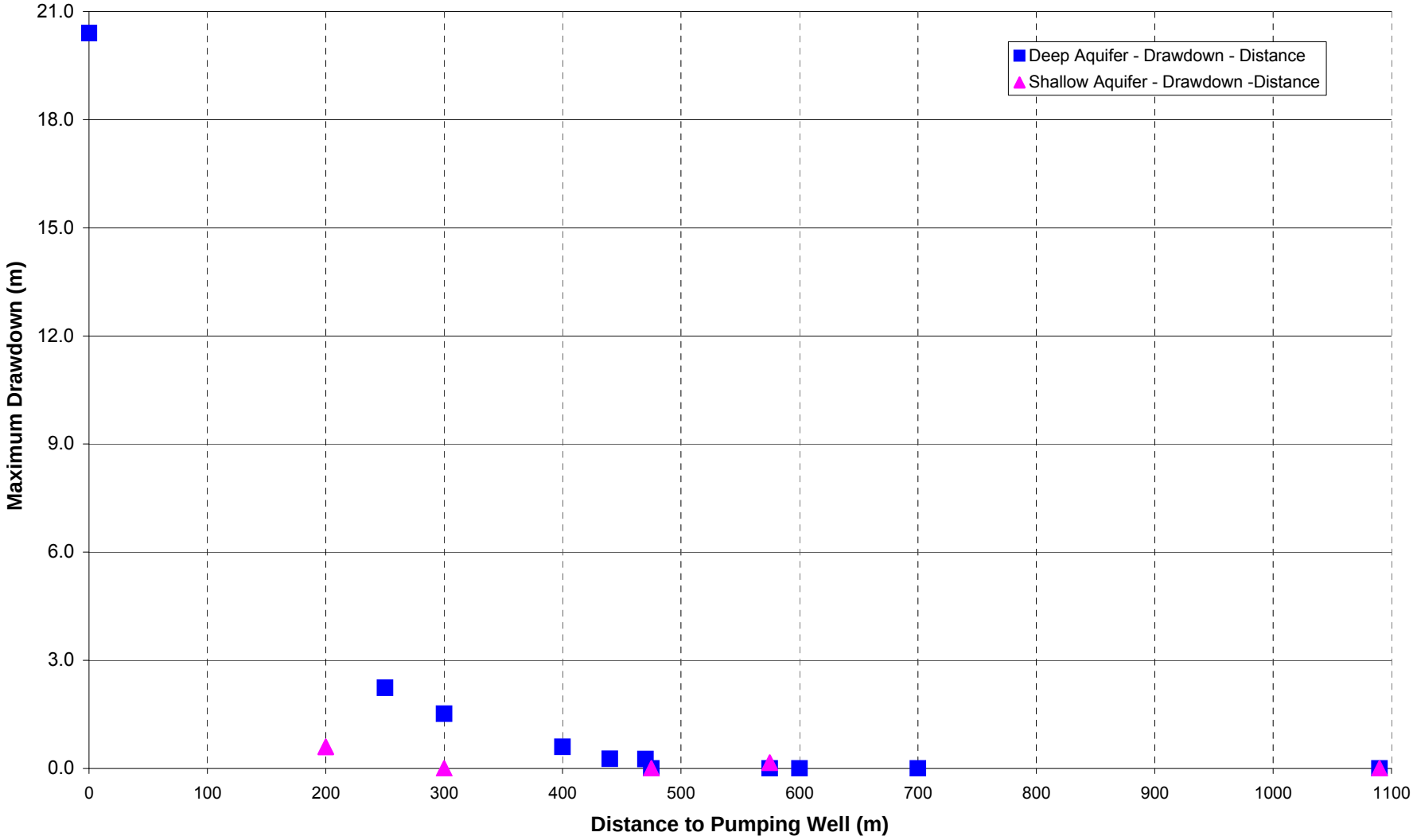
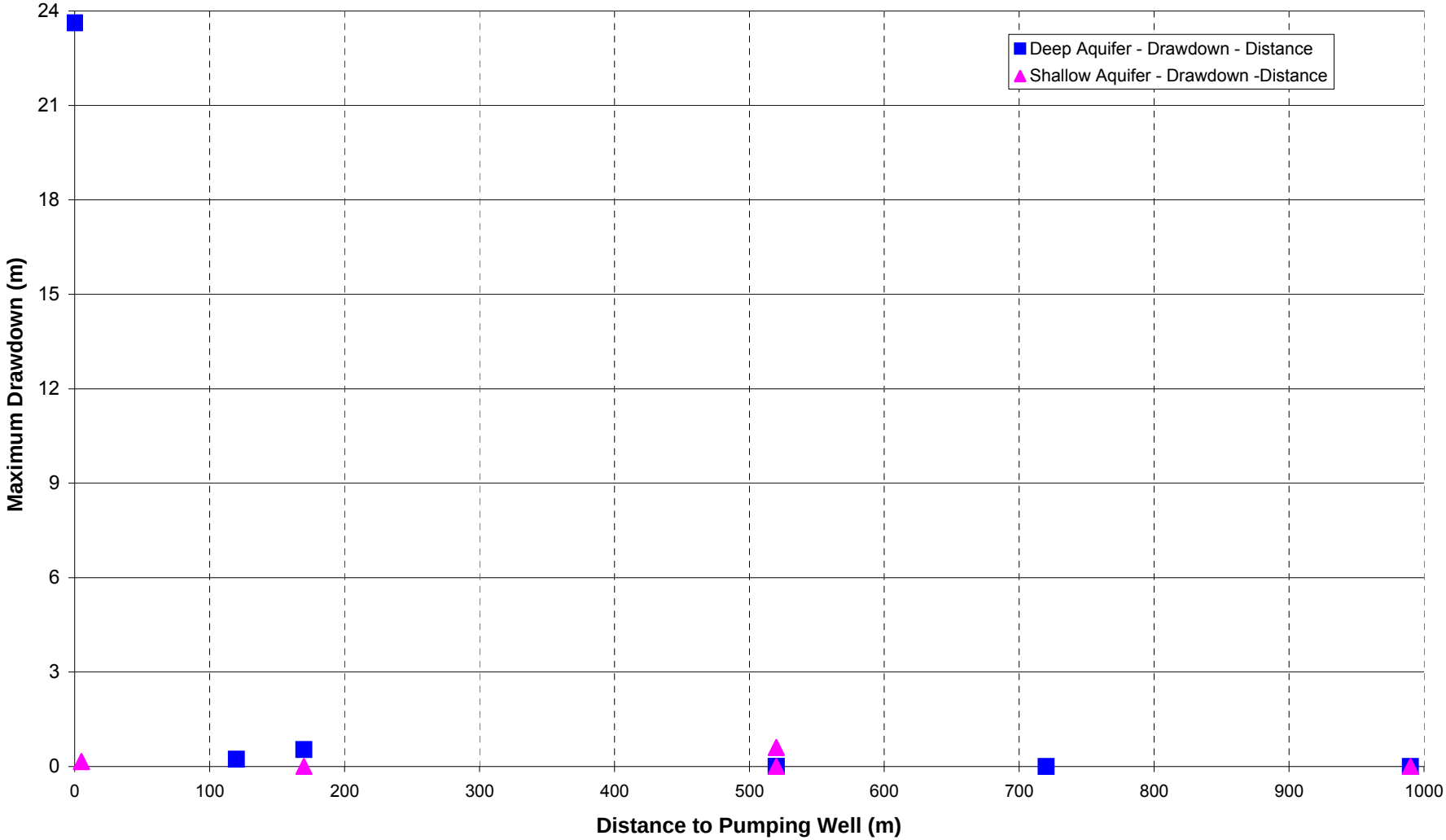


Figure F2-2-57
168-Hour Pumping Test
Distance from Pumping Well TW-12 - Drawdown



File: 168-Hour Test - Aq Prop.xls; Tab: G-TW12 - Distance-DDN

Figure F2-2-58
168-Hour Pumping Test
Distance from Pumping Well TW-13 - Drawdown



File: 168-Hour Test - Aq Prop.xls; Tab: G-TW13 - Distance-DDN

Figure F2-2-59 - 168-Hour Pumping Test
TW-12 - Time - Drawdown Curve

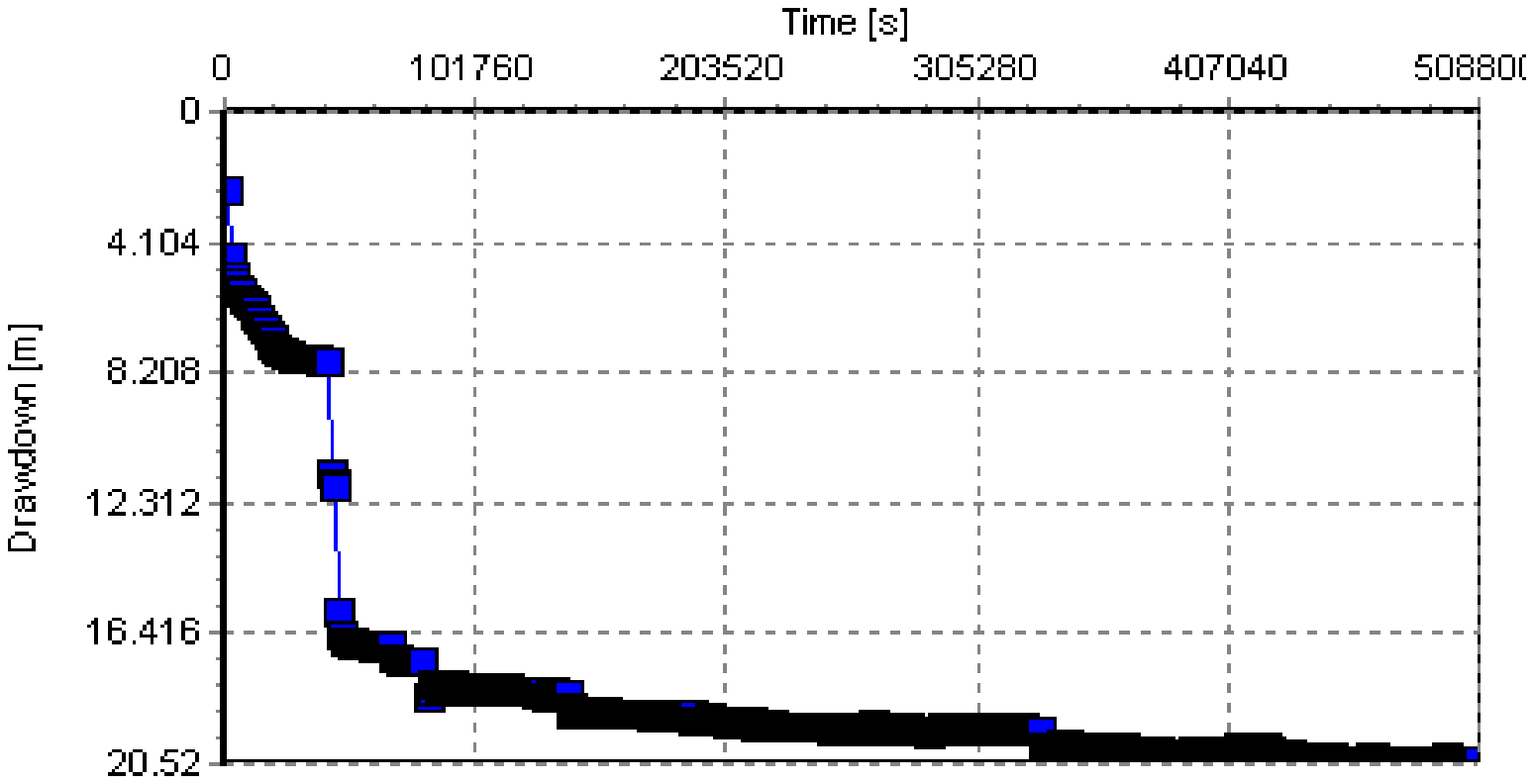
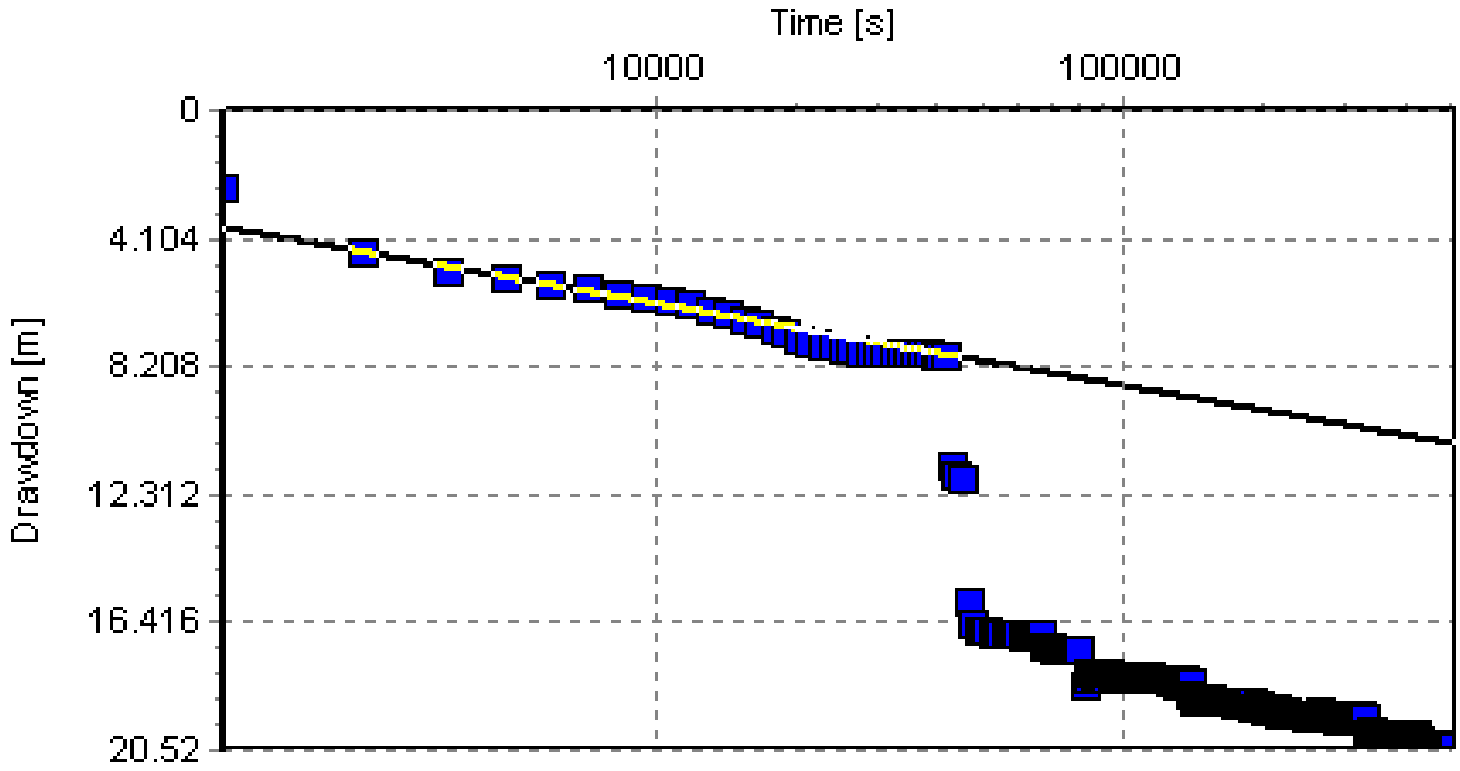


Figure F2-2-60 - 168-Hour Pumping Test

TW-12 - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 3.18E-3 m²/s

Conductivity: 7.94E-5 m/s

Figure F2-2-61 - 168-Hour Pumping Test
TW-12 - Time - Recovery Curve

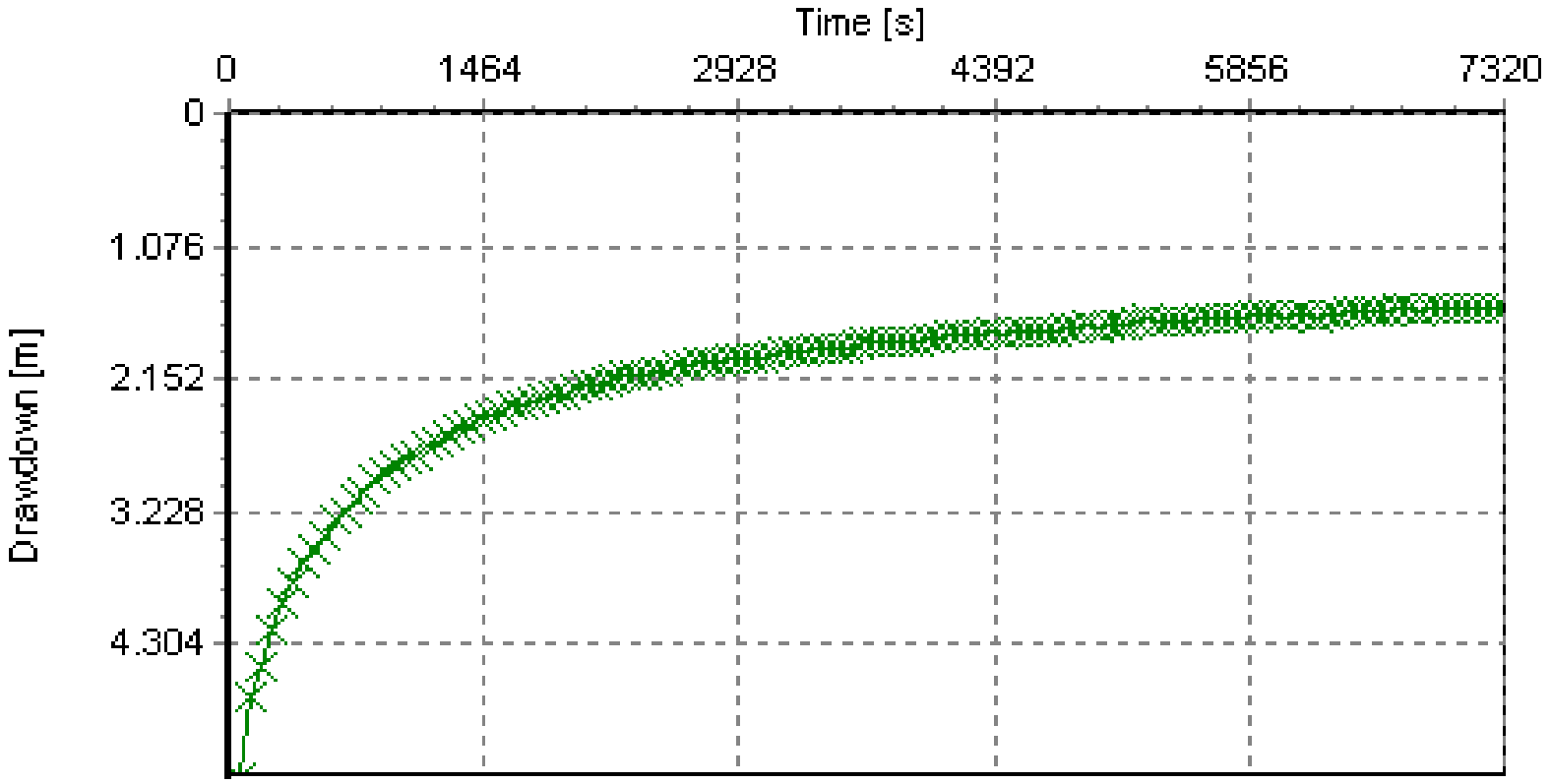
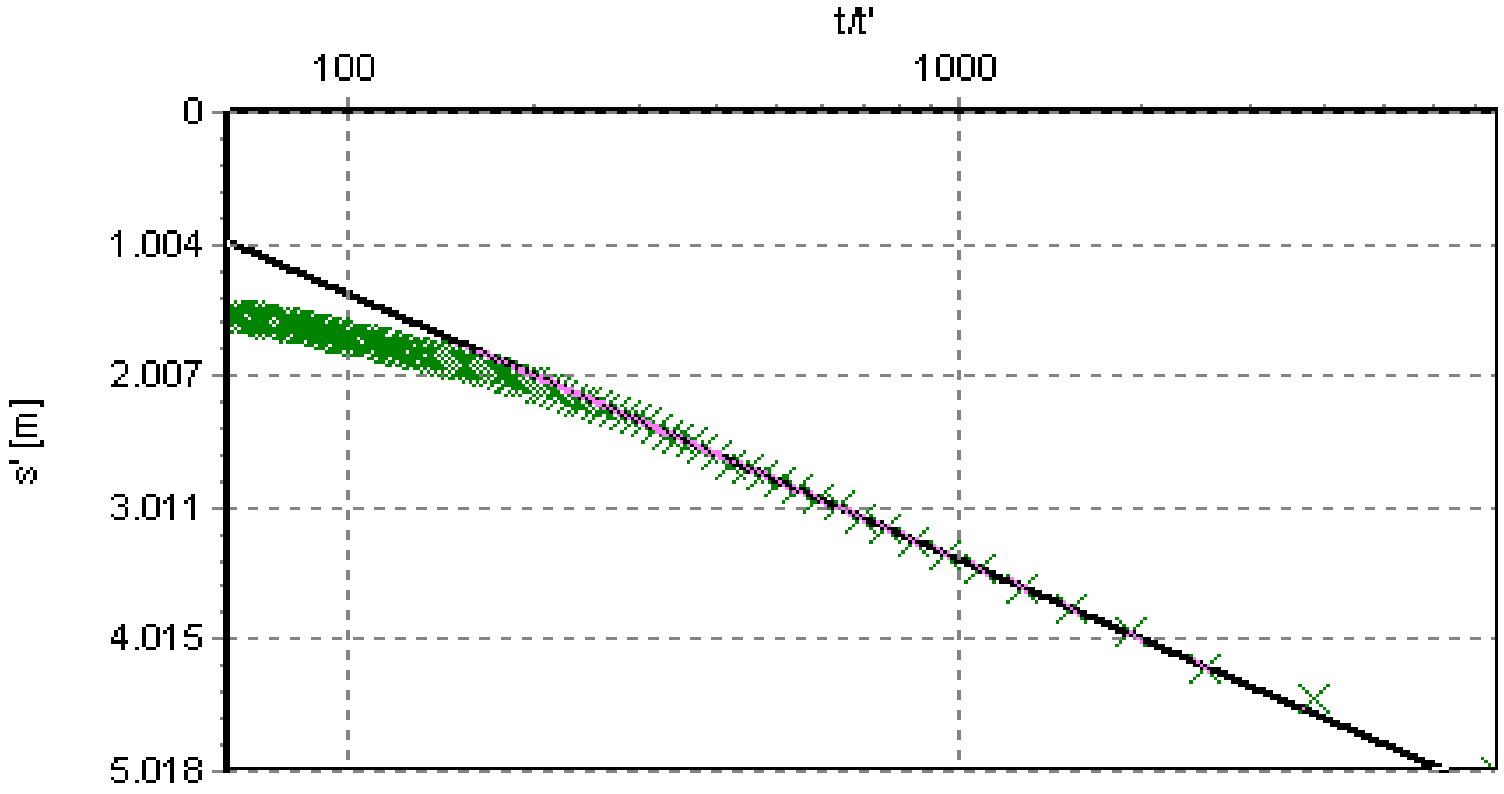


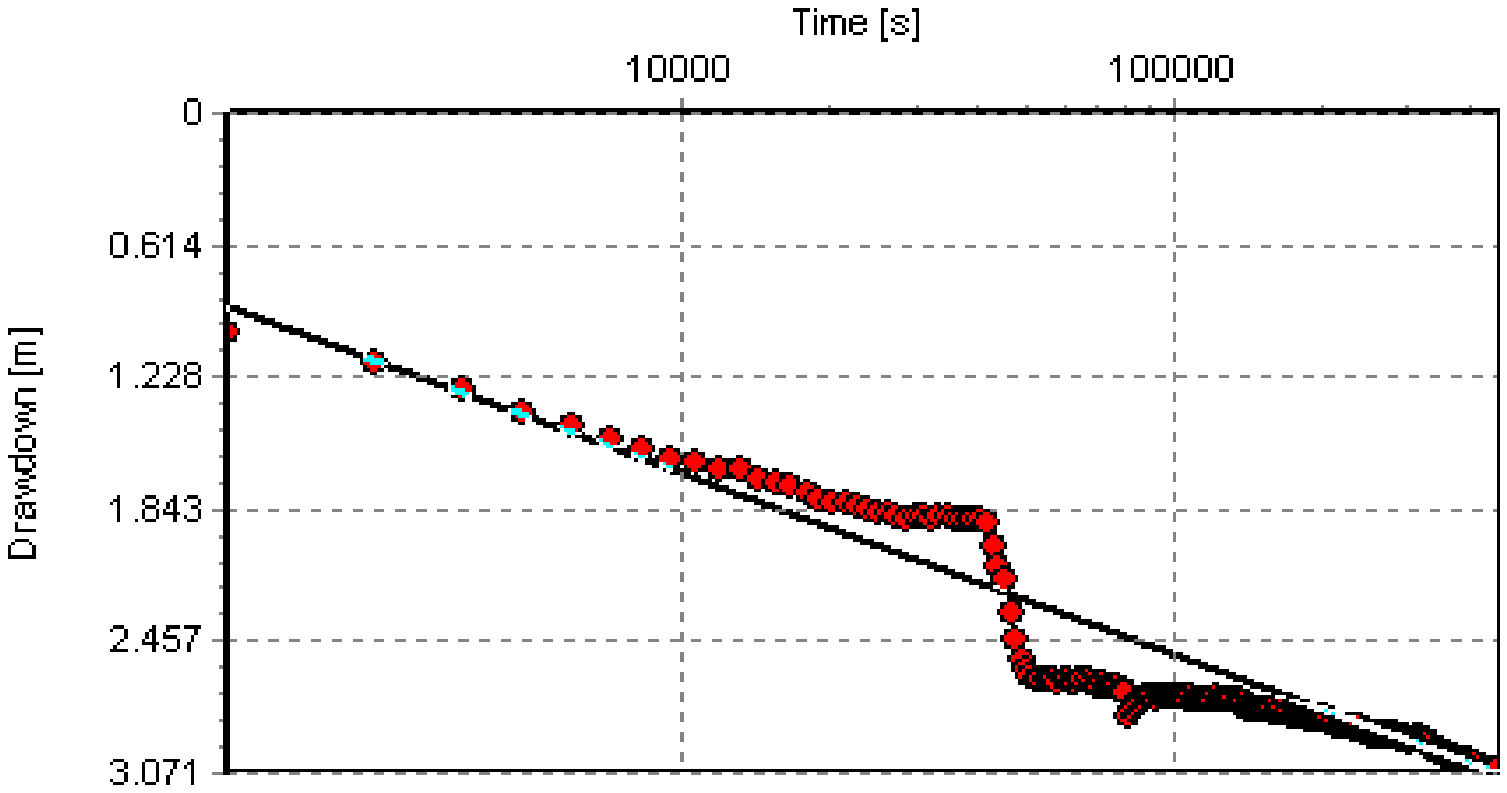
Figure F2-2-62 - 168-Hour Pumping Test
TW-12 - Theis Recovery Curve Fitting



Transmissivity: 4.14E-3 m²/s
Conductivity: 1.03E-4 m/s

Figure F-2-63 - 168-Hour Pumping Test

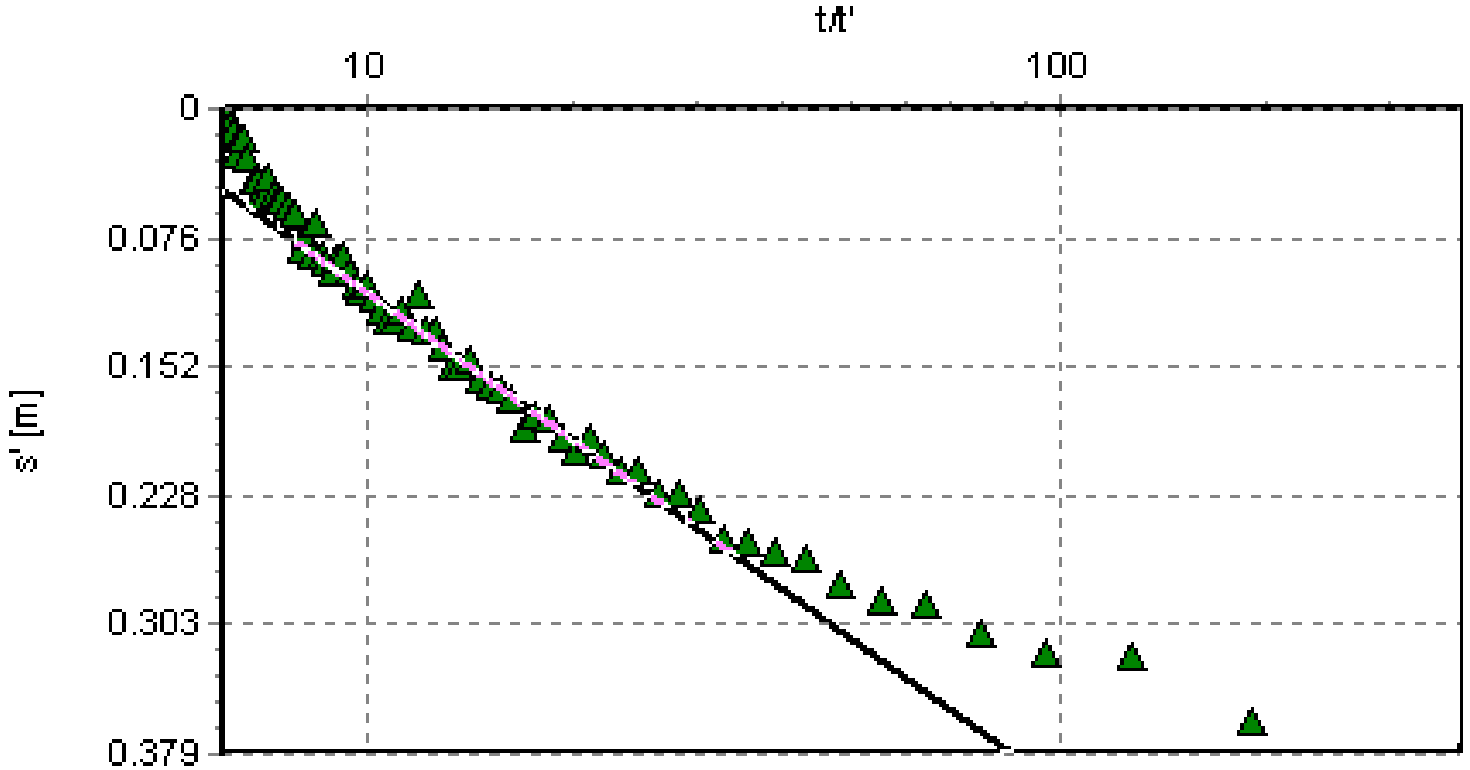
JEGEL BH-C - Cooper-Jacob Time-Drawdown Curve Fitting



Transmissivity: 9.93E-3 m²/s

Conductivity: 2.48E-4 m/s

Figure F-2-64 - 168-Hour Pumping Test
JEGEL BH-C - Theis Recovery Curve Fitting



Transmissivity: 2.87E-2 m²/s
Conductivity: 7.17E-4 m/s

Gartner Lee

Table F2-2-1
Atmospheric Pressure and Temperature
168-Hour Pumping Test

No.	Date	Time	Barometric Pressure (cm)	Temperature (Deg. C)
1	20-Nov-04	14:19:58	80.80	13.07
61	20-Nov-04	15:19:58	77.80	6.55
121	20-Nov-04	16:19:58	77.90	6.37
181	20-Nov-04	17:19:58	77.80	6.35
241	20-Nov-04	18:19:58	77.80	6.41
301	20-Nov-04	19:19:58	77.90	6.54
361	20-Nov-04	20:19:58	77.80	6.74
421	20-Nov-04	21:19:58	77.60	7.07
481	20-Nov-04	22:19:58	78.80	8.86
541	20-Nov-04	23:19:58	79.50	8.54
601	21-Nov-04	0:19:58	79.50	8.13
661	21-Nov-04	1:19:58	79.30	8.28
721	21-Nov-04	2:19:58	80.10	8.35
781	21-Nov-04	3:19:58	81.10	8.06
841	21-Nov-04	4:19:58	81.10	7.67
901	21-Nov-04	5:19:58	81.90	7.12
961	21-Nov-04	6:19:58	82.70	6.93
1021	21-Nov-04	7:19:58	83.70	6.78
1081	21-Nov-04	8:19:58	84.00	6.50
1141	21-Nov-04	9:19:58	84.40	6.98
1201	21-Nov-04	10:19:58	84.90	7.82
1261	21-Nov-04	11:19:58	85.00	8.46
1321	21-Nov-04	12:19:58	84.90	8.30
1381	21-Nov-04	13:19:58	84.80	9.48
1441	21-Nov-04	14:19:58	83.90	8.06
1501	21-Nov-04	15:19:58	84.00	7.46
1561	21-Nov-04	16:19:58	84.70	6.55
1621	21-Nov-04	17:19:58	84.90	5.65
1681	21-Nov-04	18:19:58	85.20	4.09
1741	21-Nov-04	19:19:58	85.20	3.93
1801	21-Nov-04	20:19:58	85.30	3.58
1861	21-Nov-04	21:19:58	85.30	2.70
1921	21-Nov-04	22:19:58	84.50	2.60
1981	21-Nov-04	23:19:58	84.00	2.48
2041	22-Nov-04	0:19:58	83.90	2.36
2101	22-Nov-04	1:19:58	83.60	1.78
2161	22-Nov-04	2:19:58	83.40	1.44
2221	22-Nov-04	3:19:58	82.40	1.29
2281	22-Nov-04	4:19:58	82.30	1.56
2341	22-Nov-04	5:19:58	81.70	1.44
2401	22-Nov-04	6:19:58	82.60	0.32
2461	22-Nov-04	7:19:58	83.40	-0.62
2521	22-Nov-04	8:19:58	83.20	-0.14
2581	22-Nov-04	9:19:58	83.30	1.64
2641	22-Nov-04	10:19:58	82.90	3.46
2701	22-Nov-04	11:19:58	82.50	5.33
2761	22-Nov-04	12:19:58	82.10	8.68
2821	22-Nov-04	13:19:58	80.80	8.83
2881	22-Nov-04	14:19:58	81.20	7.87
2941	22-Nov-04	15:19:58	80.50	6.02
3001	22-Nov-04	16:19:58	80.00	4.74
3061	22-Nov-04	17:19:58	80.70	2.77
3121	22-Nov-04	18:19:58	80.20	1.47
3181	22-Nov-04	19:19:58	80.30	0.42
3241	22-Nov-04	20:19:58	80.00	-0.51
3301	22-Nov-04	21:19:58	79.60	-0.78
3361	22-Nov-04	22:19:58	79.50	-1.30
3421	22-Nov-04	23:19:58	79.00	-1.59
3481	23-Nov-04	0:19:58	78.70	-1.77
3541	23-Nov-04	1:19:58	78.10	-1.52
3601	23-Nov-04	2:19:58	77.60	-0.95
3661	23-Nov-04	3:19:58	77.30	-0.59
3721	23-Nov-04	4:19:58	76.40	-0.43
3781	23-Nov-04	5:19:58	76.20	-0.34
3841	23-Nov-04	6:19:58	75.90	0.12
3901	23-Nov-04	7:19:58	76.00	1.98
3961	23-Nov-04	8:19:58	75.90	2.98
4021	23-Nov-04	9:19:58	75.90	3.92
4081	23-Nov-04	10:19:58	75.40	4.88
4141	23-Nov-04	11:19:58	74.60	5.87
4201	23-Nov-04	12:19:58	74.00	6.23
4261	23-Nov-04	13:19:58	73.40	6.64
4321	23-Nov-04	14:19:58	72.90	6.98
4381	23-Nov-04	15:19:58	72.70	7.26
4441	23-Nov-04	16:19:58	73.10	7.24
4501	23-Nov-04	17:19:58	72.70	7.24
4561	23-Nov-04	18:19:58	72.90	7.16
4621	23-Nov-04	19:19:58	73.00	7.18
4681	23-Nov-04	20:19:58	73.20	7.40
4741	23-Nov-04	21:19:58	73.40	7.46
4801	23-Nov-04	22:19:58	73.20	7.16
4861	23-Nov-04	23:19:58	73.90	7.17
4921	24-Nov-04	0:19:58	74.30	6.87

No.	Date	Time	Barometric Pressure (cm)	Temperature (Deg. C)
4981	24-Nov-04	1:19:58	73.40	6.27
5041	24-Nov-04	2:19:58	73.90	5.36
5101	24-Nov-04	3:19:58	74.40	4.98
5161	24-Nov-04	4:19:58	74.00	4.80
5221	24-Nov-04	5:19:58	74.10	4.96
5281	24-Nov-04	6:19:58	74.40	3.92
5341	24-Nov-04	7:19:58	74.20	3.58
5401	24-Nov-04	8:19:58	74.10	3.14
5461	24-Nov-04	9:19:58	73.40	2.92
5521	24-Nov-04	10:19:58	72.30	2.63
5581	24-Nov-04	11:19:58	70.70	2.21
5641	24-Nov-04	12:19:58	69.30	1.64
5701	24-Nov-04	13:19:58	67.80	0.75
5761	24-Nov-04	14:19:58	66.30	-0.14
5821	24-Nov-04	15:19:58	64.10	-0.32
5881	24-Nov-04	16:19:58	61.40	-0.09
5941	24-Nov-04	17:19:58	59.80	-0.10
6001	24-Nov-04	18:19:58	59.10	-0.06
6061	24-Nov-04	19:19:58	57.70	-0.08
6121	24-Nov-04	20:19:58	56.00	-0.06
6181	24-Nov-04	21:19:58	55.60	-0.06
6241	24-Nov-04	22:19:58	53.90	-0.21
6301	24-Nov-04	23:19:58	53.80	-0.47
6361	25-Nov-04	0:19:58	52.60	-0.54
6421	25-Nov-04	1:19:58	52.10	-0.56
6481	25-Nov-04	2:19:58	53.10	-0.65
6541	25-Nov-04	3:19:58	54.30	-0.73
6601	25-Nov-04	4:19:58	54.40	-0.92
6661	25-Nov-04	5:19:58	55.50	-1.03
6721	25-Nov-04	6:19:58	56.70	-1.40
6781	25-Nov-04	7:19:58	57.80	-1.48
6841	25-Nov-04	8:19:58	59.20	-1.36
6901	25-Nov-04	9:19:58	60.60	-1.38
6961	25-Nov-04	10:19:58	61.70	-1.19
7021	25-Nov-04	11:19:58	62.10	-0.84
7081	25-Nov-04	12:19:58	62.80	-0.21
7141	25-Nov-04	13:19:58	63.60	-0.70
7201	25-Nov-04	14:19:58	65.40	-1.79
7261	25-Nov-04	15:19:58	66.20	-1.82
7321	25-Nov-04	16:19:58	68.30	-2.44
7381	25-Nov-04	17:19:58	69.20	-3.07
7441	25-Nov-04	18:19:58	70.40	-3.54
7501	25-Nov-04	19:19:58	71.30	-3.58
7561	25-Nov-04	20:19:58	70.90	-2.94
7621	25-Nov-04	21:19:58	71.30	-2.68
7681	25-Nov-04	22:19:58	71.10	-2.49
7741	25-Nov-04	23:19:58	70.70	-2.40
7801	26-Nov-04	0:19:58	70.70	-2.38
7861	26-Nov-04	1:19:58	70.90	-2.39
7921	26-Nov-04	2:19:58	71.10	-2.52
7981	26-Nov-04	3:19:58	71.40	-2.48
8041	26-Nov-04	4:19:58	72.20	-2.24
8101	26-Nov-04	5:19:58	72.90	-2.56
8161	26-Nov-04	6:19:58	73.60	-2.04
8221	26-Nov-04	7:19:58	74.70	-1.86
8281	26-Nov-04	8:19:58	75.00	-1.72
8341	26-Nov-04	9:19:58	76.10	-1.48
8401	26-Nov-04	10:19:58	76.80	-0.55
8461	26-Nov-04	11:19:58	77.30	0.10
8521	26-Nov-04	12:19:58	77.30	0.94
8581	26-Nov-04	13:19:58	77.50	1.29
8641	26-Nov-04	14:19:58	77.30	1.05
8701	26-Nov-04	15:19:58	77.50	0.78
8761	26-Nov-04	16:19:58	77.40	0.36
8821	26-Nov-04	17:19:58	77.50	-0.12
8881	26-Nov-04	18:19:58	77.60	-0.16
8941	26-Nov-04	19:19:58	78.00	-0.12
9001	26-Nov-04	20:19:58	77.80	-0.01
9061	26-Nov-04	21:19:58	77.90	0.00
9121	26-Nov-04	22:19:58	77.60	-0.06
9181	26-Nov-04	23:19:58	77.50	-0.08
9241	27-Nov-04	0:19:58	77.40	-0.02
9301	27-Nov-04	1:19:58	77.60	0.04
9361	27-Nov-04	2:19:58	77.20	0.11
9421	27-Nov-04	3:19:58	77.10	0.14
9481	27-Nov-04	4:19:58	77.00	0.42
9541	27-Nov-04	5:19:58	77.00	1.16
9601	27-Nov-04	6:19:58	76.70	1.78
9661	27-Nov-04	7:19:58	76.70	1.78
9721	27-Nov-04	8:19:58	76.40	1.42
9781	27-Nov-04	9:19:58	76.40	2.68
9841	27-Nov-04	10:19:58	76.50	3.33
9901	27-Nov-04	11:19:58	75.30	4.64
9961	27-Nov-04	12:19:58	74.90	6.45
10021	27-Nov-04	13:19:58	74.50	8.16
10081	27-Nov-04	14:19:58	73.40	8.80
10141	27-Nov-04	15:19:58	71.80	7.80
10201	27-Nov-04	16:19:58	71.60	6.36
10261	27-Nov-04	17:19:58	71.20	4.74
10321	27-Nov-04	18:19:58	70.00	5.72
10381	27-Nov-04	19:19:58	69.40	6.06
10441	27-Nov-04	20:19:58	68.50	5.96
10501	27-Nov-04	21:19:58	68.50	5.96

No.	Date	Time	Barometric Pressure (cm)	Temperature (Deg. C)
10561	27-Nov-04	22:19:58	68.00	6.29
10621	27-Nov-04	23:19:58	66.90	6.14
10681	28-Nov-04	0:19:58	66.60	6.72
10741	28-Nov-04	1:19:58	66.00	7.60
10801	28-Nov-04	2:19:58	64.30	6.88
10861	28-Nov-04	3:19:58	63.80	6.52
10921	28-Nov-04	4:19:58	62.70	6.30
10981	28-Nov-04	5:19:58	62.10	5.99
11041	28-Nov-04	6:19:58	61.80	5.78
11101	28-Nov-04	7:19:58	62.50	5.01
11161	28-Nov-04	8:19:58	64.60	3.50
11221	28-Nov-04	9:19:58	65.20	3.24
11281	28-Nov-04	10:19:58	65.70	3.40
11341	28-Nov-04	11:19:58	65.90	3.09
11401	28-Nov-04	12:19:58	66.20	3.24
11461	28-Nov-04	13:19:58	67.30	3.00
11521	28-Nov-04	14:19:58	68.80	3.12
11581	28-Nov-04	15:19:58	71.00	3.02
11641	28-Nov-04	16:19:58	72.80	3.03
11701	28-Nov-04	17:19:58	74.30	2.87
11761	28-Nov-04	18:19:58	76.30	2.48
11821	28-Nov-04	19:19:58	78.20	1.96
11881	28-Nov-04	20:19:58	80.20	1.70
11941	28-Nov-04	21:19:58	81.20	0.80
12001	28-Nov-04	22:19:58	81.70	0.71
12061	28-Nov-04	23:19:58	82.60	0.77
12121	29-Nov-04	0:19:58	83.00	0.82
12181	29-Nov-04	1:19:58	83.20	0.74
12241	29-Nov-04	2:19:58	83.50	0.66
12301	29-Nov-04	3:19:58	84.30	0.26
12361	29-Nov-04	4:19:58	84.50	0.19
12421	29-Nov-04	5:19:58	85.20	0.08
12481	29-Nov-04	6:19:58	85.40	-0.22
12541	29-Nov-04	7:19:58	86.60	-0.39
12601	29-Nov-04	8:19:58	86.90	-0.39
12661	29-Nov-04	9:19:58	86.90	0.16
12721	29-Nov-04	10:19:58	86.50	0.98
12781	29-Nov-04	11:19:58	86.10	2.24
12841	29-Nov-04	12:19:58	86.80	5.18
12901	29-Nov-04	13:19:58	86.30	5.18
12961	29-Nov-04	14:19:58	85.20	3.94
13021	29-Nov-04	15:19:58	84.90	3.45
13081	29-Nov-04	16:19:58	84.60	2.88
13141	29-Nov-04	17:19:58	84.80	2.02
13201	29-Nov-04	18:19:58	84.60	1.56
13261	29-Nov-04	19:19:58	83.30	1.36
13321	29-Nov-04	20:19:58	83.70	0.28
13381	29-Nov-04	21:19:58	84.40	-0.60
13441	29-Nov-04	22:19:58	83.60	-0.13
13501	29-Nov-04	23:19:58	83.20	0.10
13561	30-Nov-04	0:19:58	83.00	0.27
13621	30-Nov-04	1:19:58	82.20	0.36
13681	30-Nov-04	2:19:58	82.30	0.00
13741	30-Nov-04	3:19:58	82.50	-0.60
13801	30-Nov-04	4:19:58	83.00	-1.29
13861	30-Nov-04	5:19:58	82.50	-1.76
13921	30-Nov-04	6:19:58	82.90	-1.92
13981	30-Nov-04	7:19:58	83.50	-2.02
14041	30-Nov-04	8:19:58	83.40	-1.82
14101	30-Nov-04	9:19:58	82.60	-0.40
14161	30-Nov-04	10:19:58	82.60	3.79
14221	30-Nov-04	11:19:58	82.30	3.56
14281	30-Nov-04	12:19:58	81.50	5.36
14341	30-Nov-04	13:19:58	80.60	4.14
14401	30-Nov-04	14:19:58	79.80	3.88
14461	30-Nov-04	15:19:58	79.30	3.68
14521	30-Nov-04	16:19:58	78.40	3.22
14581	30-Nov-04	17:19:58	77.40	2.66
14641	30-Nov-04	18:19:58	77.10	2.53
14701	30-Nov-04	19:19:58	75.40	2.36
14761	30-Nov-04	20:19:58	74.40	2.10
14821	30-Nov-04	21:19:58	72.90	1.92
14881	30-Nov-04	22:19:58	70.80	2.14
14941	30-Nov-04	23:19:58	68.70	2.60
15001	1-Dec-04	0:19:58	67.20	2.70
15061	1-Dec-04	1:19:58	62.90	3.00
15121	1-Dec-04	2:19:58	63.10	3.22
15181	1-Dec-04	3:19:58	58.30	3.40
15241	1-Dec-04	4:19:58	56.90	3.49
15301	1-Dec-04	5:19:58	54.70	3.53
15361	1-Dec-04	6:19:58	53.40	3.59
15421	1-Dec-04	7:19:58	53.00	3.68
15481	1-Dec-04	8:19:58	53.60	3.77
15541	1-Dec-04	9:19:58	55.40	1.54
15601	1-Dec-04	10:19:58	57.70	1.50
15661	1-Dec-04	11:19:58	59.70	2.62
15721	1-Dec-04	12:19:58	62.90	3.11
15781	1-Dec-04	13:19:58	65.40	4.02
15841	1-Dec-04	14:19:58	66.70	3.62
15901	1-Dec-04	15:19:58	68.40	2.53
15961	1-Dec-04	16:19:58	69.90	2.38
16021	1-Dec-04	17:19:58	71.10	1.72
16081	1-Dec-04	18:19:58	71.50	1.79

No.	Date	Time	Barometric Pressure (cm)	Temperature (Deg. C)
16141	1-Dec-04	19:19:58	72.20	1.82
16201	1-Dec-04	20:19:58	72.70	1.83
16261	1-Dec-04	21:19:58	72.60	1.79
16321	1-Dec-04	22:19:58	73.20	1.69
16381	1-Dec-04	23:19:58	73.30	1.57
16441	2-Dec-04	0:19:58	73.60	1.74
16501	2-Dec-04	1:19:58	73.40	1.34
16561	2-Dec-04	2:19:58	74.50	1.01
16621	2-Dec-04	3:19:58	75.30	0.15
16681	2-Dec-04	4:19:58	75.30	-0.34
16741	2-Dec-04	5:19:58	75.40	-0.43
16801	2-Dec-04	6:19:58	75.70	0.14
16861	2-Dec-04	7:19:58	75.90	0.01
16921	2-Dec-04	8:19:58	76.20	0.08
16981	2-Dec-04	9:19:58	76.10	0.82
17041	2-Dec-04	10:19:58	77.10	3.84
17101	2-Dec-04	11:19:58	75.80	3.33
17161	2-Dec-04	12:19:58	75.30	4.31
17221	2-Dec-04	13:19:58	74.10	3.26
17281	2-Dec-04	14:19:58	73.10	3.08
17341	2-Dec-04	15:19:58	72.10	2.41
17401	2-Dec-04	16:19:58	72.50	1.94
17461	2-Dec-04	17:19:58	72.30	1.21
17521	2-Dec-04	18:19:58	72.10	0.64
17581	2-Dec-04	19:19:58	72.00	0.46
17641	2-Dec-04	20:19:58	71.20	0.32
17701	2-Dec-04	21:19:58	70.40	-0.07
17761	2-Dec-04	22:19:58	69.30	-0.14
17821	2-Dec-04	23:19:58	67.90	-0.27
17881	3-Dec-04	0:19:58	67.30	-0.52
17941	3-Dec-04	1:19:58	65.80	-0.46
18001	3-Dec-04	2:19:58	65.10	-0.51
18061	3-Dec-04	3:19:58	64.70	-0.76
18121	3-Dec-04	4:19:58	63.80	-0.19
18181	3-Dec-04	5:19:58	63.60	-0.04
18241	3-Dec-04	6:19:58	65.20	-0.84
18301	3-Dec-04	7:19:58	67.50	-2.04
18361	3-Dec-04	8:19:58	69.30	-2.30
18421	3-Dec-04	9:19:58	70.50	-1.50
18481	3-Dec-04	10:19:58	71.60	-1.28
18541	3-Dec-04	11:19:58	72.40	-1.74
18601	3-Dec-04	12:19:58	73.00	0.34
18661	3-Dec-04	13:19:58	72.80	-1.46
18721	3-Dec-04	14:19:58	73.40	-1.06
18781	3-Dec-04	15:19:58	74.10	-1.61
18841	3-Dec-04	16:19:58	75.00	-2.62
18901	3-Dec-04	17:19:58	76.10	-3.50
18961	3-Dec-04	18:19:58	76.60	-4.11
19021	3-Dec-04	19:19:58	77.10	-4.50
19081	3-Dec-04	20:19:58	76.90	-4.36
19141	3-Dec-04	21:19:58	76.30	-3.84
19201	3-Dec-04	22:19:58	76.30	-4.47
19261	3-Dec-04	23:19:58	76.30	-5.00
19321	4-Dec-04	0:19:58	75.60	-5.39
19381	4-Dec-04	1:19:58	74.30	-5.60
19441	4-Dec-04	2:19:58	73.40	-5.35
19501	4-Dec-04	3:19:58	72.30	-5.14
19561	4-Dec-04	4:19:58	71.30	-4.88
19621	4-Dec-04	5:19:58	71.00	-4.69
19681	4-Dec-04	6:19:58	71.30	-3.87
19741	4-Dec-04	7:19:58	70.60	-3.30
19801	4-Dec-04	8:19:58	70.50	-1.08
19861	4-Dec-04	9:19:58	69.80	0.32
19921	4-Dec-04	10:19:58	68.70	2.14
19981	4-Dec-04	11:19:58	67.10	2.94
20041	4-Dec-04	12:19:58	65.50	3.50
20101	4-Dec-04	13:19:58	63.80	4.38
20161	4-Dec-04	14:19:58	64.10	3.36
20221	4-Dec-04	15:19:58	63.50	2.31
20281	4-Dec-04	16:19:58	64.40	2.00
20341	4-Dec-04	17:19:58	64.70	2.12
20401	4-Dec-04	18:19:58	65.80	2.20
20461	4-Dec-04	19:19:58	66.00	2.89
20521	4-Dec-04	20:19:58	66.70	2.75
20581	4-Dec-04	21:19:58	67.70	3.25
20641	4-Dec-04	22:19:58	68.40	2.76
20701	4-Dec-04	23:19:58	69.00	2.95
20761	5-Dec-04	0:19:58	69.90	2.88
20821	5-Dec-04	1:19:58	71.10	2.50
20881	5-Dec-04	2:19:58	72.20	2.00
20941	5-Dec-04	3:19:58	74.20	1.12
21001	5-Dec-04	4:19:58	75.00	0.90
21061	5-Dec-04	5:19:58	76.40	0.54
21121	5-Dec-04	6:19:58	77.90	-0.40
21181	5-Dec-04	7:19:58	80.10	-0.96
21241	5-Dec-04	8:19:58	80.80	-1.13
21301	5-Dec-04	9:19:58	81.40	0.84
21361	5-Dec-04	10:19:58	82.30	1.66
21421	5-Dec-04	11:19:58	83.00	1.98
21481	5-Dec-04	12:19:58	83.50	2.64
21541	5-Dec-04	13:19:58	83.50	3.16
21601	5-Dec-04	14:19:58	84.30	3.80
21661	5-Dec-04	15:19:58	84.10	0.38

No.	Date	Time	Barometric Pressure (cm)	Temperature (Deg. C)
21721	5-Dec-04	16:19:58	84.70	-0.55
21781	5-Dec-04	17:19:58	85.80	-1.55
21841	5-Dec-04	18:19:58	86.60	-2.12
21901	5-Dec-04	19:19:58	86.60	-2.61
21961	5-Dec-04	20:19:58	86.30	-3.07
22021	5-Dec-04	21:19:58	86.30	-3.28
22081	5-Dec-04	22:19:58	85.90	-3.27
22141	5-Dec-04	23:19:58	85.20	-3.35
22201	6-Dec-04	0:19:58	84.40	-3.31
22261	6-Dec-04	1:19:58	84.70	-3.23
22321	6-Dec-04	2:19:58	83.80	-3.02
22441	6-Dec-04	4:19:58	81.70	-2.58
22501	6-Dec-04	5:19:58	81.30	-1.97
22561	6-Dec-04	6:19:58	81.10	-1.68
22621	6-Dec-04	7:19:58	81.30	-1.39
22681	6-Dec-04	8:19:58	81.70	-3.76
22741	6-Dec-04	9:19:58	80.90	-4.06
22801	6-Dec-04	10:19:58	80.30	-3.54
22861	6-Dec-04	11:19:58	78.90	-2.20
22921	6-Dec-04	12:19:58	78.20	-1.26
22981	6-Dec-04	13:19:58	77.10	-1.01
23041	6-Dec-04	14:19:58	76.60	-0.73
23101	6-Dec-04	15:19:58	77.00	-0.98
17	6-Dec-04	16:21:24	80.30	0.46
77	6-Dec-04	17:21:24	78.60	-2.00
137	6-Dec-04	18:21:24	78.10	-2.07
197	6-Dec-04	19:21:24	78.20	-1.56
257	6-Dec-04	20:21:24	78.00	-1.47
317	6-Dec-04	21:21:24	78.10	-1.77
377	6-Dec-04	22:21:24	77.70	-1.54
437	6-Dec-04	23:21:24	77.70	-1.33
497	7-Dec-04	0:21:24	76.70	-1.26
557	7-Dec-04	1:21:24	76.50	-1.19
617	7-Dec-04	2:21:24	76.20	-1.40
677	7-Dec-04	3:21:24	75.10	-1.58
737	7-Dec-04	4:21:24	74.10	-1.94
797	7-Dec-04	5:21:24	73.50	-1.68
857	7-Dec-04	6:21:24	72.60	-1.65
917	7-Dec-04	7:21:24	71.70	-1.28
977	7-Dec-04	8:21:24	71.00	-0.78
1037	7-Dec-04	9:21:24	69.50	-0.51
1097	7-Dec-04	10:21:24	67.50	-0.10
1157	7-Dec-04	11:21:24	64.00	0.01
1217	7-Dec-04	12:21:24	60.50	0.66
1277	7-Dec-04	13:21:24	58.20	2.41
1337	7-Dec-04	14:21:24	55.10	3.01
1397	7-Dec-04	15:21:24	53.50	3.26
1457	7-Dec-04	16:21:24	53.00	3.38
1517	7-Dec-04	17:21:24	52.40	2.82
1577	7-Dec-04	18:21:24	53.80	8.50
1637	7-Dec-04	19:21:24	52.90	8.80
1697	7-Dec-04	20:21:24	52.90	7.92
1757	7-Dec-04	21:21:24	54.30	6.03
1817	7-Dec-04	22:21:24	58.10	3.50
1877	7-Dec-04	23:21:24	60.40	2.85
1937	8-Dec-04	0:21:24	62.30	1.98
1997	8-Dec-04	1:21:24	63.60	2.02
2057	8-Dec-04	2:21:24	64.90	2.40
2117	8-Dec-04	3:21:24	66.50	2.73
2177	8-Dec-04	4:21:24	67.30	2.98
2237	8-Dec-04	5:21:24	68.40	3.18
2297	8-Dec-04	6:21:24	70.00	3.26
2357	8-Dec-04	7:21:24	71.30	3.34
2417	8-Dec-04	8:21:24	72.60	3.43
2477	8-Dec-04	9:21:24	75.10	3.86
2537	8-Dec-04	10:21:24	76.70	3.98
2597	8-Dec-04	11:21:24	77.80	4.44
2657	8-Dec-04	12:21:24	78.50	5.40
2717	8-Dec-04	13:21:24	78.50	4.64
2777	8-Dec-04	14:21:24	78.70	4.81
2837	8-Dec-04	15:21:24	78.60	4.51
2897	8-Dec-04	16:21:24	79.00	4.22
2957	8-Dec-04	17:21:24	79.20	3.83
3017	8-Dec-04	18:21:24	80.10	2.66
3077	8-Dec-04	19:21:24	81.50	0.74
3137	8-Dec-04	20:21:24	81.30	0.72
3197	8-Dec-04	21:21:24	81.10	0.89
3257	8-Dec-04	22:21:24	81.00	1.14
3317	8-Dec-04	23:21:24	81.20	1.15
3377	9-Dec-04	0:21:24	80.70	1.08
3437	9-Dec-04	1:21:24	79.90	0.74
3497	9-Dec-04	2:21:24	79.80	0.46
3557	9-Dec-04	3:21:24	78.60	0.16
3617	9-Dec-04	4:21:24	78.20	0.16
3677	9-Dec-04	5:21:24	77.70	0.75
3737	9-Dec-04	6:21:24	77.10	0.90
3797	9-Dec-04	7:21:24	76.40	1.29
3857	9-Dec-04	8:21:24	76.20	1.23
3917	9-Dec-04	9:21:24	75.80	2.05
3977	9-Dec-04	10:21:24	76.10	3.44
4037	9-Dec-04	11:21:24	75.30	4.02
4097	9-Dec-04	12:21:24	74.30	4.26
4157	9-Dec-04	13:21:24	73.70	4.52

No.	Date	Time	Barometric Pressure (cm)	Temperature (Deg. C)
4217	9-Dec-04	14:21:24	72.30	3.99
4277	9-Dec-04	15:21:24	72.00	3.42
4337	9-Dec-04	16:21:24	71.10	3.13
4397	9-Dec-04	17:21:24	70.50	2.86
4457	9-Dec-04	18:21:24	70.10	2.79
4517	9-Dec-04	19:21:24	69.70	2.71
4577	9-Dec-04	20:21:24	69.10	2.70
4637	9-Dec-04	21:21:24	69.50	2.73
4697	9-Dec-04	22:21:24	68.90	3.00
4757	9-Dec-04	23:21:24	68.70	2.83
4817	10-Dec-04	0:21:24	68.10	2.68
4877	10-Dec-04	1:21:24	67.80	2.48
4937	10-Dec-04	2:21:24	67.00	1.98
4997	10-Dec-04	3:21:24	67.70	1.70
5057	10-Dec-04	4:21:24	67.00	1.68
5117	10-Dec-04	5:21:24	66.00	1.32
5177	10-Dec-04	6:21:24	66.20	0.65
5237	10-Dec-04	7:21:24	65.90	0.75
5297	10-Dec-04	8:21:24	64.80	0.66
5357	10-Dec-04	9:21:24	64.50	0.86
5417	10-Dec-04	10:21:24	63.70	1.02
5477	10-Dec-04	11:21:24	62.50	1.05
5537	10-Dec-04	12:21:24	61.60	1.06
5597	10-Dec-04	13:21:24	60.50	0.88
5657	10-Dec-04	14:21:24	59.60	0.93
5717	10-Dec-04	15:21:24	59.70	0.82
5777	10-Dec-04	16:21:24	58.90	0.96
5837	10-Dec-04	17:21:24	58.50	1.29
5897	10-Dec-04	18:21:24	58.60	1.20
5957	10-Dec-04	19:21:24	58.40	0.93
6017	10-Dec-04	20:21:24	58.00	0.84
6077	10-Dec-04	21:21:24	57.70	0.86
6137	10-Dec-04	22:21:24	57.30	0.66
6197	10-Dec-04	23:21:24	57.10	0.51
6257	11-Dec-04	0:21:24	56.30	0.34
6317	11-Dec-04	1:21:24	55.80	0.14
6377	11-Dec-04	2:21:24	56.30	-0.26
6437	11-Dec-04	3:21:24	56.30	-0.55
6497	11-Dec-04	4:21:24	55.80	-0.38
6557	11-Dec-04	5:21:24	56.40	-0.63
6617	11-Dec-04	6:21:24	56.20	-0.72
6677	11-Dec-04	7:21:24	56.50	-0.82
6737	11-Dec-04	8:21:24	56.30	-0.80
6797	11-Dec-04	9:21:24	57.00	-0.72
6857	11-Dec-04	10:21:24	57.40	-0.50
6917	11-Dec-04	11:21:24	56.70	-0.24
6977	11-Dec-04	12:21:24	56.50	-0.13
7037	11-Dec-04	13:21:24	56.70	-0.24
7097	11-Dec-04	14:21:24	57.00	-0.57
7157	11-Dec-04	15:21:24	57.10	-0.84

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-2 - GLL BH-1-D
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
70	20-Nov-04	15:29:00	11.65		282.62
130	20-Nov-04	16:29:00	12.07		282.60
190	20-Nov-04	17:29:00	12.10		282.60
250	20-Nov-04	18:29:00	12.09		282.60
310	20-Nov-04	19:29:00	12.09		282.61
370	20-Nov-04	20:29:00	12.11		282.60
430	20-Nov-04	21:29:00	12.09		282.61
490	20-Nov-04	22:29:00	12.11		282.60
550	20-Nov-04	23:29:00	12.08		282.60
610	21-Nov-04	0:29:00	12.07		282.61
670	21-Nov-04	1:29:00	12.09		282.60
730	21-Nov-04	2:29:00	12.09		282.61
790	21-Nov-04	3:29:00	12.09		282.59
850	21-Nov-04	4:29:00	12.08		282.61
910	21-Nov-04	5:29:00	12.10		282.60
970	21-Nov-04	6:29:00	12.09		282.60
1030	21-Nov-04	7:29:00	12.08		282.60
1090	21-Nov-04	8:29:00	12.10		282.60
1150	21-Nov-04	9:29:00	12.06		282.60
1210	21-Nov-04	10:29:00	12.07		282.61
1270	21-Nov-04	11:29:00	12.08		282.59
1330	21-Nov-04	12:29:00	12.07		282.59
1390	21-Nov-04	13:29:00	12.07		282.60
1450	21-Nov-04	14:29:00	12.07		282.60
1510	21-Nov-04	15:29:00	12.07		282.60
1570	21-Nov-04	16:29:00	12.07		282.59
1630	21-Nov-04	17:29:00	12.06		282.59
1690	21-Nov-04	18:29:00	12.07		282.60
1750	21-Nov-04	19:29:00	12.07		282.59
1810	21-Nov-04	20:29:00	12.07		282.59
1870	21-Nov-04	21:29:00	12.07		282.59
1930	21-Nov-04	22:29:00	12.06		282.60
1990	21-Nov-04	23:29:00	12.04		282.60
2050	22-Nov-04	0:29:00	12.06		282.60
2110	22-Nov-04	1:29:00	12.07		282.60
2170	22-Nov-04	2:29:00	12.06		282.60
2230	22-Nov-04	3:29:00	12.04		282.61
2290	22-Nov-04	4:29:00	12.04		282.60
2350	22-Nov-04	5:29:00	12.04		282.60
2410	22-Nov-04	6:29:00	12.04		282.59
2470	22-Nov-04	7:29:00	12.05		282.59
2530	22-Nov-04	8:29:00	12.03		282.60
2590	22-Nov-04	9:29:00	12.04		282.59
2650	22-Nov-04	10:29:00	12.04		282.60
2710	22-Nov-04	11:29:00	12.03		282.59
2770	22-Nov-04	12:29:00	12.04		282.60
2830	22-Nov-04	13:29:00	12.02		282.61
2890	22-Nov-04	14:29:00	12.04		282.60
2950	22-Nov-04	15:29:00	12.05		282.59
3010	22-Nov-04	16:29:00	12.03		282.59
3070	22-Nov-04	17:29:00	12.04		282.60
3130	22-Nov-04	18:29:00	12.04		282.60
3190	22-Nov-04	19:29:00	12.04		282.59
3250	22-Nov-04	20:29:00	12.02		282.59
3310	22-Nov-04	21:29:00	12.03		282.59
3370	22-Nov-04	22:29:00	12.04		282.60
3430	22-Nov-04	23:29:00	12.03		282.60
3490	23-Nov-04	0:29:00	12.02		282.60
3550	23-Nov-04	1:29:00	12.02		282.60
3610	23-Nov-04	2:29:00	12.01		282.60
3670	23-Nov-04	3:29:00	12.02		282.61
3730	23-Nov-04	4:29:00	12.01		282.62
3790	23-Nov-04	5:29:00	12.01		282.61
3850	23-Nov-04	6:29:00	12.01		282.61
3910	23-Nov-04	7:29:00	12.01		282.60
3970	23-Nov-04	8:29:00	12.01		282.59
4030	23-Nov-04	9:29:00	12.01		282.60
4090	23-Nov-04	10:29:00	11.99		282.59
4150	23-Nov-04	11:29:00	12.01		282.60
4210	23-Nov-04	12:29:00	12.02		282.61
4270	23-Nov-04	13:29:00	12.01		282.60
4330	23-Nov-04	14:29:00	12.02		282.60
4390	23-Nov-04	15:29:00	12.02		282.62
4450	23-Nov-04	16:29:00	11.98		282.62
4510	23-Nov-04	17:29:00	11.98		282.61
4570	23-Nov-04	18:29:00	11.98		282.48
4630	23-Nov-04	19:29:00	11.98		282.59
4690	23-Nov-04	20:29:00	11.98		282.62
4750	23-Nov-04	21:29:00	11.99		282.65
4810	23-Nov-04	22:29:00	11.98		282.66
4870	23-Nov-04	23:29:00	11.97		282.67
4930	24-Nov-04	0:29:00	11.98		282.68
4990	24-Nov-04	1:29:00	12.01		282.68
5050	24-Nov-04	2:29:00	11.98		282.68

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5110	24-Nov-04	3:29:00	12.01		282.68
5170	24-Nov-04	4:29:00	11.98		282.68
5230	24-Nov-04	5:29:00	11.94		282.69
5290	24-Nov-04	6:29:00	11.94		282.67
5350	24-Nov-04	7:29:00	11.95		282.67
5410	24-Nov-04	8:29:00	11.94		282.67
5470	24-Nov-04	9:29:00	11.95		282.67
5530	24-Nov-04	10:29:00	11.96		282.67
5590	24-Nov-04	11:29:00	11.98		282.68
5650	24-Nov-04	12:29:00	11.97		282.68
5710	24-Nov-04	13:29:00	11.95		282.69
5770	24-Nov-04	14:29:00	11.92		282.69
5830	24-Nov-04	15:29:00	11.91		282.70
5890	24-Nov-04	16:29:00	11.92		282.71
5950	24-Nov-04	17:29:00	11.91		282.71
6010	24-Nov-04	18:29:00	11.92		282.71
6070	24-Nov-04	19:29:00	11.91		282.71
6130	24-Nov-04	20:29:00	11.91		282.72
6190	24-Nov-04	21:29:00	11.92		282.73
6250	24-Nov-04	22:29:00	11.92		282.73
6310	24-Nov-04	23:29:00	11.91		282.73
6370	25-Nov-04	0:29:00	11.91		282.73
6430	25-Nov-04	1:29:00	11.90		282.74
6490	25-Nov-04	2:29:00	11.91		282.74
6550	25-Nov-04	3:29:00	11.91		282.73
6610	25-Nov-04	4:29:00	11.92		282.72
6670	25-Nov-04	5:29:00	11.92		282.73
6730	25-Nov-04	6:29:00	11.90		282.73
6790	25-Nov-04	7:29:00	11.94		282.72
6850	25-Nov-04	8:29:00	11.95		282.72
6910	25-Nov-04	9:29:00	11.94		282.72
6970	25-Nov-04	10:29:00	11.92		282.72
7030	25-Nov-04	11:29:00	11.92		282.73
7090	25-Nov-04	12:29:00	11.92		282.72
7150	25-Nov-04	13:29:00	11.92		282.73
7210	25-Nov-04	14:29:00	11.90		282.72
7270	25-Nov-04	15:29:00	11.93		282.72
7330	25-Nov-04	16:29:00	11.91		282.72
7390	25-Nov-04	17:29:00	11.90		282.70
7450	25-Nov-04	18:29:00	11.91		282.70
7510	25-Nov-04	19:29:00	11.88		282.70
7570	25-Nov-04	20:29:00	11.91		282.71
7630	25-Nov-04	21:29:00	11.88		282.71
7690	25-Nov-04	22:29:00	11.89		282.71
7750	25-Nov-04	23:29:00	11.91		282.71
7810	26-Nov-04	0:29:00	11.90		282.71
7870	26-Nov-04	1:29:00	11.91		282.72
7930	26-Nov-04	2:29:00	11.88		282.72
7990	26-Nov-04	3:29:00	11.88		282.72
8050	26-Nov-04	4:29:00	11.90		282.71
8110	26-Nov-04	5:29:00	11.90		282.72
8170	26-Nov-04	6:29:00	11.90		282.72
8230	26-Nov-04	7:29:00	11.88		282.71
8290	26-Nov-04	8:29:00	11.87		282.71
8350	26-Nov-04	9:29:00	11.89		282.72
8410	26-Nov-04	10:29:00	11.87		282.71
8470	26-Nov-04	11:29:00	11.87		282.70
8530	26-Nov-04	12:29:00	11.89		282.70
8590	26-Nov-04	13:29:00	11.88		282.71
8650	26-Nov-04	14:29:00	11.88		282.71
8710	26-Nov-04	15:29:00	11.88		282.71
8770	26-Nov-04	16:29:00	11.87		282.71
8830	26-Nov-04	17:29:00	11.87		282.71
8890	26-Nov-04	18:29:00	11.88		282.71
8950	26-Nov-04	19:29:00	11.87		282.72
9010	26-Nov-04	20:29:00	11.88		282.71
9070	26-Nov-04	21:29:00	11.87		282.71
9130	26-Nov-04	22:29:00	11.87		282.72
9190	26-Nov-04	23:29:00	11.87		282.72
9250	27-Nov-04	0:29:00	11.88		282.72
9310	27-Nov-04	1:29:00	11.84		282.73
9370	27-Nov-04	2:29:00	11.87		282.72
9430	27-Nov-04	3:29:00	11.88		282.73
9490	27-Nov-04	4:29:00	11.86		282.73
9550	27-Nov-04	5:29:00	11.84		282.73
9610	27-Nov-04	6:29:00	11.84		282.73
9670	27-Nov-04	7:29:00	11.83		282.73
9730	27-Nov-04	8:29:00	11.88		282.72
9790	27-Nov-04	9:29:00	11.84		282.71
9850	27-Nov-04	10:29:00	11.84		282.71
9910	27-Nov-04	11:29:00	11.90		282.73
9970	27-Nov-04	12:29:00	11.81		282.73
10030	27-Nov-04	13:29:00	11.83		282.71
10090	27-Nov-04	14:29:00	11.81		282.72
10150	27-Nov-04	15:29:00	11.80		282.74
10210	27-Nov-04	16:29:00	11.81		282.73
10270	27-Nov-04	17:29:00	11.80		282.73
10330	27-Nov-04	18:29:00	11.79		282.65
10390	27-Nov-04	19:29:00	11.80		282.51
10450	27-Nov-04	20:29:00	11.80		282.42
10510	27-Nov-04	21:29:00	11.81		282.21
10570	27-Nov-04	22:29:00	11.82		282.14
10630	27-Nov-04	23:29:00	11.84		282.13

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
10690	28-Nov-04	0:29:00	11.84		282.08
10750	28-Nov-04	1:29:00	11.84		282.09
10810	28-Nov-04	2:29:00	11.86		282.07
10870	28-Nov-04	3:29:00	11.84		282.06
10930	28-Nov-04	4:29:00	11.84		282.07
10990	28-Nov-04	5:29:00	11.84		282.05
11050	28-Nov-04	6:29:00	11.83		282.06
11110	28-Nov-04	7:29:00	11.84		282.05
11170	28-Nov-04	8:29:00	11.86		282.04
11230	28-Nov-04	9:29:00	11.84		282.04
11290	28-Nov-04	10:29:00	11.86		282.08
11350	28-Nov-04	11:29:00	11.87		282.08
11410	28-Nov-04	12:29:00	11.86		282.07
11470	28-Nov-04	13:29:00	11.84		282.06
11530	28-Nov-04	14:29:00	11.83		282.06
11590	28-Nov-04	15:29:00	11.84		282.05
11650	28-Nov-04	16:29:00	11.84		282.06
11710	28-Nov-04	17:29:00	11.83		282.07
11770	28-Nov-04	18:29:00	11.84		282.07
11830	28-Nov-04	19:29:00	11.84		282.05
11890	28-Nov-04	20:29:00	11.83		282.06
11950	28-Nov-04	21:29:00	11.82		282.05
12010	28-Nov-04	22:29:00	11.82		282.05
12070	28-Nov-04	23:29:00	11.84		282.05
12130	29-Nov-04	0:29:00	11.83		282.05
12190	29-Nov-04	1:29:00	11.84		282.04
12250	29-Nov-04	2:29:00	11.81		282.04
12310	29-Nov-04	3:29:00	11.82		282.04
12370	29-Nov-04	4:29:00	11.83		282.03
12430	29-Nov-04	5:29:00	11.83		282.03
12490	29-Nov-04	6:29:00	11.84		282.03
12550	29-Nov-04	7:29:00	11.83		282.02
12610	29-Nov-04	8:29:00	11.83		282.03
12670	29-Nov-04	9:29:00	11.83		282.37
12730	29-Nov-04	10:29:00	11.81		282.54
12790	29-Nov-04	11:29:00	11.74		282.60
12850	29-Nov-04	12:29:00	11.76		282.64
12910	29-Nov-04	13:29:00	11.78		282.68
12970	29-Nov-04	14:29:00	11.77		282.70
13030	29-Nov-04	15:29:00	11.72		282.71
13090	29-Nov-04	16:29:00	11.70		282.72
13150	29-Nov-04	17:29:00	11.64		282.72
13210	29-Nov-04	18:29:00	11.65		282.75
13270	29-Nov-04	19:29:00	11.67		282.74
13330	29-Nov-04	20:29:00	11.65		282.75
13390	29-Nov-04	21:29:00	11.64		282.75
13450	29-Nov-04	22:29:00	11.62		282.76
13510	29-Nov-04	23:29:00	11.64		282.75
13570	30-Nov-04	0:29:00	11.64		282.76
13630	30-Nov-04	1:29:00	11.67		282.76
13690	30-Nov-04	2:29:00	11.64		282.77
13750	30-Nov-04	3:29:00	11.64		282.76
13810	30-Nov-04	4:29:00	11.64		282.77
13870	30-Nov-04	5:29:00	11.62		282.77
13930	30-Nov-04	6:29:00	11.61		282.76
13990	30-Nov-04	7:29:00	11.64		282.77
14050	30-Nov-04	8:29:00	11.64		282.77
14110	30-Nov-04	9:29:00	11.61		282.77
14170	30-Nov-04	10:29:00	11.62		282.78
14230	30-Nov-04	11:29:00	11.58		282.78
14290	30-Nov-04	12:29:00	11.59		282.71
14350	30-Nov-04	13:29:00	11.59		282.50
14410	30-Nov-04	14:29:00	11.62		282.19
14470	30-Nov-04	15:29:00	11.71		282.11
14530	30-Nov-04	16:29:00	11.71		282.59
14590	30-Nov-04	17:29:00	11.64		282.74
14650	30-Nov-04	18:29:00	11.64		282.80
14710	30-Nov-04	19:29:00	11.64		282.83
14770	30-Nov-04	20:29:00	11.62		282.83
14830	30-Nov-04	21:29:00	11.61		282.65
14890	30-Nov-04	22:29:00	11.62		282.35
14950	30-Nov-04	23:29:00	11.61		282.23
15010	1-Dec-04	0:29:00	11.65		282.17
15070	1-Dec-04	1:29:00	11.65		282.13
15130	1-Dec-04	2:29:00	11.67		282.07
15190	1-Dec-04	3:29:00	11.68		282.04
15250	1-Dec-04	4:29:00	11.68		282.02
15310	1-Dec-04	5:29:00	11.67		282.02
15370	1-Dec-04	6:29:00	11.69		282.01
15430	1-Dec-04	7:29:00	11.71		282.01
15490	1-Dec-04	8:29:00	11.69		282.00
15550	1-Dec-04	9:29:00	11.68		281.73
15610	1-Dec-04	10:29:00	11.72		281.50
15670	1-Dec-04	11:29:00	11.72		281.48
15730	1-Dec-04	12:29:00	11.74		281.47
15790	1-Dec-04	13:29:00	11.74		281.48
15850	1-Dec-04	14:29:00	11.74		281.48
15910	1-Dec-04	15:29:00	11.74		281.48
15970	1-Dec-04	16:29:00	11.76		281.48
16030	1-Dec-04	17:29:00	11.74		281.46
16090	1-Dec-04	18:29:00	11.76		281.47
16150	1-Dec-04	19:29:00	11.72		281.42
16210	1-Dec-04	20:29:00	11.72		281.51

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
16270	1-Dec-04	21:29:00	11.73		281.55
16330	1-Dec-04	22:29:00	11.72		281.55
16390	1-Dec-04	23:29:00	11.72		281.55
16450	2-Dec-04	0:29:00	11.72		281.55
16510	2-Dec-04	1:29:00	11.71		281.55
16570	2-Dec-04	2:29:00	11.70		281.56
16630	2-Dec-04	3:29:00	11.71		281.55
16690	2-Dec-04	4:29:00	11.72		281.55
16750	2-Dec-04	5:29:00	11.71		281.55
16810	2-Dec-04	6:29:00	11.72		281.55
16870	2-Dec-04	7:29:00	11.71		281.55
16930	2-Dec-04	8:29:00	11.70		281.54
16990	2-Dec-04	9:29:00	11.71		281.54
17050	2-Dec-04	10:29:00	11.72		281.54
17110	2-Dec-04	11:29:00	11.69		281.55
17170	2-Dec-04	12:29:00	11.69		281.52
17230	2-Dec-04	13:29:00	11.71		281.52
17290	2-Dec-04	14:29:00	11.68		281.52
17350	2-Dec-04	15:29:00	11.69		281.52
17410	2-Dec-04	16:29:00	11.70		281.52
17470	2-Dec-04	17:29:00	11.68		281.51
17530	2-Dec-04	18:29:00	11.68		281.52
17590	2-Dec-04	19:29:00	11.67		281.52
17650	2-Dec-04	20:29:00	11.67		281.52
17710	2-Dec-04	21:29:00	11.65		281.51
17770	2-Dec-04	22:29:00	11.67		281.52
17830	2-Dec-04	23:29:00	11.67		281.51
17890	3-Dec-04	0:29:00	11.67		281.52
17950	3-Dec-04	1:29:00	11.67		281.52
18010	3-Dec-04	2:29:00	11.68		281.51
18070	3-Dec-04	3:29:00	11.67		281.51
18130	3-Dec-04	4:29:00	11.65		281.51
18190	3-Dec-04	5:29:00	11.64		281.51
18250	3-Dec-04	6:29:00	11.65		281.50
18310	3-Dec-04	7:29:00	11.65		281.50
18370	3-Dec-04	8:29:00	11.64		281.49
18430	3-Dec-04	9:29:00	11.64		281.48
18490	3-Dec-04	10:29:00	11.65		281.48
18550	3-Dec-04	11:29:00	11.64		281.48
18610	3-Dec-04	12:29:00	11.64		281.47
18670	3-Dec-04	13:29:00	11.67		281.48
18730	3-Dec-04	14:29:00	11.67		281.46
18790	3-Dec-04	15:29:00	11.64		281.47
18850	3-Dec-04	16:29:00	11.64		281.45
18910	3-Dec-04	17:29:00	11.64		281.45
18970	3-Dec-04	18:29:00	11.61		281.45
19030	3-Dec-04	19:29:00	11.65		281.45
19090	3-Dec-04	20:29:00	11.64		281.45
19150	3-Dec-04	21:29:00	11.62		281.45
19210	3-Dec-04	22:29:00	11.64		281.45
19270	3-Dec-04	23:29:00	11.61		281.44
19330	4-Dec-04	0:29:00	11.64		281.45
19390	4-Dec-04	1:29:00	11.61		281.45
19450	4-Dec-04	2:29:00	11.62		281.44
19510	4-Dec-04	3:29:00	11.61		281.45
19570	4-Dec-04	4:29:00	11.61		281.44
19630	4-Dec-04	5:29:00	11.61		281.45
19690	4-Dec-04	6:29:00	11.61		281.44
19750	4-Dec-04	7:29:00	11.58		281.44
19810	4-Dec-04	8:29:00	11.61		281.44
19870	4-Dec-04	9:29:00	11.58		281.45
19930	4-Dec-04	10:29:00	11.58		281.44
19990	4-Dec-04	11:29:00	11.61		281.45
20050	4-Dec-04	12:29:00	11.57		281.46
20110	4-Dec-04	13:29:00	11.59		281.45
20170	4-Dec-04	14:29:00	11.58		281.45
20230	4-Dec-04	15:29:00	11.59		281.45
20290	4-Dec-04	16:29:00	11.58		281.45
20350	4-Dec-04	17:29:00	11.58		281.43
20410	4-Dec-04	18:29:00	11.59		281.42
20470	4-Dec-04	19:29:00	11.58		281.43
20530	4-Dec-04	20:29:00	11.58		281.40
20590	4-Dec-04	21:29:00	11.57		281.41
20650	4-Dec-04	22:29:00	11.57		281.42
20710	4-Dec-04	23:29:00	11.55		281.41
20770	5-Dec-04	0:29:00	11.58		281.41
20830	5-Dec-04	1:29:00	11.56		281.39
20890	5-Dec-04	2:29:00	11.57		281.39
20950	5-Dec-04	3:29:00	11.58		281.38
21010	5-Dec-04	4:29:00	11.56		281.39
21070	5-Dec-04	5:29:00	11.57		281.38
21130	5-Dec-04	6:29:00	11.53		281.37
21190	5-Dec-04	7:29:00	11.57		281.36
21250	5-Dec-04	8:29:00	11.54		281.37
21310	5-Dec-04	9:29:00	11.56		281.37
21370	5-Dec-04	10:29:00	11.52		281.36
21430	5-Dec-04	11:29:00	11.52		281.37
21490	5-Dec-04	12:29:00	11.56		281.36
21550	5-Dec-04	13:29:00	11.52		281.36
21610	5-Dec-04	14:29:00	11.50		281.35
21670	5-Dec-04	15:29:00	11.50		281.36
21730	5-Dec-04	16:29:00	11.52		281.36
21790	5-Dec-04	17:29:00	11.51		281.35

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
21850	5-Dec-04	18:29:00	11.50		281.35
21910	5-Dec-04	19:29:00	11.51		281.34
21970	5-Dec-04	20:29:00	11.49		281.34
22030	5-Dec-04	21:29:00	11.52		281.34
22090	5-Dec-04	22:29:00	11.52		281.34
22150	5-Dec-04	23:29:00	11.52		281.33
22210	6-Dec-04	0:29:00	11.50		281.33
22270	6-Dec-04	1:29:00	11.51		281.33
22330	6-Dec-04	2:29:00	11.50		281.34
22390	6-Dec-04	3:29:00	11.49		281.33
30	6-Dec-04	16:34:50	9.71		281.32
90	6-Dec-04	17:34:50	9.71		281.35
150	6-Dec-04	18:34:50	9.72		282.25
210	6-Dec-04	19:34:50	9.71		282.43
270	6-Dec-04	20:34:50	9.72		282.50
330	6-Dec-04	21:34:50	9.73		282.55
390	6-Dec-04	22:34:50	9.69		282.57
450	6-Dec-04	23:34:50	9.71		282.61
510	7-Dec-04	0:34:50	9.72		282.62
570	7-Dec-04	1:34:50	9.71		282.66
630	7-Dec-04	2:34:50	9.71		282.67
690	7-Dec-04	3:34:50	9.69		282.68
750	7-Dec-04	4:34:50	9.71		282.66
810	7-Dec-04	5:34:50	9.71		282.66
870	7-Dec-04	6:34:50	9.71		282.68
930	7-Dec-04	7:34:50	9.72		282.67
990	7-Dec-04	8:34:50	9.72		282.67
1050	7-Dec-04	9:34:50	9.73		282.67
1110	7-Dec-04	10:34:50	9.74		282.67
1170	7-Dec-04	11:34:50	9.74		282.67
1230	7-Dec-04	12:34:50	9.75		282.67
1290	7-Dec-04	13:34:50	9.73		282.66
1350	7-Dec-04	14:34:50	9.67		282.66
1410	7-Dec-04	15:34:50	9.67		282.64
1470	7-Dec-04	16:34:50	9.66		282.63
1530	7-Dec-04	17:34:50	9.66		282.62
1590	7-Dec-04	18:34:50	9.66		282.60
1650	7-Dec-04	19:34:50	9.64		282.61
1710	7-Dec-04	20:34:50	9.64		282.63
1770	7-Dec-04	21:34:50	9.65		282.65
1830	7-Dec-04	22:34:50	9.65		282.69
1890	7-Dec-04	23:34:50	9.64		282.73
1950	8-Dec-04	0:34:50	9.63		282.79
2010	8-Dec-04	1:34:50	9.64		282.82
2070	8-Dec-04	2:34:50	9.64		282.88
2130	8-Dec-04	3:34:50	9.65		282.93
2190	8-Dec-04	4:34:50	9.66		282.96
2250	8-Dec-04	5:34:50	9.67		282.98
2310	8-Dec-04	6:34:50	9.65		282.98
2370	8-Dec-04	7:34:50	9.66		283.01
2430	8-Dec-04	8:34:50	9.66		283.03
2490	8-Dec-04	9:34:50	9.66		283.01
2550	8-Dec-04	10:34:50	9.64		283.00
2610	8-Dec-04	11:34:50	9.63		282.99
2670	8-Dec-04	12:34:50	9.67		282.99
2730	8-Dec-04	13:34:50	9.67		282.99
2790	8-Dec-04	14:34:50	9.65		283.00
2850	8-Dec-04	15:34:50	9.65		283.00
2910	8-Dec-04	16:34:50	9.66		283.00
2970	8-Dec-04	17:34:50	9.68		283.00
3030	8-Dec-04	18:34:50	9.65		282.99
3090	8-Dec-04	19:34:50	9.66		282.98
3150	8-Dec-04	20:34:50	9.68		282.98
3210	8-Dec-04	21:34:50	9.66		282.96
3270	8-Dec-04	22:34:50	9.67		282.96
3330	8-Dec-04	23:34:50	9.68		282.95
3390	9-Dec-04	0:34:50	9.71		282.95
3450	9-Dec-04	1:34:50	9.69		282.95
3510	9-Dec-04	2:34:50	9.68		282.96
3570	9-Dec-04	3:34:50	9.69		282.96
3630	9-Dec-04	4:34:50	9.69		282.97
3690	9-Dec-04	5:34:50	9.69		282.95
3750	9-Dec-04	6:34:50	9.71		282.94
3810	9-Dec-04	7:34:50	9.71		282.93
3870	9-Dec-04	8:34:50	9.69		282.93
3930	9-Dec-04	9:34:50	9.69		282.92
3990	9-Dec-04	10:34:50	9.72		282.92
4050	9-Dec-04	11:34:50	9.71		282.92
4110	9-Dec-04	12:34:50	9.74		282.93
4170	9-Dec-04	13:34:50	9.74		282.94
4230	9-Dec-04	14:34:50	9.75		282.93
4290	9-Dec-04	15:34:50	9.75		282.95
4350	9-Dec-04	16:34:50	9.77		282.95
4410	9-Dec-04	17:34:50	9.78		282.95
4470	9-Dec-04	18:34:50	9.80		282.96
4530	9-Dec-04	19:34:50	9.80		282.96
4590	9-Dec-04	20:34:50	9.81		282.94
4650	9-Dec-04	21:34:50	9.78		282.94
4710	9-Dec-04	22:34:50	9.79		282.95
4770	9-Dec-04	23:34:50	9.77		282.96
4830	10-Dec-04	0:34:50	9.80		282.96
4890	10-Dec-04	1:34:50	9.80		282.96
4950	10-Dec-04	2:34:50	9.81		282.97

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5010	10-Dec-04	3:34:50	9.78		282.98
5070	10-Dec-04	4:34:50	9.79		283.00
5130	10-Dec-04	5:34:50	9.83		283.00
5190	10-Dec-04	6:34:50	9.81		282.99
5250	10-Dec-04	7:34:50	9.83		283.00
5310	10-Dec-04	8:34:50	9.84		283.01
5370	10-Dec-04	9:34:50	9.84		283.00
5430	10-Dec-04	10:34:50	9.83		283.01
5490	10-Dec-04	11:34:50	9.86		283.01
5550	10-Dec-04	12:34:50	9.84		283.01
5610	10-Dec-04	13:34:50	9.83		283.01
5670	10-Dec-04	14:34:50	9.81		283.02
5730	10-Dec-04	15:34:50	9.75		283.01
5790	10-Dec-04	16:34:50	9.73		283.01
5850	10-Dec-04	17:34:50	9.73		283.01
5910	10-Dec-04	18:34:50	9.71		283.00
5970	10-Dec-04	19:34:50	9.71		283.00
6030	10-Dec-04	20:34:50	9.71		283.02
6090	10-Dec-04	21:34:50	9.69		283.02
6150	10-Dec-04	22:34:50	9.69		283.03
6210	10-Dec-04	23:34:50	9.72		283.04
6270	11-Dec-04	0:34:50	9.72		283.06
6330	11-Dec-04	1:34:50	9.69		283.07
6390	11-Dec-04	2:34:50	9.69		283.07
6450	11-Dec-04	3:34:50	9.71		283.08
6510	11-Dec-04	4:34:50	9.71		283.08
6570	11-Dec-04	5:34:50	9.72		283.08
6630	11-Dec-04	6:34:50	9.73		283.09
6690	11-Dec-04	7:34:50	9.71		283.09
6750	11-Dec-04	8:34:50	9.73		283.10
6810	11-Dec-04	9:34:50	9.73		283.11
6870	11-Dec-04	10:34:50	9.72		283.10
6930	11-Dec-04	11:34:50	9.71		283.11
6990	11-Dec-04	12:34:50	9.70		283.13
7050	11-Dec-04	13:34:50	9.73		283.13
7110	11-Dec-04	14:34:50	9.72		283.13

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-3 - GLL BH-1-S
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
1	11/20/2004	14:20:00	10		282.82
61	11/20/2004	15:20:00	10.01		282.85
121	11/20/2004	16:20:00	9.99		282.85
181	11/20/2004	17:20:00	9.99		282.86
241	11/20/2004	18:20:00	9.99		282.86
301	11/20/2004	19:20:00	10		282.86
361	11/20/2004	20:20:00	9.99		282.86
421	11/20/2004	21:20:00	9.98		282.86
481	11/20/2004	22:20:00	9.99		282.85
541	11/20/2004	23:20:00	9.98		282.85
601	11/21/2004	0:20:00	9.97		282.86
661	11/21/2004	1:20:00	9.98		282.86
721	11/21/2004	2:20:00	9.96		282.86
781	11/21/2004	3:20:00	9.96		282.86
841	11/21/2004	4:20:00	9.96		282.85
901	11/21/2004	5:20:00	9.97		282.85
961	11/21/2004	6:20:00	9.97		282.85
1021	11/21/2004	7:20:00	9.95		282.85
1081	11/21/2004	8:20:00	9.95		282.85
1141	11/21/2004	9:20:00	9.95		282.85
1201	11/21/2004	10:20:00	9.93		282.85
1261	11/21/2004	11:20:00	9.96		282.85
1321	11/21/2004	12:20:00	9.96		282.85
1381	11/21/2004	13:20:00	9.97		282.84
1441	11/21/2004	14:20:00	9.95		282.85
1501	11/21/2004	15:20:00	9.95		282.85
1561	11/21/2004	16:20:00	9.93		282.84
1621	11/21/2004	17:20:00	9.93		282.84
1681	11/21/2004	18:20:00	9.93		282.84
1741	11/21/2004	19:20:00	9.93		282.84
1801	11/21/2004	20:20:00	9.92		282.84
1861	11/21/2004	21:20:00	9.93		282.84
1921	11/21/2004	22:20:00	9.91		282.84
1981	11/21/2004	23:20:00	9.91		282.84
2041	11/22/2004	0:20:00	9.92		282.85
2101	11/22/2004	1:20:00	9.93		282.84
2161	11/22/2004	2:20:00	9.92		282.84
2221	11/22/2004	3:20:00	9.91		282.84
2281	11/22/2004	4:20:00	9.91		282.84
2341	11/22/2004	5:20:00	9.9		282.85
2401	11/22/2004	6:20:00	9.89		282.84
2461	11/22/2004	7:20:00	9.89		282.84
2521	11/22/2004	8:20:00	9.87		282.84
2581	11/22/2004	9:20:00	9.88		282.84
2641	11/22/2004	10:20:00	9.87		282.84
2701	11/22/2004	11:20:00	9.9		282.84
2761	11/22/2004	12:20:00	9.87		282.84
2821	11/22/2004	13:20:00	9.87		282.85
2881	11/22/2004	14:20:00	9.86		282.90
2941	11/22/2004	15:20:00	9.87		282.84
3001	11/22/2004	16:20:00	9.87		282.85
3061	11/22/2004	17:20:00	9.87		282.84
3121	11/22/2004	18:20:00	9.86		282.84
3181	11/22/2004	19:20:00	9.87		282.84
3241	11/22/2004	20:20:00	9.87		282.84
3301	11/22/2004	21:20:00	9.85		282.85
3361	11/22/2004	22:20:00	9.86		282.85
3421	11/22/2004	23:20:00	9.88		282.85
3481	11/23/2004	0:20:00	9.84		282.85
3541	11/23/2004	1:20:00	9.87		282.85
3601	11/23/2004	2:20:00	9.84		282.85
3661	11/23/2004	3:20:00	9.85		282.85
3721	11/23/2004	4:20:00	9.84		282.86
3781	11/23/2004	5:20:00	9.83		282.86
3841	11/23/2004	6:20:00	9.84		282.86
3901	11/23/2004	7:20:00	9.84		282.85
3961	11/23/2004	8:20:00	9.83		282.85
4021	11/23/2004	9:20:00	9.84		282.85
4081	11/23/2004	10:20:00	9.83		282.85
4141	11/23/2004	11:20:00	9.84		282.85
4201	11/23/2004	12:20:00	9.83		282.85
4261	11/23/2004	13:20:00	9.83		282.86
4321	11/23/2004	14:20:00	9.82		282.86
4381	11/23/2004	15:20:00	9.83		282.86
4441	11/23/2004	16:20:00	9.81		282.86
4501	11/23/2004	17:20:00	9.81		282.86
4561	11/23/2004	18:20:00	9.8		282.86
4621	11/23/2004	19:20:00	9.81		282.86
4681	11/23/2004	20:20:00	9.81		282.86
4741	11/23/2004	21:20:00	9.81		282.86
4801	11/23/2004	22:20:00	9.8		282.87
4861	11/23/2004	23:20:00	9.79		282.86
4921	11/24/2004	0:20:00	9.79		282.86
4981	11/24/2004	1:20:00	9.8		282.87
5041	11/24/2004	2:20:00	9.78		282.86

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5101	11/24/2004	3:20:00	9.78		282.86
5161	11/24/2004	4:20:00	9.77		282.86
5221	11/24/2004	5:20:00	9.78		282.86
5281	11/24/2004	6:20:00	9.78		282.86
5341	11/24/2004	7:20:00	9.78		282.86
5401	11/24/2004	8:20:00	9.75		282.86
5461	11/24/2004	9:20:00	9.78		282.85
5521	11/24/2004	10:20:00	9.77		282.85
5581	11/24/2004	11:20:00	9.77		282.86
5641	11/24/2004	12:20:00	9.75		282.86
5701	11/24/2004	13:20:00	9.77		282.86
5761	11/24/2004	14:20:00	9.77		282.86
5821	11/24/2004	15:20:00	9.77		282.87
5881	11/24/2004	16:20:00	9.75		282.88
5941	11/24/2004	17:20:00	9.75		282.89
6001	11/24/2004	18:20:00	9.77		282.88
6061	11/24/2004	19:20:00	9.74		282.89
6121	11/24/2004	20:20:00	9.75		282.89
6181	11/24/2004	21:20:00	9.77		282.89
6241	11/24/2004	22:20:00	9.75		282.90
6301	11/24/2004	23:20:00	9.75		282.90
6361	11/25/2004	0:20:00	9.74		282.91
6421	11/25/2004	1:20:00	9.72		282.91
6481	11/25/2004	2:20:00	9.75		282.91
6541	11/25/2004	3:20:00	9.73		282.91
6601	11/25/2004	4:20:00	9.71		282.91
6661	11/25/2004	5:20:00	9.71		282.91
6721	11/25/2004	6:20:00	9.71		282.90
6781	11/25/2004	7:20:00	9.72		282.90
6841	11/25/2004	8:20:00	9.72		282.91
6901	11/25/2004	9:20:00	9.71		282.90
6961	11/25/2004	10:20:00	9.71		282.90
7021	11/25/2004	11:20:00	9.71		282.90
7081	11/25/2004	12:20:00	9.71		282.91
7141	11/25/2004	13:20:00	9.69		282.91
7201	11/25/2004	14:20:00	9.71		282.90
7261	11/25/2004	15:20:00	9.72		282.91
7321	11/25/2004	16:20:00	9.71		282.90
7381	11/25/2004	17:20:00	9.71		282.90
7441	11/25/2004	18:20:00	9.71		282.90
7501	11/25/2004	19:20:00	9.69		282.90
7561	11/25/2004	20:20:00	9.69		282.91
7621	11/25/2004	21:20:00	9.69		282.91
7681	11/25/2004	22:20:00	9.69		282.92
7741	11/25/2004	23:20:00	9.68		282.92
7801	11/26/2004	0:20:00	9.68		282.93
7861	11/26/2004	1:20:00	9.67		282.93
7921	11/26/2004	2:20:00	9.67		282.93
7981	11/26/2004	3:20:00	9.67		282.93
8041	11/26/2004	4:20:00	9.66		282.93
8101	11/26/2004	5:20:00	9.69		282.93
8161	11/26/2004	6:20:00	9.67		282.94
8221	11/26/2004	7:20:00	9.67		282.93
8281	11/26/2004	8:20:00	9.69		282.94
8341	11/26/2004	9:20:00	9.65		282.94
8401	11/26/2004	10:20:00	9.65		282.94
8461	11/26/2004	11:20:00	9.66		282.94
8521	11/26/2004	12:20:00	9.66		282.94
8581	11/26/2004	13:20:00	9.65		282.94
8641	11/26/2004	14:20:00	9.65		282.94
8701	11/26/2004	15:20:00	9.67		282.95
8761	11/26/2004	16:20:00	9.65		282.95
8821	11/26/2004	17:20:00	9.65		282.95
8881	11/26/2004	18:20:00	9.64		282.96
8941	11/26/2004	19:20:00	9.66		282.96
9001	11/26/2004	20:20:00	9.61		282.96
9061	11/26/2004	21:20:00	9.65		282.96
9121	11/26/2004	22:20:00	9.65		282.97
9181	11/26/2004	23:20:00	9.63		282.97
9241	11/27/2004	0:20:00	9.63		282.97
9301	11/27/2004	1:20:00	9.64		282.97
9361	11/27/2004	2:20:00	9.63		282.98
9421	11/27/2004	3:20:00	9.63		282.98
9481	11/27/2004	4:20:00	9.62		282.98
9541	11/27/2004	5:20:00	9.64		282.98
9601	11/27/2004	6:20:00	9.62		282.97
9661	11/27/2004	7:20:00	9.63		282.98
9721	11/27/2004	8:20:00	9.62		282.98
9781	11/27/2004	9:20:00	9.59		282.98
9841	11/27/2004	10:20:00	9.63		282.97
9901	11/27/2004	11:20:00	9.63		282.99
9961	11/27/2004	12:20:00	9.62		282.99
10021	11/27/2004	13:20:00	9.63		282.99
10081	11/27/2004	14:20:00	9.63		282.99
10141	11/27/2004	15:20:00	9.62		283.01
10201	11/27/2004	16:20:00	9.64		283.01
10261	11/27/2004	17:20:00	9.62		283.01
10321	11/27/2004	18:20:00	9.63		283.01
10381	11/27/2004	19:20:00	9.62		283.02
10441	11/27/2004	20:20:00	9.6		283.02
10501	11/27/2004	21:20:00	9.62		283.02
10561	11/27/2004	22:20:00	9.61		283.03
10621	11/27/2004	23:20:00	9.6		283.03

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
10681	11/28/2004	0:20:00	9.6		283.03
10741	11/28/2004	1:20:00	9.6		283.02
10801	11/28/2004	2:20:00	9.6		283.03
10861	11/28/2004	3:20:00	9.61		283.04
10921	11/28/2004	4:20:00	9.62		283.04
10981	11/28/2004	5:20:00	9.57		283.04
11041	11/28/2004	6:20:00	9.59		283.04
11101	11/28/2004	7:20:00	9.59		283.04
11161	11/28/2004	8:20:00	9.58		283.04
11221	11/28/2004	9:20:00	9.57		283.03
11281	11/28/2004	10:20:00	9.59		283.03
11341	11/28/2004	11:20:00	9.57		283.04
11401	11/28/2004	12:20:00	9.57		283.05
11461	11/28/2004	13:20:00	9.57		283.05
11521	11/28/2004	14:20:00	9.59		283.05
11581	11/28/2004	15:20:00	9.58		283.05
11641	11/28/2004	16:20:00	9.56		283.04
11701	11/28/2004	17:20:00	9.56		283.05
11761	11/28/2004	18:20:00	9.56		283.04
11821	11/28/2004	19:20:00	9.54		283.04
11881	11/28/2004	20:20:00	9.55		283.04
11941	11/28/2004	21:20:00	9.55		283.03
12001	11/28/2004	22:20:00	9.56		283.04
12061	11/28/2004	23:20:00	9.55		283.04
12121	11/29/2004	0:20:00	9.55		283.05
12181	11/29/2004	1:20:00	9.53		283.06
12241	11/29/2004	2:20:00	9.56		283.06
12301	11/29/2004	3:20:00	9.53		283.06
12361	11/29/2004	4:20:00	9.54		283.07
12421	11/29/2004	5:20:00	9.53		283.07
12481	11/29/2004	6:20:00	9.54		283.08
12541	11/29/2004	7:20:00	9.51		283.08
12601	11/29/2004	8:20:00	9.53		283.08
12661	11/29/2004	9:20:00	9.53		283.09
12721	11/29/2004	10:20:00	9.53		283.09
12781	11/29/2004	11:20:00	9.5		283.10
12841	11/29/2004	12:20:00	9.51		283.09
12901	11/29/2004	13:20:00	9.49		283.10
12961	11/29/2004	14:20:00	9.49		283.11
13021	11/29/2004	15:20:00	9.5		283.12
13081	11/29/2004	16:20:00	9.49		283.12
13141	11/29/2004	17:20:00	9.49		283.13
13201	11/29/2004	18:20:00	9.49		283.13
13261	11/29/2004	19:20:00	9.48		283.14
13321	11/29/2004	20:20:00	9.5		283.14
13381	11/29/2004	21:20:00	9.48		283.14
13441	11/29/2004	22:20:00	9.48		283.15
13501	11/29/2004	23:20:00	9.47		283.15
13561	11/30/2004	0:20:00	9.47		283.15
13621	11/30/2004	1:20:00	9.47		283.16
13681	11/30/2004	2:20:00	9.48		283.17
13741	11/30/2004	3:20:00	9.47		283.17
13801	11/30/2004	4:20:00	9.48		283.16
13861	11/30/2004	5:20:00	9.47		283.17
13921	11/30/2004	6:20:00	9.45		283.17
13981	11/30/2004	7:20:00	9.45		283.17
14041	11/30/2004	8:20:00	9.46		283.18
14101	11/30/2004	9:20:00	9.45		283.18
14161	11/30/2004	10:20:00	9.44		283.17
14221	11/30/2004	11:20:00	9.45		283.18
14281	11/30/2004	12:20:00	9.44		283.18
14341	11/30/2004	13:20:00	9.41		283.18
14401	11/30/2004	14:20:00	9.42		283.19
14461	11/30/2004	15:20:00	9.41		283.19
14521	11/30/2004	16:20:00	9.41		283.19
14581	11/30/2004	17:20:00	9.41		283.20
14641	11/30/2004	18:20:00	9.41		283.20
14701	11/30/2004	19:20:00	9.39		283.21
14761	11/30/2004	20:20:00	9.39		283.21
14821	11/30/2004	21:20:00	9.41		283.21
14881	11/30/2004	22:20:00	9.41		283.22
14941	11/30/2004	23:20:00	9.41		283.22
15001	12/1/2004	0:20:00	9.41		283.22
15061	12/1/2004	1:20:00	9.41		283.23
15121	12/1/2004	2:20:00	9.38		283.22
15181	12/1/2004	3:20:00	9.39		283.24
15241	12/1/2004	4:20:00	9.39		283.24
15301	12/1/2004	5:20:00	9.37		283.24
15361	12/1/2004	6:20:00	9.37		283.24
15421	12/1/2004	7:20:00	9.37		283.24
15481	12/1/2004	8:20:00	9.35		283.24
15541	12/1/2004	9:20:00	9.35		283.24
15601	12/1/2004	10:20:00	9.35		283.23
15661	12/1/2004	11:20:00	9.35		283.23
15721	12/1/2004	12:20:00	9.33		283.23
15781	12/1/2004	13:20:00	9.33		283.23
15841	12/1/2004	14:20:00	9.33		283.24
15901	12/1/2004	15:20:00	9.33		283.24
15961	12/1/2004	16:20:00	9.33		283.24
16021	12/1/2004	17:20:00	9.32		283.25
16081	12/1/2004	18:20:00	9.31		283.26
16141	12/1/2004	19:20:00	9.33		283.26
16201	12/1/2004	20:20:00	9.31		283.26

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
16261	12/1/2004	21:20:00	9.32		283.27
16321	12/1/2004	22:20:00	9.29		283.28
16381	12/1/2004	23:20:00	9.29		283.28
16441	12/2/2004	0:20:00	9.25		283.29
16501	12/2/2004	1:20:00	9.26		283.30
16561	12/2/2004	2:20:00	9.24		283.29
16621	12/2/2004	3:20:00	9.24		283.29
16681	12/2/2004	4:20:00	9.23		283.30
16741	12/2/2004	5:20:00	9.21		283.30
16801	12/2/2004	6:20:00	9.21		283.31
16861	12/2/2004	7:20:00	9.21		283.31
16921	12/2/2004	8:20:00	9.2		283.31
16981	12/2/2004	9:20:00	9.2		283.32
17041	12/2/2004	10:20:00	9.2		283.31
17101	12/2/2004	11:20:00	9.21		283.32
17161	12/2/2004	12:20:00	9.19		283.32
17221	12/2/2004	13:20:00	9.18		283.33
17281	12/2/2004	14:20:00	9.17		283.33
17341	12/2/2004	15:20:00	9.15		283.34
17401	12/2/2004	16:20:00	9.18		283.34
17461	12/2/2004	17:20:00	9.16		283.34
17521	12/2/2004	18:20:00	9.15		283.34
17581	12/2/2004	19:20:00	9.15		283.34
17641	12/2/2004	20:20:00	9.15		283.34
17701	12/2/2004	21:20:00	9.11		283.34
17761	12/2/2004	22:20:00	9.11		283.34
17821	12/2/2004	23:20:00	9.12		283.35
17881	12/3/2004	0:20:00	9.12		283.35
17941	12/3/2004	1:20:00	9.11		283.36
18001	12/3/2004	2:20:00	9.11		283.35
18061	12/3/2004	3:20:00	9.11		283.35
18121	12/3/2004	4:20:00	9.11		283.36
18181	12/3/2004	5:20:00	9.11		283.36
18241	12/3/2004	6:20:00	9.09		283.35
18301	12/3/2004	7:20:00	9.09		283.34
18361	12/3/2004	8:20:00	9.08		283.33
18421	12/3/2004	9:20:00	9.08		283.33
18481	12/3/2004	10:20:00	9.08		283.33
18541	12/3/2004	11:20:00	9.08		283.33
18601	12/3/2004	12:20:00	9.08		283.33
18661	12/3/2004	13:20:00	9.07		283.33
18721	12/3/2004	14:20:00	9.07		283.33
18781	12/3/2004	15:20:00	9.08		283.32
18841	12/3/2004	16:20:00	9.06		283.32
18901	12/3/2004	17:20:00	9.07		283.31
18961	12/3/2004	18:20:00	9.05		283.30
19021	12/3/2004	19:20:00	9.06		283.30
19081	12/3/2004	20:20:00	9.02		283.30
19141	12/3/2004	21:20:00	9.05		283.31
19201	12/3/2004	22:20:00	9.03		283.31
19261	12/3/2004	23:20:00	9.04		283.30
19321	12/4/2004	0:20:00	9.04		283.30
19381	12/4/2004	1:20:00	9.03		283.31
19441	12/4/2004	2:20:00	9.03		283.31
19501	12/4/2004	3:20:00	9.03		283.30
19561	12/4/2004	4:20:00	9.03		283.31
19621	12/4/2004	5:20:00	9.02		283.31
19681	12/4/2004	6:20:00	9.03		283.31
19741	12/4/2004	7:20:00	9.04		283.32
19801	12/4/2004	8:20:00	9.03		283.30
19861	12/4/2004	9:20:00	9.03		283.30
19921	12/4/2004	10:20:00	9.01		283.30
19981	12/4/2004	11:20:00	9		283.30
20041	12/4/2004	12:20:00	8.99		283.30
20101	12/4/2004	13:20:00	9.02		283.31
20161	12/4/2004	14:20:00	9.02		283.31
20221	12/4/2004	15:20:00	9		283.31
20281	12/4/2004	16:20:00	9		283.31
20341	12/4/2004	17:20:00	8.99		283.30
20401	12/4/2004	18:20:00	9		283.30
20461	12/4/2004	19:20:00	9.02		283.30
20521	12/4/2004	20:20:00	8.97		283.30
20581	12/4/2004	21:20:00	9.02		283.29
20641	12/4/2004	22:20:00	8.99		283.29
20701	12/4/2004	23:20:00	8.99		283.29
20761	12/5/2004	0:20:00	8.97		283.29
20821	12/5/2004	1:20:00	9		283.28
20881	12/5/2004	2:20:00	8.99		283.28
20941	12/5/2004	3:20:00	9		283.27
21001	12/5/2004	4:20:00	9.01		283.27
21061	12/5/2004	5:20:00	9.02		283.26
21121	12/5/2004	6:20:00	9.01		283.26
21181	12/5/2004	7:20:00	9.02		283.25
21241	12/5/2004	8:20:00	9.02		283.25
21301	12/5/2004	9:20:00	9.02		283.25
21361	12/5/2004	10:20:00	9.03		283.25
21421	12/5/2004	11:20:00	9.01		283.25
21481	12/5/2004	12:20:00	9		283.24
21541	12/5/2004	13:20:00	9.01		283.25
21601	12/5/2004	14:20:00	9.01		283.24
21661	12/5/2004	15:20:00	9.03		283.24
21721	12/5/2004	16:20:00	9.01		283.24
21781	12/5/2004	17:20:00	9.02		283.24

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
21841	12/5/2004	18:20:00	9.01		283.23
21901	12/5/2004	19:20:00	9.03		283.23
21961	12/5/2004	20:20:00	9.03		283.23
22021	12/5/2004	21:20:00	9.03		283.23
22081	12/5/2004	22:20:00	9		283.23
22141	12/5/2004	23:20:00	9.01		283.24
22201	12/6/2004	0:20:00	9		283.24
22261	12/6/2004	1:20:00	9.01		283.23
22321	12/6/2004	2:20:00	9.01		283.24
22381	12/6/2004	3:20:00	9.02		283.24
21	12/6/2004	16:25:29	8.97		283.26
81	12/6/2004	17:25:29	8.95		283.27
141	12/6/2004	18:25:29	8.97		283.28
201	12/6/2004	19:25:29	8.95		283.27
261	12/6/2004	20:25:29	8.95		283.28
321	12/6/2004	21:25:29	8.97		283.28
381	12/6/2004	22:25:29	8.97		283.28
441	12/6/2004	23:25:29	8.94		283.28
501	12/7/2004	0:25:29	8.93		283.28
561	12/7/2004	1:25:29	8.93		283.28
621	12/7/2004	2:25:29	8.96		283.28
681	12/7/2004	3:25:29	8.94		283.29
741	12/7/2004	4:25:29	8.94		283.29
801	12/7/2004	5:25:29	8.92		283.29
861	12/7/2004	6:25:29	8.94		283.29
921	12/7/2004	7:25:29	8.94		283.30
981	12/7/2004	8:25:29	8.92		283.29
1041	12/7/2004	9:25:29	8.92		283.29
1101	12/7/2004	10:25:29	8.92		283.29
1161	12/7/2004	11:25:29	8.91		283.30
1221	12/7/2004	12:25:29	8.92		283.31
1281	12/7/2004	13:25:29	8.88		283.31
1341	12/7/2004	14:25:29	8.88		283.31
1401	12/7/2004	15:25:29	8.88		283.32
1461	12/7/2004	16:25:29	8.87		283.32
1521	12/7/2004	17:25:29	8.85		283.33
1581	12/7/2004	18:25:29	8.85		283.32
1641	12/7/2004	19:25:29	8.85		283.34
1701	12/7/2004	20:25:29	8.83		283.36
1761	12/7/2004	21:25:29	8.82		283.37
1821	12/7/2004	22:25:29	8.81		283.37
1881	12/7/2004	23:25:29	8.81		283.37
1941	12/8/2004	0:25:29	8.8		283.39
2001	12/8/2004	1:25:29	8.79		283.40
2061	12/8/2004	2:25:29	8.77		283.40
2121	12/8/2004	3:25:29	8.78		283.41
2181	12/8/2004	4:25:29	8.79		283.42
2241	12/8/2004	5:25:29	8.79		283.42
2301	12/8/2004	6:25:29	8.77		283.43
2361	12/8/2004	7:25:29	8.77		283.43
2421	12/8/2004	8:25:29	8.78		283.44
2481	12/8/2004	9:25:29	8.76		283.43
2541	12/8/2004	10:25:29	8.76		283.44
2601	12/8/2004	11:25:29	8.76		283.43
2661	12/8/2004	12:25:29	8.77		283.44
2721	12/8/2004	13:25:29	8.75		283.44
2781	12/8/2004	14:25:29	8.72		283.45
2841	12/8/2004	15:25:29	8.74		283.45
2901	12/8/2004	16:25:29	8.76		283.46
2961	12/8/2004	17:25:29	8.75		283.46
3021	12/8/2004	18:25:29	8.76		283.46
3081	12/8/2004	19:25:29	8.77		283.44
3141	12/8/2004	20:25:29	8.75		283.46
3201	12/8/2004	21:25:29	8.73		283.46
3261	12/8/2004	22:25:29	8.73		283.46
3321	12/8/2004	23:25:29	8.73		283.46
3381	12/9/2004	0:25:29	8.72		283.46
3441	12/9/2004	1:25:29	8.72		283.46
3501	12/9/2004	2:25:29	8.71		283.47
3561	12/9/2004	3:25:29	8.7		283.48
3621	12/9/2004	4:25:29	8.69		283.47
3681	12/9/2004	5:25:29	8.7		283.47
3741	12/9/2004	6:25:29	8.71		283.47
3801	12/9/2004	7:25:29	8.71		283.47
3861	12/9/2004	8:25:29	8.7		283.47
3921	12/9/2004	9:25:29	8.72		283.47
3981	12/9/2004	10:25:29	8.72		283.47
4041	12/9/2004	11:25:29	8.68		283.47
4101	12/9/2004	12:25:29	8.67		283.47
4161	12/9/2004	13:25:29	8.68		283.47
4221	12/9/2004	14:25:29	8.68		283.48
4281	12/9/2004	15:25:29	8.68		283.47
4341	12/9/2004	16:25:29	8.67		283.48
4401	12/9/2004	17:25:29	8.69		283.47
4461	12/9/2004	18:25:29	8.68		283.48
4521	12/9/2004	19:25:29	8.66		283.48
4581	12/9/2004	20:25:29	8.67		283.48
4641	12/9/2004	21:25:29	8.65		283.48
4701	12/9/2004	22:25:29	8.65		283.48
4761	12/9/2004	23:25:29	8.65		283.48
4821	12/10/2004	0:25:29	8.66		283.48
4881	12/10/2004	1:25:29	8.65		283.48
4941	12/10/2004	2:25:29	8.62		283.48

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5001	12/10/2004	3:25:29	8.67		283.47
5061	12/10/2004	4:25:29	8.65		283.48
5121	12/10/2004	5:25:29	8.65		283.48
5181	12/10/2004	6:25:29	8.64		283.47
5241	12/10/2004	7:25:29	8.63		283.48
5301	12/10/2004	8:25:29	8.63		283.48
5361	12/10/2004	9:25:29	8.61		283.48
5421	12/10/2004	10:25:29	8.61		283.47
5481	12/10/2004	11:25:29	8.63		283.48
5541	12/10/2004	12:25:29	8.62		283.49
5601	12/10/2004	13:25:29	8.63		283.49
5661	12/10/2004	14:25:29	8.59		283.48
5721	12/10/2004	15:25:29	8.61		283.48
5781	12/10/2004	16:25:29	8.6		283.49
5841	12/10/2004	17:25:29	8.61		283.49
5901	12/10/2004	18:25:29	8.61		283.49
5961	12/10/2004	19:25:29	8.59		283.49
6021	12/10/2004	20:25:29	8.61		283.49
6081	12/10/2004	21:25:29	8.6		283.49
6141	12/10/2004	22:25:29	8.6		283.48
6201	12/10/2004	23:25:29	8.61		283.49
6261	12/11/2004	0:25:29	8.57		283.49
6321	12/11/2004	1:25:29	8.58		283.49
6381	12/11/2004	2:25:29	8.58		283.48
6441	12/11/2004	3:25:29	8.57		283.49
6501	12/11/2004	4:25:29	8.57		283.49
6561	12/11/2004	5:25:29	8.56		283.50
6621	12/11/2004	6:25:29	8.55		283.50
6681	12/11/2004	7:25:29	8.57		283.49
6741	12/11/2004	8:25:29	8.55		283.50
6801	12/11/2004	9:25:29	8.54		283.50
6861	12/11/2004	10:25:29	8.55		283.50
6921	12/11/2004	11:25:29	8.56		283.51
6981	12/11/2004	12:25:29	8.53		283.50
7041	12/11/2004	13:25:29	8.53		283.51

Note: Data collected every min but reported in the present table every hour

Gartner Lee

Table F2-2-4 - GLL BH-3-S
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Channel 1	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
91	11/20/2004	15:50:00	386	10.24		285.33
151	11/20/2004	16:50:00	384.7	10.37		285.32
211	11/20/2004	17:50:00	385.9	10.34		285.33
271	11/20/2004	18:50:00	385.5	10.38		285.33
331	11/20/2004	19:50:00	385.3	10.37		285.32
391	11/20/2004	20:50:00	385.7	10.37		285.33
451	11/20/2004	21:50:00	386.2	10.39		285.33
511	11/20/2004	22:50:00	384.9	10.37		285.32
571	11/20/2004	23:50:00	385	10.41		285.32
631	11/21/2004	0:50:00	385.7	10.4		285.33
691	11/21/2004	1:50:00	385.6	10.39		285.33
751	11/21/2004	2:50:00	386.4	10.37		285.33
811	11/21/2004	3:50:00	384.9	10.41		285.32
871	11/21/2004	4:50:00	386.1	10.41		285.33
931	11/21/2004	5:50:00	385.6	10.42		285.33
991	11/21/2004	6:50:00	385.4	10.44		285.32
1051	11/21/2004	7:50:00	385.5	10.41		285.33
1111	11/21/2004	8:50:00	384.2	10.43		285.31
1171	11/21/2004	9:50:00	385.1	10.39		285.32
1231	11/21/2004	10:50:00	385.9	10.38		285.33
1291	11/21/2004	11:50:00	385.7	10.38		285.33
1351	11/21/2004	12:50:00	385.3	10.39		285.32
1411	11/21/2004	13:50:00	385.2	10.4		285.32
1471	11/21/2004	14:50:00	385.9	10.41		285.33
1531	11/21/2004	15:50:00	385.9	10.34		285.33
1591	11/21/2004	16:50:00	386.9	10.33		285.34
1651	11/21/2004	17:50:00	384.3	10.4		285.31
1711	11/21/2004	18:50:00	383.8	10.35		285.31
1771	11/21/2004	19:50:00	384.6	10.37		285.32
1831	11/21/2004	20:50:00	383.6	10.39		285.31
1891	11/21/2004	21:50:00	383.5	10.37		285.31
1951	11/21/2004	22:50:00	384.2	10.39		285.31
2011	11/21/2004	23:50:00	384.5	10.37		285.32
2071	11/22/2004	0:50:00	383.5	10.42		285.31
2131	11/22/2004	1:50:00	384.1	10.4		285.31
2191	11/22/2004	2:50:00	385	10.33		285.32
2251	11/22/2004	3:50:00	385.4	10.37		285.32
2311	11/22/2004	4:50:00	385.1	10.35		285.32
2371	11/22/2004	5:50:00	384.8	10.37		285.32
2431	11/22/2004	6:50:00	383.7	10.33		285.31
2491	11/22/2004	7:50:00	384.3	10.37		285.31
2551	11/22/2004	8:50:00	384.4	10.41		285.31
2611	11/22/2004	9:50:00	384.7	10.35		285.32
2671	11/22/2004	10:50:00	383.7	10.33		285.31
2731	11/22/2004	11:50:00	382	10.37		285.29
2791	11/22/2004	12:50:00	384.9	10.33		285.32
2851	11/22/2004	13:50:00	384.5	10.31		285.32
2911	11/22/2004	14:50:00	384.5	10.38		285.32
2971	11/22/2004	15:50:00	384.9	10.34		285.32
3031	11/22/2004	16:50:00	384.8	10.38		285.32
3091	11/22/2004	17:50:00	384.4	10.38		285.31
3151	11/22/2004	18:50:00	383.6	10.4		285.31
3211	11/22/2004	19:50:00	384	10.36		285.31
3271	11/22/2004	20:50:00	384.7	10.34		285.32
3331	11/22/2004	21:50:00	384.7	10.4		285.32
3391	11/22/2004	22:50:00	384.3	10.34		285.31
3451	11/22/2004	23:50:00	385	10.31		285.32
3511	11/23/2004	0:50:00	385.1	10.3		285.32
3571	11/23/2004	1:50:00	384.7	10.31		285.32
3631	11/23/2004	2:50:00	385.4	10.37		285.32
3691	11/23/2004	3:50:00	384.9	10.37		285.32
3751	11/23/2004	4:50:00	384.9	10.38		285.32
3811	11/23/2004	5:50:00	384.4	10.36		285.31
3871	11/23/2004	6:50:00	384.2	10.33		285.31
3931	11/23/2004	7:50:00	385	10.35		285.32
3991	11/23/2004	8:50:00	384.7	10.35		285.32
4051	11/23/2004	9:50:00	384.5	10.31		285.32
4111	11/23/2004	10:50:00	387.2	10.23		285.34
4171	11/23/2004	11:50:00	384	10.36		285.31
4231	11/23/2004	12:50:00	384.5	10.37		285.32
4291	11/23/2004	13:50:00	384.1	10.35		285.31
4351	11/23/2004	14:50:00	385.4	10.37		285.32
4411	11/23/2004	15:50:00	385.2	10.29		285.32
4471	11/23/2004	16:50:00	385	10.33		285.32
4531	11/23/2004	17:50:00	385.3	10.31		285.32
4591	11/23/2004	18:50:00	383.1	10.35		285.30
4651	11/23/2004	19:50:00	384.5	10.31		285.32
4711	11/23/2004	20:50:00	385.2	10.34		285.32
4771	11/23/2004	21:50:00	385.5	10.28		285.33
4831	11/23/2004	22:50:00	385.6	10.34		285.33
4891	11/23/2004	23:50:00	385.6	10.33		285.33
4951	11/24/2004	0:50:00	385.7	10.34		285.33
5011	11/24/2004	1:50:00	386.4	10.29		285.33
5071	11/24/2004	2:50:00	386.8	10.27		285.34
5131	11/24/2004	3:50:00	387.1	10.28		285.34

No.	Date	Time	Channel 1	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5191	11/24/2004	4:50:00	385.1	10.31		285.32
5251	11/24/2004	5:50:00	385.8	10.31		285.33
5311	11/24/2004	6:50:00	385.2	10.28		285.32
5371	11/24/2004	7:50:00	384.8	10.3		285.32
5431	11/24/2004	8:50:00	385	10.31		285.32
5491	11/24/2004	9:50:00	384.5	10.31		285.32
5551	11/24/2004	10:50:00	385.7	10.3		285.33
5611	11/24/2004	11:50:00	386.3	10.28		285.33
5671	11/24/2004	12:50:00	386.5	10.23		285.34
5731	11/24/2004	13:50:00	386.3	10.31		285.33
5791	11/24/2004	14:50:00	386.3	10.31		285.33
5851	11/24/2004	15:50:00	386.8	10.3		285.34
5911	11/24/2004	16:50:00	388.4	10.25		285.35
5971	11/24/2004	17:50:00	390.1	10.3		285.37
6031	11/24/2004	18:50:00	390.8	10.26		285.38
6091	11/24/2004	19:50:00	391.9	10.28		285.39
6151	11/24/2004	20:50:00	391.4	10.28		285.38
6211	11/24/2004	21:50:00	393.3	10.24		285.40
6271	11/24/2004	22:50:00	393.7	10.23		285.41
6331	11/24/2004	23:50:00	393.3	10.24		285.40
6391	11/25/2004	0:50:00	394.9	10.22		285.42
6451	11/25/2004	1:50:00	394.4	10.23		285.41
6511	11/25/2004	2:50:00	395.4	10.19		285.42
6571	11/25/2004	3:50:00	395.4	10.2		285.42
6631	11/25/2004	4:50:00	396.2	10.19		285.43
6691	11/25/2004	5:50:00	394.7	10.21		285.42
6751	11/25/2004	6:50:00	395.7	10.18		285.43
6811	11/25/2004	7:50:00	395.4	10.22		285.42
6871	11/25/2004	8:50:00	394.2	10.23		285.41
6931	11/25/2004	9:50:00	395.8	10.08		285.43
6991	11/25/2004	10:50:00	395.1	10.21		285.42
7051	11/25/2004	11:50:00	394.9	10.23		285.42
7111	11/25/2004	12:50:00	394.8	10.21		285.42
7171	11/25/2004	13:50:00	394.4	10.2		285.41
7231	11/25/2004	14:50:00	395.6	10.2		285.43
7291	11/25/2004	15:50:00	394.3	10.21		285.41
7351	11/25/2004	16:50:00	394.4	10.17		285.41
7411	11/25/2004	17:50:00	393.5	10.16		285.41
7471	11/25/2004	18:50:00	393.6	10.17		285.41
7531	11/25/2004	19:50:00	394.3	10.19		285.41
7591	11/25/2004	20:50:00	394.9	10.21		285.42
7651	11/25/2004	21:50:00	393.6	10.17		285.41
7711	11/25/2004	22:50:00	395.2	10.16		285.42
7771	11/25/2004	23:50:00	397	10.08		285.44
7831	11/26/2004	0:50:00	395.5	10.18		285.43
7891	11/26/2004	1:50:00	395.7	10.16		285.43
7951	11/26/2004	2:50:00	394.9	10.16		285.42
8011	11/26/2004	3:50:00	395.7	10.19		285.43
8071	11/26/2004	4:50:00	395.9	10.18		285.43
8131	11/26/2004	5:50:00	395	10.18		285.42
8191	11/26/2004	6:50:00	395.8	10.1		285.43
8251	11/26/2004	7:50:00	395.7	10.13		285.43
8311	11/26/2004	8:50:00	394.6	10.13		285.42
8371	11/26/2004	9:50:00	394.9	10.13		285.42
8431	11/26/2004	10:50:00	395.4	10.13		285.42
8491	11/26/2004	11:50:00	394.1	10.15		285.41
8551	11/26/2004	12:50:00	393.6	10.16		285.41
8611	11/26/2004	13:50:00	395	10.13		285.42
8671	11/26/2004	14:50:00	394	10.09		285.41
8731	11/26/2004	15:50:00	394.6	10.15		285.42
8791	11/26/2004	16:50:00	394.4	10.12		285.41
8851	11/26/2004	17:50:00	395.2	10.13		285.42
8911	11/26/2004	18:50:00	395.3	10.12		285.42
8971	11/26/2004	19:50:00	394.3	10.13		285.41
9031	11/26/2004	20:50:00	395.3	10.08		285.42
9091	11/26/2004	21:50:00	395.2	10.05		285.42
9151	11/26/2004	22:50:00	395.5	10.07		285.43
9211	11/26/2004	23:50:00	396.1	10.11		285.43
9271	11/27/2004	0:50:00	395.2	10.13		285.42
9331	11/27/2004	1:50:00	394.9	10.13		285.42
9391	11/27/2004	2:50:00	395.7	10.13		285.43
9451	11/27/2004	3:50:00	395.1	10.07		285.42
9511	11/27/2004	4:50:00	395.9	10.08		285.43
9571	11/27/2004	5:50:00	396.2	10.1		285.43
9631	11/27/2004	6:50:00	396.1	10.08		285.43
9691	11/27/2004	7:50:00	396	10.11		285.43
9751	11/27/2004	8:50:00	396.3	10.07		285.43
9811	11/27/2004	9:50:00	396.2	10.05		285.43
9871	11/27/2004	10:50:00	395	10.12		285.42
9931	11/27/2004	11:50:00	395.8	10.03		285.43
9991	11/27/2004	12:50:00	396.2	10.03		285.43
10051	11/27/2004	13:50:00	393.8	10.08		285.41
10111	11/27/2004	14:50:00	394.5	10.03		285.42
10171	11/27/2004	15:50:00	396.3	10.05		285.43
10231	11/27/2004	16:50:00	396.8	10.03		285.44
10291	11/27/2004	17:50:00	397.5	10.05		285.45
10351	11/27/2004	18:50:00	394.8	10.05		285.42
10411	11/27/2004	19:50:00	393.8	10.03		285.41
10471	11/27/2004	20:50:00	392.2	10.01		285.39
10531	11/27/2004	21:50:00	391.7	10.02		285.39
10591	11/27/2004	22:50:00	389.3	10.06		285.36
10651	11/27/2004	23:50:00	389	10.03		285.36
10711	11/28/2004	0:50:00	388.2	10.03		285.35

No.	Date	Time	Channel 1	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
10771	11/28/2004	1:50:00	387.2	9.96		285.34
10831	11/28/2004	2:50:00	387.3	9.99		285.34
10891	11/28/2004	3:50:00	385.4	10.06		285.32
10951	11/28/2004	4:50:00	386.6	10.06		285.34
11011	11/28/2004	5:50:00	386.3	10.05		285.33
11071	11/28/2004	6:50:00	387	10.01		285.34
11131	11/28/2004	7:50:00	386.1	10.03		285.33
11191	11/28/2004	8:50:00	385.7	10.03		285.33
11251	11/28/2004	9:50:00	386.2	10.01		285.33
11311	11/28/2004	10:50:00	374.7	9.98		285.22
11371	11/28/2004	11:50:00	388.1	9.99		285.35
11431	11/28/2004	12:50:00	386.4	9.98		285.33
11491	11/28/2004	13:50:00	385.5	10.01		285.33
11551	11/28/2004	14:50:00	386.7	9.96		285.34
11611	11/28/2004	15:50:00	385.1	10		285.32
11671	11/28/2004	16:50:00	384.4	10		285.31
11731	11/28/2004	17:50:00	385.5	9.99		285.33
11791	11/28/2004	18:50:00	384.2	9.98		285.31
11851	11/28/2004	19:50:00	383.6	10.05		285.31
11911	11/28/2004	20:50:00	382.7	10.01		285.30
11971	11/28/2004	21:50:00	383.9	10.01		285.31
12031	11/28/2004	22:50:00	382.7	10		285.30
12091	11/28/2004	23:50:00	383.3	9.98		285.30
12151	11/29/2004	0:50:00	383	10.02		285.30
12211	11/29/2004	1:50:00	382.8	9.99		285.30
12271	11/29/2004	2:50:00	382.2	10.02		285.29
12331	11/29/2004	3:50:00	381.3	9.98		285.28
12391	11/29/2004	4:50:00	384.5	9.84		285.32
12451	11/29/2004	5:50:00	380.9	9.98		285.28
12511	11/29/2004	6:50:00	380.5	10.02		285.28
12571	11/29/2004	7:50:00	381	9.97		285.28
12631	11/29/2004	8:50:00	380.5	10.01		285.28
12691	11/29/2004	9:50:00	383.8	9.96		285.31
12751	11/29/2004	10:50:00	384.4	9.98		285.31
12811	11/29/2004	11:50:00	384.3	10		285.31
12871	11/29/2004	12:50:00	386.8	9.89		285.34
12931	11/29/2004	13:50:00	387.5	9.99		285.35
12991	11/29/2004	14:50:00	387.9	9.95		285.35
13051	11/29/2004	15:50:00	389.3	9.9		285.36
13111	11/29/2004	16:50:00	388.9	9.9		285.36
13171	11/29/2004	17:50:00	389.3	9.96		285.36
13231	11/29/2004	18:50:00	390.6	9.91		285.38
13291	11/29/2004	19:50:00	390.4	9.92		285.37
13351	11/29/2004	20:50:00	390.2	9.95		285.37
13411	11/29/2004	21:50:00	390.9	9.9		285.38
13471	11/29/2004	22:50:00	392.5	9.9		285.40
13531	11/29/2004	23:50:00	392.4	9.89		285.39
13591	11/30/2004	0:50:00	391.6	9.92		285.39
13651	11/30/2004	1:50:00	392.6	9.9		285.40
13711	11/30/2004	2:50:00	392.1	9.89		285.39
13771	11/30/2004	3:50:00	393.6	9.83		285.41
13831	11/30/2004	4:50:00	392.4	9.87		285.39
13891	11/30/2004	5:50:00	392.8	9.87		285.40
13951	11/30/2004	6:50:00	392.6	9.88		285.40
14011	11/30/2004	7:50:00	392.7	9.87		285.40
14071	11/30/2004	8:50:00	393.3	9.92		285.40
14131	11/30/2004	9:50:00	393.4	9.84		285.40
14191	11/30/2004	10:50:00	394.8	9.81		285.42
14251	11/30/2004	11:50:00	393.4	9.81		285.40
14311	11/30/2004	12:50:00	391.6	9.85		285.39
14371	11/30/2004	13:50:00	388.9	9.84		285.36
14431	11/30/2004	14:50:00	385.1	9.79		285.32
14491	11/30/2004	15:50:00	388.9	9.91		285.36
14551	11/30/2004	16:50:00	391.6	9.83		285.39
14611	11/30/2004	17:50:00	392.4	9.81		285.39
14671	11/30/2004	18:50:00	392.5	9.92		285.40
14731	11/30/2004	19:50:00	392.7	9.89		285.40
14791	11/30/2004	20:50:00	394.7	9.79		285.42
14851	11/30/2004	21:50:00	390.4	9.81		285.37
14911	11/30/2004	22:50:00	387.3	9.87		285.34
14971	11/30/2004	23:50:00	388.1	9.76		285.35
15031	12/1/2004	0:50:00	385.9	9.86		285.33
15091	12/1/2004	1:50:00	385.5	9.87		285.33
15151	12/1/2004	2:50:00	386.1	9.77		285.33
15211	12/1/2004	3:50:00	385.8	9.81		285.33
15271	12/1/2004	4:50:00	385.6	9.86		285.33
15331	12/1/2004	5:50:00	385.2	9.82		285.32
15391	12/1/2004	6:50:00	386.2	9.81		285.33
15451	12/1/2004	7:50:00	386.8	9.86		285.34
15511	12/1/2004	8:50:00	389	9.7		285.36
15571	12/1/2004	9:50:00	386	9.85		285.33
15631	12/1/2004	10:50:00	385.2	9.83		285.32
15691	12/1/2004	11:50:00	385.4	9.81		285.32
15751	12/1/2004	12:50:00	385	9.78		285.32
15811	12/1/2004	13:50:00	384.2	9.78		285.31
15871	12/1/2004	14:50:00	383.6	9.73		285.31
15931	12/1/2004	15:50:00	384.1	9.8		285.31
15991	12/1/2004	16:50:00	382.4	9.79		285.29
16051	12/1/2004	17:50:00	381.5	9.69		285.29
16111	12/1/2004	18:50:00	380.6	9.75		285.28
16171	12/1/2004	19:50:00	380.6	9.67		285.28
16231	12/1/2004	20:50:00	381.1	9.66		285.28
16291	12/1/2004	21:50:00	379.6	9.71		285.27

No.	Date	Time	Channel 1	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
16351	12/1/2004	22:50:00	378.4	9.73		285.25
16411	12/1/2004	23:50:00	377.6	9.7		285.25
16471	12/2/2004	0:50:00	376.1	9.77		285.23
16531	12/2/2004	1:50:00	376.3	9.72		285.23
16591	12/2/2004	2:50:00	374.9	9.75		285.22
16651	12/2/2004	3:50:00	375.7	9.69		285.23
16711	12/2/2004	4:50:00	374.1	9.75		285.21
16771	12/2/2004	5:50:00	373.7	9.73		285.21
16831	12/2/2004	6:50:00	373.5	9.72		285.21
16891	12/2/2004	7:50:00	371.5	9.75		285.19
16951	12/2/2004	8:50:00	371.8	9.71		285.19
17011	12/2/2004	9:50:00	370.3	9.72		285.17
17071	12/2/2004	10:50:00	370.7	9.65		285.18
17131	12/2/2004	11:50:00	369.7	9.69		285.17
17191	12/2/2004	12:50:00	369.8	9.67		285.17
17251	12/2/2004	13:50:00	369.3	9.69		285.16
17311	12/2/2004	14:50:00	369.5	9.63		285.17
17371	12/2/2004	15:50:00	368.9	9.77		285.16
17431	12/2/2004	16:50:00	370	9.64		285.17
17491	12/2/2004	17:50:00	367.2	9.75		285.14
17551	12/2/2004	18:50:00	367.9	9.73		285.15
17611	12/2/2004	19:50:00	366.5	9.74		285.14
17671	12/2/2004	20:50:00	366.1	9.73		285.13
17731	12/2/2004	21:50:00	365.9	9.75		285.13
17791	12/2/2004	22:50:00	366.1	9.74		285.13
17851	12/2/2004	23:50:00	366	9.73		285.13
17911	12/3/2004	0:50:00	368	9.6		285.15
17971	12/3/2004	1:50:00	364.8	9.77		285.12
18031	12/3/2004	2:50:00	364.8	9.73		285.12
18091	12/3/2004	3:50:00	364.2	9.71		285.11
18151	12/3/2004	4:50:00	364.9	9.69		285.12
18211	12/3/2004	5:50:00	364.2	9.71		285.11
18271	12/3/2004	6:50:00	361.8	9.7		285.09
18331	12/3/2004	7:50:00	361.3	9.72		285.08
18391	12/3/2004	8:50:00	360.4	9.75		285.07
18451	12/3/2004	9:50:00	361.7	9.69		285.09
18511	12/3/2004	10:50:00	360.1	9.76		285.07
18571	12/3/2004	11:50:00	360	9.69		285.07
18631	12/3/2004	12:50:00	359.8	9.72		285.07
18691	12/3/2004	13:50:00	358.4	9.71		285.05
18751	12/3/2004	14:50:00	359.1	9.73		285.06
18811	12/3/2004	15:50:00	359.2	9.67		285.06
18871	12/3/2004	16:50:00	356.7	9.73		285.04
18931	12/3/2004	17:50:00	355.9	9.69		285.03
18991	12/3/2004	18:50:00	356	9.69		285.03
19051	12/3/2004	19:50:00	355.2	9.72		285.02
19111	12/3/2004	20:50:00	356.2	9.67		285.03
19171	12/3/2004	21:50:00	355.8	9.66		285.03
19231	12/3/2004	22:50:00	355.1	9.71		285.02
19291	12/3/2004	23:50:00	356.1	9.58		285.03
19351	12/4/2004	0:50:00	353	9.73		285.00
19411	12/4/2004	1:50:00	355.1	9.58		285.02
19471	12/4/2004	2:50:00	354.6	9.66		285.02
19531	12/4/2004	3:50:00	354.1	9.69		285.01
19591	12/4/2004	4:50:00	352.8	9.73		285.00
19651	12/4/2004	5:50:00	353.4	9.69		285.00
19711	12/4/2004	6:50:00	352.3	9.69		284.99
19771	12/4/2004	7:50:00	352.5	9.67		285.00
19831	12/4/2004	8:50:00	351.4	9.76		284.98
19891	12/4/2004	9:50:00	350.9	9.7		284.98
19951	12/4/2004	10:50:00	349.7	9.76		284.97
20011	12/4/2004	11:50:00	350.3	9.76		284.97
20071	12/4/2004	12:50:00	351.3	9.72		284.98
20131	12/4/2004	13:50:00	350.6	9.64		284.98
20191	12/4/2004	14:50:00	349.5	9.69		284.97
20251	12/4/2004	15:50:00	349.5	9.7		284.97
20311	12/4/2004	16:50:00	350.7	9.63		284.98
20371	12/4/2004	17:50:00	350.2	9.69		284.97
20431	12/4/2004	18:50:00	348.9	9.67		284.96
20491	12/4/2004	19:50:00	348.9	9.69		284.96
20551	12/4/2004	20:50:00	349.5	9.63		284.97
20611	12/4/2004	21:50:00	347.8	9.65		284.95
20671	12/4/2004	22:50:00	347.7	9.67		284.95
20731	12/4/2004	23:50:00	347.4	9.69		284.94
20791	12/5/2004	0:50:00	346.8	9.72		284.94
20851	12/5/2004	1:50:00	347	9.66		284.94
20911	12/5/2004	2:50:00	346.9	9.65		284.94
20971	12/5/2004	3:50:00	345.9	9.65		284.93
21031	12/5/2004	4:50:00	346.2	9.57		284.93
21091	12/5/2004	5:50:00	344.8	9.67		284.92
21151	12/5/2004	6:50:00	345	9.67		284.92
21211	12/5/2004	7:50:00	344.2	9.62		284.91
21271	12/5/2004	8:50:00	343.6	9.61		284.91
21331	12/5/2004	9:50:00	343.1	9.67		284.90
21391	12/5/2004	10:50:00	343.8	9.65		284.91
21451	12/5/2004	11:50:00	343.9	9.52		284.91
21511	12/5/2004	12:50:00	341.1	9.59		284.88
21571	12/5/2004	13:50:00	342.1	9.64		284.89
21631	12/5/2004	14:50:00	341.9	9.6		284.89
21691	12/5/2004	15:50:00	341.3	9.45		284.88
21751	12/5/2004	16:50:00	341.4	9.63		284.88
21811	12/5/2004	17:50:00	340.5	9.6		284.88
21871	12/5/2004	18:50:00	340.1	9.64		284.87

No.	Date	Time	Channel 1	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
21931	12/5/2004	19:50:00	338.3	9.61		284.85
21991	12/5/2004	20:50:00	339.1	9.56		284.86
22051	12/5/2004	21:50:00	338.7	9.56		284.86
22111	12/5/2004	22:50:00	338.2	9.6		284.85
22171	12/5/2004	23:50:00	339.2	9.58		284.86
22231	12/6/2004	0:50:00	338.5	9.59		284.86
22291	12/6/2004	1:50:00	338.7	9.61		284.86
22351	12/6/2004	2:50:00	339	9.55		284.86
22411	12/6/2004	3:50:00	338.4	9.55		284.85
51	12/6/2004	16:55:53	349.8	9.58		284.97
111	12/6/2004	17:55:53	351.2	9.57		284.98
171	12/6/2004	18:55:53	352.7	9.63		285.00
231	12/6/2004	19:55:53	353.3	9.65		285.00
291	12/6/2004	20:55:53	354.6	9.61		285.02
351	12/6/2004	21:55:53	355.3	9.61		285.02
411	12/6/2004	22:55:53	356.2	9.61		285.03
471	12/6/2004	23:55:53	357.3	9.59		285.04
531	12/7/2004	0:55:53	357.9	9.56		285.05
591	12/7/2004	1:55:53	358.2	9.6		285.05
651	12/7/2004	2:55:53	359.4	9.6		285.06
711	12/7/2004	3:55:53	361.7	9.49		285.09
771	12/7/2004	4:55:53	361	9.58		285.08
831	12/7/2004	5:55:53	360.9	9.55		285.08
891	12/7/2004	6:55:53	363	9.52		285.10
951	12/7/2004	7:55:53	362.4	9.57		285.09
1011	12/7/2004	8:55:53	365.2	9.44		285.12
1071	12/7/2004	9:55:53	362.9	9.58		285.10
1131	12/7/2004	10:55:53	364.5	9.55		285.12
1191	12/7/2004	11:55:53	365.8	9.45		285.13
1251	12/7/2004	12:55:53	365.7	9.53		285.13
1311	12/7/2004	13:55:53	366.6	9.53		285.14
1371	12/7/2004	14:55:53	372.3	9.53		285.19
1431	12/7/2004	15:55:53	376.3	9.51		285.23
1491	12/7/2004	16:55:53	381	9.51		285.28
1551	12/7/2004	17:55:53	382.5	9.51		285.30
1611	12/7/2004	18:55:53	383.8	9.46		285.31
1671	12/7/2004	19:55:53	386.3	9.44		285.33
1731	12/7/2004	20:55:53	389	9.43		285.36
1791	12/7/2004	21:55:53	387.3	9.46		285.34
1851	12/7/2004	22:55:53	390.4	9.41		285.37
1911	12/7/2004	23:55:53	391.4	9.43		285.38
1971	12/8/2004	0:55:53	393.8	9.31		285.41
2031	12/8/2004	1:55:53	392.9	9.38		285.40
2091	12/8/2004	2:55:53	392.6	9.35		285.40
2151	12/8/2004	3:55:53	395.7	9.33		285.43
2211	12/8/2004	4:55:53	393.9	9.38		285.41
2271	12/8/2004	5:55:53	395.3	9.37		285.42
2331	12/8/2004	6:55:53	395.8	9.35		285.43
2391	12/8/2004	7:55:53	396.6	9.35		285.44
2451	12/8/2004	8:55:53	397.8	9.3		285.45
2511	12/8/2004	9:55:53	397.9	9.29		285.45
2571	12/8/2004	10:55:53	397	9.31		285.44
2631	12/8/2004	11:55:53	396.4	9.29		285.43
2691	12/8/2004	12:55:53	397.8	9.32		285.45
2751	12/8/2004	13:55:53	397.4	9.32		285.44
2811	12/8/2004	14:55:53	397.8	9.34		285.45
2871	12/8/2004	15:55:53	398.2	9.29		285.45
2931	12/8/2004	16:55:53	398.7	9.3		285.46
2991	12/8/2004	17:55:53	398.6	9.29		285.46
3051	12/8/2004	18:55:53	399	9.3		285.46
3111	12/8/2004	19:55:53	398.9	9.31		285.46
3171	12/8/2004	20:55:53	400	9.26		285.47
3231	12/8/2004	21:55:53	399.5	9.27		285.47
3291	12/8/2004	22:55:53	399.5	9.29		285.47
3351	12/8/2004	23:55:53	399.5	9.29		285.47
3411	12/9/2004	0:55:53	401.3	9.26		285.48
3471	12/9/2004	1:55:53	401.4	9.26		285.48
3531	12/9/2004	2:55:53	402.1	9.26		285.49
3591	12/9/2004	3:55:53	401.7	9.21		285.49
3651	12/9/2004	4:55:53	401.8	9.21		285.49
3711	12/9/2004	5:55:53	403.7	9.18		285.51
3771	12/9/2004	6:55:53	402.8	9.26		285.50
3831	12/9/2004	7:55:53	401.8	9.23		285.49
3891	12/9/2004	8:55:53	402.8	9.24		285.50
3951	12/9/2004	9:55:53	401.9	9.27		285.49
4011	12/9/2004	10:55:53	402.7	9.21		285.50
4071	12/9/2004	11:55:53	402	9.27		285.49
4131	12/9/2004	12:55:53	402.2	9.27		285.49
4191	12/9/2004	13:55:53	402.4	9.21		285.49
4251	12/9/2004	14:55:53	402.8	9.26		285.50
4311	12/9/2004	15:55:53	405.4	9.08		285.52
4371	12/9/2004	16:55:53	405.3	9.24		285.52
4431	12/9/2004	17:55:53	405.3	9.2		285.52
4491	12/9/2004	18:55:53	405.6	9.25		285.53
4551	12/9/2004	19:55:53	405.9	9.17		285.53
4611	12/9/2004	20:55:53	405.6	9.22		285.53
4671	12/9/2004	21:55:53	406.8	9.2		285.54
4731	12/9/2004	22:55:53	405.4	9.25		285.52
4791	12/9/2004	23:55:53	405.7	9.21		285.53
4851	12/10/2004	0:55:53	406.2	9.18		285.53
4911	12/10/2004	1:55:53	405.4	9.19		285.52
4971	12/10/2004	2:55:53	407.2	9.14		285.54
5031	12/10/2004	3:55:53	405.6	9.19		285.53

No.	Date	Time	Channel 1	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5091	12/10/2004	4:55:53	406.4	9.22		285.53
5151	12/10/2004	5:55:53	406.1	9.23		285.53
5211	12/10/2004	6:55:53	405.8	9.2		285.53
5271	12/10/2004	7:55:53	407.3	9.12		285.54
5331	12/10/2004	8:55:53	406.2	9.2		285.53
5391	12/10/2004	9:55:53	406.7	9.17		285.54
5451	12/10/2004	10:55:53	406.7	9.15		285.54
5511	12/10/2004	11:55:53	407.5	9.11		285.55
5571	12/10/2004	12:55:53	407.4	9.15		285.54
5631	12/10/2004	13:55:53	407.8	9.17		285.55
5691	12/10/2004	14:55:53	409.8	9.14		285.57
5751	12/10/2004	15:55:53	409.5	9.14		285.57
5811	12/10/2004	16:55:53	410.1	9.14		285.57
5871	12/10/2004	17:55:53	410.6	9.14		285.58
5931	12/10/2004	18:55:53	411.1	9.13		285.58
5991	12/10/2004	19:55:53	411.3	9.15		285.58
6051	12/10/2004	20:55:53	411.4	9.18		285.58
6111	12/10/2004	21:55:53	411.6	9.14		285.59
6171	12/10/2004	22:55:53	411.2	9.15		285.58
6231	12/10/2004	23:55:53	412.7	9.13		285.60
6291	12/11/2004	0:55:53	412.8	9.15		285.60
6351	12/11/2004	1:55:53	413.4	9.09		285.60
6411	12/11/2004	2:55:53	411.7	9.17		285.59
6471	12/11/2004	3:55:53	413.1	9.06		285.60
6531	12/11/2004	4:55:53	413.2	9.12		285.60
6591	12/11/2004	5:55:53	412.8	9.15		285.60
6651	12/11/2004	6:55:53	412.9	9.14		285.60
6711	12/11/2004	7:55:53	412.6	9.15		285.60
6771	12/11/2004	8:55:53	414.4	9.05		285.61
6831	12/11/2004	9:55:53	414.2	9.03		285.61
6891	12/11/2004	10:55:53	415.1	9.11		285.62
6951	12/11/2004	11:55:53	415.6	9.03		285.63
7011	12/11/2004	12:55:53	414.5	9.08		285.62
7071	12/11/2004	13:55:53	416.3	9.01		285.63

Note: Data collected every min but reported in the present table every hour

Gartner Lee

Table F2-2-5 - GLL BH-4-D
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Goundwater Elevation (masl)
150	11/20/2004	16:49:04	10.99		280.53
210	11/20/2004	17:49:04	8.33		280.58
270	11/20/2004	18:49:04	8.33		280.59
330	11/20/2004	19:49:04	8.31		280.59
390	11/20/2004	20:49:04	8.35		280.60
450	11/20/2004	21:49:04	8.34		280.60
510	11/20/2004	22:49:04	8.32		280.59
570	11/20/2004	23:49:04	8.33		280.60
630	11/21/2004	0:49:04	8.34		280.60
690	11/21/2004	1:49:04	8.35		280.59
750	11/21/2004	2:49:04	8.35		280.59
810	11/21/2004	3:49:04	8.34		280.59
870	11/21/2004	4:49:04	8.34		280.60
930	11/21/2004	5:49:04	8.35		280.58
990	11/21/2004	6:49:04	8.35		280.58
1050	11/21/2004	7:49:04	8.37		280.57
1110	11/21/2004	8:49:04	8.36		280.57
1170	11/21/2004	9:49:04	8.36		280.56
1230	11/21/2004	10:49:04	8.35		280.57
1290	11/21/2004	11:49:04	8.36		280.57
1350	11/21/2004	12:49:04	8.35		280.58
1410	11/21/2004	13:49:04	8.38		280.58
1470	11/21/2004	14:49:04	8.35		280.58
1530	11/21/2004	15:49:04	8.36		280.57
1590	11/21/2004	16:49:04	8.35		280.57
1650	11/21/2004	17:49:04	8.36		280.56
1710	11/21/2004	18:49:04	8.37		280.57
1770	11/21/2004	19:49:04	8.37		280.58
1830	11/21/2004	20:49:04	8.37		280.57
1890	11/21/2004	21:49:04	8.38		280.56
1950	11/21/2004	22:49:04	8.37		280.58
2010	11/21/2004	23:49:04	8.36		280.58
2070	11/22/2004	0:49:04	8.36		280.59
2130	11/22/2004	1:49:04	8.36		280.58
2190	11/22/2004	2:49:04	8.38		280.59
2250	11/22/2004	3:49:04	8.38		280.60
2310	11/22/2004	4:49:04	8.38		280.59
2370	11/22/2004	5:49:04	8.37		280.60
2430	11/22/2004	6:49:04	8.37		280.59
2490	11/22/2004	7:49:04	8.38		280.60
2550	11/22/2004	8:49:04	8.36		280.59
2610	11/22/2004	9:49:04	8.37		280.59
2670	11/22/2004	10:49:04	8.38		280.59
2730	11/22/2004	11:49:04	8.4		280.59
2790	11/22/2004	12:49:04	8.37		280.61
2850	11/22/2004	13:49:04	8.36		280.61
2910	11/22/2004	14:49:04	8.36		280.62
2970	11/22/2004	15:49:04	8.38		280.61
3030	11/22/2004	16:49:04	8.37		280.61
3090	11/22/2004	17:49:04	8.37		280.61
3150	11/22/2004	18:49:04	8.37		280.61
3210	11/22/2004	19:49:04	8.38		280.61
3270	11/22/2004	20:49:04	8.38		280.61
3330	11/22/2004	21:49:04	8.38		280.62
3390	11/22/2004	22:49:04	8.4		280.62
3450	11/22/2004	23:49:04	8.39		280.63
3510	11/23/2004	0:49:04	8.39		280.63
3570	11/23/2004	1:49:04	8.39		280.64
3630	11/23/2004	2:49:04	8.37		280.64
3690	11/23/2004	3:49:04	8.37		280.65
3750	11/23/2004	4:49:04	8.36		280.65
3810	11/23/2004	5:49:04	8.37		280.65
3870	11/23/2004	6:49:04	8.39		280.65
3930	11/23/2004	7:49:04	8.39		280.65
3990	11/23/2004	8:49:04	8.38		280.65
4050	11/23/2004	9:49:04	8.38		280.66
4110	11/23/2004	10:49:04	8.38		280.66
4170	11/23/2004	11:49:04	8.39		280.67
4230	11/23/2004	12:49:04	8.37		280.67
4290	11/23/2004	13:49:04	8.36		280.67
4350	11/23/2004	14:49:04	8.38		280.68
4410	11/23/2004	15:49:04	8.39		280.68
4470	11/23/2004	16:49:04	8.39		280.68
4530	11/23/2004	17:49:04	8.38		280.68
4590	11/23/2004	18:49:04	8.4		280.68
4650	11/23/2004	19:49:04	8.4		280.67
4710	11/23/2004	20:49:04	8.41		280.67
4770	11/23/2004	21:49:04	8.4		280.67
4830	11/23/2004	22:49:04	8.39		280.67
4890	11/23/2004	23:49:04	8.4		280.66
4950	11/24/2004	0:49:04	8.4		280.67
5010	11/24/2004	1:49:04	8.4		280.68
5070	11/24/2004	2:49:04	8.39		280.68
5130	11/24/2004	3:49:04	8.4		280.67
5190	11/24/2004	4:49:04	8.37		280.67

No.	Date	Time	Temperature (Deg. C)	Manual Data	Goundwater Elevation (masl)
5250	11/24/2004	5:49:04	8.41		280.67
5310	11/24/2004	6:49:04	8.41		280.66
5370	11/24/2004	7:49:04	8.4		280.67
5430	11/24/2004	8:49:04	8.38		280.67
5490	11/24/2004	9:49:04	8.4		280.68
5550	11/24/2004	10:49:04	8.38		280.68
5610	11/24/2004	11:49:04	8.4		280.70
5670	11/24/2004	12:49:04	8.4		280.71
5730	11/24/2004	13:49:04	8.4		280.72
5790	11/24/2004	14:49:04	8.41		280.73
5850	11/24/2004	15:49:04	8.4		280.75
5910	11/24/2004	16:49:04	8.4		280.77
5970	11/24/2004	17:49:04	8.41		280.79
6030	11/24/2004	18:49:04	8.39		280.79
6090	11/24/2004	19:49:04	8.4		280.80
6150	11/24/2004	20:49:04	8.41		280.82
6210	11/24/2004	21:49:04	8.4		280.81
6270	11/24/2004	22:49:04	8.38		280.83
6330	11/24/2004	23:49:04	8.43		280.84
6390	11/25/2004	0:49:04	8.41		280.84
6450	11/25/2004	1:49:04	8.41		280.84
6510	11/25/2004	2:49:04	8.39		280.82
6570	11/25/2004	3:49:04	8.43		280.83
6630	11/25/2004	4:49:04	8.4		280.82
6690	11/25/2004	5:49:04	8.39		280.81
6750	11/25/2004	6:49:04	8.4		280.80
6810	11/25/2004	7:49:04	8.39		280.78
6870	11/25/2004	8:49:04	8.41		280.76
6930	11/25/2004	9:49:04	8.4		280.77
6990	11/25/2004	10:49:04	8.41		280.76
7050	11/25/2004	11:49:04	8.4		280.76
7110	11/25/2004	12:49:04	8.4		280.76
7170	11/25/2004	13:49:04	8.4		280.74
7230	11/25/2004	14:49:04	8.41		280.73
7290	11/25/2004	15:49:04	8.43		280.71
7350	11/25/2004	16:49:04	8.4		280.72
7410	11/25/2004	17:49:04	8.4		280.70
7470	11/25/2004	18:49:04	8.41		280.69
7530	11/25/2004	19:49:04	8.43		280.69
7590	11/25/2004	20:49:04	8.43		280.69
7650	11/25/2004	21:49:04	8.41		280.69
7710	11/25/2004	22:49:04	8.41		280.70
7770	11/25/2004	23:49:04	8.41		280.70
7830	11/26/2004	0:49:04	8.41		280.70
7890	11/26/2004	1:49:04	8.41		280.70
7950	11/26/2004	2:49:04	8.41		280.70
8010	11/26/2004	3:49:04	8.43		280.70
8070	11/26/2004	4:49:04	8.43		280.69
8130	11/26/2004	5:49:04	8.41		280.68
8190	11/26/2004	6:49:04	8.43		280.67
8250	11/26/2004	7:49:04	8.4		280.67
8310	11/26/2004	8:49:04	8.41		280.66
8370	11/26/2004	9:49:04	8.43		280.65
8430	11/26/2004	10:49:04	8.43		280.65
8490	11/26/2004	11:49:04	8.41		280.64
8550	11/26/2004	12:49:04	8.41		280.65
8610	11/26/2004	13:49:04	8.41		280.64
8670	11/26/2004	14:49:04	8.41		280.65
8730	11/26/2004	15:49:04	8.41		280.65
8790	11/26/2004	16:49:04	8.41		280.65
8850	11/26/2004	17:49:04	8.41		280.65
8910	11/26/2004	18:49:04	8.4		280.65
8970	11/26/2004	19:49:04	8.43		280.65
9030	11/26/2004	20:49:04	8.41		280.65
9090	11/26/2004	21:49:04	8.4		280.65
9150	11/26/2004	22:49:04	8.41		280.65
9210	11/26/2004	23:49:04	8.43		280.66
9270	11/27/2004	0:49:04	8.41		280.66
9330	11/27/2004	1:49:04	8.41		280.66
9390	11/27/2004	2:49:04	8.41		280.66
9450	11/27/2004	3:49:04	8.41		280.66
9510	11/27/2004	4:49:04	8.43		280.66
9570	11/27/2004	5:49:04	8.41		280.65
9630	11/27/2004	6:49:04	8.4		280.66
9690	11/27/2004	7:49:04	8.41		280.66
9750	11/27/2004	8:49:04	8.43		280.66
9810	11/27/2004	9:49:04	8.41		280.66
9870	11/27/2004	10:49:04	8.41		280.66
9930	11/27/2004	11:49:04	8.41		280.68
9990	11/27/2004	12:49:04	8.47		280.65
10050	11/27/2004	13:49:04	8.45		280.66
10110	11/27/2004	14:49:04	8.43		280.68
10170	11/27/2004	15:49:04	8.44		280.69
10230	11/27/2004	16:49:04	8.44		280.69
10290	11/27/2004	17:49:04	8.43		280.69
10350	11/27/2004	18:49:04	8.43		280.70
10410	11/27/2004	19:49:04	8.43		280.70
10470	11/27/2004	20:49:04	8.44		280.71
10530	11/27/2004	21:49:04	8.43		280.72
10590	11/27/2004	22:49:04	8.43		280.73
10650	11/27/2004	23:49:04	8.45		280.73
10710	11/28/2004	0:49:04	8.43		280.74
10770	11/28/2004	1:49:04	8.45		280.74
10830	11/28/2004	2:49:04	8.41		280.75

No.	Date	Time	Temperature (Deg. C)	Manual Data	Goundwater Elevation (masl)
10890	11/28/2004	3:49:04	8.43		280.76
10950	11/28/2004	4:49:04	8.43		280.76
11010	11/28/2004	5:49:04	8.45		280.77
11070	11/28/2004	6:49:04	8.44		280.77
11130	11/28/2004	7:49:04	8.44		280.76
11190	11/28/2004	8:49:04	8.44		280.74
11250	11/28/2004	9:49:04	8.46		280.74
11310	11/28/2004	10:49:04	8.45		280.74
11370	11/28/2004	11:49:04	8.45		280.74
11430	11/28/2004	12:49:04	8.43		280.73
11490	11/28/2004	13:49:04	8.41		280.72
11550	11/28/2004	14:49:04	8.43		280.71
11610	11/28/2004	15:49:04	8.43		280.69
11670	11/28/2004	16:49:04	8.46		280.67
11730	11/28/2004	17:49:04	8.44		280.67
11790	11/28/2004	18:49:04	8.43		280.65
11850	11/28/2004	19:49:04	8.43		280.64
11910	11/28/2004	20:49:04	8.43		280.63
11970	11/28/2004	21:49:04	8.45		280.62
12030	11/28/2004	22:49:04	8.45		280.62
12090	11/28/2004	23:49:04	8.46		280.62
12150	11/29/2004	0:49:04	8.45		280.61
12210	11/29/2004	1:49:04	8.45		280.62
12270	11/29/2004	2:49:04	8.45		280.61
12330	11/29/2004	3:49:04	8.46		280.60
12390	11/29/2004	4:49:04	8.43		280.59
12450	11/29/2004	5:49:04	8.46		280.59
12510	11/29/2004	6:49:04	8.43		280.58
12570	11/29/2004	7:49:04	8.43		280.58
12630	11/29/2004	8:49:04	8.44		280.58
12690	11/29/2004	9:49:04	8.41		280.58
12750	11/29/2004	10:49:04	8.43		280.59
12810	11/29/2004	11:49:04	8.43		280.58
12870	11/29/2004	12:49:04	8.45		280.59
12930	11/29/2004	13:49:04	8.45		280.59
12990	11/29/2004	14:49:04	8.44		280.61
13050	11/29/2004	15:49:04	8.47		280.60
13110	11/29/2004	16:49:04	8.46		280.60
13170	11/29/2004	17:49:04	8.46		280.60
13230	11/29/2004	18:49:04	8.45		280.62
13290	11/29/2004	19:49:04	8.45		280.61
13350	11/29/2004	20:49:04	8.47		280.61
13410	11/29/2004	21:49:04	8.47		280.62
13470	11/29/2004	22:49:04	8.47		280.61
13530	11/29/2004	23:49:04	8.47		280.61
13590	11/30/2004	0:49:04	8.45		280.62
13650	11/30/2004	1:49:04	8.44		280.63
13710	11/30/2004	2:49:04	8.44		280.62
13770	11/30/2004	3:49:04	8.45		280.62
13830	11/30/2004	4:49:04	8.46		280.62
13890	11/30/2004	5:49:04	8.45		280.61
13950	11/30/2004	6:49:04	8.43		280.62
14010	11/30/2004	7:49:04	8.43		280.61
14070	11/30/2004	8:49:04	8.44		280.62
14130	11/30/2004	9:49:04	8.44		280.61
14190	11/30/2004	10:49:04	8.44		280.62
14250	11/30/2004	11:49:04	8.43		280.62
14310	11/30/2004	12:49:04	8.44		280.63
14370	11/30/2004	13:49:04	8.45		280.64
14430	11/30/2004	14:49:04	8.47		280.64
14490	11/30/2004	15:49:04	8.46		280.64
14550	11/30/2004	16:49:04	8.45		280.65
14610	11/30/2004	17:49:04	8.46		280.66
14670	11/30/2004	18:49:04	8.45		280.67
14730	11/30/2004	19:49:04	8.46		280.68
14790	11/30/2004	20:49:04	8.43		280.69
14850	11/30/2004	21:49:04	8.46		280.71
14910	11/30/2004	22:49:04	8.44		280.72
14970	11/30/2004	23:49:04	8.45		280.74
15030	12/1/2004	0:49:04	8.46		280.75
15090	12/1/2004	1:49:04	8.46		280.78
15150	12/1/2004	2:49:04	8.47		280.80
15210	12/1/2004	3:49:04	8.46		280.81
15270	12/1/2004	4:49:04	8.43		280.83
15330	12/1/2004	5:49:04	8.45		280.85
15390	12/1/2004	6:49:04	8.43		280.85
15450	12/1/2004	7:49:04	8.45		280.85
15510	12/1/2004	8:49:04	8.43		280.84
15570	12/1/2004	9:49:04	8.44		280.82
15630	12/1/2004	10:49:04	8.41		280.80
15690	12/1/2004	11:49:04	8.45		280.78
15750	12/1/2004	12:49:04	8.44		280.76
15810	12/1/2004	13:49:04	8.45		280.74
15870	12/1/2004	14:49:04	8.43		280.73
15930	12/1/2004	15:49:04	8.43		280.72
15990	12/1/2004	16:49:04	8.44		280.71
16050	12/1/2004	17:49:04	8.44		280.71
16110	12/1/2004	18:49:04	8.45		280.70
16170	12/1/2004	19:49:04	8.45		280.70
16230	12/1/2004	20:49:04	8.45		280.70
16290	12/1/2004	21:49:04	8.44		280.70
16350	12/1/2004	22:49:04	8.45		280.69
16410	12/1/2004	23:49:04	8.44		280.69
16470	12/2/2004	0:49:04	8.46		280.69

No.	Date	Time	Temperature (Deg. C)	Manual Data	Goundwater Elevation (masl)
16530	12/2/2004	1:49:04	8.45		280.69
16590	12/2/2004	2:49:04	8.47		280.68
16650	12/2/2004	3:49:04	8.46		280.68
16710	12/2/2004	4:49:04	8.47		280.68
16770	12/2/2004	5:49:04	8.46		280.68
16830	12/2/2004	6:49:04	8.47		280.68
16890	12/2/2004	7:49:04	8.46		280.67
16950	12/2/2004	8:49:04	8.47		280.67
17010	12/2/2004	9:49:04	8.46		280.68
17070	12/2/2004	10:49:04	8.46		280.66
17130	12/2/2004	11:49:04	8.45		280.68
17190	12/2/2004	12:49:04	8.47		280.69
17250	12/2/2004	13:49:04	8.47		280.69
17310	12/2/2004	14:49:04	8.46		280.70
17370	12/2/2004	15:49:04	8.47		280.70
17430	12/2/2004	16:49:04	8.47		280.71
17490	12/2/2004	17:49:04	8.47		280.70
17550	12/2/2004	18:49:04	8.47		280.70
17610	12/2/2004	19:49:04	8.45		280.71
17670	12/2/2004	20:49:04	8.47		280.72
17730	12/2/2004	21:49:04	8.44		280.72
17790	12/2/2004	22:49:04	8.43		280.73
17850	12/2/2004	23:49:04	8.46		280.74
17910	12/3/2004	0:49:04	8.46		280.75
17970	12/3/2004	1:49:04	8.44		280.75
18030	12/3/2004	2:49:04	8.44		280.75
18090	12/3/2004	3:49:04	8.43		280.76
18150	12/3/2004	4:49:04	8.46		280.77
18210	12/3/2004	5:49:04	8.45		280.77
18270	12/3/2004	6:49:04	8.45		280.74
18330	12/3/2004	7:49:04	8.45		280.73
18390	12/3/2004	8:49:04	8.46		280.71
18450	12/3/2004	9:49:04	8.45		280.71
18510	12/3/2004	10:49:04	8.45		280.71
18570	12/3/2004	11:49:04	8.46		280.69
18630	12/3/2004	12:49:04	8.47		280.70
18690	12/3/2004	13:49:04	8.45		280.69
18750	12/3/2004	14:49:04	8.45		280.69
18810	12/3/2004	15:49:04	8.45		280.68
18870	12/3/2004	16:49:04	8.46		280.68
18930	12/3/2004	17:49:04	8.45		280.66
18990	12/3/2004	18:49:04	8.45		280.66
19050	12/3/2004	19:49:04	8.46		280.66
19110	12/3/2004	20:49:04	8.46		280.67
19170	12/3/2004	21:49:04	8.46		280.66
19230	12/3/2004	22:49:04	8.47		280.67
19290	12/3/2004	23:49:04	8.47		280.67
19350	12/4/2004	0:49:04	8.47		280.68
19410	12/4/2004	1:49:04	8.47		280.68
19470	12/4/2004	2:49:04	8.46		280.70
19530	12/4/2004	3:49:04	8.46		280.70
19590	12/4/2004	4:49:04	8.47		280.70
19650	12/4/2004	5:49:04	8.45		280.71
19710	12/4/2004	6:49:04	8.47		280.71
19770	12/4/2004	7:49:04	8.47		280.71
19830	12/4/2004	8:49:04	8.47		280.72
19890	12/4/2004	9:49:04	8.47		280.73
19950	12/4/2004	10:49:04	8.48		280.73
20010	12/4/2004	11:49:04	8.47		280.75
20070	12/4/2004	12:49:04	8.47		280.76
20130	12/4/2004	13:49:04	8.45		280.77
20190	12/4/2004	14:49:04	8.45		280.77
20250	12/4/2004	15:49:04	8.47		280.77
20310	12/4/2004	16:49:04	8.44		280.77
20370	12/4/2004	17:49:04	8.46		280.76
20430	12/4/2004	18:49:04	8.47		280.75
20490	12/4/2004	19:49:04	8.48		280.75
20550	12/4/2004	20:49:04	8.47		280.74
20610	12/4/2004	21:49:04	8.47		280.73
20670	12/4/2004	22:49:04	8.47		280.73
20730	12/4/2004	23:49:04	8.48		280.72
20790	12/5/2004	0:49:04	8.47		280.72
20850	12/5/2004	1:49:04	8.48		280.72
20910	12/5/2004	2:49:04	8.43		280.69
20970	12/5/2004	3:49:04	8.46		280.69
21030	12/5/2004	4:49:04	8.46		280.67
21090	12/5/2004	5:49:04	8.47		280.67
21150	12/5/2004	6:49:04	8.46		280.65
21210	12/5/2004	7:49:04	8.45		280.64
21270	12/5/2004	8:49:04	8.44		280.64
21330	12/5/2004	9:49:04	8.47		280.63
21390	12/5/2004	10:49:04	8.44		280.62
21450	12/5/2004	11:49:04	8.46		280.62
21510	12/5/2004	12:49:04	8.45		280.60
21570	12/5/2004	13:49:04	8.45		280.62
21630	12/5/2004	14:49:04	8.45		280.61
21690	12/5/2004	15:49:04	8.46		280.61
21750	12/5/2004	16:49:04	8.47		280.60
21810	12/5/2004	17:49:04	8.46		280.59
21870	12/5/2004	18:49:04	8.47		280.59
21930	12/5/2004	19:49:04	8.47		280.59
21990	12/5/2004	20:49:04	8.47		280.59
22050	12/5/2004	21:49:04	8.46		280.60
22110	12/5/2004	22:49:04	8.47		280.60

No.	Date	Time	Temperature (Deg. C)	Manual Data	Goundwater Elevation (masl)
22170	12/5/2004	23:49:04	8.47		280.61
22230	12/6/2004	0:49:04	8.47		280.61
22290	12/6/2004	1:49:04	8.47		280.61
22350	12/6/2004	2:49:04	8.47		280.62
22410	12/6/2004	3:49:04	8.47		280.63
22470	12/6/2004	4:49:04	8.47		280.63
22530	12/6/2004	5:49:04	8.47		280.64
22590	12/6/2004	6:49:04	8.47		280.64
22650	12/6/2004	7:49:04	8.47		280.64
22710	12/6/2004	8:49:04	8.47		280.63
22770	12/6/2004	9:49:04	8.48		280.64
22830	12/6/2004	10:49:04	8.48		280.65
22890	12/6/2004	11:49:04	8.47		280.67
22950	12/6/2004	12:49:04	8.48		280.66
23010	12/6/2004	13:49:04	8.48		280.68
23070	12/6/2004	14:49:04	12.71		277.52
52	12/6/2004	16:57:13	8.43		280.59
112	12/6/2004	17:57:13	8.43		280.61
172	12/6/2004	18:57:13	8.43		280.62
232	12/6/2004	19:57:13	8.43		280.62
292	12/6/2004	20:57:13	8.46		280.62
352	12/6/2004	21:57:13	8.41		280.62
412	12/6/2004	22:57:13	8.43		280.63
472	12/6/2004	23:57:13	8.47		280.63
532	12/7/2004	0:57:13	8.45		280.64
592	12/7/2004	1:57:13	8.44		280.66
652	12/7/2004	2:57:13	8.46		280.67
712	12/7/2004	3:57:13	8.46		280.66
772	12/7/2004	4:57:13	8.44		280.68
832	12/7/2004	5:57:13	8.45		280.68
892	12/7/2004	6:57:13	8.46		280.68
952	12/7/2004	7:57:13	8.45		280.70
1012	12/7/2004	8:57:13	8.45		280.70
1072	12/7/2004	9:57:13	8.46		280.73
1132	12/7/2004	10:57:13	8.45		280.75
1192	12/7/2004	11:57:13	8.46		280.77
1252	12/7/2004	12:57:13	8.46		280.80
1312	12/7/2004	13:57:13	8.47		280.82
1372	12/7/2004	14:57:13	8.47		280.82
1432	12/7/2004	15:57:13	8.47		280.83
1492	12/7/2004	16:57:13	8.46		280.84
1552	12/7/2004	17:57:13	8.47		280.85
1612	12/7/2004	18:57:13	8.46		280.83
1672	12/7/2004	19:57:13	8.47		280.84
1732	12/7/2004	20:57:13	8.45		280.83
1792	12/7/2004	21:57:13	8.47		280.81
1852	12/7/2004	22:57:13	8.48		280.79
1912	12/7/2004	23:57:13	8.48		280.77
1972	12/8/2004	0:57:13	8.47		280.77
2032	12/8/2004	1:57:13	8.48		280.76
2092	12/8/2004	2:57:13	8.45		280.74
2152	12/8/2004	3:57:13	8.47		280.73
2212	12/8/2004	4:57:13	8.47		280.73
2272	12/8/2004	5:57:13	8.48		280.72
2332	12/8/2004	6:57:13	8.47		280.71
2392	12/8/2004	7:57:13	8.47		280.70
2452	12/8/2004	8:57:13	8.46		280.69
2512	12/8/2004	9:57:13	8.48		280.67
2572	12/8/2004	10:57:13	8.48		280.66
2632	12/8/2004	11:57:13	8.47		280.66
2692	12/8/2004	12:57:13	8.48		280.65
2752	12/8/2004	13:57:13	8.47		280.66
2812	12/8/2004	14:57:13	8.48		280.65
2872	12/8/2004	15:57:13	8.49		280.66
2932	12/8/2004	16:57:13	8.47		280.64
2992	12/8/2004	17:57:13	8.47		280.65
3052	12/8/2004	18:57:13	8.47		280.64
3112	12/8/2004	19:57:13	8.48		280.64
3172	12/8/2004	20:57:13	8.47		280.65
3232	12/8/2004	21:57:13	8.48		280.64
3292	12/8/2004	22:57:13	8.47		280.64
3352	12/8/2004	23:57:13	8.49		280.65
3412	12/9/2004	0:57:13	8.49		280.66
3472	12/9/2004	1:57:13	8.5		280.66
3532	12/9/2004	2:57:13	8.46		280.66
3592	12/9/2004	3:57:13	8.47		280.67
3652	12/9/2004	4:57:13	8.48		280.68
3712	12/9/2004	5:57:13	8.47		280.69
3772	12/9/2004	6:57:13	8.47		280.70
3832	12/9/2004	7:57:13	8.48		280.69
3892	12/9/2004	8:57:13	8.47		280.70
3952	12/9/2004	9:57:13	8.47		280.69
4012	12/9/2004	10:57:13	8.48		280.69
4072	12/9/2004	11:57:13	8.47		280.71
4132	12/9/2004	12:57:13	8.47		280.71
4192	12/9/2004	13:57:13	8.48		280.72
4252	12/9/2004	14:57:13	8.49		280.73
4312	12/9/2004	15:57:13	8.5		280.73
4372	12/9/2004	16:57:13	8.49		280.74
4432	12/9/2004	17:57:13	8.49		280.74
4492	12/9/2004	18:57:13	8.49		280.75
4552	12/9/2004	19:57:13	8.48		280.75
4612	12/9/2004	20:57:13	8.49		280.75
4672	12/9/2004	21:57:13	8.49		280.76

No.	Date	Time	Temperature (Deg. C)	Manual Data	Goundwater Elevation (masl)
4732	12/9/2004	22:57:13	8.49		280.77
4792	12/9/2004	23:57:13	8.5		280.75
4852	12/10/2004	0:57:13	8.48		280.77
4912	12/10/2004	1:57:13	8.49		280.77
4972	12/10/2004	2:57:13	8.49		280.78
5032	12/10/2004	3:57:13	8.48		280.77
5092	12/10/2004	4:57:13	8.48		280.78
5152	12/10/2004	5:57:13	8.48		280.78
5212	12/10/2004	6:57:13	8.48		280.78
5272	12/10/2004	7:57:13	8.5		280.79
5332	12/10/2004	8:57:13	8.49		280.80
5392	12/10/2004	9:57:13	8.47		280.80
5452	12/10/2004	10:57:13	8.49		280.81
5512	12/10/2004	11:57:13	8.5		280.82
5572	12/10/2004	12:57:13	8.48		280.83
5632	12/10/2004	13:57:13	8.49		280.84
5692	12/10/2004	14:57:13	8.49		280.85
5752	12/10/2004	15:57:13	8.48		280.85
5812	12/10/2004	16:57:13	8.48		280.85
5872	12/10/2004	17:57:13	8.5		280.86
5932	12/10/2004	18:57:13	8.49		280.85
5992	12/10/2004	19:57:13	8.51		280.85
6052	12/10/2004	20:57:13	8.49		280.86
6112	12/10/2004	21:57:13	8.49		280.86
6172	12/10/2004	22:57:13	8.48		280.86
6232	12/10/2004	23:57:13	8.49		280.87
6292	12/11/2004	0:57:13	8.49		280.87
6352	12/11/2004	1:57:13	8.49		280.87
6412	12/11/2004	2:57:13	8.5		280.87
6472	12/11/2004	3:57:13	8.49		280.87
6532	12/11/2004	4:57:13	8.48		280.88
6592	12/11/2004	5:57:13	8.48		280.87
6652	12/11/2004	6:57:13	8.49		280.87
6712	12/11/2004	7:57:13	8.5		280.88
6772	12/11/2004	8:57:13	8.49		280.87
6832	12/11/2004	9:57:13	8.49		280.87
6892	12/11/2004	10:57:13	8.5		280.87
6952	12/11/2004	11:57:13	8.49		280.88
7012	12/11/2004	12:57:13	8.5		280.88

Note: Data collected every min but reported in the present table every hour

Gartner Lee

Table F2-2-6 - GLL BH-4-S
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
147	11/20/2004	16:46:01	13.05		280.45
207	11/20/2004	17:46:01	9.47		280.48
267	11/20/2004	18:46:01	9.47		280.49
327	11/20/2004	19:46:01	9.45		280.49
387	11/20/2004	20:46:01	9.44		280.50
447	11/20/2004	21:46:01	9.47		280.49
507	11/20/2004	22:46:01	9.47		280.49
567	11/20/2004	23:46:01	9.45		280.50
627	11/21/2004	0:46:01	9.47		280.50
687	11/21/2004	1:46:01	9.47		280.49
747	11/21/2004	2:46:01	9.47		280.50
807	11/21/2004	3:46:01	9.45		280.50
867	11/21/2004	4:46:01	9.47		280.50
927	11/21/2004	5:46:01	9.47		280.50
987	11/21/2004	6:46:01	9.47		280.50
1047	11/21/2004	7:46:01	9.45		280.49
1107	11/21/2004	8:46:01	9.47		280.50
1167	11/21/2004	9:46:01	9.5		280.49
1227	11/21/2004	10:46:01	9.47		280.49
1287	11/21/2004	11:46:01	9.5		280.50
1347	11/21/2004	12:46:01	9.47		280.50
1407	11/21/2004	13:46:01	9.47		280.49
1467	11/21/2004	14:46:01	9.48		280.50
1527	11/21/2004	15:46:01	9.47		280.50
1587	11/21/2004	16:46:01	9.5		280.50
1647	11/21/2004	17:46:01	9.48		280.49
1707	11/21/2004	18:46:01	9.5		280.51
1767	11/21/2004	19:46:01	9.49		280.50
1827	11/21/2004	20:46:01	9.5		280.50
1887	11/21/2004	21:46:01	9.45		280.50
1947	11/21/2004	22:46:01	9.47		280.50
2007	11/21/2004	23:46:01	9.47		280.50
2067	11/22/2004	0:46:01	9.49		280.50
2127	11/22/2004	1:46:01	9.48		280.50
2187	11/22/2004	2:46:01	9.48		280.50
2247	11/22/2004	3:46:01	9.48		280.51
2307	11/22/2004	4:46:01	9.5		280.50
2367	11/22/2004	5:46:01	9.5		280.50
2427	11/22/2004	6:46:01	9.49		280.49
2487	11/22/2004	7:46:01	9.49		280.50
2547	11/22/2004	8:46:01	9.49		280.50
2607	11/22/2004	9:46:01	9.49		280.50
2667	11/22/2004	10:46:01	9.47		280.50
2727	11/22/2004	11:46:01	9.48		280.50
2787	11/22/2004	12:46:01	9.5		280.50
2847	11/22/2004	13:46:01	9.48		280.50
2907	11/22/2004	14:46:01	9.49		280.52
2967	11/22/2004	15:46:01	9.5		280.52
3027	11/22/2004	16:46:01	9.5		280.50
3087	11/22/2004	17:46:01	9.49		280.50
3147	11/22/2004	18:46:01	9.49		280.49
3207	11/22/2004	19:46:01	9.48		280.51
3267	11/22/2004	20:46:01	9.48		280.51
3327	11/22/2004	21:46:01	9.5		280.51
3387	11/22/2004	22:46:01	9.47		280.51
3447	11/22/2004	23:46:01	9.48		280.51
3507	11/23/2004	0:46:01	9.49		280.51
3567	11/23/2004	1:46:01	9.47		280.52
3627	11/23/2004	2:46:01	9.51		280.52
3687	11/23/2004	3:46:01	9.47		280.52
3747	11/23/2004	4:46:01	9.49		280.52
3807	11/23/2004	5:46:01	9.48		280.52
3867	11/23/2004	6:46:01	9.48		280.53
3927	11/23/2004	7:46:01	9.48		280.53
3987	11/23/2004	8:46:01	9.49		280.52
4047	11/23/2004	9:46:01	9.47		280.52
4107	11/23/2004	10:46:01	9.5		280.52
4167	11/23/2004	11:46:01	9.49		280.52
4227	11/23/2004	12:46:01	9.5		280.52
4287	11/23/2004	13:46:01	9.49		280.52
4347	11/23/2004	14:46:01	9.48		280.53
4407	11/23/2004	15:46:01	9.49		280.53
4467	11/23/2004	16:46:01	9.51		280.53
4527	11/23/2004	17:46:01	9.5		280.53
4587	11/23/2004	18:46:01	9.48		280.53
4647	11/23/2004	19:46:01	9.5		280.53
4707	11/23/2004	20:46:01	9.49		280.53
4767	11/23/2004	21:46:01	9.49		280.53
4827	11/23/2004	22:46:01	9.49		280.53
4887	11/23/2004	23:46:01	9.49		280.51
4947	11/24/2004	0:46:01	9.49		280.53
5007	11/24/2004	1:46:01	9.49		280.53
5067	11/24/2004	2:46:01	9.49		280.53
5127	11/24/2004	3:46:01	9.51		280.52
5187	11/24/2004	4:46:01	9.5		280.53

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5247	11/24/2004	5:46:01	9.5		280.53
5307	11/24/2004	6:46:01	9.49		280.53
5367	11/24/2004	7:46:01	9.49		280.53
5427	11/24/2004	8:46:01	9.47		280.52
5487	11/24/2004	9:46:01	9.49		280.53
5547	11/24/2004	10:46:01	9.53		280.54
5607	11/24/2004	11:46:01	9.49		280.54
5667	11/24/2004	12:46:01	9.51		280.55
5727	11/24/2004	13:46:01	9.5		280.54
5787	11/24/2004	14:46:01	9.47		280.53
5847	11/24/2004	15:46:01	9.51		280.55
5907	11/24/2004	16:46:01	9.49		280.56
5967	11/24/2004	17:46:01	9.48		280.56
6027	11/24/2004	18:46:01	9.51		280.57
6087	11/24/2004	19:46:01	9.5		280.56
6147	11/24/2004	20:46:01	9.5		280.56
6207	11/24/2004	21:46:01	9.48		280.56
6267	11/24/2004	22:46:01	9.51		280.58
6327	11/24/2004	23:46:01	9.53		280.57
6387	11/25/2004	0:46:01	9.49		280.58
6447	11/25/2004	1:46:01	9.49		280.56
6507	11/25/2004	2:46:01	9.47		280.56
6567	11/25/2004	3:46:01	9.49		280.56
6627	11/25/2004	4:46:01	9.51		280.56
6687	11/25/2004	5:46:01	9.49		280.55
6747	11/25/2004	6:46:01	9.49		280.54
6807	11/25/2004	7:46:01	9.47		280.55
6867	11/25/2004	8:46:01	9.48		280.54
6927	11/25/2004	9:46:01	9.48		280.54
6987	11/25/2004	10:46:01	9.47		280.54
7047	11/25/2004	11:46:01	9.47		280.54
7107	11/25/2004	12:46:01	9.47		280.54
7167	11/25/2004	13:46:01	9.48		280.54
7227	11/25/2004	14:46:01	9.49		280.53
7287	11/25/2004	15:46:01	9.49		280.52
7347	11/25/2004	16:46:01	9.51		280.53
7407	11/25/2004	17:46:01	9.49		280.52
7467	11/25/2004	18:46:01	9.51		280.51
7527	11/25/2004	19:46:01	9.49		280.52
7587	11/25/2004	20:46:01	9.51		280.53
7647	11/25/2004	21:46:01	9.51		280.53
7707	11/25/2004	22:46:01	9.5		280.54
7767	11/25/2004	23:46:01	9.51		280.52
7827	11/26/2004	0:46:01	9.51		280.53
7887	11/26/2004	1:46:01	9.51		280.54
7947	11/26/2004	2:46:01	9.51		280.52
8007	11/26/2004	3:46:01	9.51		280.53
8067	11/26/2004	4:46:01	9.51		280.53
8127	11/26/2004	5:46:01	9.5		280.53
8187	11/26/2004	6:46:01	9.51		280.53
8247	11/26/2004	7:46:01	9.51		280.52
8307	11/26/2004	8:46:01	9.47		280.53
8367	11/26/2004	9:46:01	9.5		280.51
8427	11/26/2004	10:46:01	9.48		280.52
8487	11/26/2004	11:46:01	9.5		280.51
8547	11/26/2004	12:46:01	9.47		280.52
8607	11/26/2004	13:46:01	9.47		280.51
8667	11/26/2004	14:46:01	9.5		280.51
8727	11/26/2004	15:46:01	9.49		280.51
8787	11/26/2004	16:46:01	9.09		280.52
8847	11/26/2004	17:46:01	9.48		280.52
8907	11/26/2004	18:46:01	9.49		280.53
8967	11/26/2004	19:46:01	9.49		280.52
9027	11/26/2004	20:46:01	9.48		280.52
9087	11/26/2004	21:46:01	9.48		280.52
9147	11/26/2004	22:46:01	9.51		280.53
9207	11/26/2004	23:46:01	9.5		280.54
9267	11/27/2004	0:46:01	9.49		280.53
9327	11/27/2004	1:46:01	9.49		280.53
9387	11/27/2004	2:46:01	9.5		280.53
9447	11/27/2004	3:46:01	9.49		280.54
9507	11/27/2004	4:46:01	9.5		280.54
9567	11/27/2004	5:46:01	9.49		280.52
9627	11/27/2004	6:46:01	9.51		280.54
9687	11/27/2004	7:46:01	9.49		280.53
9747	11/27/2004	8:46:01	9.5		280.53
9807	11/27/2004	9:46:01	9.5		280.52
9867	11/27/2004	10:46:01	9.5		280.52
9927	11/27/2004	11:46:01	9.5		280.51
9987	11/27/2004	12:46:01	9.57		280.54
10047	11/27/2004	13:46:01	9.53		280.53
10107	11/27/2004	14:46:01	9.53		280.54
10167	11/27/2004	15:46:01	9.51		280.55
10227	11/27/2004	16:46:01	9.53		280.54
10287	11/27/2004	17:46:01	9.51		280.56
10347	11/27/2004	18:46:01	9.53		280.55
10407	11/27/2004	19:46:01	9.54		280.55
10467	11/27/2004	20:46:01	9.56		280.56
10527	11/27/2004	21:46:01	9.53		280.55
10587	11/27/2004	22:46:01	9.54		280.57
10647	11/27/2004	23:46:01	9.53		280.56
10707	11/28/2004	0:46:01	9.51		280.56
10767	11/28/2004	1:46:01	9.5		280.57
10827	11/28/2004	2:46:01	9.51		280.57

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
10887	11/28/2004	3:46:01	9.51		280.57
10947	11/28/2004	4:46:01	9.51		280.58
11007	11/28/2004	5:46:01	9.53		280.58
11067	11/28/2004	6:46:01	9.53		280.58
11127	11/28/2004	7:46:01	9.54		280.57
11187	11/28/2004	8:46:01	9.53		280.55
11247	11/28/2004	9:46:01	9.53		280.56
11307	11/28/2004	10:46:01	9.54		280.57
11367	11/28/2004	11:46:01	9.51		280.56
11427	11/28/2004	12:46:01	9.53		280.55
11487	11/28/2004	13:46:01	9.51		280.56
11547	11/28/2004	14:46:01	9.5		280.55
11607	11/28/2004	15:46:01	9.49		280.55
11667	11/28/2004	16:46:01	9.51		280.55
11727	11/28/2004	17:46:01	9.51		280.53
11787	11/28/2004	18:46:01	9.5		280.54
11847	11/28/2004	19:46:01	9.51		280.53
11907	11/28/2004	20:46:01	9.53		280.53
11967	11/28/2004	21:46:01	9.53		280.53
12027	11/28/2004	22:46:01	9.53		280.52
12087	11/28/2004	23:46:01	9.53		280.53
12147	11/29/2004	0:46:01	9.54		280.53
12207	11/29/2004	1:46:01	9.54		280.53
12267	11/29/2004	2:46:01	9.54		280.53
12327	11/29/2004	3:46:01	9.53		280.52
12387	11/29/2004	4:46:01	9.56		280.53
12447	11/29/2004	5:46:01	9.51		280.54
12507	11/29/2004	6:46:01	9.53		280.52
12567	11/29/2004	7:46:01	9.53		280.51
12627	11/29/2004	8:46:01	9.53		280.51
12687	11/29/2004	9:46:01	9.5		280.51
12747	11/29/2004	10:46:01	9.5		280.53
12807	11/29/2004	11:46:01	9.49		280.52
12867	11/29/2004	12:46:01	9.49		280.53
12927	11/29/2004	13:46:01	9.48		280.52
12987	11/29/2004	14:46:01	9.5		280.53
13047	11/29/2004	15:46:01	9.5		280.53
13107	11/29/2004	16:46:01	9.51		280.52
13167	11/29/2004	17:46:01	9.5		280.53
13227	11/29/2004	18:46:01	9.51		280.53
13287	11/29/2004	19:46:01	9.53		280.54
13347	11/29/2004	20:46:01	9.51		280.53
13407	11/29/2004	21:46:01	9.51		280.53
13467	11/29/2004	22:46:01	9.51		280.52
13527	11/29/2004	23:46:01	9.53		280.54
13587	11/30/2004	0:46:01	9.53		280.53
13647	11/30/2004	1:46:01	9.53		280.54
13707	11/30/2004	2:46:01	9.53		280.54
13767	11/30/2004	3:46:01	9.53		280.54
13827	11/30/2004	4:46:01	9.53		280.54
13887	11/30/2004	5:46:01	9.53		280.53
13947	11/30/2004	6:46:01	9.51		280.53
14007	11/30/2004	7:46:01	9.51		280.53
14067	11/30/2004	8:46:01	9.53		280.53
14127	11/30/2004	9:46:01	9.51		280.53
14187	11/30/2004	10:46:01	9.5		280.52
14247	11/30/2004	11:46:01	9.49		280.61
14307	11/30/2004	12:46:01	9.51		280.53
14367	11/30/2004	13:46:01	9.51		280.54
14427	11/30/2004	14:46:01	9.5		280.54
14487	11/30/2004	15:46:01	9.5		280.54
14547	11/30/2004	16:46:01	9.49		280.55
14607	11/30/2004	17:46:01	9.49		280.54
14667	11/30/2004	18:46:01	9.5		280.55
14727	11/30/2004	19:46:01	9.51		280.56
14787	11/30/2004	20:46:01	9.49		280.55
14847	11/30/2004	21:46:01	9.51		280.56
14907	11/30/2004	22:46:01	9.51		280.57
14967	11/30/2004	23:46:01	9.51		280.57
15027	12/1/2004	0:46:01	9.53		280.57
15087	12/1/2004	1:46:01	9.53		280.57
15147	12/1/2004	2:46:01	9.53		280.58
15207	12/1/2004	3:46:01	9.53		280.59
15267	12/1/2004	4:46:01	9.51		280.59
15327	12/1/2004	5:46:01	9.53		280.59
15387	12/1/2004	6:46:01	9.51		280.59
15447	12/1/2004	7:46:01	9.53		280.59
15507	12/1/2004	8:46:01	9.53		280.58
15567	12/1/2004	9:46:01	9.51		280.57
15627	12/1/2004	10:46:01	9.51		280.56
15687	12/1/2004	11:46:01	9.55		280.57
15747	12/1/2004	12:46:01	9.53		280.55
15807	12/1/2004	13:46:01	9.53		280.55
15867	12/1/2004	14:46:01	9.53		280.56
15927	12/1/2004	15:46:01	9.54		280.55
15987	12/1/2004	16:46:01	9.49		280.56
16047	12/1/2004	17:46:01	9.51		280.56
16107	12/1/2004	18:46:01	9.51		280.55
16167	12/1/2004	19:46:01	9.48		280.55
16227	12/1/2004	20:46:01	9.48		280.55
16287	12/1/2004	21:46:01	9.48		280.55
16347	12/1/2004	22:46:01	9.49		280.55
16407	12/1/2004	23:46:01	9.49		280.55
16467	12/2/2004	0:46:01	9.49		280.55

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
16527	12/2/2004	1:46:01	9.49		280.55
16587	12/2/2004	2:46:01	9.49		280.54
16647	12/2/2004	3:46:01	9.48		280.54
16707	12/2/2004	4:46:01	9.49		280.54
16767	12/2/2004	5:46:01	9.51		280.55
16827	12/2/2004	6:46:01	9.51		280.55
16887	12/2/2004	7:46:01	9.49		280.55
16947	12/2/2004	8:46:01	9.5		280.54
17007	12/2/2004	9:46:01	9.51		280.54
17067	12/2/2004	10:46:01	9.51		280.53
17127	12/2/2004	11:46:01	9.51		280.54
17187	12/2/2004	12:46:01	9.51		280.56
17247	12/2/2004	13:46:01	9.51		280.56
17307	12/2/2004	14:46:01	9.53		280.56
17367	12/2/2004	15:46:01	9.51		280.56
17427	12/2/2004	16:46:01	9.53		280.56
17487	12/2/2004	17:46:01	9.53		280.55
17547	12/2/2004	18:46:01	9.51		280.57
17607	12/2/2004	19:46:01	9.51		280.56
17667	12/2/2004	20:46:01	9.53		280.56
17727	12/2/2004	21:46:01	9.53		280.57
17787	12/2/2004	22:46:01	9.51		280.57
17847	12/2/2004	23:46:01	9.51		280.57
17907	12/3/2004	0:46:01	9.53		280.57
17967	12/3/2004	1:46:01	9.54		280.57
18027	12/3/2004	2:46:01	9.51		280.57
18087	12/3/2004	3:46:01	9.51		280.58
18147	12/3/2004	4:46:01	9.48		280.58
18207	12/3/2004	5:46:01	9.5		280.57
18267	12/3/2004	6:46:01	9.5		280.55
18327	12/3/2004	7:46:01	9.47		280.55
18387	12/3/2004	8:46:01	9.47		280.55
18447	12/3/2004	9:46:01	9.49		280.56
18507	12/3/2004	10:46:01	9.47		280.56
18567	12/3/2004	11:46:01	9.47		280.56
18627	12/3/2004	12:46:01	9.47		280.55
18687	12/3/2004	13:46:01	9.47		280.56
18747	12/3/2004	14:46:01	9.48		280.56
18807	12/3/2004	15:46:01	9.47		280.54
18867	12/3/2004	16:46:01	9.47		280.54
18927	12/3/2004	17:46:01	9.48		280.53
18987	12/3/2004	18:46:01	9.48		280.53
19047	12/3/2004	19:46:01	9.48		280.53
19107	12/3/2004	20:46:01	9.51		280.54
19167	12/3/2004	21:46:01	9.5		280.53
19227	12/3/2004	22:46:01	9.51		280.54
19287	12/3/2004	23:46:01	9.51		280.53
19347	12/4/2004	0:46:01	9.51		280.54
19407	12/4/2004	1:46:01	9.5		280.54
19467	12/4/2004	2:46:01	9.51		280.54
19527	12/4/2004	3:46:01	9.51		280.55
19587	12/4/2004	4:46:01	9.51		280.55
19647	12/4/2004	5:46:01	9.51		280.55
19707	12/4/2004	6:46:01	9.51		280.55
19767	12/4/2004	7:46:01	9.51		280.55
19827	12/4/2004	8:46:01	9.51		280.56
19887	12/4/2004	9:46:01	9.53		280.56
19947	12/4/2004	10:46:01	9.53		280.56
20007	12/4/2004	11:46:01	9.51		280.58
20067	12/4/2004	12:46:01	9.51		280.56
20127	12/4/2004	13:46:01	9.51		280.56
20187	12/4/2004	14:46:01	9.5		280.58
20247	12/4/2004	15:46:01	9.5		280.57
20307	12/4/2004	16:46:01	9.48		280.56
20367	12/4/2004	17:46:01	9.53		280.57
20427	12/4/2004	18:46:01	9.51		280.56
20487	12/4/2004	19:46:01	9.53		280.56
20547	12/4/2004	20:46:01	9.51		280.55
20607	12/4/2004	21:46:01	9.51		280.56
20667	12/4/2004	22:46:01	9.51		280.56
20727	12/4/2004	23:46:01	9.47		280.56
20787	12/5/2004	0:46:01	9.45		280.55
20847	12/5/2004	1:46:01	9.48		280.55
20907	12/5/2004	2:46:01	9.45		280.55
20967	12/5/2004	3:46:01	9.47		280.55
21027	12/5/2004	4:46:01	9.45		280.55
21087	12/5/2004	5:46:01	9.47		280.54
21147	12/5/2004	6:46:01	9.49		280.54
21207	12/5/2004	7:46:01	9.47		280.54
21267	12/5/2004	8:46:01	9.47		280.54
21327	12/5/2004	9:46:01	9.47		280.53
21387	12/5/2004	10:46:01	9.47		280.54
21447	12/5/2004	11:46:01	9.47		280.53
21507	12/5/2004	12:46:01	9.47		280.53
21567	12/5/2004	13:46:01	9.47		280.53
21627	12/5/2004	14:46:01	9.48		280.53
21687	12/5/2004	15:46:01	9.48		280.53
21747	12/5/2004	16:46:01	9.48		280.52
21807	12/5/2004	17:46:01	9.48		280.51
21867	12/5/2004	18:46:01	9.49		280.53
21927	12/5/2004	19:46:01	9.48		280.52
21987	12/5/2004	20:46:01	9.48		280.53
22047	12/5/2004	21:46:01	9.47		280.52
22107	12/5/2004	22:46:01	9.48		280.52

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
22167	12/5/2004	23:46:01	9.48		280.53
22227	12/6/2004	0:46:01	9.48		280.52
22287	12/6/2004	1:46:01	9.48		280.53
22347	12/6/2004	2:46:01	9.48		280.54
22407	12/6/2004	3:46:01	9.48		280.54
22467	12/6/2004	4:46:01	9.48		280.54
22527	12/6/2004	5:46:01	9.49		280.53
22587	12/6/2004	6:46:01	9.48		280.54
22647	12/6/2004	7:46:01	9.48		280.54
22707	12/6/2004	8:46:01	9.49		280.54
22767	12/6/2004	9:46:01	9.51		280.54
22827	12/6/2004	10:46:01	9.49		280.54
22887	12/6/2004	11:46:01	9.51		280.54
22947	12/6/2004	12:46:01	9.5		280.55
23007	12/6/2004	13:46:01	9.51		280.55
23067	12/6/2004	14:46:01	5.81		278.31
36	12/6/2004	16:40:56	9.5		280.50
96	12/6/2004	17:40:56	9.47		280.51
156	12/6/2004	18:40:56	9.49		280.52
216	12/6/2004	19:40:56	9.47		280.54
276	12/6/2004	20:40:56	9.5		280.53
336	12/6/2004	21:40:56	9.51		280.54
396	12/6/2004	22:40:56	9.49		280.54
456	12/6/2004	23:40:56	9.47		280.54
516	12/7/2004	0:40:56	9.5		280.55
576	12/7/2004	1:40:56	9.53		280.54
636	12/7/2004	2:40:56	9.53		280.55
696	12/7/2004	3:40:56	9.49		280.56
756	12/7/2004	4:40:56	9.49		280.56
816	12/7/2004	5:40:56	9.48		280.56
876	12/7/2004	6:40:56	9.5		280.56
936	12/7/2004	7:40:56	9.53		280.56
996	12/7/2004	8:40:56	9.51		280.56
1056	12/7/2004	9:40:56	9.51		280.57
1116	12/7/2004	10:40:56	9.5		280.57
1176	12/7/2004	11:40:56	9.48		280.58
1236	12/7/2004	12:40:56	9.48		280.58
1296	12/7/2004	13:40:56	9.5		280.58
1356	12/7/2004	14:40:56	9.49		280.59
1416	12/7/2004	15:40:56	9.51		280.59
1476	12/7/2004	16:40:56	9.51		280.60
1536	12/7/2004	17:40:56	9.53		280.59
1596	12/7/2004	18:40:56	9.53		280.57
1656	12/7/2004	19:40:56	9.5		280.58
1716	12/7/2004	20:40:56	9.48		280.60
1776	12/7/2004	21:40:56	9.51		280.57
1836	12/7/2004	22:40:56	9.49		280.58
1896	12/7/2004	23:40:56	9.47		280.57
1956	12/8/2004	0:40:56	9.49		280.58
2016	12/8/2004	1:40:56	9.49		280.58
2076	12/8/2004	2:40:56	9.51		280.56
2136	12/8/2004	3:40:56	9.51		280.57
2196	12/8/2004	4:40:56	9.51		280.57
2256	12/8/2004	5:40:56	9.51		280.57
2316	12/8/2004	6:40:56	9.51		280.58
2376	12/8/2004	7:40:56	9.53		280.58
2436	12/8/2004	8:40:56	9.53		280.57
2496	12/8/2004	9:40:56	9.5		280.56
2556	12/8/2004	10:40:56	9.5		280.57
2616	12/8/2004	11:40:56	9.48		280.57
2676	12/8/2004	12:40:56	9.48		280.57
2736	12/8/2004	13:40:56	9.51		280.57
2796	12/8/2004	14:40:56	9.48		280.57
2856	12/8/2004	15:40:56	9.48		280.58
2916	12/8/2004	16:40:56	9.49		280.58
2976	12/8/2004	17:40:56	9.48		280.58
3036	12/8/2004	18:40:56	9.48		280.58
3096	12/8/2004	19:40:56	9.5		280.57
3156	12/8/2004	20:40:56	9.51		280.57
3216	12/8/2004	21:40:56	9.5		280.58
3276	12/8/2004	22:40:56	9.51		280.59
3336	12/8/2004	23:40:56	9.53		280.59
3396	12/9/2004	0:40:56	9.51		280.60
3456	12/9/2004	1:40:56	9.5		280.60
3516	12/9/2004	2:40:56	9.53		280.60
3576	12/9/2004	3:40:56	9.49		280.60
3636	12/9/2004	4:40:56	9.51		280.60
3696	12/9/2004	5:40:56	9.45		280.60
3756	12/9/2004	6:40:56	9.51		280.61
3816	12/9/2004	7:40:56	9.5		280.62
3876	12/9/2004	8:40:56	9.51		280.62
3936	12/9/2004	9:40:56	9.49		280.62
3996	12/9/2004	10:40:56	9.47		280.62
4056	12/9/2004	11:40:56	9.48		280.63
4116	12/9/2004	12:40:56	9.47		280.63
4176	12/9/2004	13:40:56	9.49		280.64
4236	12/9/2004	14:40:56	9.47		280.63
4296	12/9/2004	15:40:56	9.45		280.63
4356	12/9/2004	16:40:56	9.47		280.64
4416	12/9/2004	17:40:56	9.48		280.64
4476	12/9/2004	18:40:56	9.48		280.65
4536	12/9/2004	19:40:56	9.48		280.66
4596	12/9/2004	20:40:56	9.49		280.65
4656	12/9/2004	21:40:56	9.48		280.66

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
4716	12/9/2004	22:40:56	9.5		280.67
4776	12/9/2004	23:40:56	9.5		280.67
4836	12/10/2004	0:40:56	9.51		280.66
4896	12/10/2004	1:40:56	9.51		280.67
4956	12/10/2004	2:40:56	9.51		280.66
5016	12/10/2004	3:40:56	9.51		280.67
5076	12/10/2004	4:40:56	9.47		280.68
5136	12/10/2004	5:40:56	9.5		280.68
5196	12/10/2004	6:40:56	9.5		280.67
5256	12/10/2004	7:40:56	9.5		280.68
5316	12/10/2004	8:40:56	9.5		280.69
5376	12/10/2004	9:40:56	9.47		280.69
5436	12/10/2004	10:40:56	9.47		280.70
5496	12/10/2004	11:40:56	9.47		280.71
5556	12/10/2004	12:40:56	9.47		280.71
5616	12/10/2004	13:40:56	9.45		280.71
5676	12/10/2004	14:40:56	9.45		280.72
5736	12/10/2004	15:40:56	9.47		280.72
5796	12/10/2004	16:40:56	9.45		280.74
5856	12/10/2004	17:40:56	9.47		280.73
5916	12/10/2004	18:40:56	9.45		280.73
5976	12/10/2004	19:40:56	9.47		280.74
6036	12/10/2004	20:40:56	9.47		280.74
6096	12/10/2004	21:40:56	9.47		280.73
6156	12/10/2004	22:40:56	9.47		280.74
6216	12/10/2004	23:40:56	9.47		280.74
6276	12/11/2004	0:40:56	9.49		280.74
6336	12/11/2004	1:40:56	9.5		280.75
6396	12/11/2004	2:40:56	9.48		280.74
6456	12/11/2004	3:40:56	9.48		280.75
6516	12/11/2004	4:40:56	9.5		280.75
6576	12/11/2004	5:40:56	9.51		280.75
6636	12/11/2004	6:40:56	9.48		280.76
6696	12/11/2004	7:40:56	9.5		280.77
6756	12/11/2004	8:40:56	9.5		280.76
6816	12/11/2004	9:40:56	9.5		280.76
6876	12/11/2004	10:40:56	9.5		280.76
6936	12/11/2004	11:40:56	9.49		280.78
6996	12/11/2004	12:40:56	9.5		280.77
7056	12/11/2004	13:40:56	9.5		280.78

Note: Data collected every min but reported in the present table every hour.

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Table F2-2-7 - GLL BH-5
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	12:06	277.47
28-Nov-04	11:49	277.42
28-Nov-04	19:46	277.39
29-Nov-04	9:30	277.39
29-Nov-04	16:06	277.44
30-Nov-04	9:15	277.45
30-Nov-04	17:05	277.44
1-Dec-04	11:45	277.33
1-Dec-04	15:03	277.31
2-Dec-04	10:28	277.27
2-Dec-04	16:01	277.27
4-Dec-04	8:50	277.23
4-Dec-04	13:08	277.25
5-Dec-04	10:10	277.19
5-Dec-04	15:31	277.18
6-Dec-04	10:03	277.18

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Table F2-2-8 - GLL BH-6-D
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	11:50	282.82
28-Nov-04	13:03	282.49
28-Nov-04	19:55	282.81
29-Nov-04	9:18	282.79
30-Dec-04	8:53	282.82
30-Dec-04	14:31	282.82
1-Dec-04	10:17	282.82
2-Dec-04	8:07	282.81
2-Dec-04	15:52	282.82
4-Dec-04	8:44	282.83
4-Dec-04	13:02	282.84
5-Dec-04	10:04	282.79
5-Dec-04	15:27	282.83
6-Dec-04	9:57	282.84

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Table F2-2-9 - GLL BH-6-S
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	11:50	282.02
28-Nov-04	13:03	282.02
28-Nov-04	19:55	282.01
29-Nov-04	9:18	282.00
30-Dec-04	8:53	282.01
30-Dec-04	14:31	282.02
1-Dec-04	10:17	282.03
2-Dec-04	8:07	282.01
2-Dec-04	15:52	282.02
4-Dec-04	8:44	282.03
4-Dec-04	13:02	282.03
5-Dec-04	10:04	282.02
5-Dec-04	15:27	282.04
6-Dec-04	9:57	282.03

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Table F2-2-10 - GLL BH-7-D
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2744	11/22/2004	12:05:54	10.43		280.97
2804	11/22/2004	13:05:54	10.15		280.98
2864	11/22/2004	14:05:54	10.15		280.98
2924	11/22/2004	15:05:54	10.13		280.98
2984	11/22/2004	16:05:54	10.15		280.98
3044	11/22/2004	17:05:54	10.16		280.97
3104	11/22/2004	18:05:54	10.16		280.97
3164	11/22/2004	19:05:54	10.19		280.97
3224	11/22/2004	20:05:54	10.13		280.96
3284	11/22/2004	21:05:54	10.12		280.97
3344	11/22/2004	22:05:54	10.15		280.97
3404	11/22/2004	23:05:54	10.16		280.96
3464	11/23/2004	0:05:54	10.17		280.96
3524	11/23/2004	1:05:54	10.17		280.97
3584	11/23/2004	2:05:54	10.18		280.97
3644	11/23/2004	3:05:54	10.19		280.98
3704	11/23/2004	4:05:54	10.16		280.97
3764	11/23/2004	5:05:54	10.17		280.98
3824	11/23/2004	6:05:54	10.16		280.98
3884	11/23/2004	7:05:54	10.13		280.97
3944	11/23/2004	8:05:54	10.13		280.97
4004	11/23/2004	9:05:54	10.15		280.97
4064	11/23/2004	10:05:54	10.17		280.97
4124	11/23/2004	11:05:54	10.15		280.98
4184	11/23/2004	12:05:54	10.15		280.97
4244	11/23/2004	13:05:54	10.16		280.97
4304	11/23/2004	14:05:54	10.16		280.98
4364	11/23/2004	15:05:54	10.19		280.98
4424	11/23/2004	16:05:54	10.18		280.97
4484	11/23/2004	17:05:54	10.16		280.98
4544	11/23/2004	18:05:54	10.21		280.98
4604	11/23/2004	19:05:54	10.15		280.98
4664	11/23/2004	20:05:54	10.15		280.98
4724	11/23/2004	21:05:54	10.14		280.97
4784	11/23/2004	22:05:54	10.16		280.98
4844	11/23/2004	23:05:54	10.13		280.97
4904	11/24/2004	0:05:54	10.15		280.97
4964	11/24/2004	1:05:54	10.15		280.97
5024	11/24/2004	2:05:54	10.15		280.98
5084	11/24/2004	3:05:54	10.15		280.98
5144	11/24/2004	4:05:54	10.15		280.97
5204	11/24/2004	5:05:54	10.15		280.97
5264	11/24/2004	6:05:54	10.16		280.96
5324	11/24/2004	7:05:54	10.16		280.97
5384	11/24/2004	8:05:54	10.19		280.97
5444	11/24/2004	9:05:54	10.19		280.97
5504	11/24/2004	10:05:54	10.18		280.97
5564	11/24/2004	11:05:54	10.17		280.97
5624	11/24/2004	12:05:54	10.16		280.98
5684	11/24/2004	13:05:54	10.19		280.98
5744	11/24/2004	14:05:54	10.18		280.98
5804	11/24/2004	15:05:54	10.19		280.98
5864	11/24/2004	16:05:54	10.17		280.99
5924	11/24/2004	17:05:54	10.16		280.99
5984	11/24/2004	18:05:54	10.21		280.99
6044	11/24/2004	19:05:54	10.19		280.99
6104	11/24/2004	20:05:54	10.15		281.00
6164	11/24/2004	21:05:54	10.14		280.99
6224	11/24/2004	22:05:54	10.15		281.00
6284	11/24/2004	23:05:54	10.15		281.00
6344	11/25/2004	0:05:54	10.15		281.00
6404	11/25/2004	1:05:54	10.14		281.01
6464	11/25/2004	2:05:54	10.14		281.01
6524	11/25/2004	3:05:54	10.16		281.01
6584	11/25/2004	4:05:54	10.15		281.01
6644	11/25/2004	5:05:54	10.15		281.01
6704	11/25/2004	6:05:54	10.15		281.00
6764	11/25/2004	7:05:54	10.15		280.99
6824	11/25/2004	8:05:54	10.15		281.00
6884	11/25/2004	9:05:54	10.16		281.00
6944	11/25/2004	10:05:54	10.17		280.99
7004	11/25/2004	11:05:54	10.15		281.00
7064	11/25/2004	12:05:54	10.17		280.99
7124	11/25/2004	13:05:54	10.17		280.99
7184	11/25/2004	14:05:54	10.17		280.98
7244	11/25/2004	15:05:54	10.18		280.98
7304	11/25/2004	16:05:54	10.17		280.98
7364	11/25/2004	17:05:54	10.18		280.98
7424	11/25/2004	18:05:54	10.17		280.98
7484	11/25/2004	19:05:54	10.2		280.97
7544	11/25/2004	20:05:54	10.18		280.98
7604	11/25/2004	21:05:54	10.17		280.98
7664	11/25/2004	22:05:54	10.16		280.98
7724	11/25/2004	23:05:54	10.19		280.99
7784	11/26/2004	0:05:54	10.17		280.98
7844	11/26/2004	1:05:54	10.17		280.99
7904	11/26/2004	2:05:54	10.17		280.98
7964	11/26/2004	3:05:54	10.17		280.99
8024	11/26/2004	4:05:54	10.15		280.99
8084	11/26/2004	5:05:54	10.15		280.99

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
8144	11/26/2004	6:05:54	10.16		280.98
8204	11/26/2004	7:05:54	10.14		280.98
8264	11/26/2004	8:05:54	10.15		280.98
8324	11/26/2004	9:05:54	10.13		280.98
8384	11/26/2004	10:05:54	10.15		280.97
8444	11/26/2004	11:05:54	10.14		280.97
8504	11/26/2004	12:05:54	10.15		280.97
8564	11/26/2004	13:05:54	10.14		280.97
8624	11/26/2004	14:05:54	10.15		280.98
8684	11/26/2004	15:05:54	10.15		280.97
8744	11/26/2004	16:05:54	10.14		280.98
8804	11/26/2004	17:05:54	10.15		280.98
8864	11/26/2004	18:05:54	10.14		280.98
8924	11/26/2004	19:05:54	10.14		280.98
8984	11/26/2004	20:05:54	10.14		280.98
9044	11/26/2004	21:05:54	10.15		280.98
9104	11/26/2004	22:05:54	10.17		280.98
9164	11/26/2004	23:05:54	10.15		280.98
9224	11/27/2004	0:05:54	10.16		280.99
9284	11/27/2004	1:05:54	10.15		280.98
9344	11/27/2004	2:05:54	10.16		280.99
9404	11/27/2004	3:05:54	10.16		280.98
9464	11/27/2004	4:05:54	10.17		280.98
9524	11/27/2004	5:05:54	10.17		280.99
9584	11/27/2004	6:05:54	10.16		280.99
9644	11/27/2004	7:05:54	10.17		280.98
9704	11/27/2004	8:05:54	10.16		280.99
9764	11/27/2004	9:05:54	10.16		280.99
9824	11/27/2004	10:05:54	10.16		280.97
9884	11/27/2004	11:05:54	10.17		280.98
9944	11/27/2004	12:05:54	10.16		280.98
10004	11/27/2004	13:05:54	10.21		280.99
10064	11/27/2004	14:05:54	10.15		280.98
10124	11/27/2004	15:05:54	10.13		281.00
10184	11/27/2004	16:05:54	10.13		281.00
10244	11/27/2004	17:05:54	10.14		280.99
10304	11/27/2004	18:05:54	10.14		281.00
10364	11/27/2004	19:05:54	10.14		280.99
10424	11/27/2004	20:05:54	10.14		281.01
10484	11/27/2004	21:05:54	10.11		281.00
10544	11/27/2004	22:05:54	10.14		281.01
10604	11/27/2004	23:05:54	10.14		281.00
10664	11/28/2004	0:05:54	10.12		281.01
10724	11/28/2004	1:05:54	10.13		281.00
10784	11/28/2004	2:05:54	10.13		281.00
10844	11/28/2004	3:05:54	10.14		281.01
10904	11/28/2004	4:05:54	10.14		281.01
10964	11/28/2004	5:05:54	10.14		281.01
11024	11/28/2004	6:05:54	10.13		281.01
11084	11/28/2004	7:05:54	10.14		281.01
11144	11/28/2004	8:05:54	10.14		280.99
11204	11/28/2004	9:05:54	10.14		280.99
11264	11/28/2004	10:05:54	10.15		281.00
11324	11/28/2004	11:05:54	10.14		281.00
11384	11/28/2004	12:05:54	10.15		281.00
11444	11/28/2004	13:05:54	10.17		281.00
11504	11/28/2004	14:05:54	10.15		280.99
11564	11/28/2004	15:05:54	10.15		280.99
11624	11/28/2004	16:05:54	10.16		280.99
11684	11/28/2004	17:05:54	10.14		280.99
11744	11/28/2004	18:05:54	10.14		280.97
11804	11/28/2004	19:05:54	10.15		280.97
11864	11/28/2004	20:05:54	10.15		280.97
11924	11/28/2004	21:05:54	10.16		280.96
11984	11/28/2004	22:05:54	10.12		280.96
12044	11/28/2004	23:05:54	10.16		280.97
12104	11/29/2004	0:05:54	10.15		280.96
12164	11/29/2004	1:05:54	10.16		280.97
12224	11/29/2004	2:05:54	10.15		280.97
12284	11/29/2004	3:05:54	10.15		280.97
12344	11/29/2004	4:05:54	10.16		280.96
12404	11/29/2004	5:05:54	10.14		280.97
12464	11/29/2004	6:05:54	10.15		280.97
12524	11/29/2004	7:05:54	10.12		280.96
12584	11/29/2004	8:05:54	10.14		280.97
12644	11/29/2004	9:05:54	10.12		280.96
12704	11/29/2004	10:05:54	10.15		280.97
12764	11/29/2004	11:05:54	10.11		280.97
12824	11/29/2004	12:05:54	10.13		280.95
12884	11/29/2004	13:05:54	10.13		280.96
12944	11/29/2004	14:05:54	10.13		280.96
13004	11/29/2004	15:05:54	10.13		280.97
13064	11/29/2004	16:05:54	10.12		280.97
13124	11/29/2004	17:05:54	10.11		280.97
13184	11/29/2004	18:05:54	10.13		280.97
13244	11/29/2004	19:05:54	10.11		280.98
13304	11/29/2004	20:05:54	10.1		280.98
13364	11/29/2004	21:05:54	10.12		280.97
13424	11/29/2004	22:05:54	10.13		280.97
13484	11/29/2004	23:05:54	10.11		280.97
13544	11/30/2004	0:05:54	10.11		280.97
13604	11/30/2004	1:05:54	10.11		280.98
13664	11/30/2004	2:05:54	10.11		280.98
13724	11/30/2004	3:05:54	10.11		280.98
13784	11/30/2004	4:05:54	10.12		280.97
13844	11/30/2004	5:05:54	10.11		280.97
13904	11/30/2004	6:05:54	10.11		280.97
13964	11/30/2004	7:05:54	10.11		280.97

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
14024	11/30/2004	8:05:54	10.11		280.96
14084	11/30/2004	9:05:54	10.11		280.97
14144	11/30/2004	10:05:54	10.11		280.96
14204	11/30/2004	11:05:54	10.14		280.96
14264	11/30/2004	12:05:54	10.12		280.96
14324	11/30/2004	13:05:54	10.14		280.97
14384	11/30/2004	14:05:54	10.14		280.98
14444	11/30/2004	15:05:54	10.13		280.98
14504	11/30/2004	16:05:54	10.14		280.98
14564	11/30/2004	17:05:54	10.13		280.98
14624	11/30/2004	18:05:54	10.13		280.98
14684	11/30/2004	19:05:54	10.13		280.98
14744	11/30/2004	20:05:54	10.13		280.99
14804	11/30/2004	21:05:54	10.14		280.99
14864	11/30/2004	22:05:54	10.11		280.99
14924	11/30/2004	23:05:54	10.13		281.00
14984	12/1/2004	0:05:54	10.12		281.00
15044	12/1/2004	1:05:54	10.14		281.00
15104	12/1/2004	2:05:54	10.13		281.01
15164	12/1/2004	3:05:54	10.13		281.02
15224	12/1/2004	4:05:54	10.14		281.02
15284	12/1/2004	5:05:54	10.11		281.02
15344	12/1/2004	6:05:54	10.12		281.02
15404	12/1/2004	7:05:54	10.13		281.02
15464	12/1/2004	8:05:54	10.11		281.02
15524	12/1/2004	9:05:54	10.11		281.02
15584	12/1/2004	10:05:54	10.11		281.01
15644	12/1/2004	11:05:54	10.15		281.01
15704	12/1/2004	12:05:54	10.13		281.01
15764	12/1/2004	13:05:54	10.13		281.01
15824	12/1/2004	14:05:54	10.14		280.99
15884	12/1/2004	15:05:54	10.11		281.00
15944	12/1/2004	16:05:54	10.15		281.00
16004	12/1/2004	17:05:54	10.11		281.01
16064	12/1/2004	18:05:54	10.11		281.01
16124	12/1/2004	19:05:54	10.13		281.01
16184	12/1/2004	20:05:54	10.11		281.01
16244	12/1/2004	21:05:54	10.13		281.01
16304	12/1/2004	22:05:54	10.11		281.01
16364	12/1/2004	23:05:54	10.11		281.01
16424	12/2/2004	0:05:54	10.08		281.02
16484	12/2/2004	1:05:54	10.1		281.01
16544	12/2/2004	2:05:54	10.11		281.01
16604	12/2/2004	3:05:54	10.11		281.00
16664	12/2/2004	4:05:54	10.09		281.01
16724	12/2/2004	5:05:54	10.11		281.01
16784	12/2/2004	6:05:54	10.09		281.01
16844	12/2/2004	7:05:54	10.11		281.02
16904	12/2/2004	8:05:54	10.11		281.02
16964	12/2/2004	9:05:54	10.11		281.02
17024	12/2/2004	10:05:54	10.1		281.02
17084	12/2/2004	11:05:54	10.09		281.02
17144	12/2/2004	12:05:54	10.1		281.02
17204	12/2/2004	13:05:54	10.09		281.03
17264	12/2/2004	14:05:54	10.09		281.03
17324	12/2/2004	15:05:54	10.09		281.03
17384	12/2/2004	16:05:54	10.08		281.04
17444	12/2/2004	17:05:54	10.09		281.04
17504	12/2/2004	18:05:54	10.09		281.04
17564	12/2/2004	19:05:54	10.09		281.03
17624	12/2/2004	20:05:54	10.09		281.03
17684	12/2/2004	21:05:54	10.1		281.04
17744	12/2/2004	22:05:54	10.09		281.04
17804	12/2/2004	23:05:54	10.08		281.04
17864	12/3/2004	0:05:54	10.09		281.04
17924	12/3/2004	1:05:54	10.09		281.04
17984	12/3/2004	2:05:54	10.09		281.05
18044	12/3/2004	3:05:54	10.09		281.05
18104	12/3/2004	4:05:54	10.1		281.05
18164	12/3/2004	5:05:54	10.09		281.05
18224	12/3/2004	6:05:54	10.09		281.05
18284	12/3/2004	7:05:54	10.09		281.03
18344	12/3/2004	8:05:54	10.08		281.03
18404	12/3/2004	9:05:54	10.09		281.03
18464	12/3/2004	10:05:54	10.09		281.03
18524	12/3/2004	11:05:54	10.11		281.02
18584	12/3/2004	12:05:54	10.09		281.01
18644	12/3/2004	13:05:54	10.1		281.03
18704	12/3/2004	14:05:54	10.1		281.03
18764	12/3/2004	15:05:54	10.1		281.03
18824	12/3/2004	16:05:54	10.11		281.02
18884	12/3/2004	17:05:54	10.09		281.00
18944	12/3/2004	18:05:54	10.11		281.01
19004	12/3/2004	19:05:54	10.09		281.00
19064	12/3/2004	20:05:54	10.07		281.00
19124	12/3/2004	21:05:54	10.09		281.01
19184	12/3/2004	22:05:54	10.09		281.01
19244	12/3/2004	23:05:54	10.09		281.01
19304	12/4/2004	0:05:54	10.09		281.01
19364	12/4/2004	1:05:54	10.09		281.01
19424	12/4/2004	2:05:54	10.1		281.01
19484	12/4/2004	3:05:54	10.09		281.02
19544	12/4/2004	4:05:54	10.09		281.03
19604	12/4/2004	5:05:54	10.11		281.02
19664	12/4/2004	6:05:54	10.1		281.02
19724	12/4/2004	7:05:54	10.1		281.02
19784	12/4/2004	8:05:54	10.07		281.02
19844	12/4/2004	9:05:54	10.1		281.01

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
19904	12/4/2004	10:05:54	10.07		281.02
19964	12/4/2004	11:05:54	10.1		281.02
20024	12/4/2004	12:05:54	10.11		281.03
20084	12/4/2004	13:05:54	10.1		281.03
20144	12/4/2004	14:05:54	10.09		281.03
20204	12/4/2004	15:05:54	10.1		281.03
20264	12/4/2004	16:05:54	10.07		281.03
20324	12/4/2004	17:05:54	10.11		281.04
20384	12/4/2004	18:05:54	10.09		281.04
20444	12/4/2004	19:05:54	10.09		281.03
20504	12/4/2004	20:05:54	10.1		281.03
20564	12/4/2004	21:05:54	10.1		281.04
20624	12/4/2004	22:05:54	10.07		281.04
20684	12/4/2004	23:05:54	10.08		281.03
20744	12/5/2004	0:05:54	10.07		281.04
20804	12/5/2004	1:05:54	10.08		281.03
20864	12/5/2004	2:05:54	10.07		281.02
20924	12/5/2004	3:05:54	10.09		281.02
20984	12/5/2004	4:05:54	10.07		281.02
21044	12/5/2004	5:05:54	10.07		281.01
21104	12/5/2004	6:05:54	10.05		281.01
21164	12/5/2004	7:05:54	10.08		281.00
21224	12/5/2004	8:05:54	10.07		281.00
21284	12/5/2004	9:05:54	10.08		281.01
21344	12/5/2004	10:05:54	10.08		281.01
21404	12/5/2004	11:05:54	10.05		281.00
21464	12/5/2004	12:05:54	10.05		280.99
21524	12/5/2004	13:05:54	10.06		281.00
21584	12/5/2004	14:05:54	10.05		280.98
21644	12/5/2004	15:05:54	10.07		281.00
21704	12/5/2004	16:05:54	10.07		281.00
21764	12/5/2004	17:05:54	10.06		280.99
21824	12/5/2004	18:05:54	10.06		280.99
21884	12/5/2004	19:05:54	10.05		280.99
21944	12/5/2004	20:05:54	10.06		280.99
22004	12/5/2004	21:05:54	10.05		280.99
22064	12/5/2004	22:05:54	10.05		280.99
22124	12/5/2004	23:05:54	10.07		281.00
22184	12/6/2004	0:05:54	10.05		281.00
22244	12/6/2004	1:05:54	10.05		281.00
22304	12/6/2004	2:05:54	10.05		281.00
22364	12/6/2004	3:05:54	10.05		281.01
22424	12/6/2004	4:05:54	10.02		281.01
22484	12/6/2004	5:05:54	10.06		281.01
22544	12/6/2004	6:05:54	10.06		281.01
22604	12/6/2004	7:05:54	10.06		281.01
22664	12/6/2004	8:05:54	10.05		281.01
22724	12/6/2004	9:05:54	10.05		281.01
22784	12/6/2004	10:05:54	10.06		281.01
22844	12/6/2004	11:05:54	10.06		281.02
22904	12/6/2004	12:05:54	10.06		281.02
22964	12/6/2004	13:05:54	10.07		281.03
23	12/6/2004	16:27:44	10.05		281.00
83	12/6/2004	17:27:44	10.05		281.01
143	12/6/2004	18:27:44	10.05		281.02
203	12/6/2004	19:27:44	10.03		281.02
263	12/6/2004	20:27:44	10.03		281.02
323	12/6/2004	21:27:44	10.04		281.03
383	12/6/2004	22:27:44	10.03		281.03
443	12/6/2004	23:27:44	10.03		281.02
503	12/7/2004	0:27:44	10.03		281.03
563	12/7/2004	1:27:44	10.03		281.03
623	12/7/2004	2:27:44	10.04		281.03
683	12/7/2004	3:27:44	10.03		281.03
743	12/7/2004	4:27:44	10.03		281.03
803	12/7/2004	5:27:44	10.05		281.03
863	12/7/2004	6:27:44	10.03		281.04
923	12/7/2004	7:27:44	10.06		281.04
983	12/7/2004	8:27:44	10.05		281.04
1043	12/7/2004	9:27:44	10.06		281.04
1103	12/7/2004	10:27:44	10.05		281.05
1163	12/7/2004	11:27:44	10.03		281.06
1223	12/7/2004	12:27:44	10.05		281.07
1283	12/7/2004	13:27:44	10.05		281.07
1343	12/7/2004	14:27:44	10.03		281.07
1403	12/7/2004	15:27:44	10.06		281.08
1463	12/7/2004	16:27:44	10.05		281.09
1523	12/7/2004	17:27:44	10.07		281.09
1583	12/7/2004	18:27:44	10.06		281.08
1643	12/7/2004	19:27:44	10.05		281.10
1703	12/7/2004	20:27:44	10.07		281.11
1763	12/7/2004	21:27:44	10.06		281.11
1823	12/7/2004	22:27:44	10.07		281.11
1883	12/7/2004	23:27:44	10.07		281.10
1943	12/8/2004	0:27:44	10.04		281.11
2003	12/8/2004	1:27:44	10.05		281.10
2063	12/8/2004	2:27:44	10.02		281.11
2123	12/8/2004	3:27:44	10.07		281.11
2183	12/8/2004	4:27:44	10.03		281.11
2243	12/8/2004	5:27:44	10.03		281.12
2303	12/8/2004	6:27:44	10.06		281.12
2363	12/8/2004	7:27:44	10.05		281.12
2423	12/8/2004	8:27:44	10.05		281.12
2483	12/8/2004	9:27:44	10.03		281.12
2543	12/8/2004	10:27:44	10.03		281.11
2603	12/8/2004	11:27:44	10.05		281.12
2663	12/8/2004	12:27:44	10.03		281.12
2723	12/8/2004	13:27:44	10.03		281.12

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2783	12/8/2004	14:27:44	10.05		281.12
2843	12/8/2004	15:27:44	10.05		281.13
2903	12/8/2004	16:27:44	10.03		281.13
2963	12/8/2004	17:27:44	10.03		281.14
3023	12/8/2004	18:27:44	10.05		281.13
3083	12/8/2004	19:27:44	10.02		281.13
3143	12/8/2004	20:27:44	10.03		281.13
3203	12/8/2004	21:27:44	10.02		281.14
3263	12/8/2004	22:27:44	10.03		281.14
3323	12/8/2004	23:27:44	10.03		281.14
3383	12/9/2004	0:27:44	10.01		281.15
3443	12/9/2004	1:27:44	10.02		281.15
3503	12/9/2004	2:27:44	10.02		281.15
3563	12/9/2004	3:27:44	10.05		281.16
3623	12/9/2004	4:27:44	10.01		281.16
3683	12/9/2004	5:27:44	10.02		281.16
3743	12/9/2004	6:27:44	10.01		281.16
3803	12/9/2004	7:27:44	10.02		281.17
3863	12/9/2004	8:27:44	10.01		281.17
3923	12/9/2004	9:27:44	9.99		281.17
3983	12/9/2004	10:27:44	10.01		281.17
4043	12/9/2004	11:27:44	10.01		281.17
4103	12/9/2004	12:27:44	10.01		281.18
4163	12/9/2004	13:27:44	10.01		281.18
4223	12/9/2004	14:27:44	10.01		281.18
4283	12/9/2004	15:27:44	9.99		281.19
4343	12/9/2004	16:27:44	9.99		281.20
4403	12/9/2004	17:27:44	10		281.19
4463	12/9/2004	18:27:44	10		281.20
4523	12/9/2004	19:27:44	10.01		281.20
4583	12/9/2004	20:27:44	9.99		281.20
4643	12/9/2004	21:27:44	10.01		281.20
4703	12/9/2004	22:27:44	10.01		281.20
4763	12/9/2004	23:27:44	10.01		281.20
4823	12/10/2004	0:27:44	10		281.21
4883	12/10/2004	1:27:44	10.01		281.21
4943	12/10/2004	2:27:44	10.01		281.21
5003	12/10/2004	3:27:44	10		281.21
5063	12/10/2004	4:27:44	10.02		281.21
5123	12/10/2004	5:27:44	10.01		281.22
5183	12/10/2004	6:27:44	10.01		281.22
5243	12/10/2004	7:27:44	10.01		281.21
5303	12/10/2004	8:27:44	10.01		281.22
5363	12/10/2004	9:27:44	10		281.22
5423	12/10/2004	10:27:44	10		281.22
5483	12/10/2004	11:27:44	10.01		281.23
5543	12/10/2004	12:27:44	10.01		281.23
5603	12/10/2004	13:27:44	10.02		281.24
5663	12/10/2004	14:27:44	9.99		281.23
5723	12/10/2004	15:27:44	10.01		281.24
5783	12/10/2004	16:27:44	10.01		281.24
5843	12/10/2004	17:27:44	10.01		281.25
5903	12/10/2004	18:27:44	10		281.24
5963	12/10/2004	19:27:44	10.01		281.24
6023	12/10/2004	20:27:44	10.01		281.25
6083	12/10/2004	21:27:44	10.01		281.25
6143	12/10/2004	22:27:44	10		281.25
6203	12/10/2004	23:27:44	9.99		281.25
6263	12/11/2004	0:27:44	10		281.25
6323	12/11/2004	1:27:44	10.02		281.26
6383	12/11/2004	2:27:44	10.01		281.26
6443	12/11/2004	3:27:44	10.01		281.26
6503	12/11/2004	4:27:44	9.99		281.27
6563	12/11/2004	5:27:44	10		281.26
6623	12/11/2004	6:27:44	9.99		281.26
6683	12/11/2004	7:27:44	10		281.26
6743	12/11/2004	8:27:44	10.01		281.26
6803	12/11/2004	9:27:44	10.01		281.26
6863	12/11/2004	10:27:44	10.01		281.27
6923	12/11/2004	11:27:44	10.01		281.27
6983	12/11/2004	12:27:44	9.99		281.27

Note: Data collected every min but reported in the present table every hou

Gartner Lee

Table F2-2-11 - GLL BH-7-S
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2751	11/22/2004	12:10:29	10.56		280.03
2811	11/22/2004	13:10:29	10.31		280.03
2871	11/22/2004	14:10:29	10.35		280.02
2931	11/22/2004	15:10:29	10.31		280.03
2991	11/22/2004	16:10:29	10.31		280.02
3051	11/22/2004	17:10:29	10.32		280.02
3111	11/22/2004	18:10:29	10.32		280.02
3171	11/22/2004	19:10:29	10.31		280.01
3231	11/22/2004	20:10:29	10.31		280.02
3291	11/22/2004	21:10:29	10.31		280.02
3351	11/22/2004	22:10:29	10.31		280.02
3411	11/22/2004	23:10:29	10.3		280.02
3471	11/23/2004	0:10:29	10.32		280.02
3531	11/23/2004	1:10:29	10.32		280.02
3591	11/23/2004	2:10:29	10.33		280.03
3651	11/23/2004	3:10:29	10.32		280.02
3711	11/23/2004	4:10:29	10.32		280.03
3771	11/23/2004	5:10:29	10.33		280.02
3831	11/23/2004	6:10:29	10.3		280.02
3891	11/23/2004	7:10:29	10.3		280.02
3951	11/23/2004	8:10:29	10.3		280.02
4011	11/23/2004	9:10:29	10.31		280.02
4071	11/23/2004	10:10:29	10.29		280.02
4131	11/23/2004	11:10:29	10.31		280.02
4191	11/23/2004	12:10:29	10.31		280.02
4251	11/23/2004	13:10:29	10.31		280.03
4311	11/23/2004	14:10:29	10.31		280.03
4371	11/23/2004	15:10:29	10.31		280.03
4431	11/23/2004	16:10:29	10.31		280.03
4491	11/23/2004	17:10:29	10.29		280.03
4551	11/23/2004	18:10:29	10.29		280.03
4611	11/23/2004	19:10:29	10.31		280.03
4671	11/23/2004	20:10:29	10.31		280.02
4731	11/23/2004	21:10:29	10.31		280.03
4791	11/23/2004	22:10:29	10.28		280.03
4851	11/23/2004	23:10:29	10.29		280.03
4911	11/24/2004	0:10:29	10.3		280.03
4971	11/24/2004	1:10:29	10.27		280.03
5031	11/24/2004	2:10:29	10.28		280.03
5091	11/24/2004	3:10:29	10.27		280.03
5151	11/24/2004	4:10:29	10.29		280.03
5211	11/24/2004	5:10:29	10.29		280.03
5271	11/24/2004	6:10:29	10.27		280.02
5331	11/24/2004	7:10:29	10.28		280.03
5391	11/24/2004	8:10:29	10.28		280.02
5451	11/24/2004	9:10:29	10.27		280.02
5511	11/24/2004	10:10:29	10.27		280.03
5571	11/24/2004	11:10:29	10.28		280.03
5631	11/24/2004	12:10:29	10.27		280.03
5691	11/24/2004	13:10:29	10.29		280.03
5751	11/24/2004	14:10:29	10.29		280.03
5811	11/24/2004	15:10:29	10.29		280.04
5871	11/24/2004	16:10:29	10.29		280.04
5931	11/24/2004	17:10:29	10.28		280.05
5991	11/24/2004	18:10:29	10.27		280.05
6051	11/24/2004	19:10:29	10.29		280.06
6111	11/24/2004	20:10:29	10.29		280.06
6171	11/24/2004	21:10:29	10.25		280.06
6231	11/24/2004	22:10:29	10.27		280.06
6291	11/24/2004	23:10:29	10.28		280.06
6351	11/25/2004	0:10:29	10.27		280.07
6411	11/25/2004	1:10:29	10.28		280.07
6471	11/25/2004	2:10:29	10.28		280.07
6531	11/25/2004	3:10:29	10.27		280.07
6591	11/25/2004	4:10:29	10.27		280.07
6651	11/25/2004	5:10:29	10.27		280.07
6711	11/25/2004	6:10:29	10.27		280.07
6771	11/25/2004	7:10:29	10.27		280.06
6831	11/25/2004	8:10:29	10.26		280.06
6891	11/25/2004	9:10:29	10.27		280.06
6951	11/25/2004	10:10:29	10.27		280.06
7011	11/25/2004	11:10:29	10.27		280.07
7071	11/25/2004	12:10:29	10.25		280.06
7131	11/25/2004	13:10:29	10.25		280.06
7191	11/25/2004	14:10:29	10.26		280.05
7251	11/25/2004	15:10:29	10.26		280.06
7311	11/25/2004	16:10:29	10.24		280.05
7371	11/25/2004	17:10:29	10.24		280.05
7431	11/25/2004	18:10:29	10.24		280.04
7491	11/25/2004	19:10:29	10.26		280.05
7551	11/25/2004	20:10:29	10.25		280.05
7611	11/25/2004	21:10:29	10.24		280.05
7671	11/25/2004	22:10:29	10.25		280.06
7731	11/25/2004	23:10:29	10.23		280.06
7791	11/26/2004	0:10:29	10.24		280.06
7851	11/26/2004	1:10:29	10.24		280.06
7911	11/26/2004	2:10:29	10.23		280.07
7971	11/26/2004	3:10:29	10.23		280.06
8031	11/26/2004	4:10:29	10.24		280.06

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
8091	11/26/2004	5:10:29	10.23		280.06
8151	11/26/2004	6:10:29	10.25		280.06
8211	11/26/2004	7:10:29	10.25		280.06
8271	11/26/2004	8:10:29	10.25		280.05
8331	11/26/2004	9:10:29	10.25		280.05
8391	11/26/2004	10:10:29	10.24		280.05
8451	11/26/2004	11:10:29	10.25		280.06
8511	11/26/2004	12:10:29	10.23		280.05
8571	11/26/2004	13:10:29	10.23		280.05
8631	11/26/2004	14:10:29	10.24		280.05
8691	11/26/2004	15:10:29	10.21		280.06
8751	11/26/2004	16:10:29	10.23		280.06
8811	11/26/2004	17:10:29	10.23		280.05
8871	11/26/2004	18:10:29	10.21		280.06
8931	11/26/2004	19:10:29	10.21		280.06
8991	11/26/2004	20:10:29	10.23		280.05
9051	11/26/2004	21:10:29	10.21		280.06
9111	11/26/2004	22:10:29	10.21		280.06
9171	11/26/2004	23:10:29	10.23		280.06
9231	11/27/2004	0:10:29	10.23		280.06
9291	11/27/2004	1:10:29	10.23		280.06
9351	11/27/2004	2:10:29	10.21		280.06
9411	11/27/2004	3:10:29	10.21		280.06
9471	11/27/2004	4:10:29	10.19		280.07
9531	11/27/2004	5:10:29	10.18		280.06
9591	11/27/2004	6:10:29	10.19		280.06
9651	11/27/2004	7:10:29	10.19		280.07
9711	11/27/2004	8:10:29	10.21		280.07
9771	11/27/2004	9:10:29	10.19		280.06
9831	11/27/2004	10:10:29	10.19		280.06
9891	11/27/2004	11:10:29	10.18		280.06
9951	11/27/2004	12:10:29	10.21		280.05
10011	11/27/2004	13:10:29	10.2		280.06
10071	11/27/2004	14:10:29	10.21		280.05
10131	11/27/2004	15:10:29	10.21		280.07
10191	11/27/2004	16:10:29	10.23		280.07
10251	11/27/2004	17:10:29	10.21		280.07
10311	11/27/2004	18:10:29	10.25		280.07
10371	11/27/2004	19:10:29	10.23		280.08
10431	11/27/2004	20:10:29	10.23		280.08
10491	11/27/2004	21:10:29	10.21		280.08
10551	11/27/2004	22:10:29	10.21		280.09
10611	11/27/2004	23:10:29	10.21		280.09
10671	11/28/2004	0:10:29	10.21		280.09
10731	11/28/2004	1:10:29	10.21		280.09
10791	11/28/2004	2:10:29	10.21		280.10
10851	11/28/2004	3:10:29	10.21		280.10
10911	11/28/2004	4:10:29	10.21		280.10
10971	11/28/2004	5:10:29	10.23		280.10
11031	11/28/2004	6:10:29	10.23		280.10
11091	11/28/2004	7:10:29	10.21		280.10
11151	11/28/2004	8:10:29	10.19		280.09
11211	11/28/2004	9:10:29	10.21		280.09
11271	11/28/2004	10:10:29	10.18		280.10
11331	11/28/2004	11:10:29	10.17		280.09
11391	11/28/2004	12:10:29	10.17		280.09
11451	11/28/2004	13:10:29	10.17		280.08
11511	11/28/2004	14:10:29	10.18		280.09
11571	11/28/2004	15:10:29	10.19		280.09
11631	11/28/2004	16:10:29	10.19		280.08
11691	11/28/2004	17:10:29	10.19		280.08
11751	11/28/2004	18:10:29	10.19		280.07
11811	11/28/2004	19:10:29	10.19		280.07
11871	11/28/2004	20:10:29	10.19		280.07
11931	11/28/2004	21:10:29	10.19		280.07
11991	11/28/2004	22:10:29	10.2		280.07
12051	11/28/2004	23:10:29	10.18		280.07
12111	11/29/2004	0:10:29	10.2		280.07
12171	11/29/2004	1:10:29	10.19		280.07
12231	11/29/2004	2:10:29	10.18		280.08
12291	11/29/2004	3:10:29	10.17		280.07
12351	11/29/2004	4:10:29	10.16		280.08
12411	11/29/2004	5:10:29	10.19		280.07
12471	11/29/2004	6:10:29	10.18		280.08
12531	11/29/2004	7:10:29	10.17		280.08
12591	11/29/2004	8:10:29	10.21		280.08
12651	11/29/2004	9:10:29	10.17		280.08
12711	11/29/2004	10:10:29	10.18		280.08
12771	11/29/2004	11:10:29	10.18		280.09
12831	11/29/2004	12:10:29	10.16		280.07
12891	11/29/2004	13:10:29	10.17		280.08
12951	11/29/2004	14:10:29	10.16		280.08
13011	11/29/2004	15:10:29	10.15		280.09
13071	11/29/2004	16:10:29	10.15		280.09
13131	11/29/2004	17:10:29	10.15		280.09
13191	11/29/2004	18:10:29	10.15		280.09
13251	11/29/2004	19:10:29	10.15		280.10
13311	11/29/2004	20:10:29	10.15		280.09
13371	11/29/2004	21:10:29	10.16		280.09
13431	11/29/2004	22:10:29	10.15		280.10
13491	11/29/2004	23:10:29	10.14		280.09
13551	11/30/2004	0:10:29	10.15		280.10
13611	11/30/2004	1:10:29	10.15		280.09
13671	11/30/2004	2:10:29	10.16		280.10
13731	11/30/2004	3:10:29	10.15		280.10
13791	11/30/2004	4:10:29	10.14		280.10
13851	11/30/2004	5:10:29	10.15		280.09

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
13911	11/30/2004	6:10:29	10.16		280.09
13971	11/30/2004	7:10:29	10.16		280.09
14031	11/30/2004	8:10:29	10.16		280.10
14091	11/30/2004	9:10:29	10.15		280.10
14151	11/30/2004	10:10:29	10.13		280.09
14211	11/30/2004	11:10:29	10.16		280.09
14271	11/30/2004	12:10:29	10.16		280.09
14331	11/30/2004	13:10:29	10.16		280.10
14391	11/30/2004	14:10:29	10.15		280.10
14451	11/30/2004	15:10:29	10.13		280.10
14511	11/30/2004	16:10:29	10.13		280.10
14571	11/30/2004	17:10:29	10.15		280.10
14631	11/30/2004	18:10:29	10.15		280.11
14691	11/30/2004	19:10:29	10.15		280.11
14751	11/30/2004	20:10:29	10.13		280.11
14811	11/30/2004	21:10:29	10.13		280.11
14871	11/30/2004	22:10:29	10.12		280.12
14931	11/30/2004	23:10:29	10.13		280.12
14991	12/1/2004	0:10:29	10.15		280.12
15051	12/1/2004	1:10:29	10.13		280.13
15111	12/1/2004	2:10:29	10.13		280.13
15171	12/1/2004	3:10:29	10.1		280.14
15231	12/1/2004	4:10:29	10.07		280.14
15291	12/1/2004	5:10:29	10.12		280.14
15351	12/1/2004	6:10:29	10.11		280.14
15411	12/1/2004	7:10:29	10.12		280.15
15471	12/1/2004	8:10:29	10.1		280.15
15531	12/1/2004	9:10:29	10.11		280.15
15591	12/1/2004	10:10:29	10.1		280.14
15651	12/1/2004	11:10:29	10.1		280.15
15711	12/1/2004	12:10:29	10.12		280.15
15771	12/1/2004	13:10:29	10.12		280.14
15831	12/1/2004	14:10:29	10.1		280.16
15891	12/1/2004	15:10:29	10.1		280.16
15951	12/1/2004	16:10:29	10.12		280.16
16011	12/1/2004	17:10:29	10.1		280.16
16071	12/1/2004	18:10:29	10.11		280.17
16131	12/1/2004	19:10:29	10.11		280.17
16191	12/1/2004	20:10:29	10.1		280.17
16251	12/1/2004	21:10:29	10.1		280.18
16311	12/1/2004	22:10:29	10.11		280.18
16371	12/1/2004	23:10:29	10.09		280.18
16431	12/2/2004	0:10:29	10.09		280.18
16491	12/2/2004	1:10:29	10.09		280.18
16551	12/2/2004	2:10:29	10.1		280.18
16611	12/2/2004	3:10:29	10.09		280.18
16671	12/2/2004	4:10:29	10.11		280.17
16731	12/2/2004	5:10:29	10.1		280.18
16791	12/2/2004	6:10:29	10.09		280.18
16851	12/2/2004	7:10:29	10.1		280.18
16911	12/2/2004	8:10:29	10.1		280.19
16971	12/2/2004	9:10:29	10.1		280.19
17031	12/2/2004	10:10:29	10.11		280.19
17091	12/2/2004	11:10:29	10.08		280.20
17151	12/2/2004	12:10:29	10.11		280.20
17211	12/2/2004	13:10:29	10.11		280.21
17271	12/2/2004	14:10:29	10.1		280.21
17331	12/2/2004	15:10:29	10.11		280.21
17391	12/2/2004	16:10:29	10.08		280.22
17451	12/2/2004	17:10:29	10.1		280.22
17511	12/2/2004	18:10:29	10.07		280.21
17571	12/2/2004	19:10:29	10.06		280.22
17631	12/2/2004	20:10:29	10.09		280.21
17691	12/2/2004	21:10:29	10.06		280.22
17751	12/2/2004	22:10:29	10.07		280.22
17811	12/2/2004	23:10:29	10.08		280.23
17871	12/3/2004	0:10:29	10.07		280.23
17931	12/3/2004	1:10:29	10.09		280.23
17991	12/3/2004	2:10:29	10.06		280.23
18051	12/3/2004	3:10:29	10.05		280.23
18111	12/3/2004	4:10:29	10.06		280.23
18171	12/3/2004	5:10:29	10.07		280.23
18231	12/3/2004	6:10:29	10.05		280.23
18291	12/3/2004	7:10:29	10.05		280.21
18351	12/3/2004	8:10:29	10.05		280.21
18411	12/3/2004	9:10:29	10.05		280.21
18471	12/3/2004	10:10:29	10.05		280.20
18531	12/3/2004	11:10:29	10.05		280.20
18591	12/3/2004	12:10:29	10.05		280.19
18651	12/3/2004	13:10:29	10.05		280.20
18711	12/3/2004	14:10:29	10.05		280.21
18771	12/3/2004	15:10:29	10.08		280.22
18831	12/3/2004	16:10:29	10.08		280.20
18891	12/3/2004	17:10:29	10.08		280.20
18951	12/3/2004	18:10:29	10.07		280.19
19011	12/3/2004	19:10:29	10.08		280.19
19071	12/3/2004	20:10:29	10.06		280.19
19131	12/3/2004	21:10:29	10.08		280.20
19191	12/3/2004	22:10:29	10.06		280.19
19251	12/3/2004	23:10:29	10.07		280.20
19311	12/4/2004	0:10:29	10.07		280.19
19371	12/4/2004	1:10:29	10.06		280.20
19431	12/4/2004	2:10:29	10.06		280.20
19491	12/4/2004	3:10:29	10.05		280.21
19551	12/4/2004	4:10:29	10.07		280.20
19611	12/4/2004	5:10:29	10.07		280.21
19671	12/4/2004	6:10:29	10.06		280.20

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
19731	12/4/2004	7:10:29	10.07		280.21
19791	12/4/2004	8:10:29	10.05		280.20
19851	12/4/2004	9:10:29	10.07		280.00
19911	12/4/2004	10:10:29	10.05		280.20
19971	12/4/2004	11:10:29	10.05		280.20
20031	12/4/2004	12:10:29	10.06		280.22
20091	12/4/2004	13:10:29	10.05		280.21
20151	12/4/2004	14:10:29	10.03		280.21
20211	12/4/2004	15:10:29	10.03		280.20
20271	12/4/2004	16:10:29	10.06		280.20
20331	12/4/2004	17:10:29	10.03		280.20
20391	12/4/2004	18:10:29	10.03		280.19
20451	12/4/2004	19:10:29	10.03		280.19
20511	12/4/2004	20:10:29	10.01		280.20
20571	12/4/2004	21:10:29	10.03		280.19
20631	12/4/2004	22:10:29	10.03		280.19
20691	12/4/2004	23:10:29	10.03		280.19
20751	12/5/2004	0:10:29	10.03		280.19
20811	12/5/2004	1:10:29	10.05		280.19
20871	12/5/2004	2:10:29	10.03		280.18
20931	12/5/2004	3:10:29	10.03		280.18
20991	12/5/2004	4:10:29	10.03		280.17
21051	12/5/2004	5:10:29	10.03		280.17
21111	12/5/2004	6:10:29	10.02		280.17
21171	12/5/2004	7:10:29	10.03		280.16
21231	12/5/2004	8:10:29	10.01		280.17
21291	12/5/2004	9:10:29	10.01		280.16
21351	12/5/2004	10:10:29	10.03		280.16
21411	12/5/2004	11:10:29	10.03		280.16
21471	12/5/2004	12:10:29	10.03		280.15
21531	12/5/2004	13:10:29	10.02		280.15
21591	12/5/2004	14:10:29	10.02		280.14
21651	12/5/2004	15:10:29	10.01		280.16
21711	12/5/2004	16:10:29	10.01		280.16
21771	12/5/2004	17:10:29	10.01		280.15
21831	12/5/2004	18:10:29	9.99		280.15
21891	12/5/2004	19:10:29	9.99		280.14
21951	12/5/2004	20:10:29	10.01		280.15
22011	12/5/2004	21:10:29	9.98		280.15
22071	12/5/2004	22:10:29	9.98		280.15
22131	12/5/2004	23:10:29	9.98		280.16
22191	12/6/2004	0:10:29	9.98		280.16
22251	12/6/2004	1:10:29	9.99		280.16
22311	12/6/2004	2:10:29	10.01		280.16
22371	12/6/2004	3:10:29	9.99		280.17
22431	12/6/2004	4:10:29	9.99		280.17
22491	12/6/2004	5:10:29	9.99		280.17
22551	12/6/2004	6:10:29	9.99		280.17
22611	12/6/2004	7:10:29	9.99		280.17
22671	12/6/2004	8:10:29	9.99		280.16
22731	12/6/2004	9:10:29	9.99		280.16
22791	12/6/2004	10:10:29	9.99		280.16
22851	12/6/2004	11:10:29	9.99		280.17
22911	12/6/2004	12:10:29	9.99		280.17
22971	12/6/2004	13:10:29	9.99		280.17
36	12/6/2004	16:40:43	9.99		280.16
96	12/6/2004	17:40:43	9.99		280.17
156	12/6/2004	18:40:43	9.98		280.18
216	12/6/2004	19:40:43	9.97		280.17
276	12/6/2004	20:40:43	9.97		280.17
336	12/6/2004	21:40:43	9.98		280.18
396	12/6/2004	22:40:43	9.98		280.17
456	12/6/2004	23:40:43	9.98		280.17
516	12/7/2004	0:40:43	9.99		280.18
576	12/7/2004	1:40:43	9.98		280.18
636	12/7/2004	2:40:43	9.99		280.19
696	12/7/2004	3:40:43	9.98		280.19
756	12/7/2004	4:40:43	9.97		280.19
816	12/7/2004	5:40:43	9.96		280.19
876	12/7/2004	6:40:43	9.97		280.19
936	12/7/2004	7:40:43	9.95		280.19
996	12/7/2004	8:40:43	9.95		280.19
1056	12/7/2004	9:40:43	9.95		280.20
1116	12/7/2004	10:40:43	9.95		280.20
1176	12/7/2004	11:40:43	9.96		280.21
1236	12/7/2004	12:40:43	9.97		280.22
1296	12/7/2004	13:40:43	9.95		280.22
1356	12/7/2004	14:40:43	9.95		280.23
1416	12/7/2004	15:40:43	9.95		280.24
1476	12/7/2004	16:40:43	9.97		280.25
1536	12/7/2004	17:40:43	9.97		280.27
1596	12/7/2004	18:40:43	9.95		280.26
1656	12/7/2004	19:40:43	9.96		280.28
1716	12/7/2004	20:40:43	9.95		280.29
1776	12/7/2004	21:40:43	9.97		280.29
1836	12/7/2004	22:40:43	9.95		280.29
1896	12/7/2004	23:40:43	9.97		280.29
1956	12/8/2004	0:40:43	9.97		280.30
2016	12/8/2004	1:40:43	9.97		280.31
2076	12/8/2004	2:40:43	9.95		280.31
2136	12/8/2004	3:40:43	9.95		280.31
2196	12/8/2004	4:40:43	9.95		280.31
2256	12/8/2004	5:40:43	9.95		280.31
2316	12/8/2004	6:40:43	9.93		280.32
2376	12/8/2004	7:40:43	9.95		280.32
2436	12/8/2004	8:40:43	9.96		280.32
2496	12/8/2004	9:40:43	9.95		280.32

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2556	12/8/2004	10:40:43	9.95		280.32
2616	12/8/2004	11:40:43	9.95		280.32
2676	12/8/2004	12:40:43	9.93		280.32
2736	12/8/2004	13:40:43	9.95		280.33
2796	12/8/2004	14:40:43	9.95		280.33
2856	12/8/2004	15:40:43	9.93		280.34
2916	12/8/2004	16:40:43	9.92		280.33
2976	12/8/2004	17:40:43	9.92		280.34
3036	12/8/2004	18:40:43	9.93		280.33
3096	12/8/2004	19:40:43	9.93		280.34
3156	12/8/2004	20:40:43	9.87		280.34
3216	12/8/2004	21:40:43	9.91		280.34
3276	12/8/2004	22:40:43	9.91		280.34
3336	12/8/2004	23:40:43	9.93		280.35
3396	12/9/2004	0:40:43	9.92		280.35
3456	12/9/2004	1:40:43	9.92		280.36
3516	12/9/2004	2:40:43	9.92		280.36
3576	12/9/2004	3:40:43	9.91		280.36
3636	12/9/2004	4:40:43	9.91		280.36
3696	12/9/2004	5:40:43	9.92		280.37
3756	12/9/2004	6:40:43	9.92		280.37
3816	12/9/2004	7:40:43	9.89		280.37
3876	12/9/2004	8:40:43	9.89		280.38
3936	12/9/2004	9:40:43	9.9		280.37
3996	12/9/2004	10:40:43	9.91		280.37
4056	12/9/2004	11:40:43	9.89		280.38
4116	12/9/2004	12:40:43	9.9		280.38
4176	12/9/2004	13:40:43	9.9		280.39
4236	12/9/2004	14:40:43	9.89		280.39
4296	12/9/2004	15:40:43	9.89		280.39
4356	12/9/2004	16:40:43	9.89		280.39
4416	12/9/2004	17:40:43	9.89		280.39
4476	12/9/2004	18:40:43	9.89		280.40
4536	12/9/2004	19:40:43	9.89		280.40
4596	12/9/2004	20:40:43	9.9		280.40
4656	12/9/2004	21:40:43	9.87		280.40
4716	12/9/2004	22:40:43	9.89		280.40
4776	12/9/2004	23:40:43	9.89		280.40
4836	12/10/2004	0:40:43	9.87		280.40
4896	12/10/2004	1:40:43	9.85		280.41
4956	12/10/2004	2:40:43	9.86		280.40
5016	12/10/2004	3:40:43	9.86		280.41
5076	12/10/2004	4:40:43	9.83		280.41
5136	12/10/2004	5:40:43	9.83		280.41
5196	12/10/2004	6:40:43	9.85		280.41
5256	12/10/2004	7:40:43	9.86		280.41
5316	12/10/2004	8:40:43	9.84		280.42
5376	12/10/2004	9:40:43	9.87		280.41
5436	12/10/2004	10:40:43	9.86		280.42
5496	12/10/2004	11:40:43	9.85		280.43
5556	12/10/2004	12:40:43	9.85		280.43
5616	12/10/2004	13:40:43	9.85		280.43
5676	12/10/2004	14:40:43	9.86		280.44
5736	12/10/2004	15:40:43	9.84		280.43
5796	12/10/2004	16:40:43	9.85		280.43
5856	12/10/2004	17:40:43	9.85		280.44
5916	12/10/2004	18:40:43	9.83		280.44
5976	12/10/2004	19:40:43	9.85		280.44
6036	12/10/2004	20:40:43	9.83		280.44
6096	12/10/2004	21:40:43	9.84		280.44
6156	12/10/2004	22:40:43	9.83		280.45
6216	12/10/2004	23:40:43	9.84		280.44
6276	12/11/2004	0:40:43	9.83		280.45
6336	12/11/2004	1:40:43	9.84		280.46
6396	12/11/2004	2:40:43	9.84		280.45
6456	12/11/2004	3:40:43	9.83		280.46
6516	12/11/2004	4:40:43	9.83		280.46
6576	12/11/2004	5:40:43	9.86		280.46
6636	12/11/2004	6:40:43	9.83		280.46
6696	12/11/2004	7:40:43	9.83		280.47
6756	12/11/2004	8:40:43	9.83		280.46
6816	12/11/2004	9:40:43	9.83		280.46
6876	12/11/2004	10:40:43	9.83		280.47
6936	12/11/2004	11:40:43	9.83		280.47
6996	12/11/2004	12:40:43	9.81		280.47

Note: Data collected every min but reported in the present table every hou

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Table F2-2-12 - GLL BH-8-D
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	12:36:00	278.39
28-Nov-04	12:16:00	278.44
29-Nov-04	10:38:00	278.40
30-Nov-04	11:10:00	278.46
30-Nov-04	15:38:00	278.47
1-Dec-04	15:43:00	278.64
2-Dec-04	10:17:00	278.67
1-Dec-04	16:19:00	278.68
4-Dec-04	9:07:00	278.63
4-Dec-04	13:22:00	278.63
5-Dec-04	10:23:00	278.58
5-Dec-04	15:43:00	278.57
6-Dec-04	10:16:00	278.56

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Table F2-2-13 - GLL BH-8-S
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	12:36	278.27
28-Nov-04	12:16	278.30
29-Nov-04	10:38	278.27
30-Nov-04	11:10	278.38
30-Nov-04	15:38	278.39
1-Dec-04	15:43	278.51
2-Dec-04	10:17	278.62
1-Dec-04	16:19	278.64
4-Dec-04	9:07	278.61
4-Dec-04	13:22	278.62
5-Dec-04	10:23	278.54
5-Dec-04	15:43	278.55
6-Dec-04	10:16	278.53

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Table F2-2-14 - GLL BH-9-D
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2730	11/22/2004	11:49:00	10.61		281.13
2790	11/22/2004	12:49:00	10.14		281.12
2850	11/22/2004	13:49:00	10.14		281.12
2910	11/22/2004	14:49:00	10.17		281.12
2970	11/22/2004	15:49:00	10.15		281.12
3030	11/22/2004	16:49:00	10.14		281.12
3090	11/22/2004	17:49:00	10.14		281.11
3150	11/22/2004	18:49:00	10.14		281.12
3210	11/22/2004	19:49:00	10.16		281.11
3270	11/22/2004	20:49:00	10.14		281.11
3330	11/22/2004	21:49:00	10.17		281.11
3390	11/22/2004	22:49:00	10.17		281.11
3450	11/22/2004	23:49:00	10.17		281.11
3510	11/23/2004	0:49:00	10.14		281.11
3570	11/23/2004	1:49:00	10.14		281.12
3630	11/23/2004	2:49:00	10.16		281.12
3690	11/23/2004	3:49:00	10.16		281.12
3750	11/23/2004	4:49:00	10.17		281.12
3810	11/23/2004	5:49:00	10.16		281.12
3870	11/23/2004	6:49:00	10.17		281.11
3930	11/23/2004	7:49:00	10.19		281.11
3990	11/23/2004	8:49:00	10.19		281.11
4050	11/23/2004	9:49:00	10.17		281.11
4110	11/23/2004	10:49:00	10.17		281.11
4170	11/23/2004	11:49:00	10.14		281.11
4230	11/23/2004	12:49:00	10.13		281.11
4290	11/23/2004	13:49:00	10.14		281.11
4350	11/23/2004	14:49:00	10.16		281.10
4410	11/23/2004	15:49:00	10.16		281.10
4470	11/23/2004	16:49:00	10.18		281.12
4530	11/23/2004	17:49:00	10.18		281.12
4590	11/23/2004	18:49:00	10.18		281.12
4650	11/23/2004	19:49:00	10.17		281.12
4710	11/23/2004	20:49:00	10.17		281.12
4770	11/23/2004	21:49:00	10.17		281.12
4830	11/23/2004	22:49:00	10.17		281.12
4890	11/23/2004	23:49:00	10.15		281.12
4950	11/24/2004	0:49:00	10.14		281.12
5010	11/24/2004	1:49:00	10.17		281.12
5070	11/24/2004	2:49:00	10.14		281.12
5130	11/24/2004	3:49:00	10.14		281.12
5190	11/24/2004	4:49:00	10.14		281.12
5250	11/24/2004	5:49:00	10.13		281.12
5310	11/24/2004	6:49:00	10.14		281.11
5370	11/24/2004	7:49:00	10.13		281.11
5430	11/24/2004	8:49:00	10.14		281.11
5490	11/24/2004	9:49:00	10.14		281.11
5550	11/24/2004	10:49:00	10.14		281.11
5610	11/24/2004	11:49:00	10.17		281.12
5670	11/24/2004	12:49:00	10.14		281.12
5730	11/24/2004	13:49:00	10.18		281.12
5790	11/24/2004	14:49:00	10.17		281.13
5850	11/24/2004	15:49:00	10.16		281.13
5910	11/24/2004	16:49:00	10.17		281.14
5970	11/24/2004	17:49:00	10.14		281.15
6030	11/24/2004	18:49:00	10.15		281.16
6090	11/24/2004	19:49:00	10.16		281.16
6150	11/24/2004	20:49:00	10.14		281.16
6210	11/24/2004	21:49:00	10.14		281.16
6270	11/24/2004	22:49:00	10.13		281.17
6330	11/24/2004	23:49:00	10.17		281.18
6390	11/25/2004	0:49:00	10.16		281.18
6450	11/25/2004	1:49:00	10.13		281.18
6510	11/25/2004	2:49:00	10.14		281.18
6570	11/25/2004	3:49:00	10.13		281.18
6630	11/25/2004	4:49:00	10.13		281.18
6690	11/25/2004	5:49:00	10.17		281.18
6750	11/25/2004	6:49:00	10.14		281.18
6810	11/25/2004	7:49:00	10.13		281.18
6870	11/25/2004	8:49:00	10.13		281.17
6930	11/25/2004	9:49:00	10.13		281.17
6990	11/25/2004	10:49:00	10.14		281.18
7050	11/25/2004	11:49:00	10.14		281.17
7110	11/25/2004	12:49:00	10.13		281.18
7170	11/25/2004	13:49:00	10.16		281.18
7230	11/25/2004	14:49:00	10.14		281.17
7290	11/25/2004	15:49:00	10.14		281.17
7350	11/25/2004	16:49:00	10.14		281.16
7410	11/25/2004	17:49:00	10.14		281.16
7470	11/25/2004	18:49:00	10.14		281.16
7530	11/25/2004	19:49:00	10.14		281.16
7590	11/25/2004	20:49:00	10.14		281.17
7650	11/25/2004	21:49:00	10.14		281.17
7710	11/25/2004	22:49:00	10.14		281.17
7770	11/25/2004	23:49:00	10.13		281.17

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
7830	11/26/2004	0:49:00	10.16		281.17
7890	11/26/2004	1:49:00	10.14		281.18
7950	11/26/2004	2:49:00	10.14		281.18
8010	11/26/2004	3:49:00	10.14		281.17
8070	11/26/2004	4:49:00	10.16		281.17
8130	11/26/2004	5:49:00	10.14		281.17
8190	11/26/2004	6:49:00	10.14		281.17
8250	11/26/2004	7:49:00	10.16		281.18
8310	11/26/2004	8:49:00	10.16		281.17
8370	11/26/2004	9:49:00	10.13		281.16
8430	11/26/2004	10:49:00	10.14		281.17
8490	11/26/2004	11:49:00	10.13		281.16
8550	11/26/2004	12:49:00	10.14		281.12
8610	11/26/2004	13:49:00	10.14		281.07
8670	11/26/2004	14:49:00	10.11		281.14
8730	11/26/2004	15:49:00	10.16		281.09
8790	11/26/2004	16:49:00	10.14		281.15
8850	11/26/2004	17:49:00	10.11		281.17
8910	11/26/2004	18:49:00	10.11		281.17
8970	11/26/2004	19:49:00	10.12		281.17
9030	11/26/2004	20:49:00	10.10		281.17
9090	11/26/2004	21:49:00	10.14		281.18
9150	11/26/2004	22:49:00	10.10		281.17
9210	11/26/2004	23:49:00	10.11		281.18
9270	11/27/2004	0:49:00	10.10		281.18
9330	11/27/2004	1:49:00	10.11		281.18
9390	11/27/2004	2:49:00	10.10		281.18
9450	11/27/2004	3:49:00	10.10		281.18
9510	11/27/2004	4:49:00	10.10		281.18
9570	11/27/2004	5:49:00	10.11		281.17
9630	11/27/2004	6:49:00	10.11		281.17
9690	11/27/2004	7:49:00	10.11		281.18
9750	11/27/2004	8:49:00	10.09		281.18
9810	11/27/2004	9:49:00	10.11		281.17
9870	11/27/2004	10:49:00	10.11		281.17
9930	11/27/2004	11:49:00	10.11		281.17
9990	11/27/2004	12:49:00	10.11		281.17
10050	11/27/2004	13:49:00	10.11		281.16
10110	11/27/2004	14:49:00	10.13		281.18
10170	11/27/2004	15:49:00	10.11		281.18
10230	11/27/2004	16:49:00	10.13		281.17
10290	11/27/2004	17:49:00	10.12		281.14
10350	11/27/2004	18:49:00	10.13		281.10
10410	11/27/2004	19:49:00	10.13		281.08
10470	11/27/2004	20:49:00	10.13		281.05
10530	11/27/2004	21:49:00	10.12		281.04
10590	11/27/2004	22:49:00	10.15		281.02
10650	11/27/2004	23:49:00	10.13		280.99
10710	11/28/2004	0:49:00	10.09		280.98
10770	11/28/2004	1:49:00	10.13		280.97
10830	11/28/2004	2:49:00	10.11		280.97
10890	11/28/2004	3:49:00	10.11		280.95
10950	11/28/2004	4:49:00	10.11		280.94
11010	11/28/2004	5:49:00	10.12		280.95
11070	11/28/2004	6:49:00	10.13		280.94
11130	11/28/2004	7:49:00	10.13		280.94
11190	11/28/2004	8:49:00	10.14		280.93
11250	11/28/2004	9:49:00	10.14		280.91
11310	11/28/2004	10:49:00	10.09		280.89
11370	11/28/2004	11:49:00	10.11		280.89
11430	11/28/2004	12:49:00	10.10		280.88
11490	11/28/2004	13:49:00	10.11		280.88
11550	11/28/2004	14:49:00	10.09		280.87
11610	11/28/2004	15:49:00	10.10		280.86
11670	11/28/2004	16:49:00	10.11		280.86
11730	11/28/2004	17:49:00	10.11		280.86
11790	11/28/2004	18:49:00	10.10		280.85
11850	11/28/2004	19:49:00	10.11		280.84
11910	11/28/2004	20:49:00	10.12		280.84
11970	11/28/2004	21:49:00	10.11		280.83
12030	11/28/2004	22:49:00	10.11		280.82
12090	11/28/2004	23:49:00	10.13		280.83
12150	11/29/2004	0:49:00	10.11		280.82
12210	11/29/2004	1:49:00	10.13		280.82
12270	11/29/2004	2:49:00	10.13		280.82
12330	11/29/2004	3:49:00	10.09		280.81
12390	11/29/2004	4:49:00	10.09		280.81
12450	11/29/2004	5:49:00	10.09		280.81
12510	11/29/2004	6:49:00	10.09		280.81
12570	11/29/2004	7:49:00	10.12		280.80
12630	11/29/2004	8:49:00	10.09		280.80
12690	11/29/2004	9:49:00	10.08		280.80
12750	11/29/2004	10:49:00	10.08		280.80
12810	11/29/2004	11:49:00	10.08		280.78
12870	11/29/2004	12:49:00	10.09		280.78
12930	11/29/2004	13:49:00	10.09		280.78
12990	11/29/2004	14:49:00	10.09		280.78
13050	11/29/2004	15:49:00	10.09		280.79
13110	11/29/2004	16:49:00	10.09		280.79
13170	11/29/2004	17:49:00	10.09		280.78
13230	11/29/2004	18:49:00	10.10		280.78
13290	11/29/2004	19:49:00	10.09		280.78
13350	11/29/2004	20:49:00	10.11		280.77
13410	11/29/2004	21:49:00	10.09		280.77

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
13470	11/29/2004	22:49:00	10.09		280.77
13530	11/29/2004	23:49:00	10.09		280.77
13590	11/30/2004	0:49:00	10.08		280.76
13650	11/30/2004	1:49:00	10.09		280.76
13710	11/30/2004	2:49:00	10.08		280.76
13770	11/30/2004	3:49:00	10.11		280.76
13830	11/30/2004	4:49:00	10.09		280.76
13890	11/30/2004	5:49:00	10.09		280.75
13950	11/30/2004	6:49:00	10.10		280.75
14010	11/30/2004	7:49:00	10.10		280.75
14070	11/30/2004	8:49:00	10.09		280.75
14130	11/30/2004	9:49:00	10.09		280.74
14190	11/30/2004	10:49:00	10.09		280.73
14250	11/30/2004	11:49:00	10.09		280.74
14310	11/30/2004	12:49:00	10.07		280.74
14370	11/30/2004	13:49:00	10.07		280.74
14430	11/30/2004	14:49:00	10.06		280.73
14490	11/30/2004	15:49:00	10.07		280.73
14550	11/30/2004	16:49:00	10.07		280.73
14610	11/30/2004	17:49:00	10.06		280.73
14670	11/30/2004	18:49:00	10.06		280.73
14730	11/30/2004	19:49:00	10.08		280.73
14790	11/30/2004	20:49:00	10.06		280.73
14850	11/30/2004	21:49:00	10.06		280.72
14910	11/30/2004	22:49:00	10.06		280.73
14970	11/30/2004	23:49:00	10.08		280.73
15030	12/1/2004	0:49:00	10.08		280.73
15090	12/1/2004	1:49:00	10.06		280.73
15150	12/1/2004	2:49:00	10.06		280.73
15210	12/1/2004	3:49:00	10.06		280.74
15270	12/1/2004	4:49:00	10.08		280.74
15330	12/1/2004	5:49:00	10.07		280.75
15390	12/1/2004	6:49:00	10.07		280.75
15450	12/1/2004	7:49:00	10.09		280.75
15510	12/1/2004	8:49:00	10.09		280.77
15570	12/1/2004	9:49:00	10.08		280.77
15630	12/1/2004	10:49:00	10.08		280.78
15690	12/1/2004	11:49:00	10.08		280.79
15750	12/1/2004	12:49:00	10.08		280.79
15810	12/1/2004	13:49:00	10.08		280.79
15870	12/1/2004	14:49:00	10.08		280.79
15930	12/1/2004	15:49:00	10.08		280.79
15990	12/1/2004	16:49:00	10.11		280.79
16050	12/1/2004	17:49:00	10.07		280.78
16110	12/1/2004	18:49:00	10.09		280.78
16170	12/1/2004	19:49:00	10.08		280.78
16230	12/1/2004	20:49:00	10.07		280.77
16290	12/1/2004	21:49:00	10.09		280.77
16350	12/1/2004	22:49:00	10.07		280.77
16410	12/1/2004	23:49:00	10.03		280.77
16470	12/2/2004	0:49:00	10.07		280.77
16530	12/2/2004	1:49:00	10.07		280.76
16590	12/2/2004	2:49:00	10.03		280.76
16650	12/2/2004	3:49:00	10.08		280.75
16710	12/2/2004	4:49:00	10.01		280.75
16770	12/2/2004	5:49:00	10.06		280.74
16830	12/2/2004	6:49:00	10.03		280.75
16890	12/2/2004	7:49:00	10.04		280.74
16950	12/2/2004	8:49:00	10.04		280.74
17010	12/2/2004	9:49:00	10.01		280.75
17070	12/2/2004	10:49:00	10.04		280.73
17130	12/2/2004	11:49:00	10.03		280.73
17190	12/2/2004	12:49:00	10.02		280.73
17250	12/2/2004	13:49:00	10.03		280.73
17310	12/2/2004	14:49:00	10.03		280.73
17370	12/2/2004	15:49:00	10.03		280.73
17430	12/2/2004	16:49:00	10.06		280.72
17490	12/2/2004	17:49:00	10.06		280.72
17550	12/2/2004	18:49:00	10.05		280.72
17610	12/2/2004	19:49:00	10.03		280.71
17670	12/2/2004	20:49:00	10.03		280.71
17730	12/2/2004	21:49:00	10.03		280.71
17790	12/2/2004	22:49:00	10.04		280.71
17850	12/2/2004	23:49:00	10.06		280.71
17910	12/3/2004	0:49:00	10.04		280.70
17970	12/3/2004	1:49:00	10.06		280.70
18030	12/3/2004	2:49:00	10.03		280.70
18090	12/3/2004	3:49:00	10.06		280.70
18150	12/3/2004	4:49:00	10.03		280.70
18210	12/3/2004	5:49:00	10.06		280.70
18270	12/3/2004	6:49:00	10.04		280.69
18330	12/3/2004	7:49:00	10.06		280.68
18390	12/3/2004	8:49:00	10.06		280.69
18450	12/3/2004	9:49:00	10.06		280.69
18510	12/3/2004	10:49:00	10.06		280.68
18570	12/3/2004	11:49:00	10.07		280.69
18630	12/3/2004	12:49:00	10.06		280.69
18690	12/3/2004	13:49:00	10.03		280.68
18750	12/3/2004	14:49:00	10.03		280.69
18810	12/3/2004	15:49:00	10.03		280.68
18870	12/3/2004	16:49:00	10.03		280.67
18930	12/3/2004	17:49:00	10.02		280.67
18990	12/3/2004	18:49:00	10.02		280.66
19050	12/3/2004	19:49:00	10.06		280.67

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
19110	12/3/2004	20:49:00	10.02		280.67
19170	12/3/2004	21:49:00	10.03		280.67
19230	12/3/2004	22:49:00	10.04		280.66
19290	12/3/2004	23:49:00	10.04		280.66
19350	12/4/2004	0:49:00	10.01		280.66
19410	12/4/2004	1:49:00	10.03		280.66
19470	12/4/2004	2:49:00	9.99		280.66
19530	12/4/2004	3:49:00	10.03		280.66
19590	12/4/2004	4:49:00	10.01		280.66
19650	12/4/2004	5:49:00	10.03		280.66
19710	12/4/2004	6:49:00	10.02		280.65
19770	12/4/2004	7:49:00	10.01		280.65
19830	12/4/2004	8:49:00	10.01		280.65
19890	12/4/2004	9:49:00	9.99		280.64
19950	12/4/2004	10:49:00	10.02		280.64
20010	12/4/2004	11:49:00	10.01		280.65
20070	12/4/2004	12:49:00	10.01		280.64
20130	12/4/2004	13:49:00	9.99		280.64
20190	12/4/2004	14:49:00	9.99		280.64
20250	12/4/2004	15:49:00	10.02		280.72
20310	12/4/2004	16:49:00	10.01		280.85
20370	12/4/2004	17:49:00	10.02		280.88
20430	12/4/2004	18:49:00	9.99		280.89
20490	12/4/2004	19:49:00	10.01		280.91
20550	12/4/2004	20:49:00	9.99		280.91
20610	12/4/2004	21:49:00	10.01		280.92
20670	12/4/2004	22:49:00	10.02		280.92
20730	12/4/2004	23:49:00	10.01		280.93
20790	12/5/2004	0:49:00	9.99		280.93
20850	12/5/2004	1:49:00	10.01		280.94
20910	12/5/2004	2:49:00	9.99		280.93
20970	12/5/2004	3:49:00	10.01		280.94
21030	12/5/2004	4:49:00	9.99		280.94
21090	12/5/2004	5:49:00	10.00		280.94
21150	12/5/2004	6:49:00	9.99		280.94
21210	12/5/2004	7:49:00	10.02		280.95
21270	12/5/2004	8:49:00	9.99		280.95
21330	12/5/2004	9:49:00	9.99		280.96
21390	12/5/2004	10:49:00	10.00		280.95
21450	12/5/2004	11:49:00	10.01		280.95
21510	12/5/2004	12:49:00	10.01		280.95
21570	12/5/2004	13:49:00	10.01		280.95
21630	12/5/2004	14:49:00	10.01		280.96
21690	12/5/2004	15:49:00	10.01		280.96
21750	12/5/2004	16:49:00	10.02		280.96
21810	12/5/2004	17:49:00	10.01		280.96
21870	12/5/2004	18:49:00	10.01		280.96
21930	12/5/2004	19:49:00	10.02		280.96
21990	12/5/2004	20:49:00	10.01		280.97
22050	12/5/2004	21:49:00	10.02		280.98
22110	12/5/2004	22:49:00	10.01		280.98
22170	12/5/2004	23:49:00	10.01		280.98
22230	12/6/2004	0:49:00	10.01		280.98
22290	12/6/2004	1:49:00	10.01		280.98
22350	12/6/2004	2:49:00	10.01		280.99
22410	12/6/2004	3:49:00	9.99		281.00
50	12/6/2004	16:54:31	10.00		281.01
110	12/6/2004	17:54:31	10.01		281.01
170	12/6/2004	18:54:31	10.01		281.02
230	12/6/2004	19:54:31	9.99		281.02
290	12/6/2004	20:54:31	9.95		281.02
350	12/6/2004	21:54:31	9.97		281.02
410	12/6/2004	22:54:31	9.99		281.03
470	12/6/2004	23:54:31	9.96		281.03
530	12/7/2004	0:54:31	9.98		281.03
590	12/7/2004	1:54:31	9.99		281.04
650	12/7/2004	2:54:31	10.01		281.04
710	12/7/2004	3:54:31	9.98		281.04
770	12/7/2004	4:54:31	9.99		281.04
830	12/7/2004	5:54:31	9.99		281.05
890	12/7/2004	6:54:31	9.98		281.04
950	12/7/2004	7:54:31	9.99		281.04
1010	12/7/2004	8:54:31	9.97		281.04
1070	12/7/2004	9:54:31	9.94		281.05
1130	12/7/2004	10:54:31	9.97		281.05
1190	12/7/2004	11:54:31	9.97		281.05
1250	12/7/2004	12:54:31	9.97		281.06
1310	12/7/2004	13:54:31	9.98		281.07
1370	12/7/2004	14:54:31	9.97		281.10
1430	12/7/2004	15:54:31	9.96		281.14
1490	12/7/2004	16:54:31	9.97		281.16
1550	12/7/2004	17:54:31	9.98		281.17
1610	12/7/2004	18:54:31	9.99		281.17
1670	12/7/2004	19:54:31	9.98		281.19
1730	12/7/2004	20:54:31	9.97		281.19
1790	12/7/2004	21:54:31	9.99		281.19
1850	12/7/2004	22:54:31	9.98		281.19
1910	12/7/2004	23:54:31	9.99		281.19
1970	12/8/2004	0:54:31	9.98		281.20
2030	12/8/2004	1:54:31	9.99		281.20
2090	12/8/2004	2:54:31	9.97		281.20
2150	12/8/2004	3:54:31	9.96		281.20
2210	12/8/2004	4:54:31	9.96		281.20
2270	12/8/2004	5:54:31	9.94		281.19

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2330	12/8/2004	6:54:31	9.96		281.20
2390	12/8/2004	7:54:31	9.94		281.20
2450	12/8/2004	8:54:31	9.96		281.20
2510	12/8/2004	9:54:31	9.96		281.19
2570	12/8/2004	10:54:31	9.96		281.20
2630	12/8/2004	11:54:31	9.94		281.18
2690	12/8/2004	12:54:31	9.93		281.19
2750	12/8/2004	13:54:31	9.91		281.19
2810	12/8/2004	14:54:31	9.94		281.19
2870	12/8/2004	15:54:31	9.93		281.19
2930	12/8/2004	16:54:31	9.95		281.20
2990	12/8/2004	17:54:31	9.97		281.19
3050	12/8/2004	18:54:31	9.96		281.18
3110	12/8/2004	19:54:31	9.94		281.18
3170	12/8/2004	20:54:31	9.94		281.19
3230	12/8/2004	21:54:31	9.96		281.19
3290	12/8/2004	22:54:31	9.96		281.19
3350	12/8/2004	23:54:31	9.96		281.19
3410	12/9/2004	0:54:31	9.93		281.19
3470	12/9/2004	1:54:31	9.96		281.20
3530	12/9/2004	2:54:31	9.96		281.19
3590	12/9/2004	3:54:31	9.94		281.19
3650	12/9/2004	4:54:31	9.95		281.19
3710	12/9/2004	5:54:31	9.96		281.20
3770	12/9/2004	6:54:31	9.94		281.20
3830	12/9/2004	7:54:31	9.93		281.20
3890	12/9/2004	8:54:31	9.93		281.20
3950	12/9/2004	9:54:31	9.94		281.19
4010	12/9/2004	10:54:31	9.93		281.19
4070	12/9/2004	11:54:31	9.94		281.19
4130	12/9/2004	12:54:31	9.95		281.20
4190	12/9/2004	13:54:31	9.96		281.19
4250	12/9/2004	14:54:31	9.93		281.20
4310	12/9/2004	15:54:31	9.93		281.20
4370	12/9/2004	16:54:31	9.89		281.17
4430	12/9/2004	17:54:31	9.87		281.20
4490	12/9/2004	18:54:31	9.92		281.20
4550	12/9/2004	19:54:31	9.89		281.20
4610	12/9/2004	20:54:31	9.91		281.19
4670	12/9/2004	21:54:31	9.91		281.20
4730	12/9/2004	22:54:31	9.89		281.20
4790	12/9/2004	23:54:31	9.90		281.20
4850	12/10/2004	0:54:31	9.92		281.20
4910	12/10/2004	1:54:31	9.91		281.21
4970	12/10/2004	2:54:31	9.91		281.20
5030	12/10/2004	3:54:31	9.90		281.20
5090	12/10/2004	4:54:31	9.91		281.21
5150	12/10/2004	5:54:31	9.90		281.20
5210	12/10/2004	6:54:31	9.92		281.20
5270	12/10/2004	7:54:31	9.93		281.20
5330	12/10/2004	8:54:31	9.92		281.20
5390	12/10/2004	9:54:31	9.93		281.20
5450	12/10/2004	10:54:31	9.93		281.20
5510	12/10/2004	11:54:31	9.93		281.21
5570	12/10/2004	12:54:31	9.93		281.21
5630	12/10/2004	13:54:31	9.92		281.21
5690	12/10/2004	14:54:31	9.92		281.22
5750	12/10/2004	15:54:31	9.92		281.23
5810	12/10/2004	16:54:31	9.91		281.23
5870	12/10/2004	17:54:31	9.91		281.23
5930	12/10/2004	18:54:31	9.93		281.23
5990	12/10/2004	19:54:31	9.92		281.23
6050	12/10/2004	20:54:31	9.92		281.24
6110	12/10/2004	21:54:31	9.91		281.24
6170	12/10/2004	22:54:31	9.92		281.24
6230	12/10/2004	23:54:31	9.91		281.25
6290	12/11/2004	0:54:31	9.92		281.25
6350	12/11/2004	1:54:31	9.91		281.25
6410	12/11/2004	2:54:31	9.92		281.25
6470	12/11/2004	3:54:31	9.90		281.25
6530	12/11/2004	4:54:31	9.89		281.25
6590	12/11/2004	5:54:31	9.89		281.26
6650	12/11/2004	6:54:31	9.89		281.25
6710	12/11/2004	7:54:31	9.89		281.25
6770	12/11/2004	8:54:31	9.88		281.25
6830	12/11/2004	9:54:31	9.89		281.25
6890	12/11/2004	10:54:31	9.89		281.26
6950	12/11/2004	11:54:31	9.87		281.26
7010	12/11/2004	12:54:31	9.84		281.26

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-15 - GLL BH-9-S
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2725	11/22/2004	11:54:26	10.12		281.13
2785	11/22/2004	12:54:26	9.92		281.13
2845	11/22/2004	13:54:26	9.92		281.12
2905	11/22/2004	14:54:26	9.92		281.13
2965	11/22/2004	15:54:26	9.9		281.12
3025	11/22/2004	16:54:26	9.91		281.12
3085	11/22/2004	17:54:26	9.93		281.12
3145	11/22/2004	18:54:26	9.92		281.12
3205	11/22/2004	19:54:26	9.92		281.11
3265	11/22/2004	20:54:26	9.93		281.12
3325	11/22/2004	21:54:26	9.92		281.13
3385	11/22/2004	22:54:26	9.93		281.12
3445	11/22/2004	23:54:26	9.89		281.12
3505	11/23/2004	0:54:26	9.91		281.12
3565	11/23/2004	1:54:26	9.9		281.12
3625	11/23/2004	2:54:26	9.9		281.12
3685	11/23/2004	3:54:26	9.91		281.13
3745	11/23/2004	4:54:26	9.92		281.12
3805	11/23/2004	5:54:26	9.92		281.13
3865	11/23/2004	6:54:26	9.92		281.12
3925	11/23/2004	7:54:26	9.93		281.12
3985	11/23/2004	8:54:26	9.93		281.12
4045	11/23/2004	9:54:26	9.93		281.12
4105	11/23/2004	10:54:26	9.92		281.12
4165	11/23/2004	11:54:26	9.92		281.12
4225	11/23/2004	12:54:26	9.93		281.12
4285	11/23/2004	13:54:26	9.89		281.13
4345	11/23/2004	14:54:26	9.92		281.13
4405	11/23/2004	15:54:26	9.93		281.12
4465	11/23/2004	16:54:26	9.91		281.12
4525	11/23/2004	17:54:26	9.92		281.12
4585	11/23/2004	18:54:26	9.9		281.12
4645	11/23/2004	19:54:26	9.89		281.13
4705	11/23/2004	20:54:26	9.91		281.13
4765	11/23/2004	21:54:26	9.93		281.12
4825	11/23/2004	22:54:26	9.93		281.12
4885	11/23/2004	23:54:26	9.89		281.13
4945	11/24/2004	0:54:26	9.89		281.12
5005	11/24/2004	1:54:26	9.91		281.12
5065	11/24/2004	2:54:26	9.92		281.13
5125	11/24/2004	3:54:26	9.89		281.12
5185	11/24/2004	4:54:26	9.89		281.12
5245	11/24/2004	5:54:26	9.87		281.12
5305	11/24/2004	6:54:26	9.89		281.12
5365	11/24/2004	7:54:26	9.9		281.12
5425	11/24/2004	8:54:26	9.87		281.12
5485	11/24/2004	9:54:26	9.9		281.12
5545	11/24/2004	10:54:26	9.89		281.12
5605	11/24/2004	11:54:26	9.89		281.12
5665	11/24/2004	12:54:26	9.89		281.13
5725	11/24/2004	13:54:26	9.9		281.12
5785	11/24/2004	14:54:26	9.89		281.13
5845	11/24/2004	15:54:26	9.91		281.13
5905	11/24/2004	16:54:26	9.89		281.14
5965	11/24/2004	17:54:26	9.91		281.15
6025	11/24/2004	18:54:26	9.89		281.15
6085	11/24/2004	19:54:26	9.9		281.15
6145	11/24/2004	20:54:26	9.89		281.15
6205	11/24/2004	21:54:26	9.9		281.15
6265	11/24/2004	22:54:26	9.9		281.15
6325	11/24/2004	23:54:26	9.91		281.16
6385	11/25/2004	0:54:26	9.9		281.16
6445	11/25/2004	1:54:26	9.89		281.16
6505	11/25/2004	2:54:26	9.92		281.16
6565	11/25/2004	3:54:26	9.89		281.16
6625	11/25/2004	4:54:26	9.91		281.16
6685	11/25/2004	5:54:26	9.88		281.16
6745	11/25/2004	6:54:26	9.9		281.16
6805	11/25/2004	7:54:26	9.9		281.16
6865	11/25/2004	8:54:26	9.89		281.16
6925	11/25/2004	9:54:26	9.87		281.16
6985	11/25/2004	10:54:26	9.9		281.16
7045	11/25/2004	11:54:26	9.9		281.16
7105	11/25/2004	12:54:26	9.89		281.16
7165	11/25/2004	13:54:26	9.91		281.16
7225	11/25/2004	14:54:26	9.89		281.16
7285	11/25/2004	15:54:26	9.86		281.15
7345	11/25/2004	16:54:26	9.89		281.16
7405	11/25/2004	17:54:26	9.89		281.15
7465	11/25/2004	18:54:26	9.9		281.14
7525	11/25/2004	19:54:26	9.88		281.15
7585	11/25/2004	20:54:26	9.89		281.16
7645	11/25/2004	21:54:26	9.91		281.16
7705	11/25/2004	22:54:26	9.89		281.16
7765	11/25/2004	23:54:26	9.87		281.16
7825	11/26/2004	0:54:26	9.88		281.16
7885	11/26/2004	1:54:26	9.88		281.17
7945	11/26/2004	2:54:26	9.87		281.16
8005	11/26/2004	3:54:26	9.87		281.16
8065	11/26/2004	4:54:26	9.87		281.16

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
8125	11/26/2004	5:54:26	9.86		281.16
8185	11/26/2004	6:54:26	9.84		281.16
8245	11/26/2004	7:54:26	9.87		281.16
8305	11/26/2004	8:54:26	9.87		281.16
8365	11/26/2004	9:54:26	9.86		281.15
8425	11/26/2004	10:54:26	9.85		281.16
8485	11/26/2004	11:54:26	9.86		281.16
8545	11/26/2004	12:54:26	9.87		281.15
8605	11/26/2004	13:54:26	9.88		281.16
8665	11/26/2004	14:54:26	9.87		281.15
8725	11/26/2004	15:54:26	9.85		281.15
8785	11/26/2004	16:54:26	9.85		281.15
8845	11/26/2004	17:54:26	9.86		281.15
8905	11/26/2004	18:54:26	9.86		281.16
8965	11/26/2004	19:54:26	9.86		281.16
9025	11/26/2004	20:54:26	9.84		281.16
9085	11/26/2004	21:54:26	9.84		281.16
9145	11/26/2004	22:54:26	9.87		281.16
9205	11/26/2004	23:54:26	9.83		281.16
9265	11/27/2004	0:54:26	9.84		281.16
9325	11/27/2004	1:54:26	9.87		281.16
9385	11/27/2004	2:54:26	9.85		281.17
9445	11/27/2004	3:54:26	9.84		281.17
9505	11/27/2004	4:54:26	9.85		281.16
9565	11/27/2004	5:54:26	9.85		281.16
9625	11/27/2004	6:54:26	9.85		281.16
9685	11/27/2004	7:54:26	9.86		281.16
9745	11/27/2004	8:54:26	9.85		281.16
9805	11/27/2004	9:54:26	9.85		281.15
9865	11/27/2004	10:54:26	9.86		281.15
9925	11/27/2004	11:54:26	9.85		281.15
9985	11/27/2004	12:54:26	9.84		281.14
10045	11/27/2004	13:54:26	9.86		281.14
10105	11/27/2004	14:54:26	9.86		281.15
10165	11/27/2004	15:54:26	9.87		281.16
10225	11/27/2004	16:54:26	9.85		281.14
10285	11/27/2004	17:54:26	9.85		281.13
10345	11/27/2004	18:54:26	9.83		281.12
10405	11/27/2004	19:54:26	9.86		281.12
10465	11/27/2004	20:54:26	9.89		281.11
10525	11/27/2004	21:54:26	9.87		281.10
10585	11/27/2004	22:54:26	9.87		281.08
10645	11/27/2004	23:54:26	9.88		281.08
10705	11/28/2004	0:54:26	9.88		281.07
10765	11/28/2004	1:54:26	9.87		281.06
10825	11/28/2004	2:54:26	9.85		281.06
10885	11/28/2004	3:54:26	9.85		281.05
10945	11/28/2004	4:54:26	9.84		281.05
11005	11/28/2004	5:54:26	9.84		281.04
11065	11/28/2004	6:54:26	9.84		281.04
11125	11/28/2004	7:54:26	9.85		281.03
11185	11/28/2004	8:54:26	9.87		281.02
11245	11/28/2004	9:54:26	9.86		281.02
11305	11/28/2004	10:54:26	9.86		281.01
11365	11/28/2004	11:54:26	9.85		281.02
11425	11/28/2004	12:54:26	9.85		281.02
11485	11/28/2004	13:54:26	9.83		281.01
11545	11/28/2004	14:54:26	9.86		281.01
11605	11/28/2004	15:54:26	9.84		281.00
11665	11/28/2004	16:54:26	9.83		281.00
11725	11/28/2004	17:54:26	9.84		280.99
11785	11/28/2004	18:54:26	9.85		280.98
11845	11/28/2004	19:54:26	9.83		280.97
11905	11/28/2004	20:54:26	9.83		280.97
11965	11/28/2004	21:54:26	9.84		280.96
12025	11/28/2004	22:54:26	9.83		280.97
12085	11/28/2004	23:54:26	9.83		280.96
12145	11/29/2004	0:54:26	9.84		280.95
12205	11/29/2004	1:54:26	9.83		280.96
12265	11/29/2004	2:54:26	9.83		280.95
12325	11/29/2004	3:54:26	9.81		280.95
12385	11/29/2004	4:54:26	9.83		280.94
12445	11/29/2004	5:54:26	9.84		280.94
12505	11/29/2004	6:54:26	9.81		280.94
12565	11/29/2004	7:54:26	9.81		280.94
12625	11/29/2004	8:54:26	9.83		280.94
12685	11/29/2004	9:54:26	9.83		280.93
12745	11/29/2004	10:54:26	9.83		280.94
12805	11/29/2004	11:54:26	9.81		280.93
12865	11/29/2004	12:54:26	9.83		280.92
12925	11/29/2004	13:54:26	9.83		280.92
12985	11/29/2004	14:54:26	9.84		280.92
13045	11/29/2004	15:54:26	9.81		280.92
13105	11/29/2004	16:54:26	9.81		280.92
13165	11/29/2004	17:54:26	9.81		280.92
13225	11/29/2004	18:54:26	9.81		280.92
13285	11/29/2004	19:54:26	9.81		280.92
13345	11/29/2004	20:54:26	9.84		280.91
13405	11/29/2004	21:54:26	9.81		280.91
13465	11/29/2004	22:54:26	9.81		280.91
13525	11/29/2004	23:54:26	9.81		280.91
13585	11/30/2004	0:54:26	9.81		280.91
13645	11/30/2004	1:54:26	9.81		280.91
13705	11/30/2004	2:54:26	9.81		280.90
13765	11/30/2004	3:54:26	9.83		280.89
13825	11/30/2004	4:54:26	9.8		280.89
13885	11/30/2004	5:54:26	9.83		280.89
13945	11/30/2004	6:54:26	9.83		280.89

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
14005	11/30/2004	7:54:26	9.83		280.89
14065	11/30/2004	8:54:26	9.83		280.89
14125	11/30/2004	9:54:26	9.83		280.88
14185	11/30/2004	10:54:26	9.83		280.88
14245	11/30/2004	11:54:26	9.83		280.87
14305	11/30/2004	12:54:26	9.83		280.87
14365	11/30/2004	13:54:26	9.83		280.87
14425	11/30/2004	14:54:26	9.81		280.87
14485	11/30/2004	15:54:26	9.81		280.87
14545	11/30/2004	16:54:26	9.81		280.87
14605	11/30/2004	17:54:26	9.81		280.87
14665	11/30/2004	18:54:26	9.83		280.87
14725	11/30/2004	19:54:26	9.83		280.86
14785	11/30/2004	20:54:26	9.83		280.86
14845	11/30/2004	21:54:26	9.83		280.86
14905	11/30/2004	22:54:26	9.83		280.86
14965	11/30/2004	23:54:26	9.79		280.86
15025	12/1/2004	0:54:26	9.81		280.86
15085	12/1/2004	1:54:26	9.81		280.86
15145	12/1/2004	2:54:26	9.83		280.86
15205	12/1/2004	3:54:26	9.83		280.86
15265	12/1/2004	4:54:26	9.79		280.86
15325	12/1/2004	5:54:26	9.8		280.86
15385	12/1/2004	6:54:26	9.79		280.85
15445	12/1/2004	7:54:26	9.81		280.86
15505	12/1/2004	8:54:26	9.83		280.86
15565	12/1/2004	9:54:26	9.8		280.85
15625	12/1/2004	10:54:26	9.8		280.86
15685	12/1/2004	11:54:26	9.8		280.87
15745	12/1/2004	12:54:26	9.79		280.86
15805	12/1/2004	13:54:26	9.8		280.86
15865	12/1/2004	14:54:26	9.78		280.86
15925	12/1/2004	15:54:26	9.79		280.87
15985	12/1/2004	16:54:26	9.81		280.86
16045	12/1/2004	17:54:26	9.77		280.86
16105	12/1/2004	18:54:26	9.8		280.86
16165	12/1/2004	19:54:26	9.8		280.86
16225	12/1/2004	20:54:26	9.79		280.86
16285	12/1/2004	21:54:26	9.79		280.86
16345	12/1/2004	22:54:26	9.79		280.86
16405	12/1/2004	23:54:26	9.78		280.86
16465	12/2/2004	0:54:26	9.8		280.85
16525	12/2/2004	1:54:26	9.83		280.85
16585	12/2/2004	2:54:26	9.78		280.85
16645	12/2/2004	3:54:26	9.77		280.85
16705	12/2/2004	4:54:26	9.78		280.84
16765	12/2/2004	5:54:26	9.79		280.84
16825	12/2/2004	6:54:26	9.77		280.85
16885	12/2/2004	7:54:26	9.77		280.84
16945	12/2/2004	8:54:26	9.79		280.85
17005	12/2/2004	9:54:26	9.77		280.84
17065	12/2/2004	10:54:26	9.77		280.83
17125	12/2/2004	11:54:26	9.78		280.83
17185	12/2/2004	12:54:26	9.79		280.83
17245	12/2/2004	13:54:26	9.77		280.84
17305	12/2/2004	14:54:26	9.77		280.84
17365	12/2/2004	15:54:26	9.79		280.84
17425	12/2/2004	16:54:26	9.75		280.84
17485	12/2/2004	17:54:26	9.77		280.83
17545	12/2/2004	18:54:26	9.77		280.83
17605	12/2/2004	19:54:26	9.77		280.83
17665	12/2/2004	20:54:26	9.77		280.83
17725	12/2/2004	21:54:26	9.78		280.82
17785	12/2/2004	22:54:26	9.77		280.82
17845	12/2/2004	23:54:26	9.77		280.82
17905	12/3/2004	0:54:26	9.77		280.82
17965	12/3/2004	1:54:26	9.77		280.81
18025	12/3/2004	2:54:26	9.77		280.82
18085	12/3/2004	3:54:26	9.77		280.82
18145	12/3/2004	4:54:26	9.77		280.82
18205	12/3/2004	5:54:26	9.77		280.81
18265	12/3/2004	6:54:26	9.78		280.81
18325	12/3/2004	7:54:26	9.77		280.80
18385	12/3/2004	8:54:26	9.77		280.80
18445	12/3/2004	9:54:26	9.77		280.79
18505	12/3/2004	10:54:26	9.77		280.79
18565	12/3/2004	11:54:26	9.76		280.80
18625	12/3/2004	12:54:26	9.75		280.79
18685	12/3/2004	13:54:26	9.77		280.79
18745	12/3/2004	14:54:26	9.77		280.79
18805	12/3/2004	15:54:26	9.77		280.79
18865	12/3/2004	16:54:26	9.77		280.78
18925	12/3/2004	17:54:26	9.77		280.78
18985	12/3/2004	18:54:26	9.76		280.77
19045	12/3/2004	19:54:26	9.77		280.78
19105	12/3/2004	20:54:26	9.77		280.78
19165	12/3/2004	21:54:26	9.77		280.77
19225	12/3/2004	22:54:26	9.77		280.77
19285	12/3/2004	23:54:26	9.77		280.76
19345	12/4/2004	0:54:26	9.77		280.77
19405	12/4/2004	1:54:26	9.77		280.76
19465	12/4/2004	2:54:26	9.77		280.76
19525	12/4/2004	3:54:26	9.77		280.77
19585	12/4/2004	4:54:26	9.77		280.77
19645	12/4/2004	5:54:26	9.77		280.77
19705	12/4/2004	6:54:26	9.78		280.76
19765	12/4/2004	7:54:26	9.77		280.76
19825	12/4/2004	8:54:26	9.77		280.75

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
19885	12/4/2004	9:54:26	9.77		280.76
19945	12/4/2004	10:54:26	9.75		280.76
20005	12/4/2004	11:54:26	9.76		280.76
20065	12/4/2004	12:54:26	9.78		280.76
20125	12/4/2004	13:54:26	9.75		280.76
20185	12/4/2004	14:54:26	9.75		280.76
20245	12/4/2004	15:54:26	9.75		280.76
20305	12/4/2004	16:54:26	9.77		280.77
20365	12/4/2004	17:54:26	9.75		280.78
20425	12/4/2004	18:54:26	9.75		280.78
20485	12/4/2004	19:54:26	9.75		280.79
20545	12/4/2004	20:54:26	9.75		280.79
20605	12/4/2004	21:54:26	9.77		280.80
20665	12/4/2004	22:54:26	9.75		280.81
20725	12/4/2004	23:54:26	9.74		280.81
20785	12/5/2004	0:54:26	9.77		280.82
20845	12/5/2004	1:54:26	9.75		280.82
20905	12/5/2004	2:54:26	9.74		280.82
20965	12/5/2004	3:54:26	9.74		280.83
21025	12/5/2004	4:54:26	9.75		280.82
21085	12/5/2004	5:54:26	9.75		280.83
21145	12/5/2004	6:54:26	9.74		280.83
21205	12/5/2004	7:54:26	9.75		280.84
21265	12/5/2004	8:54:26	9.73		280.84
21325	12/5/2004	9:54:26	9.74		280.85
21385	12/5/2004	10:54:26	9.76		280.84
21445	12/5/2004	11:54:26	9.77		280.85
21505	12/5/2004	12:54:26	9.73		280.84
21565	12/5/2004	13:54:26	9.72		280.85
21625	12/5/2004	14:54:26	9.73		280.86
21685	12/5/2004	15:54:26	9.72		280.86
21745	12/5/2004	16:54:26	9.72		280.87
21805	12/5/2004	17:54:26	9.73		280.87
21865	12/5/2004	18:54:26	9.74		280.86
21925	12/5/2004	19:54:26	9.75		280.87
21985	12/5/2004	20:54:26	9.74		280.88
22045	12/5/2004	21:54:26	9.76		280.88
22105	12/5/2004	22:54:26	9.75		280.88
22165	12/5/2004	23:54:26	9.71		280.89
22225	12/6/2004	0:54:26	9.73		280.89
22285	12/6/2004	1:54:26	9.73		280.90
22345	12/6/2004	2:54:26	9.73		280.90
22405	12/6/2004	3:54:26	9.74		280.91
22465	12/6/2004	4:54:26	9.71		280.91
22525	12/6/2004	5:54:26	9.71		280.91
22585	12/6/2004	6:54:26	9.71		280.91
22645	12/6/2004	7:54:26	9.73		280.92
22705	12/6/2004	8:54:26	9.73		280.91
22765	12/6/2004	9:54:26	9.72		280.92
22825	12/6/2004	10:54:26	9.72		280.92
22885	12/6/2004	11:54:26	9.72		280.92
22945	12/6/2004	12:54:26	9.69		280.92
30	12/6/2004	16:34:50	9.69		280.93
90	12/6/2004	17:34:50	9.72		280.93
150	12/6/2004	18:34:50	9.71		280.94
210	12/6/2004	19:34:50	9.72		280.94
270	12/6/2004	20:34:50	9.73		280.95
330	12/6/2004	21:34:50	9.74		280.95
390	12/6/2004	22:34:50	9.72		280.95
450	12/6/2004	23:34:50	9.72		280.96
510	12/7/2004	0:34:50	9.72		280.96
570	12/7/2004	1:34:50	9.73		280.96
630	12/7/2004	2:34:50	9.74		280.97
690	12/7/2004	3:34:50	9.72		280.97
750	12/7/2004	4:34:50	9.73		280.97
810	12/7/2004	5:34:50	9.72		280.98
870	12/7/2004	6:34:50	9.71		280.98
930	12/7/2004	7:34:50	9.71		280.98
990	12/7/2004	8:34:50	9.71		280.98
1050	12/7/2004	9:34:50	9.71		280.98
1110	12/7/2004	10:34:50	9.71		280.98
1170	12/7/2004	11:34:50	9.71		280.99
1230	12/7/2004	12:34:50	9.71		280.99
1290	12/7/2004	13:34:50	9.71		280.98
1350	12/7/2004	14:34:50	9.71		280.99
1410	12/7/2004	15:34:50	9.71		281.01
1470	12/7/2004	16:34:50	9.71		281.03
1530	12/7/2004	17:34:50	9.73		281.04
1590	12/7/2004	18:34:50	9.72		281.03
1650	12/7/2004	19:34:50	9.71		281.04
1710	12/7/2004	20:34:50	9.71		281.05
1770	12/7/2004	21:34:50	9.71		281.05
1830	12/7/2004	22:34:50	9.71		281.05
1890	12/7/2004	23:34:50	9.71		281.06
1950	12/8/2004	0:34:50	9.69		281.06
2010	12/8/2004	1:34:50	9.69		281.07
2070	12/8/2004	2:34:50	9.69		281.07
2130	12/8/2004	3:34:50	9.72		281.08
2190	12/8/2004	4:34:50	9.69		281.08
2250	12/8/2004	5:34:50	9.73		281.08
2310	12/8/2004	6:34:50	9.71		281.08
2370	12/8/2004	7:34:50	9.71		281.09
2430	12/8/2004	8:34:50	9.69		281.09
2490	12/8/2004	9:34:50	9.69		281.09
2550	12/8/2004	10:34:50	9.71		281.09
2610	12/8/2004	11:34:50	9.68		281.09
2670	12/8/2004	12:34:50	9.68		281.09
2730	12/8/2004	13:34:50	9.72		281.09

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
2790	12/8/2004	14:34:50	9.68		281.10
2850	12/8/2004	15:34:50	9.67		281.10
2910	12/8/2004	16:34:50	9.68		281.10
2970	12/8/2004	17:34:50	9.67		281.11
3030	12/8/2004	18:34:50	9.68		281.10
3090	12/8/2004	19:34:50	9.68		281.10
3150	12/8/2004	20:34:50	9.68		281.10
3210	12/8/2004	21:34:50	9.68		281.11
3270	12/8/2004	22:34:50	9.69		281.11
3330	12/8/2004	23:34:50	9.69		281.12
3390	12/9/2004	0:34:50	9.67		281.12
3450	12/9/2004	1:34:50	9.66		281.12
3510	12/9/2004	2:34:50	9.67		281.12
3570	12/9/2004	3:34:50	9.68		281.12
3630	12/9/2004	4:34:50	9.68		281.12
3690	12/9/2004	5:34:50	9.68		281.12
3750	12/9/2004	6:34:50	9.69		281.13
3810	12/9/2004	7:34:50	9.65		281.14
3870	12/9/2004	8:34:50	9.66		281.13
3930	12/9/2004	9:34:50	9.67		281.13
3990	12/9/2004	10:34:50	9.68		281.13
4050	12/9/2004	11:34:50	9.69		281.13
4110	12/9/2004	12:34:50	9.65		281.13
4170	12/9/2004	13:34:50	9.65		281.14
4230	12/9/2004	14:34:50	9.65		281.14
4290	12/9/2004	15:34:50	9.65		281.14
4350	12/9/2004	16:34:50	9.65		281.14
4410	12/9/2004	17:34:50	9.63		281.14
4470	12/9/2004	18:34:50	9.65		281.15
4530	12/9/2004	19:34:50	9.65		281.15
4590	12/9/2004	20:34:50	9.65		281.15
4650	12/9/2004	21:34:50	9.65		281.15
4710	12/9/2004	22:34:50	9.65		281.15
4770	12/9/2004	23:34:50	9.65		281.16
4830	12/10/2004	0:34:50	9.63		281.16
4890	12/10/2004	1:34:50	9.65		281.16
4950	12/10/2004	2:34:50	9.65		281.16
5010	12/10/2004	3:34:50	9.65		281.16
5070	12/10/2004	4:34:50	9.63		281.16
5130	12/10/2004	5:34:50	9.65		281.16
5190	12/10/2004	6:34:50	9.63		281.16
5250	12/10/2004	7:34:50	9.63		281.16
5310	12/10/2004	8:34:50	9.63		281.17
5370	12/10/2004	9:34:50	9.62		281.17
5430	12/10/2004	10:34:50	9.63		281.17
5490	12/10/2004	11:34:50	9.59		281.17
5550	12/10/2004	12:34:50	9.63		281.17
5610	12/10/2004	13:34:50	9.62		281.18
5670	12/10/2004	14:34:50	9.62		281.18
5730	12/10/2004	15:34:50	9.62		281.18
5790	12/10/2004	16:34:50	9.6		281.19
5850	12/10/2004	17:34:50	9.63		281.19
5910	12/10/2004	18:34:50	9.59		281.19
5970	12/10/2004	19:34:50	9.6		281.19
6030	12/10/2004	20:34:50	9.59		281.19
6090	12/10/2004	21:34:50	9.63		281.20
6150	12/10/2004	22:34:50	9.61		281.19
6210	12/10/2004	23:34:50	9.6		281.20
6270	12/11/2004	0:34:50	9.6		281.20
6330	12/11/2004	1:34:50	9.61		281.20
6390	12/11/2004	2:34:50	9.57		281.20
6450	12/11/2004	3:34:50	9.61		281.20
6510	12/11/2004	4:34:50	9.59		281.21
6570	12/11/2004	5:34:50	9.6		281.21
6630	12/11/2004	6:34:50	9.6		281.21
6690	12/11/2004	7:34:50	9.6		281.21
6750	12/11/2004	8:34:50	9.59		281.21
6810	12/11/2004	9:34:50	9.57		281.21
6870	12/11/2004	10:34:50	9.59		281.22
6930	12/11/2004	11:34:50	9.59		281.22
6990	12/11/2004	12:34:50	9.61		281.22

Note: Data collected every min but reported in the present table every hou

Gartner Lee

Table F2-2-16 - JEGEL BH-B-D
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
124	11/20/2004	16:23:00	10.05		285.50
184	11/20/2004	17:23:00	9.66		285.57
244	11/20/2004	18:23:00	9.67		285.58
304	11/20/2004	19:23:00	9.65		285.59
364	11/20/2004	20:23:00	9.66		285.59
424	11/20/2004	21:23:00	9.65		285.60
484	11/20/2004	22:23:00	9.69		285.59
544	11/20/2004	23:23:00	9.69		285.60
604	11/21/2004	0:23:00	9.66		285.60
664	11/21/2004	1:23:00	9.68		285.60
724	11/21/2004	2:23:00	9.67		285.60
784	11/21/2004	3:23:00	9.68		285.61
844	11/21/2004	4:23:00	9.69		285.60
904	11/21/2004	5:23:00	9.68		285.61
964	11/21/2004	6:23:00	9.68		285.61
1024	11/21/2004	7:23:00	9.69		285.61
1084	11/21/2004	8:23:00	9.67		285.61
1144	11/21/2004	9:23:00	9.67		285.60
1204	11/21/2004	10:23:00	9.68		285.61
1264	11/21/2004	11:23:00	9.67		285.61
1324	11/21/2004	12:23:00	9.65		285.61
1384	11/21/2004	13:23:00	9.65		285.60
1444	11/21/2004	14:23:00	9.68		285.63
1504	11/21/2004	15:23:00	9.68		285.62
1564	11/21/2004	16:23:00	9.68		285.62
1624	11/21/2004	17:23:00	9.67		285.62
1684	11/21/2004	18:23:00	9.65		285.61
1744	11/21/2004	19:23:00	9.68		285.61
1804	11/21/2004	20:23:00	9.69		285.61
1864	11/21/2004	21:23:00	9.69		285.61
1924	11/21/2004	22:23:00	9.71		285.61
1984	11/21/2004	23:23:00	9.71		285.62
2044	11/22/2004	0:23:00	9.67		285.61
2104	11/22/2004	1:23:00	9.68		285.62
2164	11/22/2004	2:23:00	9.69		285.63
2224	11/22/2004	3:23:00	9.69		285.63
2284	11/22/2004	4:23:00	9.69		285.63
2344	11/22/2004	5:23:00	9.69		285.62
2404	11/22/2004	6:23:00	9.69		285.61
2464	11/22/2004	7:23:00	9.69		285.61
2524	11/22/2004	8:23:00	9.67		285.62
2584	11/22/2004	9:23:00	9.69		285.63
2644	11/22/2004	10:23:00	9.68		285.62
2704	11/22/2004	11:23:00	9.69		285.63
2764	11/22/2004	12:23:00	9.69		285.61
2824	11/22/2004	13:23:00	9.68		285.62
2884	11/22/2004	14:23:00	9.66		285.63
2944	11/22/2004	15:23:00	9.67		285.62
3004	11/22/2004	16:23:00	9.67		285.63
3064	11/22/2004	17:23:00	9.69		285.63
3124	11/22/2004	18:23:00	9.69		285.63
3184	11/22/2004	19:23:00	9.67		285.63
3244	11/22/2004	20:23:00	9.68		285.64
3304	11/22/2004	21:23:00	9.68		285.63
3364	11/22/2004	22:23:00	9.68		285.63
3424	11/22/2004	23:23:00	9.67		285.64
3484	11/23/2004	0:23:00	9.68		285.64
3544	11/23/2004	1:23:00	9.68		285.64
3604	11/23/2004	2:23:00	9.69		285.63
3664	11/23/2004	3:23:00	9.67		285.65
3724	11/23/2004	4:23:00	9.71		285.65
3784	11/23/2004	5:23:00	9.69		285.65
3844	11/23/2004	6:23:00	9.69		285.64
3904	11/23/2004	7:23:00	9.69		285.64
3965	11/23/2004	8:24:00	9.71		285.64
4025	11/23/2004	9:24:00	9.69		285.64
4085	11/23/2004	10:24:00	9.69		285.64
4145	11/23/2004	11:24:00	9.69		285.64
4205	11/23/2004	12:24:00	9.67		285.64
4265	11/23/2004	13:24:00	9.69		285.66
4325	11/23/2004	14:24:00	9.71		285.66
4385	11/23/2004	15:24:00	9.68		285.66
4445	11/23/2004	16:24:00	9.69		285.65
4505	11/23/2004	17:24:00	9.69		285.66
4565	11/23/2004	18:24:00	9.71		285.65
4625	11/23/2004	19:24:00	9.71		285.66
4685	11/23/2004	20:24:00	9.65		285.66
4745	11/23/2004	21:24:00	9.64		285.66
4805	11/23/2004	22:24:00	9.65		285.66
4865	11/23/2004	23:24:00	9.68		285.66
4925	11/24/2004	0:24:00	9.68		285.66
4985	11/24/2004	1:24:00	9.69		285.66
5045	11/24/2004	2:24:00	9.66		285.66
5105	11/24/2004	3:24:00	9.69		285.66
5165	11/24/2004	4:24:00	9.68		285.66

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
5225	11/24/2004	5:24:00	9.68		285.66
5285	11/24/2004	6:24:00	9.69		285.65
5345	11/24/2004	7:24:00	9.69		285.66
5405	11/24/2004	8:24:00	9.7		285.66
5465	11/24/2004	9:24:00	9.69		285.65
5525	11/24/2004	10:24:00	9.68		285.66
5585	11/24/2004	11:24:00	9.71		285.66
5645	11/24/2004	12:24:00	9.69		285.67
5705	11/24/2004	13:24:00	9.69		285.66
5765	11/24/2004	14:24:00	9.69		285.66
5825	11/24/2004	15:24:00	9.71		285.67
5885	11/24/2004	16:24:00	9.71		285.67
5945	11/24/2004	17:24:00	9.69		285.69
6005	11/24/2004	18:24:00	9.71		285.68
6065	11/24/2004	19:24:00	9.69		285.69
6125	11/24/2004	20:24:00	9.69		285.69
6185	11/24/2004	21:24:00	9.69		285.71
6245	11/24/2004	22:24:00	9.68		285.71
6305	11/24/2004	23:24:00	9.68		285.72
6365	11/25/2004	0:24:00	9.67		285.72
6425	11/25/2004	1:24:00	9.69		285.72
6485	11/25/2004	2:24:00	9.68		285.73
6545	11/25/2004	3:24:00	9.67		285.73
6605	11/25/2004	4:24:00	9.67		285.73
6665	11/25/2004	5:24:00	9.67		285.73
6725	11/25/2004	6:24:00	9.64		285.73
6785	11/25/2004	7:24:00	9.65		285.73
6845	11/25/2004	8:24:00	9.67		285.73
6905	11/25/2004	9:24:00	9.66		285.72
6965	11/25/2004	10:24:00	9.66		285.73
7025	11/25/2004	11:24:00	9.65		285.74
7085	11/25/2004	12:24:00	9.67		285.74
7145	11/25/2004	13:24:00	9.66		285.73
7205	11/25/2004	14:24:00	9.65		285.73
7265	11/25/2004	15:24:00	9.67		285.73
7325	11/25/2004	16:24:00	9.65		285.74
7385	11/25/2004	17:24:00	9.67		285.73
7445	11/25/2004	18:24:00	9.67		285.72
7505	11/25/2004	19:24:00	9.67		285.73
7565	11/25/2004	20:24:00	9.67		285.74
7625	11/25/2004	21:24:00	9.67		285.73
7685	11/25/2004	22:24:00	9.64		285.74
7745	11/25/2004	23:24:00	9.66		285.75
7805	11/26/2004	0:24:00	9.67		285.74
7865	11/26/2004	1:24:00	9.67		285.74
7925	11/26/2004	2:24:00	9.67		285.74
7985	11/26/2004	3:24:00	9.66		285.74
8045	11/26/2004	4:24:00	9.67		285.74
8105	11/26/2004	5:24:00	9.67		285.74
8165	11/26/2004	6:24:00	9.65		285.74
8225	11/26/2004	7:24:00	9.67		285.75
8285	11/26/2004	8:24:00	9.67		285.74
8345	11/26/2004	9:24:00	9.67		285.74
8405	11/26/2004	10:24:00	9.67		285.74
8465	11/26/2004	11:24:00	9.65		285.74
8525	11/26/2004	12:24:00	9.69		285.72
8585	11/26/2004	13:24:00	9.67		285.73
8645	11/26/2004	14:24:00	9.69		285.75
8705	11/26/2004	15:24:00	9.69		285.75
8765	11/26/2004	16:24:00	9.68		285.74
8825	11/26/2004	17:24:00	9.69		285.74
8885	11/26/2004	18:24:00	9.69		285.74
8945	11/26/2004	19:24:00	9.69		285.75
9005	11/26/2004	20:24:00	9.68		285.75
9065	11/26/2004	21:24:00	9.69		285.75
9125	11/26/2004	22:24:00	9.69		285.75
9185	11/26/2004	23:24:00	9.66		285.75
9245	11/27/2004	0:24:00	9.69		285.75
9305	11/27/2004	1:24:00	9.68		285.75
9365	11/27/2004	2:24:00	9.67		285.76
9425	11/27/2004	3:24:00	9.67		285.75
9485	11/27/2004	4:24:00	9.69		285.76
9545	11/27/2004	5:24:00	9.66		285.75
9605	11/27/2004	6:24:00	9.68		285.75
9665	11/27/2004	7:24:00	9.68		285.75
9725	11/27/2004	8:24:00	9.65		285.75
9785	11/27/2004	9:24:00	9.68		285.75
9845	11/27/2004	10:24:00	9.69		285.75
9905	11/27/2004	11:24:00	9.66		285.75
9965	11/27/2004	12:24:00	9.71		285.75
10025	11/27/2004	13:24:00	9.71		285.75
10085	11/27/2004	14:24:00	9.71		285.75
10145	11/27/2004	15:24:00	9.71		285.77
10205	11/27/2004	16:24:00	9.71		285.77
10265	11/27/2004	17:24:00	9.68		285.78
10325	11/27/2004	18:24:00	9.71		285.78
10385	11/27/2004	19:24:00	9.69		285.78
10445	11/27/2004	20:24:00	9.71		285.77
10505	11/27/2004	21:24:00	9.67		285.79
10565	11/27/2004	22:24:00	9.69		285.78
10625	11/27/2004	23:24:00	9.68		285.79
10685	11/28/2004	0:24:00	9.69		285.79
10745	11/28/2004	1:24:00	9.69		285.79
10805	11/28/2004	2:24:00	9.71		285.80

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
10865	11/28/2004	3:24:00	9.69		285.79
10925	11/28/2004	4:24:00	9.71		285.78
10985	11/28/2004	5:24:00	9.69		285.80
11045	11/28/2004	6:24:00	9.71		285.80
11105	11/28/2004	7:24:00	9.69		285.80
11165	11/28/2004	8:24:00	9.67		285.79
11225	11/28/2004	9:24:00	9.67		285.80
11285	11/28/2004	10:24:00	9.66		285.81
11345	11/28/2004	11:24:00	9.68		285.80
11405	11/28/2004	12:24:00	9.67		285.81
11465	11/28/2004	13:24:00	9.68		285.81
11525	11/28/2004	14:24:00	9.69		285.81
11585	11/28/2004	15:24:00	9.69		285.81
11645	11/28/2004	16:24:00	9.67		285.81
11705	11/28/2004	17:24:00	9.68		285.82
11765	11/28/2004	18:24:00	9.68		285.81
11825	11/28/2004	19:24:00	9.68		285.81
11885	11/28/2004	20:24:00	9.67		285.81
11945	11/28/2004	21:24:00	9.69		285.82
12005	11/28/2004	22:24:00	9.67		285.81
12065	11/28/2004	23:24:00	9.66		285.82
12125	11/29/2004	0:24:00	9.71		285.81
12185	11/29/2004	1:24:00	9.68		285.82
12245	11/29/2004	2:24:00	9.67		285.81
12305	11/29/2004	3:24:00	9.69		285.82
12365	11/29/2004	4:24:00	9.68		285.83
12425	11/29/2004	5:24:00	9.69		285.83
12485	11/29/2004	6:24:00	9.68		285.82
12545	11/29/2004	7:24:00	9.67		285.83
12605	11/29/2004	8:24:00	9.67		285.82
12665	11/29/2004	9:24:00	9.71		285.83
12725	11/29/2004	10:24:00	9.66		285.84
12785	11/29/2004	11:24:00	9.69		285.83
12845	11/29/2004	12:24:00	9.69		285.83
12905	11/29/2004	13:24:00	9.69		285.84
12965	11/29/2004	14:24:00	9.69		285.84
13025	11/29/2004	15:24:00	9.68		285.84
13085	11/29/2004	16:24:00	9.68		285.85
13145	11/29/2004	17:24:00	9.67		285.84
13205	11/29/2004	18:24:00	9.68		285.85
13265	11/29/2004	19:24:00	9.69		285.84
13325	11/29/2004	20:24:00	9.68		285.84
13385	11/29/2004	21:24:00	9.71		285.85
13445	11/29/2004	22:24:00	9.69		285.84
13505	11/29/2004	23:24:00	9.69		285.84
13565	11/30/2004	0:24:00	9.71		285.84
13625	11/30/2004	1:24:00	9.69		285.84
13685	11/30/2004	2:24:00	9.68		285.85
13745	11/30/2004	3:24:00	9.69		285.85
13805	11/30/2004	4:24:00	9.71		285.84
13865	11/30/2004	5:24:00	9.69		285.84
13925	11/30/2004	6:24:00	9.69		285.84
13985	11/30/2004	7:24:00	9.71		285.83
14045	11/30/2004	8:24:00	9.69		285.84
14105	11/30/2004	9:24:00	9.69		285.84
14165	11/30/2004	10:24:00	9.69		285.83
14225	11/30/2004	11:24:00	9.67		285.84
14285	11/30/2004	12:24:00	9.7		285.84
14345	11/30/2004	13:24:00	9.69		285.85
14405	11/30/2004	14:24:00	9.68		285.85
14465	11/30/2004	15:24:00	9.68		285.85
14525	11/30/2004	16:24:00	9.69		285.86
14585	11/30/2004	17:24:00	9.67		285.86
14645	11/30/2004	18:24:00	9.66		285.85
14705	11/30/2004	19:24:00	9.68		285.86
14765	11/30/2004	20:24:00	9.69		285.86
14825	11/30/2004	21:24:00	9.69		285.87
14885	11/30/2004	22:24:00	9.69		285.87
14945	11/30/2004	23:24:00	9.69		285.87
15005	12/1/2004	0:24:00	9.69		285.88
15065	12/1/2004	1:24:00	9.71		285.90
15125	12/1/2004	2:24:00	9.71		285.88
15185	12/1/2004	3:24:00	9.69		285.90
15245	12/1/2004	4:24:00	9.69		285.90
15305	12/1/2004	5:24:00	9.69		285.91
15365	12/1/2004	6:24:00	9.69		285.91
15425	12/1/2004	7:24:00	9.67		285.92
15485	12/1/2004	8:24:00	9.67		285.92
15545	12/1/2004	9:24:00	9.67		285.94
15605	12/1/2004	10:24:00	9.67		285.94
15665	12/1/2004	11:24:00	9.67		285.95
15725	12/1/2004	12:24:00	9.67		285.94
15785	12/1/2004	13:24:00	9.63		285.95
15845	12/1/2004	14:24:00	9.63		285.97
15905	12/1/2004	15:24:00	9.63		285.98
15965	12/1/2004	16:24:00	9.63		285.96
16025	12/1/2004	17:24:00	9.65		285.98
16085	12/1/2004	18:24:00	9.64		285.99
16145	12/1/2004	19:24:00	9.65		285.99
16205	12/1/2004	20:24:00	9.65		286.00
16265	12/1/2004	21:24:00	9.65		286.00
16325	12/1/2004	22:24:00	9.65		286.00
16385	12/1/2004	23:24:00	9.63		286.00
16445	12/2/2004	0:24:00	9.65		286.00

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
16505	12/2/2004	1:24:00	9.63		286.01
16565	12/2/2004	2:24:00	9.64		286.01
16625	12/2/2004	3:24:00	9.64		286.00
16685	12/2/2004	4:24:00	9.64		286.01
16745	12/2/2004	5:24:00	9.66		286.01
16805	12/2/2004	6:24:00	9.67		286.00
16865	12/2/2004	7:24:00	9.65		286.01
16925	12/2/2004	8:24:00	9.66		286.02
16985	12/2/2004	9:24:00	9.65		286.00
17045	12/2/2004	10:24:00	9.67		286.00
17105	12/2/2004	11:24:00	9.68		286.01
17165	12/2/2004	12:24:00	9.68		286.01
17225	12/2/2004	13:24:00	9.68		286.02
17285	12/2/2004	14:24:00	9.68		286.03
17345	12/2/2004	15:24:00	9.68		286.03
17405	12/2/2004	16:24:00	9.69		286.04
17465	12/2/2004	17:24:00	9.68		286.03
17525	12/2/2004	18:24:00	9.68		286.02
17585	12/2/2004	19:24:00	9.69		286.04
17645	12/2/2004	20:24:00	9.68		286.04
17705	12/2/2004	21:24:00	9.67		286.03
17765	12/2/2004	22:24:00	9.69		286.03
17825	12/2/2004	23:24:00	9.69		286.04
17885	12/3/2004	0:24:00	9.69		286.04
17945	12/3/2004	1:24:00	9.71		286.04
18005	12/3/2004	2:24:00	9.69		286.03
18065	12/3/2004	3:24:00	9.71		286.03
18125	12/3/2004	4:24:00	9.69		286.04
18185	12/3/2004	5:24:00	9.71		286.03
18245	12/3/2004	6:24:00	9.69		286.02
18305	12/3/2004	7:24:00	9.71		286.01
18365	12/3/2004	8:24:00	9.69		286.01
18425	12/3/2004	9:24:00	9.69		286.01
18485	12/3/2004	10:24:00	9.71		286.01
18545	12/3/2004	11:24:00	9.69		286.01
18605	12/3/2004	12:24:00	9.71		286.01
18665	12/3/2004	13:24:00	9.69		286.01
18725	12/3/2004	14:24:00	9.71		286.00
18785	12/3/2004	15:24:00	9.71		286.00
18845	12/3/2004	16:24:00	9.72		286.00
18905	12/3/2004	17:24:00	9.71		285.99
18965	12/3/2004	18:24:00	9.71		286.00
19025	12/3/2004	19:24:00	9.71		286.00
19085	12/3/2004	20:24:00	9.72		285.99
19145	12/3/2004	21:24:00	9.71		286.00
19205	12/3/2004	22:24:00	9.72		286.00
19265	12/3/2004	23:24:00	9.71		285.99
19325	12/4/2004	0:24:00	9.72		286.00
19385	12/4/2004	1:24:00	9.73		286.00
19445	12/4/2004	2:24:00	9.71		286.01
19505	12/4/2004	3:24:00	9.71		286.00
19565	12/4/2004	4:24:00	9.72		286.00
19625	12/4/2004	5:24:00	9.69		286.01
19685	12/4/2004	6:24:00	9.69		285.99
19745	12/4/2004	7:24:00	9.7		286.01
19805	12/4/2004	8:24:00	9.72		286.01
19865	12/4/2004	9:24:00	9.73		286.01
19925	12/4/2004	10:24:00	9.71		285.99
19985	12/4/2004	11:24:00	9.73		286.01
20045	12/4/2004	12:24:00	9.69		286.01
20105	12/4/2004	13:24:00	9.77		286.01
20165	12/4/2004	14:24:00	9.72		286.01
20225	12/4/2004	15:24:00	9.71		286.01
20285	12/4/2004	16:24:00	9.71		286.01
20345	12/4/2004	17:24:00	9.69		286.00
20405	12/4/2004	18:24:00	9.69		286.00
20465	12/4/2004	19:24:00	9.69		285.99
20525	12/4/2004	20:24:00	9.69		285.99
20585	12/4/2004	21:24:00	9.71		285.99
20645	12/4/2004	22:24:00	9.71		285.99
20705	12/4/2004	23:24:00	9.68		285.99
20765	12/5/2004	0:24:00	9.69		285.98
20825	12/5/2004	1:24:00	9.71		285.98
20885	12/5/2004	2:24:00	9.71		285.97
20945	12/5/2004	3:24:00	9.71		285.98
21005	12/5/2004	4:24:00	9.71		285.97
21065	12/5/2004	5:24:00	9.71		285.96
21125	12/5/2004	6:24:00	9.69		285.95
21185	12/5/2004	7:24:00	9.71		285.95
21245	12/5/2004	8:24:00	9.71		285.95
21305	12/5/2004	9:24:00	9.69		285.96
21365	12/5/2004	10:24:00	9.71		285.96
21425	12/5/2004	11:24:00	9.71		285.95
21485	12/5/2004	12:24:00	9.71		285.96
21545	12/5/2004	13:24:00	9.71		285.95
21605	12/5/2004	14:24:00	9.69		285.94
21665	12/5/2004	15:24:00	9.71		285.94
21725	12/5/2004	16:24:00	9.71		285.95
21785	12/5/2004	17:24:00	9.72		285.93
21845	12/5/2004	18:24:00	9.71		285.95
21905	12/5/2004	19:24:00	9.71		285.94
21965	12/5/2004	20:24:00	9.71		285.94
22025	12/5/2004	21:24:00	9.71		285.94
22085	12/5/2004	22:24:00	9.71		285.95

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
22145	12/5/2004	23:24:00	9.73		285.95
22205	12/6/2004	0:24:00	9.71		285.95
22265	12/6/2004	1:24:00	9.71		285.95
22325	12/6/2004	2:24:00	9.72		285.95
22385	12/6/2004	3:24:00	9.72		285.96
25	12/6/2004	16:29:50	9.71		285.92
85	12/6/2004	17:29:50	9.71		285.93
145	12/6/2004	18:29:50	9.73		285.94
205	12/6/2004	19:29:50	9.73		285.94
265	12/6/2004	20:29:50	9.73		285.94
325	12/6/2004	21:29:50	9.71		285.94
385	12/6/2004	22:29:50	9.71		285.95
445	12/6/2004	23:29:50	9.71		285.94
505	12/7/2004	0:29:50	9.72		285.94
565	12/7/2004	1:29:50	9.72		285.94
625	12/7/2004	2:29:50	9.72		285.94
685	12/7/2004	3:29:50	9.71		285.94
745	12/7/2004	4:29:50	9.74		285.96
805	12/7/2004	5:29:50	9.73		285.95
865	12/7/2004	6:29:50	9.71		285.95
925	12/7/2004	7:29:50	9.71		285.96
985	12/7/2004	8:29:50	9.72		285.96
1045	12/7/2004	9:29:50	9.74		285.95
1105	12/7/2004	10:29:50	9.75		285.96
1165	12/7/2004	11:29:50	9.74		285.98
1225	12/7/2004	12:29:50	9.75		285.98
1285	12/7/2004	13:29:50	9.72		285.97
1345	12/7/2004	14:29:50	9.69		286.00
1405	12/7/2004	15:29:50	9.64		286.04
1465	12/7/2004	16:29:50	9.64		286.06
1525	12/7/2004	17:29:50	9.64		286.08
1585	12/7/2004	18:29:50	9.64		286.07
1645	12/7/2004	19:29:50	9.64		286.09
1705	12/7/2004	20:29:50	9.65		286.10
1765	12/7/2004	21:29:50	9.65		286.11
1825	12/7/2004	22:29:50	9.65		286.11
1885	12/7/2004	23:29:50	9.63		286.12
1945	12/8/2004	0:29:50	9.65		286.12
2005	12/8/2004	1:29:50	9.66		286.13
2065	12/8/2004	2:29:50	9.64		286.13
2125	12/8/2004	3:29:50	9.64		286.14
2185	12/8/2004	4:29:50	9.67		286.16
2245	12/8/2004	5:29:50	9.66		286.15
2305	12/8/2004	6:29:50	9.65		286.15
2365	12/8/2004	7:29:50	9.67		286.15
2425	12/8/2004	8:29:50	9.63		286.16
2485	12/8/2004	9:29:50	9.67		286.16
2545	12/8/2004	10:29:50	9.63		286.16
2605	12/8/2004	11:29:50	9.65		286.16
2665	12/8/2004	12:29:50	9.65		286.15
2725	12/8/2004	13:29:50	9.66		286.17
2785	12/8/2004	14:29:50	9.68		286.17
2845	12/8/2004	15:29:50	9.68		286.17
2905	12/8/2004	16:29:50	9.66		286.17
2965	12/8/2004	17:29:50	9.64		286.19
3025	12/8/2004	18:29:50	9.66		286.17
3085	12/8/2004	19:29:50	9.67		286.18
3145	12/8/2004	20:29:50	9.66		286.17
3205	12/8/2004	21:29:50	9.66		286.18
3265	12/8/2004	22:29:50	9.67		286.18
3325	12/8/2004	23:29:50	9.66		286.18
3385	12/9/2004	0:29:50	9.68		286.18
3445	12/9/2004	1:29:50	9.71		286.19
3505	12/9/2004	2:29:50	9.69		286.17
3565	12/9/2004	3:29:50	9.69		286.18
3625	12/9/2004	4:29:50	9.68		286.19
3685	12/9/2004	5:29:50	9.69		286.20
3745	12/9/2004	6:29:50	9.69		286.21
3805	12/9/2004	7:29:50	9.69		286.20
3865	12/9/2004	8:29:50	9.69		286.19
3925	12/9/2004	9:29:50	9.71		286.20
3985	12/9/2004	10:29:50	9.71		286.19
4045	12/9/2004	11:29:50	9.73		286.21
4105	12/9/2004	12:29:50	9.75		286.20
4165	12/9/2004	13:29:50	9.75		286.20
4225	12/9/2004	14:29:50	9.73		286.21
4285	12/9/2004	15:29:50	9.75		286.20
4345	12/9/2004	16:29:50	9.76		286.20
4405	12/9/2004	17:29:50	9.79		286.22
4465	12/9/2004	18:29:50	9.77		286.20
4525	12/9/2004	19:29:50	9.78		286.21
4585	12/9/2004	20:29:50	9.8		286.22
4645	12/9/2004	21:29:50	9.77		286.20
4705	12/9/2004	22:29:50	9.78		286.21
4765	12/9/2004	23:29:50	9.76		286.21
4825	12/10/2004	0:29:50	9.8		286.21
4885	12/10/2004	1:29:50	9.8		286.21
4945	12/10/2004	2:29:50	9.81		286.21
5005	12/10/2004	3:29:50	9.81		286.21
5065	12/10/2004	4:29:50	9.8		286.21
5125	12/10/2004	5:29:50	9.83		286.21
5185	12/10/2004	6:29:50	9.83		286.20
5245	12/10/2004	7:29:50	9.83		286.20
5305	12/10/2004	8:29:50	9.84		286.20

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
5365	12/10/2004	9:29:50	9.83		286.20
5425	12/10/2004	10:29:50	9.84		286.21
5485	12/10/2004	11:29:50	9.87		286.21
5545	12/10/2004	12:29:50	9.84		286.22
5605	12/10/2004	13:29:50	9.83		286.22
5665	12/10/2004	14:29:50	9.79		286.23
5725	12/10/2004	15:29:50	9.74		286.23
5785	12/10/2004	16:29:50	9.74		286.22
5845	12/10/2004	17:29:50	9.71		286.24
5905	12/10/2004	18:29:50	9.72		286.25
5965	12/10/2004	19:29:50	9.71		286.24
6025	12/10/2004	20:29:50	9.71		286.25
6085	12/10/2004	21:29:50	9.72		286.25
6145	12/10/2004	22:29:50	9.71		286.25
6205	12/10/2004	23:29:50	9.69		286.24
6265	12/11/2004	0:29:50	9.71		286.26
6325	12/11/2004	1:29:50	9.71		286.26
6385	12/11/2004	2:29:50	9.69		286.24
6445	12/11/2004	3:29:50	9.71		286.25
6505	12/11/2004	4:29:50	9.71		286.25
6565	12/11/2004	5:29:50	9.71		286.25
6625	12/11/2004	6:29:50	9.72		286.25
6685	12/11/2004	7:29:50	9.73		286.25
6745	12/11/2004	8:29:50	9.72		286.25
6805	12/11/2004	9:29:50	9.73		286.25
6865	12/11/2004	10:29:50	9.71		286.24
6925	12/11/2004	11:29:50	9.71		286.27
6985	12/11/2004	12:29:50	9.73		286.26
7045	12/11/2004	13:29:50	9.69		286.27
7105	12/11/2004	14:29:50	9.74		286.25

Note: Data collected every min but reported in the present table every hour

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Table F2-2-17 - JEGEL BH-B-S
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	11:32	285.40
28-Nov-04	11:05	285.38
29-Nov-04	9:15	285.37
30-Nov-04	8:57	285.39
30-Nov-04	14:36	285.43
1-Dec-04	10:10	285.43
2-Dec-04	8:01	285.29
2-Dec-04	15:48	285.29
4-Dec-04	8:28	285.37
4-Dec-04	12:55	285.37
5-Dec-04	9:52	285.31
5-Dec-04	15:19	285.29
6-Dec-04	9:39	285.27

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Table F2-2-18 - JEGEL BH-C
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
1	11/20/2004	14:20:00	7.75		278.08
61	11/20/2004	15:20:00	7.89		278.11
121	11/20/2004	16:20:00	9.29		283.75
181	11/20/2004	17:20:00	9.31		283.74
241	11/20/2004	18:20:00	9.26		283.75
301	11/20/2004	19:20:00	9.26		283.74
361	11/20/2004	20:20:00	9.27		283.75
421	11/20/2004	21:20:00	9.25		283.75
481	11/20/2004	22:20:00	9.26		283.75
541	11/20/2004	23:20:00	9.26		283.74
601	11/21/2004	0:20:00	9.26		283.76
661	11/21/2004	1:20:00	9.25		283.75
721	11/21/2004	2:20:00	9.27		283.75
781	11/21/2004	3:20:00	9.27		283.74
841	11/21/2004	4:20:00	9.25		283.75
901	11/21/2004	5:20:00	9.28		283.74
961	11/21/2004	6:20:00	9.29		283.74
1021	11/21/2004	7:20:00	9.26		283.75
1081	11/21/2004	8:20:00	9.25		283.75
1141	11/21/2004	9:20:00	9.26		283.75
1201	11/21/2004	10:20:00	9.25		283.75
1261	11/21/2004	11:20:00	9.27		283.74
1321	11/21/2004	12:20:00	9.26		283.75
1381	11/21/2004	13:20:00	9.25		283.74
1441	11/21/2004	14:20:00	9.25		283.74
1501	11/21/2004	15:20:00	9.25		283.74
1561	11/21/2004	16:20:00	9.24		283.74
1621	11/21/2004	17:20:00	9.24		283.75
1681	11/21/2004	18:20:00	9.26		283.75
1741	11/21/2004	19:20:00	9.25		283.74
1801	11/21/2004	20:20:00	9.25		283.74
1861	11/21/2004	21:20:00	9.27		283.73
1921	11/21/2004	22:20:00	9.27		283.73
1981	11/21/2004	23:20:00	9.27		283.75
2041	11/22/2004	0:20:00	9.27		283.74
2101	11/22/2004	1:20:00	9.27		283.74
2161	11/22/2004	2:20:00	9.26		283.74
2221	11/22/2004	3:20:00	9.27		283.73
2281	11/22/2004	4:20:00	9.27		283.74
2341	11/22/2004	5:20:00	9.28		283.76
2401	11/22/2004	6:20:00	9.27		283.74
2461	11/22/2004	7:20:00	9.27		283.73
2521	11/22/2004	8:20:00	9.26		283.74
2581	11/22/2004	9:20:00	9.26		283.74
2641	11/22/2004	10:20:00	9.25		283.74
2701	11/22/2004	11:20:00	9.24		283.74
2761	11/22/2004	12:20:00	9.26		283.74
2821	11/22/2004	13:20:00	9.23		283.75
2881	11/22/2004	14:20:00	9.24		283.74
2941	11/22/2004	15:20:00	9.25		283.74
3001	11/22/2004	16:20:00	9.26		283.75
3061	11/22/2004	17:20:00	9.25		283.74
3121	11/22/2004	18:20:00	9.25		283.74
3181	11/22/2004	19:20:00	9.27		283.74
3241	11/22/2004	20:20:00	9.28		283.74
3301	11/22/2004	21:20:00	9.25		283.75
3361	11/22/2004	22:20:00	9.26		283.74
3421	11/22/2004	23:20:00	9.25		283.74
3481	11/23/2004	0:20:00	9.27		283.74
3541	11/23/2004	1:20:00	9.27		283.75
3601	11/23/2004	2:20:00	9.26		283.75
3661	11/23/2004	3:20:00	9.25		283.75
3721	11/23/2004	4:20:00	9.27		283.75
3781	11/23/2004	5:20:00	9.27		283.76
3841	11/23/2004	6:20:00	9.28		283.75
3901	11/23/2004	7:20:00	9.27		283.75
3961	11/23/2004	8:20:00	9.26		283.74
4021	11/23/2004	9:20:00	9.26		283.75
4081	11/23/2004	10:20:00	9.25		283.74
4141	11/23/2004	11:20:00	9.28		283.75
4201	11/23/2004	12:20:00	9.25		283.75
4261	11/23/2004	13:20:00	9.27		283.76
4321	11/23/2004	14:20:00	9.27		283.75
4381	11/23/2004	15:20:00	9.26		283.75
4441	11/23/2004	16:20:00	9.27		283.75
4501	11/23/2004	17:20:00	9.25		283.76
4561	11/23/2004	18:20:00	9.29		283.59
4621	11/23/2004	19:20:00	9.27		283.69
4681	11/23/2004	20:20:00	9.27		283.73
4741	11/23/2004	21:20:00	9.26		283.75
4801	11/23/2004	22:20:00	9.27		283.77
4861	11/23/2004	23:20:00	9.27		283.77
4921	11/24/2004	0:20:00	9.25		283.76
4981	11/24/2004	1:20:00	9.25		283.78
5041	11/24/2004	2:20:00	9.26		283.77

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
5101	11/24/2004	3:20:00	9.26		283.78
5161	11/24/2004	4:20:00	9.28		283.77
5221	11/24/2004	5:20:00	9.27		283.79
5281	11/24/2004	6:20:00	9.26		283.78
5341	11/24/2004	7:20:00	9.25		283.77
5401	11/24/2004	8:20:00	9.28		283.78
5461	11/24/2004	9:20:00	9.28		283.78
5521	11/24/2004	10:20:00	9.27		283.78
5581	11/24/2004	11:20:00	9.27		283.79
5641	11/24/2004	12:20:00	9.27		283.79
5701	11/24/2004	13:20:00	9.27		283.79
5761	11/24/2004	14:20:00	9.27		283.78
5821	11/24/2004	15:20:00	9.27		283.80
5881	11/24/2004	16:20:00	9.27		283.81
5941	11/24/2004	17:20:00	9.27		283.81
6001	11/24/2004	18:20:00	9.28		283.81
6061	11/24/2004	19:20:00	9.29		283.80
6121	11/24/2004	20:20:00	9.27		283.81
6181	11/24/2004	21:20:00	9.27		283.81
6241	11/24/2004	22:20:00	9.26		283.82
6301	11/24/2004	23:20:00	9.27		283.83
6361	11/25/2004	0:20:00	9.27		283.83
6421	11/25/2004	1:20:00	9.27		283.83
6481	11/25/2004	2:20:00	9.26		283.82
6541	11/25/2004	3:20:00	9.26		283.82
6601	11/25/2004	4:20:00	9.26		283.83
6661	11/25/2004	5:20:00	9.26		283.82
6721	11/25/2004	6:20:00	9.26		283.82
6781	11/25/2004	7:20:00	9.26		283.81
6841	11/25/2004	8:20:00	9.27		283.81
6901	11/25/2004	9:20:00	9.25		283.82
6961	11/25/2004	10:20:00	9.27		283.81
7021	11/25/2004	11:20:00	9.26		283.81
7081	11/25/2004	12:20:00	9.27		283.81
7141	11/25/2004	13:20:00	9.29		283.82
7201	11/25/2004	14:20:00	9.27		283.81
7261	11/25/2004	15:20:00	9.29		283.80
7321	11/25/2004	16:20:00	9.27		283.80
7381	11/25/2004	17:20:00	9.27		283.80
7441	11/25/2004	18:20:00	9.27		283.80
7501	11/25/2004	19:20:00	9.28		283.79
7561	11/25/2004	20:20:00	9.28		283.80
7621	11/25/2004	21:20:00	9.27		283.80
7681	11/25/2004	22:20:00	9.29		283.80
7741	11/25/2004	23:20:00	9.27		283.80
7801	11/26/2004	0:20:00	9.28		283.80
7861	11/26/2004	1:20:00	9.27		283.81
7921	11/26/2004	2:20:00	9.27		283.81
7981	11/26/2004	3:20:00	9.28		283.81
8041	11/26/2004	4:20:00	9.28		283.81
8101	11/26/2004	5:20:00	9.29		283.81
8161	11/26/2004	6:20:00	9.29		283.80
8221	11/26/2004	7:20:00	9.26		283.81
8281	11/26/2004	8:20:00	9.29		283.80
8341	11/26/2004	9:20:00	9.29		283.81
8401	11/26/2004	10:20:00	9.26		283.81
8461	11/26/2004	11:20:00	9.28		283.80
8521	11/26/2004	12:20:00	9.27		283.80
8581	11/26/2004	13:20:00	9.29		283.80
8641	11/26/2004	14:20:00	9.29		283.81
8701	11/26/2004	15:20:00	9.28		283.81
8761	11/26/2004	16:20:00	9.27		283.80
8821	11/26/2004	17:20:00	9.28		283.81
8881	11/26/2004	18:20:00	9.28		283.81
8941	11/26/2004	19:20:00	9.27		283.81
9001	11/26/2004	20:20:00	9.27		283.81
9061	11/26/2004	21:20:00	9.28		283.81
9121	11/26/2004	22:20:00	9.29		283.81
9181	11/26/2004	23:20:00	9.28		283.82
9241	11/27/2004	0:20:00	9.28		283.81
9301	11/27/2004	1:20:00	9.29		283.81
9361	11/27/2004	2:20:00	9.28		283.82
9421	11/27/2004	3:20:00	9.28		283.82
9481	11/27/2004	4:20:00	9.28		283.82
9541	11/27/2004	5:20:00	9.27		283.82
9601	11/27/2004	6:20:00	9.28		283.82
9661	11/27/2004	7:20:00	9.29		283.82
9721	11/27/2004	8:20:00	9.29		283.83
9781	11/27/2004	9:20:00	9.27		283.81
9841	11/27/2004	10:20:00	9.26		283.81
9901	11/27/2004	11:20:00	9.29		283.80
9961	11/27/2004	12:20:00	9.25		283.79
10021	11/27/2004	13:20:00	9.23		283.80
10081	11/27/2004	14:20:00	9.28		283.81
10141	11/27/2004	15:20:00	9.26		283.82
10201	11/27/2004	16:20:00	9.29		283.82
10261	11/27/2004	17:20:00	9.29		283.81
10321	11/27/2004	18:20:00	9.28		283.79
10381	11/27/2004	19:20:00	9.29		283.66
10441	11/27/2004	20:20:00	9.31		283.58
10501	11/27/2004	21:20:00	9.32		283.36
10561	11/27/2004	22:20:00	9.31		283.26
10621	11/27/2004	23:20:00	9.31		283.23
10681	11/28/2004	0:20:00	9.31		283.19

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
10741	11/28/2004	1:20:00	9.29		283.16
10801	11/28/2004	2:20:00	9.29		283.16
10861	11/28/2004	3:20:00	9.31		283.14
10921	11/28/2004	4:20:00	9.29		283.14
10981	11/28/2004	5:20:00	9.31		283.12
11041	11/28/2004	6:20:00	9.29		283.11
11101	11/28/2004	7:20:00	9.31		283.11
11161	11/28/2004	8:20:00	9.29		283.09
11221	11/28/2004	9:20:00	9.31		283.09
11281	11/28/2004	10:20:00	9.31		283.11
11341	11/28/2004	11:20:00	9.29		283.12
11401	11/28/2004	12:20:00	9.27		283.12
11461	11/28/2004	13:20:00	9.31		283.11
11521	11/28/2004	14:20:00	9.31		283.10
11581	11/28/2004	15:20:00	9.31		283.08
11641	11/28/2004	16:20:00	9.28		283.09
11701	11/28/2004	17:20:00	9.26		283.09
11761	11/28/2004	18:20:00	9.25		283.10
11821	11/28/2004	19:20:00	9.27		283.08
11881	11/28/2004	20:20:00	9.29		283.08
11941	11/28/2004	21:20:00	9.29		283.07
12001	11/28/2004	22:20:00	9.28		283.07
12061	11/28/2004	23:20:00	9.29		283.06
12121	11/29/2004	0:20:00	9.28		283.06
12181	11/29/2004	1:20:00	9.28		283.07
12241	11/29/2004	2:20:00	9.29		283.06
12301	11/29/2004	3:20:00	9.28		283.05
12361	11/29/2004	4:20:00	9.27		283.05
12421	11/29/2004	5:20:00	9.29		283.05
12481	11/29/2004	6:20:00	9.29		283.04
12541	11/29/2004	7:20:00	9.31		283.04
12601	11/29/2004	8:20:00	9.31		283.03
12661	11/29/2004	9:20:00	9.26		283.33
12721	11/29/2004	10:20:00	9.26		283.55
12781	11/29/2004	11:20:00	9.25		283.64
12841	11/29/2004	12:20:00	9.27		283.67
12901	11/29/2004	13:20:00	9.28		283.71
12961	11/29/2004	14:20:00	9.29		283.73
13021	11/29/2004	15:20:00	9.29		283.74
13081	11/29/2004	16:20:00	9.28		283.76
13141	11/29/2004	17:20:00	9.26		283.77
13201	11/29/2004	18:20:00	9.29		283.78
13261	11/29/2004	19:20:00	9.28		283.79
13321	11/29/2004	20:20:00	9.29		283.78
13381	11/29/2004	21:20:00	9.28		283.78
13441	11/29/2004	22:20:00	9.27		283.79
13501	11/29/2004	23:20:00	9.31		283.80
13561	11/30/2004	0:20:00	9.28		283.81
13621	11/30/2004	1:20:00	9.29		283.81
13681	11/30/2004	2:20:00	9.28		283.82
13741	11/30/2004	3:20:00	9.29		283.81
13801	11/30/2004	4:20:00	9.29		283.80
13861	11/30/2004	5:20:00	9.29		283.82
13921	11/30/2004	6:20:00	9.29		283.82
13981	11/30/2004	7:20:00	9.29		283.82
14041	11/30/2004	8:20:00	9.31		283.82
14101	11/30/2004	9:20:00	9.29		283.82
14161	11/30/2004	10:20:00	9.31		283.82
14221	11/30/2004	11:20:00	9.29		283.82
14281	11/30/2004	12:20:00	9.31		283.79
14341	11/30/2004	13:20:00	9.32		283.59
14401	11/30/2004	14:20:00	9.33		283.24
14461	11/30/2004	15:20:00	9.37		282.88
14521	11/30/2004	16:20:00	9.27		283.46
14581	11/30/2004	17:20:00	9.27		283.69
14641	11/30/2004	18:20:00	9.28		283.78
14701	11/30/2004	19:20:00	9.29		283.82
14761	11/30/2004	20:20:00	9.29		283.85
14821	11/30/2004	21:20:00	9.32		283.76
14881	11/30/2004	22:20:00	9.35		283.37
14941	11/30/2004	23:20:00	9.34		283.20
15001	12/1/2004	0:20:00	9.33		283.10
15061	12/1/2004	1:20:00	9.31		283.04
15121	12/1/2004	2:20:00	9.32		282.96
15181	12/1/2004	3:20:00	9.32		282.93
15241	12/1/2004	4:20:00	9.32		282.89
15301	12/1/2004	5:20:00	9.31		282.88
15361	12/1/2004	6:20:00	9.31		282.87
15421	12/1/2004	7:20:00	9.31		282.87
15481	12/1/2004	8:20:00	9.31		282.86
15541	12/1/2004	9:20:00	9.34		282.63
15601	12/1/2004	10:20:00	9.35		282.26
15661	12/1/2004	11:20:00	9.34		282.09
15721	12/1/2004	12:20:00	9.32		282.06
15781	12/1/2004	13:20:00	9.33		282.06
15841	12/1/2004	14:20:00	9.31		282.06
15901	12/1/2004	15:20:00	9.29		282.07
15961	12/1/2004	16:20:00	9.33		282.05
16021	12/1/2004	17:20:00	9.32		282.04
16081	12/1/2004	18:20:00	9.29		282.03
16141	12/1/2004	19:20:00	9.31		282.01
16201	12/1/2004	20:20:00	9.31		281.93
16261	12/1/2004	21:20:00	9.29		281.98
16321	12/1/2004	22:20:00	9.29		281.99

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
16381	12/1/2004	23:20:00	9.31		281.99
16441	12/2/2004	0:20:00	9.31		281.99
16501	12/2/2004	1:20:00	9.31		281.98
16561	12/2/2004	2:20:00	9.31		281.97
16621	12/2/2004	3:20:00	9.31		281.97
16681	12/2/2004	4:20:00	9.29		281.98
16741	12/2/2004	5:20:00	9.31		281.98
16801	12/2/2004	6:20:00	9.31		281.98
16861	12/2/2004	7:20:00	9.31		281.97
16921	12/2/2004	8:20:00	9.29		281.97
16981	12/2/2004	9:20:00	9.29		281.97
17041	12/2/2004	10:20:00	9.29		281.96
17101	12/2/2004	11:20:00	9.31		281.96
17161	12/2/2004	12:20:00	9.31		281.93
17221	12/2/2004	13:20:00	9.32		281.92
17281	12/2/2004	14:20:00	9.31		281.92
17341	12/2/2004	15:20:00	9.29		281.93
17401	12/2/2004	16:20:00	9.31		281.92
17461	12/2/2004	17:20:00	9.32		281.91
17521	12/2/2004	18:20:00	9.31		281.90
17581	12/2/2004	19:20:00	9.28		281.89
17641	12/2/2004	20:20:00	9.29		281.90
17701	12/2/2004	21:20:00	9.31		281.90
17761	12/2/2004	22:20:00	9.31		281.89
17821	12/2/2004	23:20:00	9.29		281.90
17881	12/3/2004	0:20:00	9.31		281.89
17941	12/3/2004	1:20:00	9.31		281.89
18001	12/3/2004	2:20:00	9.33		281.88
18061	12/3/2004	3:20:00	9.29		281.89
18121	12/3/2004	4:20:00	9.31		281.88
18181	12/3/2004	5:20:00	9.31		281.88
18241	12/3/2004	6:20:00	9.31		281.87
18301	12/3/2004	7:20:00	9.15		281.87
18361	12/3/2004	8:20:00	9.31		281.85
18421	12/3/2004	9:20:00	9.31		281.85
18481	12/3/2004	10:20:00	9.29		281.85
18541	12/3/2004	11:20:00	9.29		281.83
18601	12/3/2004	12:20:00	9.31		281.82
18661	12/3/2004	13:20:00	9.31		281.83
18721	12/3/2004	14:20:00	9.29		281.84
18781	12/3/2004	15:20:00	9.31		281.82
18841	12/3/2004	16:20:00	9.31		281.82
18901	12/3/2004	17:20:00	9.31		281.81
18961	12/3/2004	18:20:00	9.31		281.81
19021	12/3/2004	19:20:00	9.31		281.80
19081	12/3/2004	20:20:00	9.31		281.80
19141	12/3/2004	21:20:00	9.31		281.80
19201	12/3/2004	22:20:00	9.32		281.80
19261	12/3/2004	23:20:00	9.31		281.79
19321	12/4/2004	0:20:00	9.32		281.79
19381	12/4/2004	1:20:00	9.32		281.78
19441	12/4/2004	2:20:00	9.31		281.80
19501	12/4/2004	3:20:00	9.31		281.79
19561	12/4/2004	4:20:00	9.32		281.78
19621	12/4/2004	5:20:00	9.31		281.78
19681	12/4/2004	6:20:00	9.31		281.78
19741	12/4/2004	7:20:00	9.29		281.78
19801	12/4/2004	8:20:00	9.33		281.77
19861	12/4/2004	9:20:00	9.33		281.77
19921	12/4/2004	10:20:00	9.31		281.77
19981	12/4/2004	11:20:00	9.31		281.76
20041	12/4/2004	12:20:00	9.32		281.77
20101	12/4/2004	13:20:00	9.32		281.77
20161	12/4/2004	14:20:00	9.32		281.77
20221	12/4/2004	15:20:00	9.33		281.76
20281	12/4/2004	16:20:00	9.33		281.76
20341	12/4/2004	17:20:00	9.32		281.74
20401	12/4/2004	18:20:00	9.34		281.72
20461	12/4/2004	19:20:00	9.33		281.73
20521	12/4/2004	20:20:00	9.31		281.72
20581	12/4/2004	21:20:00	9.31		281.71
20641	12/4/2004	22:20:00	9.31		281.70
20701	12/4/2004	23:20:00	9.32		281.70
20761	12/5/2004	0:20:00	9.33		281.70
20821	12/5/2004	1:20:00	9.31		281.70
20881	12/5/2004	2:20:00	9.34		281.70
20941	12/5/2004	3:20:00	9.31		281.68
21001	12/5/2004	4:20:00	9.34		281.68
21061	12/5/2004	5:20:00	9.34		281.67
21121	12/5/2004	6:20:00	9.33		281.66
21181	12/5/2004	7:20:00	9.34		281.65
21241	12/5/2004	8:20:00	9.32		281.65
21301	12/5/2004	9:20:00	9.31		281.66
21361	12/5/2004	10:20:00	9.34		281.66
21421	12/5/2004	11:20:00	9.31		281.65
21481	12/5/2004	12:20:00	9.32		281.66
21541	12/5/2004	13:20:00	9.32		281.65
21601	12/5/2004	14:20:00	9.32		281.64
21661	12/5/2004	15:20:00	9.33		281.66
21721	12/5/2004	16:20:00	9.35		281.65
21781	12/5/2004	17:20:00	9.33		281.64
21841	12/5/2004	18:20:00	9.34		281.63
21901	12/5/2004	19:20:00	9.34		281.62
21961	12/5/2004	20:20:00	9.33		281.62

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
22021	12/5/2004	21:20:00	9.32		281.62
22081	12/5/2004	22:20:00	9.33		281.61
22141	12/5/2004	23:20:00	9.32		281.61
22201	12/6/2004	0:20:00	9.32		281.61
22261	12/6/2004	1:20:00	9.31		281.60
22321	12/6/2004	2:20:00	9.34		281.61
22381	12/6/2004	3:20:00	9.34		281.61
21	12/6/2004	16:25:54	9.45		283.37
81	12/6/2004	17:25:54	9.47		283.43
141	12/6/2004	18:25:54	9.5		283.46
201	12/6/2004	19:25:54	9.45		283.49
261	12/6/2004	20:25:54	9.5		283.51
321	12/6/2004	21:25:54	9.49		283.54
381	12/6/2004	22:25:54	9.35		283.55
441	12/6/2004	23:25:54	9.5		283.57
501	12/7/2004	0:25:54	9.5		283.58
561	12/7/2004	1:25:54	9.48		283.59
621	12/7/2004	2:25:54	9.49		283.60
681	12/7/2004	3:25:54	9.49		283.62
741	12/7/2004	4:25:54	9.48		283.63
801	12/7/2004	5:25:54	9.49		283.63
861	12/7/2004	6:25:54	9.52		283.64
921	12/7/2004	7:25:54	9.5		283.66
981	12/7/2004	8:25:54	9.51		283.66
1041	12/7/2004	9:25:54	9.52		283.66
1101	12/7/2004	10:25:54	9.51		283.69
1161	12/7/2004	11:25:54	9.49		283.69
1221	12/7/2004	12:25:54	9.49		283.71
1281	12/7/2004	13:25:54	9.5		283.71
1341	12/7/2004	14:25:54	9.38		283.73
1401	12/7/2004	15:25:54	9.49		283.73
1461	12/7/2004	16:25:54	9.49		283.74
1521	12/7/2004	17:25:54	9.52		283.77
1581	12/7/2004	18:25:54	9.5		283.77
1641	12/7/2004	19:25:54	9.49		283.79
1701	12/7/2004	20:25:54	9.47		283.80
1761	12/7/2004	21:25:54	9.52		283.81
1821	12/7/2004	22:25:54	9.5		283.81
1881	12/7/2004	23:25:54	9.49		283.82
1941	12/8/2004	0:25:54	9.54		283.83
2001	12/8/2004	1:25:54	9.52		283.84
2061	12/8/2004	2:25:54	9.52		283.85
2121	12/8/2004	3:25:54	9.49		283.85
2181	12/8/2004	4:25:54	9.51		283.85
2241	12/8/2004	5:25:54	9.51		283.86
2301	12/8/2004	6:25:54	9.4		283.89
2361	12/8/2004	7:25:54	9.5		283.87
2421	12/8/2004	8:25:54	9.5		283.89
2481	12/8/2004	9:25:54	9.52		283.88
2541	12/8/2004	10:25:54	9.49		283.89
2601	12/8/2004	11:25:54	9.49		283.89
2661	12/8/2004	12:25:54	9.51		283.89
2721	12/8/2004	13:25:54	9.51		283.90
2781	12/8/2004	14:25:54	9.49		283.91
2841	12/8/2004	15:25:54	9.5		283.92
2901	12/8/2004	16:25:54	9.5		283.92
2961	12/8/2004	17:25:54	9.49		283.92
3021	12/8/2004	18:25:54	9.5		283.93
3081	12/8/2004	19:25:54	9.51		283.92
3141	12/8/2004	20:25:54	9.5		283.93
3201	12/8/2004	21:25:54	9.5		283.95
3261	12/8/2004	22:25:54	9.38		283.96
3321	12/8/2004	23:25:54	9.5		283.95
3381	12/9/2004	0:25:54	9.51		283.95
3441	12/9/2004	1:25:54	9.49		283.96
3501	12/9/2004	2:25:54	9.49		283.97
3561	12/9/2004	3:25:54	9.5		283.97
3621	12/9/2004	4:25:54	9.5		283.97
3681	12/9/2004	5:25:54	9.52		283.98
3741	12/9/2004	6:25:54	9.5		283.98
3801	12/9/2004	7:25:54	9.52		283.98
3861	12/9/2004	8:25:54	9.54		283.99
3921	12/9/2004	9:25:54	9.5		284.00
3981	12/9/2004	10:25:54	9.49		284.00
4041	12/9/2004	11:25:54	9.49		284.00
4101	12/9/2004	12:25:54	9.51		284.00
4161	12/9/2004	13:25:54	9.51		284.01
4221	12/9/2004	14:25:54	9.37		284.04
4281	12/9/2004	15:25:54	9.51		284.02
4341	12/9/2004	16:25:54	9.49		284.03
4401	12/9/2004	17:25:54	9.49		284.03
4461	12/9/2004	18:25:54	9.52		284.04
4521	12/9/2004	19:25:54	9.51		284.03
4581	12/9/2004	20:25:54	9.51		284.05
4641	12/9/2004	21:25:54	9.49		284.04
4701	12/9/2004	22:25:54	9.5		284.05
4761	12/9/2004	23:25:54	9.53		284.05
4821	12/10/2004	0:25:54	9.52		284.06
4881	12/10/2004	1:25:54	9.49		284.05
4941	12/10/2004	2:25:54	9.49		284.07
5001	12/10/2004	3:25:54	9.51		284.07
5061	12/10/2004	4:25:54	9.55		284.06
5121	12/10/2004	5:25:54	9.49		284.08
5181	12/10/2004	6:25:54	9.38		284.09

No.	Date	Time	Temperature (Deg. C)	Manual Reading	Groundwater Elevation (masl)
5241	12/10/2004	7:25:54	9.51		284.07
5301	12/10/2004	8:25:54	9.51		284.08
5361	12/10/2004	9:25:54	9.51		284.09
5421	12/10/2004	10:25:54	9.54		284.09
5481	12/10/2004	11:25:54	9.53		284.09
5541	12/10/2004	12:25:54	9.52		284.09
5601	12/10/2004	13:25:54	9.5		284.10
5661	12/10/2004	14:25:54	9.51		284.11
5721	12/10/2004	15:25:54	9.52		284.11
5781	12/10/2004	16:25:54	9.53		284.10
5841	12/10/2004	17:25:54	9.51		284.12
5901	12/10/2004	18:25:54	9.52		284.12
5961	12/10/2004	19:25:54	9.5		284.12
6021	12/10/2004	20:25:54	9.52		284.12
6081	12/10/2004	21:25:54	9.52		284.12
6141	12/10/2004	22:25:54	9.37		284.14
6201	12/10/2004	23:25:54	9.5		284.14
6261	12/11/2004	0:25:54	9.53		284.14
6321	12/11/2004	1:25:54	9.5		284.14
6381	12/11/2004	2:25:54	9.52		284.14
6441	12/11/2004	3:25:54	9.49		284.15
6501	12/11/2004	4:25:54	9.49		284.15
6561	12/11/2004	5:25:54	9.51		284.15
6621	12/11/2004	6:25:54	9.49		284.15
6681	12/11/2004	7:25:54	9.5		284.15
6741	12/11/2004	8:25:54	9.5		284.15
6801	12/11/2004	9:25:54	9.51		284.16
6861	12/11/2004	10:25:54	9.53		284.16
6921	12/11/2004	11:25:54	9.5		284.17
6981	12/11/2004	12:25:54	9.52		284.17
7041	12/11/2004	13:25:54	9.52		284.17
7101	12/11/2004	14:25:54	9.4		284.19

Note: Data collected every min but reported in the present table every hour.

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Table F2-2-19 - JEGEL BH-D
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	11:55:00	283.94
28-Nov-04	13:30:00	283.76
28-Nov-04	17:40:00	283.75
29-Nov-04	8:58:00	283.76
30-Nov-04	9:06:00	283.94
30-Nov-04	14:41:00	283.80
1-Dec-04	10:09:00	283.61
2-Dec-04	7:52:00	283.48
2-Dec-04	15:43:00	283.47
4-Dec-04	8:20:00	283.43
4-Dec-04	12:50:00	283.42
5-Dec-04	9:46:00	283.36
5-Dec-04	15:13:00	283.35
6-Dec-04	9:32:00	283.33

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Table F2-2-20 - JEGEL BH-E
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	12:11:00	281.03
28-Nov-04	13:50:00	281.02
28-Nov-04	20:09:00	280.99
29-Nov-04	10:46:00	280.99
29-Nov-04	16:01:00	280.99
30-Nov-04	9:22:00	281.03
30-Nov-04	15:42:00	281.04
1-Dec-04	12:00:00	281.02
2-Dec-04	10:44:00	281.02
2-Dec-04	16:06:00	281.02
4-Dec-04	9:21:00	281.05
4-Dec-04	13:36:00	281.06
5-Dec-04	10:36:00	281.00
5-Dec-04	15:55:00	281.00
6-Dec-04	10:50:00	281.02

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Table F2-2-21 - JEGEL BH-F
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
5555	11/24/2004	11:03:07	10.76		282.13
5615	11/24/2004	12:03:07	8.83		282.22
5675	11/24/2004	13:03:07	8.83		282.22
5735	11/24/2004	14:03:07	8.87		282.24
5795	11/24/2004	15:03:07	8.85		282.26
5855	11/24/2004	16:03:07	8.82		282.28
5915	11/24/2004	17:03:07	8.83		282.30
5975	11/24/2004	18:03:07	8.83		282.31
6035	11/24/2004	19:03:07	8.83		282.32
6095	11/24/2004	20:03:07	8.83		282.34
6155	11/24/2004	21:03:07	8.83		282.35
6215	11/24/2004	22:03:07	8.85		282.36
6275	11/24/2004	23:03:07	8.85		282.35
6335	11/25/2004	0:03:07	8.85		282.37
6395	11/25/2004	1:03:07	8.85		282.38
6455	11/25/2004	2:03:07	8.89		282.37
6515	11/25/2004	3:03:07	8.87		282.36
6575	11/25/2004	4:03:07	8.86		282.36
6635	11/25/2004	5:03:07	8.87		282.35
6695	11/25/2004	6:03:07	8.89		282.34
6755	11/25/2004	7:03:07	8.86		282.33
6815	11/25/2004	8:03:07	8.88		282.32
6875	11/25/2004	9:03:07	8.89		282.31
6935	11/25/2004	10:03:07	8.88		282.29
6995	11/25/2004	11:03:07	8.85		282.29
7055	11/25/2004	12:03:07	8.89		282.28
7115	11/25/2004	13:03:07	8.86		282.28
7175	11/25/2004	14:03:07	8.87		282.26
7235	11/25/2004	15:03:07	8.87		282.25
7295	11/25/2004	16:03:07	8.9		282.23
7355	11/25/2004	17:03:07	8.88		282.23
7415	11/25/2004	18:03:07	8.85		282.22
7475	11/25/2004	19:03:07	8.83		282.21
7535	11/25/2004	20:03:07	8.83		282.21
7595	11/25/2004	21:03:07	8.85		282.21
7655	11/25/2004	22:03:07	8.83		282.21
7715	11/25/2004	23:03:07	8.86		282.22
7775	11/26/2004	0:03:07	8.85		282.21
7835	11/26/2004	1:03:07	8.85		282.21
7895	11/26/2004	2:03:07	8.85		282.21
7955	11/26/2004	3:03:07	8.87		282.21
8015	11/26/2004	4:03:07	8.85		282.20
8075	11/26/2004	5:03:07	8.83		282.19
8135	11/26/2004	6:03:07	8.86		282.19
8195	11/26/2004	7:03:07	8.83		282.18
8255	11/26/2004	8:03:07	8.85		282.17
8315	11/26/2004	9:03:07	8.89		282.16
8375	11/26/2004	10:03:07	8.85		282.16
8435	11/26/2004	11:03:07	8.88		282.15
8495	11/26/2004	12:03:07	8.85		282.15
8555	11/26/2004	13:03:07	8.85		282.15
8615	11/26/2004	14:03:07	8.85		282.15
8675	11/26/2004	15:03:07	8.86		282.15
8735	11/26/2004	16:03:07	8.85		282.15
8795	11/26/2004	17:03:07	8.88		282.15
8855	11/26/2004	18:03:07	8.85		282.15
8915	11/26/2004	19:03:07	8.85		282.15
8975	11/26/2004	20:03:07	8.86		282.15
9035	11/26/2004	21:03:07	8.86		282.15
9095	11/26/2004	22:03:07	8.86		282.14
9155	11/26/2004	23:03:07	8.87		282.15
9215	11/27/2004	0:03:07	8.87		282.15
9275	11/27/2004	1:03:07	8.85		282.15
9335	11/27/2004	2:03:07	8.89		282.15
9395	11/27/2004	3:03:07	8.88		282.15
9455	11/27/2004	4:03:07	8.87		282.15
9515	11/27/2004	5:03:07	8.89		282.16
9575	11/27/2004	6:03:07	8.88		282.15
9635	11/27/2004	7:03:07	8.88		282.16
9695	11/27/2004	8:03:07	8.88		282.16
9755	11/27/2004	9:03:07	8.88		282.17
9815	11/27/2004	10:03:07	8.88		282.16
9875	11/27/2004	11:03:07	8.87		282.16
9935	11/27/2004	12:03:07	8.88		282.17
9995	11/27/2004	13:03:07	8.87		282.18
10055	11/27/2004	14:03:07	8.89		282.18
10115	11/27/2004	15:03:07	8.89		282.20
10175	11/27/2004	16:03:07	8.91		282.20
10235	11/27/2004	17:03:07	8.92		282.20
10295	11/27/2004	18:03:07	8.89		282.21
10355	11/27/2004	19:03:07	8.91		282.22
10415	11/27/2004	20:03:07	8.91		282.23
10475	11/27/2004	21:03:07	8.89		282.24
10535	11/27/2004	22:03:07	8.87		282.24
10595	11/27/2004	23:03:07	8.87		282.25

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
10655	11/28/2004	0:03:07	8.89		282.25
10715	11/28/2004	1:03:07	8.89		282.26
10775	11/28/2004	2:03:07	8.87		282.27
10835	11/28/2004	3:03:07	8.88		282.28
10895	11/28/2004	4:03:07	8.87		282.28
10955	11/28/2004	5:03:07	8.89		282.29
11015	11/28/2004	6:03:07	8.88		282.30
11075	11/28/2004	7:03:07	8.89		282.29
11135	11/28/2004	8:03:07	8.91		282.27
11195	11/28/2004	9:03:07	8.89		282.26
11255	11/28/2004	10:03:07	8.91		282.26
11315	11/28/2004	11:03:07	8.91		282.26
11375	11/28/2004	12:03:07	8.89		282.25
11435	11/28/2004	13:03:07	8.91		282.24
11495	11/28/2004	14:03:07	8.89		282.23
11555	11/28/2004	15:03:07	8.91		282.22
11615	11/28/2004	16:03:07	8.88		282.20
11675	11/28/2004	17:03:07	8.88		282.19
11735	11/28/2004	18:03:07	8.91		282.17
11795	11/28/2004	19:03:07	8.88		282.15
11855	11/28/2004	20:03:07	8.88		282.13
11915	11/28/2004	21:03:07	8.87		282.12
11975	11/28/2004	22:03:07	8.91		282.11
12035	11/28/2004	23:03:07	8.88		282.11
12095	11/29/2004	0:03:07	8.88		282.10
12155	11/29/2004	1:03:07	8.89		282.10
12215	11/29/2004	2:03:07	8.89		282.10
12275	11/29/2004	3:03:07	8.89		282.09
12335	11/29/2004	4:03:07	8.88		282.08
12395	11/29/2004	5:03:07	8.9		282.08
12455	11/29/2004	6:03:07	8.88		282.08
12515	11/29/2004	7:03:07	8.89		282.07
12575	11/29/2004	8:03:07	8.89		282.06
12635	11/29/2004	9:03:07	8.88		282.06
12695	11/29/2004	10:03:07	8.89		282.07
12755	11/29/2004	11:03:07	8.88		282.07
12815	11/29/2004	12:03:07	8.89		282.05
12875	11/29/2004	13:03:07	8.89		282.07
12935	11/29/2004	14:03:07	8.89		282.08
12995	11/29/2004	15:03:07	8.89		282.08
13055	11/29/2004	16:03:07	8.89		282.09
13115	11/29/2004	17:03:07	8.89		282.08
13175	11/29/2004	18:03:07	8.9		282.09
13235	11/29/2004	19:03:07	8.91		282.09
13295	11/29/2004	20:03:07	8.91		282.09
13355	11/29/2004	21:03:07	8.91		282.09
13415	11/29/2004	22:03:07	8.91		282.09
13475	11/29/2004	23:03:07	8.9		282.10
13535	11/30/2004	0:03:07	8.91		282.10
13595	11/30/2004	1:03:07	8.92		282.10
13655	11/30/2004	2:03:07	8.89		282.11
13715	11/30/2004	3:03:07	8.89		282.11
13775	11/30/2004	4:03:07	8.91		282.10
13835	11/30/2004	5:03:07	8.91		282.10
13895	11/30/2004	6:03:07	8.89		282.10
13955	11/30/2004	7:03:07	8.92		282.10
14015	11/30/2004	8:03:07	8.89		282.10
14075	11/30/2004	9:03:07	8.89		282.10
14135	11/30/2004	10:03:07	8.91		282.10
14195	11/30/2004	11:03:07	8.91		282.10
14255	11/30/2004	12:03:07	8.91		282.11
14315	11/30/2004	13:03:07	8.91		282.12
14375	11/30/2004	14:03:07	8.89		282.14
14435	11/30/2004	15:03:07	8.9		282.13
14495	11/30/2004	16:03:07	8.86		282.14
14555	11/30/2004	17:03:07	8.91		282.15
14615	11/30/2004	18:03:07	8.86		282.16
14675	11/30/2004	19:03:07	8.87		282.17
14735	11/30/2004	20:03:07	8.87		282.18
14795	11/30/2004	21:03:07	8.88		282.20
14855	11/30/2004	22:03:07	8.87		282.21
14915	11/30/2004	23:03:07	8.87		282.23
14975	12/1/2004	0:03:07	8.88		282.24
15035	12/1/2004	1:03:07	8.87		282.27
15095	12/1/2004	2:03:07	8.85		282.29
15155	12/1/2004	3:03:07	8.85		282.32
15215	12/1/2004	4:03:07	8.89		282.34
15275	12/1/2004	5:03:07	8.86		282.36
15335	12/1/2004	6:03:07	8.87		282.37
15395	12/1/2004	7:03:07	8.85		282.38
15455	12/1/2004	8:03:07	8.87		282.37
15515	12/1/2004	9:03:07	8.87		282.36
15575	12/1/2004	10:03:07	8.87		282.34
15635	12/1/2004	11:03:07	8.88		282.32
15695	12/1/2004	12:03:07	8.89		282.29
15755	12/1/2004	13:03:07	8.87		282.27
15815	12/1/2004	14:03:07	8.87		282.24
15875	12/1/2004	15:03:07	8.89		282.24
15935	12/1/2004	16:03:07	8.89		282.23
15995	12/1/2004	17:03:07	8.86		282.21
16055	12/1/2004	18:03:07	8.89		282.21
16115	12/1/2004	19:03:07	8.88		282.20
16175	12/1/2004	20:03:07	8.88		282.20
16235	12/1/2004	21:03:07	8.9		282.19

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
16295	12/1/2004	22:03:07	8.89		282.19
16355	12/1/2004	23:03:07	8.88		282.19
16415	12/2/2004	0:03:07	8.9		282.19
16475	12/2/2004	1:03:07	8.89		282.19
16535	12/2/2004	2:03:07	8.89		282.18
16595	12/2/2004	3:03:07	8.88		282.17
16655	12/2/2004	4:03:07	8.91		282.17
16715	12/2/2004	5:03:07	8.91		282.17
16775	12/2/2004	6:03:07	8.91		282.17
16835	12/2/2004	7:03:07	8.89		282.17
16895	12/2/2004	8:03:07	8.91		282.16
16955	12/2/2004	9:03:07	8.91		282.16
17015	12/2/2004	10:03:07	8.9		282.16
17075	12/2/2004	11:03:07	8.91		282.16
17135	12/2/2004	12:03:07	8.91		282.16
17195	12/2/2004	13:03:07	8.89		282.18
17255	12/2/2004	14:03:07	8.91		282.19
17315	12/2/2004	15:03:07	8.91		282.20
17375	12/2/2004	16:03:07	8.91		282.19
17435	12/2/2004	17:03:07	8.89		282.20
17495	12/2/2004	18:03:07	8.91		282.20
17555	12/2/2004	19:03:07	8.91		282.21
17615	12/2/2004	20:03:07	8.94		282.20
17675	12/2/2004	21:03:07	8.91		282.21
17735	12/2/2004	22:03:07	8.91		282.22
17795	12/2/2004	23:03:07	8.89		282.23
17855	12/3/2004	0:03:07	8.88		282.24
17915	12/3/2004	1:03:07	8.89		282.25
17975	12/3/2004	2:03:07	8.89		282.26
18035	12/3/2004	3:03:07	8.88		282.27
18095	12/3/2004	4:03:07	8.91		282.28
18155	12/3/2004	5:03:07	8.88		282.28
18215	12/3/2004	6:03:07	8.89		282.27
18275	12/3/2004	7:03:07	8.89		282.25
18335	12/3/2004	8:03:07	8.89		282.23
18395	12/3/2004	9:03:07	8.91		282.22
18455	12/3/2004	10:03:07	8.87		282.21
18515	12/3/2004	11:03:07	8.91		282.20
18575	12/3/2004	12:03:07	8.89		282.19
18635	12/3/2004	13:03:07	8.88		282.19
18695	12/3/2004	14:03:07	8.89		282.19
18755	12/3/2004	15:03:07	8.87		282.19
18815	12/3/2004	16:03:07	8.85		282.17
18875	12/3/2004	17:03:07	8.89		282.16
18935	12/3/2004	18:03:07	8.92		282.16
18995	12/3/2004	19:03:07	8.89		282.16
19055	12/3/2004	20:03:07	8.88		282.15
19115	12/3/2004	21:03:07	8.91		282.16
19175	12/3/2004	22:03:07	8.87		282.16
19235	12/3/2004	23:03:07	8.85		282.16
19295	12/4/2004	0:03:07	8.87		282.16
19355	12/4/2004	1:03:07	8.89		282.18
19415	12/4/2004	2:03:07	8.87		282.18
19475	12/4/2004	3:03:07	8.89		282.20
19535	12/4/2004	4:03:07	8.86		282.20
19595	12/4/2004	5:03:07	8.88		282.21
19655	12/4/2004	6:03:07	8.87		282.21
19715	12/4/2004	7:03:07	8.88		282.21
19775	12/4/2004	8:03:07	8.9		282.21
19835	12/4/2004	9:03:07	8.89		282.22
19895	12/4/2004	10:03:07	8.86		282.23
19955	12/4/2004	11:03:07	8.89		282.24
20015	12/4/2004	12:03:07	8.87		282.26
20075	12/4/2004	13:03:07	8.88		282.27
20135	12/4/2004	14:03:07	8.87		282.27
20195	12/4/2004	15:03:07	8.87		282.28
20255	12/4/2004	16:03:07	8.87		282.27
20315	12/4/2004	17:03:07	8.88		282.27
20375	12/4/2004	18:03:07	8.87		282.26
20435	12/4/2004	19:03:07	8.88		282.25
20495	12/4/2004	20:03:07	8.88		282.25
20555	12/4/2004	21:03:07	8.87		282.24
20615	12/4/2004	22:03:07	8.87		282.23
20675	12/4/2004	23:03:07	8.88		282.23
20735	12/5/2004	0:03:07	8.88		282.22
20795	12/5/2004	1:03:07	8.88		282.21
20855	12/5/2004	2:03:07	8.89		282.20
20915	12/5/2004	3:03:07	8.88		282.18
20975	12/5/2004	4:03:07	8.9		282.17
21035	12/5/2004	5:03:07	8.89		282.16
21095	12/5/2004	6:03:07	8.89		282.15
21155	12/5/2004	7:03:07	8.89		282.14
21215	12/5/2004	8:03:07	8.89		282.12
21275	12/5/2004	9:03:07	8.9		282.11
21335	12/5/2004	10:03:07	8.9		282.11
21395	12/5/2004	11:03:07	8.9		282.10
21455	12/5/2004	12:03:07	8.9		282.10
21515	12/5/2004	13:03:07	8.9		282.09
21575	12/5/2004	14:03:07	8.91		282.08
21635	12/5/2004	15:03:07	8.9		282.09
21695	12/5/2004	16:03:07	8.9		282.08
21755	12/5/2004	17:03:07	8.91		282.08
21815	12/5/2004	18:03:07	8.9		282.07
21875	12/5/2004	19:03:07	8.91		282.07

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
21935	12/5/2004	20:03:07	8.91		282.06
21995	12/5/2004	21:03:07	8.91		282.07
22055	12/5/2004	22:03:07	8.9		282.07
22115	12/5/2004	23:03:07	8.91		282.08
22175	12/6/2004	0:03:07	8.91		282.08
22235	12/6/2004	1:03:07	8.91		282.08
22295	12/6/2004	2:03:07	8.91		282.09
22355	12/6/2004	3:03:07	8.91		282.10
22415	12/6/2004	4:03:07	8.91		282.11
22475	12/6/2004	5:03:07	8.9		282.12
22535	12/6/2004	6:03:07	8.91		282.12
22595	12/6/2004	7:03:07	8.91		282.11
22655	12/6/2004	8:03:07	8.91		282.11
22715	12/6/2004	9:03:07	8.91		282.12
22775	12/6/2004	10:03:07	8.9		282.12
22835	12/6/2004	11:03:07	8.9		282.13
22895	12/6/2004	12:03:07	8.9		282.14
22955	12/6/2004	13:03:07	8.91		282.15
23015	12/6/2004	14:03:07	8.89		282.15
23075	12/6/2004	15:03:07	18.56		280.59
60	12/6/2004	17:05:03	8.87		282.13
120	12/6/2004	18:05:03	8.85		282.14
180	12/6/2004	19:05:03	8.87		282.14
240	12/6/2004	20:05:03	8.87		282.14
300	12/6/2004	21:05:03	8.88		282.14
360	12/6/2004	22:05:03	8.88		282.14
420	12/6/2004	23:05:03	8.9		282.14
480	12/7/2004	0:05:03	8.85		282.15
540	12/7/2004	1:05:03	8.85		282.16
600	12/7/2004	2:05:03	8.89		282.16
660	12/7/2004	3:05:03	8.89		282.17
720	12/7/2004	4:05:03	8.89		282.18
780	12/7/2004	5:05:03	8.9		282.18
840	12/7/2004	6:05:03	8.91		282.19
900	12/7/2004	7:05:03	8.89		282.20
960	12/7/2004	8:05:03	8.89		282.21
1020	12/7/2004	9:05:03	8.88		282.22
1080	12/7/2004	10:05:03	8.91		282.24
1140	12/7/2004	11:05:03	8.89		282.27
1200	12/7/2004	12:05:03	8.89		282.30
1260	12/7/2004	13:05:03	8.91		282.33
1320	12/7/2004	14:05:03	8.88		282.35
1380	12/7/2004	15:05:03	8.9		282.37
1440	12/7/2004	16:05:03	8.91		282.37
1500	12/7/2004	17:05:03	8.88		282.38
1560	12/7/2004	18:05:03	8.88		282.36
1620	12/7/2004	19:05:03	8.91		282.38
1680	12/7/2004	20:05:03	8.87		282.38
1740	12/7/2004	21:05:03	8.87		282.36
1800	12/7/2004	22:05:03	8.83		282.34
1860	12/7/2004	23:05:03	8.87		282.32
1920	12/8/2004	0:05:03	8.89		282.29
1980	12/8/2004	1:05:03	8.9		282.28
2040	12/8/2004	2:05:03	8.88		282.27
2100	12/8/2004	3:05:03	8.88		282.26
2160	12/8/2004	4:05:03	8.89		282.24
2220	12/8/2004	5:05:03	8.91		282.23
2280	12/8/2004	6:05:03	8.89		282.23
2340	12/8/2004	7:05:03	8.89		282.21
2400	12/8/2004	8:05:03	8.9		282.21
2460	12/8/2004	9:05:03	8.88		282.18
2520	12/8/2004	10:05:03	8.91		282.17
2580	12/8/2004	11:05:03	8.91		282.15
2640	12/8/2004	12:05:03	8.9		282.14
2700	12/8/2004	13:05:03	8.91		282.14
2760	12/8/2004	14:05:03	8.89		282.14
2820	12/8/2004	15:05:03	8.88		282.14
2880	12/8/2004	16:05:03	8.89		282.14
2940	12/8/2004	17:05:03	8.89		282.14
3000	12/8/2004	18:05:03	8.86		282.13
3060	12/8/2004	19:05:03	8.91		282.12
3120	12/8/2004	20:05:03	8.88		282.12
3180	12/8/2004	21:05:03	8.88		282.12
3240	12/8/2004	22:05:03	8.91		282.12
3300	12/8/2004	23:05:03	8.86		282.12
3360	12/9/2004	0:05:03	8.86		282.12
3420	12/9/2004	1:05:03	8.86		282.13
3480	12/9/2004	2:05:03	8.88		282.13
3540	12/9/2004	3:05:03	8.86		282.14
3600	12/9/2004	4:05:03	8.87		282.15
3660	12/9/2004	5:05:03	8.87		282.15
3720	12/9/2004	6:05:03	8.87		282.16
3780	12/9/2004	7:05:03	8.88		282.17
3840	12/9/2004	8:05:03	8.87		282.17
3900	12/9/2004	9:05:03	8.89		282.17
3960	12/9/2004	10:05:03	8.89		282.17
4020	12/9/2004	11:05:03	8.89		282.17
4080	12/9/2004	12:05:03	8.89		282.18
4140	12/9/2004	13:05:03	8.91		282.19
4200	12/9/2004	14:05:03	8.91		282.20
4260	12/9/2004	15:05:03	8.91		282.21
4320	12/9/2004	16:05:03	8.91		282.21
4380	12/9/2004	17:05:03	8.91		282.22
4440	12/9/2004	18:05:03	8.89		282.23

No.	Date	Time	Temperature (Deg. C)	Manual Data	Groundwater Elevation (masl)
4500	12/9/2004	19:05:03	8.9		282.23
4560	12/9/2004	20:05:03	8.91		282.24
4620	12/9/2004	21:05:03	8.91		282.23
4680	12/9/2004	22:05:03	8.91		282.24
4740	12/9/2004	23:05:03	8.91		282.24
4800	12/10/2004	0:05:03	8.91		282.24
4860	12/10/2004	1:05:03	8.89		282.24
4920	12/10/2004	2:05:03	8.91		282.26
4980	12/10/2004	3:05:03	8.92		282.25
5040	12/10/2004	4:05:03	8.9		282.26
5100	12/10/2004	5:05:03	8.91		282.26
5160	12/10/2004	6:05:03	8.9		282.26
5220	12/10/2004	7:05:03	8.89		282.27
5280	12/10/2004	8:05:03	8.89		282.27
5340	12/10/2004	9:05:03	8.89		282.28
5400	12/10/2004	10:05:03	8.89		282.29
5460	12/10/2004	11:05:03	8.9		282.29
5520	12/10/2004	12:05:03	8.86		282.31
5580	12/10/2004	13:05:03	8.86		282.31
5640	12/10/2004	14:05:03	8.89		282.32
5700	12/10/2004	15:05:03	8.88		282.33
5760	12/10/2004	16:05:03	8.88		282.33
5820	12/10/2004	17:05:03	8.88		282.34
5880	12/10/2004	18:05:03	8.88		282.34
5940	12/10/2004	19:05:03	8.89		282.34
6000	12/10/2004	20:05:03	8.87		282.34
6060	12/10/2004	21:05:03	8.89		282.35
6120	12/10/2004	22:05:03	8.88		282.35
6180	12/10/2004	23:05:03	8.87		282.35
6240	12/11/2004	0:05:03	8.87		282.36
6300	12/11/2004	1:05:03	8.87		282.36
6360	12/11/2004	2:05:03	8.87		282.36
6420	12/11/2004	3:05:03	8.88		282.35
6480	12/11/2004	4:05:03	8.87		282.36
6540	12/11/2004	5:05:03	8.87		282.37
6600	12/11/2004	6:05:03	8.89		282.36
6660	12/11/2004	7:05:03	8.89		282.36
6720	12/11/2004	8:05:03	8.88		282.36
6780	12/11/2004	9:05:03	8.89		282.35
6840	12/11/2004	10:05:03	8.9		282.35
6900	12/11/2004	11:05:03	8.9		282.36
6960	12/11/2004	12:05:03	8.91		282.36
7020	12/11/2004	13:05:03	8.89		282.36
7080	12/11/2004	14:05:03	8.89		282.36
7140	12/11/2004	15:05:03	8.89		282.36

Note: Data collected every min byt reported in the present table every hour

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Table F2-2-22 - Monitor TW-10
Water Levels
Manual Measurments
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	12:03:00	278.32
28-Nov-04	11:50:00	278.27
28-Nov-04	19:47:00	278.25
29-Nov-04	9:30:00	278.24
29-Nov-04	16:07:00	278.30
30-Nov-04	9:13:00	278.31
30-Nov-04	17:03:00	278.30
1-Dec-04	11:45:00	278.19
1-Dec-04	15:02:00	278.17
2-Dec-04	10:27:00	278.13
2-Dec-04	16:00:00	278.13
4-Dec-04	8:35:00	278.10
4-Dec-04	13:07:00	278.10
5-Dec-04	10:10:00	278.04
5-Dec-04	15:32:00	278.04
6-Dec-04	10:03:00	278.03

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Table F2-2-23 - Monitor TW-11
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
28-Nov-04	12:57	281.03
28-Nov-04	17:52	281.03
29-Nov-04	15:39	280.94
30-Nov-04	8:40	280.90
30-Nov-04	14:16	280.89
1-Dec-04	14:47	280.88
2-Dec-04	7:20	280.87
2-Dec-04	17:15	280.87
3-Dec-04	11:45	280.81
4-Dec-04	7:35	280.80
4-Dec-04	12:09	280.80
5-Dec-04	8:57	280.91
5-Dec-04	14:16	280.94
6-Dec-04	8:12	281.00

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Table F2-2-24 - Pumping Well TW-12
Water Levels and Temperature
168-Hour Pumping Test

No.	Date	Time	Temperature (Deg. C)	Manual Measurment (mbtop)	Groundwater Elevation (masl)
6	11/27/2004	10:41:26	10.02	7.64	282.36
66	11/27/2004	11:41:26	8.73		282.44
126	11/27/2004	12:41:26	8.71		282.46
186	11/27/2004	13:41:26	8.74		282.45
246	11/27/2004	14:41:26	8.75		282.47
306	11/27/2004	15:41:26	8.69		282.46
366	11/27/2004	16:41:26	8.7		282.45
426	11/27/2004	17:41:26	8.78		282.44
486	11/27/2004	18:41:26	9.15		279.86
546	11/27/2004	19:41:26	9.29		279.56
606	11/27/2004	20:41:26	9.26		277.24
666	11/27/2004	21:41:26	9.29		277.09
726	11/27/2004	22:41:26	9.23		277.21
786	11/27/2004	23:41:26	9.23		276.58
846	11/28/2004	0:41:26	9.25		276.70
906	11/28/2004	1:41:26	9.26		276.58
966	11/28/2004	2:41:26	9.26		276.39
1026	11/28/2004	3:41:26	9.26		276.22
1086	11/28/2004	4:41:26	9.25		276.16
1146	11/28/2004	5:41:26	9.25		276.13
1206	11/28/2004	6:41:26	9.25		276.02
1266	11/28/2004	7:41:26	9.22		276.02
1326	11/28/2004	8:41:26	9.21		276.03
1386	11/28/2004	9:41:26	9.21		276.34
1446	11/28/2004	10:41:26	9.2		276.33
1506	11/28/2004	11:41:26	9.2		276.17
1566	11/28/2004	12:41:26	9.21		276.08
1626	11/28/2004	13:41:26	9.2		276.08
1686	11/28/2004	14:41:26	9.21		276.05
1746	11/28/2004	15:41:26	9.2		276.05
1806	11/28/2004	16:41:26	9.23		276.28
1866	11/28/2004	17:41:26	9.23		276.28
1926	11/28/2004	18:41:26	9.23		276.19
1986	11/28/2004	19:41:26	9.23		276.13
2046	11/28/2004	20:41:26	9.25		276.18
2106	11/28/2004	21:41:26	9.25		276.15
2166	11/28/2004	22:41:26	9.25		276.15
2226	11/28/2004	23:41:26	9.25		276.14
2286	11/29/2004	0:41:26	9.25		276.09
2346	11/29/2004	1:41:26	9.23		276.04
2406	11/29/2004	2:41:26	9.25		276.01
2466	11/29/2004	3:41:26	9.25		276.00
2526	11/29/2004	4:41:26	9.23		275.96
2586	11/29/2004	5:41:26	9.2		275.99
2646	11/29/2004	6:41:26	9.25		275.95
2706	11/29/2004	7:41:26	9.2		275.90
2766	11/29/2004	8:41:26	9.13		279.98
2826	11/29/2004	9:41:26	8.75		281.21
2886	11/29/2004	10:41:26	8.75		281.49
2946	11/29/2004	11:41:26	8.77		281.66
3006	11/29/2004	12:41:26	8.75		281.78
3066	11/29/2004	13:41:26	6.51		259.69
3126	11/29/2004	14:41:26	7.52		259.74
3186	11/29/2004	15:41:26	8.41		259.79
3246	11/29/2004	16:41:26	8.1		259.79
3306	11/29/2004	17:41:26	7.18		259.76
3366	11/29/2004	18:41:26	6.04		259.72
3426	11/29/2004	19:41:26	10.45		259.76
3486	11/29/2004	20:41:26	10.45		259.79
3546	11/29/2004	21:41:26	10.45		259.80
3606	11/29/2004	22:41:26	10.47		259.81
3666	11/29/2004	23:41:26	10.45		259.82
3726	11/30/2004	0:41:26	10.45		259.82
3786	11/30/2004	1:41:26	10.45		259.81
3846	11/30/2004	2:41:26	10.48		259.81
3906	11/30/2004	3:41:26	10.47		259.82
3966	11/30/2004	4:41:26	10.45		259.80
4026	11/30/2004	5:41:26	10.5		259.82
4086	11/30/2004	6:41:26	10.47		259.84
4146	11/30/2004	7:41:26	10.49		259.82
4206	11/30/2004	8:41:26	10.47		259.84
4266	11/30/2004	9:41:26	3.35		259.56
4326	11/30/2004	10:41:26	1.78		259.63
4386	11/30/2004	11:41:26	3.53		259.65
4446	11/30/2004	12:41:26	5.39		259.63
4506	11/30/2004	13:41:26	6.86		259.71
4566	11/30/2004	14:41:26	6.43		259.71
4626	11/30/2004	15:41:26	5.81		259.72
4686	11/30/2004	16:41:26	3.97		259.66
4746	11/30/2004	17:41:26	2.87		259.68
4806	11/30/2004	18:41:26	2.62		259.68
4866	11/30/2004	19:41:26	2.29		259.70
4926	11/30/2004	20:41:26	5.15		282.27
4986	11/30/2004	21:41:26	9.17		277.20

No.	Date	Time	Temperature (Deg. C)	Manual Measurment (mbtop)	Groundwater Elevation (masl)
5046	11/30/2004	22:41:26	9.21		276.62
5106	11/30/2004	23:41:26	9.22		276.21
5166	12/1/2004	0:41:26	9.22		275.78
5226	12/1/2004	1:41:26	9.21		275.32
5286	12/1/2004	2:41:26	9.14		274.89
5346	12/1/2004	3:41:26	9.11		274.70
5406	12/1/2004	4:41:26	9.13		274.61
5466	12/1/2004	5:41:26	9.11		274.58
5526	12/1/2004	6:41:26	9.14		274.55
5586	12/1/2004	7:41:26	9.16		274.51
5646	12/1/2004	8:41:26	9.13		271.01
5706	12/1/2004	9:41:26	9.04		266.56
5766	12/1/2004	10:41:26	8.96		265.65
5826	12/1/2004	11:41:26	8.95		265.62
5886	12/1/2004	12:41:26	8.93		265.60
5946	12/1/2004	13:41:26	8.91		265.49
6006	12/1/2004	14:41:26	8.89		265.53
6066	12/1/2004	15:41:26	8.91		265.11
6126	12/1/2004	16:41:26	8.89		265.10
6186	12/1/2004	17:41:26	8.89		265.09
6246	12/1/2004	18:41:26	8.89		265.05
6306	12/1/2004	19:41:26	8.87		263.96
6366	12/1/2004	20:41:26	8.89		264.28
6426	12/1/2004	21:41:26	8.9		264.24
6486	12/1/2004	22:41:26	8.89		264.35
6546	12/1/2004	23:41:26	8.9		264.23
6606	12/2/2004	0:41:26	8.89		264.17
6666	12/2/2004	1:41:26	8.91		264.15
6726	12/2/2004	2:41:26	8.91		264.15
6786	12/2/2004	3:41:26	8.91		264.13
6846	12/2/2004	4:41:26	8.9		264.20
6906	12/2/2004	5:41:26	8.92		264.09
6966	12/2/2004	6:41:26	8.93		264.16
7026	12/2/2004	7:41:26	8.91		264.13
7086	12/2/2004	8:41:26	8.92		264.07
7146	12/2/2004	9:41:26	8.92		264.03
7206	12/2/2004	10:41:26	8.93		264.04
7266	12/2/2004	11:41:26	8.94		263.61
7326	12/2/2004	12:41:26	8.92		263.46
7386	12/2/2004	13:41:26	8.9		263.41
7446	12/2/2004	14:41:26	8.91		263.42
7506	12/2/2004	15:41:26	8.93		263.48
7566	12/2/2004	16:41:26	8.89		263.42
7626	12/2/2004	17:41:26	8.91		263.40
7686	12/2/2004	18:41:26	8.91		263.37
7746	12/2/2004	19:41:26	8.92		263.38
7806	12/2/2004	20:41:26	8.89		263.38
7866	12/2/2004	21:41:26	8.89		263.29
7926	12/2/2004	22:41:26	8.89		263.32
7986	12/2/2004	23:41:26	8.9		263.29
8046	12/3/2004	0:41:26	8.86		263.26
8106	12/3/2004	1:41:26	8.87		263.19
8166	12/3/2004	2:41:26	8.86		263.18
8226	12/3/2004	3:41:26	8.85		263.15
8286	12/3/2004	4:41:26	8.85		263.16
8346	12/3/2004	5:41:26	8.84		263.17
8406	12/3/2004	6:41:26	8.89		263.14
8466	12/3/2004	7:41:26	8.83		263.11
8526	12/3/2004	8:41:26	8.85		262.99
8586	12/3/2004	9:41:26	8.87		263.00
8646	12/3/2004	10:41:26	8.87		262.95
8706	12/3/2004	11:41:26	8.85		262.97
8766	12/3/2004	12:41:26	8.83		262.96
8826	12/3/2004	13:41:26	8.85		262.99
8886	12/3/2004	14:41:26	8.85		262.98
8946	12/3/2004	15:41:26	8.83		263.02
9006	12/3/2004	16:41:26	8.84		262.99
9066	12/3/2004	17:41:26	8.85		262.92
9126	12/3/2004	18:41:26	8.86		262.92
9186	12/3/2004	19:41:26	8.85		262.96
9246	12/3/2004	20:41:26	8.85		262.95
9306	12/3/2004	21:41:26	8.87		262.97
9366	12/3/2004	22:41:26	8.85		262.89
9426	12/3/2004	23:41:26	8.85		262.91
9486	12/4/2004	0:41:26	8.87		262.84
9546	12/4/2004	1:41:26	8.86		262.97
9606	12/4/2004	2:41:26	8.86		262.88
9666	12/4/2004	3:41:26	8.86		262.89
9726	12/4/2004	4:41:26	8.85		262.85
9786	12/4/2004	5:41:26	8.85		262.93
9846	12/4/2004	6:41:26	8.85		262.89
9906	12/4/2004	7:41:26	8.87		262.84
9966	12/4/2004	8:41:26	8.85		262.87
10026	12/4/2004	9:41:26	8.87		262.86
10086	12/4/2004	10:41:26	8.87		262.92
10146	12/4/2004	11:41:26	8.86		262.90
10206	12/4/2004	12:41:26	8.86		262.90
10266	12/4/2004	13:41:26	8.87		262.89
10326	12/4/2004	14:41:26	8.86		262.93
10386	12/4/2004	15:41:26	8.87		262.85
10446	12/4/2004	16:41:26	8.87		262.89
10506	12/4/2004	17:41:26	8.87		262.31
10566	12/4/2004	18:41:26	8.86		262.38
10626	12/4/2004	19:41:26	8.85		262.41

No.	Date	Time	Temperature (Deg. C)	Manual Measurment (mbtop)	Groundwater Elevation (masl)
10686	12/4/2004	20:41:26	8.87		262.32
10746	12/4/2004	21:41:26	8.86		262.32
10806	12/4/2004	22:41:26	8.87		262.32
10866	12/4/2004	23:41:26	8.87		262.31
10926	12/5/2004	0:41:26	8.89		262.31
10986	12/5/2004	1:41:26	8.85		262.29
11046	12/5/2004	2:41:26	8.87		262.28
11106	12/5/2004	3:41:26	8.87		262.19
11166	12/5/2004	4:41:26	8.87		262.15
11226	12/5/2004	5:41:26	8.85		262.15
11286	12/5/2004	6:41:26	8.86		262.19
11346	12/5/2004	7:41:26	8.87		262.15
11406	12/5/2004	8:41:26	8.87		262.07
11466	12/5/2004	9:41:26	8.87		262.11
11526	12/5/2004	10:41:26	8.85		262.18
11586	12/5/2004	11:41:26	8.87		262.20
11646	12/5/2004	12:41:26	8.86		262.15
11706	12/5/2004	13:41:26	8.87		262.13
11766	12/5/2004	14:41:26	8.87		262.25
11826	12/5/2004	15:41:26	8.87		262.35
11886	12/5/2004	16:41:26	8.84		262.27
11946	12/5/2004	17:41:26	8.84		262.26
12006	12/5/2004	18:41:26	8.86		262.11
12066	12/5/2004	19:41:26	8.84		261.96
12126	12/5/2004	20:41:26	8.84		261.96
12186	12/5/2004	21:41:26	8.86		262.02
12246	12/5/2004	22:41:26	8.86		261.98
12306	12/5/2004	23:41:26	8.84		262.06
12366	12/6/2004	0:41:26	8.85		261.98
12426	12/6/2004	1:41:26	8.84		262.04
12486	12/6/2004	2:41:26	8.84		261.97
12546	12/6/2004	3:41:26	8.84		261.94
12606	12/6/2004	4:41:26	8.84		261.96
12666	12/6/2004	5:41:26	8.82		261.91
12726	12/6/2004	6:41:26	8.82		261.99
12786	12/6/2004	7:41:26	8.83		261.91
12846	12/6/2004	8:41:26	8.82		261.92
12906	12/6/2004	9:41:26	8.87		261.94
12966	12/6/2004	10:41:26	8.83		261.95
13026	12/6/2004	11:41:26	8.84		261.87
13086	12/6/2004	12:41:26	8.85		261.94
13146	12/6/2004	13:41:26	8.75		280.28
13206	12/6/2004	14:41:26	8.74		280.71

Note: Data collected every min but reported in the present table every hour.

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Table F2-2-25 - Pumping Well TW-13
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Groundwater Elevation (masl)
27-Nov-04	15:29:00	281.53
27-Nov-04	15:30:00	281.33
27-Nov-04	15:31:00	281.33
27-Nov-04	15:31:30	281.32
27-Nov-04	15:32:00	281.28
27-Nov-04	15:32:30	281.28
27-Nov-04	15:33:00	281.27
27-Nov-04	15:34:00	281.27
27-Nov-04	15:35:00	281.26
27-Nov-04	15:36:00	281.26
27-Nov-04	15:37:00	281.25
27-Nov-04	15:38:00	281.25
27-Nov-04	15:40:00	281.24
27-Nov-04	15:42:00	281.23
27-Nov-04	15:45:00	281.21
27-Nov-04	15:50:00	281.20
27-Nov-04	16:00:00	281.17
27-Nov-04	16:15:00	281.14
27-Nov-04	17:00:00	280.46
27-Nov-04	17:15:00	279.92
27-Nov-04	17:30:00	279.49
27-Nov-04	17:45:00	279.22
27-Nov-04	19:05:00	277.91
27-Nov-04	20:00:00	276.97
27-Nov-04	21:00:00	275.41
27-Nov-04	22:30:00	272.90
27-Nov-04	23:08:00	271.37
27-Nov-04	23:45:00	271.27
28-Nov-04	1:30:00	270.11
28-Nov-04	2:30:00	269.08
28-Nov-04	4:30:00	257.91
28-Nov-04	5:00:00	257.95
28-Nov-04	5:30:00	257.94
28-Nov-04	6:30:00	257.92
28-Nov-04	7:30:00	257.90
28-Nov-04	9:45:00	257.90
28-Nov-04	11:30:00	257.90
28-Nov-04	13:00:00	257.91
4-Dec-04	15:30:00	267.16
4-Dec-04	15:31:00	272.86
4-Dec-04	15:32:00	277.88
4-Dec-04	15:33:00	279.98
4-Dec-04	15:34:00	280.15
4-Dec-04	15:35:00	280.24
4-Dec-04	15:36:00	280.31
4-Dec-04	15:37:00	280.41
4-Dec-04	15:38:00	280.48
4-Dec-04	15:39:00	280.53
4-Dec-04	15:44:00	280.82
4-Dec-04	15:49:00	280.94
4-Dec-04	15:54:00	280.97
4-Dec-04	16:00:00	280.99
4-Dec-04	16:05:00	281.00
4-Dec-04	16:10:00	281.01
4-Dec-04	16:15:00	281.02
4-Dec-04	16:20:00	281.03
4-Dec-04	16:25:00	281.04
4-Dec-04	16:30:00	281.05

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Table F2-2-26 - MP-2
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/19/2004 16:03	7.67	284.75
11/19/2004 17:03	7.75	284.75
11/19/2004 18:03	7.76	284.75
11/19/2004 19:03	7.77	284.75
11/19/2004 20:03	7.77	284.75
11/19/2004 21:03	7.8	284.75
11/19/2004 22:03	7.8	284.75
11/19/2004 23:03	7.83	284.75
11/20/2004 0:03	7.81	284.75
11/20/2004 1:03	7.83	284.75
11/20/2004 2:03	7.84	284.75
11/20/2004 3:03	7.85	284.75
11/20/2004 4:03	7.85	284.76
11/20/2004 5:03	7.85	284.76
11/20/2004 6:03	7.86	284.76
11/20/2004 7:03	7.86	284.76
11/20/2004 8:03	7.86	284.76
11/20/2004 9:03	7.89	284.76
11/20/2004 10:03	7.88	284.76
11/20/2004 11:03	7.89	284.76
11/20/2004 12:03	7.9	284.76
11/20/2004 13:03	7.9	284.76
11/20/2004 14:03	7.89	284.76
11/20/2004 15:03	7.9	284.76
11/20/2004 16:03	7.93	284.76
11/20/2004 17:03	7.92	284.76
11/20/2004 18:03	7.9	284.76
11/20/2004 19:03	7.93	284.76
11/20/2004 20:03	7.93	284.76
11/20/2004 21:03	7.92	284.76
11/20/2004 22:03	7.93	284.76
11/20/2004 23:03	7.93	284.76
11/21/2004 0:03	7.93	284.76
11/21/2004 1:03	7.94	284.76
11/21/2004 2:03	7.94	284.76
11/21/2004 3:03	7.94	284.76
11/21/2004 4:03	7.95	284.76
11/21/2004 5:03	7.97	284.76
11/21/2004 6:03	7.97	284.76
11/21/2004 7:03	7.95	284.76
11/21/2004 8:03	7.97	284.76
11/21/2004 9:03	7.98	284.76
11/21/2004 10:03	7.98	284.76
11/21/2004 11:03	7.97	284.76
11/21/2004 12:03	7.99	284.76
11/21/2004 13:03	7.99	284.76
11/21/2004 14:03	8.01	284.76
11/21/2004 15:03	8.01	284.76
11/21/2004 16:03	8.02	284.76
11/21/2004 17:03	8.01	284.76
11/21/2004 18:03	8.02	284.76
11/21/2004 19:03	8.02	284.76
11/21/2004 20:03	8.02	284.76
11/21/2004 21:03	8.03	284.76
11/21/2004 22:03	8.03	284.76
11/21/2004 23:03	8.03	284.76
11/22/2004 0:03	8.05	284.76
11/22/2004 1:03	8.06	284.76
11/22/2004 2:03	8.06	284.76
11/22/2004 3:03	8.06	284.76
11/22/2004 4:03	8.07	284.76
11/22/2004 5:03	8.07	284.76
11/22/2004 6:03	8.07	284.76
11/22/2004 7:03	8.08	284.76
11/22/2004 8:03	8.07	284.76
11/22/2004 9:03	8.1	284.76
11/22/2004 10:03	8.1	284.76
11/22/2004 11:03	8.08	284.76
11/22/2004 12:03	8.1	284.76
11/22/2004 13:03	8.1	284.76
11/22/2004 14:03	8.11	284.76
11/22/2004 15:03	8.1	284.76
11/22/2004 16:03	8.1	284.76
11/22/2004 17:03	8.1	284.76
11/22/2004 18:03	8.08	284.76
11/22/2004 19:03	8.1	284.76
11/22/2004 20:03	8.08	284.76
11/22/2004 21:03	8.08	284.76
11/22/2004 22:03	8.08	284.76
11/22/2004 23:03	8.08	284.76
11/23/2004 0:03	8.08	284.76
11/23/2004 1:03	8.07	284.76
11/23/2004 2:03	8.07	284.76
11/23/2004 3:03	8.07	284.76
11/23/2004 4:03	8.07	284.75
11/23/2004 5:03	8.06	284.75
11/23/2004 6:03	8.05	284.76
11/23/2004 7:03	8.05	284.75
11/23/2004 8:03	8.05	284.76
11/23/2004 9:03	8.03	284.76

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/23/2004 10:03	8.02	284.76
11/23/2004 11:03	8.01	284.76
11/23/2004 12:03	8.01	284.76
11/23/2004 13:03	7.99	284.76
11/23/2004 14:03	7.99	284.76
11/23/2004 15:03	7.98	284.76
11/23/2004 16:03	7.97	284.76
11/23/2004 17:03	7.97	284.76
11/23/2004 18:03	7.94	284.76
11/23/2004 19:03	7.94	284.76
11/23/2004 20:03	7.92	284.76
11/23/2004 21:03	7.92	284.76
11/23/2004 22:03	7.92	284.76
11/23/2004 23:03	7.89	284.76
11/24/2004 0:03	7.89	284.76
11/24/2004 1:03	7.89	284.76
11/24/2004 2:03	7.88	284.76
11/24/2004 3:03	7.85	284.76
11/24/2004 4:03	7.85	284.76
11/24/2004 5:03	7.85	284.76
11/24/2004 6:03	7.84	284.76
11/24/2004 7:03	7.84	284.76
11/24/2004 8:03	7.84	284.76
11/24/2004 9:03	7.84	284.76
11/24/2004 10:03	7.83	284.76
11/24/2004 11:03	7.83	284.76
11/24/2004 12:03	7.81	284.76
11/24/2004 13:03	7.81	284.78
11/24/2004 14:03	7.81	284.78
11/24/2004 15:03	7.8	284.78
11/24/2004 16:03	7.8	284.78
11/24/2004 17:03	7.8	284.79
11/24/2004 18:03	7.79	284.79
11/24/2004 19:03	7.79	284.79
11/24/2004 20:03	7.79	284.79
11/24/2004 21:03	7.77	284.79
11/24/2004 22:03	7.79	284.79
11/24/2004 23:03	7.79	284.80
11/25/2004 0:03	7.79	284.80
11/25/2004 1:03	7.76	284.80
11/25/2004 2:03	7.76	284.80
11/25/2004 3:03	7.76	284.80
11/25/2004 4:03	7.77	284.80
11/25/2004 5:03	7.75	284.80
11/25/2004 6:03	7.74	284.79
11/25/2004 7:03	7.74	284.79
11/25/2004 8:03	7.72	284.79
11/25/2004 9:03	7.71	284.79
11/25/2004 10:03	7.71	284.79
11/25/2004 11:03	7.7	284.79
11/25/2004 12:03	7.7	284.78
11/25/2004 13:03	7.68	284.78
11/25/2004 14:03	7.66	284.78
11/25/2004 15:03	7.64	284.78
11/25/2004 16:03	7.64	284.78
11/25/2004 17:03	7.63	284.78
11/25/2004 18:03	7.62	284.78
11/25/2004 19:03	7.61	284.78
11/25/2004 20:03	7.59	284.78
11/25/2004 21:03	7.59	284.78
11/25/2004 22:03	7.58	284.78
11/25/2004 23:03	7.55	284.77
11/26/2004 0:03	7.54	284.77
11/26/2004 1:03	7.53	284.77
11/26/2004 2:03	7.52	284.77
11/26/2004 3:03	7.52	284.77
11/26/2004 4:03	7.49	284.77
11/26/2004 5:03	7.48	284.77
11/26/2004 6:03	7.45	284.77
11/26/2004 7:03	7.45	284.77
11/26/2004 8:03	7.44	284.77
11/26/2004 9:03	7.42	284.77
11/26/2004 10:03	7.4	284.77
11/26/2004 11:03	7.39	284.77
11/26/2004 12:03	7.39	284.77
11/26/2004 13:03	7.36	284.77
11/26/2004 14:03	7.35	284.77
11/26/2004 15:03	7.35	284.77
11/26/2004 16:03	7.32	284.77
11/26/2004 17:03	7.31	284.77
11/26/2004 18:03	7.28	284.77
11/26/2004 19:03	7.26	284.77
11/26/2004 20:03	7.24	284.77
11/26/2004 21:03	7.22	284.77
11/26/2004 22:03	7.23	284.77
11/26/2004 23:03	7.19	284.77
11/27/2004 0:03	7.19	284.77
11/27/2004 1:03	7.19	284.77
11/27/2004 2:03	7.15	284.77
11/27/2004 3:03	7.14	284.77
11/27/2004 4:03	7.13	284.76
11/27/2004 5:03	7.11	284.77
11/27/2004 6:03	7.1	284.76
11/27/2004 7:03	7.09	284.77
11/27/2004 8:03	7.08	284.76

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/27/2004 9:03	7.05	284.77
11/27/2004 10:03	7.05	284.76
11/27/2004 11:03	7.02	284.77
11/27/2004 12:03	7.04	284.77
11/27/2004 13:03	7.02	284.77
11/27/2004 14:03	7.01	284.78
11/27/2004 15:03	7	284.82
11/27/2004 16:03	6.98	284.84
11/27/2004 17:03	6.98	284.79
11/27/2004 18:03	6.97	284.79
11/27/2004 19:03	6.96	284.76
11/27/2004 20:03	6.97	284.77
11/27/2004 21:03	6.96	284.76
11/27/2004 22:03	6.93	284.76
11/27/2004 23:03	6.95	284.79
11/28/2004 0:03	6.92	284.76
11/28/2004 1:03	6.92	284.72
11/28/2004 2:03	6.91	284.73
11/28/2004 3:03	6.93	284.76
11/28/2004 4:03	6.92	284.77
11/28/2004 5:03	6.92	284.79
11/28/2004 6:03	6.91	284.79
11/28/2004 7:03	6.92	284.81
11/28/2004 8:03	6.91	284.85
11/28/2004 9:03	6.92	284.85
11/28/2004 10:03	6.93	284.83
11/28/2004 11:03	6.92	284.82
11/28/2004 12:03	6.92	284.82
11/28/2004 13:03	6.92	284.85
11/28/2004 14:03	6.92	284.83
11/28/2004 15:03	6.92	284.85
11/28/2004 16:03	6.92	284.85
11/28/2004 17:03	6.93	284.85
11/28/2004 18:03	6.95	284.85
11/28/2004 19:03	6.93	284.80
11/28/2004 20:03	6.95	284.80
11/28/2004 21:03	6.95	284.80
11/28/2004 22:03	6.95	284.80
11/28/2004 23:03	6.95	284.80
11/29/2004 0:03	6.96	284.79
11/29/2004 1:03	6.96	284.79
11/29/2004 2:03	6.97	284.79
11/29/2004 3:03	6.97	284.79
11/29/2004 4:03	6.98	284.79
11/29/2004 5:03	6.98	284.79
11/29/2004 6:03	7	284.79
11/29/2004 7:03	7	284.79
11/29/2004 8:03	7	284.79
11/29/2004 9:03	7	284.78
11/29/2004 10:03	7	284.77
11/29/2004 11:03	7	284.77
11/29/2004 12:03	7.01	284.78
11/29/2004 13:03	7.01	284.77
11/29/2004 14:03	7.01	284.78
11/29/2004 15:03	7.01	284.77
11/29/2004 16:03	7.01	284.78
11/29/2004 17:03	7.01	284.78
11/29/2004 18:03	7	284.77
11/29/2004 19:03	7.01	284.78
11/29/2004 20:03	7	284.78
11/29/2004 21:03	6.98	284.77
11/29/2004 22:03	7	284.77
11/29/2004 23:03	7	284.77
11/30/2004 0:03	7	284.77
11/30/2004 1:03	7	284.77
11/30/2004 2:03	6.98	284.78
11/30/2004 3:03	6.98	284.77
11/30/2004 4:03	6.98	284.77
11/30/2004 5:03	6.96	284.77
11/30/2004 6:03	6.98	284.77
11/30/2004 7:03	6.97	284.77
11/30/2004 8:03	6.96	284.77
11/30/2004 9:03	6.96	284.76
11/30/2004 10:03	6.95	284.76
11/30/2004 11:03	6.95	284.77
11/30/2004 12:03	6.93	284.77
11/30/2004 13:03	6.93	284.77
11/30/2004 14:03	6.92	284.77
11/30/2004 15:03	6.91	284.77
11/30/2004 16:03	6.91	284.77
11/30/2004 17:03	6.89	284.77
11/30/2004 18:03	6.89	284.77
11/30/2004 19:03	6.89	284.77
11/30/2004 20:03	6.87	284.77
11/30/2004 21:03	6.86	284.77
11/30/2004 22:03	6.87	284.75
11/30/2004 23:03	6.86	284.72
12/1/2004 0:03	6.86	284.70
12/1/2004 1:03	6.84	284.78
12/1/2004 2:03	6.84	284.78
12/1/2004 3:03	6.84	284.79
12/1/2004 4:03	6.82	284.79
12/1/2004 5:03	6.82	284.80
12/1/2004 6:03	6.82	284.81
12/1/2004 7:03	6.8	284.81

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/1/2004 8:03	6.79	284.81
12/1/2004 9:03	6.8	284.89
12/1/2004 10:03	6.79	284.95
12/1/2004 11:03	6.79	284.89
12/1/2004 12:03	6.78	284.89
12/1/2004 13:03	6.78	284.91
12/1/2004 14:03	6.79	284.87
12/1/2004 15:03	6.78	284.86
12/1/2004 16:03	6.76	284.85
12/1/2004 17:03	6.78	284.85
12/1/2004 18:03	6.78	284.84
12/1/2004 19:03	6.76	284.84
12/1/2004 20:03	6.78	284.84
12/1/2004 21:03	6.78	284.83
12/1/2004 22:03	6.78	284.83
12/1/2004 23:03	6.78	284.83
12/2/2004 0:03	6.79	284.82
12/2/2004 1:03	6.78	284.82
12/2/2004 2:03	6.78	284.82
12/2/2004 3:03	6.78	284.82
12/2/2004 4:03	6.79	284.82
12/2/2004 5:03	6.8	284.82
12/2/2004 6:03	6.78	284.81
12/2/2004 7:03	6.79	284.81
12/2/2004 8:03	6.8	284.81
12/2/2004 9:03	6.79	284.81
12/2/2004 10:03	6.8	284.80
12/2/2004 11:03	6.8	284.80
12/2/2004 12:03	6.82	284.80
12/2/2004 13:03	6.82	284.81
12/2/2004 14:03	6.82	284.81
12/2/2004 15:03	6.82	284.81
12/2/2004 16:03	6.82	284.81
12/2/2004 17:03	6.82	284.81
12/2/2004 18:03	6.83	284.81
12/2/2004 19:03	6.83	284.80
12/2/2004 20:03	6.82	284.80
12/2/2004 21:03	6.83	284.80
12/2/2004 22:03	6.84	284.80
12/2/2004 23:03	6.82	284.80
12/3/2004 0:03	6.84	284.80
12/3/2004 1:03	6.84	284.80
12/3/2004 2:03	6.83	284.80
12/3/2004 3:03	6.84	284.81
12/3/2004 4:03	6.86	284.80
12/3/2004 5:03	6.84	284.80
12/3/2004 6:03	6.84	284.81
12/3/2004 7:03	6.84	284.81
12/3/2004 8:03	6.86	284.80
12/3/2004 9:03	6.86	284.80
12/3/2004 10:03	6.84	284.81
12/3/2004 11:03	6.86	284.80
12/3/2004 12:03	6.84	284.79
12/3/2004 13:03	6.87	284.80
12/3/2004 14:03	6.86	284.80
12/3/2004 15:03	6.84	284.80
12/3/2004 16:03	6.86	284.80
12/3/2004 17:03	6.84	284.81
12/3/2004 18:03	6.86	284.80
12/3/2004 19:03	6.86	284.79
12/3/2004 20:03	6.86	284.79
12/3/2004 21:03	6.86	284.79
12/3/2004 22:03	6.84	284.80
12/3/2004 23:03	6.84	284.80
12/4/2004 0:03	6.84	284.79
12/4/2004 1:03	6.84	284.79
12/4/2004 2:03	6.83	284.77
12/4/2004 3:03	6.83	284.77
12/4/2004 4:03	6.83	284.75
12/4/2004 5:03	6.83	284.74
12/4/2004 6:03	6.83	284.74
12/4/2004 7:03	6.8	284.75
12/4/2004 8:03	6.8	284.76
12/4/2004 9:03	6.82	284.78
12/4/2004 10:03	6.79	284.81
12/4/2004 11:03	6.79	284.80
12/4/2004 12:03	6.78	284.80
12/4/2004 13:03	6.78	284.81
12/4/2004 14:03	6.78	284.81

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/4/2004 15:03	6.75	284.81
12/4/2004 16:03	6.75	284.80
12/4/2004 17:03	6.74	284.80
12/4/2004 18:03	6.74	284.80
12/4/2004 19:03	6.73	284.80
12/4/2004 20:03	6.73	284.80
12/4/2004 21:03	6.71	284.80
12/4/2004 22:03	6.71	284.80
12/4/2004 23:03	6.7	284.80
12/5/2004 0:03	6.69	284.80
12/5/2004 1:03	6.69	284.80
12/5/2004 2:03	6.67	284.80
12/5/2004 3:03	6.66	284.80
12/5/2004 4:03	6.67	284.83
12/5/2004 5:03	6.66	284.79
12/5/2004 6:03	6.65	284.82
12/5/2004 7:03	6.66	284.83
12/5/2004 8:03	6.64	284.79
12/5/2004 9:03	6.65	284.81
12/5/2004 10:03	6.65	284.76
12/5/2004 11:03	6.61	284.72
12/5/2004 12:03	6.61	284.76
12/5/2004 13:03	6.62	284.75
12/5/2004 14:03	6.61	284.78
12/5/2004 15:03	6.61	284.82
12/5/2004 16:03	6.6	284.82
12/5/2004 17:03	6.61	284.84
12/5/2004 18:03	6.6	284.91
12/5/2004 19:03	6.6	284.97
12/5/2004 20:03	6.58	284.99
12/5/2004 21:03	6.57	285.00
12/5/2004 22:03	6.58	285.00
12/5/2004 23:03	6.57	284.99
12/6/2004 0:03	6.57	285.00
12/6/2004 1:03	6.56	285.00
12/6/2004 2:03	6.56	284.98
12/6/2004 3:03	6.56	284.95
12/6/2004 4:03	6.56	284.93
12/6/2004 5:03	6.56	284.92
12/6/2004 6:03	6.54	284.88
12/6/2004 7:03	6.56	284.86
12/6/2004 8:03	6.53	284.89
12/6/2004 9:03	6.53	284.90
12/6/2004 10:03	6.53	284.88
12/6/2004 11:03	6.53	284.84
12/6/2004 12:03	6.52	284.79
12/6/2004 13:03	6.51	284.78
12/6/2004 14:03	6.51	284.75
12/6/2004 15:03	6.49	284.75
12/6/2004 16:03	6.51	284.78
12/6/2004 17:03	6.49	284.80
12/6/2004 18:03	6.49	284.81
12/6/2004 19:03	6.48	284.81
12/6/2004 20:03	6.49	284.81
12/6/2004 21:03	6.45	284.81
12/6/2004 22:03	6.45	284.81
12/6/2004 23:03	6.45	284.81
12/7/2004 0:03	6.44	284.80
12/7/2004 1:03	6.43	284.78
12/7/2004 2:03	6.43	284.78
12/7/2004 3:03	6.42	284.78
12/7/2004 4:03	6.4	284.78
12/7/2004 5:03	6.38	284.78
12/7/2004 6:03	6.38	284.77
12/7/2004 7:03	6.38	284.76
12/7/2004 8:03	6.34	284.73
12/7/2004 9:03	6.35	284.71
12/7/2004 10:03	6.32	284.68
12/7/2004 11:03	6.3	284.65
12/7/2004 12:03	6.31	284.64
12/7/2004 13:03	6.29	284.64
12/7/2004 14:03	6.26	284.77
12/7/2004 15:03	6.25	284.78
12/7/2004 16:03	6.23	284.74
12/7/2004 17:03	6.21	284.78
12/7/2004 18:03	6.21	284.70
12/7/2004 19:03	6.21	284.75
12/7/2004 20:03	6.17	284.67
12/7/2004 21:03	6.17	284.75
12/7/2004 22:03	6.13	284.84
12/7/2004 23:03	6.13	284.89
12/8/2004 0:03	6.12	284.95
12/8/2004 1:03	6.09	284.98
12/8/2004 2:03	6.08	284.98
12/8/2004 3:03	6.08	284.98
12/8/2004 4:03	6.07	284.98
12/8/2004 5:03	6.05	284.98
12/8/2004 6:03	6.05	284.99
12/8/2004 7:03	6.03	284.99
12/8/2004 8:03	6.01	285.00
12/8/2004 9:03	6.01	285.00
12/8/2004 10:03	6	285.00

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-27 - MP-9
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Groundwater Level (masl)
11/25/2004 19:22	7.36	282.27
11/25/2004 20:22	7.35	282.28
11/25/2004 21:22	7.33	282.29
11/25/2004 22:22	7.32	282.30
11/25/2004 23:22	7.31	282.30
11/26/2004 0:22	7.3	282.31
11/26/2004 1:22	7.28	282.32
11/26/2004 2:22	7.27	282.33
11/26/2004 3:22	7.26	282.33
11/26/2004 4:22	7.25	282.34
11/26/2004 5:22	7.23	282.34
11/26/2004 6:22	7.21	282.35
11/26/2004 7:22	7.2	282.35
11/26/2004 8:22	7.18	282.35
11/26/2004 9:22	7.17	282.36
11/26/2004 10:22	7.16	282.36
11/26/2004 11:22	7.15	282.36
11/26/2004 12:22	7.12	282.37
11/26/2004 13:22	7.12	282.37
11/26/2004 14:22	7.09	282.37
11/26/2004 15:22	7.09	282.37
11/26/2004 16:22	7.07	282.38
11/26/2004 17:22	7.06	282.38
11/26/2004 18:22	7.04	282.38
11/26/2004 19:22	7.03	282.38
11/26/2004 20:22	7.02	282.39
11/26/2004 21:22	7.01	282.39
11/26/2004 22:22	6.99	282.39
11/26/2004 23:22	6.98	282.39
11/27/2004 0:22	6.97	282.39
11/27/2004 1:22	6.94	282.39
11/27/2004 2:22	6.94	282.39
11/27/2004 3:22	6.93	282.40
11/27/2004 4:22	6.92	282.41
11/27/2004 5:22	6.91	282.42
11/27/2004 6:22	6.89	282.43
11/27/2004 7:22	6.88	282.44
11/27/2004 8:22	6.87	282.44
11/27/2004 9:22	6.86	282.45
11/27/2004 10:22	6.84	282.46
11/27/2004 11:22	6.83	282.47
11/27/2004 12:22	6.82	282.47
11/27/2004 13:22	6.82	282.48
11/27/2004 14:22	6.81	282.49
11/27/2004 15:22	6.79	282.49
11/27/2004 16:22	6.78	282.49
11/27/2004 17:22	6.78	282.50
11/27/2004 18:22	6.77	282.50
11/27/2004 19:22	6.75	282.50
11/27/2004 20:22	6.74	282.50
11/27/2004 21:22	6.74	282.50
11/27/2004 22:22	6.73	282.50
11/27/2004 23:22	6.73	282.50
11/28/2004 0:22	6.73	282.50
11/28/2004 1:22	6.72	282.49
11/28/2004 2:22	6.72	282.49
11/28/2004 3:22	6.72	282.49
11/28/2004 4:22	6.7	282.50
11/28/2004 5:22	6.7	282.51
11/28/2004 6:22	6.7	282.52
11/28/2004 7:22	6.7	282.52
11/28/2004 8:22	6.7	282.53
11/28/2004 9:22	6.7	282.54
11/28/2004 10:22	6.7	282.54
11/28/2004 11:22	6.7	282.54
11/28/2004 12:22	6.7	282.55
11/28/2004 13:22	6.7	282.55
11/28/2004 14:22	6.7	282.55
11/28/2004 15:22	6.7	282.55
11/28/2004 16:22	6.7	282.55
11/28/2004 17:22	6.7	282.55
11/28/2004 18:22	6.72	282.54
11/28/2004 19:22	6.72	282.54
11/28/2004 20:22	6.72	282.54
11/28/2004 21:22	6.72	282.54
11/28/2004 22:22	6.73	282.53
11/28/2004 23:22	6.73	282.53
11/29/2004 0:22	6.73	282.53
11/29/2004 1:22	6.73	282.52
11/29/2004 2:22	6.73	282.52
11/29/2004 3:22	6.74	282.52
11/29/2004 4:22	6.74	282.51
11/29/2004 5:22	6.74	282.51
11/29/2004 6:22	6.74	282.51
11/29/2004 7:22	6.74	282.50
11/29/2004 8:22	6.74	282.50
11/29/2004 9:22	6.74	282.49

Date Time	Temperature (Deg. C)	Groundwater Level (masl)
11/29/2004 10:22	6.74	282.49
11/29/2004 11:22	6.74	282.48
11/29/2004 12:22	6.74	282.48
11/29/2004 13:22	6.73	282.46
11/29/2004 14:22	6.74	282.46
11/29/2004 15:22	6.73	282.45
11/29/2004 16:22	6.73	282.45
11/29/2004 17:22	6.73	282.45
11/29/2004 18:22	6.73	282.44
11/29/2004 19:22	6.72	282.44
11/29/2004 20:22	6.72	282.44
11/29/2004 21:22	6.72	282.43
11/29/2004 22:22	6.7	282.43
11/29/2004 23:22	6.7	282.42
11/30/2004 0:22	6.7	282.42
11/30/2004 1:22	6.7	282.42
11/30/2004 2:22	6.7	282.41
11/30/2004 3:22	6.69	282.41
11/30/2004 4:22	6.69	282.40
11/30/2004 5:22	6.68	282.40
11/30/2004 6:22	6.68	282.40
11/30/2004 7:22	6.68	282.39
11/30/2004 8:22	6.67	282.39
11/30/2004 9:22	6.67	282.38
11/30/2004 10:22	6.65	282.38
11/30/2004 11:22	6.65	282.38
11/30/2004 12:22	6.65	282.37
11/30/2004 13:22	6.65	282.37
11/30/2004 14:22	6.64	282.37
11/30/2004 15:22	6.63	282.36
11/30/2004 16:22	6.63	282.36
11/30/2004 17:22	6.63	282.36
11/30/2004 18:22	6.62	282.35
11/30/2004 19:22	6.62	282.35
11/30/2004 20:22	6.6	282.35
11/30/2004 21:22	6.59	282.34
11/30/2004 22:22	6.59	282.34
11/30/2004 23:22	6.58	282.34
12/1/2004 0:22	6.58	282.36
12/1/2004 1:22	6.57	282.37
12/1/2004 2:22	6.57	282.37
12/1/2004 3:22	6.55	282.39
12/1/2004 4:22	6.55	282.40
12/1/2004 5:22	6.54	282.42
12/1/2004 6:22	6.54	282.43
12/1/2004 7:22	6.53	282.44
12/1/2004 8:22	6.53	282.46
12/1/2004 9:22	6.52	282.49
12/1/2004 10:22	6.52	282.51
12/1/2004 11:22	6.5	282.52
12/1/2004 12:22	6.5	282.53
12/1/2004 13:22	6.5	282.54
12/1/2004 14:22	6.49	282.55
12/1/2004 15:22	6.49	282.56
12/1/2004 16:22	6.49	282.57
12/1/2004 17:22	6.49	282.57
12/1/2004 18:22	6.48	282.57
12/1/2004 19:22	6.48	282.58
12/1/2004 20:22	6.48	282.58
12/1/2004 21:22	6.48	282.58
12/1/2004 22:22	6.48	282.58
12/1/2004 23:22	6.48	282.58
12/2/2004 0:22	6.46	282.58
12/2/2004 1:22	6.46	282.58
12/2/2004 2:22	6.46	282.58
12/2/2004 3:22	6.46	282.58
12/2/2004 4:22	6.46	282.58
12/2/2004 5:22	6.46	282.58
12/2/2004 6:22	6.45	282.58
12/2/2004 7:22	6.45	282.58
12/2/2004 8:22	6.45	282.58
12/2/2004 9:22	6.45	282.57
12/2/2004 10:22	6.45	282.57
12/2/2004 11:22	6.44	282.57
12/2/2004 12:22	6.44	282.56
12/2/2004 13:22	6.44	282.56
12/2/2004 14:22	6.44	282.56
12/2/2004 15:22	6.44	282.55
12/2/2004 16:22	6.43	282.55
12/2/2004 17:22	6.43	282.54
12/2/2004 18:22	6.43	282.54
12/2/2004 19:22	6.43	282.53
12/2/2004 20:22	6.41	282.53
12/2/2004 21:22	6.41	282.52
12/2/2004 22:22	6.41	282.52
12/2/2004 23:22	6.4	282.51
12/3/2004 0:22	6.4	282.51
12/3/2004 1:22	6.4	282.50
12/3/2004 2:22	6.39	282.50
12/3/2004 3:22	6.39	282.50
12/3/2004 4:22	6.39	282.49
12/3/2004 5:22	6.39	282.49

Date Time	Temperature (Deg. C)	Groundwater Level (masl)
12/3/2004 6:22	6.38	282.48
12/3/2004 7:22	6.38	282.48
12/3/2004 8:22	6.36	282.48
12/3/2004 9:22	6.36	282.47
12/3/2004 10:22	6.36	282.47
12/3/2004 11:22	6.35	282.46
12/3/2004 12:22	6.35	282.46
12/3/2004 13:22	6.34	282.45
12/3/2004 14:22	6.34	282.45
12/3/2004 15:22	6.34	282.44
12/3/2004 16:22	6.33	282.44
12/3/2004 17:22	6.33	282.44
12/3/2004 18:22	6.31	282.43
12/3/2004 19:22	6.3	282.43
12/3/2004 20:22	6.3	282.42
12/3/2004 21:22	6.3	282.42
12/3/2004 22:22	6.29	282.41
12/3/2004 23:22	6.28	282.41
12/4/2004 0:22	6.28	282.40
12/4/2004 1:22	6.26	282.40
12/4/2004 2:22	6.25	282.39
12/4/2004 3:22	6.25	282.39
12/4/2004 4:22	6.24	282.38
12/4/2004 5:22	6.24	282.38
12/4/2004 6:22	6.23	282.37
12/4/2004 7:22	6.21	282.37
12/4/2004 8:22	6.2	282.36
12/4/2004 9:22	6.19	282.36
12/4/2004 10:22	6.19	282.35
12/4/2004 11:22	6.17	282.35
12/4/2004 12:22	6.16	282.34
12/4/2004 13:22	6.16	282.34
12/4/2004 14:22	6.15	282.33
12/4/2004 15:22	6.14	282.33
12/4/2004 16:22	6.12	282.33
12/4/2004 17:22	6.11	282.32
12/4/2004 18:22	6.1	282.32
12/4/2004 19:22	6.1	282.32
12/4/2004 20:22	6.09	282.31
12/4/2004 21:22	6.07	282.31
12/4/2004 22:22	6.06	282.31
12/4/2004 23:22	6.06	282.31
12/5/2004 0:22	6.05	282.31
12/5/2004 1:22	6.04	282.31
12/5/2004 2:22	6.02	282.31
12/5/2004 3:22	6.02	282.31
12/5/2004 4:22	6.01	282.31
12/5/2004 5:22	6	282.31
12/5/2004 6:22	6	282.31
12/5/2004 7:22	5.99	282.30
12/5/2004 8:22	5.97	282.30
12/5/2004 9:22	5.96	282.30
12/5/2004 10:22	5.96	282.30
12/5/2004 11:22	5.96	282.30
12/5/2004 12:22	5.95	282.30
12/5/2004 13:22	5.94	282.30
12/5/2004 14:22	5.94	282.30
12/5/2004 15:22	5.92	282.30
12/5/2004 16:22	5.92	282.30
12/5/2004 17:22	5.92	282.30
12/5/2004 18:22	5.91	282.30
12/5/2004 19:22	5.91	282.29
12/5/2004 20:22	5.91	282.29
12/5/2004 21:22	5.9	282.29
12/5/2004 22:22	5.9	282.29
12/5/2004 23:22	5.88	282.29
12/6/2004 0:22	5.88	282.29
12/6/2004 1:22	5.88	282.29
12/6/2004 2:22	5.87	282.29
12/6/2004 3:22	5.87	282.29
12/6/2004 4:22	5.87	282.29
12/6/2004 5:22	5.86	282.29
12/6/2004 6:22	5.86	282.29
12/6/2004 7:22	5.86	282.28
12/6/2004 8:22	5.85	282.28
12/6/2004 9:22	5.85	282.28
12/6/2004 10:22	5.85	282.28
12/6/2004 11:22	5.83	282.28
12/6/2004 12:22	5.82	282.28
12/6/2004 13:22	5.82	282.28
12/6/2004 14:22	5.82	282.28
12/6/2004 15:22	5.81	282.28
12/6/2004 16:22	5.81	282.28
12/6/2004 17:22	5.8	282.27
12/6/2004 18:22	5.8	282.27
12/6/2004 19:22	5.78	282.27
12/6/2004 20:22	5.78	282.27
12/6/2004 21:22	5.77	282.27
12/6/2004 22:22	5.77	282.27
12/6/2004 23:22	5.76	282.27
12/7/2004 0:22	5.76	282.27
12/7/2004 1:22	5.75	282.27

Date Time	Temperature (Deg. C)	Groundwater Level (masl)
12/7/2004 2:22	5.75	282.27
12/7/2004 3:22	5.73	282.27
12/7/2004 4:22	5.73	282.27
12/7/2004 5:22	5.72	282.27
12/7/2004 6:22	5.72	282.27
12/7/2004 7:22	5.71	282.27
12/7/2004 8:22	5.71	282.27
12/7/2004 9:22	5.7	282.27
12/7/2004 10:22	5.7	282.27
12/7/2004 11:22	5.68	282.27
12/7/2004 12:22	5.68	282.30
12/7/2004 13:22	5.67	282.35
12/7/2004 14:22	5.67	282.41
12/7/2004 15:22	5.66	282.44
12/7/2004 16:22	5.66	282.49
12/7/2004 17:22	5.65	282.51
12/7/2004 18:22	5.63	282.52
12/7/2004 19:22	5.62	282.53
12/7/2004 20:22	5.62	282.55
12/7/2004 21:22	5.61	282.56
12/7/2004 22:22	5.61	282.57
12/7/2004 23:22	5.59	282.58
12/8/2004 0:22	5.59	282.58
12/8/2004 1:22	5.58	282.58
12/8/2004 2:22	5.58	282.59
12/8/2004 3:22	5.57	282.59
12/8/2004 4:22	5.57	282.59
12/8/2004 5:22	5.57	282.59
12/8/2004 6:22	5.56	282.60
12/8/2004 7:22	5.56	282.60
12/8/2004 8:22	5.56	282.60

Note: Data collected every min but reported in the present table every hour

Gartner Lee

Table F2-2-28 - MP-10
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/19/2004 12:31	8.54	281.98
11/19/2004 13:31	8.37	282.33
11/19/2004 14:31	8.37	282.43
11/19/2004 15:31	8.37	282.52
11/19/2004 16:31	8.36	282.58
11/19/2004 17:31	8.36	282.63
11/19/2004 18:31	8.36	282.68
11/19/2004 19:31	8.35	282.71
11/19/2004 20:31	8.36	282.74
11/19/2004 21:31	8.35	282.76
11/19/2004 22:31	8.35	282.78
11/19/2004 23:31	8.35	282.79
11/20/2004 0:31	8.35	282.81
11/20/2004 1:31	8.35	282.82
11/20/2004 2:31	8.35	282.83
11/20/2004 3:31	8.33	282.84
11/20/2004 4:31	8.33	282.84
11/20/2004 5:31	8.33	282.85
11/20/2004 6:31	8.33	282.86
11/20/2004 7:31	8.33	282.86
11/20/2004 8:31	8.33	282.87
11/20/2004 9:31	8.33	282.87
11/20/2004 10:31	8.33	282.88
11/20/2004 11:31	8.33	282.89
11/20/2004 12:31	8.33	282.89
11/20/2004 13:31	8.32	282.89
11/20/2004 14:31	8.32	282.90
11/20/2004 15:31	8.32	282.90
11/20/2004 16:31	8.32	282.90
11/20/2004 17:31	8.32	282.90
11/20/2004 18:31	8.32	282.90
11/20/2004 19:31	8.32	282.91
11/20/2004 20:31	8.32	282.91
11/20/2004 21:31	8.32	282.91
11/20/2004 22:31	8.32	282.91
11/20/2004 23:31	8.32	282.91
11/21/2004 0:31	8.32	282.91
11/21/2004 1:31	8.31	282.91
11/21/2004 2:31	8.31	282.91
11/21/2004 3:31	8.31	282.91
11/21/2004 4:31	8.31	282.91
11/21/2004 5:31	8.31	282.91
11/21/2004 6:31	8.31	282.90
11/21/2004 7:31	8.31	282.90
11/21/2004 8:31	8.31	282.90
11/21/2004 9:31	8.31	282.90
11/21/2004 10:31	8.31	282.90
11/21/2004 11:31	8.31	282.90
11/21/2004 12:31	8.31	282.90
11/21/2004 13:31	8.31	282.90
11/21/2004 14:31	8.31	282.90
11/21/2004 15:31	8.31	282.90
11/21/2004 16:31	8.31	282.90
11/21/2004 17:31	8.31	282.90
11/21/2004 18:31	8.31	282.90
11/21/2004 19:31	8.31	282.90
11/21/2004 20:31	8.31	282.90
11/21/2004 21:31	8.31	282.90
11/21/2004 22:31	8.31	282.90
11/21/2004 23:31	8.31	282.89
11/22/2004 0:31	8.31	282.89
11/22/2004 1:31	8.31	282.89
11/22/2004 2:31	8.31	282.89
11/22/2004 3:31	8.31	282.89
11/22/2004 4:31	8.31	282.89
11/22/2004 5:31	8.31	282.89
11/22/2004 6:31	8.31	282.89
11/22/2004 7:31	8.31	282.89
11/22/2004 8:31	8.31	282.89
11/22/2004 9:31	8.31	282.89
11/22/2004 10:31	8.31	282.89
11/22/2004 11:31	8.31	282.89
11/22/2004 12:31	8.31	282.89
11/22/2004 13:31	8.31	282.89
11/22/2004 14:31	8.3	282.89
11/22/2004 15:31	8.31	282.89
11/22/2004 16:31	8.31	282.89
11/22/2004 17:31	8.31	282.89
11/22/2004 18:31	8.3	282.89
11/22/2004 19:31	8.31	282.88
11/22/2004 20:31	8.31	282.88
11/22/2004 21:31	8.31	282.88
11/22/2004 22:31	8.31	282.88
11/22/2004 23:31	8.31	282.88
11/23/2004 0:31	8.3	282.88
11/23/2004 1:31	8.31	282.88
11/23/2004 2:31	8.31	282.88
11/23/2004 3:31	8.31	282.88
11/23/2004 4:31	8.31	282.88
11/23/2004 5:31	8.3	282.88
11/23/2004 6:31	8.31	282.88
11/23/2004 7:31	8.31	282.88

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/23/2004 8:31	8.31	282.88
11/23/2004 9:31	8.31	282.88
11/23/2004 10:31	8.31	282.88
11/23/2004 11:31	8.3	282.88
11/23/2004 12:31	8.31	282.88
11/23/2004 13:31	8.3	282.88
11/23/2004 14:31	8.3	282.88
11/23/2004 15:31	8.31	282.88
11/23/2004 16:31	8.31	282.88
11/23/2004 17:31	8.31	282.88
11/23/2004 18:31	8.31	282.88
11/23/2004 19:31	8.3	282.88
11/23/2004 20:31	8.3	282.88
11/23/2004 21:31	8.3	282.88
11/23/2004 22:31	8.3	282.88
11/23/2004 23:31	8.3	282.88
11/24/2004 0:31	8.3	282.88
11/24/2004 1:31	8.3	282.88
11/24/2004 2:31	8.3	282.88
11/24/2004 3:31	8.3	282.87
11/24/2004 4:31	8.3	282.87
11/24/2004 5:31	8.3	282.87
11/24/2004 6:31	8.3	282.87
11/24/2004 7:31	8.3	282.87
11/24/2004 8:31	8.3	282.87
11/24/2004 9:31	8.3	282.87
11/24/2004 10:31	8.3	282.88
11/24/2004 11:31	8.3	282.88
11/24/2004 12:31	8.3	282.89
11/24/2004 13:31	8.28	282.90
11/24/2004 14:31	8.28	282.91
11/24/2004 15:31	8.28	282.91
11/24/2004 16:31	8.28	282.92
11/24/2004 17:31	8.28	282.92
11/24/2004 18:31	8.28	282.93
11/24/2004 19:31	8.28	282.93
11/24/2004 20:31	8.28	282.94
11/24/2004 21:31	8.27	282.94
11/24/2004 22:31	8.27	282.94
11/24/2004 23:31	8.27	282.94
11/25/2004 0:31	8.27	282.94
11/25/2004 1:31	8.27	282.94
11/25/2004 2:31	8.27	282.95
11/25/2004 3:31	8.27	282.95
11/25/2004 4:31	8.27	282.95
11/25/2004 5:31	8.27	282.94
11/25/2004 6:31	8.26	282.94
11/25/2004 7:31	8.26	282.94
11/25/2004 8:31	8.26	282.94
11/25/2004 9:31	8.26	282.94
11/25/2004 10:31	8.26	282.94
11/25/2004 11:31	8.26	282.94
11/25/2004 12:31	8.26	282.94
11/25/2004 13:31	8.26	282.94
11/25/2004 14:31	8.25	282.94
11/25/2004 15:31	8.25	282.94
11/25/2004 16:31	8.25	282.94
11/25/2004 17:31	8.25	282.93
11/25/2004 18:31	8.25	282.93
11/25/2004 19:31	8.25	282.93
11/25/2004 20:31	8.25	282.93
11/25/2004 21:31	8.23	282.93
11/25/2004 22:31	8.23	282.93
11/25/2004 23:31	8.23	282.93
11/26/2004 0:31	8.23	282.93
11/26/2004 1:31	8.23	282.93
11/26/2004 2:31	8.23	282.93
11/26/2004 3:31	8.23	282.93
11/26/2004 4:31	8.22	282.93
11/26/2004 5:31	8.22	282.93
11/26/2004 6:31	8.22	282.92
11/26/2004 7:31	8.22	282.92
11/26/2004 8:31	8.22	282.92
11/26/2004 9:31	8.21	282.92
11/26/2004 10:31	8.21	282.92
11/26/2004 11:31	8.21	282.92
11/26/2004 12:31	8.21	282.93
11/26/2004 13:31	8.2	282.93
11/26/2004 14:31	8.21	282.93
11/26/2004 15:31	8.2	282.93
11/26/2004 16:31	8.2	282.93
11/26/2004 17:31	8.2	282.93
11/26/2004 18:31	8.2	282.92
11/26/2004 19:31	8.18	282.92
11/26/2004 20:31	8.18	282.92
11/26/2004 21:31	8.18	282.92
11/26/2004 22:31	8.18	282.92
11/26/2004 23:31	8.18	282.92
11/27/2004 0:31	8.17	282.92
11/27/2004 1:31	8.17	282.92
11/27/2004 2:31	8.17	282.92
11/27/2004 3:31	8.17	282.92
11/27/2004 4:31	8.17	282.92
11/27/2004 5:31	8.16	282.93
11/27/2004 6:31	8.16	282.93
11/27/2004 7:31	8.16	282.93
11/27/2004 8:31	8.16	282.93

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/27/2004 9:31	8.15	282.93
11/27/2004 10:31	8.15	282.94
11/27/2004 11:31	8.15	282.94
11/27/2004 12:31	8.15	282.94
11/27/2004 13:31	8.13	282.94
11/27/2004 14:31	8.13	282.94
11/27/2004 15:31	8.13	282.94
11/27/2004 16:31	8.12	282.94
11/27/2004 17:31	8.12	282.94
11/27/2004 18:31	8.12	282.94
11/27/2004 19:31	8.11	282.94
11/27/2004 20:31	8.11	282.94
11/27/2004 21:31	8.11	282.94
11/27/2004 22:31	8.09	282.94
11/27/2004 23:31	8.09	282.94
11/28/2004 0:31	8.09	282.94
11/28/2004 1:31	8.08	282.94
11/28/2004 2:31	8.08	282.94
11/28/2004 3:31	8.08	282.94
11/28/2004 4:31	8.07	282.95
11/28/2004 5:31	8.07	282.95
11/28/2004 6:31	8.07	282.95
11/28/2004 7:31	8.06	282.95
11/28/2004 8:31	8.06	282.95
11/28/2004 9:31	8.06	282.95
11/28/2004 10:31	8.04	282.95
11/28/2004 11:31	8.04	282.95
11/28/2004 12:31	8.03	282.95
11/28/2004 13:31	8.03	282.95
11/28/2004 14:31	8.03	282.95
11/28/2004 15:31	8.03	282.95
11/28/2004 16:31	8.02	282.95
11/28/2004 17:31	8.02	282.95
11/28/2004 18:31	8.01	282.95
11/28/2004 19:31	8.01	282.94
11/28/2004 20:31	8.01	282.94
11/28/2004 21:31	7.99	282.94
11/28/2004 22:31	7.99	282.94
11/28/2004 23:31	7.99	282.94
11/29/2004 0:31	7.98	282.94
11/29/2004 1:31	7.98	282.94
11/29/2004 2:31	7.97	282.94
11/29/2004 3:31	7.97	282.94
11/29/2004 4:31	7.97	282.94
11/29/2004 5:31	7.96	282.94
11/29/2004 6:31	7.96	282.94
11/29/2004 7:31	7.96	282.94
11/29/2004 8:31	7.96	282.93
11/29/2004 9:31	7.94	282.93
11/29/2004 10:31	7.94	282.93
11/29/2004 11:31	7.94	282.93
11/29/2004 12:31	7.94	282.93
11/29/2004 13:31	7.94	282.93
11/29/2004 14:31	7.94	282.94
11/29/2004 15:31	7.94	282.94
11/29/2004 16:31	7.93	282.94
11/29/2004 17:31	7.93	282.94
11/29/2004 18:31	7.93	282.94
11/29/2004 19:31	7.93	282.93
11/29/2004 20:31	7.93	282.93
11/29/2004 21:31	7.92	282.93
11/29/2004 22:31	7.92	282.93
11/29/2004 23:31	7.92	282.93
11/30/2004 0:31	7.92	282.93
11/30/2004 1:31	7.91	282.93
11/30/2004 2:31	7.91	282.93
11/30/2004 3:31	7.91	282.93
11/30/2004 4:31	7.91	282.93
11/30/2004 5:31	7.89	282.93
11/30/2004 6:31	7.89	282.93
11/30/2004 7:31	7.89	282.93
11/30/2004 8:31	7.89	282.93
11/30/2004 9:31	7.88	282.93
11/30/2004 10:31	7.88	282.93
11/30/2004 11:31	7.88	282.93
11/30/2004 12:31	7.88	282.93
11/30/2004 13:31	7.88	282.93
11/30/2004 14:31	7.87	282.93
11/30/2004 15:31	7.87	282.93
11/30/2004 16:31	7.87	282.93
11/30/2004 17:31	7.86	282.93
11/30/2004 18:31	7.86	282.93
11/30/2004 19:31	7.86	282.93
11/30/2004 20:31	7.86	282.93
11/30/2004 21:31	7.86	282.93
11/30/2004 22:31	7.84	282.93
11/30/2004 23:31	7.84	282.93
12/1/2004 0:31	7.84	282.94
12/1/2004 1:31	7.84	282.94
12/1/2004 2:31	7.84	282.93
12/1/2004 3:31	7.84	282.93
12/1/2004 4:31	7.83	282.95
12/1/2004 5:31	7.83	282.94
12/1/2004 6:31	7.83	282.96
12/1/2004 7:31	7.82	282.95
12/1/2004 8:31	7.82	282.96
12/1/2004 9:31	7.82	282.98

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/1/2004 10:31	7.82	282.97
12/1/2004 11:31	7.8	282.98
12/1/2004 12:31	7.8	283.00
12/1/2004 13:31	7.8	283.00
12/1/2004 14:31	7.8	283.00
12/1/2004 15:31	7.79	283.00
12/1/2004 16:31	7.79	283.00
12/1/2004 17:31	7.79	283.00
12/1/2004 18:31	7.78	283.00
12/1/2004 19:31	7.78	283.00
12/1/2004 20:31	7.78	283.00
12/1/2004 21:31	7.78	282.99
12/1/2004 22:31	7.78	282.99
12/1/2004 23:31	7.77	282.99
12/2/2004 0:31	7.77	282.99
12/2/2004 1:31	7.77	282.99
12/2/2004 2:31	7.75	282.99
12/2/2004 3:31	7.75	282.99
12/2/2004 4:31	7.75	282.99
12/2/2004 5:31	7.75	282.99
12/2/2004 6:31	7.74	282.99
12/2/2004 7:31	7.74	282.99
12/2/2004 8:31	7.74	282.99
12/2/2004 9:31	7.74	282.99
12/2/2004 10:31	7.73	282.99
12/2/2004 11:31	7.73	282.99
12/2/2004 12:31	7.73	282.98
12/2/2004 13:31	7.73	282.98
12/2/2004 14:31	7.72	282.98
12/2/2004 15:31	7.72	282.98
12/2/2004 16:31	7.72	282.98
12/2/2004 17:31	7.72	282.98
12/2/2004 18:31	7.72	282.98
12/2/2004 19:31	7.7	282.98
12/2/2004 20:31	7.7	282.98
12/2/2004 21:31	7.7	282.98
12/2/2004 22:31	7.7	282.98
12/2/2004 23:31	7.69	282.98
12/3/2004 0:31	7.69	282.98
12/3/2004 1:31	7.69	282.98
12/3/2004 2:31	7.68	282.98
12/3/2004 3:31	7.68	282.98
12/3/2004 4:31	7.68	282.98
12/3/2004 5:31	7.68	282.98
12/3/2004 6:31	7.68	282.98
12/3/2004 7:31	7.67	282.98
12/3/2004 8:31	7.67	282.98
12/3/2004 9:31	7.67	282.97
12/3/2004 10:31	7.67	282.97
12/3/2004 11:31	7.67	282.97
12/3/2004 12:31	7.67	282.97
12/3/2004 13:31	7.65	282.97
12/3/2004 14:31	7.65	282.97
12/3/2004 15:31	7.65	282.97
12/3/2004 16:31	7.64	282.97
12/3/2004 17:31	7.64	282.97
12/3/2004 18:31	7.64	282.97
12/3/2004 19:31	7.64	282.97
12/3/2004 20:31	7.64	282.97
12/3/2004 21:31	7.64	282.97
12/3/2004 22:31	7.63	282.97
12/3/2004 23:31	7.63	282.97
12/4/2004 0:31	7.63	282.96
12/4/2004 1:31	7.63	282.96
12/4/2004 2:31	7.63	282.96
12/4/2004 3:31	7.62	282.96
12/4/2004 4:31	7.62	282.96
12/4/2004 5:31	7.62	282.96
12/4/2004 6:31	7.62	282.96
12/4/2004 7:31	7.62	282.96
12/4/2004 8:31	7.6	282.96
12/4/2004 9:31	7.6	282.96

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/4/2004 10:31	7.6	282.96
12/4/2004 11:31	7.6	282.96
12/4/2004 12:31	7.6	282.96
12/4/2004 13:31	7.6	282.96
12/4/2004 14:31	7.59	282.96
12/4/2004 15:31	7.59	282.96
12/4/2004 16:31	7.59	282.97
12/4/2004 17:31	7.59	282.97
12/4/2004 18:31	7.58	282.97
12/4/2004 19:31	7.58	282.97
12/4/2004 20:31	7.58	282.97
12/4/2004 21:31	7.58	282.97
12/4/2004 22:31	7.58	282.97
12/4/2004 23:31	7.56	282.97
12/5/2004 0:31	7.56	282.97
12/5/2004 1:31	7.56	282.97
12/5/2004 2:31	7.56	282.97
12/5/2004 3:31	7.55	282.97
12/5/2004 4:31	7.55	282.96
12/5/2004 5:31	7.55	282.96
12/5/2004 6:31	7.55	282.96
12/5/2004 7:31	7.55	282.96
12/5/2004 8:31	7.54	282.96
12/5/2004 9:31	7.54	282.96
12/5/2004 10:31	7.54	282.96
12/5/2004 11:31	7.54	282.96
12/5/2004 12:31	7.53	282.96
12/5/2004 13:31	7.53	282.96
12/5/2004 14:31	7.53	282.96
12/5/2004 15:31	7.53	282.96
12/5/2004 16:31	7.51	282.96
12/5/2004 17:31	7.51	282.96
12/5/2004 18:31	7.51	282.96
12/5/2004 19:31	7.5	282.95
12/5/2004 20:31	7.5	282.95
12/5/2004 21:31	7.5	282.95
12/5/2004 22:31	7.5	282.95
12/5/2004 23:31	7.5	282.95
12/6/2004 0:31	7.49	282.95
12/6/2004 1:31	7.49	282.95
12/6/2004 2:31	7.49	282.95
12/6/2004 3:31	7.48	282.95
12/6/2004 4:31	7.48	282.95
12/6/2004 5:31	7.48	282.95
12/6/2004 6:31	7.48	282.95
12/6/2004 7:31	7.46	282.95
12/6/2004 8:31	7.46	282.95
12/6/2004 9:31	7.45	282.95
12/6/2004 10:31	7.45	282.95
12/6/2004 11:31	7.45	282.95
12/6/2004 12:31	7.44	282.93
12/6/2004 13:31	7.43	282.94
12/6/2004 14:31	7.43	282.94
12/6/2004 15:31	7.43	282.94
12/6/2004 16:31	7.43	282.94
12/6/2004 17:31	7.41	282.94
12/6/2004 18:31	7.41	282.94
12/6/2004 19:31	7.41	282.94
12/6/2004 20:31	7.4	282.94
12/6/2004 21:31	7.4	282.94
12/6/2004 22:31	7.4	282.94
12/6/2004 23:31	7.4	282.94
12/7/2004 0:31	7.4	282.94
12/7/2004 1:31	7.39	282.94
12/7/2004 2:31	7.39	282.94
12/7/2004 3:31	7.39	282.94
12/7/2004 4:31	7.38	282.94
12/7/2004 5:31	7.38	282.94
12/7/2004 6:31	7.38	282.94
12/7/2004 7:31	7.36	282.94
12/7/2004 8:31	7.36	282.94
12/7/2004 9:31	7.36	282.94
12/7/2004 10:31	7.35	282.94
12/7/2004 11:31	7.35	282.94
12/7/2004 12:31	7.35	282.94
12/7/2004 13:31	7.34	282.97
12/7/2004 14:31	7.34	282.98
12/7/2004 15:31	7.34	283.00
12/7/2004 16:31	7.34	283.00
12/7/2004 17:31	7.32	283.00
12/7/2004 18:31	7.32	283.00
12/7/2004 19:31	7.32	283.00
12/7/2004 20:31	7.31	283.00
12/7/2004 21:31	7.31	283.00
12/7/2004 22:31	7.3	283.00
12/7/2004 23:31	7.3	283.00
12/8/2004 0:31	7.3	283.00
12/8/2004 1:31	7.3	283.00
12/8/2004 2:31	7.29	283.00
12/8/2004 3:31	7.29	283.00
12/8/2004 4:31	7.27	283.00
12/8/2004 5:31	7.27	283.00
12/8/2004 6:31	7.27	283.00
12/8/2004 7:31	7.26	283.00
12/8/2004 8:31	7.26	283.00

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-29 - MP-11
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/19/04 12:36	8.53	281.52
11/19/04 13:36	8.04	281.71
11/19/04 14:36	8	281.78
11/19/04 15:36	7.98	281.82
11/19/04 16:36	7.96	281.84
11/19/04 17:36	7.95	281.86
11/19/04 18:36	7.94	281.87
11/19/04 19:36	7.94	281.87
11/19/04 20:36	7.94	281.87
11/19/04 21:36	7.94	281.87
11/19/04 22:36	7.94	281.87
11/19/04 23:36	7.94	281.87
11/20/04 0:36	7.94	281.87
11/20/04 1:36	7.94	281.88
11/20/04 2:36	7.94	281.88
11/20/04 3:36	7.94	281.88
11/20/04 4:36	7.94	281.88
11/20/04 5:36	7.94	281.88
11/20/04 6:36	7.94	281.89
11/20/04 7:36	7.94	281.89
11/20/04 8:36	7.94	281.89
11/20/04 9:36	7.94	281.89
11/20/04 10:36	7.94	281.90
11/20/04 11:36	7.95	281.90
11/20/04 12:36	7.95	281.90
11/20/04 13:36	7.95	281.90
11/20/04 14:36	7.95	281.90
11/20/04 15:36	7.95	281.90
11/20/04 16:36	7.95	281.90
11/20/04 17:36	7.95	281.90
11/20/04 18:36	7.95	281.90
11/20/04 19:36	7.96	281.90
11/20/04 20:36	7.96	281.90
11/20/04 21:36	7.96	281.90
11/20/04 22:36	7.96	281.90
11/20/04 23:36	7.96	281.90
11/21/04 0:36	7.96	281.90
11/21/04 1:36	7.96	281.90
11/21/04 2:36	7.96	281.90
11/21/04 3:36	7.96	281.90
11/21/04 4:36	7.98	281.90
11/21/04 5:36	7.98	281.90
11/21/04 6:36	7.98	281.90
11/21/04 7:36	7.98	281.90
11/21/04 8:36	7.98	281.90
11/21/04 9:36	7.98	281.90
11/21/04 10:36	7.98	281.90
11/21/04 11:36	7.99	281.90
11/21/04 12:36	7.99	281.90
11/21/04 13:36	7.99	281.90
11/21/04 14:36	7.99	281.90
11/21/04 15:36	7.99	281.90
11/21/04 16:36	7.99	281.90
11/21/04 17:36	8	281.90
11/21/04 18:36	7.99	281.90
11/21/04 19:36	8	281.90
11/21/04 20:36	8	281.90
11/21/04 21:36	8	281.90
11/21/04 22:36	8	281.90
11/21/04 23:36	8	281.90
11/22/04 0:36	8	281.90
11/22/04 1:36	8	281.90
11/22/04 2:36	8	281.90
11/22/04 3:36	8.01	281.90
11/22/04 4:36	8.01	281.89
11/22/04 5:36	8.01	281.89
11/22/04 6:36	8.01	281.89
11/22/04 7:36	8.01	281.89
11/22/04 8:36	8.01	281.89
11/22/04 9:36	8.01	281.89
11/22/04 10:36	8.01	281.89
11/22/04 11:36	8.01	281.89
11/22/04 12:36	8.01	281.89
11/22/04 13:36	8.01	281.89
11/22/04 14:36	8.01	281.89
11/22/04 15:36	8.01	281.89
11/22/04 16:36	8.01	281.89
11/22/04 17:36	8.01	281.89
11/22/04 18:36	8.01	281.89
11/22/04 19:36	8.01	281.89
11/22/04 20:36	8.01	281.89
11/22/04 21:36	8.01	281.89
11/22/04 22:36	8.01	281.89
11/22/04 23:36	8.01	281.89
11/23/04 0:36	8.01	281.89

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/23/04 1:36	8.01	281.89
11/23/04 2:36	8.01	281.89
11/23/04 3:36	8.01	281.89
11/23/04 4:36	8	281.89
11/23/04 5:36	8	281.89
11/23/04 6:36	8	281.89
11/23/04 7:36	8	281.89
11/23/04 8:36	8	281.89
11/23/04 9:36	8	281.89
11/23/04 10:36	8	281.89
11/23/04 11:36	8	281.89
11/23/04 12:36	7.99	281.89
11/23/04 13:36	7.99	281.89
11/23/04 14:36	7.99	281.89
11/23/04 15:36	7.99	281.89
11/23/04 16:36	7.98	281.89
11/23/04 17:36	7.98	281.89
11/23/04 18:36	7.98	281.89
11/23/04 19:36	7.98	281.89
11/23/04 20:36	7.98	281.89
11/23/04 21:36	7.98	281.89
11/23/04 22:36	7.98	281.89
11/23/04 23:36	7.96	281.89
11/24/04 0:36	7.96	281.89
11/24/04 1:36	7.96	281.89
11/24/04 2:36	7.96	281.89
11/24/04 3:36	7.96	281.89
11/24/04 4:36	7.96	281.89
11/24/04 5:36	7.95	281.89
11/24/04 6:36	7.95	281.89
11/24/04 7:36	7.95	281.89
11/24/04 8:36	7.95	281.89
11/24/04 9:36	7.95	281.89
11/24/04 10:36	7.94	281.89
11/24/04 11:36	7.94	281.89
11/24/04 12:36	7.94	281.90
11/24/04 13:36	7.94	281.91
11/24/04 14:36	7.94	281.92
11/24/04 15:36	7.93	281.92
11/24/04 16:36	7.93	281.92
11/24/04 17:36	7.93	281.92
11/24/04 18:36	7.91	281.93
11/24/04 19:36	7.91	281.93
11/24/04 20:36	7.91	281.93
11/24/04 21:36	7.91	281.94
11/24/04 22:36	7.9	281.94
11/24/04 23:36	7.9	281.94
11/25/04 0:36	7.9	281.94
11/25/04 1:36	7.89	281.94
11/25/04 2:36	7.89	281.94
11/25/04 3:36	7.89	281.94
11/25/04 4:36	7.89	281.94
11/25/04 5:36	7.88	281.94
11/25/04 6:36	7.88	281.94
11/25/04 7:36	7.88	281.94
11/25/04 8:36	7.88	281.94
11/25/04 9:36	7.88	281.94
11/25/04 10:36	7.86	281.94
11/25/04 11:36	7.86	281.94
11/25/04 12:36	7.86	281.93
11/25/04 13:36	7.85	281.93
11/25/04 14:36	7.85	281.93
11/25/04 15:36	7.85	281.93
11/25/04 16:36	7.85	281.93
11/25/04 17:36	7.84	281.93
11/25/04 18:36	7.84	281.93
11/25/04 19:36	7.84	281.93
11/25/04 20:36	7.84	281.93
11/25/04 21:36	7.82	281.93
11/25/04 22:36	7.82	281.93
11/25/04 23:36	7.82	281.93
11/26/04 0:36	7.82	281.93
11/26/04 1:36	7.81	281.93
11/26/04 2:36	7.81	281.93
11/26/04 3:36	7.81	281.92
11/26/04 4:36	7.8	281.92
11/26/04 5:36	7.8	281.92
11/26/04 6:36	7.79	281.92
11/26/04 7:36	7.79	281.92
11/26/04 8:36	7.79	281.92
11/26/04 9:36	7.77	281.92
11/26/04 10:36	7.77	281.92
11/26/04 11:36	7.77	281.92
11/26/04 12:36	7.77	281.92
11/26/04 13:36	7.77	281.92
11/26/04 14:36	7.76	281.92
11/26/04 15:36	7.76	281.92
11/26/04 16:36	7.76	281.92
11/26/04 17:36	7.75	281.92
11/26/04 18:36	7.75	281.92

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/26/04 19:36	7.75	281.92
11/26/04 20:36	7.74	281.92
11/26/04 21:36	7.74	281.92
11/26/04 22:36	7.74	281.92
11/26/04 23:36	7.72	281.92
11/27/04 0:36	7.72	281.92
11/27/04 1:36	7.72	281.92
11/27/04 2:36	7.71	281.92
11/27/04 3:36	7.71	281.92
11/27/04 4:36	7.71	281.93
11/27/04 5:36	7.7	281.93
11/27/04 6:36	7.7	281.93
11/27/04 7:36	7.7	281.93
11/27/04 8:36	7.69	281.93
11/27/04 9:36	7.69	281.93
11/27/04 10:36	7.69	281.93
11/27/04 11:36	7.69	281.93
11/27/04 12:36	7.67	281.94
11/27/04 13:36	7.67	281.94
11/27/04 14:36	7.67	281.94
11/27/04 15:36	7.66	281.94
11/27/04 16:36	7.66	281.94
11/27/04 17:36	7.66	281.94
11/27/04 18:36	7.66	281.94
11/27/04 19:36	7.65	281.94
11/27/04 20:36	7.65	281.94
11/27/04 21:36	7.65	281.94
11/27/04 22:36	7.65	281.94
11/27/04 23:36	7.64	281.94
11/28/04 0:36	7.64	281.94
11/28/04 1:36	7.64	281.94
11/28/04 2:36	7.64	281.95
11/28/04 3:36	7.64	281.95
11/28/04 4:36	7.62	281.96
11/28/04 5:36	7.62	281.96
11/28/04 6:36	7.62	281.97
11/28/04 7:36	7.61	281.97
11/28/04 8:36	7.61	281.97
11/28/04 9:36	7.61	281.97
11/28/04 10:36	7.61	281.97
11/28/04 11:36	7.6	281.98
11/28/04 12:36	7.6	281.98
11/28/04 13:36	7.6	281.98
11/28/04 14:36	7.6	281.98
11/28/04 15:36	7.6	281.98
11/28/04 16:36	7.6	281.98
11/28/04 17:36	7.58	281.98
11/28/04 18:36	7.58	281.98
11/28/04 19:36	7.58	281.98
11/28/04 20:36	7.58	281.98
11/28/04 21:36	7.57	281.98
11/28/04 22:36	7.57	281.98
11/28/04 23:36	7.57	281.98
11/29/04 0:36	7.57	281.98
11/29/04 1:36	7.57	281.98
11/29/04 2:36	7.57	281.98
11/29/04 3:36	7.56	281.98
11/29/04 4:36	7.56	281.98
11/29/04 5:36	7.56	281.98
11/29/04 6:36	7.56	281.98
11/29/04 7:36	7.56	281.98
11/29/04 8:36	7.55	281.98
11/29/04 9:36	7.55	281.98
11/29/04 10:36	7.55	281.98
11/29/04 11:36	7.55	281.98
11/29/04 12:36	7.55	281.97
11/29/04 13:36	7.5	281.96
11/29/04 14:36	7.52	281.97
11/29/04 15:36	7.52	281.97
11/29/04 16:36	7.52	281.97
11/29/04 17:36	7.52	281.97
11/29/04 18:36	7.52	281.97
11/29/04 19:36	7.53	281.97
11/29/04 20:36	7.52	281.97
11/29/04 21:36	7.52	281.97
11/29/04 22:36	7.52	281.97
11/29/04 23:36	7.52	281.97
11/30/04 0:36	7.52	281.97
11/30/04 1:36	7.52	281.97
11/30/04 2:36	7.51	281.97
11/30/04 3:36	7.51	281.97
11/30/04 4:36	7.51	281.97
11/30/04 5:36	7.51	281.97
11/30/04 6:36	7.51	281.97
11/30/04 7:36	7.51	281.97
11/30/04 8:36	7.5	281.97
11/30/04 9:36	7.5	281.97
11/30/04 10:36	7.5	281.97
11/30/04 11:36	7.5	281.97
11/30/04 12:36	7.5	281.97

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/30/04 13:36	7.48	281.97
11/30/04 14:36	7.48	281.97
11/30/04 15:36	7.48	281.97
11/30/04 16:36	7.48	281.97
11/30/04 17:36	7.48	281.97
11/30/04 18:36	7.47	281.97
11/30/04 19:36	7.47	281.97
11/30/04 20:36	7.47	281.97
11/30/04 21:36	7.47	281.97
11/30/04 22:36	7.47	281.97
11/30/04 23:36	7.47	281.97
12/1/04 0:36	7.47	281.97
12/1/04 1:36	7.46	281.97
12/1/04 2:36	7.46	281.97
12/1/04 3:36	7.46	281.98
12/1/04 4:36	7.46	281.98
12/1/04 5:36	7.46	281.98
12/1/04 6:36	7.45	281.98
12/1/04 7:36	7.45	281.99
12/1/04 8:36	7.45	281.99
12/1/04 9:36	7.45	281.99
12/1/04 10:36	7.45	282.00
12/1/04 11:36	7.43	282.00
12/1/04 12:36	7.43	282.00
12/1/04 13:36	7.43	282.00
12/1/04 14:36	7.43	282.00
12/1/04 15:36	7.43	282.00
12/1/04 16:36	7.43	282.00
12/1/04 17:36	7.43	282.00
12/1/04 18:36	7.42	282.00
12/1/04 19:36	7.42	282.00
12/1/04 20:36	7.42	282.00
12/1/04 21:36	7.42	282.00
12/1/04 22:36	7.42	282.00
12/1/04 23:36	7.41	282.00
12/2/04 0:36	7.41	282.00
12/2/04 1:36	7.41	282.00
12/2/04 2:36	7.41	282.00
12/2/04 3:36	7.41	282.00
12/2/04 4:36	7.4	282.00
12/2/04 5:36	7.4	282.00
12/2/04 6:36	7.4	282.00
12/2/04 7:36	7.4	282.00
12/2/04 8:36	7.4	282.00
12/2/04 9:36	7.4	282.00
12/2/04 10:36	7.4	282.00
12/2/04 11:36	7.38	282.00
12/2/04 12:36	7.38	282.00
12/2/04 13:36	7.38	282.00
12/2/04 14:36	7.38	282.00
12/2/04 15:36	7.37	282.00
12/2/04 16:36	7.37	282.00
12/2/04 17:36	7.37	282.00
12/2/04 18:36	7.37	282.00
12/2/04 19:36	7.37	282.00
12/2/04 20:36	7.37	282.00
12/2/04 21:36	7.37	282.00
12/2/04 22:36	7.37	282.00
12/2/04 23:36	7.36	282.00
12/3/04 0:36	7.36	282.00
12/3/04 1:36	7.36	282.00
12/3/04 2:36	7.36	282.00
12/3/04 3:36	7.36	282.00
12/3/04 4:36	7.35	282.00
12/3/04 5:36	7.35	282.00
12/3/04 6:36	7.35	282.00
12/3/04 7:36	7.35	282.00
12/3/04 8:36	7.35	282.00
12/3/04 9:36	7.35	282.00
12/3/04 10:36	7.33	281.99
12/3/04 11:36	7.33	281.99
12/3/04 12:36	7.33	281.99
12/3/04 13:36	7.33	281.99
12/3/04 14:36	7.32	281.99
12/3/04 15:36	7.32	281.99
12/3/04 16:36	7.32	281.99
12/3/04 17:36	7.32	281.99
12/3/04 18:36	7.32	281.99
12/3/04 19:36	7.32	281.99
12/3/04 20:36	7.31	281.99
12/3/04 21:36	7.31	281.99
12/3/04 22:36	7.31	281.99
12/3/04 23:36	7.31	281.99
12/4/04 0:36	7.29	281.99
12/4/04 1:36	7.29	281.99
12/4/04 2:36	7.29	281.99
12/4/04 3:36	7.29	281.98
12/4/04 4:36	7.28	281.98
12/4/04 5:36	7.28	281.98
12/4/04 6:36	7.28	281.98

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/4/04 7:36	7.27	281.98
12/4/04 8:36	7.27	281.98
12/4/04 9:36	7.27	281.98
12/4/04 10:36	7.27	281.98
12/4/04 11:36	7.26	281.98
12/4/04 12:36	7.26	281.98
12/4/04 13:36	7.26	281.98
12/4/04 14:36	7.26	281.98
12/4/04 15:36	7.24	281.99
12/4/04 16:36	7.24	281.98
12/4/04 17:36	7.23	281.98
12/4/04 18:36	7.23	281.98
12/4/04 19:36	7.23	281.98
12/4/04 20:36	7.23	281.97
12/4/04 21:36	7.23	281.97
12/4/04 22:36	7.22	281.97
12/4/04 23:36	7.22	281.97
12/5/04 0:36	7.22	281.97
12/5/04 1:36	7.22	281.97
12/5/04 2:36	7.21	281.97
12/5/04 3:36	7.21	281.96
12/5/04 4:36	7.21	281.96
12/5/04 5:36	7.19	281.96
12/5/04 6:36	7.19	281.96
12/5/04 7:36	7.19	281.96
12/5/04 8:36	7.18	281.96
12/5/04 9:36	7.18	281.96
12/5/04 10:36	7.18	281.96
12/5/04 11:36	7.18	281.96
12/5/04 12:36	7.17	281.96
12/5/04 13:36	7.17	281.95
12/5/04 14:36	7.17	281.95
12/5/04 15:36	7.17	281.95
12/5/04 16:36	7.16	281.95
12/5/04 17:36	7.16	281.95
12/5/04 18:36	7.16	281.95
12/5/04 19:36	7.14	281.95
12/5/04 20:36	7.14	281.95
12/5/04 21:36	7.14	281.95
12/5/04 22:36	7.13	281.95
12/5/04 23:36	7.13	281.95
12/6/04 0:36	7.13	281.95
12/6/04 1:36	7.12	281.95
12/6/04 2:36	7.12	281.95
12/6/04 3:36	7.12	281.95
12/6/04 4:36	7.11	281.95
12/6/04 5:36	7.11	281.95
12/6/04 6:36	7.11	281.94
12/6/04 7:36	7.11	281.94
12/6/04 8:36	7.09	281.94
12/6/04 9:36	7.09	281.95
12/6/04 10:36	7.08	281.95
12/6/04 11:36	7.08	281.95
12/6/04 12:36	7.07	281.95
12/6/04 13:36	7.06	281.95
12/6/04 14:36	7.06	281.95
12/6/04 15:36	7.06	281.94
12/6/04 16:36	7.04	281.94
12/6/04 17:36	7.04	281.94
12/6/04 18:36	7.04	281.94
12/6/04 19:36	7.03	281.94
12/6/04 20:36	7.03	281.94
12/6/04 21:36	7.02	281.94
12/6/04 22:36	7.02	281.94
12/6/04 23:36	7.02	281.94
12/7/04 0:36	7.02	281.94
12/7/04 1:36	7	281.94
12/7/04 2:36	7	281.94
12/7/04 3:36	6.99	281.94
12/7/04 4:36	6.99	281.94
12/7/04 5:36	6.99	281.94
12/7/04 6:36	6.98	281.94
12/7/04 7:36	6.98	281.94
12/7/04 8:36	6.98	281.94
12/7/04 9:36	6.97	281.94
12/7/04 10:36	6.95	281.94
12/7/04 11:36	6.95	281.94
12/7/04 12:36	6.95	281.94
12/7/04 13:36	6.95	281.96
12/7/04 14:36	6.95	281.98
12/7/04 15:36	6.94	281.98
12/7/04 16:36	6.94	281.99
12/7/04 17:36	6.93	281.99
12/7/04 18:36	6.93	281.99
12/7/04 19:36	6.93	282.00
12/7/04 20:36	6.93	282.00
12/7/04 21:36	6.92	282.00
12/7/04 22:36	6.9	282.00
12/7/04 23:36	6.9	282.00
12/8/04 0:36	6.9	282.00

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/8/04 1:36	6.9	282.00
12/8/04 2:36	6.89	282.00
12/8/04 3:36	6.89	282.00
12/8/04 4:36	6.88	282.00
12/8/04 5:36	6.88	282.00
12/8/04 6:36	6.88	282.00
12/8/04 7:36	6.87	282.00
12/8/04 8:36	6.87	282.00

Note: Data collected every min but reported in the present table every hour

Gartner Lee

Table F2-2-30 - MP-12
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
11/19/2004 23:52	9.9	11/19/2004 23:52	283.69
11/20/2004 0:52	9.9	11/20/2004 0:52	283.83
11/20/2004 1:52	9.9	11/20/2004 1:52	283.96
11/20/2004 2:52	9.89	11/20/2004 2:52	284.01
11/20/2004 3:52	9.89	11/20/2004 3:52	284.04
11/20/2004 4:52	9.89	11/20/2004 4:52	284.07
11/20/2004 5:52	9.89	11/20/2004 5:52	284.09
11/20/2004 6:52	9.88	11/20/2004 6:52	284.11
11/20/2004 7:52	9.88	11/20/2004 7:52	284.15
11/20/2004 8:52	9.88	11/20/2004 8:52	284.17
11/20/2004 9:52	9.88	11/20/2004 9:52	284.20
11/20/2004 10:52	9.88	11/20/2004 10:52	284.22
11/20/2004 11:52	9.87	11/20/2004 11:52	284.24
11/20/2004 12:52	9.87	11/20/2004 12:52	284.27
11/20/2004 13:52	9.87	11/20/2004 13:52	284.29
11/20/2004 14:52	9.87	11/20/2004 14:52	284.31
11/20/2004 15:52	9.87	11/20/2004 15:52	284.33
11/20/2004 16:52	9.87	11/20/2004 16:52	284.34
11/20/2004 17:52	9.87	11/20/2004 17:52	284.36
11/20/2004 18:52	9.85	11/20/2004 18:52	284.38
11/20/2004 19:52	9.85	11/20/2004 19:52	284.40
11/20/2004 20:52	9.85	11/20/2004 20:52	284.41
11/20/2004 21:52	9.85	11/20/2004 21:52	284.43
11/20/2004 22:52	9.85	11/20/2004 22:52	284.44
11/20/2004 23:52	9.85	11/20/2004 23:52	284.46
11/21/2004 0:52	9.84	11/21/2004 0:52	284.47
11/21/2004 1:52	9.84	11/21/2004 1:52	284.48
11/21/2004 2:52	9.84	11/21/2004 2:52	284.50
11/21/2004 3:52	9.84	11/21/2004 3:52	284.51
11/21/2004 4:52	9.84	11/21/2004 4:52	284.52
11/21/2004 5:52	9.84	11/21/2004 5:52	284.53
11/21/2004 6:52	9.84	11/21/2004 6:52	284.54
11/21/2004 7:52	9.84	11/21/2004 7:52	284.55
11/21/2004 8:52	9.83	11/21/2004 8:52	284.57
11/21/2004 9:52	9.83	11/21/2004 9:52	284.57
11/21/2004 10:52	9.83	11/21/2004 10:52	284.58
11/21/2004 11:52	9.83	11/21/2004 11:52	284.59
11/21/2004 12:52	9.83	11/21/2004 12:52	284.60
11/21/2004 13:52	9.82	11/21/2004 13:52	284.61
11/21/2004 14:52	9.83	11/21/2004 14:52	284.62
11/21/2004 15:52	9.82	11/21/2004 15:52	284.63
11/21/2004 16:52	9.82	11/21/2004 16:52	284.63
11/21/2004 17:52	9.82	11/21/2004 17:52	284.64
11/21/2004 18:52	9.82	11/21/2004 18:52	284.65
11/21/2004 19:52	9.82	11/21/2004 19:52	284.66
11/21/2004 20:52	9.82	11/21/2004 20:52	284.66
11/21/2004 21:52	9.82	11/21/2004 21:52	284.67
11/21/2004 22:52	9.8	11/21/2004 22:52	284.68
11/21/2004 23:52	9.8	11/21/2004 23:52	284.68
11/22/2004 0:52	9.8	11/22/2004 0:52	284.69
11/22/2004 1:52	9.8	11/22/2004 1:52	284.69
11/22/2004 2:52	9.8	11/22/2004 2:52	284.70
11/22/2004 3:52	9.8	11/22/2004 3:52	284.70
11/22/2004 4:52	9.8	11/22/2004 4:52	284.71
11/22/2004 5:52	9.8	11/22/2004 5:52	284.71
11/22/2004 6:52	9.8	11/22/2004 6:52	284.72
11/22/2004 7:52	9.79	11/22/2004 7:52	284.72
11/22/2004 8:52	9.79	11/22/2004 8:52	284.73
11/22/2004 9:52	9.79	11/22/2004 9:52	284.73
11/22/2004 10:52	9.79	11/22/2004 10:52	284.73
11/22/2004 11:52	9.79	11/22/2004 11:52	284.74
11/22/2004 12:52	9.79	11/22/2004 12:52	284.74
11/22/2004 13:52	9.79	11/22/2004 13:52	284.75
11/22/2004 14:52	9.78	11/22/2004 14:52	284.75
11/22/2004 15:52	9.78	11/22/2004 15:52	284.75
11/22/2004 16:52	9.78	11/22/2004 16:52	284.75
11/22/2004 17:52	9.78	11/22/2004 17:52	284.76
11/22/2004 18:52	9.78	11/22/2004 18:52	284.76
11/22/2004 19:52	9.78	11/22/2004 19:52	284.76
11/22/2004 20:52	9.78	11/22/2004 20:52	284.77
11/22/2004 21:52	9.77	11/22/2004 21:52	284.77
11/22/2004 22:52	9.77	11/22/2004 22:52	284.77
11/22/2004 23:52	9.77	11/22/2004 23:52	284.77
11/23/2004 0:52	9.77	11/23/2004 0:52	284.78
11/23/2004 1:52	9.77	11/23/2004 1:52	284.78
11/23/2004 2:52	9.77	11/23/2004 2:52	284.78
11/23/2004 3:52	9.77	11/23/2004 3:52	284.78
11/23/2004 4:52	9.77	11/23/2004 4:52	284.78
11/23/2004 5:52	9.77	11/23/2004 5:52	284.79
11/23/2004 6:52	9.77	11/23/2004 6:52	284.79
11/23/2004 7:52	9.77	11/23/2004 7:52	284.79
11/23/2004 8:52	9.75	11/23/2004 8:52	284.79
11/23/2004 9:52	9.75	11/23/2004 9:52	284.79
11/23/2004 10:52	9.75	11/23/2004 10:52	284.79
11/23/2004 11:52	9.75	11/23/2004 11:52	284.80
11/23/2004 12:52	9.75	11/23/2004 12:52	284.80

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
11/23/2004 13:52	9.75	11/23/2004 13:52	284.80
11/23/2004 14:52	9.75	11/23/2004 14:52	284.80
11/23/2004 15:52	9.75	11/23/2004 15:52	284.80
11/23/2004 16:52	9.74	11/23/2004 16:52	284.80
11/23/2004 17:52	9.74	11/23/2004 17:52	284.80
11/23/2004 18:52	9.74	11/23/2004 18:52	284.80
11/23/2004 19:52	9.74	11/23/2004 19:52	284.80
11/23/2004 20:52	9.74	11/23/2004 20:52	284.80
11/23/2004 21:52	9.74	11/23/2004 21:52	284.80
11/23/2004 22:52	9.74	11/23/2004 22:52	284.80
11/23/2004 23:52	9.74	11/23/2004 23:52	284.81
11/24/2004 0:52	9.73	11/24/2004 0:52	284.81
11/24/2004 1:52	9.73	11/24/2004 1:52	284.81
11/24/2004 2:52	9.73	11/24/2004 2:52	284.81
11/24/2004 3:52	9.73	11/24/2004 3:52	284.81
11/24/2004 4:52	9.73	11/24/2004 4:52	284.81
11/24/2004 5:52	9.73	11/24/2004 5:52	284.81
11/24/2004 6:52	9.72	11/24/2004 6:52	284.81
11/24/2004 7:52	9.73	11/24/2004 7:52	284.81
11/24/2004 8:52	9.72	11/24/2004 8:52	284.81
11/24/2004 9:52	9.72	11/24/2004 9:52	284.81
11/24/2004 10:52	9.72	11/24/2004 10:52	284.81
11/24/2004 11:52	9.72	11/24/2004 11:52	284.80
11/24/2004 12:52	9.72	11/24/2004 12:52	284.81
11/24/2004 13:52	9.72	11/24/2004 13:52	284.83
11/24/2004 14:52	9.7	11/24/2004 14:52	284.84
11/24/2004 15:52	9.7	11/24/2004 15:52	284.83
11/24/2004 16:52	9.7	11/24/2004 16:52	284.82
11/24/2004 17:52	9.7	11/24/2004 17:52	284.82
11/24/2004 18:52	9.7	11/24/2004 18:52	284.82
11/24/2004 19:52	9.7	11/24/2004 19:52	284.81
11/24/2004 20:52	9.69	11/24/2004 20:52	284.82
11/24/2004 21:52	9.69	11/24/2004 21:52	284.83
11/24/2004 22:52	9.69	11/24/2004 22:52	284.83
11/24/2004 23:52	9.69	11/24/2004 23:52	284.84
11/25/2004 0:52	9.69	11/25/2004 0:52	284.84
11/25/2004 1:52	9.69	11/25/2004 1:52	284.84
11/25/2004 2:52	9.69	11/25/2004 2:52	284.85
11/25/2004 3:52	9.68	11/25/2004 3:52	284.85
11/25/2004 4:52	9.69	11/25/2004 4:52	284.87
11/25/2004 5:52	9.68	11/25/2004 5:52	284.89
11/25/2004 6:52	9.68	11/25/2004 6:52	284.91
11/25/2004 7:52	9.68	11/25/2004 7:52	284.94
11/25/2004 8:52	9.68	11/25/2004 8:52	284.96
11/25/2004 9:52	9.68	11/25/2004 9:52	284.96
11/25/2004 10:52	9.68	11/25/2004 10:52	284.97
11/25/2004 11:52	9.66	11/25/2004 11:52	284.92
11/25/2004 12:52	9.66	11/25/2004 12:52	284.88
11/25/2004 13:52	9.66	11/25/2004 13:52	284.84
11/25/2004 14:52	9.66	11/25/2004 14:52	284.87
11/25/2004 15:52	9.66	11/25/2004 15:52	284.89
11/25/2004 16:52	9.66	11/25/2004 16:52	284.92
11/25/2004 17:52	9.65	11/25/2004 17:52	284.94
11/25/2004 18:52	9.65	11/25/2004 18:52	284.95
11/25/2004 19:52	9.65	11/25/2004 19:52	284.94
11/25/2004 20:52	9.65	11/25/2004 20:52	284.93
11/25/2004 21:52	9.65	11/25/2004 21:52	284.92
11/25/2004 22:52	9.65	11/25/2004 22:52	284.92
11/25/2004 23:52	9.64	11/25/2004 23:52	284.92
11/26/2004 0:52	9.64	11/26/2004 0:52	284.92
11/26/2004 1:52	9.64	11/26/2004 1:52	284.93
11/26/2004 2:52	9.64	11/26/2004 2:52	284.94
11/26/2004 3:52	9.64	11/26/2004 3:52	284.94
11/26/2004 4:52	9.63	11/26/2004 4:52	284.95
11/26/2004 5:52	9.63	11/26/2004 5:52	284.94
11/26/2004 6:52	9.63	11/26/2004 6:52	284.94
11/26/2004 7:52	9.63	11/26/2004 7:52	284.94
11/26/2004 8:52	9.63	11/26/2004 8:52	284.94
11/26/2004 9:52	9.63	11/26/2004 9:52	284.93
11/26/2004 10:52	9.63	11/26/2004 10:52	284.92
11/26/2004 11:52	9.61	11/26/2004 11:52	284.90
11/26/2004 12:52	9.61	11/26/2004 12:52	284.88
11/26/2004 13:52	9.61	11/26/2004 13:52	284.88
11/26/2004 14:52	9.61	11/26/2004 14:52	284.89
11/26/2004 15:52	9.6	11/26/2004 15:52	284.90
11/26/2004 16:52	9.6	11/26/2004 16:52	284.92
11/26/2004 17:52	9.6	11/26/2004 17:52	284.93
11/26/2004 18:52	9.6	11/26/2004 18:52	284.93
11/26/2004 19:52	9.6	11/26/2004 19:52	284.93
11/26/2004 20:52	9.59	11/26/2004 20:52	284.93
11/26/2004 21:52	9.59	11/26/2004 21:52	284.93
11/26/2004 22:52	9.59	11/26/2004 22:52	284.93
11/26/2004 23:52	9.58	11/26/2004 23:52	284.92
11/27/2004 0:52	9.58	11/27/2004 0:52	284.92
11/27/2004 1:52	9.58	11/27/2004 1:52	284.91
11/27/2004 2:52	9.58	11/27/2004 2:52	284.91
11/27/2004 3:52	9.58	11/27/2004 3:52	284.91
11/27/2004 4:52	9.56	11/27/2004 4:52	284.90
11/27/2004 5:52	9.56	11/27/2004 5:52	284.90
11/27/2004 6:52	9.56	11/27/2004 6:52	284.89
11/27/2004 7:52	9.56	11/27/2004 7:52	284.89
11/27/2004 8:52	9.55	11/27/2004 8:52	284.87

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
11/27/2004 9:52	9.55	11/27/2004 9:52	284.84
11/27/2004 10:52	9.55	11/27/2004 10:52	284.81
11/27/2004 11:52	9.55	11/27/2004 11:52	284.78
11/27/2004 12:52	9.54	11/27/2004 12:52	284.76
11/27/2004 13:52	9.54	11/27/2004 13:52	284.91
11/27/2004 14:52	9.54	11/27/2004 14:52	284.91
11/27/2004 15:52	9.54	11/27/2004 15:52	284.92
11/27/2004 16:52	9.53	11/27/2004 16:52	284.92
11/27/2004 17:52	9.53	11/27/2004 17:52	284.92
11/27/2004 18:52	9.53	11/27/2004 18:52	284.92
11/27/2004 19:52	9.53	11/27/2004 19:52	284.91
11/27/2004 20:52	9.51	11/27/2004 20:52	284.91
11/27/2004 21:52	9.51	11/27/2004 21:52	284.90
11/27/2004 22:52	9.51	11/27/2004 22:52	284.89
11/27/2004 23:52	9.5	11/27/2004 23:52	284.89
11/28/2004 0:52	9.5	11/28/2004 0:52	284.88
11/28/2004 1:52	9.5	11/28/2004 1:52	284.87
11/28/2004 2:52	9.49	11/28/2004 2:52	284.86
11/28/2004 3:52	9.49	11/28/2004 3:52	284.85
11/28/2004 4:52	9.49	11/28/2004 4:52	284.85
11/28/2004 5:52	9.48	11/28/2004 5:52	284.84
11/28/2004 6:52	9.48	11/28/2004 6:52	284.85
11/28/2004 7:52	9.48	11/28/2004 7:52	284.83
11/28/2004 8:52	9.46	11/28/2004 8:52	284.83
11/28/2004 9:52	9.46	11/28/2004 9:52	284.82
11/28/2004 10:52	9.46	11/28/2004 10:52	284.82
11/28/2004 11:52	9.45	11/28/2004 11:52	284.81
11/28/2004 12:52	9.45	11/28/2004 12:52	284.81
11/28/2004 13:52	9.45	11/28/2004 13:52	284.80
11/28/2004 14:52	9.44	11/28/2004 14:52	284.80
11/28/2004 15:52	9.44	11/28/2004 15:52	284.79
11/28/2004 16:52	9.44	11/28/2004 16:52	284.79
11/28/2004 17:52	9.43	11/28/2004 17:52	284.79
11/28/2004 18:52	9.43	11/28/2004 18:52	284.78
11/28/2004 19:52	9.43	11/28/2004 19:52	284.78
11/28/2004 20:52	9.41	11/28/2004 20:52	284.77
11/28/2004 21:52	9.41	11/28/2004 21:52	284.77
11/28/2004 22:52	9.41	11/28/2004 22:52	284.76
11/28/2004 23:52	9.4	11/28/2004 23:52	284.76
11/29/2004 0:52	9.4	11/29/2004 0:52	284.75
11/29/2004 1:52	9.4	11/29/2004 1:52	284.75
11/29/2004 2:52	9.39	11/29/2004 2:52	284.75
11/29/2004 3:52	9.39	11/29/2004 3:52	284.74
11/29/2004 4:52	9.37	11/29/2004 4:52	284.74
11/29/2004 5:52	9.37	11/29/2004 5:52	284.73
11/29/2004 6:52	9.37	11/29/2004 6:52	284.73
11/29/2004 7:52	9.37	11/29/2004 7:52	284.73
11/29/2004 8:52	9.36	11/29/2004 8:52	284.72
11/29/2004 9:52	9.36	11/29/2004 9:52	284.72
11/29/2004 10:52	9.36	11/29/2004 10:52	284.72
11/29/2004 11:52	9.35	11/29/2004 11:52	284.73
11/29/2004 12:52	9.35	11/29/2004 12:52	284.73
11/29/2004 13:52	9.35	11/29/2004 13:52	284.73
11/29/2004 14:52	9.32	11/29/2004 14:52	284.73
11/29/2004 15:52	9.34	11/29/2004 15:52	284.76
11/29/2004 16:52	9.34	11/29/2004 16:52	284.82
11/29/2004 17:52	9.34	11/29/2004 17:52	284.86
11/29/2004 18:52	9.34	11/29/2004 18:52	284.87
11/29/2004 19:52	9.34	11/29/2004 19:52	284.89
11/29/2004 20:52	9.34	11/29/2004 20:52	284.92
11/29/2004 21:52	9.34	11/29/2004 21:52	284.92
11/29/2004 22:52	9.32	11/29/2004 22:52	284.90
11/29/2004 23:52	9.32	11/29/2004 23:52	284.89
11/30/2004 0:52	9.32	11/30/2004 0:52	284.88
11/30/2004 1:52	9.31	11/30/2004 1:52	284.88
11/30/2004 2:52	9.32	11/30/2004 2:52	284.90
11/30/2004 3:52	9.31	11/30/2004 3:52	284.93
11/30/2004 4:52	9.31	11/30/2004 4:52	284.96
11/30/2004 5:52	9.31	11/30/2004 5:52	284.97
11/30/2004 6:52	9.31	11/30/2004 6:52	284.99
11/30/2004 7:52	9.3	11/30/2004 7:52	285.00
11/30/2004 8:52	9.3	11/30/2004 8:52	285.00
11/30/2004 9:52	9.3	11/30/2004 9:52	284.97
11/30/2004 10:52	9.3	11/30/2004 10:52	284.93
11/30/2004 11:52	9.3	11/30/2004 11:52	284.93
11/30/2004 12:52	9.29	11/30/2004 12:52	284.87
11/30/2004 13:52	9.29	11/30/2004 13:52	284.84
11/30/2004 14:52	9.27	11/30/2004 14:52	284.76
11/30/2004 15:52	9.29	11/30/2004 15:52	284.89
11/30/2004 16:52	9.27	11/30/2004 16:52	284.96
11/30/2004 17:52	9.27	11/30/2004 17:52	284.94
11/30/2004 18:52	9.27	11/30/2004 18:52	284.95
11/30/2004 19:52	9.27	11/30/2004 19:52	284.96
11/30/2004 20:52	9.26	11/30/2004 20:52	284.96
11/30/2004 21:52	9.26	11/30/2004 21:52	284.85
11/30/2004 22:52	9.26	11/30/2004 22:52	284.81
11/30/2004 23:52	9.25	11/30/2004 23:52	284.79
12/1/2004 0:52	9.25	12/1/2004 0:52	284.78
12/1/2004 1:52	9.25	12/1/2004 1:52	284.77
12/1/2004 2:52	9.25	12/1/2004 2:52	284.77
12/1/2004 3:52	9.24	12/1/2004 3:52	284.77
12/1/2004 4:52	9.24	12/1/2004 4:52	284.77

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
12/1/2004 5:52	9.24	12/1/2004 5:52	284.78
12/1/2004 6:52	9.22	12/1/2004 6:52	284.79
12/1/2004 7:52	9.22	12/1/2004 7:52	284.79
12/1/2004 8:52	9.21	12/1/2004 8:52	284.78
12/1/2004 9:52	9.21	12/1/2004 9:52	284.74
12/1/2004 10:52	9.2	12/1/2004 10:52	284.71
12/1/2004 11:52	9.2	12/1/2004 11:52	284.70
12/1/2004 12:52	9.2	12/1/2004 12:52	284.68
12/1/2004 13:52	9.19	12/1/2004 13:52	284.67
12/1/2004 14:52	9.19	12/1/2004 14:52	284.66
12/1/2004 15:52	9.17	12/1/2004 15:52	284.65
12/1/2004 16:52	9.17	12/1/2004 16:52	284.65
12/1/2004 17:52	9.16	12/1/2004 17:52	284.64
12/1/2004 18:52	9.16	12/1/2004 18:52	284.63
12/1/2004 19:52	9.15	12/1/2004 19:52	284.62
12/1/2004 20:52	9.15	12/1/2004 20:52	284.63
12/1/2004 21:52	9.15	12/1/2004 21:52	284.62
12/1/2004 22:52	9.14	12/1/2004 22:52	284.62
12/1/2004 23:52	9.12	12/1/2004 23:52	284.61
12/2/2004 0:52	9.12	12/2/2004 0:52	284.61
12/2/2004 1:52	9.11	12/2/2004 1:52	284.60
12/2/2004 2:52	9.11	12/2/2004 2:52	284.60
12/2/2004 3:52	9.1	12/2/2004 3:52	284.59
12/2/2004 4:52	9.1	12/2/2004 4:52	284.59
12/2/2004 5:52	9.08	12/2/2004 5:52	284.59
12/2/2004 6:52	9.07	12/2/2004 6:52	284.58
12/2/2004 7:52	9.07	12/2/2004 7:52	284.58
12/2/2004 8:52	9.06	12/2/2004 8:52	284.57
12/2/2004 9:52	9.06	12/2/2004 9:52	284.57
12/2/2004 10:52	9.05	12/2/2004 10:52	284.57
12/2/2004 11:52	9.03	12/2/2004 11:52	284.56
12/2/2004 12:52	9.03	12/2/2004 12:52	284.55
12/2/2004 13:52	9.02	12/2/2004 13:52	284.55
12/2/2004 14:52	9.01	12/2/2004 14:52	284.55
12/2/2004 15:52	9.01	12/2/2004 15:52	284.54
12/2/2004 16:52	9	12/2/2004 16:52	284.54
12/2/2004 17:52	8.98	12/2/2004 17:52	284.53
12/2/2004 18:52	8.98	12/2/2004 18:52	284.53
12/2/2004 19:52	8.97	12/2/2004 19:52	284.53
12/2/2004 20:52	8.96	12/2/2004 20:52	284.52
12/2/2004 21:52	8.96	12/2/2004 21:52	284.52
12/2/2004 22:52	8.95	12/2/2004 22:52	284.52
12/2/2004 23:52	8.93	12/2/2004 23:52	284.51
12/3/2004 0:52	8.92	12/3/2004 0:52	284.51
12/3/2004 1:52	8.92	12/3/2004 1:52	284.50
12/3/2004 2:52	8.91	12/3/2004 2:52	284.50
12/3/2004 3:52	8.9	12/3/2004 3:52	284.50
12/3/2004 4:52	8.88	12/3/2004 4:52	284.49
12/3/2004 5:52	8.87	12/3/2004 5:52	284.49
12/3/2004 6:52	8.87	12/3/2004 6:52	284.49
12/3/2004 7:52	8.86	12/3/2004 7:52	284.48
12/3/2004 8:52	8.85	12/3/2004 8:52	284.48
12/3/2004 9:52	8.83	12/3/2004 9:52	284.47
12/3/2004 10:52	8.82	12/3/2004 10:52	284.47
12/3/2004 11:52	8.81	12/3/2004 11:52	284.46
12/3/2004 12:52	8.79	12/3/2004 12:52	284.46
12/3/2004 13:52	8.78	12/3/2004 13:52	284.46
12/3/2004 14:52	8.77	12/3/2004 14:52	284.45
12/3/2004 15:52	8.76	12/3/2004 15:52	284.45
12/3/2004 16:52	8.74	12/3/2004 16:52	284.44
12/3/2004 17:52	8.73	12/3/2004 17:52	284.44
12/3/2004 18:52	8.72	12/3/2004 18:52	284.44
12/3/2004 19:52	8.71	12/3/2004 19:52	284.43
12/3/2004 20:52	8.69	12/3/2004 20:52	284.43
12/3/2004 21:52	8.68	12/3/2004 21:52	284.43
12/3/2004 22:52	8.67	12/3/2004 22:52	284.42
12/3/2004 23:52	8.66	12/3/2004 23:52	284.42
12/4/2004 0:52	8.64	12/4/2004 0:52	284.41
12/4/2004 1:52	8.62	12/4/2004 1:52	284.41
12/4/2004 2:52	8.61	12/4/2004 2:52	284.41
12/4/2004 3:52	8.59	12/4/2004 3:52	284.40
12/4/2004 4:52	8.58	12/4/2004 4:52	284.40
12/4/2004 5:52	8.56	12/4/2004 5:52	284.39
12/4/2004 6:52	8.54	12/4/2004 6:52	284.39
12/4/2004 7:52	8.53	12/4/2004 7:52	284.38
12/4/2004 8:52	8.52	12/4/2004 8:52	284.38
12/4/2004 9:52	8.51	12/4/2004 9:52	284.38
12/4/2004 10:52	8.48	12/4/2004 10:52	284.37
12/4/2004 11:52	8.47	12/4/2004 11:52	284.37
12/4/2004 12:52	8.45	12/4/2004 12:52	284.37
12/4/2004 13:52	8.44	12/4/2004 13:52	284.36
12/4/2004 14:52	8.43	12/4/2004 14:52	284.36
12/4/2004 15:52	8.42	12/4/2004 15:52	284.36
12/4/2004 16:52	8.39	12/4/2004 16:52	284.35
12/4/2004 17:52	8.38	12/4/2004 17:52	284.35
12/4/2004 18:52	8.37	12/4/2004 18:52	284.34
12/4/2004 19:52	8.34	12/4/2004 19:52	284.34
12/4/2004 20:52	8.33	12/4/2004 20:52	284.34
12/4/2004 21:52	8.32	12/4/2004 21:52	284.34
12/4/2004 22:52	8.3	12/4/2004 22:52	284.34
12/4/2004 23:52	8.29	12/4/2004 23:52	284.34
12/5/2004 0:52	8.27	12/5/2004 0:52	284.35

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
12/5/2004 1:52	8.25	12/5/2004 1:52	284.36
12/5/2004 2:52	8.24	12/5/2004 2:52	284.35
12/5/2004 3:52	8.23	12/5/2004 3:52	284.35
12/5/2004 4:52	8.2	12/5/2004 4:52	284.35
12/5/2004 5:52	8.19	12/5/2004 5:52	284.34
12/5/2004 6:52	8.18	12/5/2004 6:52	284.35
12/5/2004 7:52	8.16	12/5/2004 7:52	284.37
12/5/2004 8:52	8.14	12/5/2004 8:52	284.36
12/5/2004 9:52	8.13	12/5/2004 9:52	284.28
12/5/2004 10:52	8.11	12/5/2004 10:52	284.27
12/5/2004 11:52	8.09	12/5/2004 11:52	284.23
12/5/2004 12:52	8.08	12/5/2004 12:52	284.27
12/5/2004 13:52	8.06	12/5/2004 13:52	284.29
12/5/2004 14:52	8.05	12/5/2004 14:52	284.27
12/5/2004 15:52	8.03	12/5/2004 15:52	284.27
12/5/2004 16:52	8.01	12/5/2004 16:52	284.27
12/5/2004 17:52	8	12/5/2004 17:52	284.31
12/5/2004 18:52	7.99	12/5/2004 18:52	284.33
12/5/2004 19:52	7.98	12/5/2004 19:52	284.35
12/5/2004 20:52	7.95	12/5/2004 20:52	284.35
12/5/2004 21:52	7.94	12/5/2004 21:52	284.35
12/5/2004 22:52	7.93	12/5/2004 22:52	284.33
12/5/2004 23:52	7.91	12/5/2004 23:52	284.31
12/6/2004 0:52	7.9	12/6/2004 0:52	284.30
12/6/2004 1:52	7.87	12/6/2004 1:52	284.28
12/6/2004 2:52	7.86	12/6/2004 2:52	284.26
12/6/2004 3:52	7.85	12/6/2004 3:52	284.23
12/6/2004 4:52	7.84	12/6/2004 4:52	284.22
12/6/2004 5:52	7.82	12/6/2004 5:52	284.19
12/6/2004 6:52	7.8	12/6/2004 6:52	284.18
12/6/2004 7:52	7.79	12/6/2004 7:52	284.19
		12/6/2004 8:52	284.19
		12/6/2004 9:52	284.18
		12/6/2004 10:52	284.18
		12/6/2004 11:52	284.17
		12/6/2004 12:52	284.17
		12/6/2004 13:52	284.35
		12/6/2004 14:52	284.40
		12/6/2004 15:52	284.43
		12/6/2004 16:52	284.45
		12/6/2004 17:52	284.47
		12/6/2004 18:52	284.49
		12/6/2004 19:52	284.50
		12/6/2004 20:52	284.52
		12/6/2004 21:52	284.53
		12/6/2004 22:52	284.54
		12/6/2004 23:52	284.55
		12/7/2004 0:52	284.56
		12/7/2004 1:52	284.57
		12/7/2004 2:52	284.58
		12/7/2004 3:52	284.59
		12/7/2004 4:52	284.60
		12/7/2004 5:52	284.61
		12/7/2004 6:52	284.61
		12/7/2004 7:52	284.62
		12/7/2004 8:52	284.63
		12/7/2004 9:52	284.64
		12/7/2004 10:52	284.64
		12/7/2004 11:52	284.65
		12/7/2004 12:52	284.66
		12/7/2004 13:52	284.70
		12/7/2004 14:52	284.77
		12/7/2004 15:52	284.81
		12/7/2004 16:52	284.87
		12/7/2004 17:52	284.89
		12/7/2004 18:52	284.86
		12/7/2004 19:52	284.88
		12/7/2004 20:52	284.94
		12/7/2004 21:52	284.93
		12/7/2004 22:52	284.96
		12/7/2004 23:52	284.96
		12/8/2004 0:52	284.96
		12/8/2004 1:52	284.95
		12/8/2004 2:52	284.96
		12/8/2004 3:52	284.97
		12/8/2004 4:52	284.98
		12/8/2004 5:52	284.97
		12/8/2004 6:52	284.99
		12/8/2004 7:52	284.98
		12/8/2004 8:52	284.99

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-31 - MP-13
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/19/2004 17:53	9.71	284.12
11/19/2004 18:53	9.7	284.13
11/19/2004 19:53	9.7	284.14
11/19/2004 20:53	9.68	284.15
11/19/2004 21:53	9.68	284.16
11/19/2004 22:53	9.68	284.17
11/19/2004 23:53	9.67	284.18
11/20/2004 0:53	9.67	284.19
11/20/2004 1:53	9.66	284.20
11/20/2004 2:53	9.66	284.21
11/20/2004 3:53	9.66	284.22
11/20/2004 4:53	9.65	284.23
11/20/2004 5:53	9.65	284.24
11/20/2004 6:53	9.65	284.25
11/20/2004 7:53	9.63	284.26
11/20/2004 8:53	9.63	284.26
11/20/2004 9:53	9.63	284.25
11/20/2004 10:53	9.62	284.25
11/20/2004 11:53	9.62	284.25
11/20/2004 12:53	9.61	284.23
11/20/2004 13:53	9.61	284.23
11/20/2004 14:53	9.61	284.25
11/20/2004 15:53	9.59	284.27
11/20/2004 16:53	9.59	284.29
11/20/2004 17:53	9.59	284.31
11/20/2004 18:53	9.59	284.31
11/20/2004 19:53	9.59	284.32
11/20/2004 20:53	9.58	284.32
11/20/2004 21:53	9.58	284.31
11/20/2004 22:53	9.57	284.29
11/20/2004 23:53	9.57	284.35
11/21/2004 0:53	9.57	284.35
11/21/2004 1:53	9.56	284.35
11/21/2004 2:53	9.56	284.38
11/21/2004 3:53	9.56	284.40
11/21/2004 4:53	9.56	284.43
11/21/2004 5:53	9.54	284.46
11/21/2004 6:53	9.54	284.48
11/21/2004 7:53	9.54	284.50
11/21/2004 8:53	9.54	284.50
11/21/2004 9:53	9.53	284.47
11/21/2004 10:53	9.53	284.42
11/21/2004 11:53	9.53	284.41
11/21/2004 12:53	9.52	284.42
11/21/2004 13:53	9.52	284.41
11/21/2004 14:53	9.52	284.45
11/21/2004 15:53	9.52	284.49
11/21/2004 16:53	9.51	284.52
11/21/2004 17:53	9.51	284.54
11/21/2004 18:53	9.51	284.58
11/21/2004 19:53	9.49	284.58
11/21/2004 20:53	9.49	284.63
11/21/2004 21:53	9.49	284.64
11/21/2004 22:53	9.49	284.64
11/21/2004 23:53	9.48	284.64
11/22/2004 0:53	9.48	284.66
11/22/2004 1:53	9.48	284.68
11/22/2004 2:53	9.47	284.70
11/22/2004 3:53	9.47	284.64
11/22/2004 4:53	9.47	284.64
11/22/2004 5:53	9.47	284.69
11/22/2004 6:53	9.47	284.74
11/22/2004 7:53	9.46	284.74
11/22/2004 8:53	9.46	284.70
11/22/2004 9:53	9.46	284.59
11/22/2004 10:53	9.46	284.56
11/22/2004 11:53	9.46	284.51
11/22/2004 12:53	9.44	284.52
11/22/2004 13:53	9.44	284.50
11/22/2004 14:53	9.44	284.56
11/22/2004 15:53	9.43	284.65
11/22/2004 16:53	9.43	284.62
11/22/2004 17:53	9.43	284.74
11/22/2004 18:53	9.43	284.80
11/22/2004 19:53	9.43	284.82
11/22/2004 20:53	9.43	284.85
11/22/2004 21:53	9.42	284.87
11/22/2004 22:53	9.42	284.88
11/22/2004 23:53	9.42	284.90
11/23/2004 0:53	9.41	284.89
11/23/2004 1:53	9.41	284.83
11/23/2004 2:53	9.41	284.80
11/23/2004 3:53	9.41	284.77
11/23/2004 4:53	9.41	284.76

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/23/2004 5:53	9.41	284.74
11/23/2004 6:53	9.39	284.71
11/23/2004 7:53	9.39	284.67
11/23/2004 8:53	9.39	284.61
11/23/2004 9:53	9.39	284.55
11/23/2004 10:53	9.38	284.50
11/23/2004 11:53	9.38	284.49
11/23/2004 12:53	9.38	284.49
11/23/2004 13:53	9.38	284.47
11/23/2004 14:53	9.38	284.51
11/23/2004 15:53	9.38	284.52
11/23/2004 16:53	9.37	284.53
11/23/2004 17:53	9.37	284.53
11/23/2004 18:53	9.37	284.54
11/23/2004 19:53	9.37	284.55
11/23/2004 20:53	9.37	284.55
11/23/2004 21:53	9.36	284.56
11/23/2004 22:53	9.36	284.58
11/23/2004 23:53	9.36	284.60
11/24/2004 0:53	9.36	284.66
11/24/2004 1:53	9.36	284.71
11/24/2004 2:53	9.36	284.74
11/24/2004 3:53	9.36	284.75
11/24/2004 4:53	9.34	284.75
11/24/2004 5:53	9.34	284.73
11/24/2004 6:53	9.34	284.75
11/24/2004 7:53	9.34	284.76
11/24/2004 8:53	9.34	284.76
11/24/2004 9:53	9.33	284.76
11/24/2004 10:53	9.33	284.75
11/24/2004 11:53	9.33	284.75
11/24/2004 12:53	9.33	284.78
11/24/2004 13:53	9.33	284.82
11/24/2004 14:53	9.33	284.81
11/24/2004 15:53	9.33	284.80
11/24/2004 16:53	9.33	284.78
11/24/2004 17:53	9.32	284.78
11/24/2004 18:53	9.32	284.77
11/24/2004 19:53	9.32	284.76
11/24/2004 20:53	9.32	284.75
11/24/2004 21:53	9.32	284.76
11/24/2004 22:53	9.3	284.75
11/24/2004 23:53	9.3	284.75
11/25/2004 0:53	9.3	284.75
11/25/2004 1:53	9.3	284.76
11/25/2004 2:53	9.3	284.78
11/25/2004 3:53	9.3	284.78
11/25/2004 4:53	9.3	284.80
11/25/2004 5:53	9.3	284.82
11/25/2004 6:53	9.29	284.86
11/25/2004 7:53	9.29	284.88
11/25/2004 8:53	9.29	284.89
11/25/2004 9:53	9.29	284.90
11/25/2004 10:53	9.29	284.90
11/25/2004 11:53	9.28	284.89
11/25/2004 12:53	9.28	284.88
11/25/2004 13:53	9.28	284.93
11/25/2004 14:53	9.28	284.96
11/25/2004 15:53	9.28	285.00
11/25/2004 16:53	9.28	285.04
11/25/2004 17:53	9.27	285.08
11/25/2004 18:53	9.27	285.11
11/25/2004 19:53	9.27	285.09
11/25/2004 20:53	9.27	285.08
11/25/2004 21:53	9.27	285.07
11/25/2004 22:53	9.27	285.07
11/25/2004 23:53	9.27	285.07
11/26/2004 0:53	9.25	285.07
11/26/2004 1:53	9.25	285.09
11/26/2004 2:53	9.25	285.10
11/26/2004 3:53	9.25	285.11
11/26/2004 4:53	9.25	285.12
11/26/2004 5:53	9.24	285.11
11/26/2004 6:53	9.25	285.10
11/26/2004 7:53	9.24	285.10
11/26/2004 8:53	9.24	285.10
11/26/2004 9:53	9.24	285.08
11/26/2004 10:53	9.24	285.07
11/26/2004 11:53	9.24	285.02
11/26/2004 12:53	9.24	284.98
11/26/2004 13:53	9.24	284.97
11/26/2004 14:53	9.23	284.98
11/26/2004 15:53	9.23	284.99
11/26/2004 16:53	9.23	285.02
11/26/2004 17:53	9.23	285.03
11/26/2004 18:53	9.22	285.04
11/26/2004 19:53	9.22	285.04
11/26/2004 20:53	9.22	285.01
11/26/2004 21:53	9.22	285.03

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/26/2004 22:53	9.22	285.02
11/26/2004 23:53	9.22	285.02
11/27/2004 0:53	9.2	285.01
11/27/2004 1:53	9.22	285.01
11/27/2004 2:53	9.2	285.01
11/27/2004 3:53	9.2	285.00
11/27/2004 4:53	9.2	285.00
11/27/2004 5:53	9.2	284.99
11/27/2004 6:53	9.2	284.99
11/27/2004 7:53	9.19	284.98
11/27/2004 8:53	9.19	284.94
11/27/2004 9:53	9.19	284.90
11/27/2004 10:53	9.19	284.85
11/27/2004 11:53	9.19	284.80
11/27/2004 12:53	9.19	284.74
11/27/2004 13:53	9.19	284.71
11/27/2004 14:53	9.18	284.74
11/27/2004 15:53	9.18	284.77
11/27/2004 16:53	9.18	284.85
11/27/2004 17:53	9.18	284.88
11/27/2004 18:53	9.17	284.88
11/27/2004 19:53	9.17	284.87
11/27/2004 20:53	9.17	284.87
11/27/2004 21:53	9.17	284.85
11/27/2004 22:53	9.17	284.86
11/27/2004 23:53	9.17	284.85
11/28/2004 0:53	9.15	284.81
11/28/2004 1:53	9.15	284.78
11/28/2004 2:53	9.15	284.77
11/28/2004 3:53	9.15	284.77
11/28/2004 4:53	9.14	284.77
11/28/2004 5:53	9.14	284.78
11/28/2004 6:53	9.14	284.79
11/28/2004 7:53	9.14	284.83
11/28/2004 8:53	9.14	284.87
11/28/2004 9:53	9.14	284.88
11/28/2004 10:53	9.13	284.88
11/28/2004 11:53	9.13	284.87
11/28/2004 12:53	9.13	284.89
11/28/2004 13:53	9.13	284.91
11/28/2004 14:53	9.13	284.95
11/28/2004 15:53	9.12	284.98
11/28/2004 16:53	9.12	285.01
11/28/2004 17:53	9.12	285.04
11/28/2004 18:53	9.12	285.09
11/28/2004 19:53	9.1	285.13
11/28/2004 20:53	9.1	285.16
11/28/2004 21:53	9.1	285.19
11/28/2004 22:53	9.1	285.20
11/28/2004 23:53	9.1	285.18
11/29/2004 0:53	9.1	285.18
11/29/2004 1:53	9.09	285.19
11/29/2004 2:53	9.09	285.20
11/29/2004 3:53	9.09	285.21
11/29/2004 4:53	9.09	285.22
11/29/2004 5:53	9.08	285.23
11/29/2004 6:53	9.08	285.24
11/29/2004 7:53	9.08	285.26
11/29/2004 8:53	9.08	285.25
11/29/2004 9:53	9.07	285.22
11/29/2004 10:53	9.07	285.19
11/29/2004 11:53	9.07	285.09
11/29/2004 12:53	9.07	285.07
11/29/2004 13:53	9.05	285.07
11/29/2004 14:53	9.03	285.09
11/29/2004 15:53	9.05	285.14
11/29/2004 16:53	9.05	285.18
11/29/2004 17:53	9.05	285.22
11/29/2004 18:53	9.05	285.24
11/29/2004 19:53	9.04	285.29
11/29/2004 20:53	9.04	285.34
11/29/2004 21:53	9.04	285.33
11/29/2004 22:53	9.04	285.32
11/29/2004 23:53	9.03	285.30
11/30/2004 0:53	9.03	285.29
11/30/2004 1:53	9.03	285.30
11/30/2004 2:53	9.03	285.34
11/30/2004 3:53	9.03	285.39
11/30/2004 4:53	9.03	285.43
11/30/2004 5:53	9.02	285.46
11/30/2004 6:53	9.02	285.48
11/30/2004 7:53	9.02	285.50
11/30/2004 8:53	9.02	285.50
11/30/2004 9:53	9.02	285.39
11/30/2004 10:53	9	285.29
11/30/2004 11:53	9	285.19
11/30/2004 12:53	9	285.15
11/30/2004 13:53	9	285.16
11/30/2004 14:53	9	285.17

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
11/30/2004 15:53	8.99	285.18
11/30/2004 16:53	8.99	285.22
11/30/2004 17:53	8.99	285.24
11/30/2004 18:53	8.99	285.24
11/30/2004 19:53	8.99	285.25
11/30/2004 20:53	8.98	285.25
11/30/2004 21:53	8.98	285.23
11/30/2004 22:53	8.98	285.20
11/30/2004 23:53	8.98	285.17
12/1/2004 0:53	8.96	285.14
12/1/2004 1:53	8.96	285.10
12/1/2004 2:53	8.96	285.07
12/1/2004 3:53	8.96	285.04
12/1/2004 4:53	8.96	285.01
12/1/2004 5:53	8.95	285.08
12/1/2004 6:53	8.95	285.03
12/1/2004 7:53	8.95	285.03
12/1/2004 8:53	8.95	285.06
12/1/2004 9:53	8.94	285.15
12/1/2004 10:53	8.94	285.10
12/1/2004 11:53	8.94	285.09
12/1/2004 12:53	8.94	285.11
12/1/2004 13:53	8.93	285.13
12/1/2004 14:53	8.93	285.13
12/1/2004 15:53	8.93	285.22
12/1/2004 16:53	8.93	285.26
12/1/2004 17:53	8.91	285.28
12/1/2004 18:53	8.91	285.28
12/1/2004 19:53	8.91	285.28
12/1/2004 20:53	8.91	285.28
12/1/2004 21:53	8.9	285.28
12/1/2004 22:53	8.9	285.28
12/1/2004 23:53	8.89	285.28
12/2/2004 0:53	8.89	285.29
12/2/2004 1:53	8.89	285.31
12/2/2004 2:53	8.89	285.34
12/2/2004 3:53	8.89	285.36
12/2/2004 4:53	8.88	285.36
12/2/2004 5:53	8.88	285.34
12/2/2004 6:53	8.88	285.34
12/2/2004 7:53	8.86	285.34
12/2/2004 8:53	8.86	285.32
12/2/2004 9:53	8.86	285.28
12/2/2004 10:53	8.85	285.20
12/2/2004 11:53	8.85	285.13
12/2/2004 12:53	8.85	285.11
12/2/2004 13:53	8.84	285.13
12/2/2004 14:53	8.84	285.14
12/2/2004 15:53	8.84	285.16
12/2/2004 16:53	8.84	285.20
12/2/2004 17:53	8.83	285.24
12/2/2004 18:53	8.83	285.25
12/2/2004 19:53	8.83	285.24
12/2/2004 20:53	8.83	285.23
12/2/2004 21:53	8.81	285.22
12/2/2004 22:53	8.81	285.21
12/2/2004 23:53	8.8	285.20
12/3/2004 0:53	8.8	285.19
12/3/2004 1:53	8.8	285.18
12/3/2004 2:53	8.79	285.19
12/3/2004 3:53	8.79	285.18
12/3/2004 4:53	8.79	285.16
12/3/2004 5:53	8.78	285.16
12/3/2004 6:53	8.78	285.22
12/3/2004 7:53	8.78	285.27
12/3/2004 8:53	8.76	285.28
12/3/2004 9:53	8.76	285.25
12/3/2004 10:53	8.76	285.26
12/3/2004 11:53	8.75	285.22
12/3/2004 12:53	8.75	285.25
12/3/2004 13:53	8.75	285.23
12/3/2004 14:53	8.74	285.22
12/3/2004 15:53	8.74	285.27
12/3/2004 16:53	8.74	285.36
12/3/2004 17:53	8.73	285.43
12/3/2004 18:53	8.73	285.48
12/3/2004 19:53	8.73	285.47
12/3/2004 20:53	8.71	285.44
12/3/2004 21:53	8.71	285.47
12/3/2004 22:53	8.71	285.49
12/3/2004 23:53	8.7	285.50
12/4/2004 0:53	8.7	285.50
12/4/2004 1:53	8.69	285.50
12/4/2004 2:53	8.69	285.50
12/4/2004 3:53	8.69	285.50
12/4/2004 4:53	8.67	285.50
12/4/2004 5:53	8.67	285.50
12/4/2004 6:53	8.66	285.49
12/4/2004 7:53	8.66	285.40

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/4/2004 8:53	8.66	285.30
12/4/2004 9:53	8.65	285.23
12/4/2004 10:53	8.65	285.18
12/4/2004 11:53	8.65	285.11
12/4/2004 12:53	8.64	285.01
12/4/2004 13:53	8.64	285.01
12/4/2004 14:53	8.62	285.04
12/4/2004 15:53	8.62	285.06
12/4/2004 16:53	8.62	285.07
12/4/2004 17:53	8.62	285.08
12/4/2004 18:53	8.61	285.08
12/4/2004 19:53	8.61	285.08
12/4/2004 20:53	8.61	285.10
12/4/2004 21:53	8.6	285.12
12/4/2004 22:53	8.6	285.13
12/4/2004 23:53	8.59	285.11
12/5/2004 0:53	8.59	285.11
12/5/2004 1:53	8.59	285.13
12/5/2004 2:53	8.57	285.20
12/5/2004 3:53	8.57	285.22
12/5/2004 4:53	8.56	285.24
12/5/2004 5:53	8.56	285.26
12/5/2004 6:53	8.56	285.30
12/5/2004 7:53	8.55	285.35
12/5/2004 8:53	8.55	285.35
12/5/2004 9:53	8.54	285.31
12/5/2004 10:53	8.54	285.28
12/5/2004 11:53	8.52	285.24
12/5/2004 12:53	8.52	285.23
12/5/2004 13:53	8.52	285.22
12/5/2004 14:53	8.52	285.25
12/5/2004 15:53	8.51	285.32
12/5/2004 16:53	8.5	285.36
12/5/2004 17:53	8.5	285.42
12/5/2004 18:53	8.49	285.46
12/5/2004 19:53	8.49	285.49
12/5/2004 20:53	8.49	285.50
12/5/2004 21:53	8.47	285.50
12/5/2004 22:53	8.47	285.50
12/5/2004 23:53	8.46	285.49
12/6/2004 0:53	8.46	285.50
12/6/2004 1:53	8.46	285.50
12/6/2004 2:53	8.45	285.50
12/6/2004 3:53	8.45	285.50
12/6/2004 4:53	8.44	285.50
12/6/2004 5:53	8.44	285.47
12/6/2004 6:53	8.42	285.45
12/6/2004 7:53	8.42	285.45
12/6/2004 8:53	8.41	285.50
12/6/2004 9:53	8.41	285.50
12/6/2004 10:53	8.4	285.50
12/6/2004 11:53	8.4	285.50
12/6/2004 12:53	8.38	285.48
12/6/2004 13:53	8.38	285.46
12/6/2004 14:53	8.38	285.45
12/6/2004 15:53	8.37	285.47
12/6/2004 16:53	8.37	285.49
12/6/2004 17:53	8.37	285.50
12/6/2004 18:53	8.36	285.50
12/6/2004 19:53	8.36	285.50
12/6/2004 20:53	8.36	285.50
12/6/2004 21:53	8.35	285.50
12/6/2004 22:53	8.35	285.50
12/6/2004 23:53	8.35	285.49
12/7/2004 0:53	8.33	285.48
12/7/2004 1:53	8.33	285.48
12/7/2004 2:53	8.33	285.48
12/7/2004 3:53	8.32	285.48
12/7/2004 4:53	8.32	285.48
12/7/2004 5:53	8.32	285.47
12/7/2004 6:53	8.31	285.46
12/7/2004 7:53	8.31	285.44
12/7/2004 8:53	8.3	285.42
12/7/2004 9:53	8.3	285.38
12/7/2004 10:53	8.3	285.35
12/7/2004 11:53	8.3	285.31
12/7/2004 12:53	8.28	285.26
12/7/2004 13:53	8.28	285.20
12/7/2004 14:53	8.28	285.16
12/7/2004 15:53	8.28	285.15
12/7/2004 16:53	8.27	285.18
12/7/2004 17:53	8.27	285.20
12/7/2004 18:53	8.27	285.03
12/7/2004 19:53	8.26	284.98
12/7/2004 20:53	8.26	285.14
12/7/2004 21:53	8.26	285.22
12/7/2004 22:53	8.25	285.29
12/7/2004 23:53	8.25	285.35
12/8/2004 0:53	8.25	285.39

Date Time	Temperature (Deg. C)	Groundwater Elevation (masl)
12/8/2004 1:53	8.23	285.41
12/8/2004 2:53	8.23	285.41
12/8/2004 3:53	8.23	285.43
12/8/2004 4:53	8.23	285.44
12/8/2004 5:53	8.23	285.45
12/8/2004 6:53	8.22	285.47
12/8/2004 7:53	8.22	285.48
12/8/2004 8:53	8.22	285.49
12/8/2004 9:53	3.11	285.50

Note: Data collected every min but reported in the present table every hour.

Gartner Lee

Table F2-2-32 - MP-14
Water Levels and Temperature
168-Hour Pumping Test

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
11/21/2004 18:56	7.94	11/21/2004 18:56	283.95
11/21/2004 19:56	7.94	11/21/2004 19:56	283.98
11/21/2004 20:56	7.94	11/21/2004 20:56	284.00
11/21/2004 21:56	7.94	11/21/2004 21:56	284.01
11/21/2004 22:56	7.94	11/21/2004 22:56	284.02
11/21/2004 23:56	7.94	11/21/2004 23:56	284.04
11/22/2004 0:56	7.92	11/22/2004 0:56	284.05
11/22/2004 1:56	7.94	11/22/2004 1:56	284.07
11/22/2004 2:56	7.92	11/22/2004 2:56	284.08
11/22/2004 3:56	7.94	11/22/2004 3:56	284.09
11/22/2004 4:56	7.92	11/22/2004 4:56	284.11
11/22/2004 5:56	7.92	11/22/2004 5:56	284.12
11/22/2004 6:56	7.92	11/22/2004 6:56	284.13
11/22/2004 7:56	7.92	11/22/2004 7:56	284.15
11/22/2004 8:56	7.92	11/22/2004 8:56	284.16
11/22/2004 9:56	7.92	11/22/2004 9:56	284.17
11/22/2004 10:56	7.92	11/22/2004 10:56	284.18
11/22/2004 11:56	7.92	11/22/2004 11:56	284.19
11/22/2004 12:56	7.92	11/22/2004 12:56	284.21
11/22/2004 13:56	7.92	11/22/2004 13:56	284.22
11/22/2004 14:56	7.92	11/22/2004 14:56	284.23
11/22/2004 15:56	7.92	11/22/2004 15:56	284.24
11/22/2004 16:56	7.92	11/22/2004 16:56	284.25
11/22/2004 17:56	7.92	11/22/2004 17:56	284.26
11/22/2004 18:56	7.92	11/22/2004 18:56	284.26
11/22/2004 19:56	7.92	11/22/2004 19:56	284.27
11/22/2004 20:56	7.92	11/22/2004 20:56	284.27
11/22/2004 21:56	7.92	11/22/2004 21:56	284.28
11/22/2004 22:56	7.92	11/22/2004 22:56	284.28
11/22/2004 23:56	7.92	11/22/2004 23:56	284.28
11/23/2004 0:56	7.92	11/23/2004 0:56	284.29
11/23/2004 1:56	7.92	11/23/2004 1:56	284.29
11/23/2004 2:56	7.92	11/23/2004 2:56	284.30
11/23/2004 3:56	7.92	11/23/2004 3:56	284.30
11/23/2004 4:56	7.92	11/23/2004 4:56	284.30
11/23/2004 5:56	7.92	11/23/2004 5:56	284.31
11/23/2004 6:56	7.92	11/23/2004 6:56	284.31
11/23/2004 7:56	7.92	11/23/2004 7:56	284.31
11/23/2004 8:56	7.91	11/23/2004 8:56	284.32
11/23/2004 9:56	7.91	11/23/2004 9:56	284.32
11/23/2004 10:56	7.92	11/23/2004 10:56	284.32
11/23/2004 11:56	7.92	11/23/2004 11:56	284.33
11/23/2004 12:56	7.91	11/23/2004 12:56	284.33
11/23/2004 13:56	7.92	11/23/2004 13:56	284.33
11/23/2004 14:56	7.92	11/23/2004 14:56	284.33
11/23/2004 15:56	7.91	11/23/2004 15:56	284.34
11/23/2004 16:56	7.91	11/23/2004 16:56	284.34
11/23/2004 17:56	7.91	11/23/2004 17:56	284.34
11/23/2004 18:56	7.91	11/23/2004 18:56	284.35
11/23/2004 19:56	7.91	11/23/2004 19:56	284.35
11/23/2004 20:56	7.91	11/23/2004 20:56	284.35
11/23/2004 21:56	7.91	11/23/2004 21:56	284.36
11/23/2004 22:56	7.91	11/23/2004 22:56	284.36
11/23/2004 23:56	7.91	11/23/2004 23:56	284.36
11/24/2004 0:56	7.91	11/24/2004 0:56	284.36
11/24/2004 1:56	7.91	11/24/2004 1:56	284.37
11/24/2004 2:56	7.91	11/24/2004 2:56	284.37
11/24/2004 3:56	7.91	11/24/2004 3:56	284.37
11/24/2004 4:56	7.91	11/24/2004 4:56	284.38
11/24/2004 5:56	7.91	11/24/2004 5:56	284.38
11/24/2004 6:56	7.91	11/24/2004 6:56	284.38
11/24/2004 7:56	7.91	11/24/2004 7:56	284.39
11/24/2004 8:56	7.91	11/24/2004 8:56	284.39
11/24/2004 9:56	7.9	11/24/2004 9:56	284.38
11/24/2004 10:56	7.9	11/24/2004 10:56	284.38
11/24/2004 11:56	7.9	11/24/2004 11:56	284.39
11/24/2004 12:56	7.9	11/24/2004 12:56	284.41
11/24/2004 13:56	7.9	11/24/2004 13:56	284.42
11/24/2004 14:56	7.9	11/24/2004 14:56	284.41
11/24/2004 15:56	7.9	11/24/2004 15:56	284.40
11/24/2004 16:56	7.9	11/24/2004 16:56	284.39
11/24/2004 17:56	7.9	11/24/2004 17:56	284.39
11/24/2004 18:56	7.89	11/24/2004 18:56	284.39
11/24/2004 19:56	7.89	11/24/2004 19:56	284.40
11/24/2004 20:56	7.89	11/24/2004 20:56	284.42
11/24/2004 21:56	7.89	11/24/2004 21:56	284.42
11/24/2004 22:56	7.89	11/24/2004 22:56	284.42
11/24/2004 23:56	7.89	11/24/2004 23:56	284.43
11/25/2004 0:56	7.89	11/25/2004 0:56	284.43
11/25/2004 1:56	7.89	11/25/2004 1:56	284.45
11/25/2004 2:56	7.89	11/25/2004 2:56	284.46
11/25/2004 3:56	7.89	11/25/2004 3:56	284.46
11/25/2004 4:56	7.89	11/25/2004 4:56	284.49
11/25/2004 5:56	7.87	11/25/2004 5:56	284.51
11/25/2004 6:56	7.87	11/25/2004 6:56	284.54
11/25/2004 7:56	7.87	11/25/2004 7:56	284.56
11/25/2004 8:56	7.87	11/25/2004 8:56	284.58

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
11/25/2004 9:56	7.87	11/25/2004 9:56	284.59
11/25/2004 10:56	7.86	11/25/2004 10:56	284.59
11/25/2004 11:56	7.87	11/25/2004 11:56	284.59
11/25/2004 12:56	7.86	11/25/2004 12:56	284.58
11/25/2004 13:56	7.86	11/25/2004 13:56	284.63
11/25/2004 14:56	7.86	11/25/2004 14:56	284.67
11/25/2004 15:56	7.86	11/25/2004 15:56	284.72
11/25/2004 16:56	7.86	11/25/2004 16:56	284.75
11/25/2004 17:56	7.86	11/25/2004 17:56	284.80
11/25/2004 18:56	7.86	11/25/2004 18:56	284.82
11/25/2004 19:56	7.85	11/25/2004 19:56	284.81
11/25/2004 20:56	7.85	11/25/2004 20:56	284.80
11/25/2004 21:56	7.85	11/25/2004 21:56	284.78
11/25/2004 22:56	7.85	11/25/2004 22:56	284.78
11/25/2004 23:56	7.85	11/25/2004 23:56	284.78
11/26/2004 0:56	7.85	11/26/2004 0:56	284.79
11/26/2004 1:56	7.85	11/26/2004 1:56	284.81
11/26/2004 2:56	7.84	11/26/2004 2:56	284.82
11/26/2004 3:56	7.84	11/26/2004 3:56	284.83
11/26/2004 4:56	7.84	11/26/2004 4:56	284.84
11/26/2004 5:56	7.84	11/26/2004 5:56	284.84
11/26/2004 6:56	7.84	11/26/2004 6:56	284.83
11/26/2004 7:56	7.82	11/26/2004 7:56	284.83
11/26/2004 8:56	7.82	11/26/2004 8:56	284.83
11/26/2004 9:56	7.82	11/26/2004 9:56	284.80
11/26/2004 10:56	7.82	11/26/2004 10:56	284.55
11/26/2004 11:56	7.82	11/26/2004 11:56	284.59
11/26/2004 12:56	7.82	11/26/2004 12:56	284.56
11/26/2004 13:56	7.81	11/26/2004 13:56	284.57
11/26/2004 14:56	7.81	11/26/2004 14:56	284.57
11/26/2004 15:56	7.81	11/26/2004 15:56	284.58
11/26/2004 16:56	7.81	11/26/2004 16:56	284.58
11/26/2004 17:56	7.81	11/26/2004 17:56	284.58
11/26/2004 18:56	7.8	11/26/2004 18:56	284.59
11/26/2004 19:56	7.8	11/26/2004 19:56	284.59
11/26/2004 20:56	7.8	11/26/2004 20:56	284.59
11/26/2004 21:56	7.8	11/26/2004 21:56	284.59
11/26/2004 22:56	7.8	11/26/2004 22:56	284.59
11/26/2004 23:56	7.8	11/26/2004 23:56	284.59
11/27/2004 0:56	7.78	11/27/2004 0:56	284.59
11/27/2004 1:56	7.78	11/27/2004 1:56	284.59
11/27/2004 2:56	7.78	11/27/2004 2:56	284.59
11/27/2004 3:56	7.78	11/27/2004 3:56	284.59
11/27/2004 4:56	7.77	11/27/2004 4:56	284.60
11/27/2004 5:56	7.77	11/27/2004 5:56	284.59
11/27/2004 6:56	7.77	11/27/2004 6:56	284.60
11/27/2004 7:56	7.77	11/27/2004 7:56	284.60
11/27/2004 8:56	7.76	11/27/2004 8:56	284.59
11/27/2004 9:56	7.76	11/27/2004 9:56	284.60
11/27/2004 10:56	7.76	11/27/2004 10:56	284.60
11/27/2004 11:56	7.76	11/27/2004 11:56	284.62
11/27/2004 12:56	7.76	11/27/2004 12:56	284.62
11/27/2004 13:56	7.76	11/27/2004 13:56	284.62
11/27/2004 14:56	7.75	11/27/2004 14:56	284.62
11/27/2004 15:56	7.75	11/27/2004 15:56	284.62
11/27/2004 16:56	7.75	11/27/2004 16:56	284.63
11/27/2004 17:56	7.75	11/27/2004 17:56	284.63
11/27/2004 18:56	7.75	11/27/2004 18:56	284.63
11/27/2004 19:56	7.73	11/27/2004 19:56	284.63
11/27/2004 20:56	7.73	11/27/2004 20:56	284.63
11/27/2004 21:56	7.72	11/27/2004 21:56	284.64
11/27/2004 22:56	7.72	11/27/2004 22:56	284.64
11/27/2004 23:56	7.72	11/27/2004 23:56	284.64
11/28/2004 0:56	7.72	11/28/2004 0:56	284.64
11/28/2004 1:56	7.71	11/28/2004 1:56	284.64
11/28/2004 2:56	7.71	11/28/2004 2:56	284.64
11/28/2004 3:56	7.71	11/28/2004 3:56	284.65
11/28/2004 4:56	7.71	11/28/2004 4:56	284.65
11/28/2004 5:56	7.7	11/28/2004 5:56	284.66
11/28/2004 6:56	7.7	11/28/2004 6:56	284.66
11/28/2004 7:56	7.7	11/28/2004 7:56	284.66
11/28/2004 8:56	7.68	11/28/2004 8:56	284.66
11/28/2004 9:56	7.68	11/28/2004 9:56	284.66
11/28/2004 10:56	7.68	11/28/2004 10:56	284.67
11/28/2004 11:56	7.67	11/28/2004 11:56	284.67
11/28/2004 12:56	7.67	11/28/2004 12:56	284.67
11/28/2004 13:56	7.67	11/28/2004 13:56	284.67
11/28/2004 14:56	7.67	11/28/2004 14:56	284.67
11/28/2004 15:56	7.66	11/28/2004 15:56	284.67
11/28/2004 16:56	7.66	11/28/2004 16:56	284.67
11/28/2004 17:56	7.66	11/28/2004 17:56	284.68
11/28/2004 18:56	7.66	11/28/2004 18:56	284.68
11/28/2004 19:56	7.65	11/28/2004 19:56	284.68
11/28/2004 20:56	7.65	11/28/2004 20:56	284.68
11/28/2004 21:56	7.65	11/28/2004 21:56	284.68
11/28/2004 22:56	7.63	11/28/2004 22:56	284.68
11/28/2004 23:56	7.63	11/28/2004 23:56	284.68
11/29/2004 0:56	7.63	11/29/2004 0:56	284.68
11/29/2004 1:56	7.62	11/29/2004 1:56	284.69
11/29/2004 2:56	7.62	11/29/2004 2:56	284.69
11/29/2004 3:56	7.62	11/29/2004 3:56	284.69
11/29/2004 4:56	7.62	11/29/2004 4:56	284.69

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
11/29/2004 5:56	7.62	11/29/2004 5:56	284.69
11/29/2004 6:56	7.61	11/29/2004 6:56	284.69
11/29/2004 7:56	7.61	11/29/2004 7:56	284.69
11/29/2004 8:56	7.61	11/29/2004 8:56	284.69
11/29/2004 9:56	7.6	11/29/2004 9:56	284.69
11/29/2004 10:56	7.6	11/29/2004 10:56	284.70
11/29/2004 11:56	7.6	11/29/2004 11:56	284.70
11/29/2004 12:56	7.6	11/29/2004 12:56	284.70
11/29/2004 13:56	7.6	11/29/2004 13:56	284.70
11/29/2004 14:56	7.57	11/29/2004 14:56	284.69
11/29/2004 15:56	7.58	11/29/2004 15:56	284.70
11/29/2004 16:56	7.58	11/29/2004 16:56	284.70
11/29/2004 17:56	7.57	11/29/2004 17:56	284.70
11/29/2004 18:56	7.57	11/29/2004 18:56	284.70
11/29/2004 19:56	7.57	11/29/2004 19:56	284.70
11/29/2004 20:56	7.57	11/29/2004 20:56	284.70
11/29/2004 21:56	7.56	11/29/2004 21:56	284.70
11/29/2004 22:56	7.56	11/29/2004 22:56	284.70
11/29/2004 23:56	7.56	11/29/2004 23:56	284.71
11/30/2004 0:56	7.56	11/30/2004 0:56	284.71
11/30/2004 1:56	7.56	11/30/2004 1:56	284.71
11/30/2004 2:56	7.56	11/30/2004 2:56	284.71
11/30/2004 3:56	7.54	11/30/2004 3:56	284.71
11/30/2004 4:56	7.54	11/30/2004 4:56	284.71
11/30/2004 5:56	7.54	11/30/2004 5:56	284.71
11/30/2004 6:56	7.54	11/30/2004 6:56	284.72
11/30/2004 7:56	7.54	11/30/2004 7:56	284.72
11/30/2004 8:56	7.54	11/30/2004 8:56	284.72
11/30/2004 9:56	7.53	11/30/2004 9:56	284.72
11/30/2004 10:56	7.53	11/30/2004 10:56	284.72
11/30/2004 11:56	7.53	11/30/2004 11:56	284.72
11/30/2004 12:56	7.53	11/30/2004 12:56	284.72
11/30/2004 13:56	7.53	11/30/2004 13:56	284.73
11/30/2004 14:56	7.52	11/30/2004 14:56	284.73
11/30/2004 15:56	7.52	11/30/2004 15:56	284.73
11/30/2004 16:56	7.52	11/30/2004 16:56	284.73
11/30/2004 17:56	7.52	11/30/2004 17:56	284.73
11/30/2004 18:56	7.52	11/30/2004 18:56	284.73
11/30/2004 19:56	7.51	11/30/2004 19:56	284.73
11/30/2004 20:56	7.51	11/30/2004 20:56	284.73
11/30/2004 21:56	7.51	11/30/2004 21:56	284.73
11/30/2004 22:56	7.51	11/30/2004 22:56	284.70
11/30/2004 23:56	7.49	11/30/2004 23:56	284.68
12/1/2004 0:56	7.49	12/1/2004 0:56	284.66
12/1/2004 1:56	7.49	12/1/2004 1:56	284.62
12/1/2004 2:56	7.49	12/1/2004 2:56	284.60
12/1/2004 3:56	7.49	12/1/2004 3:56	284.57
12/1/2004 4:56	7.48	12/1/2004 4:56	284.55
12/1/2004 5:56	7.48	12/1/2004 5:56	284.69
12/1/2004 6:56	7.48	12/1/2004 6:56	284.68
12/1/2004 7:56	7.48	12/1/2004 7:56	284.68
12/1/2004 8:56	7.47	12/1/2004 8:56	284.73
12/1/2004 9:56	7.47	12/1/2004 9:56	284.78
12/1/2004 10:56	7.47	12/1/2004 10:56	284.75
12/1/2004 11:56	7.47	12/1/2004 11:56	284.77
12/1/2004 12:56	7.46	12/1/2004 12:56	284.80
12/1/2004 13:56	7.46	12/1/2004 13:56	284.82
12/1/2004 14:56	7.46	12/1/2004 14:56	284.83
12/1/2004 15:56	7.46	12/1/2004 15:56	284.87
12/1/2004 16:56	7.44	12/1/2004 16:56	284.90
12/1/2004 17:56	7.44	12/1/2004 17:56	284.91
12/1/2004 18:56	7.44	12/1/2004 18:56	284.91
12/1/2004 19:56	7.44	12/1/2004 19:56	284.91
12/1/2004 20:56	7.44	12/1/2004 20:56	284.92
12/1/2004 21:56	7.44	12/1/2004 21:56	284.92
12/1/2004 22:56	7.43	12/1/2004 22:56	284.93
12/1/2004 23:56	7.43	12/1/2004 23:56	284.93
12/2/2004 0:56	7.42	12/2/2004 0:56	284.94
12/2/2004 1:56	7.42	12/2/2004 1:56	284.95
12/2/2004 2:56	7.42	12/2/2004 2:56	284.98
12/2/2004 3:56	7.42	12/2/2004 3:56	284.99
12/2/2004 4:56	7.41	12/2/2004 4:56	285.00
12/2/2004 5:56	7.41	12/2/2004 5:56	284.99
12/2/2004 6:56	7.41	12/2/2004 6:56	285.00
12/2/2004 7:56	7.41	12/2/2004 7:56	285.00
12/2/2004 8:56	7.39	12/2/2004 8:56	285.00
12/2/2004 9:56	7.39	12/2/2004 9:56	285.00
12/2/2004 10:56	7.39	12/2/2004 10:56	284.96
12/2/2004 11:56	7.39	12/2/2004 11:56	284.93
12/2/2004 12:56	7.38	12/2/2004 12:56	284.93
12/2/2004 13:56	7.38	12/2/2004 13:56	284.93
12/2/2004 14:56	7.38	12/2/2004 14:56	284.94
12/2/2004 15:56	7.38	12/2/2004 15:56	284.95
12/2/2004 16:56	7.37	12/2/2004 16:56	284.97
12/2/2004 17:56	7.37	12/2/2004 17:56	284.99
12/2/2004 18:56	7.37	12/2/2004 18:56	285.00
12/2/2004 19:56	7.37	12/2/2004 19:56	284.99
12/2/2004 20:56	7.36	12/2/2004 20:56	284.99
12/2/2004 21:56	7.36	12/2/2004 21:56	284.98
12/2/2004 22:56	7.36	12/2/2004 22:56	284.85
12/2/2004 23:56	7.34	12/2/2004 23:56	284.84
12/3/2004 0:56	7.34	12/3/2004 0:56	284.83

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
12/3/2004 1:56	7.34	12/3/2004 1:56	284.83
12/3/2004 2:56	7.34	12/3/2004 2:56	284.83
12/3/2004 3:56	7.34	12/3/2004 3:56	284.82
12/3/2004 4:56	7.33	12/3/2004 4:56	284.81
12/3/2004 5:56	7.33	12/3/2004 5:56	284.83
12/3/2004 6:56	7.33	12/3/2004 6:56	284.89
12/3/2004 7:56	7.32	12/3/2004 7:56	284.93
12/3/2004 8:56	7.32	12/3/2004 8:56	284.95
12/3/2004 9:56	7.32	12/3/2004 9:56	284.93
12/3/2004 10:56	7.32	12/3/2004 10:56	284.95
12/3/2004 11:56	7.32	12/3/2004 11:56	284.97
12/3/2004 12:56	7.3	12/3/2004 12:56	284.96
12/3/2004 13:56	7.3	12/3/2004 13:56	284.96
12/3/2004 14:56	7.3	12/3/2004 14:56	284.95
12/3/2004 15:56	7.29	12/3/2004 15:56	285.00
12/3/2004 16:56	7.29	12/3/2004 16:56	284.94
12/3/2004 17:56	7.29	12/3/2004 17:56	284.94
12/3/2004 18:56	7.29	12/3/2004 18:56	284.94
12/3/2004 19:56	7.29	12/3/2004 19:56	284.93
12/3/2004 20:56	7.28	12/3/2004 20:56	284.93
12/3/2004 21:56	7.28	12/3/2004 21:56	284.94
12/3/2004 22:56	7.28	12/3/2004 22:56	284.93
12/3/2004 23:56	7.27	12/3/2004 23:56	284.93
12/4/2004 0:56	7.27	12/4/2004 0:56	284.93
12/4/2004 1:56	7.27	12/4/2004 1:56	284.93
12/4/2004 2:56	7.25	12/4/2004 2:56	284.93
12/4/2004 3:56	7.25	12/4/2004 3:56	284.93
12/4/2004 4:56	7.25	12/4/2004 4:56	284.93
12/4/2004 5:56	7.25	12/4/2004 5:56	284.93
12/4/2004 6:56	7.25	12/4/2004 6:56	284.93
12/4/2004 7:56	7.24	12/4/2004 7:56	284.93
12/4/2004 8:56	7.24	12/4/2004 8:56	284.93
12/4/2004 9:56	7.24	12/4/2004 9:56	284.93
12/4/2004 10:56	7.23	12/4/2004 10:56	284.93
12/4/2004 11:56	7.23	12/4/2004 11:56	284.93
12/4/2004 12:56	7.23	12/4/2004 12:56	284.93
12/4/2004 13:56	7.22	12/4/2004 13:56	284.93
12/4/2004 14:56	7.22	12/4/2004 14:56	284.94
12/4/2004 15:56	7.22	12/4/2004 15:56	284.93
12/4/2004 16:56	7.22	12/4/2004 16:56	284.93
12/4/2004 17:56	7.2	12/4/2004 17:56	284.93
12/4/2004 18:56	7.2	12/4/2004 18:56	284.93
12/4/2004 19:56	7.2	12/4/2004 19:56	284.94
12/4/2004 20:56	7.19	12/4/2004 20:56	284.93
12/4/2004 21:56	7.19	12/4/2004 21:56	284.93
12/4/2004 22:56	7.19	12/4/2004 22:56	284.93
12/4/2004 23:56	7.19	12/4/2004 23:56	284.93
12/5/2004 0:56	7.18	12/5/2004 0:56	284.93
12/5/2004 1:56	7.18	12/5/2004 1:56	284.93
12/5/2004 2:56	7.17	12/5/2004 2:56	284.93
12/5/2004 3:56	7.17	12/5/2004 3:56	284.93
12/5/2004 4:56	7.17	12/5/2004 4:56	284.93
12/5/2004 5:56	7.15	12/5/2004 5:56	284.93
12/5/2004 6:56	7.15	12/5/2004 6:56	284.93
12/5/2004 7:56	7.15	12/5/2004 7:56	284.93
12/5/2004 8:56	7.14	12/5/2004 8:56	284.93
12/5/2004 9:56	7.14	12/5/2004 9:56	284.93
12/5/2004 10:56	7.13	12/5/2004 10:56	284.93
12/5/2004 11:56	7.13	12/5/2004 11:56	284.93
12/5/2004 12:56	7.13	12/5/2004 12:56	284.94
12/5/2004 13:56	7.12	12/5/2004 13:56	284.93
12/5/2004 14:56	7.12	12/5/2004 14:56	284.93
12/5/2004 15:56	7.12	12/5/2004 15:56	284.93
12/5/2004 16:56	7.1	12/5/2004 16:56	284.93
12/5/2004 17:56	7.1	12/5/2004 17:56	284.93
12/5/2004 18:56	7.09	12/5/2004 18:56	284.93
12/5/2004 19:56	7.09	12/5/2004 19:56	284.93
12/5/2004 20:56	7.09	12/5/2004 20:56	284.93
12/5/2004 21:56	7.08	12/5/2004 21:56	284.93
12/5/2004 22:56	7.08	12/5/2004 22:56	284.92
12/5/2004 23:56	7.07	12/5/2004 23:56	284.93
12/6/2004 0:56	7.07	12/6/2004 0:56	284.93
12/6/2004 1:56	7.05	12/6/2004 1:56	284.93
12/6/2004 2:56	7.05	12/6/2004 2:56	284.92
12/6/2004 3:56	7.04	12/6/2004 3:56	284.93
12/6/2004 4:56	7.04	12/6/2004 4:56	284.92
12/6/2004 5:56	7.04	12/6/2004 5:56	284.92
12/6/2004 6:56	7.03	12/6/2004 6:56	284.93
12/6/2004 7:56	7.03	12/6/2004 7:56	284.93
		12/6/2004 8:56	284.92
		12/6/2004 9:56	284.93
		12/6/2004 10:56	284.90
		12/6/2004 11:56	284.86
		12/6/2004 12:56	284.85
		12/6/2004 13:56	284.85
		12/6/2004 14:56	284.85
		12/6/2004 15:56	284.87
		12/6/2004 16:56	284.89
		12/6/2004 17:56	284.90
		12/6/2004 18:56	284.91
		12/6/2004 19:56	284.91
		12/6/2004 20:56	284.91

Date Time	Temperature (Deg. C)	Date Time	Groundwater Elevation (masl)
		12/6/2004 21:56	284.92
		12/6/2004 22:56	284.92
		12/6/2004 23:56	284.91
		12/7/2004 0:56	284.91
		12/7/2004 1:56	284.91
		12/7/2004 2:56	284.91
		12/7/2004 3:56	284.91
		12/7/2004 4:56	284.91
		12/7/2004 5:56	284.90
		12/7/2004 6:56	284.91
		12/7/2004 7:56	284.88
		12/7/2004 8:56	284.87
		12/7/2004 9:56	284.85
		12/7/2004 10:56	284.93
		12/7/2004 11:56	284.92
		12/7/2004 12:56	284.90
		12/7/2004 13:56	284.89
		12/7/2004 14:56	284.95
		12/7/2004 15:56	284.94
		12/7/2004 16:56	284.95
		12/7/2004 17:56	284.95
		12/7/2004 18:56	284.95
		12/7/2004 19:56	284.97
		12/7/2004 20:56	284.98
		12/7/2004 21:56	284.98
		12/7/2004 22:56	284.98
		12/7/2004 23:56	284.99
		12/8/2004 0:56	284.99
		12/8/2004 1:56	284.99
		12/8/2004 2:56	284.99
		12/8/2004 3:56	284.99
		12/8/2004 4:56	285.00
		12/8/2004 5:56	285.00
		12/8/2004 6:56	285.00
		12/8/2004 7:56	285.00
		12/8/2004 8:56	285.00

Note: Data collected every min but reported in the present table every hour.

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Table F2-2-33 - Monitor 6 Glenron
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Water Level (mbtop)
27-Nov-04	14:55:00	4.61
28-Nov-04	9:30:00	4.67
29-Nov-04	16:55:00	4.88
29-Nov-04	12:52:00	4.62
30-Nov-04	11:43:00	4.58
1-Dec-04	12:40:00	4.74
1-Dec-04	18:20:00	4.72
2-Dec-04	12:10:00	4.69
2-Dec-04	17:40:00	4.68
3-Dec-04	11:05:00	4.68
4-Dec-04	11:02:00	4.62
4-Dec-04	14:32:00	4.87
5-Dec-04	10:56:00	4.75
5-Dec-04	16:53:00	4.72

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Table F2-2-34 - Monitor 353 Conc. 11
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Water Level (mbtop)
27-Nov-04	13:45	5.02
28-Nov-04	14:05	5.03
28-Nov-04	20:25	5.04
29-Nov-04	15:52	5.06
30-Nov-04	8:48	5.06
30-Nov-04	14:28	5.06
1-Dec-04	10:22	5.04
2-Dec-04	8:11	5.05
4-Dec-04	8:57	5.03
4-Dec-04	13:14	5.02
5-Dec-04	10:16	5.06
5-Dec-04	15:37	5.06
6-Dec-04	10:09	5.04

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Table F2-2-35 - Monitor 1869 Milburough
Water Levels
Manual Measurements
168-Hour Pumping Test

Date	Time	Water Level (mbtop)
27-Nov-04	14:55	7.72
28-Nov-04	9:38	7.72
28-Nov-04	16:58	7.69
29-Nov-04	13:01	7.68
30-Nov-04	11:52	7.64
1-Dec-04	12:28	7.67
1-Dec-04	18:20	7.74
2-Dec-04	12:10	7.71
2-Dec-04	17:40	7.64
3-Dec-04	11:05	7.59
4-Dec-04	11:02	7.70
4-Dec-04	14:32	7.77
5-Dec-04	10:56	7.89
5-Dec-04	16:53	7.82

F2-3 July 2008 192-Hour Pumping Test Addendum to Phase 1 Pumping Test Report Pumping Test Data Interpretation

AECOM

Addendum to Phase 1 Pumping Test Report - Pumping Test Data Interpretation

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Date:

December , 2008

Statement of Qualifications and Limitations

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1. Introduction

This report is prepared as an addendum to the Phase 1 Pumping Test Report (PTTW #8461-7CFLG5 – Condition 4.22) dated August 27, 2008. This report also serves to address the comments on the above report from the Ministry of Environment (MOE), Technical Support Section – West Central Region, dated October 21, 2008.

The above Phase 1 pumping test report has described the pumping test in almost every aspect including the pumping well and pumping rate, the monitoring well network, the field testing and monitoring procedures, groundwater level and quality monitoring results, and preliminary discussions of the aquifer response to pumping and rainfall as well as the zone of influence due to TW14 pumping.

This addendum report has been prepared to provide a detailed discussion and analysis of the aquifer response to pumping and rainfall, including discussion of the implication of the rainfall with respect to characterizing the properties of the Amabel Formation in the vicinity of the test well TW14. Based on a detailed assessment, the appropriate monitoring data sets have been identified, the aquifer properties have been estimated, and the zone of influence from the pumping well has been revisited in this report.

The above Phase 1 pumping test report has included all background and supporting information including all field monitoring data and therefore, references have been made as needed in the text of this report to the above “Phase 1 Report”.

2. Pumping Test Objectives

The main objective of the Phase 1 Pumping Test is to assess the response of the Amabel Formation to TW14 pumping and characterize the properties of the aquifer in the vicinity of a testing program. As part of the testing program, results of the Phase 1 Pumping Test will be used during the Phase 2 test to assess feasibility of an artificial groundwater recharge system (GRS) as a mitigation measure for potential adverse effects on groundwater levels during quarry development. The results of the Phase 1 Pumping Test will also serve as baseline for the future long term PTTW application for the quarry.

The Phase 1 Pumping Test was not designed to mimic the response of the aquifer during future quarry operations, because it is impossible to mimic the long term quarry effects with a single pumping well in terms of the physical scale and time of the test. This is true regardless of the water level maintained in the pumping well during the test.

Due to limitations of the physical scale and time of the test, the Phase 1 Pumping test was never intended to show impacts on adjacent surface water features due to long term quarry operations. The purpose for monitoring surface water features during the pumping test was to monitor for potential adverse effects on the wetlands during the test. A potential secondary benefit of the surface water monitoring was to confirm the already assumed hydraulic connection between the bedrock aquifer and surface water features. Most

importantly, the quarry proposal has considered that mitigation measures will be an integral part of the quarry design. It is not necessary and not a part of the Phase 1 Pumping test program to conduct field tests to assess the potential for impacts of the quarry on nearby surface water features as this connection is known to exist. The mitigation plan, consisting of a GRS system and thorough monitoring will be adaptively maintained with its primary objective to protect the surrounding natural environment from adverse impacts.

3. Constant Rate Pumping Test

Details of the pumping test procedures have been provided in Section 3 of the Phase 1 Pumping Test Report. In general, the Phase 1 Pumping test (at TW14) included a short step test of about 2 hours followed by a constant rate test for 8 days. It is noted from the hydrograph of TW14 during the step test (Plot C1, Appendix C), drawdown accelerated during Step 3 (15 L/sec) as the pumping level declined to an elevation close to that of a major water producing zone at about 263 mASL. As a result of the significant well loss observed while pumping at 15 L/sec, it was decided to conduct the constant rate test under a sustainable pumping rate of 10 L/sec throughout the entire pumping period.

During the constant rate test, pumping volumes were recorded by Lotowater using a calibrated inline flow meter (totalizer). The cumulative pumping volumes were manually recorded on a frequent schedule over the initial 4 hours of pumping and on an hourly basis throughout the rest of the test. The pumping volumes recorded from the totalizer and the pumping rates calculated are presented in Appendix A.

Plot A1 in Appendix A illustrates the calculated pumping rates over the test period. The plot shows that pumping rates fluctuated slightly around 10 L/sec over the entire pumping period with the exception of a few points at the beginning of the test on July 21, 2008 as well as between 5 am and 6 am on July 24, 2008. Plot A2 demonstrates that data points of the cumulative volumes over time (the totalizer readings) fall on a straight line, indicating a constant pumping rate was generally maintained throughout the test. The average pumping rate represented by the slope of the straight line is actually calculated to be 9.95 L/sec, very close to the targeted rate for the test of approximately 10 L/sec.

4. Rainfall Effects On Pumping Test Data

4.1 Recorded Onsite Rainfall

The precipitation data provided by Stantec and recorded using the onsite rain gauge (Hydrology Services Model TB-3) cover a total of 32 days from July 12 to August 12, 2008 including the period of pumping at TW14 from July 21 to July 29, 2008. The hourly precipitation data collected from the rain gauge are presented in Table B1 and plotted in Plot B1 (Appendix B). A summary of precipitation for all rainfall events (time and amount) over the pre-test, pumping and recovery periods are listed in Table 1. It is noted that there were two major rainfall events recorded onsite that may have potentially influenced the pumping test data.

Table 1: Summary of Rainfall Events Over Pretest, Pumping and Recovery Periods

Date	Time		Duration		Amount	Intencity
	Start	End	mins	hours	**mm**	mm/hour
17-Jul-08	8:00 PM	9:00 PM	60	1.0	**4.2**	4.20
19-Jul-08	5:00 AM	6:00 PM	780	13.0	**4.6**	0.35
July 19 - 20	11:00 PM	12:00 PM	780	13.0	**43.2**	3.32
20-Jul-08	1:00 PM	3:00 PM	120	2.0	**3.2**	1.60
	5:00 PM	11:00 PM	360	6.0	**2.2**	0.37
21-Jul-08	1:00 PM	3:00 PM	120	2.0	**0.6**	0.30
22-Jul-08	3:00 AM	10:00 AM	420	7.0	**1.0**	0.14
	2:00 PM	4:00 PM	120	2.0	**26.2**	13.1
July 22 - 23	8:00 PM	1:00 AM	300	5.0	**17.0**	3.40
23-Jul-08	1:00 PM	2:00 PM	60	1.0	**0.8**	0.80
24-Jul-08	6:00 AM	7:00 AM	60	1.0	**0.2**	0.20
26-Jul-08	9:00 AM	10:00 AM	60	1.0	**0.4**	0.40
27-Jul-08	8:00 PM	10:00 PM	120	2.0	**0.8**	0.40
30-Jul-08	9:00 AM	11:00 AM	120	2.0	**6.1**	3.05
	7:00 PM	9:00 PM	120	2.0	**1.8**	0.90
31-Jul-08	1:00 PM	2:00 PM	60	1.0	**0.2**	0.20
1-Aug-08	12:00 PM	1:00 PM	60	1.0	**0.4**	0.40
2-Aug-08	4:00 AM	5:00 AM	60	1.0	**0.4**	0.40
	1:00 PM	7:00 PM	360	6.0	**0.6**	0.10
5-Aug-08	10:00 AM	11:00 AM	60	1.0	**0.8**	0.80
	5:00 PM	11:00 PM	360	6.0	**29.6**	4.93
6-Aug-08	1:00 PM	2:00 PM	60	1.0	**0.2**	0.20
7-Aug-08	3:00 AM	9:00 PM	1080	18.0	**11.4**	0.63
8-Aug-08	6:00 AM	4:00 PM	600	10.0	**5.4**	0.54
9-Aug-08	11:00 AM	10:00 PM	660	11.0	**44.2**	4.02
10-Aug-08	5:00 AM	7:00 AM	120	2.0	**0.8**	0.40

Note: - Rainfall data provided by Stantec were recorded by an on-site rain gauge installed
- Step tests started at 11:35 am and ended 1:37 pm on July 21, 2008
- Constant rate test started at 4:20 pm July 21, 2008 and ended 12:09 pm on July 29, 2008

The first major rainfall started very near 11 pm, on July 19, 2008, approximately 36 hours before the step test started at 11:35 am, July 21. A total of 46.4 mm rainfall took place over 16 hours and ended at approximately 3 pm, July 20. The subsequent rainfall took place on the same day (July 20) was minor at 2.2 mm over 6 hours from 5 pm to 11 pm. This suggests only minor rain (2.2 mm in total) was recorded over a period of about 21 hours between the end of the first major rainfall and the time the step test was initiated.

Minor rainfall occurred (1.6 mm in total) over a period of about 27 hours between the time the step test started and the time the second major rainfall started at approximately 2:00 pm on July 22, 2008. The second major rainfall consisted of 26.2 mm of precipitation over two hours from 2 pm to 4 pm on July 22; and 17 mm over 5 hours from 8 pm on July 22, to 1 am on July 23. The constant rate test started at 4:20 pm on July 21, 2008; indicating no significant rainfall took place over a period of about 21.5 hours from the time the main test started until the second major rainfall occurred.

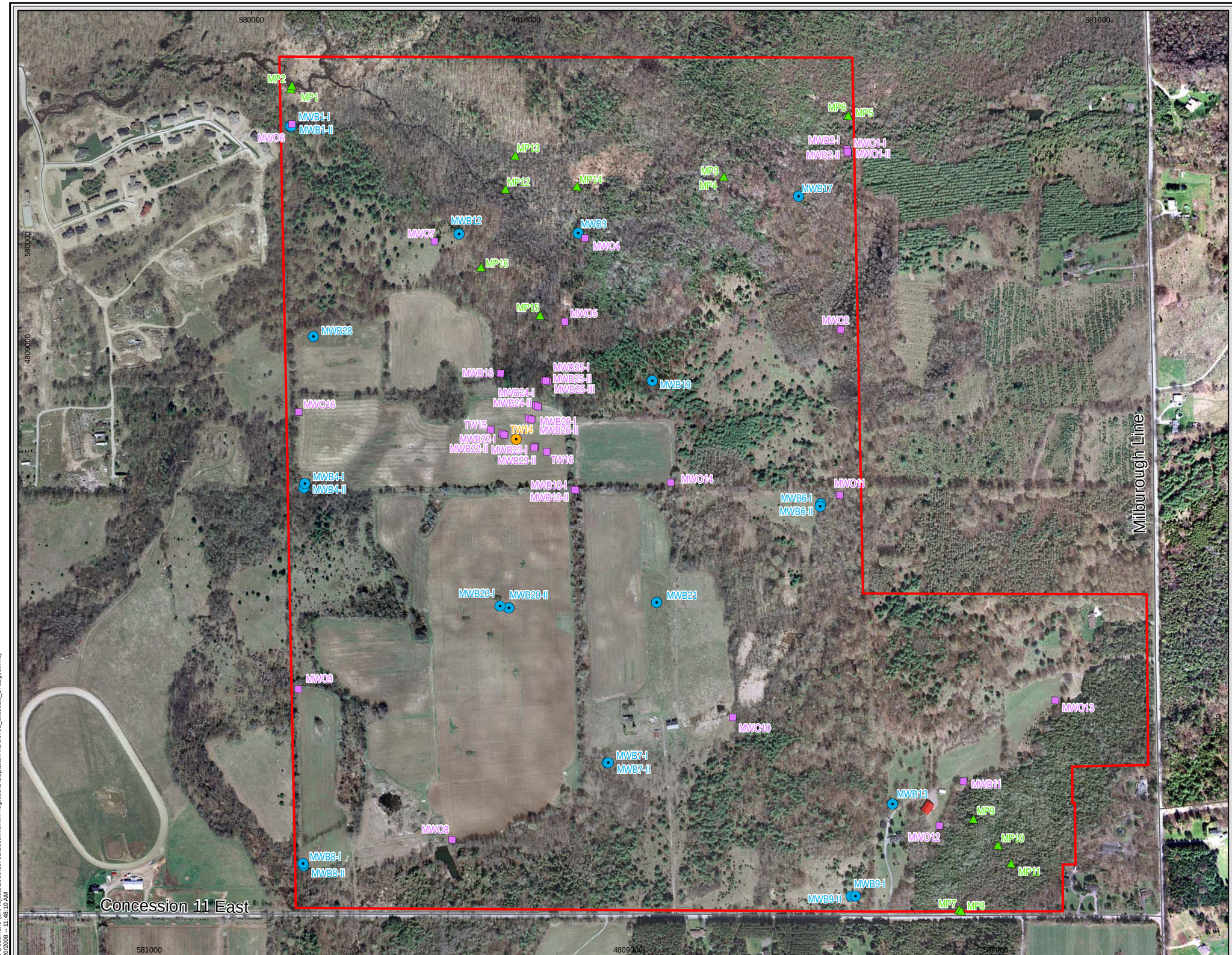
Four minor rainfall events took place ranging from 0.2 to 0.8 mm over a period of 155 hours (6 days, 11 hours) between the end of the second major rainfall at 1 am on July 23 and the time the pumping of the well was terminated at 12:09 pm on July 29, 2008.

During the recovery period, a small rainfall event (6.1 mm) occurred approximately 21 hours after pumping stopped. This rainfall lasted for two hours from 9 am to 11 am on July 30, 2008 followed by another smaller rainfall (1.8 mm) from 7 pm to 9 pm on the same day. Over the next 6 days, until the third major rainfall taking place on August 5, only four minor rainfall events ranging between 0.2 and 0.6 mm took place at the site.

Two major post-test rainfall events occurred, 29.6 mm which started about 173 hours (7 days 5 hours) after the pumping was terminated and lasted for 6 hours from 5 pm to 11 pm on August 5, 2008, and a total of 61 mm rainfall over 3 days from August 7 to 9, 2008.

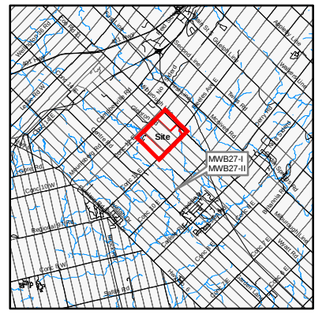
4.2 Bedrock Monitor Response

The bedrock monitoring well locations during the Phase 1 Pumping Test are shown in the site plan (Figure 1). The bedrock monitoring wells installed in the three depth horizons: shallow (>276 mASL), intermediate (265-276 mASL) and deep (<265 mASL) were measured for groundwater level response to the pumping at test well TW14 during the pre-test, pumping, and recovery periods. Groundwater hydrographs presenting data recorded throughout the duration of the pumping test for all bedrock monitors can be found in Appendix E of the Phase 1 Report. The hydrographs clearly illustrate rainfall effects on groundwater levels as shown by water level increases from pre-rainfall levels, and effects due to pumping by water level drawdown as compared to pre-test levels. The observed responses of bedrock monitors to pumping and rainfall have been shown in these hydrographs and are qualitatively described in the attached Table 2. All monitors and their general responses to rainfall/pumping are described in Table 2 in the order of their respective distances to the pumping well, with the suborder of the depth horizons where the monitors are installed.



Legend

- Pumping Well
- Sentinel Well Nest
- Non-Sentinel Well Nest
- Mini Piezometer
- Property Boundary



Basemapping from Ontario Ministry of Natural Resources
Orthophotography:

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0 50 100 200 300

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UTM Zone 17N, NAD 83

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St. Mary's Flamborough Quarry
St. Mary's Cement (Canada) Inc.

Site Plan Showing Monitoring Locations

November 2008
Project 60702

AECOM

Figure 1

Map Document: (J:\Projects\2006\60702\2008\WorkInProgress\GIS\Spatial\mxd\60702_sitescale_27aug08.mxd)
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Table 2 - Nature of Water Level Response Observed in Bedrock Monitoring Wells during Pumping Test

Monitoring Wells		Distance from Pumping Well TW14	Ground Elevation	Borehole Depth	Bottom of Sand Pack	Top of Sand Pack	Aquifer Unit Monitored	Aquifer Depth Horizon	Response to TW14 Pumping and/or Precipitation
Borehole	**Monitor**	**m**	**mASL**	**mBGS**	**mASL**	**mASL**			
TW14	Pumping Well	**0**	291.74	45.80	Open Bedrock Hole		entire Amabel Formation from 285.6 to 246.2 mASL		mainly responded to pumping with minor response to precipitation
MWB22-I	MWB22-I-A	**20.8**	290.88	27.70	278.44	283.26	productive zone, upper Amabel	Shallow	responded to pumping, water level down below logger
MWB22-II	MWB22-II-B	**24.9**	290.74	42.40	272.27	277.18	productive zone, upper/middle of Amabel	Intermediate	responded to pumping, logger problem - partial lost record
MWB22-I	MWB22-I-C	**20.8**	290.88	27.70	263.07	267.11	feature, lower Amabel	Deep	mainly responded to pumping with minor response to precipitation
MWB22-II	MWB22-II-D	**24.9**	290.74	42.40	250.20	258.13	feature, near base of Amabel	Deep	mainly responded to pumping with minor response to precipitation
MWB23-I	MWB23-I-A	**30.3**	288.79	14.00	275.68	281.27	fractured zone, upper Amabel	Shallow	mainly responded to pumping, minor rain effects, level down below logger
MWB23-II	MWB23-II-B	**34.3**	288.77	39.00	266.80	271.98	middle Amabel	Intermediate	mainly responded to pumping with minor response to precipitation
MWB23-II	MWB23-II-C	**34.3**	288.77	39.00	252.04	257.66	near base of Amabel	Deep	mainly responded to pumping with minor response to precipitation
MWB26-I	MWB26-I-A	**41.8**	291.04	13.70	283.14	286.16	productive zone, upper Amabel	Shallow	responded to pumping, some rain effects, water level drawn below logger
MWB26-I	MWB26-I-B	**41.8**	291.04	13.70	277.20	280.85	productive zone, upper Amabel	Intermediate	responded to pumping, small rain effects, water level down below logger
MWB26-II	MWB26-II-C	**39.9**	291.14	41.50	264.12	269.15	productive zone, middle of Amabel	Intermediate	mainly responded to pumping with minor response to precipitation
MWB26-II	MWB26-II-D	**39.9**	291.14	41.50	250.68	255.86	base of Amabel	Deep	mainly responded to pumping with minor response to precipitation
TW15	TW15-A	**44.9**	289.81	14.55	275.26	281.16	upper Amabel	Shallow	mainly responded to pumping with minor response to precipitation
TW15	TW15-B	**44.9**	289.81	25.55	264.26	270.26	productive zone, middle of Amabel	Intermediate	mainly responded to pumping with minor response to precipitation
TW15	TW15-C	**44.9**	289.81	36.55	253.26	259.26	near base of Amabel	Deep	mainly responded to pumping with minor response to precipitation
MWB24-I	MWB24-I-A	**65.6**	290.62	12.80	283.43	286.51	fractured zone, upper Amabel	Shallow	response to pumping and to precipitation, water level drawn below logger
MWB24-I	MWB24-I-B	**65.6**	290.62	12.80	277.64	281.60	feature, upper Amabel	Shallow	mainly responded to pumping with small reposnse to precipitation
MWB24-II	MWB24-II-C	**65.0**	290.56	41.50	266.86	274.96	productive zone, middle of Amabel	Intermediate	mainly responded to pumping with small reposnse to precipitation
MWB24-II	MWB24-II-D	**65.0**	290.56	41.50	250.26	255.36	base of Amabel	Deep	mainly responded to pumping with minor response to precipitation
MWB25-I	MWB25-I-A	**109.1**	290.82	9.20	281.58	285.39	productive zone, upper Amabel	Shallow	responded to both pumping and precipitation
MWB25-II	MWB25-II-B	**109.4**	291.07	18.40	272.78	276.44	productive zone, middle of Amabel	Intermediate	mainly responded to pumping with some reposnse to precipitation
MWB25-III	MWB25-III-C	**109.6**	290.92	41.10	269.42	277.32	productive zone, middle of Amabel	Intermediate	mainly responded to pumping with some reposnse to precipitation
MWB25-III	MWB25-III-D	**109.6**	290.92	41.10	251.82	257.52	feature, near base Amabel	Deep	mainly responded to pumping with small reposnse to precipitation
MWB18	MWB18-A	**112.6**	287.08	39.32	265.62	270.24	middle Amabel	Intermediate	mainly responded to pumping with some reposnse to precipitation
MWB18	MWB18-B	**112.6**	287.08	39.32	251.83	259.42	base of Amabel	Deep	mainly responded to pumping with small reposnse to precipitation
MWB10-I	MWB10-I-A	**132.0**	292.45	45.72	275.56	280.69	productive zone, upper Amabel	Shallow	responded to both pumping and precipitation
MWB10-I	MWB10-I-B	**132.0**	292.45	45.72	266.29	271.11	productive zone, middle of Amabel	Intermediate	mainly responded to pumping with some reposnse to precipitation
MWB10-I	MWB10-I-C	**132.0**	292.45	45.72	257.27	262.73	feature, lower Amabel	Deep	mainly responded to pumping with minor response to precipitation
MWB10-II	MWB10-II-D	**130.2**	292.43	46.28	245.43	248.53	Cabot Head	Deep	water level below logger, manual data exhibit response to precipitation
MWB19	MWB19-A	**247.7**	287.59	40.84	279.11	283.93	productive zone, upper Amabel	Shallow	response to precipitation only
MWB19	MWB19-B	**247.7**	287.59	40.84	256.25	261.81	productive zone, lower Amabel	Deep	responded to both pumping and precipitation
MWB20-I	MWB20-I-A	**279.9**	289.71	28.04	279.42	285.70	upper Amabel	Shallow	response to precipitation only
MWB20-II	MWB20-II-B	**282.5**	290.54	45.11	270.17	275.07	productive zone middle of Amabel	Intermediate	mainly responded to precipitation with minor response to pumping
MWB20-II	MWB20-II-C	**282.5**	290.54	45.11	255.51	259.96	productive zone, lower Amabel	Deep	responded to both pumping and precipitation
MWB12	MWB12-A	**355.4**	291.1	43.89	278.17	283.02	productive zone, upper Amabel	Shallow	response to precipitation only
MWB12	MWB12-B	**355.4**	291.1	43.89	271.21	275.76	productive zone, middle of Amabel	Intermediate	mainly responded to precipitation with some response to pumping
MWB12	MWB12-C	**355.4**	291.1	43.89	253.76	260.67	productive zone, lower Amabel	Deep	mainly responded to precipitation with some response to pumping
MWB3R	MWB3-A	**359.5**	286.14	35.97	272.50	280.27	fractured, poor quality zone, upper Amabel	Shallow	response to precipitation only
MWB3R	MWB3-B	**359.5**	286.14	35.97	254.14	262.67	base of Amabel	Deep	mainly responded to pumping with some reposnse to precipitation
MWB21	MWB21-A	**360.2**	294.09	44.81	270.04	275.14	productive zone, middle of Amabel	Intermediate	response to precipitation only
MWB21	MWB21-B	**360.2**	294.09	44.81	256.02	261.76	productive zone, lower Amabel	Deep	mainly responded to precipitation with minor response to pumping
MWB4-I	MWB4-I-A	**360.1**	286.14	7.62	278.52	282.02	fractured zone, upper Amabel	Shallow	response to precipitation only
MWB4-II	MWB4-II-B	**363.2**	286.17	39.62	270.42	277.08	upper/middle Amabel	Intermediate	response to precipitation only
MWB4-II	MWB4-II-C	**363.2**	286.17	39.62	250.69	255.59	base of Amabel	Deep	response to precipitation only
MWB28	MWB28-A	**379.9**	292.42	45.72	279.08	283.92	productive zone, upper Amabel	Shallow	response to precipitation only
MWB28	MWB28-B	**379.9**	292.42	45.72	267.12	275.30	productive zone, middle Amabel	Intermediate	response to precipitation only
MWB6-I	MWB6-I-A	**520.7**	287.27	6.10	281.17	284.67	fractured zone, upper Amabel	Shallow	response to precipitation only
MWB6-II	MWB6-II-B	**521.0**	287.24	35.97	265.09	273.37	productive zone, middle of Amabel	Intermediate	response to precipitation only
MWB6-II	MWB6-II-C	**521.0**	287.24	35.97	257.14	261.99	feature, near base of Amabel	Deep	response to precipitation only
MWB7-I	MWB7-I-A	**562.2**	285.51	6.10	279.41	282.91	fractured zone, upper Amabel	Shallow	response to precipitation only
MWB7-II	MWB7-II-B	**562.7**	285.48	38.40	268.16	274.86	productive zone, upper/middle of Amabel	Intermediate	response to precipitation only
MWB7-II	MWB7-II-C	**562.7**	285.48	38.40	249.21	254.19	feature, base of Amabel and Fossil Hill	Deep	response to precipitation only
MWB17	MWB17-A	**622.5**	290.84	8.95	282.01	285.32	fractured zone, upper Amabel	Shallow	response to precipitation only
MWB17	MWB17-B	**622.5**	290.84	40.25	251.76	255.07	base of Amabel and Fossil Hill	Deep	mainly responded to precipitation with minor response to pumping
MWB1-I	MWB1-I-A	**643.3**	285.65	6.71	278.94	282.44	upper Amabel	Shallow	response to precipitation only
MWB1-II	MWB1-II-B	**645.1**	285.66	38.40	264.71	269.20	productive zone, middle of Amabel	Intermediate	response to precipitation only
MWB1-II	MWB1-II-C	**645.1**	285.66	38.40	252.21	257.14	near base of Amabel	Deep	response to precipitation only
MWB8-I	MWB8-I-A	**793.7**	281.62	6.55	275.07	278.57	overburden & upper fractured zone of Amabel	Shallow	response to precipitation only
MWB8-II	MWB8-II-B	**796.5**	281.52	36.58	267.12	272.07	productive zone, upper/middle of Amabel	Intermediate	response to precipitation only
MWB8-II	MWB8-II-C	**796.5**	281.52	36.58	256.15	261.61	lower Amabel	Deep	response to precipitation only
MWB13	MWB13-A	**876.1**	287.1	38.70	275.67	281.89	fractured zone upper Amabel	Shallow	response to precipitation only
MWB13	MWB13-B	**876.1**	287.1	38.70	257.15	263.63	productive zone, lower Amabel	Deep	response to precipitation only
MWB13	MWB13-C	**876.1**	287.1	38.70	249.13	255.40	base of Amabel and Fossil Hill	Deep	response to precipitation only
MWB11	MWB11-A	**941.7**	284.64	37.18	274.61	279.46	fractured zone, upper Amabel	Shallow	manual measurements exhibit response to precipitation
MWB11	MWB11-B	**941.7**	284.64	37.18	264.45	272.35	fractured zone, middle Amabel	Intermediate	manual measurements exhibit response to precipitation
MWB11	MWB11-C	**941.7**	284.64	37.18	249.46	257.74	fractured zone, lower Amabel	Deep	manual measurements exhibit response to precipitation
MWB9-I	MWB9-I-A	**951.9**	284.7	6.10	278.60	282.10	fractured zone, upper Amabel	Shallow	response to precipitation only
MWB9-II	MWB9-II-B	**947.5**	284.63	35.66	248.97	252.47	Fossil Hill and Cabot Head	Deep	response to precipitation only
MWB27-I	MWB27-I-A	**2889.0**	270.81	9.68	261.13	266.85	productive zone, upper Amabel	Shallow	response to precipitation only
MWB27-II	MWB27-II-B	**2887.3**	270.48	29.24	248.84	254.12	productive zone, middle Amabel	Intermediate	response to precipitation only

Note: - highlighted cells suggest monitoring wells experienced drawdown effects due to TW14 pumping

The data presented in Table 2 show that the aquifer clearly responded to rainfall events to varying degrees in all three depth horizons across the site. The rainfall effects in the shallow horizon are attributed to more fractured shallow bedrock that is likely in good hydraulic connection with more permeable surface soils. The rainfall effects in the deep and intermediate horizons do not necessarily suggest direct connection of these horizons with the surface; rather they reflect increased hydrostatic pressure due to infiltration water from rainfall on the shallow, unconfined bedrock aquifer. The hydrographs for monitor nests MWB17 (Plot C13, Appendix C) and MWB13 (Plot C14) located 620 m and 880 m, respectively from TW14, show minor or no pumping effects and very good correlation of hydrographical fluctuation between the deep and shallow monitors. The minimal damping of the increase in the water table indicates that the response to rainfall in the deep monitors likely reflects a confined, pressurized response.

The magnitude of groundwater level increases due to rainfall effects in the three bedrock horizons varied across the site; largely subject to the local topography and permeability of surface soils.

Within approximately 130 m of the pumping well, all three depth horizons responded to pumping as the test well is an open bedrock borehole, penetrating all the three horizons of the aquifer. In general, pumping effects decreased as the distance increased from the pumping well and rainfall effects decreased as the depth of the monitoring wells increased. Compared to the greater drawdown due to pumping, rainfall effects were very minor in the deep horizon of the aquifer within a distance of about 65 m from the pumping well.

The pumping level was maintained below about 270 mASL in the pumping well throughout most of the pumping period. Although vertical hydraulic connection exists to varying degrees within the aquifer, horizontal flow prevailed through fractures along these depth horizons. The portion of the aquifer below the pumping level (270 mASL) down to the bottom of the aquifer (250 mASL) was the most stressed portion of the pumped aquifer during the test. This indicates groundwater levels in the deep monitors (<265 mASL) better represent the aquifer response to TW14 pumping as compared to the shallow and intermediate monitors.

4.3 Deep Monitor Response

As discussed in Section 4.2, the deep groundwater monitors located close to the pumping well are identified to be most representative of the aquifer response to TW14 pumping. This is largely due to the least groundwater level increase associated with rainfall and the largest groundwater level drawdown due to pumping observed in close proximity to the test well.

Nine deep monitors showing significant drawdown and minor response to rainfall are listed in Table 3. The hydrographs for test well TW14 and these deep monitors are presented in Appendix C. It is noted all of these deep monitors are located within approximately 130 m of the pumping well with the exception of MWB3-B, which is located approximately 360 m from TW14.

Table 3: Deep Monitor Response to Rainfall and TW14 Pumping Prior to and During Pumping Test

Well Name	Distance To Pumping Well TW14	Well Depth	Depth to Well Screen	Water Level Just Before July 20 Storm[1]	Water Leve at End of Rising Trend Due to Storm	Water Level Rise Over 20 hours Since Storm Began	Water Level 9 Hours Before Step Test	Water Level Rise Over 7 hours Since Storm Ended	Water Level Just Before Step Test	Water Level Rise Over 9 hours before Step Test	Total Water Level Rise Due to Pre-Test Storm	Total Drawdown at End of Step Test[2]	**%** Rainfall Effect over Total Drawdown due to Step Test	Residual Drawdown at End of Recovery from Step Test[3]	% Recovery Before Constant Rate Test Started	Drawodwn After 22 Hour Pumping Before July 22 Storm[4]	Estimated Water Level Rise Due to July 22 Storm	Total Drawdown at End of Constant Rate Test[5]	% Rain Effect over Total Drawdown due to Constant Rate Test
	m	mBGS	mBGS	mASL	mASL	m	mASL	m	mASL	m	m	m		m		m	m	m	
				7/19/08 23:30	7/20/08 19:30		7/21/08 2:30		7/21/08 11:35			7/21/08 13:37		7/21/08 16:20		7/22/08 14:28		7/29/08 12:10	
Pumping Well																			
TW14	0.13	45.80	8.43	-	-		-		284.04			18.77		0.17	99.1%	13.68	0.25	14.45	1.7%
Observation Wells																			
MWB22-II-D	24.9	39.62	33.53	284.24	284.39	0.15	284.41	0.02	284.42	0.01	0.18	3.47	**5.2%**	0.12	**96.5%**	3.14	0.23	3.45	6.7%
MWB23-II-C	34.3	36.73	33.68	284.14	284.24	0.10	284.27	0.03	284.28	0.01	0.14	2.96	**4.7%**	0.12	**95.9%**	2.87	0.22	3.25	6.8%
MWB26-II-D	39.9	39.62	36.58	284.35	284.48	0.13	284.50	0.02	284.51	0.01	0.16	3.66	**4.4%**	0.10	**97.3%**	3.68	0.23	3.91	5.9%
TW15-C	44.9	36.0	32.0	284.35	284.49	0.14	284.51	0.02	284.52	0.01	0.17	3.39	**5.0%**	0.13	**96.2%**	3.10	0.26	3.49	7.4%
MWB24-II-D	65.0	39.60	36.50	284.26	284.38	0.12	284.41	0.03	284.42	0.01	0.16	3.66	**4.4%**	0.11	**97.0%**	3.69	0.24	3.92	6.1%
MWB25-III-D	109.6	39.10	36.00	284.59	284.69	0.10	284.72	0.03	284.72	0.00	0.13	1.58	8.2%	0.06	96.2%	1.39	0.24	1.50	16.0%
MWB18-B	112.6	34.49	28.40	284.62	284.75	0.13	284.77	0.02	284.78	0.01	0.16	1.46	11.0%	0.07	95.2%	1.45	0.24	1.61	14.9%
MWB10-I-C	132.0	34.26	31.22	284.24	284.31	0.07	284.33	0.02	284.33	0.00	0.09	1.43	6.3%	0.07	95.1%	1.47	0.17	1.62	10.5%
MWB3-B	359.5	32.00	27.43	284.87	285.08	0.21	285.10	0.02	285.09	0.00	0.22	0.60	36.7%	0.04	93.3%	0.62	0.22	0.72	30.6%

Notes: 1 - The first storm prior to test recorded 46.4 mm between 23:00, July 19 and 15:00, July 20, 2008 as per onsite rain gauge readings

[2] - The step test started 11:35 and ended 13:35 on July 21, 2008 at increasing rates from 5 L/sec for 30 mins, 10 L/sec for 30 mins to 15 L/sec for 8 mins, and reduced to 12 L/sec for 54 mins

[3] - The well recovery period followed the step test from 13:35 to 16:20, July 21, 2008

[4] - The constant rate test (10 L/sec) started 16:20, July 21, 2008 and about 22 hours before the second storm (43.2 mm in total) which began 14:00, July 22 and ended 1:00, July 23, 2008

[5] - The constant rate pumping lasted for about 7 days and 20 hours, and ended at 12:10, July 29, 2008

As discussed in Section 4.1, two major rainfall events have potentially influenced the pumping test data. The first major rainfall (46.4 mm in total) started about 36 hours and ended about 20 hours before the step test began, and lasted for a period of 16 hours. The second major rainfall (43.2 mm in total) started approximately 47 hours after the first rainfall and 22 hours after the constant rate test began, and lasted over a period of 11 hours. There was no significant rainfall over a period of 155 hours (6 days 11 hours) between the end of the second rainfall and the time pumping was terminated.

To evaluate the significance of rainfall effects on the deep monitors, the groundwater level increases due to rainfall were identified and compared to the measured drawdown due to pumping. The comparisons are listed on Table 3. Prior to the test, the groundwater level increases due to rainfall were measured from static levels on the hydrographs. During the pumping test, rainfall effects were estimated based on measured groundwater level increases from the pre-storm levels plus the effects of the drawdown trend due to pumping just before rainfall took place. As TW14 was continuously pumped for a dry period of 155 hours (6.5 days) before the test ended, the water levels in the pumping well near the end of the test are considered to have primarily represented pumping conditions under the constant rate (10 L/sec).

As shown in Table 3, the initial groundwater level increases over the 20 hours since the pre-test rainfall began varied from about 7 to 15 cm in the eight deep monitors within about 130 m of the pumping well. Groundwater levels rose slowly by 2 to 3 cm over 7 hours following the initial groundwater level increases. Groundwater levels in the eight monitors were basically constant or only increased by up to 1 cm for the next 9 hours before the step test began, indicating that the groundwater levels in the deep monitors were generally stable before the test.

The total groundwater level increase due to the pretest rainfall (46.4 mm) is estimated to be in the range between 9 cm and 18 cm in the eight deep monitors (Table 3). Compared to the measured drawdown over the step test, the overall rainfall effects account for 4% to 5% of the pumping effects in the five deep monitors within 65 m of the pumping well. The percentage of rainfall effects over drawdown increases to 6% to 11% in the three monitors located 110 m to 132 m of the pumping well, and over 30% in monitor MWB3-B located about 360 m of the test well.

The potential effects from the second major rainfall (43.2 mm) on groundwater levels during the test are estimated taking into account the drawdown trend due to pumping just before the rainfall event. The approach to estimate effects of this rainfall is illustrated in Plot C12 (Appendix C). As shown in Table 3, the rainfall may have potentially caused a water level increase by about 17 cm to 26 cm in the eight monitors. This magnitude of rainfall effects estimated are generally comparable to the background deep monitors at MWB17 and MWB13 as discussed in Section 4.2. The rainfall effects appear to account for about 6% to 7% of the observed drawdown in the five monitors within 65 m of TW14, 10% to 16% of drawdown in other three monitors between 110 m and 132 m from the test well, and over 30% in MWB3-B about 360 m from the pumping well.

The two major rainfall events were about two days apart and generally comparable in terms of the total precipitation. However, the groundwater level increase due to the second rainfall (17 to 26 cm) were greater than the first rainfall (9 to 18 cm) likely attributed to unsaturated overburden soils and shallow fractured bedrock that absorbed infiltration water during the early part of the first rainfall event.

5. Estimated Aquifer Properties

5.1 Type of Pumped Aquifer

The overburden thickness ranges from about 1 m to 4 m across the site and up to 5 m to 6 m in a few localized areas. When considered as a single hydrostratigraphic unit, the dolostone of the Amabel Formation is unconfined at most monitoring locations across the site. Prior to the pumping test, static groundwater levels in shallow fractured bedrock were below the bedrock surface at 16 of the 19 monitoring locations within approximately 620 m of TW14; and higher than the bedrock surface in only three localized low lying swales. As a result, the unsaturated thickness of the upper bedrock ranges from about 1 m to 3 m and up to 5 m to 6 m in a few localized areas, across majority of the site.

During the pumping test, groundwater levels within 130 m of TW14 declined in all shallow, intermediate, and deep monitors; with drawdown ranging from a few to several meters below static levels. These responses reflect the fact that TW14 is open across the full thickness of the Amabel Formation.

The thick, unconfined bedrock aquifer shows predominantly horizontal flow with some vertical connection to varying degrees across the aquifer. The flow occurs through a sequence of discrete flow zones that vary in elevation and extent, and in some areas, are well connected. Due to the highly heterogeneous fracture system in the aquifer, deeper portions of the bedrock may be more or less confined or semi-confined in areas with poorer vertical connections. Within the deeper portions of the bedrock aquifer (acting as one single unit), the observed response, similar to that of a delayed yield in a typical overburden aquifer, may be due to double porosity conditions in the fractured bedrock. The initial response from double porosity features may be due to well-connected larger fractures/joints/voids, followed by contributions from numerous smaller fractures/fissures in the bulk of the rock mass.

5.2 Early Drawdown Data

As discussed in Section 3.3, the pretest rainfall effects represented a very small percentage (4% to 5%) of pumping effects from the step test in the five deep monitors located within 65 m of the pumping well (MW22-II-D, MWB23-II-C, MWB24-II-D, MWB26-II-D and TW15C). The water levels in these monitors generally stabilized approximately 9 hours before the start of the initial step test. It is reasonable to assume the amount of water level decline due to dissipation of rainfall effects was comparable to water level increases due to precipitation. Dissipation of the effects of rainfall are expected to occur slowly. Therefore, the effects of this pretest rainfall are considered to be insignificant on drawdown data from both the step test and first 22 hours of the constant rate test before the second major rainfall began. It is, therefore, reasonable to directly use the measured time-drawdown data from these five monitors during the first 22 hours of constant rate pumping (16:20, July 21 to 14:20, July 22) to reliably estimate aquifer properties without data correction for any pretest groundwater levels exhibiting a declining trend due to dissipation of the effects of the rainfall.

The software for aquifer testing AQTESOLV, Version 4.5, Professional was used for the test data analysis. As discussed in Section 5.1 above, though the aquifer as a whole hydrogeological unit is unconfined, the deep portions of this thick aquifer are interpreted to be consistent with confined or semiconfined conditions in areas with poor vertical connections due to the highly heterogeneous fracture flow system. Therefore, the analytical solution from Cooper and Jacob (1946) for confined conditions was used to analyze the early drawdown data during the constant rate test from the five deep monitors.

The composite early drawdown plots are shown in Plots D1 for the Cooper-Jacob method (Appendix D). The data curves on the plot from all of the five monitors show an apparent delayed-yield-like response suggesting possible double porosity features in the deep portions of the unconfined bedrock aquifer. As a result of the type curve matching using the analytical solution, the aquifer transmissivity (T) is estimated to be about 95 m^2/day based on the early drawdown data.

5.3 Early Recovery Data

Following the second rainfall, TW14 was continuously pumped for a dry period of 155 hours (6.5 days) before the test ended. Water levels in the pumping well near the end of the test appear to have represented pumping conditions under the constant pumping rate (10 L/sec). Changes in water levels at the five deep monitors closest to the pumping well are due primarily to pumping effects from the test well. It is therefore reasonable to assume the early recovery data from the five monitors over a period of about 21 hours between the end of the test at 12:10, July 29 and the start of the next small rainfall (7.9 mm in total) at 9:00, July 30, were generally free of rainfall effects, and can be reliably analyzed to estimate the aquifer properties.

The above Cooper and Jacob solution for drawdown data analysis was also used for the early recovery data analysis. The early recovery data, following the constant rate test from the five deep monitors, are plotted on one graph (composite plot) in Plot D2 (Appendix D). The results show the aquifer transmissivity is estimated to be about 112 m^2/day based on the early recovery data.

5.4 Distance-Drawdown Data

Significant well loss due to turbulent flow occurred in the pumping well during the constant rate test; therefore, the measured drawdown in the pumping well was likely much greater than the head loss in the aquifer in the immediate vicinity of the pumping well. The step test data from the pumping well were used to correct the measured drawdown for well loss in the test well in order to plot distance-drawdown data for estimating the aquifer transmissivity.

The hydrograph for the TW14 step test, presented in Plot C1 (Appendix C), shows that very significant well loss occurred during Step 3 at a pumping rate of 15 L/sec. As a result, a sustainable rate of 10 L/sec was selected and performed for the 8 day constant rate test. The specific drawdown (Sw/Q) versus pumping rate (Q) for the first two steps (5 L/sec and 10 L/sec) is plotted in Plot D5 (Appendix D). As shown in the plot, the total head loss for a pumping rate of 10 L/sec is estimated to be 13.12 m of which

the well loss is estimated to be 3.68 m with the balance of 9.44 m for the aquifer loss. From the aquifer loss and total head loss, the well efficiency for TW14 is derived to be about 72% under the pumping rate of 10 L/sec.

The distance versus drawdown data are plotted on Plot D6 (Appendix D) for all deep monitors listed in Table 3 that show significant responses to pumping. Assuming the well efficiency did not change with time, the drawdown values in the pumping well are corrected for well loss as shown in Plot D6. Using the formula shown in Plot D5 from a modification of the Cooper and Jacob straight-line method, the aquifer transmissivity is estimated to be about 113 m^2/day from the distance-drawdown data.

In summary, by using the above early drawdown, early recovery and distance-drawdown data from the deep monitors, the aquifer transmissivity is estimated to be in the order of about 90 to 110 m^2/day.

The range of T values derived from the TW14 pumping test data are generally consistent with the T value of approximately 90 m^2/day estimated from the borehole packer-pump testing at TW14, completed by Lotowater during the 2006/2007 drilling and borehole testing program (Figure 2d, Lotowater, 147-009, July 31, 2007).

6. Test Well Zone of Influence

As noted in Table 2, observed response to TW14 pumping extended to a distance of approximately 130 m from the test well in the shallow depth horizon, to approximately 350 m in the intermediate depth horizon and to a greater distance of approximately 620 m in the deep horizon at monitor MWB17-B. The increasing zones of influence observed from the shallow to deep horizons was likely due to decreasing rainfall effects and increasing pumping effects with depth in the aquifer, as discussed in Section 3.

As shown in Plot D7 (Appendix D), the pre-test rainfall and the rainfall during the test caused a groundwater level increase of about 27 cm and over 30 cm, respectively in deep monitor MWB17-B located about 620 m from TW14. Despite the observed rainfall effects at this distance away from TW14, a minor pumping effect on the order of about 10 cm of drawdown was observed in this monitor. The minor drawdown due to the step test and early constant rate test can be differentiated in the zoom-in hydrograph on Plot D8, Appendix D. This indicates that the zone of influence due to TW14 pumping may have extended slightly beyond 620 m.

The straight-line shown on the distance-drawdown plot (Plot D6 in Appendix D) for all deep monitors listed in Table 3 and installed in the deep horizon indicates that the drawdown cone due to pumping may have reached a distance of about 600 m from the test well, consistent with the observed minor drawdown effect at deep monitor MWB17-B located approximately 620 m from TW14.

7. Conclusions

Based on monitoring data from the pumping test and interpretations/discussions presented above, the following conclusions are derived:

a) The sustainable constant pumping rate at TW14 is about 10 L/sec and control of the pumping rate was maintained during the pumping test.

b) The close correspondence between groundwater levels monitored continuously with transducers and groundwater levels measured with manual water level probes confirms the groundwater level data are reliable.

c) Groundwater levels clearly responded to major rainfalls during the test to various degrees in all three depth horizons across the aquifer at the site. The response to rainfall in deeper horizons is likely the result of increased hydrostatic pressure due to infiltration of rainfall into the unconfined shallow bedrock.

d) In general, pumping effects decreased as the distance increased from the pumping well, and rainfall effects decreased as the depth of the monitoring wells increased. Compared to the greater drawdown due to pumping, rainfall effects were minor in the deep horizon of the aquifer in proximity to the pumping well.

e) The five deep monitors located within 65 m of the pumping well are identified to be most representative of the aquifer response to TW14 pumping due to insignificant rainfall effects compared to significant drawdown due to pumping observed at these deep monitors in close proximity of the test well.

f) After continuous pumping for a dry period of 6.5 days, water levels in the pumping well near the end of the test had represented pumping conditions under the constant pumping rate (10 L/sec). Changes in groundwater levels in the five deep monitors closest to the pumping well represent effects due to pumping with insignificant effects due to rainfall.

g) The early drawdown and early recovery data recorded before rainfall events from the five deep monitors as well as the corrected distance-drawdown data are identified to be suitable for data analysis to reliably estimate the aquifer properties.

h) By using the above identified monitoring data sets, the aquifer transmissivity is estimated in the order of 90 to 110 m^2/day, consistent with 90 m^2/day as determined from borehole TW14 during the 2007 field packer-pump testing program completed by Lotowater. Consistent estimates of transmissivity are obtained from the pumping and recovery portions of the test.

i) The zone of influence due to pumping well TW14 might have extended to a distance slightly beyond 620 m from the test well. The enlarging zones of influence observed from the shallow to deep horizons was likely due to decreasing rainfall effects and increasing pumping effects with depth in the aquifer.

j) The Phase 1 Pumping Test achieved all of its intended objectives: to characterize the properties of the aquifer in the vicinity of the testing program, in order to assess the feasibility of artificial groundwater recharge as a mitigation measure during the Phase 2 testing.

Appendix A

Pumping Volume/Rate During Constant Rate Test

AQUIFER TEST

Lotowater TECHNICAL SERVICES INC.

Well Name: TW14
Client: CBM St. Marys Cement
Technician Name: M.Oliver, D.Pettit
Water Level Device: Solinst Meter
Water Level Reference: Top of PVC = 0.16 m above top of casing
Test Note: Top of casing = 0.83 m above ground surface

Project Number: 147-013
Date: 08/07/21 to 08/07/29
Pump: 6DHHC-6 stage
Pump intake:
Flow Measurement: 4" propeller meter

Date	Time *hr:min*	Elapsed Time *min*	Level *mbtc*	Drawdown *m*	Flow *L/s*	Totalizer *m3*	Flow Variation *Down/Up*	Pressure *psi*	Notes
07/21/2008	16:20	0	8.67			9900.0			Weather: Sun/cloud
	16:21	1	13.02	4.35					
	16:22	2	13.27	4.60					
	16:23	3	13.64	4.97					
	16:24	4	15.50	6.83			Up		
	16:25	5	16.82	8.15					
	16:26	6	17.33	8.66				126	
	16:28	8	17.84	9.17	10.42	9905.0			
	16:30	10	18.36	9.69					
	16:32	12	18.69	10.02				122	
	16:35	15	19.05	10.38					
	16:40	20	19.49	10.82	9.03	9911.5			
	16:45	25	19.79	11.12	10.00	9914.5			
	16:50	30	20.12	11.45	11.67	9918.0			
	16:55	35	20.44	11.77	10.00	9921.0	Down		
	17:00	40	20.27	11.60	8.33	9923.5			
	17:05	45	20.29	11.62	9.33	9926.3			
	17:10	50	20.31	11.64	12.33	9930.0		121	
	17:20	60	20.38	11.71	9.00	9935.4	Up	120	
	17:35	75	20.80	12.13	10.67	9945.0		120	
	17:50	90	20.91	12.24	10.56	9954.5		"	
	18:05	105	20.98	12.31	8.78	9962.4		"	
	18:20	120	21.06	12.39	10.67	9972.0		"	
	18:50	150	21.17	12.50	9.44	9989.0		"	
	19:20	180	21.12	12.45	9.44	10006.0		"	
	19:50	210	21.14	12.47	10.28	10024.5		"	
	20:20	240	21.20	12.53	10.00	10042.5		"	Sampling tap flow rate: 1.4 L/min
	21:20	300	21.31	12.64	9.97	10078.4		121	Water level metre changed from 100m to 30m
	22:20	360	21.15	12.48	9.61	10113.0		"	
	23:20	420	21.17	12.50	9.81	10148.3		"	
07/22/2008	0:20	480	21.20	12.53	9.94	10184.1	Up	"	
	1:20	540	21.65	12.98	9.75	10219.2		120	b/t 0:40 &0:50 flow rate jumped to 10.8
	2:20	600	21.58	12.91	9.75	10254.3		"	
	3:20	660	21.54	12.87	10.28	10291.3		"	Weather: Overcast
	4:20	720	21.50	12.83	10.58	10329.4		121	
	5:20	780	21.83	13.16	9.14	10362.3		120	
	6:20	840	21.85	13.18	9.92	10398.0		"	
	7:20	900	21.84	13.17	10.00	10434.0		"	
	8:20	960	21.83	13.16	10.00	10470.0		"	
	9:20	1020	21.85	13.18	9.72	10505.0		"	
	10:20	1080	21.80	13.13	9.72	10540.0		"	
	11:20	1140	21.83	13.16	10.00	10576.0	Up	"	
	12:20	1200	22.26	13.59	9.86	10611.5		"	
	13:20	1260	22.25	13.58	9.86	10647.0		"	
	14:20	1320	22.24	13.57	9.86	10682.5		"	Rainstorm began @ 14:30, subsiding @ 15:05
	15:20	1380	22.26	13.59				"	Stopped @ 15:20
	16:20	1440	22.26	13.59	10.07	10755.0		"	
	17:20	1500	22.26	13.59	10.00	10791.0		"	
	18:20	1560	22.25	13.58	10.28	10828.0		"	
	19:20	1620	22.28	13.61	10.22	10864.8		"	
	20:20	1680	22.27	13.60	9.83	10900.2		"	Thunderstorm began @ 20:30
	21:20	1740	22.22	13.55	9.94	10936.0		"	
	22:20	1800	22.19	13.52	10.14	10972.5		"	
	23:20	1860	22.21	13.54	9.86	11008.0		"	Spitting rain @ 00:20
07/23/2008	0:20	1920	22.20	13.53	10.06	11044.2		"	Stopped @ 1:00
	1:20	1980	22.22	13.55	9.94	11080.0		"	
	2:20	2040	22.22	13.55	9.86	11115.5		"	
	3:20	2100	22.23	13.56	10.14	11152.0		"	
	4:20	2160	22.20	13.53	10.00	11188.0		"	
	5:20	2220	22.19	13.52	10.14	11224.5		"	
	6:20	2280	22.19	13.52	9.86	11260.0		"	
	7:20	2340	22.20	13.53	9.86	11295.5		"	
	8:20	2400	22.20	13.53	10.14	11332.0		"	Weather: Overcast
	9:20	2460	22.10	13.43	9.72	11367.0		"	
	10:20	2520	22.04	13.37	9.94	11402.8	Up	"	
	11:20	2580	22.38	13.71	10.00	11438.8		119	
	12:20	2640	22.38	13.71	10.17	11475.4		"	Light rain @ 13:00
	13:20	2700	22.41	13.74	9.89	11511.0		"	
	14:20	2760	22.41	13.74	10.00	11547.0		"	

AQUIFER TEST

Lotowater TECHNICAL SERVICES INC.

Well Name: TW14 **Project Number:** 147-013

Client: CBM St. Marys Cement **Date:** 08/07/21 to 08/07/29

Technician Name: M.Oliver, D.Pettit **Pump:** 6DHHC-6 stage

Water Level Device: Solinst Meter **Pump intake:**

Water Level Reference: Top of PVC = 0.16 m above top of casing **Flow Measurement:** 4" propeller meter

Test Note: Top of casing = 0.83 m above ground surface

Date	Time *hr:min*	Elapsed Time *min*	Level *mbtc*	Drawdown *m*	Flow *L/s*	Totalizer *m3*	Flow Variation *Down/Up*	Pressure *psi*	Notes
	15:20	2820	22.41	13.74	10.36	11584.3		"	
	16:20	2880	22.40	13.73	9.61	11618.9		"	
	17:20	2940	22.41	13.74	10.25	11655.8		"	
	18:20	3000	22.41	13.74	10.61	11694.0		"	
	19:20	3060	22.41	13.74	9.25	11727.3		"	
	20:20	3120	22.43	13.76	10.11	11763.7		"	
	21:20	3180	22.45	13.78	10.08	11800.0		"	
	22:20	3240	22.46	13.79	10.00	11836.0	Down	"	
	23:20	3300	22.23	13.56	10.03	11872.1		120	
07/24/2008	0:20	3360	22.21	13.54	9.81	11907.4		"	
	1:20	3420	22.20	13.53	9.97	11943.3		"	
	2:20	3480	22.18	13.51	9.78	11978.5	Up	"	
	3:20	3540	22.27	13.60	10.22	12015.3		"	
	4:20	3600	22.29	13.62	9.64	12050.0		"	
	5:20	3660	22.30	13.63	11.69	12092.1		"	Light rain @ 5:20
	6:20	3720	22.30	13.63	8.31	12122.0		"	
	7:20	3780	22.32	13.65	9.83	12157.4		"	
	8:20	3840	22.33	13.66	10.64	12195.7		"	Weather: Mix sun/cloud
	9:20	3900	22.32	13.65	9.75	12230.8		"	
	10:20	3960	22.30	13.63	9.25	12264.1		"	
	11:20	4020	22.30	13.63	10.17	12300.7		119	
	12:20	4080	22.30	13.63	9.81	12336.0	Up	"	
	13:20	4140	22.39	13.72	10.56	12374.0		"	
	14:20	4200	22.41	13.74	9.25	12407.3		"	Weather: Mainly sunny
	15:20	4260	22.41	13.74	10.06	12443.5		"	
	16:20	4320	22.41	13.74	9.58	12478.0		"	
	17:20	4380	22.42	13.75	10.42	12515.5		"	
	18:20	4440	22.42	13.75	9.83	12550.9		"	
	19:20	4500	22.43	13.76	10.03	12587.0		"	
	20:20	4560	22.45	13.78	9.50	12621.2		"	
	21:20	4620	22.46	13.79	10.36	12658.5		"	
	22:20	4680	22.47	13.80	9.78	12693.7		"	
	23:20	4740	22.48	13.81	9.92	12729.4		"	
07/25/2008	0:20	4800	22.49	13.82	9.89	12765.0		"	
	1:20	4860	22.50	13.83	10.17	12801.6		"	
	2:20	4920	22.54	13.87	9.97	12837.5		"	
	3:20	4980	22.55	13.88	10.00	12873.5		"	
	4:20	5040	22.56	13.89	9.86	12909.0		"	
	5:20	5100	22.56	13.89	10.08	12945.3		"	
	6:20	5160	22.55	13.88	9.92	12981.0		"	
	7:20	5220	22.58	13.91	10.00	13017.0		"	
	8:20	5280	22.58	13.91	10.11	13053.4		"	Weather: Sunny
	9:20	5340	22.57	13.90	9.83	13088.8		"	
	10:20	5400	22.59	13.92	9.83	13124.2		"	Sampling tap flow rate: 1.1 L/min
	11:20	5460	22.55	13.88	9.94	13160.0		"	
	12:20	5520	22.56	13.89	10.08	13196.3		"	
	13:20	5580	22.57	13.90	9.92	13232.0		"	
	14:20	5640	22.58	13.91	9.94	13267.8		"	
	15:20	5700	22.57	13.90	9.83	13303.2		"	
	16:20	5760	22.57	13.90	9.81	13338.5		"	
	17:20	5820	22.58	13.91	9.92	13374.2		"	
	18:20	5880	22.60	13.93	10.03	13410.3		"	
	19:20	5940	22.61	13.94	9.81	13445.6		"	
	20:20	6000	22.62	13.95	10.17	13482.2		"	
	21:20	6060	22.62	13.95	9.78	13517.4		"	
	22:20	6120	22.66	13.99	9.97	13553.3		"	
	23:20	6180	22.67	14.00	10.08	13589.6		"	
07/26/2008	0:20	6240	22.67	14.00	9.94	13625.4		"	
	1:20	6300	22.67	14.00	9.89	13661.0		"	
	2:20	6360	22.68	14.01	10.00	13697.0		"	
	3:20	6420	22.69	14.02	10.19	13733.7		"	
	4:20	6480	22.69	14.02	10.08	13770.0		"	
	5:20	6540	22.70	14.03	9.75	13805.1		"	
	6:20	6600	22.70	14.03	9.97	13841.0		"	
	7:20	6660	22.71	14.04	10.22	13877.8		"	Weather: Overcast
	8:20	6720	22.70	14.03	10.17	13914.4		"	
	9:20	6780	22.69	14.02	10.00	13950.4		"	
	10:20	6840	22.70	14.03	9.58	13984.9		"	
	11:20	6900	22.70	14.03	10.03	14021.0		"	

AQUIFER TEST

Lotowater TECHNICAL SERVICES INC.

Well Name: TW14 **Project Number:** 147-013

Client: CBM St. Marys Cement **Date:** 08/07/21 to 08/07/29

Technician Name: M.Oliver, D.Pettit **Pump:** 6DHHC-6 stage

Water Level Device: Solinst Meter **Pump intake:**

Water Level Reference: Top of PVC = 0.16 m above top of casing **Flow Measurement:** 4" propeller meter

Test Note: Top of casing = 0.83 m above ground surface

Date	Time *hr:min*	Elapsed Time *min*	Level *mbtc*	Drawdown *m*	Flow *L/s*	Totalizer *m3*	Flow Variation *Down/Up*	Pressure *psi*	Notes
	12:20	6960	22.70	14.03	9.86	14056.5		"	
	13:20	7020	22.69	14.02	9.75	14091.6		"	Weather: Sprinkling rain, thunder
	14:20	7080	22.70	14.03	9.81	14126.9		"	
	15:20	7140	22.70	14.03	10.06	14163.1		"	
	16:20	7200	22.70	14.03	9.81	14198.4		"	
	17:20	7260	22.71	14.04	10.31	14235.5		"	
	18:20	7320	22.70	14.03	9.67	14270.3		"	
	19:20	7380	22.71	14.04	9.92	14306.0		"	
	20:20	7440	22.72	14.05	10.14	14342.5		"	
	21:20	7500	22.76	14.09	9.75	14377.6		"	
	22:20	7560	22.76	14.09	9.97	14413.5		"	
	23:20	7620	22.77	14.10	9.94	14449.3		"	
07/27/2008	0:20	7680	22.77	14.10	9.92	14485.0		"	
	1:20	7740	22.78	14.11	10.22	14521.8		"	
	2:20	7800	22.78	14.11	9.81	14557.1		"	
	3:20	7860	22.79	14.12	9.78	14592.3		"	
	4:20	7920	22.80	14.13	10.08	14628.6		"	
	5:20	7980	22.80	14.13	10.03	14664.7		"	
	6:20	8040	22.80	14.13	9.81	14700.0		"	
	7:20	8100	22.80	14.13	10.28	14737.0		"	
	8:20	8160	22.81	14.14	9.69	14771.9		"	Weather: Mix sun/cloud
	9:20	8220	22.80	14.13	9.89	14807.5		"	
	10:20	8280	22.79	14.12	9.67	14842.3		"	
	11:20	8340	22.79	14.12	10.06	14878.5		"	Sampling tap flow rate: 0.7 L/min
	12:20	8400	22.79	14.12	9.97	14914.4		"	Sampling tap flow rate increased to 1.0 L/min
	13:20	8460	22.80	14.13	10.17	14951.0		"	@ 12:00
	14:20	8520	22.80	14.13	9.58	14985.5		"	
	15:20	8580	22.79	14.12	10.42	15023.0		"	
	16:20	8640	22.79	14.12	10.00	15059.0		"	
	17:20	8700	22.80	14.13	9.42	15092.9		"	
	18:20	8760	22.80	14.13	9.53	15127.2		"	
	19:20	8820	22.80	14.13	10.11	15163.6		"	
	20:20	8880	22.81	14.14	10.11	15200.0		"	Rain beginning at 20:45
	21:20	8940	22.82	14.15	9.78	15235.2		"	Tapering off by 21:00
	22:20	9000	22.83	14.16	9.94	15271.0		"	
	23:20	9060	22.84	14.17	10.14	15307.5		"	
07/28/2008	0:20	9120	22.85	14.18	9.72	15342.5		"	
	1:20	9180	22.86	14.19	9.89	15378.1		"	
	2:20	9240	22.86	14.19	9.97	15414.0		"	
	3:20	9300	22.86	14.19	9.83	15449.4		"	
	4:20	9360	22.88	14.21	9.94	15485.2		"	
	5:20	9420	22.88	14.21	9.94	15521.0		"	
	6:20	9480	22.88	14.21	9.78	15556.2		"	
	7:20	9540	22.88	14.21	9.92	15591.9		"	Weather: Sunny/ few clouds
	8:20	9600	22.88	14.21	10.25	15628.8		"	
	9:20	9660	22.88	14.21	9.50	15663.0	Up	"	
	10:20	9720	23.45	14.78	10.33	15700.2		"	
	11:20	9780	23.46	14.79	10.36	15737.5	Down	"	
	12:20	9840	23.06	14.39	9.36	15771.2	Up	"	
	13:20	9900	23.03	14.36	10.03	15807.3		"	
	14:20	9960	23.01	14.34	10.06	15843.5		"	
	15:20	10020	22.97	14.30	9.92	15879.2		"	
	16:20	10080	22.96	14.29	9.69	15914.1		"	
	17:20	10140	22.96	14.29	10.22	15950.9		"	
	18:20	10200	22.94	14.27	9.81	15986.2		"	
	19:20	10260	22.96	14.29	10.17	16022.8		"	
	20:20	10320	22.96	14.29	9.58	16057.3		"	
	21:20	10380	22.98	14.31	9.92	16093.0		"	
	22:20	10440	22.99	14.32	9.92	16128.7		"	
	23:20	10500	22.99	14.32	9.94	16164.5		"	
07/29/2008	0:20	10560	22.99	14.32	9.92	16200.2		"	
	1:20	10620	23.00	14.33	9.89	16235.8		"	
	2:20	10680	23.00	14.33	9.89	16271.4		"	
	3:20	10740	23.00	14.33	9.89	16307.0		"	
	4:20	10800	23.01	14.34	9.92	16342.7		"	
	5:20	10860	23.01	14.34	9.92	16378.4		"	
	6:20	10920	23.02	14.35	10.14	16414.9		"	
	7:20	10980	23.01	14.34	9.61	16449.5		"	

AQUIFER TEST

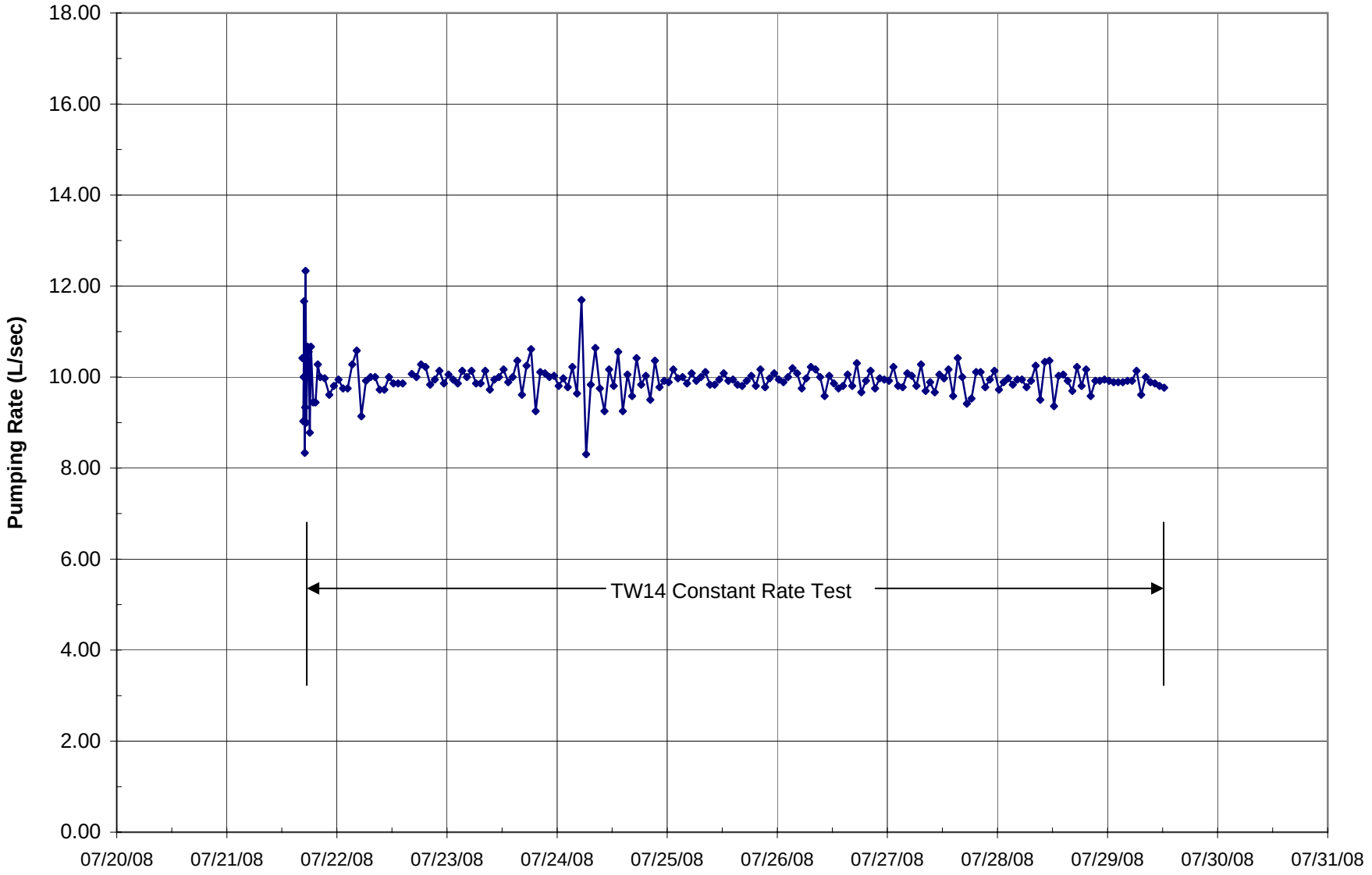
Lotowater TECHNICAL SERVICES INC.

Well Name: TW14
Client: CBM St. Marys Cement
Technician Name: M.Oliver, D.Pettit
Water Level Device: Solinst Meter
Water Level Reference: Top of PVC = 0.16 m above top of casing
Test Note: Top of casing = 0.83 m above ground surface

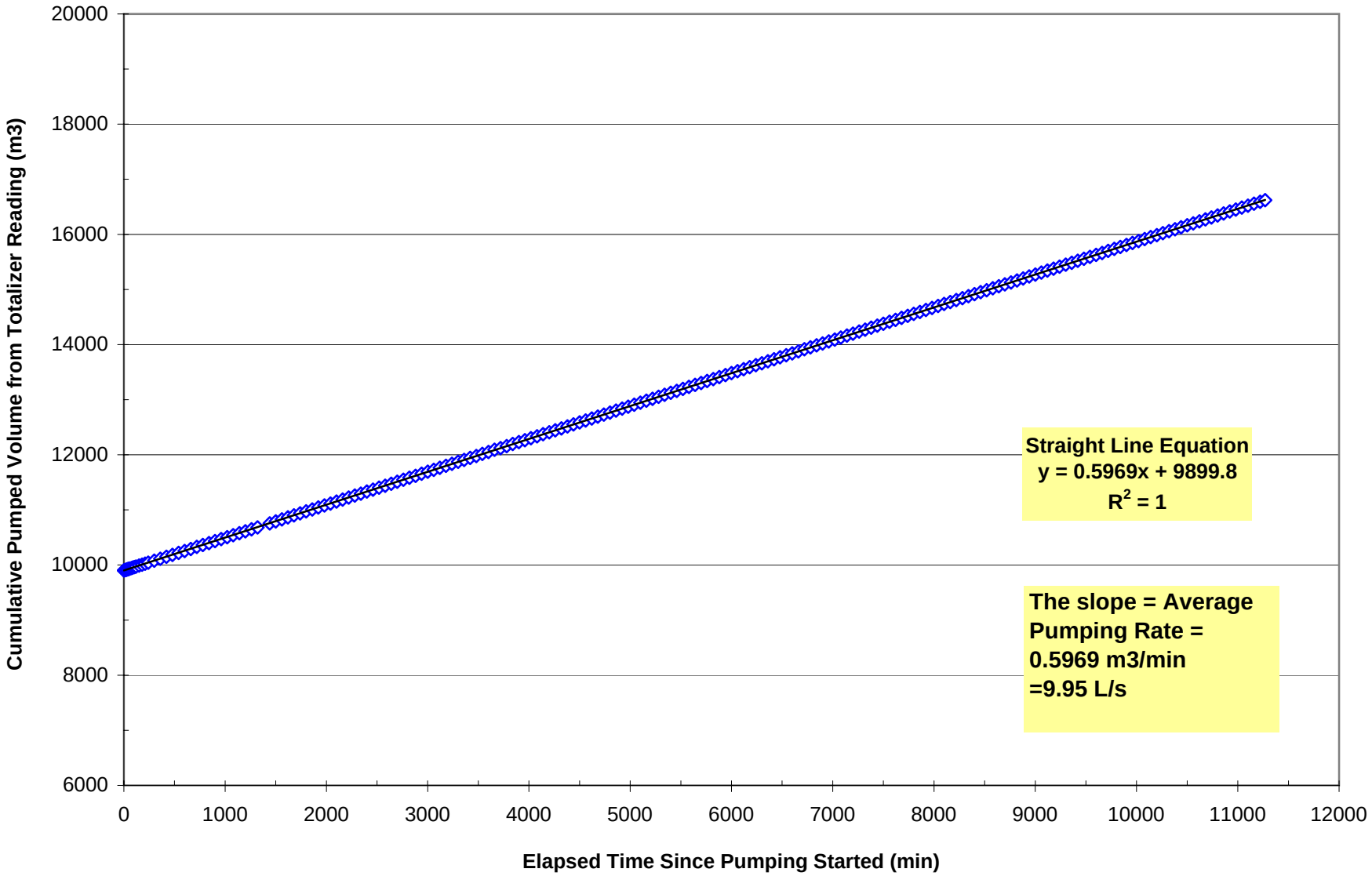
Project Number: 147-013
Date: 08/07/21 to 08/07/29
Pump: 6DHHC-6 stage
Pump intake:
Flow Measurement: 4" propeller meter

Date	Time *hr:min*	Elapsed Time *min*	Level *mbtc*	Drawdown *m*	Flow *L/s*	Totalizer *m3*	Flow Variation *Down/Up*	Pressure *psi*	Notes
	8:20	11040	23.01	14.34	10.00	16485.5	Up		Weather: Sunny
	9:20	11100	23.00	14.33	9.89	16521.1			
	10:20	11160	22.99	14.32	9.86	16556.6			
	11:20	11220	22.97	14.30	9.81	16591.9			
	12:10	11270	22.96	14.29	9.77	16621.2			Shut down, start recovery
	12:11	11271	15.20	6.53					Recovery
	12:12	11272	13.71	5.04					
	12:13	11273	13.63	4.96					
	12:14	11274	13.52	4.85					
	12:15	11275	13.40	4.73					
	12:16	11276	13.31	4.64					
	12:18	11278	13.18	4.51					
	12:20	11280	13.04	4.37					
	12:22	11282	12.85	4.18					
	12:25	11285	12.26	3.59					
	12:30	11290	11.92	3.25					
	12:35	11295	11.73	3.06					
	12:40	11300	11.60	2.93					
	12:45	11305	11.51	2.84					
	12:50	11310	11.43	2.76					
	12:55	11315	11.35	2.68					
	13:00	11320	11.29	2.62					
	13:10	11330	11.18	2.51					
	13:25	11345	11.07	2.40					
	13:40	11360	10.95	2.28					
	13:55	11375	10.85	2.18					
	14:10	11390	10.76	2.09					
	14:40	11420	10.63	1.96					

Plot A-1 Calculated Pumping Rates Over TW14 Constant Rate Pumping Test



Plot A2: Cumulative Pumped Volume vs Elapsed Time during Constant Rate Test



Appendix B

Onsite Hourly Precipitation Data

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
12-Jul-08	12:00 AM	0
12-Jul-08	1:00 AM	0
12-Jul-08	2:00 AM	0
12-Jul-08	3:00 AM	0
12-Jul-08	4:00 AM	0
12-Jul-08	5:00 AM	0
12-Jul-08	6:00 AM	0
12-Jul-08	7:00 AM	0
12-Jul-08	8:00 AM	0
12-Jul-08	9:00 AM	0
12-Jul-08	10:00 AM	0
12-Jul-08	11:00 AM	0
12-Jul-08	12:00 PM	0
12-Jul-08	1:00 PM	0
12-Jul-08	2:00 PM	0
12-Jul-08	3:00 PM	0
12-Jul-08	4:00 PM	0
12-Jul-08	5:00 PM	0
12-Jul-08	6:00 PM	0
12-Jul-08	7:00 PM	0
12-Jul-08	8:00 PM	0
12-Jul-08	9:00 PM	0
12-Jul-08	10:00 PM	0
12-Jul-08	11:00 PM	0
13-Jul-08	12:00 AM	0
13-Jul-08	1:00 AM	0
13-Jul-08	2:00 AM	0
13-Jul-08	3:00 AM	0
13-Jul-08	4:00 AM	0
13-Jul-08	5:00 AM	0
13-Jul-08	6:00 AM	0
13-Jul-08	7:00 AM	0
13-Jul-08	8:00 AM	0
13-Jul-08	9:00 AM	0
13-Jul-08	10:00 AM	0
13-Jul-08	11:00 AM	0
13-Jul-08	12:00 PM	0
13-Jul-08	1:00 PM	0
13-Jul-08	2:00 PM	0
13-Jul-08	3:00 PM	0
13-Jul-08	4:00 PM	0
13-Jul-08	5:00 PM	0
13-Jul-08	6:00 PM	0
13-Jul-08	7:00 PM	0
13-Jul-08	8:00 PM	0
13-Jul-08	9:00 PM	0
13-Jul-08	10:00 PM	0
13-Jul-08	11:00 PM	0
14-Jul-08	12:00 AM	0
14-Jul-08	1:00 AM	0
14-Jul-08	2:00 AM	0
14-Jul-08	3:00 AM	0
14-Jul-08	4:00 AM	0
14-Jul-08	5:00 AM	0
14-Jul-08	6:00 AM	0
14-Jul-08	7:00 AM	0
14-Jul-08	8:00 AM	0
14-Jul-08	9:00 AM	0
14-Jul-08	10:00 AM	0
14-Jul-08	11:00 AM	0
14-Jul-08	12:00 PM	0
14-Jul-08	1:00 PM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
14-Jul-08	2:00 PM	0
14-Jul-08	3:00 PM	0
14-Jul-08	4:00 PM	0
14-Jul-08	5:00 PM	0
14-Jul-08	6:00 PM	0
14-Jul-08	7:00 PM	0
14-Jul-08	8:00 PM	0
14-Jul-08	9:00 PM	0
14-Jul-08	10:00 PM	0
14-Jul-08	11:00 PM	0
15-Jul-08	12:00 AM	0
15-Jul-08	1:00 AM	0
15-Jul-08	2:00 AM	0
15-Jul-08	3:00 AM	0
15-Jul-08	4:00 AM	0
15-Jul-08	5:00 AM	0
15-Jul-08	6:00 AM	0
15-Jul-08	7:00 AM	0
15-Jul-08	8:00 AM	0
15-Jul-08	9:00 AM	0
15-Jul-08	10:00 AM	0
15-Jul-08	11:00 AM	0
15-Jul-08	12:00 PM	0
15-Jul-08	1:00 PM	0
15-Jul-08	2:00 PM	0
15-Jul-08	3:00 PM	0
15-Jul-08	4:00 PM	0
15-Jul-08	5:00 PM	0
15-Jul-08	6:00 PM	0
15-Jul-08	7:00 PM	0
15-Jul-08	8:00 PM	0
15-Jul-08	9:00 PM	0
15-Jul-08	10:00 PM	0
15-Jul-08	11:00 PM	0
16-Jul-08	12:00 AM	0
16-Jul-08	1:00 AM	0
16-Jul-08	2:00 AM	0
16-Jul-08	3:00 AM	0
16-Jul-08	4:00 AM	0
16-Jul-08	5:00 AM	0
16-Jul-08	6:00 AM	0
16-Jul-08	7:00 AM	0
16-Jul-08	8:00 AM	0
16-Jul-08	9:00 AM	0
16-Jul-08	10:00 AM	0
16-Jul-08	11:00 AM	0
16-Jul-08	12:00 PM	0
16-Jul-08	1:00 PM	0
16-Jul-08	2:00 PM	0
16-Jul-08	3:00 PM	0
16-Jul-08	4:00 PM	0
16-Jul-08	5:00 PM	0
16-Jul-08	6:00 PM	0
16-Jul-08	7:00 PM	0
16-Jul-08	8:00 PM	0
16-Jul-08	9:00 PM	0
16-Jul-08	10:00 PM	0
16-Jul-08	11:00 PM	0
17-Jul-08	12:00 AM	0
17-Jul-08	1:00 AM	0
17-Jul-08	2:00 AM	0
17-Jul-08	3:00 AM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
17-Jul-08	4:00 AM	0
17-Jul-08	5:00 AM	0
17-Jul-08	6:00 AM	0
17-Jul-08	7:00 AM	0
17-Jul-08	8:00 AM	0
17-Jul-08	9:00 AM	0
17-Jul-08	10:00 AM	0
17-Jul-08	11:00 AM	0
17-Jul-08	12:00 PM	0
17-Jul-08	1:00 PM	0
17-Jul-08	2:00 PM	0
17-Jul-08	3:00 PM	0
17-Jul-08	4:00 PM	0
17-Jul-08	5:00 PM	0
17-Jul-08	6:00 PM	0
17-Jul-08	7:00 PM	0
17-Jul-08	8:00 PM	0
17-Jul-08	9:00 PM	4.2
17-Jul-08	10:00 PM	0
17-Jul-08	11:00 PM	0
18-Jul-08	12:00 AM	0
18-Jul-08	1:00 AM	0
18-Jul-08	2:00 AM	0
18-Jul-08	3:00 AM	0
18-Jul-08	4:00 AM	0
18-Jul-08	5:00 AM	0
18-Jul-08	6:00 AM	0
18-Jul-08	7:00 AM	0
18-Jul-08	8:00 AM	0
18-Jul-08	9:00 AM	0
18-Jul-08	10:00 AM	0
18-Jul-08	11:00 AM	0
18-Jul-08	12:00 PM	0
18-Jul-08	1:00 PM	0
18-Jul-08	2:00 PM	0
18-Jul-08	3:00 PM	0
18-Jul-08	4:00 PM	0
18-Jul-08	5:00 PM	0
18-Jul-08	6:00 PM	0
18-Jul-08	7:00 PM	0
18-Jul-08	8:00 PM	0
18-Jul-08	9:00 PM	0
18-Jul-08	10:00 PM	0
18-Jul-08	11:00 PM	0
19-Jul-08	12:00 AM	0
19-Jul-08	1:00 AM	0
19-Jul-08	2:00 AM	0
19-Jul-08	3:00 AM	0
19-Jul-08	4:00 AM	0
19-Jul-08	5:00 AM	0
19-Jul-08	6:00 AM	0.2
19-Jul-08	7:00 AM	0
19-Jul-08	8:00 AM	0
19-Jul-08	9:00 AM	0
19-Jul-08	10:00 AM	0.4
19-Jul-08	11:00 AM	0
19-Jul-08	12:00 PM	0
19-Jul-08	1:00 PM	0
19-Jul-08	2:00 PM	3
19-Jul-08	3:00 PM	0
19-Jul-08	4:00 PM	0
19-Jul-08	5:00 PM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
19-Jul-08	6:00 PM	1
19-Jul-08	7:00 PM	0
19-Jul-08	8:00 PM	0
19-Jul-08	9:00 PM	0
19-Jul-08	10:00 PM	0
19-Jul-08	11:00 PM	0
20-Jul-08	12:00 AM	0.4
20-Jul-08	1:00 AM	1.4
20-Jul-08	2:00 AM	1.8
20-Jul-08	3:00 AM	13.8
20-Jul-08	4:00 AM	1.2
20-Jul-08	5:00 AM	1.6
20-Jul-08	6:00 AM	7
20-Jul-08	7:00 AM	8
20-Jul-08	8:00 AM	1
20-Jul-08	9:00 AM	2
20-Jul-08	10:00 AM	4.2
20-Jul-08	11:00 AM	0.6
20-Jul-08	12:00 PM	0.2
20-Jul-08	1:00 PM	0
20-Jul-08	2:00 PM	2.8
20-Jul-08	3:00 PM	0.4
20-Jul-08	4:00 PM	0
20-Jul-08	5:00 PM	0
20-Jul-08	6:00 PM	1.2
20-Jul-08	7:00 PM	0.8
20-Jul-08	8:00 PM	0
20-Jul-08	9:00 PM	0
20-Jul-08	10:00 PM	0
20-Jul-08	11:00 PM	0.2
21-Jul-08	12:00 AM	0
21-Jul-08	1:00 AM	0
21-Jul-08	2:00 AM	0
21-Jul-08	3:00 AM	0
21-Jul-08	4:00 AM	0
21-Jul-08	5:00 AM	0
21-Jul-08	6:00 AM	0
21-Jul-08	7:00 AM	0
21-Jul-08	8:00 AM	0
21-Jul-08	9:00 AM	0
21-Jul-08	10:00 AM	0
21-Jul-08	11:00 AM	0
21-Jul-08	12:00 PM	0
21-Jul-08	1:00 PM	0
21-Jul-08	2:00 PM	0.4
21-Jul-08	3:00 PM	0.2
21-Jul-08	4:00 PM	0
21-Jul-08	5:00 PM	0
21-Jul-08	6:00 PM	0
21-Jul-08	7:00 PM	0
21-Jul-08	8:00 PM	0
21-Jul-08	9:00 PM	0
21-Jul-08	10:00 PM	0
21-Jul-08	11:00 PM	0
22-Jul-08	12:00 AM	0
22-Jul-08	1:00 AM	0
22-Jul-08	2:00 AM	0
22-Jul-08	3:00 AM	0
22-Jul-08	4:00 AM	0.6
22-Jul-08	5:00 AM	0
22-Jul-08	6:00 AM	0
22-Jul-08	7:00 AM	0.2

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
22-Jul-08	8:00 AM	0
22-Jul-08	9:00 AM	0
22-Jul-08	10:00 AM	0.2
22-Jul-08	11:00 AM	0
22-Jul-08	12:00 PM	0
22-Jul-08	1:00 PM	0
22-Jul-08	2:00 PM	0
22-Jul-08	3:00 PM	23.4
22-Jul-08	4:00 PM	2.8
22-Jul-08	5:00 PM	0
22-Jul-08	6:00 PM	0
22-Jul-08	7:00 PM	0
22-Jul-08	8:00 PM	0
22-Jul-08	9:00 PM	1.2
22-Jul-08	10:00 PM	9
22-Jul-08	11:00 PM	2.4
23-Jul-08	12:00 AM	3.8
23-Jul-08	1:00 AM	0.6
23-Jul-08	2:00 AM	0
23-Jul-08	3:00 AM	0
23-Jul-08	4:00 AM	0
23-Jul-08	5:00 AM	0
23-Jul-08	6:00 AM	0
23-Jul-08	7:00 AM	0
23-Jul-08	8:00 AM	0
23-Jul-08	9:00 AM	0
23-Jul-08	10:00 AM	0
23-Jul-08	11:00 AM	0
23-Jul-08	12:00 PM	0
23-Jul-08	1:00 PM	0
23-Jul-08	2:00 PM	0.8
23-Jul-08	3:00 PM	0
23-Jul-08	4:00 PM	0
23-Jul-08	5:00 PM	0
23-Jul-08	6:00 PM	0
23-Jul-08	7:00 PM	0
23-Jul-08	8:00 PM	0
23-Jul-08	9:00 PM	0
23-Jul-08	10:00 PM	0
23-Jul-08	11:00 PM	0
24-Jul-08	12:00 AM	0
24-Jul-08	1:00 AM	0
24-Jul-08	2:00 AM	0
24-Jul-08	3:00 AM	0
24-Jul-08	4:00 AM	0
24-Jul-08	5:00 AM	0
24-Jul-08	6:00 AM	0
24-Jul-08	7:00 AM	0.2
24-Jul-08	8:00 AM	0
24-Jul-08	9:00 AM	0
24-Jul-08	10:00 AM	0
24-Jul-08	11:00 AM	0
24-Jul-08	12:00 PM	0
24-Jul-08	1:00 PM	0
24-Jul-08	2:00 PM	0
24-Jul-08	3:00 PM	0
24-Jul-08	4:00 PM	0
24-Jul-08	5:00 PM	0
24-Jul-08	6:00 PM	0
24-Jul-08	7:00 PM	0
24-Jul-08	8:00 PM	0
24-Jul-08	9:00 PM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
24-Jul-08	10:00 PM	0
24-Jul-08	11:00 PM	0
25-Jul-08	12:00 AM	0
25-Jul-08	1:00 AM	0
25-Jul-08	2:00 AM	0
25-Jul-08	3:00 AM	0
25-Jul-08	4:00 AM	0
25-Jul-08	5:00 AM	0
25-Jul-08	6:00 AM	0
25-Jul-08	7:00 AM	0
25-Jul-08	8:00 AM	0
25-Jul-08	9:00 AM	0
25-Jul-08	10:00 AM	0
25-Jul-08	11:00 AM	0
25-Jul-08	12:00 PM	0
25-Jul-08	1:00 PM	0
25-Jul-08	2:00 PM	0
25-Jul-08	3:00 PM	0
25-Jul-08	4:00 PM	0
25-Jul-08	5:00 PM	0
25-Jul-08	6:00 PM	0
25-Jul-08	7:00 PM	0
25-Jul-08	8:00 PM	0
25-Jul-08	9:00 PM	0
25-Jul-08	10:00 PM	0
25-Jul-08	11:00 PM	0
26-Jul-08	12:00 AM	0
26-Jul-08	1:00 AM	0
26-Jul-08	2:00 AM	0
26-Jul-08	3:00 AM	0
26-Jul-08	4:00 AM	0
26-Jul-08	5:00 AM	0
26-Jul-08	6:00 AM	0
26-Jul-08	7:00 AM	0
26-Jul-08	8:00 AM	0
26-Jul-08	9:00 AM	0
26-Jul-08	10:00 AM	0.4
26-Jul-08	11:00 AM	0
26-Jul-08	12:00 PM	0
26-Jul-08	1:00 PM	0
26-Jul-08	2:00 PM	0
26-Jul-08	3:00 PM	0
26-Jul-08	4:00 PM	0
26-Jul-08	5:00 PM	0
26-Jul-08	6:00 PM	0
26-Jul-08	7:00 PM	0
26-Jul-08	8:00 PM	0
26-Jul-08	9:00 PM	0
26-Jul-08	10:00 PM	0
26-Jul-08	11:00 PM	0
27-Jul-08	12:00 AM	0
27-Jul-08	1:00 AM	0
27-Jul-08	2:00 AM	0
27-Jul-08	3:00 AM	0
27-Jul-08	4:00 AM	0
27-Jul-08	5:00 AM	0
27-Jul-08	6:00 AM	0
27-Jul-08	7:00 AM	0
27-Jul-08	8:00 AM	0
27-Jul-08	9:00 AM	0
27-Jul-08	10:00 AM	0
27-Jul-08	11:00 AM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
27-Jul-08	12:00 PM	0
27-Jul-08	1:00 PM	0
27-Jul-08	2:00 PM	0
27-Jul-08	3:00 PM	0
27-Jul-08	4:00 PM	0
27-Jul-08	5:00 PM	0
27-Jul-08	6:00 PM	0
27-Jul-08	7:00 PM	0
27-Jul-08	8:00 PM	0
27-Jul-08	9:00 PM	0.6
27-Jul-08	10:00 PM	0.2
27-Jul-08	11:00 PM	0
28-Jul-08	12:00 AM	0
28-Jul-08	1:00 AM	0
28-Jul-08	2:00 AM	0
28-Jul-08	3:00 AM	0
28-Jul-08	4:00 AM	0
28-Jul-08	5:00 AM	0
28-Jul-08	6:00 AM	0
28-Jul-08	7:00 AM	0
28-Jul-08	8:00 AM	0
28-Jul-08	9:00 AM	0
28-Jul-08	10:00 AM	0
28-Jul-08	11:00 AM	0
28-Jul-08	12:00 PM	0
28-Jul-08	1:00 PM	0
28-Jul-08	2:00 PM	0
28-Jul-08	3:00 PM	0
28-Jul-08	4:00 PM	0
28-Jul-08	5:00 PM	0
28-Jul-08	6:00 PM	0
28-Jul-08	7:00 PM	0
28-Jul-08	8:00 PM	0
28-Jul-08	9:00 PM	0
28-Jul-08	10:00 PM	0
28-Jul-08	11:00 PM	0
29-Jul-08	12:00 AM	0
29-Jul-08	1:00 AM	0
29-Jul-08	2:00 AM	0
29-Jul-08	3:00 AM	0
29-Jul-08	4:00 AM	0
29-Jul-08	5:00 AM	0
29-Jul-08	6:00 AM	0
29-Jul-08	7:00 AM	0
29-Jul-08	8:00 AM	0
29-Jul-08	9:00 AM	0
29-Jul-08	10:00 AM	0
29-Jul-08	11:00 AM	0
29-Jul-08	12:00 PM	0
29-Jul-08	1:00 PM	0
29-Jul-08	2:00 PM	0
29-Jul-08	3:00 PM	0
29-Jul-08	4:00 PM	0
29-Jul-08	5:00 PM	0
29-Jul-08	6:00 PM	0
29-Jul-08	7:00 PM	0
29-Jul-08	8:00 PM	0
29-Jul-08	9:00 PM	0
29-Jul-08	10:00 PM	0
29-Jul-08	11:00 PM	0
30-Jul-08	12:00 AM	0
30-Jul-08	1:00 AM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
30-Jul-08	2:00 AM	0
30-Jul-08	3:00 AM	0
30-Jul-08	4:00 AM	0
30-Jul-08	5:00 AM	0
30-Jul-08	6:00 AM	0
30-Jul-08	7:00 AM	0
30-Jul-08	8:00 AM	0
30-Jul-08	9:00 AM	0
30-Jul-08	10:00 AM	4.4
30-Jul-08	11:00 AM	1.7
30-Jul-08	12:00 PM	0
30-Jul-08	1:00 PM	0
30-Jul-08	2:00 PM	0
30-Jul-08	3:00 PM	0
30-Jul-08	4:00 PM	0
30-Jul-08	5:00 PM	0
30-Jul-08	6:00 PM	0
30-Jul-08	7:00 PM	0
30-Jul-08	8:00 PM	0.8
30-Jul-08	9:00 PM	1
30-Jul-08	10:00 PM	0
30-Jul-08	11:00 PM	0
31-Jul-08	12:00 AM	0
31-Jul-08	1:00 AM	0
31-Jul-08	2:00 AM	0
31-Jul-08	3:00 AM	0
31-Jul-08	4:00 AM	0
31-Jul-08	5:00 AM	0
31-Jul-08	6:00 AM	0
31-Jul-08	7:00 AM	0
31-Jul-08	8:00 AM	0
31-Jul-08	9:00 AM	0
31-Jul-08	10:00 AM	0
31-Jul-08	11:00 AM	0
31-Jul-08	12:00 PM	0
31-Jul-08	1:00 PM	0
31-Jul-08	2:00 PM	0.2
31-Jul-08	3:00 PM	0
31-Jul-08	4:00 PM	0
31-Jul-08	5:00 PM	0
31-Jul-08	6:00 PM	0
31-Jul-08	7:00 PM	0
31-Jul-08	8:00 PM	0
31-Jul-08	9:00 PM	0
31-Jul-08	10:00 PM	0
31-Jul-08	11:00 PM	0
1-Aug-08	12:00 AM	0
1-Aug-08	1:00 AM	0
1-Aug-08	2:00 AM	0
1-Aug-08	3:00 AM	0
1-Aug-08	4:00 AM	0
1-Aug-08	5:00 AM	0
1-Aug-08	6:00 AM	0
1-Aug-08	7:00 AM	0
1-Aug-08	8:00 AM	0
1-Aug-08	9:00 AM	0
1-Aug-08	10:00 AM	0
1-Aug-08	11:00 AM	0
1-Aug-08	12:00 PM	0
1-Aug-08	1:00 PM	0.4
1-Aug-08	2:00 PM	0
1-Aug-08	3:00 PM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
1-Aug-08	4:00 PM	0
1-Aug-08	5:00 PM	0
1-Aug-08	6:00 PM	0
1-Aug-08	7:00 PM	0
1-Aug-08	8:00 PM	0
1-Aug-08	9:00 PM	0
1-Aug-08	10:00 PM	0
1-Aug-08	11:00 PM	0
2-Aug-08	12:00 AM	0
2-Aug-08	1:00 AM	0
2-Aug-08	2:00 AM	0
2-Aug-08	3:00 AM	0
2-Aug-08	4:00 AM	0
2-Aug-08	5:00 AM	0.4
2-Aug-08	6:00 AM	0
2-Aug-08	7:00 AM	0
2-Aug-08	8:00 AM	0
2-Aug-08	9:00 AM	0
2-Aug-08	10:00 AM	0
2-Aug-08	11:00 AM	0
2-Aug-08	12:00 PM	0
2-Aug-08	1:00 PM	0
2-Aug-08	2:00 PM	0.2
2-Aug-08	3:00 PM	0.2
2-Aug-08	4:00 PM	0
2-Aug-08	5:00 PM	0
2-Aug-08	6:00 PM	0
2-Aug-08	7:00 PM	0.2
2-Aug-08	8:00 PM	0
2-Aug-08	9:00 PM	0
2-Aug-08	10:00 PM	0
2-Aug-08	11:00 PM	0
3-Aug-08	12:00 AM	0
3-Aug-08	1:00 AM	0
3-Aug-08	2:00 AM	0
3-Aug-08	3:00 AM	0
3-Aug-08	4:00 AM	0
3-Aug-08	5:00 AM	0
3-Aug-08	6:00 AM	0
3-Aug-08	7:00 AM	0
3-Aug-08	8:00 AM	0
3-Aug-08	9:00 AM	0
3-Aug-08	10:00 AM	0
3-Aug-08	11:00 AM	0
3-Aug-08	12:00 PM	0
3-Aug-08	1:00 PM	0
3-Aug-08	2:00 PM	0
3-Aug-08	3:00 PM	0
3-Aug-08	4:00 PM	0
3-Aug-08	5:00 PM	0
3-Aug-08	6:00 PM	0
3-Aug-08	7:00 PM	0
3-Aug-08	8:00 PM	0
3-Aug-08	9:00 PM	0
3-Aug-08	10:00 PM	0
3-Aug-08	11:00 PM	0
4-Aug-08	12:00 AM	0
4-Aug-08	1:00 AM	0
4-Aug-08	2:00 AM	0
4-Aug-08	3:00 AM	0
4-Aug-08	4:00 AM	0
4-Aug-08	5:00 AM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
4-Aug-08	6:00 AM	0
4-Aug-08	7:00 AM	0
4-Aug-08	8:00 AM	0
4-Aug-08	9:00 AM	0
4-Aug-08	10:00 AM	0
4-Aug-08	11:00 AM	0
4-Aug-08	12:00 PM	0
4-Aug-08	1:00 PM	0
4-Aug-08	2:00 PM	0
4-Aug-08	3:00 PM	0
4-Aug-08	4:00 PM	0
4-Aug-08	5:00 PM	0
4-Aug-08	6:00 PM	0
4-Aug-08	7:00 PM	0
4-Aug-08	8:00 PM	0
4-Aug-08	9:00 PM	0
4-Aug-08	10:00 PM	0
4-Aug-08	11:00 PM	0
5-Aug-08	12:00 AM	0
5-Aug-08	1:00 AM	0
5-Aug-08	2:00 AM	0
5-Aug-08	3:00 AM	0
5-Aug-08	4:00 AM	0
5-Aug-08	5:00 AM	0
5-Aug-08	6:00 AM	0
5-Aug-08	7:00 AM	0
5-Aug-08	8:00 AM	0
5-Aug-08	9:00 AM	0
5-Aug-08	10:00 AM	0
5-Aug-08	11:00 AM	0.8
5-Aug-08	12:00 PM	0
5-Aug-08	1:00 PM	0
5-Aug-08	2:00 PM	0
5-Aug-08	3:00 PM	0
5-Aug-08	4:00 PM	0
5-Aug-08	5:00 PM	4
5-Aug-08	6:00 PM	4.6
5-Aug-08	7:00 PM	13.4
5-Aug-08	8:00 PM	6.8
5-Aug-08	9:00 PM	0.6
5-Aug-08	10:00 PM	0
5-Aug-08	11:00 PM	0.2
6-Aug-08	12:00 AM	0
6-Aug-08	1:00 AM	0
6-Aug-08	2:00 AM	0
6-Aug-08	3:00 AM	0
6-Aug-08	4:00 AM	0
6-Aug-08	5:00 AM	0
6-Aug-08	6:00 AM	0
6-Aug-08	7:00 AM	0
6-Aug-08	8:00 AM	0
6-Aug-08	9:00 AM	0
6-Aug-08	10:00 AM	0
6-Aug-08	11:00 AM	0
6-Aug-08	12:00 PM	0
6-Aug-08	1:00 PM	0
6-Aug-08	2:00 PM	0.2
6-Aug-08	3:00 PM	0
6-Aug-08	4:00 PM	0
6-Aug-08	5:00 PM	0
6-Aug-08	6:00 PM	0
6-Aug-08	7:00 PM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
6-Aug-08	8:00 PM	0
6-Aug-08	9:00 PM	0
6-Aug-08	10:00 PM	0
6-Aug-08	11:00 PM	0
7-Aug-08	12:00 AM	0
7-Aug-08	1:00 AM	0
7-Aug-08	2:00 AM	0
7-Aug-08	3:00 AM	0
7-Aug-08	4:00 AM	3
7-Aug-08	5:00 AM	1
7-Aug-08	6:00 AM	0.6
7-Aug-08	7:00 AM	0.2
7-Aug-08	8:00 AM	4
7-Aug-08	9:00 AM	0
7-Aug-08	10:00 AM	1.4
7-Aug-08	11:00 AM	0.2
7-Aug-08	12:00 PM	0
7-Aug-08	1:00 PM	0
7-Aug-08	2:00 PM	0
7-Aug-08	3:00 PM	0.2
7-Aug-08	4:00 PM	0
7-Aug-08	5:00 PM	0
7-Aug-08	6:00 PM	0
7-Aug-08	7:00 PM	0
7-Aug-08	8:00 PM	0.2
7-Aug-08	9:00 PM	0.6
7-Aug-08	10:00 PM	0
7-Aug-08	11:00 PM	0
8-Aug-08	12:00 AM	0
8-Aug-08	1:00 AM	0
8-Aug-08	2:00 AM	0
8-Aug-08	3:00 AM	0
8-Aug-08	4:00 AM	0
8-Aug-08	5:00 AM	0
8-Aug-08	6:00 AM	0
8-Aug-08	7:00 AM	0.2
8-Aug-08	8:00 AM	1
8-Aug-08	9:00 AM	1.6
8-Aug-08	10:00 AM	0.8
8-Aug-08	11:00 AM	0
8-Aug-08	12:00 PM	0
8-Aug-08	1:00 PM	0
8-Aug-08	2:00 PM	0
8-Aug-08	3:00 PM	1.4
8-Aug-08	4:00 PM	0.4
8-Aug-08	5:00 PM	0
8-Aug-08	6:00 PM	0
8-Aug-08	7:00 PM	0
8-Aug-08	8:00 PM	0
8-Aug-08	9:00 PM	0
8-Aug-08	10:00 PM	0
8-Aug-08	11:00 PM	0
9-Aug-08	12:00 AM	0
9-Aug-08	1:00 AM	0
9-Aug-08	2:00 AM	0
9-Aug-08	3:00 AM	0
9-Aug-08	4:00 AM	0
9-Aug-08	5:00 AM	0
9-Aug-08	6:00 AM	0
9-Aug-08	7:00 AM	0
9-Aug-08	8:00 AM	0
9-Aug-08	9:00 AM	0

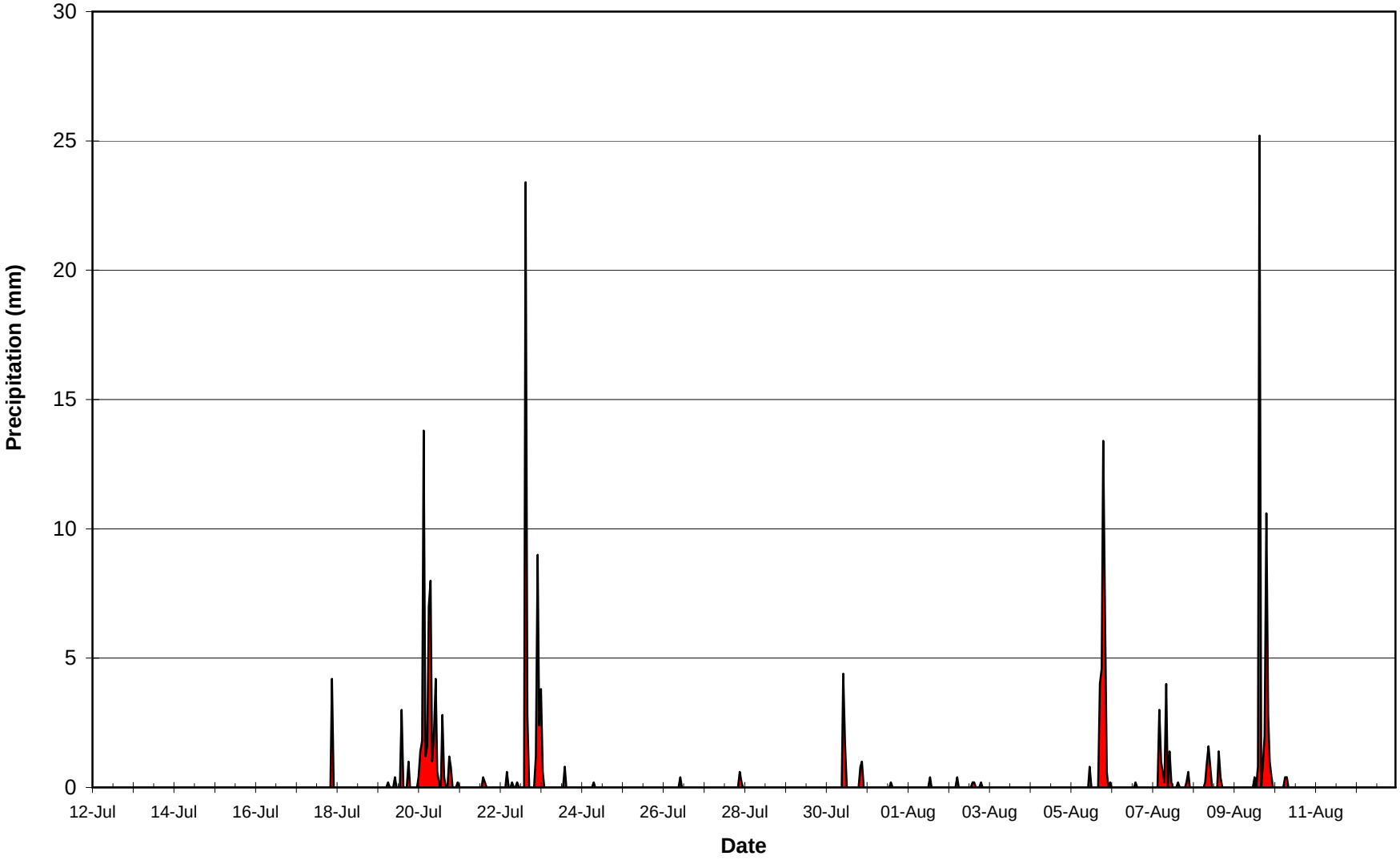
Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
9-Aug-08	10:00 AM	0
9-Aug-08	11:00 AM	0
9-Aug-08	12:00 PM	0.4
9-Aug-08	1:00 PM	0
9-Aug-08	2:00 PM	0.8
9-Aug-08	3:00 PM	25.2
9-Aug-08	4:00 PM	0
9-Aug-08	5:00 PM	1
9-Aug-08	6:00 PM	2
9-Aug-08	7:00 PM	10.6
9-Aug-08	8:00 PM	2.8
9-Aug-08	9:00 PM	1
9-Aug-08	10:00 PM	0.4
9-Aug-08	11:00 PM	0
10-Aug-08	12:00 AM	0
10-Aug-08	1:00 AM	0
10-Aug-08	2:00 AM	0
10-Aug-08	3:00 AM	0
10-Aug-08	4:00 AM	0
10-Aug-08	5:00 AM	0
10-Aug-08	6:00 AM	0.4
10-Aug-08	7:00 AM	0.4
10-Aug-08	8:00 AM	0
10-Aug-08	9:00 AM	0
10-Aug-08	10:00 AM	0
10-Aug-08	11:00 AM	0
10-Aug-08	12:00 PM	0
10-Aug-08	1:00 PM	0
10-Aug-08	2:00 PM	0
10-Aug-08	3:00 PM	0
10-Aug-08	4:00 PM	0
10-Aug-08	5:00 PM	0
10-Aug-08	6:00 PM	0
10-Aug-08	7:00 PM	0
10-Aug-08	8:00 PM	0
10-Aug-08	9:00 PM	0
10-Aug-08	10:00 PM	0
10-Aug-08	11:00 PM	0
11-Aug-08	12:00 AM	0
11-Aug-08	1:00 AM	0
11-Aug-08	2:00 AM	0
11-Aug-08	3:00 AM	0
11-Aug-08	4:00 AM	0
11-Aug-08	5:00 AM	0
11-Aug-08	6:00 AM	0
11-Aug-08	7:00 AM	0
11-Aug-08	8:00 AM	0
11-Aug-08	9:00 AM	0
11-Aug-08	10:00 AM	0
11-Aug-08	11:00 AM	0
11-Aug-08	12:00 PM	0
11-Aug-08	1:00 PM	0
11-Aug-08	2:00 PM	0
11-Aug-08	3:00 PM	0
11-Aug-08	4:00 PM	0
11-Aug-08	5:00 PM	0
11-Aug-08	6:00 PM	0
11-Aug-08	7:00 PM	0
11-Aug-08	8:00 PM	0
11-Aug-08	9:00 PM	0
11-Aug-08	10:00 PM	0
11-Aug-08	11:00 PM	0

Table B1: Hourly Precipitation - July 12 to August 12, 2008
Recorded by Onsite Hydrology Services Model TB-3 Rain Gauge

Date	Time	Hourly Precipitation mm
Note: precipitation at 3:00 am reflects rainfall recorded between 2:00 and 3:00 am		
12-Aug-08	12:00 AM	0
12-Aug-08	1:00 AM	0
12-Aug-08	2:00 AM	0
12-Aug-08	3:00 AM	0
12-Aug-08	4:00 AM	0
12-Aug-08	5:00 AM	0
12-Aug-08	6:00 AM	0
12-Aug-08	7:00 AM	0
12-Aug-08	8:00 AM	0
12-Aug-08	9:00 AM	0
12-Aug-08	10:00 AM	0
12-Aug-08	11:00 AM	0
12-Aug-08	12:00 PM	0
12-Aug-08	1:00 PM	0
12-Aug-08	2:00 PM	0
12-Aug-08	3:00 PM	0
12-Aug-08	4:00 PM	0
12-Aug-08	5:00 PM	0
12-Aug-08	6:00 PM	0
12-Aug-08	7:00 PM	0
12-Aug-08	8:00 PM	0
12-Aug-08	9:00 PM	0
12-Aug-08	10:00 PM	0
12-Aug-08	11:00 PM	0

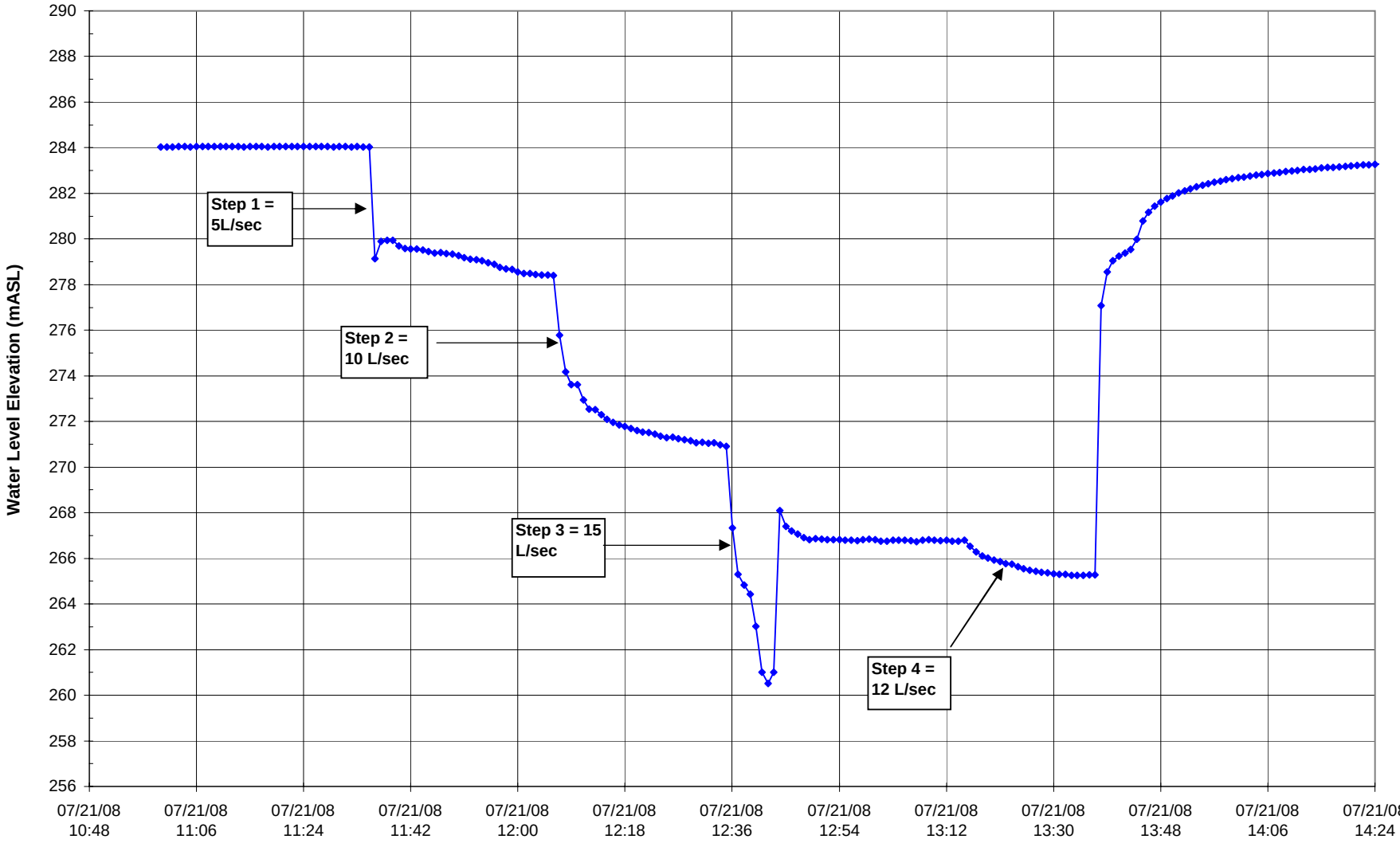
Plot B1: On-site Hourly Precipitation - July 12 to August 12, 2008



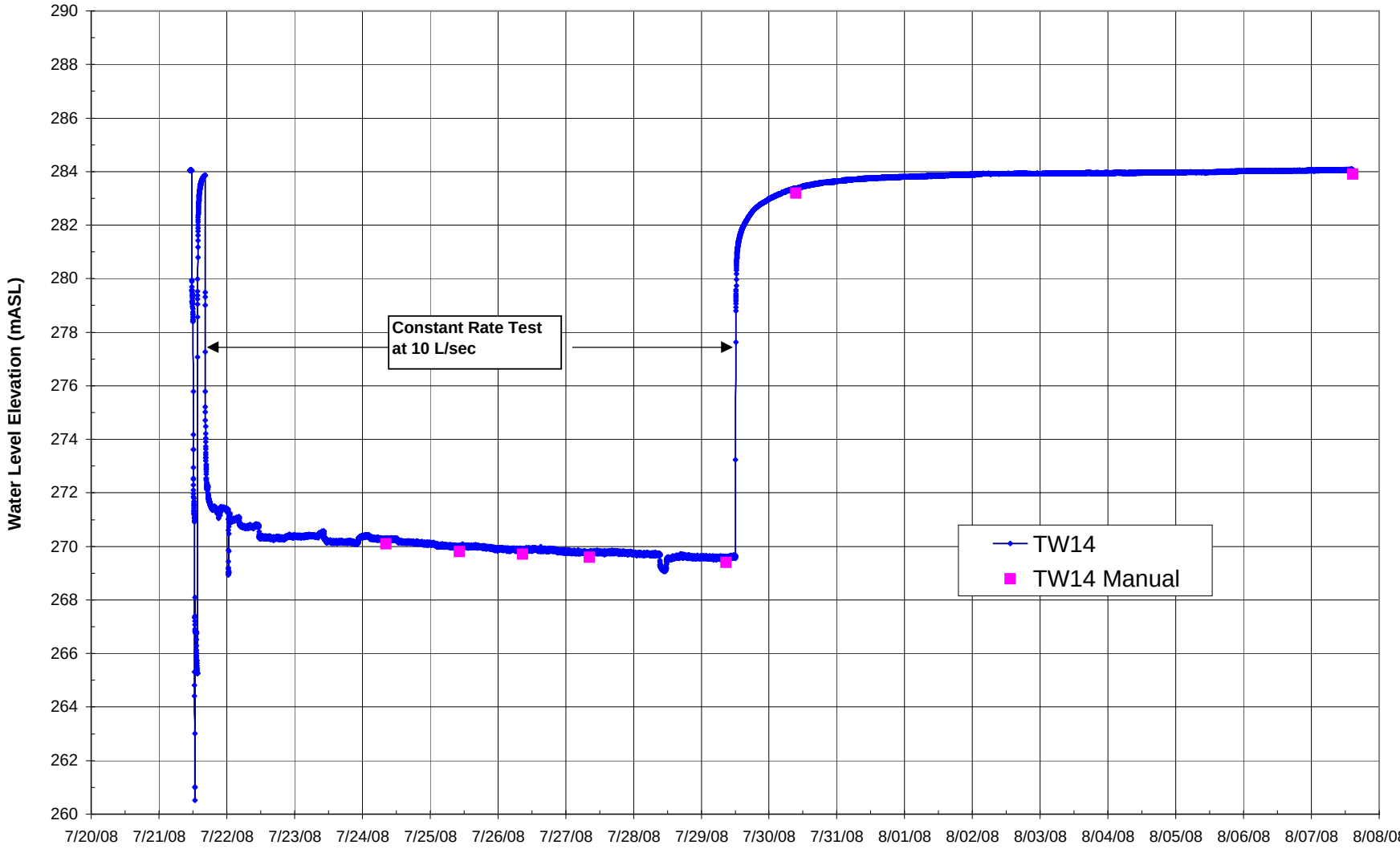
Appendix C

Hydrographs of Deep Monitors in Great Response to Pumping

Plot C1: Hydrograph for Pumping Well TW14 - Step Drawdown Test



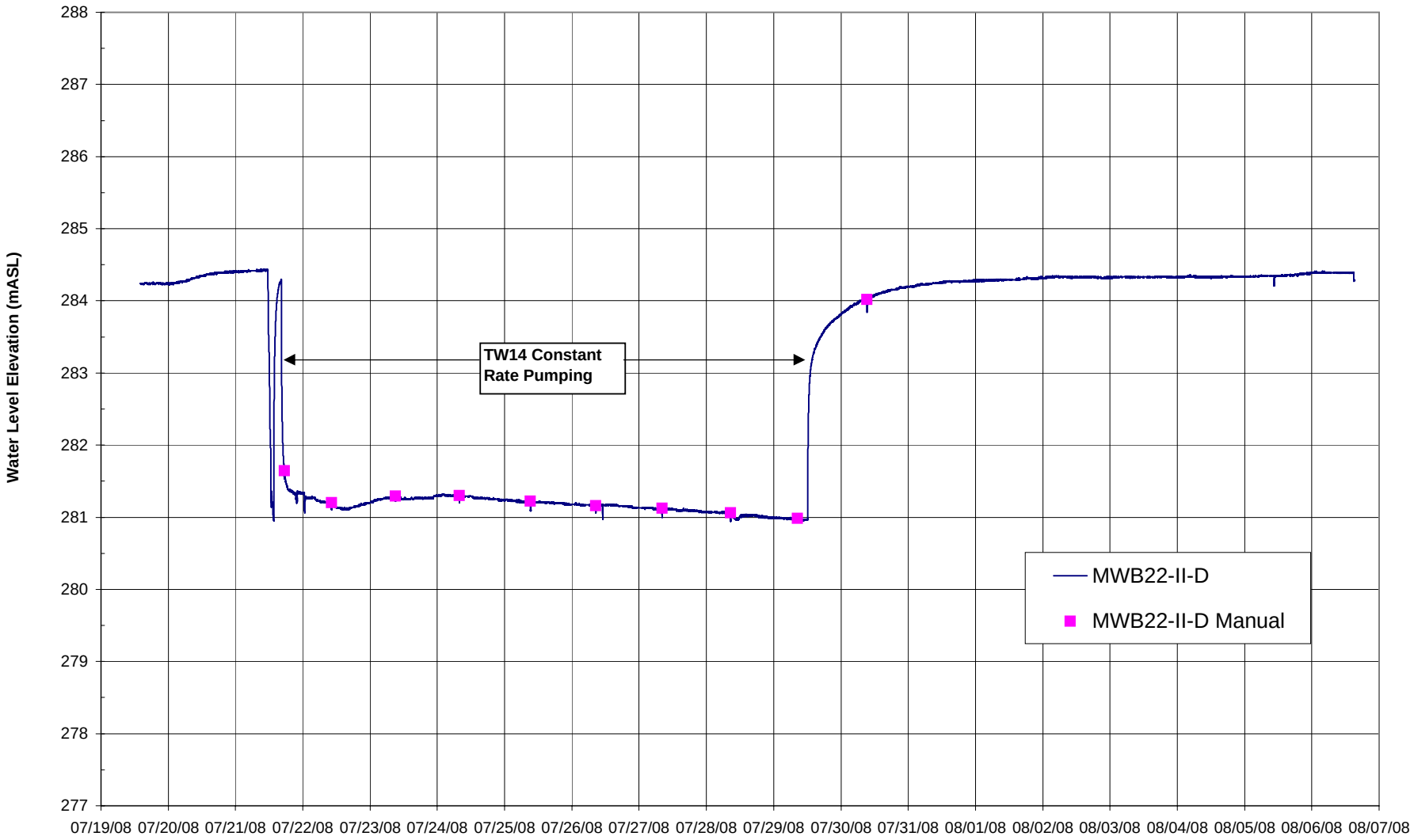
Plot C2: Hydrograph in Pumping Well TW14 - Constant Rate Pumping Test



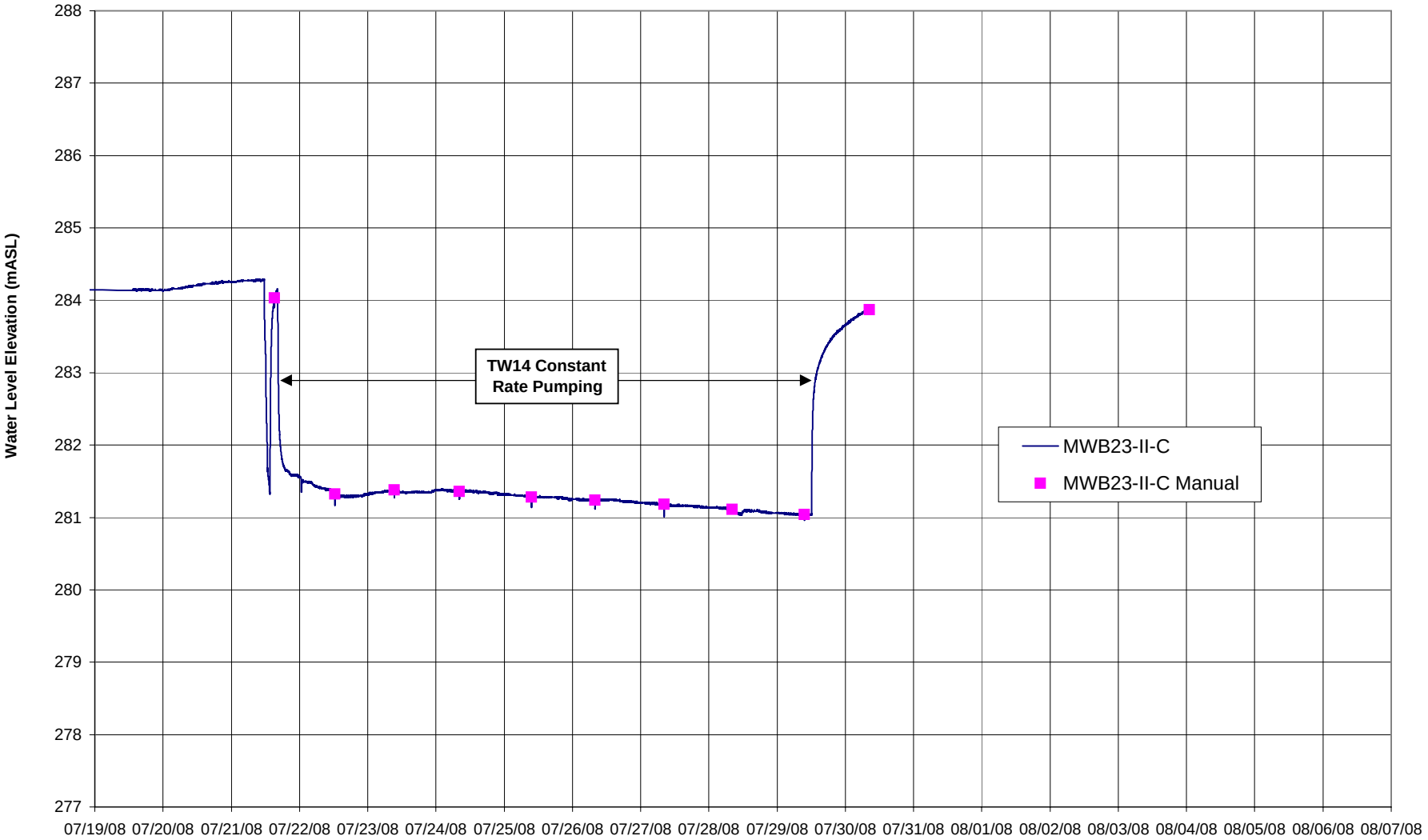
entire test

60702 TW14_HYDROGRAPH.xls 11/14/2008

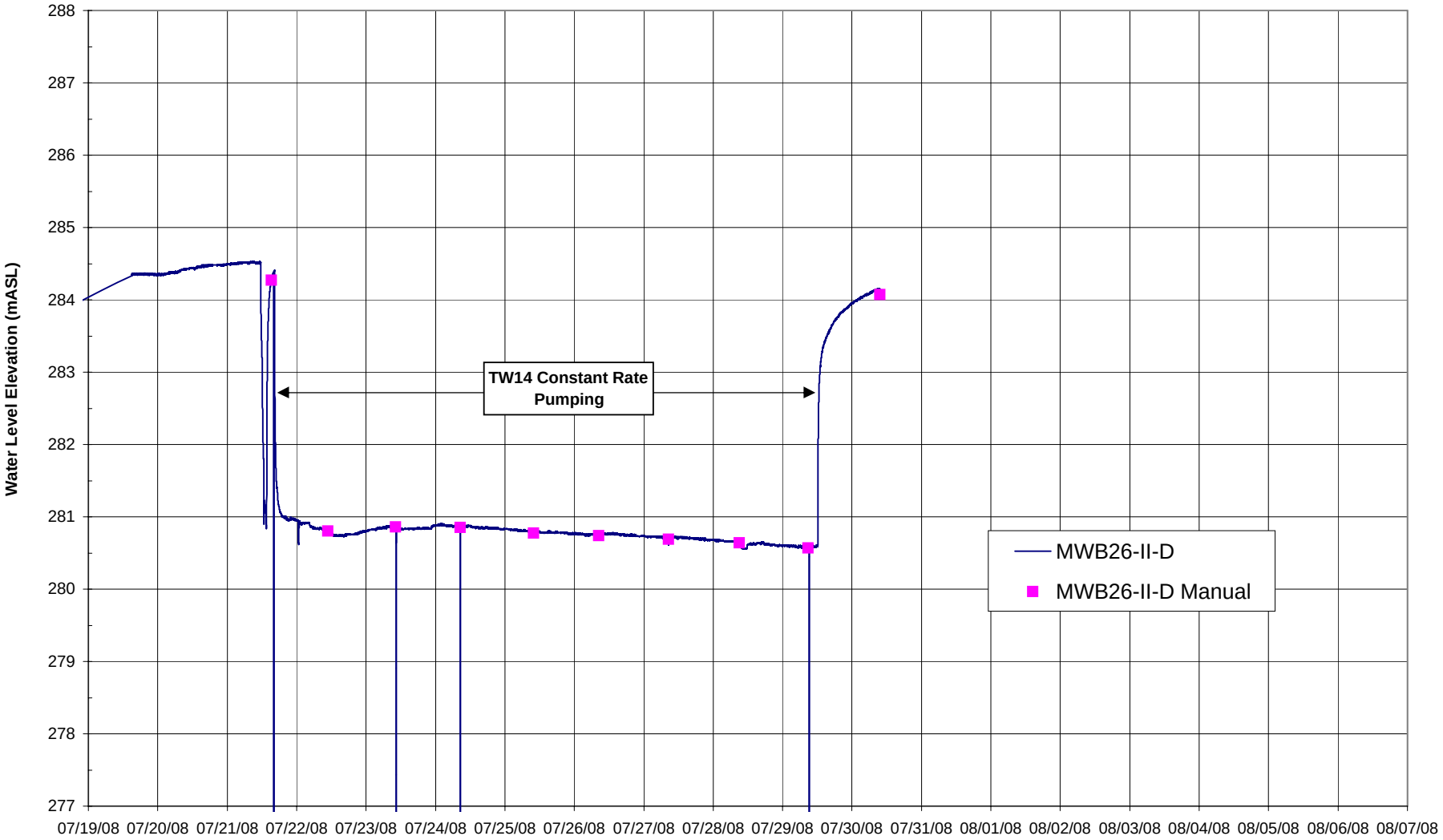
Plot C3: Hydrograph in Deep Monitor MWB22-II-D



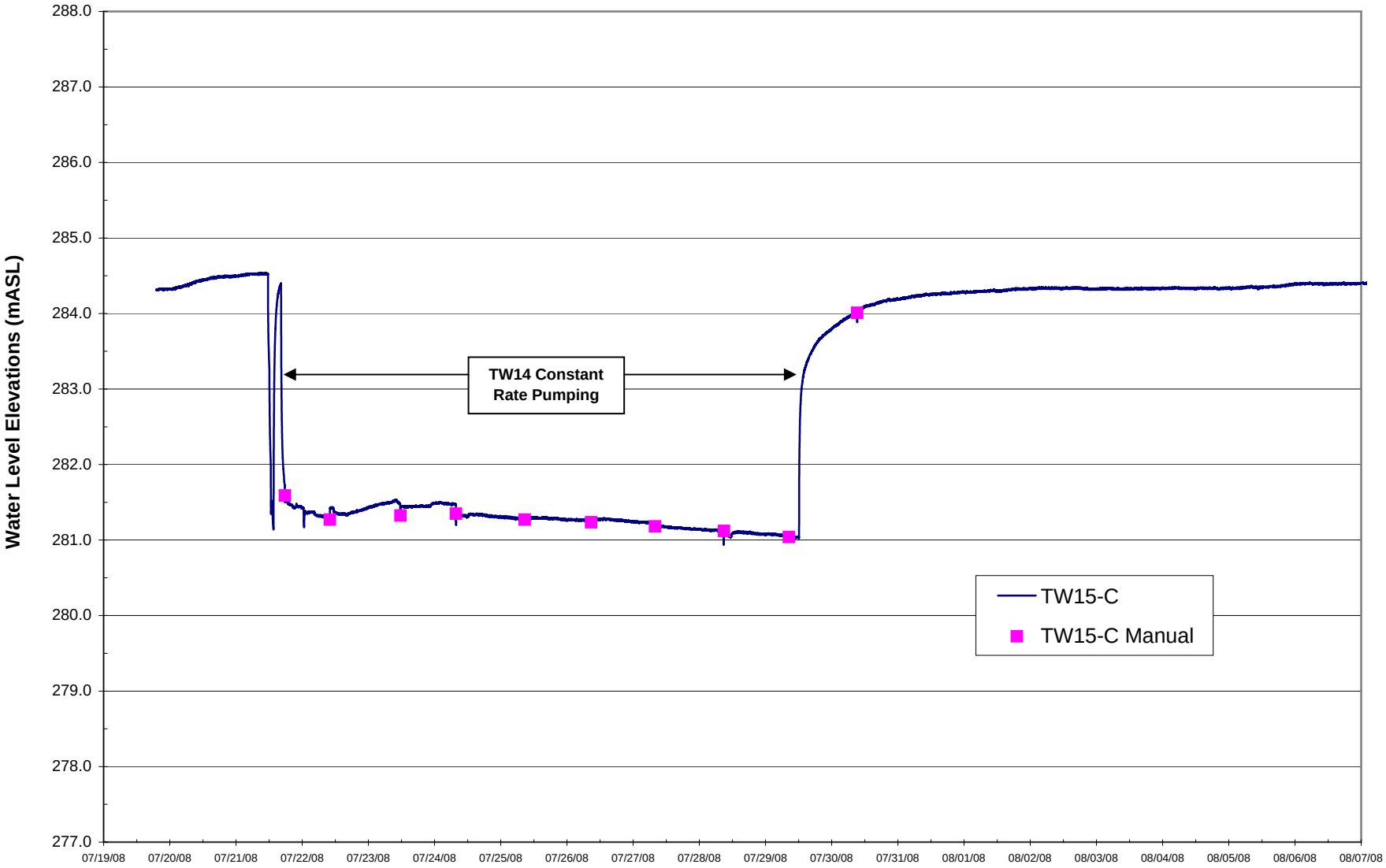
Plot C4: Hydrograph in Deep Monitor MWB23-II-C



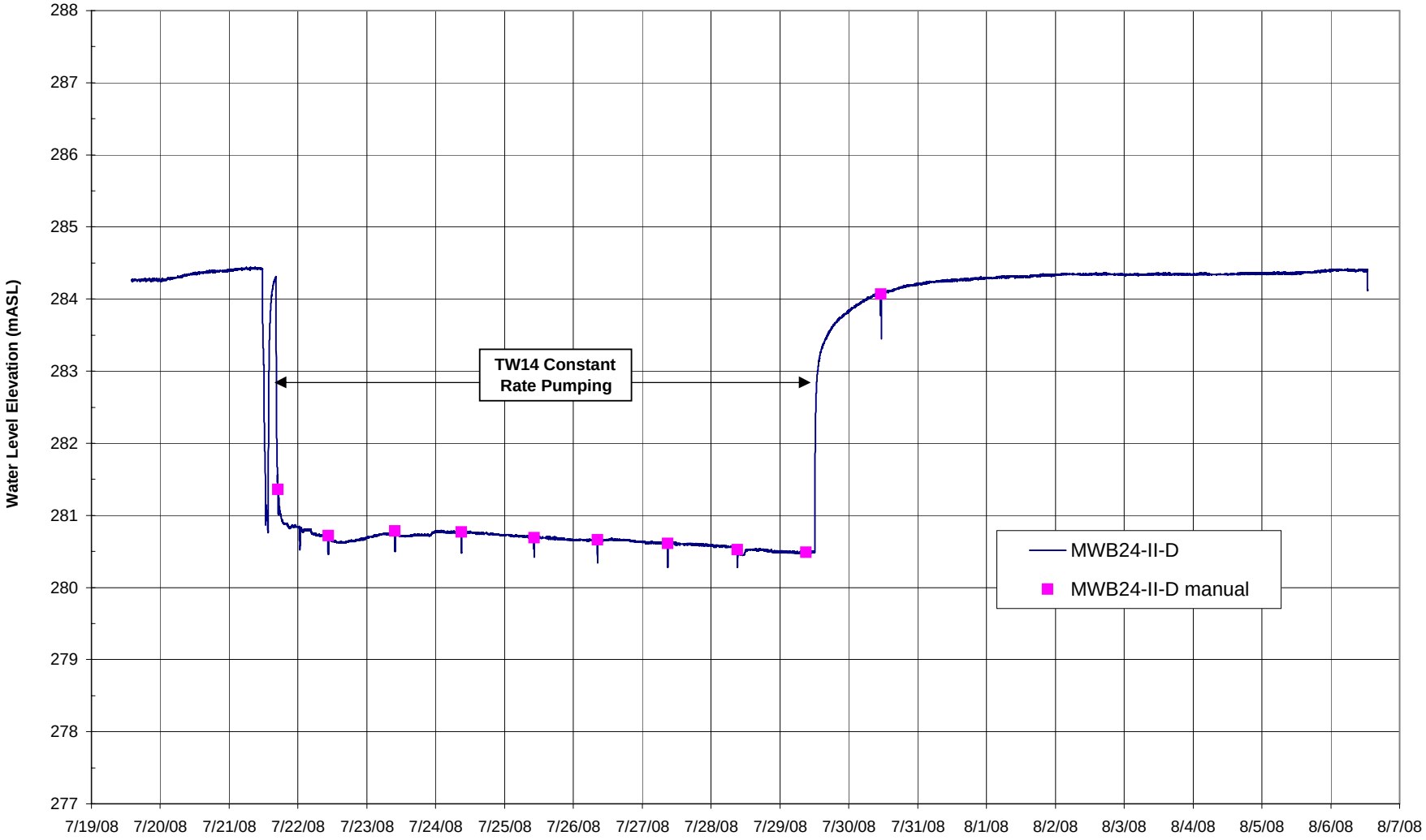
Plot C5: Hydrograph in Deep Monitor MWB26-II-D



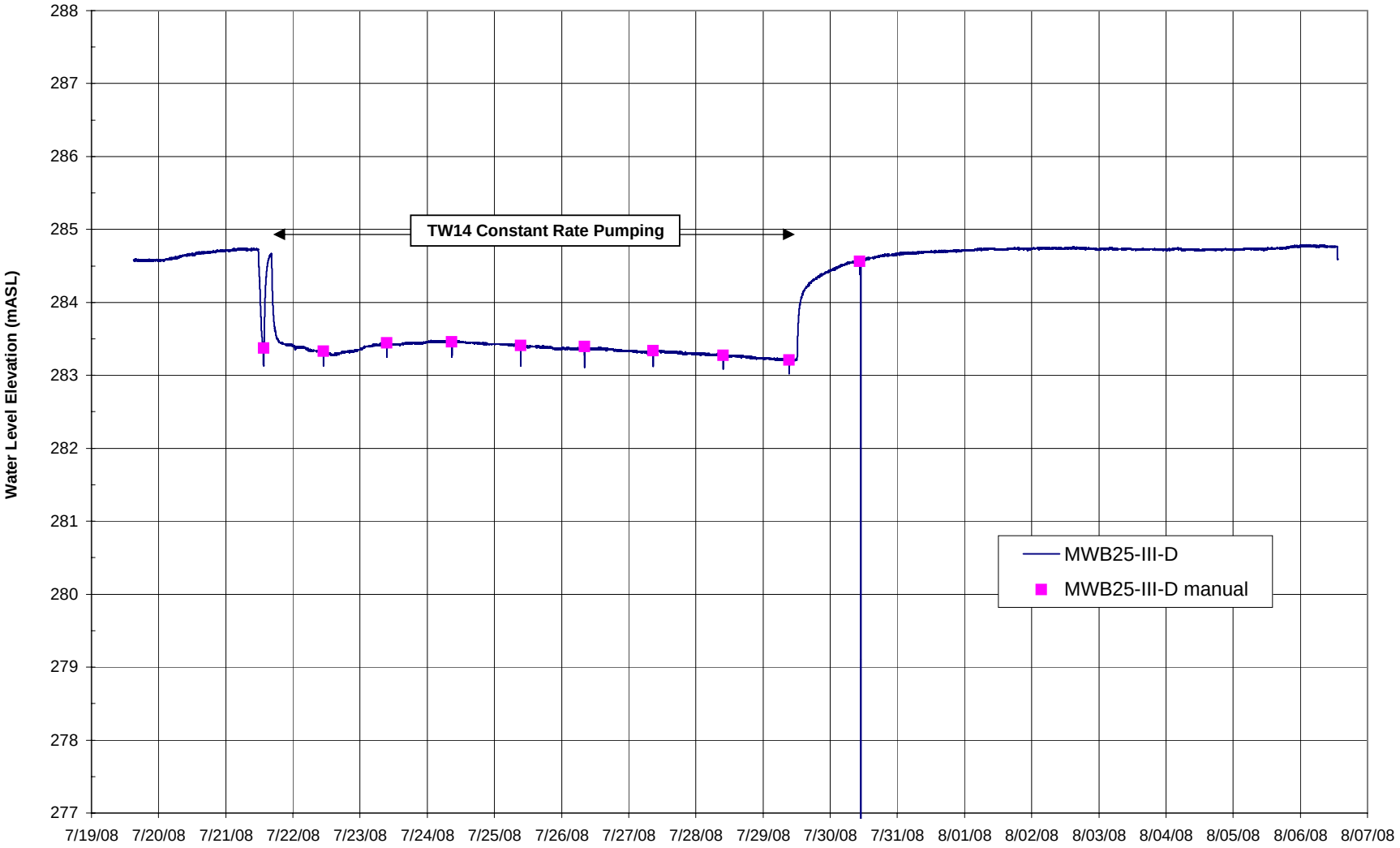
Plot C6: Hydrograph in Deep Monitor TW15-C



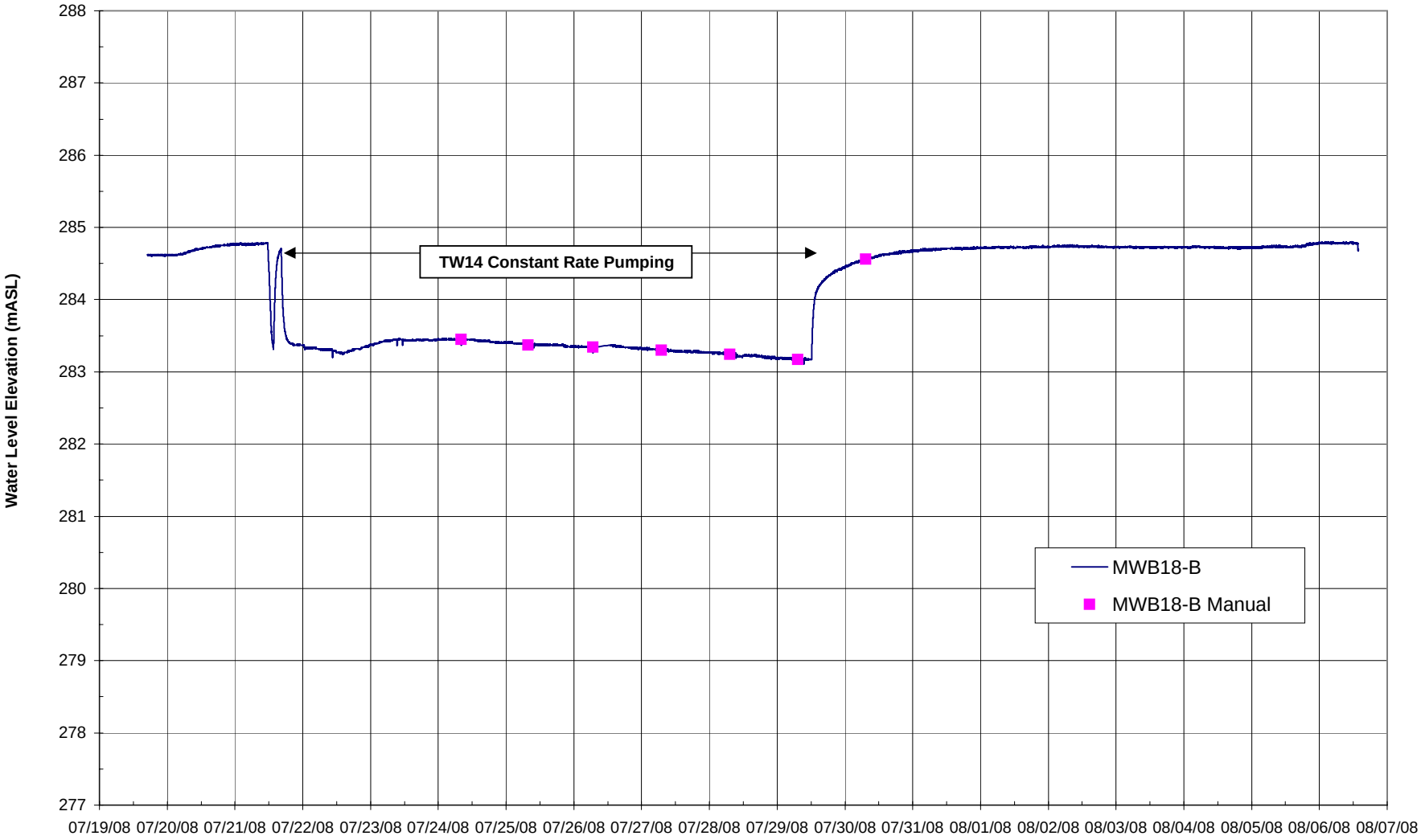
Plot C7: Hydrograph in Deep Monitor MWB24-II-D



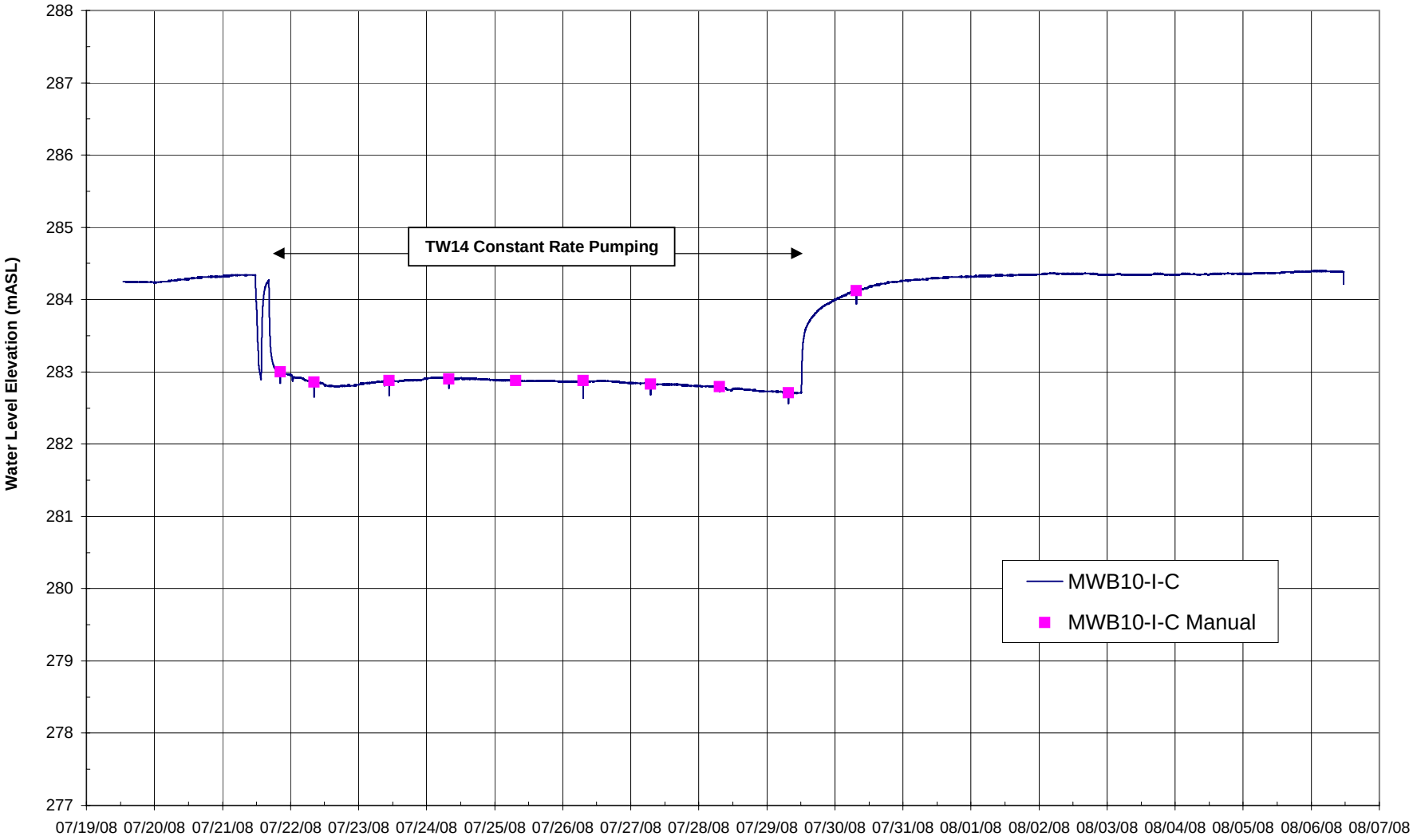
Plot C8: Hydrograph in Deep Monitor MWB25-III-D



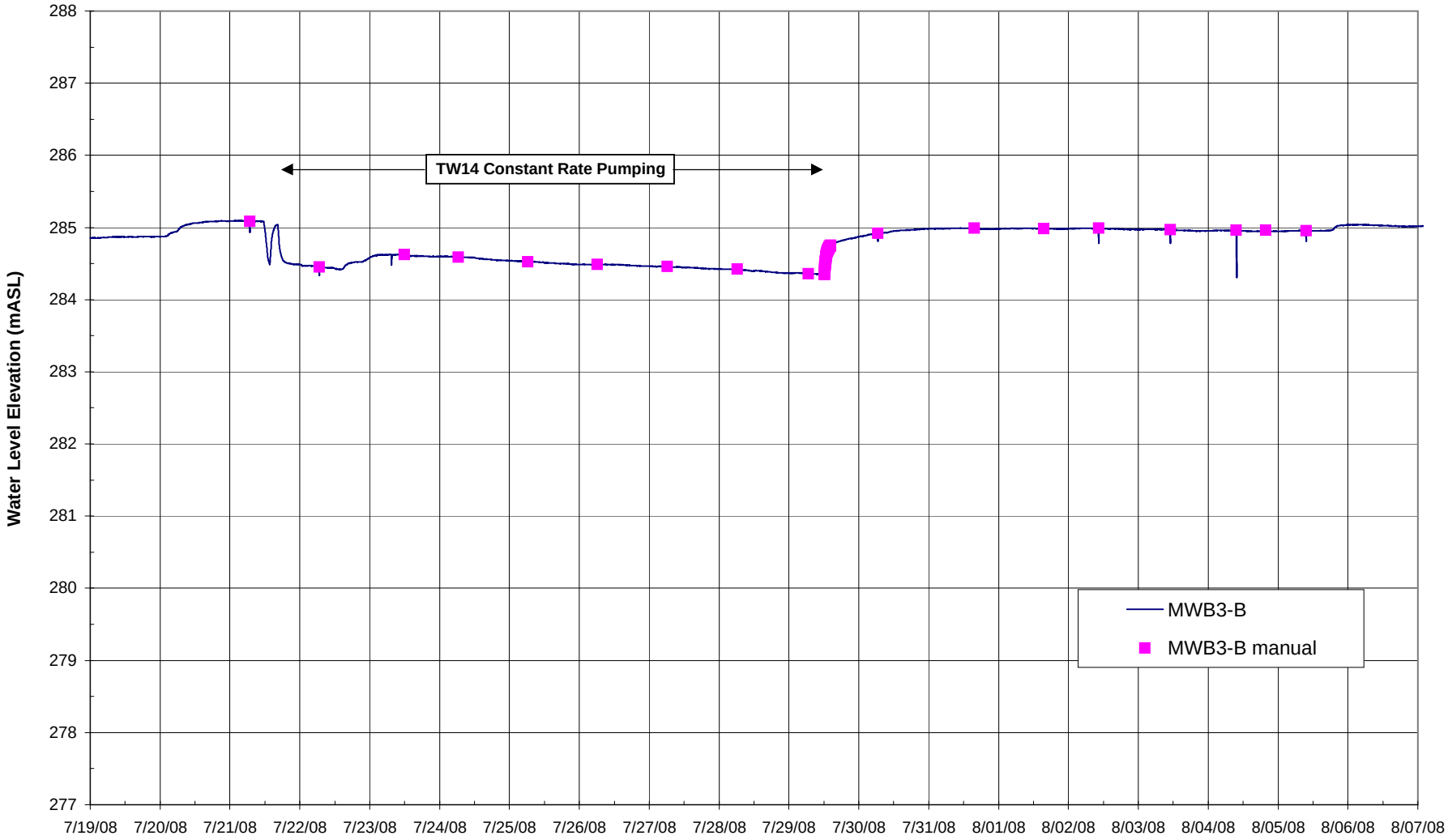
Plot C9: Hydrograph in Deep Monitor MWB18-B



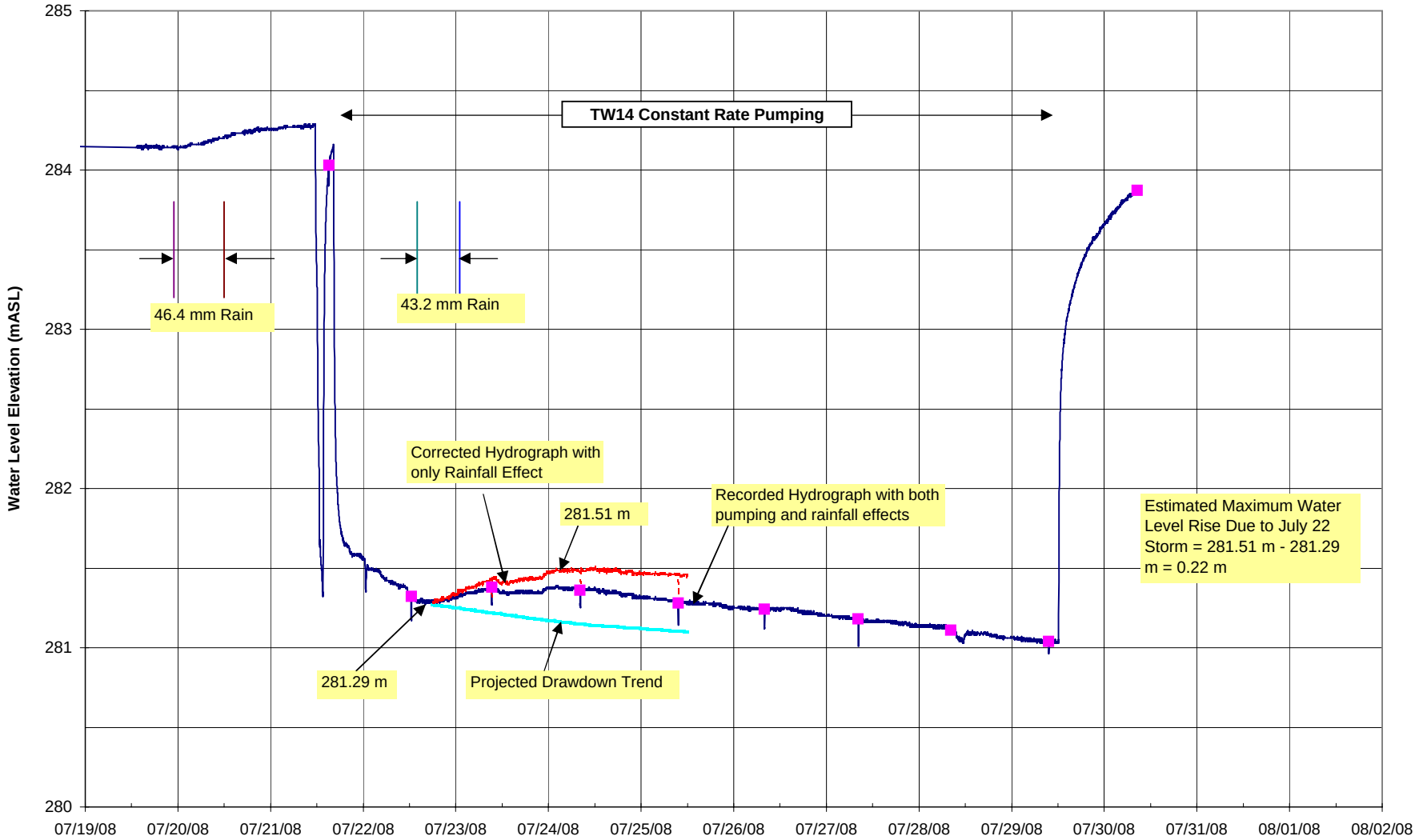
Plot C10: Hydrograph in Deep Monitor MWB10-I-C

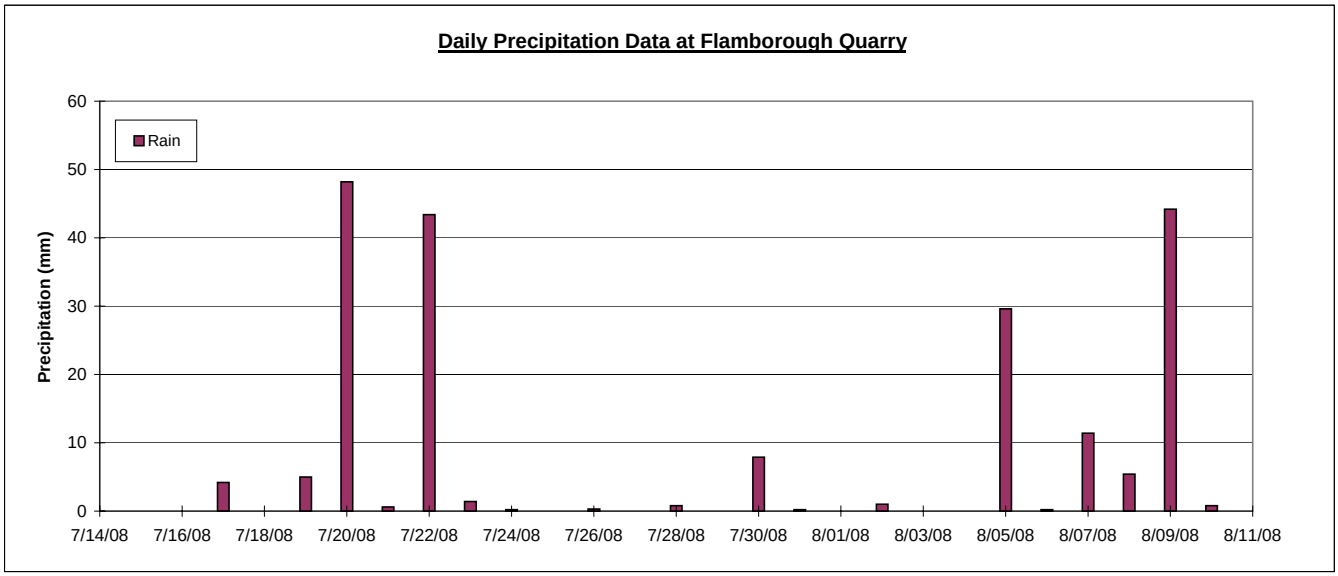


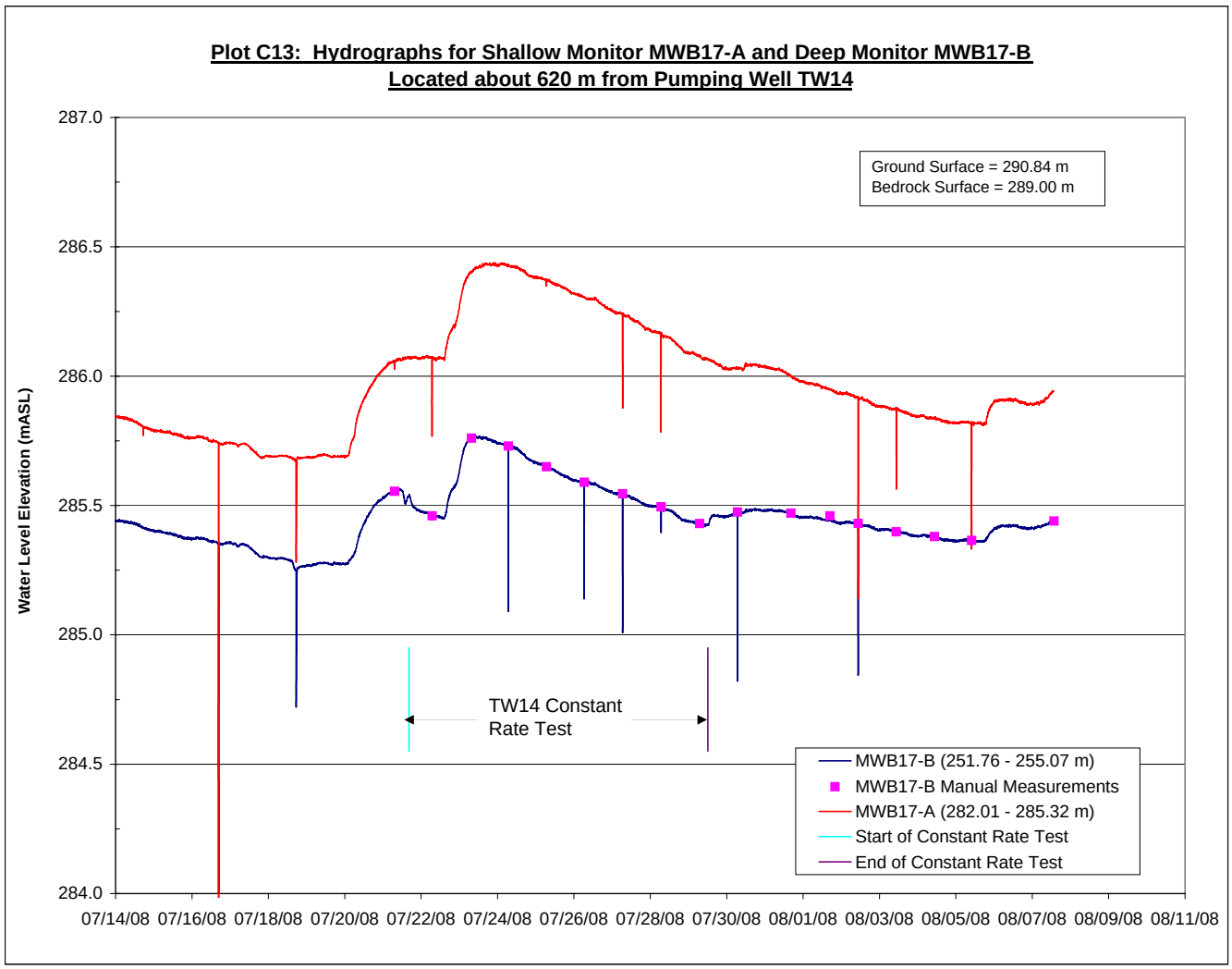
Plot C11: Hydrograph in Deep Monitor MWB3-B

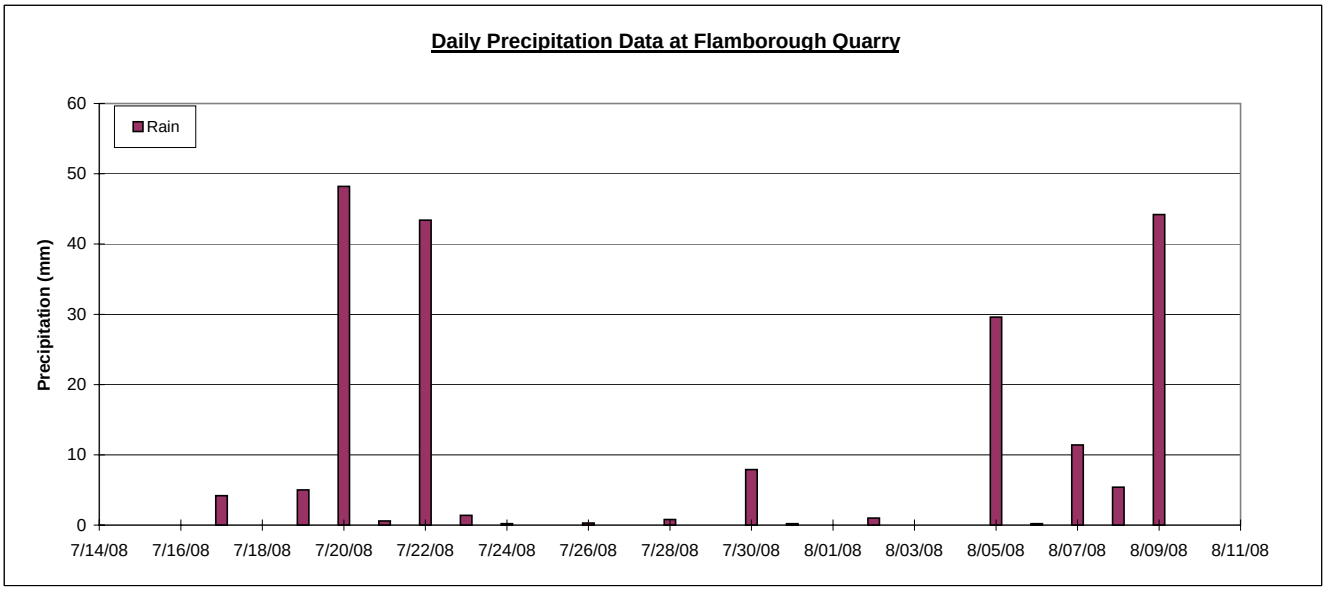


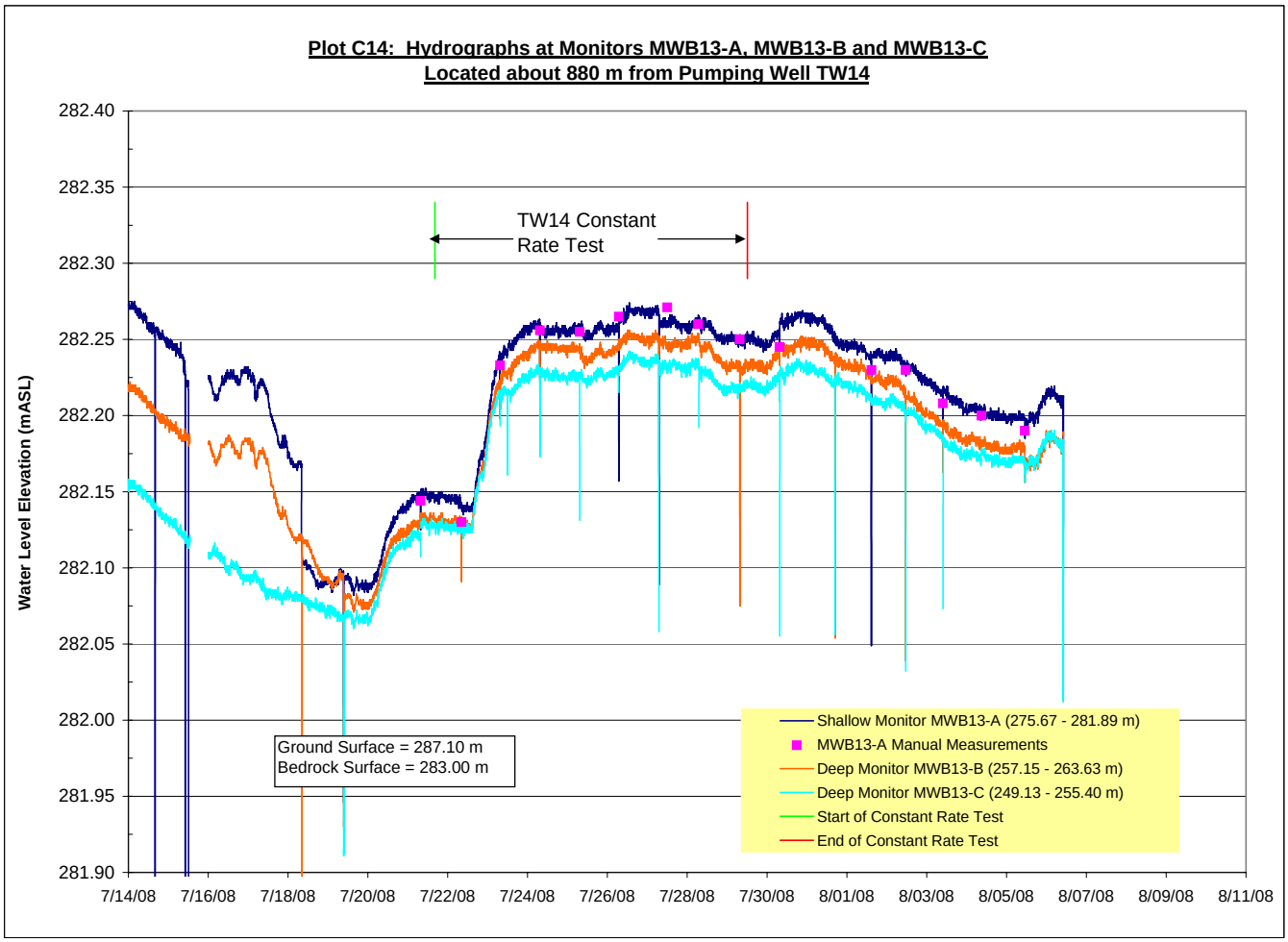
Plot C12: Approach to Estimate Rainfall Effects in Deep Monitor MWB23-II-C




Daily Precipitation Data at Flamborough Quarry
Rain
Precipitation (mm)
60
50
40
30
20
10
0
7/14/08
7/16/08
7/18/08
7/20/08
7/22/08
7/24/08
7/26/08
7/28/08
7/30/08
8/01/08
8/03/08
8/05/08
8/07/08
8/09/08
8/11/08

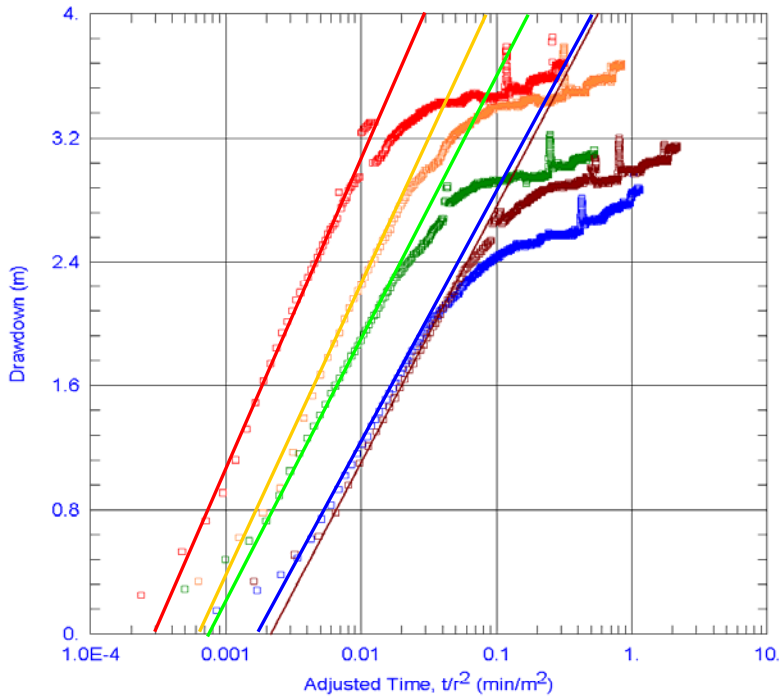

Plot C13: Hydrographs for Shallow Monitor MWB17-A and Deep Monitor MWB17-B
Located about 620 m from Pumping Well TW14
Ground Surface = 290.84 m
Bedrock Surface = 289.00 m
Water Level Elevation (mASL)
287.0
286.5
286.0
285.5
285.0
284.5
284.0
TW14 Constant
Rate Test
MWB17-B (251.76 - 255.07 m)
MWB17-B Manual Measurements
MWB17-A (282.01 - 285.32 m)
Start of Constant Rate Test
End of Constant Rate Test
07/14/08
07/16/08
07/18/08
07/20/08
07/22/08
07/24/08
07/26/08
07/28/08
07/30/08
08/01/08
08/03/08
08/05/08
08/07/08
08/09/08
08/11/08


Daily Precipitation Data at Flamborough Quarry
Rain
Precipitation (mm)
60
50
40
30
20
10
0
7/14/08
7/16/08
7/18/08
7/20/08
7/22/08
7/24/08
7/26/08
7/28/08
7/30/08
8/01/08
8/03/08
8/05/08
8/07/08
8/09/08
8/11/08


Plot C14: Hydrographs at Monitors MWB13-A, MWB13-B and MWB13-C
Located about 880 m from Pumping Well TW14
Water Level Elevation (mASL)
282.40
282.35
282.30
282.25
282.20
282.15
282.10
282.05
282.00
281.95
281.90
TW14 Constant
Rate Test
Ground Surface = 287.10 m
Bedrock Surface = 283.00 m
Shallow Monitor MWB13-A (275.67 - 281.89 m)
MWB13-A Manual Measurements
Deep Monitor MWB13-B (257.15 - 263.63 m)
Deep Monitor MWB13-C (249.13 - 255.40 m)
Start of Constant Rate Test
End of Constant Rate Test
7/14/08
7/16/08
7/18/08
7/20/08
7/22/08
7/24/08
7/26/08
7/28/08
7/30/08
8/01/08
8/03/08
8/05/08
8/07/08
8/09/08
8/11/08

Appendix D

Graphs/Plots for Pumping Test Data Analysis



PLOT D1: DEEP WELL COMPOSITE EARLY DRAWDOWN DATA ANALYSIS RESULTS

Data Set: D:\...\Early drawdown.aqt
Date: 11/27/08 Time: 15:30:48

PROJECT INFORMATION

Company: Gartner Lee
Client: CBM St. Marys
Project: 60702
Location: Flamborough Quarry
Test Well: TW14
Test Date: July 21-22, 2008

AQUIFER DATA

Saturated Thickness: 35. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
TW14	0	0

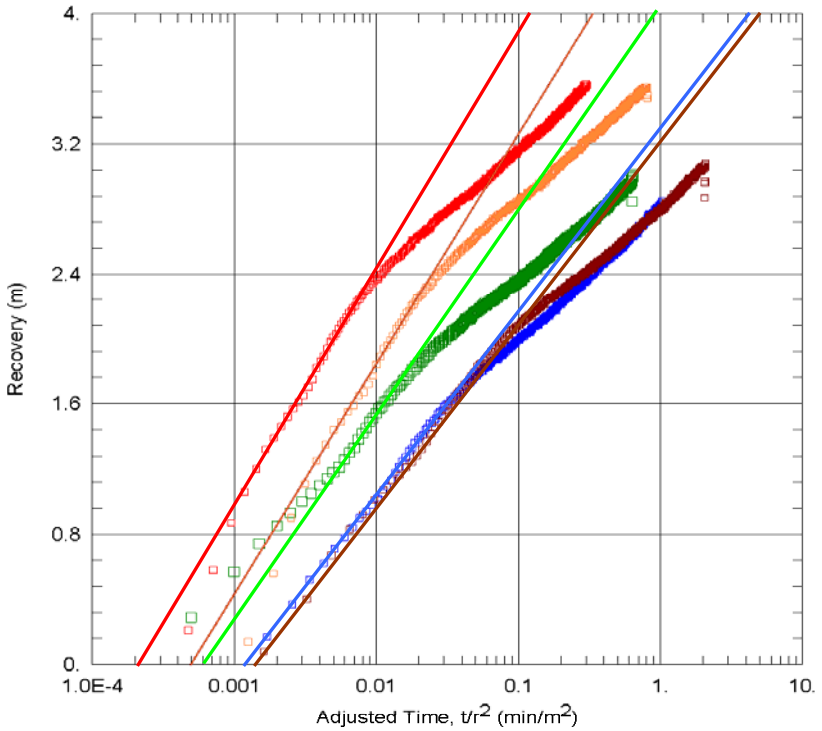
Observation Wells

Well Name	X (m)	Y (m)
MWB23-II-C	34.3	0
MWB26-II-D	39.9	0
TW15-C	44.9	0
MWB24-II-D	65	0
MWB-22-II-D	24.9	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 95.67 m^2/day S = 0.0003206



PLOT D2: DEEP WELL COMPOSITE EARLY RECOVERY DATA ANALYSIS RESULTS

Data Set: D:\...\Early Recovery(1).aqt
Date: 11/27/08 Time: 15:35:08

PROJECT INFORMATION

Company: Gartner Lee
Client: CBM St. Marys
Project: 60702
Location: Flamborough Quarry
Test Well: TW14
Test Date: July 29-30, 2008

AQUIFER DATA

Saturated Thickness: 35. m Anisotropy Ratio (Kz/Kr): 0.01831

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
TW14	0	0

Observation Wells

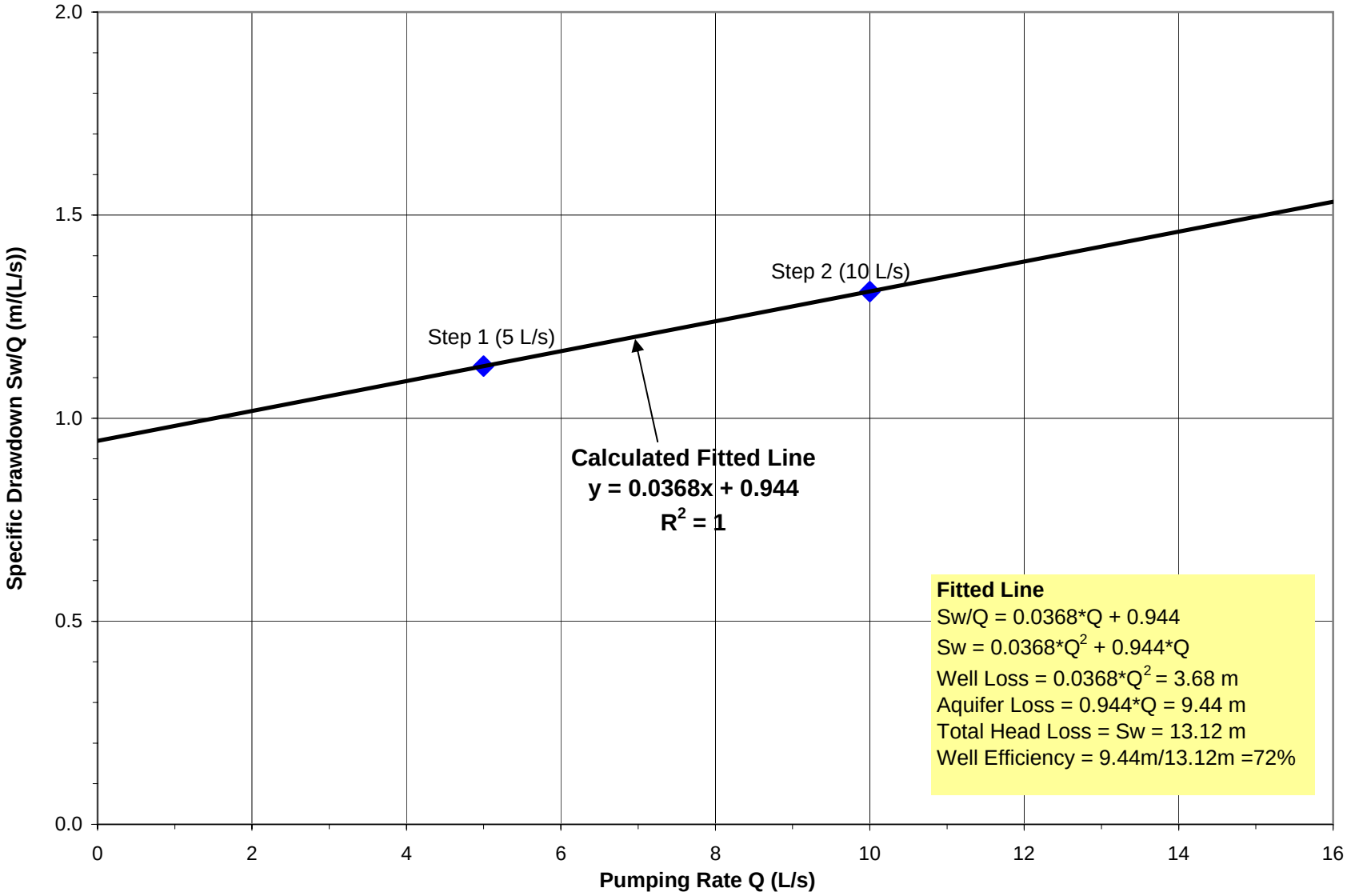
Well Name	X (m)	Y (m)
TW15-C	44.8	0
MW23-II-C	34.3	0
MW24-II-D	65	0
MWB22-II-D	24.9	0
NWB26-II-D	39.9	0

SOLUTION

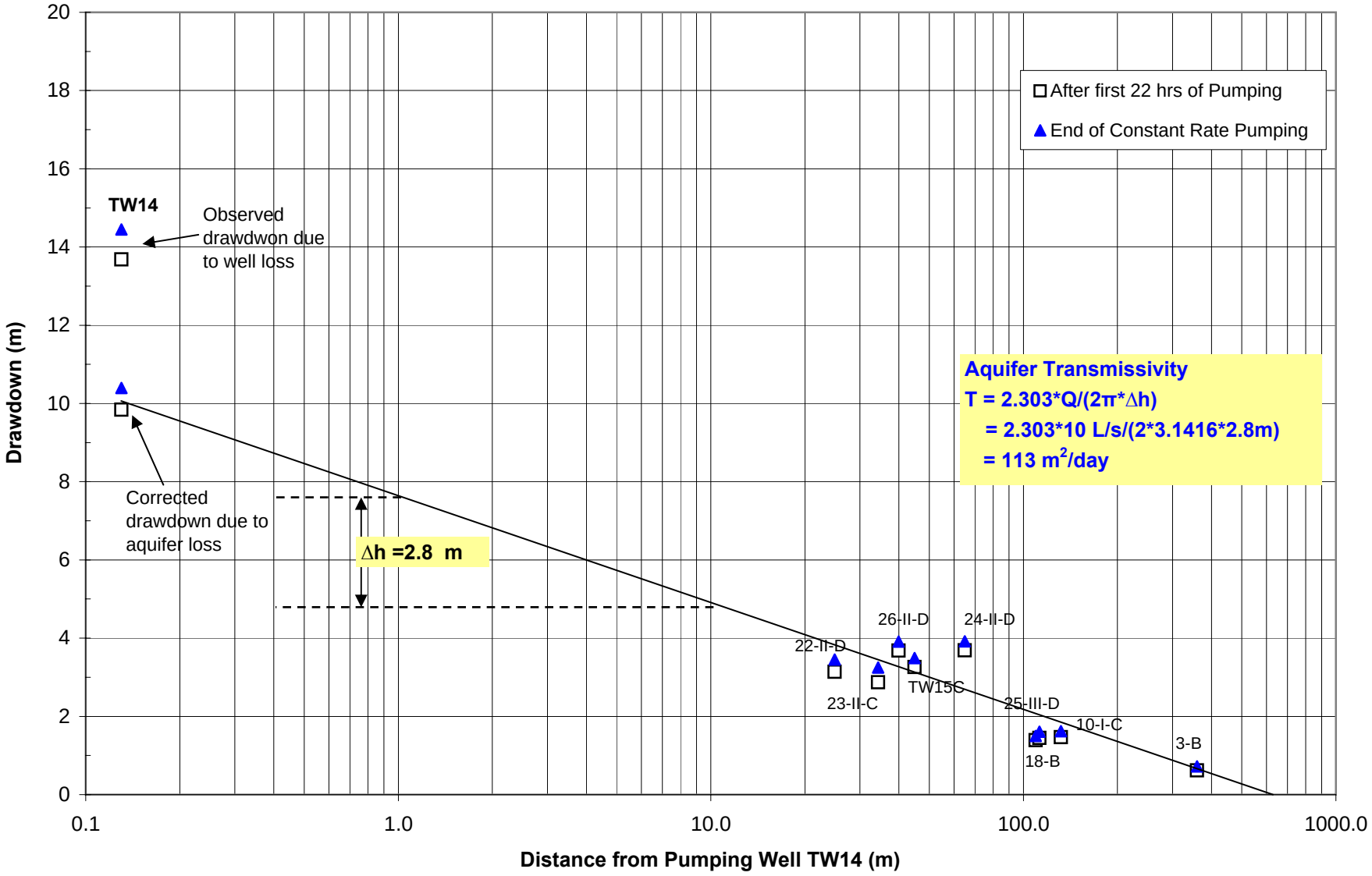
Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 112. m^2/day S = 8.637E-5

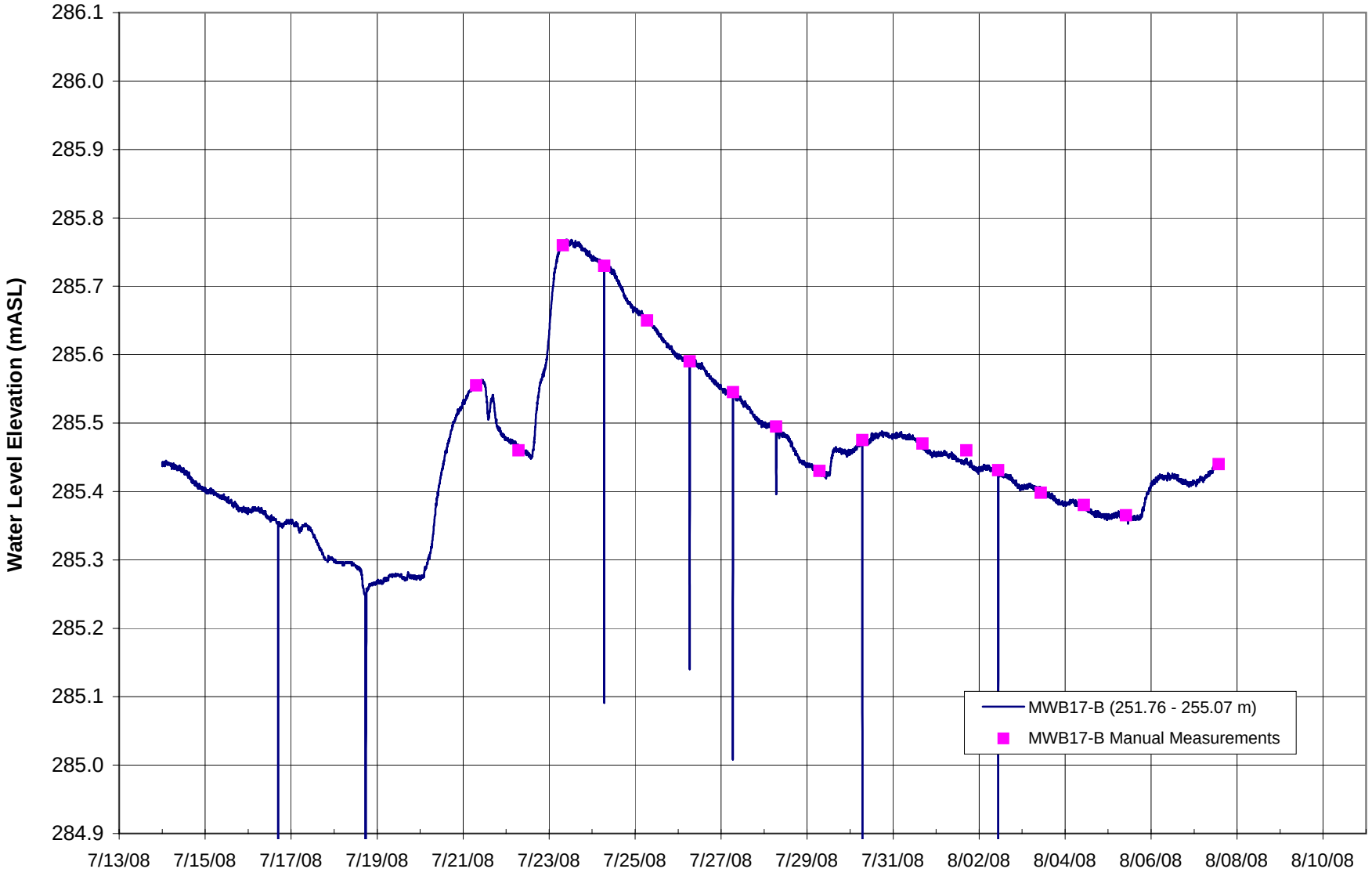
Plot D3: Pumping Well TW14 Step Test - Specific Drawdown vs Pumping Rate Plot



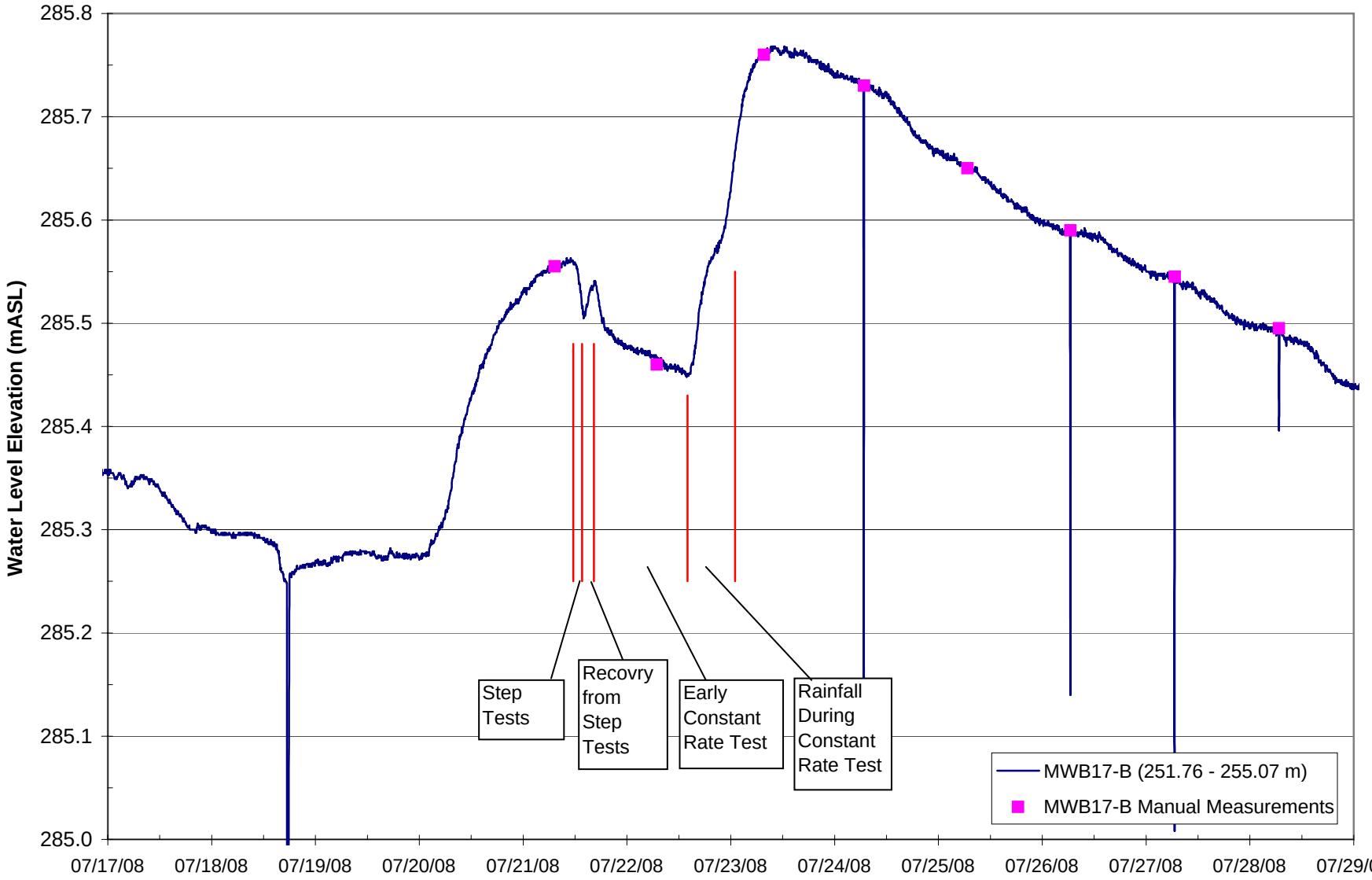
Plot D4: Distance vs Drawdwon Plot For Deep Wells - TW14 Pumping Tests



Plot D5: Hydrograph Plot for Deep Monitoring Well MWB17-B



Plot D6: Zoom-in Hydrograph for Pumping Effects in Deep Monitor MWB17-B



F3. Slug Test Results

F3-1. Overburden Wells (2006)
F3-2. Bedrock Wells (2007/2008)
Summary of Bedrock Slug Test Results
F3-3 S.S. Papadopulos & Associates Interpretation of Slug Re-Tests, June 2008
F3-4 S.S. Papadopulos & Associates Review of 2007 Slug Interpretations, April 2008

Appendix F3-1

Slug Testing of Overburden Wells (2006)

Following well installation and development, the overburden wells (installed in 2006) were slug tested. The slug testing of 12 of 16 overburden wells was completed in April 2006. The water level in the remaining four wells (GLL06-07, GLL06-09, GLL06-13 and GLL06-16) was near the base of the screen and as such these wells were not tested at that time. Efforts were taken to slug test the four 'dry' wells in May 2008 under higher water level conditions. There was insufficient water to test theses wells.

The slug tests conducted on the overburden wells involved initially installing a pressure transducer (Solinst Model 3001) to record the water level response. This was followed by drawdown of the water table using an inertial lift pump. The analysis was undertaken on the recovery curve. The test results are presented in Appendix F3-1.

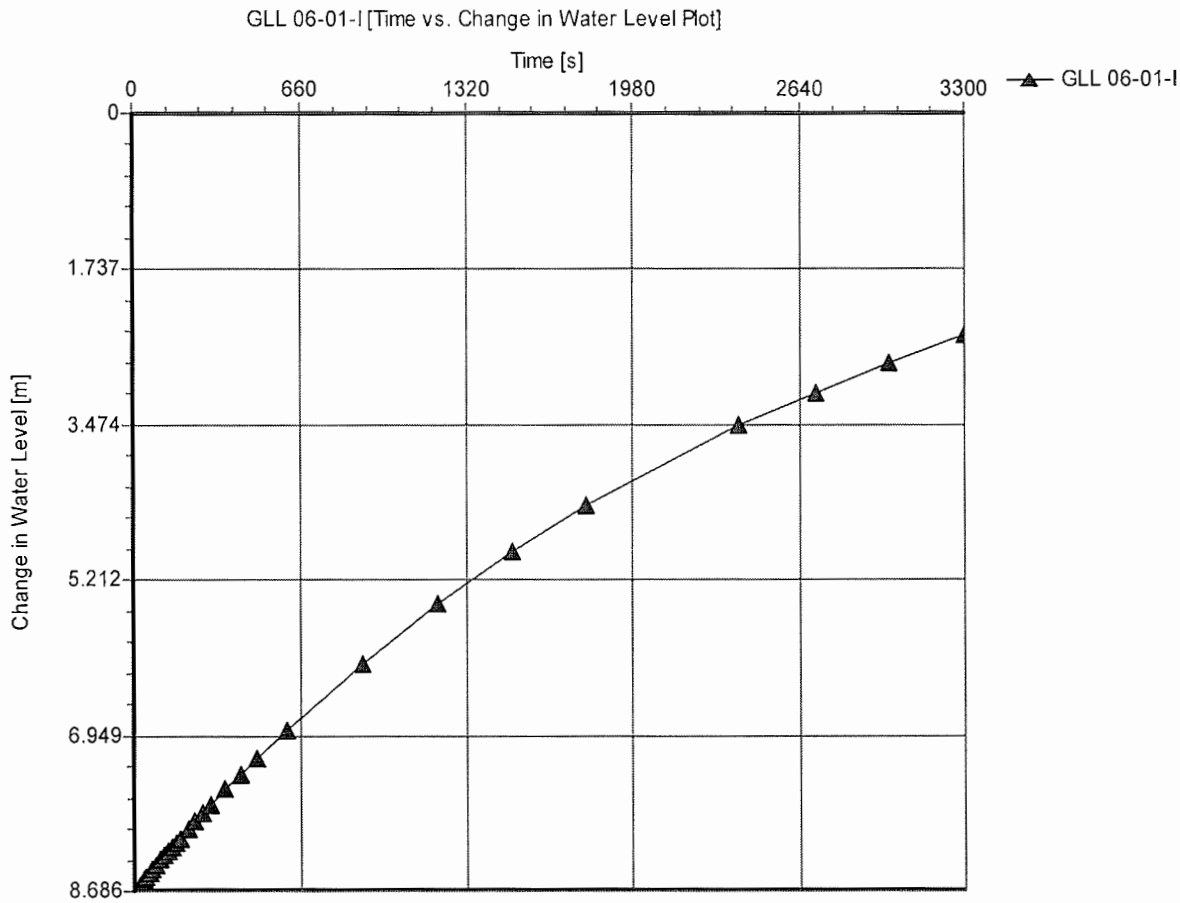
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-01-I**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-01-I	Aquifer Thickness:	8.85 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	0.9 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

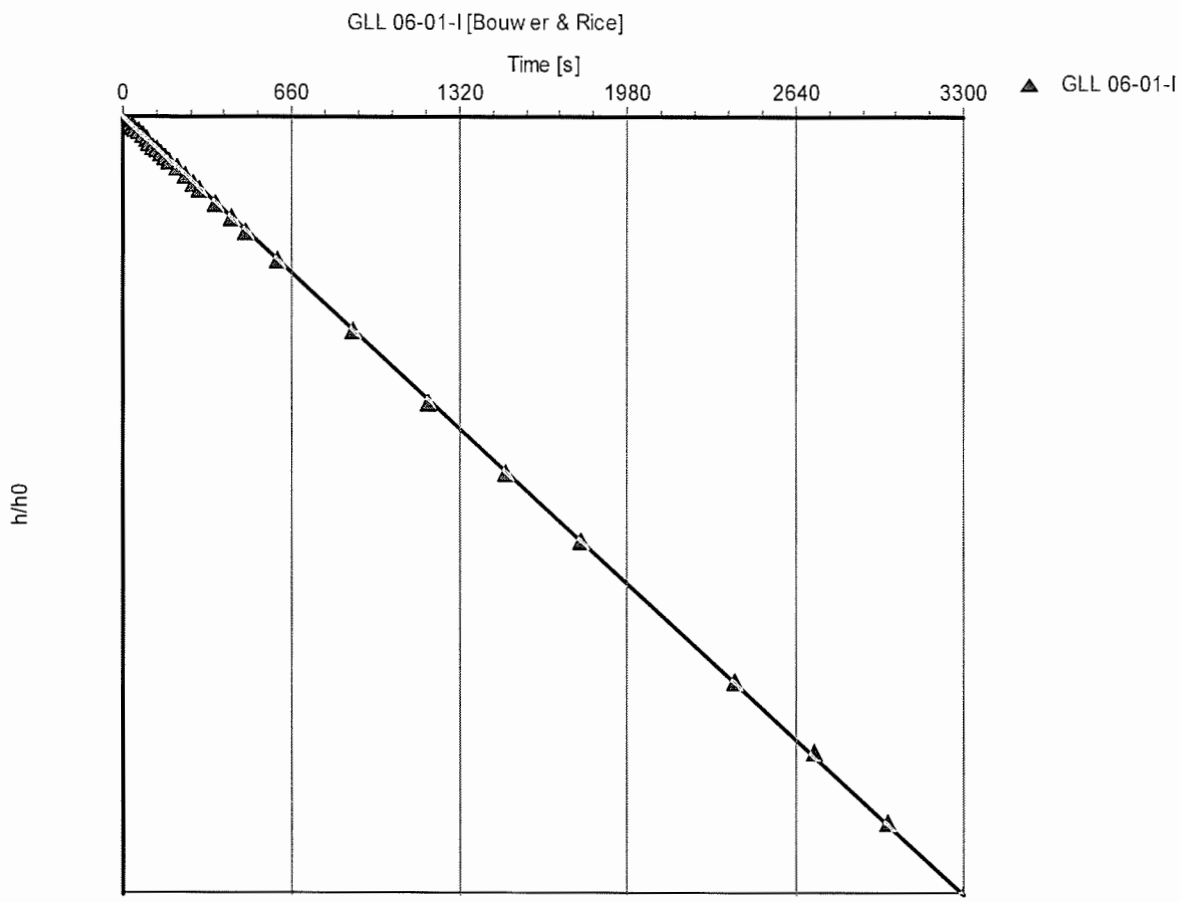
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-01-I**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.44E-7 [m/s]

Test parameters:

Test Well:	GLL 06-01-I	Aquifer Thickness:	8.85 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	0.9 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

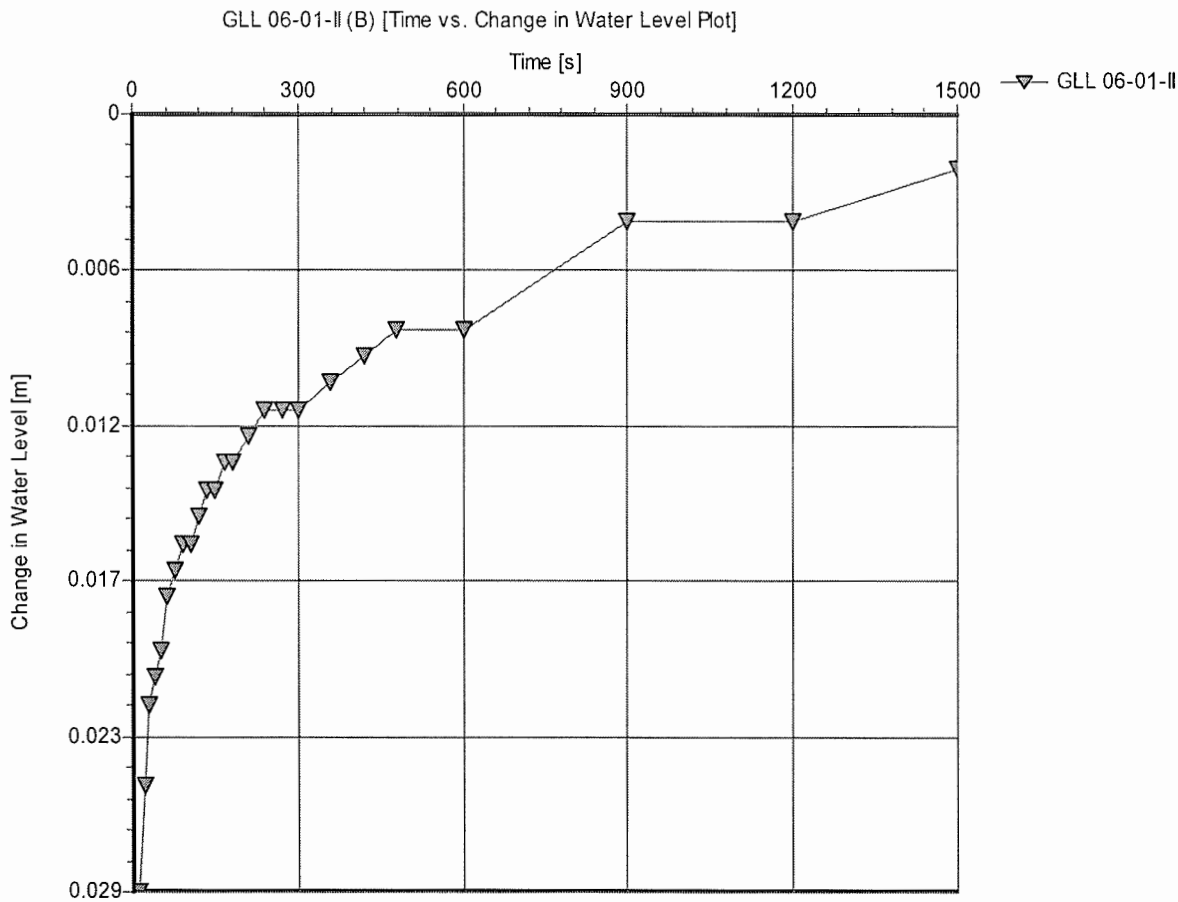
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-01-II (B)**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-01-II	Aquifer Thickness:	1.84 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.22 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

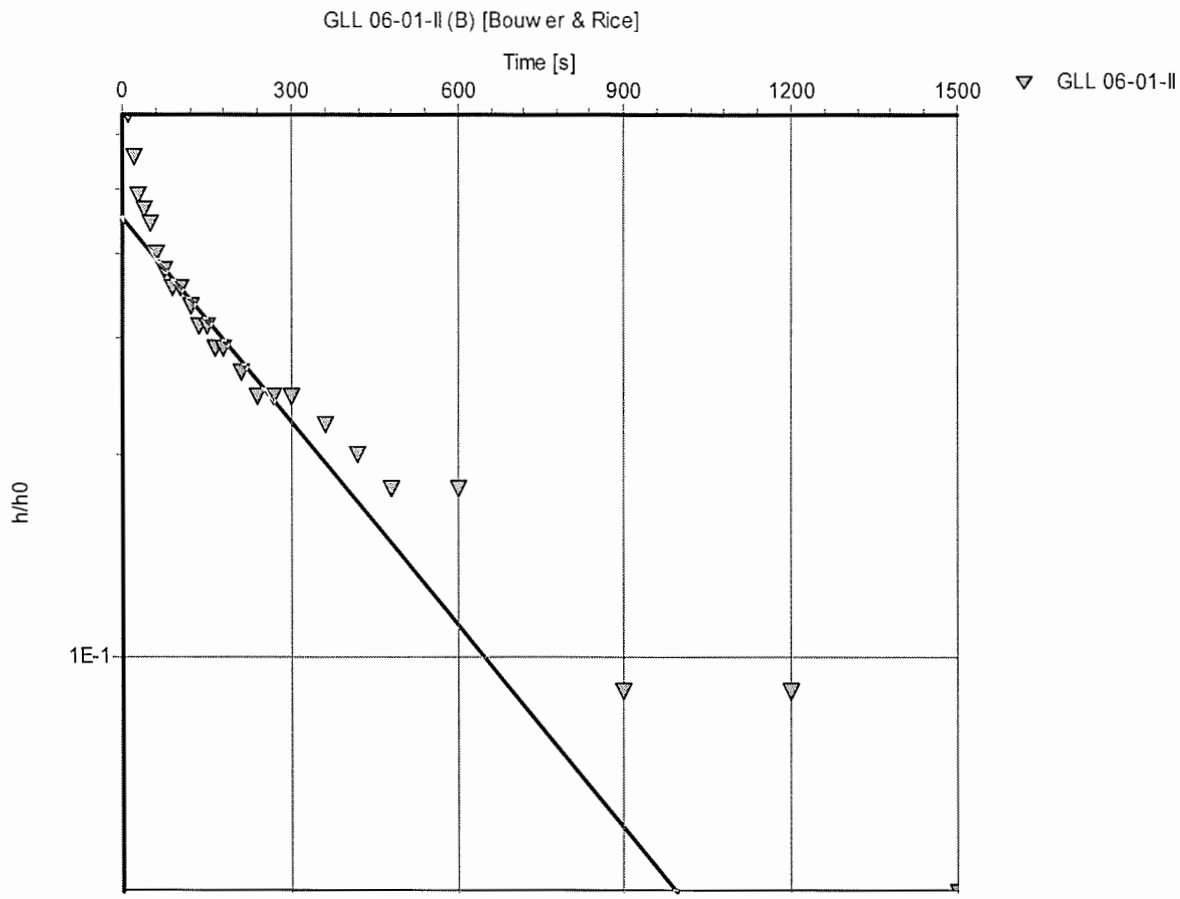
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-01-II (B)**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 5.03E-7 [m/s]

Test parameters:				
	Test Well:	GLL 06-01-II	Aquifer Thickness:	1.84 [m]
	Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
	Screen length:	1.22 [m]		
	Boring radius:	0.1016 [m]		
	r(eff):	0.057 [m]		

Comments:

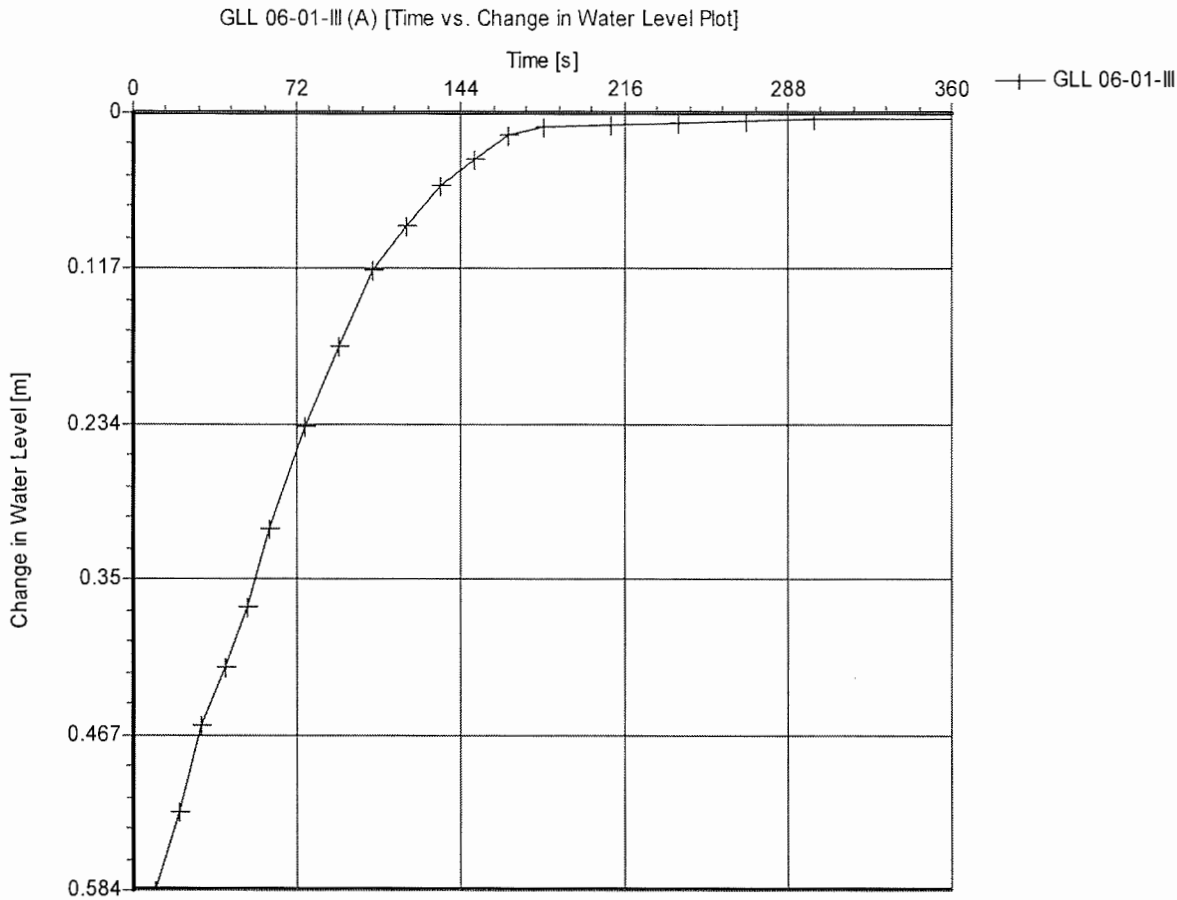
Evaluated by: PJM

Evaluation Date: 5/5/2006

Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry
Number: 60394
Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-01-III (A)**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-01-III	Aquifer Thickness:	0.634 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.06 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM
Evaluation Date: 5/5/2006

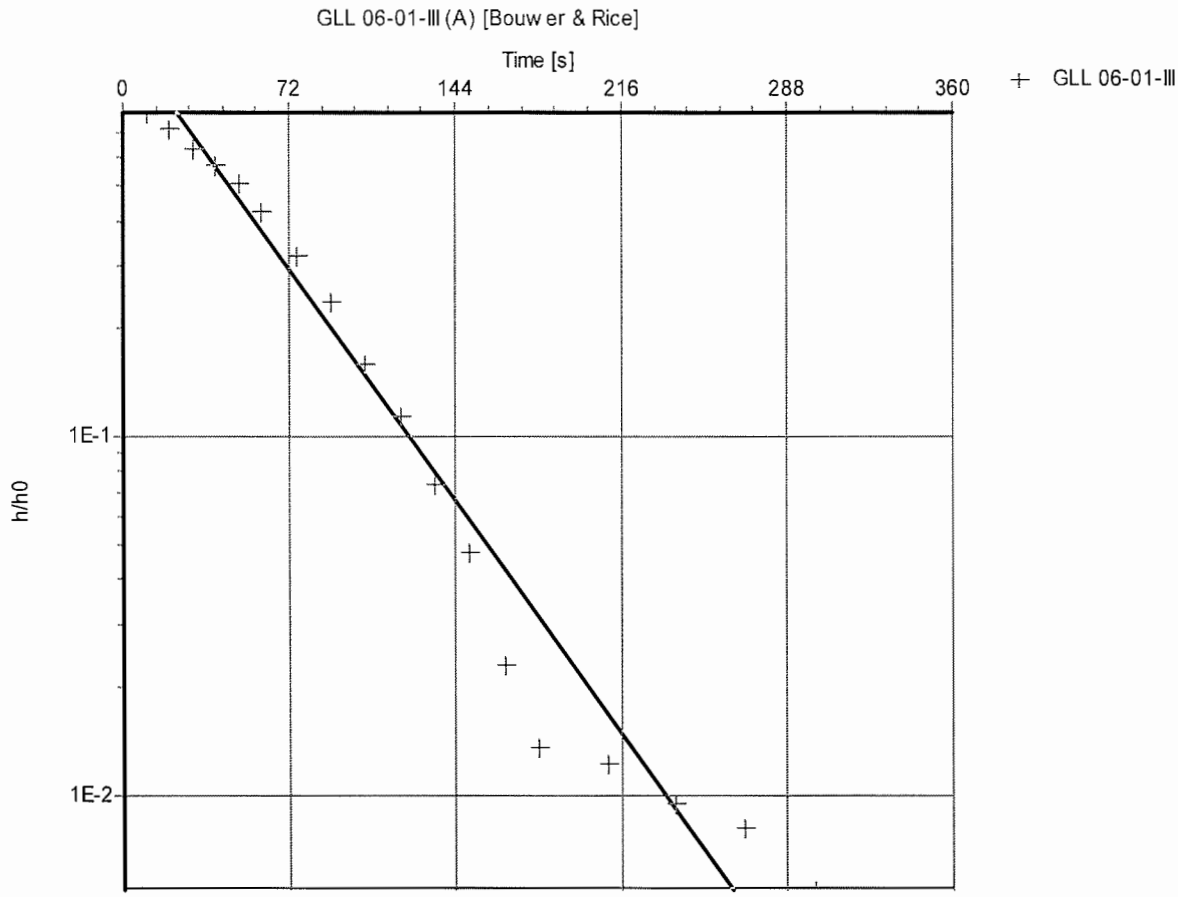
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-01-III (A)**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 4.78E-5 [m/s]

Test parameters:

Test Well:	GLL 06-01-III	Aquifer Thickness:	0.634 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	1.06 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

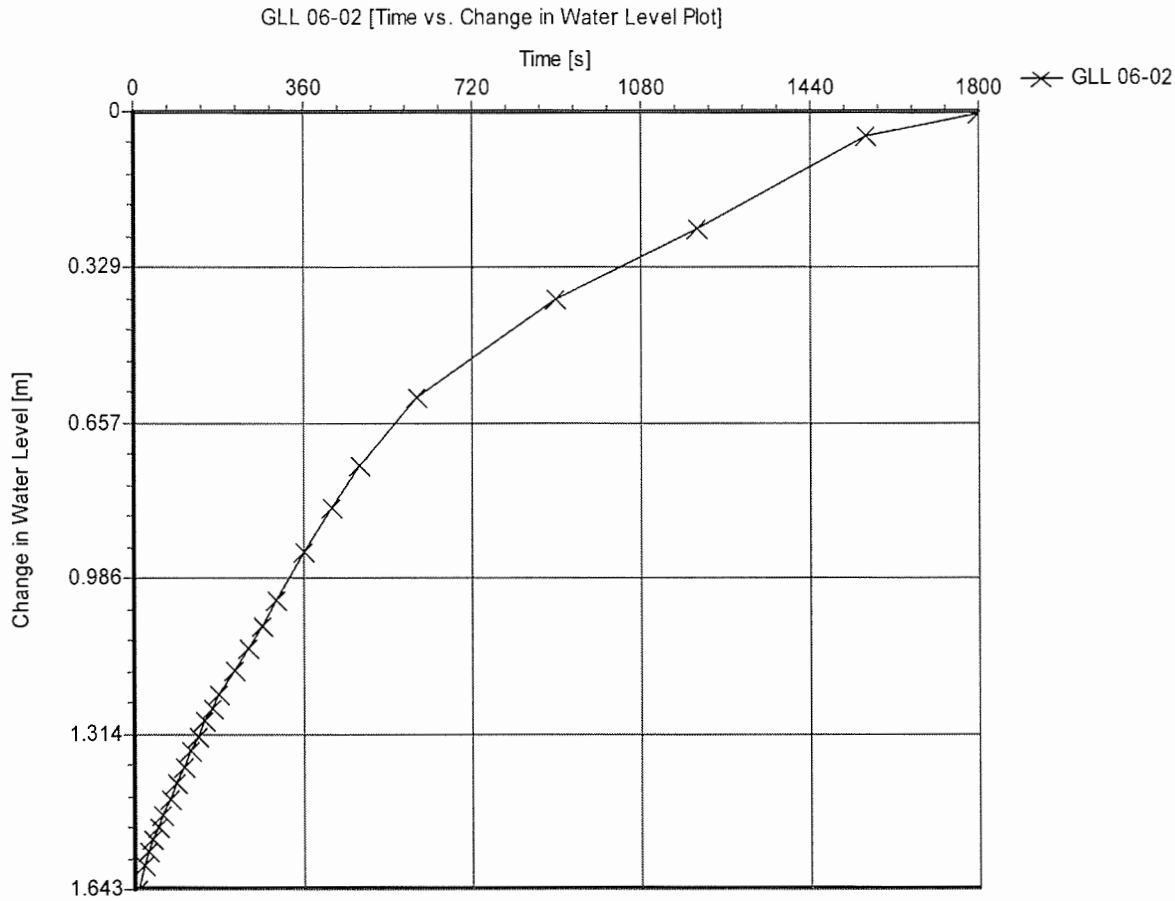
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-02**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-02	Aquifer Thickness:	2.017 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.3 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

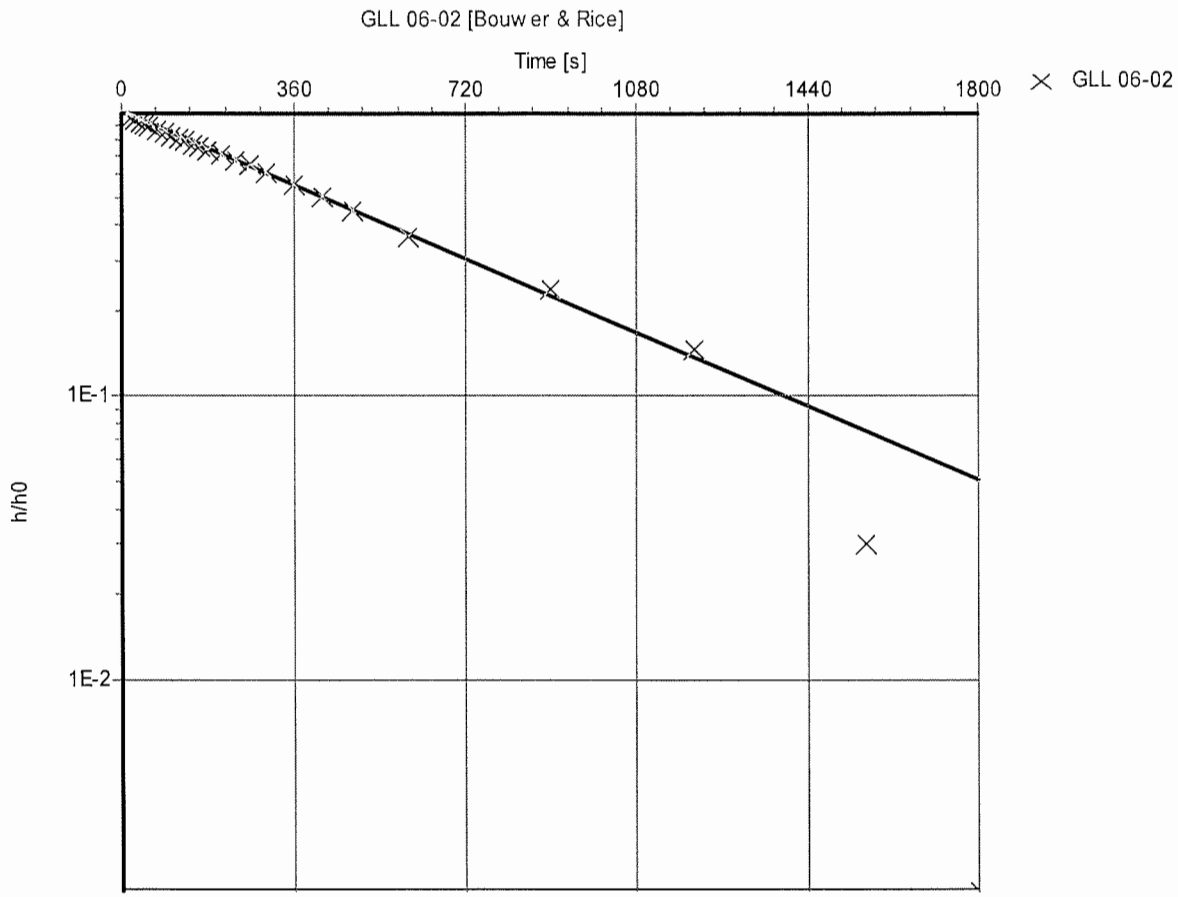
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-02**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 4.50E-6 [m/s]

Test parameters:

Test Well:	GLL 06-02	Aquifer Thickness:	2.017 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	1.3 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

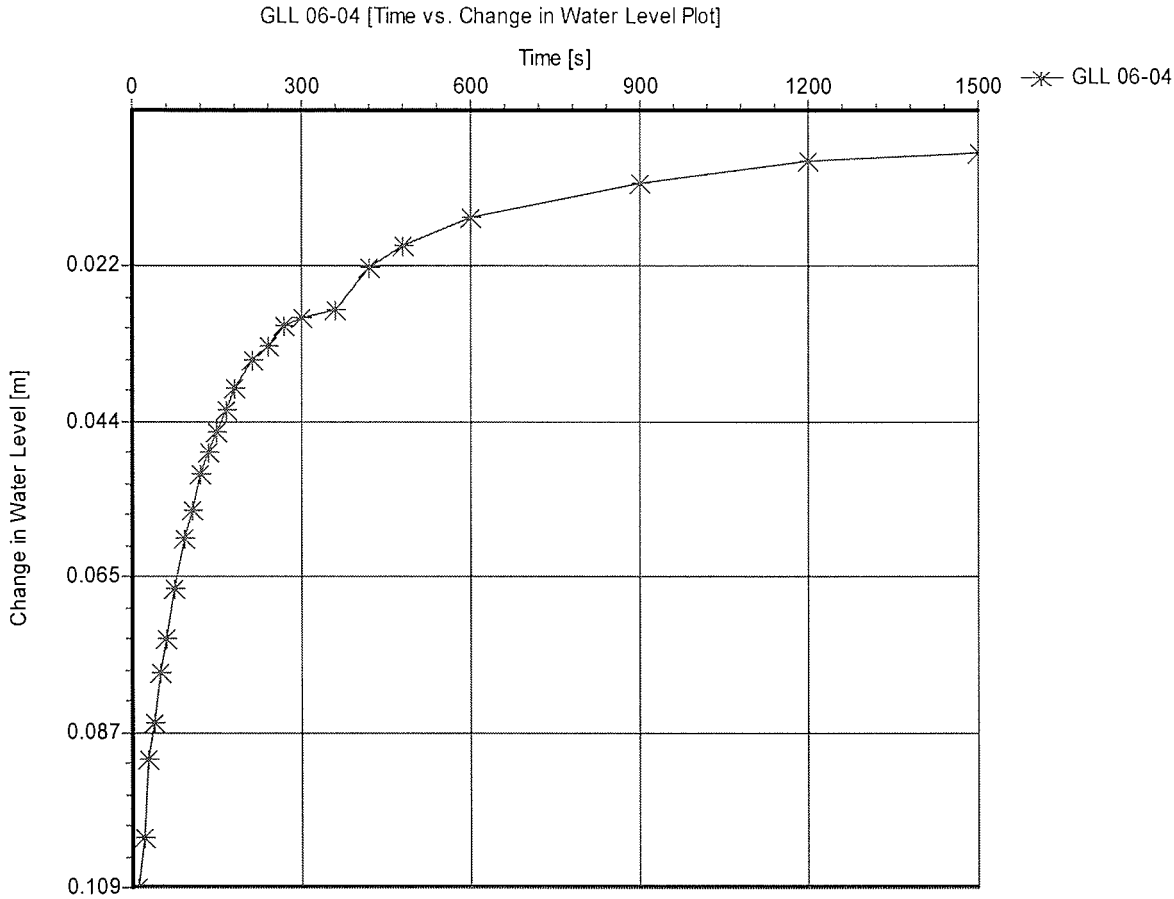
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-04**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-04	Aquifer Thickness:	0.957 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.28 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

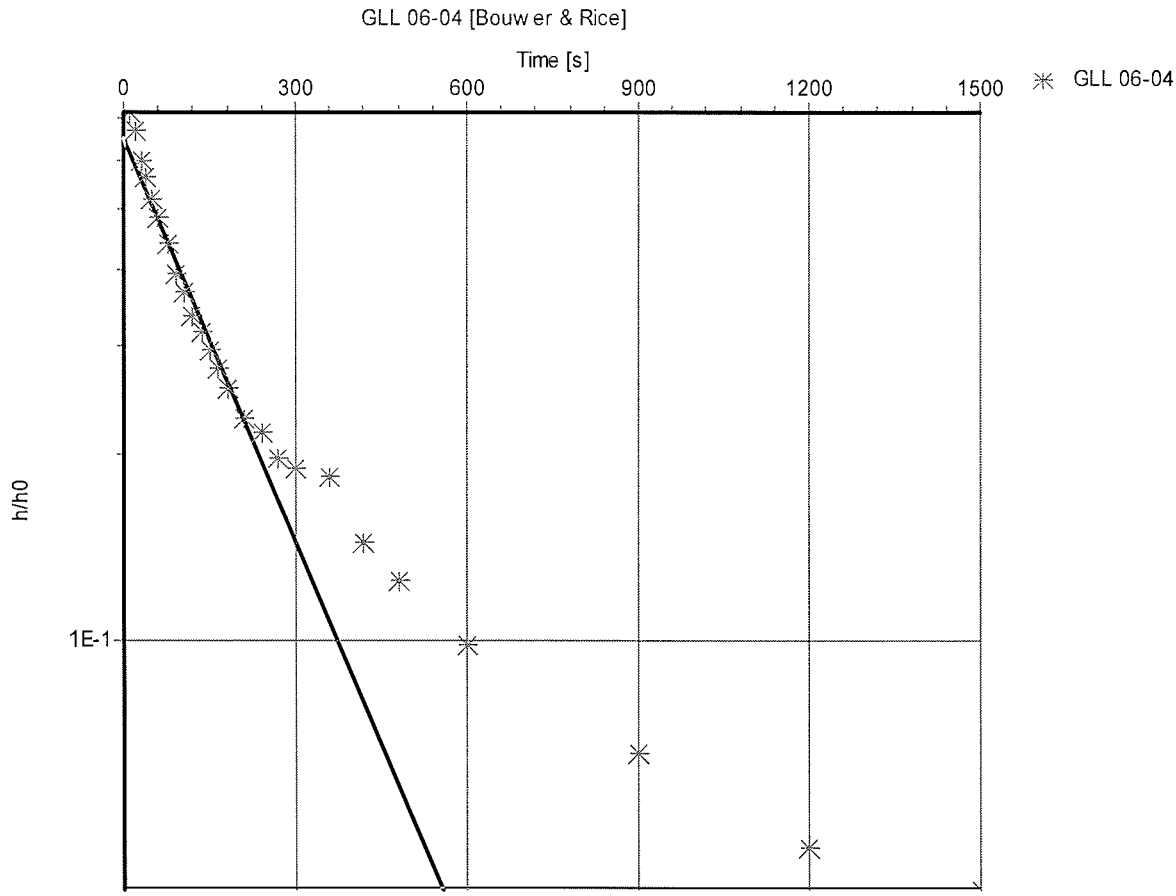
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-04**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.18E-5 [m/s]

Test parameters:

Test Well:	GLL 06-04	Aquifer Thickness:	0.957 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	1.28 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

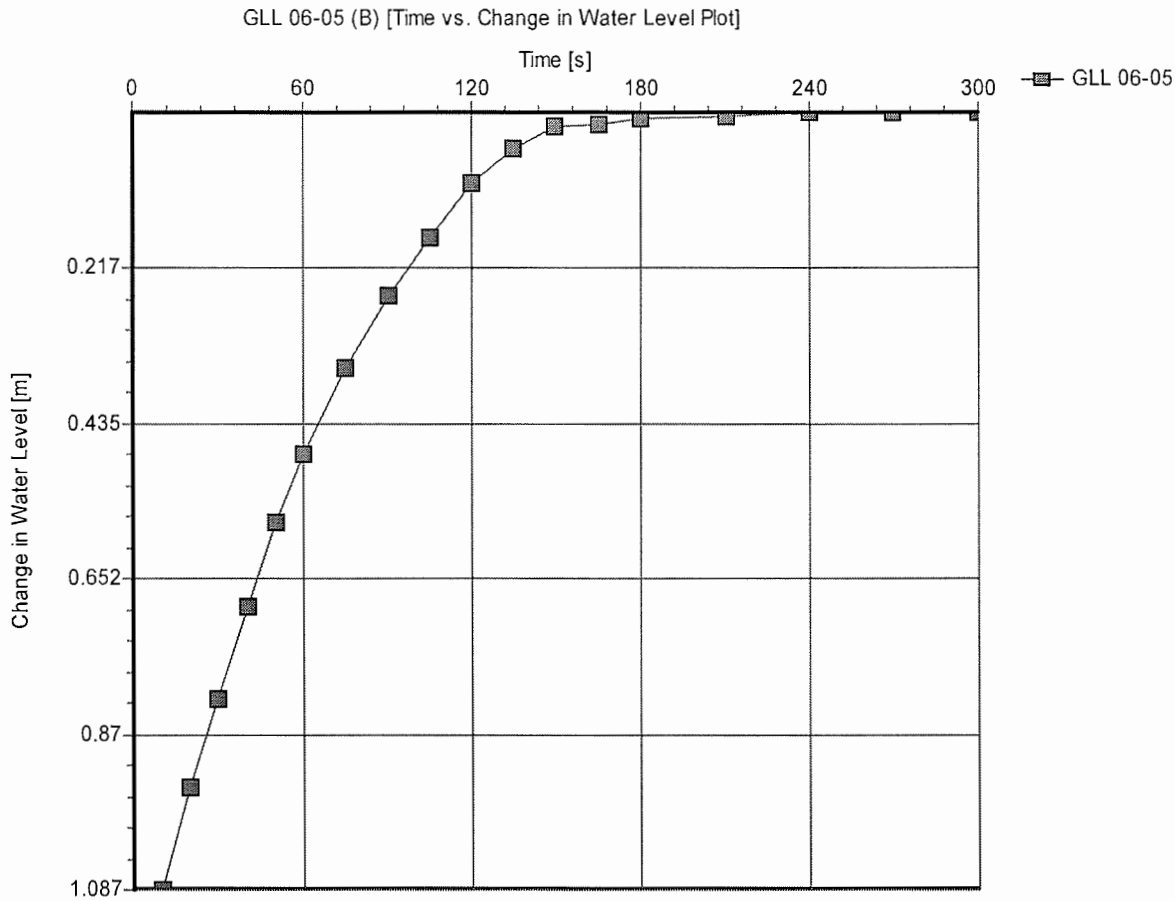
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-05 (B)**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-05	Aquifer Thickness:	1.423 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.22 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

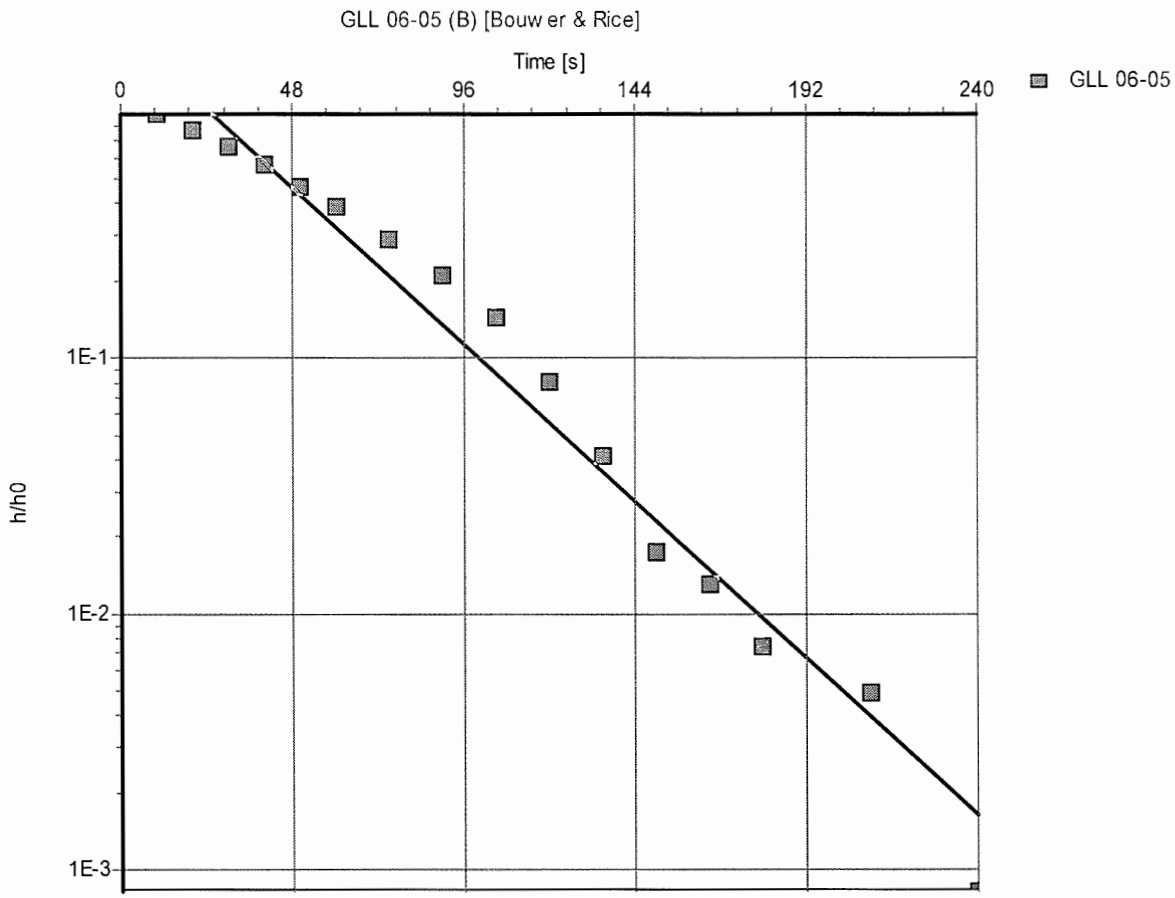
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-05 (B)**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 7.64E-5 [m/s]

Test parameters:

Test Well:	GLL 06-05	Aquifer Thickness:	1.423 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	1.22 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

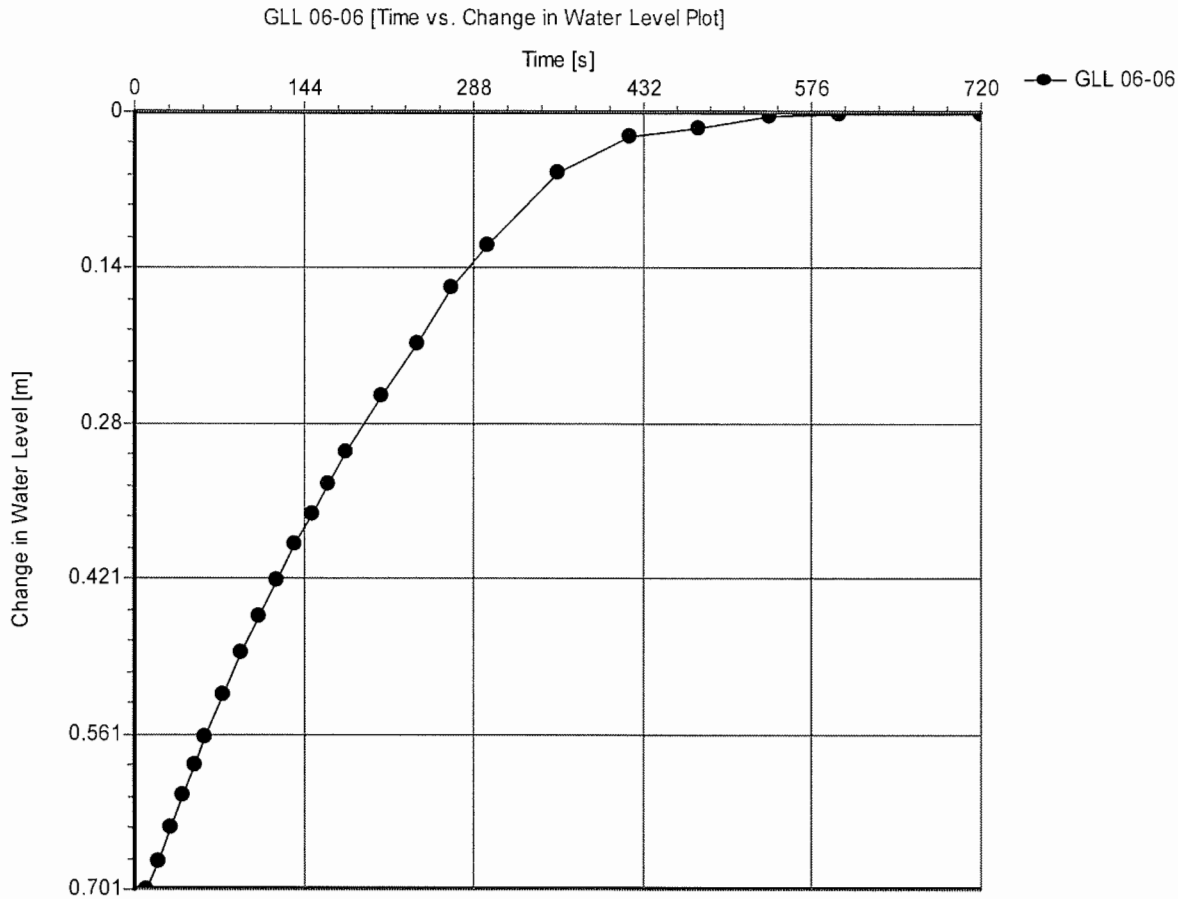
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-06**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-06	Aquifer Thickness:	1.015 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	0.76 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

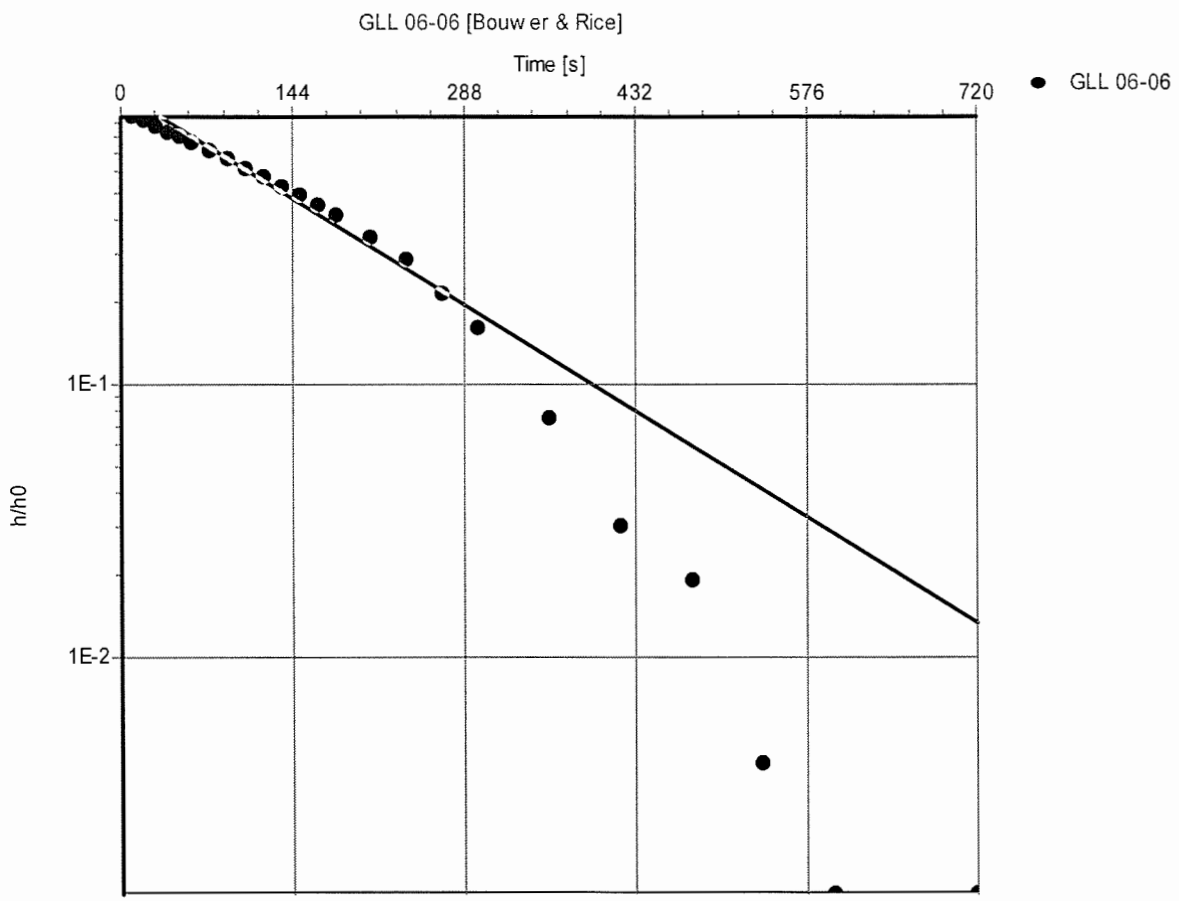
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-06**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 2.18E-5 [m/s]

Test parameters:

Test Well:	GLL 06-06	Aquifer Thickness:	1.015 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	0.76 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

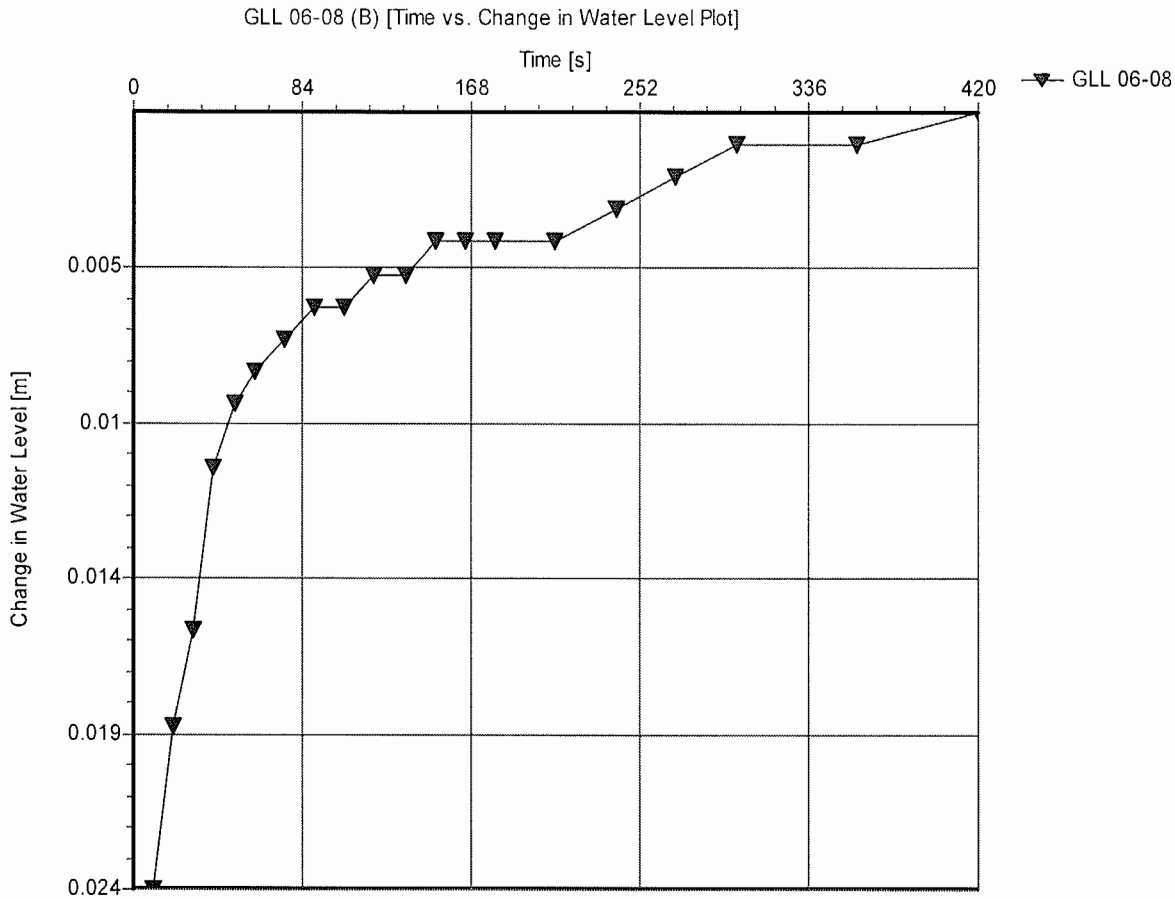
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-08 (B)**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-08	Aquifer Thickness:	0.896 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.22 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

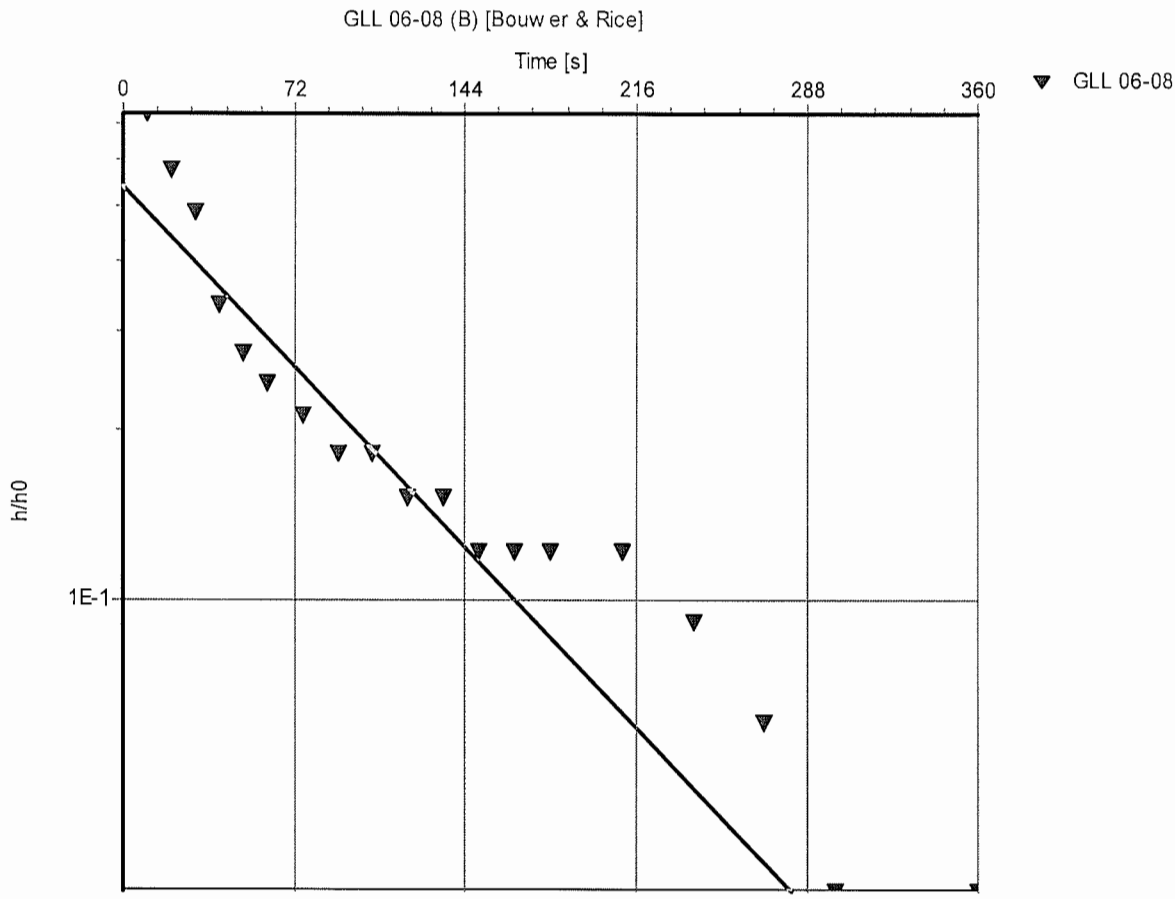
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-08 (B)**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.75E-6 [m/s]

Test parameters:				
	Test Well:	GLL 06-08	Aquifer Thickness:	0.896 [m]
	Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
	Screen length:	1.22 [m]		
	Boring radius:	0.1016 [m]		
	r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

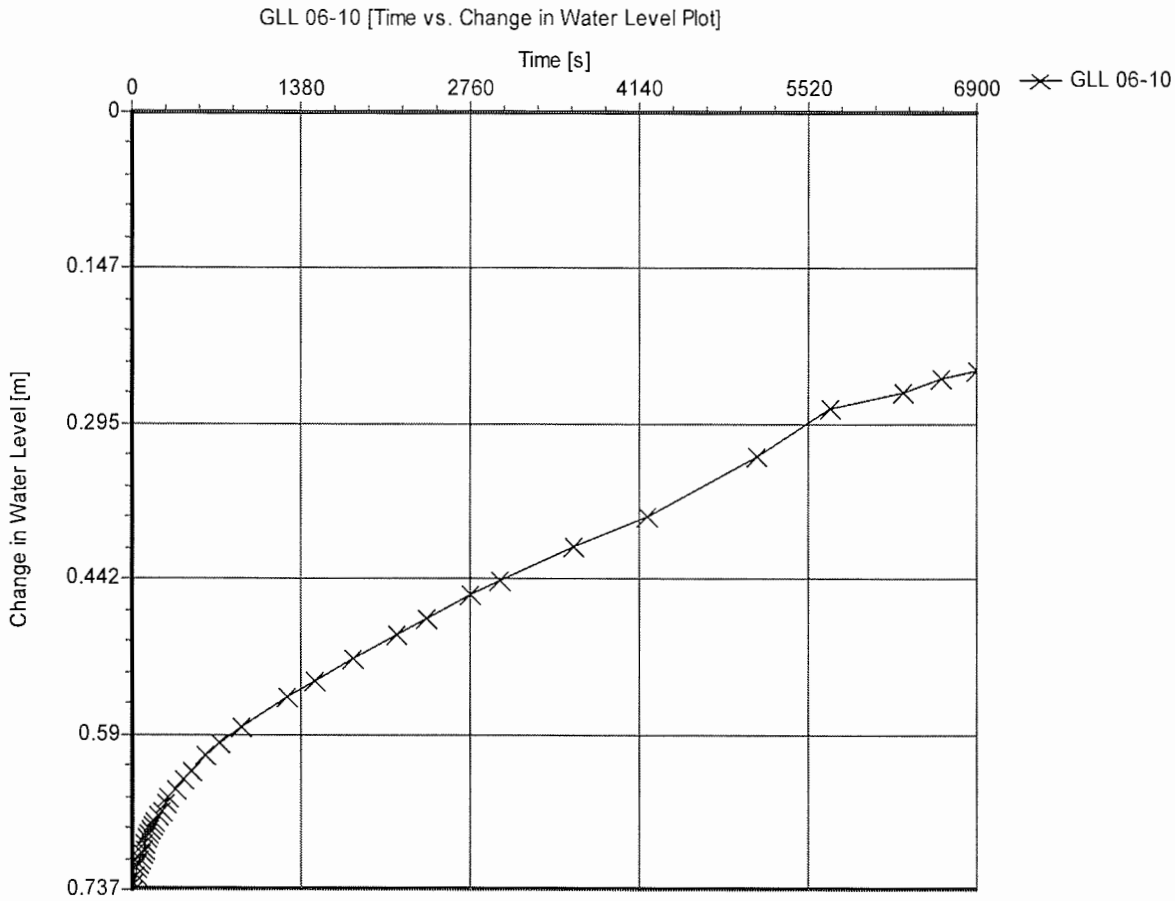
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-10**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-10	Aquifer Thickness:	1.188 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.21 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

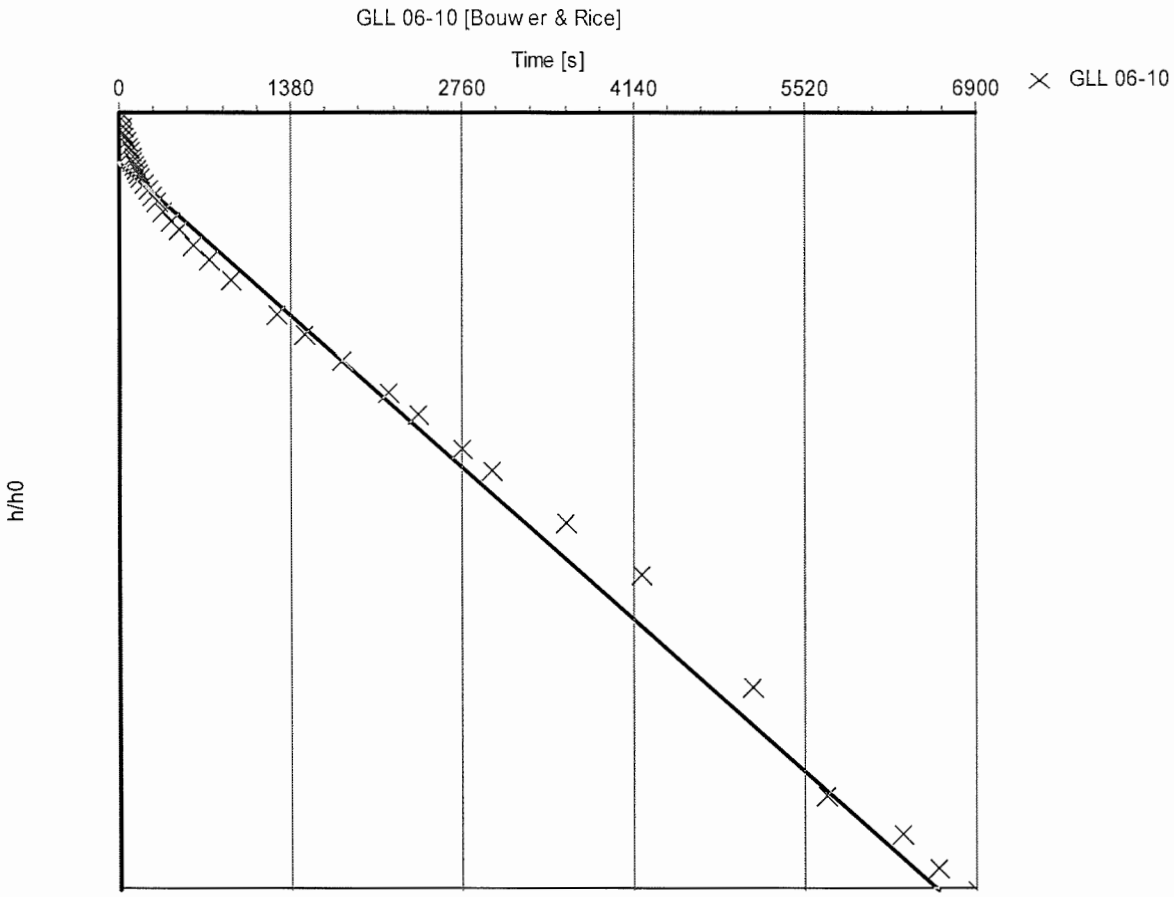
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-10**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 3.88E-7 [m/s]

Test parameters:				
	Test Well:	GLL 06-10	Aquifer Thickness:	1.188 [m]
	Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
	Screen length:	1.21 [m]		
	Boring radius:	0.1016 [m]		
	r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

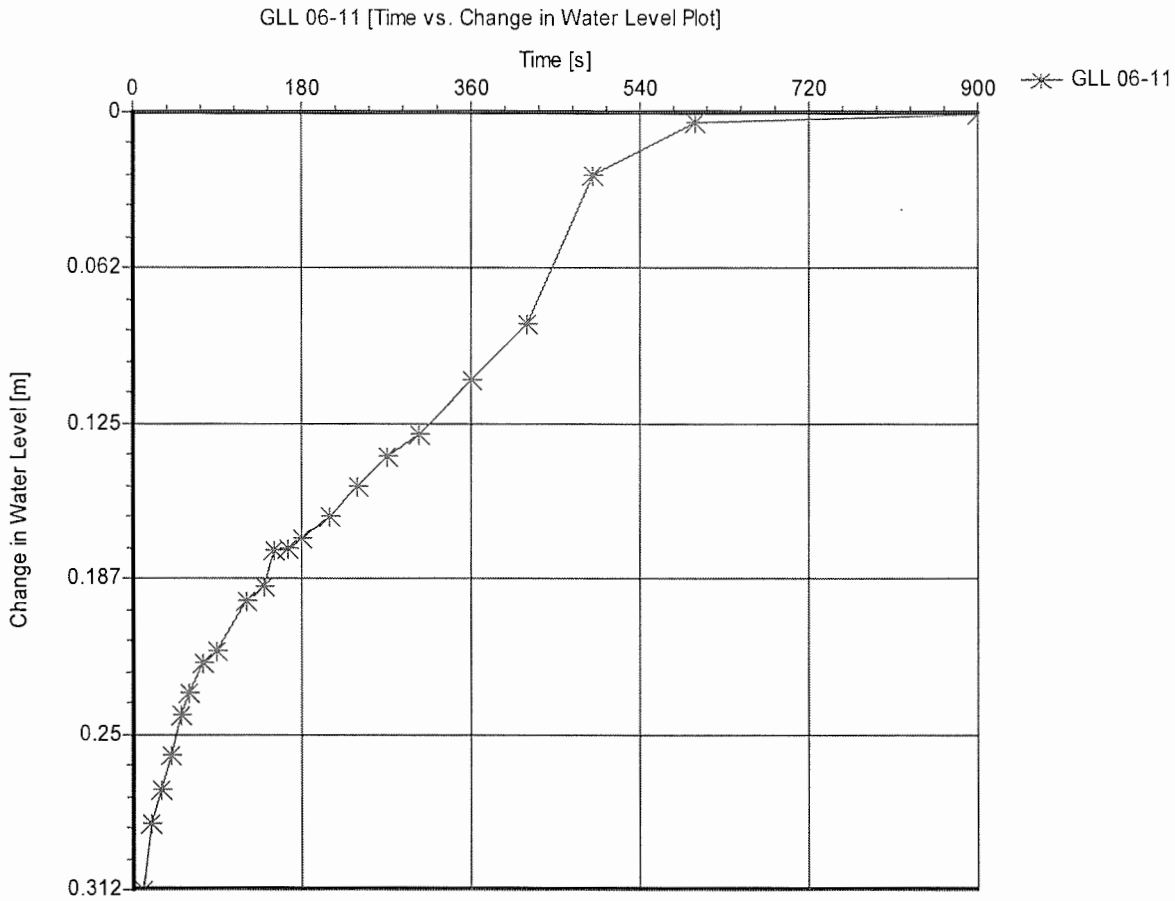
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-11**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-11	Aquifer Thickness:	0.597 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.06 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

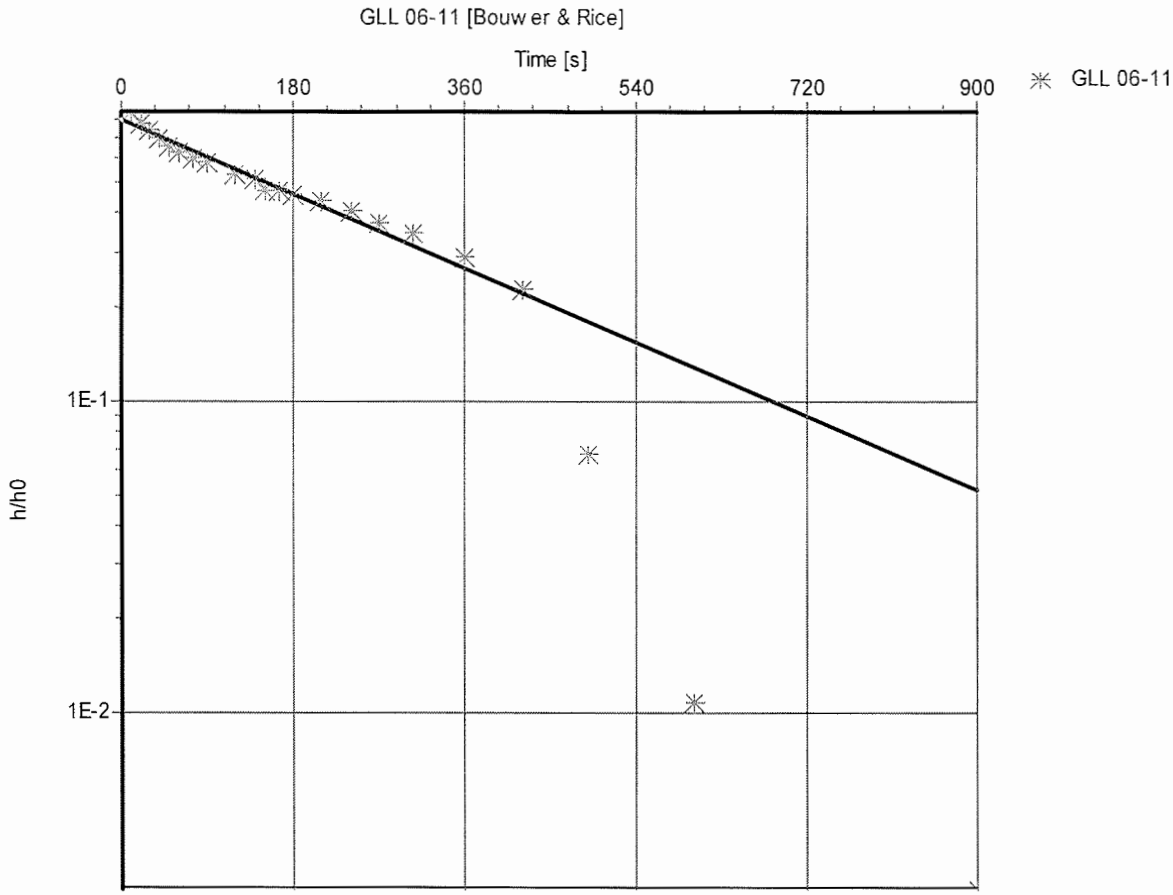
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-11**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 6.85E-6 [m/s]

Test parameters:

Test Well:	GLL 06-11	Aquifer Thickness:	0.597 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	1.06 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

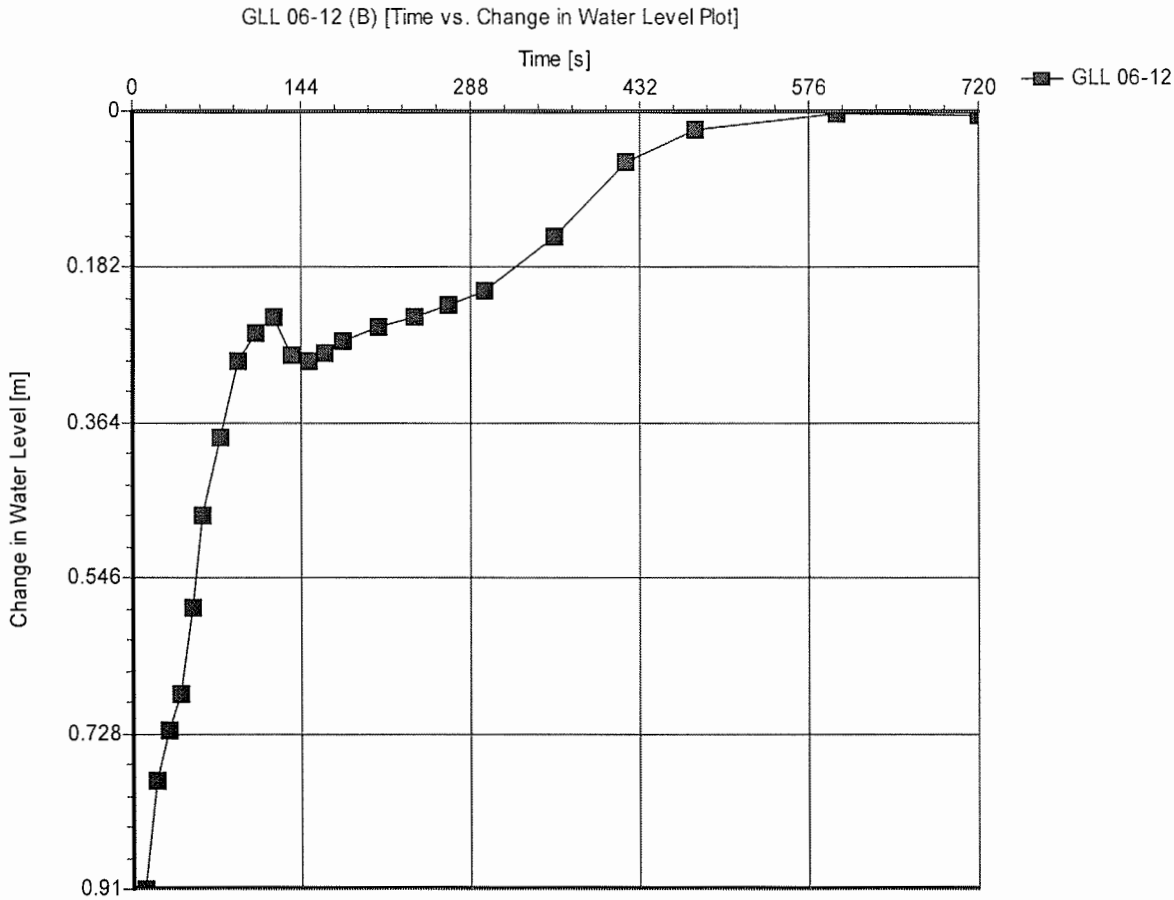
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-12 (B)**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-12	Aquifer Thickness:	1.521 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.22 [m]		
	Boring radius:	0.1016 [m]		

Comments:

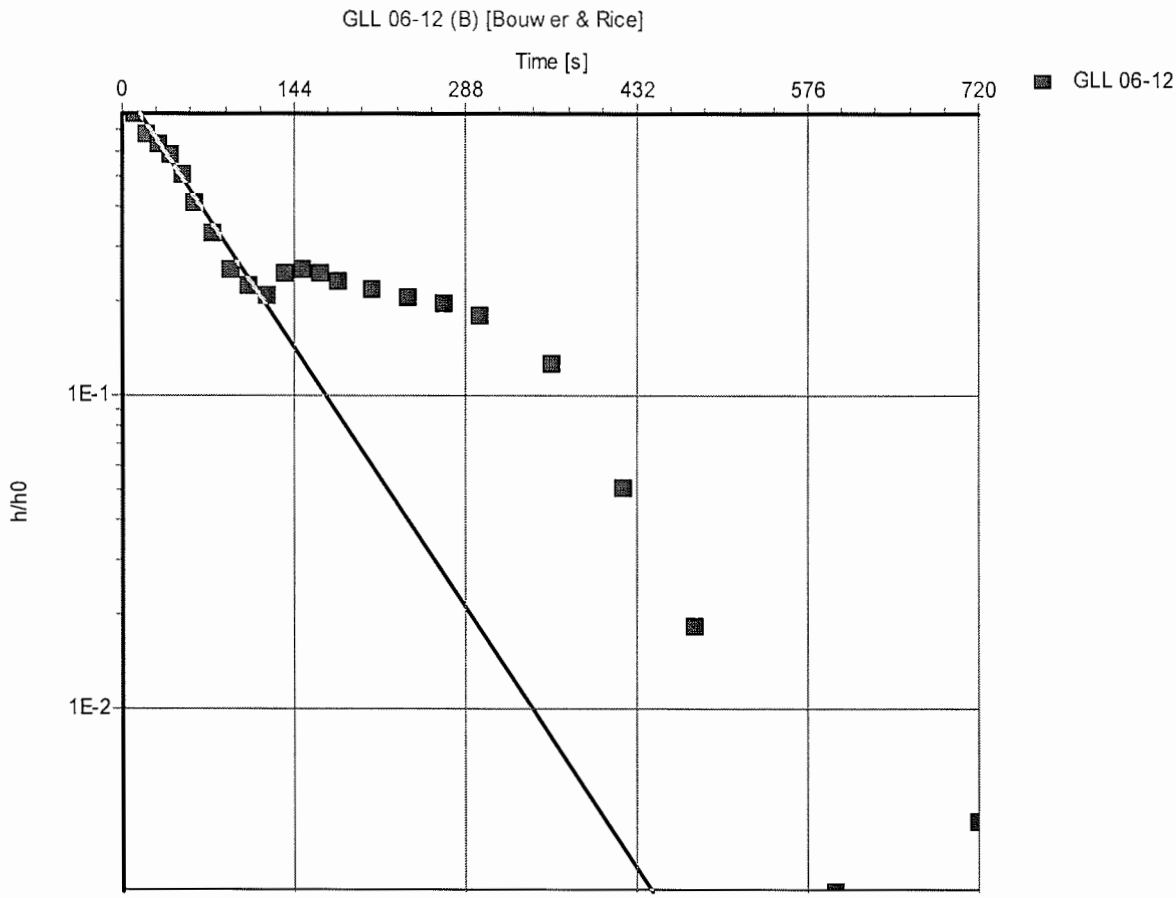
Evaluated by: PJM

Evaluation Date: 5/5/2006

Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry
Number: 60394
Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-12 (B)**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 3.53E-5 [m/s]

Test parameters:

Test Well:	GLL 06-12	Aquifer Thickness:	1.521 [m]
Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
Screen length:	1.22 [m]		
Boring radius:	0.1016 [m]		
r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM
Evaluation Date: 5/5/2006

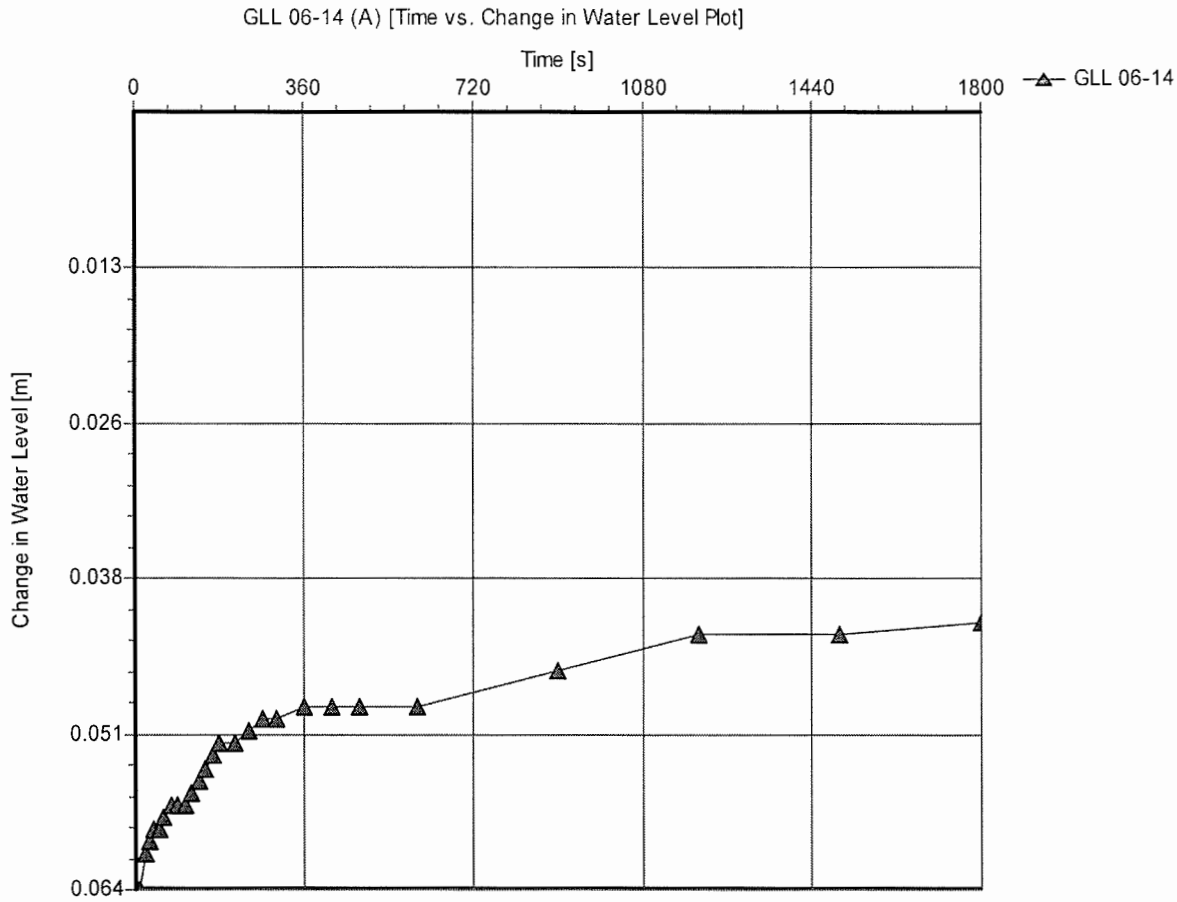
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-14 (A)**

Analysis Method: **Time vs. Change in Water Level Plot**

Analysis Results:

Test parameters:				
	Test Well:	GLL 06-14	Aquifer Thickness:	0.135 [m]
	Casing radius:	0.015875 [m]		
	Screen length:	1.2 [m]		
	Boring radius:	0.1016 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

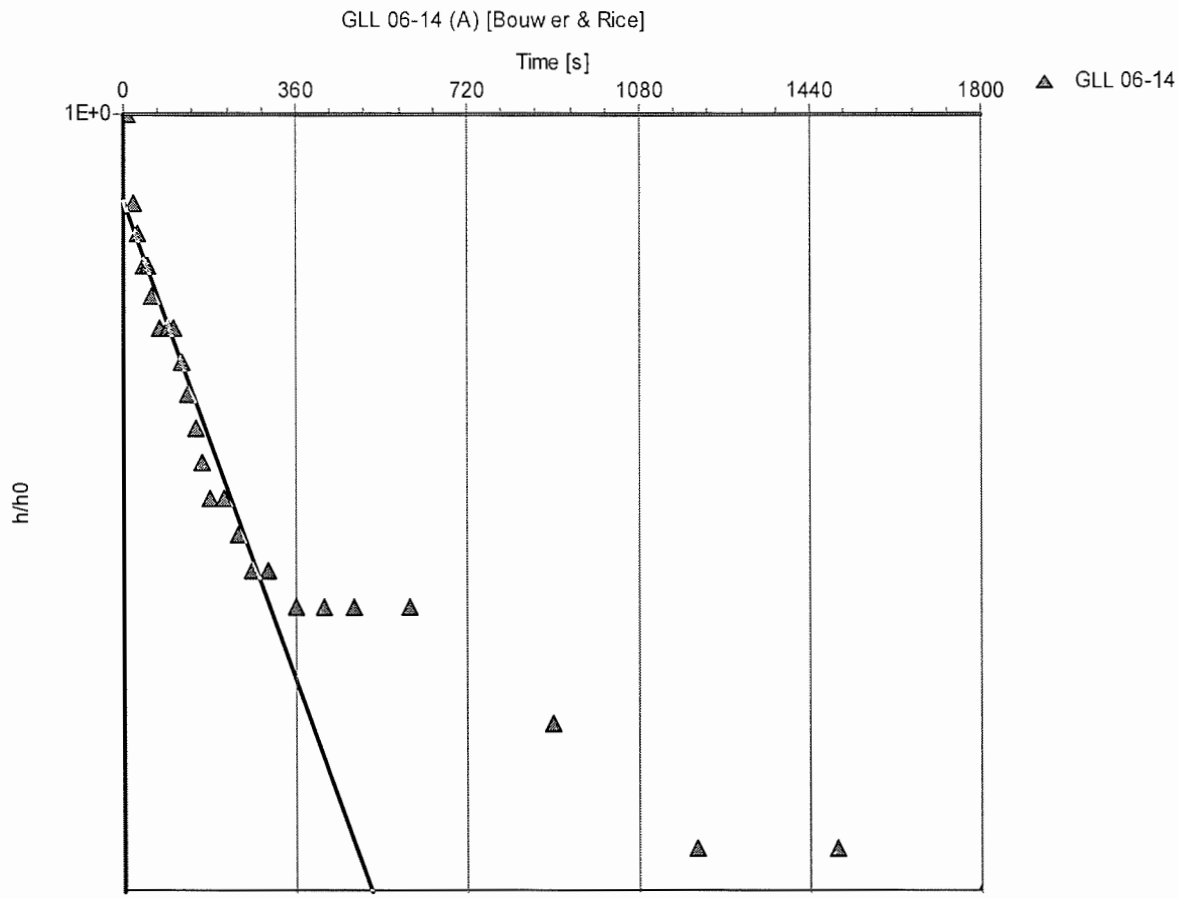
Gartner Lee Limited
20 Corporate Park Drive, Suite 103
St. Catharines, ON, L2S 3W2

Slug Test Analysis Report

Project: Proposed Dolostone Quarry

Number: 60394

Client: Lowndes Holdings Corp.



Slug Test: **GLL 06-14 (A)**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 2.45E-7 [m/s]

Test parameters:				
	Test Well:	GLL 06-14	Aquifer Thickness:	0.135 [m]
	Casing radius:	0.015875 [m]	Gravel Pack Porosity (%)	30
	Screen length:	1.2 [m]		
	Boring radius:	0.1016 [m]		
	r(eff):	0.057 [m]		

Comments:

Evaluated by: PJM

Evaluation Date: 5/5/2006

F3-2. Bedrock Wells (2007/2008)

Appendix F3-2

Slug Testing of Bedrock Wells (2007/2008)

A total of 59 new/reconstructed bedrock wells were slug tested in September 2007. Hydraulic conductivity testing was performed in the field by injecting a 4 L slug of distilled water into each well and monitoring the water level decay with time. [Note: The theoretical water level displacements for the individual wells are specified in the analytical summaries in Appendix F3-2] The water level response was monitored with calibrated pressure transducers (Schlumberger 'Divers'), which were set to record the water level every second. The pressure transducer data were verified with manual water level measurements. The tests were terminated when the cumulative recovery of the wells reached at least 2/3 of the difference between the static water level and the initial displacement level.

The collected data were analyzed using either the commercially available AquiferTest software package (Thomas Rohrich and Waterloo Hydrogeologic, Inc. 2007) or AqteSolve 4.5 (HydroSolve Incorporated, 2008), applying the Bouwer and Rice (1976) method to overdamped responses and Butler (1997) to underdamped responses. The Bouwer-Rice method can be applied to partial penetrating wells in unconfined or confined aquifers where the formation is stressed through the addition or withdrawal of water. Methods outlined in Butler allow for the analysis of higher conductivity responses where the recovery response oscillates back to the static elevation.

The analytical sheets are provided in Appendix F3-2. The analysis of the injection-test data focused on the recovery portion of the water level response. The addition of water to the wells, results in an upward displacement of the water level and a subsequent decline once injection ceases. As is the case with packer tests, the results of these injection tests provide an estimate of the horizontal conductivity of the formation immediately adjacent to the tested interval.

Given scale considerations, these values most likely represent a lower range of hydraulic conductivity in comparison with pumping test generated values that consider a larger portion of the formation (Schulze-Makuch *et al.,* 1999).

For quality assurance purposes, S.S. Papadopulos & Associates conducted an independent review of the bedrock test results (April 28, 2008 letter report is provided in Appendix F3-4). S.S. Papadopulos & Associates identified various tests that had non-ideal responses. Well responses flagged as 'uncertain' for wells that were screened across the water table and were likely affected by drainage above the water table. Well responses that were judged as erratic were flagged as having 'limited reliability'.

To enhance the data set, it was concluded that the slug tests, which were judged as 'uncertain' or with 'limited reliability' would be repeated at a time when the water table was higher and there was a greater probability that the well screens would be fully submerged. This work was conducted in May 2008.

Table F3-2 presents a summary of the slug test results. Included are the initial analyses, S.S. Papadopulos & Associates analysis output and the results of the repeat testing. [Note: the Gartner Lee analyses were performed on the earliest portions of the response, whereas S.S. Papadopulos & Associates fitted the data to the normalized displacement from 0.2 to 0.3, per guidance offered in Butler (1997).]

Supporting Data for Slug Test Analysis - September 2007 (GLL 60-702)
St Marys - Flamborough Quarry

Monitor ID	Ground Surface Elevation	R	r	r_{eff}			b					L	D		D_{static}	D_0	$D_{static} - D_0$		BouwerRice	Butler	
		Borehole Radius	Monitor Radius	Effective Monitor Radius	Static Water Level	Bottom of Screen	Length from Bottom Screen to Static Piezo Surface	Top of Screen	Top of Amabel	Aquifer Type	Aquifer Penetration	Length of Screen Within the Saturated Zone	Aquifer Thickness	Test Date	Diver Reading Static Level	Diver Reading (t=0)	Instant Water Increase	Theoretical Water Increase	Estimated Hydraulic Conductivity		Unit Monitored
Official	m ASL	m	m	m	m ASL	m ASL	m	m ASL	m ASL			m	m		cm water above	cm water above	m	m	m/s	m/s	
MWB1-I-A	285.65	0.051	0.026	0.035	282.07	278.94	3.13	282.14	283.05	unconfined	fully	3.13	3.13	09/13/2007	44.8	58.7	0.14	1.96	8.5E-06		upper Amabel
MWB1-II-B	285.66	0.084	0.026	0.026	281.49	265.16	16.33	268.21	283.06	confined	fully	3.05	3.05	09/13/2007	470.0	569.0	0.99	1.96	5.1E-05		productive zone, middle of Amabel
MWB1-II-C	285.66	0.084	0.026	0.026	281.57	253.17	28.40	256.22	283.06	confined	fully	3.05	3.05	09/13/2007	478.9	660.8	1.82	1.96	1.4E-06		near base of Amabel
MWB3-A	286.14	0.126	0.026	0.026	283.77	273.34	10.43	279.43	283.04	confined	fully	6.10	6.10	09/17/2007	205.8	242.5	0.37	1.96	2.5E-05		fractured, poor quality zone, upper Amabel
MWB3-B	286.14	0.084	0.026	0.026	283.60	254.14	29.46	258.71	283.04	confined	fully	4.57	4.57	09/17/2007	176.7	227.7	0.51	1.96		2.1E-04	base of Amabel
MWB4-I-A	286.14	0.051	0.026	0.035	280.32	278.52	1.80	281.72	283.14	unconfined	fully	1.80	1.80	09/19/2007	140.5	161.5	0.21	1.96	1.9E-04		fractured zone, upper Amabel
MWB4-II-B	286.17	0.084	0.026	0.026	280.29	271.34	8.95	275.91	283.17	confined	fully	4.57	4.57	09/19/2007	315.2	346.1	0.31	1.96	1.1E-04		upper/middle Amabel
MWB4-II-C	286.17	0.084	0.026	0.026	280.50	250.69	29.81	253.73	283.17	confined	fully	3.05	3.05	09/19/2007	340.0	511.0	1.71	1.96	2.2E-05		base of Amabel
MWB6-I-A	287.27	0.051	0.026	0.035	282.15	281.17	0.98	284.37	285.17	unconfined	fully	0.98	0.98	09/18/2007	NG	NG	NG	1.96	n/a	n/a	fractured zone, upper Amabel
MWB6-II-B	287.24	0.084	0.026	0.026	281.90	266.16	15.74	272.25	285.14	confined	fully	6.10	6.10	09/18/2007	1366.6	1422.1	0.56	1.96		1.7E-04	productive zone, middle of Amabel
MWB6-II-C	287.24	0.084	0.026	0.026	282.31	257.98	24.33	261.03	285.14	confined	fully	3.05	3.05	09/18/2007	1405.4	1578.8	1.73	1.96	2.7E-05		feature, near base of Amabel
MWB7-I-A	285.51	0.051	0.026	0.035	280.44	279.41	1.03	282.61	284.61	unconfined	fully	1.03	1.03	09/18/2007	1077.2	1106.2	0.29	1.96	1.2E-05		fractured zone, upper Amabel
MWB7-II-B	285.48	0.084	0.026	0.026	280.48	269.07	11.41	273.64	284.58	confined	fully	4.57	4.57	09/18/2007	1410.8	1430.5	0.20	1.96		1.7E-03	productive zone, upper/middle of Amabel
MWB7-II-C	285.48	0.084	0.026	0.026	280.70	250.07	30.63	253.12	284.58	confined	fully	3.05	3.05	09/18/2007	421.7	592.3	1.71	1.96	2.0E-05		feature, base of Amabel and Fossil Hill
MWB8-I-A	281.62	0.051	0.026	0.035	277.68	275.07	2.61	278.27	278.52	unconfined	fully	2.61	2.61	09/18/2007	172.0	180.2	0.08	1.96	3.4E-04		overburden & upper fractured zone of Amabel
MWB8-II-B	281.52	0.084	0.026	0.026	277.75	268.06	9.69	271.10	278.42	confined	fully	3.05	3.05	09/18/2007	511.4	534.5	0.23	1.96		6.3E-04	productive zone, upper/middle of Amabel
MWB8-II-C	281.52	0.084	0.026	0.026	277.82	257.06	20.76	260.11	278.42	confined	fully	3.05	3.05	09/18/2007	522.9	629.3	1.06	1.96	7.4E-05		lower Amabel
MWB9-I-A	284.7	0.051	0.026	0.035	280.46	278.60	1.86	281.80	283.2	unconfined	fully	1.86	1.86	09/19/2007	52.7	89.6	0.37	1.96	1.5E-05		fractured zone, upper Amabel
MWB9-II-B	284.63	0.051	0.026	0.026	280.69	248.97	31.72	252.17	283.13	confined	fully	3.20	3.20	09/19/2007	104.3	287.9	1.84	1.96	9.3E-06		Fossil Hill and Cabot Head
MWB10-I-A	292.45	0.100	0.026	0.026	281.96	276.70	5.26	279.75	289.15	confined	fully	3.05	3.05	09/14/2007	1074.8	1125.9	0.51	1.96	4.3E-05		productive zone, upper Amabel
MWB10-I-B	292.45	0.100	0.026	0.026	281.99	267.20	14.79	270.25	289.15	confined	fully	3.05	3.05	09/14/2007	1083.3	1158.8	0.76	1.96	3.0E-05		productive zone, middle of Amabel
MWB10-I-C	292.45	0.100	0.026	0.026	282.47	258.19	24.28	261.23	289.15	confined	fully	3.05	3.05	09/14/2007	1099.8	1170.6	0.71	1.96		4.2E-04	feature, lower Amabel
MWB10-II-D	292.43	0.084	0.026	0.026	282.46	246.03	36.43	247.53	289.13	confined	fully	1.50	1.50	09/14/2007	NG	NG	NG	1.96	n/a	n/a	Cabot Head
MWB11-A	284.64	0.100	0.026	0.026	280.71	275.50	5.21	278.54	280.83	confined	fully	3.05	3.05	09/19/2007	94.3	141.9	0.48	1.96	2.2E-04		fractured zone, upper Amabel
MWB11-B	284.64	0.100	0.026	0.026	280.73	265.39	15.34	271.48	280.83	confined	fully	6.10	6.10	09/19/2007	96.5	140.5	0.44	1.96	7.3E-05		fractured zone, middle Amabel
MWB11-C	284.64	0.100	0.026	0.026	280.72	250.38	30.34	256.47	280.83	confined	fully	6.10	6.10	09/19/2007	96.5	150.1	0.54	1.96		3.0E-04	fractured zone, lower Amabel
MWB12-A	291.1	0.126	0.026	0.026	283.87	279.11	4.76	282.16	287.9	confined	fully	3.05	3.05	09/14/2007	160.5	167.6	0.07	1.96	1.5E-04		productive zone, upper Amabel
MWB12-B	291.1	0.126	0.026	0.026	284.04	272.10	11.94	275.15	287.9	confined	fully	3.05	3.05	09/14/2007	177.3	198.7	0.21	1.96		2.1E-03	productive zone, middle of Amabel
MWB12-C	291.1	0.126	0.026	0.026	283.93	254.63	29.30	259.20	287.9	confined	fully	4.57	4.57	09/13/2007	162.3	243.9	0.82	1.96	1.2E-05		productive zone, lower Amabel
MWB13-A	287.1	0.126	0.026	0.072	280.76	276.43	4.33	281.00	282.99	unconfined	fully	4.33	4.33	09/19/2007	66.7	71.2	0.05	1.96	2.0E-04		fractured zone upper Amabel
MWB13-B	287.1	0.126	0.026	0.026	280.77	258.09	22.68	262.66	282.99	confined	fully	4.57	4.57	09/19/2007	73.7	114.3	0.41	1.96	6.2E-05		productive zone, lower Amabel
MWB13-C	287.1	0.126	0.026	0.026	280.79	250.09	30.70	254.66	282.99	confined	fully	4.57	4.57	09/19/2007	82.3	225.1	1.43	1.96	3.8E-05		base of Amabel and Fossil Hill
MWB17-A	290.84	0.084	0.019	0.049	284.55	282.01	2.54	285.02	289.02	unconfined	fully	2.54	2.54	09/17/2007	126.2	149.2	0.23	0.88	2.9E-05		fractured zone, upper Amabel
MWB17-B	290.84	0.084	0.019	0.019	283.97	251.76	32.21	254.77	289.02	confined	fully	3.01	3.01	09/17/2007	1081.5	1166.3	0.85	0.88	4.7E-05		base of Amabel and Fossil Hill
MWB18-A	287.08	0.084	0.026	0.026	283.04	266.05	16.99	269.10	282.05	confined	fully	3.05	3.05	09/13/2007	484.0	601.3	1.17	1.96	2.9E-05		middle Amabel
MWB18-B	287.08	0.084	0.026	0.026	283.06	252.59	30.47	258.68	282.05	confined	fully	6.10	6.10	09/13/2007	485.8	520.2	0.34	1.96		2.0E-04	base of Amabel
MWB19-A	287.59	0.084	0.026	0.026	283.18	279.97	3.21	283.02	284.01	unconfined	fully	3.05	3.21	09/17/2007	NG	NG	NG	1.96	n/a	n/a	productive zone, upper Amabel
MWB19-B	287.59	0.084	0.026	0.026	283.20	257.08	26.12	260.13	284.01	confined	fully	3.05	3.05	09/17/2007	1080.0	1160.7	0.81	1.96		3.6E-04	productive zone, lower Amabel
MWB20-I-A	289.71	0.084	0.026	0.051	280.94	280.26	0.68	284.83	289.71	unconfined	fully	0.68	0.68	09/14/2007	26.9	61.0	0.34	1.96	8.2E-07		upper Amabel
MWB20-II-B	290.54	0.084	0.026	0.026	280.97	270.98	9.99	274.03	287.65	confined	fully	3.05	3.05	09/14/2007	47.0	143.6	0.97	1.96	2.5E-05		productive zone middle of Amabel
MWB20-II-C	290.54	0.084	0.026	0.026	281.00	256.00	25.00	259.05	287.65	confined	fully	3.05	3.05	09/14/2007	52.1	87.9	0.36	1.96		5.7E-04	productive zone, lower Amabel
MWB21-A	294.09	0.084	0.026	0.026	281.41	270.98	10.43	274.03	292.09	confined	fully	3.05	3.05	09/18/2007	1030.6	1077.0	0.46	1.96		1.8E-03	productive zone, middle of Amabel
MWB21-B	294.09	0.084	0.026	0.026	281.72	256.29	25.43	260.87	292.09	confined	fully	4.57	4.57	09/18/2007	1063.7	1195.5	1.32	1.96	1.8E-05		productive zone, lower Amabel
MWB22-I-A	290.88	0.084	0.026	0.026	282.44	279.30	3.14	282.35	285.28	unconfined	fully	3.05	3.14	09/12/2007	1149.7	1216.5	0.67	1.96	1.9E-05		productive zone, upper Amabel
MWB22-I-C	290.88	0.084	0.026	0.026	282.54	263.07	19.47	266.12	285.28	confined	fully	3.05	3.05	09/12/2007	153.5	219.1	0.66	1.96		2.1E-04	feature, lower Amabel
MWB22-II-B	290.74	0.084	0.026	0.026	282.44	273.21	9.23	276.26	284.94	confined	fully	3.05	3.05	09/12/2007	182.8	246.2	0.63	1.96	3.8E-05		productive zone, upper/middle of Amabel
MWB22-II-D	290.74	0.084	0.026	0.026	282.48	251.12	31.36	257.21	284.94	confined	fully	6.10	6.10	09/12/2007	196.0	252.2	0.56	1.96		7.3E-04	freature, near base of Amabel
MWB23-I-A	288.79	0.084	0.026	0.026	282.45	275.68	6.77	280.26	285.79	confined	fully	4.57	4.57	09/12/2007	293.0	422.7	1.30	1.96	9.4E-06		fractured zone, upper Amabel
MWB23-II-B	288.77	0.084	0.026	0.026	282.42	267.79	14.63	270.84	285.57	confined	fully	3.05	3.05	09/12/2007	259.0	280.8	0.22	1.96		4.7E-04	middle Amabel
MWB23-II-C	288.77	0.084	0.026	0.026	282.43	252.04	30.39	255.09	285.57	confined	fully	3.05	3.05	09/12/2007	258.0	315.8	0.58	1.96	5.5E-05		near base of Amabel
MWB24-I-A	290.62	0.084	0.026	0.026	dry	284.07	n/a	285.59	286.62	n/a	n/a	n/a	n/a	09/13/2007	n/a	n/a	n/a	1.96	n/a	n/a	fractured zone, upper Amabel
MWB24-I-B	290.62	0.084	0.026	0.026	283.14	277.64	5.50	280.69	286.62	confined	fully	3.05	3.05	09/13/2007	141.1	210.6	0.70	1.96	4.4E-05		feature, upper Amabel
MWB24-II-C	290.56	0.084	0.026	0.026	283.09	267.16	15.93	273.26	286.86	confined	fully	6.10	6.10	09/13/2007	185.1	193.4	0.08	1.96		1.0E-03	productive zone, middle of Amabel
MWB24-II-D	290.56	0.084	0.026	0.026	282.56	250.96	31.60	254.06	286.86	confined	fully	3.10	3.10	09/13/2007	138.9	324.2	1.85	1.96	3.8E-06		base of Amabel
MWB25-I-A	290.82	0.049	0.026	0.034	283.45	281.58	1.87	284.62	288.92	unconfined	fully	1.87	1.87	09/13/2007	158.0	237.6	0.80	1.96	6.9E-06		productive zone, upper Amabel
MWB25-II-B	291.07	0.049	0.026	0.026	283.30	272.78	10.52	275.83	288.47	confined	fully	3.05	3.05	09/13/2007	121.6	208.7	0.87	1.96	2.3E-05		productive zone, middle of Amabel
MWB25-III-C	290.92	0.049	0.013	0.013	283.28	270.12	13.16	276.22	288.02	confined	fully	6.10	6.10	09/13/2007	171.3	190.4	0.19	2.04	3.0E-05		productive zone, middle of Amabel
MWB25-III-D	290.92	0.049	0.013	0.013	282.95	251.82	31.13	254.92	288.02	confined	fully	3.10	3.10	09/13/2007	143.3	206.4	0.63	2.04	1.3E-05		feature, near base Amabel
MWB26-I-A	291.04	0.084	0.026	0.026	dry	283.72	n/a	285.25	286.94	n/a	n/a	n/a	n/a	09/13/2007	n/a	n/a	n/a	1.96	n/a	n/a	productive zone, upper Amabel
MWB26-I-B	291.04	0.084	0.026	0.026	282.81	277.20	5.61	280.25	286.94	confined	fully	3.05	3.05	09/13/2007	64.9	221.6	1.57	1.96	5.9E-06		productive zone, upper Amabel
MWB26-II-C	291.14	0.084	0.026	0.026	282.68	265.08	17.60	268.13	285.84	confined	fully	3.05	3.05	09/13/2007	54.1	99.3	0.45	1.96	5.2E-05		productive zone, middle of Amabel
MWB26-II-D	291.14	0.084	0.026	0.026	282.60	251.52	31.08	254.56	285.84	confined	fully	3.05	3.05	09/13/2007	54.0	227.4	1.73	1.96	7.3E-06		base of Amabel
MWB27-I-A	270.81	0.049	0.026	0.026	269.03	261.13	7.90	265.70	268.71	confined	fully	4.57	4.57	09/19/2007	266.0	337.5	0.72	1.96	1.0E-04		productive zone, upper Amabel
MWB27-II-B	270.48	0.049	0.026	0.026	269.06	249.73	19.33	252.78	268.98	confined	fully	3.05	3.05	09/19/2007	264.0	382.3	1.18	1.96	7.3E-05		productive zone, middle Amabel

A - 5578 **B - 5579** **C - 5577** **D - 5580**

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

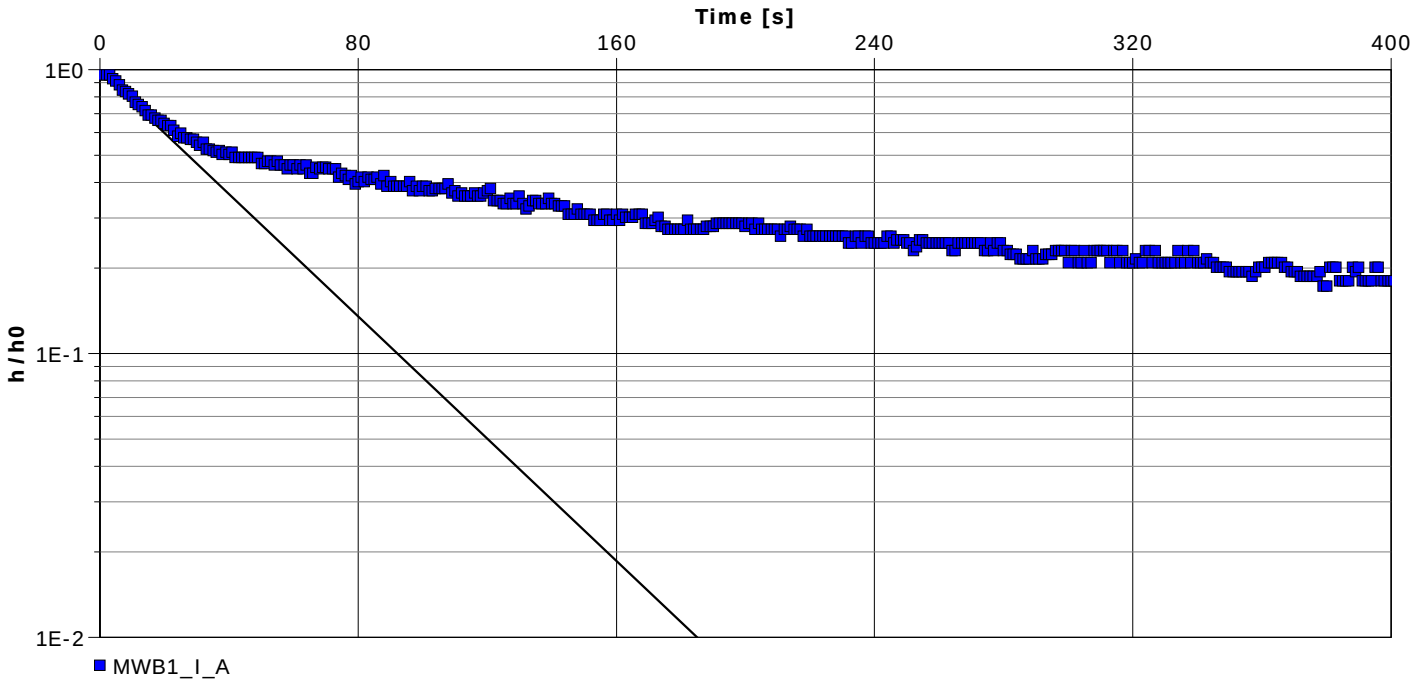
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB1_I_A	Test Well: MWB1_I_A
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.13 m		

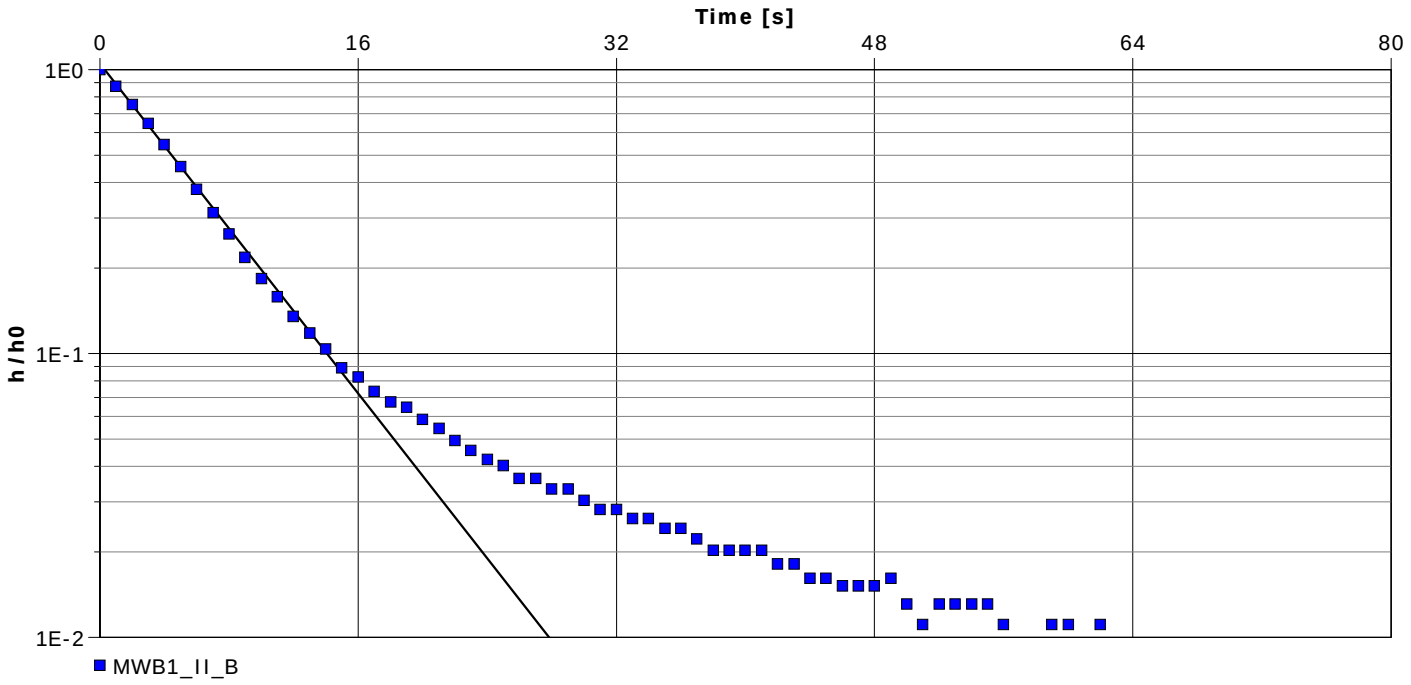


Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB1_I_A	8.50×10^{-6}	

Gartner Lee Limited 20 Corporate Park Drive St. Catharines, ON L2S 3W2 905.688.5460	**Slug Test Analysis Report**
	Project: Proposed Flamborough Quarry Slug Test
	Number: 60702
	Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB1_II_B	Test Well: MWB1_II_B
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB1_II_B	5.10×10^{-5}	

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

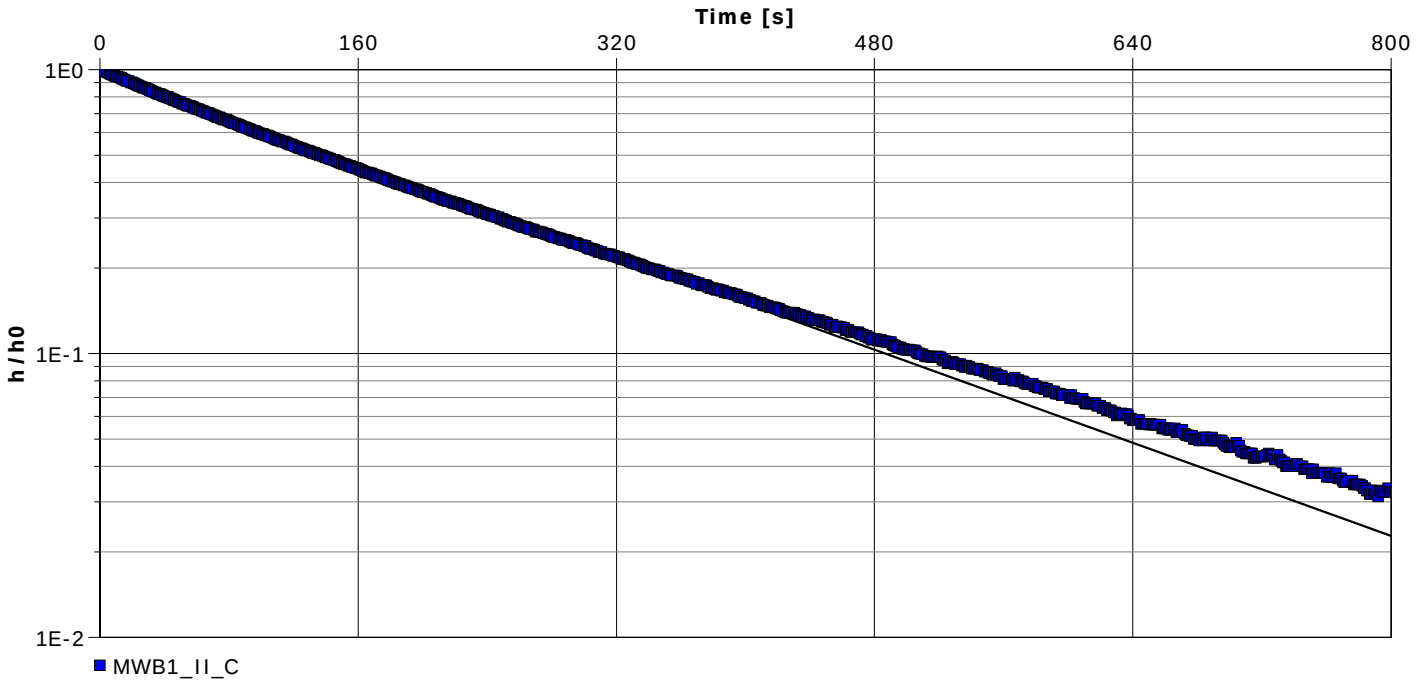
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

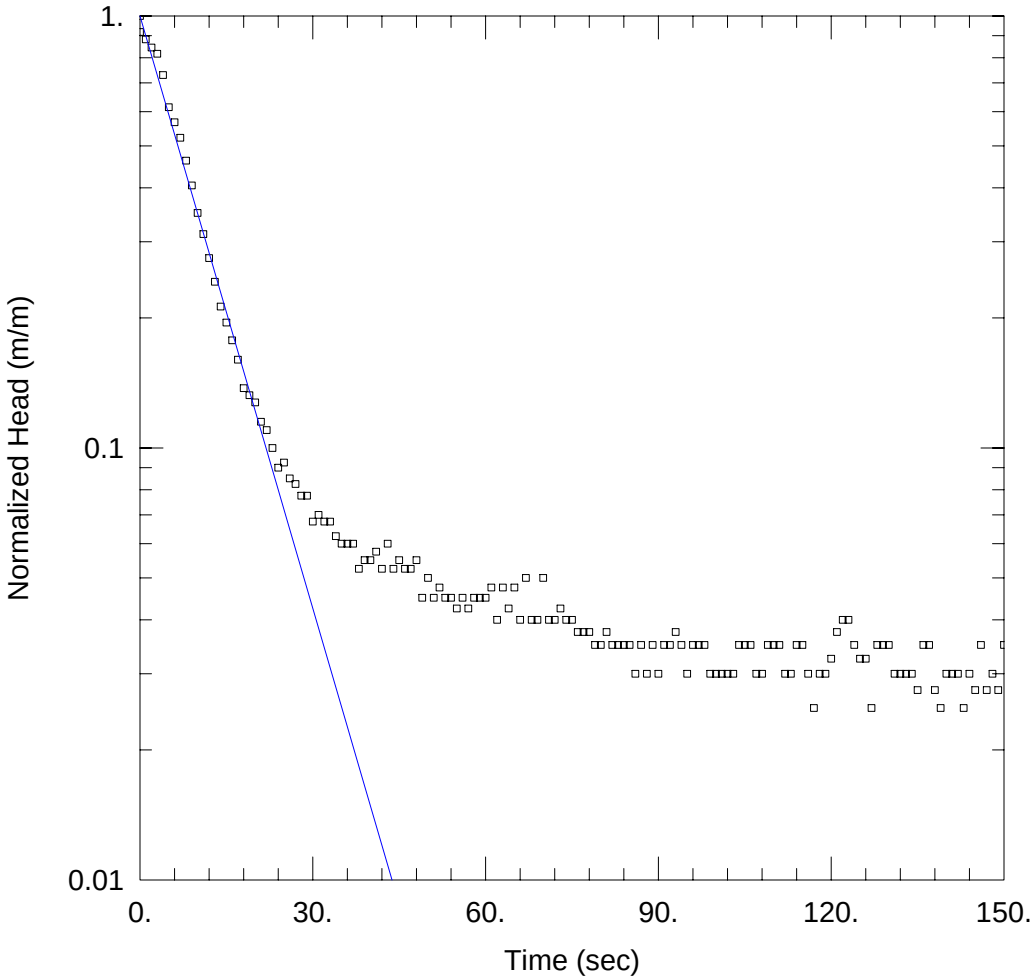
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB1_II_C	Test Well: MWB1_II_C
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB1_II_C	1.44×10^{-6}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB3_A.aqt
Date: 10/30/07 Time: 15:44:46

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB3-A
Test Date: September 19, 2007

AQUIFER DATA

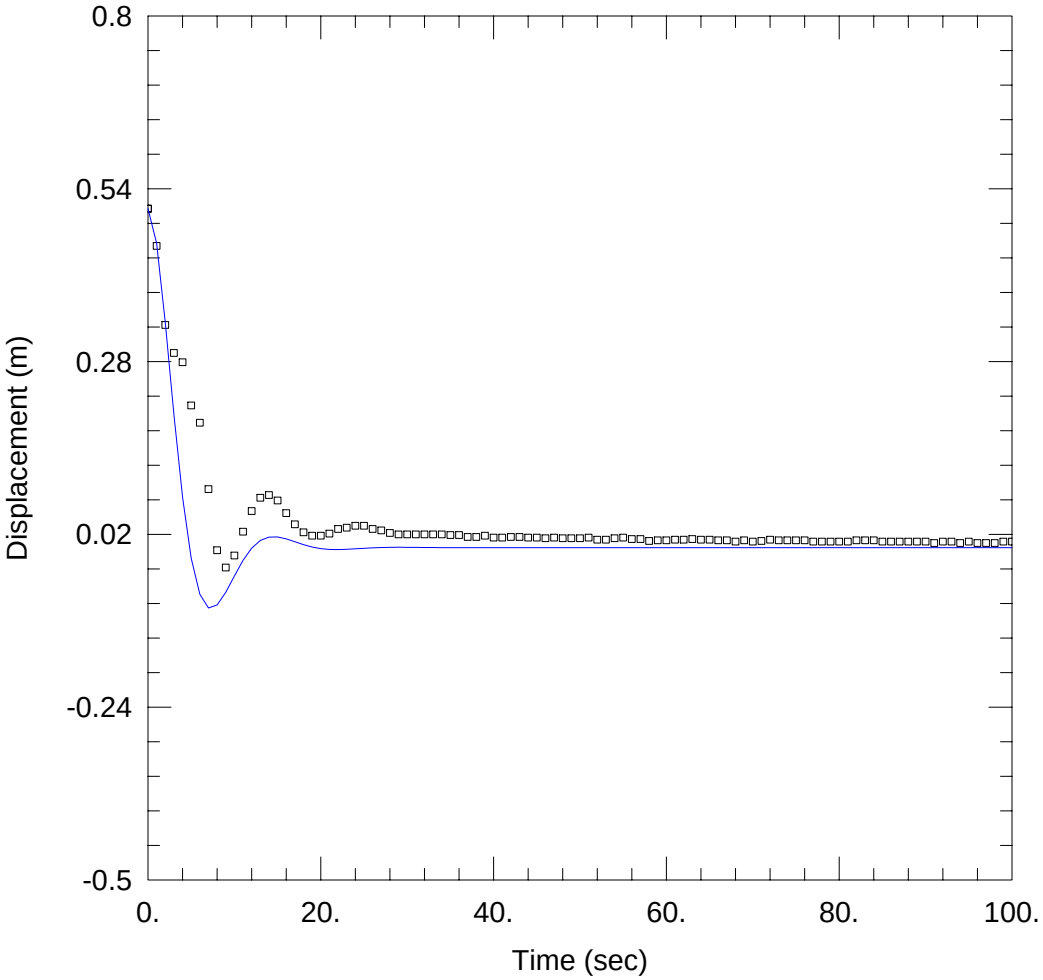
Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB3-A)

Initial Displacement: 0.4 m Static Water Column Height: 10.43 m
Total Well Penetration Depth: 6.1 m Screen Length: 6.1 m
Casing Radius: 0.026 m Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 2.494E-5 m/sec y0 = 0.4 m



SLUG TEST

Data Set: C:\...\MWB3_B.aqt
Date: 10/30/07 Time: 14:57:25

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB3-B
Test Date: September 17, 2007

AQUIFER DATA

Saturated Thickness: 4.57 m Anisotropy Ratio (Kz/Kr): 0.1

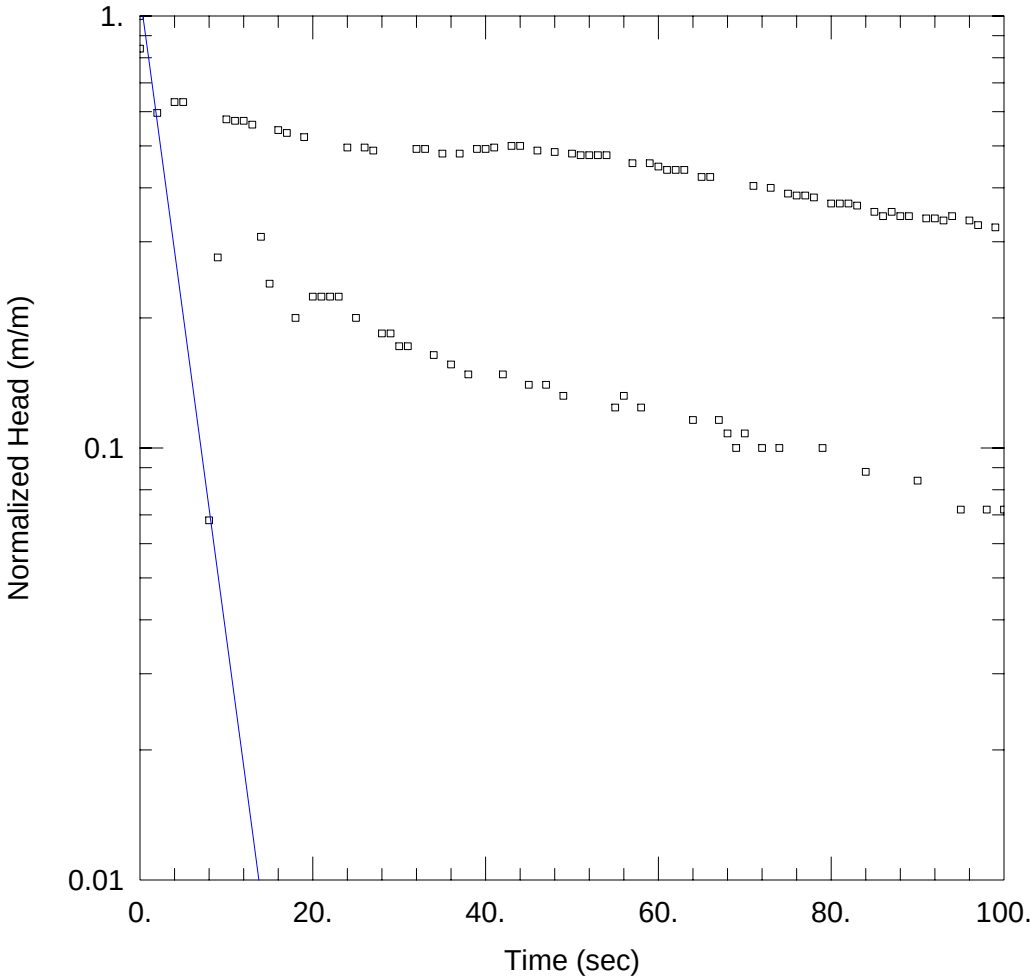
WELL DATA (MWB3-B)

Initial Displacement: 0.51 m
Total Well Penetration Depth: 4.57 m
Casing Radius: 0.026 m
Static Water Column Height: 29.46 m
Screen Length: 4.57 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.0002053 m/sec Le = 40.44 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB4_I_A.aqt
Date: 10/30/07 Time: 15:11:51

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB10-I-C
Test Date: September 14, 2007

AQUIFER DATA

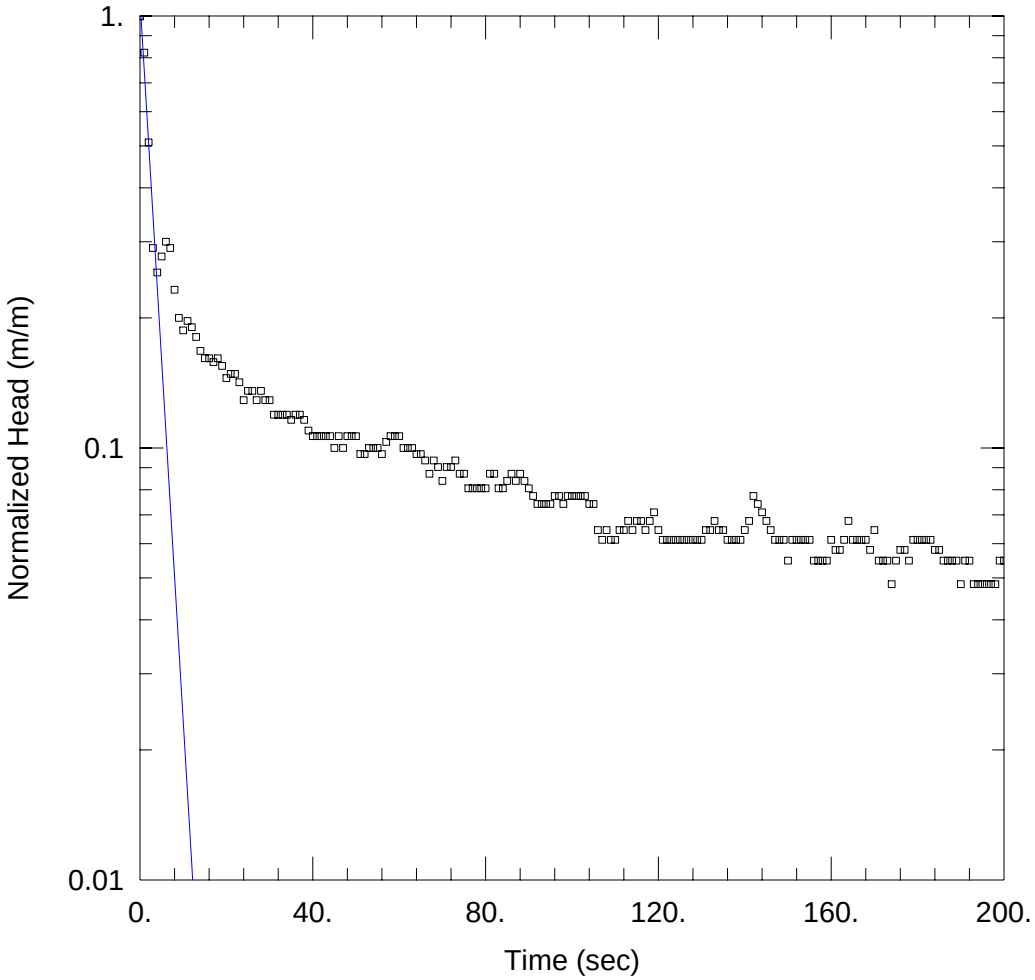
Saturated Thickness: 1.8 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-I-A)

Initial Displacement: 0.25 m
Total Well Penetration Depth: 1.8 m
Casing Radius: 0.026 m
Static Water Column Height: 1.8 m
Screen Length: 1.8 m
Well Radius: 0.035 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001944 m/sec
y0 = 0.2817 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB4_II_B.aqt
Date: 10/30/07 Time: 15:13:02

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB4-II-B
Test Date: September 19, 2007

AQUIFER DATA

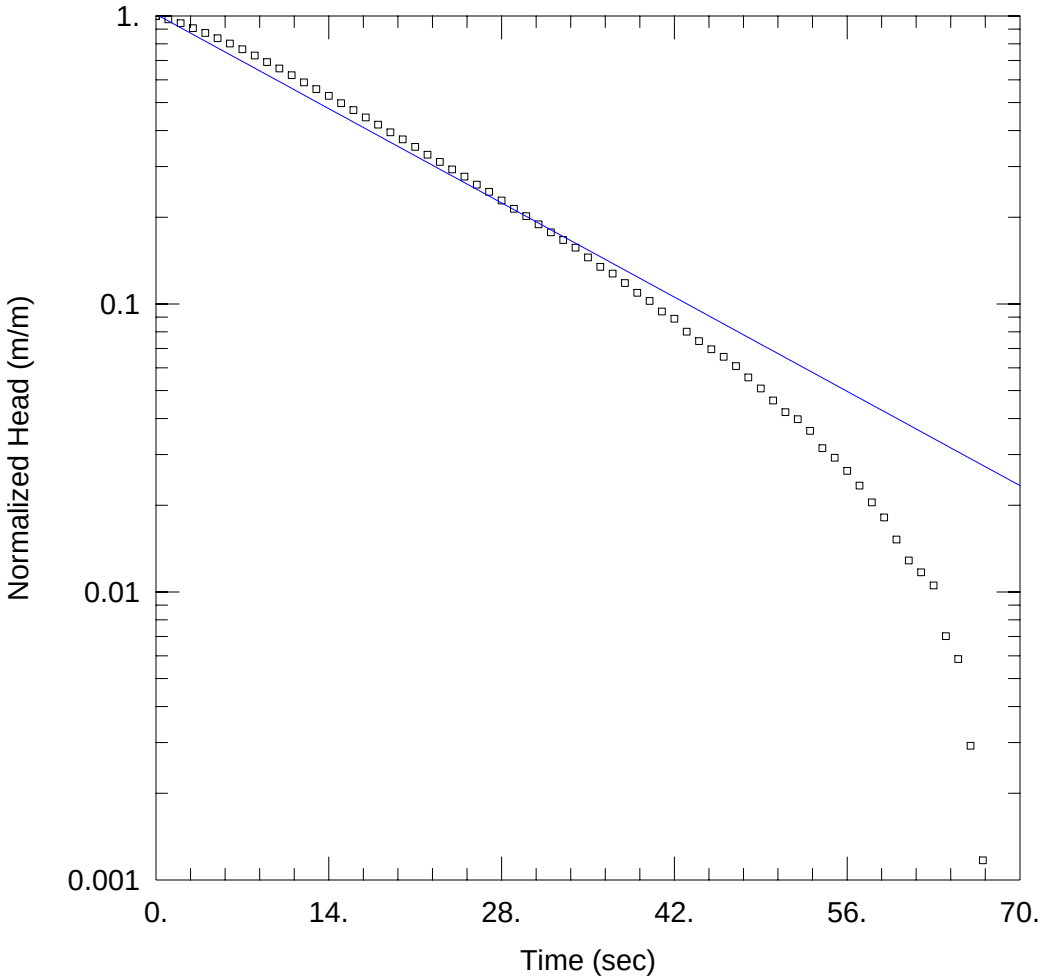
Saturated Thickness: 4.57 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-II-B)

Initial Displacement: 0.31 m Static Water Column Height: 8.95 m
Total Well Penetration Depth: 4.57 m Screen Length: 4.57 m
Casing Radius: 0.026 m Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.0001143 m/sec y0 = 0.3401 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB4_II_C.aqt
Date: 10/30/07 Time: 15:14:52

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB4-II-C
Test Date: September 19, 2007

AQUIFER DATA

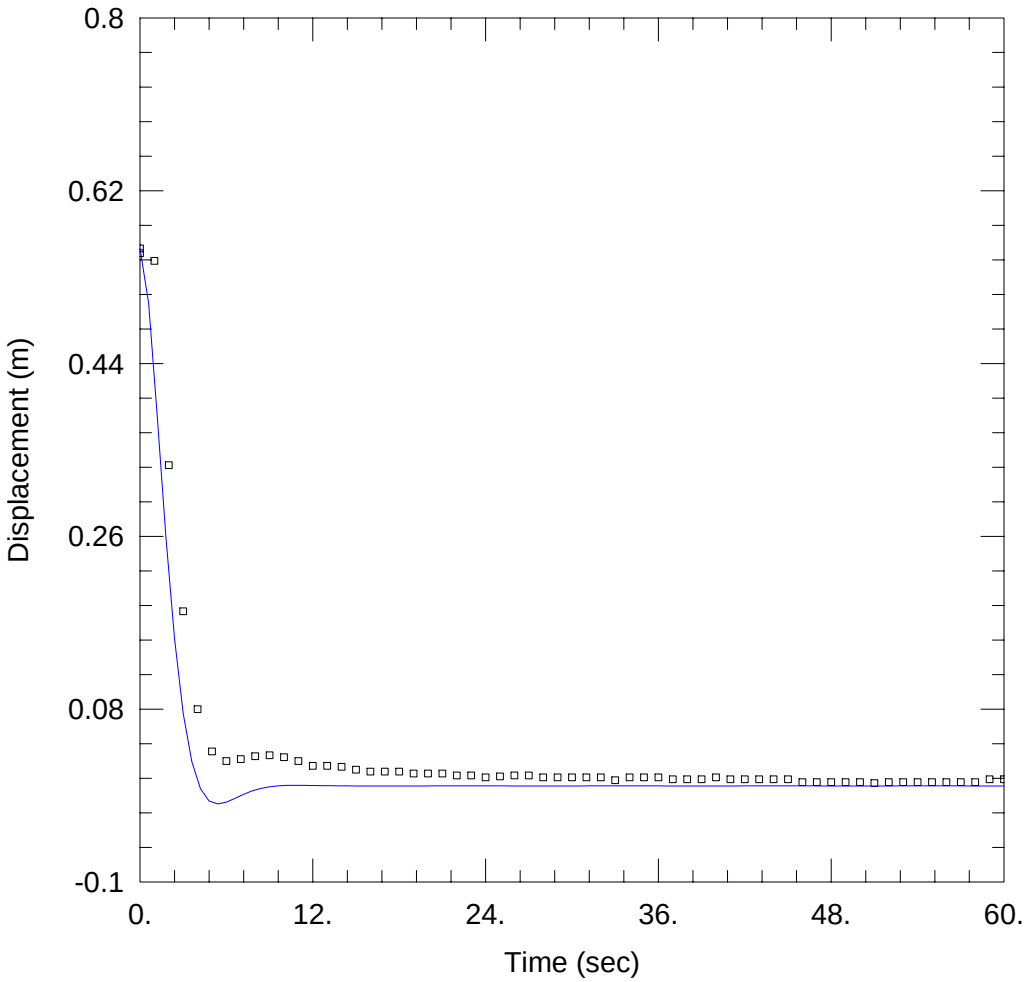
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-II-C)

Initial Displacement: 1.71 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 29.81 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 2.191E-5 m/sec
y0 = 1.732 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB6_II_B.aqt
Date: 10/30/07 Time: 15:02:01

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB6-II-B
Test Date: September 18, 2007

AQUIFER DATA

Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (New Well)

Initial Displacement: 0.56 m
Total Well Penetration Depth: 6.1 m
Casing Radius: 0.026 m
Static Water Column Height: 15.74 m
Screen Length: 6.1 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.0001732 m/sec Le = 13.37 m

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St. Catharines, ON L2S 3W2
905.688.5460

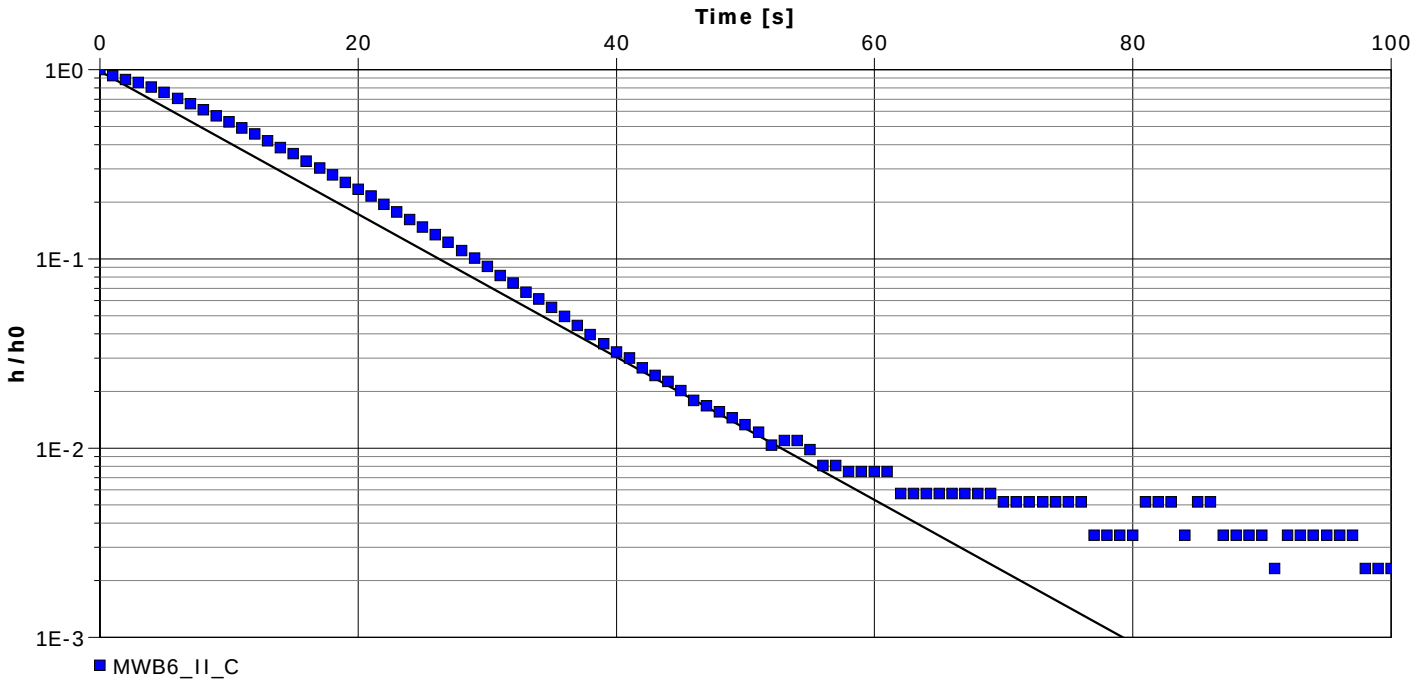
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

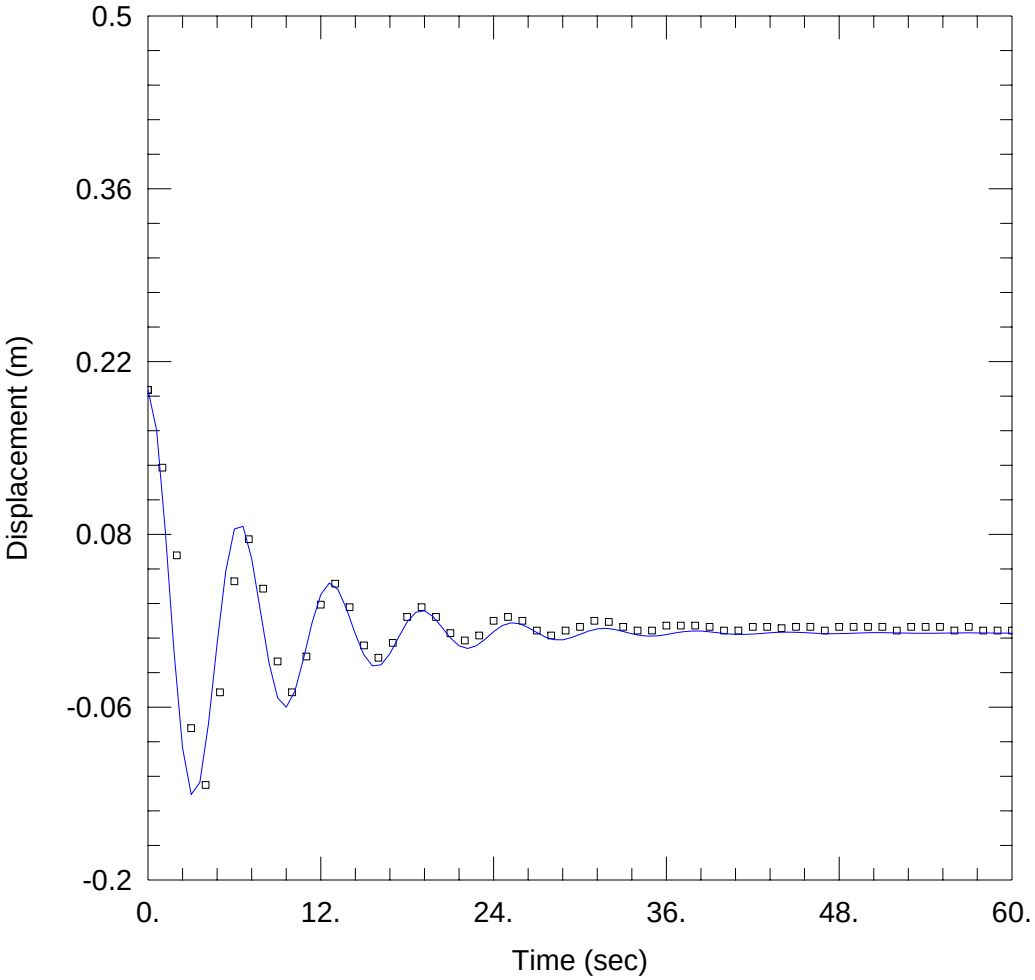
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB6_II_C	Test Well: MWB6_II_C
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB6_II_C	2.65×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB7_II_B.aqt
Date: 10/30/07 Time: 15:04:49

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB7-II-B
Test Date: September 18, 2007

AQUIFER DATA

Saturated Thickness: 4.57 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-II-B)

Initial Displacement: 0.197 m
Total Well Penetration Depth: 4.57 m
Casing Radius: 0.026 m
Static Water Column Height: 11.41 m
Screen Length: 4.57 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.001659 m/sec Le = 9.822 m

Gartner Lee Limited
20 Corporate Park Drive
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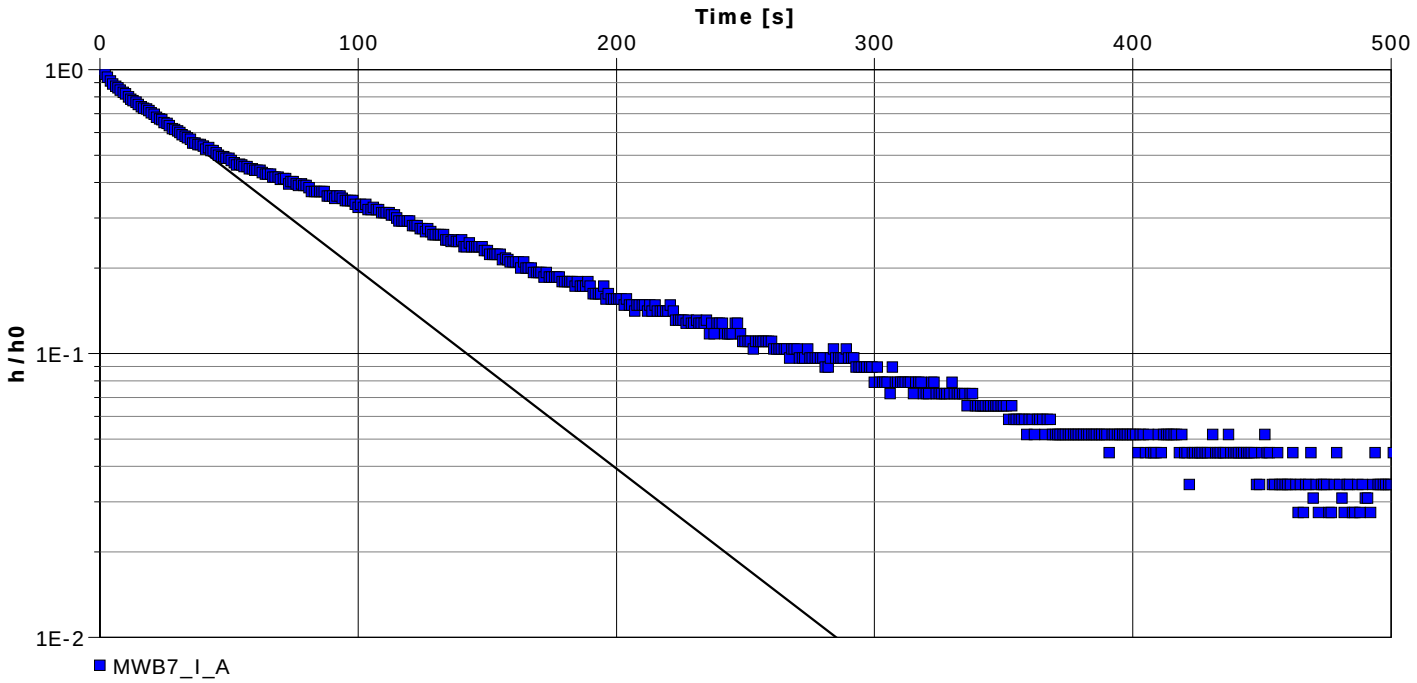
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB7_I_A	Test Well: MWB7_I_A
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 1.03 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB7_I_A	1.20×10^{-5}	

Gartner Lee Limited
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905.688.5460

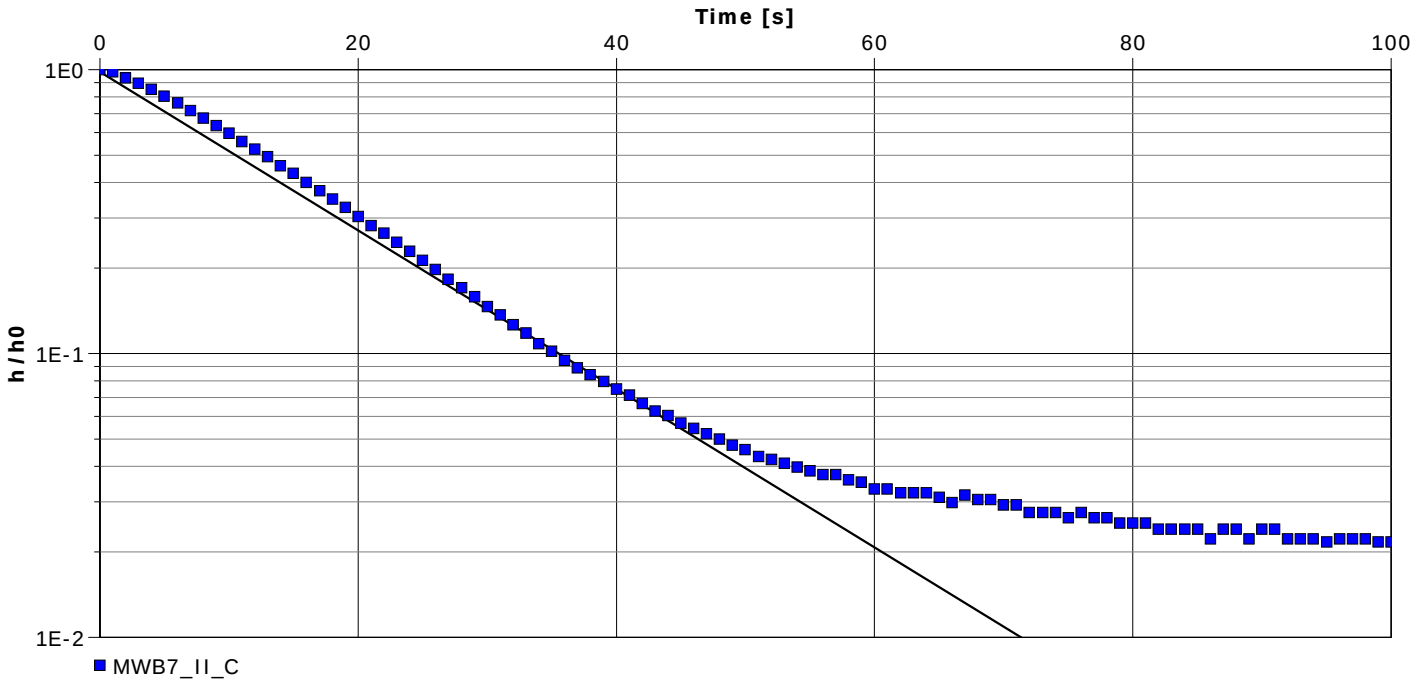
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

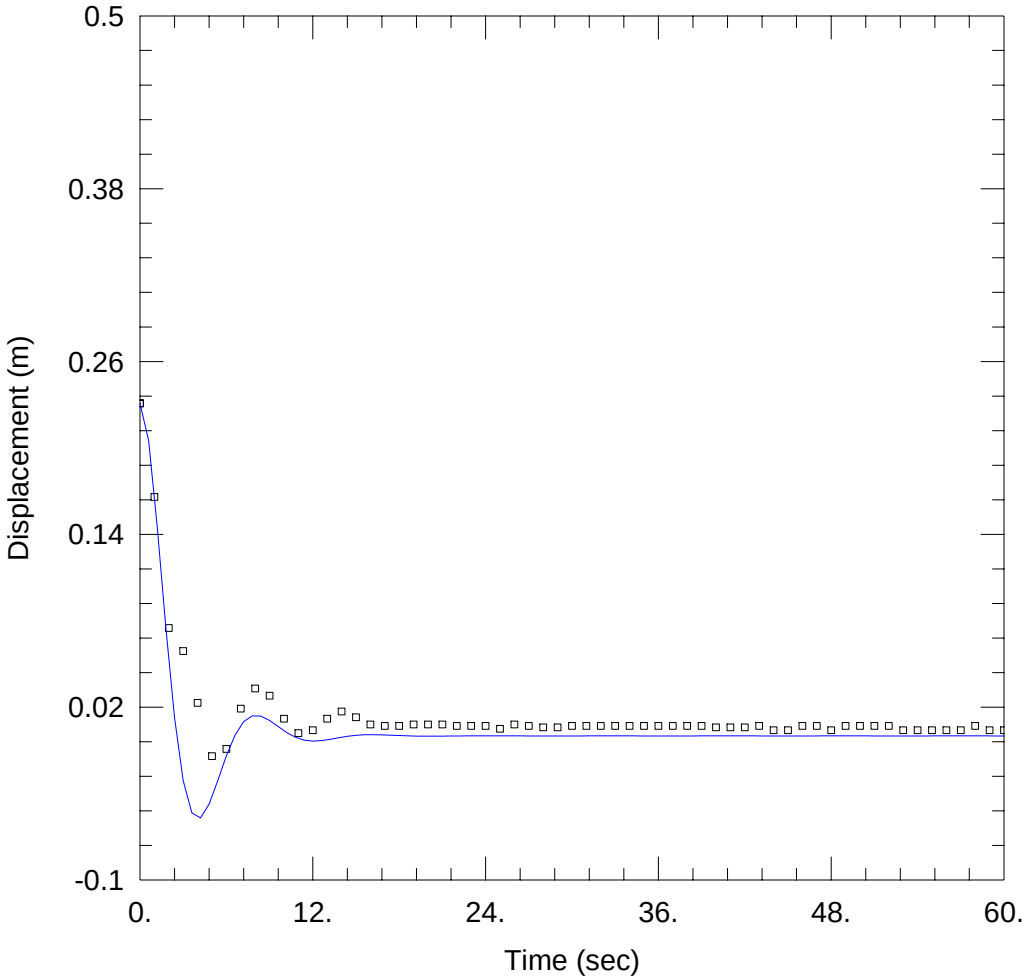
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB7_II_C	Test Well: MWB7_II_C
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB7_II_C	1.96×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB8_II_B.aqt
Date: 10/30/07 Time: 15:05:42

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB8-II-B
Test Date: September 18, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB8-II-B)

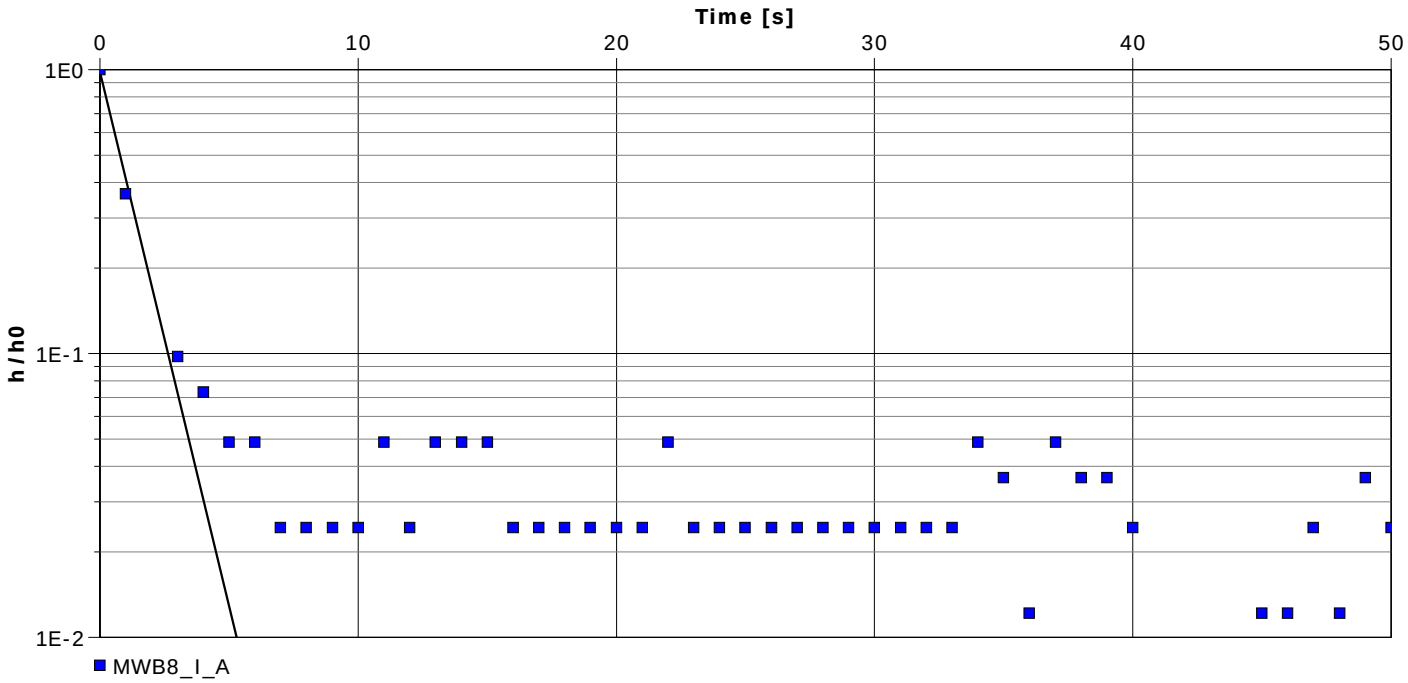
Initial Displacement: 0.231 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 9.69 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.0006271 m/sec
Le = 13.47 m

Gartner Lee Limited 20 Corporate Park Drive St. Catharines, ON L2S 3W2 905.688.5460	**Slug Test Analysis Report**
	Project: Proposed Flamborough Quarry Slug Test
	Number: 60702
	Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB8_I_A	Test Well: MWB8_I_A
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 2.61 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB8_I_A	3.40×10^{-4}	

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905.688.5460

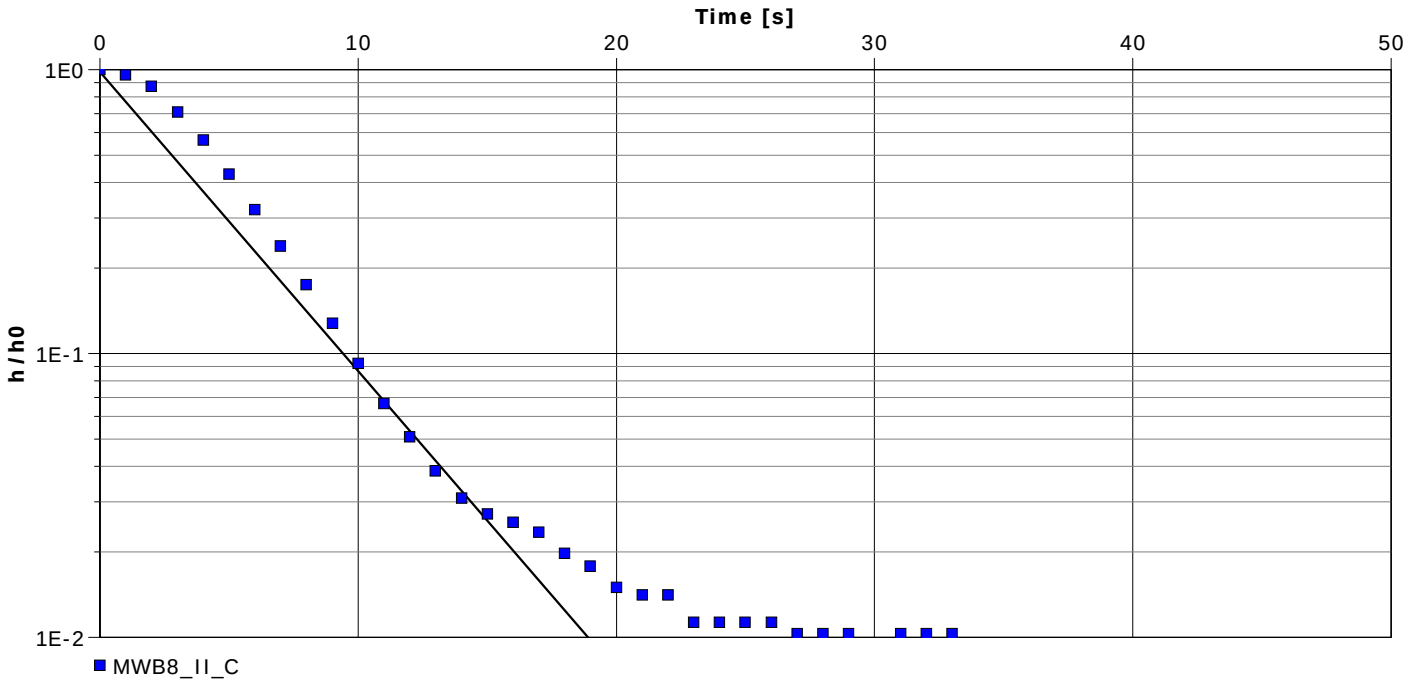
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

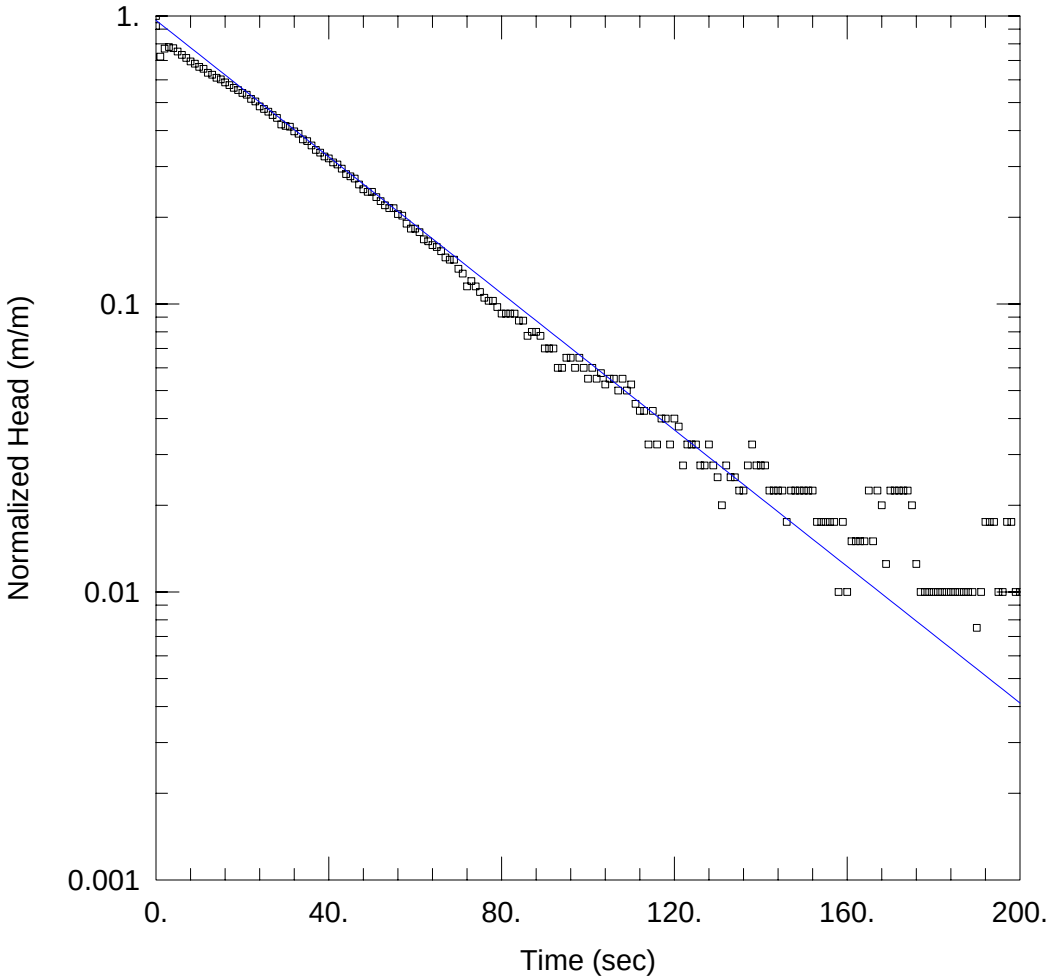
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB8_II_C	Test Well: MWB8_II_C
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB8_II_C	7.40×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB9_I_A.aqt
Date: 10/30/07 Time: 15:15:29

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB9-I-A
Test Date: September 19, 2007

AQUIFER DATA

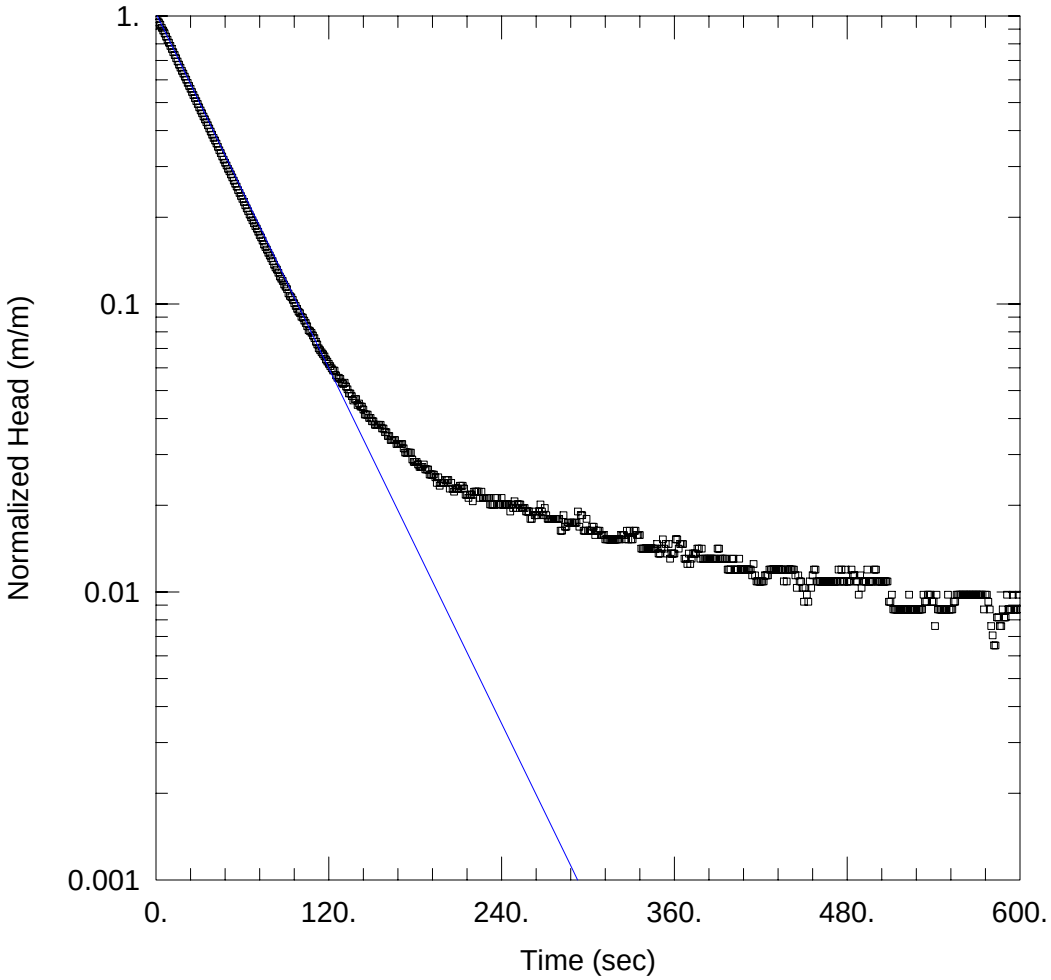
Saturated Thickness: 1.86 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB9-I-A)

Initial Displacement: 0.4 m
Total Well Penetration Depth: 1.86 m
Casing Radius: 0.026 m
Static Water Column Height: 1.86 m
Screen Length: 1.86 m
Well Radius: 0.035 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.509E-5 m/sec
y0 = 0.3862 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB9_II_B.aqt
Date: 10/30/07 Time: 15:16:48

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB9-II-B
Test Date: September 19, 2007

AQUIFER DATA

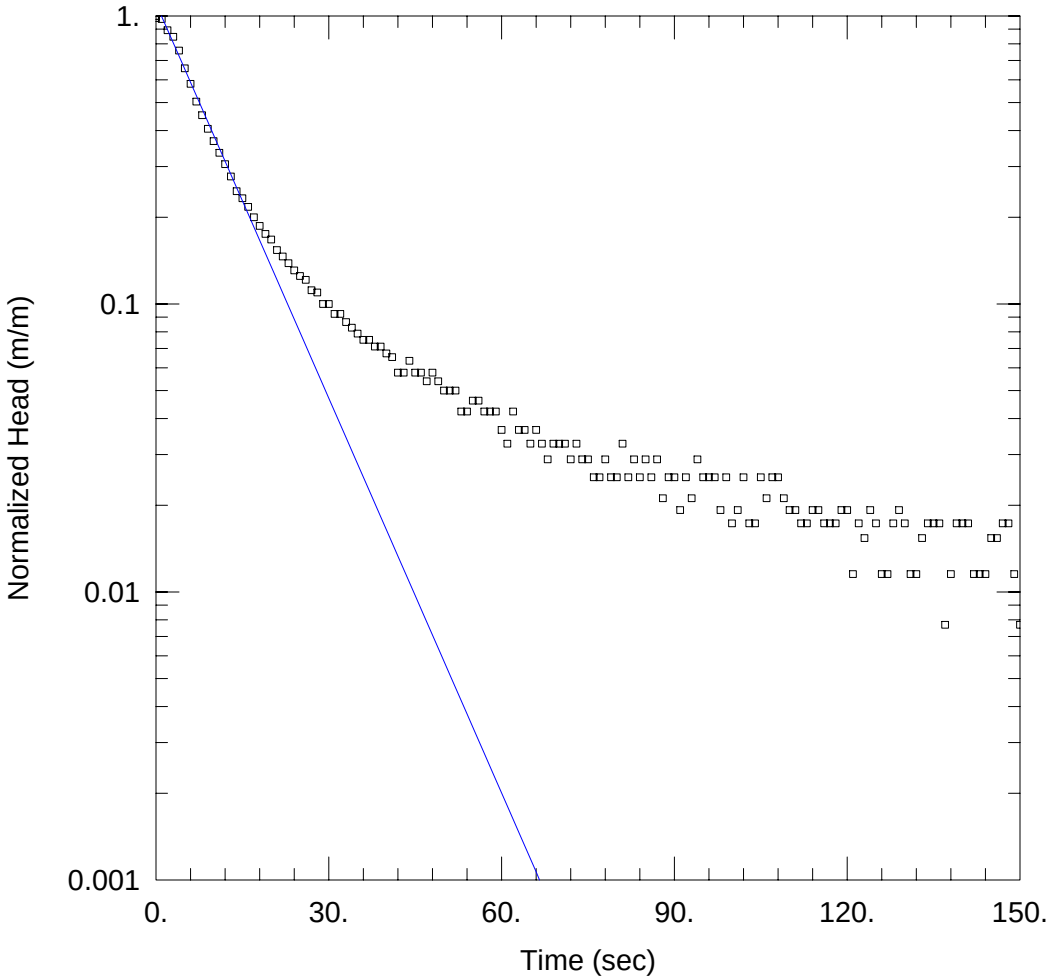
Saturated Thickness: 3.2 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB9-II-B)

Initial Displacement: 1.84 m
Total Well Penetration Depth: 3.2 m
Casing Radius: 0.026 m
Static Water Column Height: 31.72 m
Screen Length: 3.2 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.28E-6 m/sec
y0 = 1.882 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB10_I_A.aqt
Date: 10/30/07 Time: 16:02:18

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB10-I-A
Test Date: September 14, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

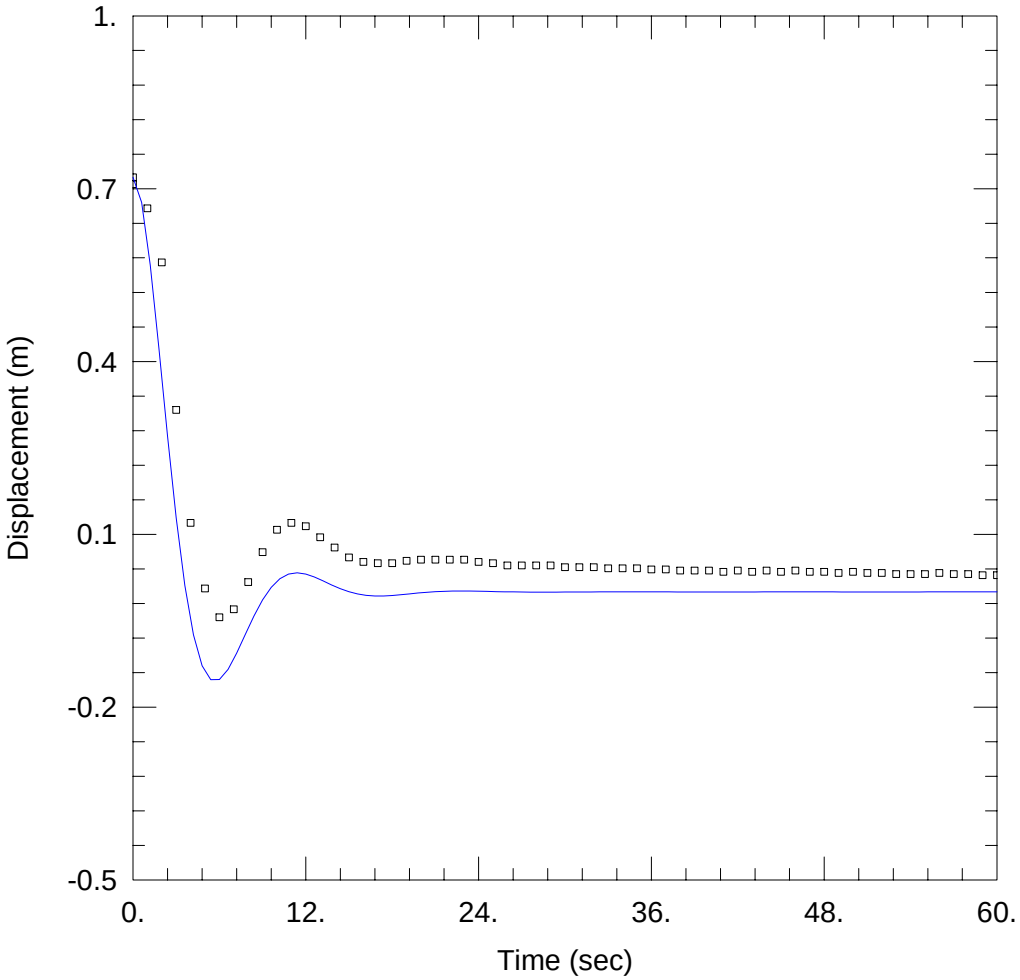
WELL DATA (New Well)

Initial Displacement: 0.52 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 5.26 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 4.283E-5 m/sec y0 = 0.5748 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB10_I_C.aqt
Date: 10/30/07 Time: 15:06:09

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB10-I-C
Test Date: September 14, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB10-I-C)

Initial Displacement: 0.72 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 24.28 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.0004204 m/sec Le = 25.94 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

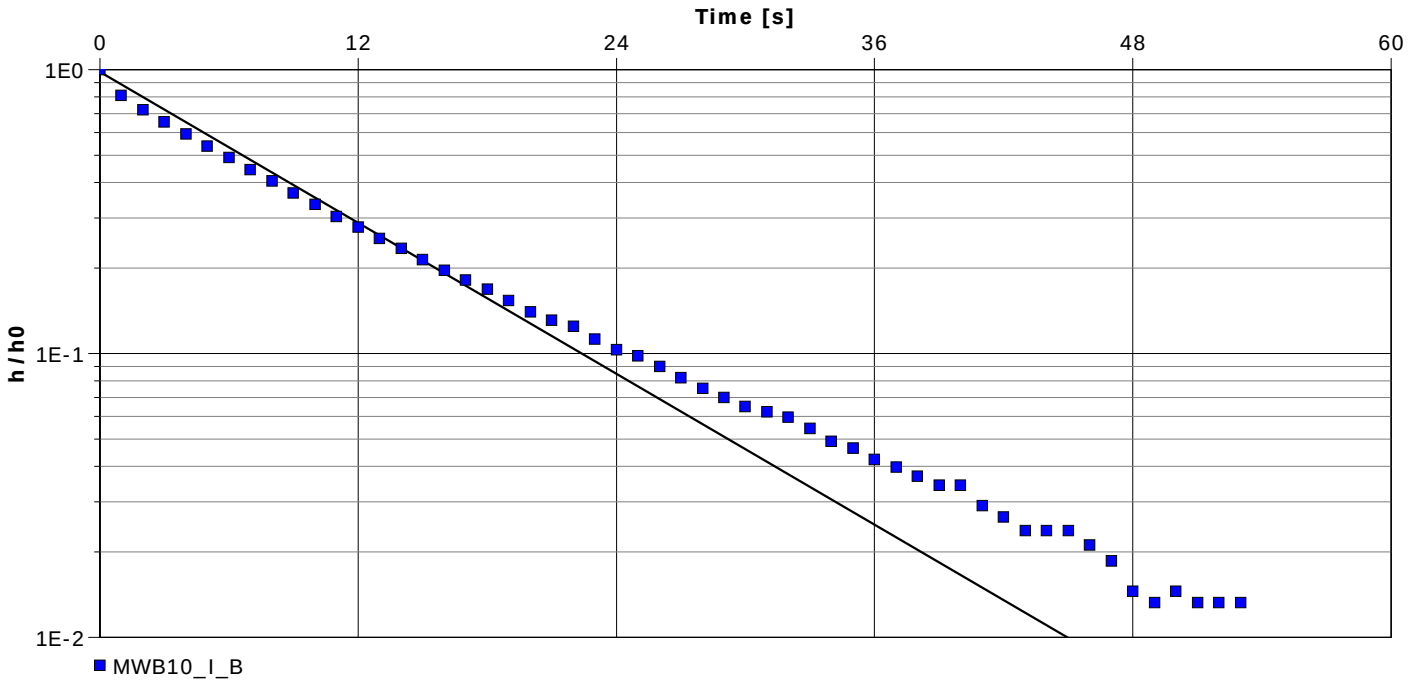
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

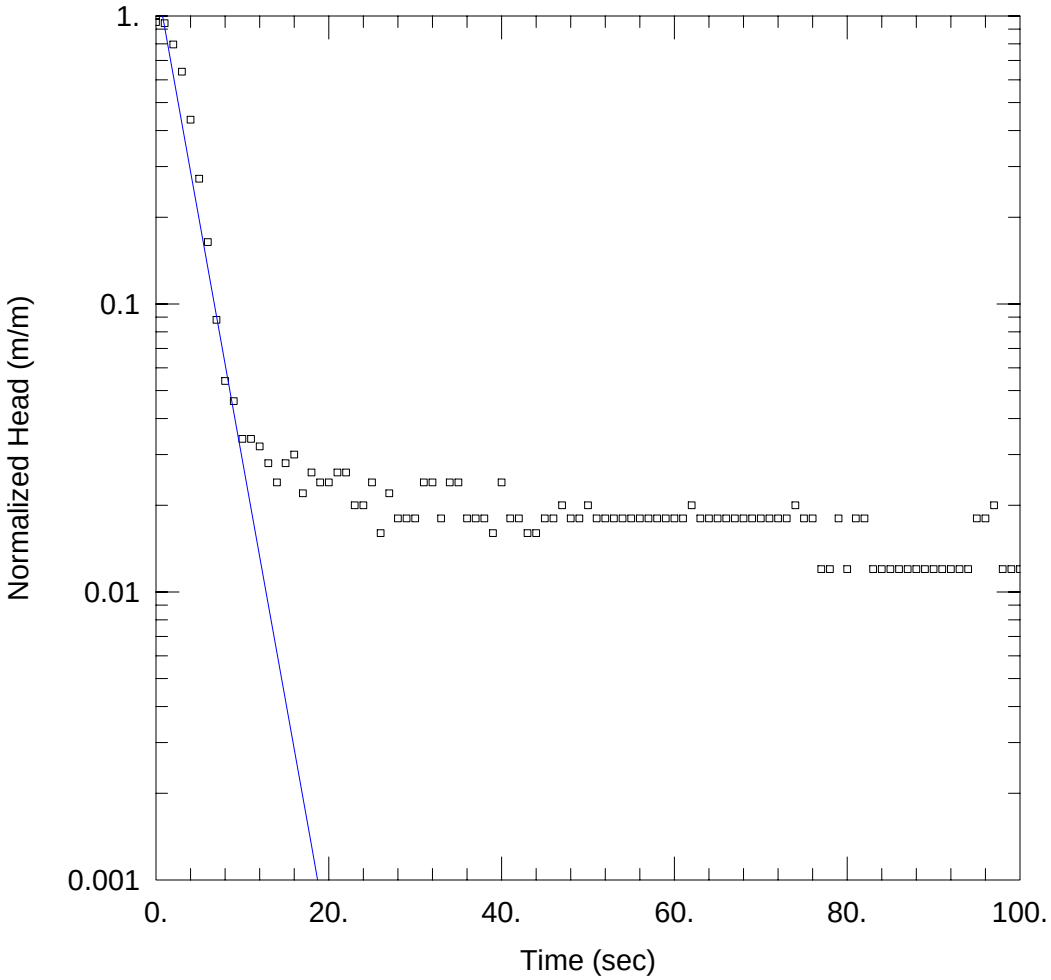
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB10_I_B	Test Well: MWB10_I_B
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB10_I_B	2.95×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB11_A.aqt
Date: 10/30/07 Time: 15:27:12

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB11-A
Test Date: September 19, 2007

AQUIFER DATA

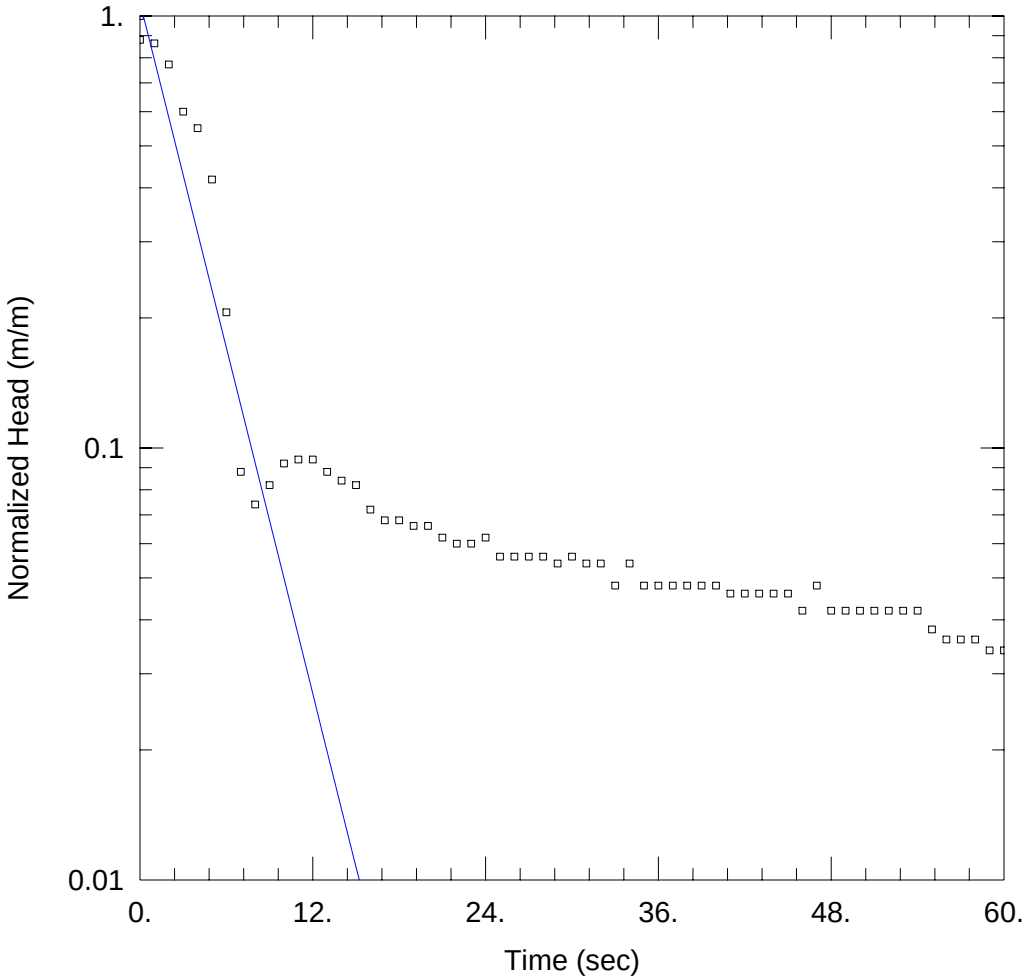
Saturated Thickness: 5.21 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW11-A)

Initial Displacement: 0.5 m Static Water Column Height: 5.21 m
Total Well Penetration Depth: 5.21 m Screen Length: 3.05 m
Casing Radius: 0.026 m Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.0002175 m/sec y0 = 0.6711 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB11_B.aqt
Date: 10/30/07 Time: 15:28:53

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB11-B
Test Date: September 19, 2007

AQUIFER DATA

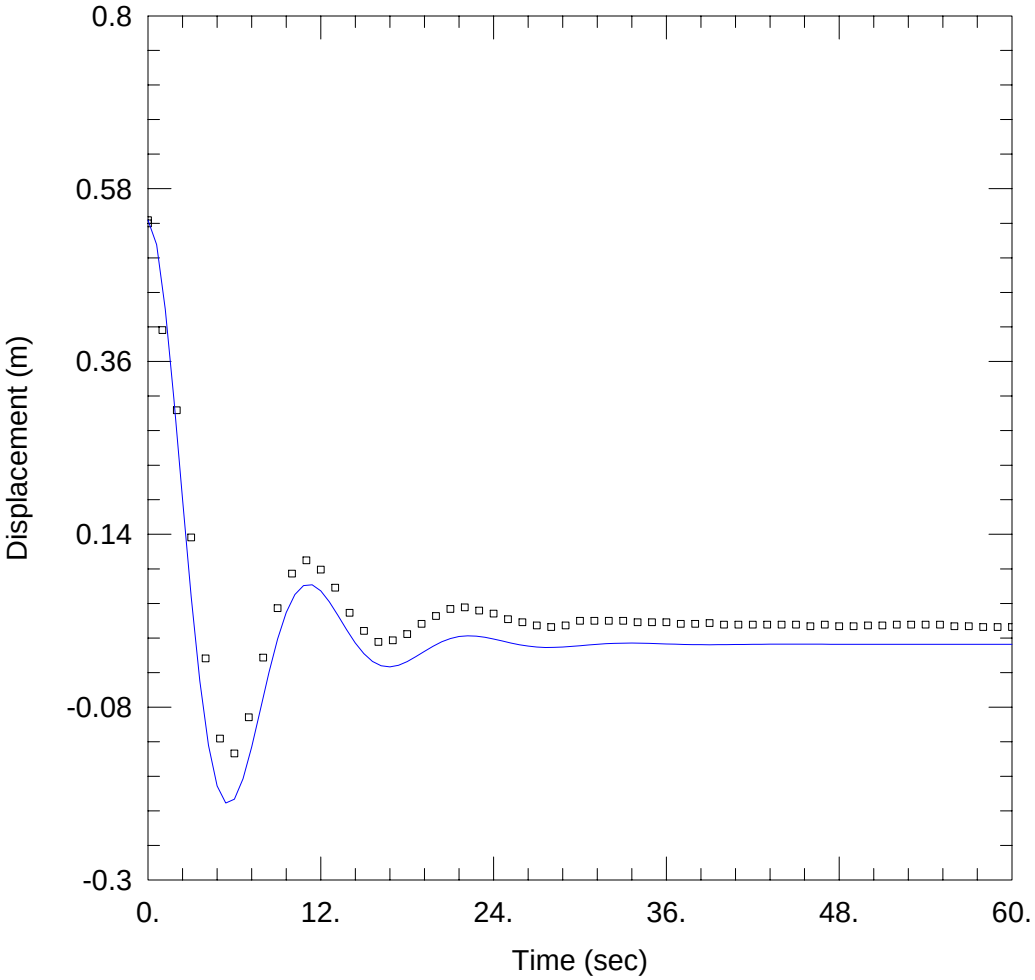
Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB11-B)

Initial Displacement: 0.5 m Static Water Column Height: 15.34 m
Total Well Penetration Depth: 6.1 m Screen Length: 6.1 m
Casing Radius: 0.026 m Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 7.277E-5 m/sec y0 = 0.5379 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB11_C.aqt
Date: 10/30/07 Time: 15:06:36

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB11-C
Test Date: September 19, 2007

AQUIFER DATA

Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

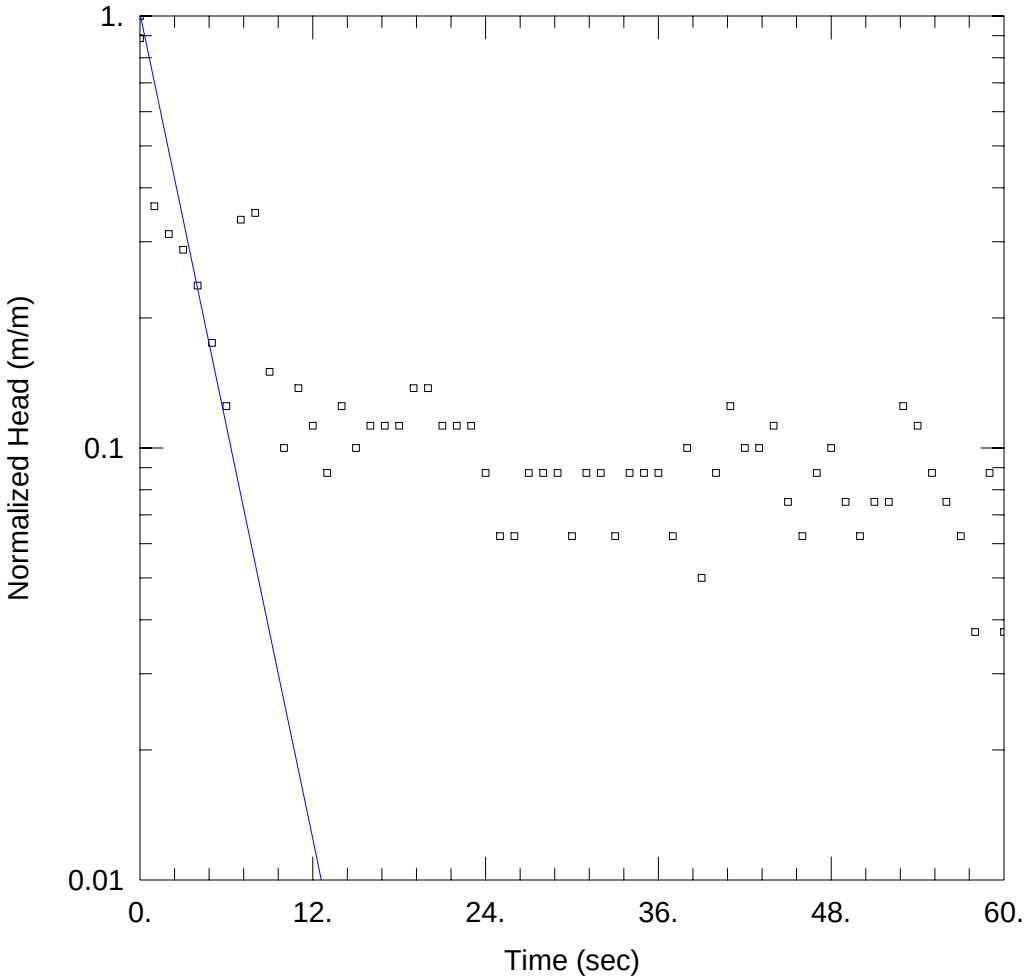
WELL DATA (MWB11-C)

Initial Displacement: 0.54 m
Total Well Penetration Depth: 6.1 m
Casing Radius: 0.026 m
Static Water Column Height: 30.34 m
Screen Length: 6.1 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.0003035 m/sec Le = 28.16 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB12_A.aqt
Date: 10/30/07 Time: 16:12:02

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB12-A
Test Date: September 14, 2007

AQUIFER DATA

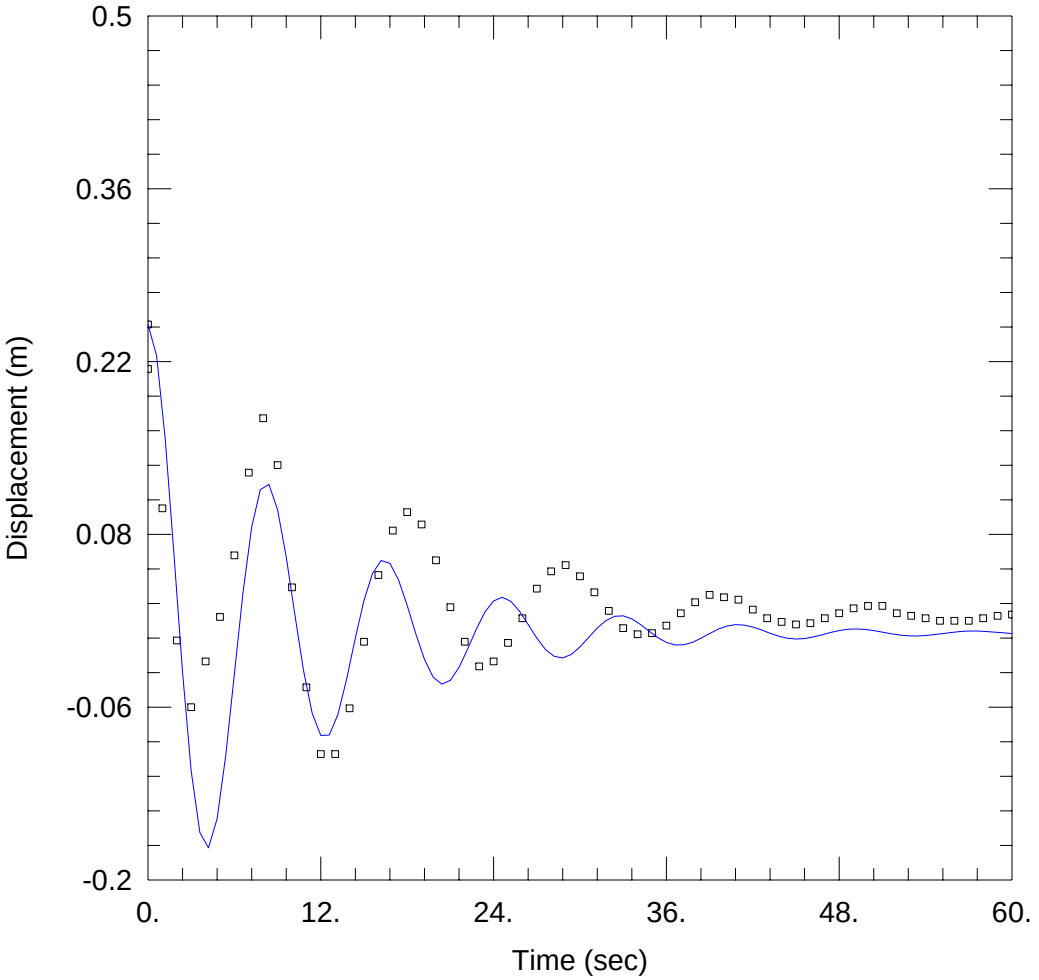
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB12-A)

Initial Displacement: 0.08 m Static Water Column Height: 4.76 m
Total Well Penetration Depth: 3.05 m Screen Length: 3.05 m
Casing Radius: 0.026 m Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.0001492 m/sec y0 = 0.08104 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB12_B.aqt
Date: 10/30/07 Time: 15:07:15

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB12-B
Test Date: September 14, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB12-B)

Initial Displacement: 0.25 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 11.94 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.002102 m/sec Le = 16.46 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

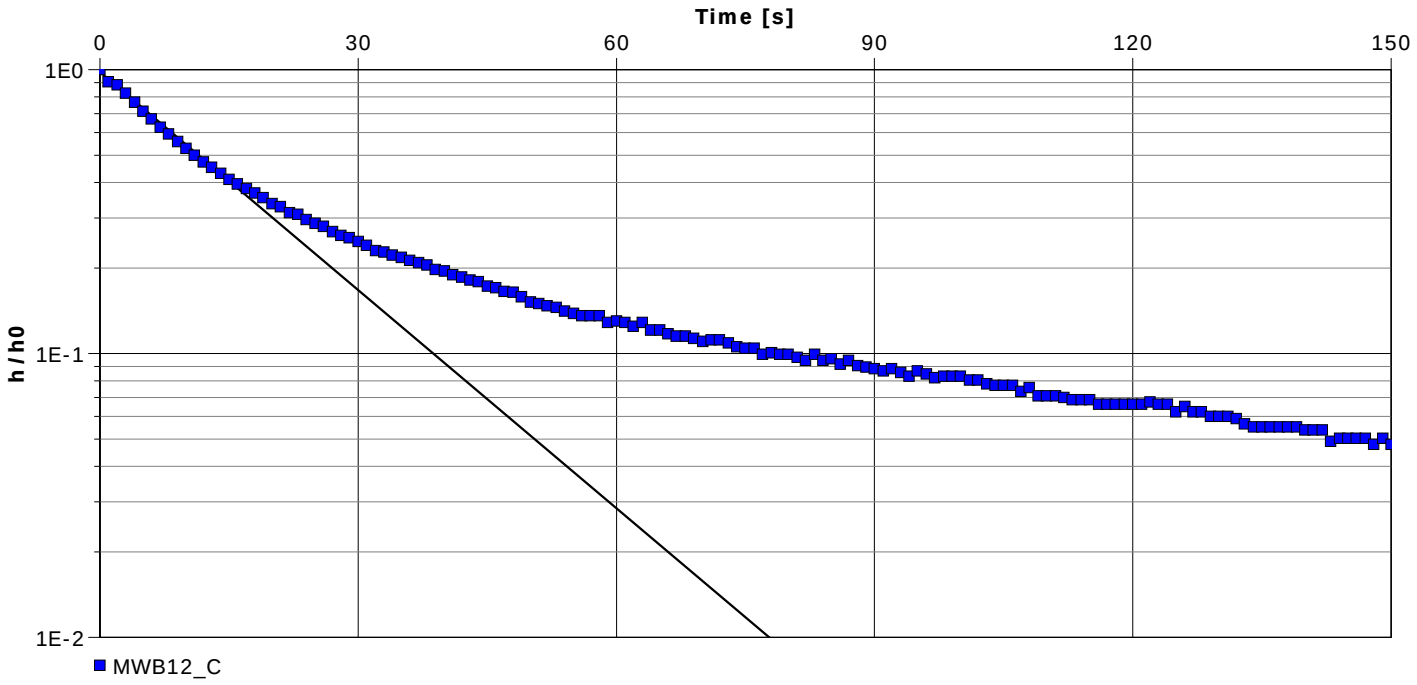
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

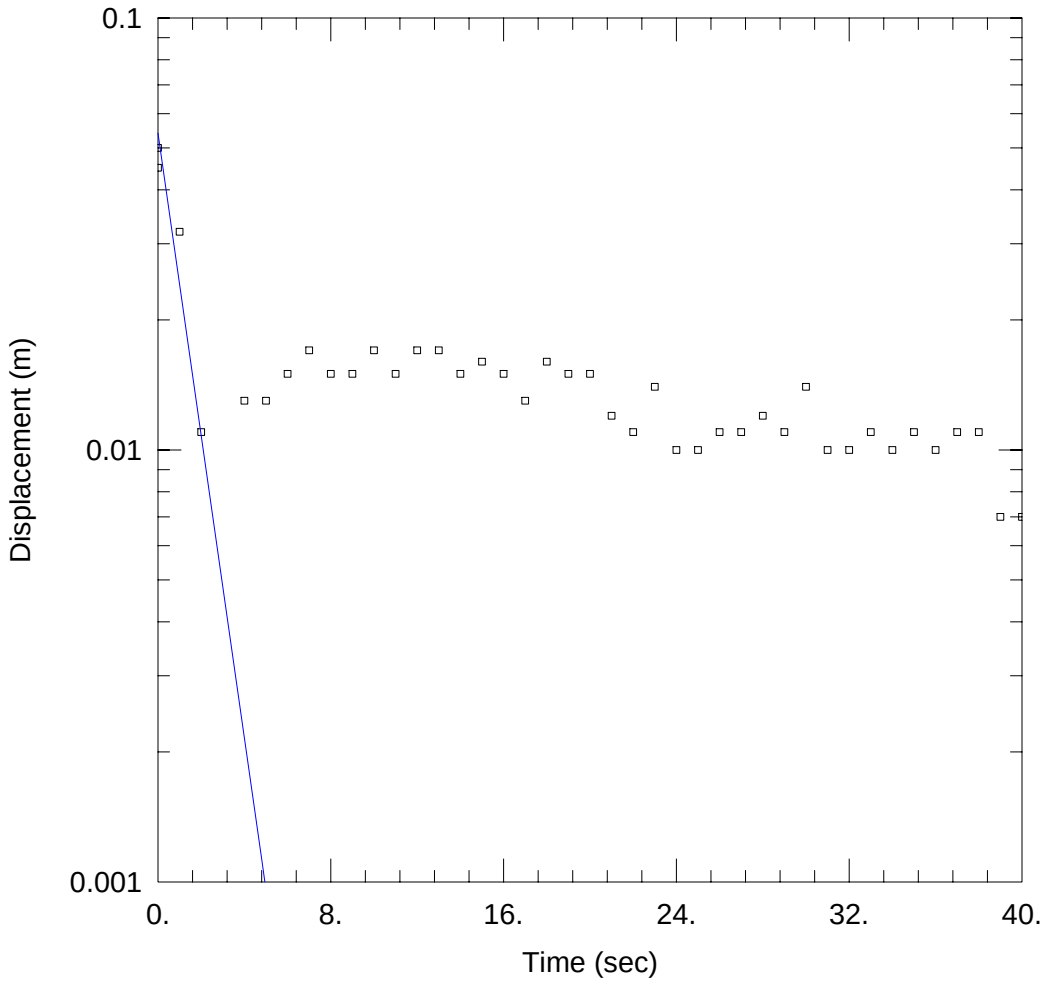
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB12_C	Test Well: MWB12_C
Test conducted by: TB/CB		Test date: 09/14/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 4.57 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB12_C	1.20×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB13_A.aqt
Date: 10/30/07 Time: 15:32:31

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB13-A
Test Date: September 19, 2007

AQUIFER DATA

Saturated Thickness: 4.33 m Anisotropy Ratio (Kz/Kr): 0.1

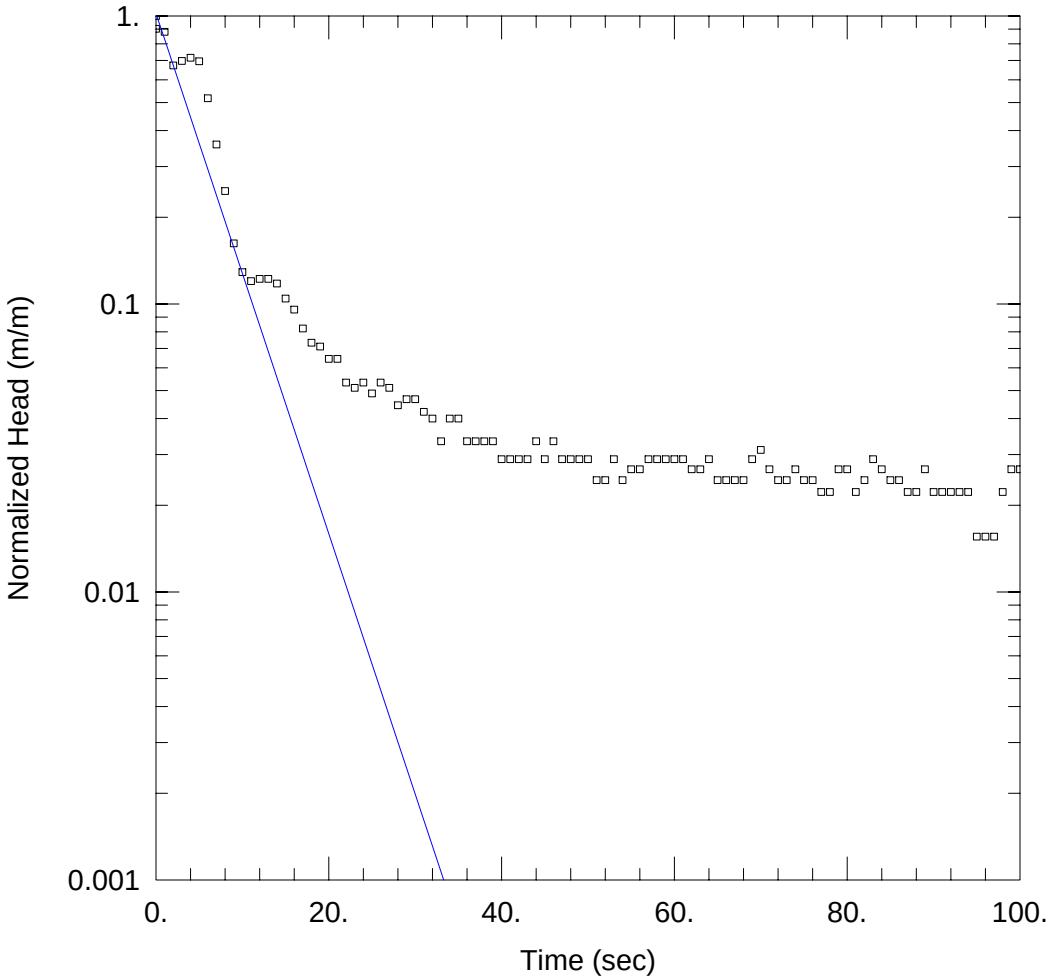
WELL DATA (MWB13-A)

Initial Displacement: 0.05 m
Total Well Penetration Depth: 4.33 m
Casing Radius: 0.026 m
Static Water Column Height: 4.33 m
Screen Length: 4.33 m
Well Radius: 0.072 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001977 m/sec y0 = 0.05412 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB13_B.aqt
Date: 10/30/07 Time: 15:33:50

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB13-B
Test Date: September 19, 2007

AQUIFER DATA

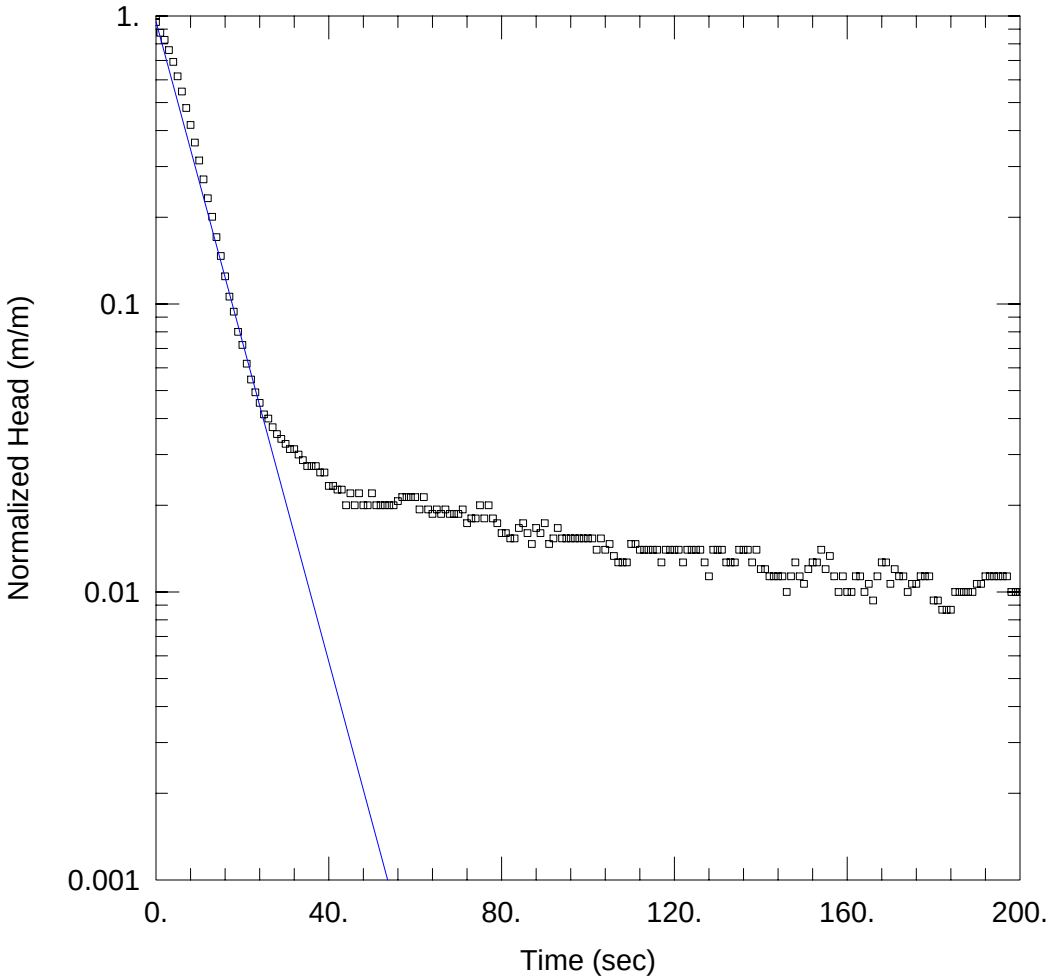
Saturated Thickness: 4.57 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB13-B)

Initial Displacement: 0.45 m Static Water Column Height: 22.68 m
Total Well Penetration Depth: 4.57 m Screen Length: 4.57 m
Casing Radius: 0.026 m Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 6.18E-5 m/sec y0 = 0.4601 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB13_C.aqt
Date: 10/30/07 Time: 15:35:49

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB13-C
Test Date: September 19, 2007

AQUIFER DATA

Saturated Thickness: 4.57 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB13-C)

Initial Displacement: 1.5 m
Total Well Penetration Depth: 4.57 m
Casing Radius: 0.026 m
Static Water Column Height: 30.7 m
Screen Length: 4.57 m
Well Radius: 0.026 m

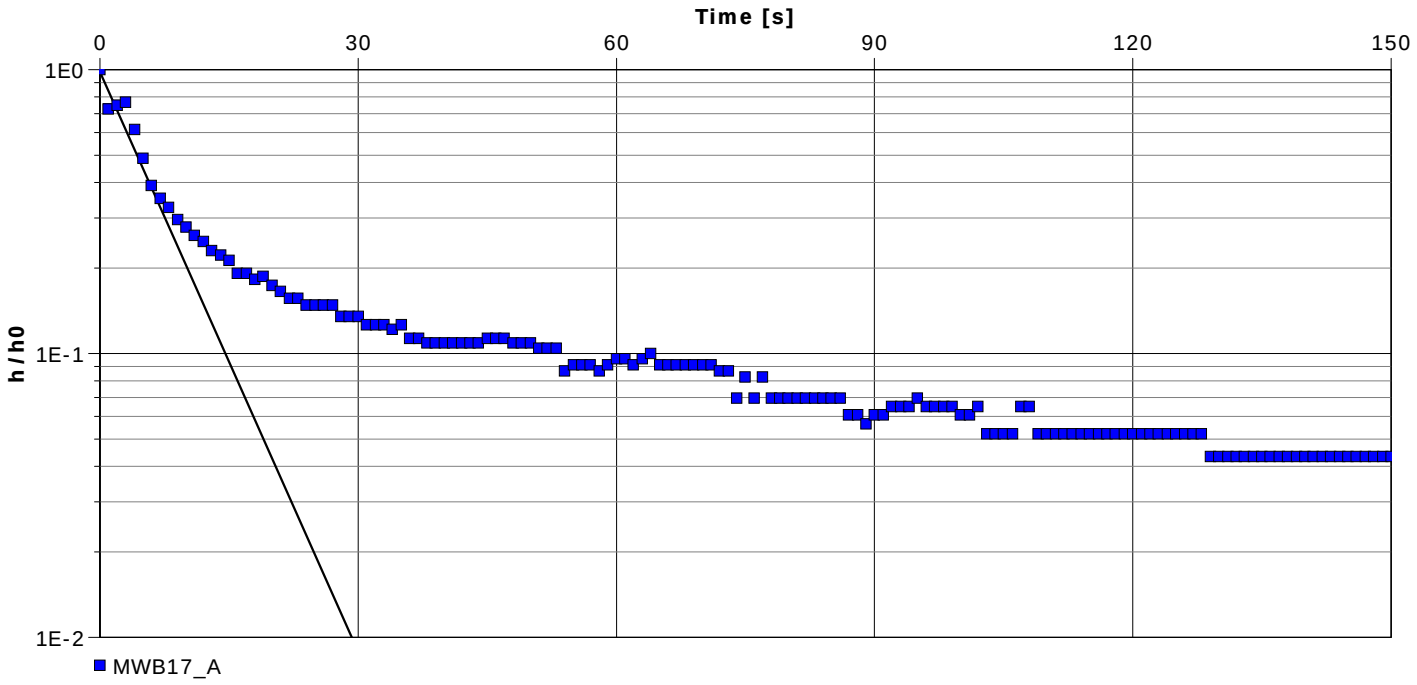
SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 3.8E-5 m/sec y0 = 1.436 m

Gartner Lee Limited 20 Corporate Park Drive St. Catharines, ON L2S 3W2 905.688.5460	**Slug Test Analysis Report**
	Project: Proposed Flamborough Quarry Slug Test
	Number: 60702
	Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB17_A	Test Well: MWB17_A
Test conducted by: TB/CB		Test date: 09/17/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 2.54 m		

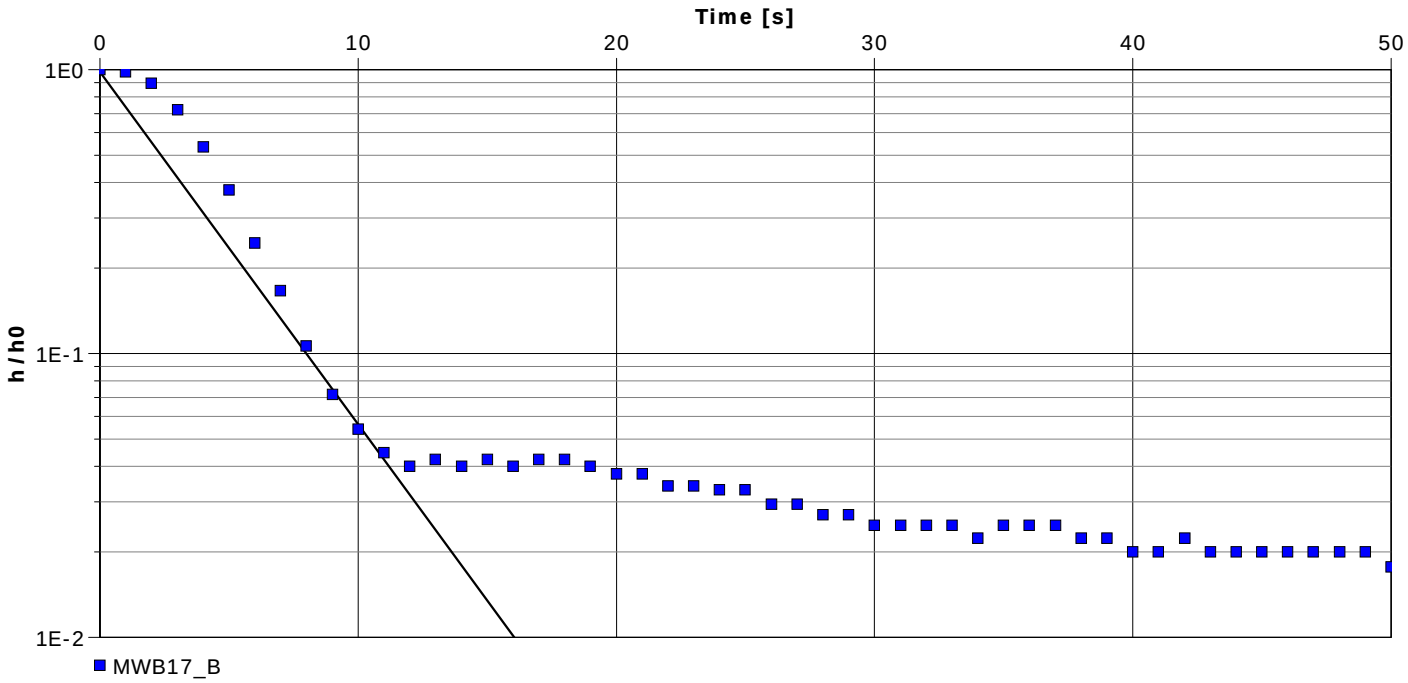


Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB17_A	2.90×10^{-5}	

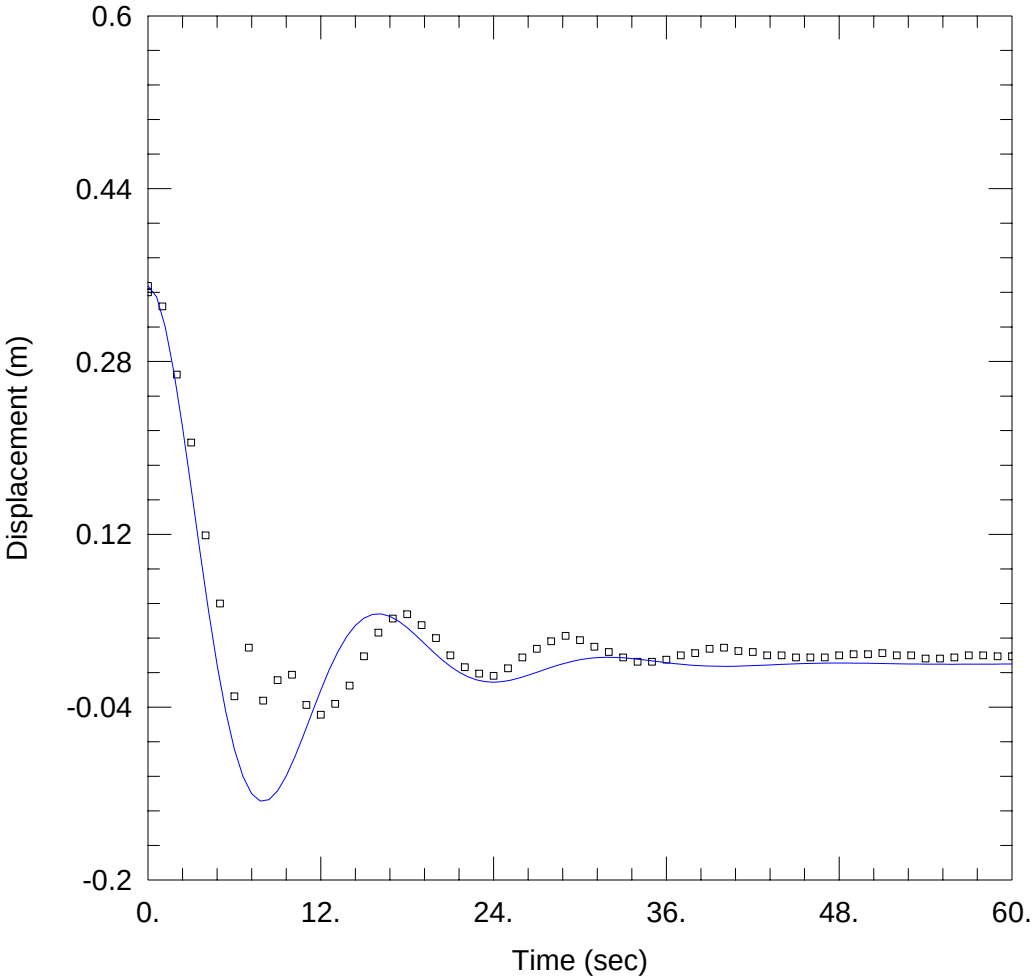
Gartner Lee Limited 20 Corporate Park Drive St. Catharines, ON L2S 3W2 905.688.5460	**Slug Test Analysis Report**
	Project: Proposed Flamborough Quarry Slug Test
	Number: 60702
	Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB17_B	Test Well: MWB17_B
Test conducted by: TB/CB		Test date: 09/17/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 3.01 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB17_B	4.70×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB18_B.aqt
Date: 10/30/07 Time: 15:07:43

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB18-B
Test Date: September 13, 2007

AQUIFER DATA

Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB18-B)

Initial Displacement: 0.35 m
Total Well Penetration Depth: 6.1 m
Casing Radius: 0.026 m
Static Water Column Height: 30.47 m
Screen Length: 6.1 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.0002035 m/sec Le = 57.54 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

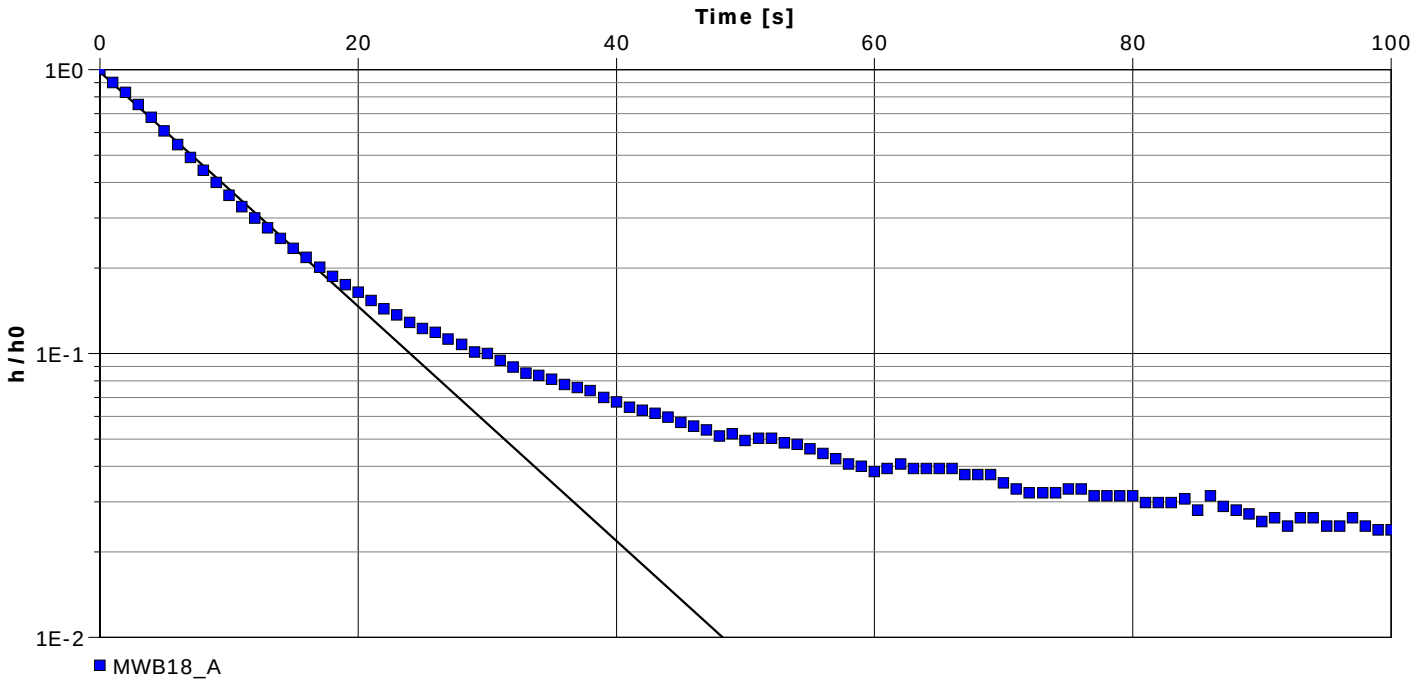
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

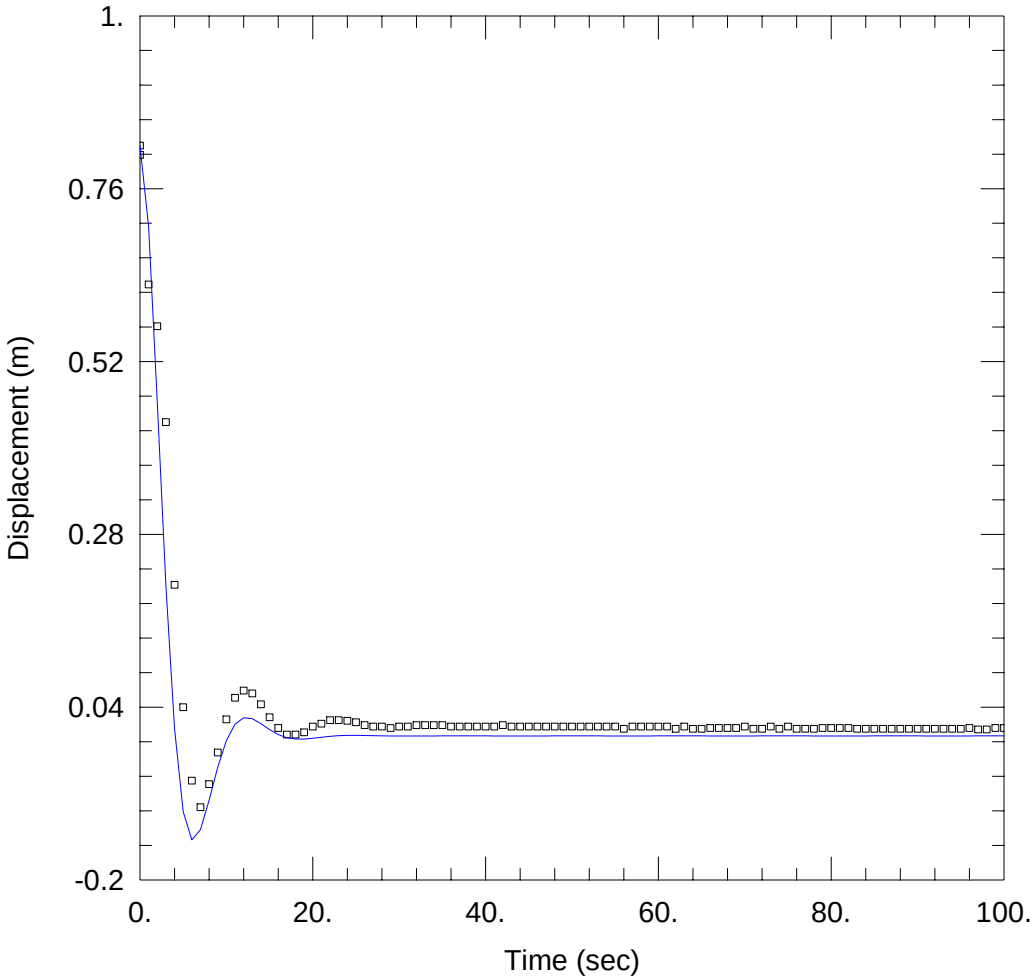
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB18_A	Test Well: MWB18_A
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB18_A	2.90×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB19_B.aqt
Date: 10/30/07 Time: 15:08:15

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB19-B
Test Date: September 17, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

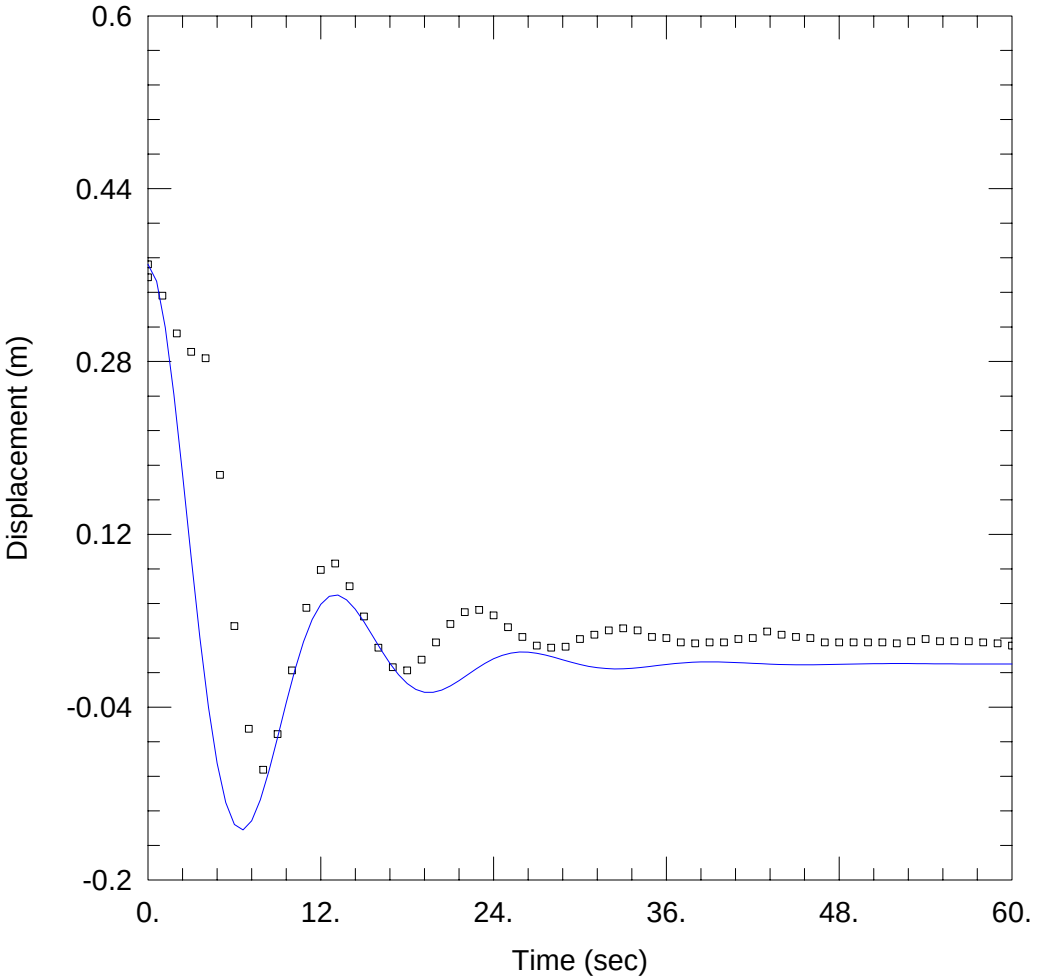
WELL DATA (MWB19-B)

Initial Displacement: 0.82 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 26.12 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.0003622 m/sec Le = 28.86 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB20_II_C.aqt
Date: 10/30/07 Time: 15:08:42

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB20-II-C
Test Date: September 14, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB20-II-C)

Initial Displacement: 0.37 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 25. m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.0005651 m/sec
Le = 39.01 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

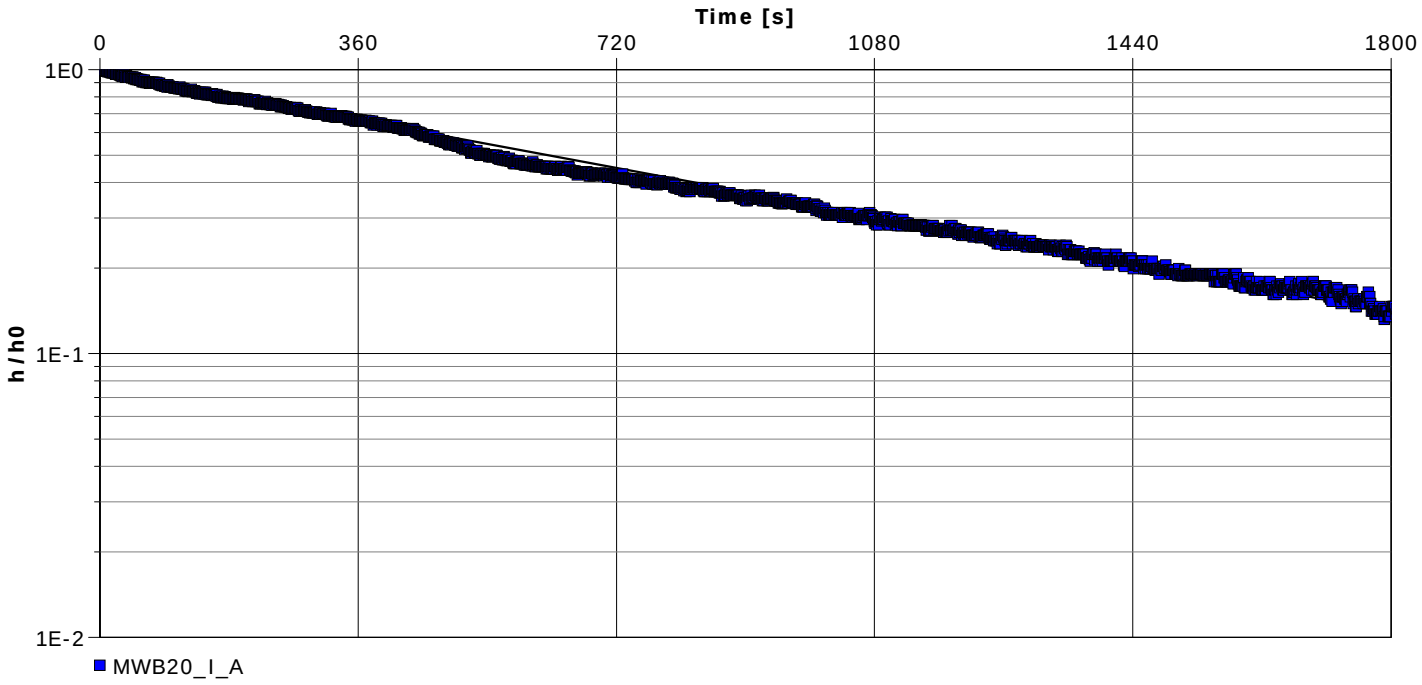
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB20_I_A	Test Well: MWB20_I_A
Test conducted by: TB/CB		Test date: 09/14/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 0.68 m		

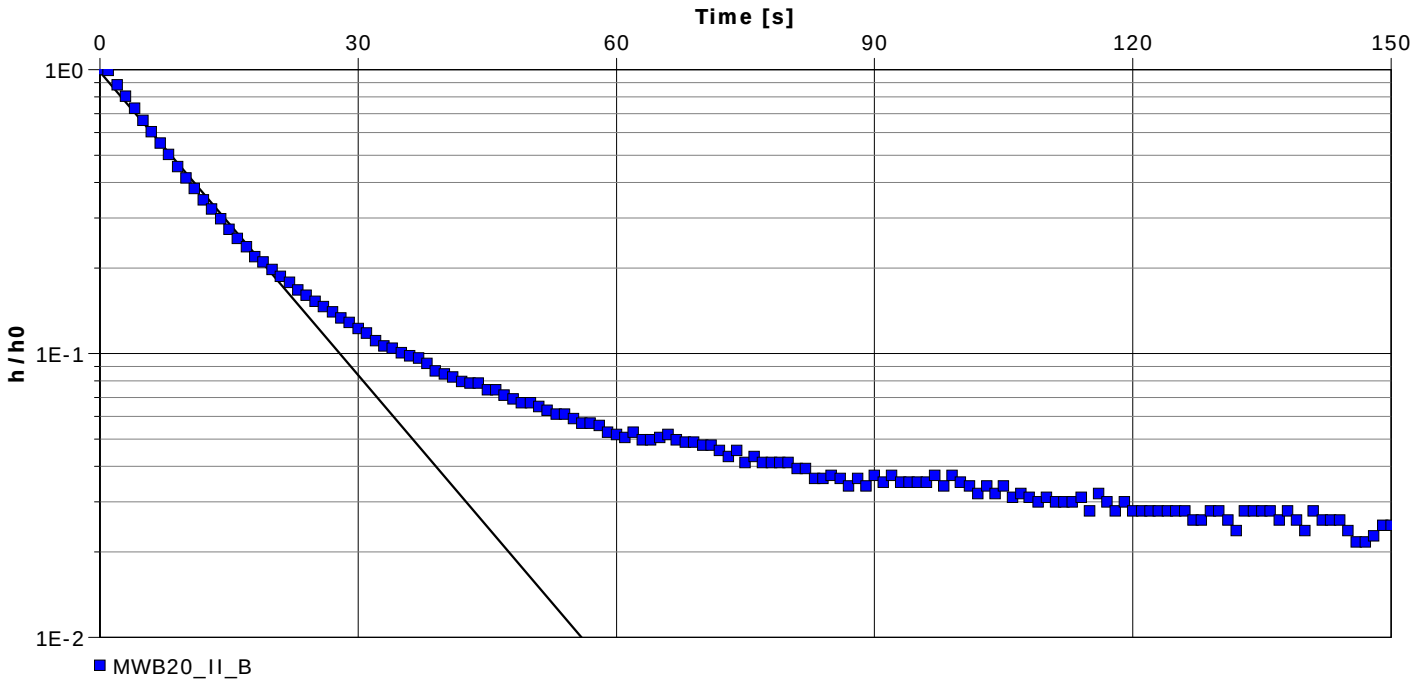


Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB20_I_A	8.20×10^{-7}	

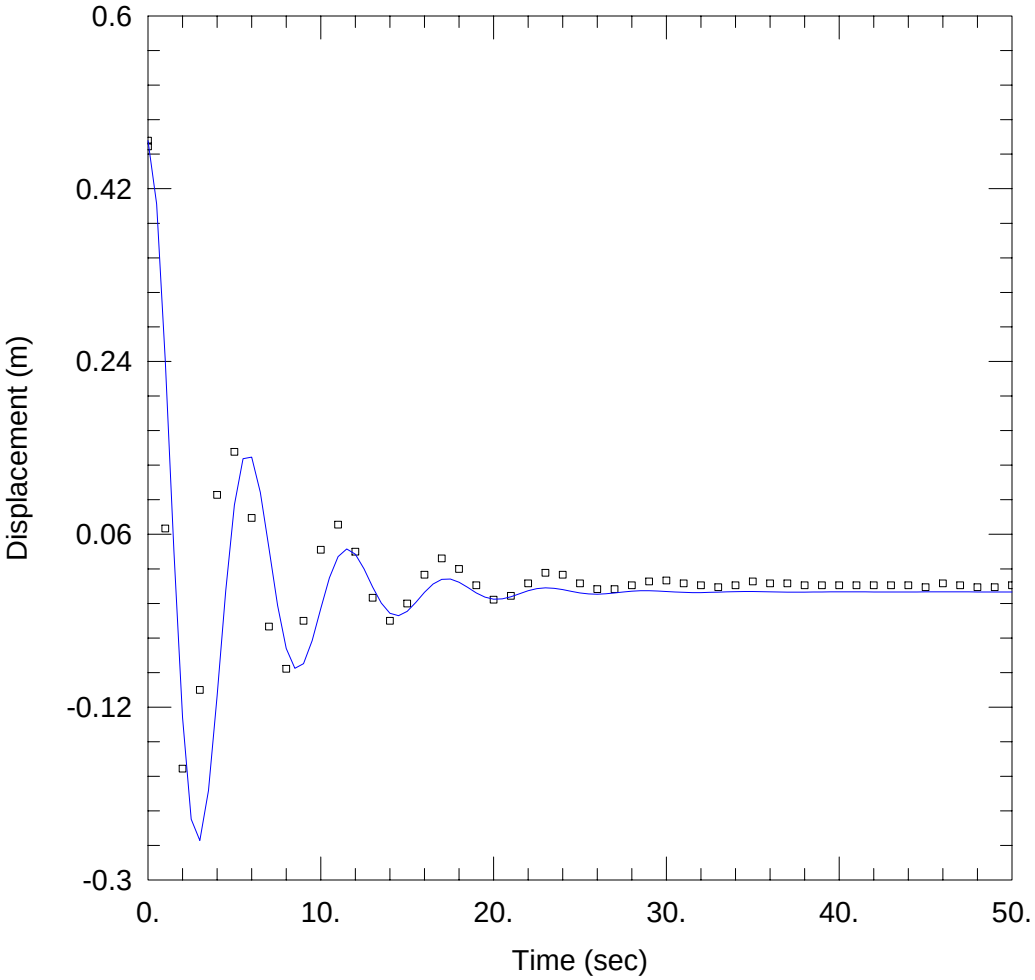
Gartner Lee Limited 20 Corporate Park Drive St. Catharines, ON L2S 3W2 905.688.5460	**Slug Test Analysis Report**
	Project: Proposed Flamborough Quarry Slug Test
	Number: 60702
	Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB20_II_B	Test Well: MWB20_II_B
Test conducted by: TB/CB		Test date: 09/14/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB20_II_B	2.50×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB21_A.aqt
Date: 10/30/07 Time: 15:09:09

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB21-A
Test Date: September 18, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB21-A)

Initial Displacement: 0.47 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 10.43 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.001842 m/sec Le = 7.976 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

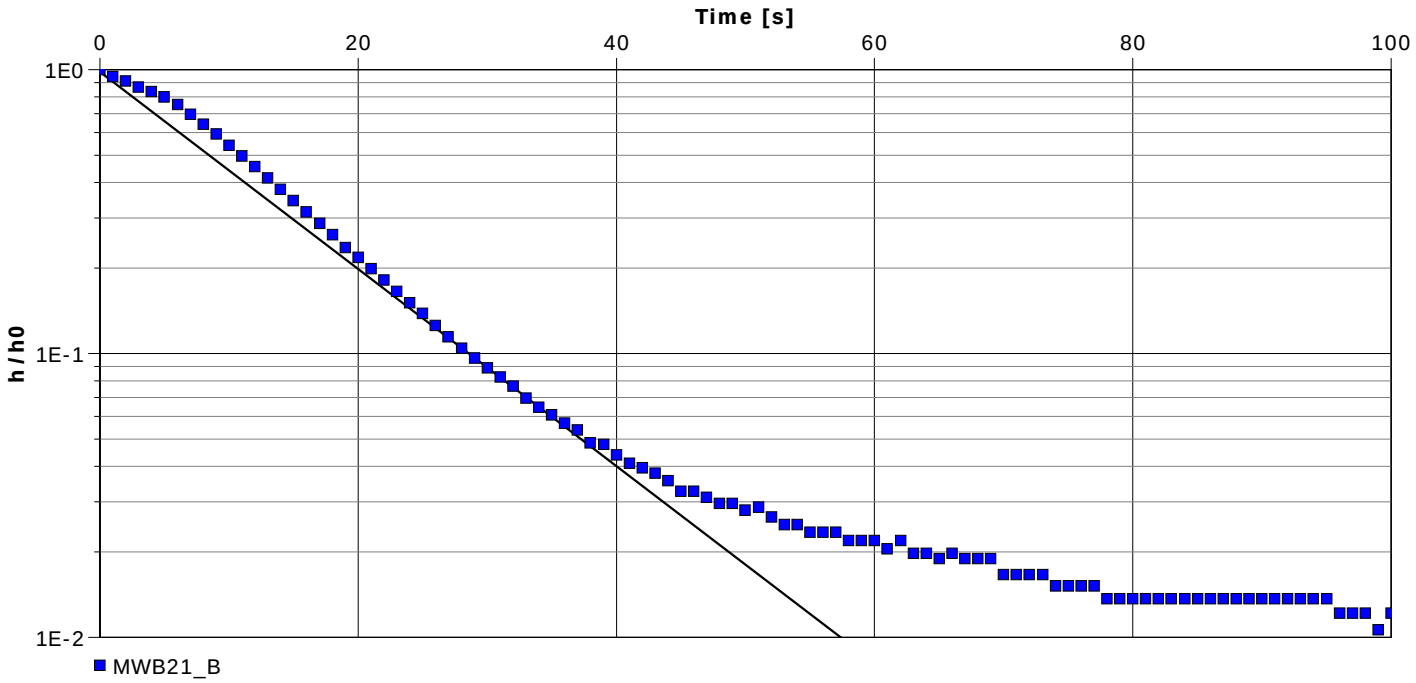
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

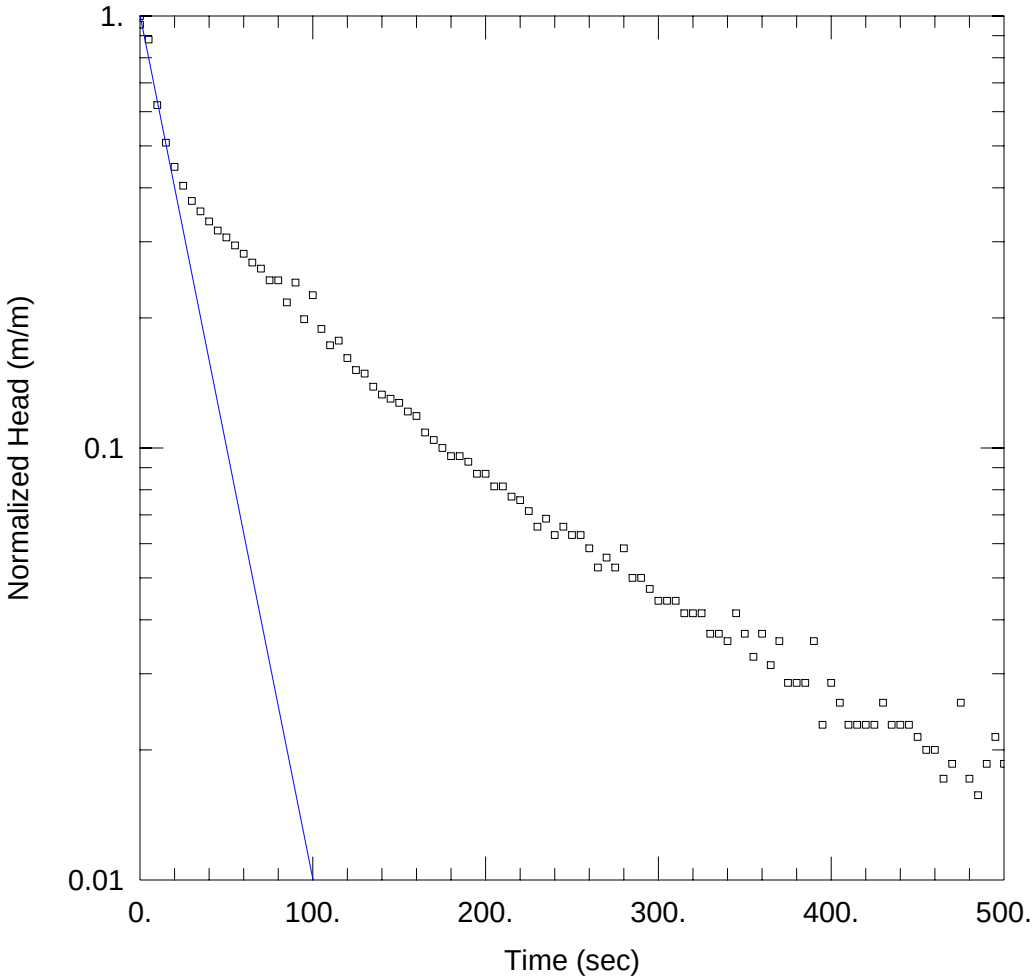
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB21_B	Test Well: MWB21_B
Test conducted by: TB/CB		Test date: 09/18/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/17/2007
Aquifer Thickness: 4.57 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB21_B	1.82×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB22_I_A_Corrected.aqt
Date: 11/02/07 Time: 10:44:49

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB22-I-A
Test Date: September 12, 2007

AQUIFER DATA

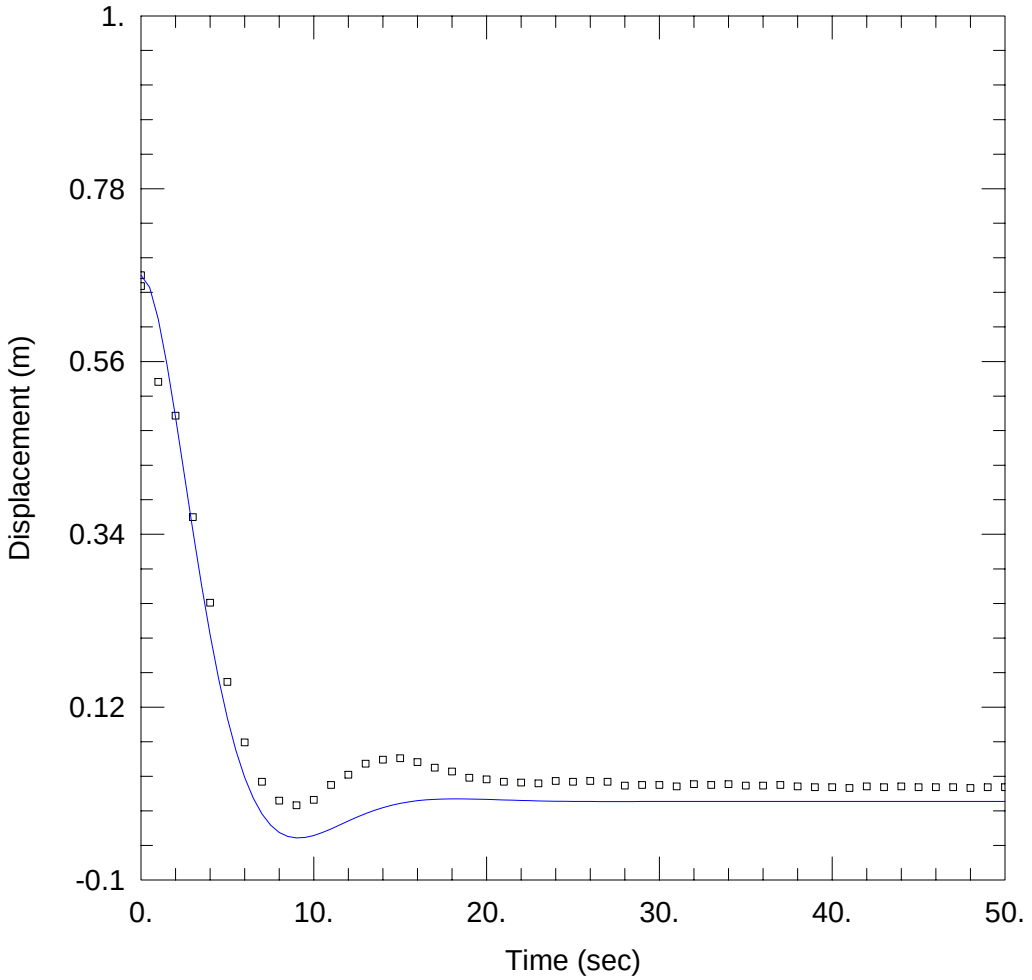
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-I-A)

Initial Displacement: 0.7 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 3.14 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 1.875E-5 m/sec
y0 = 0.7051 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB22_I_C.aqt
Date: 10/30/07 Time: 15:09:33

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB22-I-C
Test Date: September 12, 2007

AQUIFER DATA

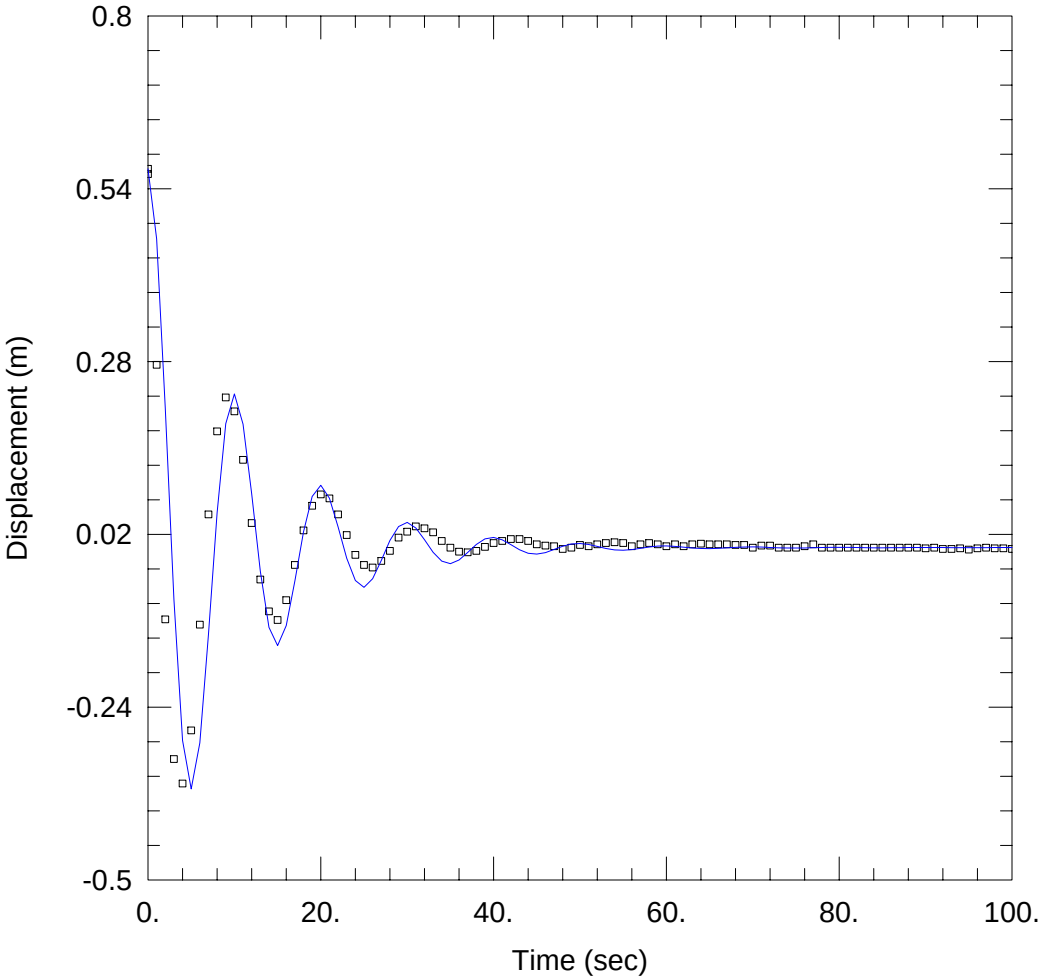
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-I-C)

Initial Displacement: 0.67 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 19.47 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.0002073 m/sec
Le = 47.85 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB22_II_D.aqt
Date: 10/30/07 Time: 15:09:59

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB22-II-D
Test Date: September 12, 2007

AQUIFER DATA

Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-II-D)

Initial Displacement: 0.57 m
Total Well Penetration Depth: 6.1 m
Casing Radius: 0.026 m
Static Water Column Height: 31.36 m
Screen Length: 6.1 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.000725 m/sec
Le = 24.17 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

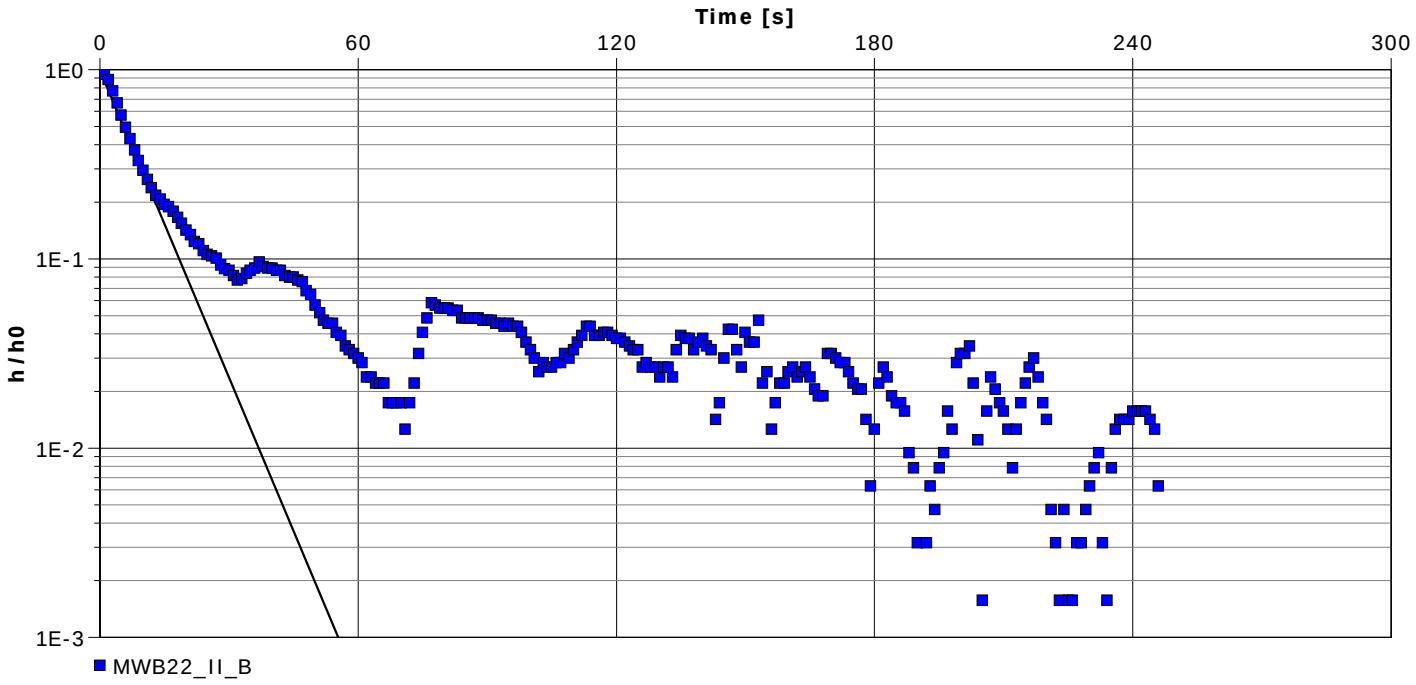
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

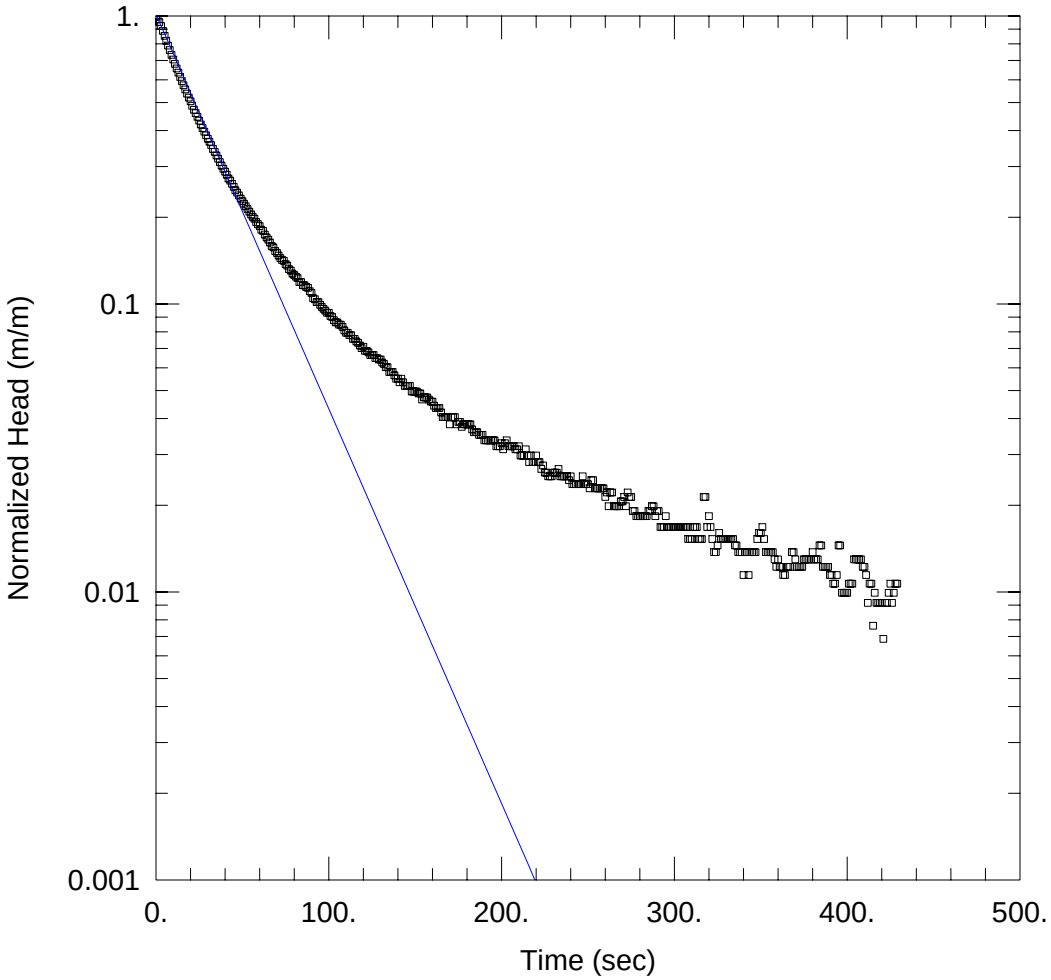
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB22_II_B	Test Well: MWB22_II_B
Test conducted by: TB/JEL/CB		Test date: 09/12/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/04/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB22_II_B	3.80×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB23_I_A.aqt
Date: 10/30/07 Time: 16:28:12

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB23-I-A
Test Date: September 12, 2007

AQUIFER DATA

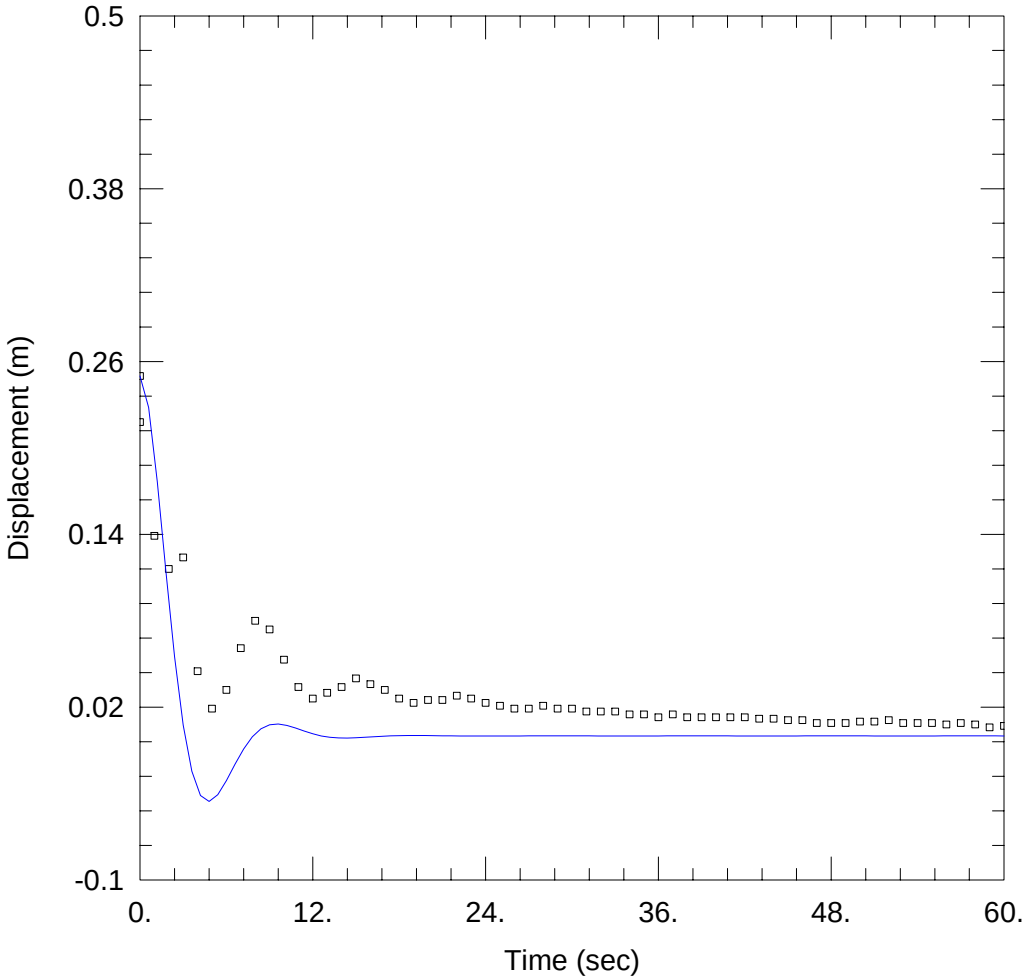
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB23-I-A)

Initial Displacement: 1.31 m
Total Well Penetration Depth: 4.57 m
Casing Radius: 0.026 m
Static Water Column Height: 6.77 m
Screen Length: 4.57 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.37E-6 m/sec
y0 = 1.329 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB23_II_B.aqt
Date: 10/30/07 Time: 15:10:32

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB23-II-B
Test Date: September 12, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB23-II-B)

Initial Displacement: 0.25 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 14.63 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.0004719 m/sec
Le = 17.25 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

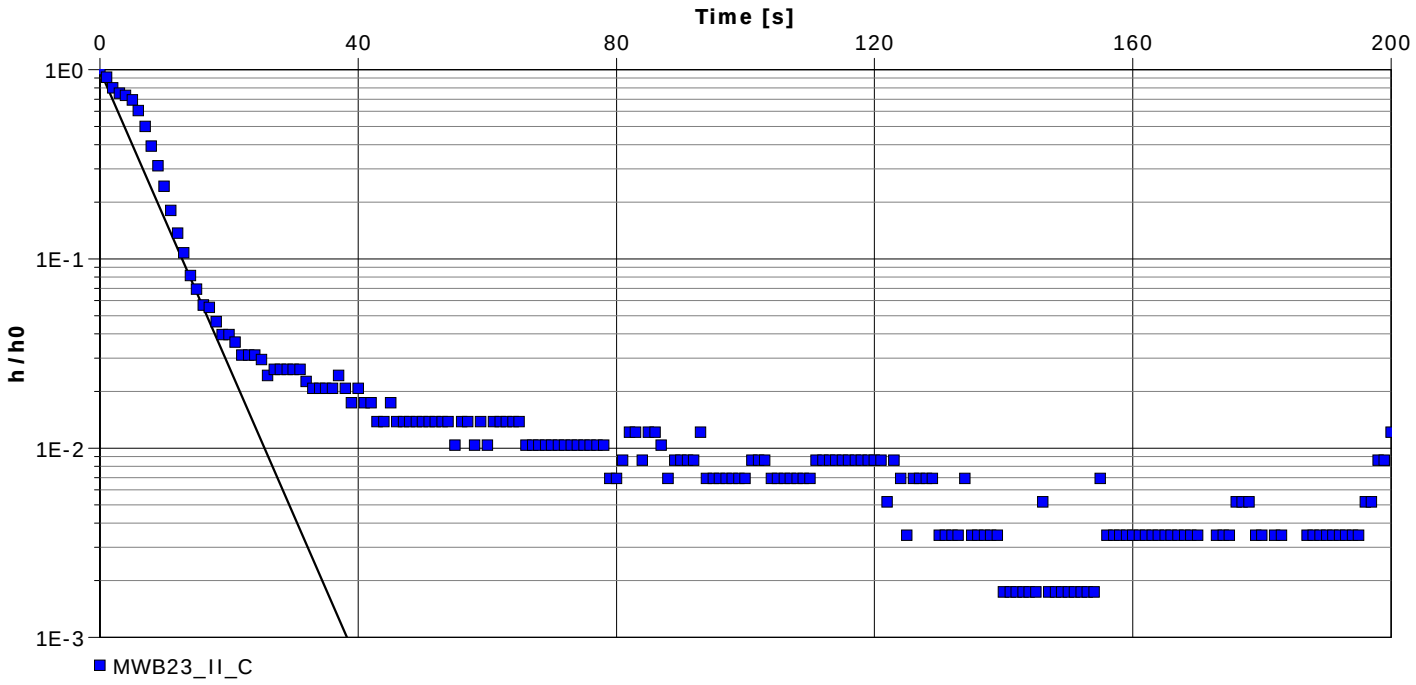
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

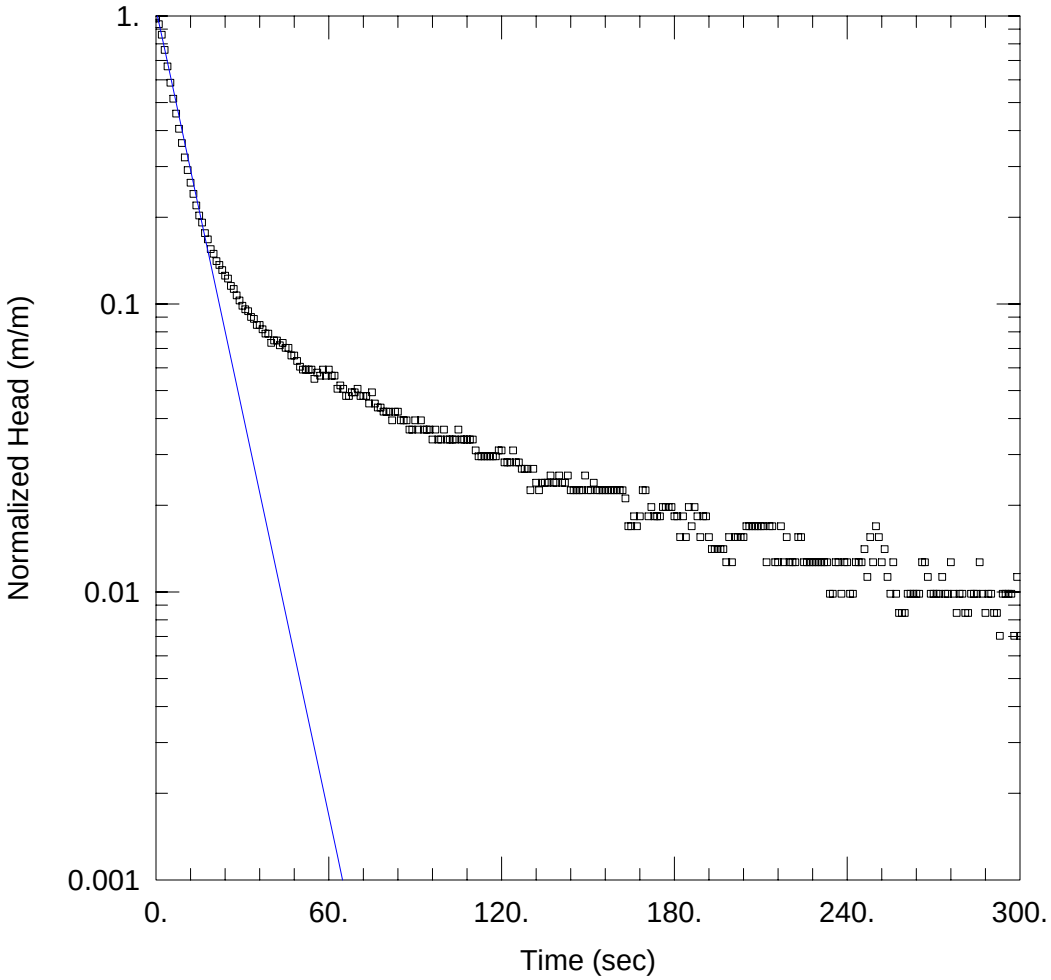
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB23_II_C	Test Well: MWB23_II_C
Test conducted by: TB/JEL/CB		Test date: 09/12/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/04/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB23_II_C	5.50×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB24_I_B.aqt
Date: 10/30/07 Time: 16:34:03

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB24-I-B
Test Date: September 13, 2007

AQUIFER DATA

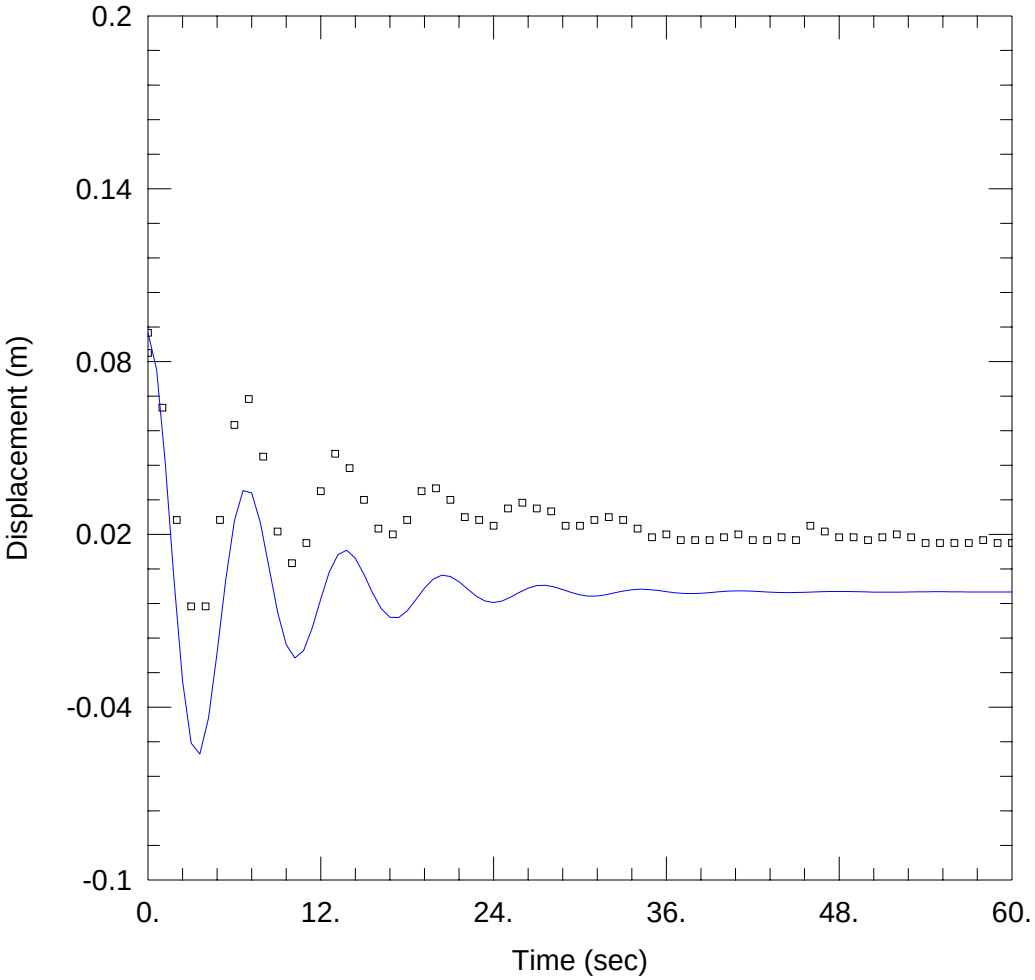
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB24-I-B)

Initial Displacement: 0.71 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 5.5 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.375E-5 m/sec
y0 = 0.7528 m



WELL TEST ANALYSIS

Data Set: C:\...\MWB24_II_C.aqt
Date: 10/30/07 Time: 15:10:58

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB24-II-C
Test Date: September 13, 2007

AQUIFER DATA

Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB24-II-C)

Initial Displacement: 0.09 m
Total Well Penetration Depth: 6.1 m
Casing Radius: 0.026 m
Static Water Column Height: 15.93 m
Screen Length: 6.1 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.001009 m/sec
Le = 11.42 m

Gartner Lee Limited
20 Corporate Park Drive
St. Catharines, ON L2S 3W2
905.688.5460

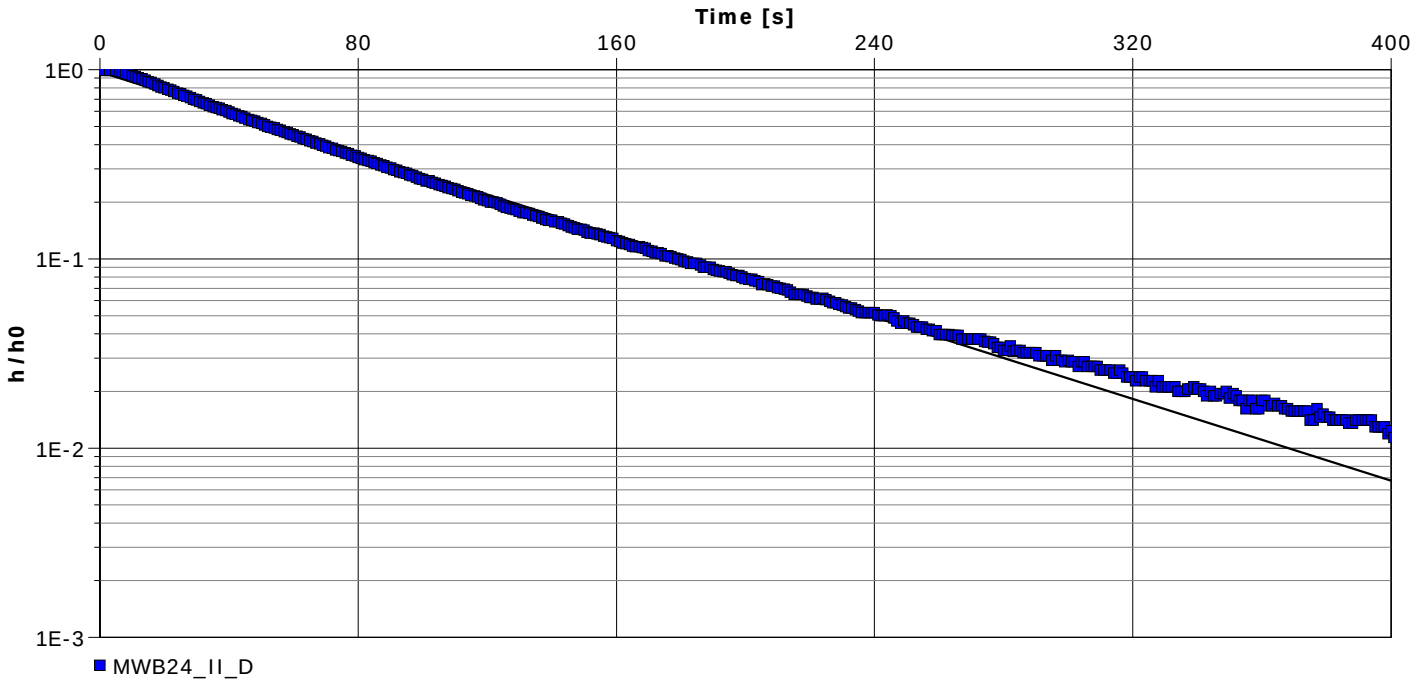
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB24_II_D	Test Well: MWB24_II_D
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.10 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB24_II_D	3.75×10^{-6}	

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St. Catharines, ON L2S 3W2
905.688.5460

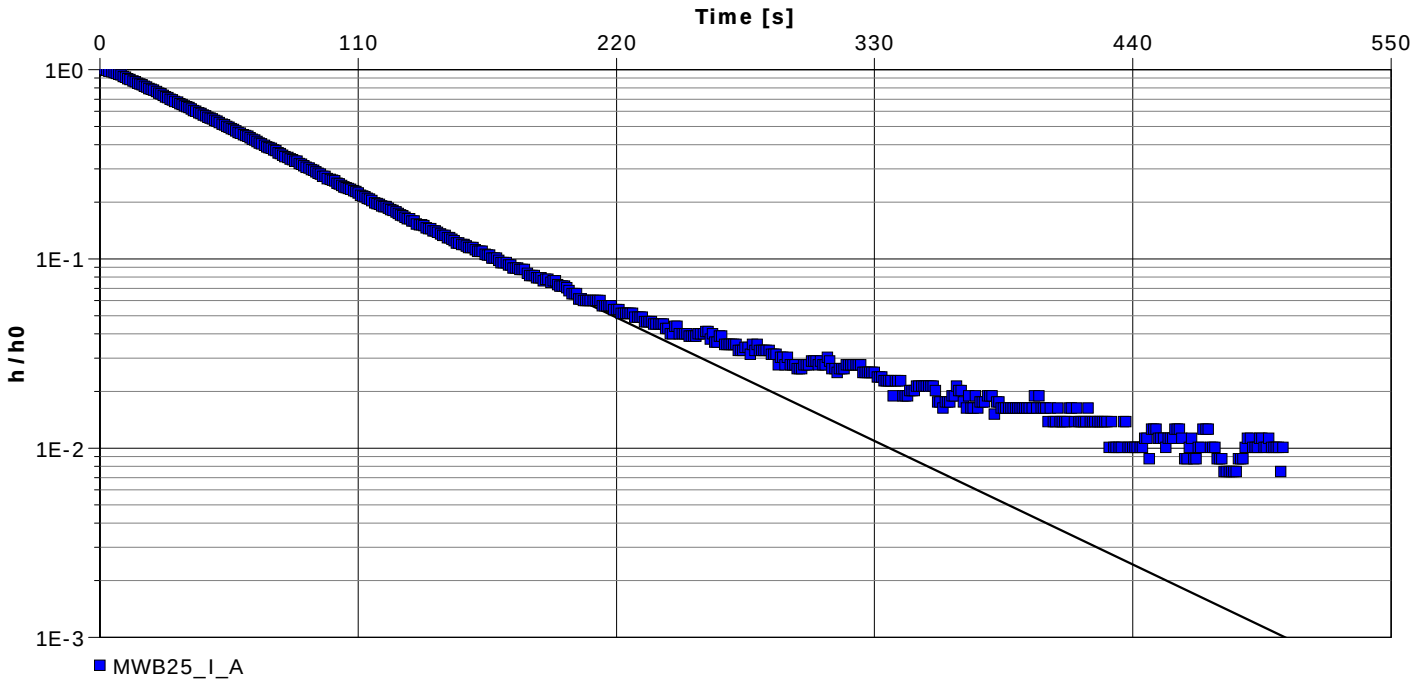
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB25_I_A	Test Well: MWB25_I_A
Test conducted by: TB/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/01/2007
Aquifer Thickness: 1.87 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB25_I_A	6.90×10^{-6}	

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905.688.5460

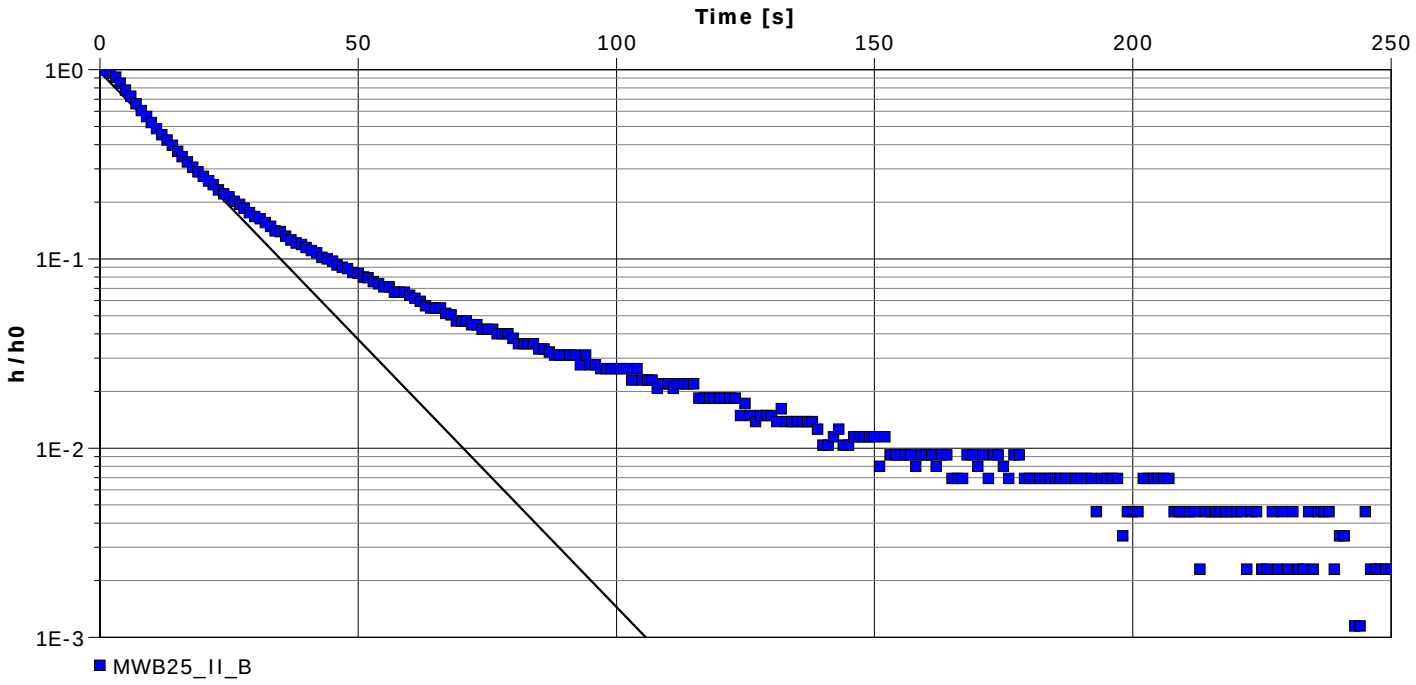
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB25_II_B	Test Well: MWB25_II_B
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB25_II_B	2.30×10^{-5}	

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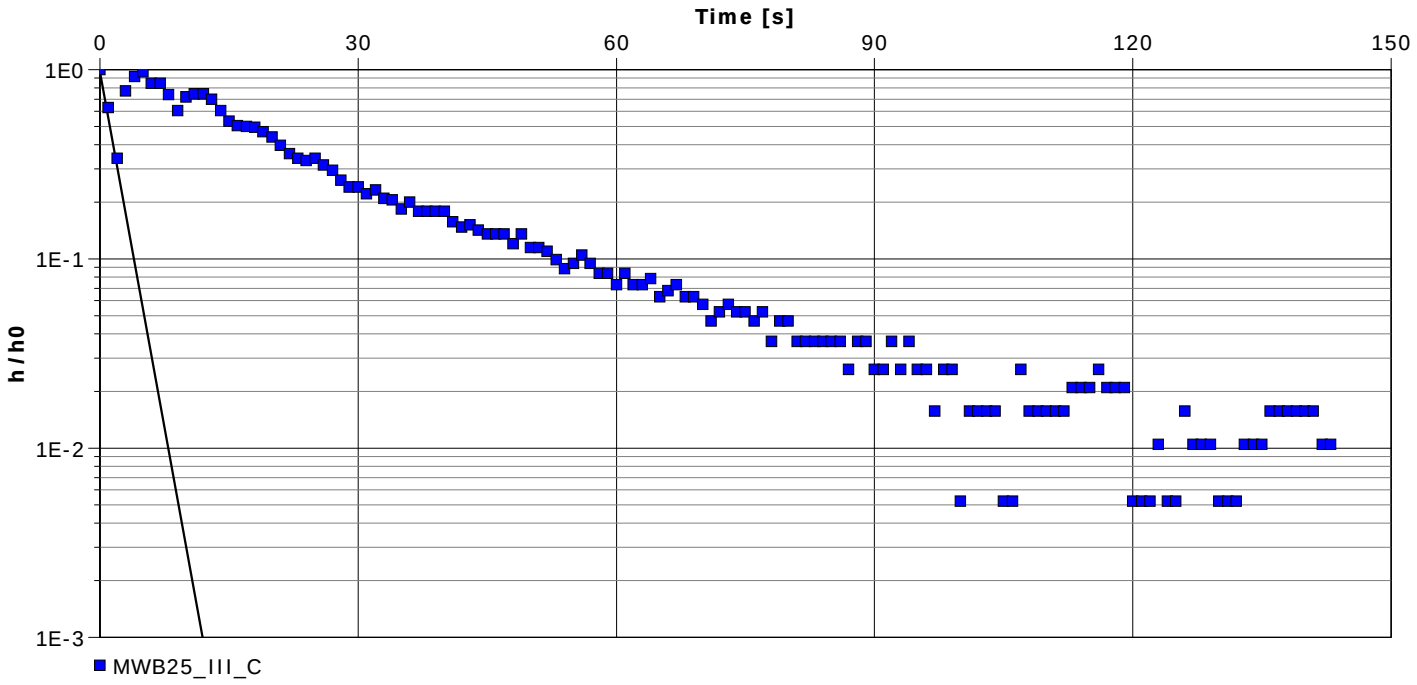
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB25_III_C	Test Well: MWB25_III_C
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 6.01 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB25_III_C	3.00×10^{-5}	

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905.688.5460

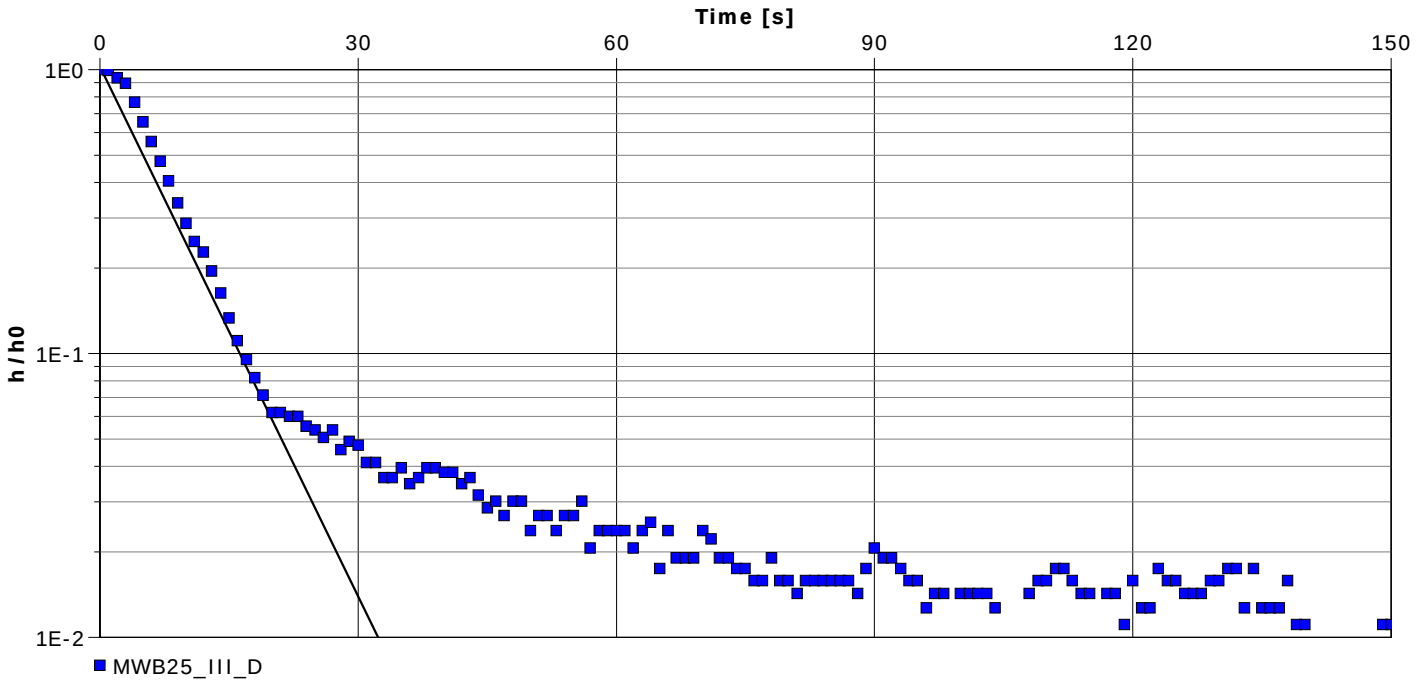
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

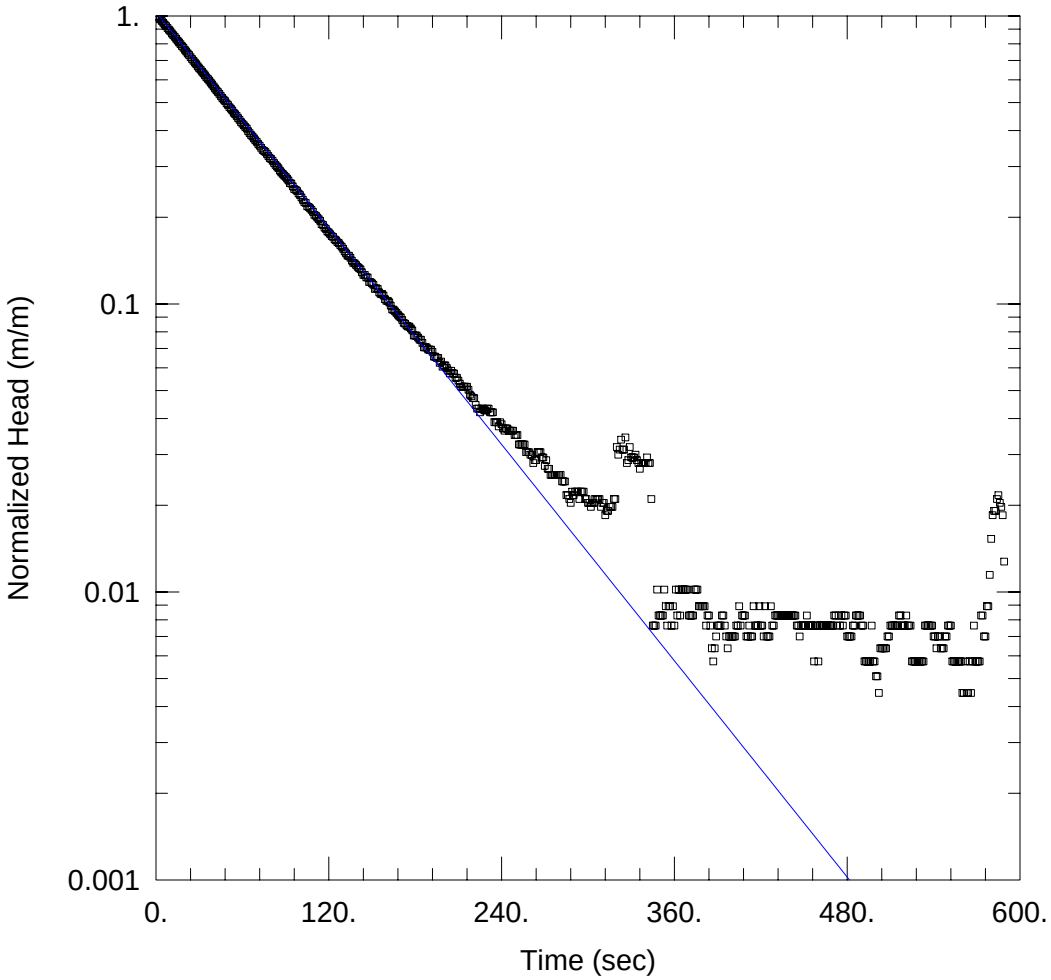
Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB25_III_D	Test Well: MWB25_III_D
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.10 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB25_III_D	1.25×10^{-5}	



WELL TEST ANALYSIS

Data Set: C:\...\MWB26_I_B.aqt
Date: 10/30/07 Time: 16:40:31

PROJECT INFORMATION

Company: Gartner Lee Ltd
Client: CBM St Mary's
Project: 60702
Location: Mountsberg, ON
Test Well: MWB26-I-B
Test Date: September 13, 2007

AQUIFER DATA

Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB26-I-B)

Initial Displacement: 1.57 m
Total Well Penetration Depth: 3.05 m
Casing Radius: 0.026 m
Static Water Column Height: 5.61 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 5.867E-6 m/sec
y0 = 1.623 m

Gartner Lee Limited
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St. Catharines, ON L2S 3W2
905.688.5460

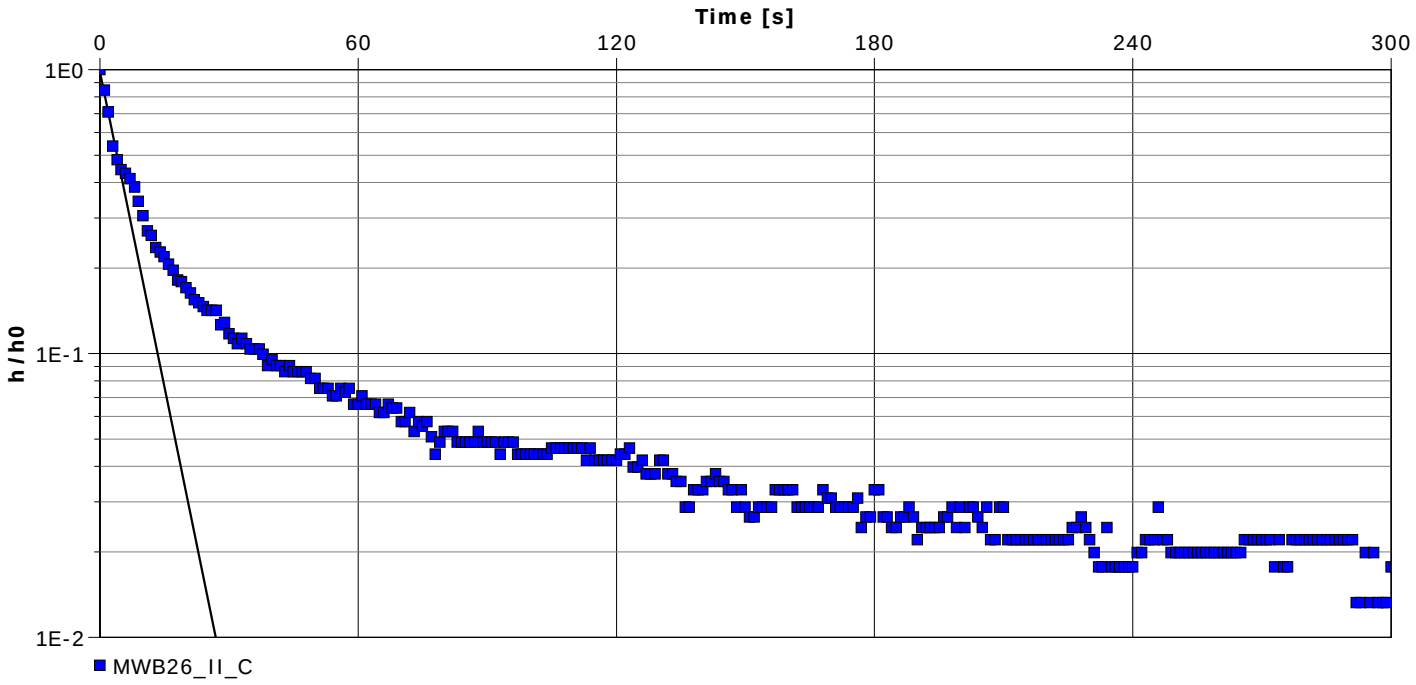
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB26_II_C	Test Well: MWB26_II_C
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB26_II_C	5.20×10^{-5}	

Gartner Lee Limited
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905.688.5460

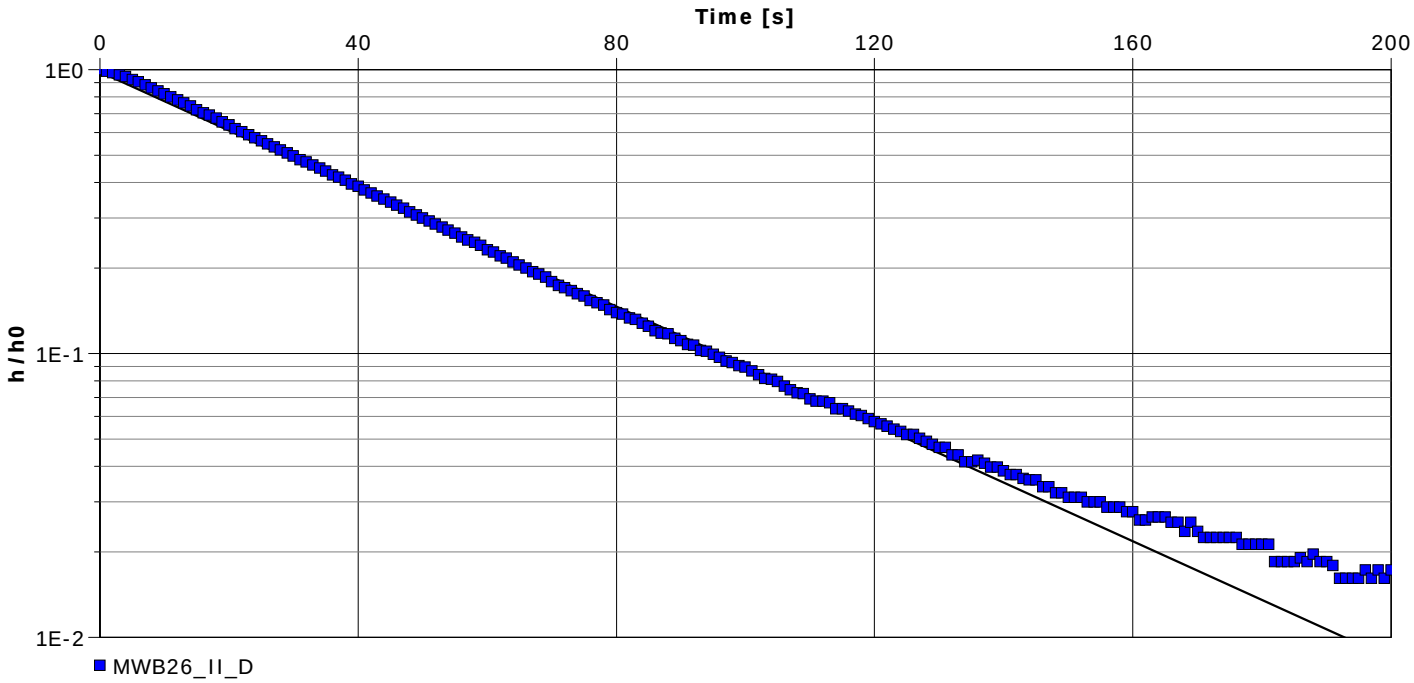
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB26_II_D	Test Well: MWB26_II_D
Test conducted by: TB/JEL/CB		Test date: 09/13/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/16/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB26_II_D	7.25×10^{-6}	

Gartner Lee Limited
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St. Catharines, ON L2S 3W2
905.688.5460

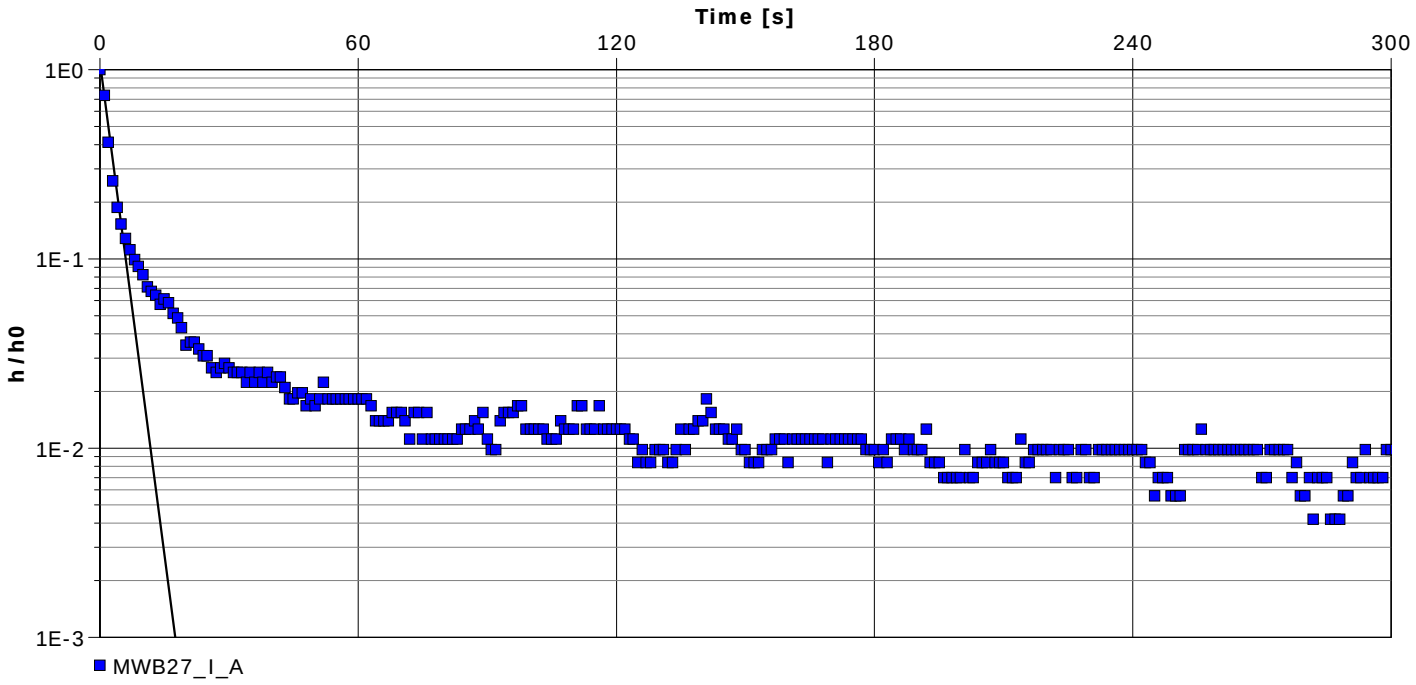
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB27_I_A	Test Well: MWB27_I_A
Test conducted by: TB/CB		Test date: 09/19/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/02/2007
Aquifer Thickness: 4.57 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB27_I_A	1.04×10^{-4}	

Gartner Lee Limited
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St. Catharines, ON L2S 3W2
905.688.5460

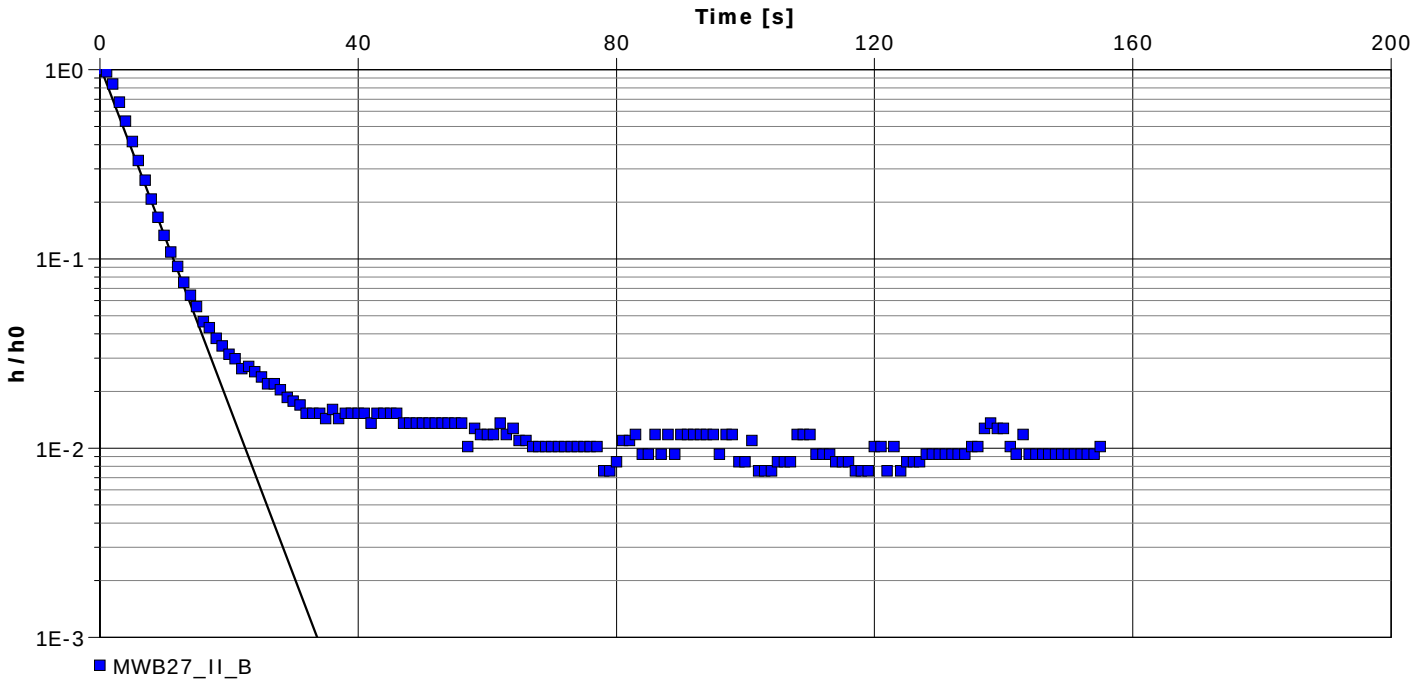
Slug Test Analysis Report

Project: Proposed Flamborough Quarry Slug Test

Number: 60702

Client: CBM St. Mary's

Location: Mountsberg, Ontario	Slug Test: MWB27_II_B	Test Well: MWB27_II_B
Test conducted by: TB/CB		Test date: 09/19/2007
Analysis performed by: HZ	Bouwer Rice	Analysis date: 10/02/2007
Aquifer Thickness: 3.05 m		



Calculation after Bouwer & Rice

Observation well	Hydraulic Conductivity [m/s]	
MWB27_II_B	7.30×10^{-5}	

F3-3. S.S. Papadopulos & Associates Interpretation of Slug Re-Tests June 2008

S. S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants

Memorandum

Date:	June 20, 2008
From:	Jinhui Zhang and Christopher Neville
To:	Gartner Lee Ltd.
SSPA Project:	1087
Subject:	**Interpretation of slug re-tests**
File location:	*P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Report\Report.doc*

1. Introduction

All wells installed at the site of the proposed Flamborough Quarry were slug tested in 2007. SSP&A reviewed the results of these tests, and presented its findings in a report dated April 28, 2008. In its review, SSP&A identified several tests in which the results were either no interpretable, or the interpretations were not reliable. These tests either occurred under partially submerged conditions, or poor fits to the data were obtained with theoretical models. Based on the review, 18 wells were selected for repeat slug tests. The re-testing was conducted between May 22nd and 26th, 2008, and the test data were sent to SSP&A for interpretation.

2. Slug test procedures

All of the repeat slug tests were conducted by pouring 4 L of water into the well. The water level changes in the wells were monitored using a Diver transducer. The Diver was programmed to take measurements every half-second. At most wells, tests were repeated 2 to 5 times to obtain definitive results.

3. Slug test interpretation

Before conducting any interpretations, the results of each test are checked by plotting the measured water level displacements against time. The plots are presented in Appendix A. With the exceptions of MWB8-I-A and MWB13-A, the responses are interpretable, and the results of the repeat tests are consistent.

The results of the slug test are interpreted using the analyses of Bouwer and Rice (1976) and Butler (1998) with the software AQTESOLV Pro. v. 4.5 (Duffield, 2007). The matches to the data are presented in Appendix B. Results are summarized on Table 1, with selected comments.

SSP&A's interpretations of the results of the previous slug tests at the same wells are also included on Table 1. Except for well MWB20-A, all wells that were partially submerged are fully submerged during the re-testing. For the interpretation of MWB20-A, the analysis is made with Bulter's recommended head range (Bulter, 1998) with alternative effective well casing radius corrections (Bouwer, 1989; Butler, 1998).

In general, the matches are improved at most wells. The data from the re-testing of MWB8-I-A are still not reliable. Although the result from the two slug tests are repeatable, the maximum observed displacement of 0.04 m is a small fraction of the theoretical displacement of 1.96 m calculated according to:

$$H_0 = \frac{V}{\pi r_c^{\,2}}$$

where r_c is the casing radius (0.026 m) , and V is the volume of water poured into the well to create the initial displacement (4 L).

4. References

Bouwer, H., 1989: The Bouwer and Rice slug test ─ An update, *Ground Water,* 17 (3), pp 304-309.

Bouwer, H. and R.C. Rice, 1976: A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, *Water Resources Research*, 12(3), pp. 423-428.

Butler, J.J., Jr., 1998: **The Design, Performance, and Analysis of Slug Tests**, Lewis Publishers, Boca Raton, Florida, 252 p.

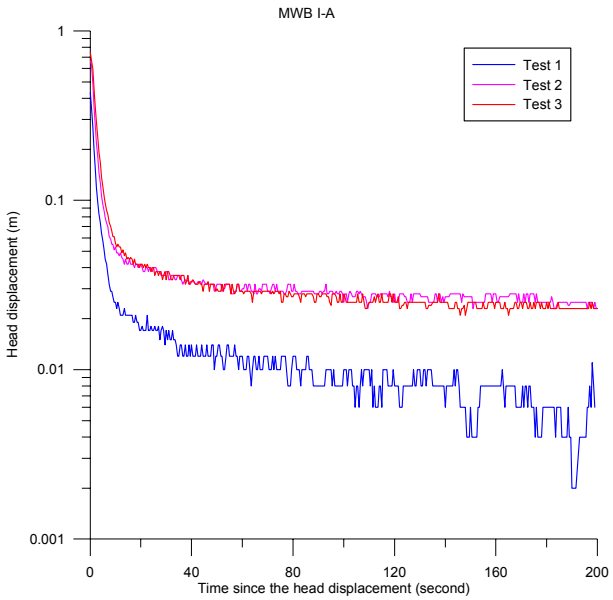
Duffield, G.M., 2007. AQTESOLV for Windows Version 4.5 User's Guide, HydroSOLVE, Inc., Reston, VA.

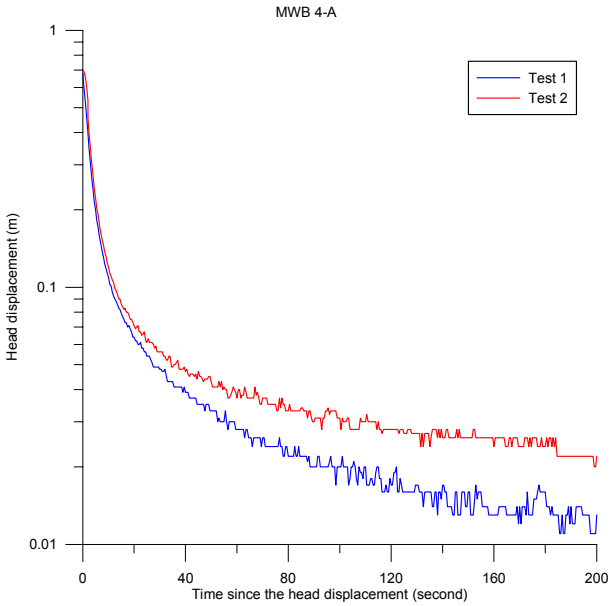
Table 1 Summary of slug test interpretation

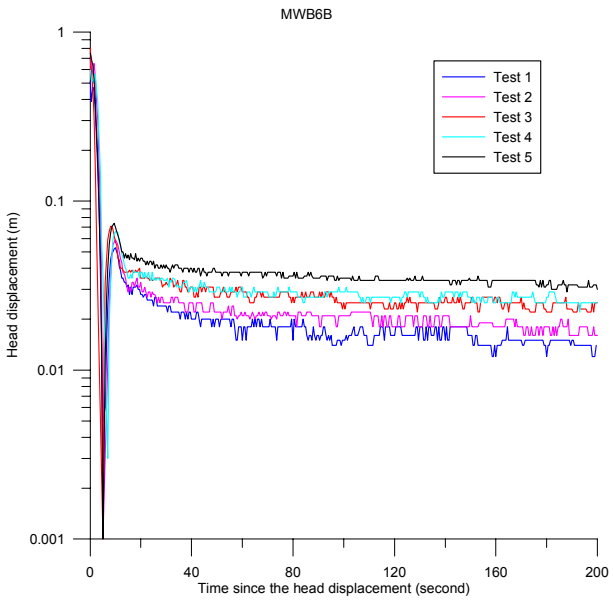
Borehole name	Testing number	Estimated hydraulic conductivity (m/day)	Previous estimated hydraulic conductivity (m/day)	Comments
MWB1-I-A	1	13.4	1.8	
	2	12.3		
	3	11.2		
MWB4-I-A	1	6.1	3.9	
	2	6.2		
MWB6-II-B	1	28.9	22.2	Oscillatory
	2	31.0		
	3	25.7		
	4	34.2		
	5	33.0		
MWB7-I-A	1	3.1	4.8	
	2	2.8		
	3	3.0		
MWB8-I-A	1	0.1	19.5	Unreliable
	2	0.3		
MWB9-I-A	1	1.6	7.6	
	2	1.5		
MWB10-I-C	1	49.8	32.2	Oscillatory
	2	44.9		
	3	43.1		
	4	36.4		
	5	38.4		
MWB11-B	1	11.2	19.3	Oscillatory
	2	29.8		
MWB12-A	1	211.4	7.5	Oscillatory
	2	245.1		
MWB13-A	1	144.0	34	Oscillatory
MWB17-A	1	8.3	2.7	
	2	7.6		
	3	12.6		
	4	18.6		
MWB20-I-A	1	0.5	0.5 to 5	Partially submerged, limited reliability
MWB22-II-B	1	5.9	12.8	
	2	5.2		
MWB23-II-B	1	103.0	12.9	Oscillatory
	2	100.9		
MWB24-II-C	1	95.6	74	Oscillatory
	2	115.4		
	3	87.1		
	4	184.8		
	5	93.1		
MWB25-I-A	1	19.6	0.85	
	2	20.2		
MWB28-I-A	1	1.8		
	2	1.5		
	3	1.5		
MWB28-I-B	1	141.0		Oscillatory
	2	159.4		

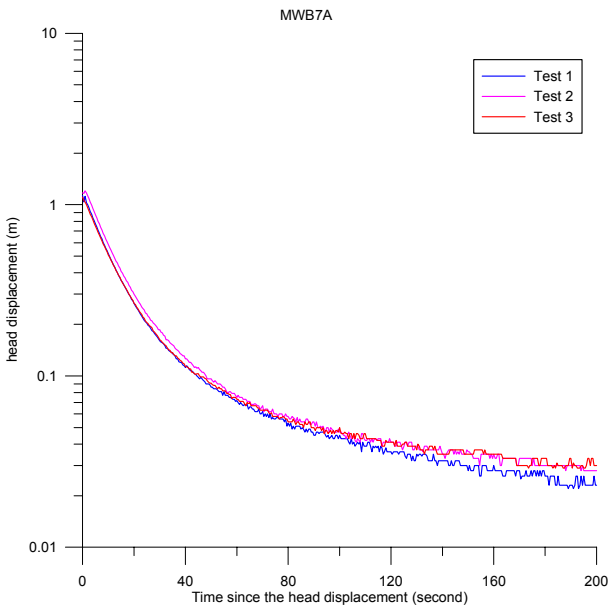
APPENDIX A

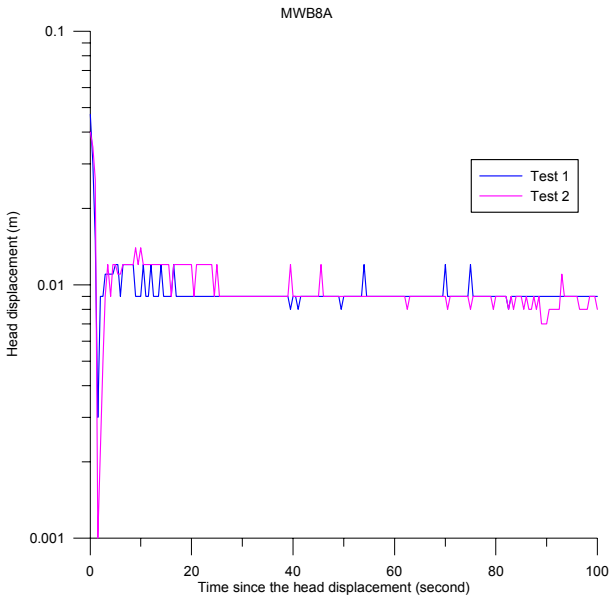
MEASURED HEAD DISPLACEMENTS VS. TIME

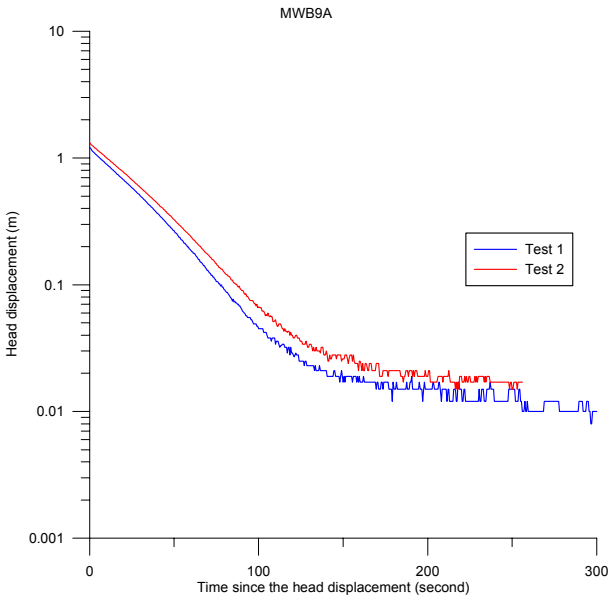

MWB I-A
Test 1
Test 2
Test 3
Head displacement (m)
1
0.1
0.01
0.001
0
40
80
120
160
200
Time since the head displacement (second)

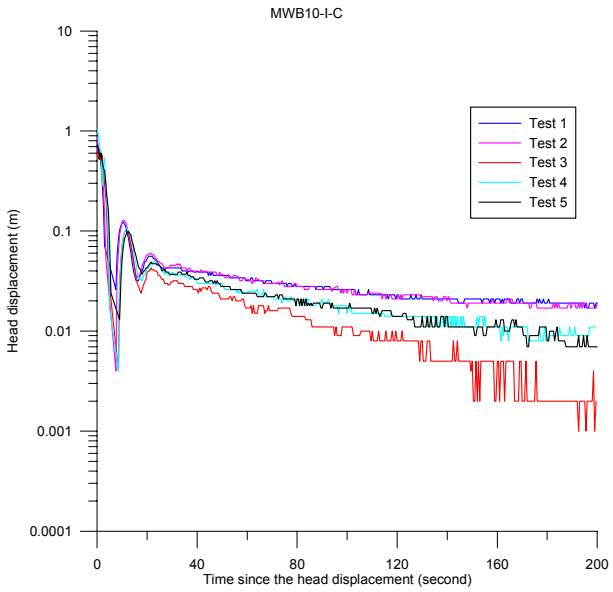

MWB 4-A
Test 1
Test 2
Head displacement (m)
1
0.1
0.01
0
40
80
120
160
200
Time since the head displacement (second)

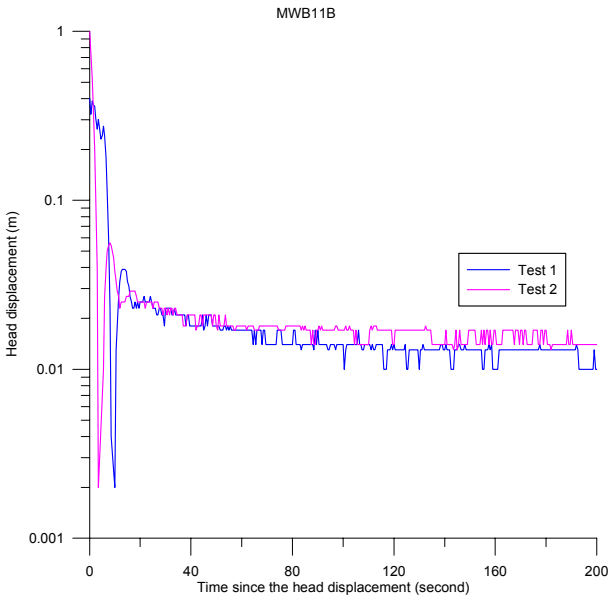

MWB6B
Test 1
Test 2
Test 3
Test 4
Test 5
Head displacement (m)
1
0.1
0.01
0.001
0
40
80
120
160
200
Time since the head displacement (second)

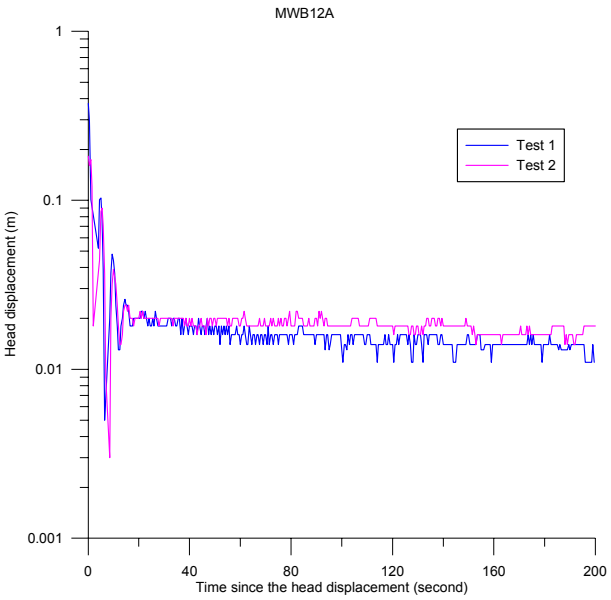

MWB7A
Test 1
Test 2
Test 3
head displacement (m)
10
1
0.1
0.01
0
40
80
120
160
200
Time since the head displacement (second)

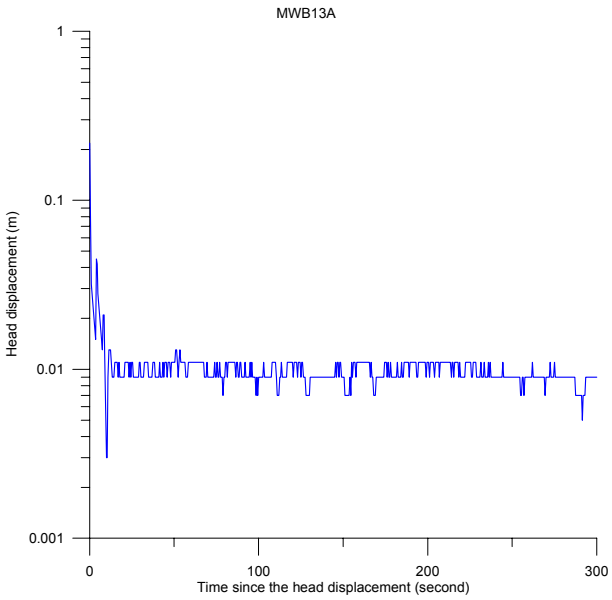

MWB8A
Head displacement (m)
0.1
0.01
0.001
0
20
40
60
80
100
Time since the head displacement (second)
Test 1
Test 2

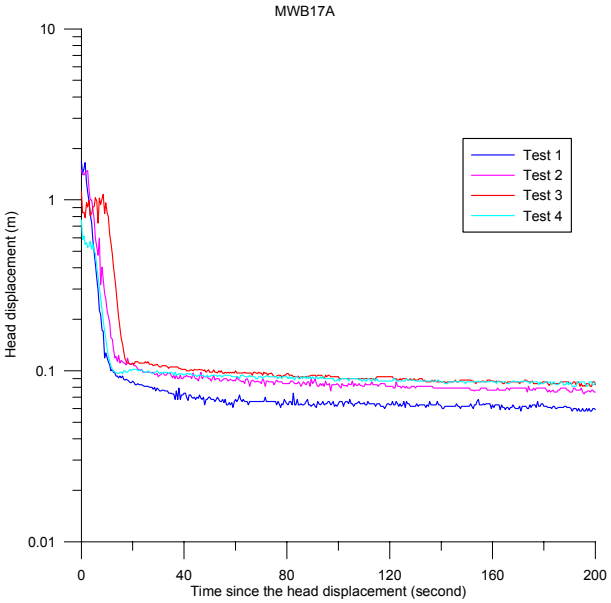

MWB9A
Head displacement (m)
10
1
0.1
0.01
0.001
0
100
200
300
Time since the head displacement (second)
Test 1
Test 2

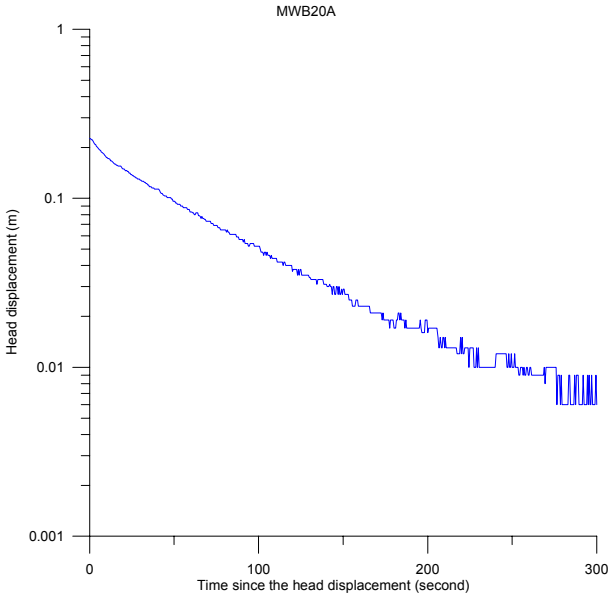

MWB10-I-C
Head displacement (m)
10
1
0.1
0.01
0.001
0.0001
0
40
80
120
160
200
Time since the head displacement (second)
Test 1
Test 2
Test 3
Test 4
Test 5

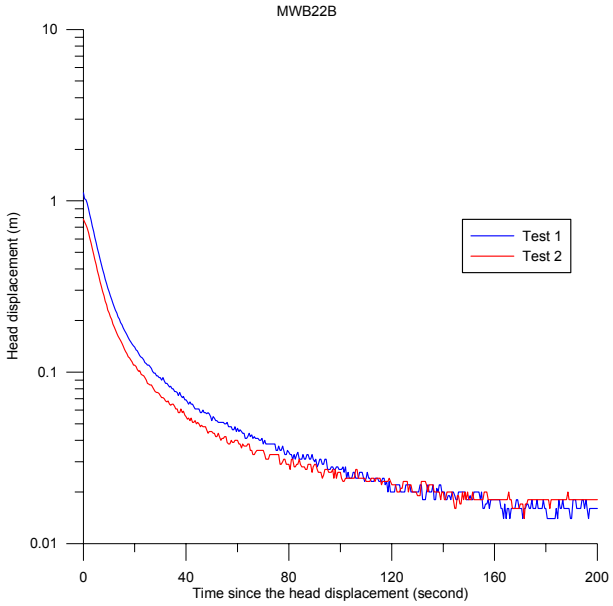

MWB11B
Head displacement (m)
1
0.1
0.01
0.001
0
40
80
120
160
200
Time since the head displacement (second)
Test 1
Test 2

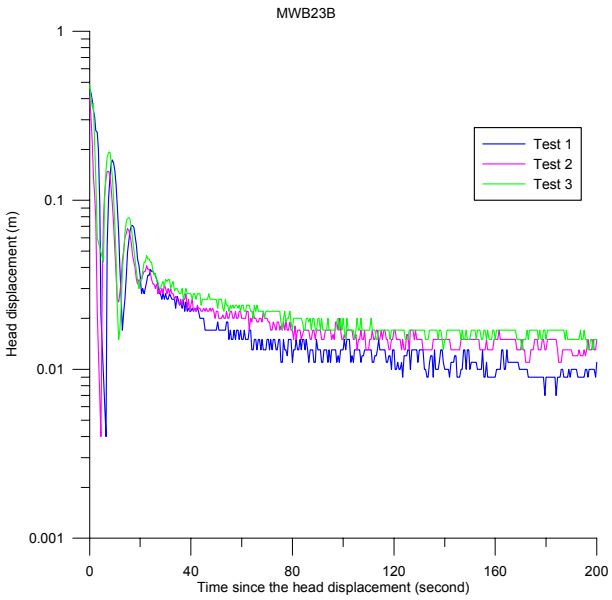

MWB12A
Test 1
Test 2
Head displacement (m)
Time since the head displacement (second)
1
0.1
0.01
0.001
0
40
80
120
160
200

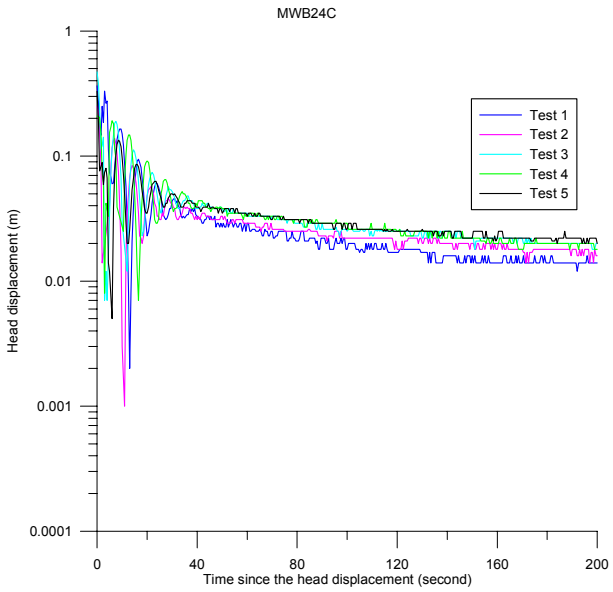

MWB13A
Head displacement (m)
Time since the head displacement (second)
1
0.1
0.01
0.001
0
100
200
300

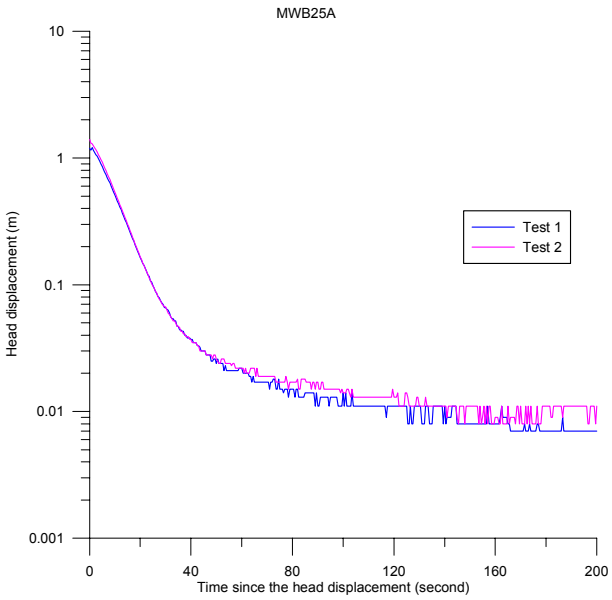

MWB17A
Test 1
Test 2
Test 3
Test 4
Head displacement (m)
Time since the head displacement (second)
10
1
0.1
0.01
0
40
80
120
160
200

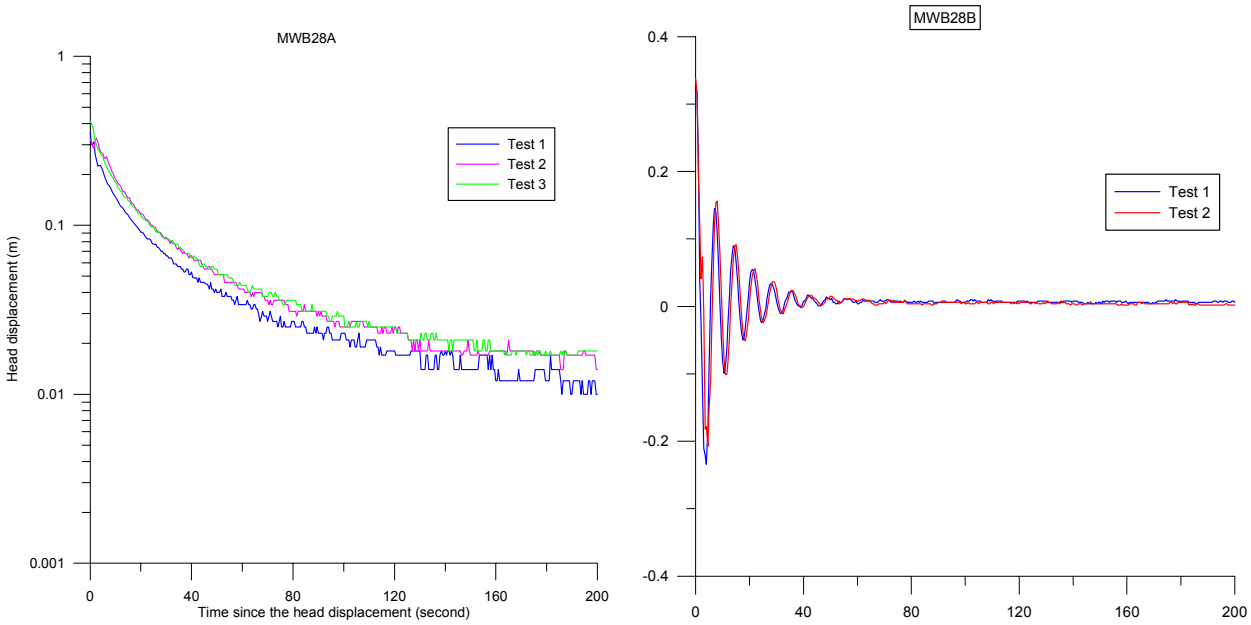

MWB20A
Head displacement (m)
Time since the head displacement (second)
1
0.1
0.01
0.001
0
100
200
300


MWB22B
Head displacement (m)
Time since the head displacement (second)
Test 1
Test 2


MWB23B
Head displacement (m)
Time since the head displacement (second)
Test 1
Test 2
Test 3

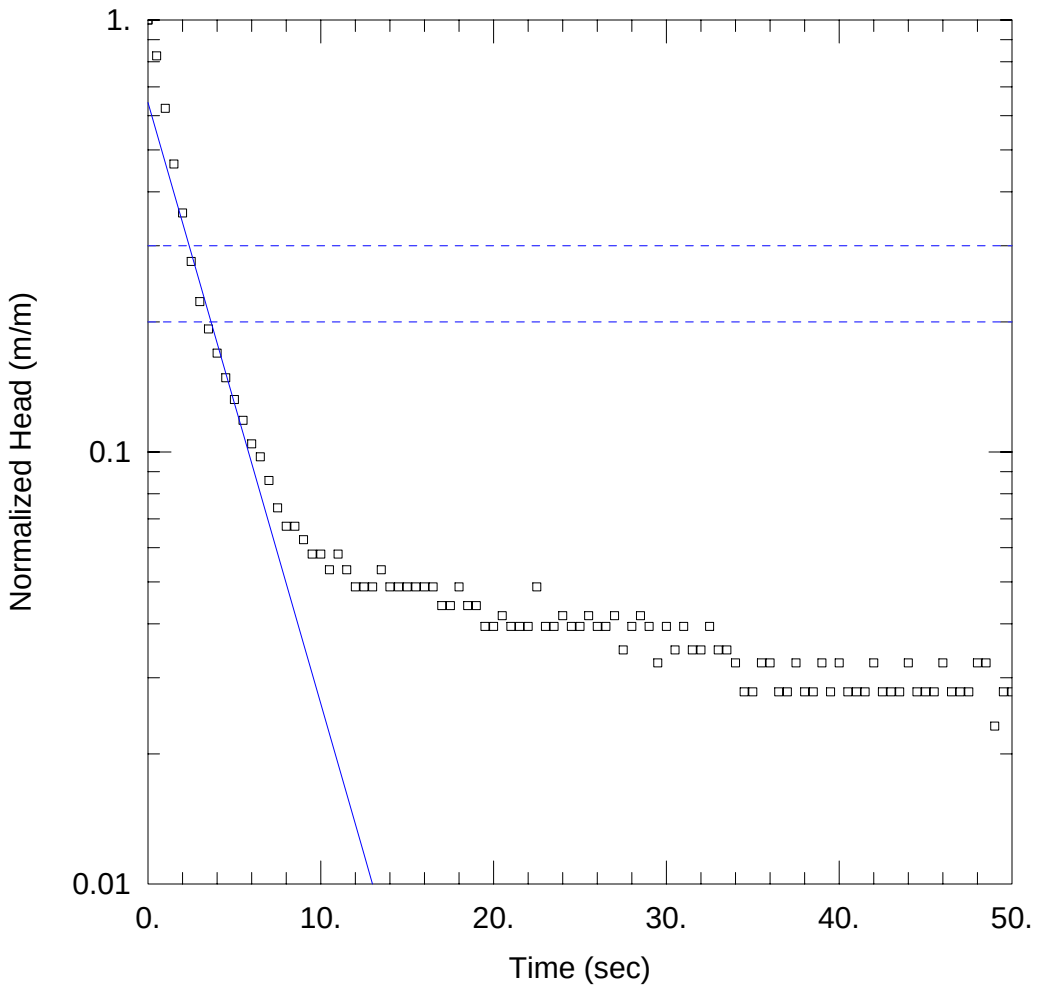

MWB24C
Head displacement (m)
Time since the head displacement (second)
Test 1
Test 2
Test 3
Test 4
Test 5


MWB25A
Head displacement (m)
Time since the head displacement (second)
Test 1
Test 2


MWB28A
Head displacement (m)
1
0.1
0.01
0.001
0
40
80
120
160
200
Time since the head displacement (second)
Test 1
Test 2
Test 3
MWB28B
0.4
0.2
0
-0.2
-0.4
0
40
80
120
160
200
Test 1
Test 2

APPENDIX B

SLUG TEST INTERPRETATIONS



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-I-A-1.aqt
Date: 06/19/08 Time: 10:17:28

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWBI-A
Test Date: 26 May 2008

AQUIFER DATA

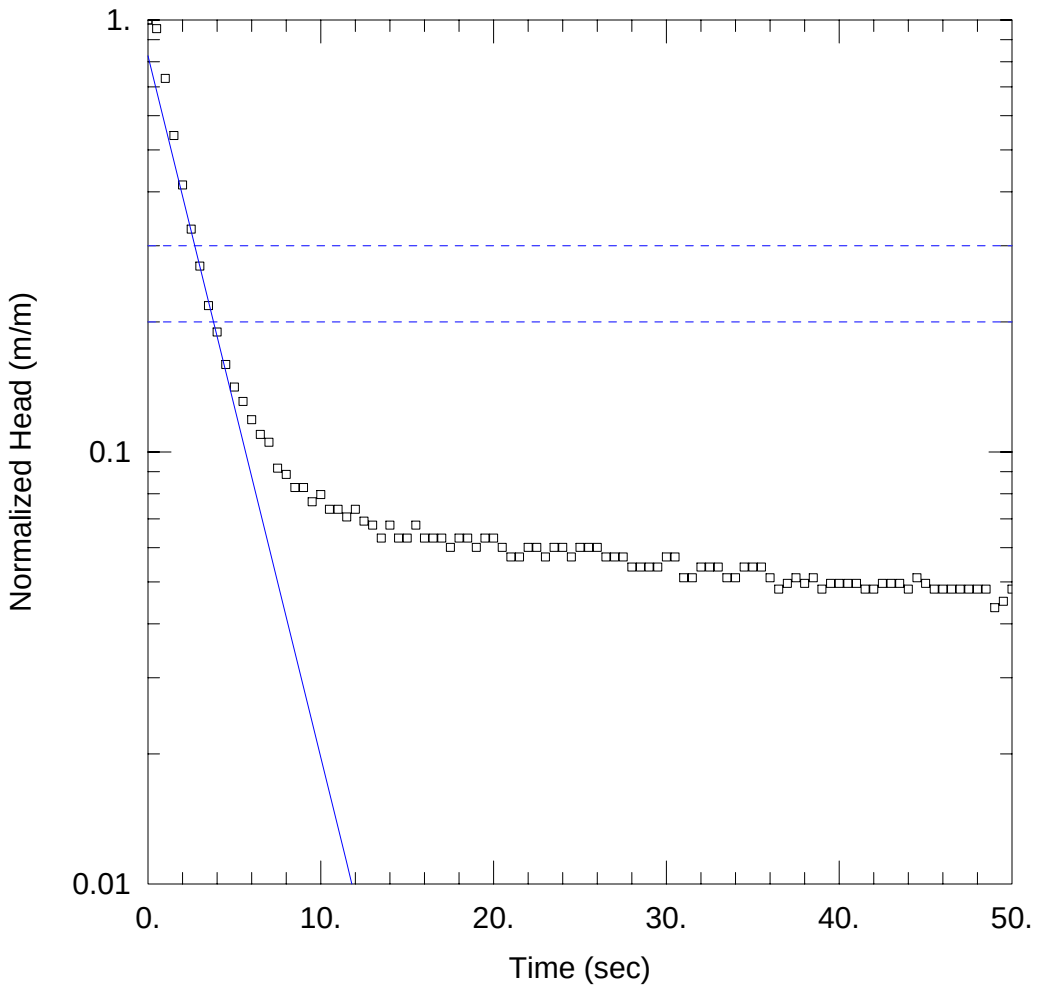
Saturated Thickness: 5.99 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWBI-A)

Initial Displacement: 0.431 m
Total Well Penetration Depth: 5.99 m
Casing Radius: 0.026 m
Static Water Column Height: 5.99 m
Screen Length: 3.35 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 13.4 m/day
y0 = 0.2774 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-I-A-2.aqt
Date: 06/19/08 Time: 10:17:57

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWBI-A
Test Date: 26 May 2008

AQUIFER DATA

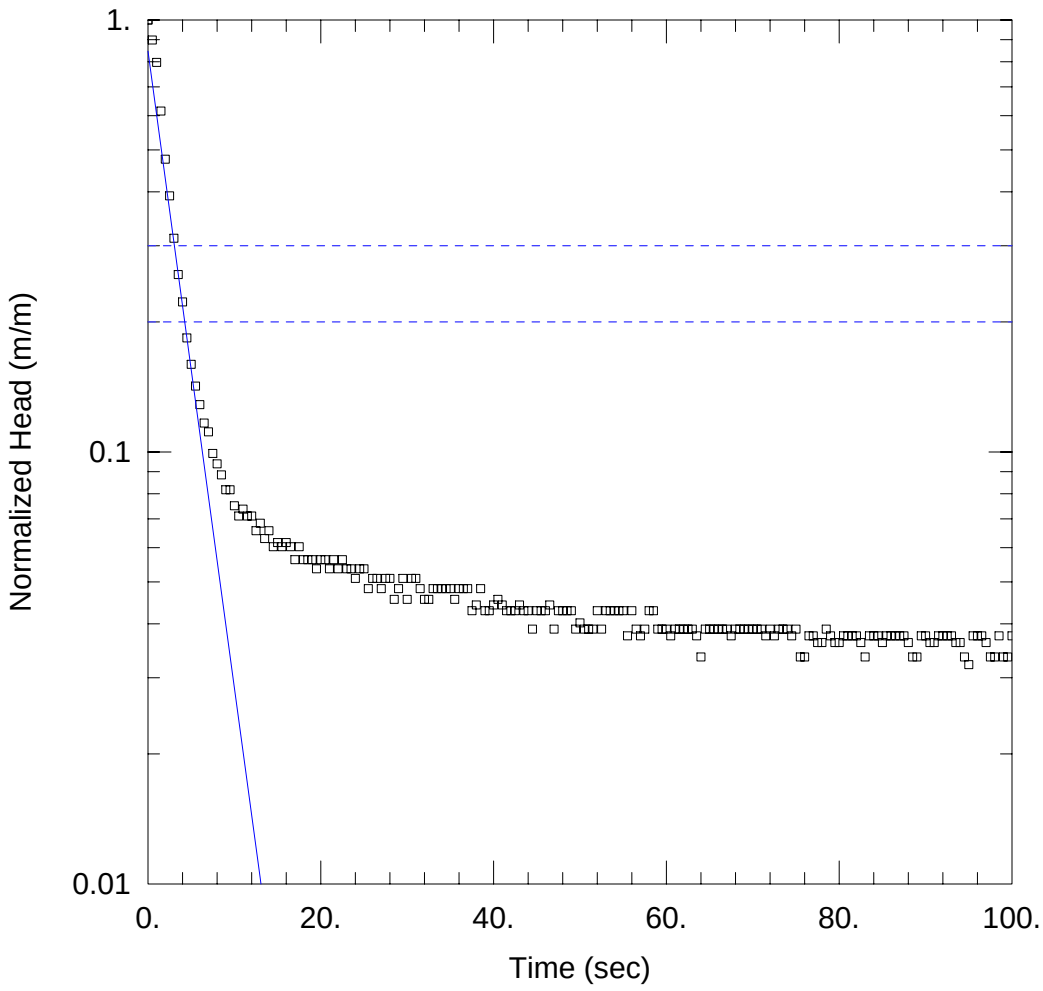
Saturated Thickness: 5.99 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MWBI-A)

Initial Displacement: 0.665 m
Total Well Penetration Depth: 5.99 m
Casing Radius: 0.026 m
Static Water Column Height: 5.99 m
Screen Length: 3.35 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 12.32 m/day
y0 = 0.549 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-I-A-3.aqt
Date: 06/19/08 Time: 10:18:33

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWBI-A
Test Date: 26 May 2008

AQUIFER DATA

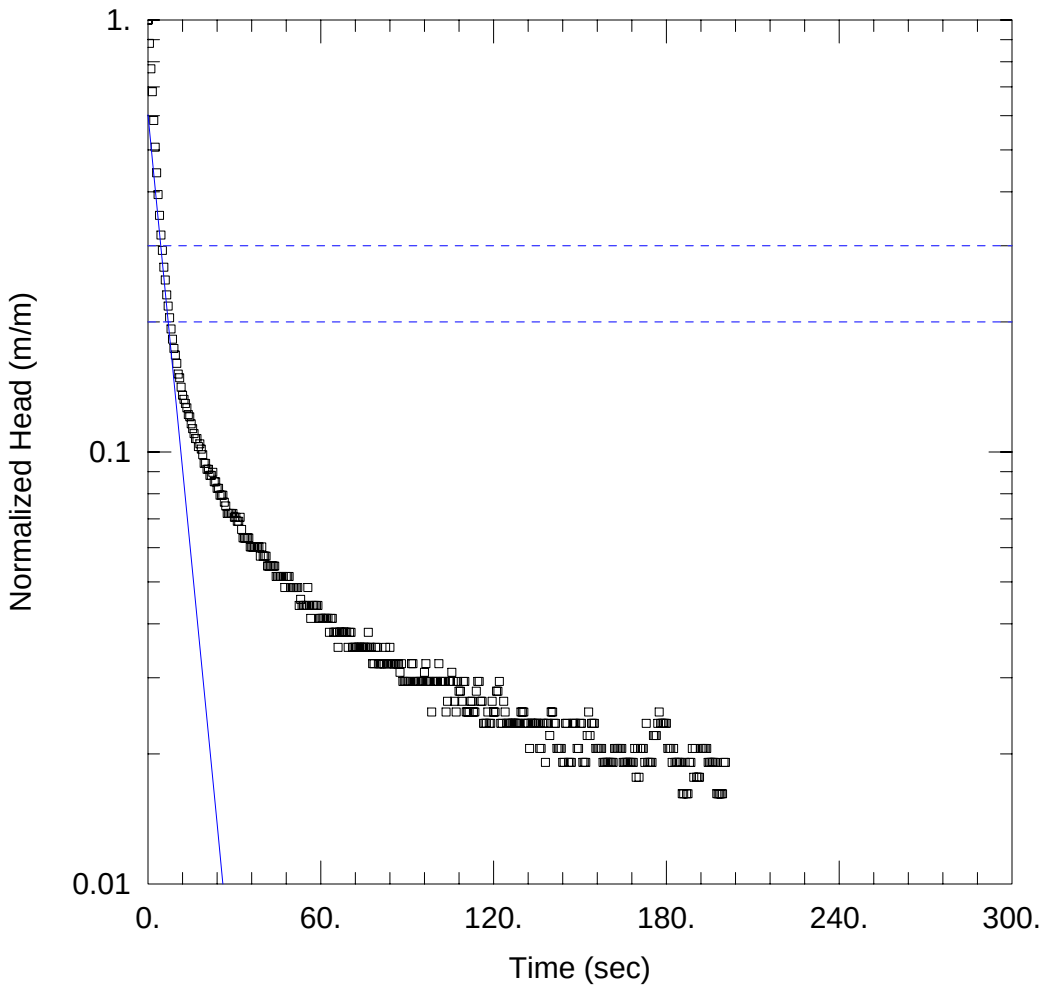
Saturated Thickness: 5.99 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MWBI-A)

Initial Displacement: 0.746 m
Total Well Penetration Depth: 5.99 m
Casing Radius: 0.026 m
Static Water Column Height: 5.99 m
Screen Length: 3.35 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 11.19 m/day
y0 = 0.6315 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB4A_1.aqt
Date: 06/19/08 Time: 10:13:14

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB4-I-A
Test Date: 22 May 2008

AQUIFER DATA

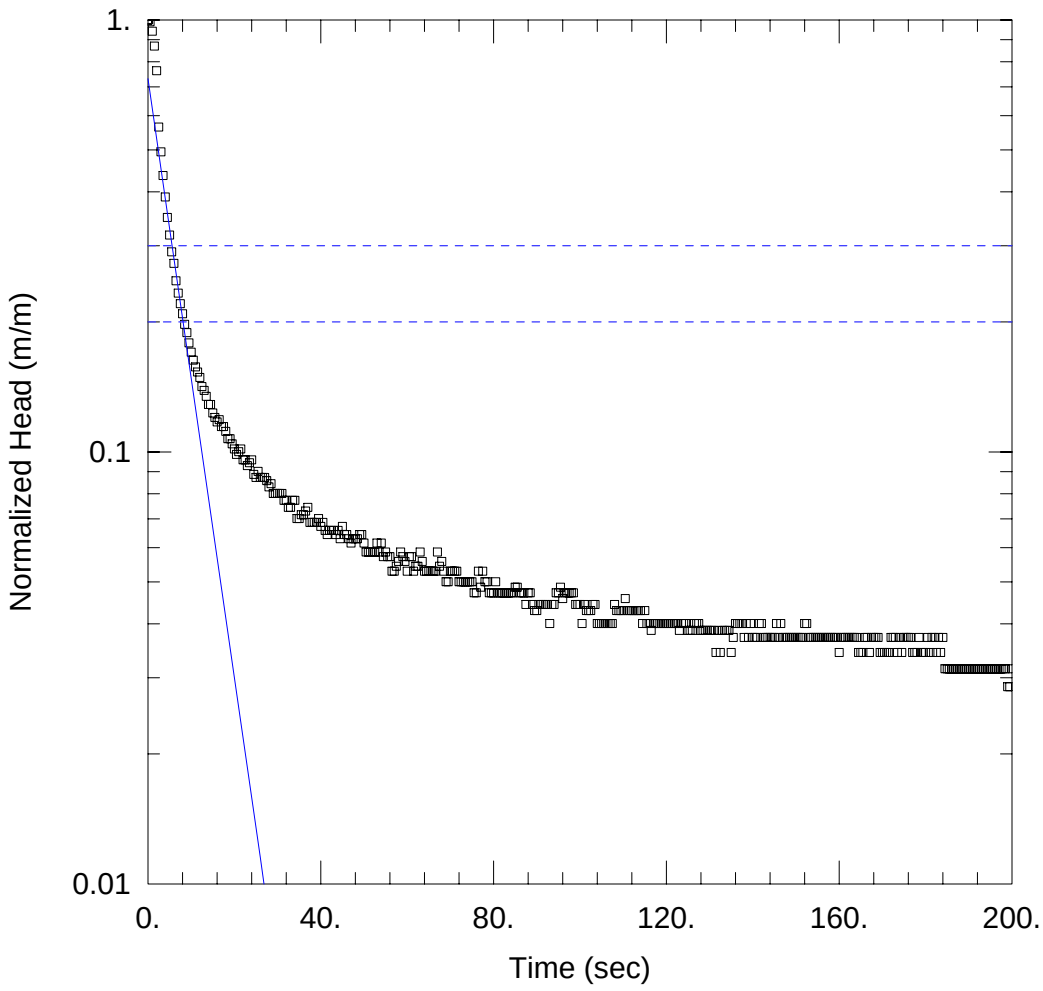
Saturated Thickness: 5.8 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MWB4-I-A)

Initial Displacement: 0.68 m
Total Well Penetration Depth: 5.79 m
Casing Radius: 0.026 m
Static Water Column Height: 5.79 m
Screen Length: 3.2 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.06 m/day
y0 = 0.4099 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB4A_2.aqt
Date: 06/19/08 Time: 10:13:41

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB4-I-A
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 5.8 m Anisotropy Ratio (Kz/Kr): 1.

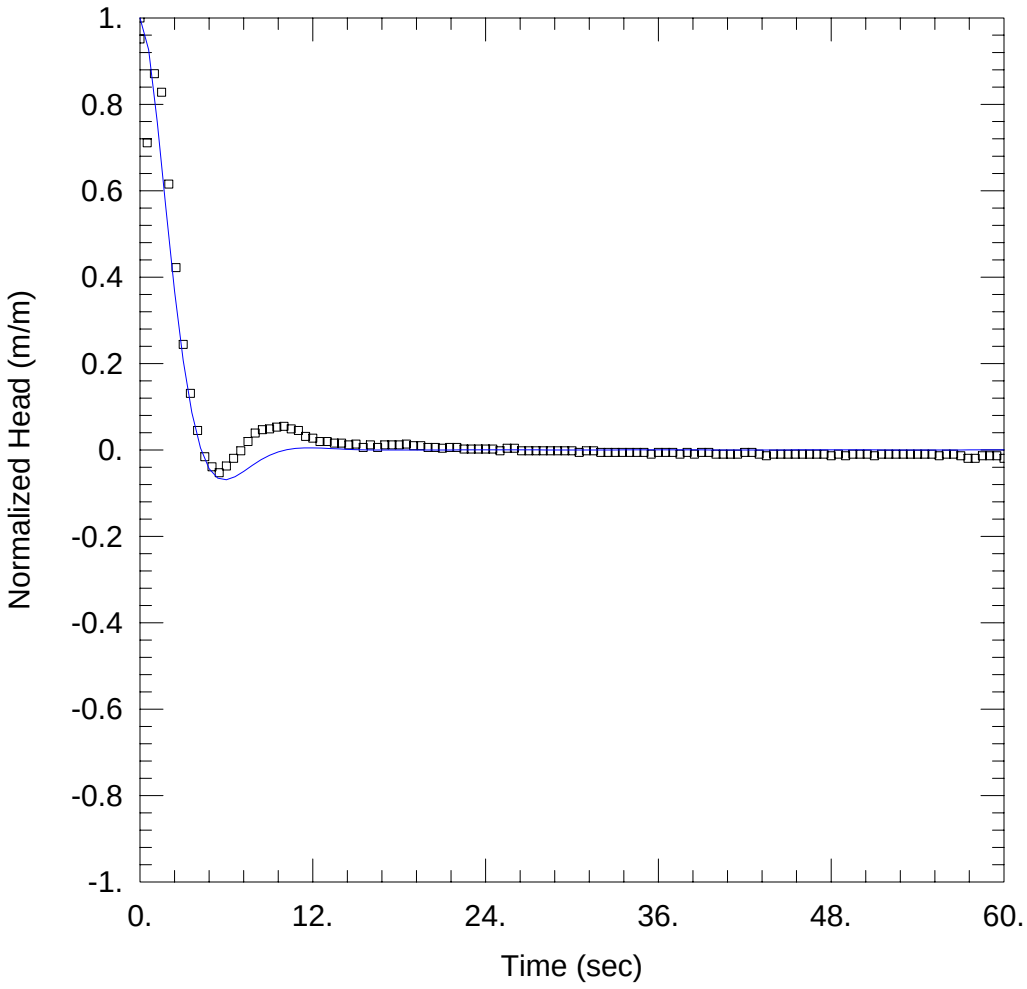
WELL DATA (MWB4-I-A)

Initial Displacement: 0.699 m
Total Well Penetration Depth: 5.79 m
Casing Radius: 0.026 m
Static Water Column Height: 5.79 m
Screen Length: 3.2 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 6.147 m/day
y0 = 0.511 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-6-II-B_1.aqt
Date: 06/19/08 Time: 11:35:32

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB6-II-B
Test Date: 25 May 2008

AQUIFER DATA

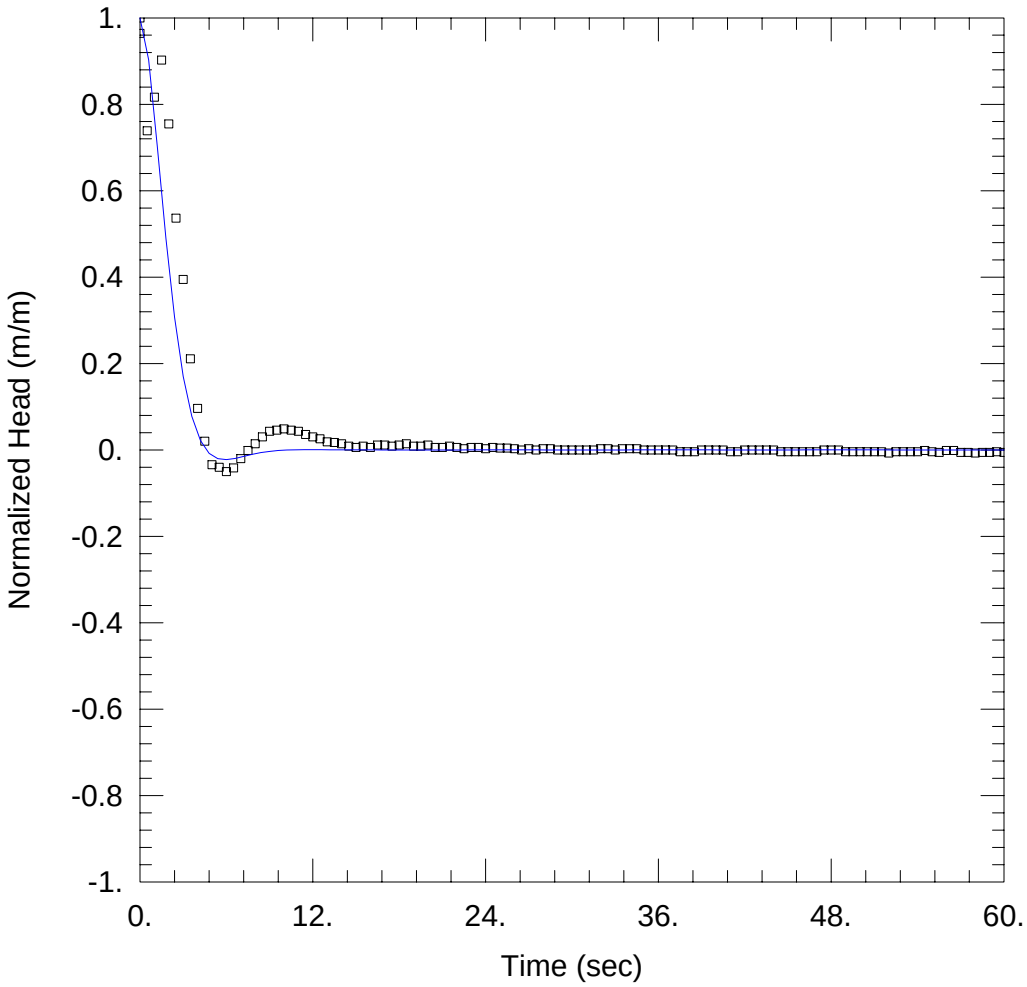
Saturated Thickness: 18.73 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB6-II-B)

Initial Displacement: 0.512 m
Total Well Penetration Depth: 18.78 m
Casing Radius: 0.0026 m
Static Water Column Height: 18.72 m
Screen Length: 6.09 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 28.91 m/day
Le = 19.86 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-6-II-B_2.aqt
Date: 06/19/08 Time: 11:35:59

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB6-II-B
Test Date: 25 May 2008

AQUIFER DATA

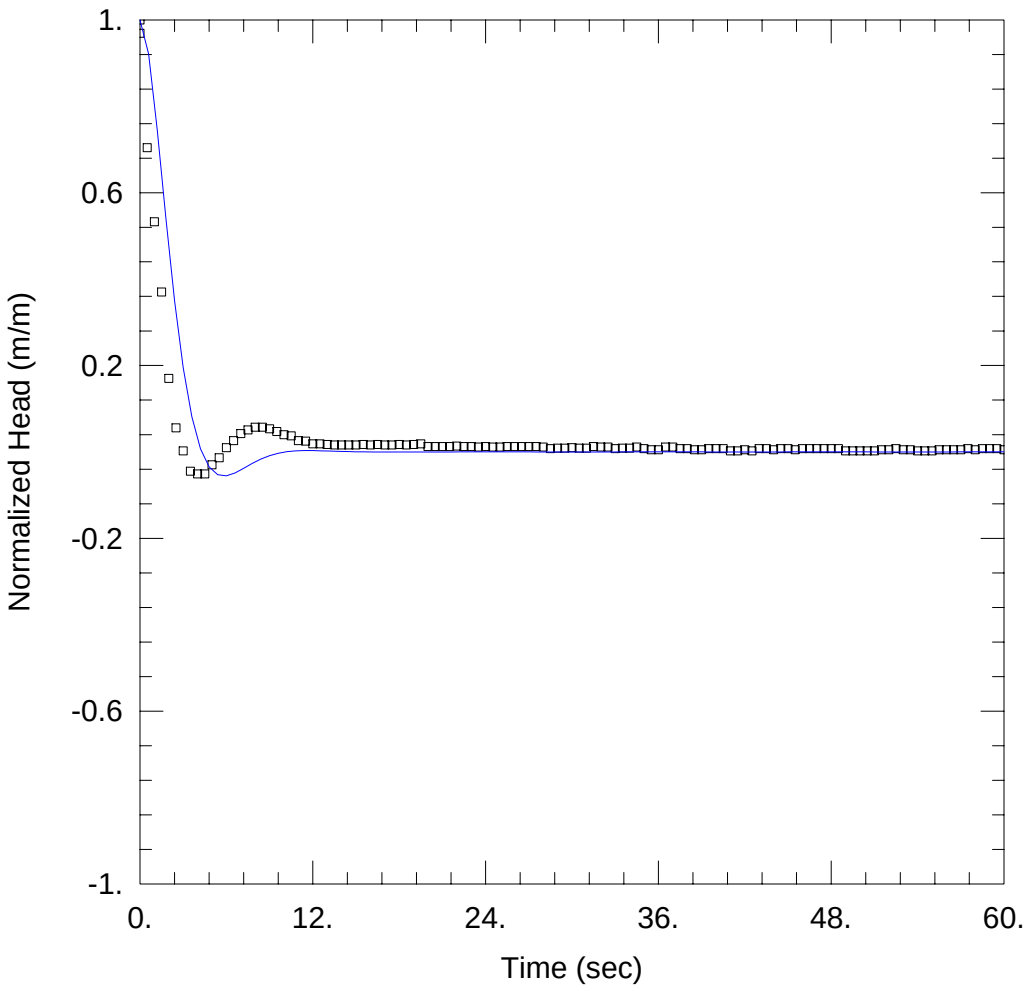
Saturated Thickness: 18.73 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB6-II-B)

Initial Displacement: 0.697 m
Total Well Penetration Depth: 18.78 m
Casing Radius: 0.0026 m
Static Water Column Height: 18.72 m
Screen Length: 6.09 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 31. m/day
Le = 14.01 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-6-II-B_3.aqt
Date: 06/19/08 Time: 11:37:09

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB6-II-B
Test Date: 25 May 2008

AQUIFER DATA

Saturated Thickness: 18.73 m Anisotropy Ratio (Kz/Kr): 0.1

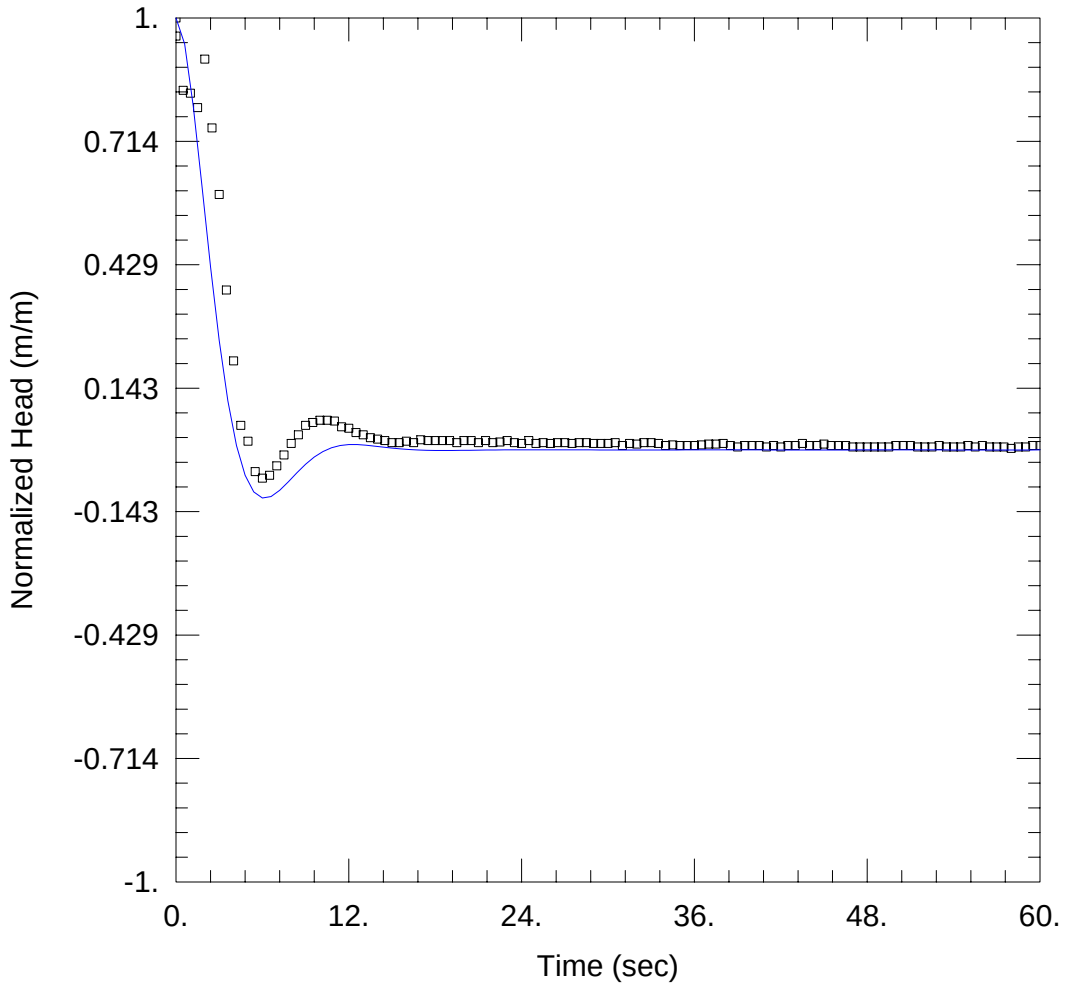
WELL DATA (MWB6-II-B)

Initial Displacement: 0.805 m
Total Well Penetration Depth: 18.78 m
Casing Radius: 0.0026 m
Static Water Column Height: 18.72 m
Screen Length: 6.09 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 25.74 m/day Le = 18.19 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-6-II-B_4.aqt
Date: 06/19/08 Time: 11:41:09

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB6-II-B
Test Date: 25 May 2008

AQUIFER DATA

Saturated Thickness: 18.73 m Anisotropy Ratio (Kz/Kr): 0.1

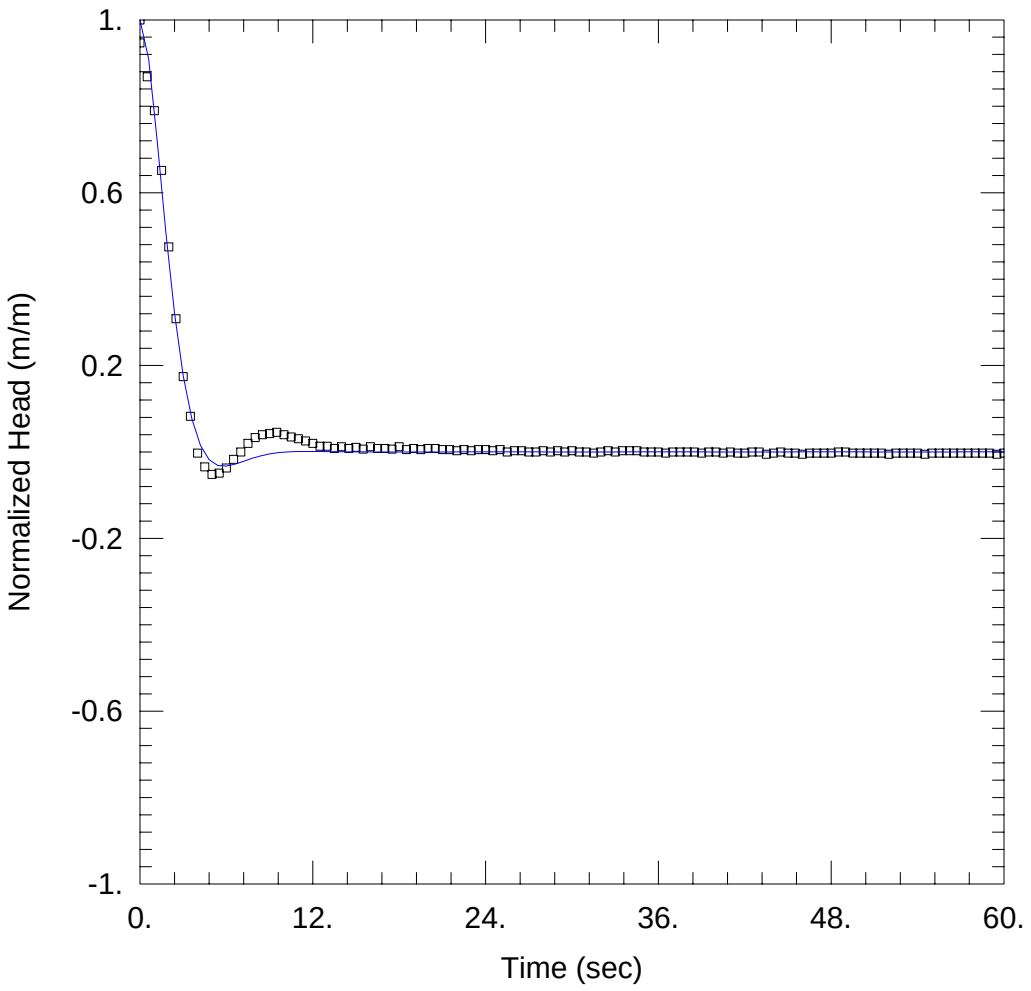
WELL DATA (MWB6-II-B)

Initial Displacement: 0.597 m
Total Well Penetration Depth: 18.78 m
Casing Radius: 0.0026 m
Static Water Column Height: 18.72 m
Screen Length: 6.09 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 34.22 m/day Le = 25.33 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB-6-II-B_5.aqt
Date: 06/19/08 Time: 11:43:16

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB6-II-B
Test Date: 25 May 2008

AQUIFER DATA

Saturated Thickness: 18.73 m Anisotropy Ratio (Kz/Kr): 0.1

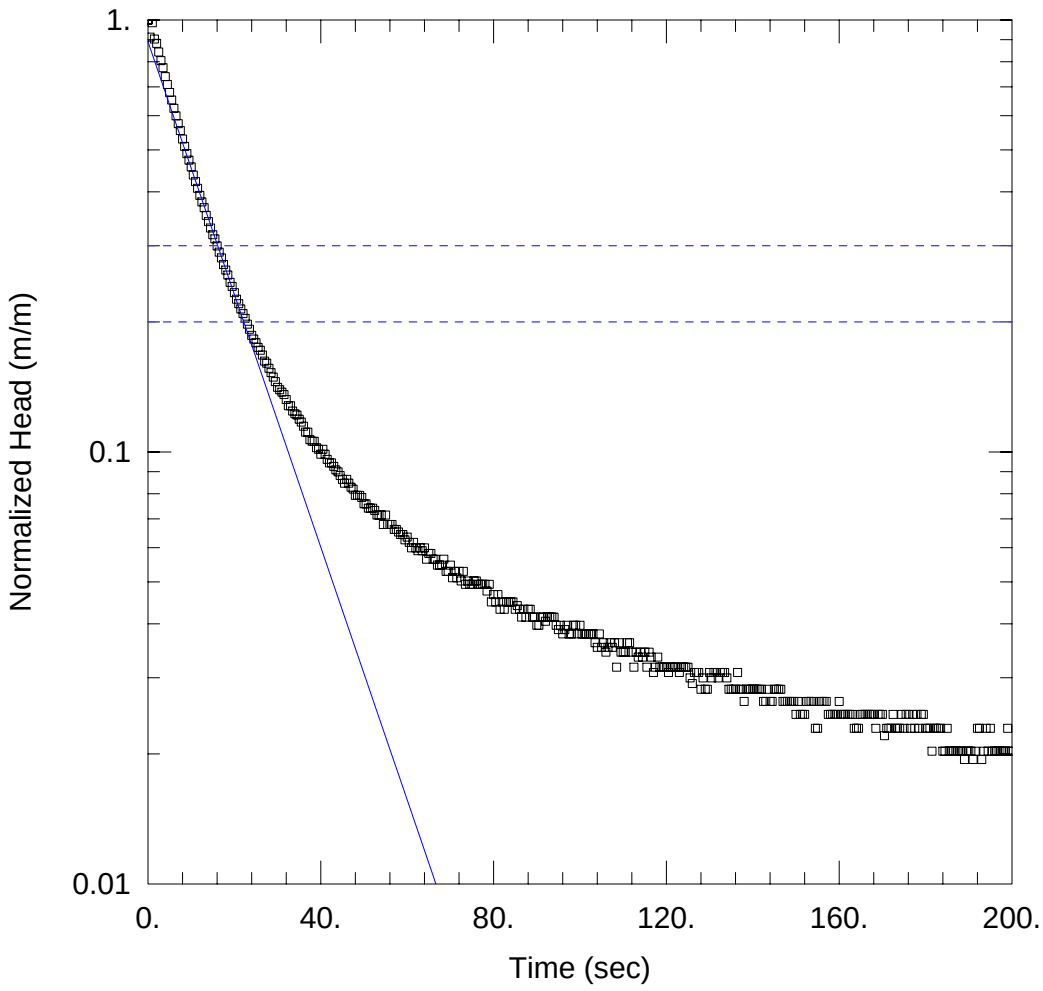
WELL DATA (MWB6-II-B)

Initial Displacement: 0.752 m
Total Well Penetration Depth: 18.78 m
Casing Radius: 0.0026 m
Static Water Column Height: 18.72 m
Screen Length: 6.09 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 32.95 m/day Le = 15.38 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB7A_1.aqt
Date: 06/19/08 Time: 10:14:32

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB7-IA
Test Date: 26 May 2008

AQUIFER DATA

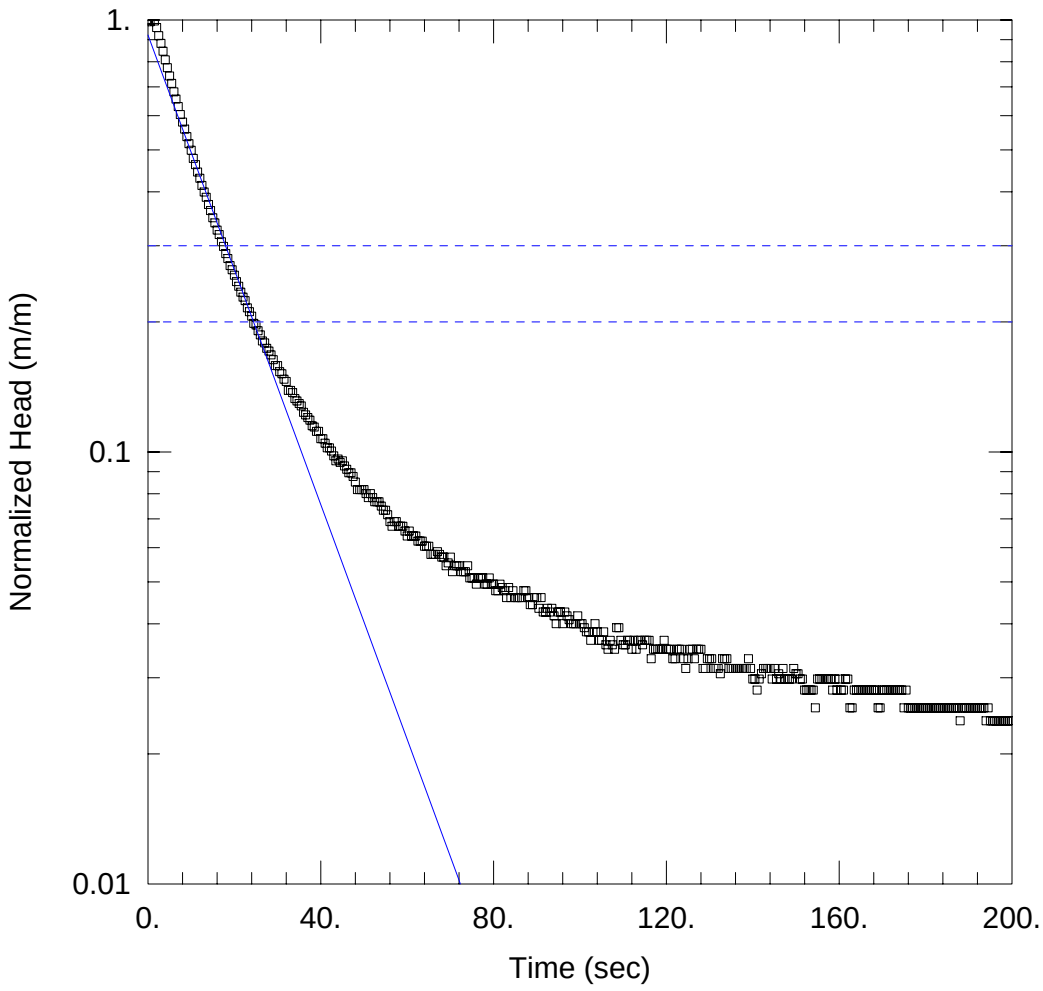
Saturated Thickness: 3.69 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-I-A)

Initial Displacement: 1.134 m
Total Well Penetration Depth: 3.68 m
Casing Radius: 0.026 m
Static Water Column Height: 3.68 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.061 m/day
y0 = 1.009 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB7A_2.aqt
Date: 06/19/08 Time: 09:52:52

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB7-I-A
Test Date: 26 May 2008

AQUIFER DATA

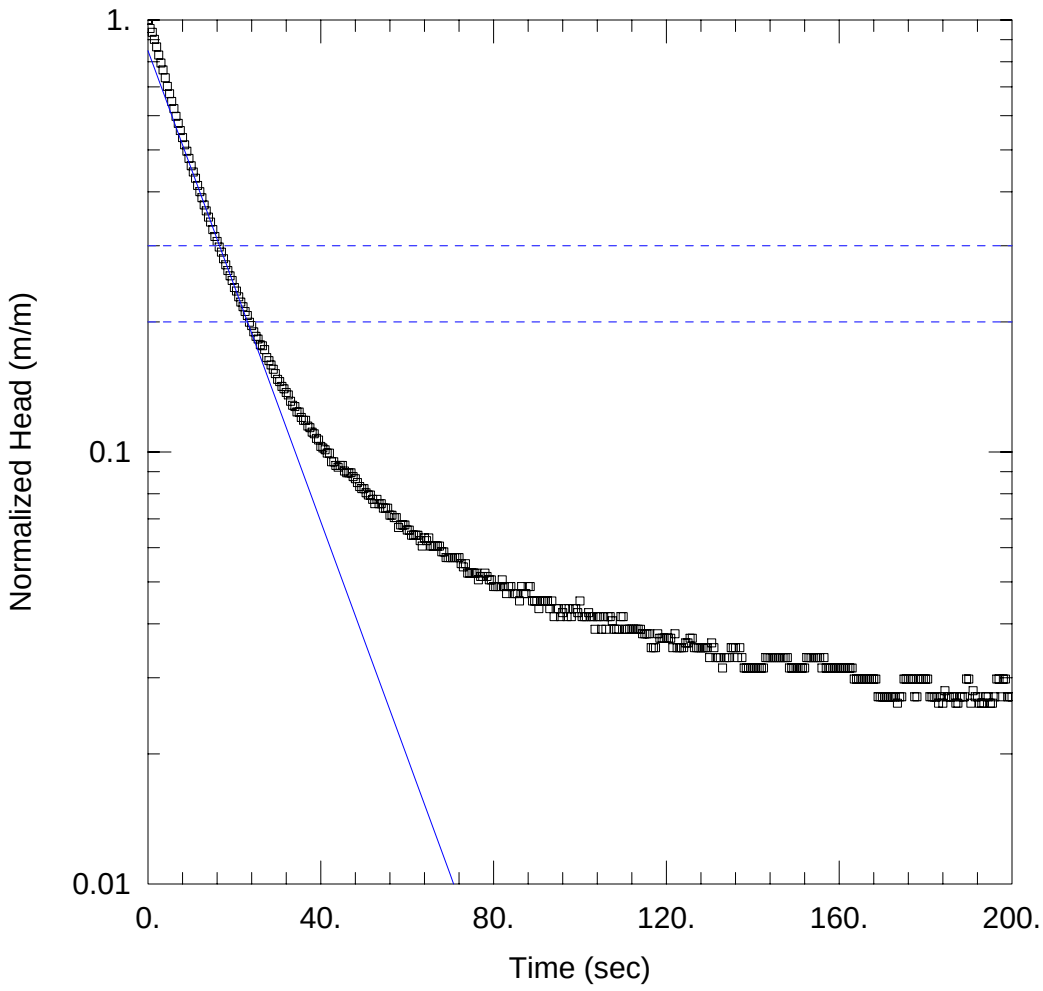
Saturated Thickness: 3.69 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-I-A)

Initial Displacement: 1.174 m
Total Well Penetration Depth: 3.68 m
Casing Radius: 0.026 m
Static Water Column Height: 3.68 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.844 m/day
y0 = 1.083 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB7A_3.aqt
Date: 06/19/08 Time: 09:53:43

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB7-I-A
Test Date: 26 May 2008

AQUIFER DATA

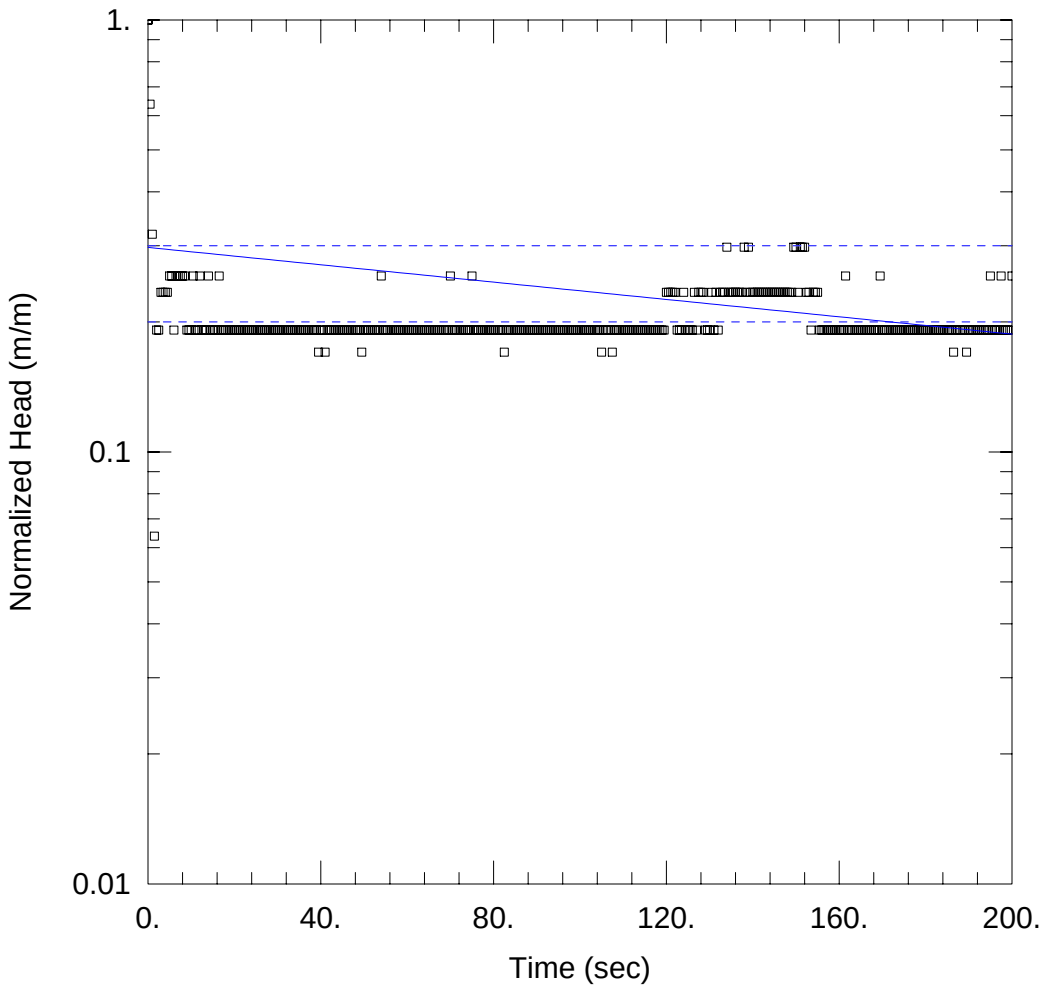
Saturated Thickness: 3.69 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-I-A)

Initial Displacement: 1.107 m
Total Well Penetration Depth: 3.68 m
Casing Radius: 0.026 m
Static Water Column Height: 3.68 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.853 m/day
y0 = 0.9393 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB8-I-A.aqt
Date: 06/19/08 Time: 09:49:20

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB8A
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 4.31 m Anisotropy Ratio (Kz/Kr): 0.1

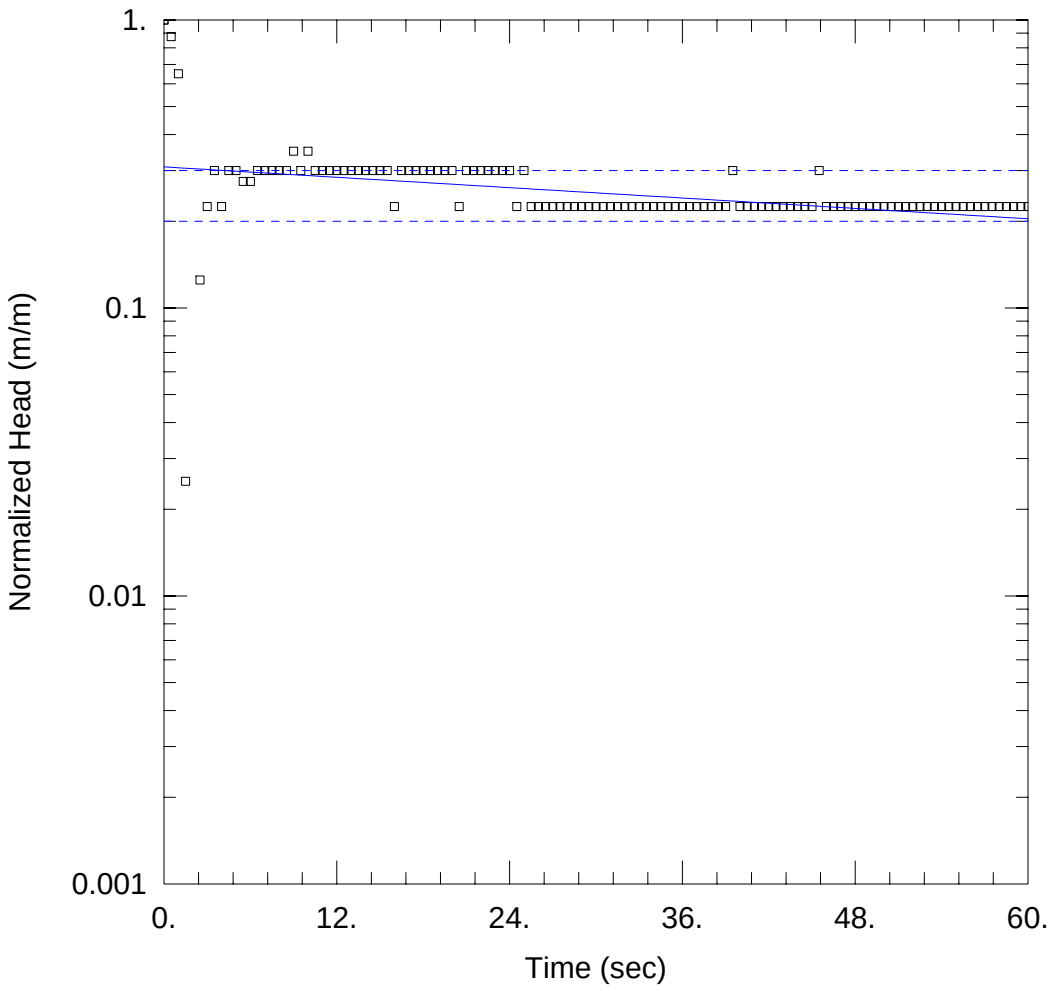
WELL DATA (MWB8A)

Initial Displacement: 0.047 m
Total Well Penetration Depth: 4.3 m
Casing Radius: 0.026 m
Static Water Column Height: 4.3 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1074 m/day y0 = 0.01398 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB8-I-A_2.aqt
Date: 06/19/08 Time: 09:48:36

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB8A
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 4.31 m Anisotropy Ratio (Kz/Kr): 0.1

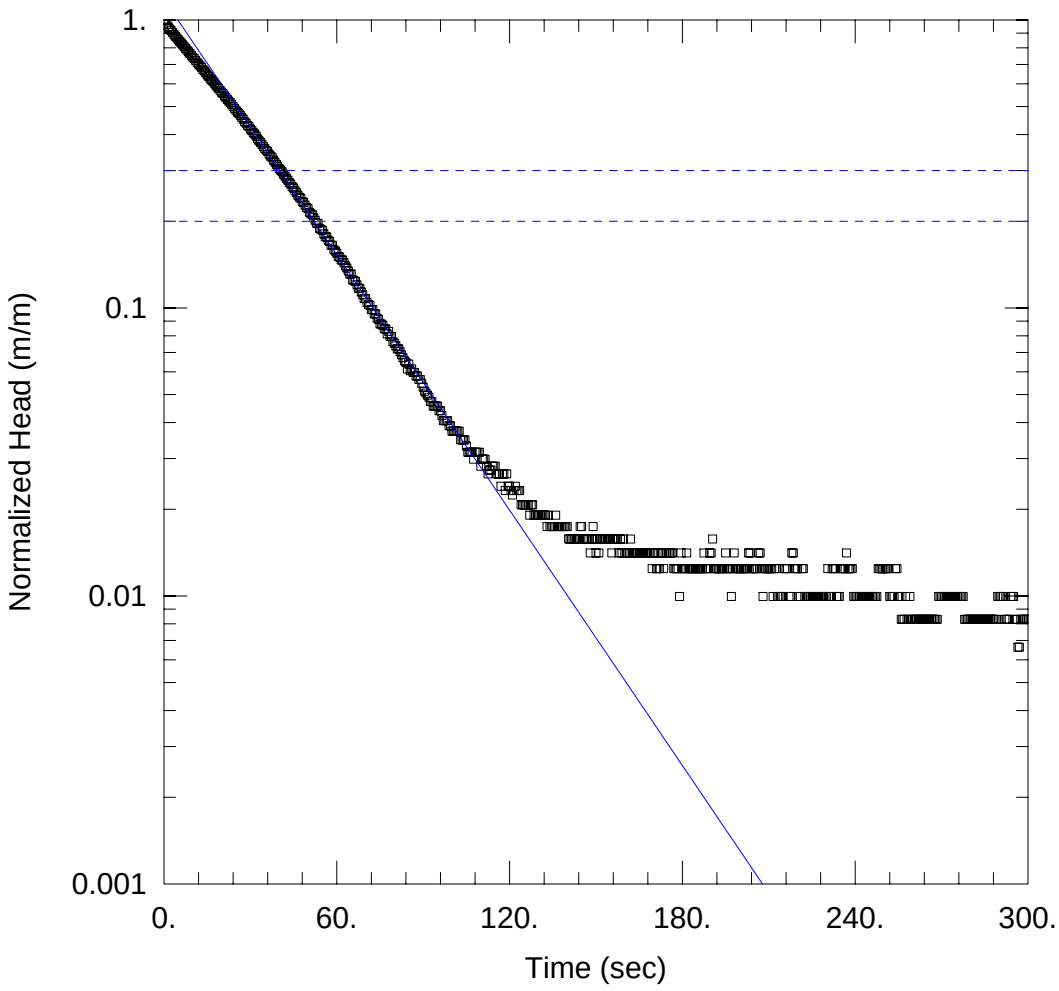
WELL DATA (MWB8-I-A)

Initial Displacement: 0.04 m
Total Well Penetration Depth: 4.3 m
Casing Radius: 0.026 m
Static Water Column Height: 4.3 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3215 m/day y0 = 0.01235 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB9-I-A.aqt
Date: 06/19/08 Time: 09:45:33

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB9A
Test Date: 26 May 2008

AQUIFER DATA

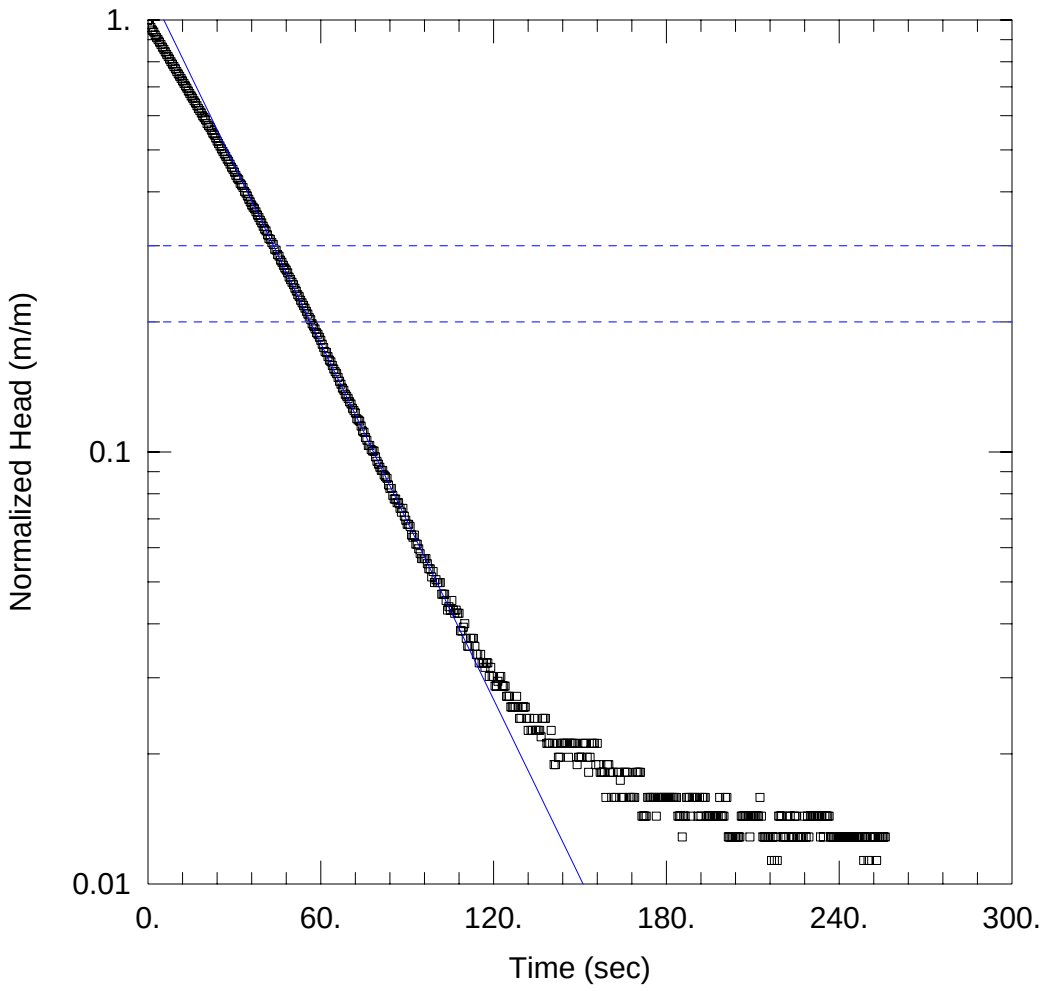
Saturated Thickness: 4.03 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB9-I-A)

Initial Displacement: 1.206 m
Total Well Penetration Depth: 4.02 m
Casing Radius: 0.026 m
Static Water Column Height: 4.02 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.567 m/day
y0 = 1.421 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB9-I-A_2.aqt
Date: 06/19/08 Time: 09:46:27

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB9A
Test Date: 26 May 2008

AQUIFER DATA

Saturated Thickness: 4.03 m Anisotropy Ratio (Kz/Kr): 0.1

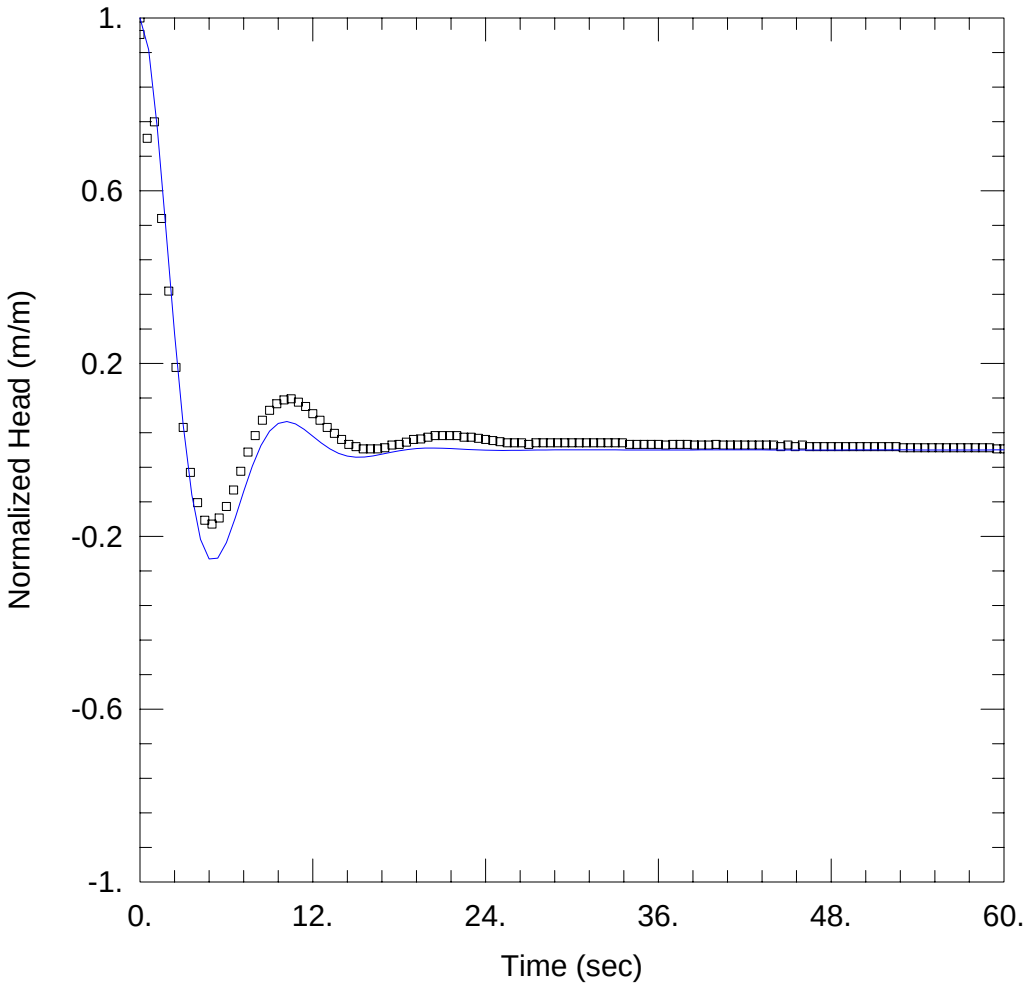
WELL DATA (MWB9-I-A)

Initial Displacement: 1.324 m
Total Well Penetration Depth: 4.02 m
Casing Radius: 0.026 m
Static Water Column Height: 4.02 m
Screen Length: 3.2 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.457 m/day y0 = 1.576 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB10-I-C_1.aqt
Date: 06/19/08 Time: 09:37:49

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB10-I-C
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 27.32 m Anisotropy Ratio (Kz/Kr): 0.1

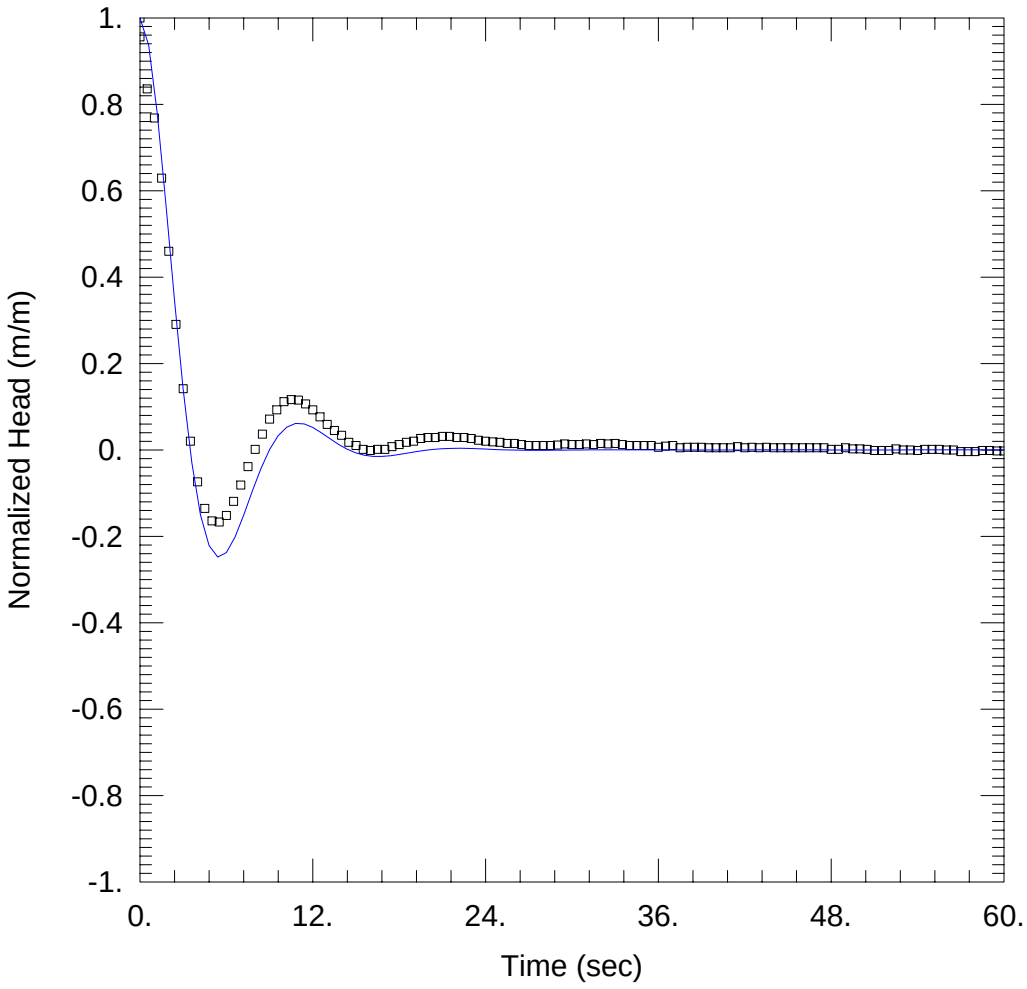
WELL DATA (MWB10-I-C)

Initial Displacement: 0.786 m
Total Well Penetration Depth: 8.8 m
Casing Radius: 0.026 m
Static Water Column Height: 27.31 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 49.78 m/day Le = 21.47 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB10-I-C_2.aqt
Date: 06/19/08 Time: 09:37:41

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB10-I-C
Test Date: 22 May 2008

AQUIFER DATA

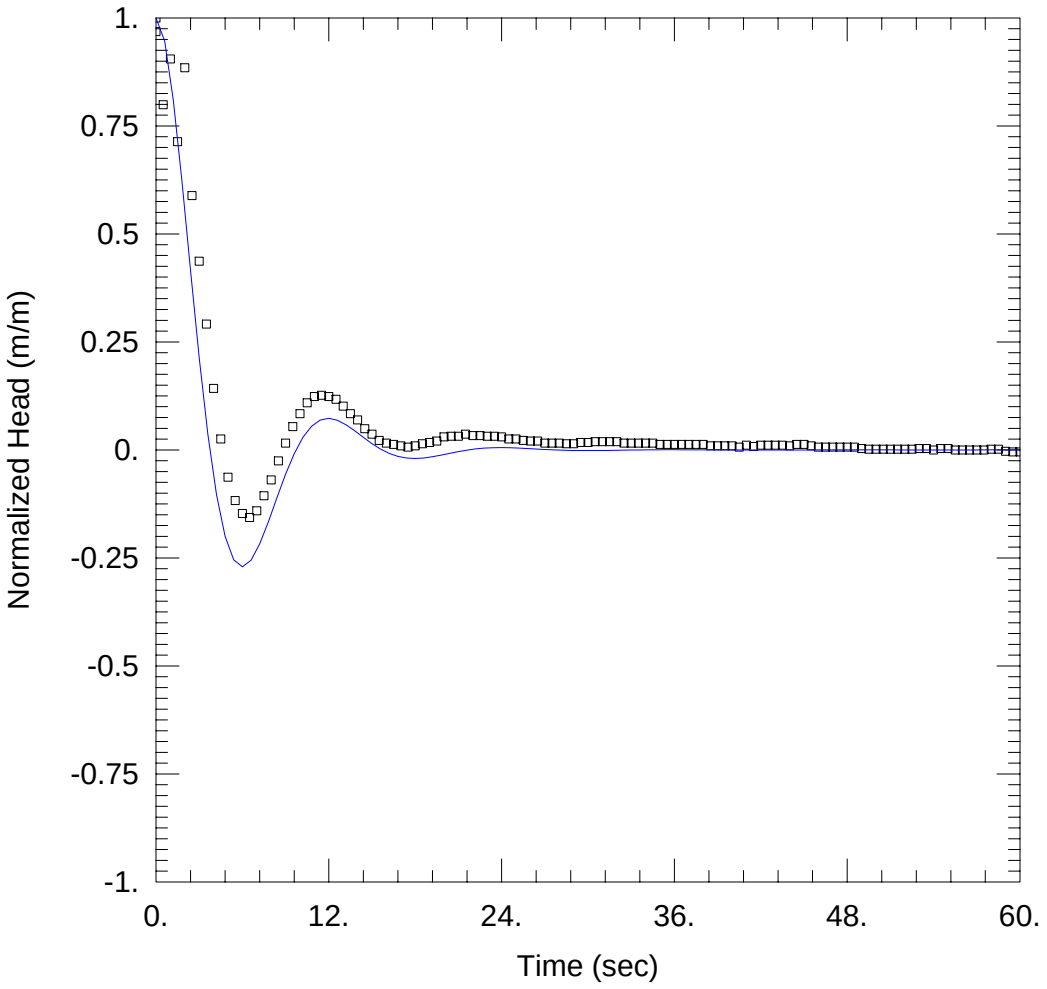
Saturated Thickness: 27.32 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB10-I-C)

Initial Displacement: 0.798 m
Total Well Penetration Depth: 8.8 m
Casing Radius: 0.026 m
Static Water Column Height: 27.31 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 44.93 m/day
Le = 25.17 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB10-I-C_3.aqt
Date: 06/19/08 Time: 09:39:54

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB10-I-C
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 27.32 m Anisotropy Ratio (Kz/Kr): 0.1

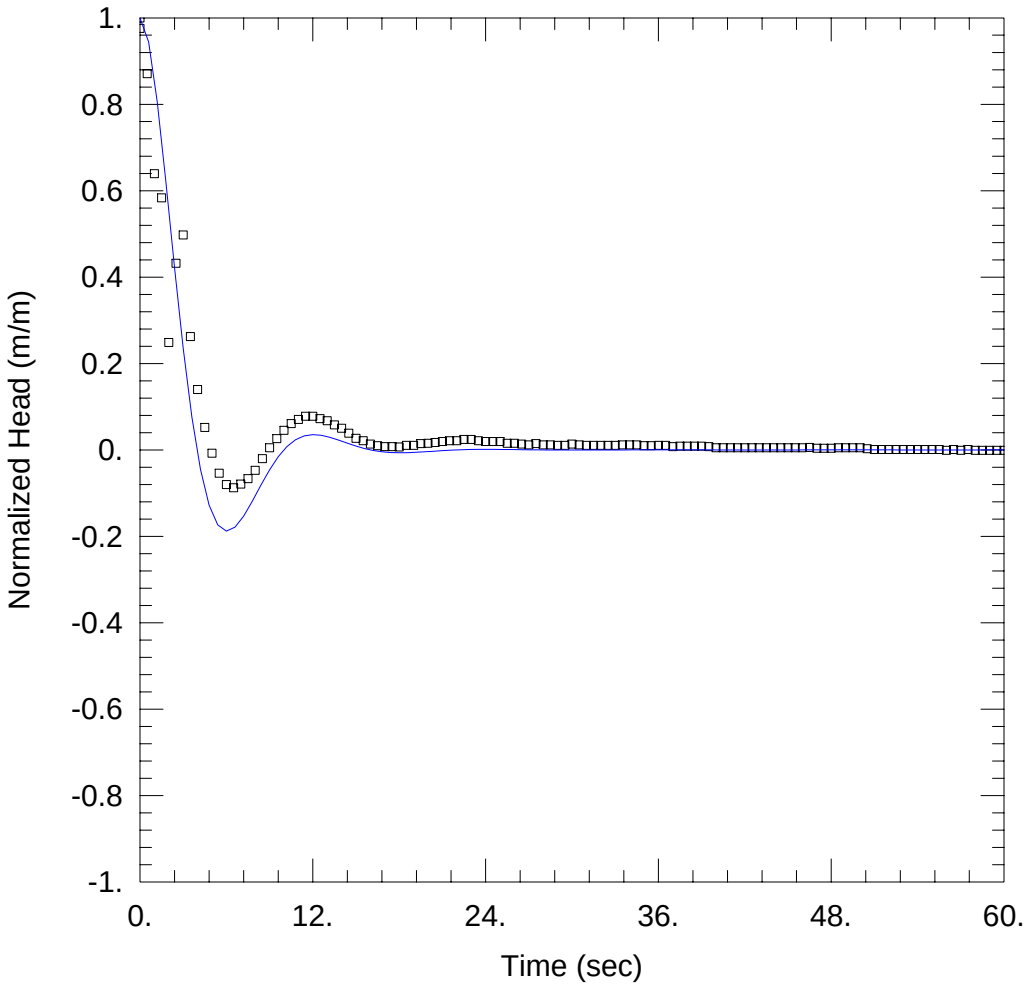
WELL DATA (MWB10-I-C)

Initial Displacement: 0.632 m
Total Well Penetration Depth: 8.8 m
Casing Radius: 0.026 m
Static Water Column Height: 27.31 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 43.13 m/day Le = 30.3 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB10-I-C_4.aqt
Date: 06/19/08 Time: 09:42:33

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB10-I-C
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 27.32 m Anisotropy Ratio (Kz/Kr): 0.1

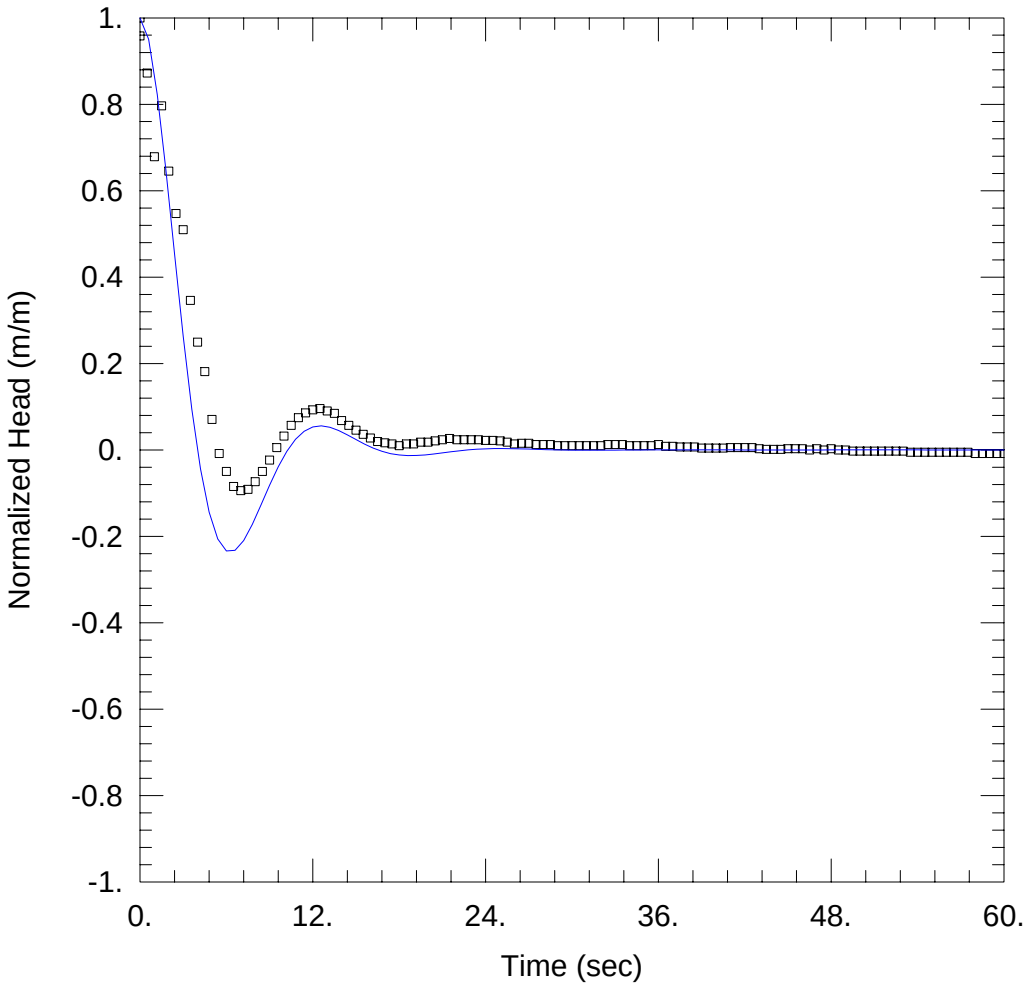
WELL DATA (MWB10-I-C)

Initial Displacement: 1.037 m
Total Well Penetration Depth: 8.8 m
Casing Radius: 0.026 m
Static Water Column Height: 27.31 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 36.44 m/day Le = 28.19 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB10-I-C_5.aqt
Date: 06/19/08 Time: 09:44:29

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB10-I-C
Test Date: 22 May 2008

AQUIFER DATA

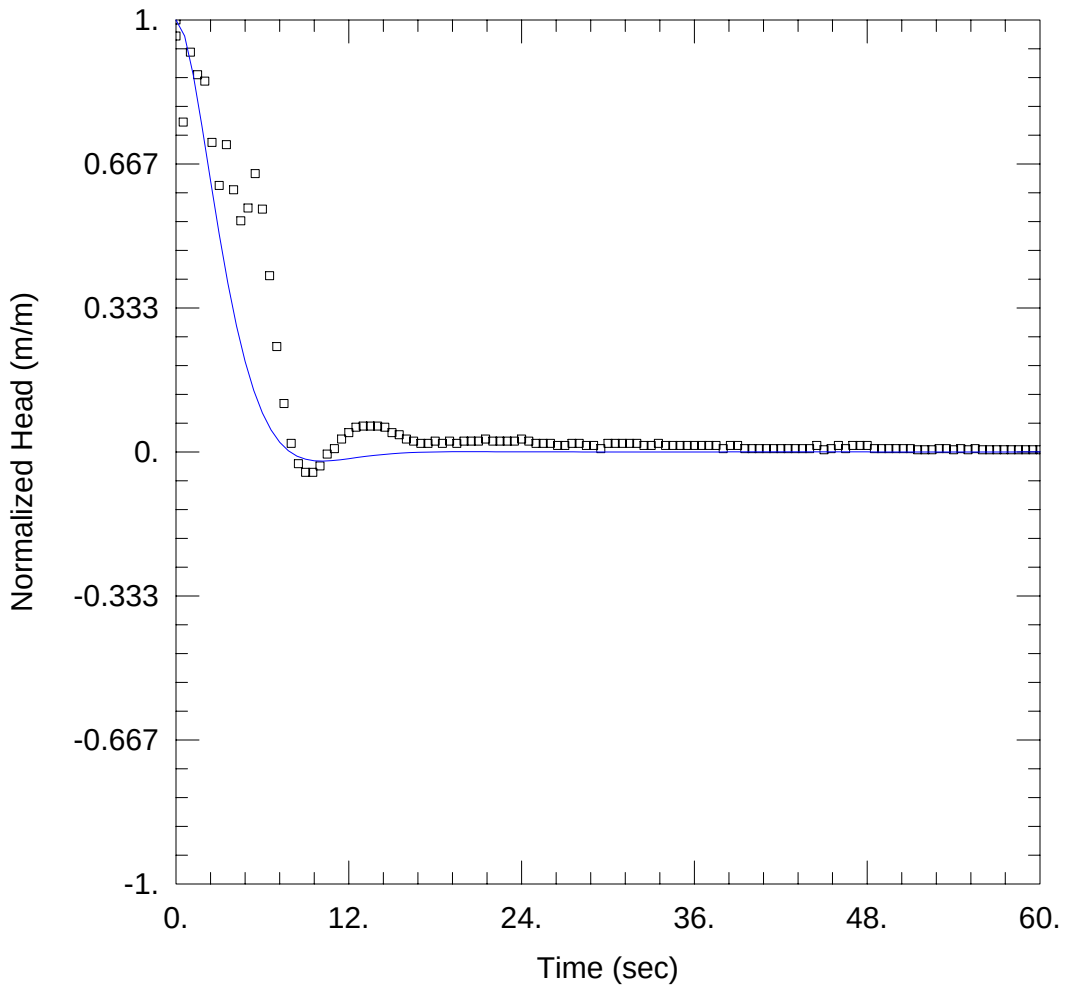
Saturated Thickness: 27.32 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB10-I-C)

Initial Displacement: 0.722 m
Total Well Penetration Depth: 8.8 m
Casing Radius: 0.026 m
Static Water Column Height: 27.31 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 38.39 m/day
Le = 32.22 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB11-B_1.aqt
Date: 06/19/08 Time: 09:31:31

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB11-B
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 17.42 m Anisotropy Ratio (Kz/Kr): 0.1

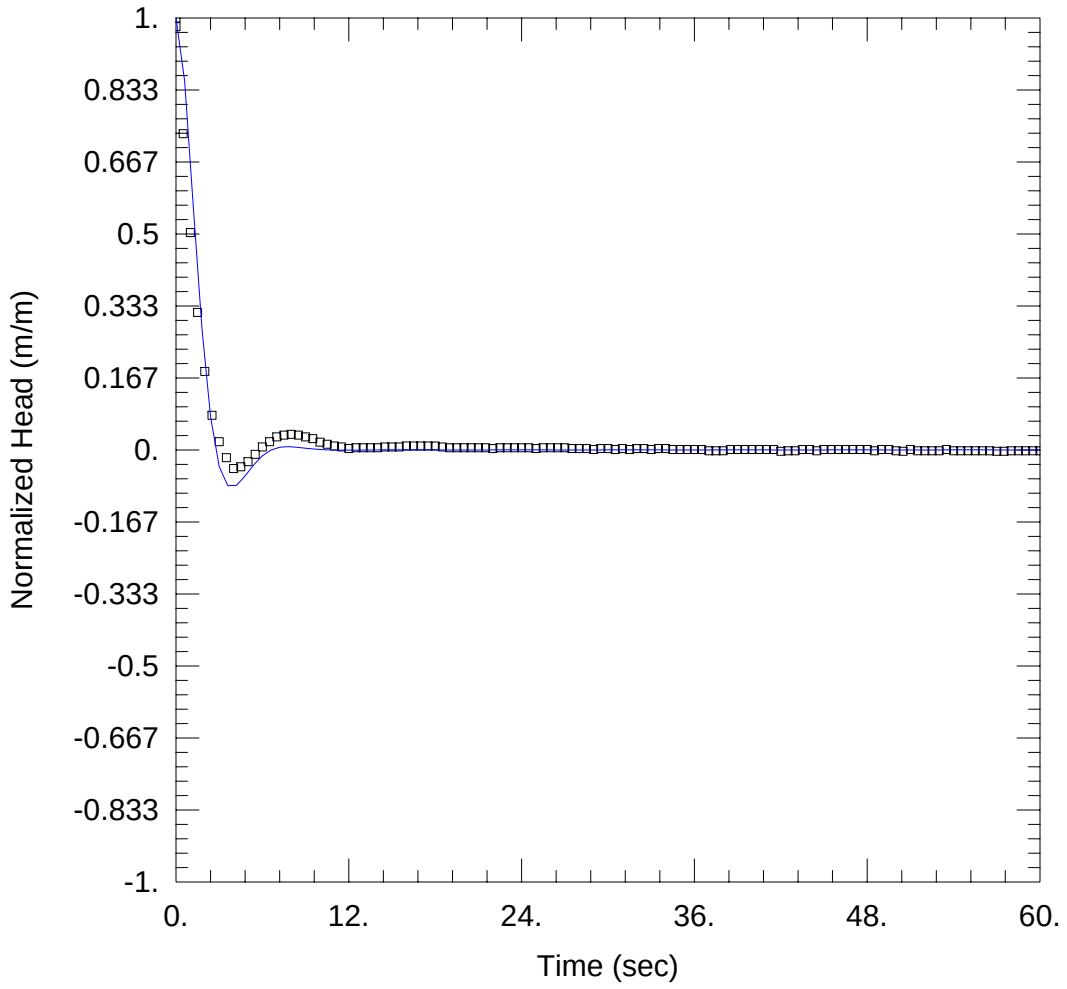
WELL DATA (MWB11-B)

Initial Displacement: 0.402 m
Total Well Penetration Depth: 17.42 m
Casing Radius: 0.026 m
Static Water Column Height: 17.41 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 11.16 m/day Le = 40.6 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB11-B_2.aqt
Date: 06/19/08 Time: 09:31:40

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB11-B
Test Date: 22 May 2008

AQUIFER DATA

Saturated Thickness: 17.42 m Anisotropy Ratio (Kz/Kr): 0.1

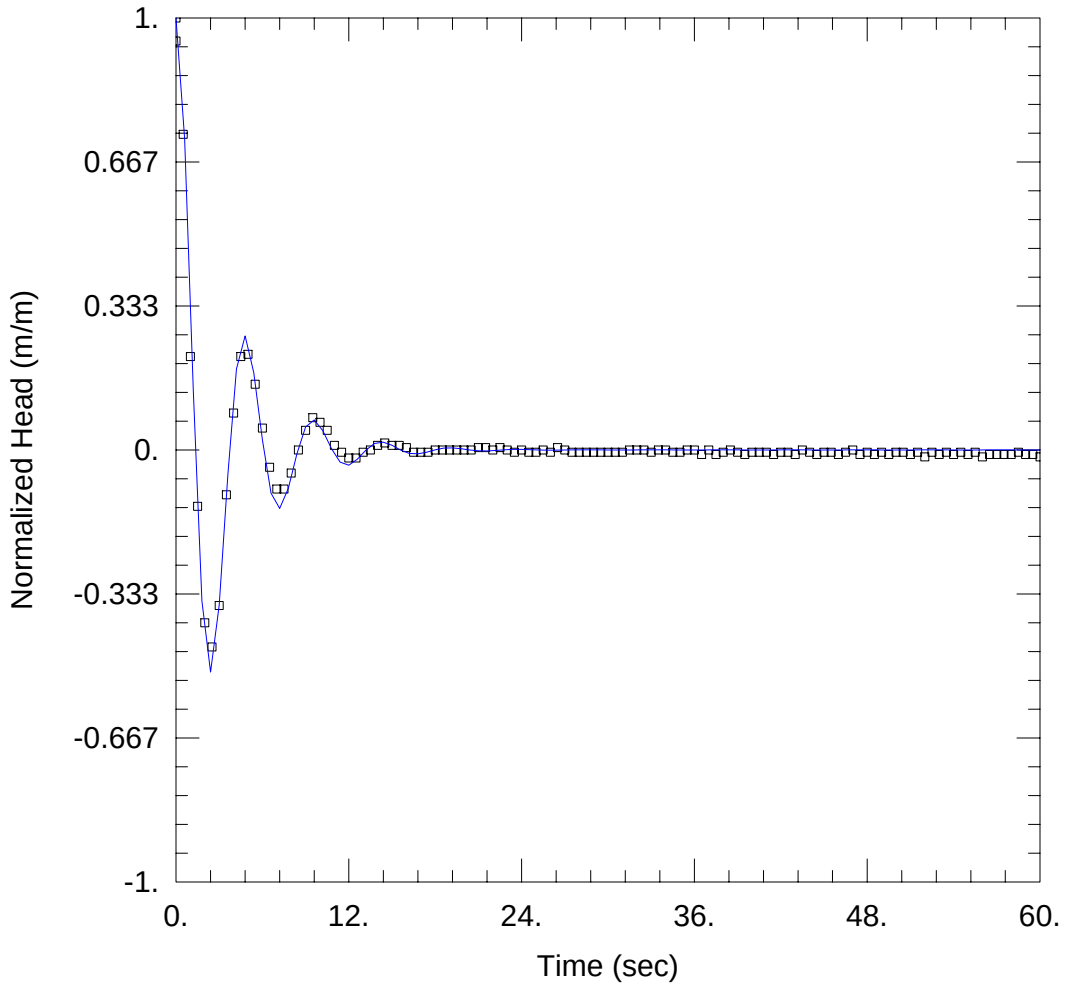
WELL DATA (MWB11-B)

Initial Displacement: 0.996 m
Total Well Penetration Depth: 17.42 m
Casing Radius: 0.026 m
Static Water Column Height: 17.41 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 29.82 m/day Le = 9.23 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB12-A_1.aqt
Date: 06/19/08 Time: 09:13:46

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB12-A
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 6.24 m Anisotropy Ratio (Kz/Kr): 0.1

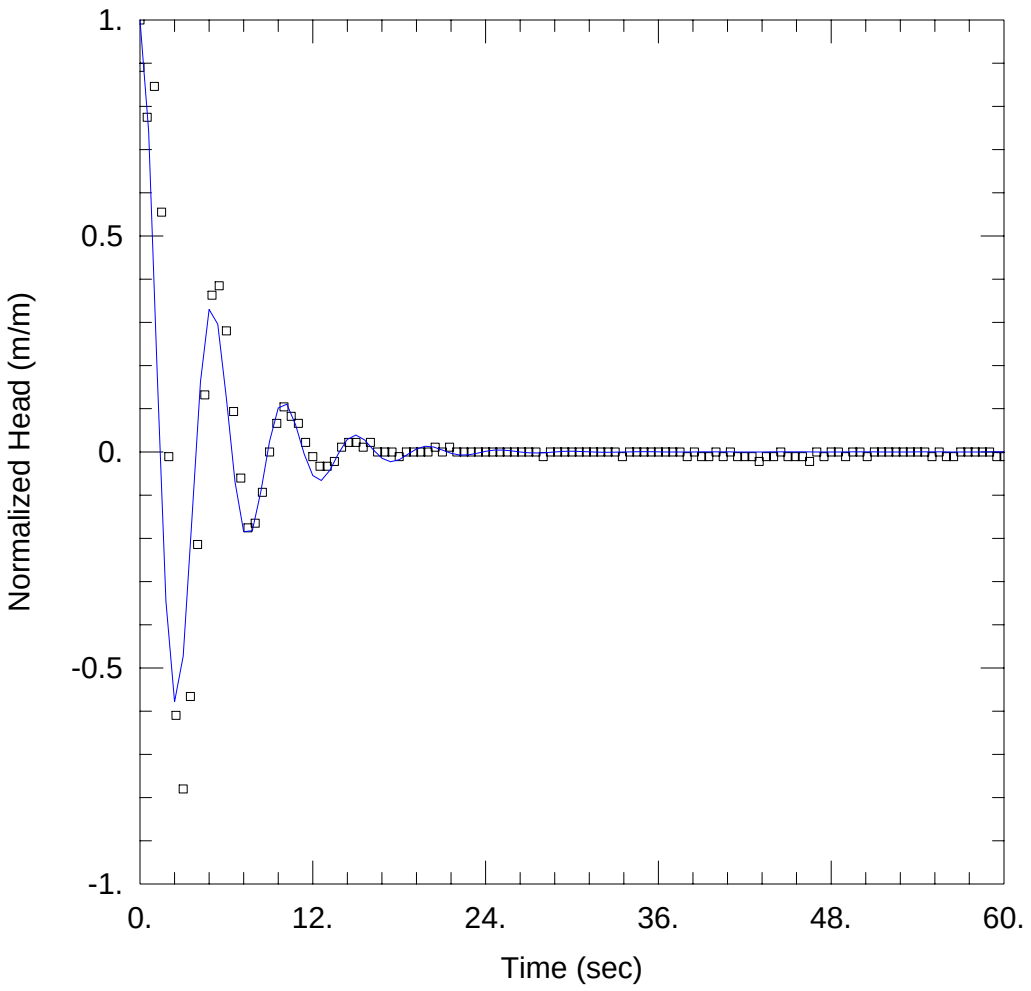
WELL DATA (MWB12-A)

Initial Displacement: 0.375 m
Total Well Penetration Depth: 6.85 m
Casing Radius: 0.026 m
Static Water Column Height: 6.23 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 211.4 m/day Le = 5.361 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB12-A_2.aqt
Date: 06/19/08 Time: 09:16:28

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB12-A
Test Date: 23 May 2008

AQUIFER DATA

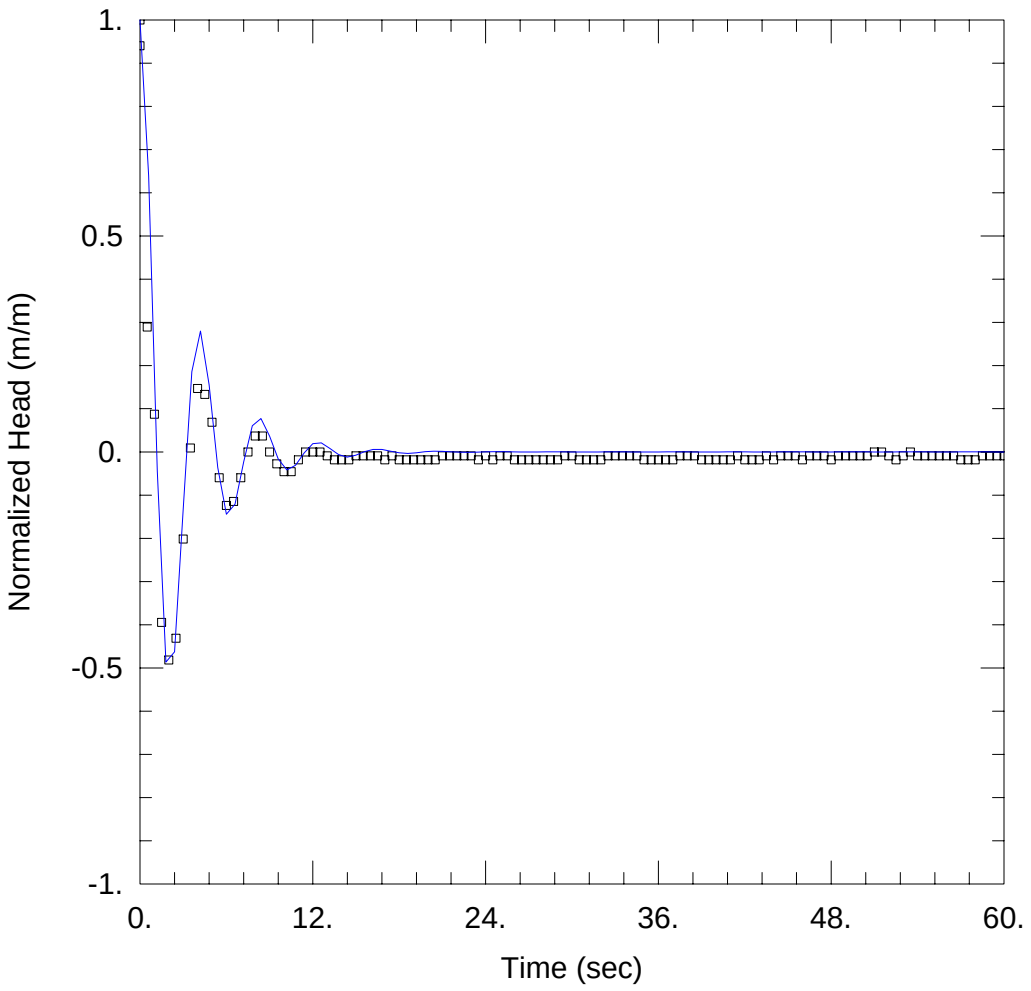
Saturated Thickness: 6.24 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB12-A)

Initial Displacement: 0.182 m
Total Well Penetration Depth: 6.85 m
Casing Radius: 0.026 m
Static Water Column Height: 6.23 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 245.1 m/day
Le = 6. m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB13-A.aqt
Date: 06/18/08 Time: 20:49:21

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB13-A
Test Date: 22 May 2008

AQUIFER DATA

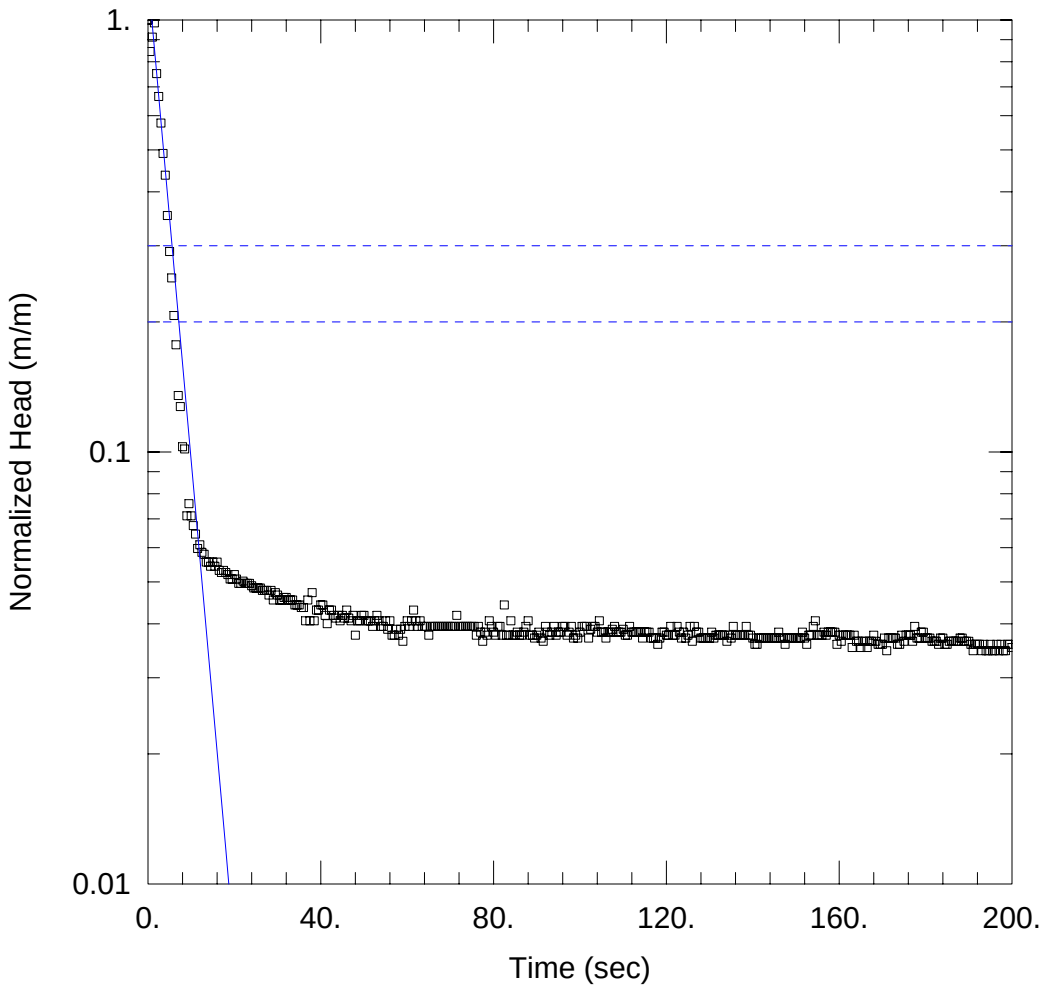
Saturated Thickness: 6.78 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB13-A)

Initial Displacement: 0.218 m
Total Well Penetration Depth: 6.77 m
Casing Radius: 0.026 m
Static Water Column Height: 6.77 m
Screen Length: 4.57 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Springer-Gelhar
K = 144. m/day
Le = 4.047 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB17-A.aqt
Date: 06/18/08 Time: 17:53:43

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB17-A
Test Date: 26 May 2008

AQUIFER DATA

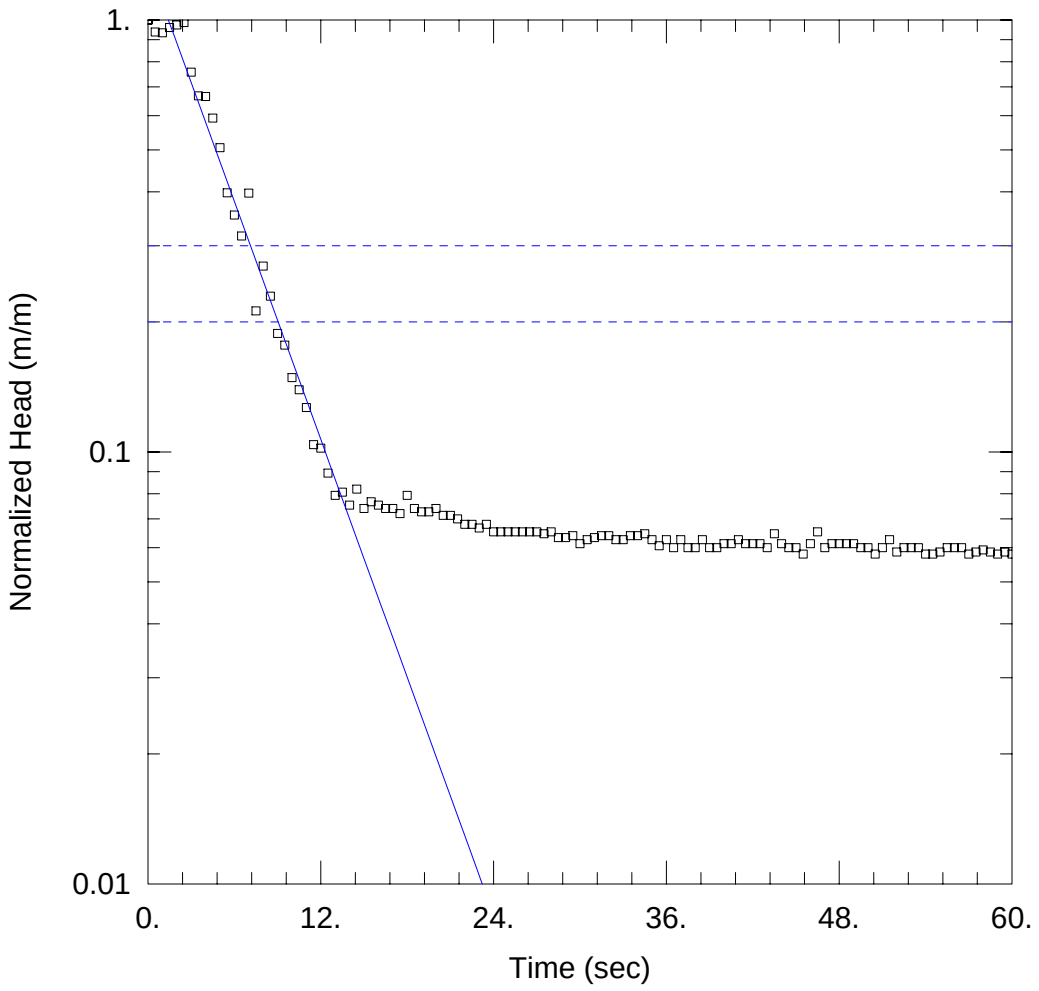
Saturated Thickness: 3.89 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB17-A)

Initial Displacement: 1.673 m
Total Well Penetration Depth: 3.88 m
Casing Radius: 0.019 m
Static Water Column Height: 3.88 m
Screen Length: 3.01 m
Well Radius: 0.019 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.329 m/day
y0 = 2.116 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB17-A_2.aqt
Date: 06/18/08 Time: 17:54:18

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB17-A
Test Date: 26 May 2008

AQUIFER DATA

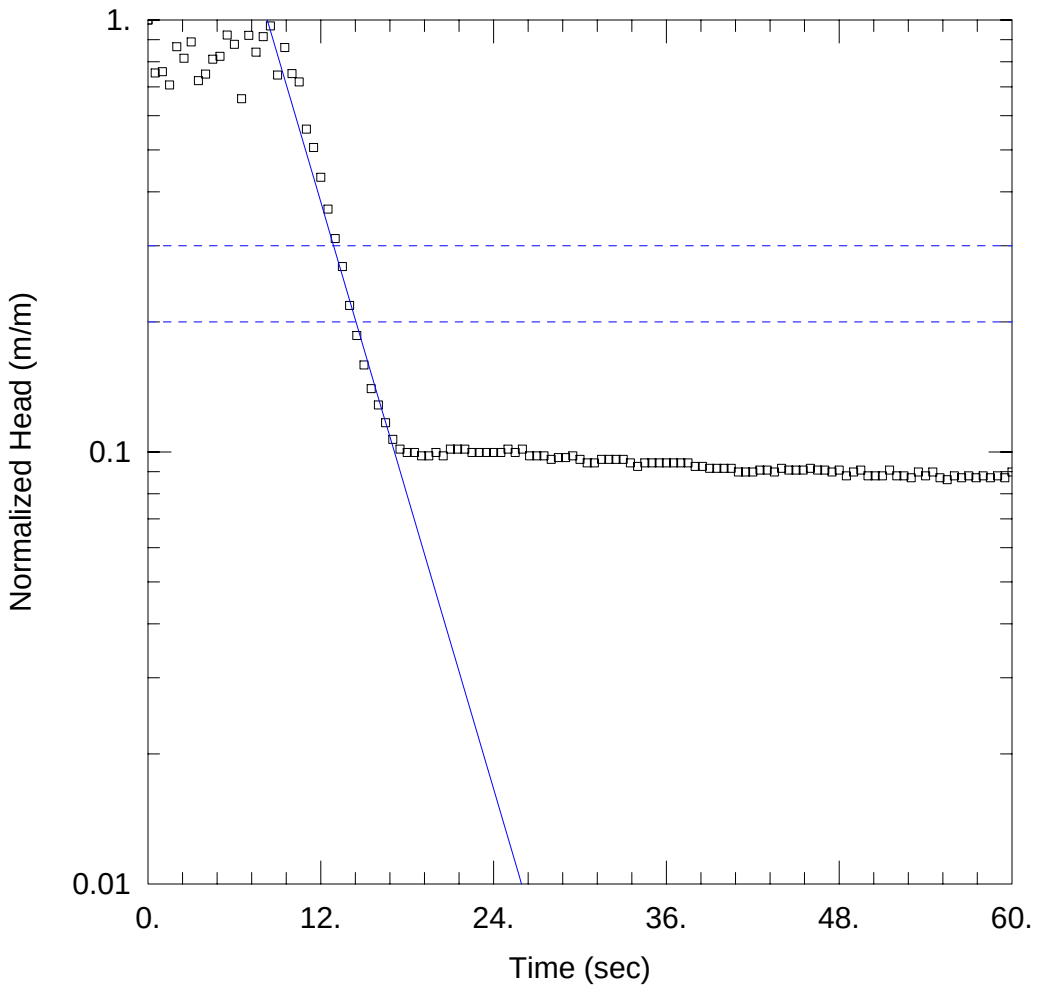
Saturated Thickness: 3.89 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB17-A)

Initial Displacement: 1.5 m
Total Well Penetration Depth: 3.88 m
Casing Radius: 0.019 m
Static Water Column Height: 3.88 m
Screen Length: 3.01 m
Well Radius: 0.019 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 7.594 m/day
y0 = 2.025 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB17-A_3.aqt
Date: 06/18/08 Time: 17:55:26

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB17-A
Test Date: 26 May 2008

AQUIFER DATA

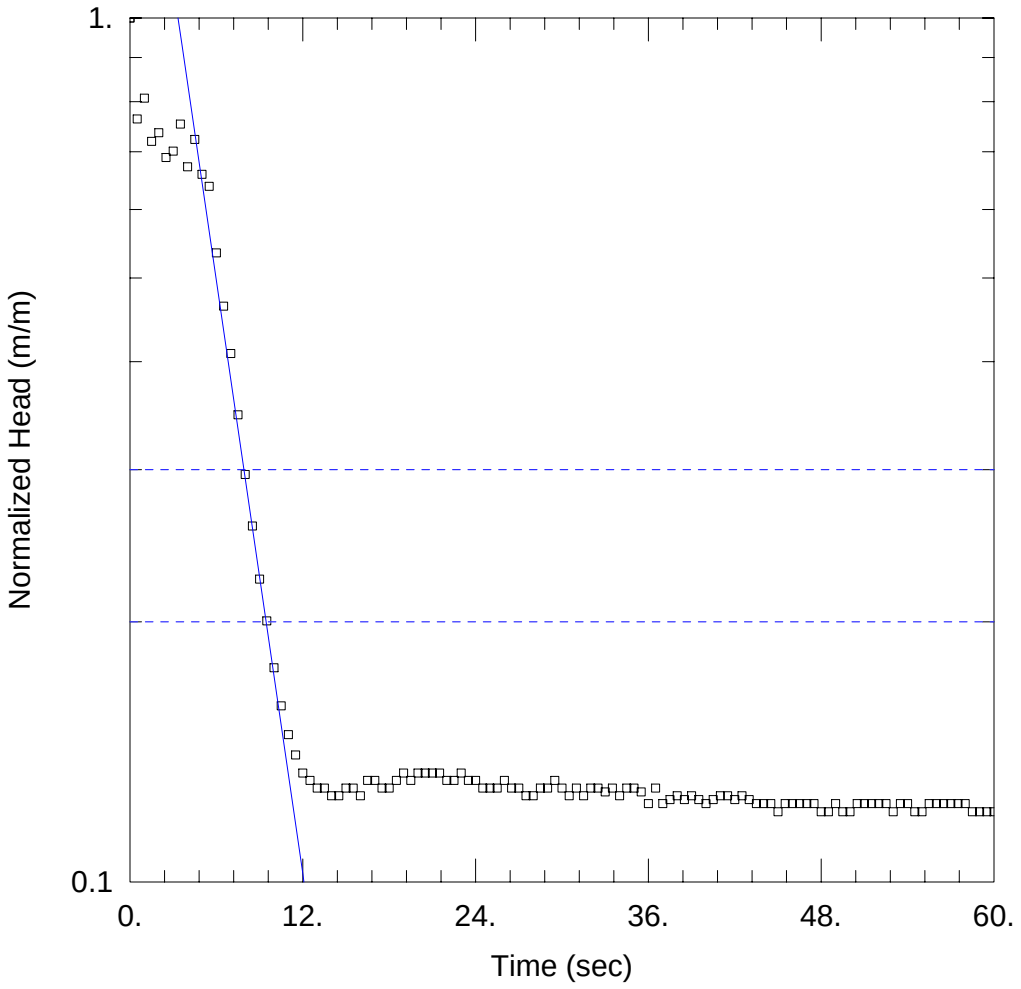
Saturated Thickness: 3.89 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB17-A)

Initial Displacement: 1.113 m
Total Well Penetration Depth: 3.88 m
Casing Radius: 0.019 m
Static Water Column Height: 3.88 m
Screen Length: 3.01 m
Well Radius: 0.019 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 12.63 m/day
y0 = 9.64 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB17-A_4.aqt
Date: 06/18/08 Time: 17:56:07

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB17-A
Test Date: 26 May 2008

AQUIFER DATA

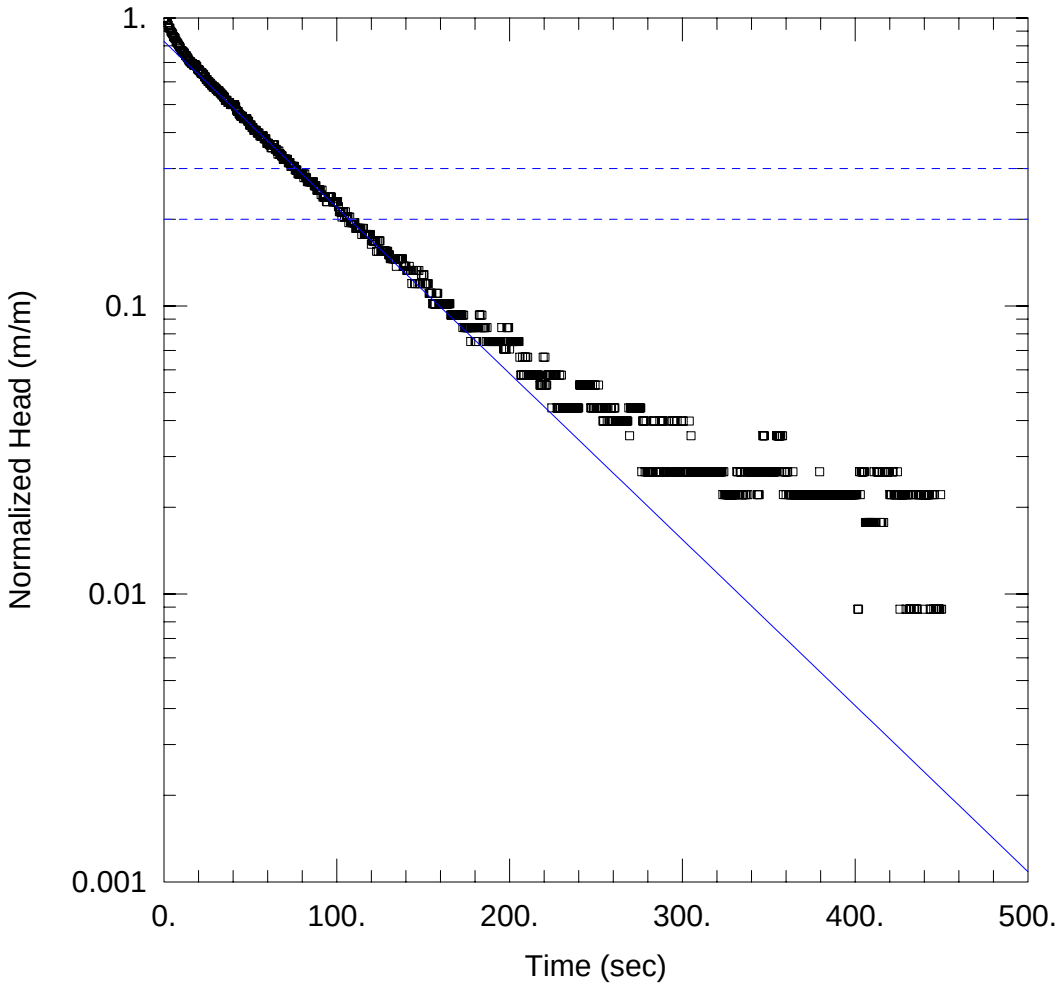
Saturated Thickness: 3.89 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB17-A)

Initial Displacement: 0.763 m
Total Well Penetration Depth: 3.88 m
Casing Radius: 0.019 m
Static Water Column Height: 3.88 m
Screen Length: 3.01 m
Well Radius: 0.019 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 18.6 m/day
y0 = 1.837 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB20-A.aqt
Date: 06/19/08 Time: 15:26:22

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB20-I-A
Test Date: 22 May 2008

AQUIFER DATA

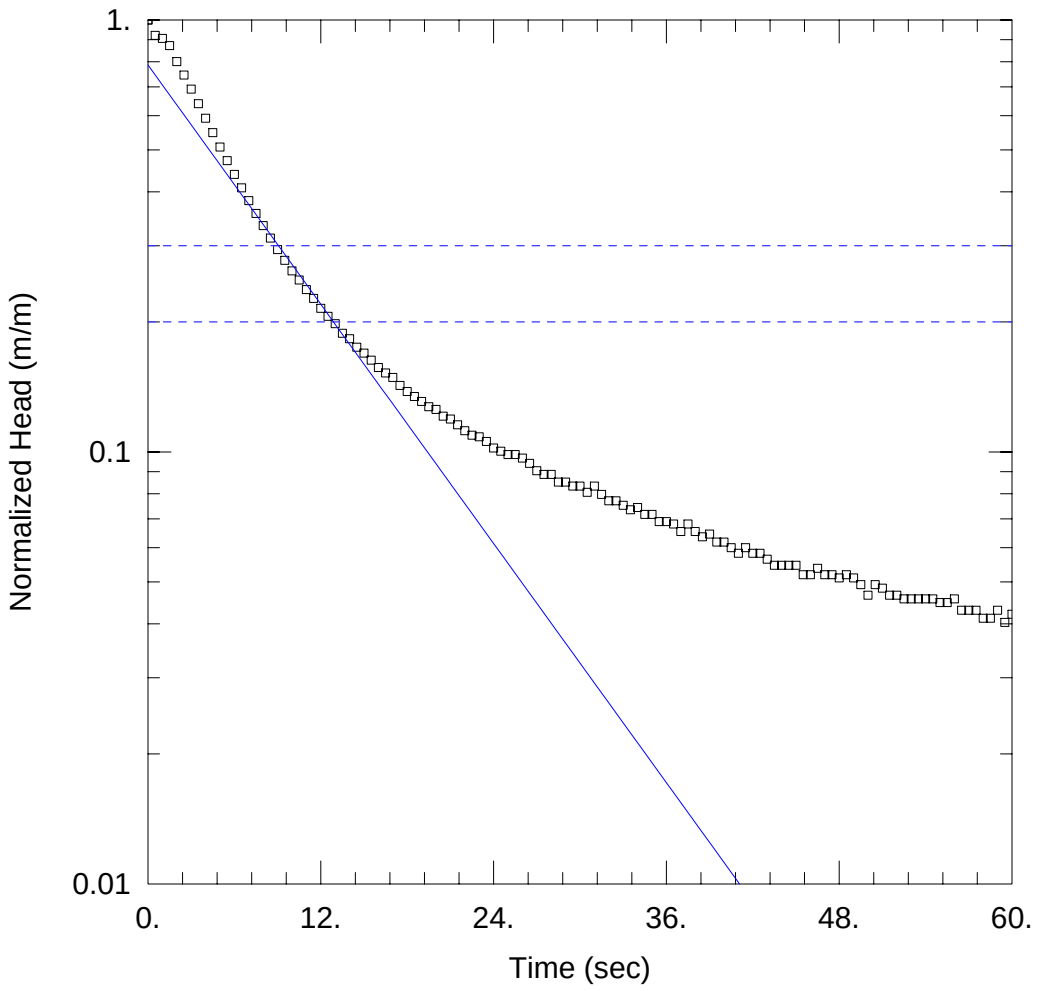
Saturated Thickness: 3.87 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB20-I-A)

Initial Displacement: 0.226 m
Total Well Penetration Depth: 3.86 m
Casing Radius: 0.026 m
Static Water Column Height: 3.86 m
Screen Length: 3.86 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.5107 m/day
y0 = 0.1874 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB22-II-B.aqt
Date: 06/18/08 Time: 17:49:14

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB22-II-B
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 12.14 m Anisotropy Ratio (Kz/Kr): 0.1

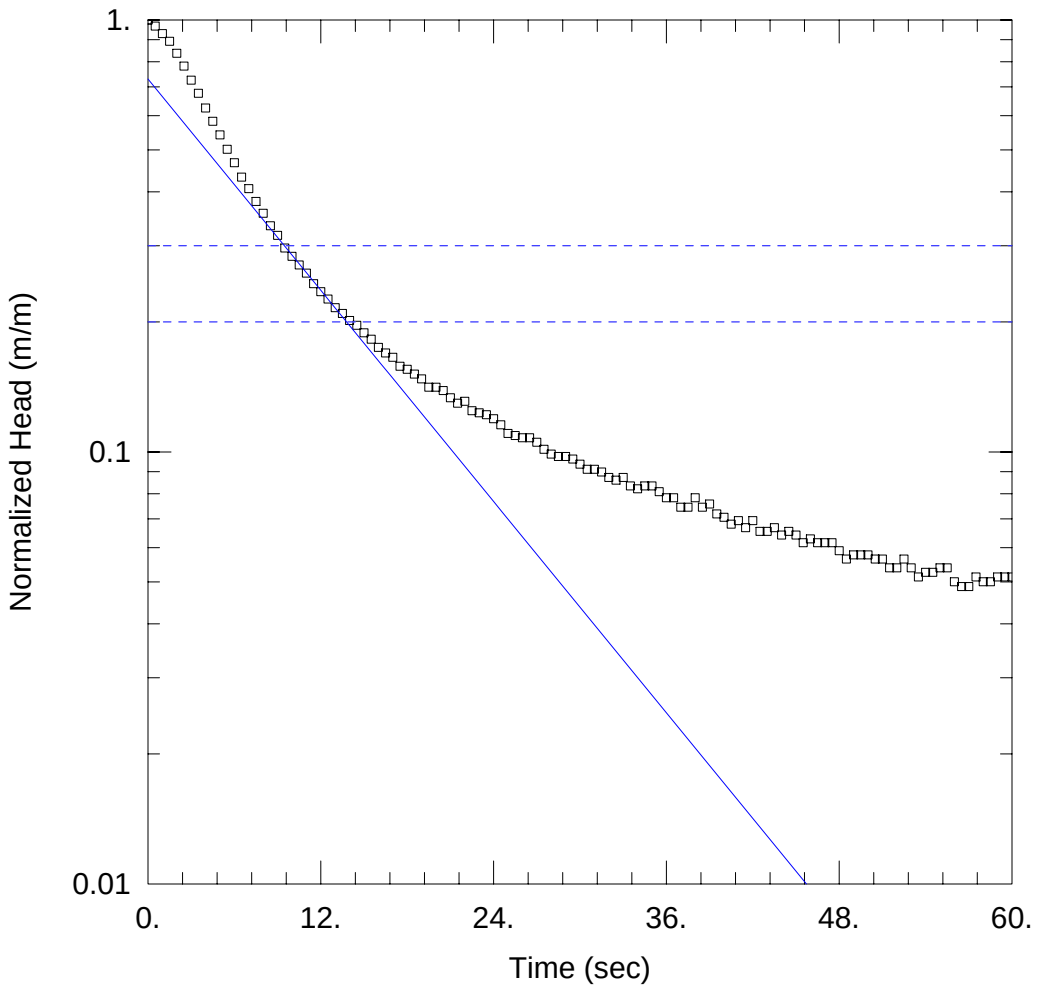
WELL DATA (MWB22-II-B)

Initial Displacement: 1.116 m
Total Well Penetration Depth: 12.13 m
Casing Radius: 0.026 m
Static Water Column Height: 12.13 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 5.915 m/day y0 = 0.8776 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB22-II-B_2.aqt
Date: 06/18/08 Time: 17:49:39

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB22-II-B
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 12.14 m Anisotropy Ratio (Kz/Kr): 0.1

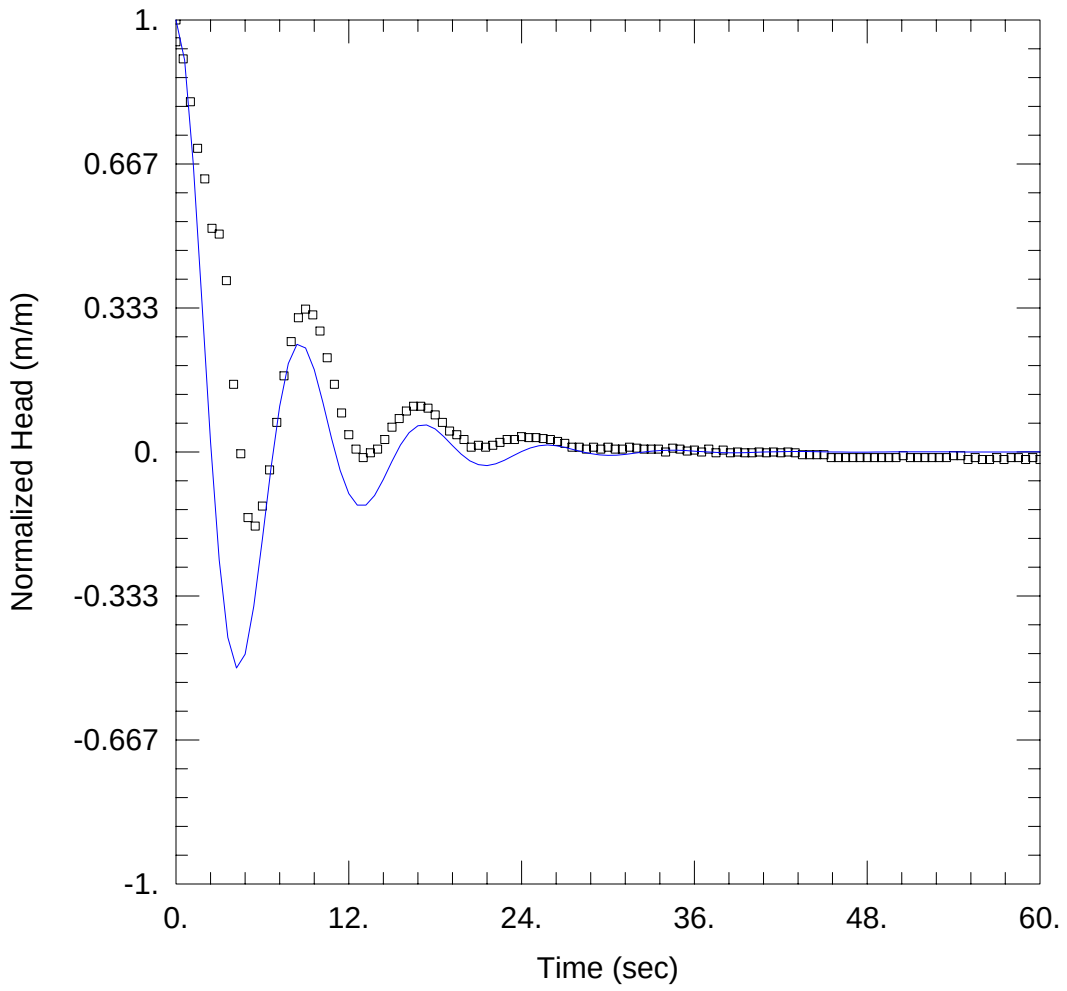
WELL DATA (MWB22-II-B)

Initial Displacement: 0.779 m
Total Well Penetration Depth: 12.13 m
Casing Radius: 0.026 m
Static Water Column Height: 12.13 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 5.223 m/day y0 = 0.5684 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB23-II-B_1.aqt
Date: 06/18/08 Time: 17:46:32

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB23-II-B
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 17.51 m Anisotropy Ratio (Kz/Kr): 0.1

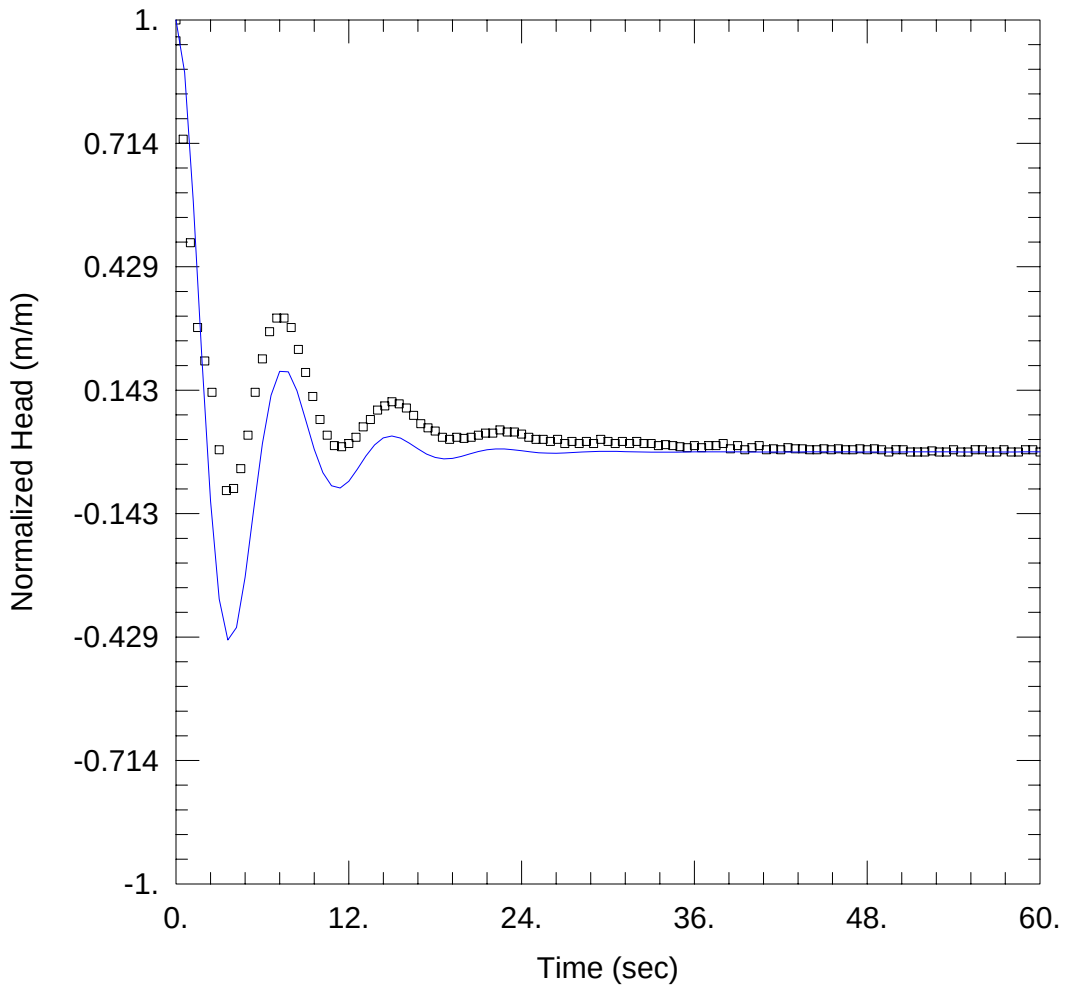
WELL DATA (MWB23-II-B)

Initial Displacement: 0.454 m
Total Well Penetration Depth: 17.5 m
Casing Radius: 0.026 m
Static Water Column Height: 17.5 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 103. m/day Le = 17.51 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB23-II-B_2.aqt
Date: 06/18/08 Time: 17:47:50

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB23-II-B
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 17.51 m Anisotropy Ratio (Kz/Kr): 0.1

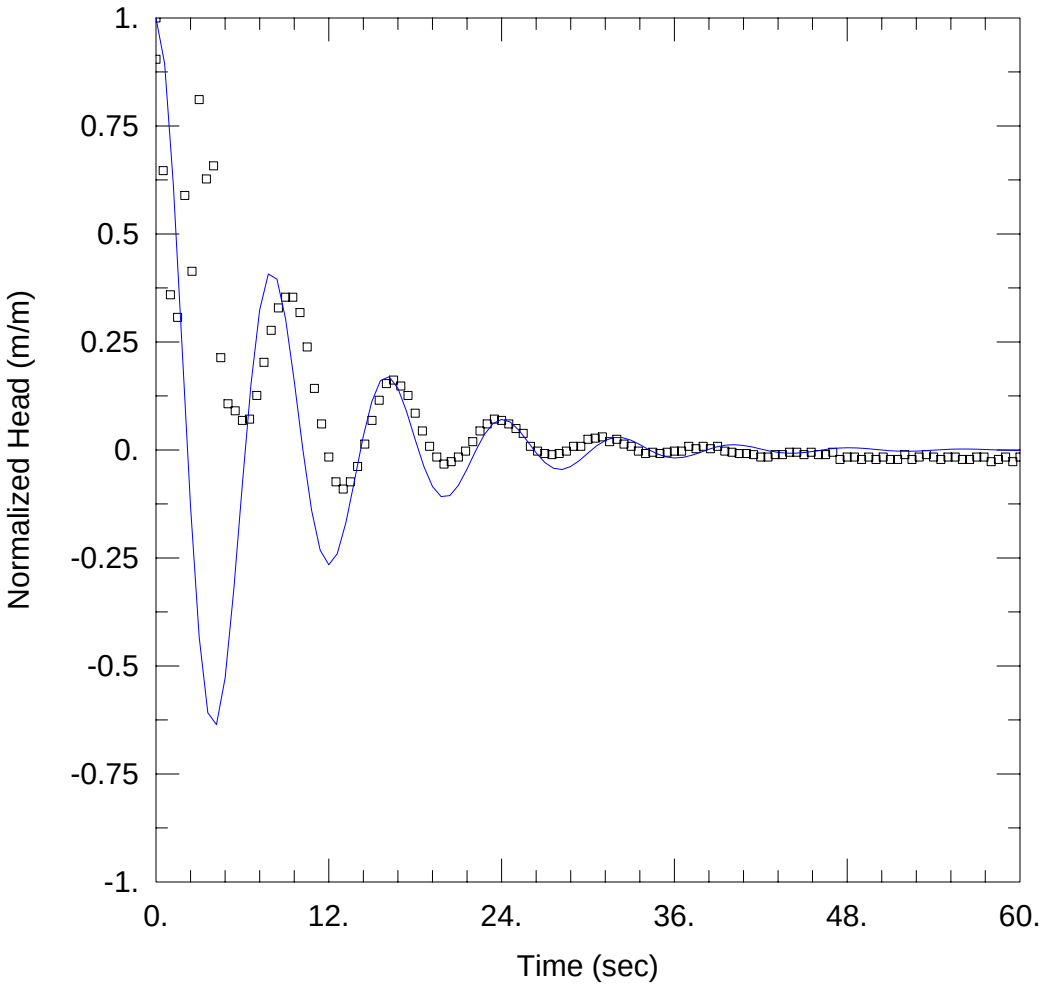
WELL DATA (MWB23-II-B)

Initial Displacement: 0.413 m
Total Well Penetration Depth: 17.5 m
Casing Radius: 0.026 m
Static Water Column Height: 17.5 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 100.9 m/day Le = 13.01 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB24-II-C_1.aqt
Date: 06/18/08 Time: 17:21:51

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB24-II-C
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 18.35 m Anisotropy Ratio (Kz/Kr): 0.1

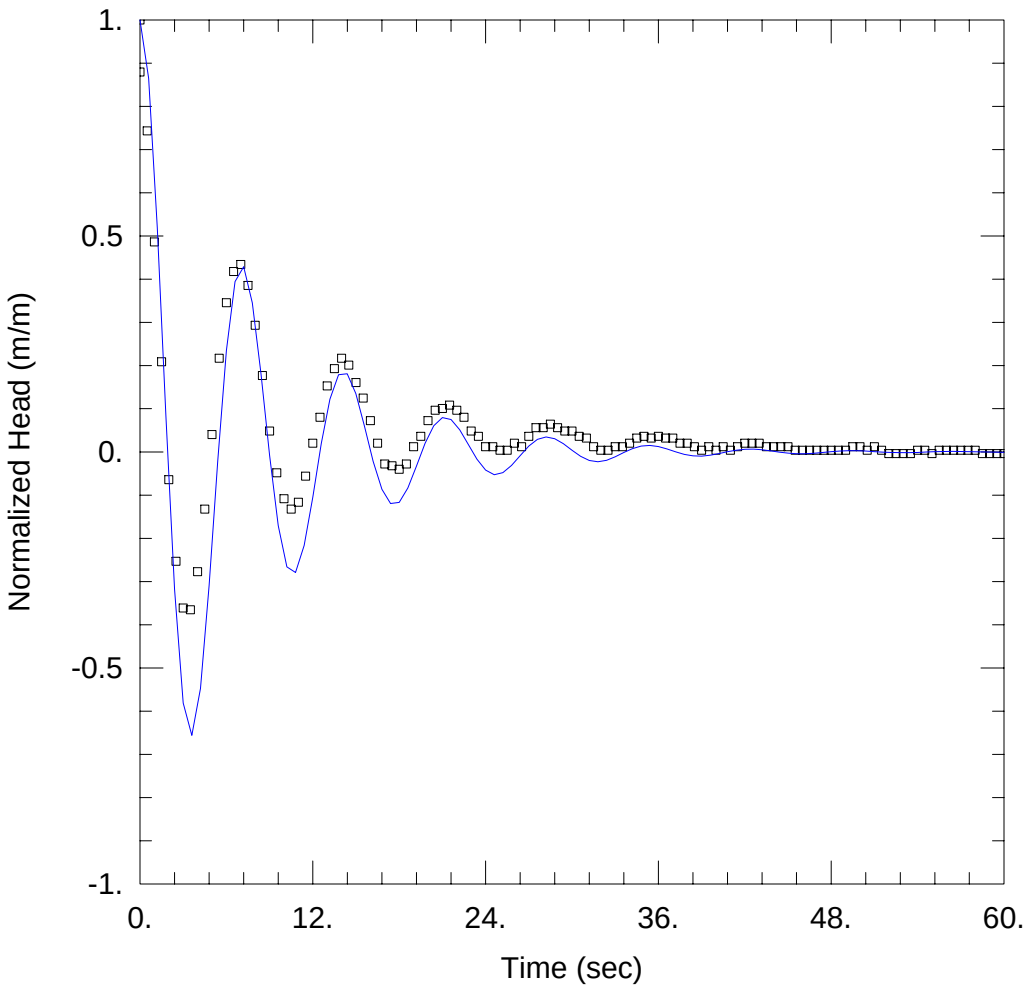
WELL DATA (MWB24-II-C)

Initial Displacement: 0.365 m
Total Well Penetration Depth: 18.34 m
Casing Radius: 0.026 m
Static Water Column Height: 17.34 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 95.56 m/day Le = 15.66 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB24-II-C_2.aqt
Date: 06/18/08 Time: 17:26:22

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB24-II-C
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 18.35 m Anisotropy Ratio (Kz/Kr): 0.1

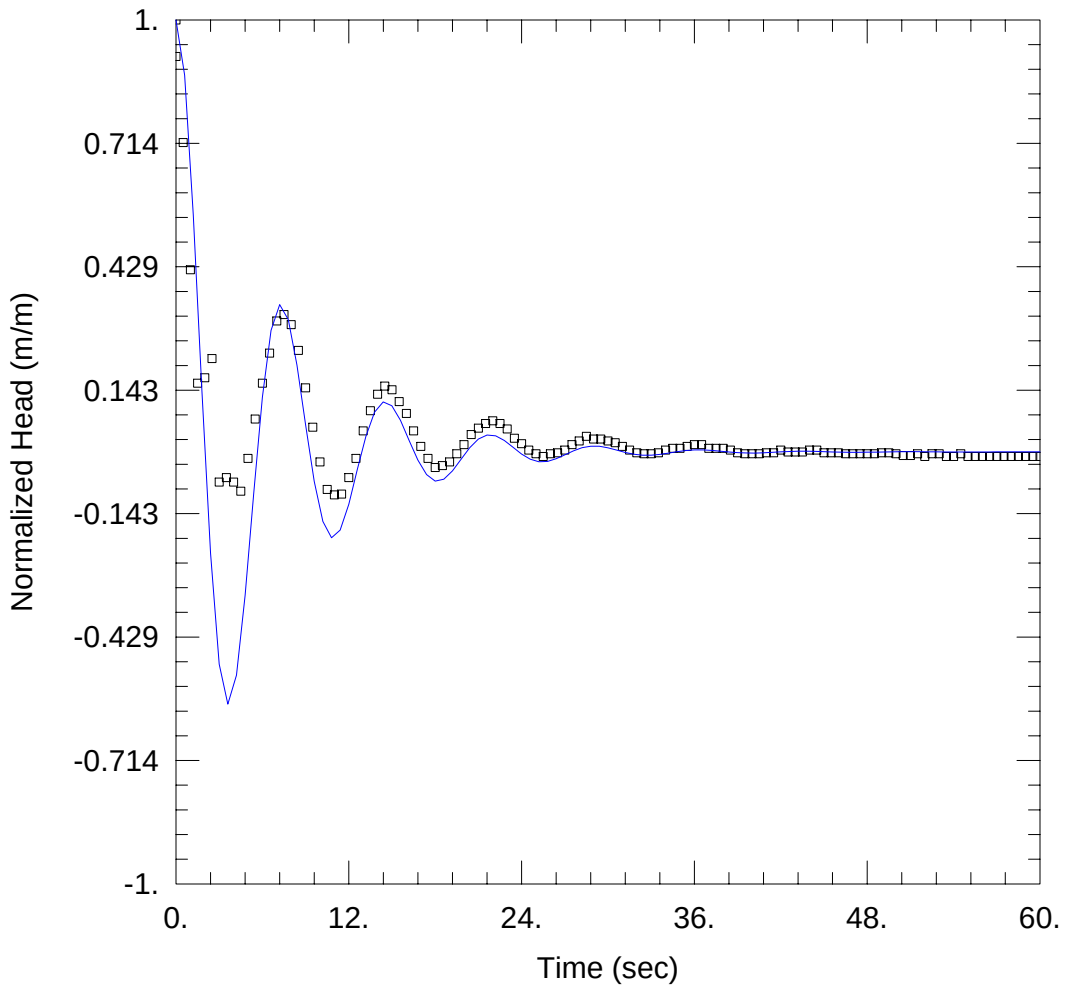
WELL DATA (MWB24-II-C)

Initial Displacement: 0.249 m
Total Well Penetration Depth: 18.34 m
Casing Radius: 0.026 m
Static Water Column Height: 17.34 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 115.4 m/day Le = 12.16 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB24-II-C_3.aqt
Date: 06/18/08 Time: 17:33:20

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB24-II-C
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 18.35 m Anisotropy Ratio (Kz/Kr): 0.1

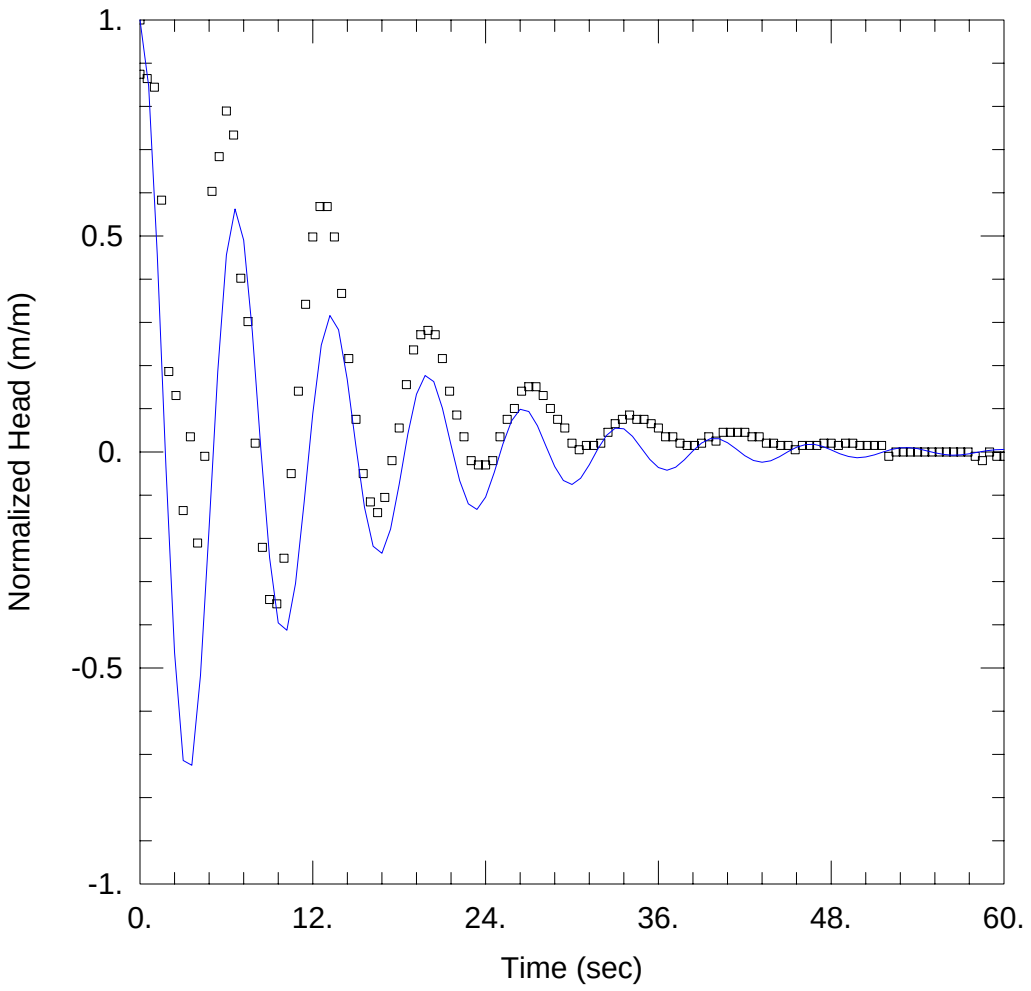
WELL DATA (MWB24-II-C)

Initial Displacement: 0.472 m
Total Well Penetration Depth: 18.34 m
Casing Radius: 0.026 m
Static Water Column Height: 17.34 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 87.05 m/day Le = 12.73 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB24-II-C_4.aqt
Date: 06/18/08 Time: 17:39:04

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB24-II-C
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 18.35 m Anisotropy Ratio (Kz/Kr): 0.1

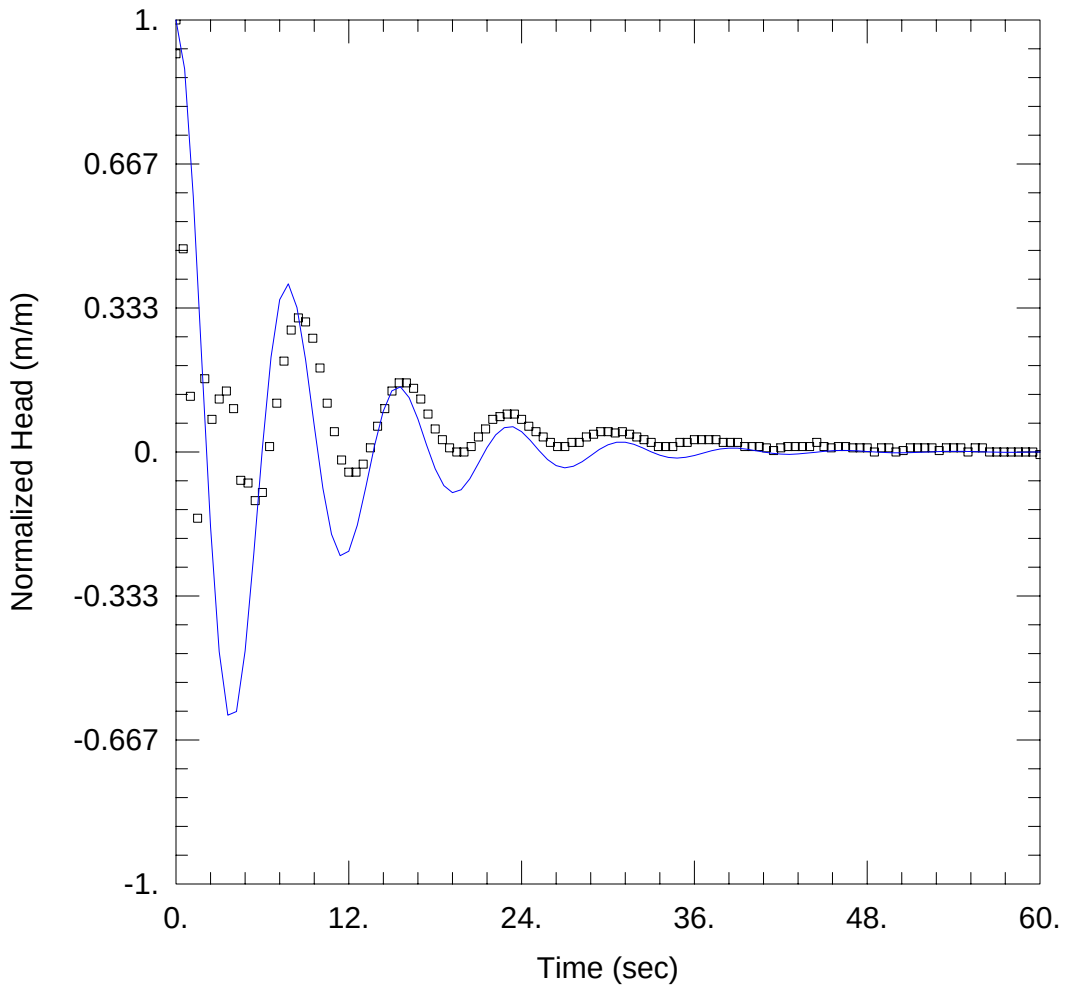
WELL DATA (MWB24-II-C)

Initial Displacement: 0.199 m
Total Well Penetration Depth: 18.34 m
Casing Radius: 0.026 m
Static Water Column Height: 17.34 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 184.8 m/day Le = 10.89 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB24-II-C_5.aqt
Date: 06/18/08 Time: 17:40:45

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB24-II-C
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 18.35 m Anisotropy Ratio (Kz/Kr): 0.1

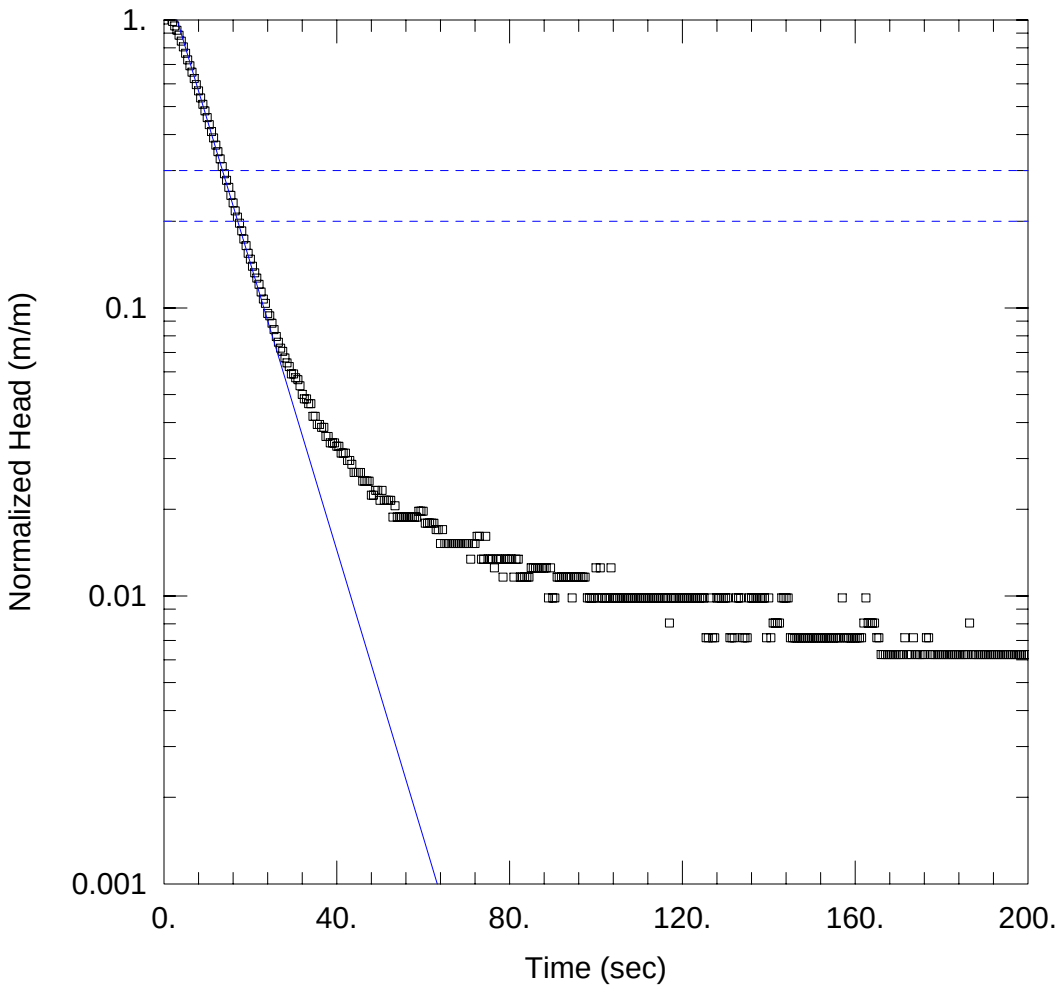
WELL DATA (MWB24-II-C)

Initial Displacement: 0.319 m
Total Well Penetration Depth: 18.34 m
Casing Radius: 0.026 m
Static Water Column Height: 17.34 m
Screen Length: 6.1 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 93.05 m/day Le = 14.5 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB25-I-A.aqt
Date: 06/18/08 Time: 10:37:00

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB25-I-A
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 4.03 m Anisotropy Ratio (Kz/Kr): 0.1

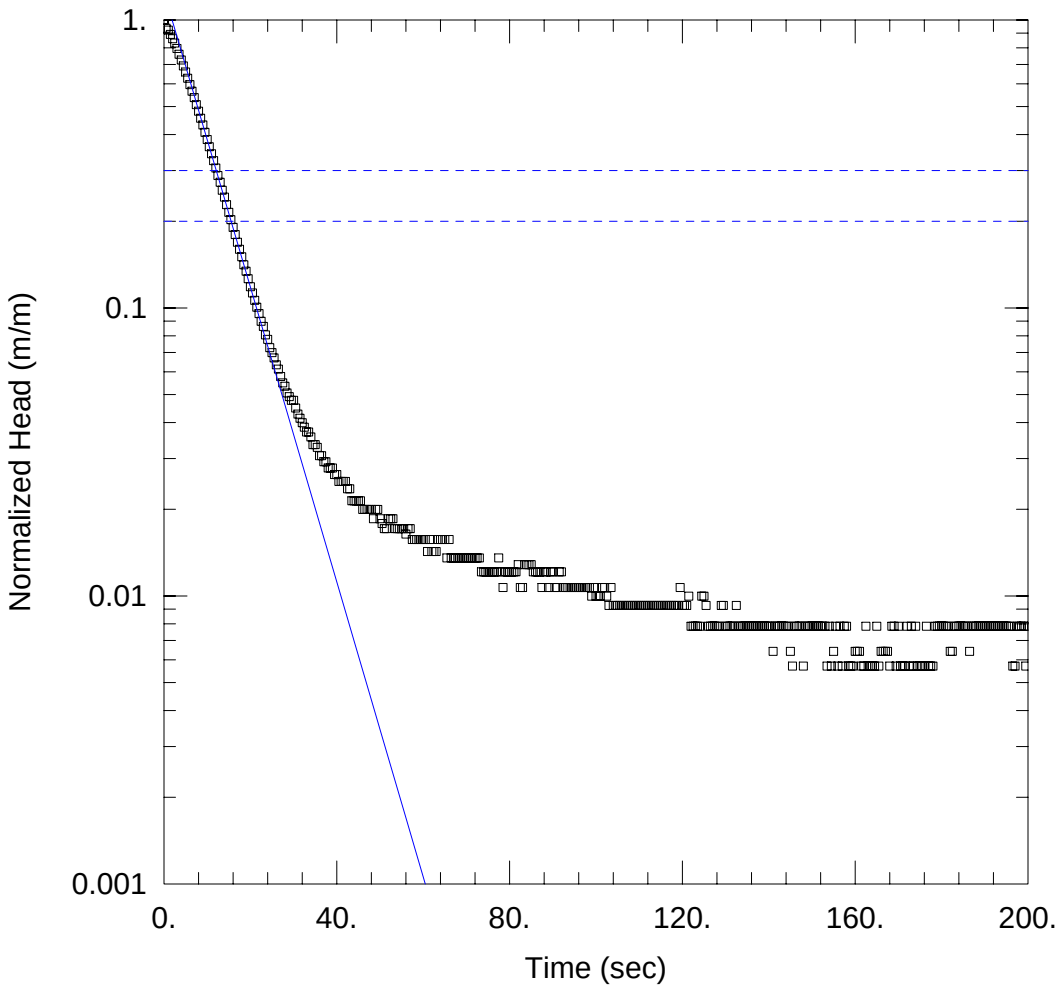
WELL DATA (MWB25-I-A)

Initial Displacement: 1.118 m
Total Well Penetration Depth: 4.03 m
Casing Radius: 0.026 m
Static Water Column Height: 4.02 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 19.61 m/day
y0 = 1.584 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB25-I-A_2.aqt
Date: 06/18/08 Time: 10:37:34

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB25-I-A
Test Date: 23 May 2008

AQUIFER DATA

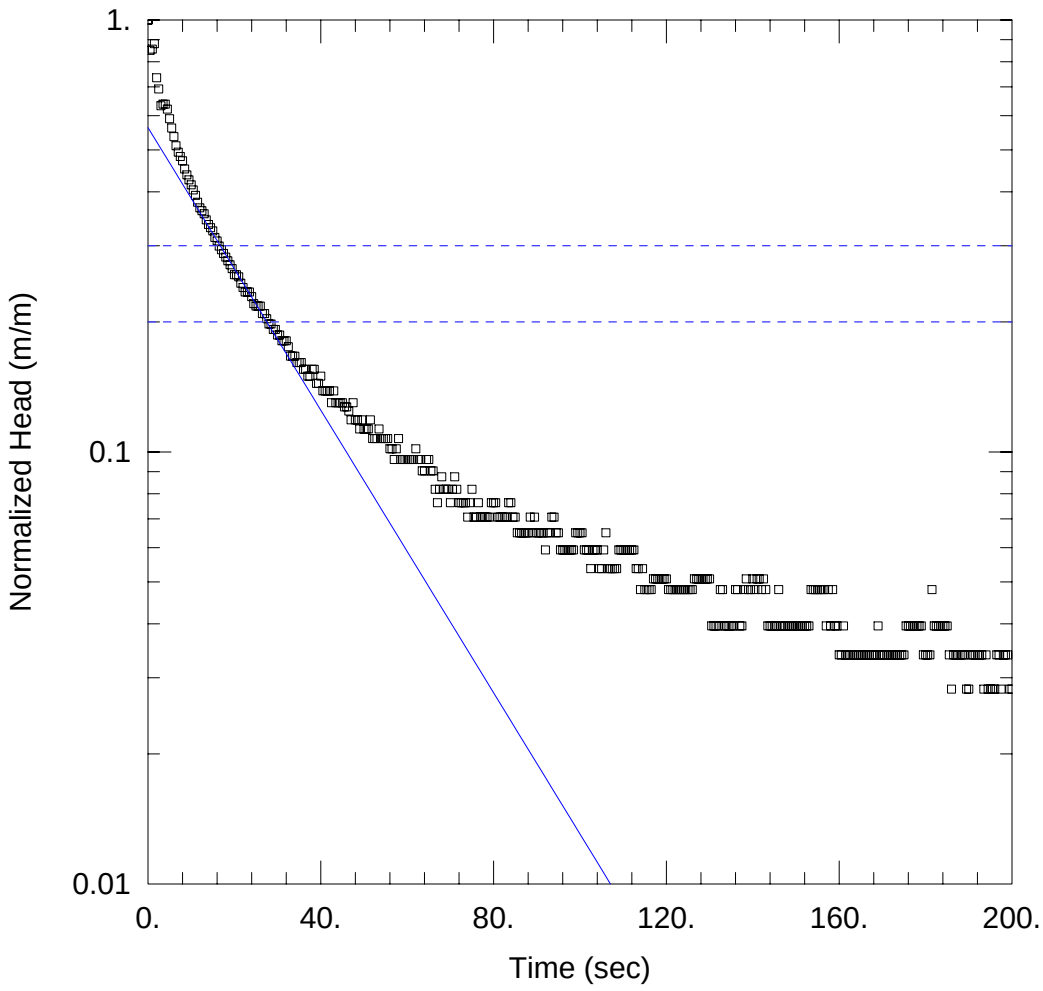
Saturated Thickness: 4.03 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB25-I-A)

Initial Displacement: 1.402 m
Total Well Penetration Depth: 4.03 m
Casing Radius: 0.026 m
Static Water Column Height: 4.02 m
Screen Length: 3.05 m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 20.16 m/day
y0 = 1.75 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB28-I-A.aqt
Date: 06/18/08 Time: 10:32:58

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB28-I-A
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 3.99 m Anisotropy Ratio (Kz/Kr): 0.1

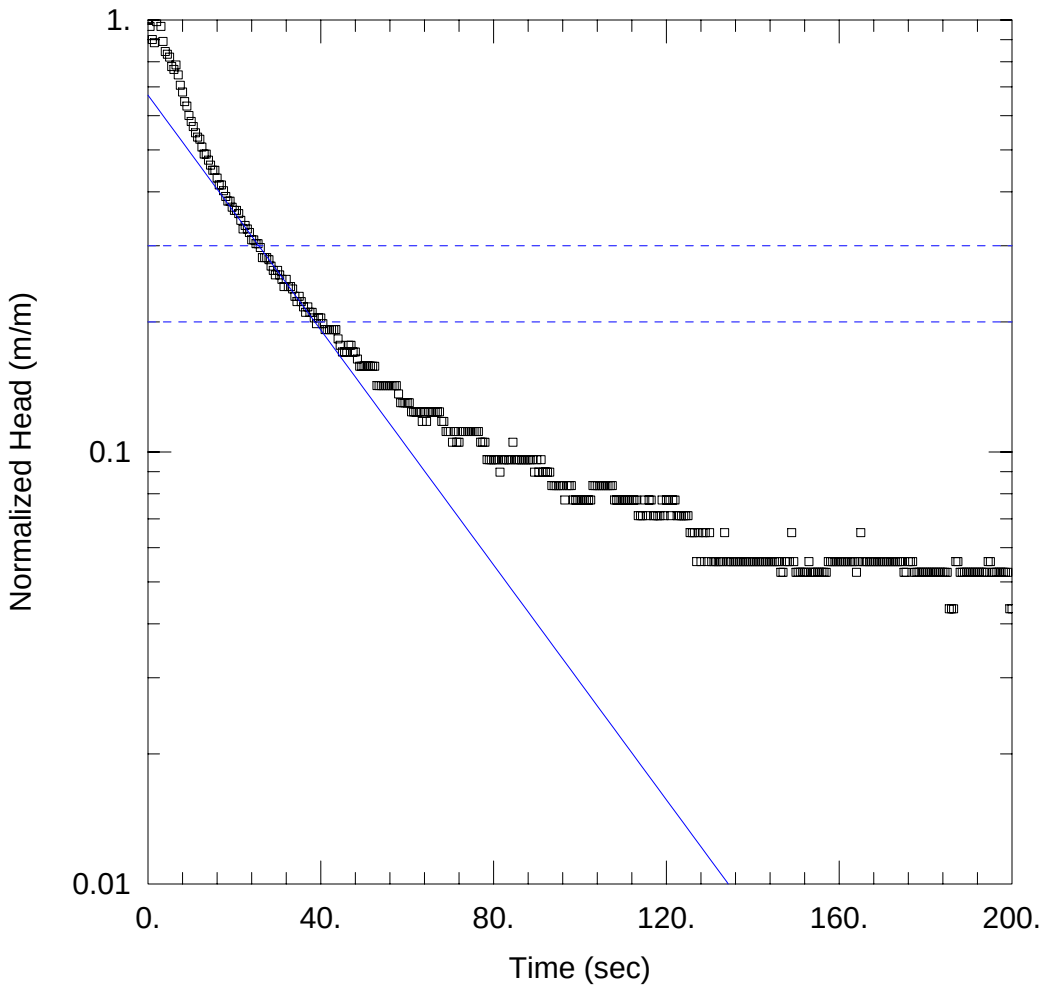
WELL DATA (MWB28-I-A)

Initial Displacement: 0.354 m
Total Well Penetration Depth: 3.98 m
Casing Radius: 0.026 m
Static Water Column Height: 3.98 m
Screen Length: 3. m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.838 m/day
y0 = 0.1994 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB28-I-A_2.aqt
Date: 06/18/08 Time: 10:33:28

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB28-I-A
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 3.99 m Anisotropy Ratio (Kz/Kr): 0.1

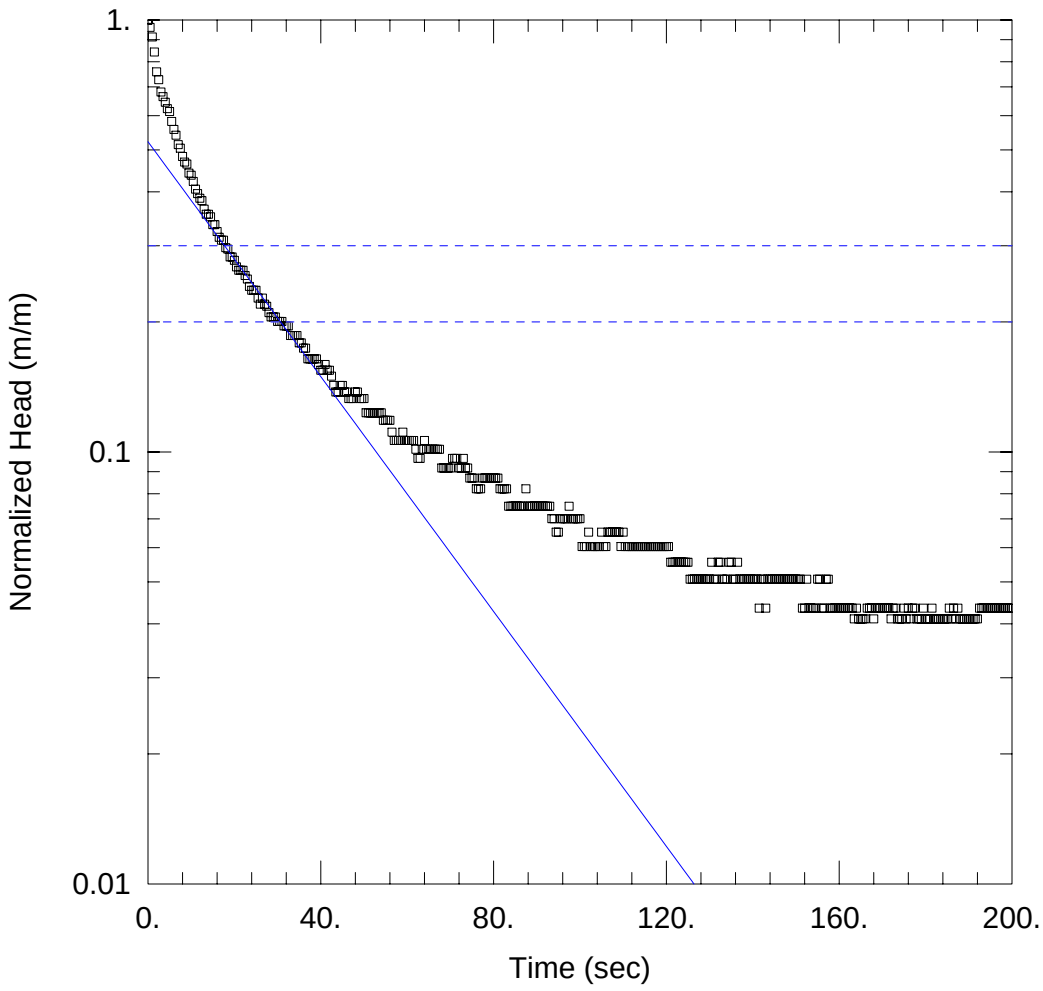
WELL DATA (MWB28-I-A)

Initial Displacement: 0.323 m
Total Well Penetration Depth: 3.98 m
Casing Radius: 0.026 m
Static Water Column Height: 3.98 m
Screen Length: 3. m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.528 m/day
y0 = 0.2163 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB28-I-A_3.aqt
Date: 06/18/08 Time: 10:33:45

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB28-I-A
Test Date: 23 May 2008

AQUIFER DATA

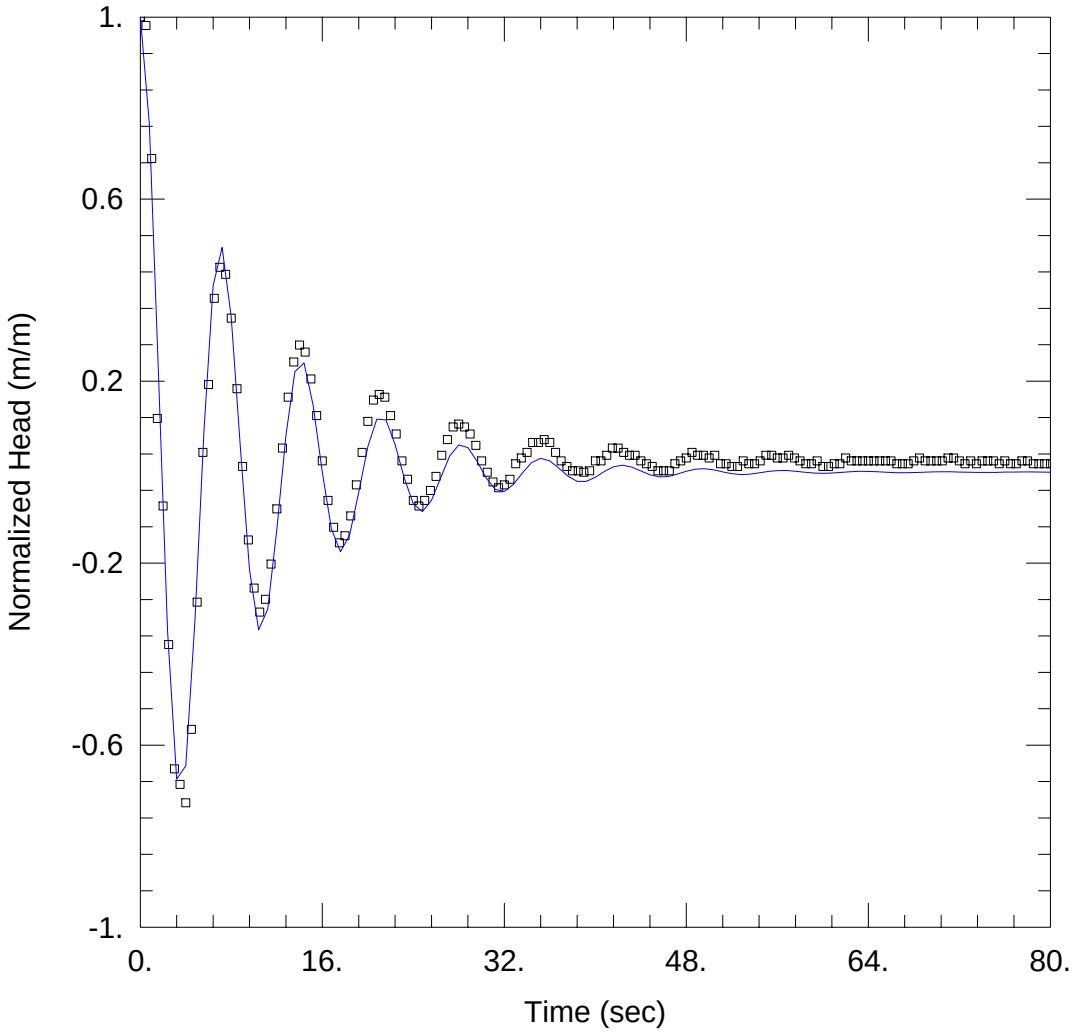
Saturated Thickness: 3.99 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB28-I-A)

Initial Displacement: 0.414 m
Total Well Penetration Depth: 3.98 m
Casing Radius: 0.026 m
Static Water Column Height: 3.98 m
Screen Length: 3. m
Well Radius: 0.026 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.528 m/day
y0 = 0.2163 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB28-I-B_1.aqt
Date: 06/18/08 Time: 10:31:33

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB28-I-B
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 15.99 m Anisotropy Ratio (Kz/Kr): 0.1

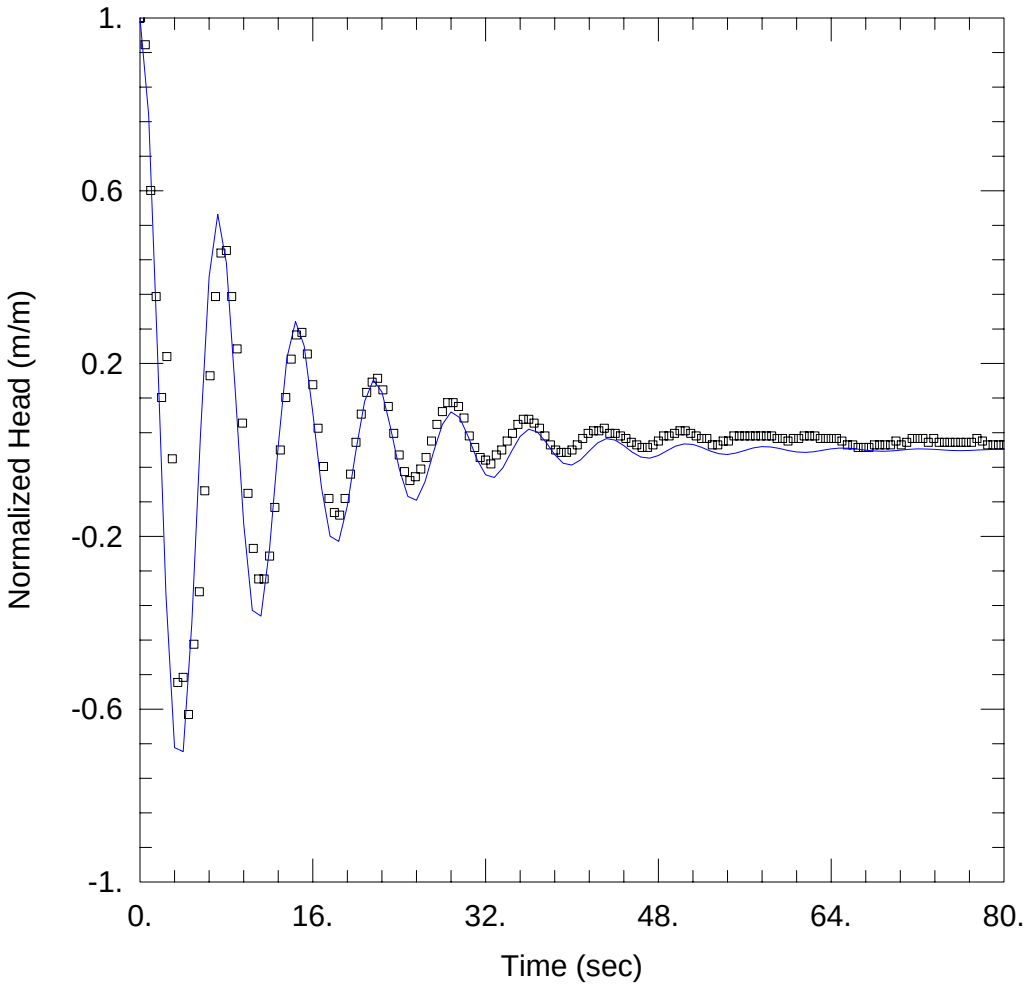
WELL DATA (MWB28-I-B)

Initial Displacement: 0.322 m
Total Well Penetration Depth: 15.98 m
Casing Radius: 0.026 m
Static Water Column Height: 15.98 m
Screen Length: 6. m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 141. m/day Le = 12.22 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\Hydraulic testing\Slug tests\More slug test\Aqtesolv files\MWB28-I-B_2.aqt
Date: 06/18/08 Time: 10:28:16

PROJECT INFORMATION

Company: SSPA
Client: GLL
Project: 1087
Location: Mountsberg
Test Well: MWB28-I-B
Test Date: 23 May 2008

AQUIFER DATA

Saturated Thickness: 15.99 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB28-I-B)

Initial Displacement: 0.338 m
Total Well Penetration Depth: 15.98 m
Casing Radius: 0.026 m
Static Water Column Height: 15.98 m
Screen Length: 6. m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.1

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 159.4 m/day Le = 12.88 m

F3-4. S.S. Papadopulos & Associates Review of 2007 Slug Interpretations, April 2008

S. S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants

Memorandum

Date: April 28, 2008

From: Christopher Neville and Jinhui Zhang

To: Gartner Lee Ltd.

SSPA Project: SSP1087

Subject **Review of Gartner Lee Ltd. November 2007 slug test interpretations**
P:\1087\Data\GLL_20071102\Review report\SSP1087_Slug testing review_text.doc

1. Introduction

In September 2007, Gartner Lee Ltd. conducted an extensive program of slug testing on wells at the site of the proposed St. Marys Flamborough Quarry. A total of 59 tests were conducted on new and retrofit wells at the site. In this memorandum we report the results of an independent review of the interpretations of the slug test results. As part of our independent review we have re-analyzed the results of all of the slug tests. In general, our estimates of hydraulic conductivity are consistent with the analyses of results of Gartner Lee Ltd. Our review report includes the detailed reporting results for each slug test.

In addition to compiling impendent estimates of hydraulic conductivity, as part of our review we have identified tests that have non-ideal responses. The results from some of these tests are subject to significant uncertainty.

To place the results of the recent slug testing in context, we have also reviewed the results of previous hydraulic testing. The hydraulic conductivities estimated from the slug tests are compared with estimates obtained from packer tests and constant discharge pumping tests.

2. Review of the Gartner Lee Ltd. 2007 slug test interpretations

The results of our independent interpretations of the 2007 slug tests are assembled on Table 1. The table lists the hydraulic conductivity estimates provided by Gartner Lee Ltd. and the results of our analyses, which are designated "SSPA" on the table. A comparison between the hydraulic conductivity is also shown graphically in Figure 1.

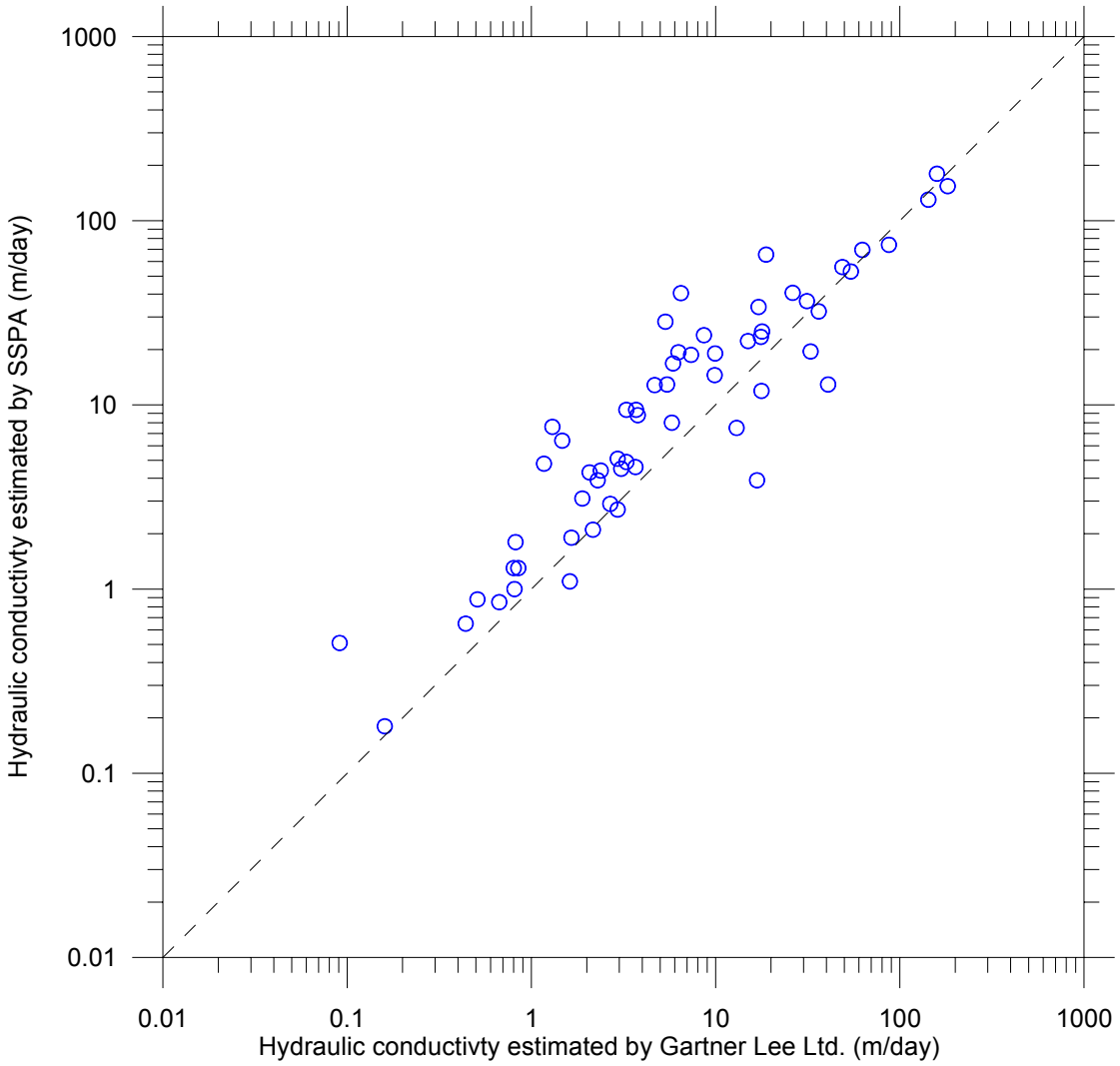


Figure 1. Comparison of hydraulic conductivity estimates

In general, there is a relatively good agreement between our estimates of hydraulic conductivity and those developed by Gartner Lee Ltd. In several cases, our estimates are higher, which reflects the incorporation of different portions of the responses in the analyses. For this investigation, we have analyzed overdamped slug test responses using the same method as Gartner Lee Ltd., Bouwer and Ricer (1976) [overdamped responses are responses for which the water levels recover monotonically after the initial displacement]. Gartner Lee Ltd.'s analyses are generally focused on the earliest portions of the response. In contrast, we have consistently followed the guidance of Butler (1998) when using the Bouwer and Rice (1976) method to fit the data over the range of normalized displacement from 0.2 to 0.3. The differences in the interpretations for a typical well are illustrated in Figure 2. Gartner Lee Ltd. estimated a hydraulic conductivity of 0.82 m/d for this test; our estimate is 1.8 m/d.

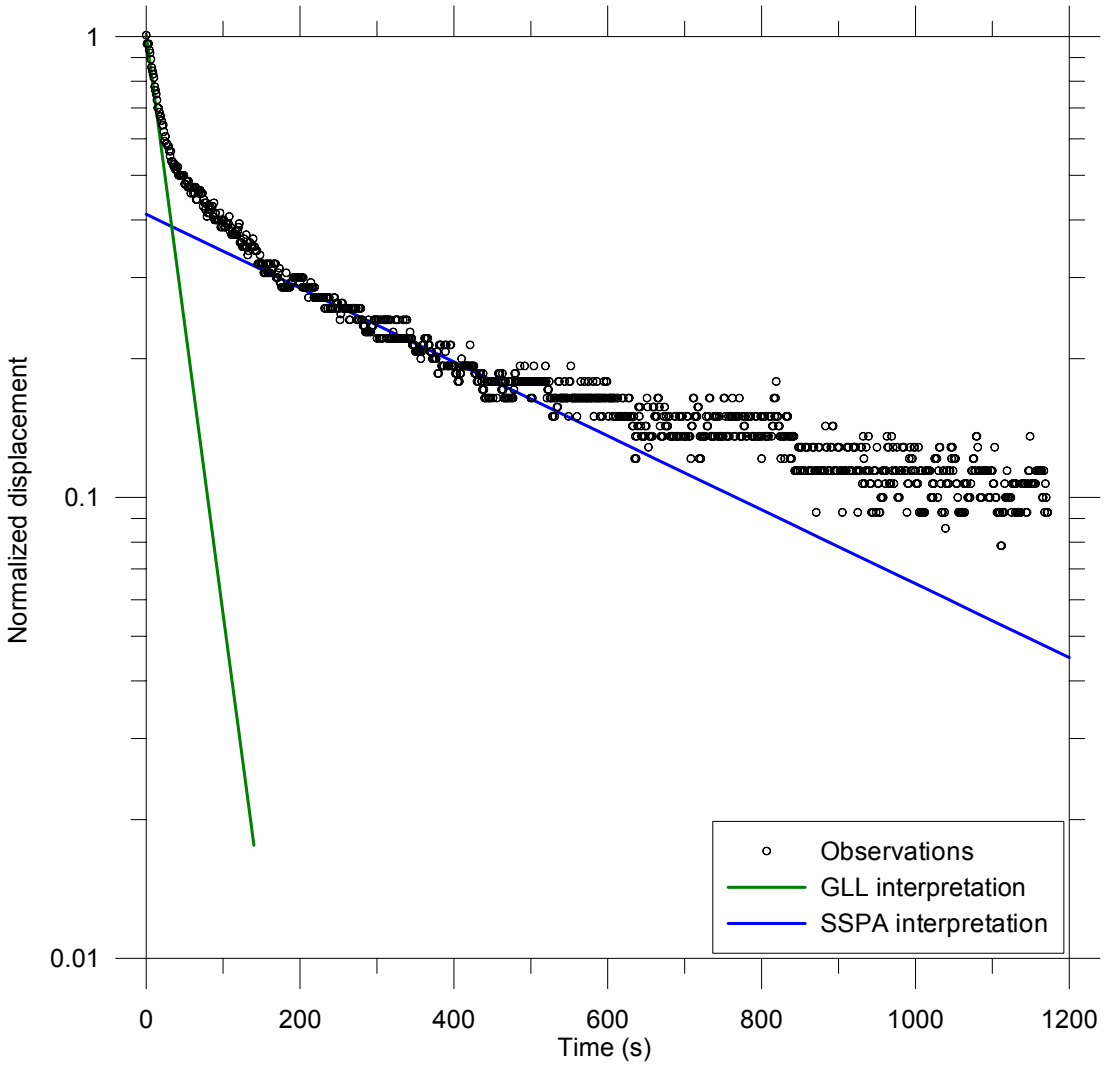


Figure 2. Comparison of analyses for slug test MWB1-I-A

3. Additional review comments on the slug test results

We have also included a column with comments on Table 1. We have applied three designations to non-ideal tests: Oscillatory; Uncertain; and Limited reliability.

The designation "Oscillatory" refers to those responses in which the water level in the well oscillates following the initial displacement. These are referred to as underdamped responses. An example response is shown in Figure 3. Underdamped responses can be interpreted to estimate hydraulic conductivity, and in opinion Gartner Lee Ltd.'s analyses are appropriate for these cases. We have called attention to these responses because they are characteristic of locations with relatively high hydraulic conductivity.

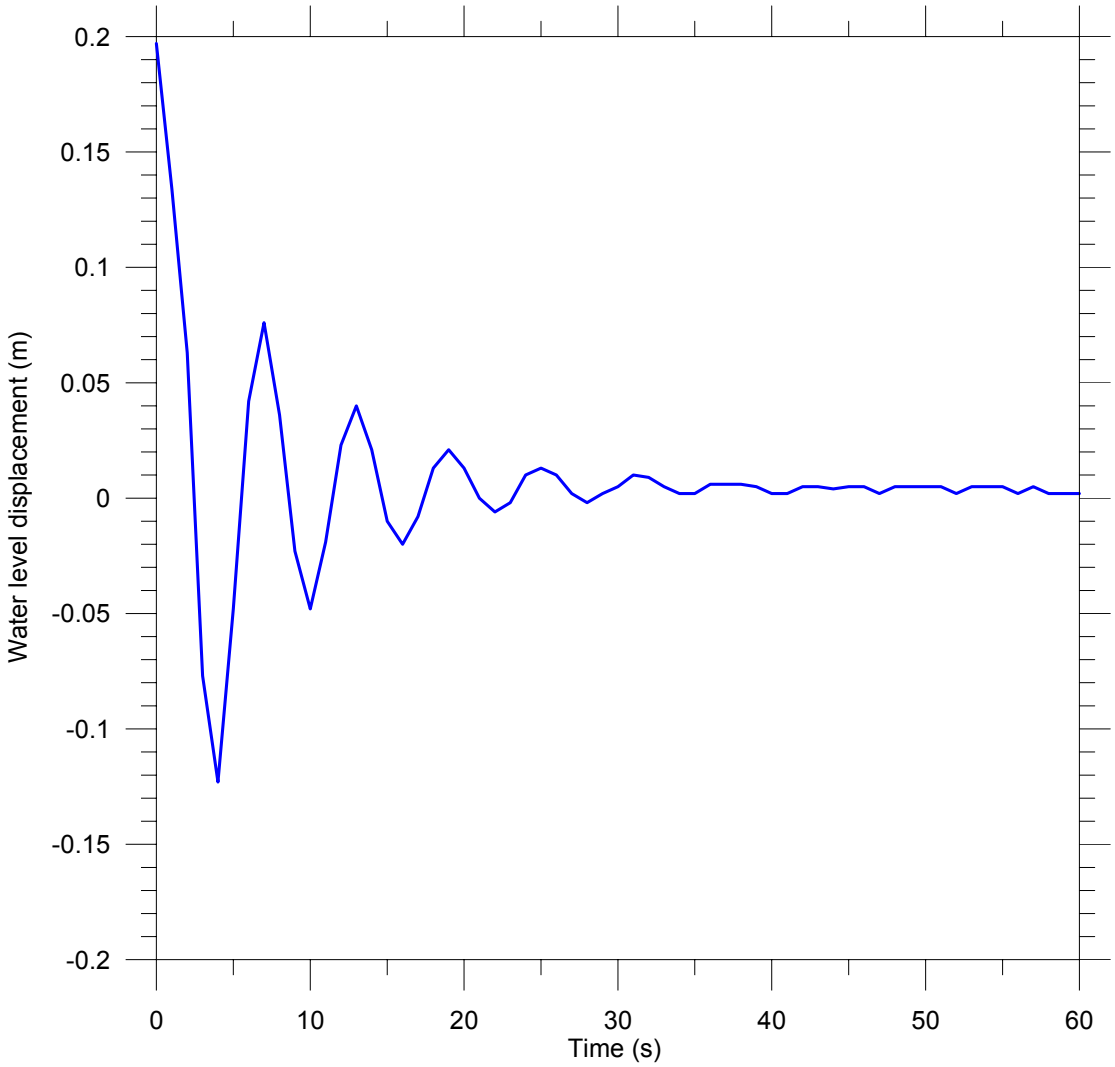


Figure 3. Comparison of analyses for slug test MWB7-II-A

Tests in which the static level is within the screened interval of the well are marked as "Uncertain". The slug tests were executed by adding a known volume of water to the well, and wells that are open across the water table are likely to be affected significantly by drainage above the water table. The response observed at a well that is open above the water is reproduced in Figure 4. The responses appears to be reliable; however, it is important to note that the maximum observed displacement is 0.29 m, which is a relatively small fraction of the theoretical head rise of 1.96 m. The initial displacement was created by pouring 4 L of water down the well. Based on the observed response, only about 0.5 L of the water was injected into the saturated formation.

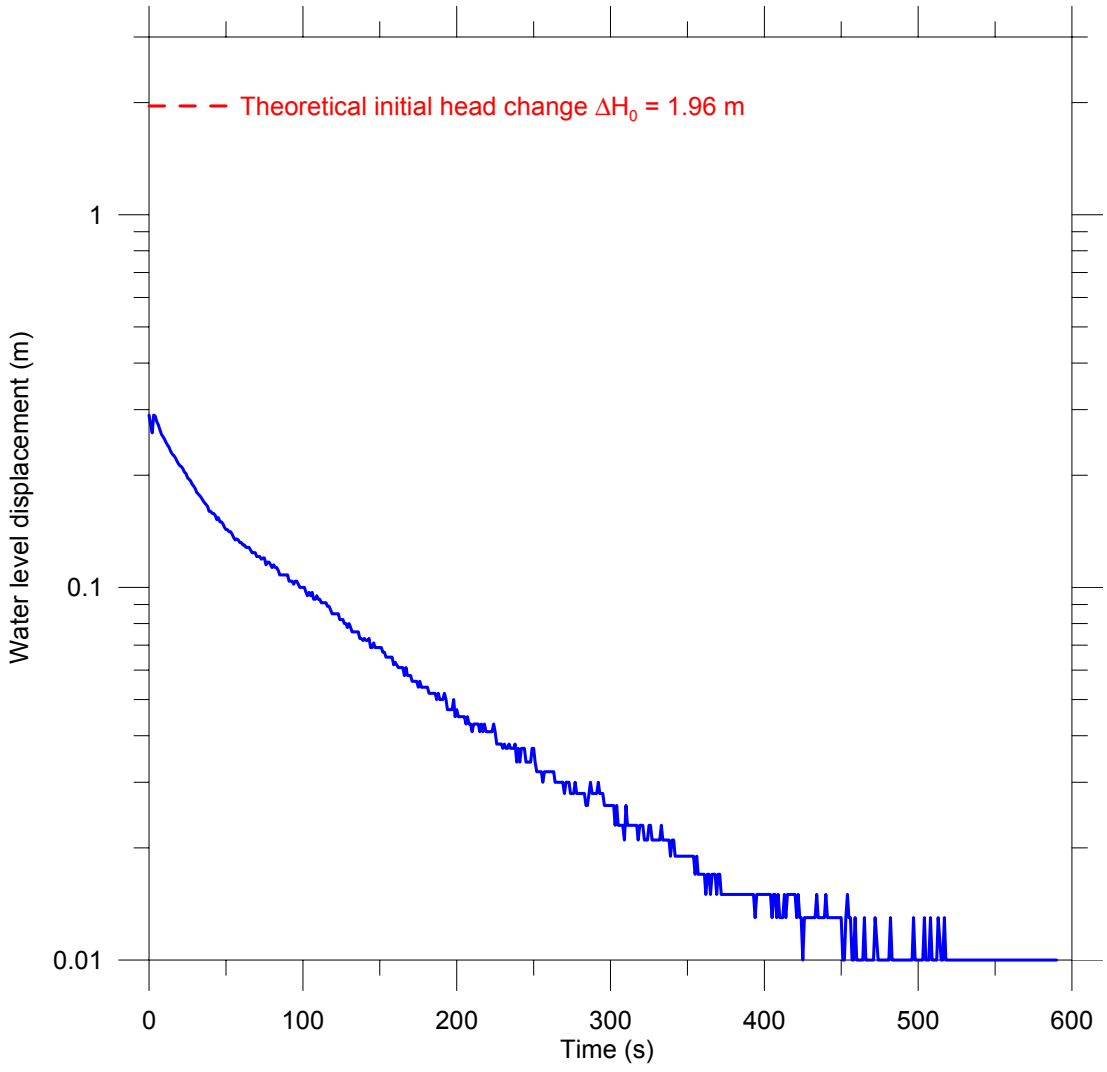


Figure 4. Slug test response for MWB7-I-A

Tests in which the responses are erratic are marked on Table 1 as “Limited reliability”. We have used this designation to identify tests that in our opinion do not support a reliable estimation of the hydraulic conductivity. An example of one of these responses is shown in Figure 5.

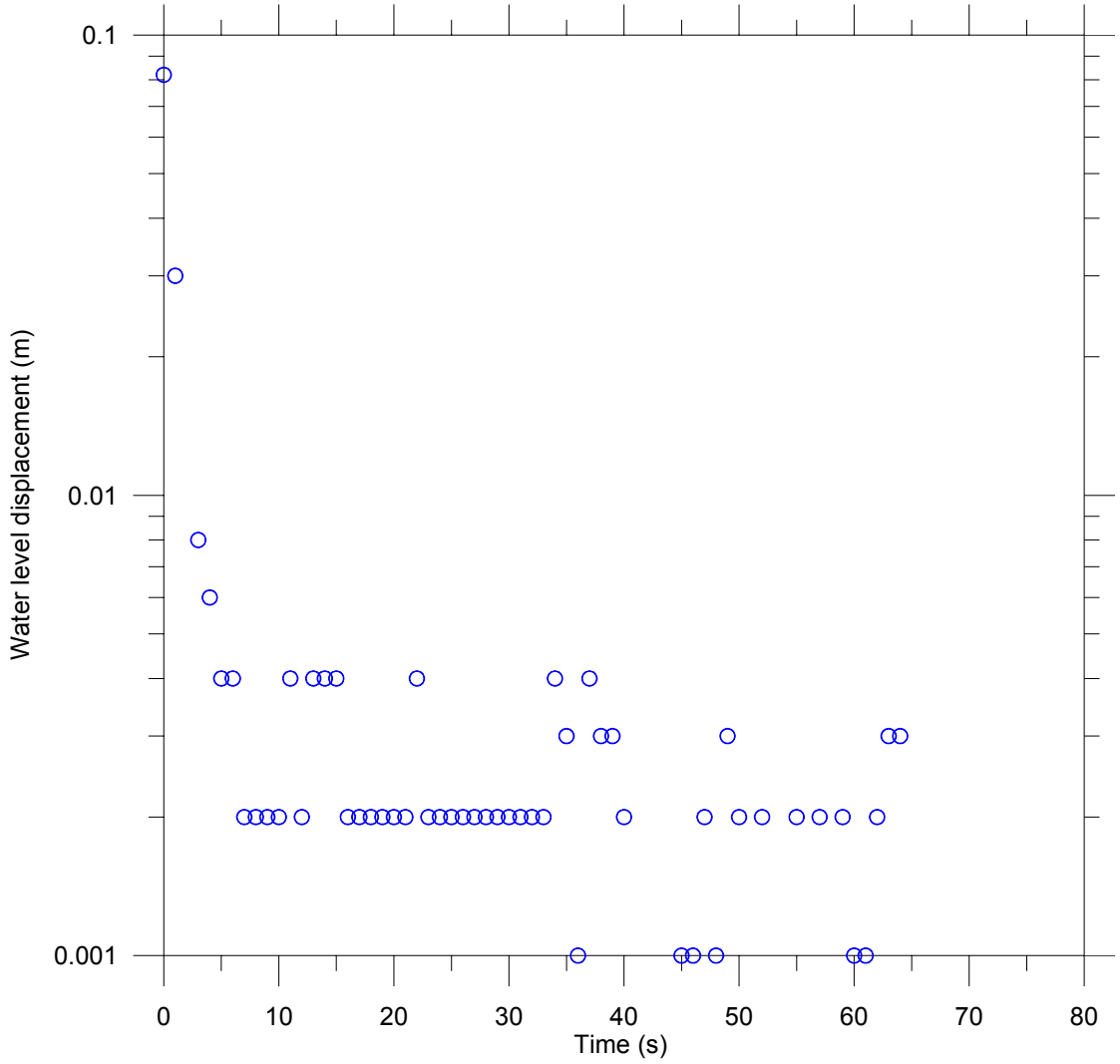


Figure 5. Slug test response for MWB8-I-A

4. Statistical distribution of slug test results

The cumulative probability of the hydraulic conductivities estimated from the slug tests is plotted in Figure 6. A shown in the figure, the $\log_{10}$ hydraulic conductivity values closely approximate a straight line, suggesting that hydraulic conductivity is lognormally distributed at the site.

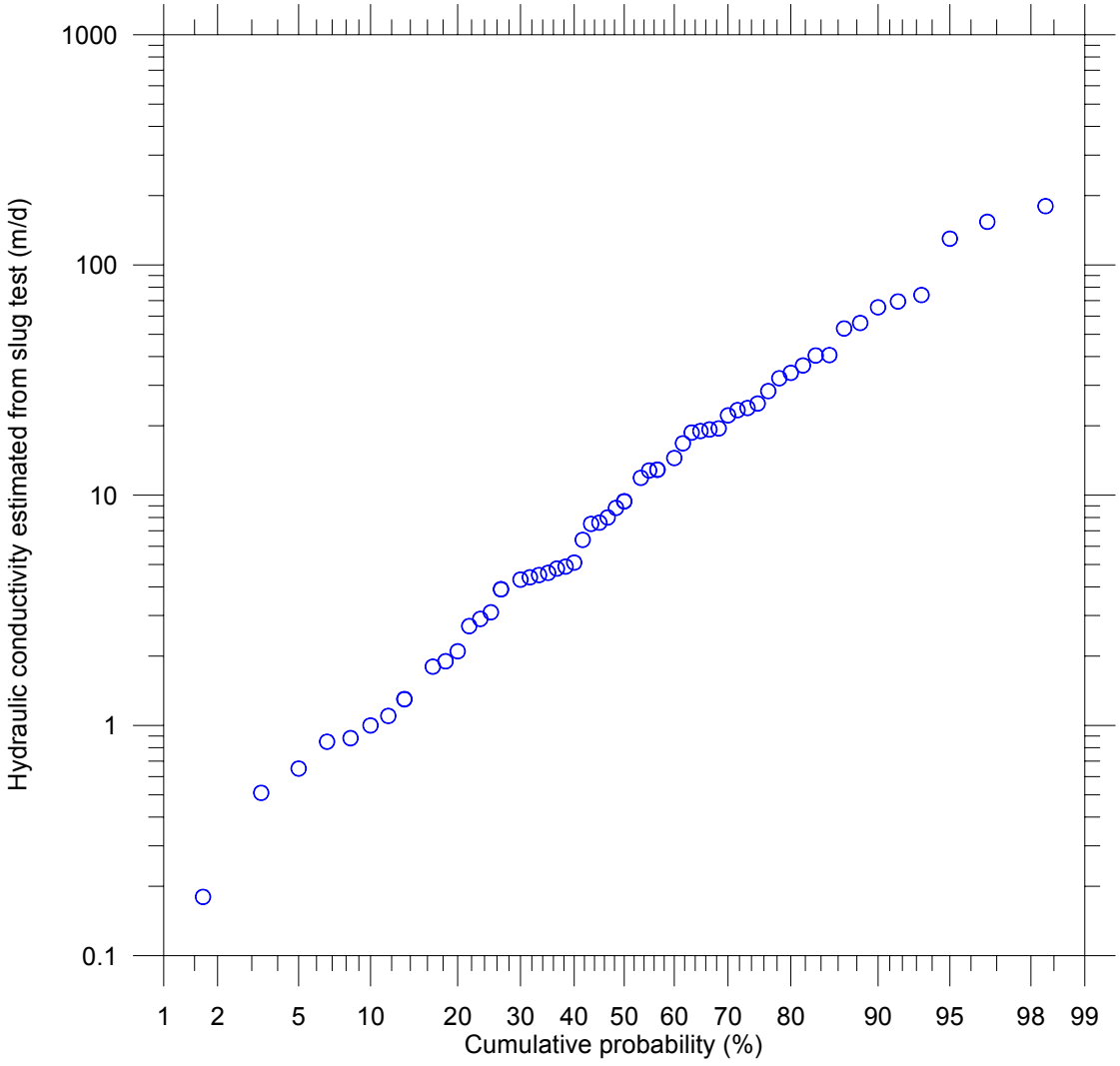


Figure 6. Cumulative probability plot, SSPA K estimates from slug tests

5. References

Bouwer, H. and R.C. Rice, 1976: A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, *Water Resources Research*, 12(3), pp. 423-428.

Butler, J.J., Jr., 1998: **The Design, Performance, and Analysis of Slug Tests**, Lewis Publishers, Boca Raton, Florida, 252 p.

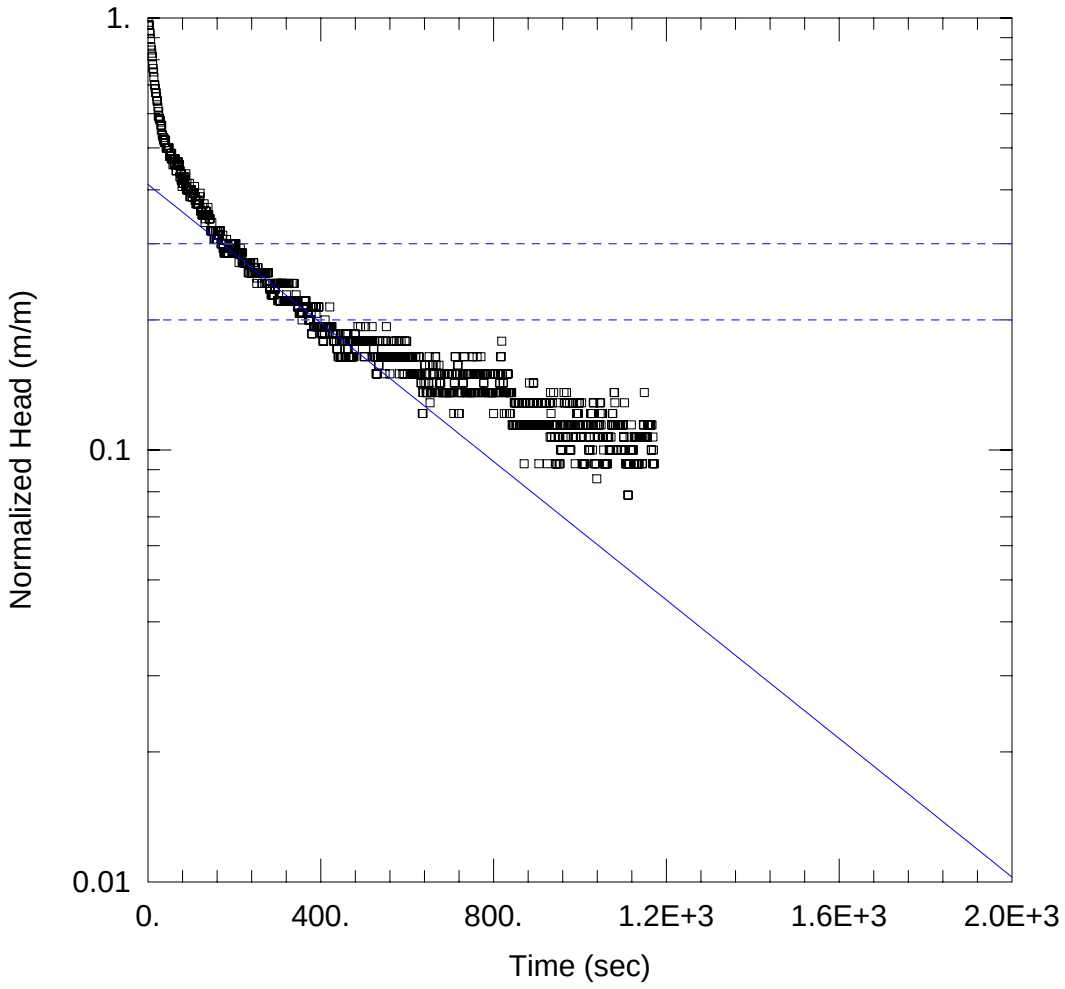
Table 1 Comparison of slug test interpretations

Borehole	Monitoring well ID	Hydraulic conductivity (m/day)		SSPA Comments
		Gartner Lee	SSPA	
MWB1-I	MWB1-I-A	0.82	1.8	Uncertain
	MWB1-II-B	5.79	8.0	
	MWB1-II-C	0.16	0.18	
MWB3	MWB3-A	2.16	2.1	
	MWB3-B	17.74	11.9	Oscillatory
MWB4-I	MWB4-I-A	16.8	3.9	Uncertain
MWB4-II	MWB4-II-B	9.88	14.5	
	MWB4-II-C	1.89	3.1	
MWB6-I	MWB6-II-B	15.0	22.2	Limited reliability
	MWB6-II-C	3.07	4.5	
MWB7-I	MWB7-I-A	1.17	4.8	Uncertain
MWB7-II	MWB7-II-B	143	130	Oscillatory
	MWB7-II-C	2.29	3.9	
MWB8-I	MWB8-I-A	32.8	19.5	Uncertain and limited reliability
MWB8-II	MWB8-II-B	54.2	53	Oscillatory
	MWB8-II-C	8.64	23.9	
MWB9-I	MWB9-I-A	1.3	7.6	Uncertain
MWB9-II	MWB9-II-B	0.802	1.3	
MWB10-I	MWB10-I-A	3.7	9.4	
	MWB10-I-B	3.67	4.6	
	MWB10-I-C	36.3	32.2	Oscillatory, poor fit
MWB11	MWB11-A	18.8	65.5	
	MWB11-B	6.29	19.3	Limited reliability
	MWB11-C	26.2	40.6	Oscillatory
MWB12	MWB12-A	13	7.5	Limited reliability
	MWB12-B	182	154	Oscillatory
	MWB12-C	1.65	1.9	
MWB13	MWB13-A	17.1	34	Uncertain and Limited reliability
	MWB13-B	5.34	28.3	
	MWB13-C	3.28	4.9	
MWB17	MWB17-A	2.94	2.7	Uncertain
	MWB17-B	5.88	16.8	
MWB18	MWB18-A	3.28	9.4	
	MWB18-B	17.6	23.4	Oscillatory
MWB19	MWB19-B	31.3	36.6	Oscillatory
MWB20-I	MWB20-I-A	9.1E-2	0.51	Uncertain
MWB20-II	MWB20-II-B	2.94	5.1	
	MWB20-II-C	48.8	56	Oscillatory

Table 1 Comparison of slug test interpretations (Continued)

Borehole Name	Monitoring well ID	Hydraulic conductivity (m/day)		SSPA Comments
		Gartner Lee	SSPA	
MWB21	MWB21-A	159	180	Oscillatory
	MWB21-B	2.07	4.3	
MWB22-I	MWB22-I-A	1.62	1.1	
	MWB22-I-C	17.9	25	Oscillatory
MWB22-II	MWB22-II-B	4.67	12.8	Limited reliability
	MWB22-II-D	62.6	69.4	Oscillatory
MWB23-I	MWB23-I-A	0.81	1.0	
MWB23-II	MWB23-II-B	40.8	12.9	Limited reliability
	MWB23-II-C	6.48	40.4	
MWB24-I	MWB24-I-B	3.78	8.8	
MWB24-II	MWB24-II-C	87.3	74.	Oscillatory, poor fit
	MWB24-II-D	0.44	0.65	
MWB25-I	MWB25-I-A	0.67	0.85	Uncertain
MWB25-II	MWB25-II-B	2.38	4.4	
MWB25-III	MWB25-III-C	2.68	2.9	
	MWB25-III-D	1.47	6.4	
MWB26-I	MWB26-I-B	0.51	0.88	
MWB26-II	MWB26-II-C	5.45	12.9	
	MWB26-II-D	0.85	1.3	
MWB27-I	MWB27-I-A	9.94	19	
MWB27-II	MWB27-II-B	7.35	18.7	

APPENDIX



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB1-1-A.aqt
Date: 01/08/08 Time: 15:19:25

PROJECT INFORMATION

Test Well: MWB1-I-A

AQUIFER DATA

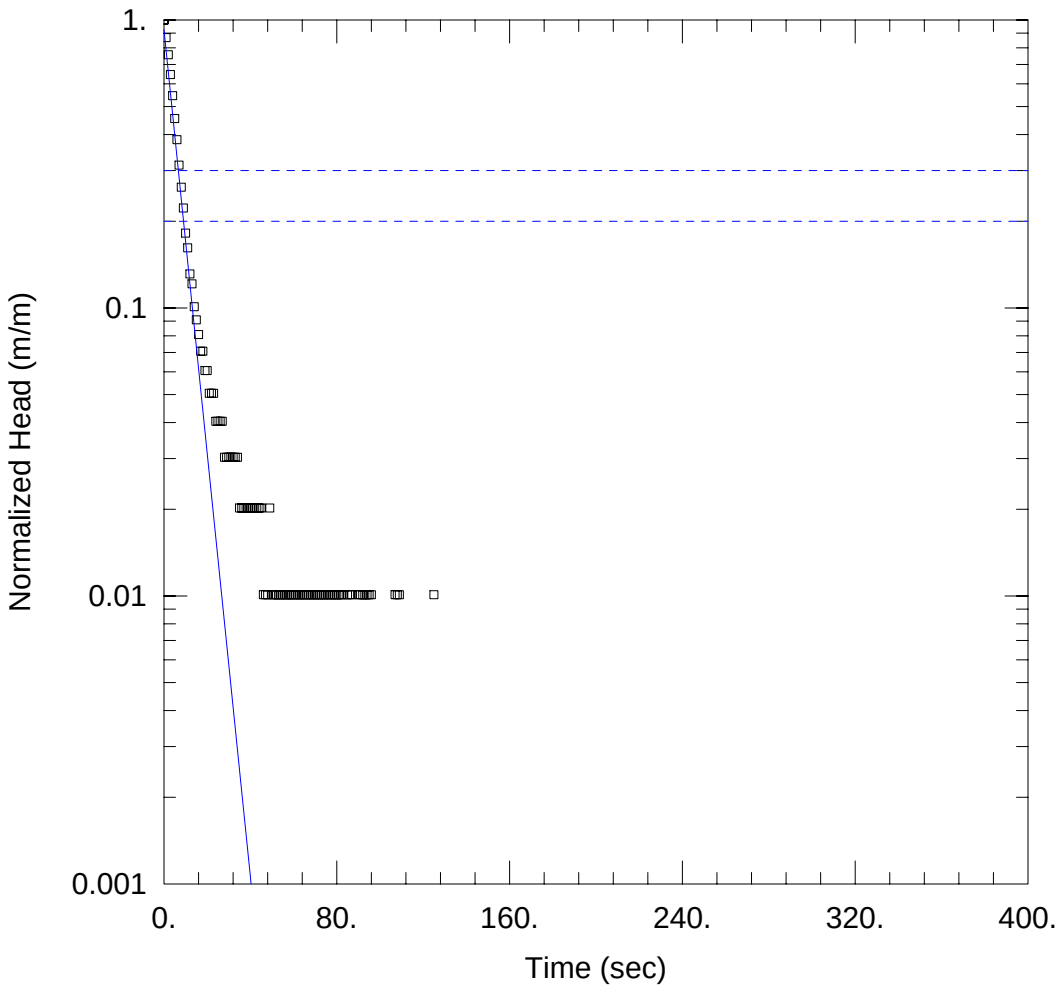
Saturated Thickness: 3.13 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB1-I-A)

Initial Displacement: 0.14 m
Total Well Penetration Depth: 3.13 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.13 m
Screen Length: 3.13 m
Well Radius: 0.051 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.779 m/day
y0 = 0.05763 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB1-II-B.aqt
Date: 01/08/08 Time: 15:20:51

PROJECT INFORMATION

Test Well: MWB1-II-B

AQUIFER DATA

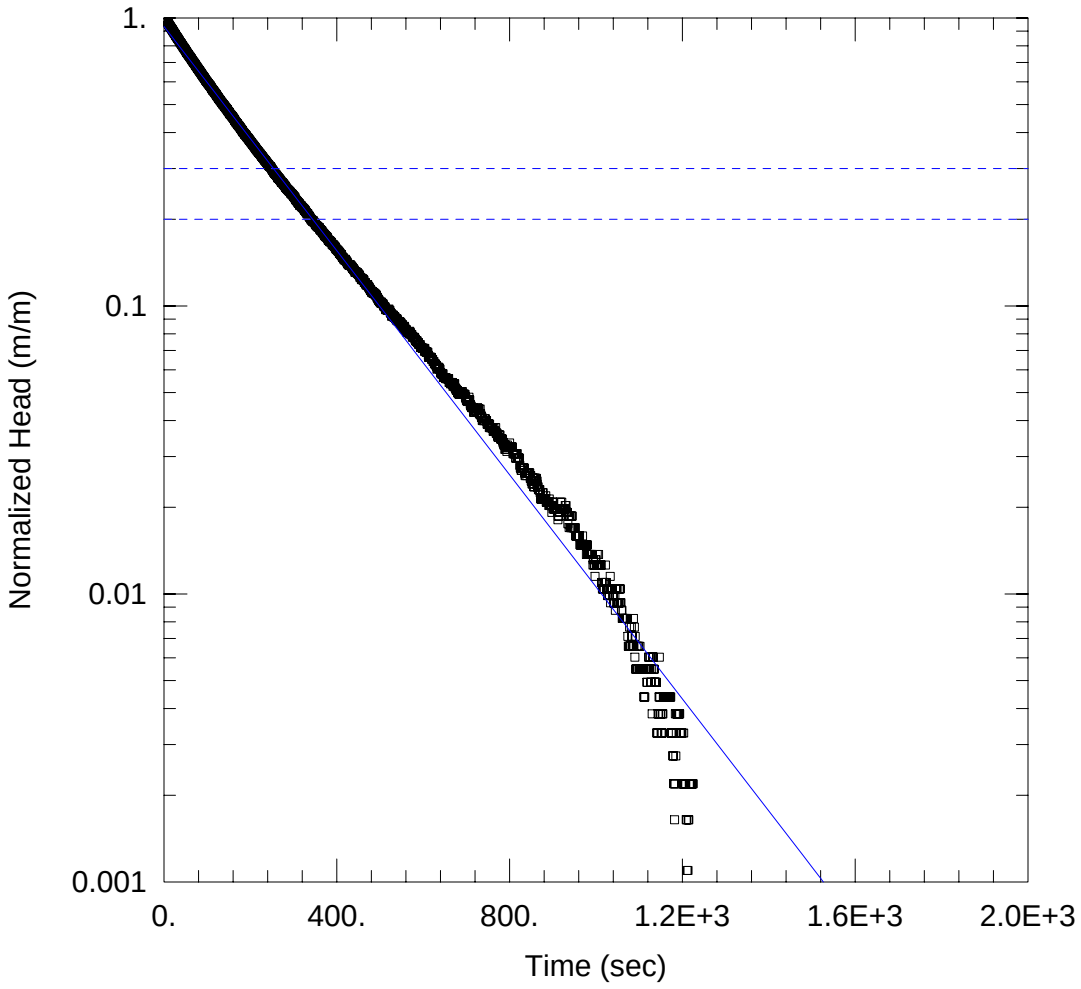
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB1-II-B)

Initial Displacement: 0.99 m
Total Well Penetration Depth: 16.33 m
Casing Radius: 0.0255 m
Static Water Column Height: 16.33 m
Screen Length: 3.05 m
Well Radius: 0.051 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 8.026 m/day
y0 = 0.915 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB1-II-C.aqt
Date: 01/08/08 Time: 15:21:25

PROJECT INFORMATION

Test Well: MWB1-II-C

AQUIFER DATA

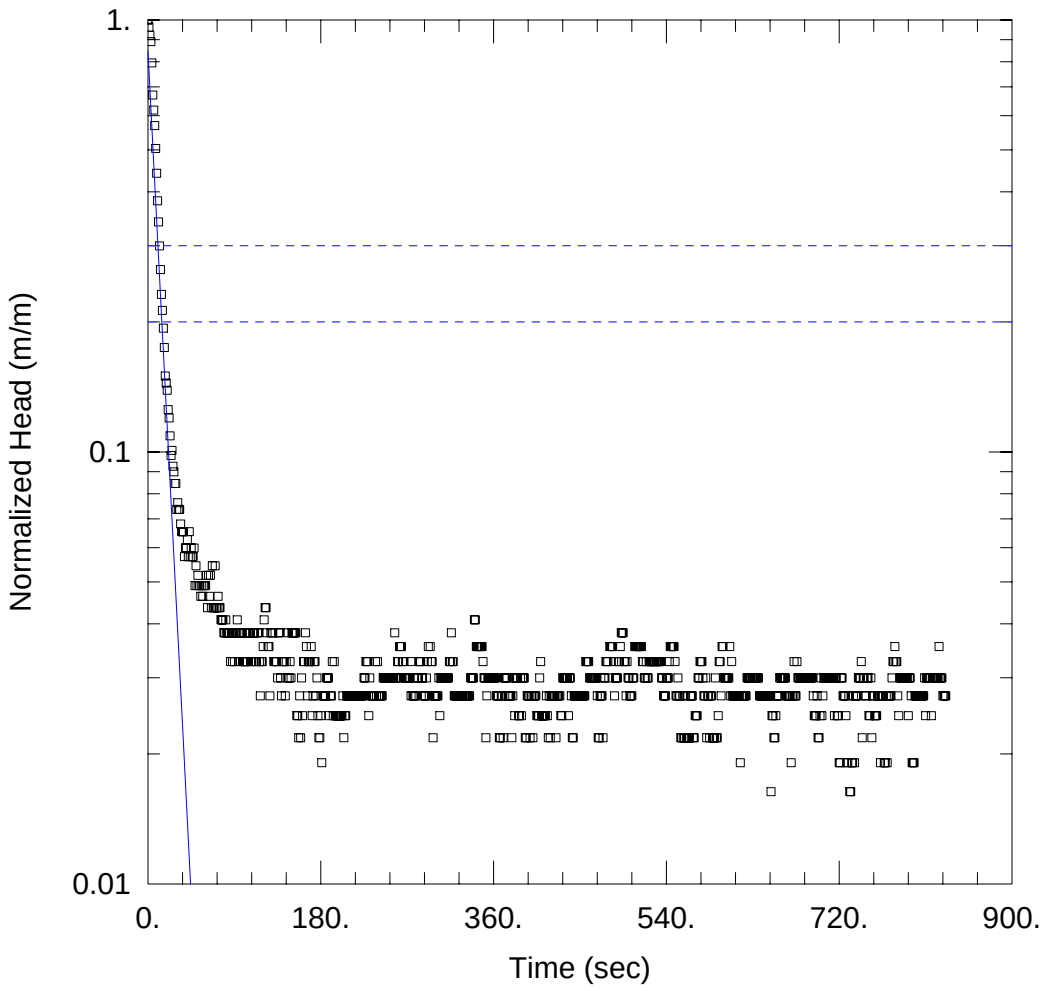
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB1-II-C)

Initial Displacement: 1.825 m
Total Well Penetration Depth: 28.4 m
Casing Radius: 0.0255 m
Static Water Column Height: 28.4 m
Screen Length: 3.05 m
Well Radius: 0.051 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.1843 m/day
y0 = 1.704 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB3-A.aqt
Date: 01/08/08 Time: 15:22:31

PROJECT INFORMATION

Test Well: MWB3-A

AQUIFER DATA

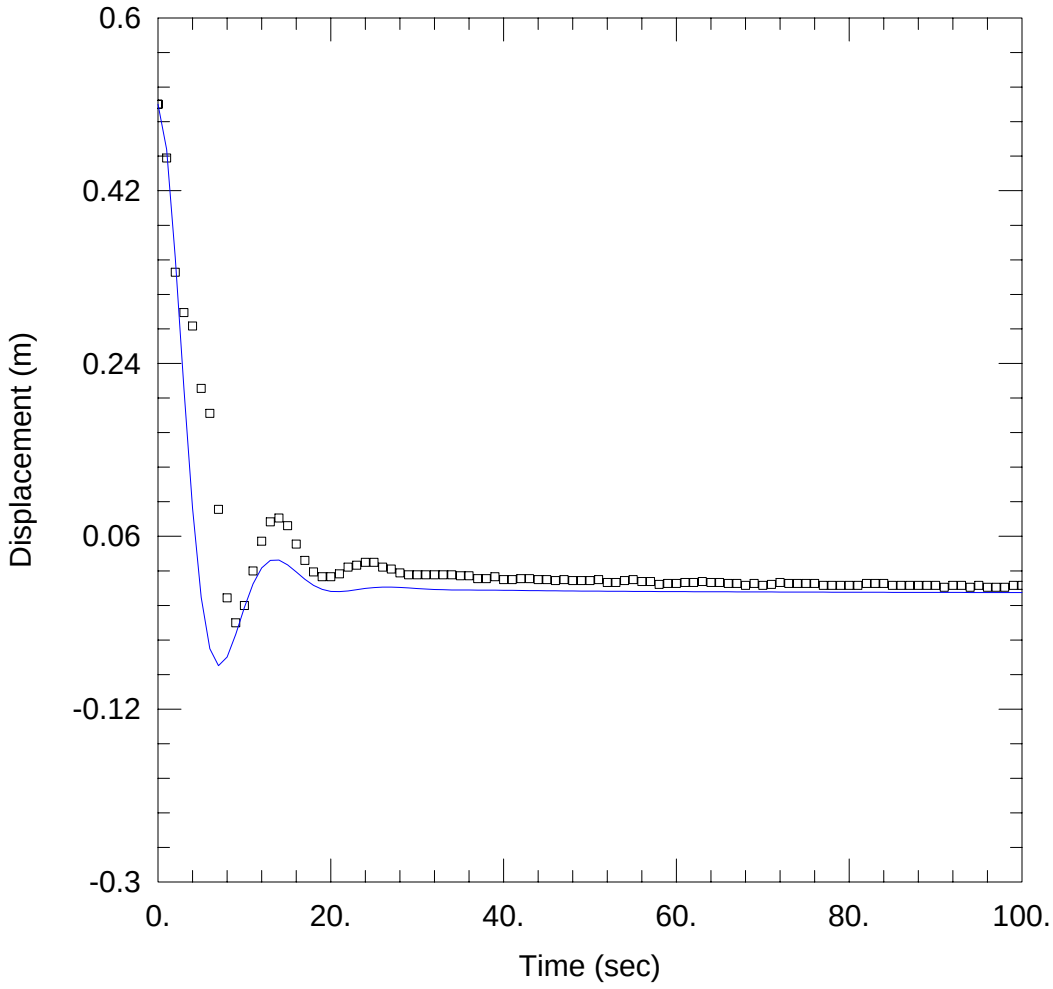
Saturated Thickness: 6.1 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB3-A)

Initial Displacement: 0.367 m
Total Well Penetration Depth: 10.44 m
Casing Radius: 0.0255 m
Static Water Column Height: 10.43 m
Screen Length: 6.1 m
Well Radius: 0.0255 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 2.139 m/day
y0 = 0.31 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB3-B.aqt
Date: 01/08/08 Time: 15:23:19

PROJECT INFORMATION

Test Well: MWB3-B

AQUIFER DATA

Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.09333

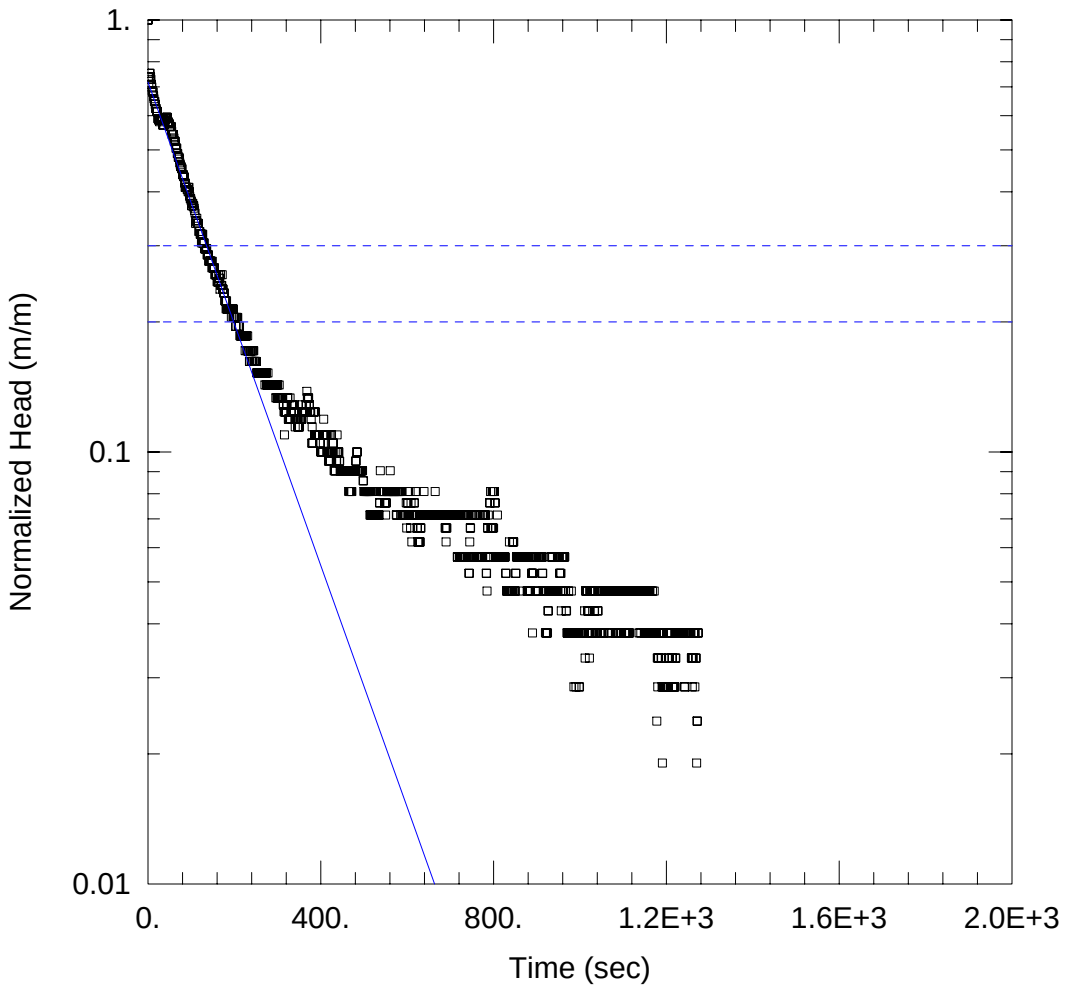
WELL DATA (MWB3-B)

Initial Displacement: 0.51 m
Total Well Penetration Depth: 29.46 m
Casing Radius: 0.0255 m
Static Water Column Height: 29.46 m
Screen Length: 4.57 m
Well Radius: 0.0255 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler-Zhan

Kr = 11.87 m/day
Kz/Kr = 0.09333
Le(o) = 27.18 m
Ss = 0.000403 m^{-1}
Le = 47.75 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB4-A-1.aqt
Date: 01/08/08 Time: 15:24:41

PROJECT INFORMATION

Test Well: MWB4-I-A

AQUIFER DATA

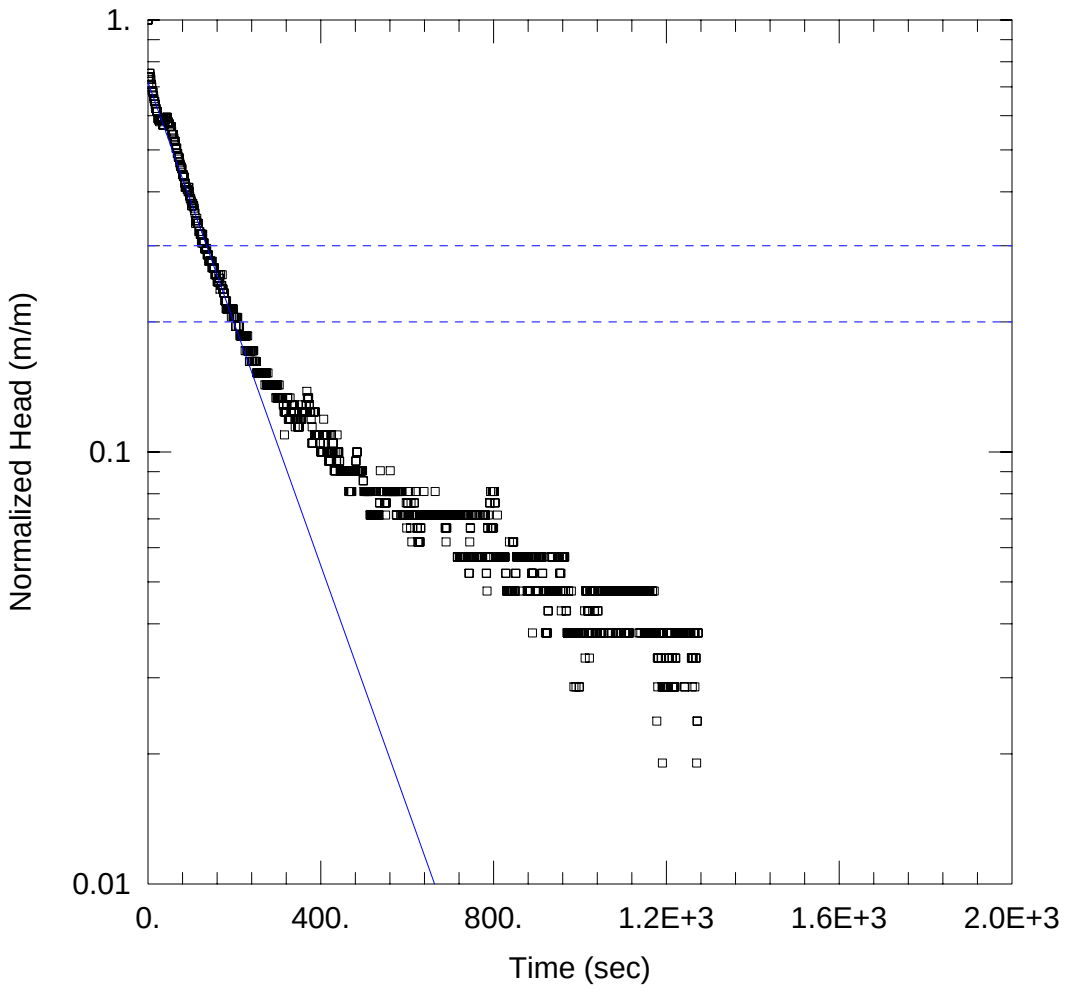
Saturated Thickness: 1.8 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-I-A)

Initial Displacement: 0.21 m
Total Well Penetration Depth: 1.8 m
Casing Radius: 0.0255 m
Static Water Column Height: 1.8 m
Screen Length: 1.8 m
Well Radius: 0.0349 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.945 m/day
y0 = 0.1508 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB4-A-1.aqt
Date: 01/08/08 Time: 13:21:41

PROJECT INFORMATION

Test Well: PW3

AQUIFER DATA

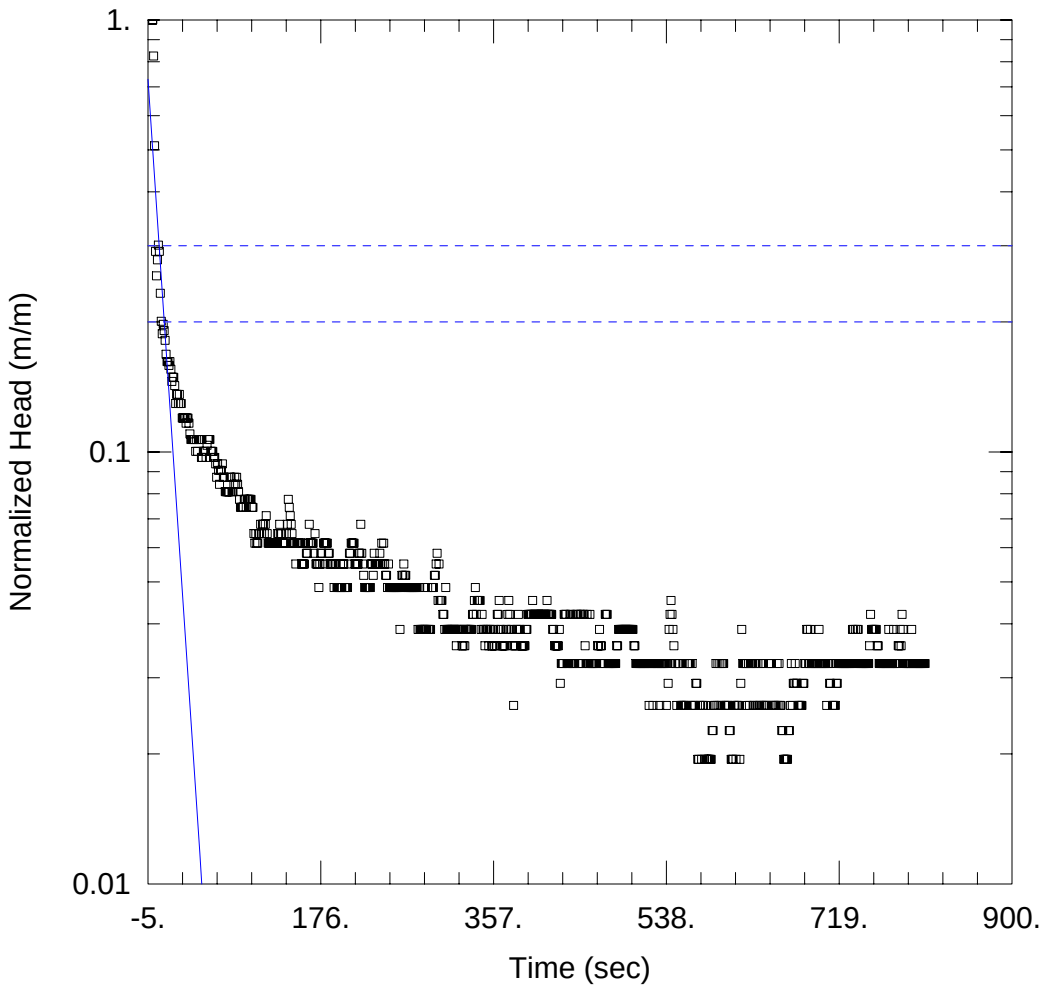
Saturated Thickness: 1.8 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-I-A)

Initial Displacement: 0.21 m
Total Well Penetration Depth: 1.8 m
Casing Radius: 0.0255 m
Static Water Column Height: 1.8 m
Screen Length: 1.8 m
Well Radius: 0.0349 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.945 m/day
y0 = 0.1508 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB4-II-B.aqt
Date: 01/08/08 Time: 15:25:10

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB4-II-B

AQUIFER DATA

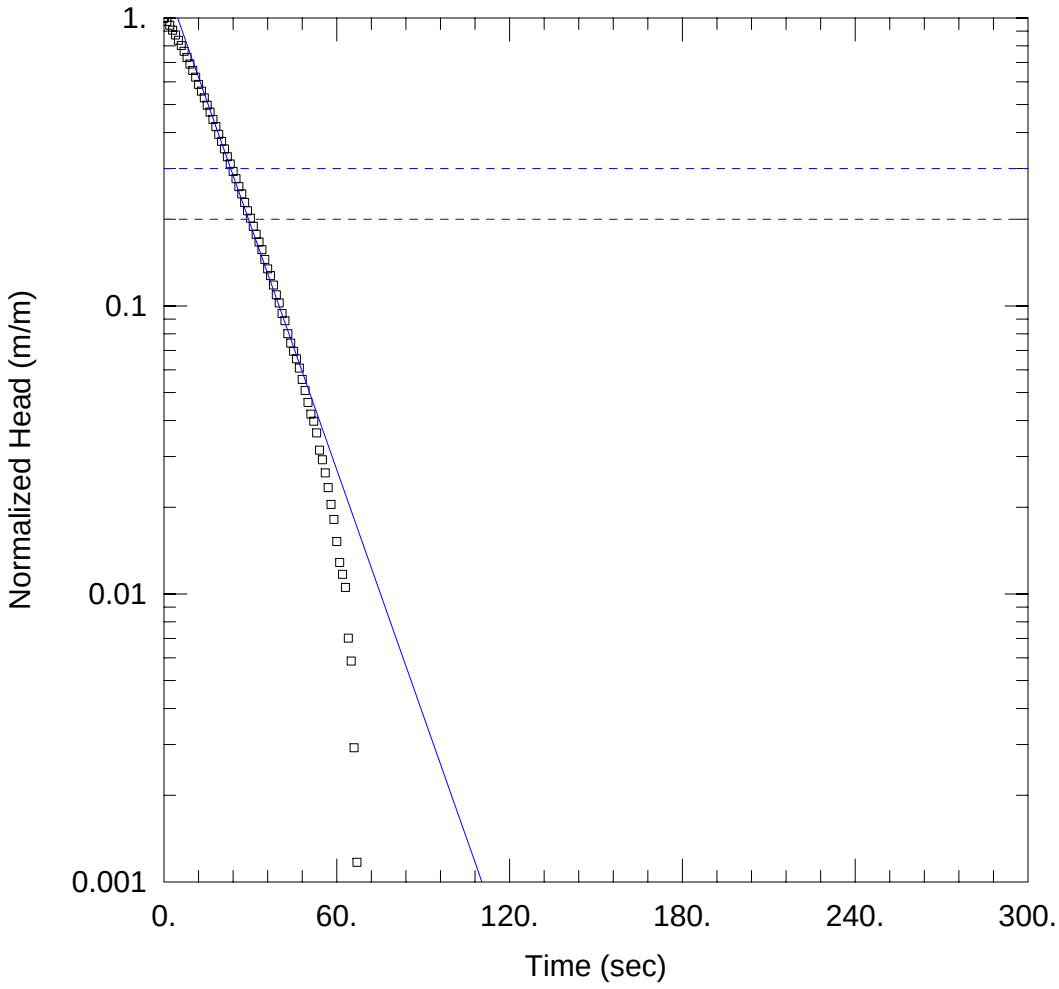
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-II-B)

Initial Displacement: 0.309 m
Total Well Penetration Depth: 8.95 m
Casing Radius: 0.0255 m
Static Water Column Height: 8.95 m
Screen Length: 4.57 m
Well Radius: 0.051 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 14.54 m/day
y0 = 0.154 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB4-II-C.aqt
Date: 01/08/08 Time: 15:25:58

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB4-II-C

AQUIFER DATA

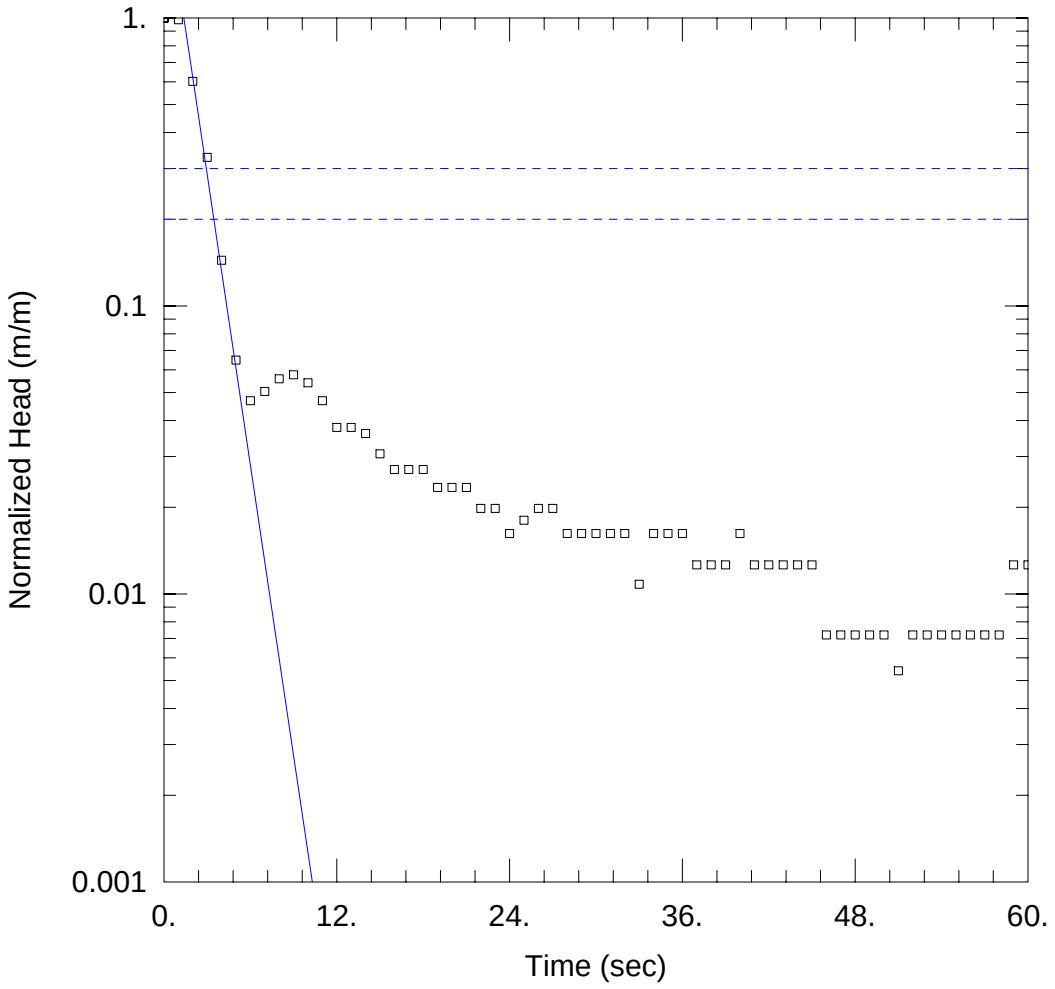
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB4-II-C)

Initial Displacement: 1.71 m
Total Well Penetration Depth: 29.82 m
Casing Radius: 0.0255 m
Static Water Column Height: 29.81 m
Screen Length: 3.05 m
Well Radius: 0.0255 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 3.058 m/day
y0 = 2.33 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB6-II-B.aqt
Date: 01/08/08 Time: 15:26:26

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB6-II-B

AQUIFER DATA

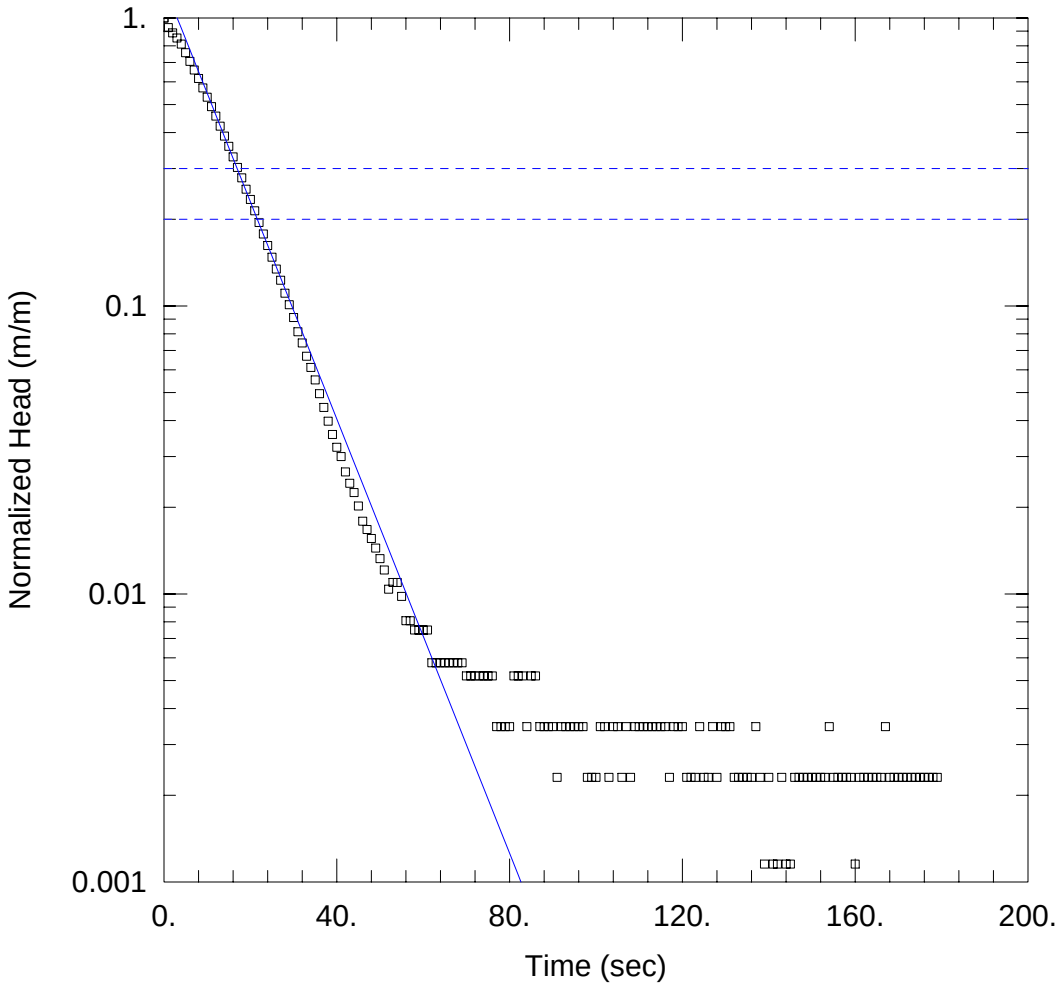
Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB6-II-B)

Initial Displacement: 0.555 m
Total Well Penetration Depth: 15.74 m
Casing Radius: 0.0255 m
Static Water Column Height: 15.74 m
Screen Length: 6.09 m
Well Radius: 0.0255 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 22.22 m/day
y0 = 1.621 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB6-II-C.aqt
Date: 01/08/08 Time: 15:26:54

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB6-II-C

AQUIFER DATA

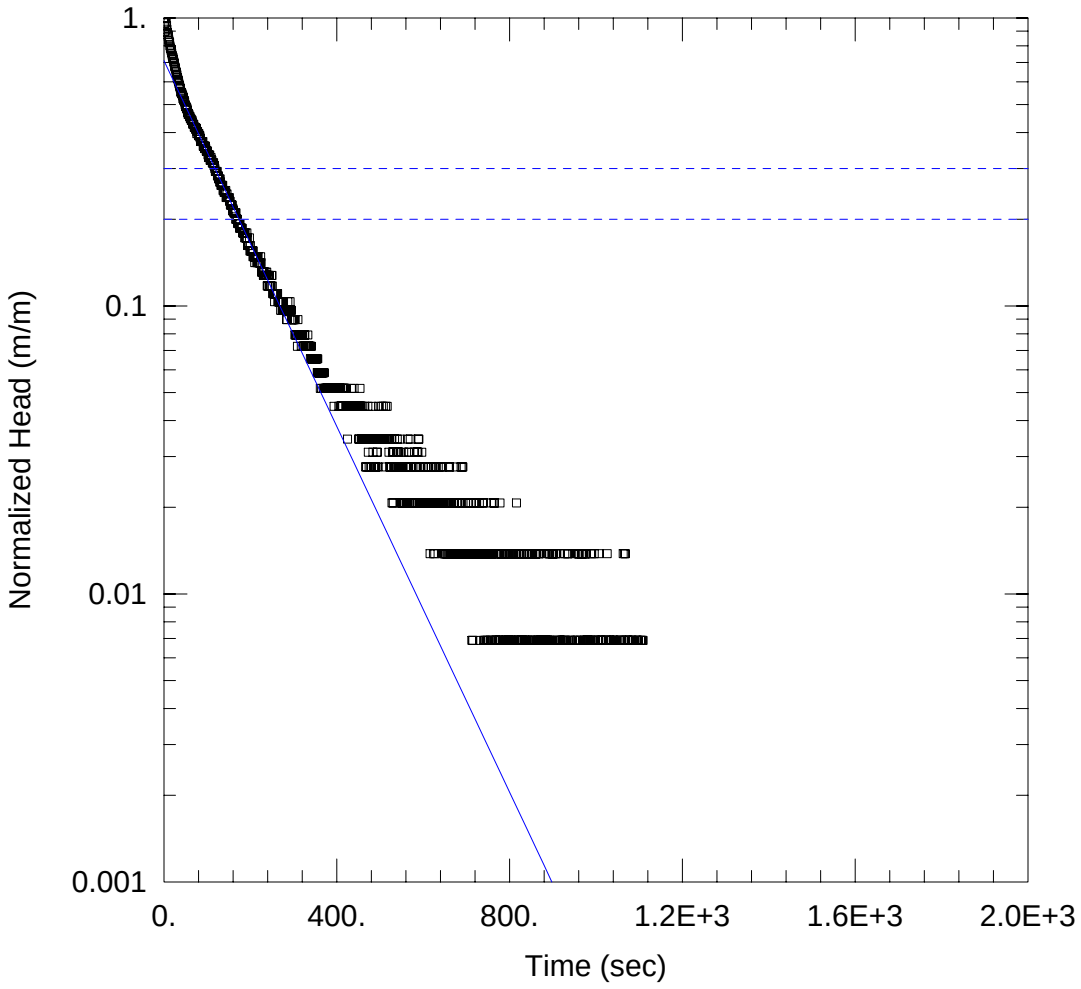
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB6-II-C)

Initial Displacement: 1.734 m
Total Well Penetration Depth: 24.33 m
Casing Radius: 0.0255 m
Static Water Column Height: 24.33 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.485 m/day
y0 = 2.262 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB7-I-A.aqt
Date: 01/08/08 Time: 15:27:33

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB7-I-A

AQUIFER DATA

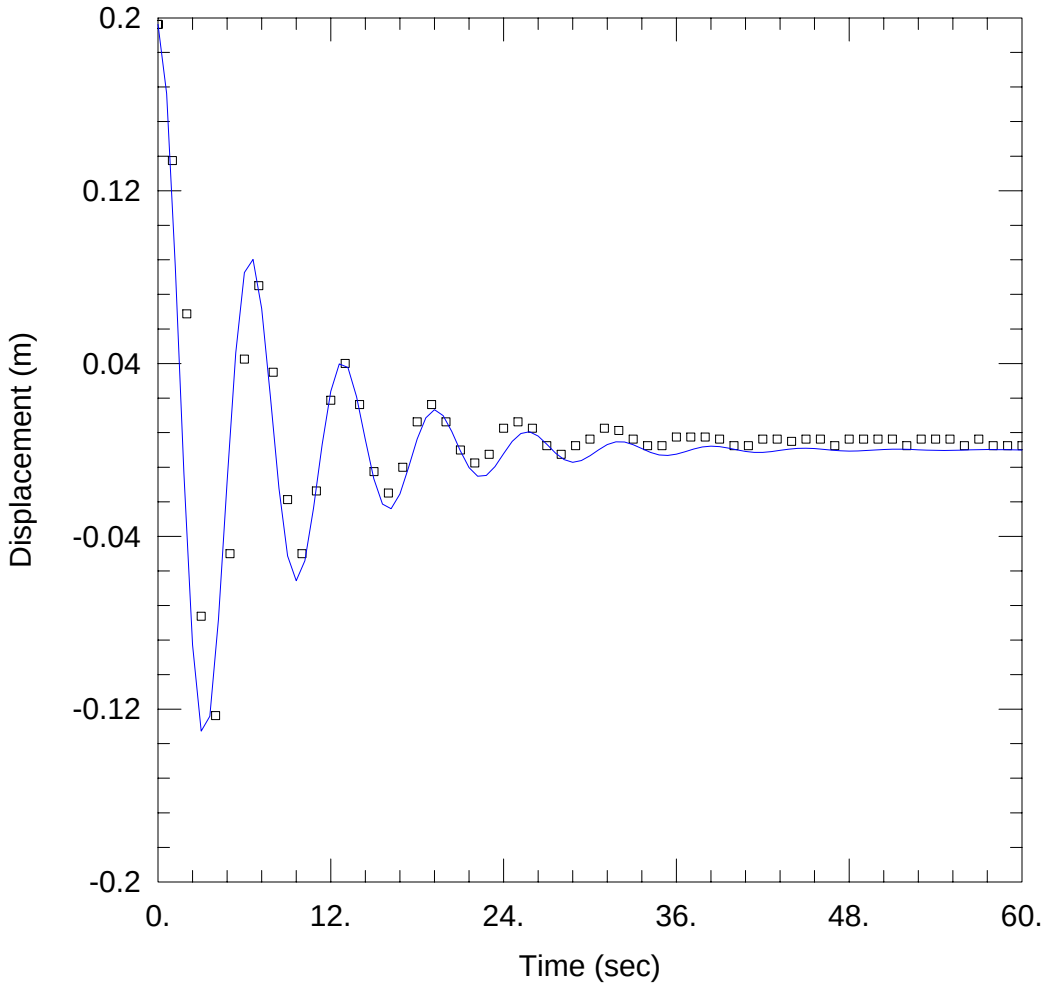
Saturated Thickness: 1.03 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-I-A)

Initial Displacement: 0.29 m
Total Well Penetration Depth: 1.03 m
Casing Radius: 0.0255 m
Static Water Column Height: 1.03 m
Screen Length: 1.03 m
Well Radius: 0.035 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.843 m/day
y0 = 0.2061 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB7-II-B.aqt
Date: 01/08/08 Time: 15:28:02

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB7-II-B

AQUIFER DATA

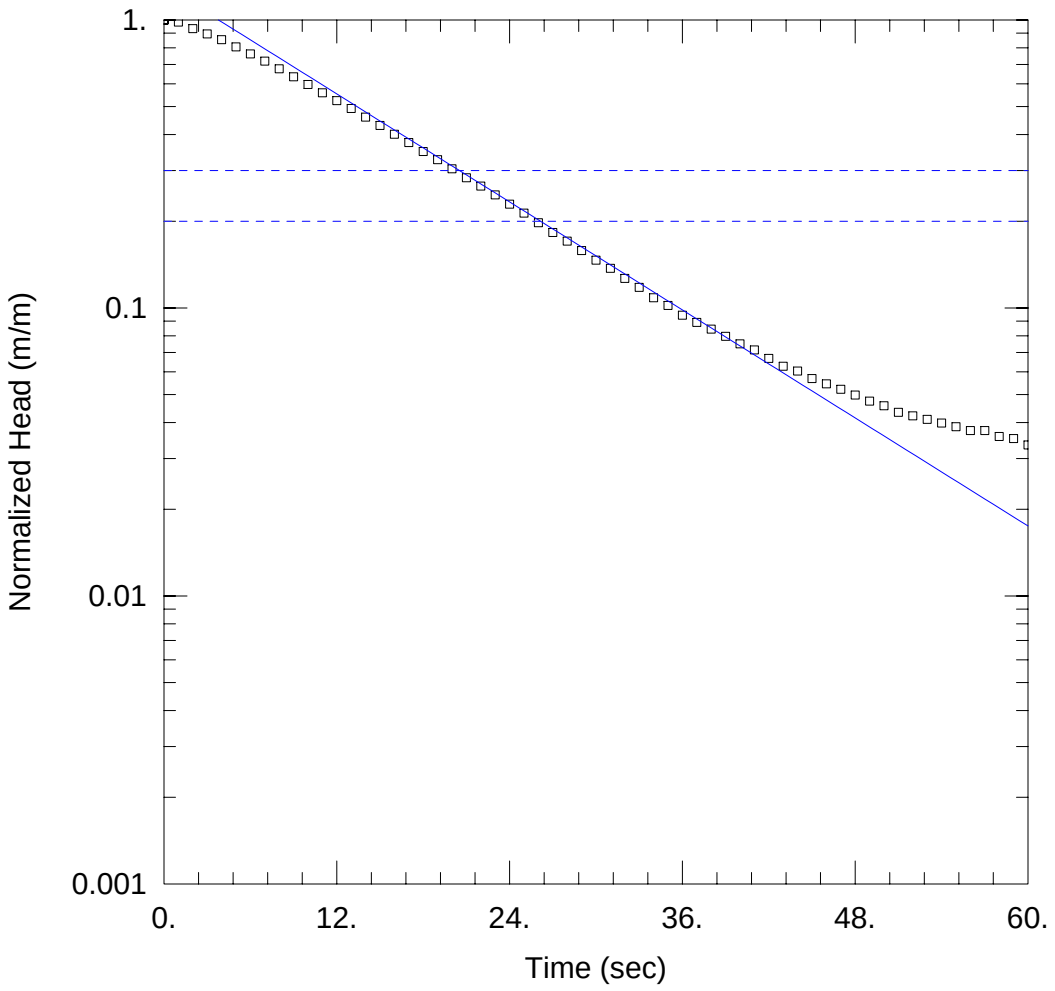
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-II-B)

Initial Displacement: 0.197 m
Total Well Penetration Depth: 11.41 m
Casing Radius: 0.0255 m
Static Water Column Height: 11.41 m
Screen Length: 4.57 m
Well Radius: 0.025 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 129.5 m/day
Le = 10.06 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB7-II-C.aqt
Date: 01/08/08 Time: 15:28:46

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB7-II-C

AQUIFER DATA

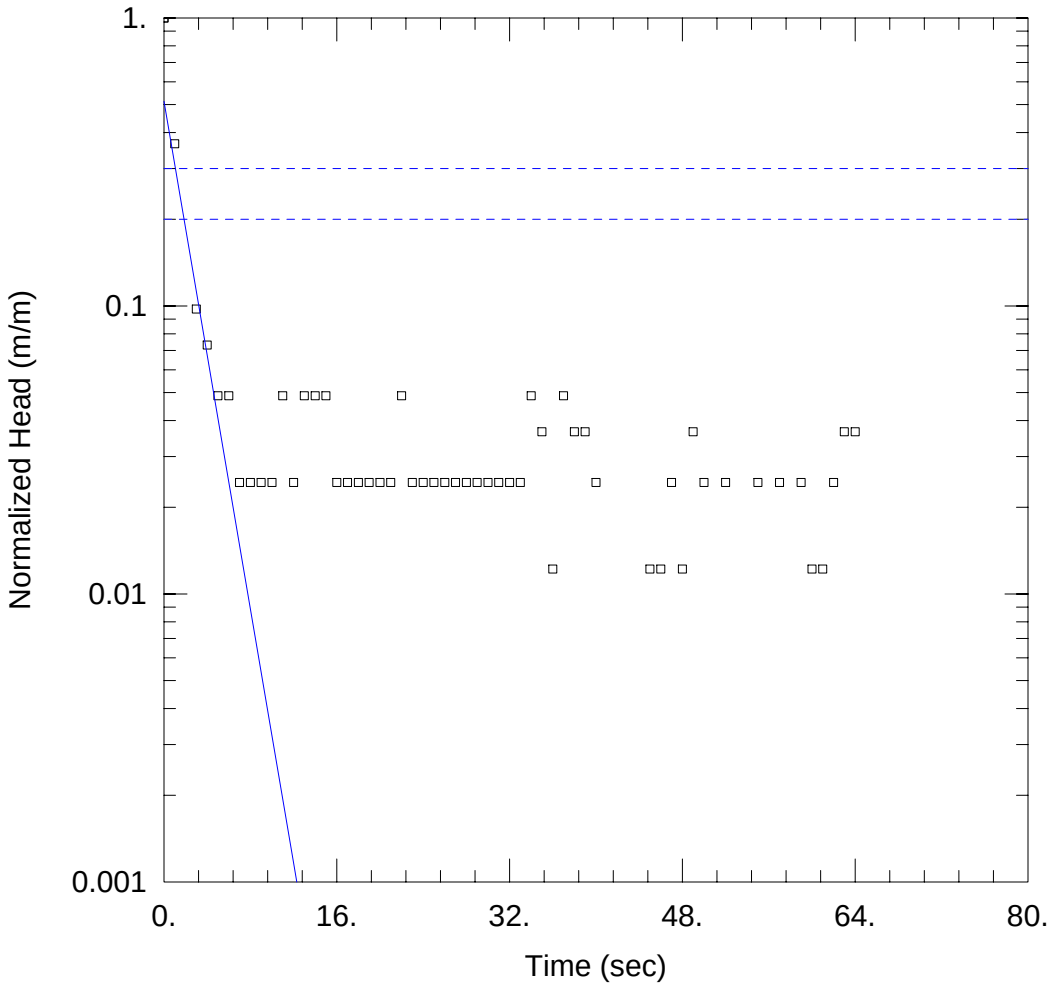
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB7-II-C)

Initial Displacement: 1.706 m
Total Well Penetration Depth: 30.63 m
Casing Radius: 0.0255 m
Static Water Column Height: 30.63 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 3.88 m/day
y0 = 2.24 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB8-I-A.aqt
Date: 01/08/08 Time: 15:29:12

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB8-I-A

AQUIFER DATA

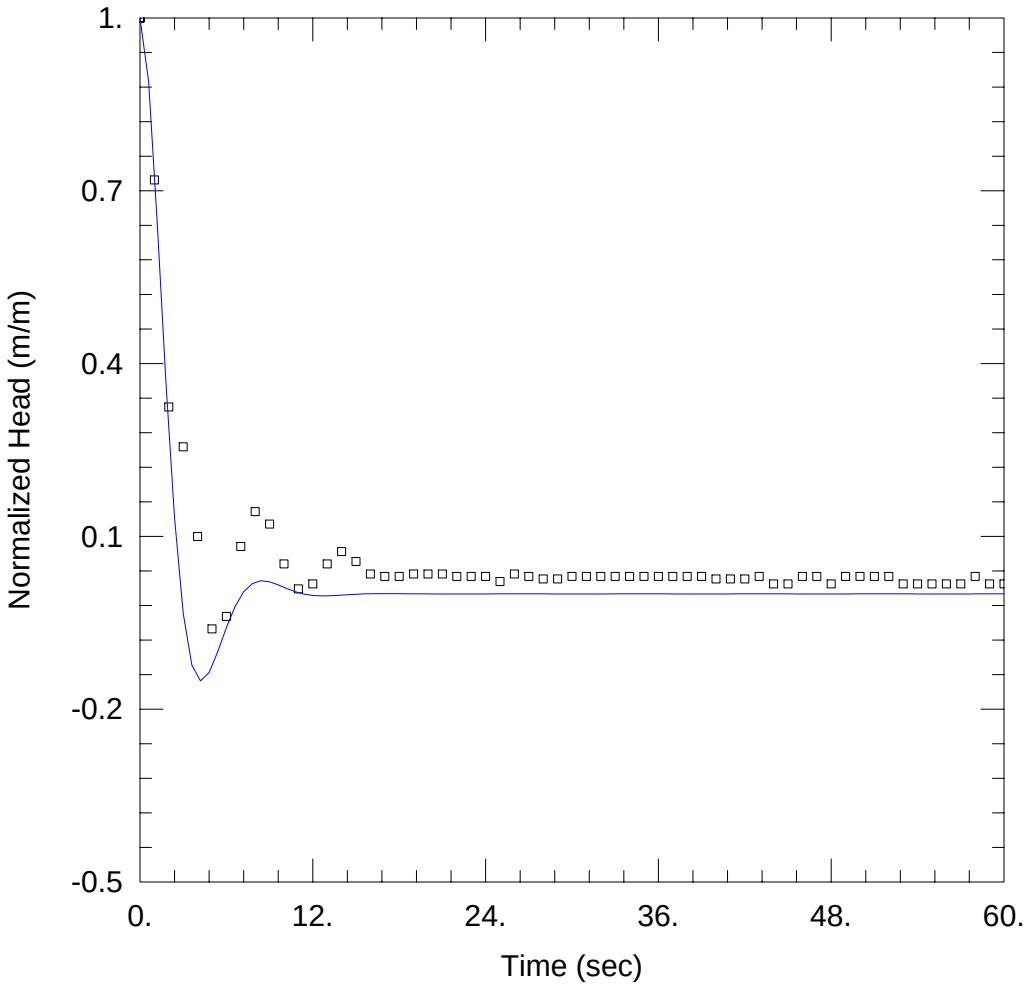
Saturated Thickness: 2.61 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB8-I-A)

Initial Displacement: 0.082 m
Total Well Penetration Depth: 2.61 m
Casing Radius: 0.0255 m
Static Water Column Height: 2.61 m
Screen Length: 2.61 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 19.46 m/day
y0 = 0.04208 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB8-II-B.aqt
Date: 01/08/08 Time: 15:31:03

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB8-II-B

AQUIFER DATA

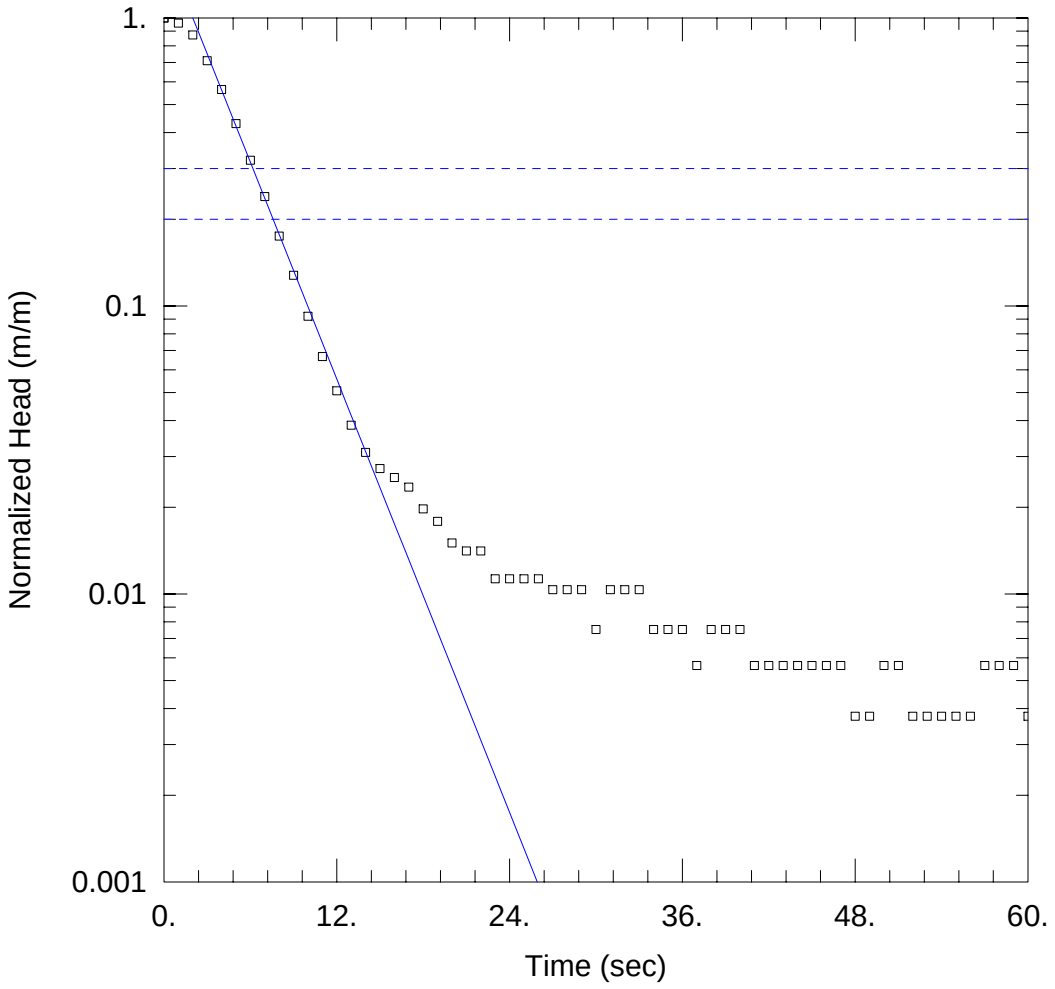
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB8-II-B)

Initial Displacement: 0.231 m
Total Well Penetration Depth: 9.7 m
Casing Radius: 0.026 m
Static Water Column Height: 9.69 m
Screen Length: 3.05 m
Well Radius: 0.026 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 53.05 m/day
Le = 13.13 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB8-II-C.aqt
Date: 01/08/08 Time: 15:31:30

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB8-II-C

AQUIFER DATA

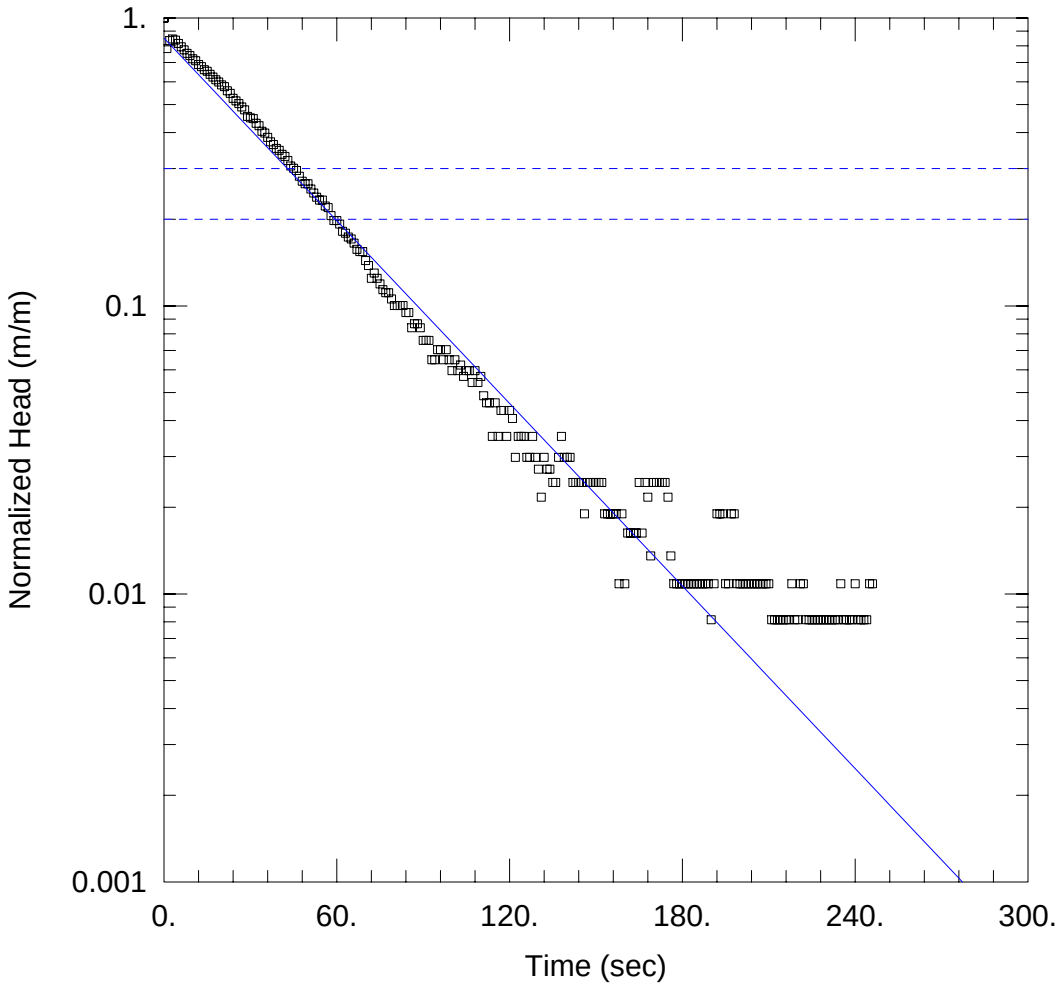
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB8-II-C)

Initial Displacement: 1.064 m
Total Well Penetration Depth: 20.77 m
Casing Radius: 0.0255 m
Static Water Column Height: 20.76 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 23.87 m/day
y0 = 1.898 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB9-I-A.aqt
Date: 01/08/08 Time: 15:31:55

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB9-I-A

AQUIFER DATA

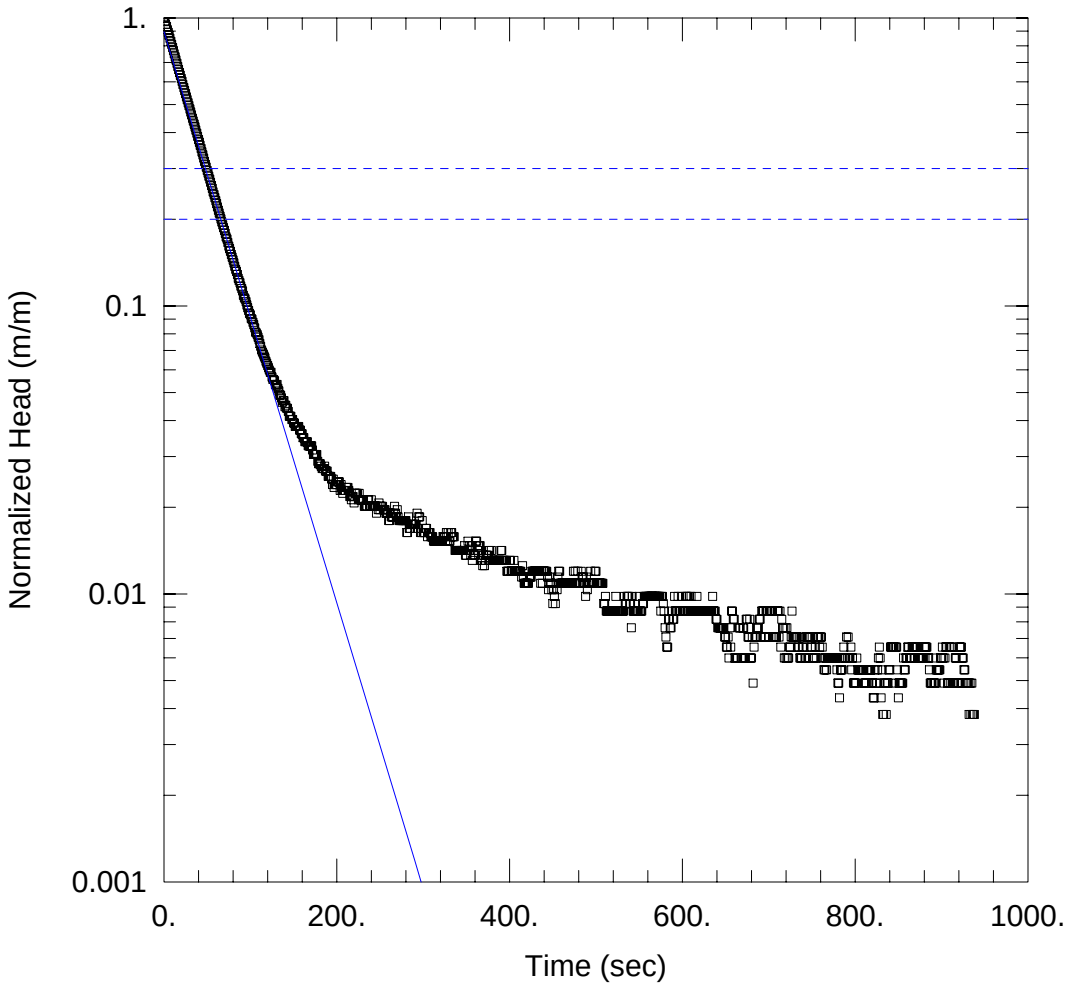
Saturated Thickness: 1.86 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB9-I-A)

Initial Displacement: 0.369 m
Total Well Penetration Depth: 1.86 m
Casing Radius: 0.0255 m
Static Water Column Height: 1.86 m
Screen Length: 1.86 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 7.56 m/day
y0 = 0.3139 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB9-II-B.aqt
Date: 01/08/08 Time: 15:32:31

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB9-II-B

AQUIFER DATA

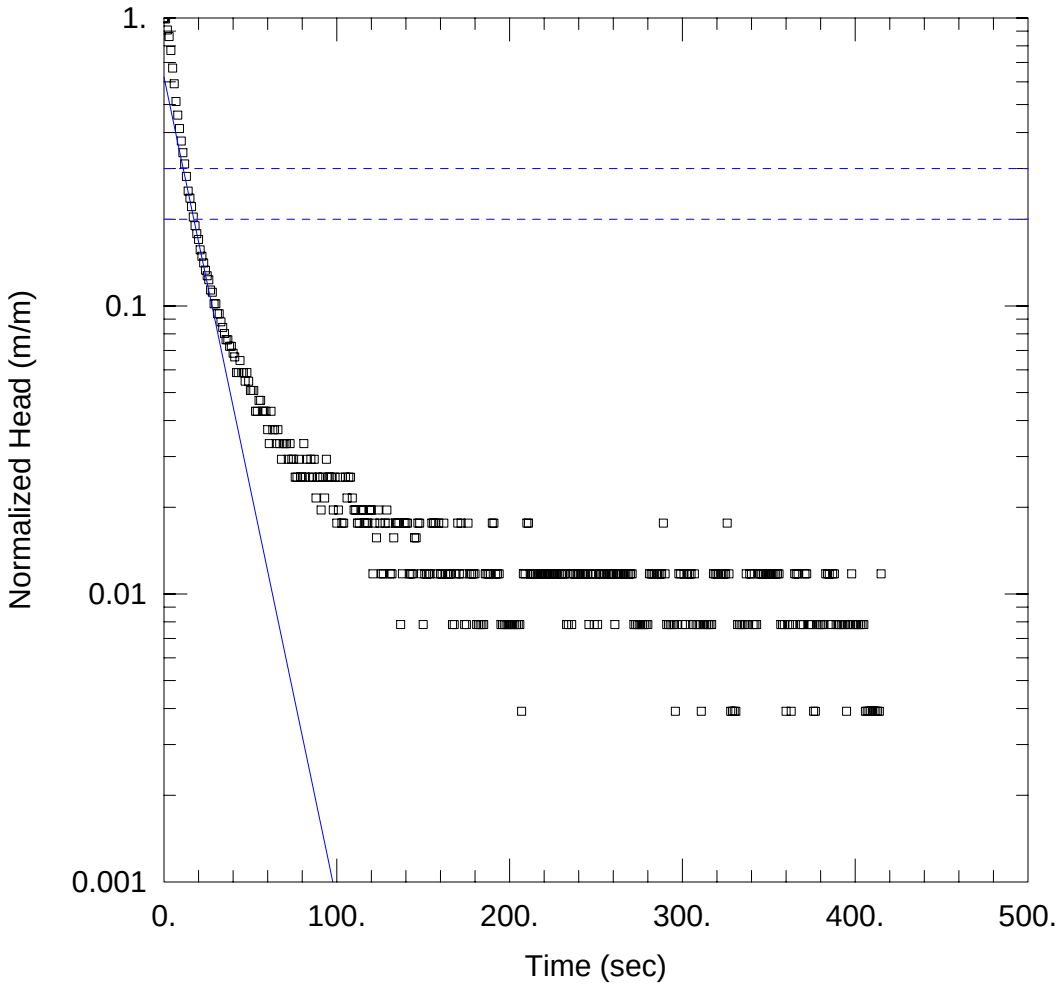
Saturated Thickness: 3.2 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB9-II-B)

Initial Displacement: 1.836 m
Total Well Penetration Depth: 31.72 m
Casing Radius: 0.0255 m
Static Water Column Height: 31.72 m
Screen Length: 3.2 m
Well Radius: 0.035 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 1.278 m/day
y0 = 1.645 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB10-I-A.aqt
Date: 01/08/08 Time: 15:33:46

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB10-I-A

AQUIFER DATA

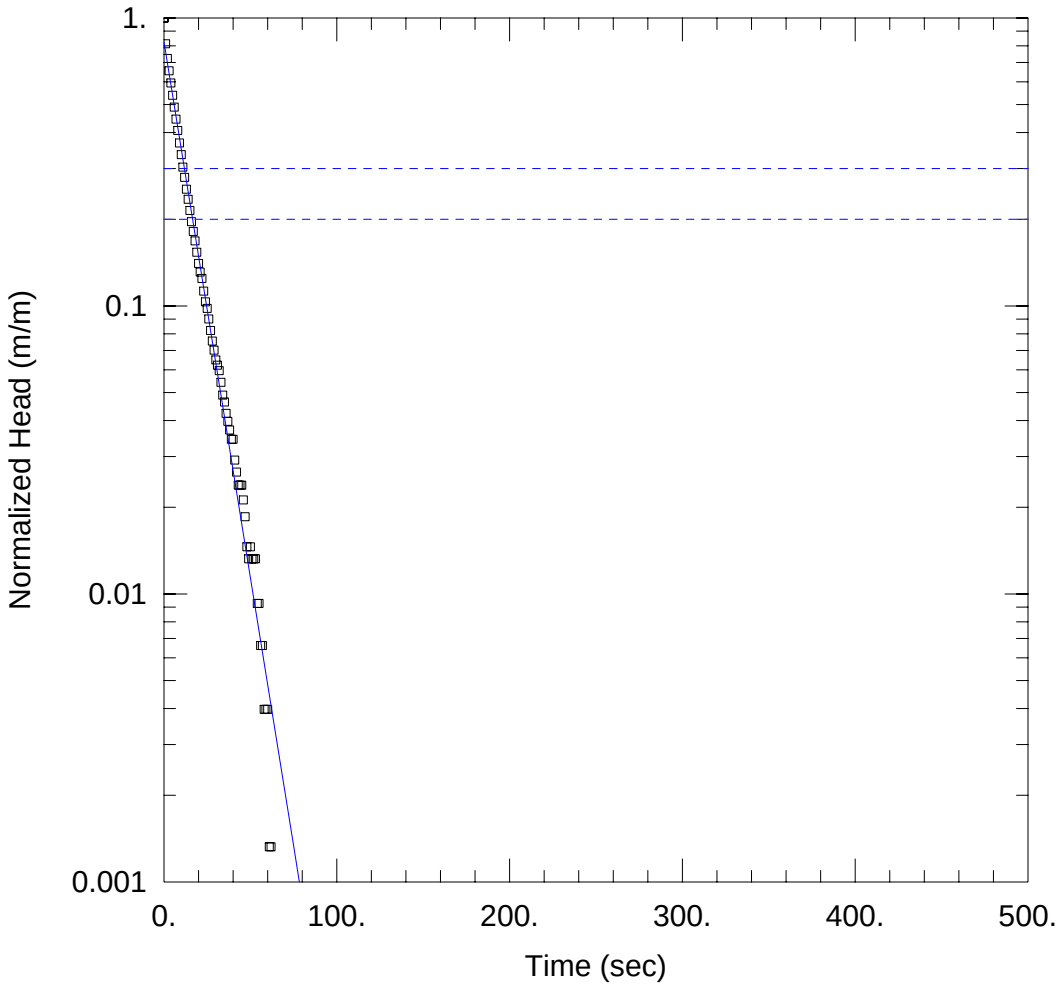
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB10-I-A)

Initial Displacement: 0.511 m
Total Well Penetration Depth: 5.26 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.26 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.395 m/day
y0 = 0.3184 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB10-I-B.aqt
Date: 01/08/08 Time: 15:34:09

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB10-I-B

AQUIFER DATA

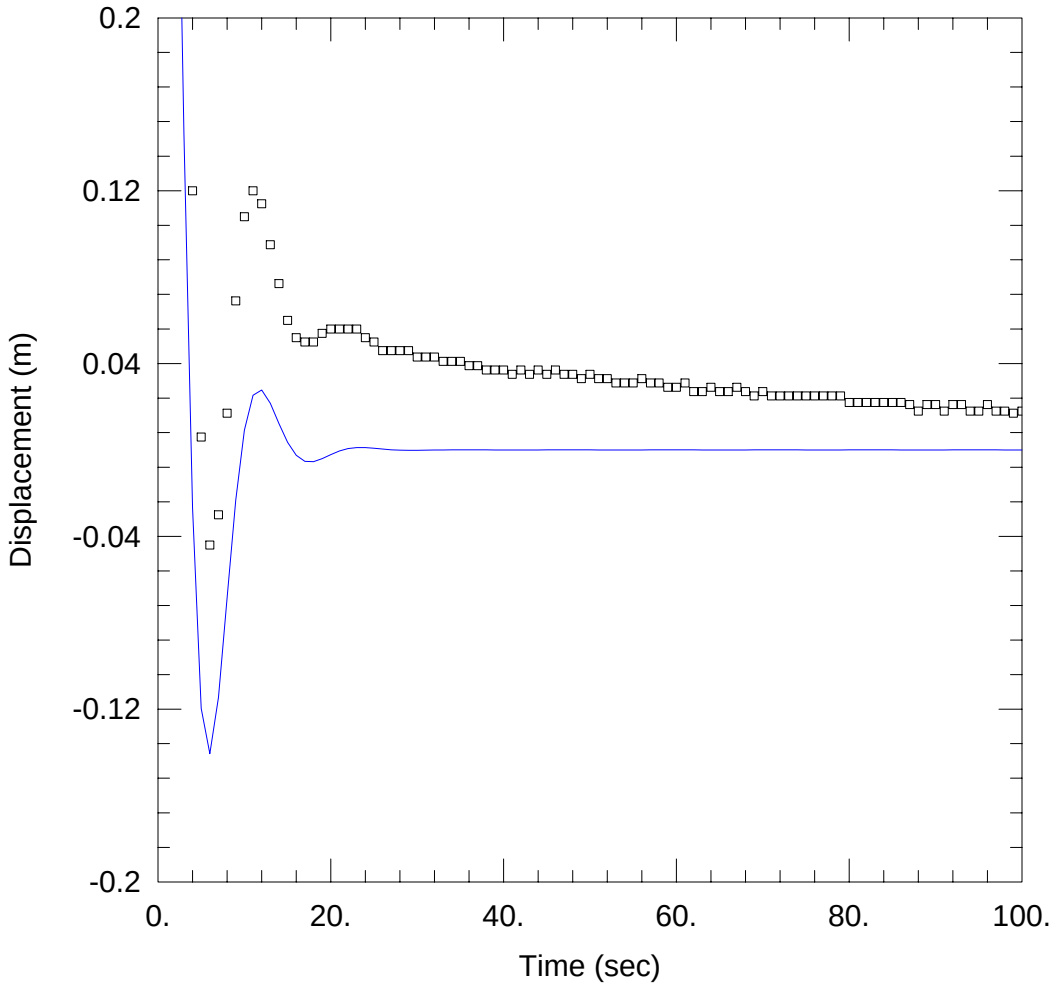
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB10-I-B)

Initial Displacement: 0.755 m
Total Well Penetration Depth: 14.79 m
Casing Radius: 0.0255 m
Static Water Column Height: 14.79 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.597 m/day
y0 = 0.6236 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB10-I-C.aqt
Date: 01/10/08 Time: 09:56:35

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB10-I-C

AQUIFER DATA

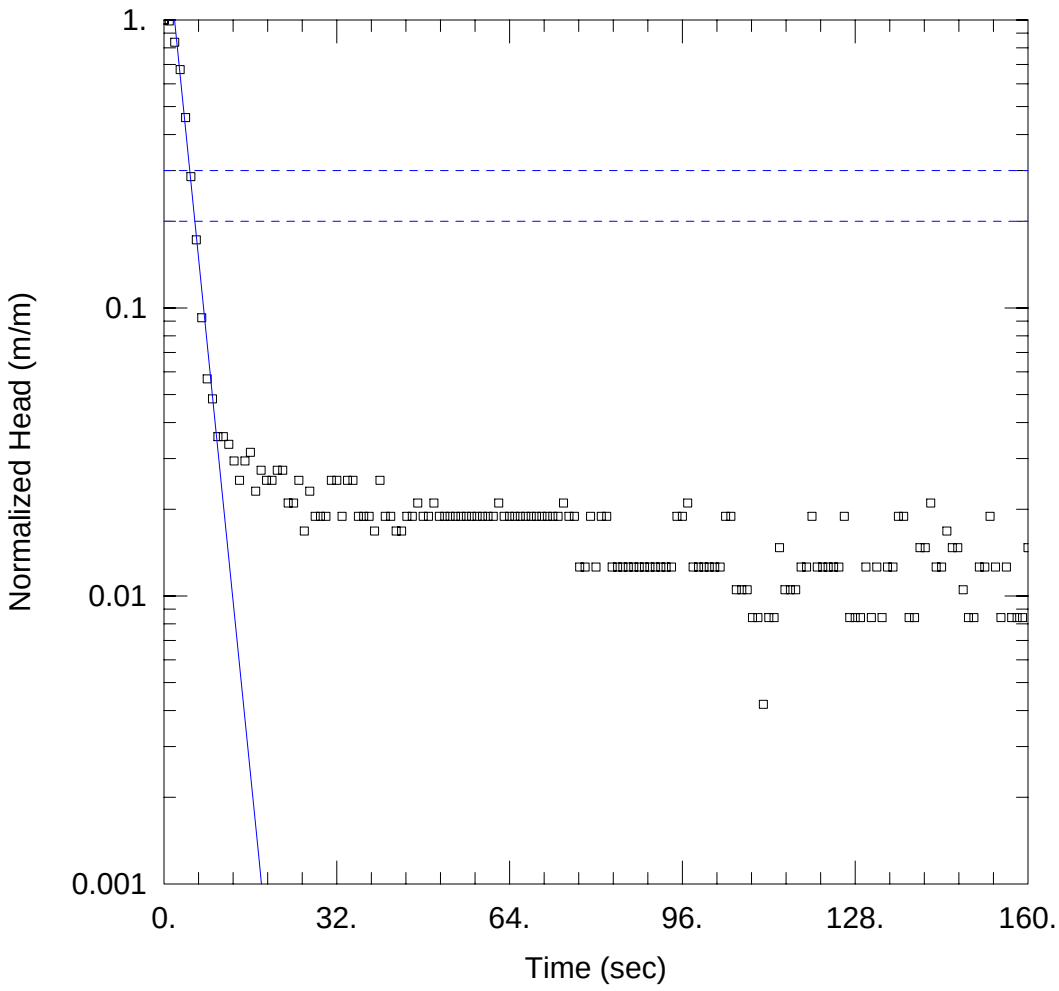
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB10-I-C)

Initial Displacement: 0.708 m
Total Well Penetration Depth: 24.29 m
Casing Radius: 0.0255 m
Static Water Column Height: 24.28 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 32.24 m/day
Le = 26.94 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB11-A.aqt
Date: 01/08/08 Time: 15:35:12

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB11-A

AQUIFER DATA

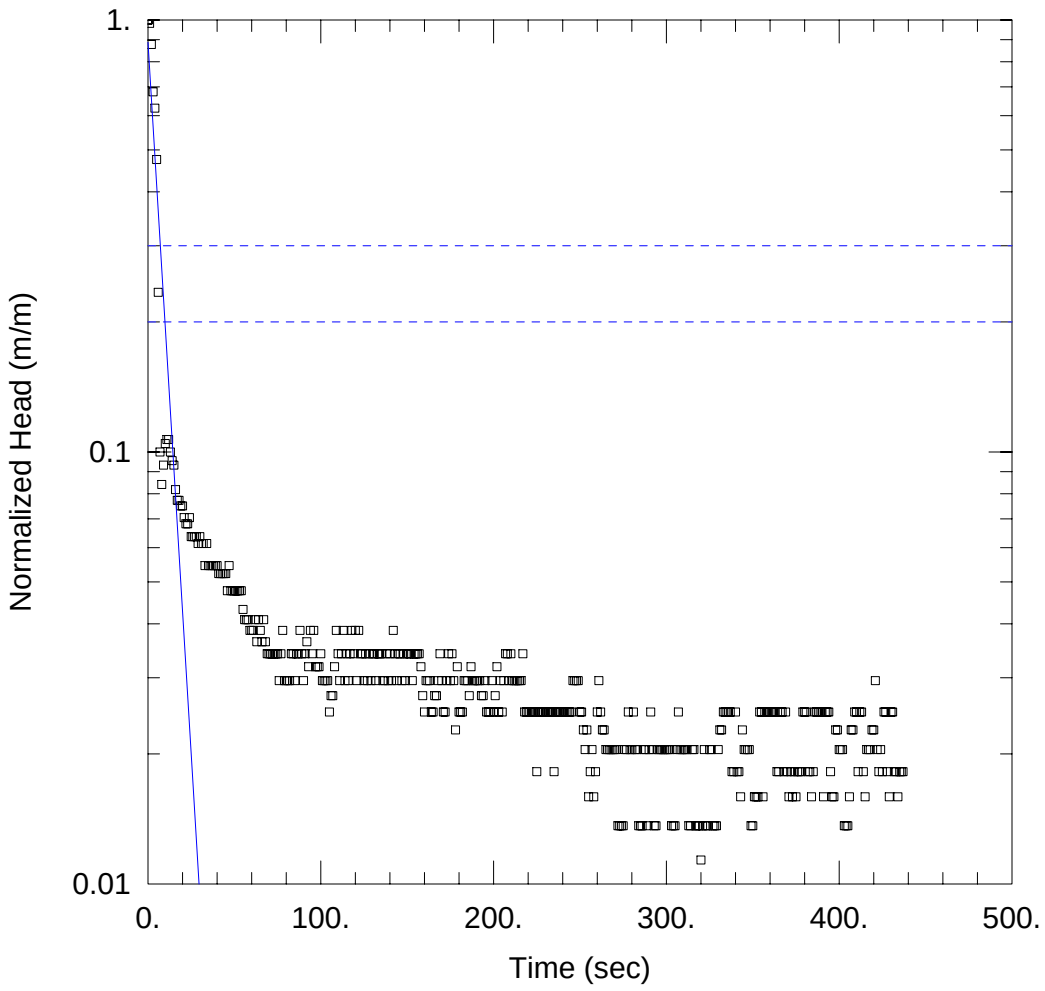
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB11-A)

Initial Displacement: 0.476 m
Total Well Penetration Depth: 5.16 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.21 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 65.51 m/day
y0 = 1.104 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB11-B.aqt
Date: 01/08/08 Time: 15:36:00

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB11-B

AQUIFER DATA

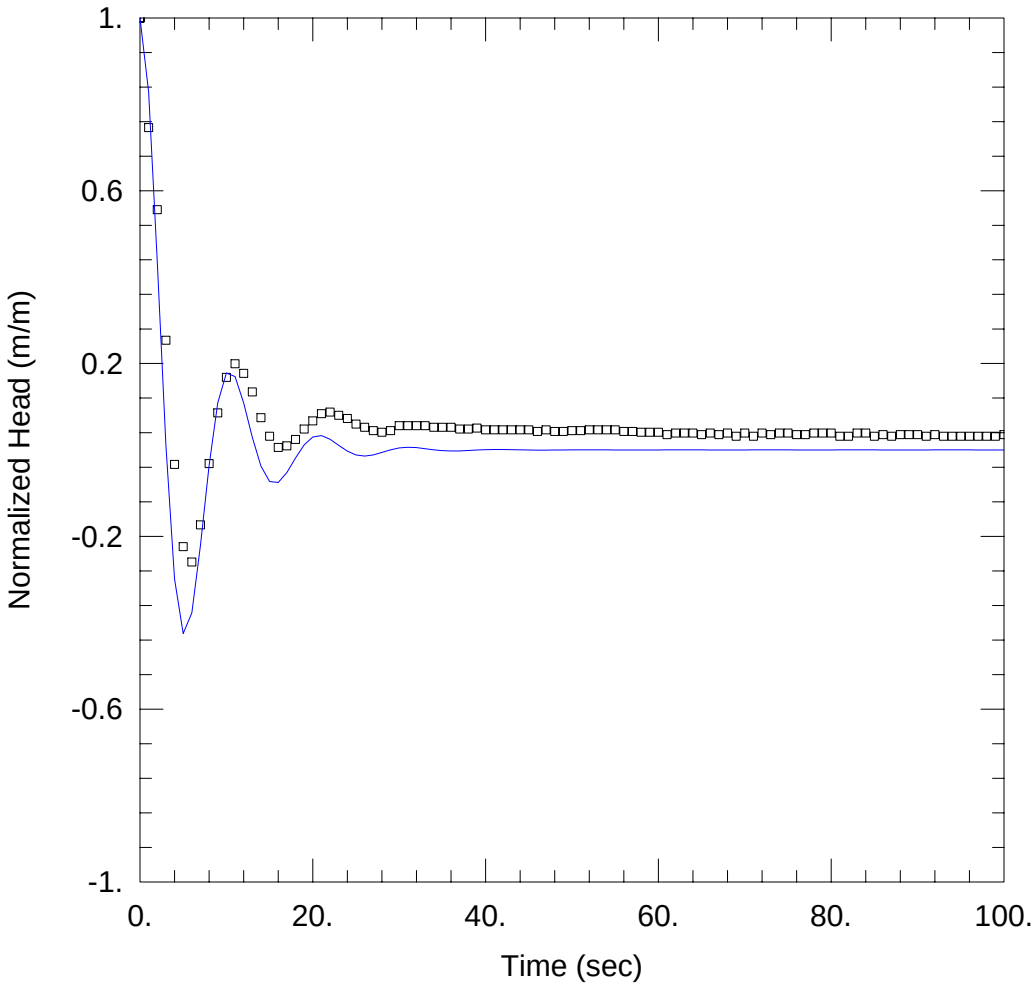
Saturated Thickness: 6.1 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB11-B)

Initial Displacement: 0.44 m
Total Well Penetration Depth: 15.35 m
Casing Radius: 0.0255 m
Static Water Column Height: 15.34 m
Screen Length: 6.096 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 19.3 m/day
y0 = 0.3902 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB11-C.aqt
Date: 01/08/08 Time: 15:36:28

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB11-C

AQUIFER DATA

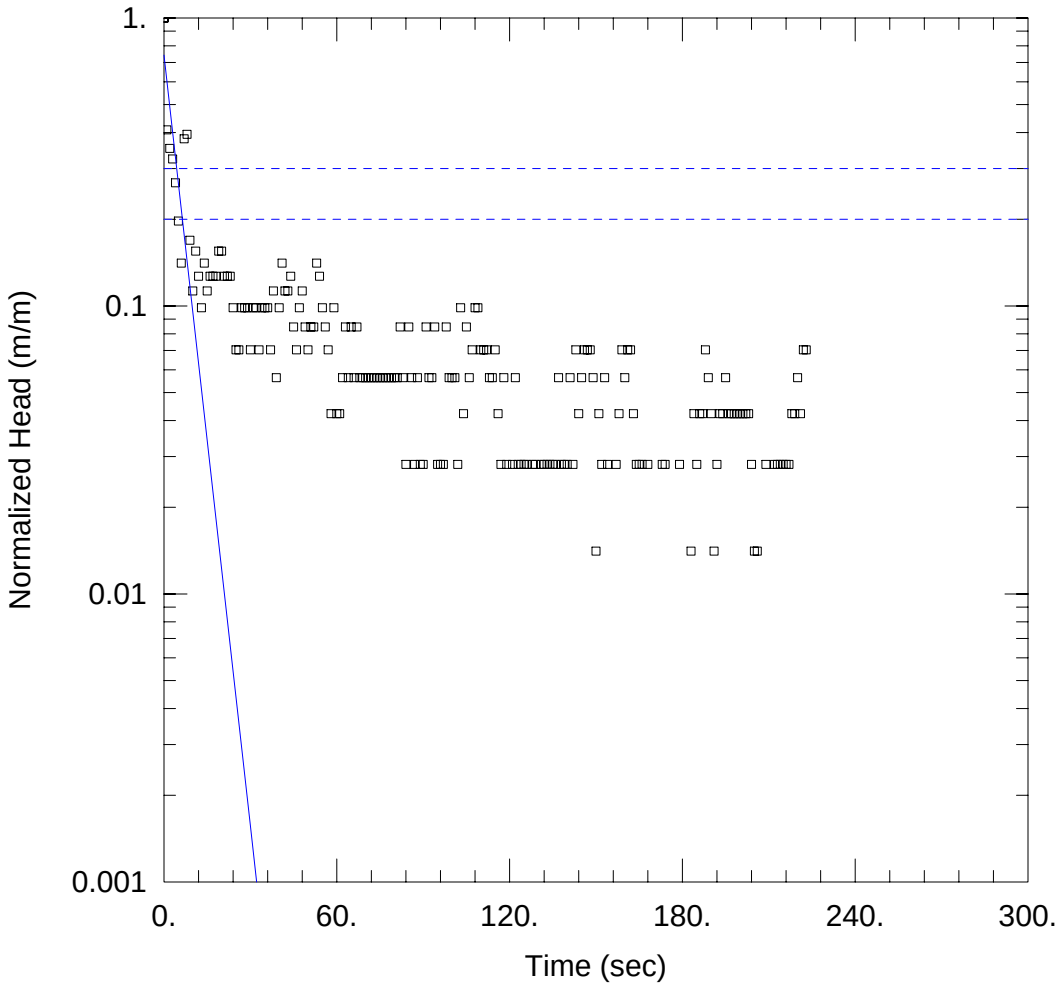
Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB11-C)

Initial Displacement: 0.536 m
Total Well Penetration Depth: 30.34 m
Casing Radius: 0.0255 m
Static Water Column Height: 30.34 m
Screen Length: 6.096 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 40.58 m/day
Le = 24.88 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB12-A.aqt
Date: 01/08/08 Time: 15:36:59

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB12-A

AQUIFER DATA

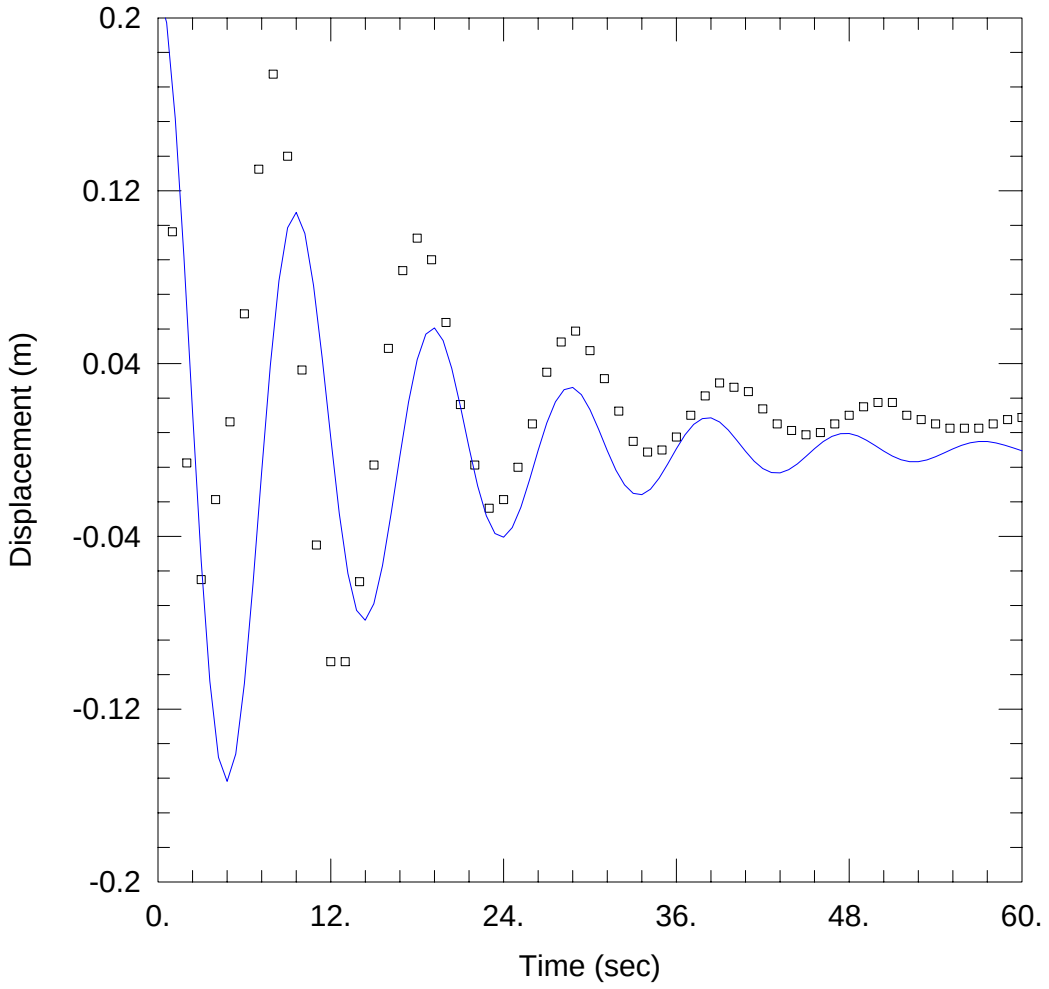
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB12-A)

Initial Displacement: 0.071 m
Total Well Penetration Depth: 4.76 m
Casing Radius: 0.0255 m
Static Water Column Height: 4.76 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 7.52 m/day
y0 = 0.05273 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB12-B.aqt
Date: 01/08/08 Time: 15:37:25

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB12-B

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

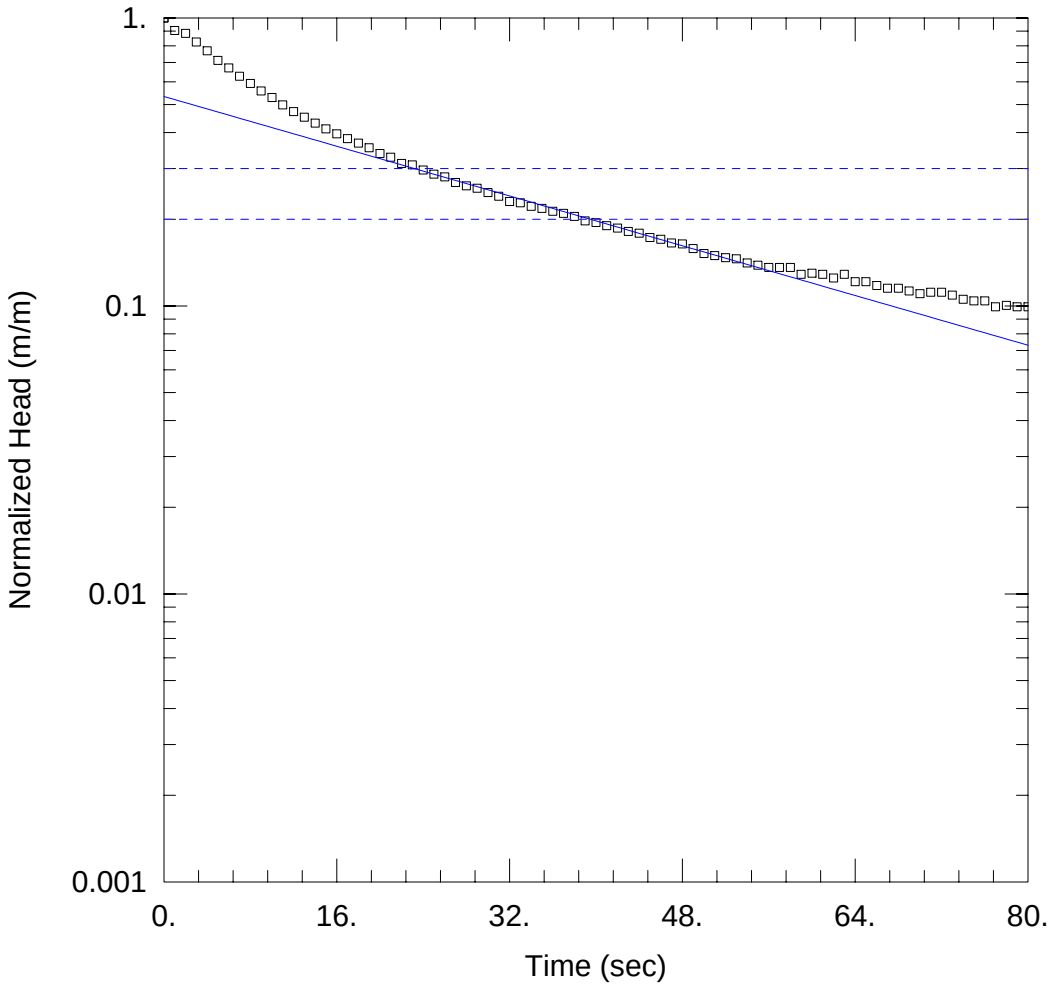
WELL DATA (MWB12-B)

Initial Displacement: 0.214 m
Total Well Penetration Depth: 11.94 m
Casing Radius: 0.0255 m
Static Water Column Height: 11.96 m
Screen Length: 3.05 m
Well Radius: 0.0255 m

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 153.5 m/day
Le = 22.38 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB12-C.aqt
Date: 01/08/08 Time: 15:37:53

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB12-C

AQUIFER DATA

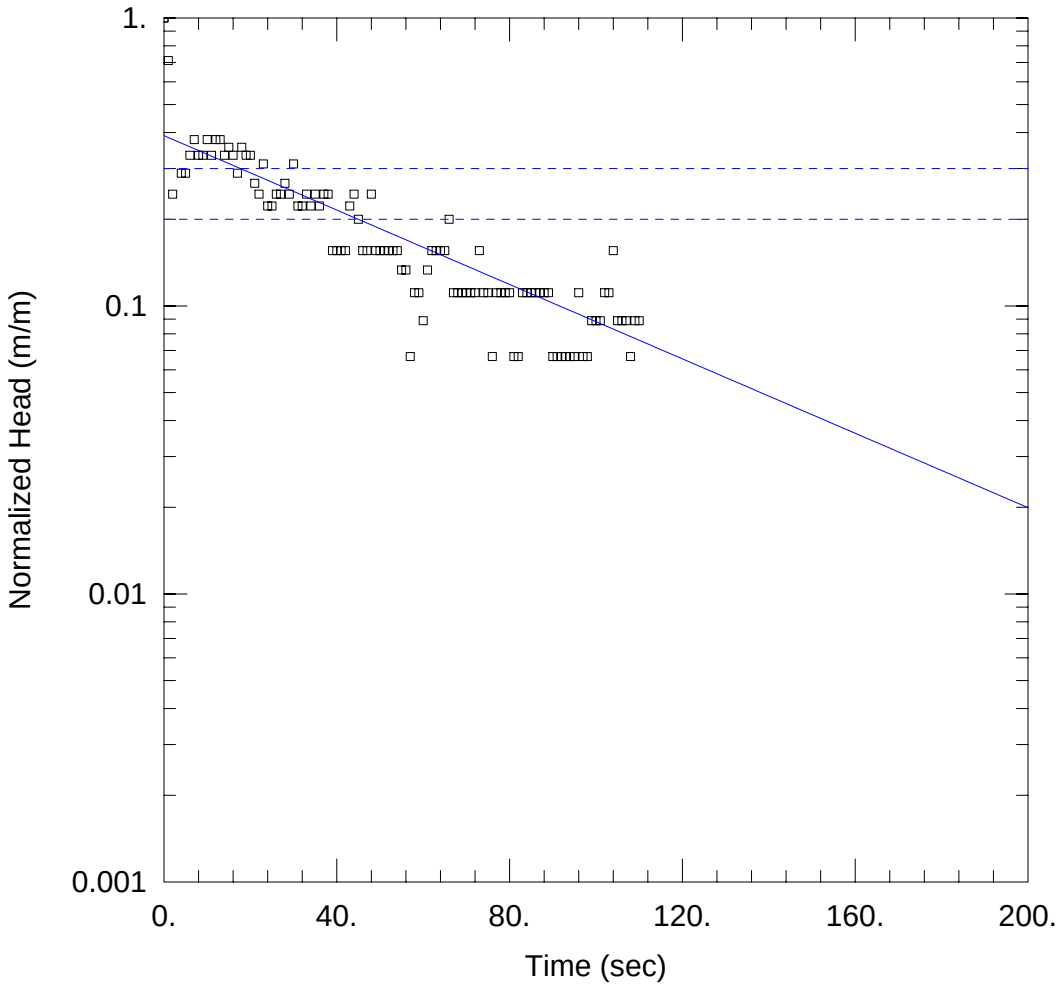
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB12-C)

Initial Displacement: 0.816 m
Total Well Penetration Depth: 29.3 m
Casing Radius: 0.0255 m
Static Water Column Height: 29.3 m
Screen Length: 4.57 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 1.91 m/day
y0 = 0.4353 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB13-A.aqt
Date: 01/08/08 Time: 15:38:20

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB13-A

AQUIFER DATA

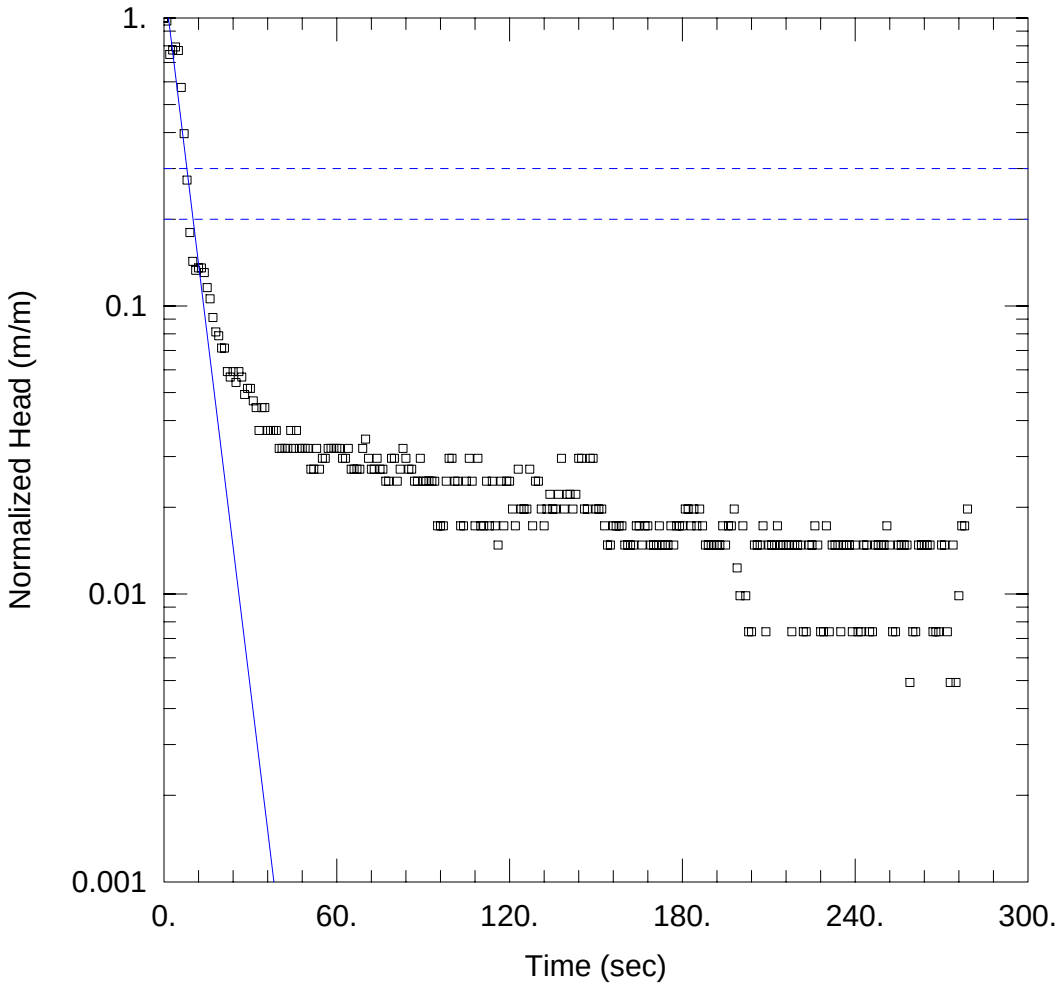
Saturated Thickness: 4.33 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB13-A)

Initial Displacement: 0.045 m
Total Well Penetration Depth: 4.33 m
Casing Radius: 0.0255 m
Static Water Column Height: 4.33 m
Screen Length: 4.33 m
Well Radius: 0.072 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 33.84 m/day
y0 = 0.01755 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB13-B.aqt
Date: 01/08/08 Time: 15:38:47

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB13-B

AQUIFER DATA

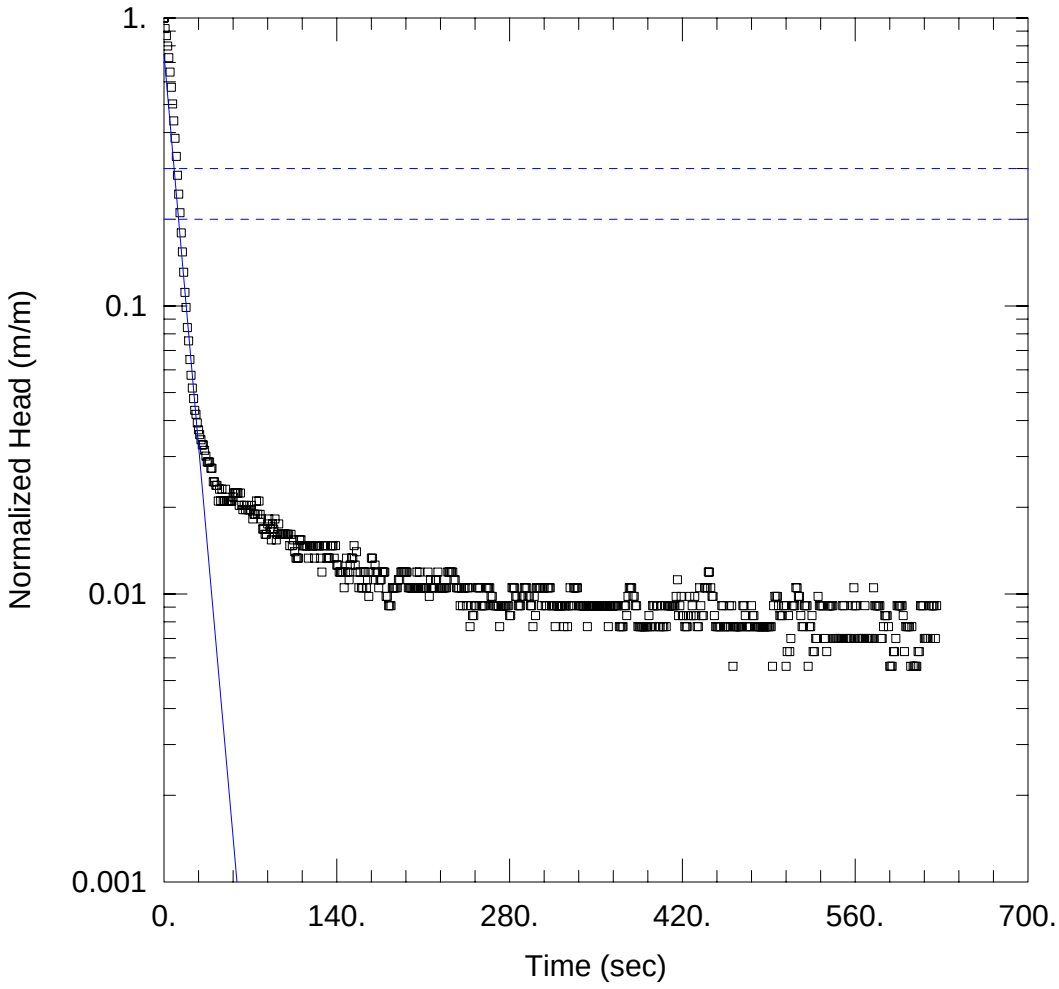
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB13-B)

Initial Displacement: 0.406 m
Total Well Penetration Depth: 22.68 m
Casing Radius: 0.0255 m
Static Water Column Height: 22.68 m
Screen Length: 4.57 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 28.26 m/day
y0 = 0.5453 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB13-C.aqt
Date: 01/08/08 Time: 15:39:21

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB13-C

AQUIFER DATA

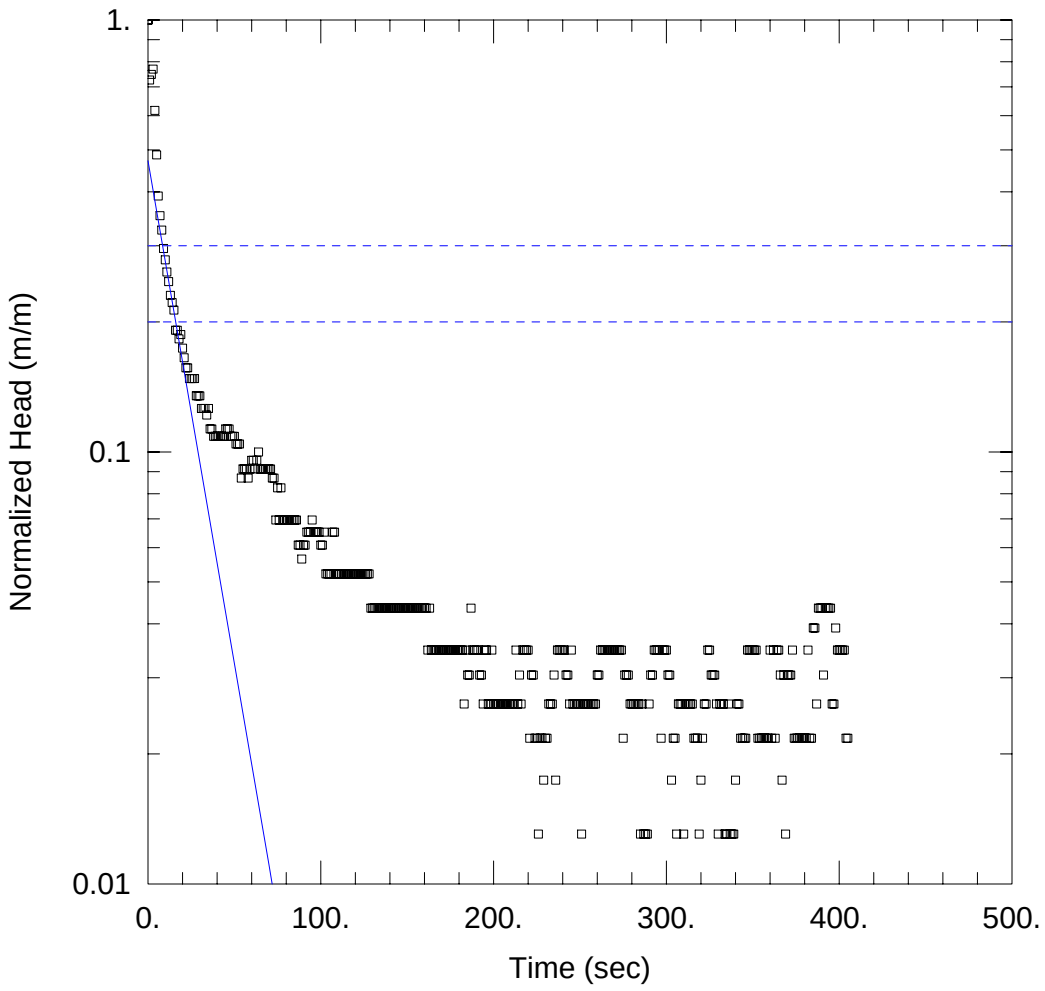
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB13-C)

Initial Displacement: 1.428 m
Total Well Penetration Depth: 30.7 m
Casing Radius: 0.0255 m
Static Water Column Height: 30.7 m
Screen Length: 4.572 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.937 m/day
y0 = 1.07 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB17-A.aqt
Date: 01/08/08 Time: 15:39:56

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB17-A

AQUIFER DATA

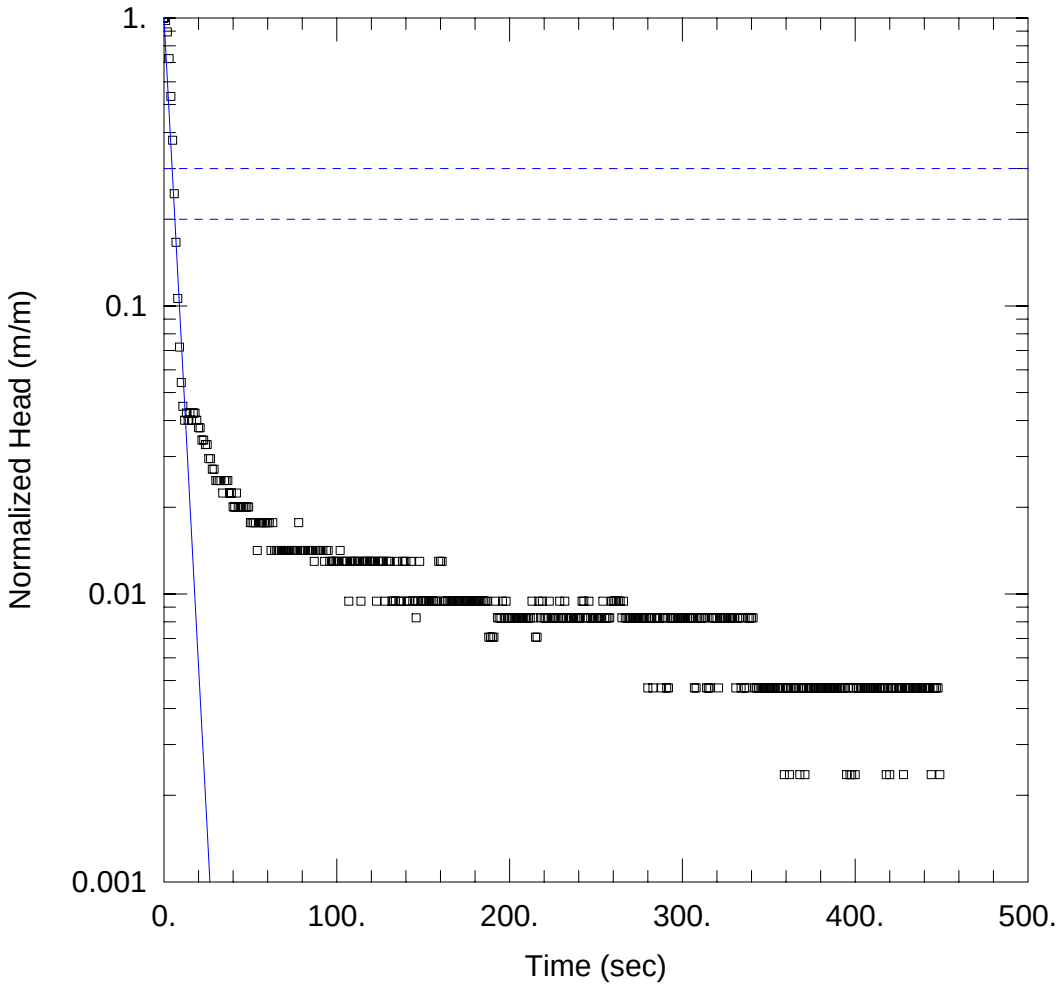
Saturated Thickness: 2.54 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB17-A)

Initial Displacement: 0.23 m
Total Well Penetration Depth: 2.54 m
Casing Radius: 0.019 m
Static Water Column Height: 2.54 m
Screen Length: 2.54 m
Well Radius: 0.0487 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.662 m/day
y0 = 0.1086 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB17-B.aqt
Date: 01/08/08 Time: 15:40:22

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB17-B

AQUIFER DATA

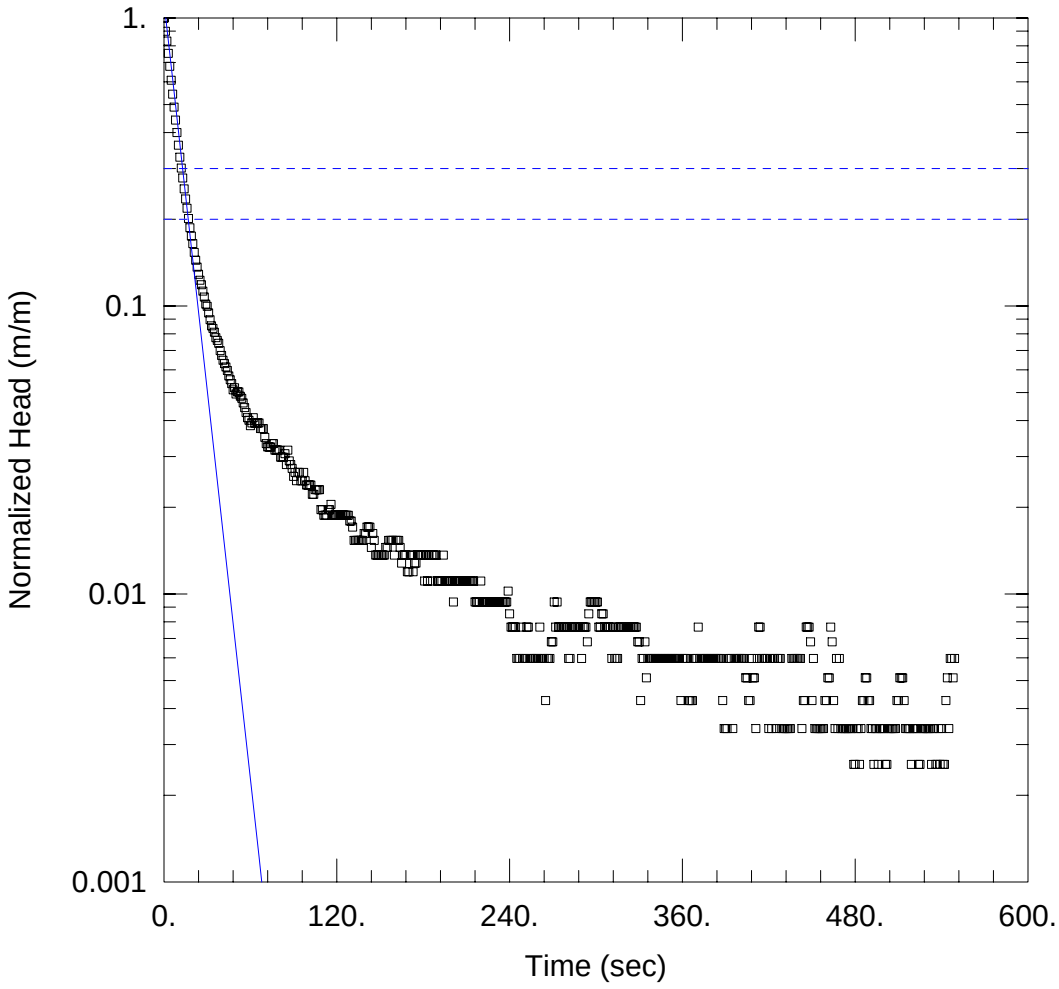
Saturated Thickness: 3.01 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB17-B)

Initial Displacement: 0.848 m
Total Well Penetration Depth: 32.21 m
Casing Radius: 0.019 m
Static Water Column Height: 32.21 m
Screen Length: 3.01 m
Well Radius: 0.019 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 16.81 m/day
y0 = 0.8686 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB18-A.aqt
Date: 01/08/08 Time: 15:40:49

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB18-A

AQUIFER DATA

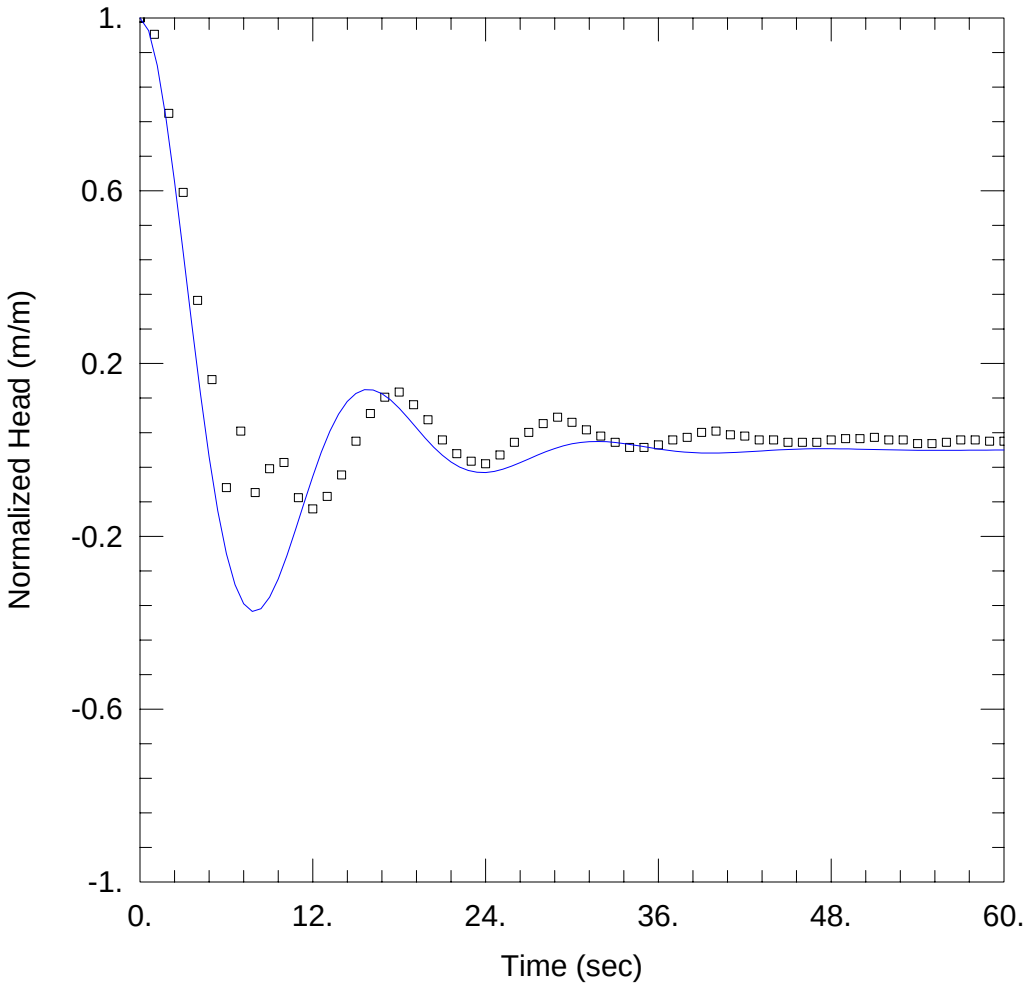
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB18-A)

Initial Displacement: 1.173 m
Total Well Penetration Depth: 16.99 m
Casing Radius: 0.0255 m
Static Water Column Height: 16.99 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.438 m/day
y0 = 1.343 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB18-B.aqt
Date: 01/08/08 Time: 15:41:15

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB18-B

AQUIFER DATA

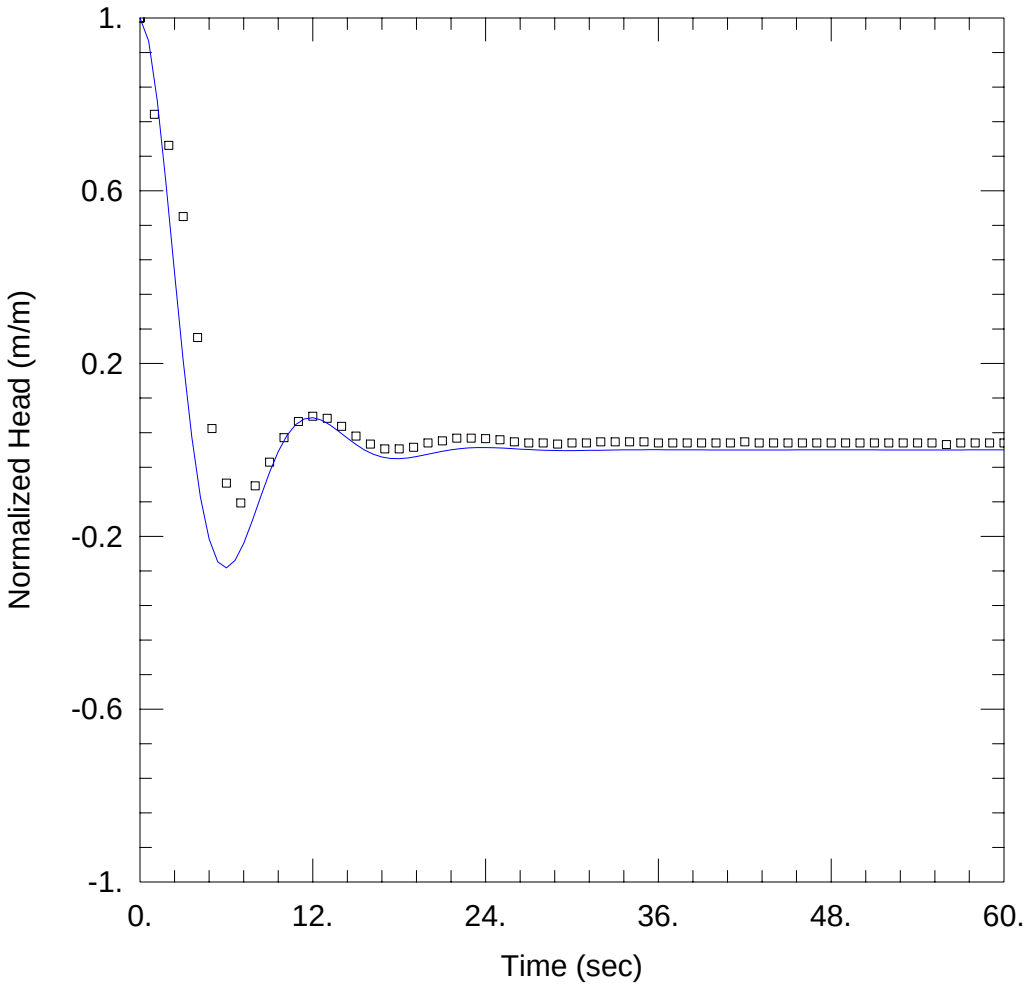
Saturated Thickness: 6.1 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB18-B)

Initial Displacement: 0.344 m
Total Well Penetration Depth: 30.48 m
Casing Radius: 0.0255 m
Static Water Column Height: 30.47 m
Screen Length: 6.1 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 23.44 m/day
Le = 56.91 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB19-B.aqt
Date: 01/08/08 Time: 15:41:50

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB19-B

AQUIFER DATA

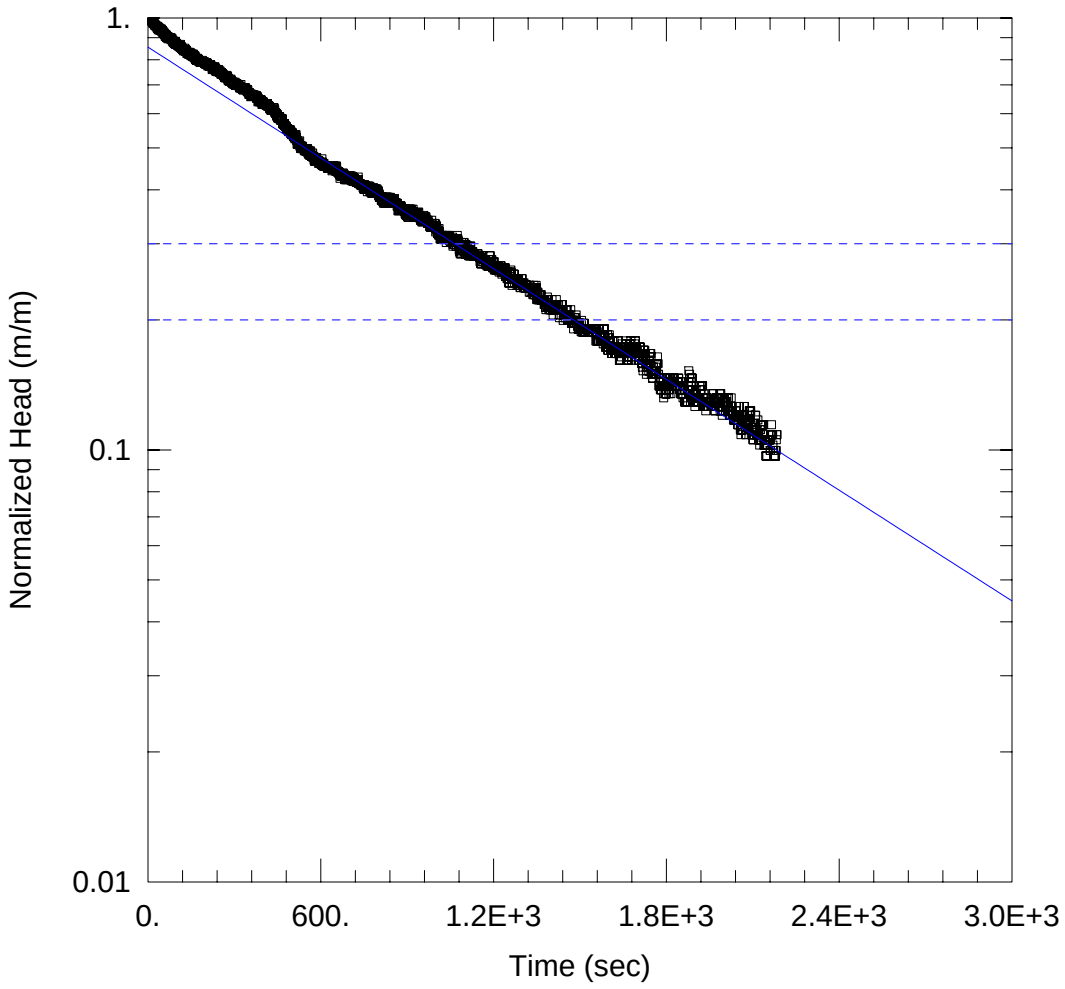
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB19-B)

Initial Displacement: 0.807 m
Total Well Penetration Depth: 26.12 m
Casing Radius: 0.0255 m
Static Water Column Height: 26.12 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 36.55 m/day
Le = 29.98 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB20-I-A.aqt
Date: 01/08/08 Time: 15:42:20

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB20-I-A

AQUIFER DATA

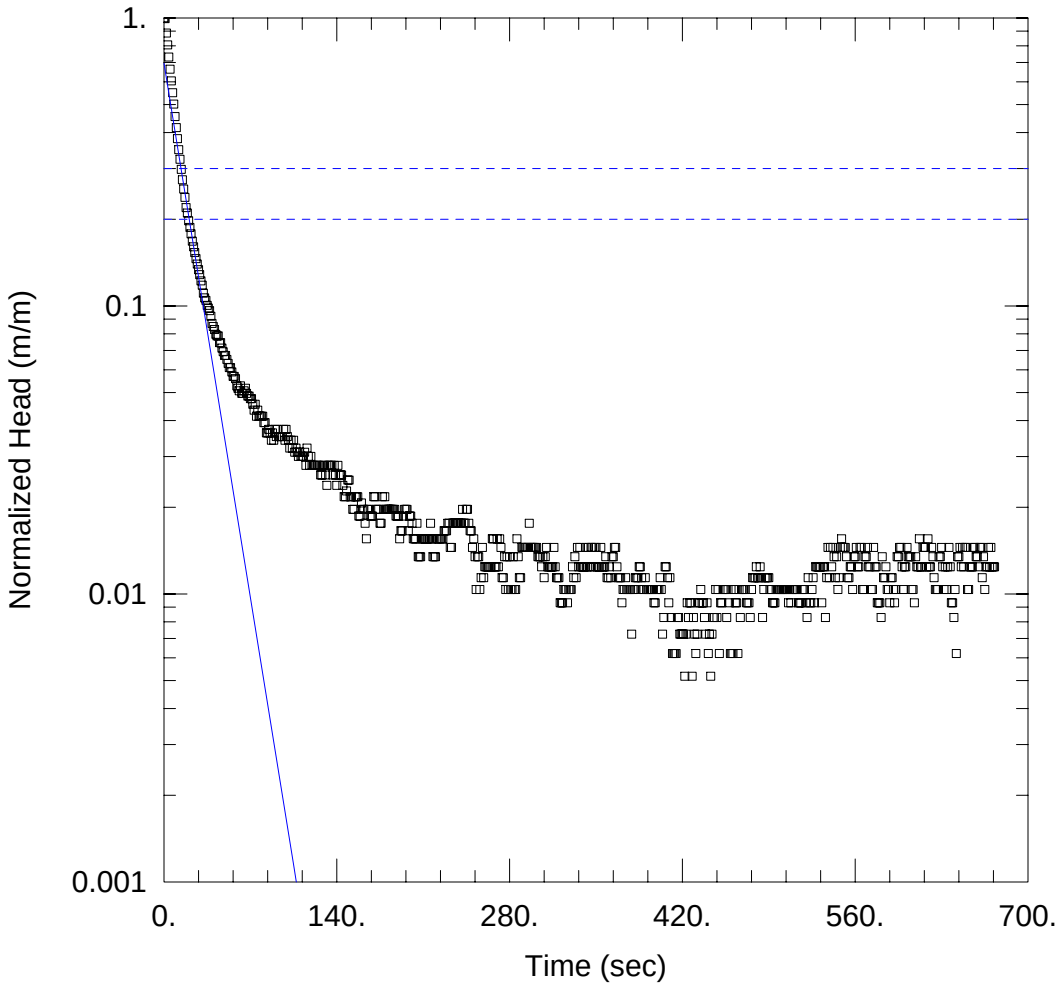
Saturated Thickness: 0.68 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB20-I-A)

Initial Displacement: 0.341 m
Total Well Penetration Depth: 0.68 m
Casing Radius: 0.0255 m
Static Water Column Height: 0.68 m
Screen Length: 0.68 m
Well Radius: 0.0507 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.5141 m/day
y0 = 0.2918 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB20-II-B.aqt
Date: 01/08/08 Time: 15:42:50

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB20-II-B

AQUIFER DATA

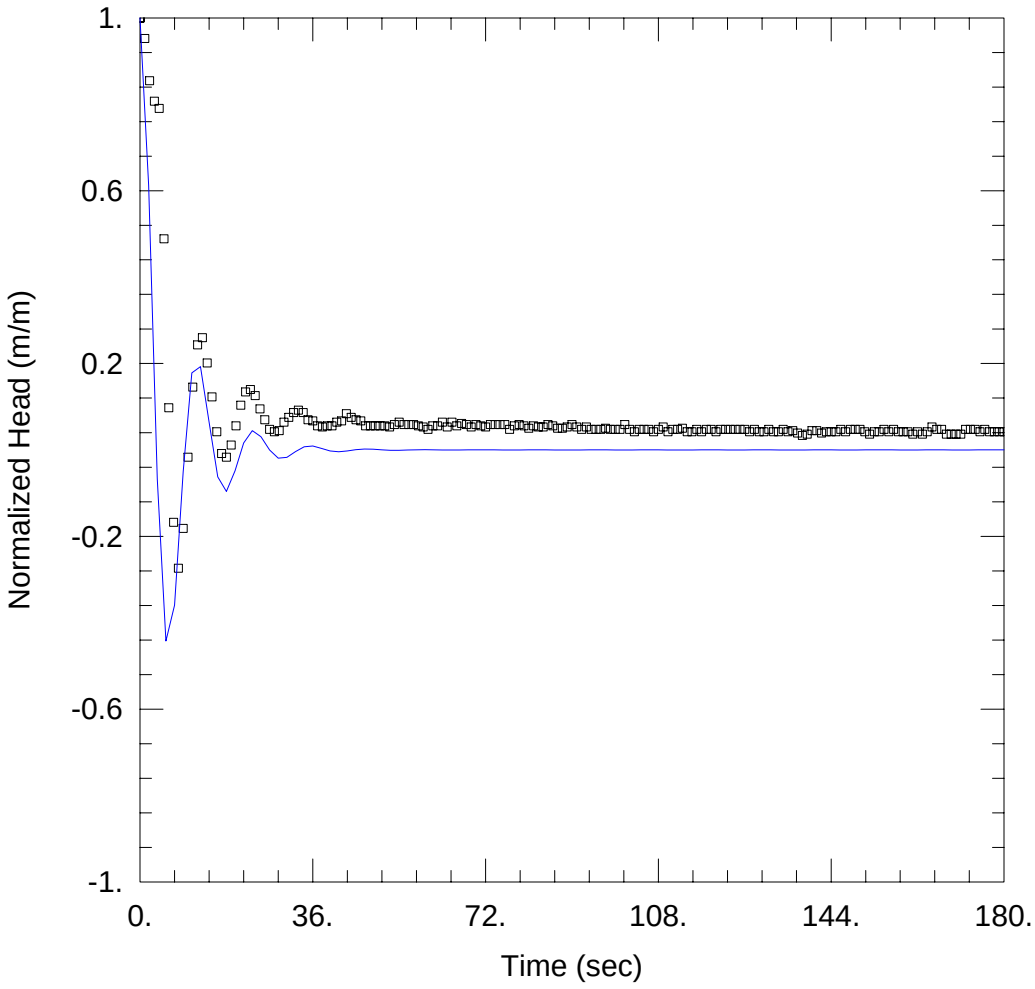
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB20-II-B)

Initial Displacement: 0.966 m
Total Well Penetration Depth: 9.99 m
Casing Radius: 0.0255 m
Static Water Column Height: 9.99 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 5.06 m/day
y0 = 0.6723 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB20-II-C.aqt
Date: 01/08/08 Time: 15:43:24

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB20-II-C

AQUIFER DATA

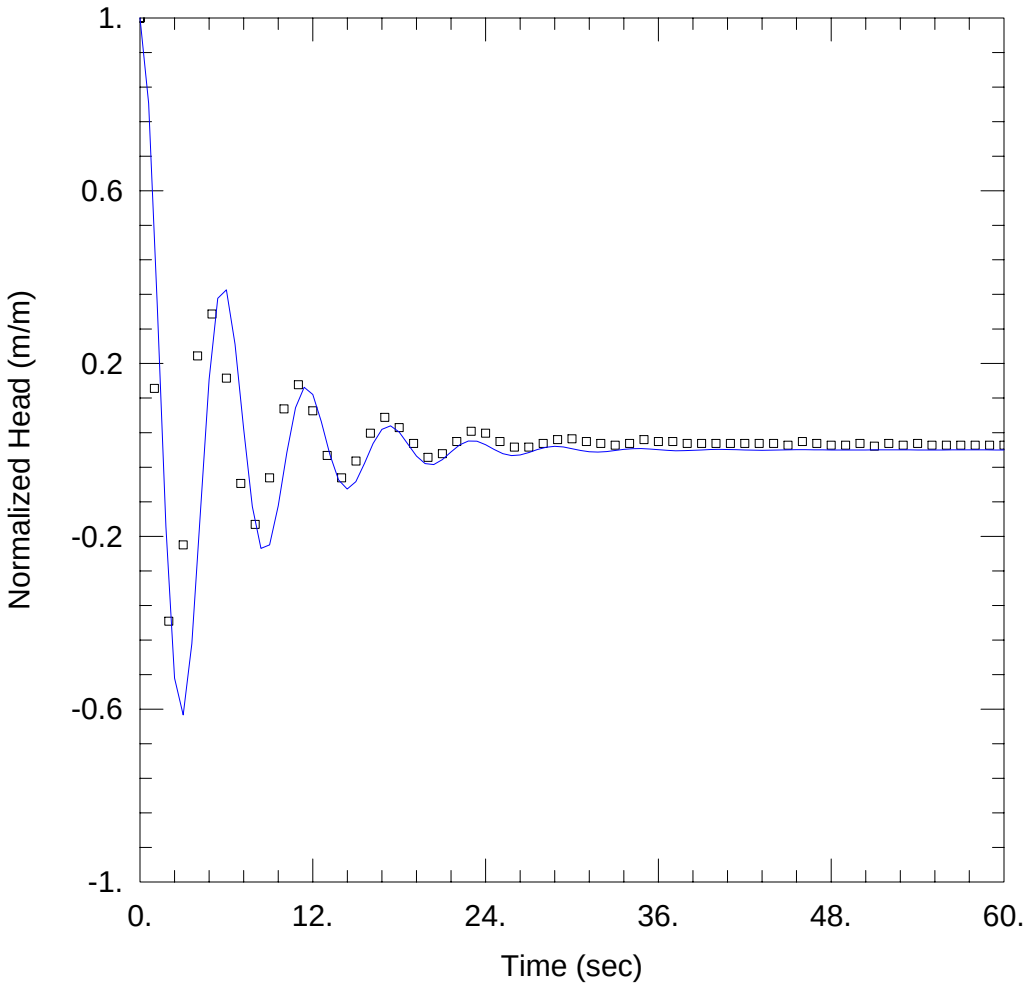
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB20-II-C)

Initial Displacement: 0.358 m
Total Well Penetration Depth: 25. m
Casing Radius: 0.0255 m
Static Water Column Height: 25. m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 55.85 m/day
Le = 32.57 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB21-A.aqt
Date: 01/08/08 Time: 15:43:55

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB21-A

AQUIFER DATA

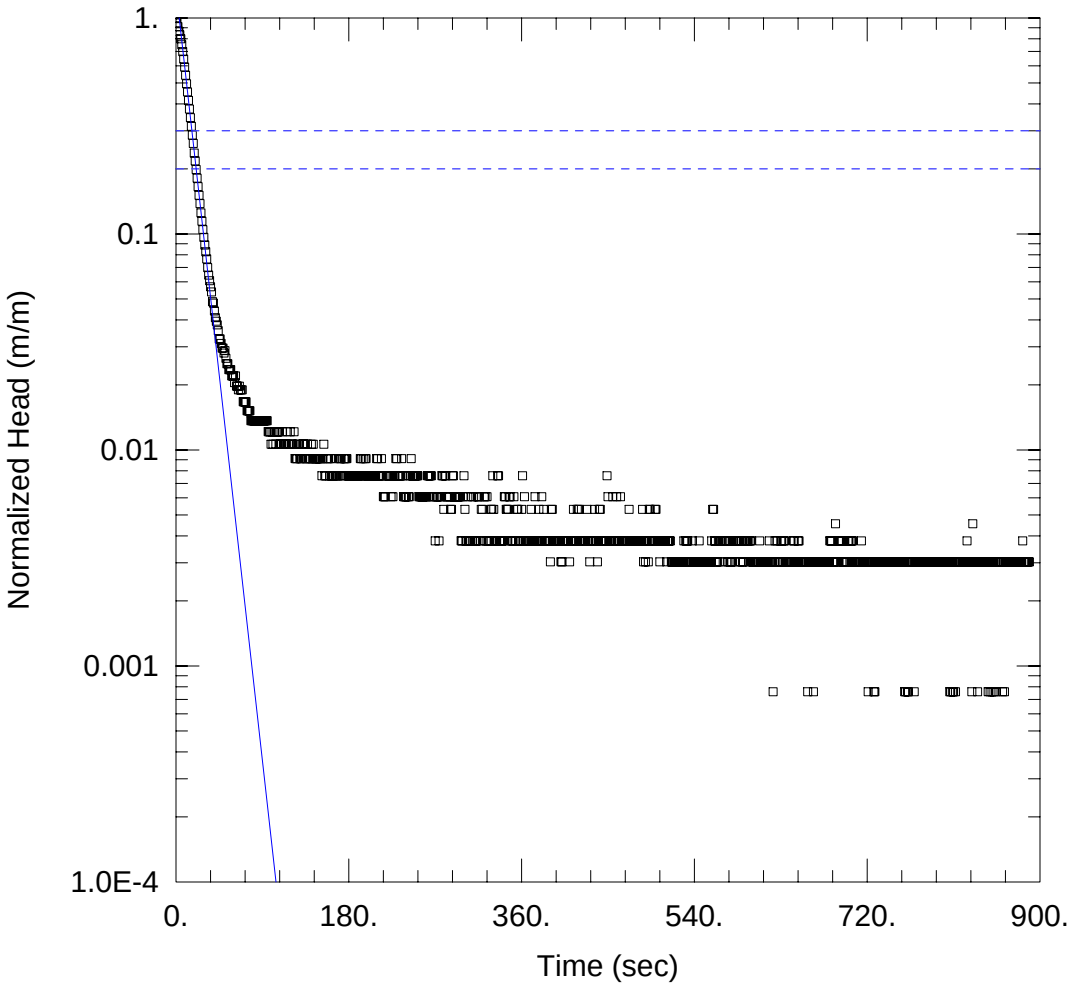
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB21-A)

Initial Displacement: 0.464 m
Total Well Penetration Depth: 10.43 m
Casing Radius: 0.0255 m
Static Water Column Height: 10.43 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 178.1 m/day
Le = 8.069 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB21-B.aqt
Date: 01/08/08 Time: 15:44:23

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB21-B

AQUIFER DATA

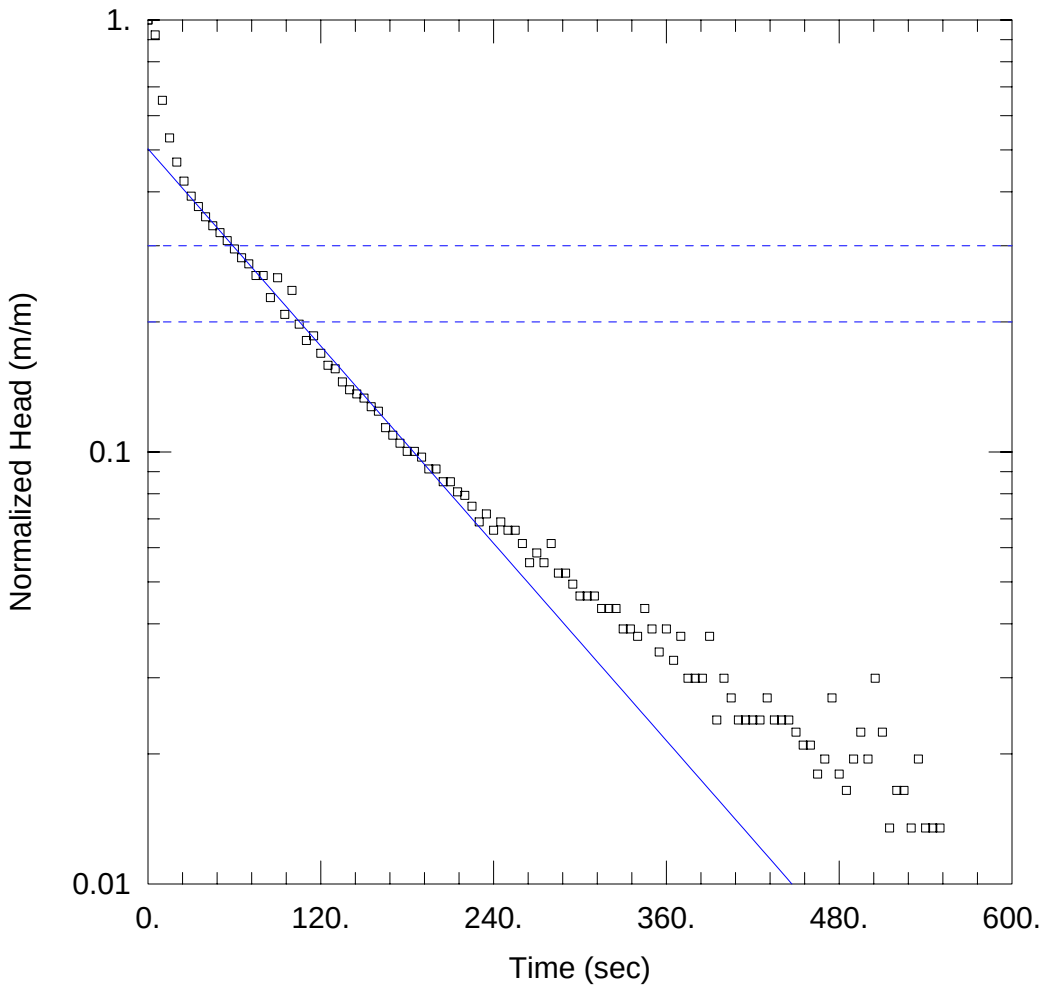
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB21-B)

Initial Displacement: 1.318 m
Total Well Penetration Depth: 25.43 m
Casing Radius: 0.0255 m
Static Water Column Height: 25.43 m
Screen Length: 4.572 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.275 m/day
y0 = 1.798 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB22-I-A.aqt
Date: 01/08/08 Time: 15:44:49

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB22-I-A

AQUIFER DATA

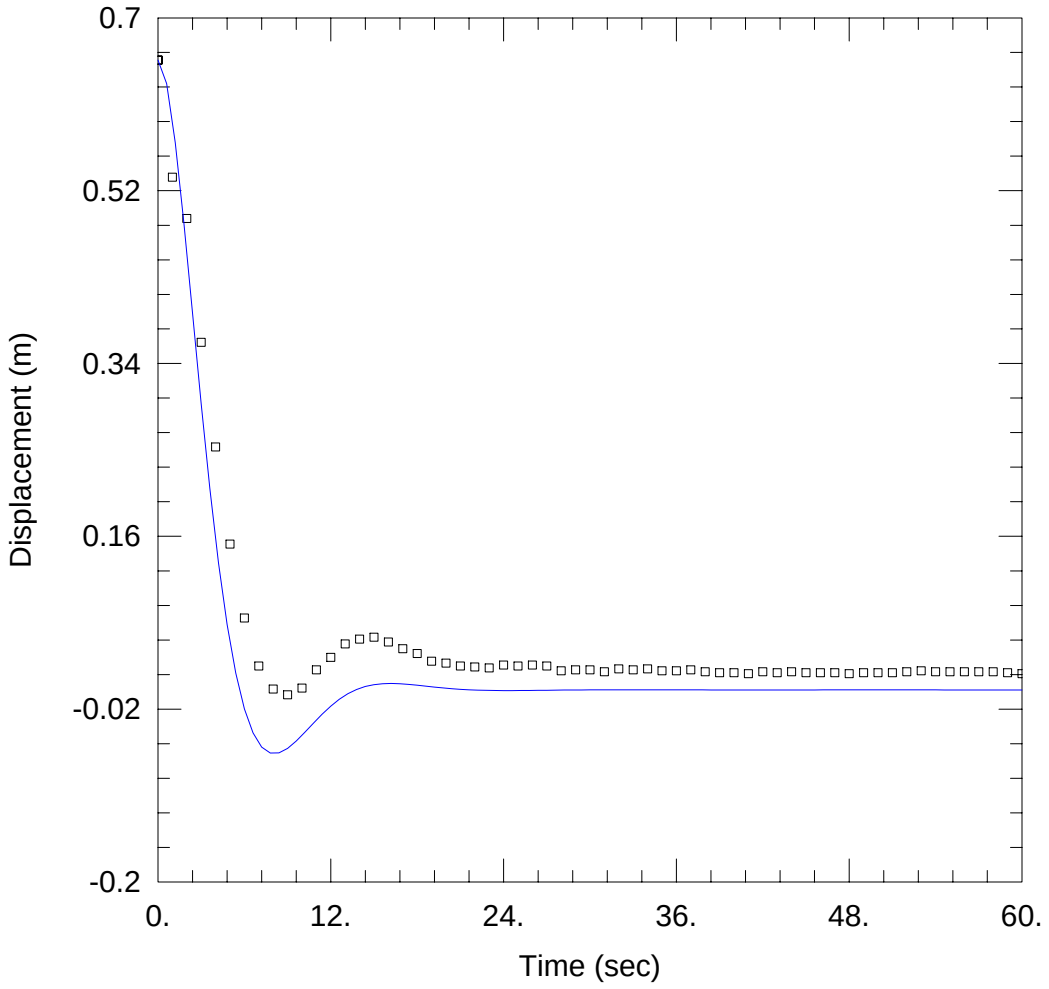
Saturated Thickness: 3.14 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-I-A)

Initial Displacement: 0.668 m
Total Well Penetration Depth: 3.142 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.14 m
Screen Length: 3.048 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 1.13 m/day
y0 = 0.336 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB22-I-C.aqt
Date: 01/08/08 Time: 15:45:18

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB22-I-C

AQUIFER DATA

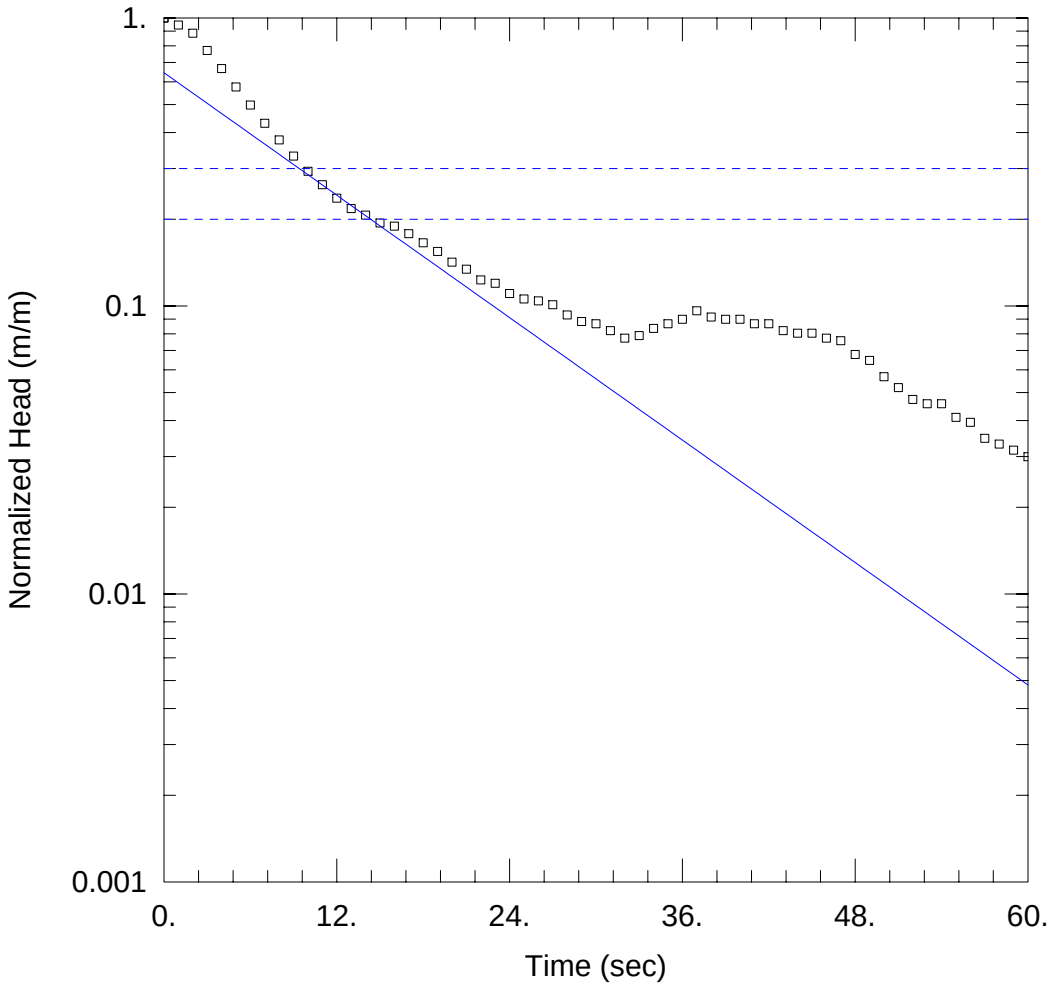
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-I-C)

Initial Displacement: 0.656 m
Total Well Penetration Depth: 19.47 m
Casing Radius: 0.0255 m
Static Water Column Height: 19.47 m
Screen Length: 3.048 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 24.96 m/day
Le = 42.32 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB22-II-B.aqt
Date: 01/08/08 Time: 15:45:55

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB22-II-B

AQUIFER DATA

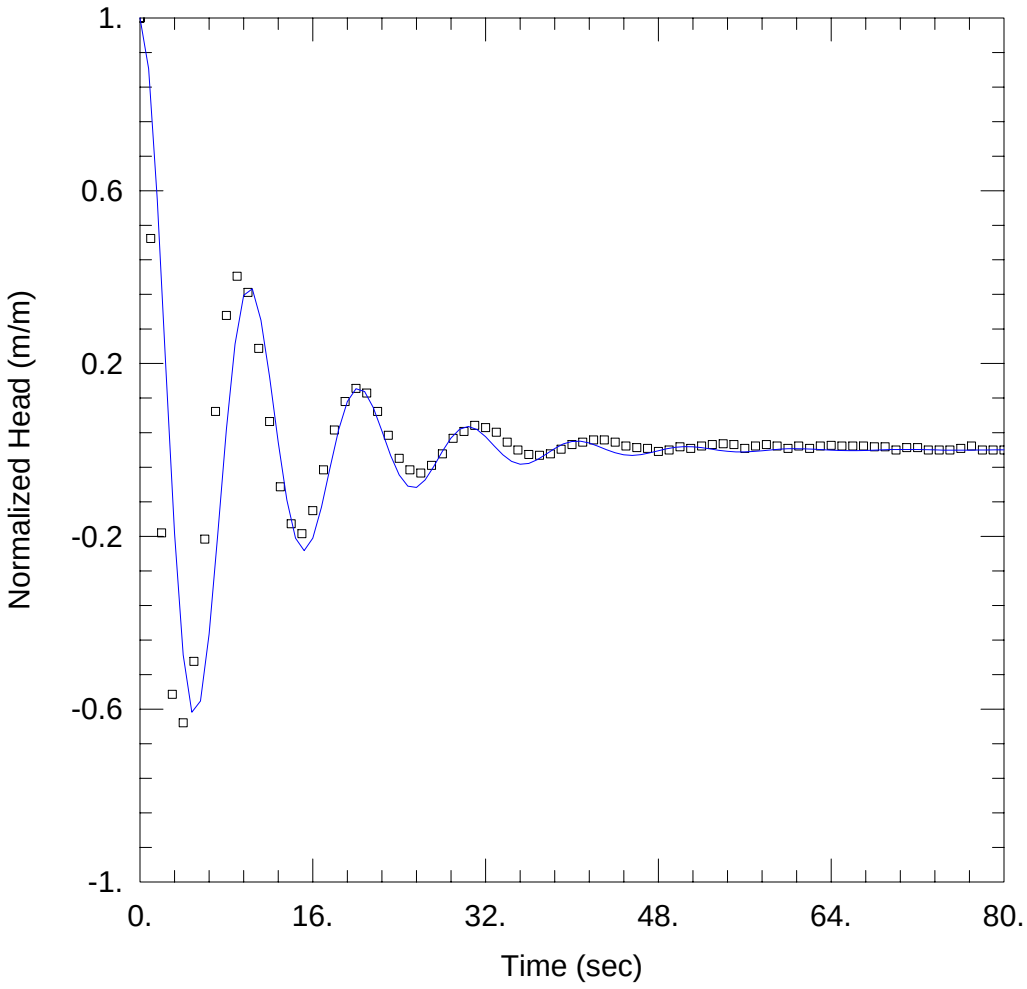
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-II-B)

Initial Displacement: 0.634 m
Total Well Penetration Depth: 9.226 m
Casing Radius: 0.0255 m
Static Water Column Height: 9.27 m
Screen Length: 3.048 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 12.81 m/day
y0 = 0.4091 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB22-II-D.aqt
Date: 01/08/08 Time: 15:46:22

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB22-II-D

AQUIFER DATA

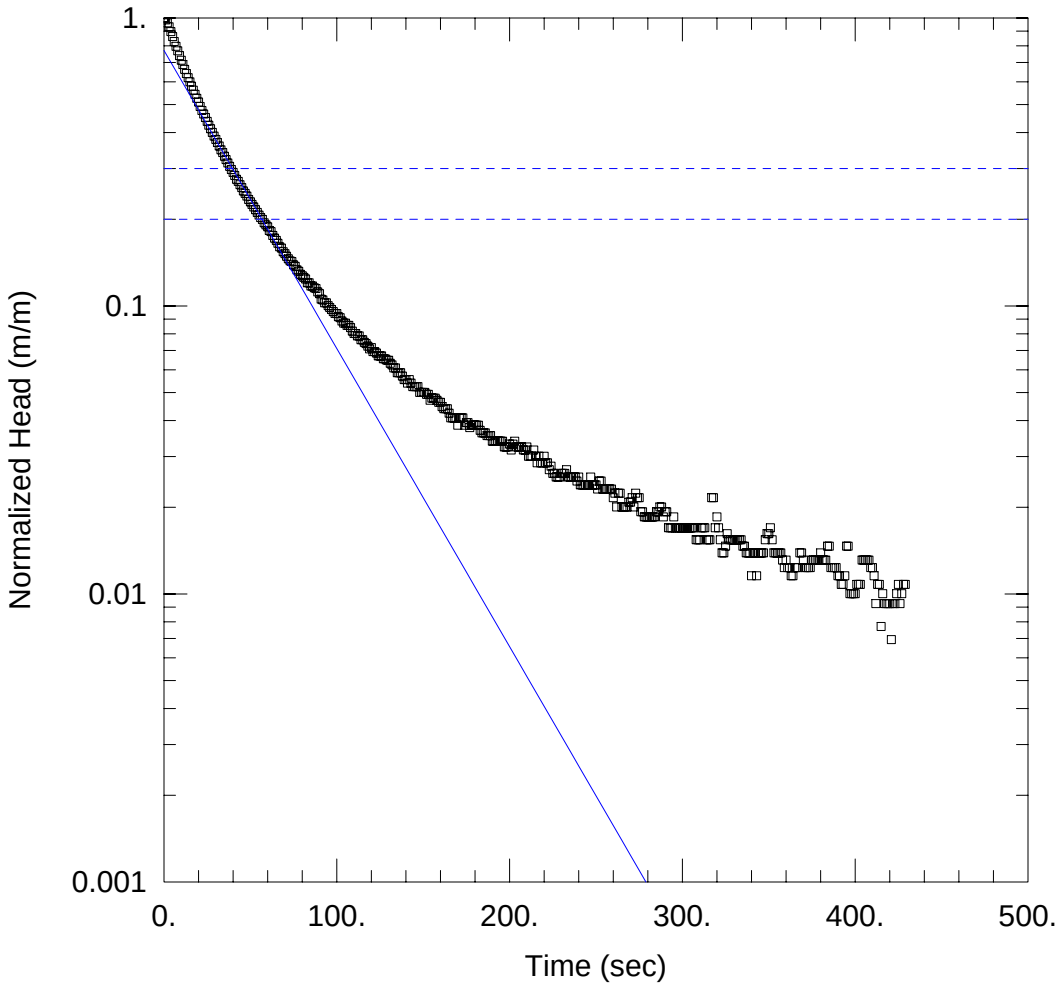
Saturated Thickness: 6.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB22-II-D)

Initial Displacement: 0.562 m
Total Well Penetration Depth: 31.36 m
Casing Radius: 0.0255 m
Static Water Column Height: 31.36 m
Screen Length: 6.096 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 69.39 m/day
Le = 24.84 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB23-I-A.aqt
Date: 01/08/08 Time: 15:47:03

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB23-I-A

AQUIFER DATA

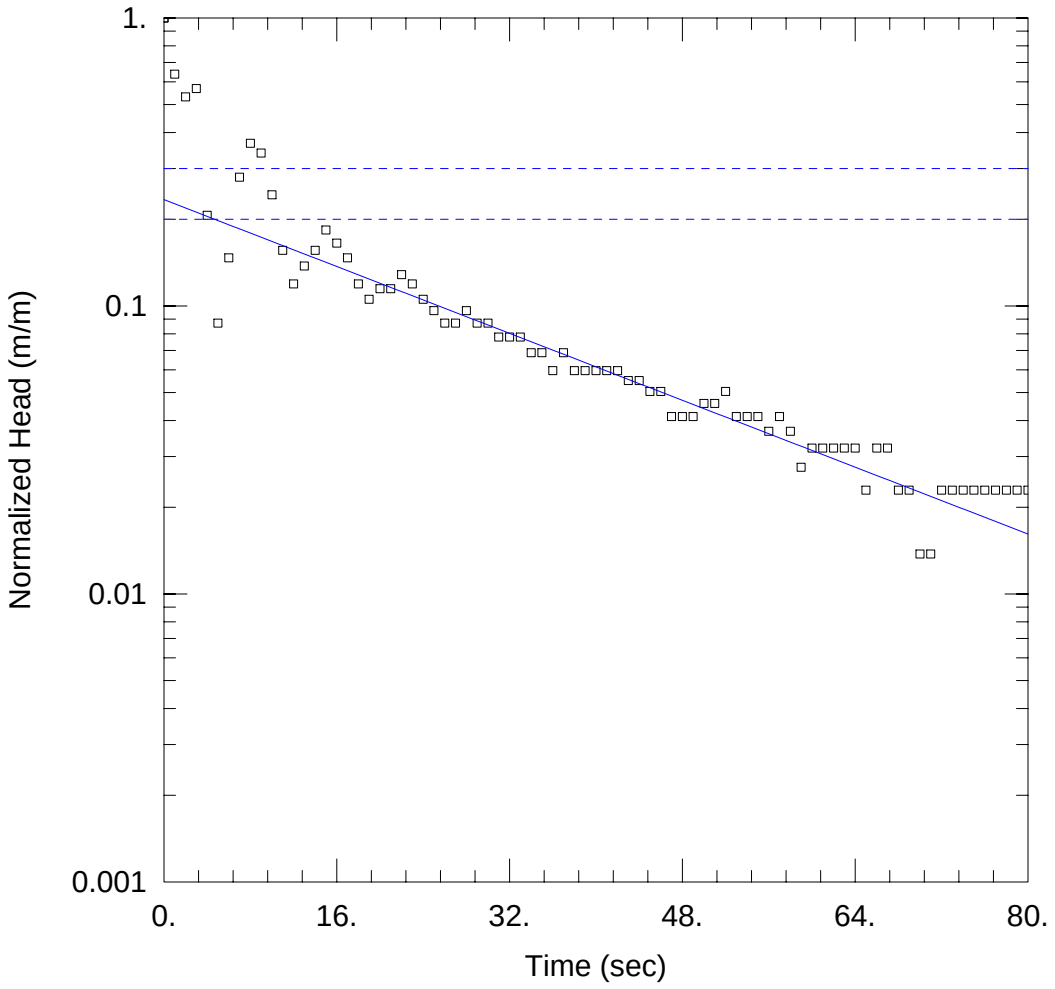
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB23-I-A)

Initial Displacement: 1.297 m
Total Well Penetration Depth: 6.76 m
Casing Radius: 0.0255 m
Static Water Column Height: 6.77 m
Screen Length: 4.57 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.9497 m/day
y0 = 1. m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB23-II-B.aqt
Date: 01/08/08 Time: 15:47:29

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB23-II-B

AQUIFER DATA

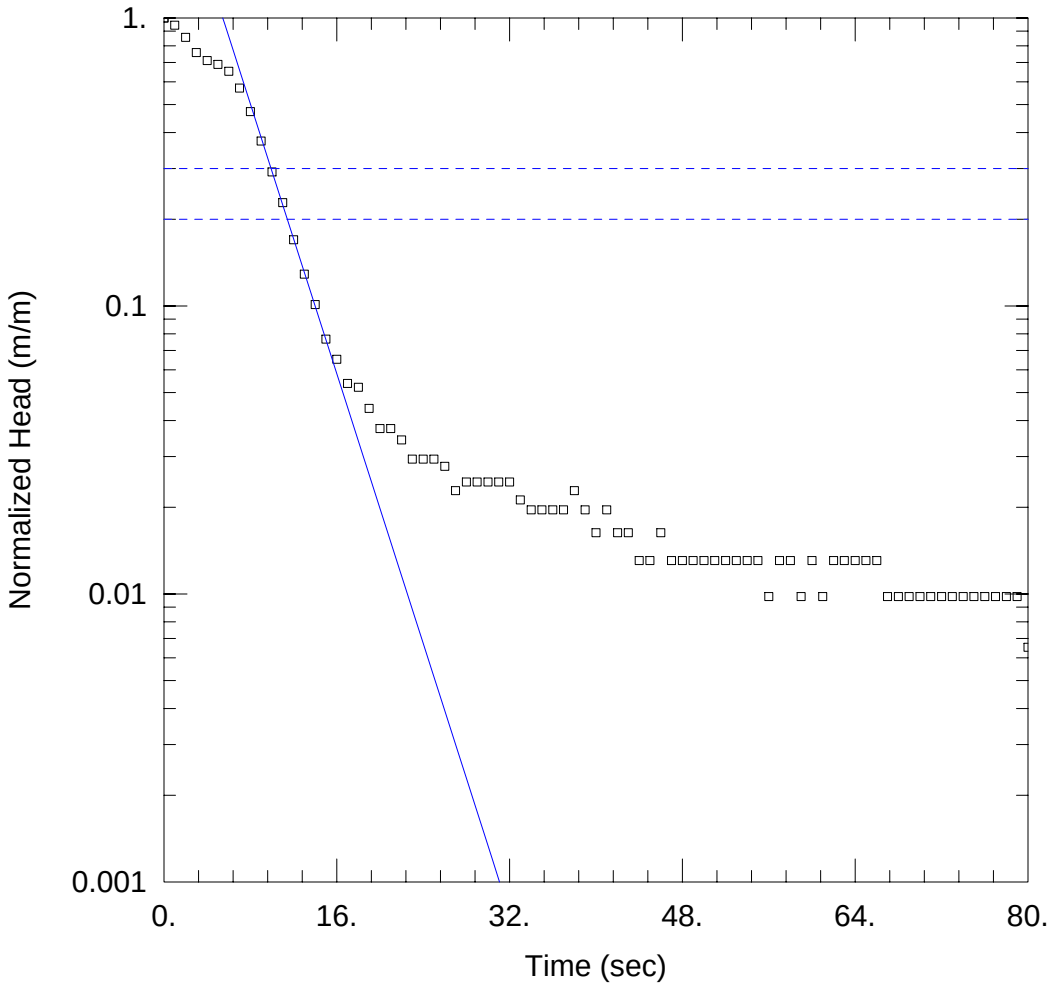
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB23-II-B)

Initial Displacement: 0.218 m
Total Well Penetration Depth: 14.63 m
Casing Radius: 0.0255 m
Static Water Column Height: 14.63 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 12.91 m/day
y0 = 0.05098 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB23-II-C.aqt
Date: 01/08/08 Time: 15:47:52

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB23-II-C

AQUIFER DATA

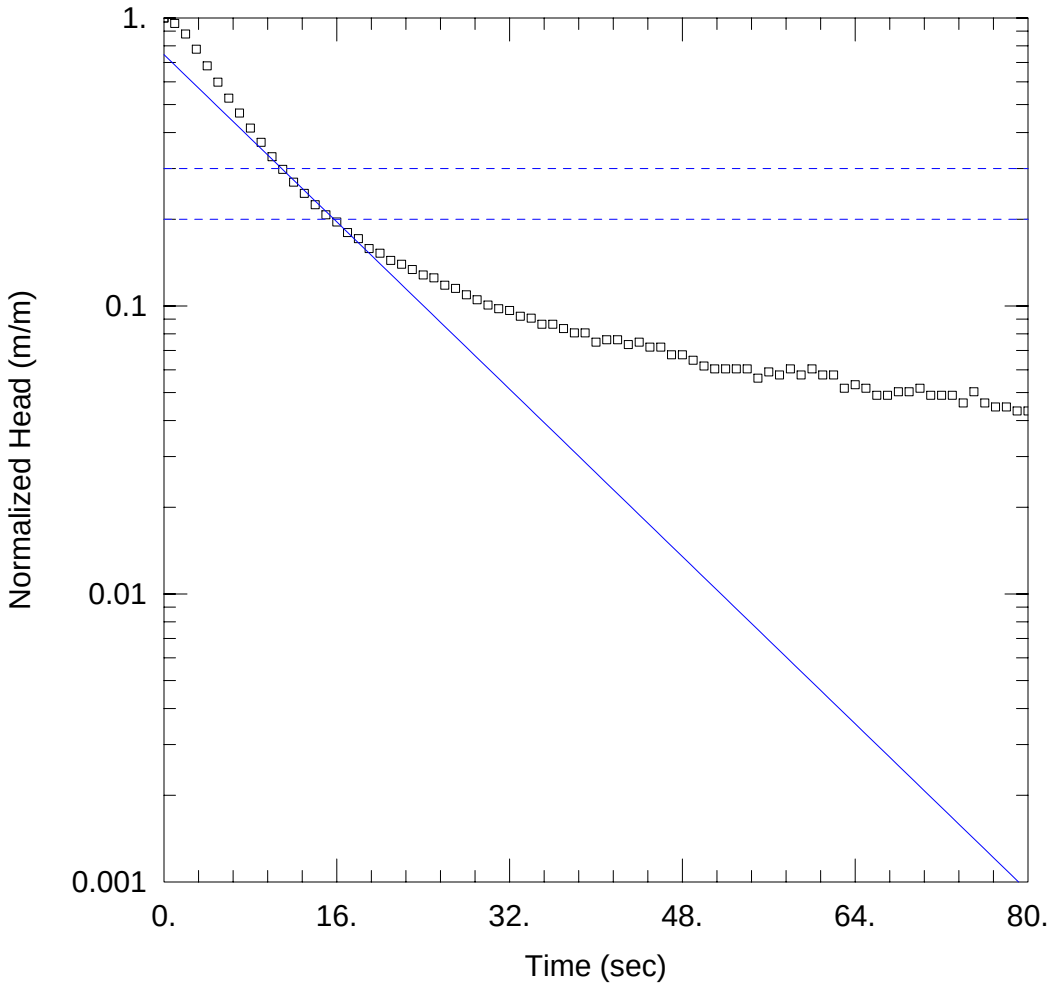
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB23-II-C)

Initial Displacement: 0.613 m
Total Well Penetration Depth: 30.39 m
Casing Radius: 0.0255 m
Static Water Column Height: 30.39 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 40.4 m/day
y0 = 2.661 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB24-I-B.aqt
Date: 01/08/08 Time: 15:48:17

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB24-I-B

AQUIFER DATA

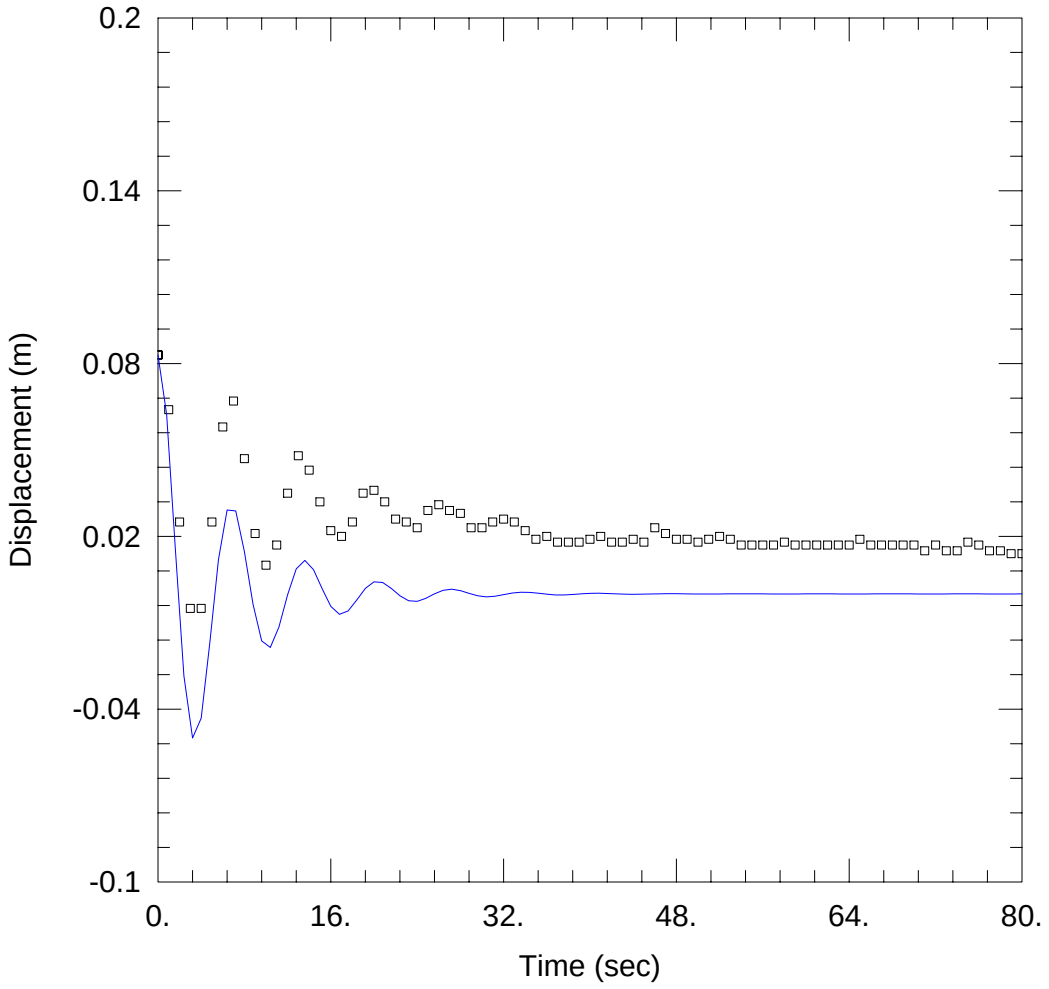
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB24-I-B)

Initial Displacement: 0.695 m
Total Well Penetration Depth: 5.5 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.5 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 8.83 m/day
y0 = 0.5182 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB24-II-C.aqt
Date: 01/08/08 Time: 15:48:42

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB24-II-C

AQUIFER DATA

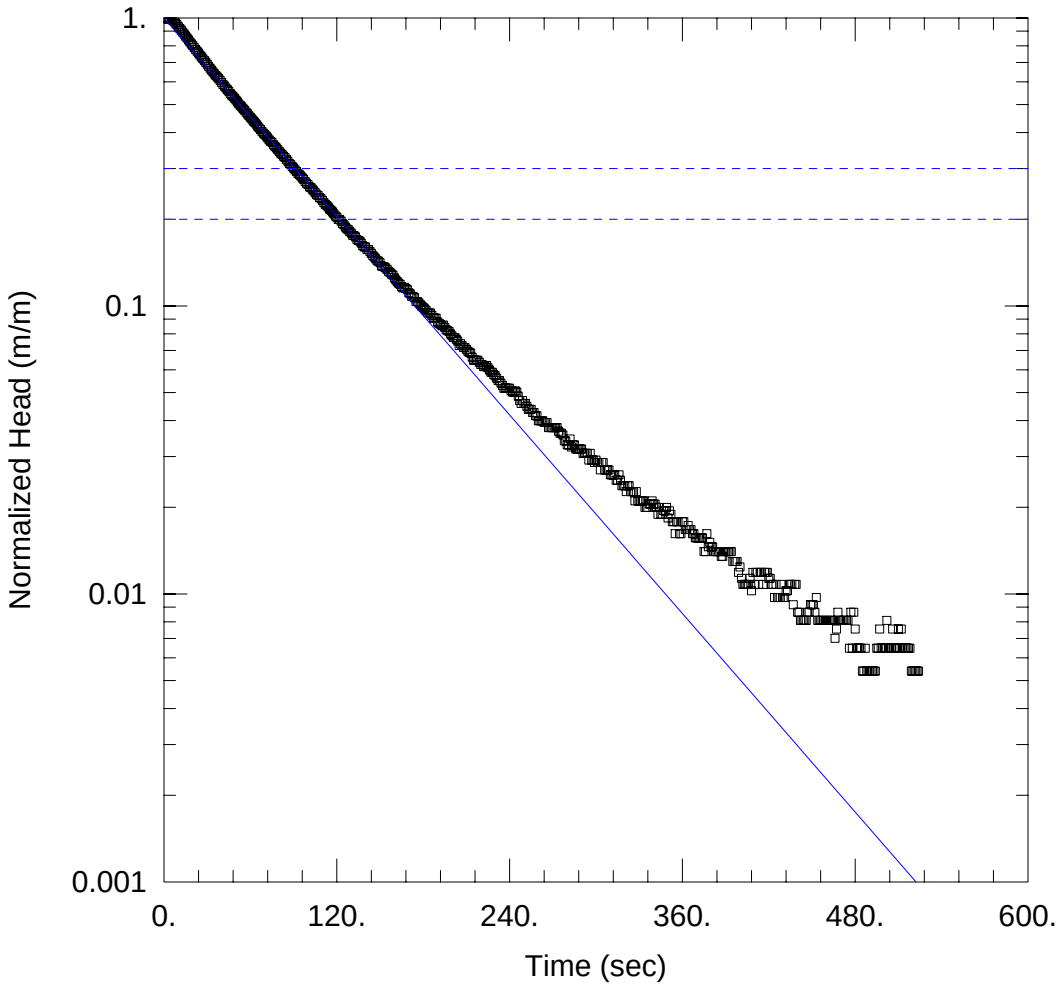
Saturated Thickness: 6.1 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB24-II-C)

Initial Displacement: 0.083 m
Total Well Penetration Depth: 15.93 m
Casing Radius: 0.0255 m
Static Water Column Height: 15.93 m
Screen Length: 6.1 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 74.24 m/day
Le = 11.13 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB24-II-D.aqt
Date: 01/08/08 Time: 15:49:32

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB24-II-D

AQUIFER DATA

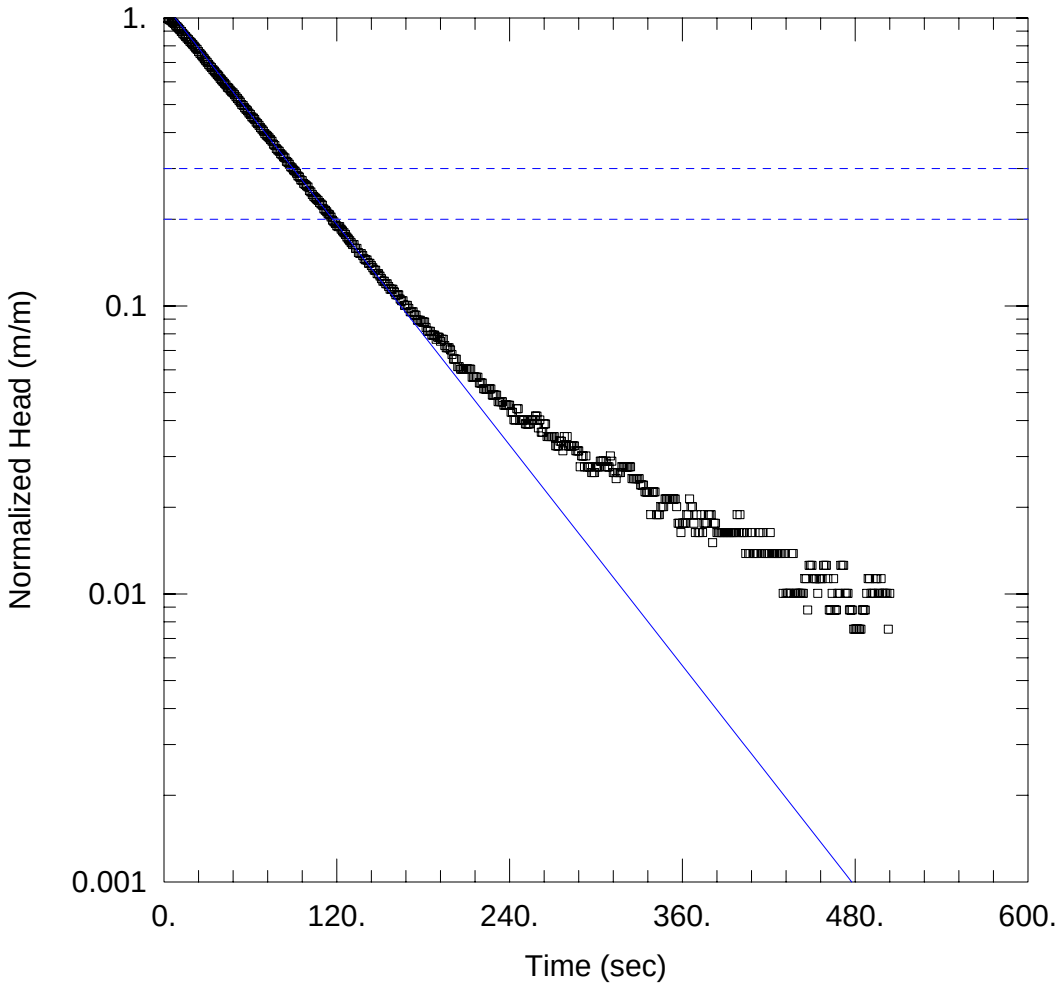
Saturated Thickness: 3.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB24-II-D)

Initial Displacement: 1.853 m
Total Well Penetration Depth: 31.6 m
Casing Radius: 0.0255 m
Static Water Column Height: 31.6 m
Screen Length: 3.1 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.6489 m/day
y0 = 1.855 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB25-I-A.aqt
Date: 01/08/08 Time: 15:50:02

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB25-I-A

AQUIFER DATA

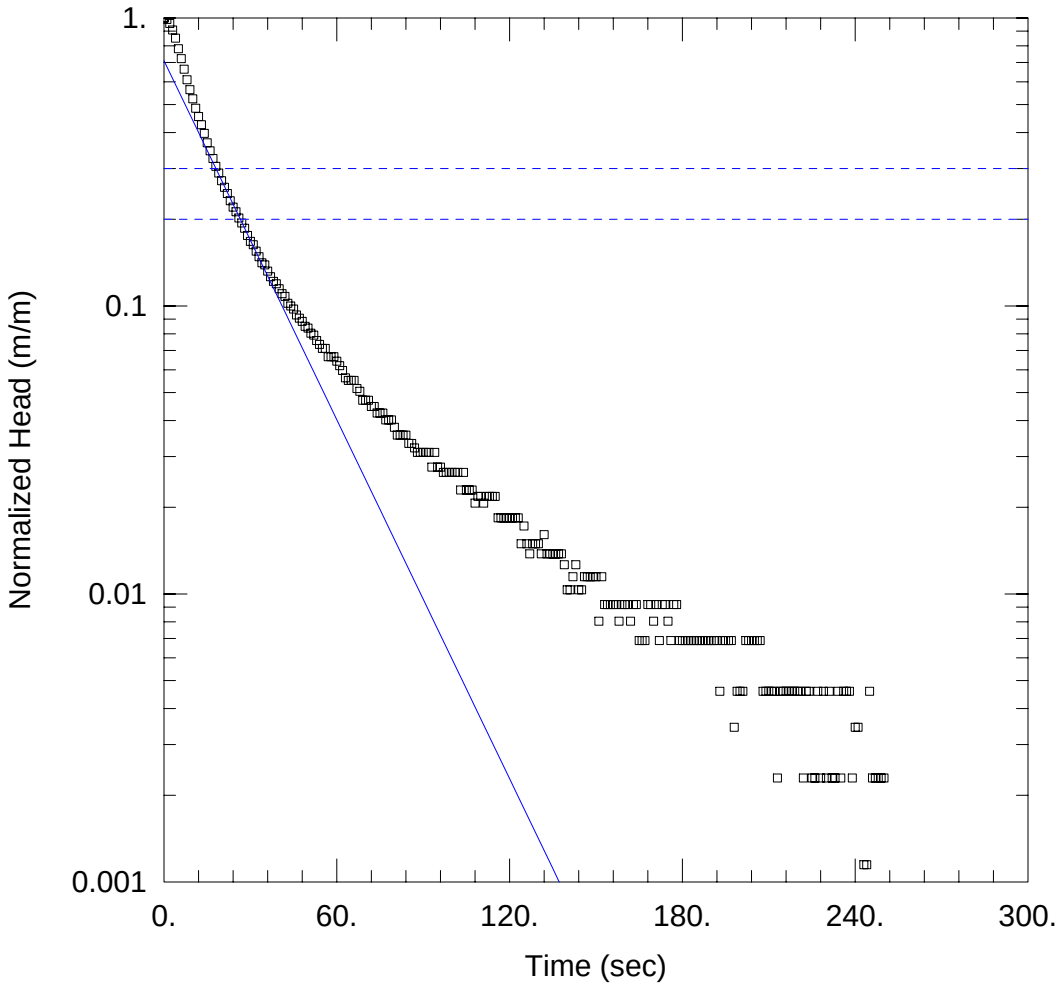
Saturated Thickness: 1.87 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB25-I-A)

Initial Displacement: 0.796 m
Total Well Penetration Depth: 1.87 m
Casing Radius: 0.0255 m
Static Water Column Height: 1.87 m
Screen Length: 1.87 m
Well Radius: 0.035 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.8514 m/day
y0 = 0.8914 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB25-II-B.aqt
Date: 01/08/08 Time: 15:50:43

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB25-II-B

AQUIFER DATA

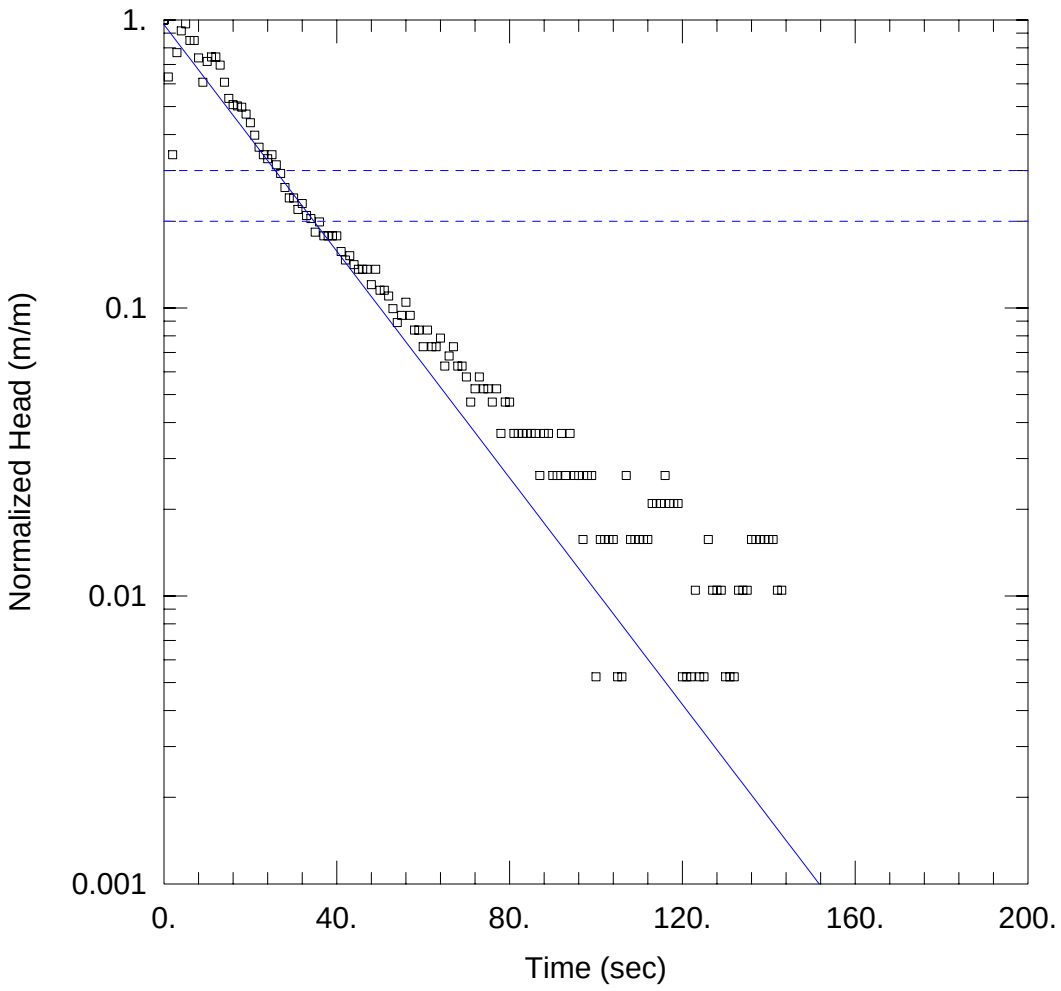
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB25-II-B)

Initial Displacement: 0.871 m
Total Well Penetration Depth: 10.52 m
Casing Radius: 0.0255 m
Static Water Column Height: 10.52 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.43 m/day
y0 = 0.6188 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB25-III-C.aqt
Date: 01/08/08 Time: 15:51:07

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB25-III-C

AQUIFER DATA

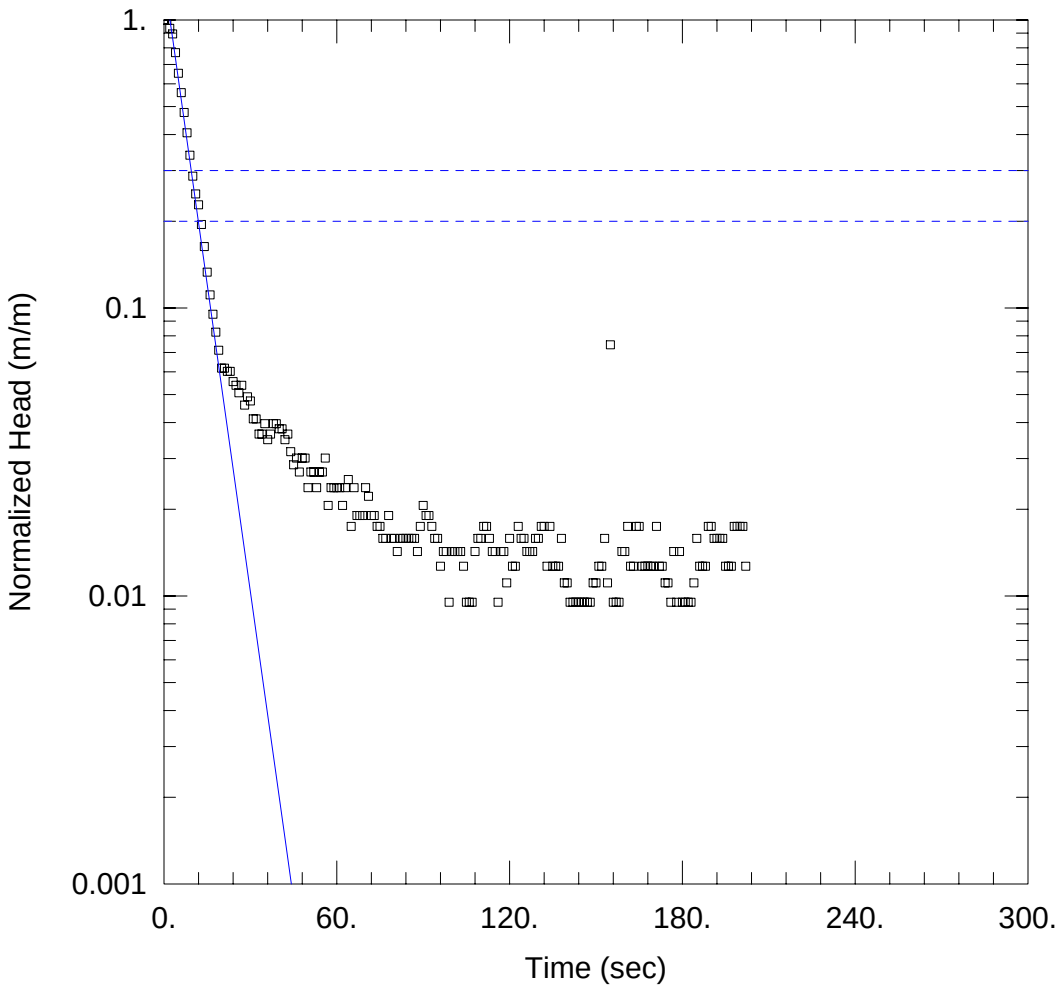
Saturated Thickness: 6.1 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB25-III-C)

Initial Displacement: 0.191 m
Total Well Penetration Depth: 13.16 m
Casing Radius: 0.0125 m
Static Water Column Height: 13.16 m
Screen Length: 6.1 m
Well Radius: 0.0125 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 2.864 m/day
y0 = 0.1839 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB25-III-D.aqt
Date: 01/08/08 Time: 15:51:41

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB25-III-D

AQUIFER DATA

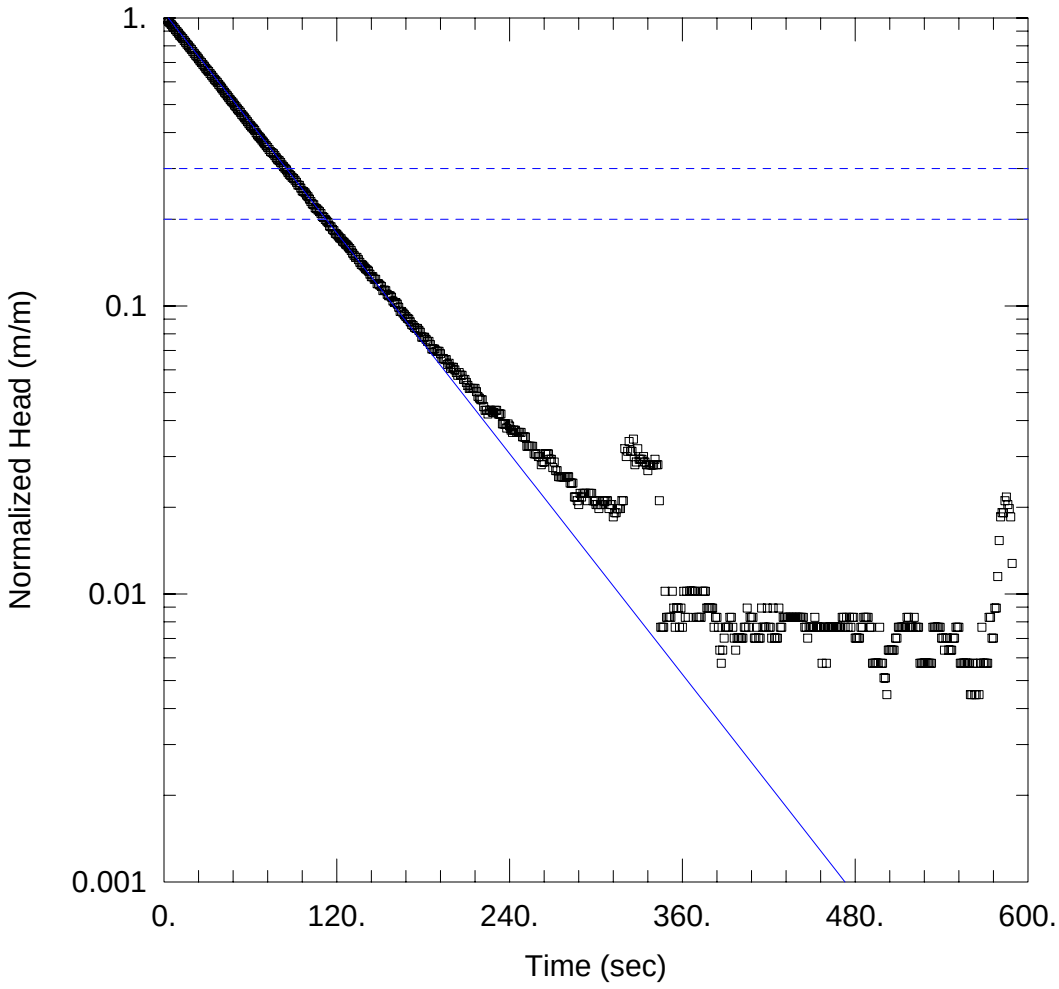
Saturated Thickness: 3.1 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB25-III-D)

Initial Displacement: 0.631 m
Total Well Penetration Depth: 31.13 m
Casing Radius: 0.0125 m
Static Water Column Height: 31.13 m
Screen Length: 3.1 m
Well Radius: 0.0125 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 6.441 m/day
y0 = 0.8908 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB26-I-B.aqt
Date: 01/08/08 Time: 15:52:06

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB26-I-B

AQUIFER DATA

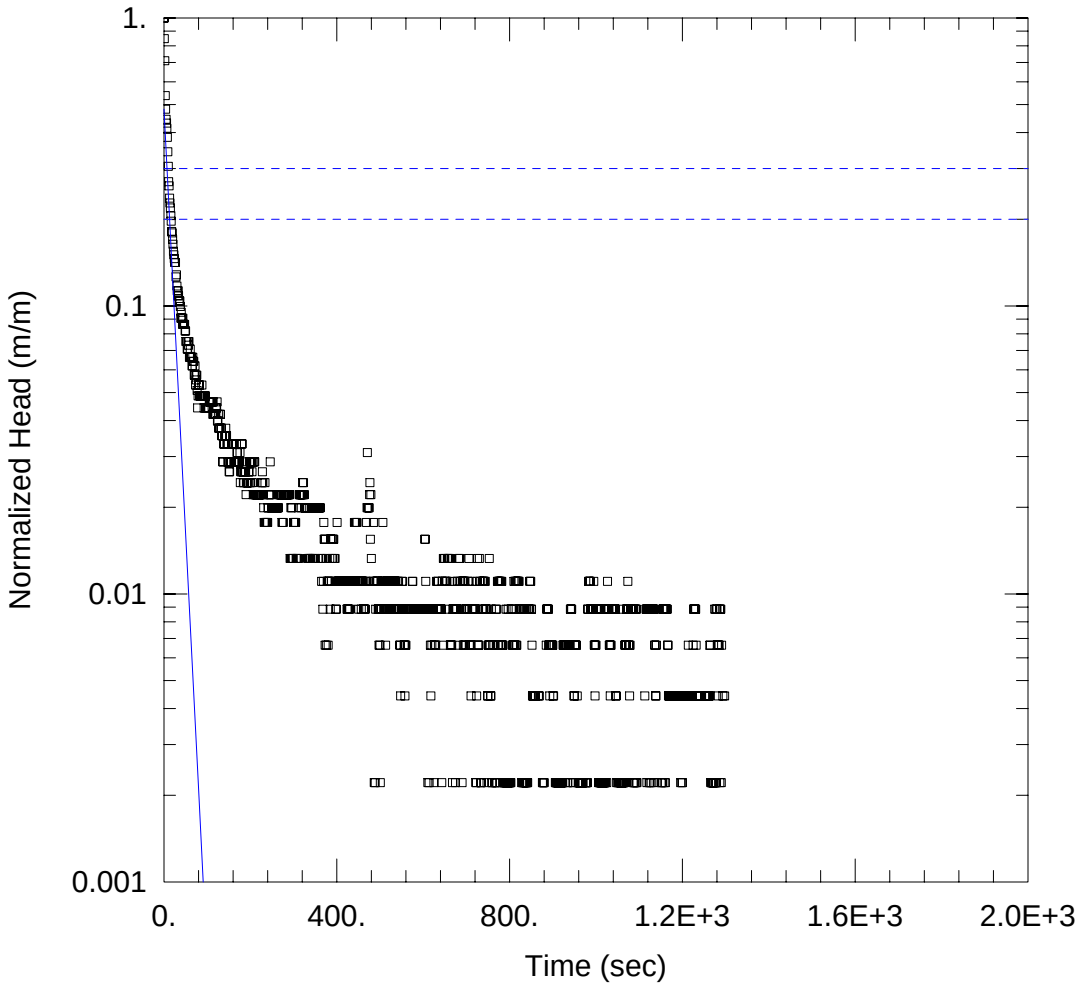
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB26-I-B)

Initial Displacement: 1.567 m
Total Well Penetration Depth: 5.61 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.61 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.876 m/day
y0 = 1.638 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB26-II-C.aqt
Date: 01/08/08 Time: 15:52:32

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB26-II-C

AQUIFER DATA

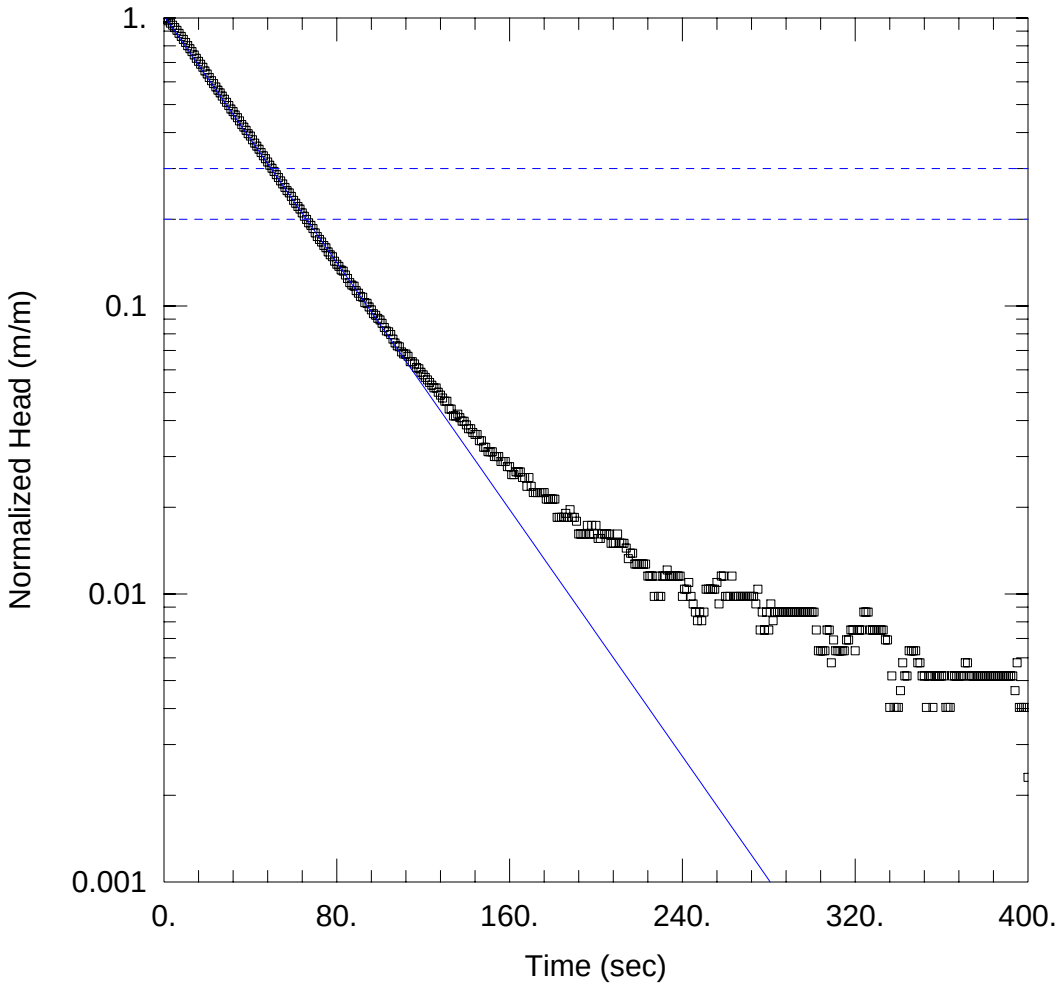
Saturated Thickness: 3.05 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB26-II-C)

Initial Displacement: 0.452 m
Total Well Penetration Depth: 17.6 m
Casing Radius: 0.0255 m
Static Water Column Height: 17.6 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 12.94 m/day
y0 = 0.2179 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB26-II-D.aqt
Date: 01/08/08 Time: 15:53:19

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB26-II-D

AQUIFER DATA

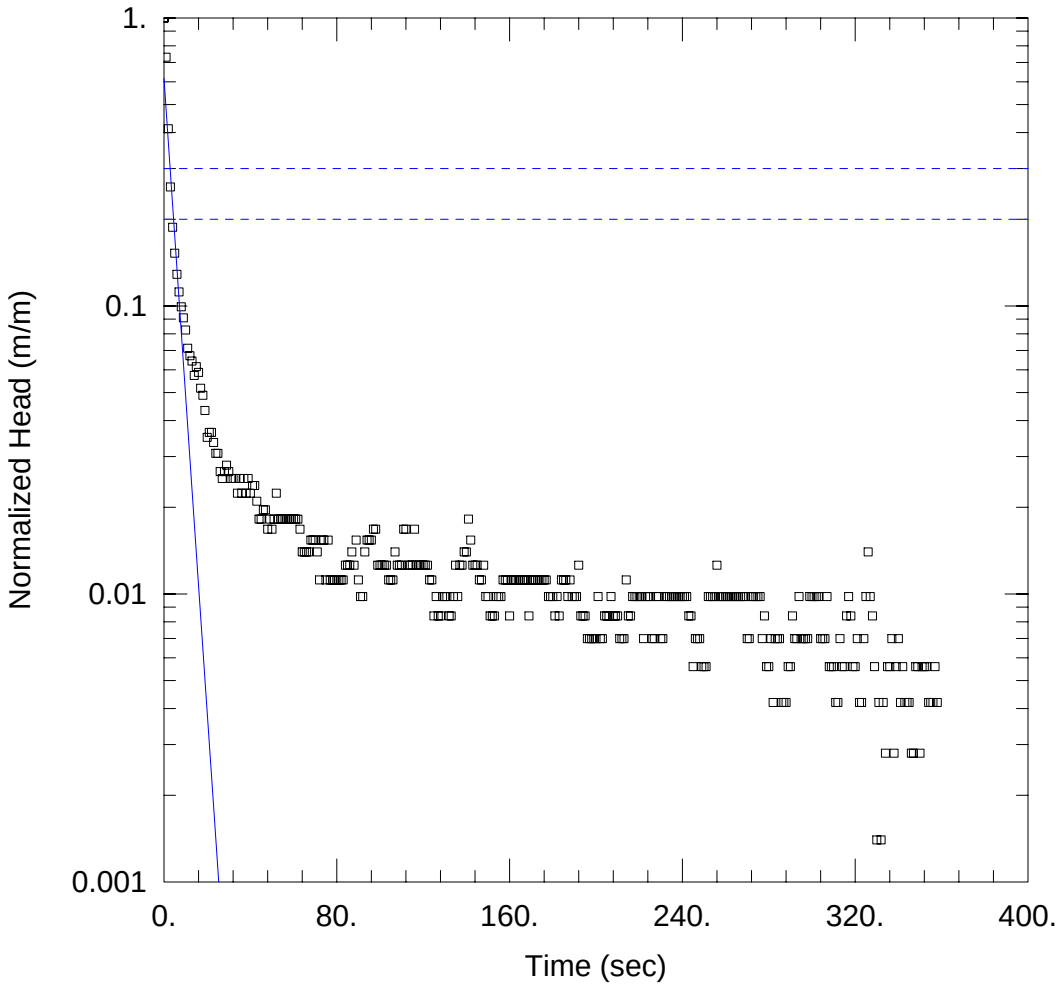
Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB26-II-F)

Initial Displacement: 1.734 m
Total Well Penetration Depth: 31.09 m
Casing Radius: 0.0255 m
Static Water Column Height: 31.08 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 1.311 m/day
y0 = 1.765 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB27-I-A.aqt
Date: 01/08/08 Time: 15:53:47

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB27-I-A

AQUIFER DATA

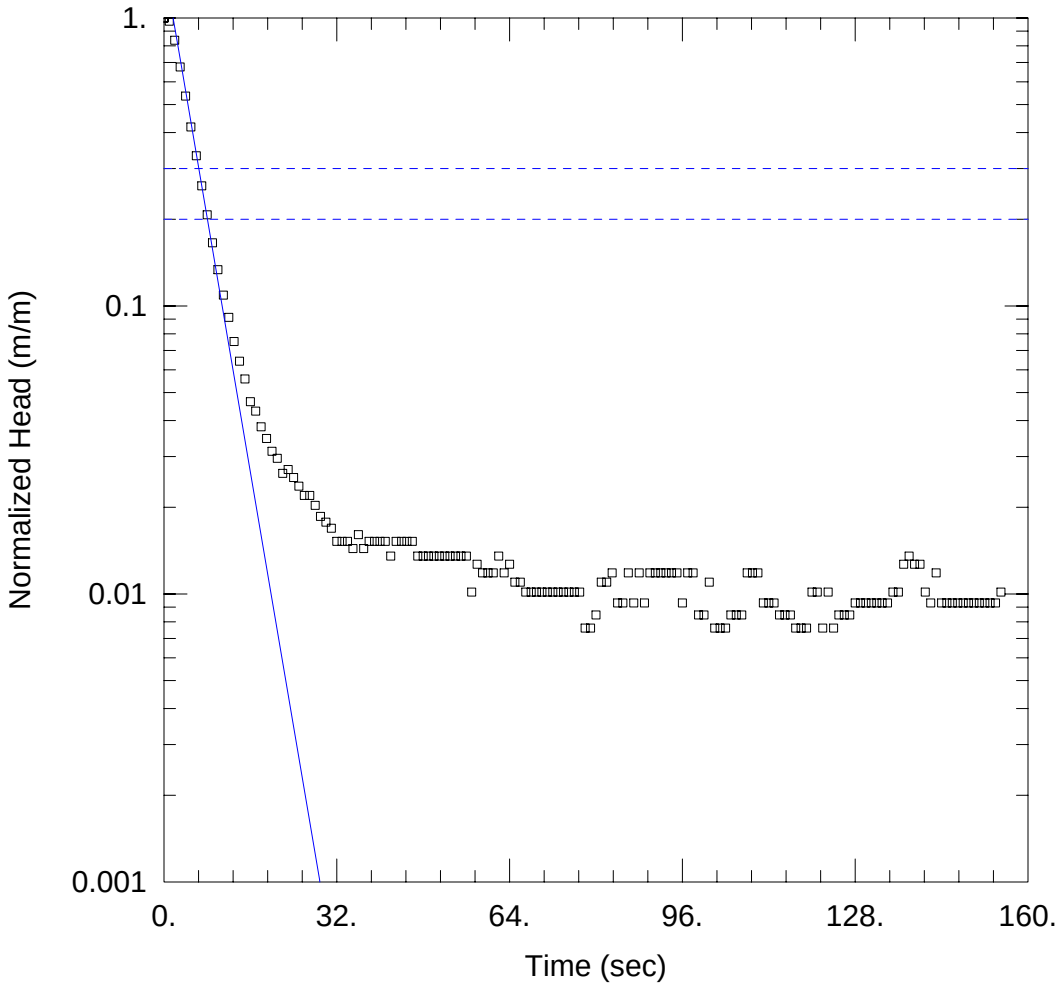
Saturated Thickness: 4.57 m
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB27-I-A)

Initial Displacement: 0.715 m
Total Well Penetration Depth: 7.895 m
Casing Radius: 0.0255 m
Static Water Column Height: 7.9 m
Screen Length: 4.57 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 18.74 m/day
y0 = 0.4403 m



WELL TEST ANALYSIS

Data Set: P:\1087\Data\GLL_20071102\SSPA analysis\MWB27-I-B.aqt
Date: 01/08/08 Time: 15:54:22

PROJECT INFORMATION

Company: SSPA
Project: 1087
Test Well: MWB27-I-B

AQUIFER DATA

Saturated Thickness: 3.05 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MWB27-I-B)

Initial Displacement: 1.183 m
Total Well Penetration Depth: 19.33 m
Casing Radius: 0.0255 m
Static Water Column Height: 19.33 m
Screen Length: 3.05 m
Well Radius: 0.0255 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 18.74 m/day
y0 = 1.83 m