APPENDIX 15

Environmental Baseline Report: Hydrogeology

Victoria GOLD CORP

Stantec

EAGLE GOLD PROJECT

Environmental Baseline Report: Hydrogeology

FINAL REPORT

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EXECUTIVE SUMMARY

Stantec was retained by Victoria Gold Corporation to prepare an environmental baseline report to characterize groundwater resources in the vicinity of the Eagle Gold Project. Field programs were conducted in 2009; following a review of current regulatory requirements and of historic data from consultant reports written in 1995, 1996, and 2006. This report presents background information, methods, and results for the baseline hydrogeology assessment.

This report presents background information, methods, and results for the baseline hydrogeology studies conducted during 2009 for Victoria Gold, related to their Eagle Gold Project. The objectives were to:

- Describe hydrogeologic and hydrostratigraphic units and their spatial variability
- Measure occurrence of groundwater
- Quantify hydraulic properties of the hydrostratigraphic units
- Sample, analyze, and summarize groundwater chemistry.

The 2009 field program consisted of locating and measuring groundwater levels, and determining the integrity of previously installed monitoring wells (1995 and 1996). Where the wells were intact, groundwater levels were measured. In most cases, these wells were then re-developed; recovery tests were conducted, and then sampled for selected analytical parameters. This was followed by a drilling program that consisted of; drilling, installing and developing wells, conducting hydraulic tests, measuring groundwater levels, and sampling wells for select analytical parameters.

During the 1995, 1996, and 2009 field programs, borings were drilled and monitoring wells were installed that penetrated unconsolidated surficial materials and/or bedrock with boring depths ranging from 3.7 m below ground (mbg) to 118.2 mbg. Surficial material in the local study area generally consisted of a thin cover of organic soils underlain by colluvium, followed by either metasedimentary or granodiorite weathered bedrock. The surficial material thickness and physical properties varied significantly throughout the local study area. Generally, groundwater was observed deeper (greater than 6 m below ground surface) at higher elevations and shallow (less than 6 m below ground surface) to artesian in lower elevations and in valley bottoms. Due to the low frequency of instantaneous groundwater level measurements, temporal trends were difficult to discern. Nevertheless, of the 58 wells assessed, only seven of the wells had groundwater levels that were measurably higher in 2009, while two had measurably lower groundwater levels, when compared to the 1995/1996 levels. In some cases, there was some evidence of a seasonal decrease in water levels prior to fall rains.

Three methods of hydraulic tests were performed (packer, aquifer pumping, and recovery tests) over the local study area. The results of hydraulic testing of the site were variable, generally ranging from 10^{-3} m/s to 10^{-7} m/s in the surficial deposits and from 10^{-5} m/s to 10^{-8} m/s for bedrock.

All groundwater quality, including samples collected by Hallam Knight Piésold in 1995 and 1996 and samples collected during the 2009 field program were tabulated and summarized. Results of analysis for wells sampled over multiple years were generally in the same range. Seasonal trends in

groundwater chemistry were not apparent, although this may be due to the short term and low frequency of sampling.

All groundwater quality data has been compared to federal, Canadian Council of Ministers of Environment (CCME) Canadian Water Quality Guidelines for the protection of Aquatic Life (December 2007), and to the British Columbia Contaminated Sites Regulation (CSR) Schedule 6 Generic Numerical Water Standards for the protection of Freshwater Aquatic Life (January 2009). The following parameters exceeded the CCME and/or CSR guidance parameters in the Project area: aluminum, arsenic, cadmium, copper, iron, lead, molybdenum, nickel, selenium, silver, and/or zinc. These exceedances do not imply that the groundwater at the site is currently contaminated; only that background concentrations of these parameters are higher than typically found in groundwater at other natural sites in Canada, and reflect the natural geologic and hydrogeologic conditions within these specific areas of the local study area.

ABBREVIATIONS AND ACRONYMS

AG ..... Ann Gulch
ALS ..... ALS Laboratory Group
BGC ..... BGC Engineering Ltd.
BH ..... borehole
CCME ..... Canadian Council of Ministers of Environment
cm ..... centimetre
CSR ..... Contaminated Sites Registry
DG ..... Dublin Gulch
DH ..... drill hole
HDPE ..... high density polyethylene
K ..... hydraulic conductivity
km ..... kilometre
m ..... metres
mm ..... millimetre
m asl ..... meters above sea level
mbg ..... meters below ground
meq ..... milliequivalent
mg/L ..... milligram per litre
m/s ..... metres per second
MW ..... monitoring well
n.a. ..... data not available
nm ..... not measured
OG ..... Olive Gulch
PVC ..... Polyvinly chloride
QA/QC ..... Quality assurance, quality control
STU ..... Stuttle Gulch
TDS ..... total dissolved solids
µS/cm ..... microsiemens per centimetre
µm ..... micrometre

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1 INTRODUCTION

This report presents background information, methods, and results for the baseline hydrogeology studies conducted during 2009 for the Eagle Gold Project proposed by Victoria Gold Corporation. The Eagle Gold Project is a proposed open pit gold mine within the Dublin Gulch watershed located 85 km northeast of the Village of Mayo, Yukon Territory.

Stantec was contracted by the Stratagold Corporation to begin environmental baseline studies in 2007. In 2009, Stratagold Corporation was acquired by Victoria Gold Corporation. During this time, the project was renamed from Dublin Gulch to Eagle Gold and the local study area was updated to reflect any changes to the geographic extent of the proposed Eagle Gold Project.

This report presents background information, methods, and results for the baseline hydrogeology assessment. The results of the baseline assessment include:

- Description of hydrogeologic and hydrostratigraphic units and their spatial variability
- The occurrence of groundwater
- Quantification of hydraulic properties of the hydrostratigraphic units
- Groundwater chemistry.

2 BACKGROUND

2.1 Study Area

The study area is located approximately 40 km north of The Village of Mayo in the Mayo Mining District, central Yukon (Figure 2-1), The local study area (LSA) includes the Dublin Gulch and Eagle Creek watersheds, which both drain to Haggart Creek (Figure 2-2).

2.1.1 Regional Setting

The regional setting consists of the Mayo Lake-Ross River Ecoregion, which encompasses the Stewart, Macmillan, and Pelly plateaus, a subdivision of the Yukon Plateau physiographic subdivision. Terrain consists of rolling upland plateaus and small mountain groups with nearly level tablelands dissected by deeply cut, generally broad U-shaped valleys (Rescan 1997).

Haggart Creek (Figure 2-2) drains to the South McQuesten River which ultimately reaches the Yukon River via the Stewart River. The local study area (LSA) includes Eagle Pup, Stuttle and Platinum Gulches which drain to Haggart Creek via Eagle Creek, and Bawn-Boy, Cascallen, Olive, Stewart, and Ann Gulches which drain to Haggart Creek via Dublin Gulch. Topographic elevations of the LSA range from approximately 760 m along Haggart Creek to over 1,500 m at the Dublin Gulch divide.

2.1.2 Surficial Geology

The general area was extensively glaciated during the Pleistocene period, although some topographically high areas protruded above the ice and were not affected by glaciation. Bond's (1998) surficial geology map of the Dublin Gulch area shows the extent of previous glaciation. Regionally, the past two glacial periods are known as the McConnell (approximately 23,000 to 29,000 years BP) and the Reid (190,000 to 310,000 BP) (Bond 1998; LeBarge, et al., 2002). The McConnell glacier advanced from the east, locally along the South McQuesten River valley, but did not extend to where it meets Haggart Creek. The Reid glacier advanced from the north and east, locally along Haggart Creek and Lynx Creek valleys (Bond 1999). Within the Dublin Gulch valley, the glacial ice extended as far east as Stewart Gulch, and partially into Ann, Stuttle, and Platinum Gulches, and Eagle Pup (to approximately 1,050 m asl) (Bond 1998).

For this reason, higher elevations have weathered saprolite to varying depths (from less than one metre to several tens of metres). The surficial material in the lower reaches of Bawn-Boy, Olive, and Stewart Gulches consist of alluvial material. In the lower reaches of Dublin Gulch and Eagle Pup, placer-mining tailings are present. South in the Dublin Gulch valley and along the Haggart Creek valley wall there is a till blanket covered with a colluvial veneer. Where Dublin Gulch meets Haggart Creek, an alluvial fan is present. South of the fan, additional placer tailings, as well as glaciofluvial complexes, exist (complexes include: deposits associated with ice contact environments, buried ice, re-sedimented till, and glaciolacustrine sediments). Alluvial fan deposits exist where tributaries flow into Creek (Bond 1998 and LeBarge, et al., 2002), (see Figure 2-3).

Discontinuous permafrost was observed, and there was field evidence of extensive thermal degradation in places. The extent of permafrost is inferred based on surficial expression, so the extent is not well-defined and thermal degradation of permafrost may be affecting groundwater movement. Additional surficial geology and information on permafrost is available from the concurrent baseline studies document *Surficial Geology, Terrain, and Soils Report*.

2.1.3 Bedrock Geology

The central Yukon is cut by extensive, northward directed thrust sheets formed in the early Cretaceous. There are three main thrust sheets: the easternmost Dawson Thrust, the central Tombstone Thrust, and the westernmost Robert Service Thrust. The latter has Upper Proterzoic to Lower Cambrian Hyland Group rocks in its hanging-wall and Mississippian Keno Hill Quartzite in its footwall. The LSA is situated in the hanging wall of the Robert Service Thrust. Hyland Group rocks are continental margin sediments comprised of mudstone, siltsone, quartzite, phyllite, schist, and minor carbonate. To the west of the project area, Cambrian to Devonian continental margin sediments overlie the Hyland Group.

Deformation related to the thrusting resulted in the widespread development of foliation, and phyllitic to schistose fabric is common. A series of regional scale gentle folds deformed the foliation. Locally the McQuesten anticline caused Cretaceous aged intrusions, which range from syenite to granodiorite in composition in the Selwyn Basin clastic rocks. Mineral deposits and occurrences are associated with these intrusions and are generally vein, shear, or skarn related (Rescan 1997).

The project property is underlain by deformed Upper Proterozoic to Lower Cambrian clastic rocks of the Hyland Group which have been intruded by Cretaceous age Tombstone suite stocks, dykes, and sills. Alteration and gold-tungsten mineralization are directly associated with the intrusion.

Generally, the bedrock in the LSA is dominated by a northeast elongated granodiorite stock, which measures up to approximately 2 km in width and approximately 5.5 km in length, and extends from Platinum Gulch to Potato Hills (Figure 2-4). The stock has intruded and metamorphosed the surrounding host metasediment, and is well jointed and fractured. Near the intrusive contact, the metasediments have been altered resulting in an apparent hardening of the rock. The metasediment is generally strongly foliated, and generally dipping to the southwest at approximately 30 degrees, as well as heavily jointed (Knight Piésold 1996a and 1996b).

2.2 Review of Existing Literature

Prior to the field program, existing information on the hydrogeology in the LSA was collected and reviewed. This information consisted of maps, federal government documents, and previous studies in the area, including the following sources:

- Bulletin 13 Placer gold deposits of the Mayo area, central Yukon, (LeBarge, et al., 2002)
- Dublin Gulch Project, Initial Environmental Evaluation Addendum Section 8.0, Eagle Pup MWRSA (Sitka Corp. 1996)
- Dublin Gulch Project Initial Environmental Evaluation Addendum Volume I. (Hallam Knight Piésold Ltd. 1996a)
- Dublin Gulch Project Initial Environmental Evaluation Volume II Environmental Setting. (Hallam Knight Piésold Ltd. 1996b)
- Field Investigation Data Report Dublin Gulch Project (Sitka Corp. 1996)
- Hydrogeology Characterization and Assessment, Dublin Gulch Gold Project Yukon (GeoViro Engineering Ltd. 1996)
- Placer Gold Deposits of the Mayo Area, Central Yukon (LeBarge, et al., 2002)
- Report on Feasibility Design of the Heap Leach Pad and Associated Structures (Knight Piésold Ltd. Consulting Engineers 1996a)
- Report on Feasibility Design of the Mine Waste Rock Storage Area (Knight Piésold Ltd. Consulting Engineers 1996b)
- Site Facilities Geotechnical Investigation Factual Data Report (BGC Engineering Inc. 2009).

2.3 Summary of Previous Investigations

Preliminary hydrogeological investigations in the local study area were undertaken in 1995 and 1996 by Knight Piésold Ltd. (1995, 1996a and 1996b), GeoViro Engineering Ltd. (1996), and Hallam Knight Piésold Ltd. (1996a and 1996b) as part of general geotechnical site investigations, detailed hydrogeological investigations, and baseline water quality investigations, respectively. Original data

reported by Knight Piésold, GeoViro, and Hallam Knight Piésold considered useful to the baseline hydrogeology is summarized in this report. These include geological information, packer permeability test data, hydraulic recovery test data, aquifer pump test data, water level data and groundwater quality results. The field investigations are summarized below. The results of the 1995 and 1996 field investigations are summarized together with the more recent field work data compilations in Section 4.0 (Results).

Knight Piésold 1995

Knight Piésold and First Dynasty Mines Ltd. drilled 57 boreholes using reverse circulation diamond drill HQ rock core (96.0 mm), for geotechnical and exploration purposes. Packer injection tests were conducted in thirteen of the boreholes at multiple intervals to estimate hydraulic conductivity. The hydraulic conductivity was calculated from the packer test data in general accordance with the Hvorselv (1951) equation.

Further, twelve representative holes were completed as monitoring wells in the Eagle Pup, and Dublin, Platinum, Stuttle, and Bawn Boy Gulches (DH95-105, DH95-106, DH95-108, DH95-139, DH95-141, DH95-144, DH95-146, DH95-147, DH95-149DH95-150, DH95-151, and DH95-152, Figure 2-5. Wells were completed using 58 mm Schedule 80 flush treaded PVC. Groundwater levels were then measured on an irregular basis during the 1995 season by Knight Piésold.

GeoViro Engineering 1996

GeoViro drilled an additional 35 boreholes and installed monitoring wells in each borehole in Eagle Pup, and the Dublin, Platinum, Stuttle, and Bawn Boy Gulches. Boreholes were drilled using either solid-stem auger or reverse circulation diamond drilling to depths ranging from 3.4 m to 79.2 m.

Deeper boreholes were installed with 51 mm Schedule 40 threaded PVC, with 10 slot screens (MW96-1, MW96-2, MW96-3, MW96-4, MW96-5, 6b, MW96-7b, MW96-8, MW96-9b, MW96-10b, MW96-12b, MW96-13b, MW96-14b, MW96-15b, MW96-16b, MW96-17b, MW96-18, MW96-23, MW96-24, MW96-25, MW96-26, MW96-27, and GT96-26). In some cases, shallow monitoring wells were installed adjacent to deeper monitoring wells using 25 mm Schedule 40 threaded PVC, with 10 slot screens (MW96-6a, MW96-7z, MW96-9a, MW96-10a, MW96-12a, MW96-13a, MW96-14, 15a, MW96-16a, and MW96-17a, Figure 2-5). All wells were completed with 10/20 silica filter sand, sealed with bentonite, and backfilled the remaining annulus with drill cuttings. Groundwater levels were measured on an irregular basis during the 1996 season by GeoViro.

Two boreholes (MW96-11 and MW96-19) were left open to conduct aquifer pumping tests. Surface steel casing (150 mm) was installed through to bedrock so the tests represent bedrock hydrogeologic conditions. Step drawdown tests and a 24 hour constant rate pumping tests were completed in each borehole. Drawdown was measured in the pumping well and in nearby observation wells. The transmissivity was estimated based on the Theis non-leaky artesian formula (Freeze and Cherry 1979).

Recovery tests (falling head tests) were conducted in 15 monitoring wells. The data were analysed based on methodology presented by Cooper, et al., (1967), Bouwer and Rice (1976), and Bouwer (1989) depending on the aquifer and monitoring well conditions.

Hallam Knight Piésold 1996a and 1996b

Hallam Knight Piésold collected baseline groundwater quality in 1996 from the wells installed in1995 and 1996. Monitoring wells were developed and sampled using Waterra high density polyethylene (HDPE) tubing and foot-valve system. Prior to collecting samples each well was purged, at least three well-volumes, and standard QA/QC procedures were followed.

3 METHODS

The 2009 field program consisted of the following:

- Locating, measuring groundwater levels, and determining the integrity of 1995 and 1996 monitoring wells. If the wells were intact, then groundwater levels were measured. In most cases, these wells were then re-developed, recovery tests were conducted, and then sampled for selected analytical parameters.
- Drilling, installing and developing wells, conducting hydraulic tests, measuring groundwater levels, and sampling wells for select analytical parameters.

3.1 Monitoring Well Drilling and Installation

3.1.1 Well Drilling

Eleven boreholes were drilled and installed as monitoring wells during August 10 – 31, 2009 by Top Rank Diamond Driller, subcontracted to Aggressive Drilling of Kelowna, BC. Top Rank Diamond Drilling used a Pioneer 2 rubber tire mounted auger driller rig equipped with a HQ3 core barrel for rock coring and a 1.4 m (4.5-foot) solid-stem auger for drilling and sampling the unconsolidated surficial deposits. An AST bobcat was used to transport the drill rig around site. Solid-stem auger drilling was advanced to limits of drilling capability (35 to 40 feet, i.e., length of auger) or to refusal (boulders or bedrock). Rock coring was done using an HQ core barrel, which provided 61.2 mm diameter core and 96.0 mm diameter hole.

A field geologist was with the drill rig to observe drilling progress, log the soil for hydrostratigraphy, take photographs, and design and observe monitoring well installation. Borehole logs and monitoring well completion details can be found in Appendix A. Depending on the ground conditions, whether surficial material or bedrock was being logged, the following core parameters were recorded:

- Run depth
- Run length
- Recovery (length and percent)

- Density or consistency
- Colour
- Moisture
- Plasticity
- Cohesiveness
- Sedimentary structure
- Alteration and weathering
- Interpreted depositional environment
- Stratigraphic contact
- Fractures or jointing.

3.1.2 Well Completion

The 11 boreholes were completed as monitoring wells (MW09-AG1, MW09-AG2, MW09-DG1, MW09-DG2, MW09-DG4, MW09-DG5, MW09-OG1, MW09-OG2, MW09-OG3, MW09-SUT1, and MW09-STU2, Figure 2-5) using schedule 40 PVC well materials. The screened sections had slot openings of 0.25 mm (0.010 inch or 10 slot). The lengths of the screened intervals were 3.05 m for 51 mm diameter wells.

A sand pack of silica sand (#10-20, grain size 1 mm) was placed around the screen, to approximately 0.5 m above the screen section of the wells. The annulus was then sealed with bentonite chips. Caution was exercised to install proper seals to prevent bridging of the bentonite chips, borehole instability and collapse, and/or to prevent surface water from entering the borehole. The seal was achieved by pouring the bentonite chips very slowly and regularly checking the depth to the bentonite seal using a downhole measuring tape.

3.2 Groundwater Level Measurements

Groundwater levels were recorded at existing (1995 – 1996) and new (2009) monitoring wells using a Solinst water level meter. Groundwater levels were measured monthly from July through October 2009.

Groundwater elevations at the well locations were surveyed by Underhill Geomatics Ltd. of Whitehorse, Yukon using ground based differential GPS methods. The casing stick-up and ground elevation was measured at each new (2009) and existing (1995/1996) monitoring well location.

3.3 Well Recovery Testing

Hydraulic tests were conducted in all new and select existing monitoring wells to determine the hydraulic conductivity of hydrogeologic units. All wells were developed (or redeveloped for existing monitoring wells) prior to testing to remove suspended sediments, develop the sand pack, and remove possible drill water that had been lost into the formation during drilling. Tests were performed once the well had been developed and recovered to static water level. The recovery test used a slug

(a piece of 32 mm diameter PVC pipe, filled with sand, and capped at both ends) to quickly change water levels in the wells. Slugs of two different lengths (0.94 m and 1.86 m) were used to assess the dependence of test response on the magnitude of the initial displacement. A minimum of three falling head (slug inserted into well) and rising head (slugs removed from well) tests were performed on each well. To ensure the most accurate results possible, all testing was done in the following manner:

- A Solinst pressure transducer was placed one meter below the bottom of the slug and was used to continuously record the changes in water levels.
- Approximately 10 minutes after the pressure transducer was installed, and water levels had stabilized, tests were performed.
- Water level readings were confirmed with manual measurements taken with the Solinst water level meter.
- Tests were run to approximately 95% completion.

The hydraulic tests results from the 2009 field program were interpreted using methods within the Aquifer Test version 3.0 software by Waterloo Hydrogeologic (now Schlumberger Water Services).

Hydraulic conductivity was estimated using an analytical relation between the instantaneous displacement of water in a well bore and the resulting rate of head change. These analyses were based on the Bouwer and Rice (1976) and KGS (2000) for fully or partially penetrating wells in unconfined aquifers. Both methods of analysis used a modified version of the Theim equation (Freeze and Cherry 1979) to estimate hydraulic conductivity:

$$K = \frac{r_c^2 \ln(R_e/r_w)}{2L} \frac{1}{t} ln \frac{y_0}{y_t}$$

where:

K = hydraulic conductivity [L/T]

r_c= radius of the well casing [L]

R_e= effective radial distance over which the head difference is dissipated [L]

r_w = radial distance between well center and undisturbed aquifer [L]

L = screened interval [L]

y_0 = difference between static (undisturbed pre-test) and slug displaced water level at time 0 [L]

y_t = difference between static (undisturbed pre-test) and slug displaced water levels at time t [L]

t = time [T].

The equation assumes that the aquifer is homogeneous and isotropic, the water level change around the well is negligible, and no water flows through an unsaturated material above the water table.

3.4 Groundwater Sampling

Groundwater samples were collected from existing and new monitoring wells using disposable bailers. Sample bottles were provided by ALS Laboratory Group (ALS). Non-powdered nitril gloves were worn at all stages of the sampling procedure to prevent sample contamination.

The samples were analyzed for physical parameters, nutrients, total metals, dissolved metals, and total organic carbon. The samples to be analyzed for dissolved metals were filtered using a 0.45 µm sterilized membrane. The appropriate preservatives were added to the samples, as outlined by ALS. The samples were labeled and stored in a chilled cooler with ice packs during transport to the lab. A chain of custody form detailing the sampling, handling information, and required analyses was prepared and included with the sample prior to shipping via air cargo to ALS in Vancouver, BC. All samples were received by lab within QA/QC protocol.

Field and duplicate samples were also collected based on standard QA/QC protocols.

4 RESULTS

4.1 Geologic Setting

The 11 new borings penetrated unconsolidated surficial materials and/or bedrock with boring depths ranging from 3.7 mbg to 118.2 mbg. Boring logs are provided in Appendix A. Surficial material in the LSA generally consists of a thin cover of organic soils underlain by colluvium, followed by either metasedimentary or granodiorite weathered bedrock. The surficial material thickness and physical properties vary significantly throughout the LSA.

The surficial deposits consist of undifferentiated colluvium and alluvium material that are extensive throughout the LSA and generally consist of loose, angular to sub-rounded gravelly silt or gravelly sand material, with clasts of metasedimentary or granodiorite origin (depending on location). Observed colluvium thicknesses ranged from 0.2 m to 15.2 m.

The lower portions of the Dublin Gulch valley and adjacent Haggart Creek Valley are flanked by till. Till is exposed on the lower south valley wall near the valley mouth and was observed to be covered with a thin veneer of glaciofluvial and glaciolacustrine materials, and capped by colluvial material of varying thickness. This material was observed to be weathered and cemented in part. Further away from Dublin Gulch the till pinches out, following the contour of the valley wall. The colluvial to till sequence was observed to be approximately 20 m deep in Haggart Creek Valley south of Dublin Gulch, and is expected to be deeper, based on observations made along the east side of lower Haggart Creek.

In the middle of the Dublin Gulch valley, the fluvial materials were extensively reworked by placer mining operations. Large stockpiles of washed sands, gravels, and fine-grained deposits (i.e., settling ponds) were present, with Dublin Gulch and Eagle Pup flowing along the valley sides of the

reworked material. In general, the placer deposits consist of graded sands and gravels with cobbles and trace boulders, and are typically comprised of sub-rounded metasediment and granodiorite clasts.

There are two bedrock types found on site: metasediment and granodiorite. Recorded depths to bedrock in the LSA ranged from 0 m to over 20 m. The distinction between colluvium and weathered bedrock was often subtle, as the two materials can be similar in character. For this reason depths noted in the 2009 borehole logs are approximate (it is assumed the same for historic field program).

4.2 Monitoring Well Logs

Fifty-two monitoring wells have been installed throughout the LSA in either 1995, 1996, or 2009. Their locations are shown in Figure 2-5. Table 1, Appendix B is a summary of monitoring well log data including completion date, location, elevation and screen interval.

Two monitoring wells were installed in the Ann Gulch basin during the 2009 field program (MW09-AG1 and MW09-AG2). The monitoring wells were completed at approximately the same depth, up to 16.9 mbg.

Five monitoring wells were installed in lower Dublin Gulch basin, one during the 1995 program (DH95-152) and four during the 2009 field program (MW09-DG1, MW09-DG2, MW09-DG4, and MW09-DG5). The depths of completion range from 7.9 mbg to 30.2 mbg.

Seven monitoring wells were installed in the Platinum Gulch basin, one during the 1995 field program (DH95-108) and six during the 1996 field program (MW96-23, MW96-24, MW96-25, GT96-33, GT96-34, and GT96-35). The depths of completion range from 3.7 mbg to 118.2 mbg.

Ten monitoring wells were installed in the Stuttle Gulch basin, two during the 1995 field program (DH95-105 and DH95-106), six during the 1996 field program (MW96-16a, MW96-16b, MW96-17a, MW96-17b, MW96-18, and MW96-19), and two during the 2009 field program (MW09-STU1 and MW09-STU2). The depths of the monitoring wells range from 4.6 mbg to 82.3 mbg.

Nine monitoring wells were installed in the Eagle Pup basin, one during the 1995 field program (DH95-151) and eight during the 1996 field program (MW96-12a, MW96-12b, MW96-13a, MW96-13b, MW96-14a, MW96-14b, MW96-15a, and MW96-15b). The depths of completion ranged from 5.3 mbg to 38.1 mbg.

One monitoring well was installed in the lower Stewart Gulch basin during the 1995 field program (DH95-150); it was completed to 30.2 mbg.

Two monitoring wells were installed in the Olive Gulch basin during the 2009 field program (MW09-OG2 and MW09-OG3). The wells were completed to 16.2 mbg.

Twenty six monitoring wells were installed in the upper Bawn Boy Gulch basin, seven during the 1995 field program (DH95-139, DH95-141, DH95-142, DH95-144, DH95-146, DH95-147, and DH95-149) and 19 during the 1996 field program (MW96-1, MW96-2, MW96-3, MW96-4, MW96-5, MW96-6a, MW96-6b, MW96-7a, MW96-7b, MW96-8, MW96-9a, MW96-9b, MW96-10a, MW96-10b, MW96-11,

MW96-26, MW96-27, GT96-26, and GT96-28). The depths of completion ranged from 3.7 mbg to 56.4 mbg.

4.3 Groundwater Elevation

Groundwater occurrence has been measured in the monitoring well network throughout the study area infrequently from 1995 to present. Tables 2 to 9, Appendix B, show details of groundwater level measurements including measurements from Knight Piésold (1995, 1996a, 1996b), GeoViro (1996), and 2009.

Generally, groundwater has been observed deeper (approximately >6 mbg) at higher elevations and shallow (approximately <6 mbg) to artesian in lower elevations and in valley bottoms. Although the monitoring wells have not been measured frequently enough to observe seasonal effects, groundwater levels are expected to have seasonal delayed trends related to higher groundwater due to the spring freshet and fall rainstorms, and lower groundwater levels due to dry summers.

Groundwater elevations were generally consistent over the monitoring period (1995 to present), There were exceptions in the following monitoring wells: MW96-23, MW96-17b, MW96-19, DH96-146, MW96-1, MW96-2, MW96-7b; these had groundwater elevations significantly higher in 2009 than 1996. Groundwater levels monitored in 2009 were at lower elevations than 1996 measurements in MW96-25 and GT96-26. Monitoring wells DH95-105, DH95-144, and MW96-9a had groundwater elevations that varied significantly, but not in any consistent way, during monitoring events from 1995 to 2009.

Groundwater elevations measured in the upper elevations of Ann Gulch were relatively deep (8.6 to 15.1 mbg) in 2009, with water levels apparently too low to provide baseflow, as the gulch was dry. Water was observed seeping out from the gulch along the road cut along Dublin Gulch, during July through October, 2009.

In the center of Dublin Gulch, groundwater was relatively shallow (2.5 to 4.6 mbg) in the placer tailings (MW09-DG1, MW09-DG2, and DH95-152). Further east, groundwater was deeper (6.6 to 14.9 mbg), in the fluvial material and till bluffs, as the gradient of the groundwater steepened towards Haggart Creek (MW09-DG4 and MW09-DG5). Groundwater elevations taken in 1995 and 2009 from DH95-152 are similar.

Groundwater elevations in the upper portions of the Platinum Gulch basin were observed to be deep (60 mbg in DH95-108) in the upper basin and were relatively shallow (26 mbg in MW96-23, in 1996, and 9 mbg in MW96-25) at lower elevations. Seeps and springs were observed in road cuts near MW96-23, MW96-25, and down near Haggart Creek.

In the Stuttle Gulch basin, monitoring wells were located in the upper (DH95-105, DH95-106, MW96-16a, MW96-16b, MW96-17a, MW96-17b, MW96-18, and MW96-19) and lower watershed (MW09-STU1 and MW09-STU2). In the upper portions of the watershed, water levels ranged between 15 and 46 mbg in the deeper monitoring wells, while water levels were shallower (i.e., 3.5 mbg) in the lower basin wells. Artesian conditions were observed in MW09-STU2, located in the lower part of the

basin. Water levels taken in the same monitoring wells in 1995, 1996, and 2009 were similar in most wells, with the exception of water level in MW96-19, which was shallower.

The Eagle Pup basin has three sets of nested wells: MW96-13a, MW96-13b, MW96-14a, MW96-14b, MW96-15a, and MW96-15b, and one single well (DH95-151). Water levels ranged between 3 and 6 mbg in the shallow, while they ranged between 7 and 19 mbg in the deep monitoring wells; the data indicated that downward vertical gradients existed at the time of measurement at these locations.

The monitoring well in the Stewart Gulch basin is located near the lower reaches of the gulch; water levels were observed to be approximately 7 mbg.

There are two monitoring wells in the Olive Gulch basin, one completed in bedrock on the upper reaches of the gulch, and one completed in fluvial material in the lower reaches. The monitoring well in the upper reaches had water levels that fluctuated between 6 and 7 mbg, while water levels in the lower reaches were shallower at 2 and 3 mbg.

Depths to water in the Bawn-Boy Gulch basin wells were relatively shallow, ranging between 0.5 mbg to 10 mbg. The depths to water generally deepened further from the gulch, as in MW96-1 and MW96-2, where water levels ranged from 12 mbg and 45 mbg); these wells are located near the groundwater divide with the Lynx Creek watershed. Generally, water levels measured in 2009 are similar to measured levels from 1995 and 1996.

4.4 Hydraulic Tests

Results of the hydraulic tests are summarized in Tables 10 and 11, Appendix B. Detailed results of the 2009 hydraulic recovery tests analysis are presented in Appendix C.

4.4.1 Packer Tests

Thirteen boreholes were tested in six sub-basins; select boreholes were tested over multiple intervals and depths by Knight Piésold in 1995. In general, for the LSA, higher hydraulic conductivity values appear to be associated with surficial deposits, intermediate values are associated with metasedimentary rock, and lower values with granodiorite. Data also suggests decreasing permeability with depth; this is expected as there are likely reduced weathering effects and fractured rock with depth.

One test was conducted in the Dublin Gulch basin in DH95-152, over a test interval of 18.0 m to 30.2 m bgs in metasediment bedrock. The hydraulic conductivity was estimated to be 1.2×10^{-6} m/s.

Tests conducted in the Platinum Gulch basin were performed in DH95-108 and DH95-102 (not completed as a monitoring well). Test intervals ranged from 12.2 m to 30.5 m, in granodiorite and metasediment bedrock, and the depth of the tests ranged between 18.0 mbg to 117.3 mbg. The hydraulic conductivity was estimated between 10^{-7} m/s to 10^{-8} m/s.

Tests in the Stuttle Gulch basin were performed in DH95-103 (not completed as a monitoring well), DH95-105, and DH95-106. Test intervals ranged from 14.4 m to 30.5 m, in granodiorite and

metasediment bedrock, and the depth of the tests ranged from 14.9 mbg to 165.0 mbg. The hydraulic conductivities were estimated between 10^{-7} m/s to 10^{-8} m/s, generally decreasing with depth.

Tests were conducted in the Eagle Pup basin in DH95-151, over a test interval from 11.9 m to 30.2 m, in metasediment bedrock. The hydraulic conductivity was estimated to be 2.4×10^{-7} m/s.

Tests in the Stewart Gulch basin were performed in DH95-150, over a test interval of 18.0 m to 30.2 m, in metasediment bedrock. The hydraulic conductivity was estimated to be 8.9×10^{-7} m/s.

The tests in the Bawn Boy Gulch basin were performed in DH95-139, DH95-141, DH95-144, DH95-146, and DH95-147, the test interval in all test-holes was 18.3 mbg, with the depth of testing ranging from 11.6 mbg to 30.2 mbg, in metasediment and granodiorite bedrock. Hydraulic conductivities were all estimated to be in the 10^{-7} m/s range.

4.4.2 Aquifer Pumping Tests

Two aquifer pumping tests were performed by GeoViro (1996) in MW96-19 and MW96-11. Aquifer coefficients were estimated by evaluating water level drawdown data collected during a 24-hour pumping test.

For the tested wells, MW96-19 and MW96-11, GeoViro calculated hydraulic conductivities to be 2.9×10^{-7} m/s and 5.3×10^{-7} m/s, respectively.

4.4.3 Recovery Tests

Fifteen recovery tests were conducted in 1996 and 13 were conducted in 2009. The recovery tests were performed in wells located in the basins of Eagle Pup and Dublin, Stuttle, Olive, and Bawn Boy Gulches. The data was analyzed with methods applicable to fully penetrating wells in confined or unconfined aquifers, screened below the water table using Cooper, et al. (1996), Bouwer and Rice (1976), and Bouwer (1989), depending on the hydraulic conditions.

In the area of study, estimated hydraulic conductivity values in unconsolidated surficial materials varied over five orders of magnitude, tests conducted in bedrock varied over three orders of magnitude.

Recovery tests in Dublin Gulch were performed in MW09-DG1, MW09-DG2, MW09-DG4, and BH95-152. The 2009 monitoring wells were all completed in surficial deposits (including placer tailings and partially permafrosted till). Calculated hydraulic conductivities ranged from 3.8×10^{-3} m/s to 3.1×10^{-5} m/s. BH95-152 was completed in metasedimentary bedrock. Results from the 2009 recovery tests are up to an order of magnitude different (results were seen to be lesser and greater depending on the testing method, location, and material) from the results calculated from the 1995 packer tests. Discrepancies may be due to the differing testing methods or testing intervals in the rock, or may be associated with changed conditions in the well (i.e., the wells are fairly old and the seal around the annulus of the well may have been compromised due to frost heave).

Tests in the Stuttle Gulch basin were performed in 1996 at MW96-16b and MW96-18, and in 2009 at MW09-STU2. The 1996 monitoring wells were completed in bedrock and in general have hydraulic

conductivities of 10^{-7} m/s. The 2009 tested well was completed in colluvial material and had a higher calculated hydraulic conductivity of 3.2×10^{-5} m/s.

Tests in the Eagle Pup basin were performed at MW96-13b and MW96-15b in 1996 and 2009, both of which were completed in metasediment bedrock. MW96-14b was tested during the 1995 field program and is completed in colluvium. The tests completed in 1996 had estimated hydraulic conductivities of 10^{-6} m/s to 10^{-7} m/s, while results from the 2009 tests gave an order of magnitude lower. Discrepancies may be due to factors noted above (i.e., testing methods, testing intervals or well conditions).

Tests in the Olive Gulch basin were performed at MW09-OG2 and MW09-OG3, which were completed in fluvial material and granodiorite bedrock, respectively. The test results were approximately 10^{-6} m/s to 10^{-7} m/s, which is in the range for fluvial deposits with silt and fine sand and within the expected range for fractured bedrock.

Tests in the Bawn Boy Gulch basin were performed in MW96-1, MW96-2, MW96-3, MW96-4, MW96-5, MW96-6b, MW96-7b, MW96-8, MW96-9b, MW96-10b and GT96-26. Results ranged from 10^{-5} m/s to 10^{-7} m/s for wells completed in bedrock, and 10^{-5} m/s to 10^{-6} m/s for wells completed in surficial deposits. Wells that were tested in 1996 and again in 2009 vary over an order of magnitude. Discrepancies may be due to factors noted above (i.e., testing methods, testing intervals or well conditions).

4.4.4 Summary of Hydraulic Tests

The results of hydraulic testing of the site are variable, generally ranging in the surficial deposits from 10^{-3} m/s to 10^{-7} m/s and from 10^{-5} m/s – 10^{-8} m/s for bedrock. The variable hydraulic conductivity in the surficial geologic material is expected for the varying surficial geological facies including placer, colluvial, alluvial, fluvial, and till deposits. The variable hydraulic conductivity seen in the bedrock is typical of fractured crystalline rock, which showed decreasing hydraulic conductivity with depth. The test data did not demonstrate a measureable difference in the hydraulic conductivities of granodiorite and metasedimentary rock.

Table 4.1: Summary of Hydraulic Tests

Location	Test Method	Year	Ranges of Hydraulic Conductivity (m/s)	Hydrostratigraphic Unit
Dublin Gulch	Packer Tests	1995	1.2×10^{-6}	Metasediments
	Recovery Tests	2009	3.1×10^{-5} to 3.9×10^{-3}	Surficial Deposits
			1.8×10^{-5}	Metasediments
Platinum Gulch	Packer Tests	1995	9.9×10^{-8} to 8.4×10^{-7}	Granodiorite

Location	Test Method	Year	Ranges of Hydraulic Conductivity (m/s)	Hydrostratigraphic Unit
Stuttle Gulch	Packer Tests	1995	1.0×10^{-8} to 7.6×10^{-8}	Granodiorite
			7.6×10^{-7}	Granodiorite/Metasediments
	Recovery Tests	1996	$5.0 \times ^{-7}$	Granodiorite
		1996	1.0×10^{-7}	Metasediments
		2009	3.2×10^{-5}	Surficial Deposits
	Aquifer Test	1996	2.9×10^{-7}	Granodiorite
Eagle Pup	Packer Tests	1995	2.4×10^{-7}	Metasediment
	Recovery Tests	1996	8.6×10^{-7}	Granodiorite
		1996	3.8×10^{-6} to 5.1×10^{-7}	Metasediments
		2009	7.3×10^{-6} to 7.4×10^{-5}	
		2009	7.3×10^{-6} to $7.4.1 \times 10^{-5}$	Surficial Deposits
Olive Gulch	Recovery Tests	2009	8.5×10^{-7} to 4.1×10^{-6}	Granodiorite
Stewart Gulch	Packer Test	1995	8.9×10^{-7}	Metasediment
Bawn-Boy Gulch	Packer Test	1995	1.0×10^{-7} to 2.8×10^{-7}	Granodiorite
			1.4×10^{-7}	Metasediments
	Recovery Tests	1996	1.3×10^{-7} to 4.2×10^{-5}	Granodiorite
		2009	7.6×10^{-7} to 3.6×10^{-6}	Granodiorite
		1996	6.2×10^{-6}	Metasediments
		1996	3.5×10^{-7} to 4.5×10^{-6}	Surficial Deposits
	Aquifer Test	1996	5.3×10^{-7}	Granodiorite

NOTE:
m/s = meters per second

4.5 Hydrogeochemistry

All groundwater quality data have been compared to federal, Canadian Council of Ministers of Environment (CCME), Canadian Water Quality Guidelines for the protection of Aquatic Life (December 2007). In addition, data have been compared to the British Columbia Contaminated Sites Regulation (CSR), Schedule 6 Generic Numerical Water Standards for the protection of Freshwater Aquatic Life (January, 2009). These criteria were selected due to the absence of any other existing federal or territorial guidelines for groundwater quality. These criteria are meant to represent approximate background concentrations to a representative ambient level which may reflect natural geologic variations in relatively undeveloped areas. In addition, these criteria are to provide general guidance only and have been used for comparison to existing background groundwater quality conditions at the site.

The analytical results of all groundwater samples collected as part of the hydrogeology field program are presented in Tables 13 – 15, Appendix B. Laboratory certificates from the 2009 sampling program are available in Appendix E.

Groundwater samples were collected by Hallam Knight Piésold in 1995 and 1996. The 1995 program sampled wells in August and September. The 1996 program also sampled wells in May, July, and September.

Existing and new monitoring wells were sampled up to three times during the 2009 field program (July, August/September, and October). The developed water volumes as well as the *in situ* field parameters measured (electrical conductivity, pH, and temperature) are presented in Table 16, Appendix B.

Results of analysis for wells sampled over multiple years were generally in the same range, and seasonal trends were not apparent.

4.5.1 General Physical Parameters, Major Ion Chemistry, and Hydrochemical Facies

Groundwater is classified based on major ion chemical compositions, while taking into account major anions and cations exceeding 10 meq-%. The water type (hydrochemical facies) is determined by listing the ions with concentrations greater than 10 meq-% in decreasing order (cations are listed first). Charts 1 – 8, Appendix D, show the major ion chemistry and hydrochemical facies summarized by watershed.

Calcium is the dominating cation in most groundwater samples from the site, in six sampling locations magnesium concentrations exceeded calcium (MW09-AG2, MW96-13, MW96-15, BH96-152, MW09-DG1, and MW09-DTU2). Carbonate was the dominating anion in all samples, and was relatively high in some samples (MW96-18, MW96-1, MW09-DG1, MW09-DG2, MW09-STU2, WM09-OG2, and MW09-DG4).

All groundwater samples were analyzed for their concentrations of total and dissolved metals. The measured dissolved metal concentrations were compared to CSR and CCME water quality guidelines for the protection of aquatic life. The CSR guideline values apply to both surface and groundwater, whereas the CCME guidelines only apply to surface water. However, as groundwater ultimately discharges to surface water bodies, the CCME guideline values are included here for reference. All exceedances are marked in Tables 13 – 15, Appendix B.

Table 4.2: Summary of Groundwater Parameters

Location	TDS (mg/L)	EC (µS/cm)	pH	Hydrogeochemical Facies	Exceeds CSR and/or CCME Guidelines
Ann Gulch	n/a	964	7.24	magnesium-sodium-calcium-carbonate	Aluminum, Arsenic, Copper, Iron
Dublin Gulch	124 – 715	183 – 939	7.31 – 8.08	calcium-magnesium-carbonate-sulphate and magnesium-calcium-carbonate-sulphate	Aluminum, Arsenic, Cadmium, Copper, Iron, Selenium, Silver, Zinc
Platinum Gulch	133 – 192	140 – 313	7.78 – 7.84	calcium-magnesium-carbonate-sulphate	Aluminum, Arsenic, Cadmium, Copper, Iron, Selenium, Zinc
Stuttle Gulch	161 – 496	267 – 659	6.08 – 8.02	calcium-magnesium-carbonate-sulphate and magnesium-calcium-carbonate-sulphate	Aluminum, Arsenic, Cadmium, Copper, Iron, Lead, Selenium, Zinc
Eagle Pup	98 – 236	181 – 453	7.73 – 8.17	magnesium-calcium-carbonate-sulphate	Aluminum, Arsenic, Cadmium, Iron, Lead, Nickel, Silver, Zinc
Olive Gulch	40 – 221	43 – 336	6.56 – 7.30	calcium-magnesium-carbonate-sulphate	Aluminum, Arsenic, Cadmium, Copper, Iron, Lead
Stewart Gulch	568 – 653	686 – 825	7.25 – 7.86	n/a	Arsenic, Iron, Selenium, Silver
Bawn-Boy Gulch	37 – 126	50 – 186	6.94 – 8.8	calcium-magnesium-carbonate-sulphate	Aluminum, Arsenic, Cadmium, Copper, Iron, Lead, Molybdenum, Nickel, Silver, Zinc
Lynx Creek	190 – 478	282 – 633	7.36 – 7.68	n/a	Aluminum, Arsenic, Cadmium, Iron, Lead,

NOTES:
TDS = Total Dissolved Solids
EC = Electrical Conductivity
mg/L = milligram per liter
µS/cm = microsiemen pre centimetre
n/a = data not available

These exceedances of the CCME and/or CSR guidelines do not imply that the groundwater at the site is currently contaminated; only that background concentrations of these parameters are higher than typically found in groundwater at other natural sites in Canada. These background groundwater quality results reflect the natural geologic and hydrogeologic conditions within these specific areas of the property.

4.5.2 QA/QC of Analytical Results

The field blank consisted of de-ionized water, was handled in the same way as all other water samples; and results were below the detection limit of the respective analytical methods. This suggests that no significant alteration of the original chemical composition of the water samples occurred due to the sample handling procedure.

The duplicate samples DH95-152 and MW09-DG1 had very similar analytical results for most analyzed species. Notable differences are only present if concentrations were low and close to the detection limit of the analytical method. Stantec considers that the field duplicate results are within acceptable limits of reproducibility for the purpose of this study.

In addition, a QA/AC procedure has been implemented by ALS, and all analytical results have been approved by a laboratory representative.

5 CLOSURE

Stantec has prepared this report for the sole benefit of Victoria Gold for the purpose of documenting baseline conditions in anticipation of an environmental assessment under the Yukon Territory *Environmental and Socio-Economic Assessment Act*. The report may not be relied upon by any other person or entity, other than for its intended purposes, without the express written consent of Stantec and Victoria Gold. Any use of this report by a third party, or any reliance on decisions made based upon it, are the responsibility of such third parties.

The information provided in this report was compiled from existing documents and data provided by Victoria Gold, field data compiled by Stantec (formerly Jacques Whitford AXYS Ltd.). This report represents the best professional judgment of our personnel available at the time of its preparation. Stantec reserves the right to modify the contents of this report, in whole or in part, to reflect any new information that becomes available. If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

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7 FIGURES

Please see the following pages.

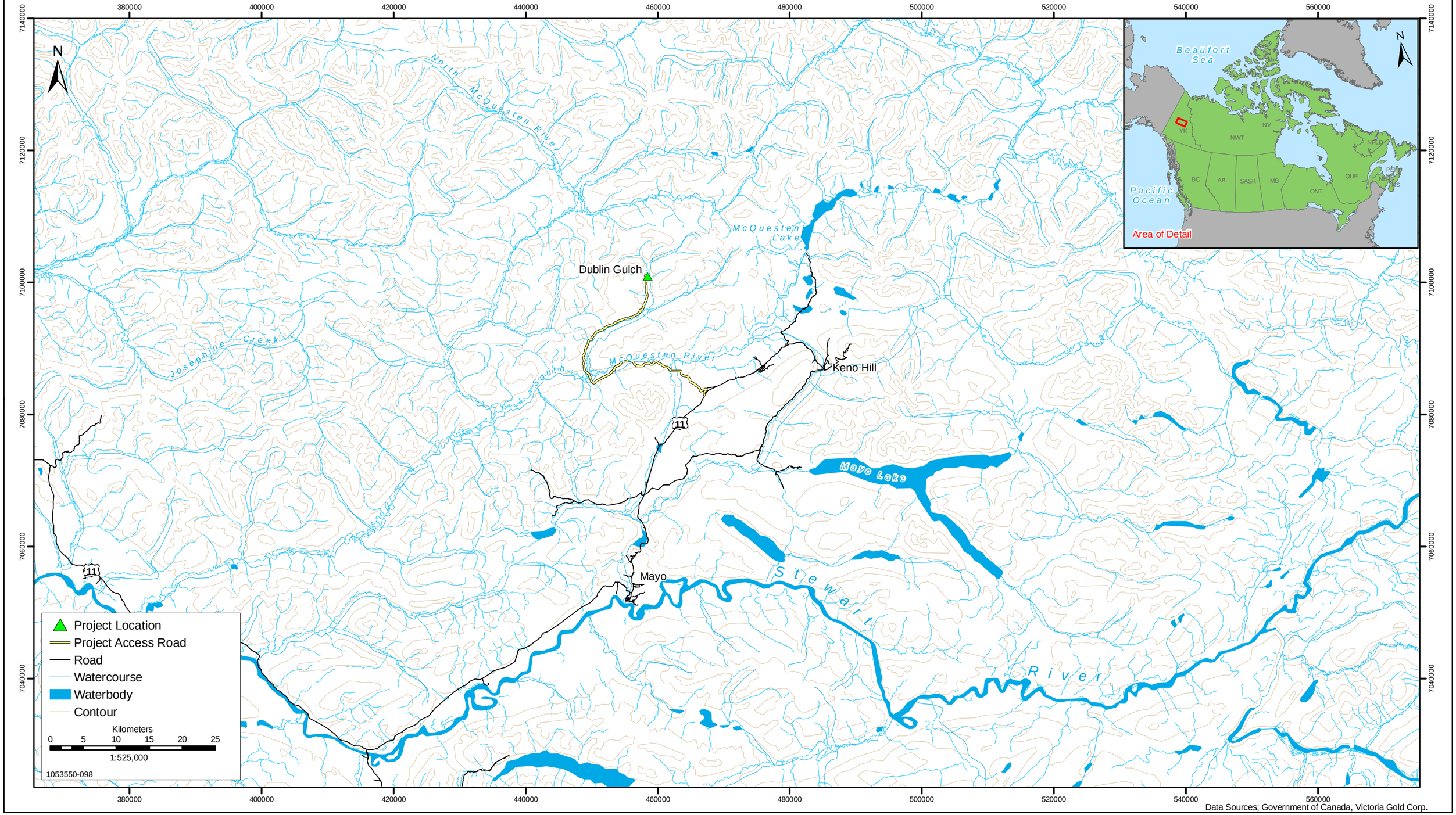

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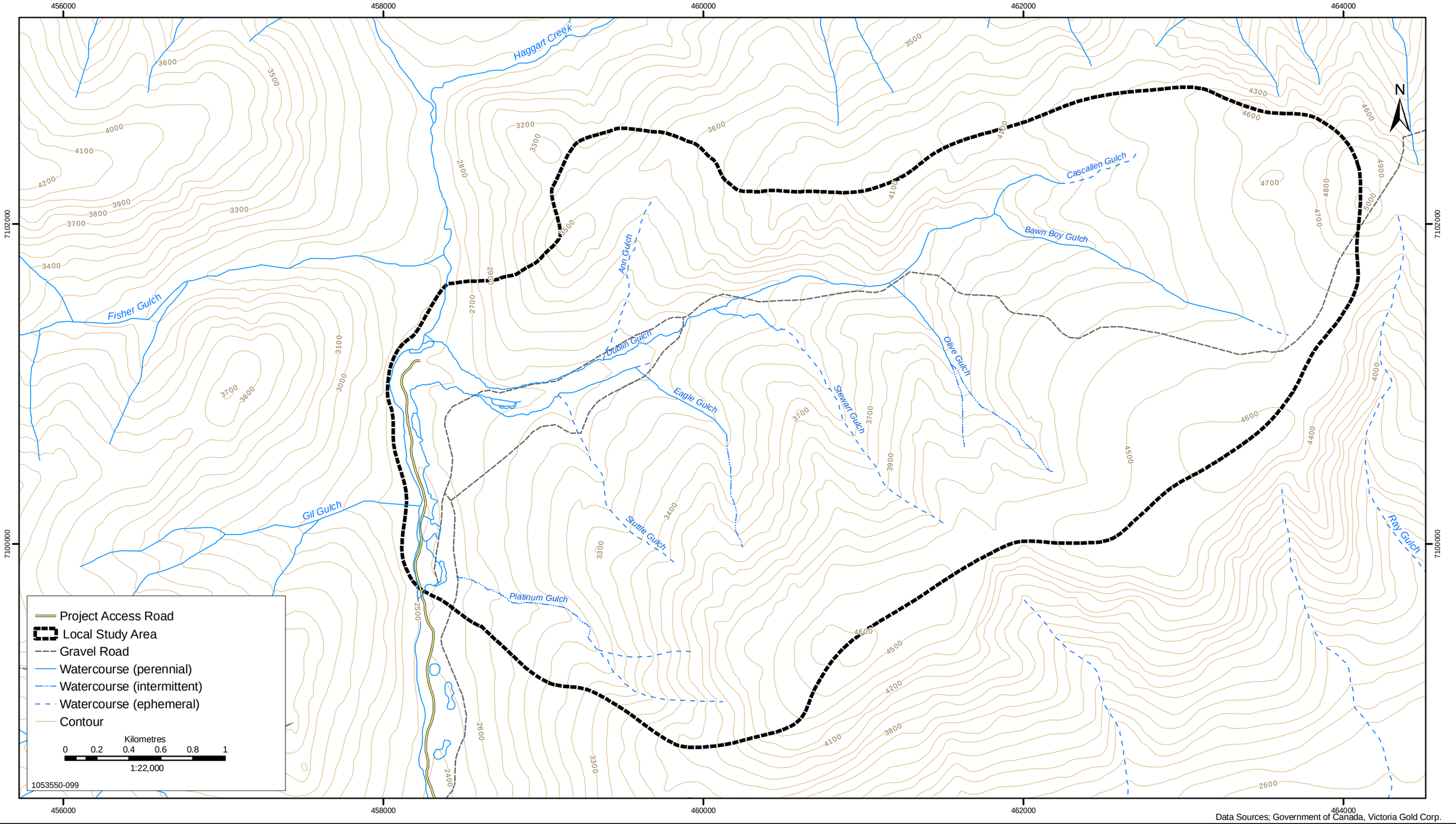
Figure 2-1
Site Location Map
DUBLIN GULCH PROPERTY
YUKON TERRITORY

PROJECTION: UTM - ZONE 8	DRAWN BY: LS
DATUM: NAD 83	CHECKED BY: RS
DATE: 16-Nov-2009	FIGURE NO.: 2-1



Data Sources; Government of Canada, Victoria Gold Corp.

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FIGURE 2-2
EAGLE GOLD LOCAL STUDY AREA
EAGLE GOLD PROPERTY
YUKON TERRITORY

PROJECTION: UTM - ZONE 8	DRAWN BY: LS
DATUM: NAD 83	CHECKED BY: RS
DATE: 17-Nov-2009	FIGURE NO.: **2-2**

460000

7100000

Cascallen Gulch
Bawn Boy Gulch
Am Gulch
Dublin Gulch
Olive Gulch
Eagle Gulch
Stewart Gulch
Stuttle Gulch
Ray Gulch
Platinum Gulch
Hard Creek

N

Dominant Surficial Geology

- Anthropogenic
- Colluvial
- Residium
- Fluvial
- Morainal (till)
- Organic
- Bedrock
- Project Access Road
- Local Study Area
- Gravel Road
- Watercourse (perennial)
- Watercourse (intermittent)
- Watercourse (ephemeral)
- Contour

Kilometers
0 0.2 0.4 0.6 0.8 1
1:22,000

1053550-101

460000

7100000

Data Sources; Government of Canada, Victoria Gold Corp.

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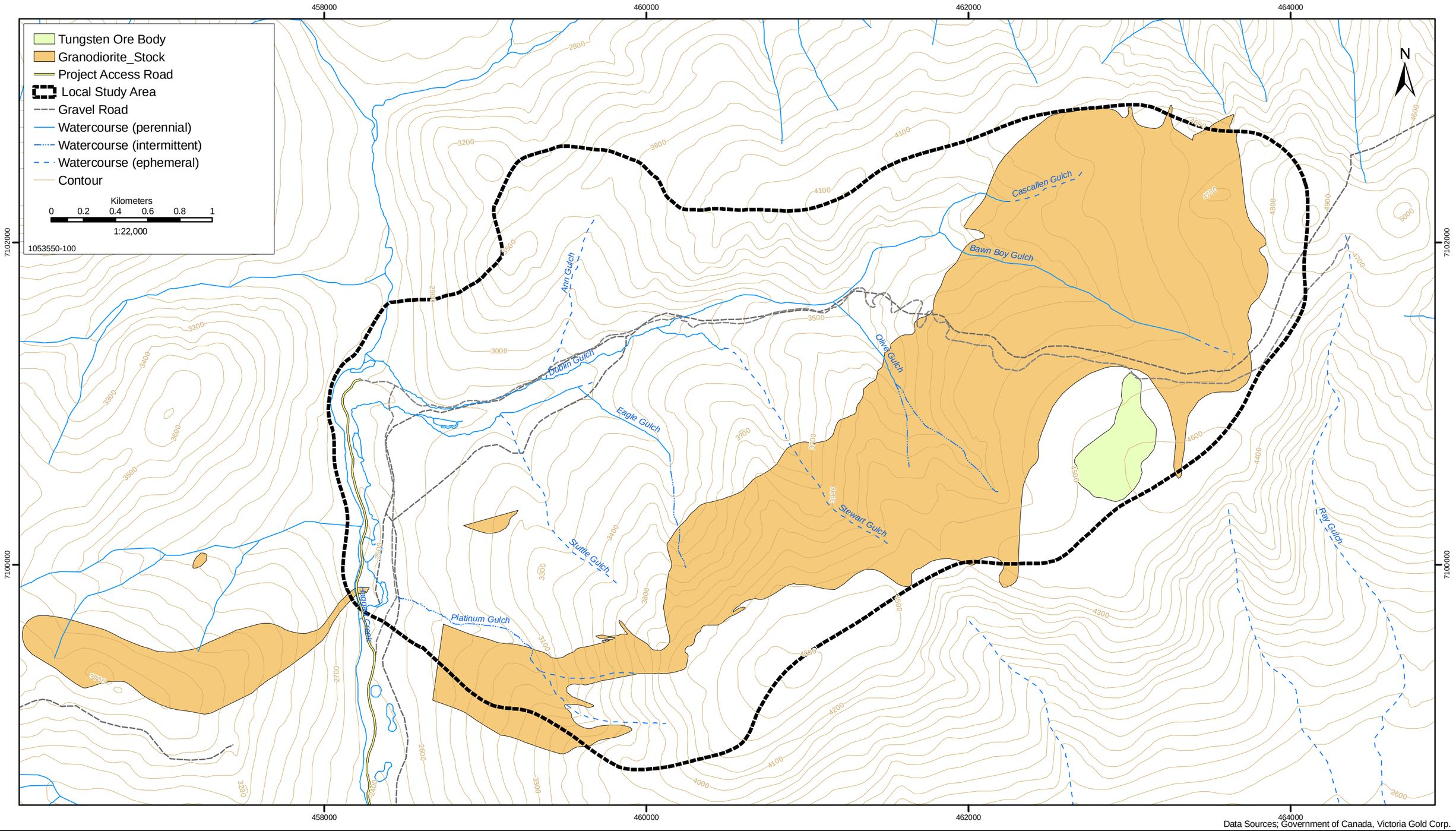
FIGURE 2-3
EAGLE GOLD SURFICIAL GEOLOGY
EAGLE GOLD PROPERTY
YUKON TERRITORY

PROJECTION: UTM - ZONE 8	DRAWN BY: LS
DATUM: NAD 83	CHECKED BY: RS
DATE: 23-November-2009	FIGURE NO.: 2-3



Data Sources; Government of Canada, Victoria Gold Corp.

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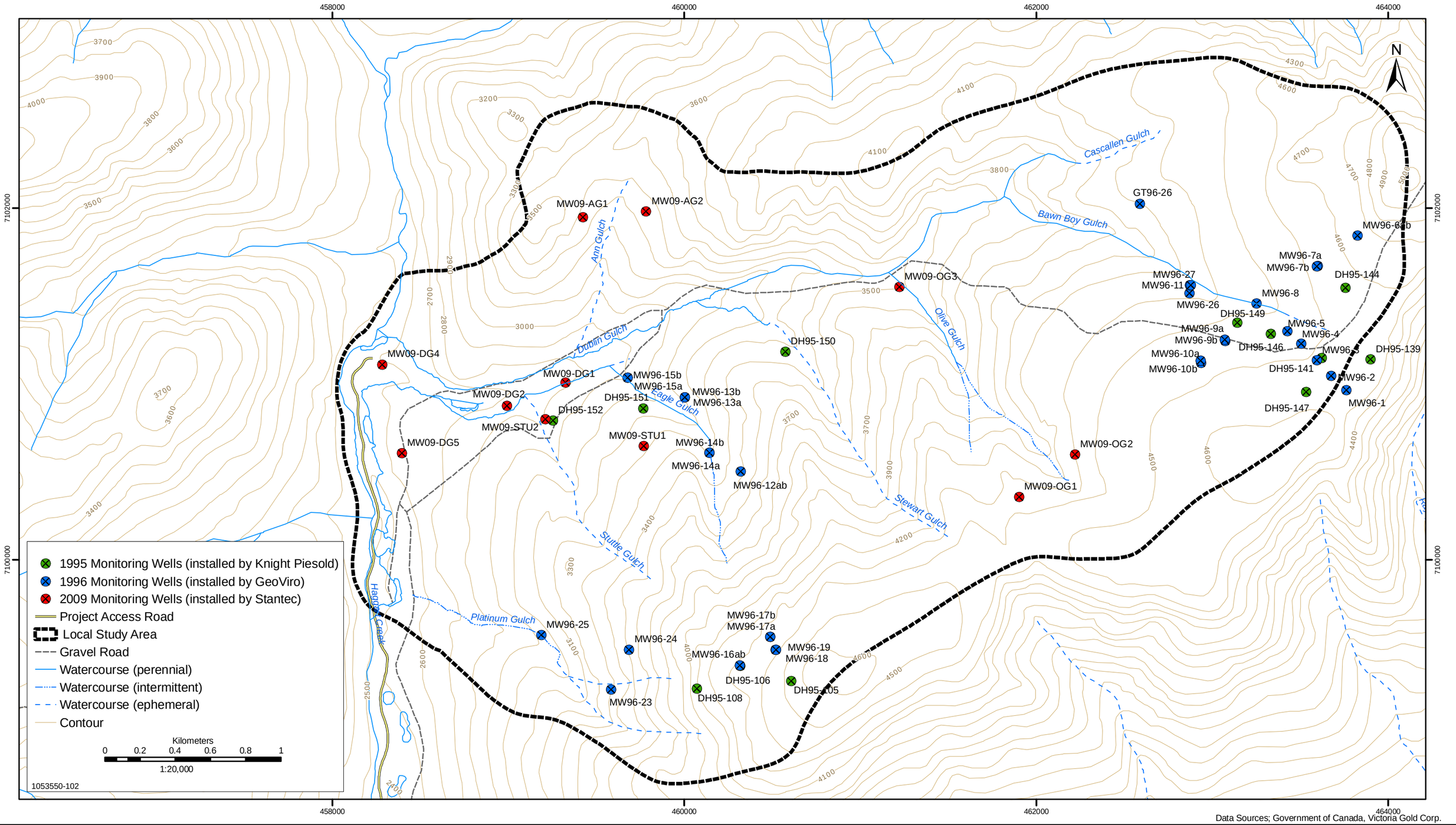
FIGURE 2-4
EAGLE GOLD BEDROCK GEOLOGY

EAGLE GOLD PROPERTY
YUKON TERRITORY

PROJECTION: UTM - ZONE 8	DRAWN BY: LS
DATUM: NAD 83	CHECKED BY: RS
DATE: 23-November-2009	FIGURE NO.: 2-4



Data Sources; Government of Canada, Victoria Gold Corp.

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FIGURE 2-5
EAGLE GOLD MONITORING WELL LOCATION MAP
EAGLE GOLD PROPERTY
YUKON TERRITORY

PROJECTION: UTM - ZONE 8	DRAWN BY: LS
DATUM: NAD 83	CHECKED BY: RS
DATE: 15-Dec-2009	FIGURE NO.: **2-5**

APPENDIX A

Borehole Logs

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **1016.77 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-AG1

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		SM Silty fine sand with trace angular gravel, loose, brown, dry, secondary weathering of clasts, colluvial			well box, 0.53 m stickup, jplug	
		- mottled grey brown at 3.05 m			10/20 silica sand (0.3 - 5.8 m)	1020.0
		- rusty orange gravel at 6.10 m				
		- yellow brown boulders at 7.62 m			bentonite seal (5.8 - 12.2 m) NQ Diamond Drilling at 9.7 m	
10.0		**METASEDIMENT** Pink grey, competent, some weathering, secondary clay and rusting in joints			10/20 silica sand (12.2 - 12.8 m)	1030.0
				▽	GW = 1002.80 m 50 mm 010 slot PVC pipe (12.8 - 15.9 m)	
		End of borehole at 15.9 m Completion Information: Screened interval from 12.8 m to 15.9 m below surface Groundwater Information: Depth to groundwater from TOP = **13.97** m (August 26, 2009)			end cap	

INVESTIG. METHOD: Solid Stem Auger / NQ Diamond Drill
INVESTIG. DATE: August 25, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **1009.41 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-AG2

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		Pt Organic soil, soft, black, moist, roots			well box, 0.65 m stickup, jplug	1010.0
		SM Silty fine sand with trace clay, soft, brown, moist, colluvial			10/20 silica sand (0.3 - 4.6 m)	
		GP Sand and angular to sub angular gravel, loose, brown, dry, colluvial			bentonite seal (4.6 - 12.5 m)	
10.0		**GM** Silt, with fine sand and gravel, soft, brown, dry, colluvial			NQ Diamond Drilling at 10.7 m	1020.0
		GC Silty sand with angular gravel, very dense, grey, moist				
		METASEDIMENT Grey, very weak, weathered, secondary clays and rusting			10/20 silica sand (12.5 - 12.8 m) 50 mm 010 slot PVC pipe (12.8 - 15.9 m) GW = 994.51 m end cap	

End of borehole at 15.9 m

Completion Information:
Screened interval from 12.8 m to 15.9 m below surface

Groundwater Information:
Depth to groundwater from TOP = **14.90** m (August 26, 2009)

INVESTIG. METHOD: Solid Stem Auger / NQ Diamond Drill
INVESTIG. DATE: August 24, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **839.83 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-DG1

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		GM Sand and subrounded to sub angular grave with silt, brown, moist, well graded - orange brown, some cobbles and boulders at 0.6m			well box, 0.51 m stickup, jplug 10/20 silica sand (0.3 - 0.6 m)	840.0
		GW With subrounded cobbles and boulders, brown, saturated		▽	bentonite seal (0.6 - 3.1 m) GW = 837.68 m 10/20 silica sand (3.1 - 4.0 m) 50 mm 010 slot PVC pipe (4.0 - 7.0 m)	
		End of borehole at 7.0 m Completion Information: Screened interval from 4.0 m to 7.0 m below surface Groundwater Information: Depth to groundwater from TOP = **2.15** m (August 18, 2009)			end cap	

INVESTIG. METHOD: Solid Stem Auger
INVESTIG. DATE: August 14, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **824.06 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-DG2

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		SW Sand with some fine to medium sub-angular gravel, loose, brown, dry, fill			well box, 0.86 m stickup, jplug	
		GC Clayey Gravel with sand and silt, sub rounded to sub angular gravel, medium dense, brown, moist, fill		▽	GW = 822.40 m 10/20 silica sand (0.3 - 4.6 m)	
		GW Sandy Gravel with some silt, sub-rounded to sub angular gravel, medium dense, brown, wet, fill - water at 4.9m			bentonite seal (4.6 - 7.3 m)	830.0
		- cobbley below 7.6m			10/20 silica sand (7.3 - 9.1 m)	
10.0					50 mm 010 slot PVC pipe (9.1 - 12.1 m)	
		- sandy below 12.5m			end cap NQ Diamond Drilling at 12.1 m	
					backfilled with drill cuttings	
		METASEDIMENT Grey, fine grained, slightly weathered, jointing, trace clay				840.0
		End of borehole at 16.3 m Completion Information: Screened interval from 9.1 m to 12.2 m below surface Groundwater Information: Depth to groundwater from TOP = **1.66** m (August 18.2009)				

INVESTIG. METHOD: Solid Stem Auger
INVESTIG. DATE: August 13, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **786.95 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-DG4

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		Pt Soil, soft, black brown, moist, roots			well box, stickup, jplug 10/20 silica sand (0.3 - 0.9 m)	
		SM Silty fine to medium grainded sand, some small to medium grained subangular gravel, brown, dry, colluvial				790.0
					bentonite seal (0.9 - 8.7 m)	
		CL Lean clay with trace fine to medium grained sand and gravel, brown grey, moist, colluvial		▽	GW = 780.93 m	
		- wet at 7.62 m				
10.0		**GW** Fine sand and sub-angular to angular gravel with silt, brown, wet, colluvial			10/20 silica sand (8.7 - 9.4 m)	
					50 mm 010 slot PVC pipe (9.4 - 12.8 m)	
					end cap	800.0
					backfilled with drill cuttings	
		End of borehole at 16.8 m Completion Information: Screened interval from 9.4 m to 12.8 m below surface Groundwater Information: Depth to groundwater from TOP = **6.02** m (September 3, 2009)				

INVESTIG. METHOD: Solid Stem Auger
INVESTIG. DATE: August 31, 2009
LOGGED BY: HP

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **810.24 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-DG5

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		Pt Soil, soft, black brown, moist, roots			well box, stickup, jplug 10/20 silica sand (0.3 - 0.6m)	
		GM Gravelly silt with fine to medium sand and trace clay, brown, dry, colluvial				
		ML Lean clay with trace sand, soft, grey, moist, colluvial				
					bentonite seal (0.6 - 10.1m)	
		GP Silty fine sand with angular gravel, dense, grey, moist, till				
10.0						820.0
					10/20 silica sand (10.1 - 10.7 m)	
					50 mm 010 slot PVC pipe (10.7 - 13.7 m)	
				▽	GW = 797.04 m	
					end cap	
		End of borehole at 13.7 m				

Completion Information:
Screened interval from 10.7 m to 13.7 m below surface

Groundwater Information:
Depth to groundwater from TOP = **13.20** m (September 2, 2009)

INVESTIG. METHOD: Solid Stem Auger
INVESTIG. DATE: August 31, 2009
LOGGED BY: HP

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **1339.84 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-OG1

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	BOREHOLE COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
0		**GW** Sub-rounded gravelly cobbles, loose, light grey brown, wet, fluvial				1340.0
		GRANODIORITE Grey, weathered with rusty alterations increasing with depth, silts and clays in fractures			bentonite seal	
6.1		End of borehole at 6.1 m				

INVESTIG. METHOD: NQ Diamond Drill
INVESTIG. DATE: August 29, 2009
LOGGED BY: HP

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **1332.41 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-OG2

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		SW Angular sand and gravel, medium dense, grey, dry, colluvial			well box, 0.95 m stickup, jplug	
		GRANODIORITE Fractures and weathering, secondary rusting and clay				
					10/20 silica sand (0.3 - 9.1 m)	
				▽	GW = 1325.77 m	
		- more weathering and clay in fractures with depth				1340.0
10.0					bentonite seal (9.1 -12.3 m)	
					10/20 silica sand (12.3 -12.8 m)	
					50 mm 010 slot PVC pipe (12.8 - 15.9 m)	
		End of borehole at 15.9 m Completion Information: Screened interval from 12.8 m to 15.9 m below surface Groundwater Information: Depth to groundwater from TOP = **6.64** m (September 2, 2009)				

INVESTIG. METHOD: NQ Diamond Drill
INVESTIG. DATE: August 28, 2009
LOGGED BY: HP

Stantec

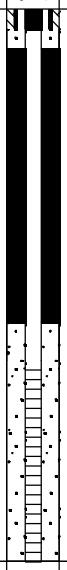
STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **1064.99 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-OG3

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		GW Subrounded to rounded gravelly cobbles with sand and trace silt, grey, wet, weathered, colluvial		▽	well box, 0.65 m stickup, jplug 10/20 silica sand (0.3 - 0.6 m) GW = 1063.12 m bentonite seal (0.6 - 4.8 m) 10/20 silica sand (4.8 - 5.3 m) 50 mm 010 slot PVC pipe (5.3 - 8.4 m)	1070.0
		End of borehole at 8.4 m Completion Information: Screened interval from 5.3 m to 8.4 m below surface Groundwater Information: Depth to groundwater from TOP = **1.87** m (August 30, 2009)				

INVESTIG. METHOD: NQ Diamond Drill
INVESTIG. DATE: August 26, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **967.40 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-STU1

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		SM Sand with silt and trace angular gravel, loose, brown, dry, colluvial			well box, 0.60 m stickup, jplug 10/20 silica sand (0.3 - 2.4 m)	
		GW Sub-rounded gravel , loose, brown, dry, colluvial				970.0
		SM Sand with silt and trace angular gravel, loose, mottled orange brown, dry, secondary weathering, colluvial			bentonite seal (2.4 - 9.8 m)	
		- yellow grey at 7.6m				
10.0		**METASEDIMENT** Weathered bedrock			10/20 silica sand (9.8 - 11.3 m) NQ Diamond Drilling at 10.7 m	
					50 mm 010 slot PVC pipe (11.3 - 14.3)	980.0
				▽	GW = 953.40 m end cap	
		End of borehole at 14.3 m Completion Information: Screened interval from 11.3 m to 14.3 m below surface Groundwater Information: Depth to groundwater from TOP = **14.00** m (August 24, 2009)				

INVESTIG. METHOD: Solid Stem Auger / NQ Diamond Drill
INVESTIG. DATE: August 17, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

CLIENT: **Victoria Gold**
PROJECT: **Eagle Gold Project**
Dublin Gulch
Yukon

BOREHOLE RECORD

PROJECT NO: **1053550**
SURFACE ELEVATION: **856.51 m**
SITE DATUM: N/A

BOREHOLE NO:
MW09-STU2

DEPTH [m]	SOIL TYPE	SOIL DESCRIPTION	WELL COMPLETION	WATER LEVEL	COMPLETION NOTES	ELEVATION [m]
		SP Fine sand with trace gravel, loose, dark grey, wet, colluvial		GW = 856.51 m	well box, 0.81 m stickup, jplug 10/20 silica sand (0.3 - 1.5 m) bentonite seal (1.5 - 4.0 m)	
		SC Sandy lean clay with trace angular gravel, loose, grey, wet, colluvial				860.0
		GC Sandy Fat Clay with trace angular gravel, hard, blue grey, moist, till			10/20 silica sand (4.0 - 4.3 m) 50 mm 010 slot PVC pipe (4.3 - 7.3 m) end cap backfilled with drill cuttings	
10.0		End of borehole at 10.1 m Completion Information: Screened interval from 4.3 m to 7.3 m below surface Groundwater Information: Depth to groundwater from TOP = **0.00** m (August 22, 2009) Refusal at 10.06				

INVESTIG. METHOD: Solid Stem Auger
INVESTIG. DATE: August 16, 2009
LOGGED BY: JT

Stantec

STANTEC - HYDROGEO 2009 MW09.GPJ EE DATA TEMPLATE V5.GDT 12/16/09

APPENDIX B

Data Tables

Table 1: Monitoring Well Location Summary

Well	Date of Well Completion	UTM NAD83		Ground Elevation (m asl)	Screen Interval (m)
		Northing	Easting		
DH95-105	27-Jul-95	7099312.0	460609.0	1334.4	19.6 – 69.8
DH95-106	29-Jul-95	7099399.0	460319.0	1261.0	26.4 – 82.3
DH95-108	6-Aug-95	7099269.0	460074.0	1192.0	10.0 – 118.2
DH95-139	13-Sep-95	7101141.1	463901.8	1383.4	8.2 – 29.9
DH95-141	14-Sep-95	7101147.6	463624.9	1366.0	25.9 – 30.2
DH95-144	18-Sep-95	7101546.8	463758.9	1388.8	25.5 – 30.2
DH95-146	20-Sep-95	7101284.3	463335.0	1338.0	24.7 – 30.2
DH95-147	20-Sep-95	7100954.9	463534.2	1378.5	7.3 – 30.2
DH95-149	21-Sep-95	7101348.3	463143.7	1320.4	12.5 – 22.9
DH95-150	22-Sep-95	7101183.1	460576.6	982.6	13.1 – 30.2
DH95-151	23-Sep-95	7100862.1	459767.6	884.0	6.4 – 30.2
DH95-152	23-Sep-95	7100792.0	459254.3	832.7	25.3 – 30.2
MW96-1	26-Jul-96	7100964.66	463763.43	1397.67	44.2 – 50.3
MW96-2	24-Jul-96	7101046.53	463678.67	1393.66	22.9 – 25.9
MW96-3	23-Jul-96	7101134.60	463596.70	1384.48	10.7 – 13.7
MW96-4	22-Jul-96	7101228.87	463508.03	1373.22	6.8 – 9.8
MW96-5	24-Jul-96	7101300.86	463428.65	1362.56	10.7 – 13.7
MW96-6a	24-Jul-96	n.m.	n.m.	1405.45	3.5 – 4.0
MW96-6b	24-Jul-96	n.m.	n.m.	1405.45	8.8 – 9.8
MW96-7a	24-Jul-96	7101670.24	463601.95	1380.82	3.7 – 5.2
MW96-7b	25-Jul-96	7101669.78	463596.36	1379.09	9.7 – 10.7
MW96-8	25-Jul-96	7101457.93	463252.36	1338.89	4.8 – 5.8
MW96-9a	26-Jul-96	7101243.89	463075.97	1360.31	3.1 – 4.6
MW96-9b	25-Jul-96	7101252.38	463073.02	1360.90	16.8 – 19.8
MW96-10a	26-Jul-96	7101120.61	462938.55	1367.16	2.2 – 3.7
MW96-10b	25-Jul-96	7101132.28	462936.48	1368.09	12.7 – 13.7
MW96-11	28-Jul-96	n.m.	n.m.	1307.43	open borehole
MW96-12a	31-Jul-96	n.m.	n.m.	1065.61	1.9 – 3.4
MW96-12b	31-Jul-96	n.m.	n.m.	1065.61	10.7 – 13.7
MW96-13a	31-Jul-96	7100925.38	460003.32	983.79	4.2 – 5.7
MW96-13b	31-Jul-96	7100925.38	460003.32	983.79	16.8 – 19.8
MW96-14a	2-Aug-96	7100609.04	460144.51	976.42	3.8 – 5.3
MW96-14b	2-Aug-96	7100609.04	460144.51	976.42	10.7 – 13.7
MW96-15a	2-Aug-96	7101037.48	459679.16	943.07	7.7 – 9.2

Well	Date of Well Completion	UTM NAD83		Ground Elevation (m asl)	Screen Interval (m)
		Northing	Easting		
MW96-15b	2-Aug-96	7101037.48	459679.16	943.07	36.6 – 38.1
MW96-16a	23-Jul-96	n.m.	n.m.	1261.49	8.2 – 9.7
MW96-16b	23-Jul-96	n.m.	n.m.	1261.49	42.7 – 48.8
MW96-17a	22-Jul-96	7099562.58	460489.83	1328.53	3.1 – 4.6
MW96-17b	22-Jul-96	7099562.58	460489.83	1328.53	53.3 – 59.4
MW96-18	20-Jul-96	7099488.15	460520.00	1335.27	60.6 – 66.7
MW96-19	19-Jul-96	7099489.84	460522.54	1334.67	open borehole
MW96-23	3-Aug-96	7099264.04	459586.02	993.01	36.1 – 38.1
MW96-24	3-Aug-96	7099490.35	459687.85	1064.64	36.1 – 38.1
MW96-25	2-Aug-96	7099573.45	459189.04	884.88	10.7 – 13.7
GT96-26	n.a.	7102023.40	462590.99	1284.78	n.a.
MW96-26	27-Jul-96	7101516.43	462872.78	1315.86	39.2 – 44.2
MW96-27	27-Jul-96	7101561.81	462876.23	1307.94	33.1 – 38.1
MW09-AG1	25-Aug-09	7101948.83	459425.43	1016.77	12.8 - 15.9
MW09-AG2	24-Aug-09	7101980.62	459784.61	1009.41	12.8 - 15.9
MW09-DG1	15-Aug-09	7101009.37	459325.45	839.83	4.0 - 7.0
MW09-DG2	14-Aug-09	7100877.20	458992.35	824.06	9.1 - 12.2
MW09-DG4	31-Aug-09	7101111.11	458284.12	786.95	9.4 - 12.8
MW09-DG5	30-Aug-09	7100606.52	458396.99	810.24	10.7 - 13.7
MW09-OG1	29-Aug-09	7100357.75	461904.33	1339.84	--
MW09-OG2	28-Aug-09	7100599.22	462221.41	1332.41	12.8 - 15.9
MW09-OG3	26-Aug-09	7101551.77	461222.78	1064.99	5.3 - 8.4
MW09-STU1	18-Aug-09	7100647.80	459770.65	967.40	11.3 - 14.3
MW09-STU2	16-Aug-09	7100798.93	459212.19	856.51	4.3 - 7.3

NOTES:

n.a. - not available
n.m. - not measured
m asl – meter above sea level
m ags – meter above ground surface
All survey data for wells installed in 1995, as reported by Knight Piésold
All elevation data for wells installed in 1996, as reported by GeoViro
All 2009 survey data and 1996 co-ordinate data, as surveyed by Underhill Geomatics fall 2009 (measured in thousandth, reported as hundredth)

Table 2: Ann Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW09-AG1	26-Aug-09	7101948.83	459425.43	1016.77	3.05	0.53	16.43	14.50	1002.27
	6-Oct-09							14.43	1002.34
MW09-AG2	25-Aug-09	7101980.62	459784.61	1009.41	3.05	0.65	16.55	9.28	1000.13
	26-Aug-09							15.74	993.67
	4-Sep-09							14.67	994.74
	6-Oct-09							15.50	993.92

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water

Table 3: Dublin Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
W09-DG1	18-Aug-09	7101009.40	459325.44	839.34	3.05	0.51	7.88	2.66	836.68
	27-Aug-09							2.70	836.64
	6-Oct-09							2.58	836.76
MW09-DG2	18-Aug-09	7100877.20	458992.35	824.06	3.05	0.86	11.65	2.52	821.54
	27-Aug-09							2.57	821.49
	6-Oct-09							2.49	821.57

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW09-DG4	31-Aug-09	7101111.11	458284.12	786.95	3.05	0.60	13.39	7.32	779.63
	3-Sep-09							6.62	780.32
	6-Oct-09							9.74	777.20
MW09-DG5	31-Aug-09	7100606.52	458396.99	810.24	3.05	0.60	15.70	11.97	798.27
	2-Sep-09							14.29	795.95
	4-Sep-09							14.86	795.39
	6-Oct-09							14.39	795.85
DH95-152	24-Sep-95	7100792	459254	832.7	4.90	0.90	30.20	4.60	828.10
	27-Sep-95							4.62	828.08
	20-Nov-95							4.19	828.51
	25-Jul-09							4.38	828.32
	11-Aug-09							4.54	828.17
	28-Jul-09							4.46	828.24
	27-Aug-09							4.62	828.09
	6-Oct-09							4.53	828.17

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water

Table 4: Platinum Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
DH95-108	6-Aug-95	7099269.0	460074.0	1192.0	108.20	0.70	118.20	57.80	1134.90
	7-Aug-95							59.20	1133.50
	9-Aug-95							59.34	1133.36
	25-Aug-95							59.22	1133.48
	20-Nov-95							59.62	1133.08
MW96-23	11-Aug-96	7099264.10	459585.94	993.01	6.10	n.m.	38.10	26.41	966.60
	31-Aug-96							26.31	966.70
	23-Aug-09							8.24	984.77
	27-Aug-09							10.29	982.73
	6-Oct-09							10.12	982.89
MW96-24	11-Aug-96	7099490.36	459687.79	1064.64	6.10	n.m.	38.10	dry	dry
	31-Aug-96							dry	dry
	23-Aug-09							dry	dry
	6-Oct-09							dry	dry
MW96-25	11-Aug-96	7099573.44	459188.90	884.88	3.05	n.m.	13.70	8.81	876.07
	31-Aug-96							8.89	875.99
	23-Aug-09							dry	dry
	6-Oct-09							8.10	876.78

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water
n.m. – not measured

Table 5: Suttle Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
DH95-105	27-Jul-95	7099312.0	460609.0	1334.4	50.20	0.60	69.80	15.32	1319.68
	28-Jul-95							15.56	1319.44
	29-Jul-95							15.43	1319.57
	7-Aug-95							14.94	1320.06
	9-Aug-95							14.75	1320.25
	25-Aug-95							15.70	1319.30
	20-Nov-95							19.04	1315.96
	4-Aug-96							19.43	1314.97
	11-Aug-96							19.62	1314.78
	30-Aug-96							18.31	1316.09
DH95-106	29-Jul-95	7099399.0	460319.0	1261.0	55.90	0.70	82.30	19.82	1241.88
	7-Aug-95							18.50	1243.20
	9-Aug-95							18.41	1243.29
	25-Aug-95							21.91	1239.79
	20-Nov-95							24.36	1237.34
	4-Aug-96							19.85	1241.15
	11-Aug-96							20.05	1240.95
	30-Aug-96							20.74	1240.26
MW96-16a	8-Aug-96	n.m.	n.m.	1261.49	n.m.	n.m.	9.70	3.49	1258.00
	11-Aug-96							3.22	1258.27
	31-Aug-96							3.22	1258.27

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-16b	8-Aug-96	n.m.	n.m.	1261.49	n.m.	n.m.	48.80	19.20	1242.29
	11-Aug-96							19.31	1242.18
	31-Aug-96							20.04	1241.45
MW96-17a	8-Aug-96	7099562.58	460489.73	1328.53	1.50	0.65	4.60	dry	dry
	11-Aug-96							dry	dry
	31-Aug-96							dry	dry
	6-Oct-09							dry	dry
MW96-17b	4-Aug-96	7099562.58	460489.73	1328.54	6.10	0.64	59.40	46.94	1281.59
	8-Aug-96							>31	<1298.535
	11-Aug-96							>31	<1298.536
	31-Aug-96							45.72	1282.82
	23-Aug-09							45.61	1283.56
	6-Oct-09							22.32	1306.86
MW96-18	4-Aug-96	7099488.22	460520.03	1335.27	6.10	n.m.	66.70	21.31	1313.96
	8-Aug-96							21.55	1313.72
	11-Aug-96							21.48	1313.79
	31-Aug-96							19.86	1315.41
	25-Jul-09							19.41	1315.86
	22-Aug-09							22.16	1313.11
	27-Aug-09							22.10	1313.17

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-19	4-Aug-96	7099489.87	460522.48	1334.67	0.00	0.20	79.20	25.52	1309.15
	8-Aug-96							25.49	1309.18
	11-Aug-96							26.16	1308.51
	31-Aug-96							25.35	1309.32
	23-Aug-09							15.30	1319.37
	6-Oct-09							16.76	1319.37
MW09-Stu1	22-Aug-09	7100647.80	459770.65	967.40	3.05	0.60	15.44	13.97	953.43
	24-Aug-09							15.34	952.07
	27-Aug-09							15.39	952.01
	6-Oct-09							15.38	952.02
MW09-Stu2	18-Aug-09	7100798.93	459212.19	856.51	3.05	0.81	8.66	0.67	855.84
	24-Aug-09							0.65	855.86
	27-Aug-09							0.62	855.89

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water
n.m. – not measured

Table 6: Eagle Pup Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
DH95-151	23-Sep-95	7100862.1	459767.6	884.0	23.80	0.90	30.20	2.80	881.20
	24-Sep-95							2.83	881.17
	27-Sep-95							2.86	881.14
	20-Nov-95							2.74	881.26
MW96-12a	8-Aug-96	n.m.	n.m.	1065.61	n.m.	n.m.	3.40	2.90	1062.71
	11-Aug-96							3.13	1062.48
	31-Aug-96							3.27	1062.34
MW96-12b	8-Aug-96	n.m.	n.m.	1065.61	n.m.	n.m.	13.70	10.21	1055.40
	11-Aug-96							10.33	1055.27
	31-Aug-96							10.50	1055.11
MW96-13a	8-Aug-96	7100925.42	460003.30	983.79	1.00	0.97	5.70	dry	dry
	11-Aug-96							dry	dry
	31-Aug-96							5.51	978.28
MW96-13b	8-Aug-96	7100925.42	460003.30	983.79	0.00	0.97	19.80	17.32	966.48
	11-Aug-96							17.38	966.41
	31-Aug-96							17.54	966.25
	25-Jul-09							18.82	964.97
	11-Aug-09							17.49	966.30
	28-Jul-09							17.69	966.10
	27-Aug-09							17.48	966.31

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-14a	8-Aug-96	7100609.07	460144.45	976.42	1.50	n.m.	5.30	5.26	971.16
	11-Aug-96							5.57	970.85
	31-Aug-96							5.28	971.14
	6-Oct-09							3.32	973.10
MW96-14b	8-Aug-96	7100609.07	460144.45	976.42	3.05	n.m.	13.70	8.77	967.65
	11-Aug-96							9.23	967.19
	31-Aug-96							7.01	969.41
	6-Oct-09							5.21	971.21
MW96-15a	8-Aug-96	7101037.55	459679.15	943.07	1.50	0.66	9.20	9.06	934.01
	11-Aug-96							9.04	934.03
	31-Aug-96							9.12	933.95
	25-Jul-09							8.34	934.73
	11-Aug-09							8.38	934.69
	28-Jul-09							8.11	934.96
	27-Aug-09							8.54	934.53
	6-Oct-09							8.33	934.74
MW96-15b	8-Aug-96	7101037.55	459679.15	943.07	1.50	0.66	38.10	8.09	934.98
	11-Aug-96							8.05	935.02
	31-Aug-96							7.96	935.11
	25-Jul-09							9.32	933.75
	6-Oct-09							9.23	933.84

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water
n.m. – not measured

Table 7: Stewart Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
DH95-150	23-Sep-95	7101183.1	460576.6	982.6	17.1	0.9	30.2	7.3	975.3
	24-Sep-95							7.65	974.95
	27-Sep-95							7.7	974.9
	20-Nov-95							7.91	974.69

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water
n.m. – not measured

Table 8: Olive Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW09-OG2	29-Aug-09	7100599.22	462221.41	1332.41	3.05	0.95	16.22	6.80	1325.61
	2-Sep-09							6.64	1325.76
	4-Sep-09							6.45	1325.96
MW09-OG3	28-Aug-09	7101551.77	461222.78	1064.99	3.05	0.65	8.48	2.44	1062.56
	30-Aug-09							1.89	1063.11
	3-Sep-09							3.41	1061.59
	5-Oct-09							2.52	1062.48

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water
n.m. – not measured

Table 9: Bawn-Boy Gulch Monitoring Well Summary

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
DH95-139	9-Feb-96	7101141.1	463901.8	1383.4	21.70	n.m.	29.87	10.20	1373.20
	26-Jun-96							6.24	1377.16
	28-Jun-96							8.42	1374.98
	1-Jul-96							8.80	1374.60
	11-Jul-96							9.25	1374.15
	14-Jul-96							9.36	1374.04
	15-Jul-96							9.39	1374.01
	27-Jul-96							9.59	1373.81
	1-Aug-96							9.70	1373.71
	10-Aug-96							9.90	1373.50
DH95-141	9-Feb-96	7101147.6	463624.9	1366.0	4.30	n.m.	30.18	4.30	1361.70
	26-Jun-96							4.79	1361.21
	28-Jun-96							4.71	1361.29
	1-Jul-96							4.74	1361.26
	11-Jul-96							4.84	1361.17
	14-Jul-96							4.84	1361.16
	15-Jul-96							4.74	1361.26
	27-Jul-96							4.70	1361.30
	1-Aug-96							4.70	1361.30
	10-Aug-96							4.70	1361.30

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
DH95-144	9-Feb-96	7101546.8	463758.9	1388.8	4.30	0.93	30.20	6.20	1382.60
	26-Jun-96							9.42	1379.38
	28-Jun-96							7.30	1381.50
	1-Jul-96							7.05	1381.75
	11-Jul-96							6.32	1382.48
	14-Jul-96							6.32	1382.48
	15-Jul-96							6.01	1382.79
	27-Jul-96							5.52	1383.28
	1-Aug-96							5.35	1383.45
	10-Aug-96							5.17	1383.63
	24-Jul-09							4.17	1384.63
	5-Oct-09							1.52	1387.28
DH95-146	9-Feb-96	7101284.3	463335.0	1338.0	5.50	0.93	30.18	3.10	1334.90
	26-Jun-96							3.59	1334.41
	28-Jun-96							3.64	1334.36
	1-Jul-96							3.72	1334.28
	11-Jul-96							3.80	1334.21
	14-Jul-96							3.90	1334.10
	15-Jul-96							3.70	1334.30
	25-Jul-96							3.79	1334.21
	27-Jul-96							3.80	1334.20
	1-Aug-96							3.88	1334.12
	10-Aug-96							3.88	1334.12

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
	24-Jul-09							4.17	1334.76
	5-Oct-09							1.52	1337.41
DH95-147	9-Feb-96	7100954.9	463534.2	1378.5	22.90	0.81	30.18	5.80	1372.70
	26-Jun-96							6.37	1372.13
	28-Jun-96							6.37	1372.13
	11-Jul-96							6.31	1372.20
	14-Jul-96							6.29	1372.21
	15-Jul-96							6.16	1372.34
	27-Jul-96							6.20	1372.30
	1-Aug-96							6.23	1372.27
	10-Aug-96							6.27	1372.23
	24-Jul-09							5.87	1372.63
	5-Oct-09							9.74	1368.76
DH95-149	9-Feb-96	7101348.3	463143.7	1320.4	10.40	n.m.	22.90	0.50	1319.90
	14-Jul-96							1.34	1319.07
	27-Jul-96							1.36	1319.05
MW96-1	3-Aug-96	7100964.75	463763.47	1397.67	6.10	0.72	50.30	45.15	1352.52
	21-Aug-09							26.82	1370.85
	23-Aug-09							27.32	1370.35
	27-Aug-09							24.69	1372.98

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-2	25-Jul-96	7101046.61	463678.68	1393.66	3.00	0.91	25.90	13.50	1380.17
	1-Aug-96							13.57	1380.09
	3-Aug-96							13.61	1380.05
	10-Aug-96							13.76	1379.90
	24-Jul-09							11.50	1382.17
MW96-3	25-Jul-96	7101134.71	463596.77	1384.48	3.00	0.87	13.70	5.46	1379.01
	27-Jul-96							5.48	1379.00
	1-Aug-96							5.49	1378.99
	3-Aug-96							5.51	1378.97
	10-Aug-96							5.57	1378.91
	24-Jul-09							4.23	1380.25
	5-Oct-09							4.25	1380.23
MW96-4	26-Jun-96	7101228.94	463508.09	1373.22	3.00	1.02	9.80	7.69	1365.52
	28-Jun-96							7.73	1365.48
	1-Jul-96							7.76	1365.46
	11-Jul-96							7.75	1365.46
	14-Jul-96							7.75	1365.47
	15-Jul-96							7.70	1365.51
	25-Jul-96							7.62	1365.60
	27-Jul-96							7.63	1365.59
	1-Aug-96							7.65	1365.56
	3-Aug-96							7.66	1365.56
	10-Aug-96							7.68	1365.54
	24-Jul-09							7.34	1365.88

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-5	25-Jul-96	7101300.94	463428.65	1362.56	3.00	0.68	13.70	4.74	1357.82
	27-Jul-96							4.74	1357.82
	1-Aug-96							4.75	1357.81
	3-Aug-96							4.76	1357.80
	10-Aug-96							4.76	1357.79
	24-Jul-09							4.36	1358.20
	5-Oct-09							5.86	1356.70
MW96-6a	26-Jun-96	n.m.	n.m.	1405.45	n.m.	n.m.	4.00	2.40	1403.05
	28-Jun-96							1.94	1403.51
	1-Jul-96							1.96	1403.49
	11-Jul-96							2.52	1402.93
	14-Jul-96							2.05	1403.40
	15-Jul-96							2.06	1403.39
	25-Jul-96							2.11	1403.34
	27-Jul-96							2.12	1403.33
	1-Aug-96							2.15	1403.31
	10-Aug-96							3.19	1402.26
MW96-6b	26-Jun-96	n.m.	n.m.	1405.45	n.m.	n.m.	9.80	1.71	1403.74
	28-Jun-96							1.56	1403.90
	1-Jul-96							1.70	1403.76
	11-Jul-96							2.27	1403.19
	14-Jul-96							2.46	1402.99
	15-Jul-96							2.37	1403.08

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
	25-Jul-96							2.55	1402.91
	27-Jul-96							2.61	1402.84
	1-Aug-96							2.79	1402.66
	10-Aug-96							3.24	1402.22
MW96-7a	26-Jun-96	7101670.31	463602.51	1380.82	0.50	0.76	6.10	5.90	1374.93
	28-Jun-96							5.88	1374.94
	1-Jul-96							5.84	1374.98
	11-Jul-96							5.60	1375.22
	14-Jul-96							5.51	1375.31
	15-Jul-96							5.43	1375.39
	25-Jul-96							4.96	1375.87
	27-Jul-96							4.92	1375.90
	1-Aug-96							4.73	1376.09
	10-Aug-96							4.42	1376.40
	24-Jul-09							2.19	1378.64
	5-Oct-09							2.79	1378.03
MW96-7b	25-Jul-96	7101669.86	463596.40	1379.09	1.00	0.92	10.70	3.59	1375.50
	27-Jul-96							3.54	1375.55
	1-Aug-96							3.35	1375.74
	10-Aug-96							2.99	1376.10
	24-Jul-09							4.72	1374.37

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-8	26-Jun-96	7101457.97	463252.36	1338.89	1.50	0.82	5.80	2.65	1336.25
	28-Jun-96							2.65	1336.24
	1-Jul-96							2.70	1336.19
	11-Jul-96							2.76	1336.13
	14-Jul-96							2.80	1336.09
	15-Jul-96							2.75	1336.14
	25-Jul-96							2.78	1336.11
	27-Jul-96							2.79	1336.10
	1-Aug-96							2.86	1336.03
	10-Aug-96							2.94	1335.95
	24-Jul-09							2.17	1336.72
	10-Aug-09							2.31	1336.58
	28-Jul-09							2.20	1336.69
	27-Aug-09							2.35	1336.55
	5-Oct-09							2.20	1336.69

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-9b	25-Jul-96	7101252.45	463073.04	1360.31	1.00	n.m.	19.80	8.23	1352.07
	27-Jul-96							8.24	1352.07
	1-Aug-96							8.29	1352.01
	10-Aug-96							8.83	1351.47
	24-Jul-09							7.96	1352.35
	10-Aug-09							8.29	1352.02
	28-Jul-09							8.02	1352.29
	5-Oct-09							7.62	1352.68
MW96-9a	18-Jun-95	7101243.98	463076.05	1360.90	1.00	n.m.	4.60	dry	dry
	27-Aug-09							8.41	1352.49
	5-Oct-09							5.40	1355.51
MW96-10a	26-Jun-96	7101120.66	462938.59	1367.16	1.50	0.93	3.70	3.04	1364.12
	28-Jun-96							3.10	1364.06
	1-Jul-96							3.19	1363.97
	11-Jul-96							3.33	1363.83
	14-Jul-96							3.36	1363.80
	15-Jul-96							3.00	1364.16
	25-Jul-96							3.33	1363.83
	10-Aug-96							3.47	1363.69
	24-Jul-09							3.57	1363.59
	5-Oct-09							3.30	1363.86

MWID	Date	Coordinates		Elevation (masl)	Screened Length (m)	Sitck up (m)	EOH (mb TOP)	DTW (mb TOP)	Groundwater Elevation (masl)
MW96-10b	15-Jul-96	7101132.36	462936.50	1368.09	3.00	0.93	13.70	4.21	1363.88
	1-Aug-96							4.27	1363.82
	10-Aug-96							4.43	1363.66
	5-Oct-09							3.97	1364.12
MW96-11	10-Aug-96	n.m.	n.m.	1307.43	1.50	n.m.	56.40	11.02	1296.41
	5-Oct-09							8.89	1298.55
GT96-26	10-Aug-96	7102023.45	462590.96	1284.00	n.m.	0.88	20.70	0.09	1283.91
	24-Jul-09							5.08	1278.92
	10-Aug-09							5.14	1278.86
	28-Jul-09							5.01	1278.99
	27-Aug-09							5.09	1278.91
	5-Oct-09							4.78	1279.22
MW96-26	10-Aug-96	7101516.49	462872.79	1315.86	5.00	n.m.	44.20	7.59	1308.27
	5-Oct-09							7.46	1308.40
MW96-27	10-Aug-96	7101561.89	462876.27	1307.94	5.00	n.m.	38.10	11.02	1296.92
	5-Oct-09							9.95	1297.99

NOTES:
m asl - meters above sea level
EOH - end of hole
mb TOP - meters below top of pipe
DTW - depth to water
n.m. – not measured

Table 10: Packer Test Summary

Monitoring Well	Packer Test Interval (m)	Interval Length (m)	Rock Description	Depth to Water (m)	Hydraulic Conductivity (m/s)
Dublin Gulch					
95-152	18.0 – 30.2	12.2	Metasediment	1.8	$1.2 X10^{-6}$
Platinum Gulch					
95-102	16.2 – 45.1	28.9	Granodiorite/metased	0	$8.4 X10^{-7}$
95-102	46.3 – 76.8	30.5	Granodiorite/metased	0	$5.7 X10^{-7}$
95-103	41.9 – 72.4	30.5	Granodiorite	24	$9.9 X10^{-8}$
95-108	18.0 – 30.2	12.2	Granodiorite	59.6	*a
95-108	67.1 – 92.4	25.3	Granodiorite	43	$3.2 X10^{-7}$
95-108	94.5 – 117.3	22.8	Granodiorite	48.5	*a
Stuttle Gulch					
95-103	75.0 – 92.4	17.4	Granodiorite/metased	24	$2.5 X10^{-7}$
95-103	107.6 – 138.0	30.4	Metasediment	24	$4.8 X10^{-8}$
95-103	134.7 – 165.0	30.3	Metasediment	24	$1.0 X10^{-8}$
95-105	14.9 – 29.3	14.4	Metasediment	13.1	$7.6 X10^{-7}$
95-105	45.1 – 69.5	24.4	Metasediment	13.1	$1.5 X10^{-8}$
95-106	30.2 – 60.7	30.5	Granodiorite	19.8	$5.5 X10^{-8}$
95-106	64.1 – 82.9	18.8	Granodiorite	19.8	$4.1 X10^{-8}$
Eagle Pup					
95-151	11.9 – 30.2	18.3	Metasediment	0.9	$2.4 X10^{-7}$
Steward Gulch					
95-150	18.0 – 30.2	12.2	Metasediment	2.1	$8.9 X10^{-7}$
Bawn-Boy Gulch					
95-139	11.6 – 29.9	18.3	Metasediment	11.89	$1.4 X10^{-7}$
95-141	11.9 – 30.2	18.3	Granodiorite	3.66	$1.6 X10^{-7}$
95-144	11.9 – 30.2	18.3	Granodiorite	4.88	$2.8 X10^{-7}$
95-146	11.9 – 30.2	18.3	Granodiorite	1.83	$1.0 X10^{-7}$
95-147	11.9 – 30.2	18.3	Granodiorite	4.27	$1.1 X10^{-7}$

NOTES;
*a – pumping capacity could not fill test interval
Drill holes DH95-105, 106, 108 vertical, DH95-102 and 103 incline holes
Depths are listed as reported by 1995 Knight Piésold

Table 11: Recovery Test Summary

Monitoring Well	Year Tested	Screened Interval (m)	Screen Length (m)	Rock Description	Hydraulic Conductivity (m/s)	Interpretive Method
Dublin Gulch						
MW09-DG1	2009	4.0 – 7.0	3.05	Fluvial	3.1×10^{-5}	Bouwer and Rice
MW09-DG2	2009	9.1 – 12.1	3.05	Placer Tailings	3.9×10^{-3}	KGS
MW09-DG4	2009	9.8 – 12.8	3.05	Till	5.5×10^{-5}	Bouwer and Rice
BH95-152	2009	27.2 – 30.2	3.05	Metasediment	1.8×10^{-5}	Bouwer and Rice
Stuttle Gulch						
MW96-16b	1996	42.7 – 48.8	6.10	Granodiorite	5.0×10^{-7}	Cooper
MW96-18	1996	60.6 – 66.7	6.10	Metasediment	1.0×10^{-7}	Cooper
MW09-STU2	2009	4.3 – 7.3	3.05	Colluvial	3.2×10^{-5}	Bouwer and Rice
Eagle Pup						
MW96-12b	1996	10.7 – 13.7	3.05	Granodiorite	8.6×10^{-7}	Bouwer and Rice
MW96-13b	1996	16.8 – 19.8	3.05	Metasediment	5.1×10^{-7}	Bouwer and Rice
	2009				7.3×10^{-6}	Bouwer and Rice
MW96-14b	1996	10.7 -13.7	3.05	Colluvial	7.8×10^{-6}	Bouwer and Rice
MW96-15b	1996	36.6 – 38.1	1.50	Metasediment	3.8×10^{-6}	Bouwer and Rice
	2009				7.4×10^{-5}	Bouwer and Rice
Olive Gulch						
MW09-OG2	2009	12.8 – 15. 8	3.05	Granodiorite	8.5×10^{-7}	Bouwer and Rice
MW09-OG3	2009	5.3 – 8.4	3.05	fluvial/colluvial	4.1×10^{-6}	Bouwer and Rice
Bawn-Boy Gulch						
MW96-2	1996	22.9 – 25.9	3.05	Granodiorite	1.0×10^{-5}	Bouwer and Rice
MW96-3	1996	10.7 – 13.7	3.05	Granodiorite	2.4×10^{-5}	Bouwer and Rice
MW96-4	1996	6.7 – 9.7	3.05	Colluvial	3.5×10^{-7}	Bouwer and Rice
MW96-5	1996	10.7 – 13.7	3.05	Granodiorite	4.4×10^{-6}	Bouwer and Rice
MW96-6b	1996	8.8 – 9.8	1.00	Colluvial	4.5×10^{-6}	Bouwer and Rice
MW96-7b	1996	9.7 – 10.7	1.00	Granodiorite	1.3×10^{-7}	Bouwer and Rice
MW96-8	1996	4.3 – 5.8	1.50	Granodiorite	2.4×10^{-7}	Bouwer and Rice
	2009	4.3 – 5.8	1.50	Granodiorite	4.2×10^{-5}	Bouwer and Rice
MW96-9b	1996	16.8 – 19.8	3.05	Granodiorite	4.8×10^{-6}	Bouwer and Rice
	2009				8.9×10^{-6}	Bouwer and Rice
MW96-10b	1996	12.7 – 12.7	1.00	Metasediment	6.2×10^{-6}	Bouwer and Rice
MW96-1	2009	44.2 – 50.3	6.10	Granodiorite	7.6×10^{-7}	Bouwer and Rice
GT96-26	2009	n.a.	n.a.	Granodiorite	3.6×10^{-6}	Bouwer and Rice

NOTES:
n.a. - data not available
Bouwer and Rice – Bouwer and Rice (1976), Bouwer (1989)
Cooper – Cooper, et al (1969)
KGS - Butler, J.J., Jr., and E.J. Garnett, for the Kansas Geological Survey (2000)

Table 12a: Groundwater General Chemistry – Ann Gulch and Dublin Gulch

Parameter	Units	D.L.*	CCME FAL	BC CSR AW	Ann Gulch	Dublin Gulch													
					MW09-AG2	DH95-152							MW09-DG1			MW09-DG2	MW09-DG4		MW09-DG5
					21-OCT-09	22-May-96	22-Jul-96	21-Sep-96	27-Sep-95	27-Jul-09	27-Jul-09	27-Aug-09	27-Aug-09	27-Aug-09	05-OCT-09	27-Aug-09	4-Sep-09	05-OCT-09	3-Sep-09
Physicals																			
Hardness (as $CaCO_3$)	mg/L	1	-	-	355	486	421	420	492	409	87.7	443	189	183	221	293	310	293	452
Conductivity	uS/cm	2	-	-	964	939	838	812	912	779	186	443	377	183	418	557	545	540	--
pH	pH	0.01	6.5 - 9	-	7.24	7.35	7.54	7.39	7.35	8.08	7.79	7.74	7.74	7.72	7.61	7.5	7.31	7.67	--
Total Dissolved Solids	mg/L	10	-	-		687	613	599	715	463	124	494	217	221	254	350	342	358	--
Total Suspended Solids	mg/L	3	-	-	821	22	5	11	11	53.00	18.50	7.8	27.8	42.3	15.8	6.3	42.8	20.8	--
Turbidity	NTU	0.1	-	-	437	22.3	4.2	9.8	10.6	54.7	23	--	--	--	34.0	--	11.5	6.70	--
Anions																			
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	682	378	343	335	419	313	83.2	320	147	151	166	210	205	209	--
Bromide (Br)	mg/L	0.05	-	-	<5.0	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.05	<0.05	<0.050	--
Chloride (Cl)	mg/L	0.5	-	-	<50	1	0.7	0.6	1.7	1.5	<0.5	<5.0	<0.5	<0.5	<0.50	<0.5	<0.5	<0.50	--
Fluoride (F)	mg/L	0.02	-	-	0.296	0.18	0.2	0.15	0.15	0.13	0.257	<0.2	0.138	0.139	0.228	0.104	0.08	0.080	--
Sulfate (SO_4)	mg/L	0.5	-	-	<50	160	142	139	164	125	10.2	129	52.6	55.6	67.7	98.9	94.1	92.8	--
Nutrients																			
Ammonia Nitrogen (NH_4)	mg/L					0.34	0.33	0.27	0.36	--	--	--	--	--	--	--	--	--	--
Nitrate as N	mg/L	0.005	13	-	<0.50	<0.005	<0.005	<0.005	0.013	0.262	<0.005	<0.05	<0.005	<0.005	<0.0050	<0.005	0.116	0.0826	--
Nitrite as N	mg/L	0.001	0.060	-	<0.10	0.003	0.001	0.001	0.001	0.0127	<0.001	<0.01	<0.001	<0.001	<0.0010	0.0104	<0.001	0.0075	--
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	14.6	--	--	--	--	0.607	0.077	1.2	0.191	0.186	0.188	0.339	0.117	0.138	--
Ortho Phosphate as P	mg/L	0.001	-	-	<0.10	<0.001	0.084	0.029	0.004	0.0115	0.0054	0.0082	0.0012	<0.001	<0.0010	<0.001	<0.001	<0.0010	--
Total Phosphate as P	mg/L	0.00	-	-	0.54	<0.001	0.224	0.084	0.052	0.101	0.034	0.0297	<0.01	0.018	<0.0020	<0.002	0.0228	<0.0020	--
Organics																			
Total Organic Carbon (TOC)	mg/L	0.5	-	-	345	--	--	--	--	5.74	1.15	3.9	2.35	2.65	1.09	4.74	1.43	1.64	--
Cyanide																			
Total Cyanide (CN-)	mg/L	0.001			--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--

Table 12b: Groundwater General Chemistry – Stuttle Gulch

Parameter	Units	D.L.*	CCME FAL	BC CSR AW	Stuttle Gulch														Stewart Gulch			
					DH95-151			MW96-18		DH95-105			DH95-106					MW09-STU 2	DH95-150			
					27-Sep-95	22-Jul-96	21-Sep-96	27-Aug-09	05-OCT-09	21-Aug-95	27-Sep-95	22-Jul-96	21-Aug-95	27-Sep-95	22-May-96	22-Jul-96	21-Sep-96	27-Aug-09	27-Sep-95	24-May-96	22-Jul-96	21-Sep-96
Physicals																						
Hardness (as $CaCO_3$)	mg/L	1	-	-	234	347	398	315	313	456	241	187	118	129	134	99	133	452	511	447	450	454
Conductivity	uS/cm	2	-	-	435	628	675	315	565	520	491	496	273	267	287	277	284	659	686	808	793	825
pH	pH	0.01	6.5 - 9	-	7.37	7.58	7.5	7.64	7.60	7.99	7.66	7.89	6.08	7.95	7.78	8.02	7.99	7.62	7.35	7.4	7.86	7.25
Total Dissolved Solids	mg/L	10	-	-	310	456	496	385	391	367	380	364	176	192	203	161	198	397	653	570	568	578
Total Suspended Solids	mg/L	3	-	-	7	10	4	133	43.3	4210	168	95	160	99	55	27	10	28.8	6	9	5	2
Turbidity	NTU	0.1	-	-	3.2	9.7	7.8	--	47.7	2000	48	29	43	23.6	15.3	7.7	4.5	23	5	11.3	7.4	9.4
Anions																						
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	210	248	262	139	141	117	146	129	88.9	99	100	92.1	105	285	464	394	390	407
Bromide (Br)	mg/L	0.05	-	-	--	--	--	<0.05	<0.050	--	--	--	--	--	--	--	--	<0.05	--	--	--	--
Chloride (Cl)	mg/L	0.5	-	-	0.7	<0.5	<0.5	<0.5	<0.50	8.8	1.1	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5
Fluoride (F)	mg/L	0.02	-	-	0.21	0.29	0.32	0.073	0.097	0.14	0.16	0.14	0.07	0.09	0.05	0.09	0.08	0.11	0.28	0.3	0.28	0.15
Sulfate (SO_4)	mg/L	0.5	-	-	50.3	116	128	165	165	131	138	133	40.6	44	51.9	45.7	45.3	90.1	97.8	90.8	90.4	89.8
Nutrients																						
Ammonia Nitrogen (NH_4)	mg/L				<0.005	0.019	0.024	--	--	0.024	<0.005	0.014	0.011	<0.005	0.016	<0.005	<0.005	--	0.001	0.021	0.019	0.042
Nitrate as N	mg/L	0.005	13	-	0.369	0.136	0.116	0.0085	0.0304	<0.005	<0.005	<0.005	0.045	0.028	<0.005	<0.005	0.011	0.0065	<0.005	<0.005	<0.005	<0.005
Nitrite as N	mg/L	0.001	0.060	-	0.002	0.001	0.001	<0.001	0.0019	<0.001	<0.001	0.001	0.001	0.002	0.007	0.001	0.003	<0.001	<0.001	0.002	0.001	0.002
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	--	--	--	0.32	0.244	--	--	--	--	--	--	--	--	0.488	--	--	--	--
Ortho Phosphate as P	mg/L	0.001	-	-	0.002	0.007	0.008	0.0027	0.0013	0.062	0.007	0.024	<0.001	0.002	<0.001	0.004	0.004	0.0011	0.006	<0.001	0.031	0.012
Total Phosphate as P	mg/L	0.00	-	-	0.011	0.051	0.038	0.259	<0.0020	9.17	0.08	0.2	0.028	0.02	0.019	0.051	0.025	0.024	0.032	0.002	0.295	0.256
Organics																						
Total Organic Carbon (TOC)	mg/L	0.5	-	-	--	--	--	1.24	8.18	--	--	--	--	--	--	--	--	2.32	--	--	--	--
Cyanide																						
Total Cyanide (CN^-)	mg/L	0.001			<0.001	0.004	<0.001	--	--	<0.001	0.009	<0.001	<0.001	<0.001	<0.001	0.005	<0.001	--	0.013	<0.001	<0.001	<0.001

Table 12c: Groundwater General Chemistry – Stewart Gulch, Platinum Gulch, Eagle Pup, and Olive Gulch

Parameter	Units	D.L.*	CCME FAL	BC CSR AW	Stewart Gulch				Platinum Gulch			Eagle Pup					Olive Gulch			
					DH95-150				MW96-23		DH95-108	MW96-13b		MW96-15b			MW09-OG2		MW09-OG3	
					27-Sep-95	24-May-96	22-Jul-96	21-Sep-96	27-Aug-09	05-OCT-09	21-Aug-95	27-Jul-09	27-Aug-09	27-Jul-09	27-Aug-09	05-OCT-09	4-Sep-09	05-OCT-09	4-Sep-09	05-OCT-09
Physicals																				
Hardness (as $CaCO_3$)	mg/L	1	-	-	511	447	450	454	140	153	88.6	148	83.9	260	274	262	169	183	20.2	15.7
Conductivity	uS/cm	2	-	-	686	808	793	825	140	313	201	181	203	453	446	445	332	336	62	42.7
pH	pH	0.01	6.5 - 9	-	7.35	7.4	7.86	7.25	7.83	7.78	7.84	8.01	7.73	8.17	7.9	7.90	7.3	7.11	6.56	6.99
Total Dissolved Solids	mg/L	10	-	-	653	570	568	578	170	192	133	98	108	231	236	233	205	221	40	41
Total Suspended Solids	mg/L	3	-	-	6	9	5	2	29.8	7.8	85	1310	487	44	7.3	4.8	66.3	21.8	33.8	5.8
Turbidity	NTU	0.1	-	-	5	11.3	7.4	9.4	--	6.45	26.7	679	--	50.8	--	4.05	31.1	12.0	10	4.20
Anions																				
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	464	394	390	407	130	136	60.2	88.9	107	241	243	239	103	108	26	20.5
Bromide (Br)	mg/L	0.05	-	-	--	--	--	--	<0.05	<0.050	--	<0.05	<0.05	<0.05	<0.05	<0.050	<0.05	<0.050	<0.05	<0.050
Chloride (Cl)	mg/L	0.5	-	-	1.1	<0.5	<0.5	<0.5	<0.5	<0.50	0.6	<0.5	<0.5	<0.5	<0.5	<0.50	<0.5	<0.50	<0.5	<0.50
Fluoride (F)	mg/L	0.02	-	-	0.28	0.3	0.28	0.15	0.056	0.063	0.07	0.092	0.061	0.372	0.318	0.337	0.282	0.414	0.025	<0.020
Sulfate (SO_4)	mg/L	0.5	-	-	97.8	90.8	90.4	89.8	22.8	29.1	33.8	5.52	6.12	17.8	17.3	17.3	67.7	66.8	3.12	1.04
Nutrients																				
Ammonia Nitrogen (NH_4)	mg/L				0.001	0.021	0.019	0.042	--	--	0.007	--	--	--	--	--	--	--	--	--
Nitrate as N	mg/L	0.005	13	-	<0.005	<0.005	<0.005	<0.005	0.479	0.428	0.273	0.174	0.177	0.0071	<0.005	0.0060	0.0255	0.0139	0.125	0.0937
Nitrite as N	mg/L	0.001	0.060	-	<0.001	0.002	0.001	0.002	<0.001	0.0026	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	0.0043	0.0025	0.0011	0.0023
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	--	--	--	--	0.119	0.193	--	<0.05	0.091	<0.05	0.094	0.136	0.301	0.207	2.3	0.081
Ortho Phosphate as P	mg/L	0.001	-	-	0.006	<0.001	0.031	0.012	0.0331	0.0292	0.001	<0.001	<0.001	0.0058	0.0026	0.0024	<0.001	0.0021	<0.001	<0.0010
Total Phosphate as P	mg/L	0.00	-	-	0.032	0.002	0.295	0.256	0.0585	0.0258	0.063	0.283	0.121	0.047	0.0045	<0.0020	0.049	0.0028	0.0185	<0.0020
Organics																				
Total Organic Carbon (TOC)	mg/L	0.5	-	-	--	--	--	--	2.18	1.85	---	5.54	2.56	2.14	<0.5	0.52	2.17	2.81	1.82	1.62
Cyanide																				
Total Cyanide (CN^-)	mg/L	0.001			0.013	<0.001	<0.001	<0.001	--	--	0.007	--	--	--	--	--	--	--	--	--

Table 12d: Groundwater General Chemistry – Bawn-Boy Gulch, Lynx Creek Watershed, and Travel Blank

Parameter	Units	D.L.*	CCME FAL	BC CSR AW	Bawn-Boy Gulch																Lynx Creek Watershed		Travel Blank
					BH95-138	BH95-139			BH95-141				BH95-148	BH95-149		GT96-26	MW96-8			MW96-6b		MW96-1		
					27-Sep-95	24-May-96	22-Jul-96	21-Sep-96	27-Sep-95	24-May-96	22-Jul-96	21-Sep-96	27-Sep-95	22-Jul-96	21-Sep-96	27-Jul-09	27-Jul-09	27-Aug-09	05-Oct-09	27-Jul09	27-Aug-09	21-Sep-96	27-Aug-09	27-Aug-09
Physicals																								
Hardness (as $CaCO_3$)	mg/L	1	-	-	25	24.8	25.1	24.1	58.9	62.1	56	61.4	29.8	26.6	31	89	24	25	25.8	18.6	23.2	281	151	--
Conductivity	uS/cm	2	-	-	60.9	60.4	61.5	60.6	131	142	144	140	72.6	72.5	72.6	186	62.5	62.9	64.2	50	53.4	633	282	<2.0
pH	pH	0.01	6.5 - 9	-	7.64	7.01	7.61	7.44	7.64	7.64	7.8	8.8	7.2	7.44	7.41	7.72	7.38	7.14	7.08	7.04	6.94	7.68	7.36	5.7
Total Dissolved Solids	mg/L	10	-	-	39	38	39	37	75	87	86	91	49	43	41	126	49	47	49	42	44	478	190	<10
Total Suspended Solids	mg/L	3	-	-	65	14	5	24	366	67	31	4	123	1000	1140	27.5	66.5	23.2	9.3	32.50	42.3	4	148	<3.0
Turbidity	NTU	0.1	-	-	30.8	9.3	2	9.3	67.1	26.8	7.7	12.7	51	290	284	28.9	30.8	--	3.39	25.9	--	4.5	--	<0.1
Anions																								
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	23.2	21.5	20.7	21.8	30.6	50.5	53.9	55.9	30.4	29.1	27.5	81.9	17.9	19	20.1	19.8	22.6	65.1	83.8	<2
Bromide (Br)	mg/L	0.05	-	-	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05
Chloride (Cl)	mg/L	0.5	-	-	0.5	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.3	<0.5	<0.5
Fluoride (F)	mg/L	0.02	-	-	0.1	0.05	0.08	0.06	0.26	0.25	0.26	0.25	0.09	0.04	0.06	0.247	0.046	0.038	0.034	0.028	0.025	0.23	0.062	<0.02
Sulfate (SO_4)	mg/L	0.5	-	-	5.4	6.8	6.2	6.6	14	12.7	13.1	13.4	4	3.2	3.4	9.76	8.99	9.16	8.98	2.41	2.51	256	64.4	<0.5
Nutrients																								
Ammonia Nitrogen (NH_4)	mg/L				--	<0.005	<0.005	<0.005	--	0.043	0.007	<0.005	--	0.031	<0.005	--	--	--	--	--	--	0.07	--	--
Nitrate as N	mg/L	0.005	13	-	<0.005	0.124	0.13	0.144	0.012	0.064	0.063	0.07	<0.005	0.065	0.069	<0.005	0.0976	0.0939	0.0906	0.399	0.145	0.009	0.0054	<0.005
Nitrite as N	mg/L	0.001	0.060	-	0.103	0.003	<0.001	<0.001	0.077	0.022	0.005	0.012	0.034	<0.001	0.059	<0.001	<0.001	<0.001	0.0012	0.0049	<0.001	0.006	<0.001	<0.001
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.001	--	--	--	0.001	--	--	--	0.002	--	--	0.092	<0.05	0.056	0.193	0.592	0.159		0.126	<0.5
Ortho Phosphate as P	mg/L	0.001	-	-	0.016	0.007	0.03	0.024	0.019	0.018	0.031	0.034	0.004	0.012	0.016	0.0053	0.0077	0.005	0.0053	0.0337	0.0016	0.004	<0.001	<0.001
Total Phosphate as P	mg/L	0.00	-	-	0.178	0.049	0.04	0.057	0.1	0.045	0.083	0.128	0.036	0.79	1.59	0.053	0.066	0.0202	0.0052	0.086	0.0428	0.018	0.088	<0.002
Organics																								
Total Organic Carbon (TOC)	mg/L	0.5	-	-	--	--	--	--	--	--	--	--	--	--	--	1.79	0.92	0.85	1.72	5.74	0.8/	--	3.18	<0.5
Cyanide																								
Total Cyanide (CN^-)	mg/L	0.001			0.006	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	<0.001	--	--

Table 13a: Groundwater Total Metals Chemistry – Ann Gulch and Dublin Gulch

Total Metals	Units	D.L.*	CCME FAL	BC CSR AW	Ann Gulch	Dublin Gulch													
					MW09-AG2	DH95-152							MW09-DG1			MW09-DG2	MW09-DG4		MW09-DG5
					21-OCT-09	27-Sep-95	22-May-96	22-Jul-96	21-Sep-96	27-Jul-09	27-Jul-09	27-Aug-09	27-Aug-09	27-Aug-09	05-OCT-09	27-Aug-09	4-Sep-09	05-OCT-09	3-Sep-09
Aluminum (Al)	mg/L	0.001	0.1_{6}	-	**3.42**	0.064	0.042	0.024	0.009	**0.112**	**0.268**	**0.106**	**0.499**	**0.215**	0.0564	**0.595**	**0.223**	**0.269**	--
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0026	0.0012	<0.0001	<0.0001	<0.0001	0.00077	0.0227	0.00075	0.00412	0.00178	0.00029	0.008	0.00092	0.00154	--
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.0610**	**1.83**	**1.15**	**1.09**	**1.11**	**0.530**	**0.579**	**0.554**	**0.0712**	**0.119**	**0.462**	**0.0548**	0.00496	0.00478	--
Barium (Ba)	mg/L	0.00005	-	10	0.0668	0.019	0.013	0.011	0.021	0.0236	0.0423	0.0259	0.0489	0.0382	0.0318	0.0797	0.12	0.111	--
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0025	--
Bismuth (Bi)	mg/L	<0.10	-	-	--	<0.10	<0.10	<0.10	<0.10	--	--	--	--	--	--	--	--	--	--
Boron (B)	mg/L	0.01	-	50	0.20	<0.10	<0.10	<0.10	<0.10	0.011	<0.01	<0.02	0.013	<0.01	<0.010	<0.01	<0.01	<0.050	--
Cadmium (Cd)	mg/L	0.000017	0.000017	$0.00001–0.00006_{7}$	<0.00050	<0.002	<0.0002	<0.0050	<0.0002	**0.000148**	**0.000061**	<0.000034	**0.000062**	0.000045	<0.000017	**0.000085**	**0.000038**	<0.000085	--
Calcium (Ca)	mg/L	0.05	-	-	104	76.2	76.8	64.3	65.9	66.1	25.7	71.5	37.1	36.4	40.1	57.3	79.6	74.8	--
Chromium (Cr)	mg/L	0.0005	-	-	0.0170	<0.001	<0.001	<0.001	<0.001	<0.0005	0.00069	<0.001	0.0022	0.00111	<0.00050	0.00191	0.00142	<0.0025	--
Cobalt (Co)	mg/L	0.0001	-	0.04	0.0191	<0.001	<0.001	<0.001	<0.001	0.0003	0.00213	0.0003	0.00144	0.00109	0.00020	0.00161	0.00067	<0.00050	--
Copper (Cu)	mg/L	0.0001	$0.002\text{-}0.004_{9}$	$0.002 - 0.009_{8}$	**0.0789**	<0.001	**0.001**	<0.001	<0.001	0.00295	**0.00265**	0.0026	**0.00403**	0.00177	0.00070	**0.00415**	0.00283	0.00216	--
Iron (Fe)	mg/L	0.03	0.3	-	**10.2**	**1.08**	**1.23**	**0.979**	**1.01**	**0.901**	**3.87**	**0.344**	**2.23**	**2.01**	**3.73**	**1.89**	**0.784**	**0.86**	--
Lead (Pb)	mg/L	0.00005	$0.001 - 0.007_{11}$	$0.004 - 0.016_{10}$	0.00398	<0.001	<0.001	<0.001	<0.001	0.00104	0.00113	0.00109	0.0017	0.000731	0.000270	0.0025	0.00193	0.00124	--
Lithium (Li)	mg/L	0.005	-	-	0.073	--	--	--	--	0.0929	0.006	0.111	0.0211	0.027	0.0327	0.0257	0.0117	<0.025	--
Magnesium (Mg)	mg/L	0.1	-	-	98.3	73.8	69.6	60.2	60	57.8	5.69	63.8	23.8	26.2	30.1	33.7	26.8	28.0	--
Manganese (Mn)	mg/L	0.00005	-	-	0.732	0.029	0.023	0.02	0.023	0.0744	0.324	0.0747	0.292	0.311	0.201	0.411	0.0684	0.0316	--
Mercury (Hg)	mg/L	0.00005	-	0.001	--	<0.00001	<0.00001	<0.00001	<0.00001	--	--	<0.00005	<0.00005	<0.00005	<0.000050	<0.00005	<0.00005	<0.000050	--
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.016	<0.001	<0.001	<0.001	<0.001	0.000281	0.00791	0.0003	0.0121	0.0052	0.00111	0.00729	0.000618	0.00129	--
Nickel (Ni)	mg/L	0.0005	$0.025 - 0.15_{13}$	$0.025 - 0.15_{13}$	0.0858	0.001	<0.001	<0.001	<0.001	0.0117	0.00543	0.0104	0.00433	0.00249	0.00057	0.006	0.00175	<0.0025	--
Potassium (K)	mg/L	2	-	-	<20	--	--	--	--	4.5	<2.0	4.9	3.3	3.3	3.1	3.6	2.2	<10	--
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.010	**0.0015**	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.002	<0.001	<0.001	<0.0010	<0.001	<0.001	<0.0050	--
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	<0.00010	**0.0002**	<0.0001	<0.0001	<0.0001	0.000077	0.000013	<0.00002	**0.000158**	<0.00006	0.000012	<0.00008	0.000015	0.000071	--
Sodium (Na)	mg/L	2	-	-	170	--	--	--	--	21.4	2.4	22	11	8.3	8.2	20.3	3.4	<10	--
Strontium (Sr)	mg/L	0.001	-	-	--	1.01	1.08	0.911	0.905	--	--	--	--	--	--	--	--	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	<0.0010	--	<0.010	<0.010	<0.010	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.00050	--
Tin (Sn)	mg/L	0.0001	-	-	0.0022	--	--	--	--	0.00505	0.00134	0.00216	0.00081	0.00037	0.00079	0.00106	0.00064	0.00171	--
Titanium (Ti)	mg/L	0.01	-	1	0.12	<0.010	--	--	--	0.014	0.017	0.087	0.026	<0.01	<0.010	0.031	0.022	<0.050	--
Uranium (U)	mg/L	0.00001	-	0.30	0.00498	0.00754	0.00431	0.00327	0.00348	0.00306	0.000909	0.0036	0.00161	0.00173	0.00173	0.00469	0.00677	0.00980	--
Vanadium (V)	mg/L	0.001	-	-	0.014	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	<0.002	<0.001	<0.001	<0.0010	0.0012	<0.001	<0.0050	--
Zinc (Zn)	mg/L	0.001	0.03	$0.075 - 2.4_{14}$	0.115	<0.005	<0.005	0.012	<0.005	0.0241	**0.0710**	0.0134	**0.0712**	**0.0632**	0.0163	**0.0466**	0.0054	<0.0050	--

Table 13b: Groundwater Total Metals Chemistry – Stuttle Gulch

Total Metals	Units	D.L.*	CCME FAL	BC CSR AW	Stuttle Gulch													
					95-151			95-105			95-106					MW96-18		MW09-STU 2
					27-Sep-95	22-Jul-96	21-Sep-96	21-Aug-95	27-Sep-95	22-Jul-96	21-Aug-95	27-Sep-95	22-May-96	22-Jul-96	21-Sep-96	27-Aug-09	05-OCT-09	27-Aug-09
Aluminum (Al)	mg/L	0.001	0.1_{6}	-	0.072	**0.129**	0.042	**4.07**	**0.754**	**0.27**	**1.42**	**0.577**	**0.185**	**0.184**	0.045	**0.203**	**0.423**	**0.42**
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0032	0.0045	0.0021	0.0175	0.0034	0.0016	0.0035	0.0035	0.0008	0.0027	0.0032	0.0215	0.0164	0.0013
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.117**	**0.241**	**0.246**	**2.31**	**0.885**	**0.608**	**0.0425**	**0.043**	**0.0319**	**0.0284**	**0.0276**	**0.618**	**0.993**	**0.0167**
Barium (Ba)	mg/L	0.00005	-	10	0.065	0.055	0.055	0.081	0.015	0.018	0.027	0.027	0.026	0.022	0.021	0.0251	0.0303	0.17
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.00050	<0.005
Bismuth (Bi)	mg/L	<0.10	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	--	<0.10
Boron (B)	mg/L	0.01	-	50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.01	<0.010	<0.10
Cadmium (Cd)	mg/L	0.000017	0.000017	$0.00001–0.00006_{7}$	<0.002	<0.0002	<0.0002	**0.0191**	**0.0005**	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000043	**0.000078**	<0.0002
Calcium (Ca)	mg/L	0.05	-	-	40.2	53.6	58.6	84.4	70.1	69.5	43.1	43.4	48	43.9	48.1	87.5	91.0	30.2
Chromium (Cr)	mg/L	0.0005	-	-	<0.001	<0.001	<0.001	0.011	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00087	0.00167	<0.001
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.001	<0.001	<0.001	0.014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00148	0.00178	<0.001
Copper (Cu)	mg/L	0.0001	$0.002\text{-}0.004_{9}$	$0.002 - 0.009_{8}$	0.001	<0.001	<0.001	**0.095**	**0.009**	0.003	0.001	0.001	<0.001	<0.001	<0.001	0.00153	0.00258	**0.008**
Iron (Fe)	mg/L	0.03	0.3	-	0.233	**0.869**	**0.771**	**12.8**	**0.928**	**0.431**	**0.753**	**0.348**	0.283	0.175	0.076	**2.39**	**3.04**	**2.43**
Lead (Pb)	mg/L	0.00005	$0.001 - 0.007_{11}$	$0.004 - 0.016_{10}$	<0.001	<0.001	<0.001	**0.35**	**0.016**	**0.007**	**0.004**	0.002	<0.001	<0.001	<0.001	0.00324	0.00516	**0.003**
Lithium (Li)	mg/L	0.005	-	-	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.0050	--
Magnesium (Mg)	mg/L	0.1	-	-	32.6	50.2	55.1	20.3	16.8	16.4	4.21	4.27	4.62	4.35	4.55	20	20.9	4.95
Manganese (Mn)	mg/L	0.00005	-	-	0.031	0.101	0.116	0.522	0.205	0.213	0.038	0.46	0.066	0.06	0.06	0.341	0.370	0.095
Mercury (Hg)	mg/L	0.00005	-	0.001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.000050	<0.00001
Molybdenum (Mo)	mg/L	0.00005	0.073	10	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.01	0.013	0.015	0.016	0.014	0.00448	0.00478	0.003
Nickel (Ni)	mg/L	0.0005	$0.025 - 0.15_{13}$	$0.025 - 0.15_{13}$	0.002	0.001	<0.001	0.024	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	0.0084	0.00923	0.007
Potassium (K)	mg/L	2	-	-	--	--	--	--	--	--	--	--	--	--	--	3.5	3.7	--
Selenium (Se)	mg/L	0.001	0.001	0.01	**0.0019**	0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0010	<0.0005
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	0.0001	**0.0003**	<0.0001	**0.0007**	**0.0002**	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.00003	0.000052	<0.0001
Sodium (Na)	mg/L	2	-	-	--	--	--	--	--	--	--	--	--	--	--	4.7	4.8	--
Strontium (Sr)	mg/L	0.001	-	-	0.336	0.491	0.539	0.707	0.547	0.566	1.15	1.38	1.77	1.67	1.69	--	--	0.21
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	--	<0.010	<0.010	--	--	<0.010	--	--	<0.010	<0.010	<0.010	<0.0001	<0.00010	--
Tin (Sn)	mg/L	0.0001	-	-	--	--	--	--	--	--	--	--	--	--	--	0.00153	0.00452	--
Titanium (Ti)	mg/L	0.01	-	1	<0.010	--	--	0.034	0.02	--	0.025	0.014	--	--	--	0.048	0.031	0.011
Uranium (U)	mg/L	0.00001	-	0.30	0.00655	0.00605	0.00638	0.00873	0.0063	0.00642	0.0157	0.0207	0.0234	0.0222	0.0254	0.00733	0.00741	0.00183
Vanadium (V)	mg/L	0.001	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.0010	<0.030
Zinc (Zn)	mg/L	0.001	0.03	$0.075 - 2.4_{14}$	<0.005	<0.005	<0.005	0.735	**0.038**	0.021	<0.005	<0.005	<0.005	<0.005	<0.005	0.0088	0.0206	**0.039**

Table 13c: Groundwater Total Metals Chemistry – Stewart Gulch, Platinum Gulch, Eagle Pup, and Olive Gulch

Total Metals	Units	D.L.*	CCME FAL	BC CSR AW	Stewart Gulch				Platinum Gulch			Eagle Pup					Olive Gulch			
					95-150				MW96-23		95-108	MW96-13b			MW95-15b		MW09-OG2		MW09-OG3	
					24-May-96	22-Jul-96	21-Sep-96	27-Sep-95	27-Aug-09	05-OCT-09	21-Aug-95	27-Jul-09	27-Aug-09	27-Jul-09	27-Aug-09	05-OCT-09	4-Sep-09	05-OCT-09	4-Sep-09	05-OCT-09
Aluminum (Al)	mg/L	0.001	0.1_{6}	-	0.022	0.034	0.007	0.098	**0.54**	**0.394**	**0.42**	**0.527**	**2.5**	0.0302	0.0665	0.100	**0.495**	**0.251**	**0.736**	**0.243**
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0003	0.0003	0.0003	0.001	0.00182	0.00257	0.0013	0.00057	0.00204	0.00064	0.00021	0.00026	0.0026	0.00228	0.0006	0.00015
Arsenic (As)	mg/L	0.0001	0.005	0.05	**1.14**	**1.14**	**1.18**	**1.91**	**0.25**	**0.244**	**0.0167**	**0.0120**	**0.0457**	**0.117**	**0.118**	**0.126**	**0.0215**	**0.0267**	0.00242	0.00071
Barium (Ba)	mg/L	0.00005	-	10	0.026	0.028	0.033	0.034	0.0201	0.0203	0.17	0.0159	0.0421	0.0516	0.0578	0.0555	0.0849	0.0845	0.0152	0.00936
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.00050	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.00050	<0.0005	<0.00050
Bismuth (Bi)	mg/L	<0.10	-	-	<0.10	<0.10	<0.10	<0.10	--	--	<0.10	--	--	--	--	--	--	--	--	--
Boron (B)	mg/L	0.01	-	50	<0.10	<0.10	<0.10	<0.10	0.011	0.017	<0.10	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.010	<0.01	<0.010
Cadmium (Cd)	mg/L	0.000017	0.000017	$0.00001–0.00006_{7}$	<0.0002	<0.0050	<0.0002	<0.002	**0.000099**	**0.000074**	<0.0002	**0.000061**	**0.000172**	<0.000017	**0.000037**	**0.000028**	**0.000198**	**0.000051**	**0.000035**	<0.000017
Calcium (Ca)	mg/L	0.05	-	-	78.3	76.4	78.6	85.9	43.4	47.9	30.2	9.45	18.2	33.6	33.8	35.9	44	45.0	6.95	4.91
Chromium (Cr)	mg/L	0.0005	-	-	<0.001	<0.001	<0.001	<0.001	0.00112	0.00104	<0.001	0.00109	0.00434	<0.0005	<0.0005	<0.00050	0.00125	0.00105	0.00055	<0.00050
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.001	<0.001	<0.001	<0.001	0.00087	0.00070	<0.001	0.00099	0.00393	<0.0001	<0.0001	0.00010	0.00084	0.00108	0.00048	0.00021
Copper (Cu)	mg/L	0.0001	$0.002\text{-}0.004_{9}$	$0.002 - 0.009_{8}$	0.002	<0.001	<0.001	0.001	**0.00449**	**0.00414**	**0.008**	0.00168	0.00393	0.00092	<0.0001	0.00127	**0.0059**	0.00304	**0.00384**	**0.00321**
Iron (Fe)	mg/L	0.03	0.3	-	**0.86**	**0.827**	**0.845**	**0.632**	**0.72**	**0.549**	**2.43**	**1.61**	**6.06**	0.271	0.239	**0.316**	**0.936**	**0.482**	**0.555**	**0.350**
Lead (Pb)	mg/L	0.00005	$0.001 - 0.007_{11}$	$0.004 - 0.016_{10}$	<0.001	<0.001	<0.001	<0.001	0.00167	0.00133	**0.003**	**0.00608**	**0.0171**	0.000251	0.000371	0.000653	0.00263	0.00157	0.000907	0.000306
Lithium (Li)	mg/L	0.005	-	-	--	--	--	--	0.0112	0.0130	--	<0.005	0.0061	0.0180	0.018	0.0198	0.0073	0.0080	0.0056	<0.0050
Magnesium (Mg)	mg/L	0.1	-	-	62.2	62.5	63.7	73.6	5.79	6.75	4.95	9.14	30.6	40.9	43	42.9	14.6	17.2	1.13	0.83
Manganese (Mn)	mg/L	0.00005	-	-	0.069	0.067	0.069	0..86	0.0191	0.0235	0.095	0.0766	0.234	0.100	0.0376	0.0270	0.107	0.0930	0.0496	0.0177
Mercury (Hg)	mg/L	0.00005	-	0.001	0.00002	<0.00001	<0.00001	<0.0001	<0.00005	<0.000050	<0.00001	--	<0.00005	--	<0.00005	<0.000050	<0.00005	<0.000050	<0.00005	<0.000050
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.005	0.005	0.005	0.008	0.00725	0.00729	0.003	0.000493	0.000956	0.00408	0.00455	0.00480	0.00232	0.00207	0.00235	0.000950
Nickel (Ni)	mg/L	0.0005	$0.025 - 0.15_{13}$	$0.025 - 0.15_{13}$	<0.001	<0.001	<0.001	0.001	0.00221	0.00223	0.007	0.00318	**0.0135**	<0.0005	<0.0005	0.00058	0.00419	0.00425	0.00376	0.00230
Potassium (K)	mg/L	2	-	-	--	--	--	--	<2.0	2.1	--	<2.0	3.3	<2.0	2.3	2.4	2.1	2.6	<2.0	<2.0
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.0005	<0.0005	<0.0005	**0.0031**	**0.0023**	**0.0023**	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	<0.0001	<0.0001	<0.0001	**1.002**	<0.00003	0.000034	<0.0001	0.000016	**0.00014**	<0.00001	<0.00001	0.000013	0.000012	0.000016	0.000015	<0.000010
Sodium (Na)	mg/L	2	-	-	--	--	--	--	12.3	12.8	--	<2.0	<2.0	2.2	2.5	2.5	4.8	3.9	3.8	2.6
Strontium (Sr)	mg/L	0.001	-	-	0.548	0.545	0.561	0.612	--	--	0.21	--	--	--	--	--	--	--	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	<0.010	<0.010	<0.010	--	<0.0001	<0.00010	--	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.00010	<0.0001	<0.00010
Tin (Sn)	mg/L	0.0001	-	-	--	--	--	--	0.00263	0.00516	--	0.00153	0.00109	0.00029	0.00012	0.00285	0.00028	0.00063	0.00034	0.00037
Titanium (Ti)	mg/L	0.01	-	1	--	--	--	<0.010	0.013	0.021	0.011	0.030	0.011	<0.01	0.01	<0.010	0.03	0.019	0.026	0.012
Uranium (U)	mg/L	0.00001	-	0.30	0.00753	0.00669	0.0074	0.0104	0.00465	0.00547	0.00183	0.000386	0.00128	0.00704	0.00747	0.00753	0.00213	0.000972	0.000175	0.000168
Vanadium (V)	mg/L	0.001	-	-	<0.030	<0.030	<0.030	<0.030	<0.001	<0.0010	<0.030	<0.001	0.0032	<0.001	<0.001	<0.0010	0.001	<0.0010	<0.001	<0.0010
Zinc (Zn)	mg/L	0.001	0.03	$0.075 - 2.4_{14}$	<0.005	<0.005	<0.005	<0.005	0.011	0.0135	**0.039**	0.0076	0.0271	0.0141	0.0034	0.0104	0.0275	0.0122	0.0226	0.0087

Table 13d: Groundwater Total Metals Chemistry –Bawn-Boy Gulch

Total Metals	Units	D.L.*	CCME FAL	BC CSR AW	Bawn-Boy Gulch																	
					95-138	95-141	95-148	95-139			95-141			95-149		GT96-26		MW96-8			MW96-9b	
					27-Sep-95	27-Sep-95	27-Sep-95	24-May-96	22-Jul-96	21-Sep-96	24-May-96	22-Jul-96	21-Sep-96	22-Jul-96	21-Sep-96	27-Jul-09	27-Aug-09	27-Jul-09	27-Aug-09	05-OCT-09	27-Jul-09	27-Aug-09
Aluminum (Al)	mg/L	0.001	0.1[6]	-	**0.795**	**0.899**	**0.651**	**0.104**	**0.125**	**0.219**	**4.69**	**0.207**	**0.107**	**0.455**	**0.606**	**0.209**	**2.88**	0.0085	**0.274**	**0.171**	**0.394**	**0.802**
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0007	0.0007	0.006	0.0007	0.0009	0.0009	0.001	0.001	0.0009	0.0005	0.0007	0.0208	0.0299	0.00055	0.00138	0.00340	0.00143	0.00203
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.0786**	**0.153**	**0.118**	**0.0642**	**0.0661**	**0.0666**	**0.198**	**0.184**	**0.177**	**0.282**	**0.193**	**0.589**	**0.267**	**0.0709**	**0.0653**	**0.0667**	**0.0751**	**0.0673**
Barium (Ba)	mg/L	0.00005	-	10	0.021	0.032	0.057	<0.010	<0.010	<0.010	0.012	<0.010	0.017	**0.136**	**0.164**	0.0406	0.059	0.0267	0.0331	0.0315	0.0283	0.0397
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005
Bismuth (Bi)	mg/L	<0.10	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	--	--	--	--	--	--
Boron (B)	mg/L	0.01	-	50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.01	0.01	<0.01	<0.01	<0.010	<0.01	<0.01
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001–0.00006[7]	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**0.000063**	**0.000077**	<0.000017	**0.000045**	**0.000019**	**0.000047**	**0.000049**
Calcium (Ca)	mg/L	0.05	-	-	8.83	18.6	9.97	8.54	8.2	7.54	20.1	19.5	21.3	18.4	20.2	25.8	22.9	7.81	8.01	8.23	5.98	6.71
Chromium (Cr)	mg/L	0.0005	-	-	0.005	0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.0005	0.00139	<0.0005	0.00087	0.00086	0.00097	0.0019
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.003	0.00211	0.00284	<0.0001	0.00019	0.00011	0.00057	0.00055
Copper (Cu)	mg/L	0.0001	0.002-0.004[9]	0.002 - 0.009[8]	**0.011**	0.002	**0.006**	**0.003**	0.002	**0.004**	<0.001	<0.001	<0.001	**0.017**	**0.015**	0.00198	**0.0116**	0.0001	0.00019	0.00136	0.00228	0.00055
Iron (Fe)	mg/L	0.03	0.3	-	**1**	**0.957**	**0.594**	0.146	0.138	0.183	**1.4**	0.045	0.073	**0.474**	**0.832**	**3.6**	**9.09**	<0.03	**0.381**	0.247	**0.736**	**1.25**
Lead (Pb)	mg/L	0.00005	0.001 - 0.007[11]	0.004 - 0.016[10]	0.002	**0.007**	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.007**	0.000824	**0.00296**	<0.00005	0.000672	**0.00156**	0.00219	**0.00419**
Lithium (Li)	mg/L	0.005	-	-	--	--	--	--	--	--	--	--	--	--	--	0.0064	0.008	<0.005	<0.005	<0.0050	<0.005	<0.005
Magnesium (Mg)	mg/L	0.1	-	-	1.43	3.34	1.87	1.15	1.17	1.07	3.75	3.12	2.87	2.72	3.06	5.73	5.69	1.06	1.18	1.21	0.88	1.4
Manganese (Mn)	mg/L	0.00005	-	-	0.033	0.039	0.07	0.007	<0.005	0.007	0.025	0.009	<0.005	0.205	0.281	0.324	0.377	0.000286	0.00876	0.00774	0.0668	0.027
Mercury (Hg)	mg/L	0.00005	-	0.001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	<0.00001	0.00005	<0.00001	<0.00001	0.00045	0.00032	--	<0.00005	--	<0.00005	<0.000050	--	<0.00005
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.003	0.004	0.002	0.001	0.002	0.001	**0.008**	**0.008**	**0.007**	0.001	<0.001	0.00802	0.00976	0.000704	0.000669	0.000731	0.000533	0.000498
Nickel (Ni)	mg/L	0.0005	0.025 - 0.15[13]	0.025 - 0.15[13]	0.005	0.004	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.009**	**0.009**	0.0052	0.0253	<0.0005	0.00074	0.00062	0.00143	0.00218
Potassium (K)	mg/L	2	-	-	--	--	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0008	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.001	<0.001
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	**0.0002**	<0.0001	<0.0001	<0.0001	**0.0002**	**0.0006**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00004	<0.00001	0.000014	0.000015	<0.00001	<0.000020
Sodium (Na)	mg/L	2	-	-	--	--	--	--	--	--	--	--	--	--	--	2.3	6.9	2	2.3	2.4	<2.0	2.5
Strontium (Sr)	mg/L	0.001	-	-	0.035	0.131	0.067	0.034	0.035	0.034	0.135	0.127	0.215	0.132	0.131	--	--	--	--	--	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	--	--	--	<0.010	<0.010	<0.010	0.037	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001
Tin (Sn)	mg/L	0.0001	-	-	--	--	--	--	--	--	--	--	--	--	--	0.00097	0.00044	<0.0001	0.00029	0.00050	0.00199	0.00095
Titanium (Ti)	mg/L	0.01	-	1	0.031	0.021	0.013	--	--	--	--	--	--	--	--	0.012	0.037	<0.01	0.023	0.012	0.027	0.053
Uranium (U)	mg/L	0.00001	-	0.30	0.00025	0.0126	0.00231	0.00008	0.0001	0.0001	0.00504	0.0125	0.0118	0.00939	0.00937	0.000899	0.00113	0.000235	0.000267	0.000267	0.00102	0.000423
Vanadium (V)	mg/L	0.001	-	-	<0.030	<0.030	<0.03	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	0.0012	<0.001	<0.001	<0.0010	<0.001	0.0018
Zinc (Zn)	mg/L	0.001	0.03	0.075 - 2.4[14]	0.009	0.007	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	0.03	**0.069**	0.025	<0.003	0.0098	0.0121	0.0186	**0.0676**

Table 13e: Groundwater Total Metals Chemistry –Lynx Creek Watershed and Travel Blank

Total Metals	Units	D.L.*	CCME FAL	BC CSR AW	Lynx Creek Watershed		
					MW96-1		Travel Blank
					21-Sep-96	27-Aug-09	27-Aug-09
Aluminum (Al)	mg/L	0.001	0.1[6]	-	0.082	**0.815**	<0.001
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0024	0.0037	<0.0001
Arsenic (As)	mg/L	0.0001	0.005	0.05	0.005	**0.0183**	<0.0001
Barium (Ba)	mg/L	0.00005	-	10	0.029	0.0178	<0.00005
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.005	<0.0005	<0.0005
Bismuth (Bi)	mg/L	<0.10	-	-	<0.10	--	--
Boron (B)	mg/L	0.01	-	50	<0.10	<0.01	<0.01
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001 - 0.00006[7]	**0.0002**	**0.000127**	<0.000017
Calcium (Ca)	mg/L	0.05	-	-	110	55.5	<0.05
Chromium (Cr)	mg/L	0.0005	-	-	<0.001	0.00221	<0.0005
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.001	0.00059	<0.0001
Copper (Cu)	mg/L	0.0001	0.002-0.004[9]	0.002 - 0.009[8]	0.001	0.00059	<0.0001
Iron (Fe)	mg/L	0.03	0.3	-	0.083	**1.69**	<0.03
Lead (Pb)	mg/L	0.00005	0.001 - 0.007[11]	0.004 - 0.016[10]	<0.001	**0.0044**	<0.00005
Lithium (Li)	mg/L	0.005	-	-	--	0.0087	<0.005
Magnesium (Mg)	mg/L	0.1	-	-	4.53	2.01	<0.10
Manganese (Mn)	mg/L	0.00005	-	-	0.11	0.103	<0.00005
Mercury (Hg)	mg/L	0.00005	-	0.001	<0.00001	<0.00005	--
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.04	0.00309	<0.00005
Nickel (Ni)	mg/L	0.0005	0.025 - 0.15[13]	0.025 - 0.15[13]	0.001	0.00267	<0.0005
Potassium (K)	mg/L	2	-	-	--	<2.0	<2.0
Selenium (Se)	mg/L	0.001	0.001	0.01	0.0006	<0.001	<0.001
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	0.0001	0.000119	<0.00001
Sodium (Na)	mg/L	2	-	-	--	2.7	<2.0
Strontium (Sr)	mg/L	0.001	-	-	0.372	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	<0.010	<0.0001	<0.0001
Tin (Sn)	mg/L	0.0001	-	-	--	0.00477	<0.0001
Titanium (Ti)	mg/L	0.01	-	1	--	0.018	<0.01
Uranium (U)	mg/L	0.00001	-	0.30	0.00265	0.000384	<0.00001
Vanadium (V)	mg/L	0.001	-	-	<0.030	0.0019	<0.001
Zinc (Zn)	mg/L	0.001	0.03	0.075 - 2.4[14]	0.008	0.0185	<0.001

NOTES:

1. **Bolded** and/or Underlined result implies a guideline exceedance
2. D.L. = laboratory detection limit
3. * some detection limits are varied - '<' (less than) value implies detection limit
4. **CCME FAL -** Canadian Council of Ministers of the Environment Freshwater Aquatic Life guidelines (December 2007)
5. BC CSR AW - British Columbia Contaminated Sites Regulation Aquatic Life Guidelines; provided for comparison only
6. Aluminum guideline is 100 µg/L when pH ≥ 6.5
7. Cadmium Guideline: Cadmium Guideline (CCME): 10^{0.86[log(hardness)]-3.2}
   0.1 µg/L when [$CaCO_3$] is 0 - 30 mg/L
   0.3 µg/L when [$CaCO_3$] is 30 - 90 mg/L
   0.5 µg/L when [$CaCO_3$] is 90 - 150 mg/L
   0.6 µg/L when [$CaCO_3$] is > 150 mg/L
8. Copper Guideline:
   2 µg/L when [$CaCO_3$] is 0 - 50 mg/L
   3 µg/L when [$CaCO_3$] is 50 - 75 mg/L
   4 µg/L when [$CaCO_3$] is 75 - 100 mg/L
   5 µg/L when [$CaCO_3$] is 100 - 125 mg/L
   6 µg/L when [$CaCO_3$] is 125 - 150 mg/L
   7 µg/L when [$CaCO_3$] is 150 - 175 mg/L
   8 µg/L when [$CaCO_3$] is 175 - 200 mg/L
   9 µg/L when [$CaCO_3$] is > 200 mg/L
9. Copper Guideline:
   2 µg/L when [$CaCO_3$] is 0 - 120 mg/L
   3 µg/L when [$CaCO_3$] is 120 - 180 mg/L
   4 µg/L when [$CaCO_3$] is > 180 mg/L
10. Lead Guideline:
    4 µg/L when [$CaCO_3$] is 0 - 50 mg/L
    5 µg/L when [$CaCO_3$] is 50 - 100 mg/L
    6 µg/L when [$CaCO_3$] is 100 - 200 mg/L
    110 µg/L when [$CaCO_3$] is 200 - 300 mg/L
    160 µg/L when [$CaCO_3$] is > 300 mg/L
11. Lead Guideline:
    1 µg/L when [$CaCO_3$] is 0 - 60 mg/L
    2 µg/L when [$CaCO_3$] is 60 - 120 mg/L
    4 µg/L when [$CaCO_3$] is 120 - 180 mg/L
    7 µg/L when [$CaCO_3$] is > 180 mg/L
12. Manganese Guideline:
    1 µg/L when [$CaCO_3$] is 0 - 60 mg/L
    2 µg/L when [$CaCO_3$] is 60 - 120 mg/L
    4 µg/L when [$CaCO_3$] is 120 - 180 mg/L
    7 µg/L when [CaCO3] is > 180 mg/L
13. Nickel Guideline:
    25 µg/L when [$CaCO_3$] is 0 - 60 mg/L
    65 µg/L when [$CaCO_3$] is 60 - 120 mg/L
    110 µg/L when [$CaCO_3$] is 120 - 180 mg/L
    150 µg/L when [$CaCO_3$] is > 180 mg/L
14. Zinc Guideline:
    7.5 µg/L when [$CaCO_3$] is 0 - 90 mg/L
    15 µg/L when [$CaCO_3$] is 90 - 100 mg/L
    90 µg/L when [$CaCO_3$] is 100 - 200 mg/L
    165 µg/L when [$CaCO_3$] is 200 - 300 mg/L
    240 µg/L when [$CaCO_3$] is > 300 mg/L

Table 14a: Groundwater Dissolved Metals Chemistry – Ann Gulch and Dublin Gulch

Dissolved Metals	Units	D.L.*	CCME FAL	BC CSR AW	Ann Gulch	Dublin Gulch													
					MW09-AG2	DH95-152							MW09-DG1			MW09-DG2	MW09-DG4		MW09-DG5
					21-OCT-09		22-May-96	22-Jul-96	21-Sep-96	27-Jul-09	27-Jul-09	27-Aug-09	05-OCT-09	27-Aug-09	27-Aug-09	27-Aug-09	4-Sep-09	05-OCT-09	3-Sep-09
Aluminum (Al)	mg/L	0.001	0.1[6]	-	<0.050	0.016	0.007	0.007	<0.005	0.0012	0.001	0.0035	0.0023	0.0046	0.004	**0.143**	0.0014	<0.0050	0.0045
Antimony (Sb)	mg/L	0.0001	-	0.20	<0.0050	0.0019	<0.0001	<0.0001	<0.0001	0.00048	0.0165	0.00053	0.00018	0.00343	0.00365	0.0069	0.00037	<0.00050	0.00238
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.0178**	**1.78**	**1.18**	**1.1**	**1.11**	**0.644**	**0.576**	**0.557**	**0.196**	**0.0203**	**0.0309**	**0.0492**	0.00047	0.00059	0.00208
Barium (Ba)	mg/L	0.00005	-	10	0.0326	0.019	0.013	0.015	0.017	0.0219	0.0355	0.0226	0.0261	0.0398	0.0394	0.0661	0.113	0.0840	0.0431
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.025	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0005	<0.001	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Bismuth (Bi)	mg/L	0.1	-	-	--	<0.10	<0.10	<0.10	0.1	--	--	--	--	--	--	--	--	--	--
Boron (B)	mg/L	0.01	-	50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.01	<0.01	<0.02	<0.010	0.013	0.012	<0.01	<0.01	<0.050	0.019
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001 - 0.00006[7]	<0.0025	<0.0002	<0.0002	<0.0050	<0.0002	<0.000017	**0.000024**	<0.000034	<0.000017	<0.000017	**0.000018**	**0.000064**	**0.000019**	<0.000085	**0.000108**
Calcium (Ca)	mg/L	0.05	-	-	64.0	76.1	78.8	66.3	67.2	67.6	25.8	73.8	40.5	35.3	37.2	61.2	79.8	72.8	100
Chromium (Cr)	mg/L	0.0005	-	-	<0.025	<0.001	<0.001	<0.001	<0.001	<0.0008	<0.0005	<0.001	<0.00050	<0.0005	<0.0005	0.00537	<0.0005	<0.0025	<0.0006
Cobalt (Co)	mg/L	0.0001	-	0.04	0.0101	<0.001	<0.001	<0.001	<0.001	0.00017	0.00186	<0.0002	0.00013	0.00111	0.00106	0.00124	0.00021	<0.00050	0.00339
Copper (Cu)	mg/L	0.0001	0.002-0.004[9]	0.002 - 0.009[8]	0.0274	<0.001	<0.001	<0.001	<0.001	0.00027	0.00061	0.00028	0.00028	0.00091	0.00084	0.00367	0.00278	<0.00050	**0.0105**
Iron (Fe)	mg/L	0.03	0.3	-	**0.35**	**1.02**	**1.13**	**0.986**	**1.02**	0.293	**2.58**	0.176	**1.68**	<0.03	<0.03	**0.948**	<0.03	<0.15	0.068
Lead (Pb)	mg/L	0.00005	0.001 - 0.007[11]	0.004 - 0.016[10]	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.00005	0.000091	0.00012	<0.000050	<0.00005	<0.00005	0.00187	<0.00005	<0.00025	0.000347
Lithium (Li)	mg/L	0.005	-	-	<0.25		--	--	--	0.0896	0.0052	0.099	0.0305	0.0174	0.0197	0.0243	0.0111	<0.025	0.0943
Magnesium (Mg)	mg/L	0.1	-	-	47.4	73.3	70.2	62.1	61.2	58.4	5.66	63	29.0	23	23.3	34.1	26.8	27.0	49
Manganese (Mn)	mg/L	0.00005	-	-	0.451	0.029	0.021	0.021	0.023	0.0712	0.306	0.0656	0.171	0.279	0.276	0.411	0.0432	0.0191	0.411
Mercury (Hg)	mg/L	0.00005	-	0.001	--							<0.00005	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<0.000050	<0.00005
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.018	<0.001	<0.001	<0.001	<0.001	0.000228	0.00835	0.00024	0.000925	0.0136	0.0136	0.00633	0.000942	0.00120	0.0056
Nickel (Ni)	mg/L	0.0005	0.025 - 0.15[13]	0.025 - 0.15[13]	0.057	0.002	<0.001	<0.001	<0.001	0.00964	0.00414	0.0085	<0.00050	0.00336	0.00316	0.00472	0.00075	<0.0025	0.00664
Potassium (K)	mg/L	2	-	-	<20	4.63	3.94	7.16	5.19	4.5	<2.0	4.8	2.7	3.1	3.2	3.2	2.2	<10	22.1
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.050	**0.0021**	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.002	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.0050	<0.001
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	<0.00050	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001	<0.00002	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.000050	<0.00001
Sodium (Na)	mg/L	2	-	-	81	21.9	29.3	25.2	23.6	21.4	2.2	20	7.4	11.5	11.7	18.2	3.5	<10	23.9
Strontium (Sr)	mg/L	0.001	-	-	--	1.01	1.1	0.936	0.922	--	--	--	--	--	--	--	--	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	<0.0050	--	--	--	--	<0.0001	<0.0001	<0.0002	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.00050	<0.0001
Tin (Sn)	mg/L	0.0001	-	-	<0.0050	--	--	--	--	0.00142	0.0001	0.00143	0.00079	<0.0001	<0.0001	0.00109	<0.0001	<0.00050	0.00243
Titanium (Ti)	mg/L	0.01	-	1	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	0.013	<0.01	<0.050	<0.01
Uranium (U)	mg/L	0.00001	-	0.30	0.00497	0.00781	0.00433	0.00326	0.00346	0.00313	0.000771	0.00334	0.00167	0.00141	0.00149	0.00446	0.00685	0.0102	0.000768
Vanadium (V)	mg/L	0.001	-	-	<0.050	<0.030	<0.030	<0.030	<0.030	<0.0010	<0.0010	<0.002	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.0050	<0.001
Zinc (Zn)	mg/L	0.001	0.03	0.075 - 2.4[14]	<0.050	0.006	<0.005	<0.005	<0.005	0.0077	0.0277	0.0085	0.0114	0.00341	**0.0374**	**0.0346**	0.0122	<0.0050	**0.0354**

Table 14b: Groundwater Dissolved Metals Chemistry – Stuttle Gulch

Dissolved Metals	Units	D.L.*	CCME FAL	BC CSR AW	Stuttle Gulch													
					BH95-105			BH95-106					95-151			MW96-18		MW09-STU 2
					21-Aug-95	27-Sep-95	22-Jul-96	21-Aug-95	27-Sep-95	22-May-96	22-Jul-96	21-Sep-96	27-Sep-95	22-Jul-96	21-Sep-96	27-Aug-09	05-OCT-09	27-Aug-09
Aluminum (Al)	mg/L	0.001	0.1_{6}	-	0.016	0.006	<0.005	0.007	**0.627**	0.009	<0.005	<0.005	0.007	0.012	<0.005	0.0026	0.0016	0.001
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0096	0.0034	0.0019	0.005	0.0044	0.0015	0.0032	0.0037	0.0032	0.0039	0.0015	0.0192	0.0142	0.00023
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.618**	**0.91**	**0.578**	**0.0361**	**0.028**	0.0292	**0.0267**	**0.0248**	**0.127**	**0.189**	**0.236**	**0.0828**	**0.0342**	**1.33**
Barium (Ba)	mg/L	0.00005	-	10	0.011	0.011	<0.010	0.018	0.018	0.024	0.014	0.021	0.064	0.058	0.058	0.0213	0.0190	0.0214
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.00050	<0.0005
Bismuth (Bi)	mg/L	0.1	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	--	--
Boron (B)	mg/L	0.01	-	50	<0.10	<0.10	<0.10	<0.10	<0.01	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.01	<0.010	<0.01
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001 - 0.00006_{7}	<0.002	<0.002	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.000017	**0.000028**	<0.000017
Calcium (Ca)	mg/L	0.05	-	-	70.5	69.1	69.5	41.2	41.6	46.4	34	46.1	40.2	54.7	62	92.7	92.1	81.6
Chromium (Cr)	mg/L	0.0005	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.00050	<0.0008
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00127	0.00117	<0.0001
Copper (Cu)	mg/L	0.0001	$0.002\text{-}0.004_{9}$	$0.002 - 0.009_{8}$	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	0.00022	0.00018
Iron (Fe)	mg/L	0.03	0.3	-	<0.030	0.084	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.113	**0.885**	**0.543**	<0.03	<0.030	**1.46**
Lead (Pb)	mg/L	0.00005	$0.001 - 0.007_{11}$	$0.004 - 0.016_{10}$	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00005	0.000081	0.000052
Lithium (Li)	mg/L	0.005	-	-	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.0050	0.057
Magnesium (Mg)	mg/L	0.1	-	-	16.7	16.6	16.4	3.76	3.92	4.4	3.42	4.3	32.6	51	59	20.3	20.3	60.1
Manganese (Mn)	mg/L	0.00005	-	-	0.151	0.188	0.198	0.027	0.034	0.052	0.021	0.051	0.029	0.104	0.127	0.326	0.299	0.0623
Mercury (Hg)	mg/L	0.00005	-	0.001	--	--	--	--	--	--	--	--	--	--	--	<0.00005	<0.000050	<0.00005
Molybdenum (Mo)	mg/L	0.00005	0.073	10	<0.001	<0.001	0.003	0.017	0.016	0.016	0.017	0.015	<0.001	<0.001	<0.001	0.00432	0.00408	0.00019
Nickel (Ni)	mg/L	0.0005	$0.025 - 0.15_{13}$	$0.025 - 0.15_{13}$	0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.00705	0.00654	<0.0005
Potassium (K)	mg/L	2	-	-	2.07	1.45	1.52	0.8	0.46	0.47	0.63	0.42	1.37	4.03	1.85	3.7	3.2	5.1
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.0005	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	**0.002**	0.0005	<0.0005	<0.001	<0.0010	<0.001
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	0.0001	0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.000010	<0.00001
Sodium (Na)	mg/L	2	-	-	4.72	4.14	5.03	5.2	6.85	5.19	4.78	5.09	2.98	3.46	3.21	4.4	4.2	6
Strontium (Sr)	mg/L	0.001	-	-	0.559	0.542	0.566	1.09	1.29	1.71	1.3	1.6	0.335	0.498	0.574	--	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	--	--	--	--	--	--	--	--	--	--	--	<0.0001	<0.00010	<0.0001
Tin (Sn)	mg/L	0.0001	-	-	--	--	--	--	--	--	--	--	--	--	--	0.00033	0.00149	<0.0001
Titanium (Ti)	mg/L	0.01	-	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.01	<0.010	<0.01
Uranium (U)	mg/L	0.00001	-	0.30	0.00451	0.00604	0.00634	0.0128	0.0204	0.0237	0.0222	0.0243	0.0066	0.00596	0.00644	0.00732	0.00733	0.00174
Vanadium (V)	mg/L	0.001	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.0010	<0.001
Zinc (Zn)	mg/L	0.001	0.03	$0.075 - 2.4_{14}$	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.003	0.0095	0.005

Table 14c: Groundwater Dissolved Metals Chemistry – Stewart Gulch, Platinum Gulch, Eagle Pup, and Olive Gulch

Dissolved Metals	Units	D.L.*	CCME FAL	BC CSR AW	Stewart Gulch				Platinum Gulch			Eagle Pup					Olive Gulch			
					BH95-150				BH95-108	MW96-23		MW96-13b		MW96-15b			MW09-OG2		MW09-OG3	
					27-Sep-95	24-May-96	22-Jul-96	21-Sep-96	21-Aug-95	27-Aug-09	05-OCT-09	27-Jul-09	27-Aug-09	27-Jul-09	27-Aug-09	05-OCT-09	4-Sep-09	05-OCT-09	4-Sep-09	05-OCT-09
Aluminum (Al)	mg/L	0.001	0.1[6]	-	0.005	<0.005	0.006	<0.005	0.018	0.0034	0.0016	<0.001	0.0017	<0.001	0.0016	<0.0010	0.0079	0.0025	0.0248	0.0048
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0016	0.0004	0.0003	0.0004	0.0011	0.00113	0.00117	0.00013	0.00015	<0.0001	<0.0001	<0.00010	0.0023	0.00143	0.0002	<0.00010
Arsenic (As)	mg/L	0.0001	0.005	0.05	**1.99**	**1.14**	**1.15**	**1.14**	**0.0054**	**0.222**	**0.225**	0.00087	0.00095	**0.132**	**0.104**	**0.0988**	**0.0113**	**0.0171**	0.00038	0.00028
Barium (Ba)	mg/L	0.00005	-	10	0.034	0.026	0.028	0.029	0.125	0.0123	0.0142	0.00299	0.00276	0.052	0.0551	0.0494	0.0639	0.0725	0.00605	0.00563
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.00050	<0.0005	<0.00050
Bismuth (Bi)	mg/L	0.1	-	-	<0.10	<0.10	<0.10	0.1	<0.10	--	--	--	--	--	--	--	--	--	--	--
Boron (B)	mg/L	0.01	-	50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001 - 0.00006[7]	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	**0.000044**	**0.000043**	<0.000017	<0.000017	**0.000037**	**0.000022**	<0.000017	**0.000088**	**0.000055**	**0.000019**	<0.000017
Calcium (Ca)	mg/L	0.05	-	-	85	77.4	76.7	77.9	27.9	46.6	50.4	18.5	12.2	34.8	36.7	36.4	43.9	45.9	6.59	5.03
Chromium (Cr)	mg/L	0.0005	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.00050	<0.0005	<0.00050
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	0.00021	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	0.00041	0.00078	0.00026	0.00012
Copper (Cu)	mg/L	0.0001	0.002-0.004[9]	0.002 - 0.009[8]	<0.001	<0.001	<0.001	<0.001	**0.003**	0.00115	0.00196	0.00033	0.00026	0.0003	<0.0001	0.00022	**0.00366**	0.00129	**0.00336**	0.00199
Iron (Fe)	mg/L	0.03	0.3	-	**0.585**	**0.82**	**0.804**	**0.827**	0.182	<0.03	<0.030	<0.03	<0.03	0.055	<0.03	<0.030	<0.03	<0.030	<0.03	0.031
Lead (Pb)	mg/L	0.00005	0.001 - 0.007[11]	0.004 - 0.016[10]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00005	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<0.000050	0.000146	0.000260	<0.00005	<0.000050
Lithium (Li)	mg/L	0.005	-	-	--	--	--	--	--	0.0102	0.0115	<0.005	<0.005	0.0188	0.0182	0.0177	0.0063	0.0070	0.0052	<0.0050
Magnesium (Mg)	mg/L	0.1	-	-	72.6	61.5	62.7	63	4.59	5.85	6.59	24.8	13	42.1	44.1	41.7	14.4	16.6	0.96	0.76
Manganese (Mn)	mg/L	0.00005	-	-	0.084	0.068	0.068	0.07	0.076	0.000096	0.0326	0.00137	0.0023	0.0826	0.0192	0.0110	0.078	0.0766	0.0379	0.0134
Mercury (Hg)	mg/L	0.00005	-	0.001	--	--	--	--	--	<0.00005	<0.000050	--	<0.00005	--	<0.00005	<0.000050	<0.00005	<0.000050	<0.00005	<0.000050
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.006	0.005	0.005	0.005	0.003	0.00688	0.00664	0.000675	0.000711	0.00433	0.00454	0.00425	0.00278	0.00161	0.0025	0.000887
Nickel (Ni)	mg/L	0.0005	0.025 - 0.15[13]	0.025 - 0.15[13]	0.001	<0.001	0.001	<0.001	0.005	0.0007	0.00101	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	0.00267	0.00317	0.00273	0.00184
Potassium (K)	mg/L	2	-	-	3.88	3.54	3.77	2.61	2.25	<2.0	<2.0	<2.0	<2.0	<2.0	2.1	2.0	<2.0	2.2	<2.0	<2.0
Selenium (Se)	mg/L	0.001	0.001	0.01	**0.0031**	<0.0005	<0.0005	<0.0005	<0.0005	**0.0021**	**0.0023**	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	**0.002**	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.000010	<0.00001	<0.000010	<0.00001	<0.000010
Sodium (Na)	mg/L	2	-	-	3.91	3.98	4.02	3.54	3.98	11.8	11.7	<2.0	<2.0	2.2	2.2	2.1	4.9	3.5	3.8	2.4
Strontium (Sr)	mg/L	0.001	-	-	0.602	0.546	0.546	0.551	0.196	--	--	--	--	--	--	--	--	--	--	--
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	--	--	--	--	--	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.00010	<0.0001	<0.00010
Tin (Sn)	mg/L	0.0001	-	-	--	--	--	--	--	0.00129	0.00188	<0.0001	<0.0001	0.00012	<0.0001	0.00097	0.00015	0.00050	<0.0001	0.00055
Titanium (Ti)	mg/L	0.01	-	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010
Uranium (U)	mg/L	0.00001	-	0.30	0.0104	0.00727	0.00662	0.00743	0.00131	0.00438	0.00547	0.000511	0.000134	0.00735	0.00763	0.00747	0.00179	0.000908	0.00009	0.000134
Vanadium (V)	mg/L	0.001	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.0010	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010
Zinc (Zn)	mg/L	0.001	0.03	0.075 - 2.4[14]	<0.005	<0.005	<0.005	<0.005	0.007	0.0024	0.0071	0.0014	0.0011	0.0025	0.001	0.0036	**0.253**	0.0118	0.0138	0.0074

Table 14d: Groundwater Dissolved Metals Chemistry – Bawn-Boy Gulch

Dissolved Metals	Units	D.L.*	CCME FAL	BC CSR AW	Bawn-Boy Gulch																	
					GT96-26		MW96-8			MW96-9b		95-138	95-139			95-141				95-148	95-149	
					27-Jul-09	27-Aug-09	27-Jul-09	27-Aug-09	05-OCT-09	27-Jul-09	27-Aug-09	27-Sep-95	24-May-96	22-Jul-96	21-Sep-96	24-May-96	22-Jul-96	21-Sep-96	27-Sep-95	27-Sep-95	22-Jul-96	21-Sep-96
Aluminum (Al)	mg/L	0.001	0.1[6]	-	0.0012	0.0027	<0.001	0.0019	0.0015	0.0203	0.0045	0.009	0.007	0.01	0.009	**0.185**	0.005	0.01	**0.2**	<0.10	0.013	0.011
Antimony (Sb)	mg/L	0.0001	-	0.20	0.0137	0.0312	0.00046	0.00044	0.00043	0.00075	0.00072	0.0013	0.0008	0.0009	0.0008	0.0009	0.001	0.0011	0.0011	0.0004	0.0004	0.0004
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.605**	**0.862**	**0.0708**	**0.0649**	**0.0608**	**0.0580**	**0.0477**	**0.068**	**0.0627**	**0.0661**	**0.065**	**0.171**	**0.176**	**0.158**	**0.163**	**0.082**	**0.11**	**0.102**
Barium (Ba)	mg/L	0.00005	-	10	0.0369	0.0192	0.0266	0.0133	0.0250	0.0199	0.0215	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	0.018	<0.010	0.03	0.03	0.029
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth (Bi)	mg/L	0.1	-	-	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Boron (B)	mg/L	0.01	-	50	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001 - 0.00006[7]	**0.000026**	**0.000036**	<0.000017	<0.000017	<0.000017	**0.000024**	**0.000032**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Calcium (Ca)	mg/L	0.05	-	-	26.2	24.2	7.86	8.16	8.46	6.12	7.35	6.01	8.16	8.2	7.88	19.8	17.7	20.7	15	8.96	8.42	9.79
Chromium (Cr)	mg/L	0.0005	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Co)	mg/L	0.0001	-	0.04	0.00197	0.00146	<0.0001	<0.0001	<0.00010	0.00021	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper (Cu)	mg/L	0.0001	0.002-0.004[9]	0.002 - 0.009[8]	0.00023	**0.004**	0.00096	0.00089	0.00030	0.00125	0.00082	0.001	<0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron (Fe)	mg/L	0.03	0.3	-	**2.59**	<0.03	<0.03	<0.03	<0.030	<0.03	<0.03	<0.030	<0.030	<0.030	<0.030	**0.259**	<0.030	<0.030	<0.030	0.059	<0.030	<0.030
Lead (Pb)	mg/L	0.00005	0.001 - 0.007[11]	0.004 - 0.016[10]	0.000107	<0.00005	<0.00005	<0.0005	0.000117	0.000114	0.000125	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium (Li)	mg/L	0.005	-	-	0.0053	0.0057	<0.005	<0.005	<0.0050	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--
Magnesium (Mg)	mg/L	0.1	-	-	5.75	5.15	1.07	1.12	1.14	0.81	1.18	1.21	1.08	1.12	1.07	3.09	2.84	2.38	2.48	1.52	1.36	1.59
Manganese (Mn)	mg/L	0.00005	-	-	0.321	0.302	0.00109	0.0014	0.00155	0.0423	0.00768	0.006	<0.005	<0.005	<0.005	0.025	0.006	<0.005	0.013	<0.005	0.011	0.012
Mercury (Hg)	mg/L	0.00005	-	0.001		<0.00005		<0.00005	<0.000050		<0.00005	--	--	--	--	--	--	--	--	--	--	--
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.00875	0.00832	0.000673	0.000619	0.000611	0.000499	0.000478	0.002	0.001	0.002	0.001	0.008	0.008	0.008	0.007	0.002	0.002	0.002
Nickel (Ni)	mg/L	0.0005	0.025 - 0.15[13]	0.025 - 0.15[13]	0.00420	0.0111	<0.0005	<0.0005	<0.00050	0.00077	0.00073	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.002	0.001
Potassium (K)	mg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0.52	0.54	0.68	0.44	0.92	0.86	1.18	0.9	0.76	1.74	0.61
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	<0.00001	<0.00001	<0.00001	<0.00001	<0.000010	<0.00001	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001
Sodium (Na)	mg/L	2	-	-	2.4	6.6	2.1	2.2	2.1	2.0	2.3	1.95	1.74	1.9	1.44	4.43	3.58	3.81	8.92	2.81	2.21	1.89
Strontium (Sr)	mg/L	0.001	-	-	--	--	--	--	--	--	--	0.032	0.034	0.035	0.034	0.133	0.11	0.284	0.093	0.058	0.064	0.067
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	--	--	--	--	--	--	--	--	--	--	--
Tin (Sn)	mg/L	0.0001	-	-	0.00011	<0.0001	<0.0001	<0.0001	0.00026	0.00055	0.00026	--	--	--	--	--	--	--	--	--	--	--
Titanium (Ti)	mg/L	0.01	-	1	<0.010	<0.01	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	mg/L	0.00001	-	0.30	0.000806	0.000543	0.000177	0.000175	0.000168	0.000223	0.000061	0.00009	0.00005	0.00005	0.00005	0.0135	0.0125	0.0103	0.0104	0.00033	0.00066	0.00069
Vanadium (V)	mg/L	0.001	-	-	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.0010	<0.001	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc (Zn)	mg/L	0.001	0.03	0.075 - 2.4[14]	0.0297	0.0297	0.0125	0.0051	0.0100	0.0233	0.0168	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table 14e: Groundwater Dissolved Metals Chemistry – Bawn-Boy Gulch

Dissolved Metals	Units	D.L.*	CCME FAL	BC CSR AW	Lynx Creek Watershed	
					MW96-1	MW96-1
					27-Aug-09	21-Sep-96
Aluminum (Al)	mg/L	0.001	0.1[6]	-	0.0075	0.015
Antimony (Sb)	mg/L	0.0001	-	0.20	0.00026	0.0025
Arsenic (As)	mg/L	0.0001	0.005	0.05	**0.00615**	0.0022
Barium (Ba)	mg/L	0.00005	-	10	0.00696	0.026
Beryllium (Be)	mg/L	0.0005	-	0.053	<0.0005	<0.005
Bismuth (Bi)	mg/L	0.1	-	-	--	<0.10
Boron (B)	mg/L	0.01	-	50	<0.01	<0.10
Cadmium (Cd)	mg/L	0.000017	0.000017	0.00001 - 0.00006[7]	<0.000017	**0.0002**
Calcium (Ca)	mg/L	0.05	-	-	57.4	105
Chromium (Cr)	mg/L	0.0005	-	-	<0.0005	<0.001
Cobalt (Co)	mg/L	0.0001	-	0.04	<0.0001	<0.001
Copper (Cu)	mg/L	0.0001	0.002-0.004[9]	0.002 - 0.009[8]	0.00012	0.001
Iron (Fe)	mg/L	0.03	0.3	-	<0.03	<0.030
Lead (Pb)	mg/L	0.00005	0.001 - 0.007[11]	0.004 - 0.016[10]	<0.00005	<0.001
Lithium (Li)	mg/L	0.005	-	-	0.0074	--
Magnesium (Mg)	mg/L	0.1	-	-	1.79	4.38
Manganese (Mn)	mg/L	0.00005	-	-	0.0607	0.103
Mercury (Hg)	mg/L	0.00005	-	0.001	<0.00005	--
Molybdenum (Mo)	mg/L	0.00005	0.073	10	0.00286	0.039
Nickel (Ni)	mg/L	0.0005	0.025 - 0.15[13]	0.025 - 0.15[13]	<0.0005	0.001
Potassium (K)	mg/L	2	-	-	<2.0	7.27
Selenium (Se)	mg/L	0.001	0.001	0.01	<0.001	0.0006
Silver (Ag)	mg/L	0.00001	0.0001	0.0005 - 0.015	<0.00001	**0.0002**
Sodium (Na)	mg/L	2	-	-	2.5	13.4
Strontium (Sr)	mg/L	0.001	-	-	--	0.363
Thallium (Tl)	mg/L	0.0001	0.0008	0.003	<0.0001	--
Tin (Sn)	mg/L	0.0001	-	-	0.00034	--
Titanium (Ti)	mg/L	0.01	-	1	<0.01	<0.010
Uranium (U)	mg/L	0.00001	-	0.30	0.000298	0.00265
Vanadium (V)	mg/L	0.001	-	-	<0.001	<0.030
Zinc (Zn)	mg/L	0.001	0.03	0.075 - 2.4[14]	0.0013	0.006

NOTES:

1. **Bolded** and/or Underlined result implies a guideline exceedance
2. D.L. = laboratory detection limit
3. * some detection limits are varied - '<' (less than) value implies detection limit
4. **CCME FAL -** Canadian Council of Ministers of the Environment Freshwater Aquatic Life guidelines (December 2007)
5. BC CSR AW - British Columbia Contaminated Sites Regulation Aquatic Life Guidelines; provided for comparison only
6. Aluminum guideline is 100 µg/L when pH ≥ 6.5
7. Cadmium Guideline: Cadmium Guideline (CCME): 10^{0.86[log(hardness)]-3.2}
   0.1 µg/L when [$CaCO_3$] is 0 - 30 mg/L
   0.3 µg/L when [$CaCO_3$] is 30 - 90 mg/L
   0.5 µg/L when [$CaCO_3$] is 90 - 150 mg/L
   0.6 µg/L when [$CaCO_3$] is > 150 mg/L
8. Copper Guideline:
   2 µg/L when [$CaCO_3$] is 0 - 50 mg/L
   3 µg/L when [$CaCO_3$] is 50 - 75 mg/L
   4 µg/L when [$CaCO_3$] is 75 - 100 mg/L
   5 µg/L when [$CaCO_3$] is 100 - 125 mg/L
   6 µg/L when [$CaCO_3$] is 125 - 150 mg/L
   7 µg/L when [$CaCO_3$] is 150 - 175 mg/L
   8 µg/L when [$CaCO_3$] is 175 - 200 mg/L
   9 µg/L when [$CaCO_3$] is > 200 mg/L
9. Copper Guideline:
   2 µg/L when [$CaCO_3$] is 0 - 120 mg/L
   3 µg/L when [$CaCO_3$] is 120 - 180 mg/L
   4 µg/L when [$CaCO_3$] is > 180 mg/L
10. Lead Guideline:
    4 µg/L when [$CaCO_3$] is 0 - 50 mg/L
    5 µg/L when [$CaCO_3$] is 50 - 100 mg/L
    6 µg/L when [$CaCO_3$] is 100 - 200 mg/L
    110 µg/L when [$CaCO_3$] is 200 - 300 mg/L
    160 µg/L when [$CaCO_3$] is > 300 mg/L
11. Lead Guideline:
    1 µg/L when [$CaCO_3$] is 0 - 60 mg/L
    2 µg/L when [$CaCO_3$] is 60 - 120 mg/L
    4 µg/L when [$CaCO_3$] is 120 - 180 mg/L
    7 µg/L when [$CaCO_3$] is > 180 mg/L
12. Manganese Guideline:
    1 µg/L when [$CaCO_3$] is 0 - 60 mg/L
    2 µg/L when [$CaCO_3$] is 60 - 120 mg/L
    4 µg/L when [$CaCO_3$] is 120 - 180 mg/L
    7 µg/L when [$CaCO_3$] is > 180 mg/L
13. Nickel Guideline:
    25 µg/L when [$CaCO_3$] is 0 - 60 mg/L
    65 µg/L when [$CaCO_3$] is 60 - 120 mg/L
    110 µg/L when [$CaCO_3$] is 120 - 180 mg/L
    150 µg/L when [$CaCO_3$] is > 180 mg/L
14. Zinc Guideline:
    7.5 µg/L when [$CaCO_3$] is 0 - 90 mg/L
    15 µg/L when [$CaCO_3$] is 90 - 100 mg/L
    90 µg/L when [$CaCO_3$] is 100 - 200 mg/L
    165 µg/L when [$CaCO_3$] is 200 - 300 mg/L
    240 µg/L when [$CaCO_3$] is > 300 mg/L

Table 15: Developed Volumes and Field Parameters

MWID	Date	Developed Volume (L)	Field Parameters		
			EC (µS)	pH	Temp (°C)
Ann Gulch					
MW09-AG2	21-Oct-09	75	n.m.	n.m.	n.m.
Dublin Gulch					
MW09-DG1	2.7	720	365	8.24	8.2
	6-Oct-09		441	7.76	3.9
MW09-DG2	2.572	750	630	7.6	13.9
MW09-DG4	6.63	70	600	7.56	5.4
	6-Oct-09		554	7.43	4
MW09-DG5	4-Sep-09	10	n.m.	n.m.	n.m.
DH95-152	28-Jul-09	420	648	7.07	8.5
	27-Aug-09		801	8.02	10
Upper Platinum, Suttle, Eagle Gulches					
MW96-18	27-Aug-09	150	586	7.94	5
MW96-23	27-Aug-09	10	321	8.23	5
	6-Oct-09		324	7.93	2.6
Lower Suttle and Eagle Gulches					
MW96-13	28-Jul-09	225	149	4.4	6.3
	27-Aug-09		366	8.25	7.7
MW96-15	28-Jul-09	500	422	6.2	7
	27-Aug-09		454	8.19	6.9
	6-Oct-09		450	7.88	3.9
MW09-STU 2	27-Aug-09	750	682	7.81	11.8
Olive Gulch					
MW09-OG2	4-Sep-09	70	171	8.23	4.9
	5-Oct-09		31	7.64	n.m.
MW09-OG3	3-Sep-09	150	405	7.76	3.8
	5-Oct-09		332	7.6	2.2
Bawn-Boy Gulch					
MW96-1	27-Aug-96	1450	301	8.4	4.8
GT96-26	28-Jul-09	120	213	6.08	5.9
	27-Aug-09		223	8.49	8.8
MW96-8	28-Jul-09	220	93	6.08	6.5
	27-Aug-09		75	8.21	8.3
	5-Oct-09		55	7.58	2.6
MW96-9	28-Jul-09	150	53	n.m.	6.5
	27-Aug-09		65	7.9	6.9

NOTES:
L – liters
µS - micro semen
n.m. - not measured

APPENDIX C

Hydraulic Tests

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

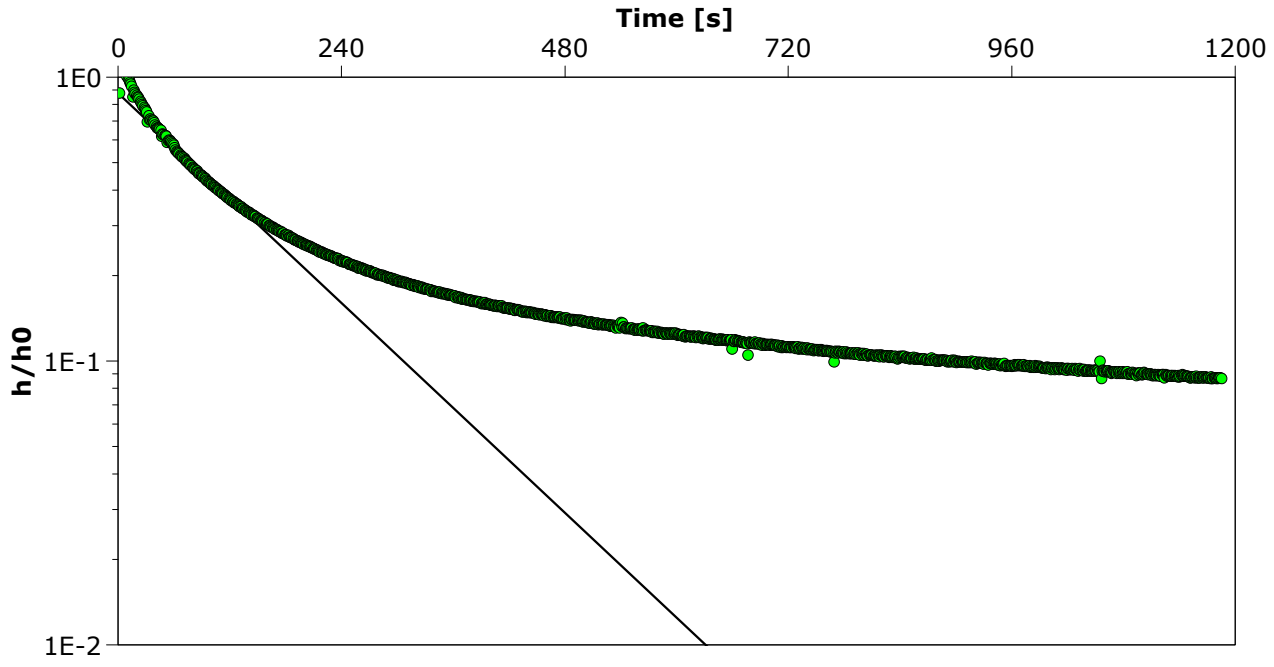
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: GT96-26	Test Well: Test 1. FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1. FH	2.70×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

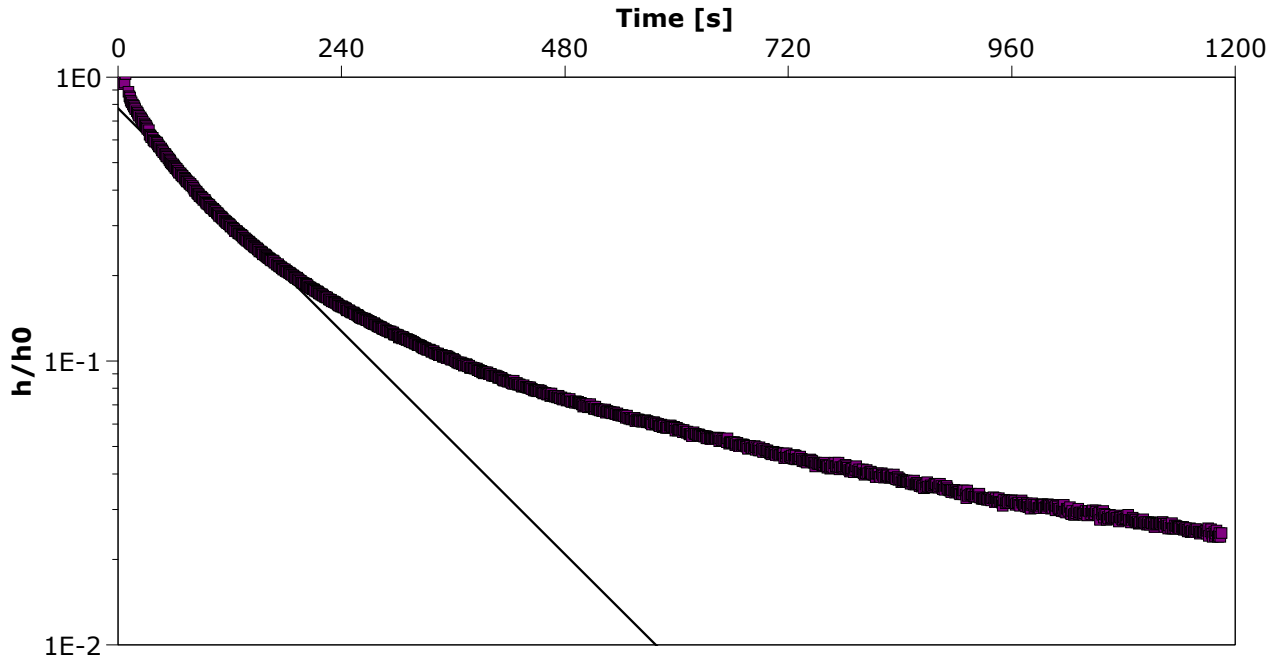
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: GT96-26	Test Well: Test 1. RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1. RH	2.89×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

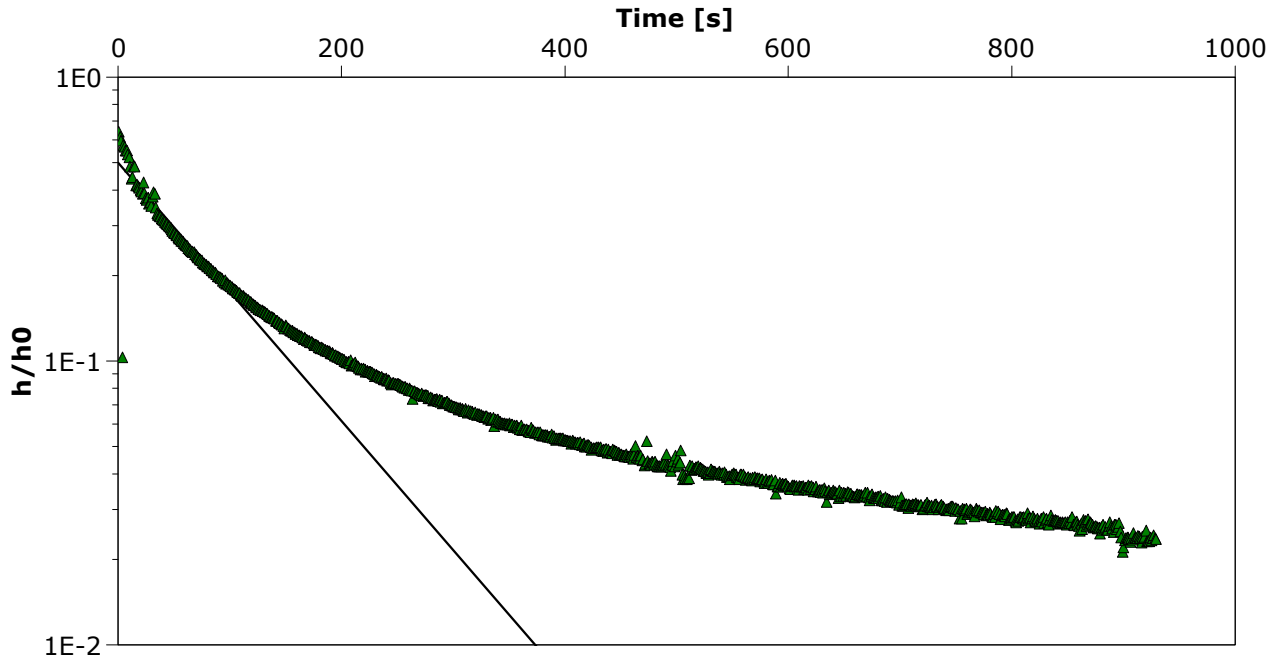
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: GT96-26	Test Well: Test 2. FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2. FH	4.01×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

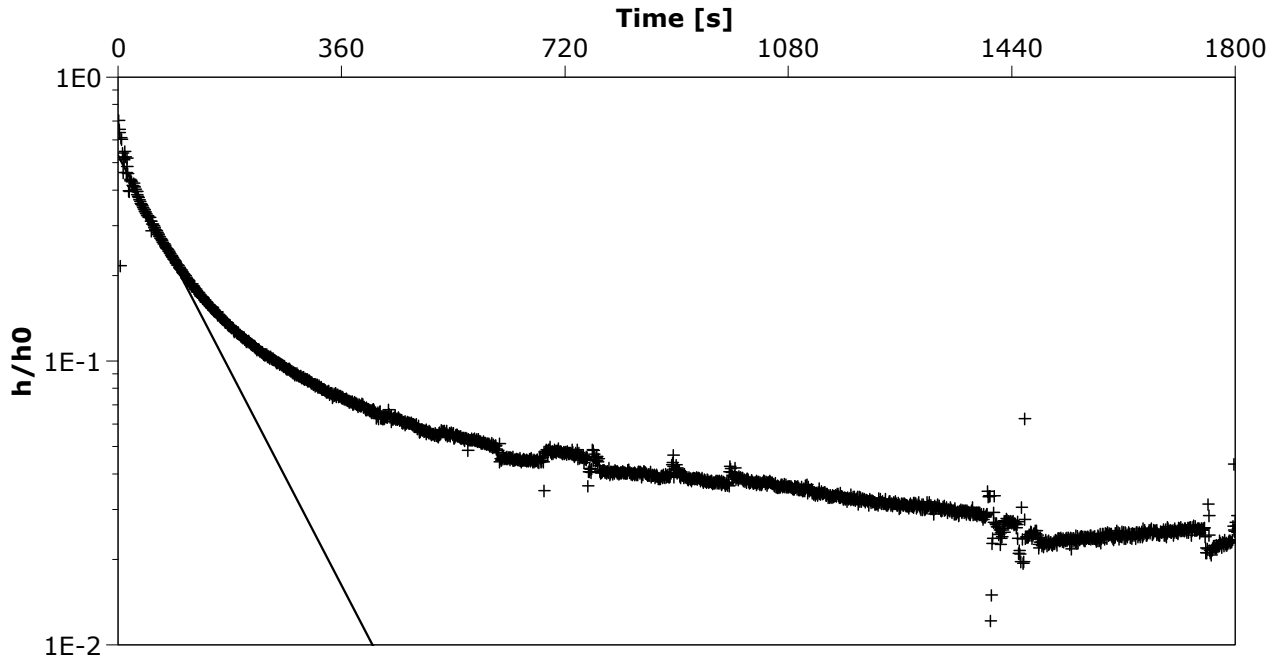
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: GT96-26	Test Well: Test 3. FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. FH	3.71×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

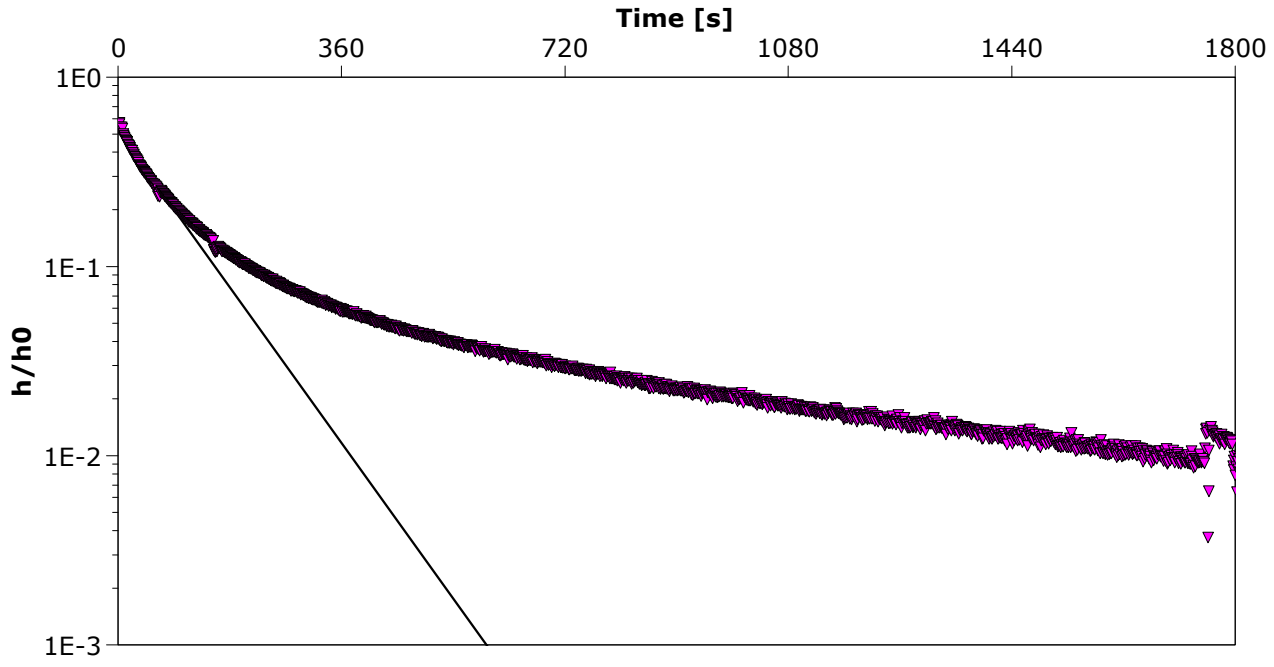
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: GT96-26	Test Well: Test2. RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test2. RH	4.03×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

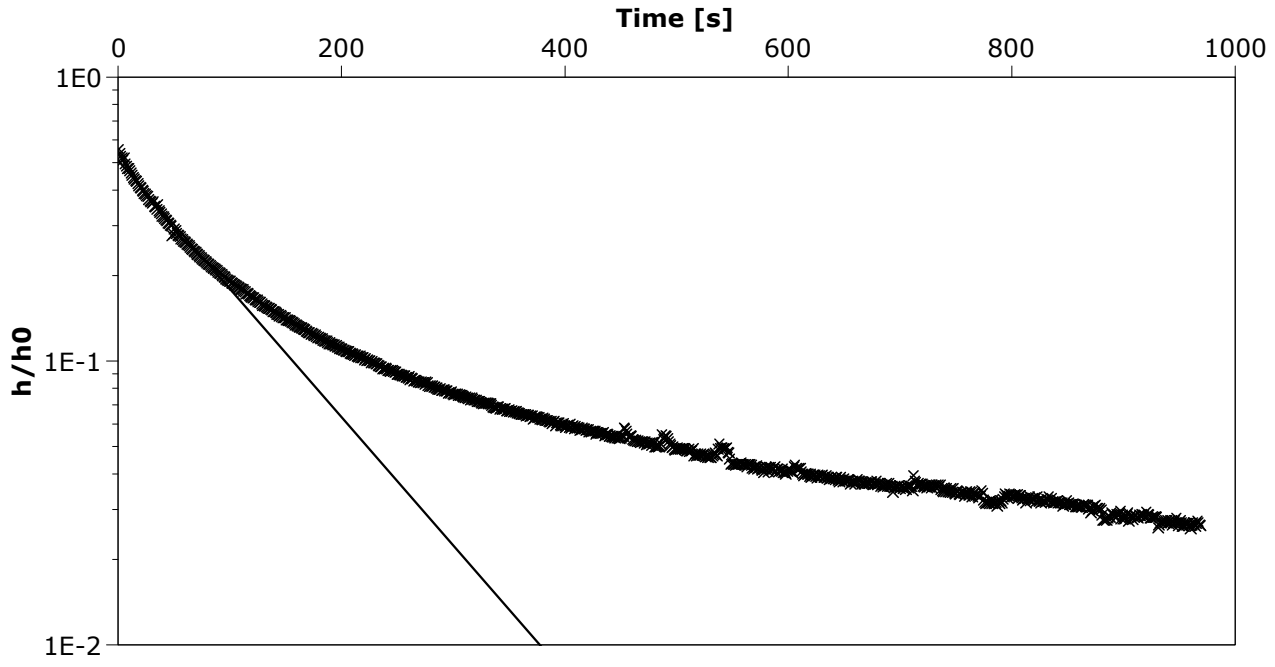
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: GT96-26	Test Well: Test 3. RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. RH	3.99×10^{-6}	

Burnaby, BC
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Jacques Whitford Stantec AXYS

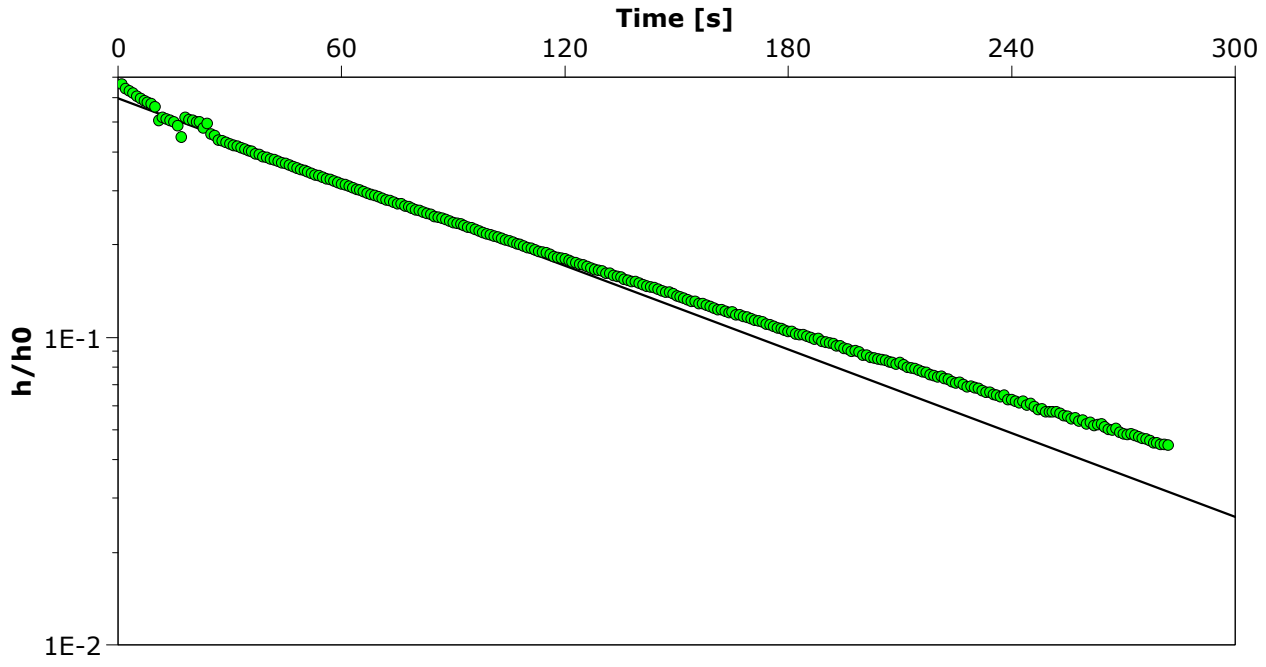
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-15b	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 38.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	6.16×10^{-5}	

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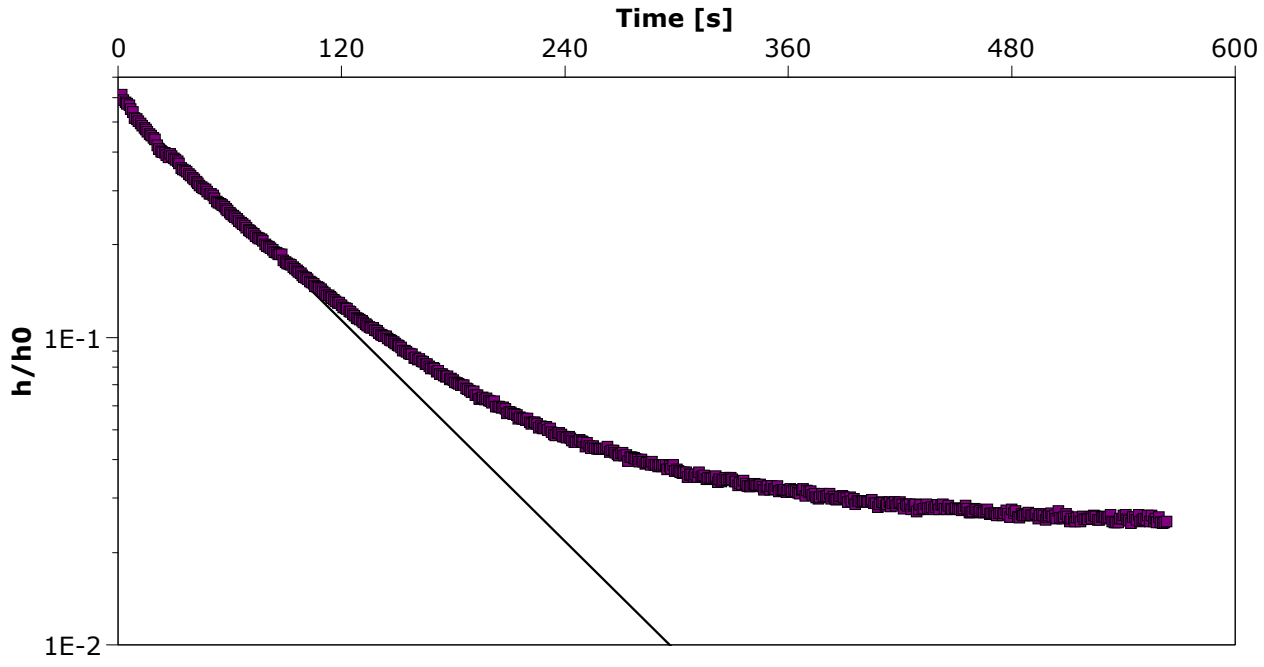
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-15b	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 38.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	8.13×10^{-5}	

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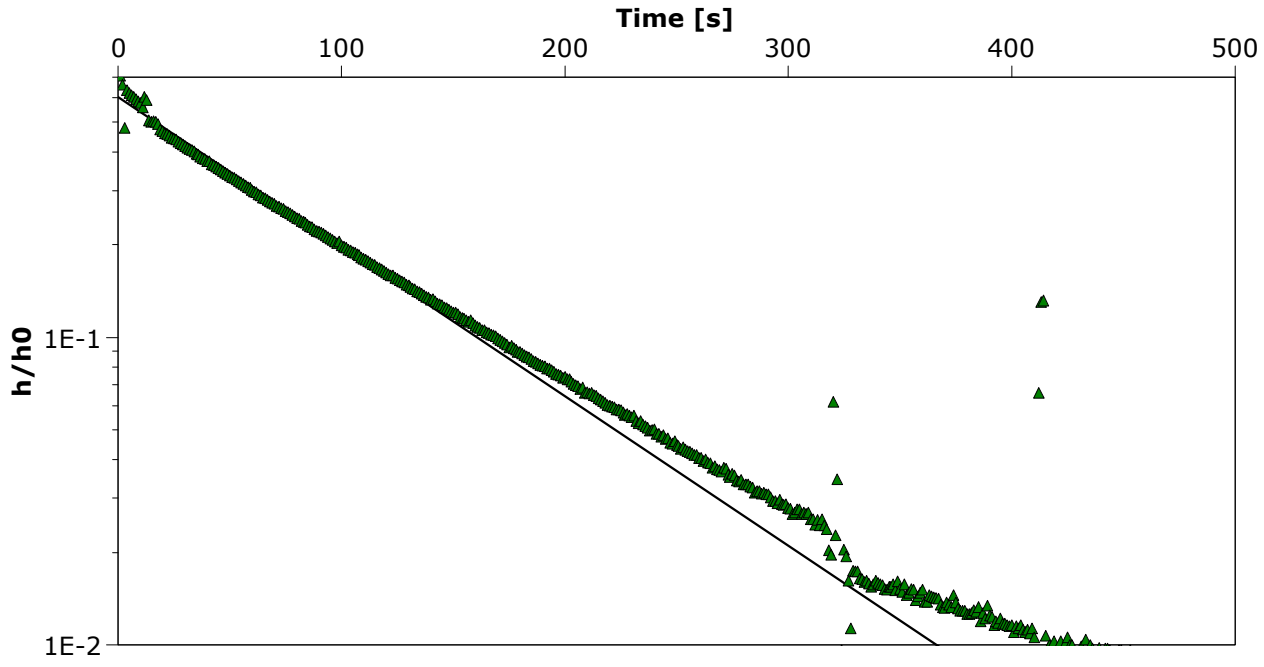
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-15b	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 38.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	6.60×10^{-5}	

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Jacques Whitford Stantec AXYS

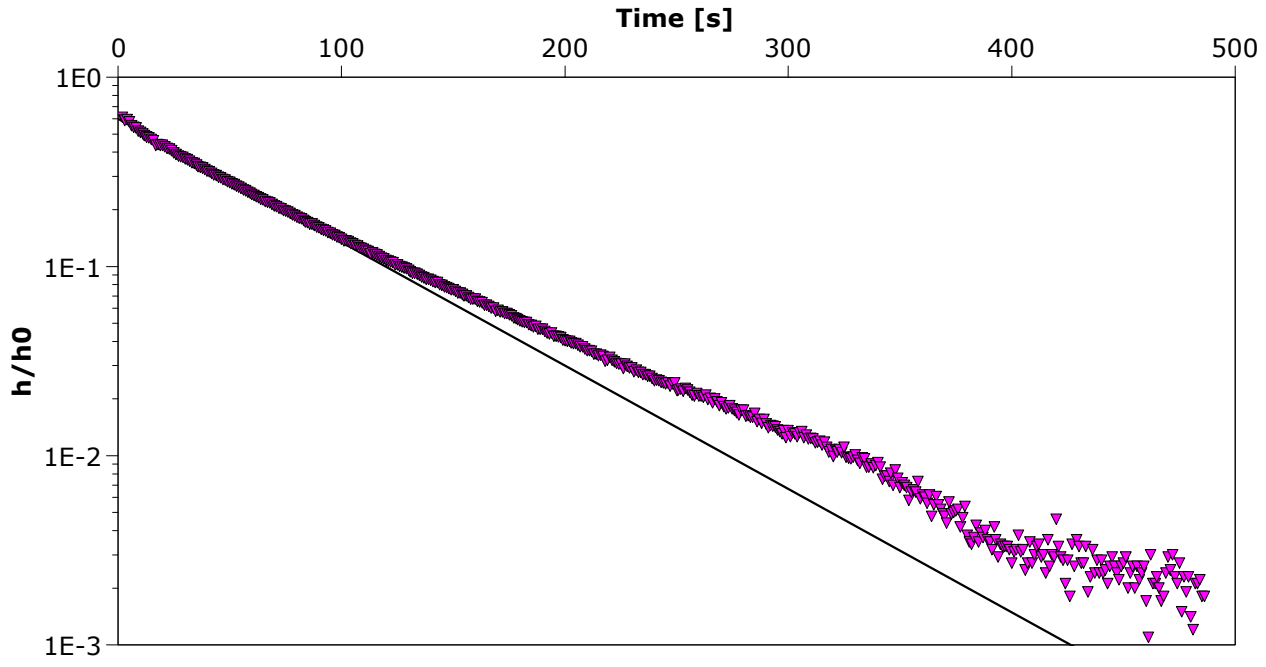
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-15b	Test Well: Test 2.RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 38.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	8.85×10^{-5}	

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Jacques Whitford Stantec AXYS

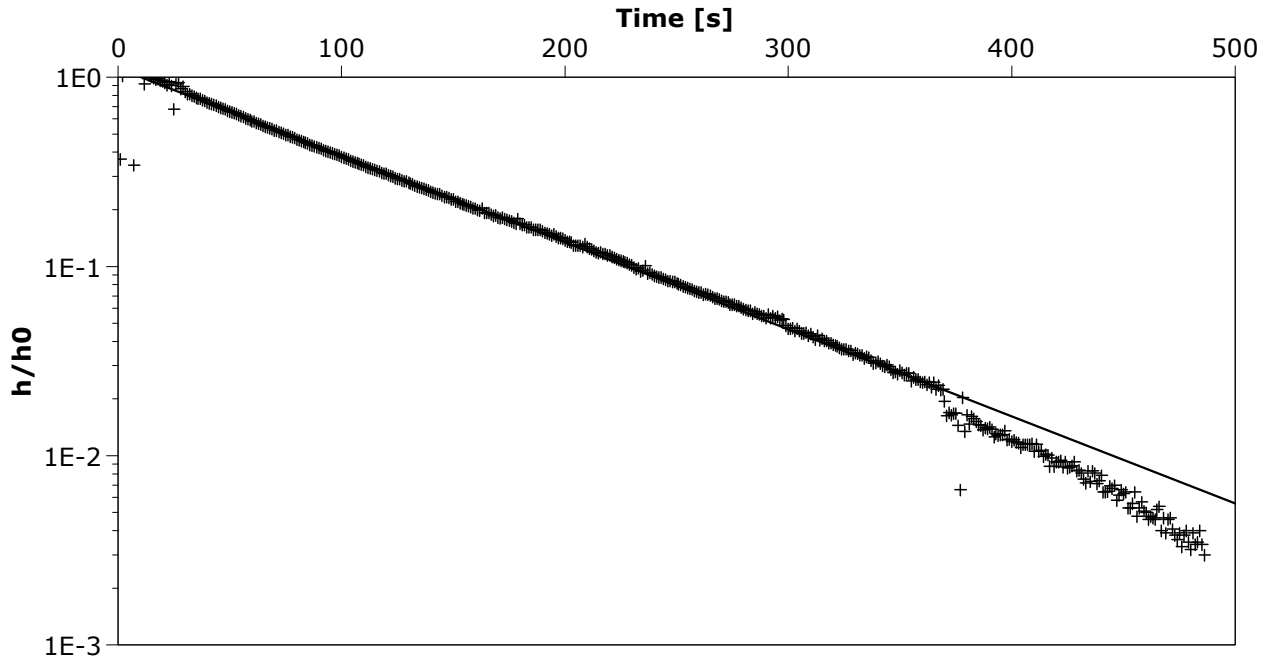
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-15b	Test Well: Test 3.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 38.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3.FH	6.25×10^{-5}	

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4370 Dominion St. 5th Floor
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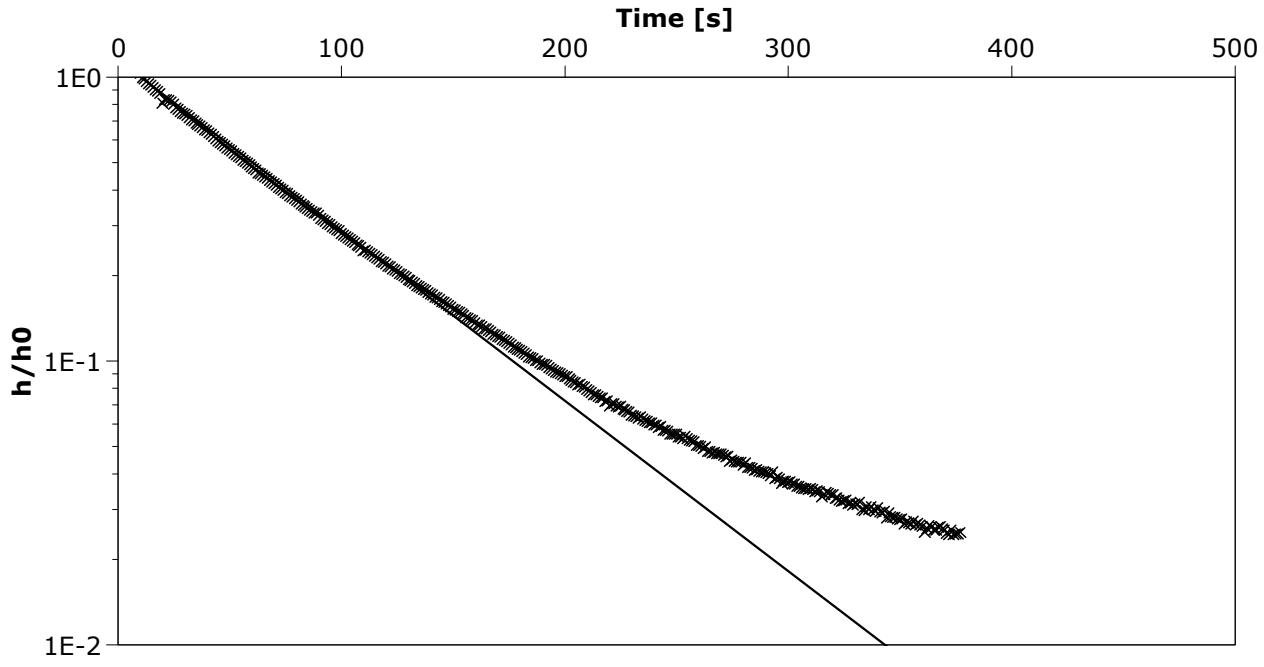
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-15b	Test Well: Test 3. RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 38.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. RH	8.16×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

Slug Test Analysis Report

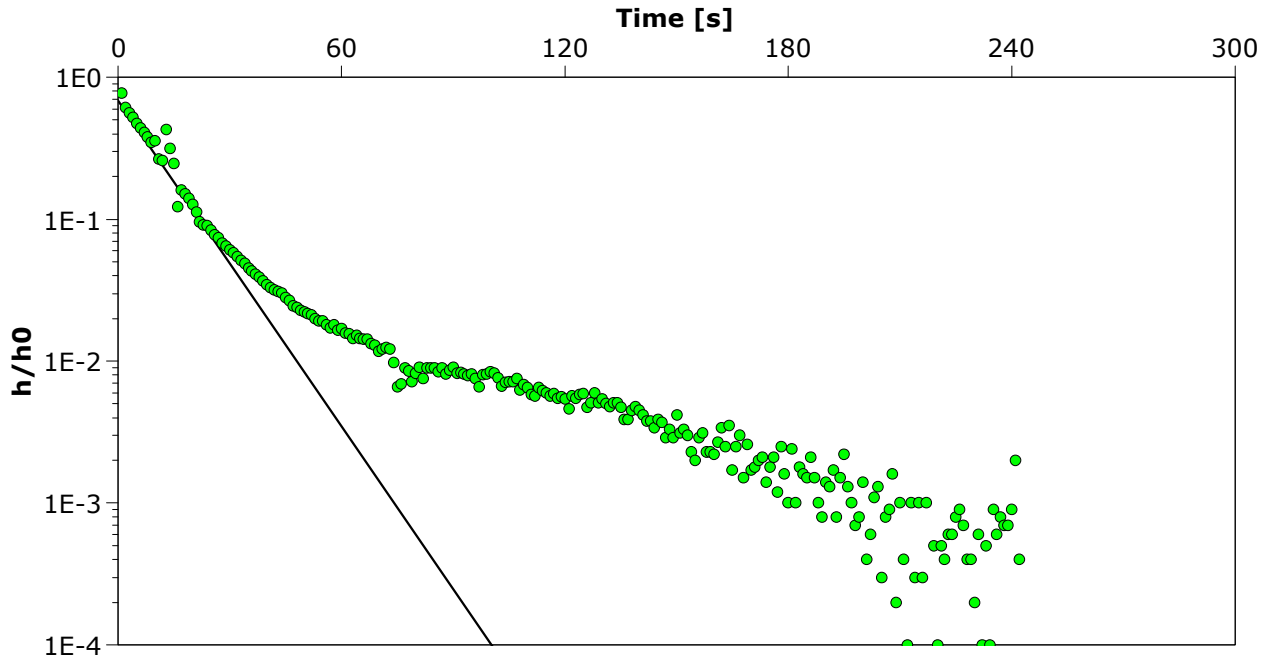
Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-DG1	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009

Aquifer Thickness: 30.00 m



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	3.37×10^{-5}	

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Slug Test Analysis Report

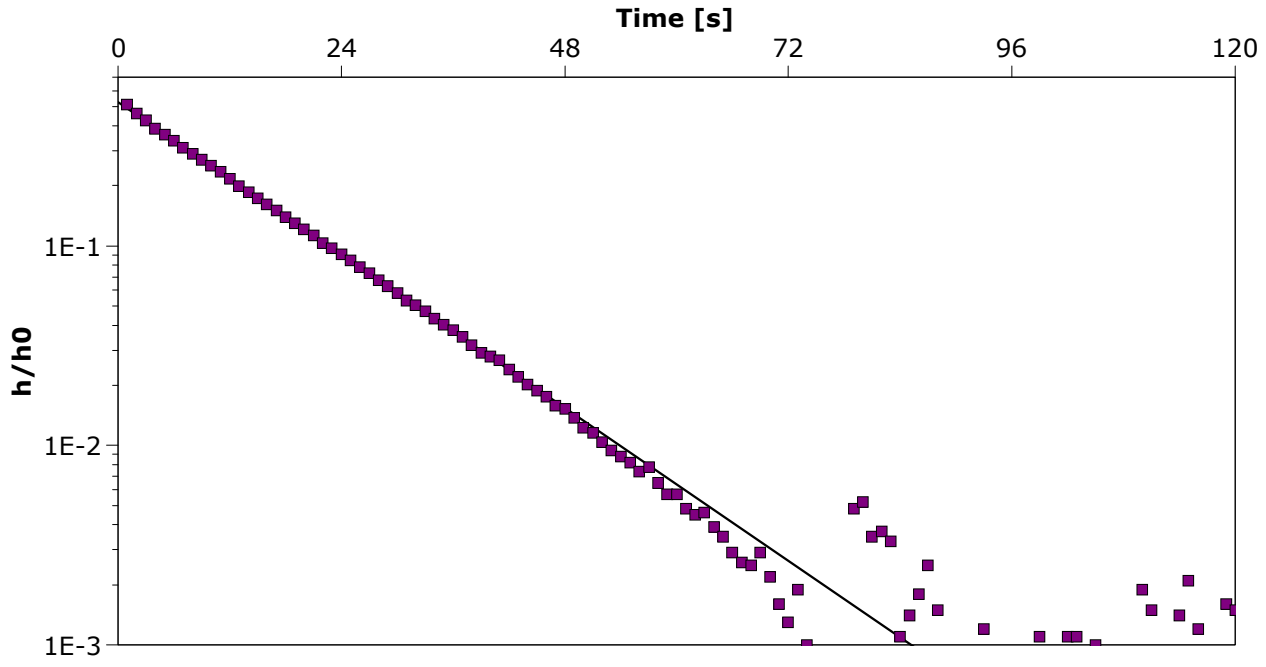
Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009

Aquifer Thickness:



Calculation after Hvorslev

Observation well	K [m/s]	
Test 1.RH	3.64×10^{-5}	

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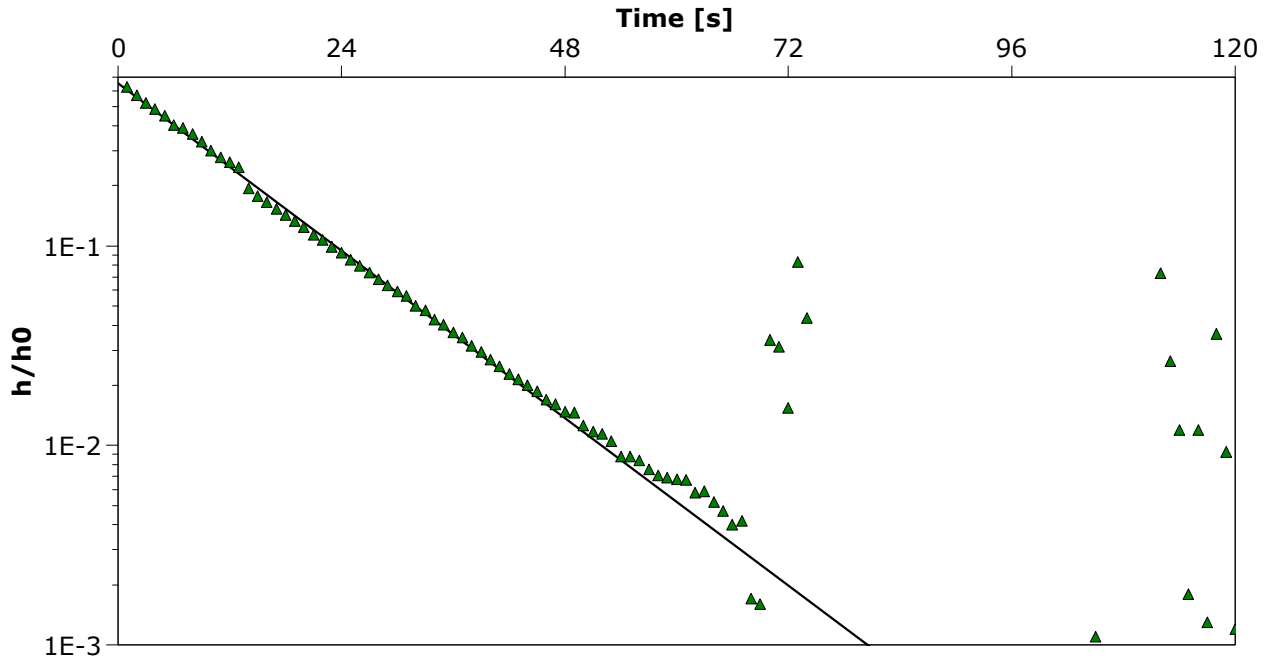
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 2.FH	3.98×10^{-5}	

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Jacques Whitford Stantec AXYS

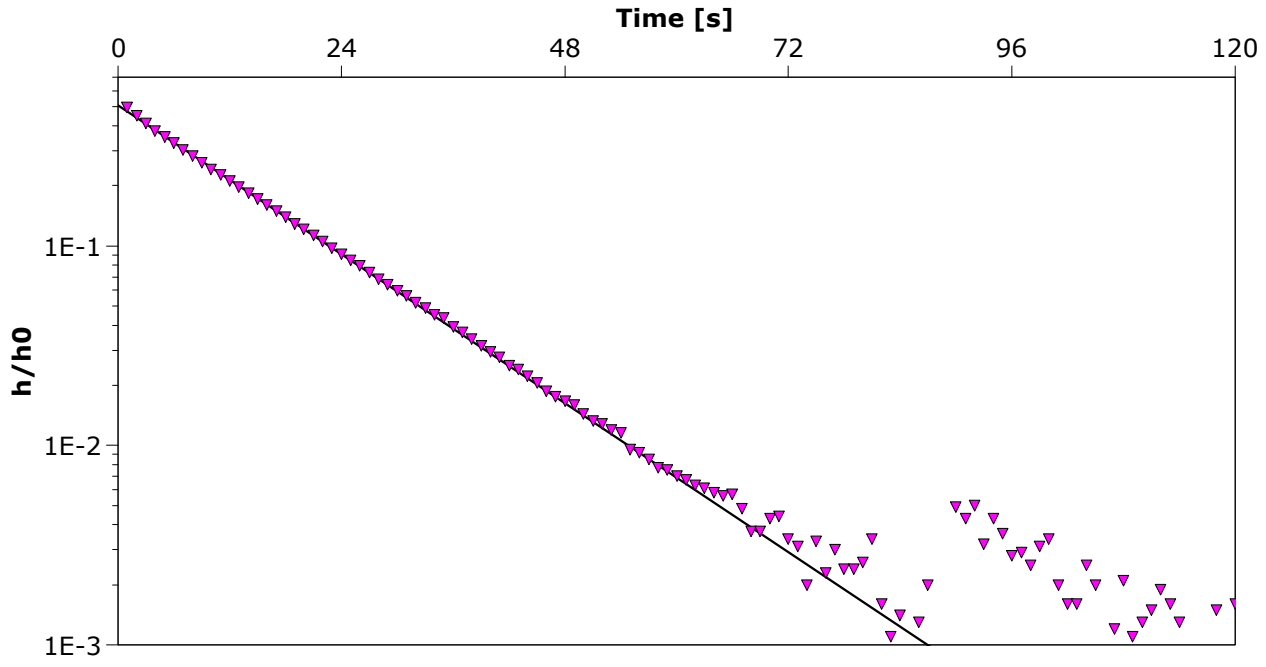
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 2. RH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 2. RH	3.54×10^{-5}	

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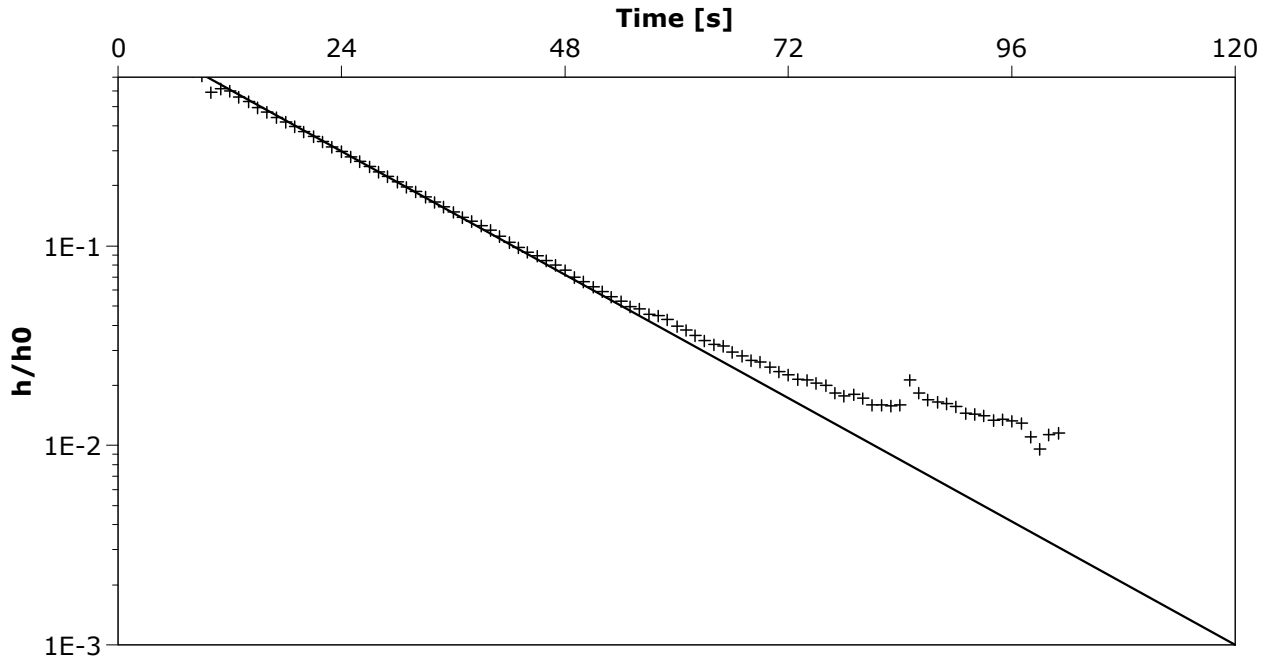
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 3. RH
Test conducted by:JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 3. RH	2.94×10^{-5}	

Burnaby, BC
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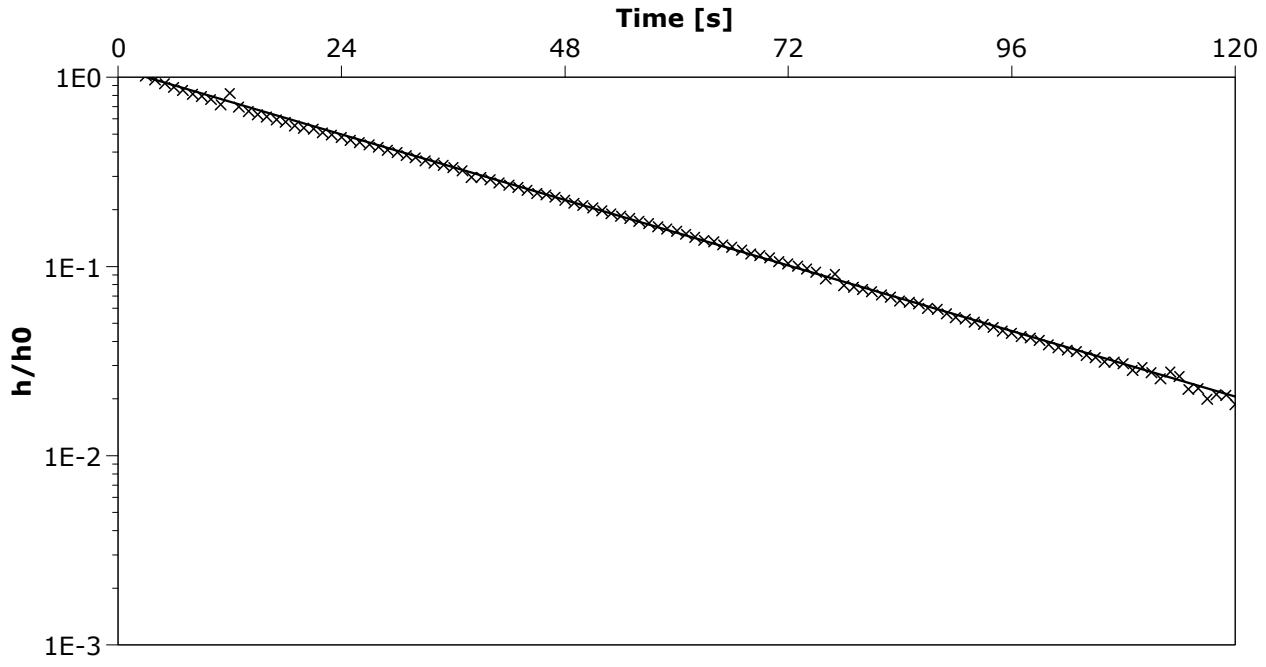
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 4. FH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 4. FH	1.64×10^{-5}	

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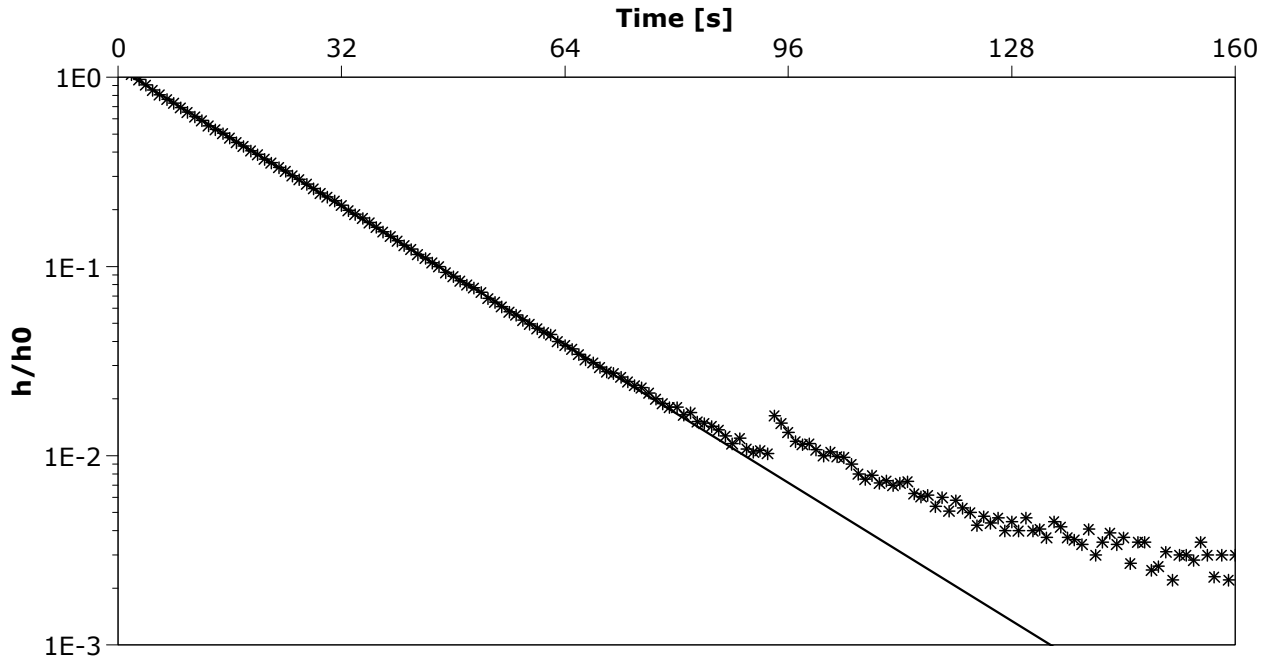
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

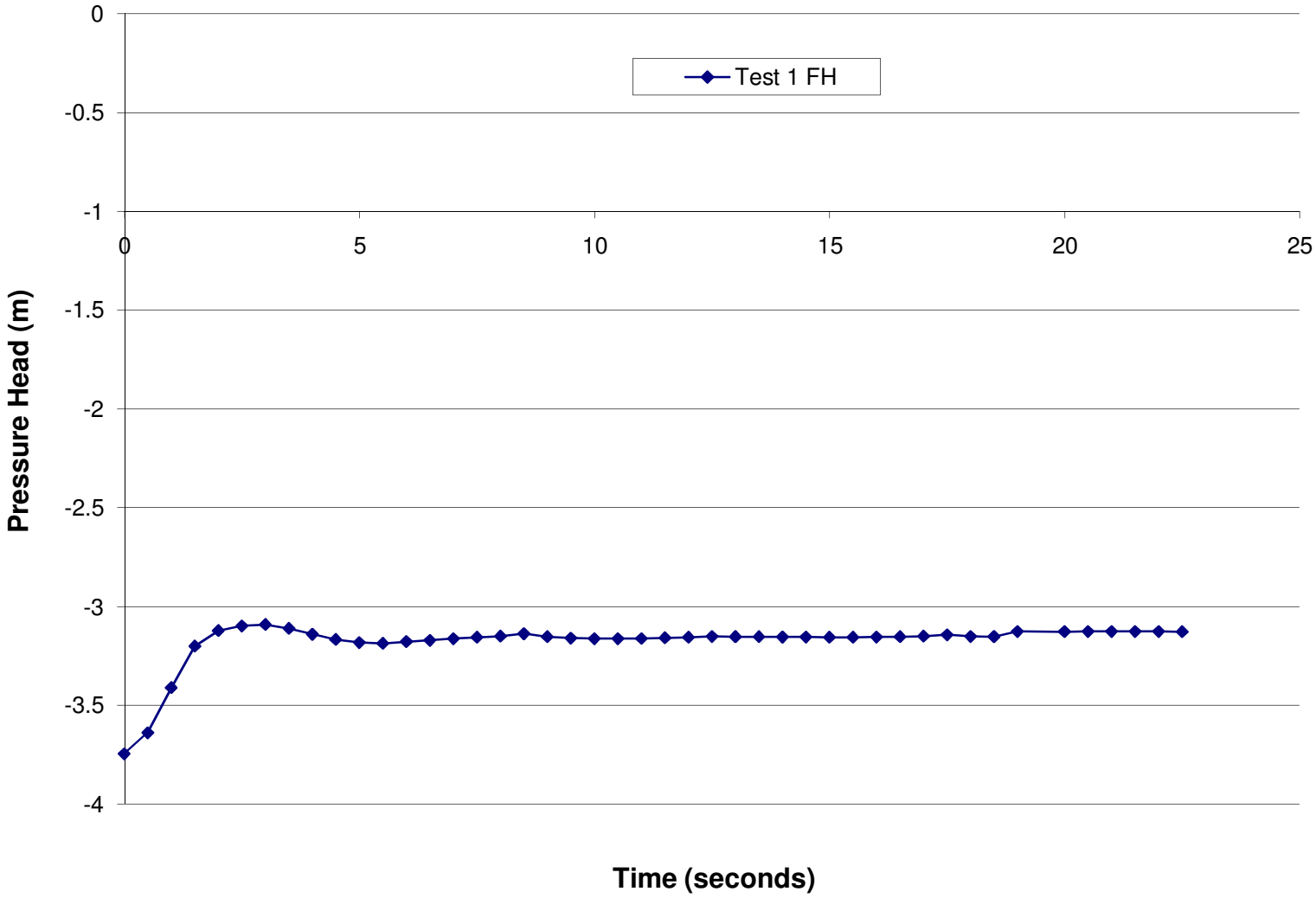
Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test4. RH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



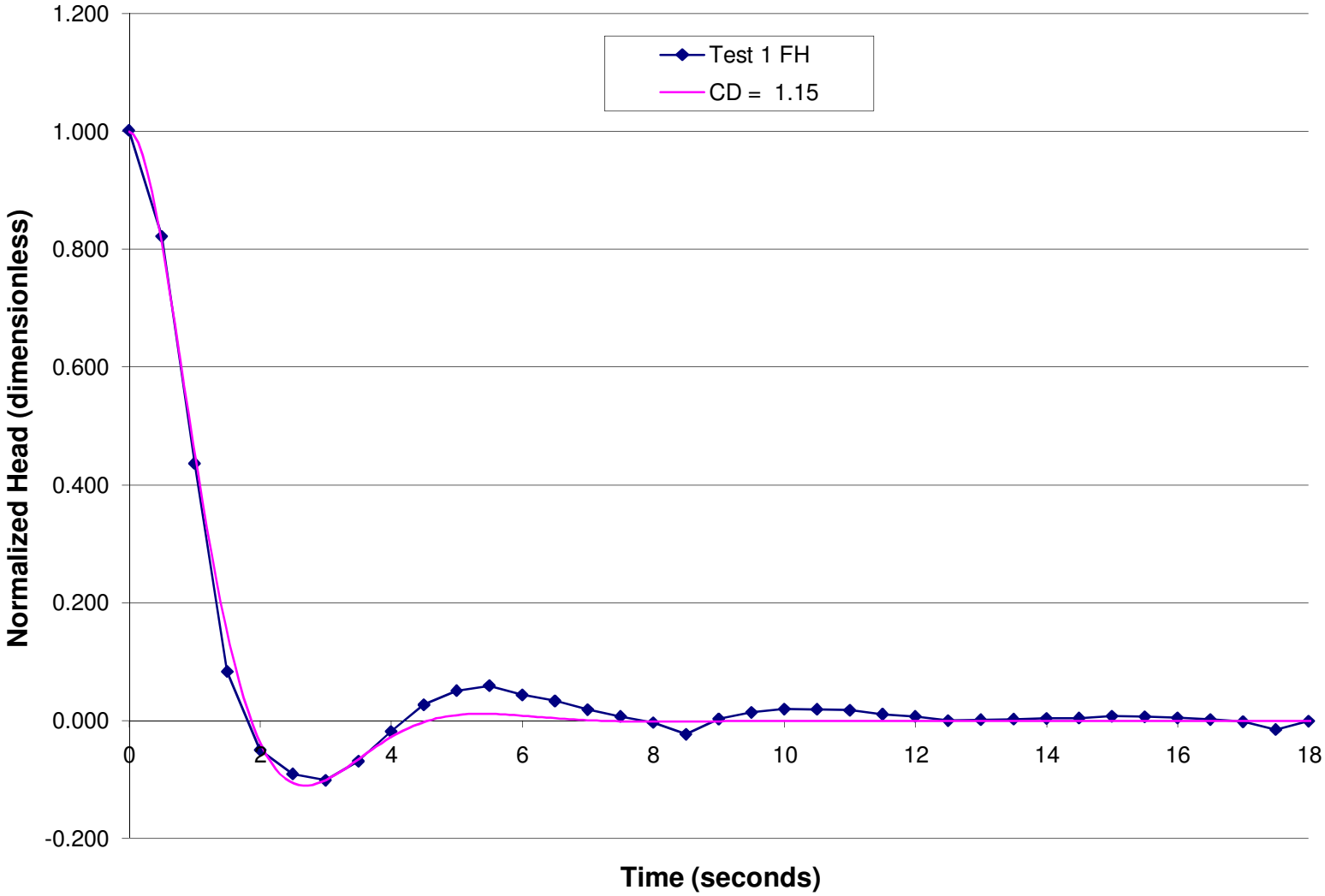
Calculation after Hvorslev

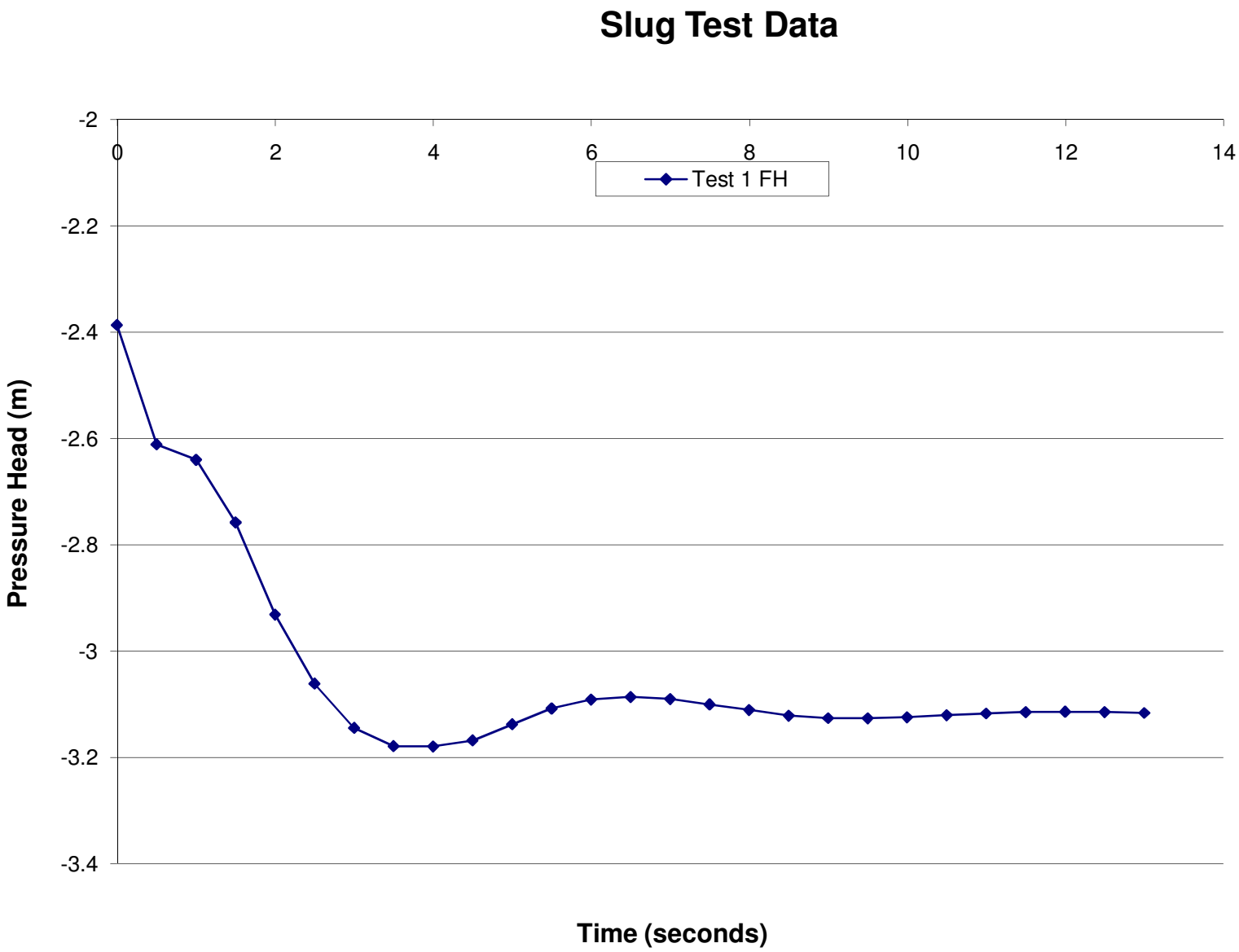
Observation well	K [m/s]	
Test4. RH	2.60×10^{-5}	

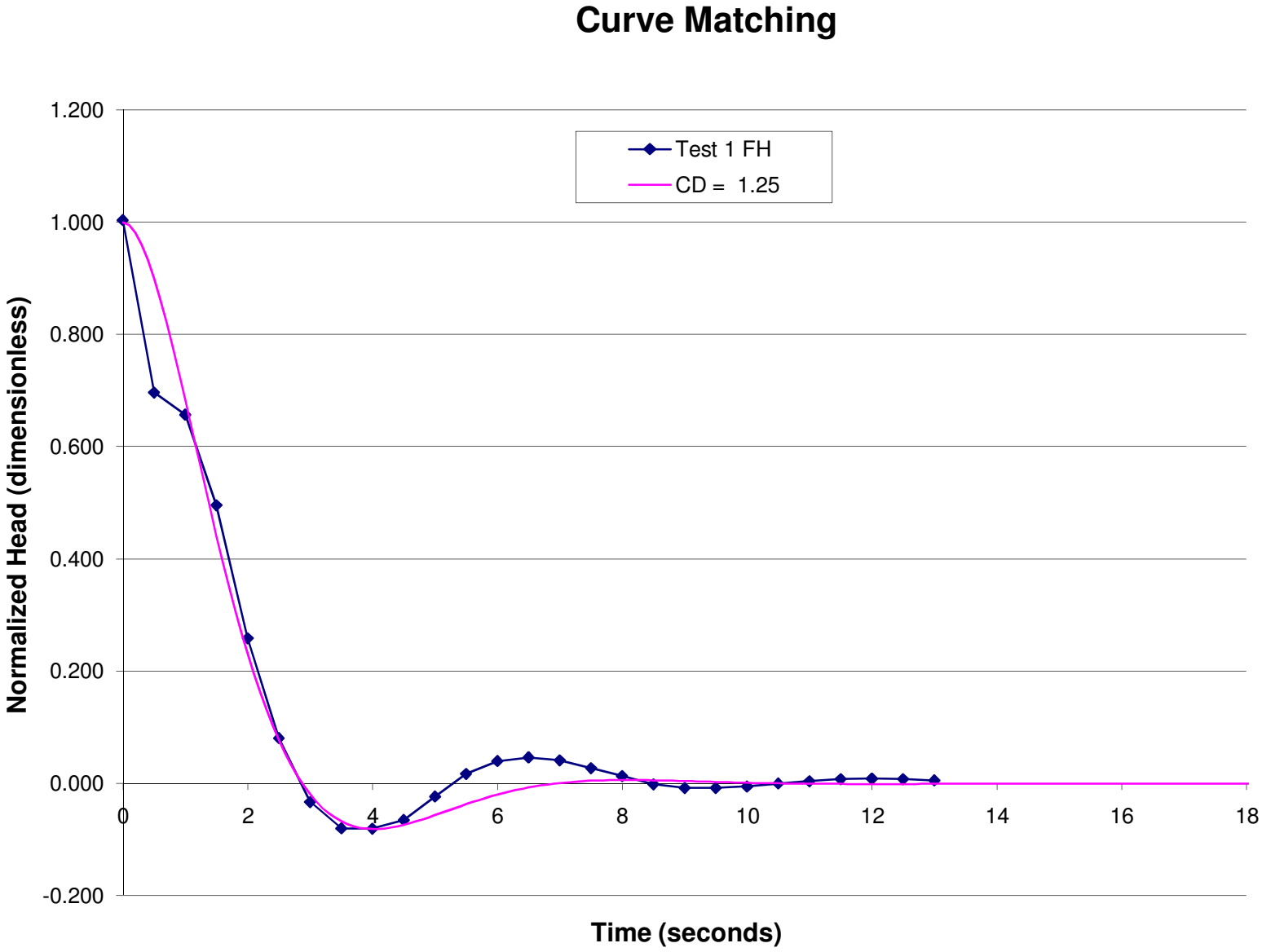
Slug Test Data



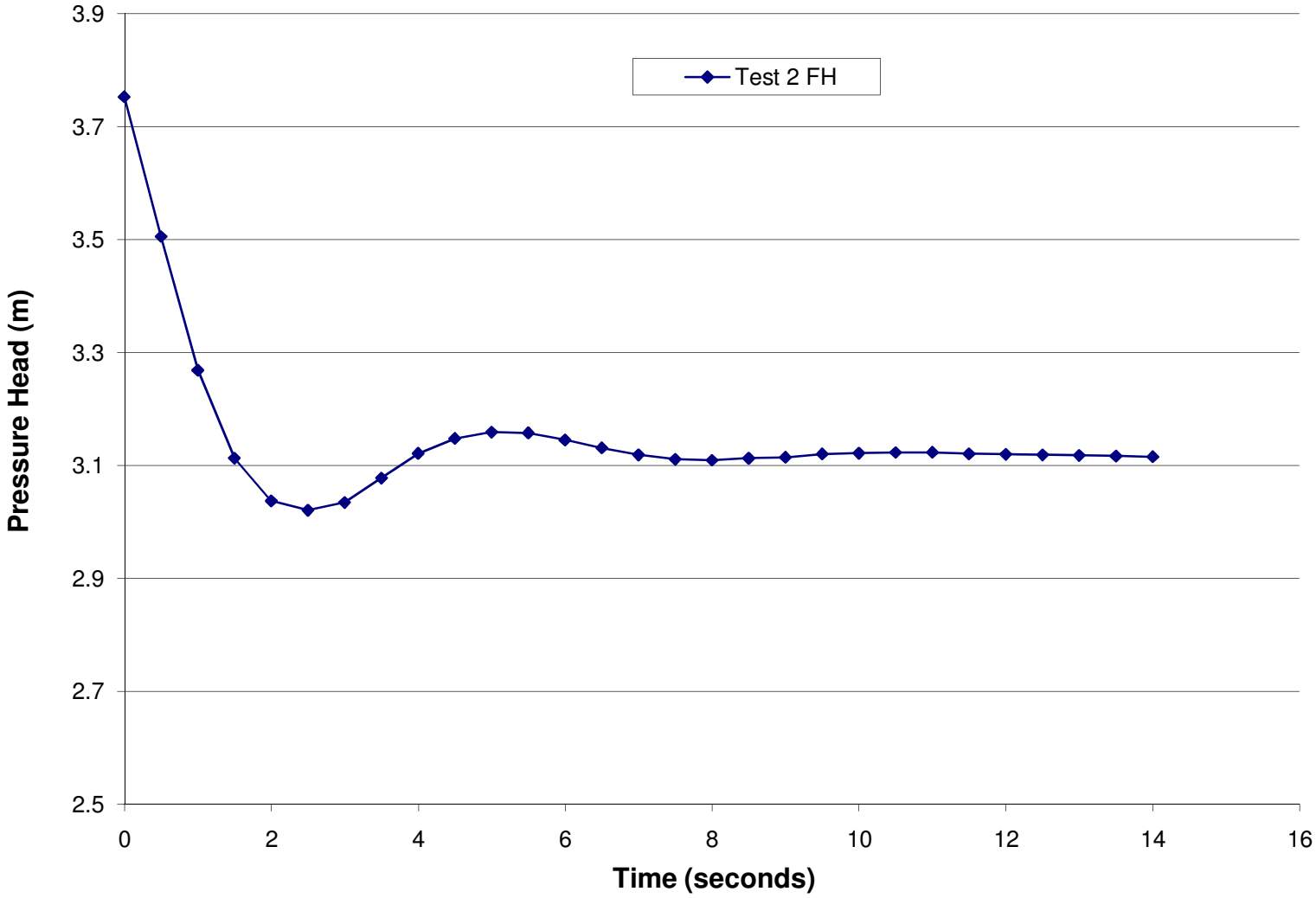
Curve Matching

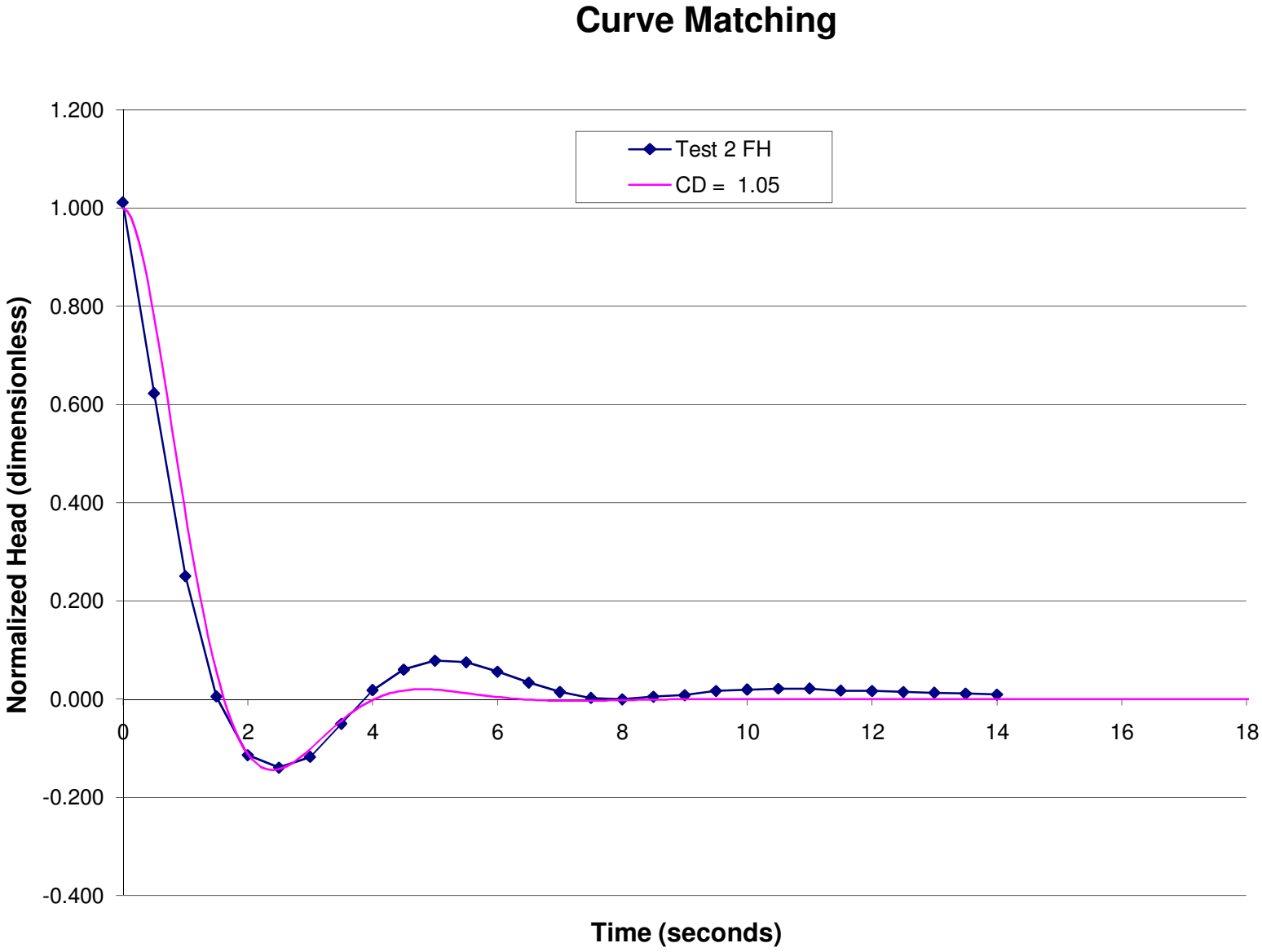



Slug Test Data
Test 1 FH
Pressure Head (m)
Time (seconds)
-2
-2.2
-2.4
-2.6
-2.8
-3
-3.2
-3.4
0
2
4
6
8
10
12
14

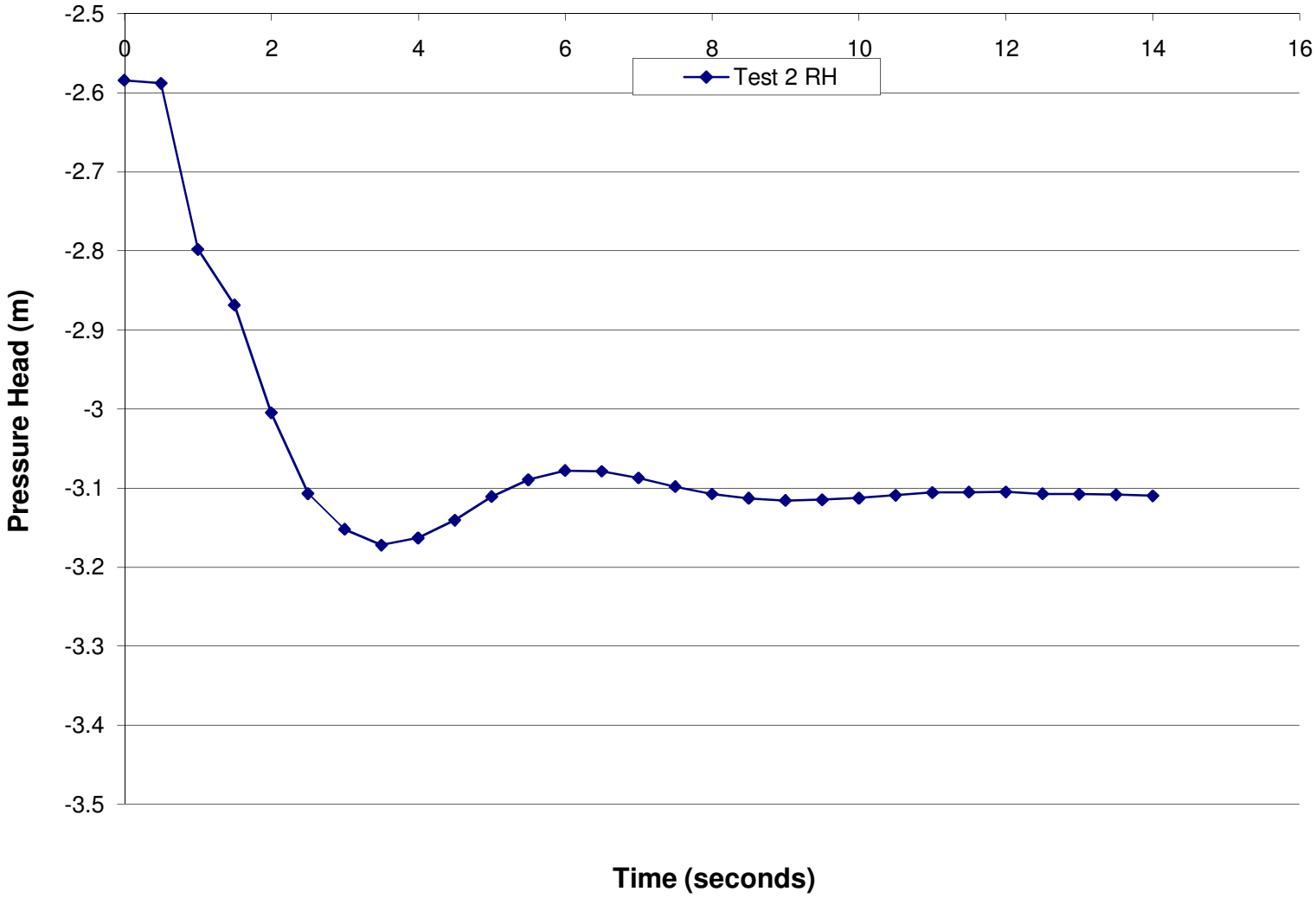

Curve Matching
Test 1 FH
CD = 1.25
Normalized Head (dimensionless)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
2
4
6
8
10
12
14
16
18
Time (seconds)

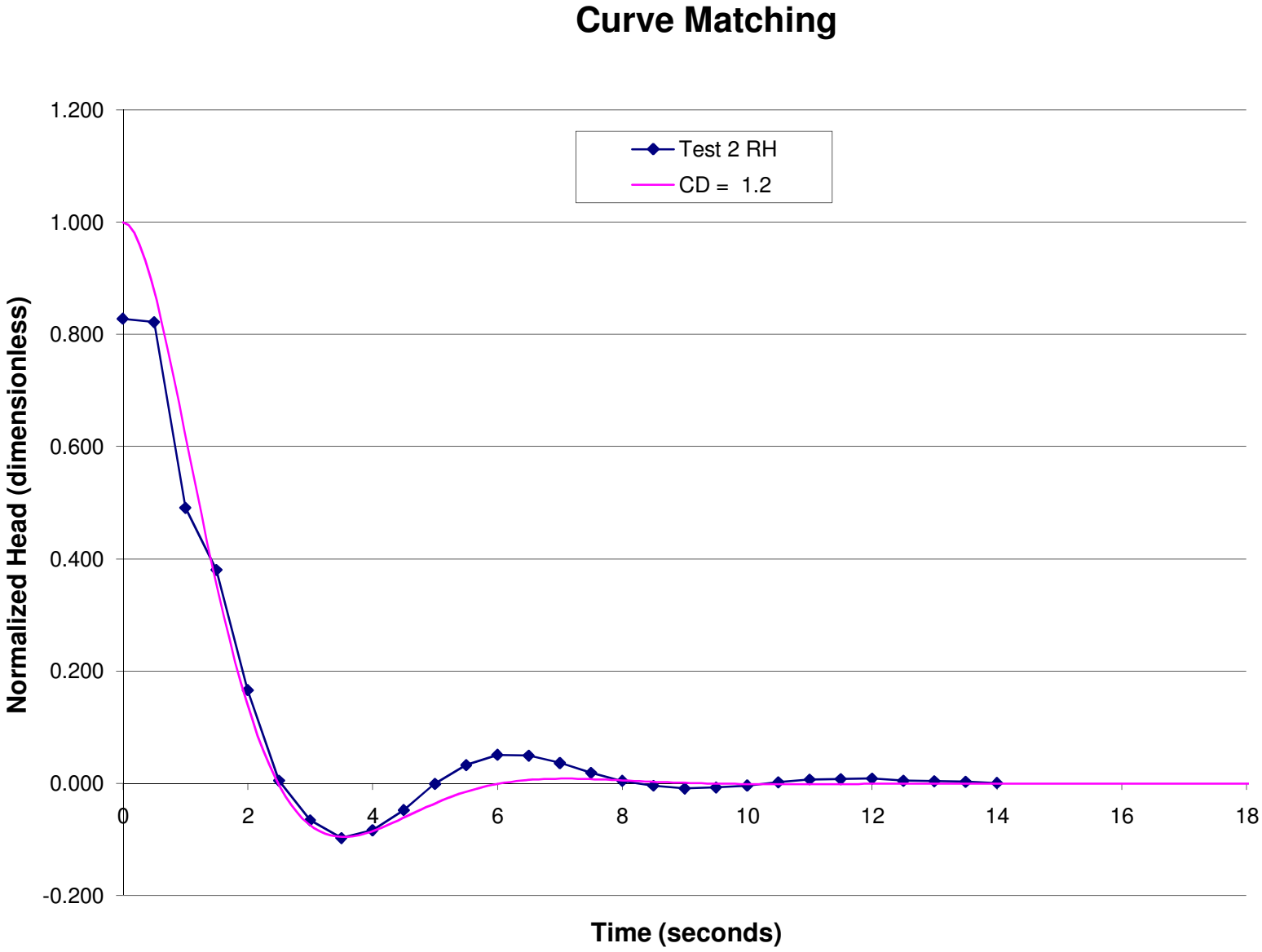
Slug Test Data



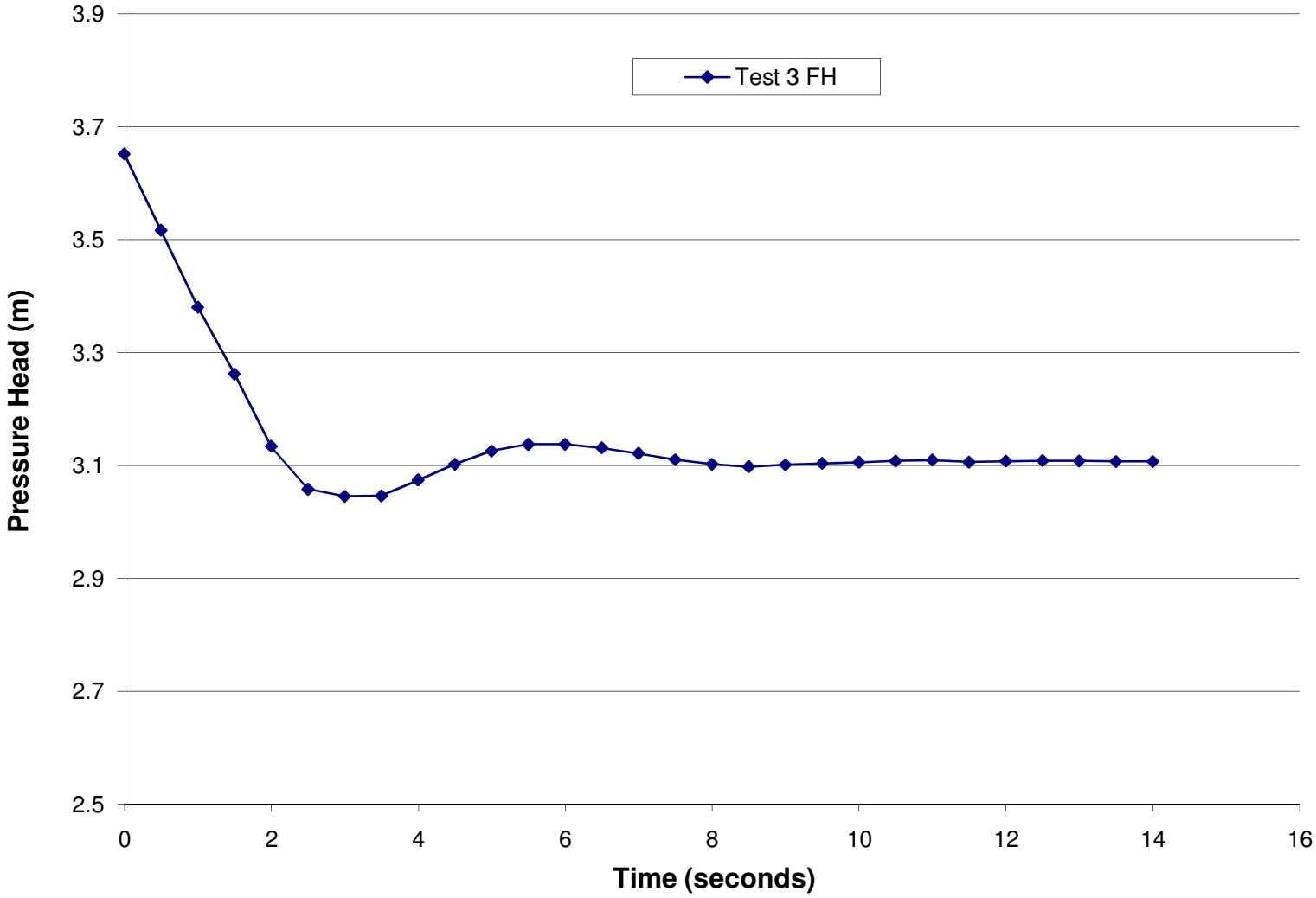

Curve Matching
Test 2 FH
CD = 1.05
Normalized Head (dimensionless)
Time (seconds)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
0
2
4
6
8
10
12
14
16
18

Slug Test Data

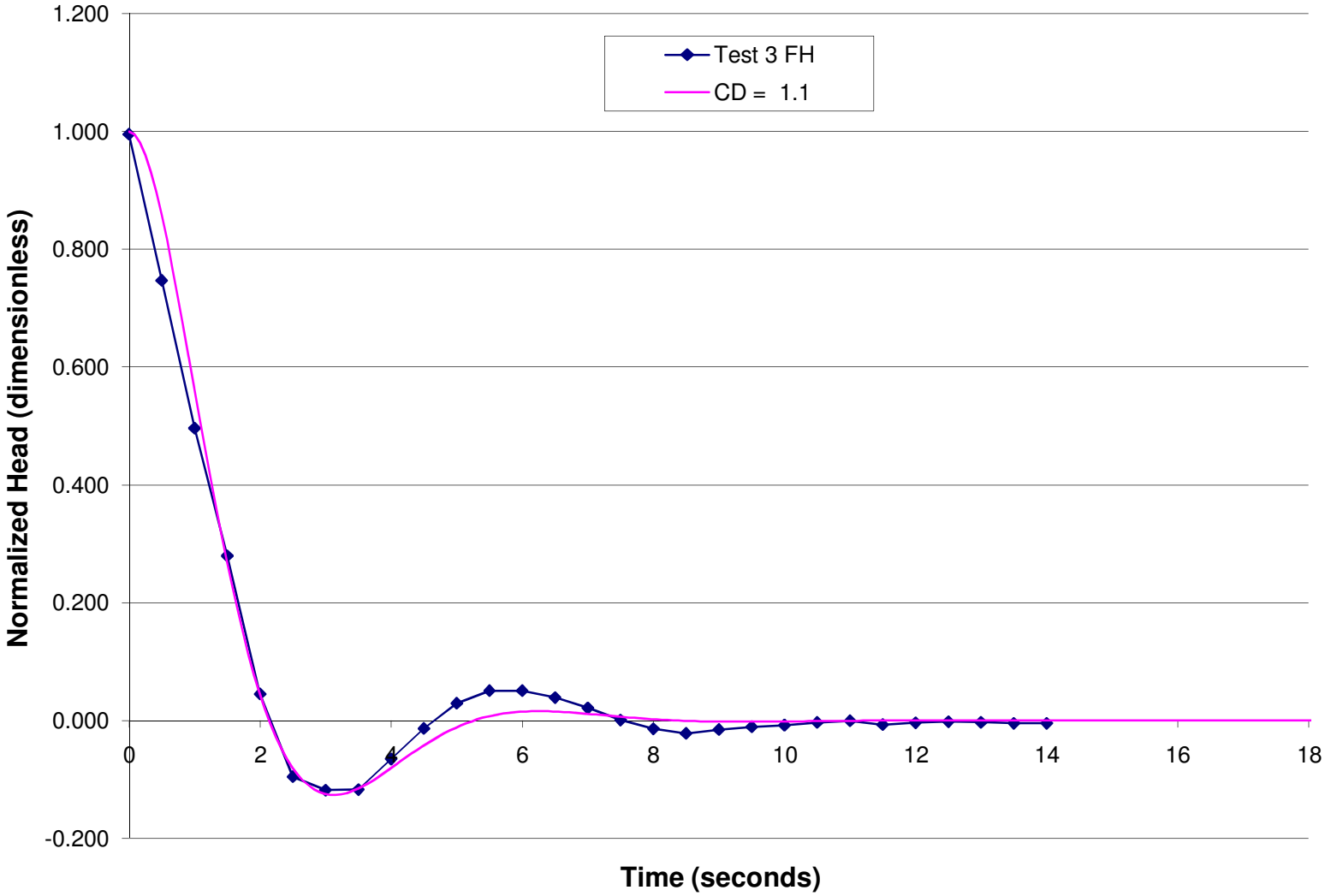



Curve Matching
Test 2 RH
CD = 1.2
Normalized Head (dimensionless)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
2
4
6
8
10
12
14
16
18
Time (seconds)

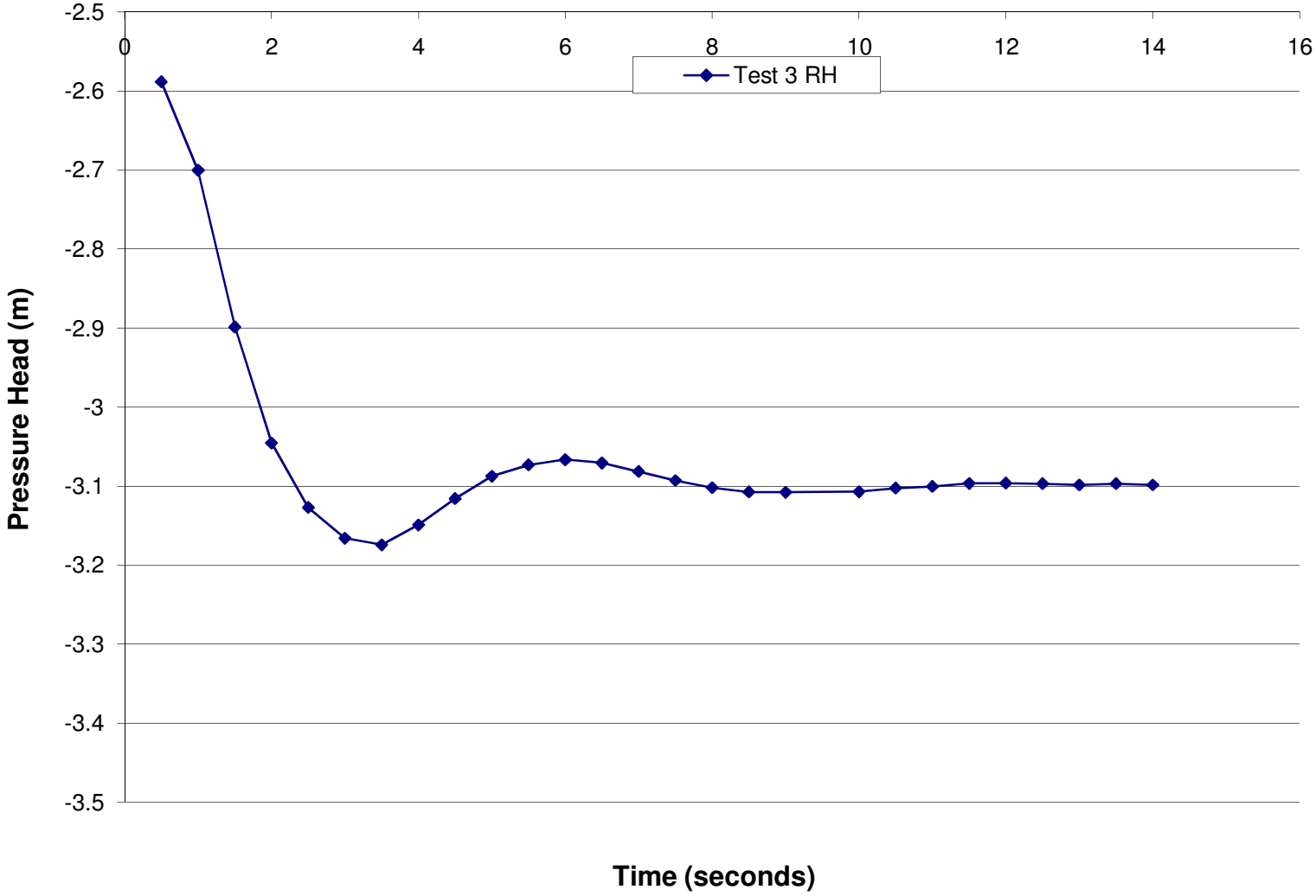
Slug Test Data



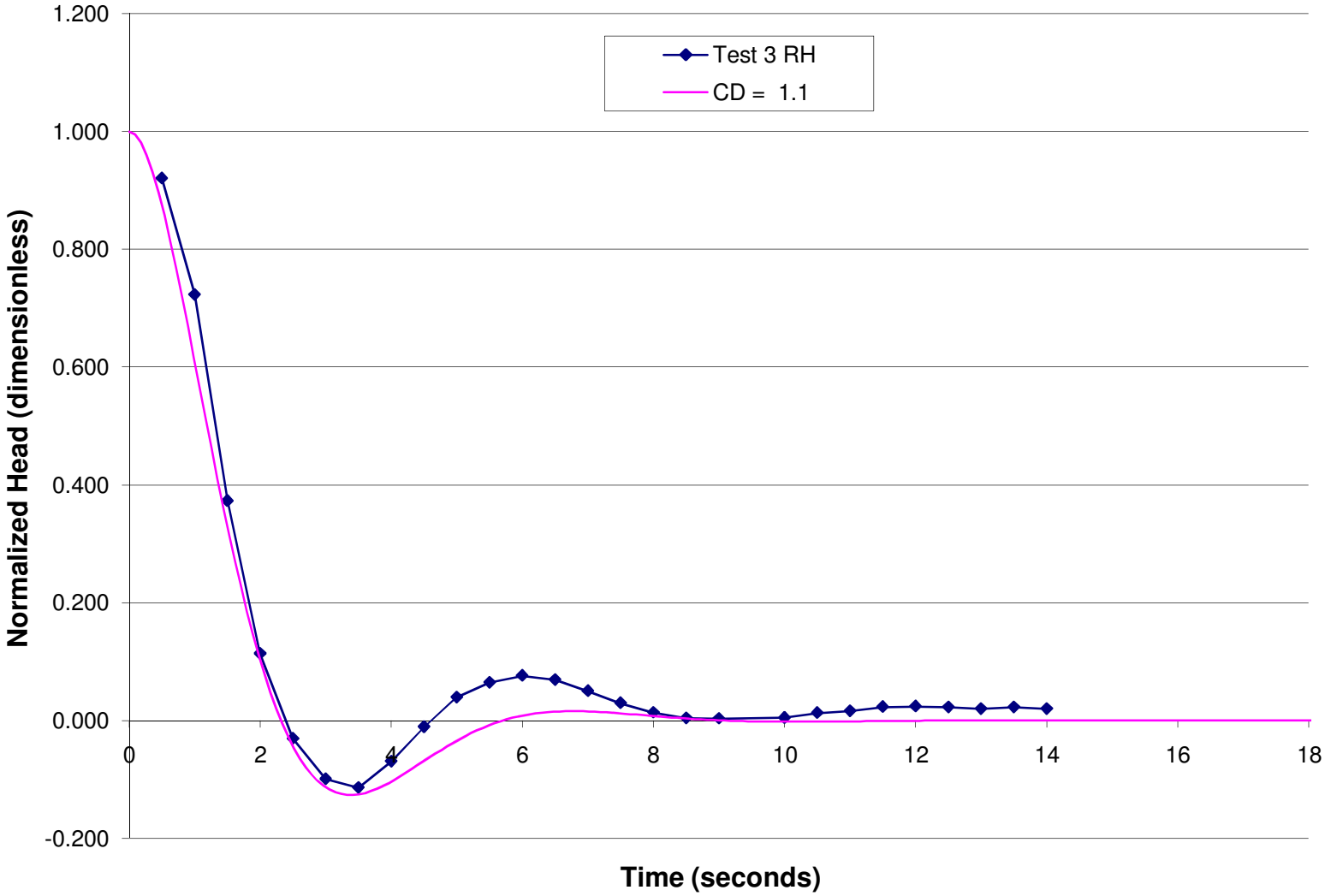
Curve Matching

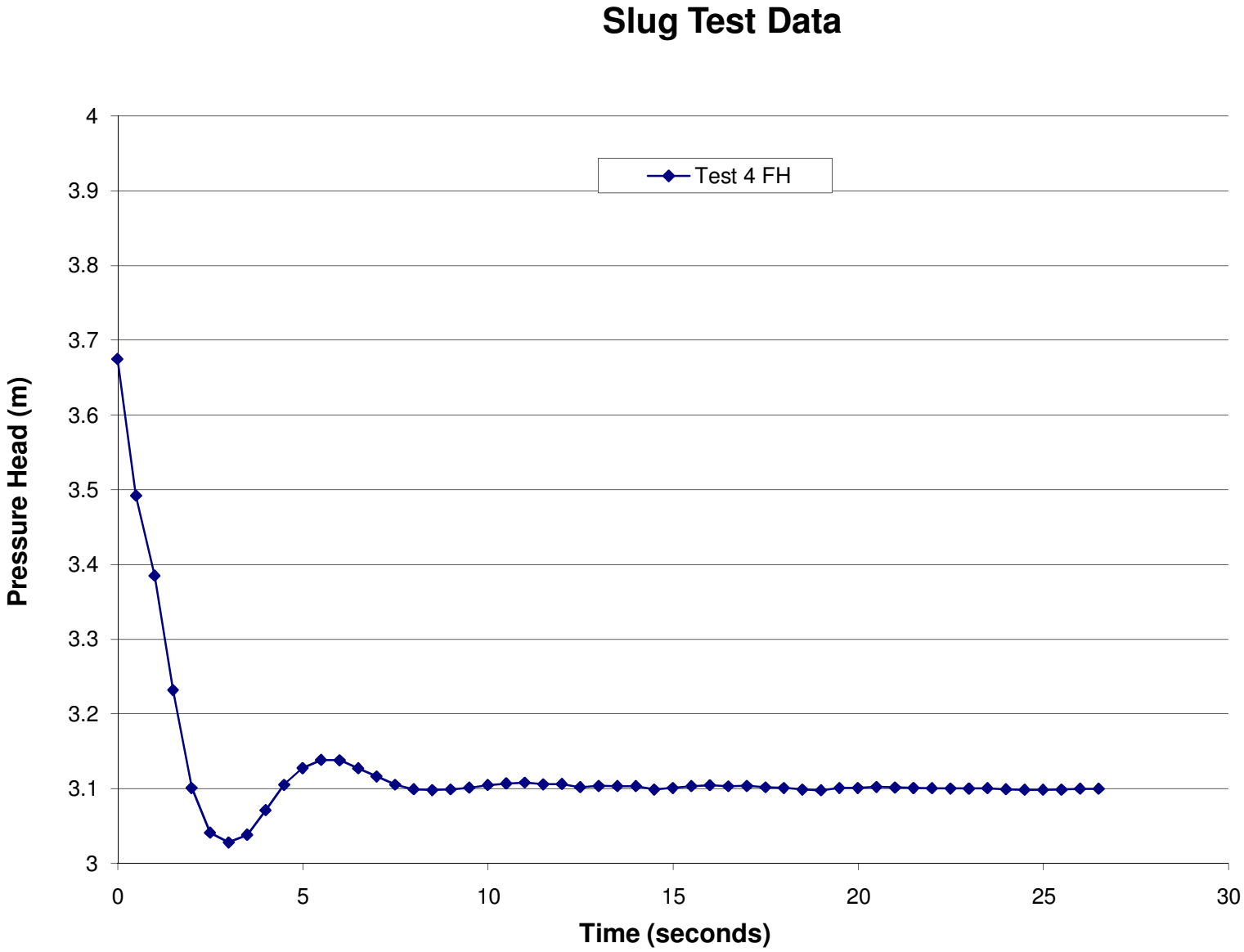


Slug Test Data

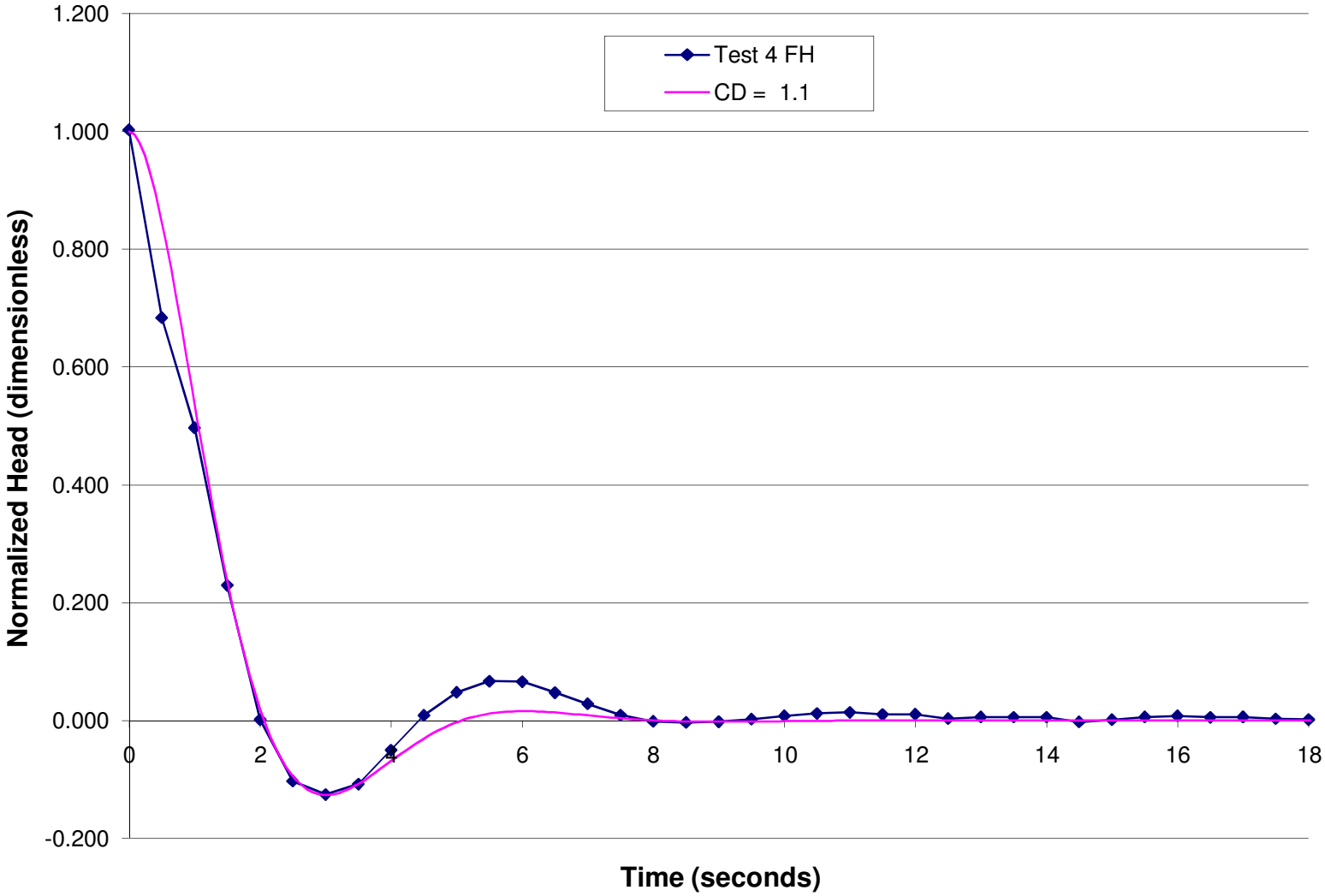


Curve Matching

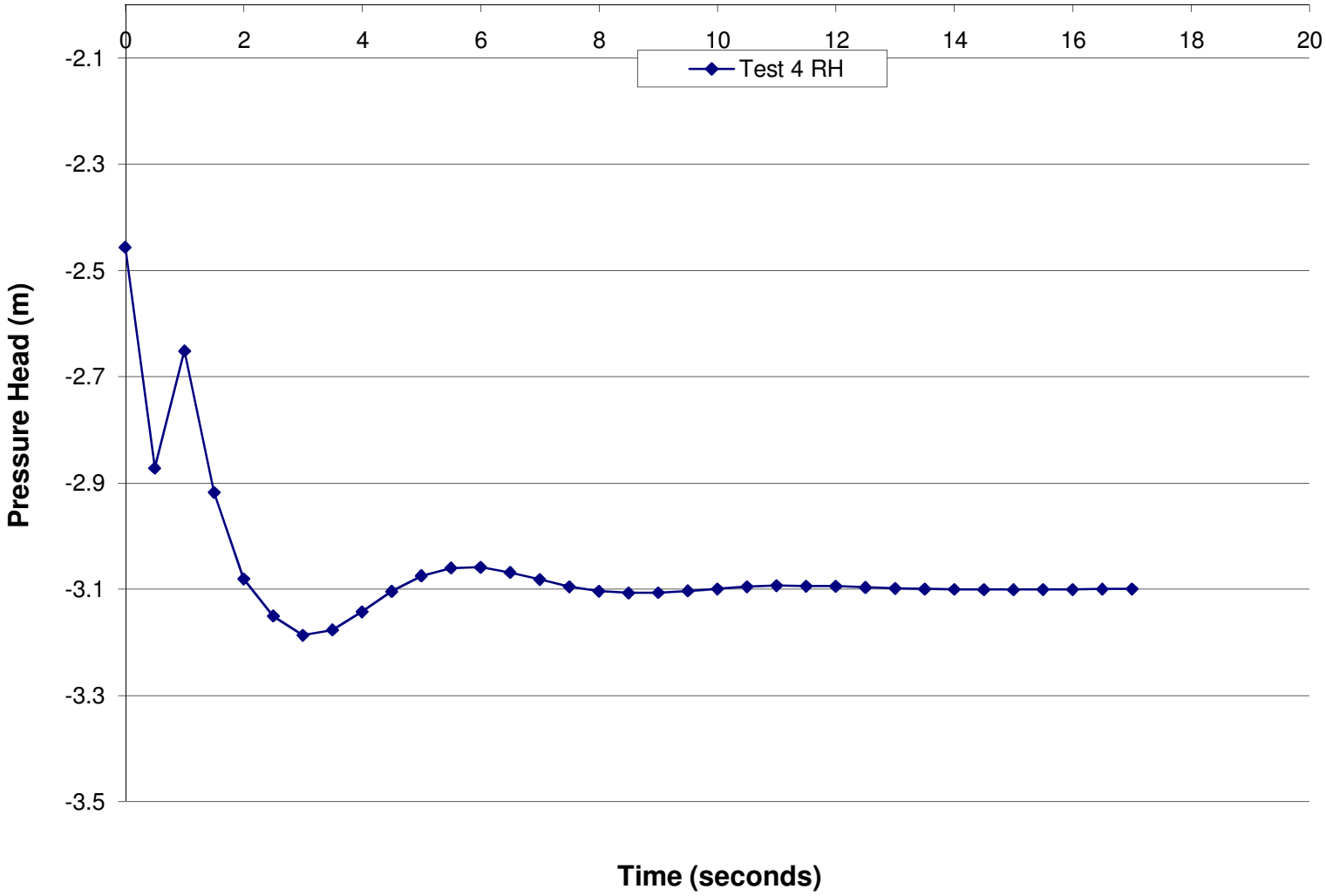



Slug Test Data
Test 4 FH
Pressure Head (m)
4
3.9
3.8
3.7
3.6
3.5
3.4
3.3
3.2
3.1
3
0
5
10
15
20
25
30
Time (seconds)

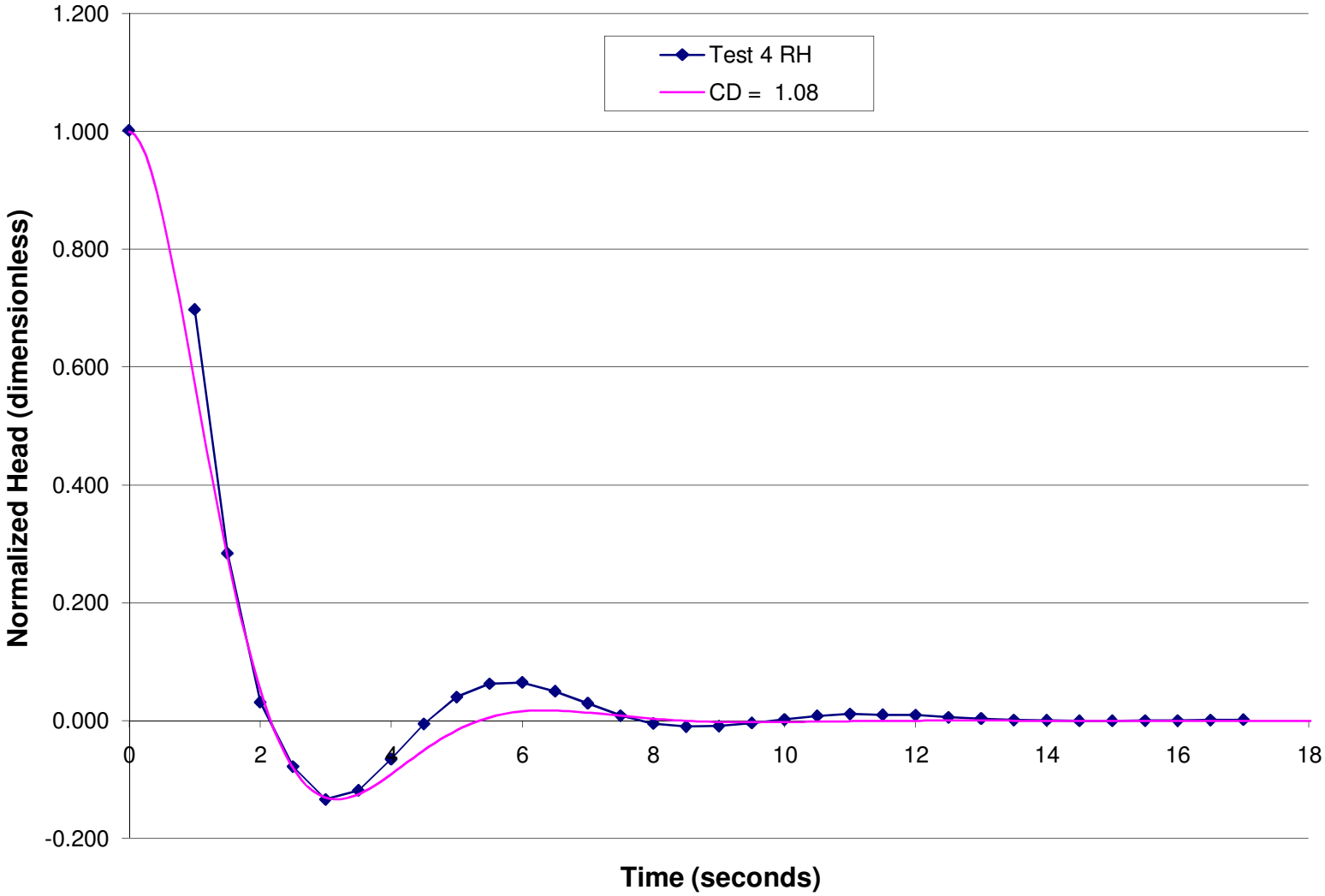
Curve Matching



Slug Test Data



Curve Matching



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604.436.3014
Jacques Whitford Stantec AXYS

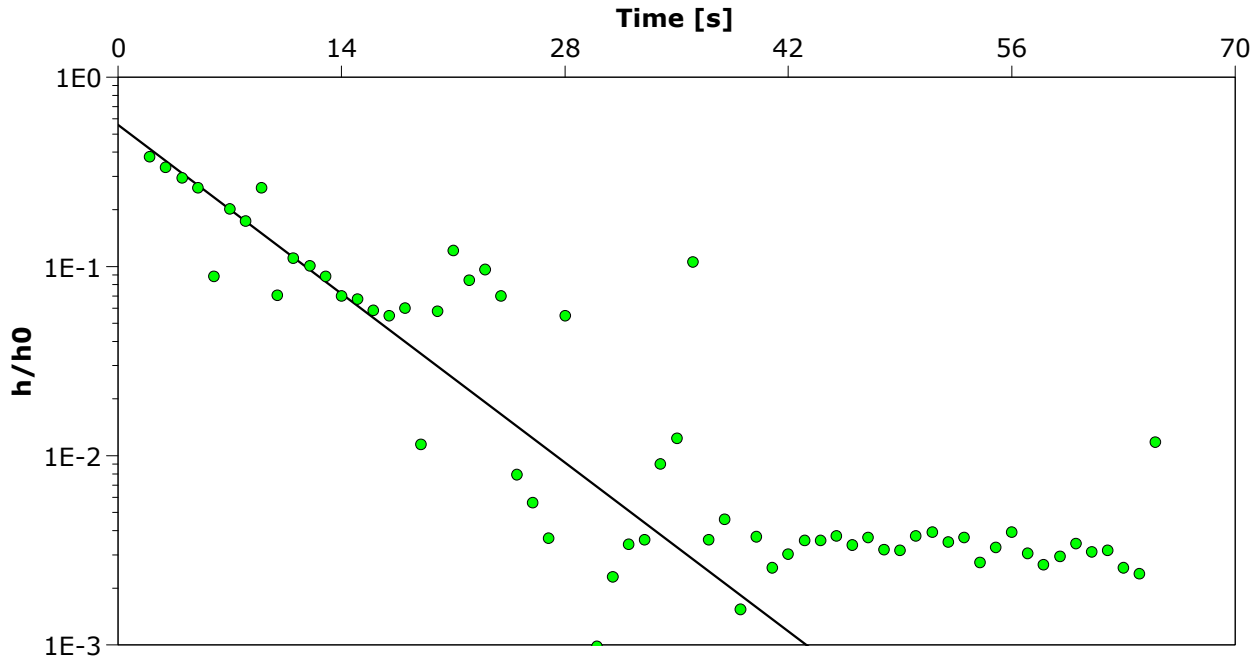
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 1.FH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	5.62×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

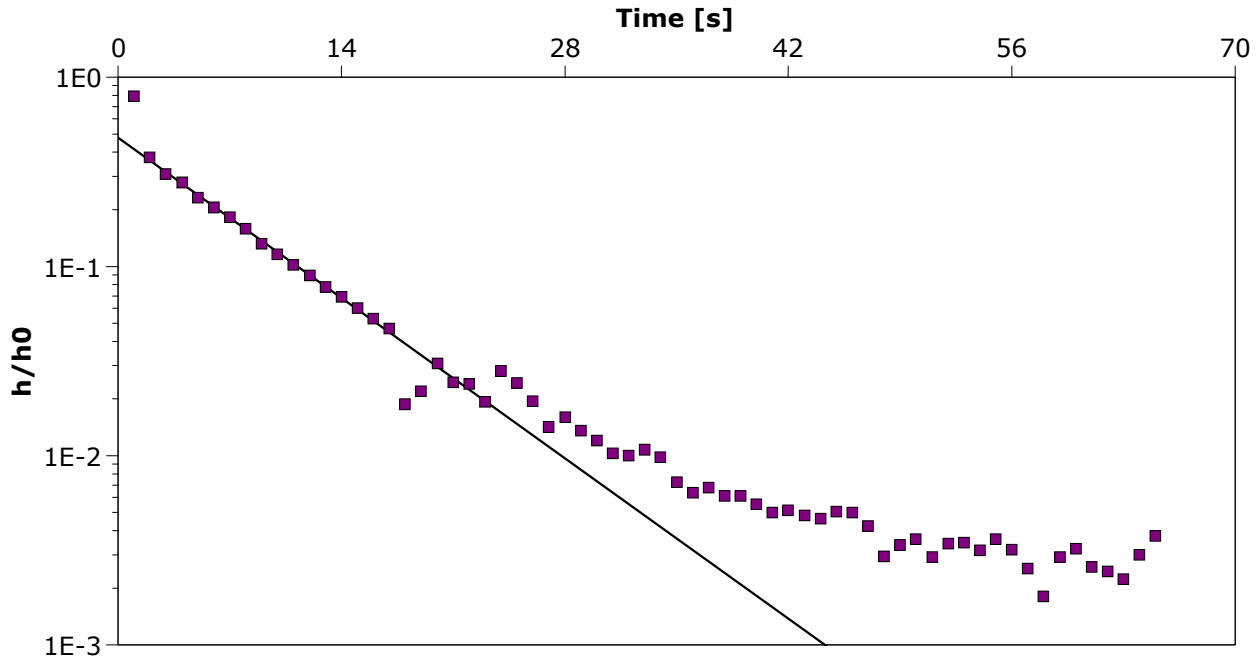
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 1.RH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	5.33×10^{-5}	

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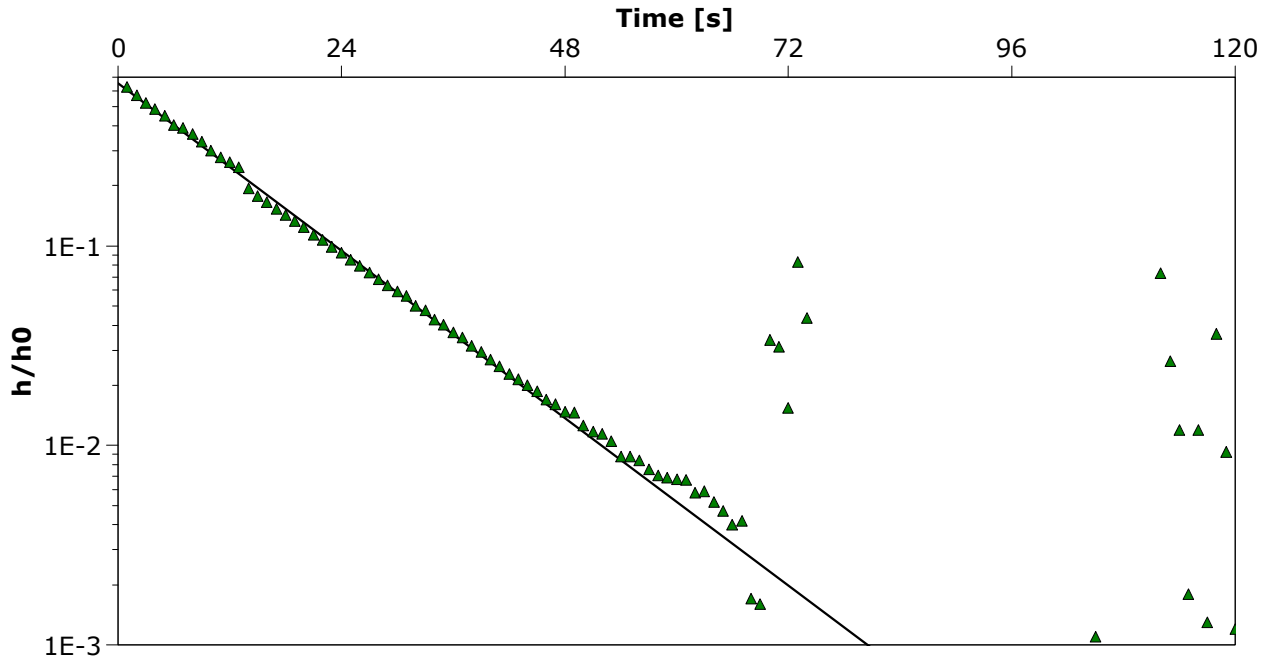
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 2.FH	3.98×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
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Jacques Whitford Stantec AXYS

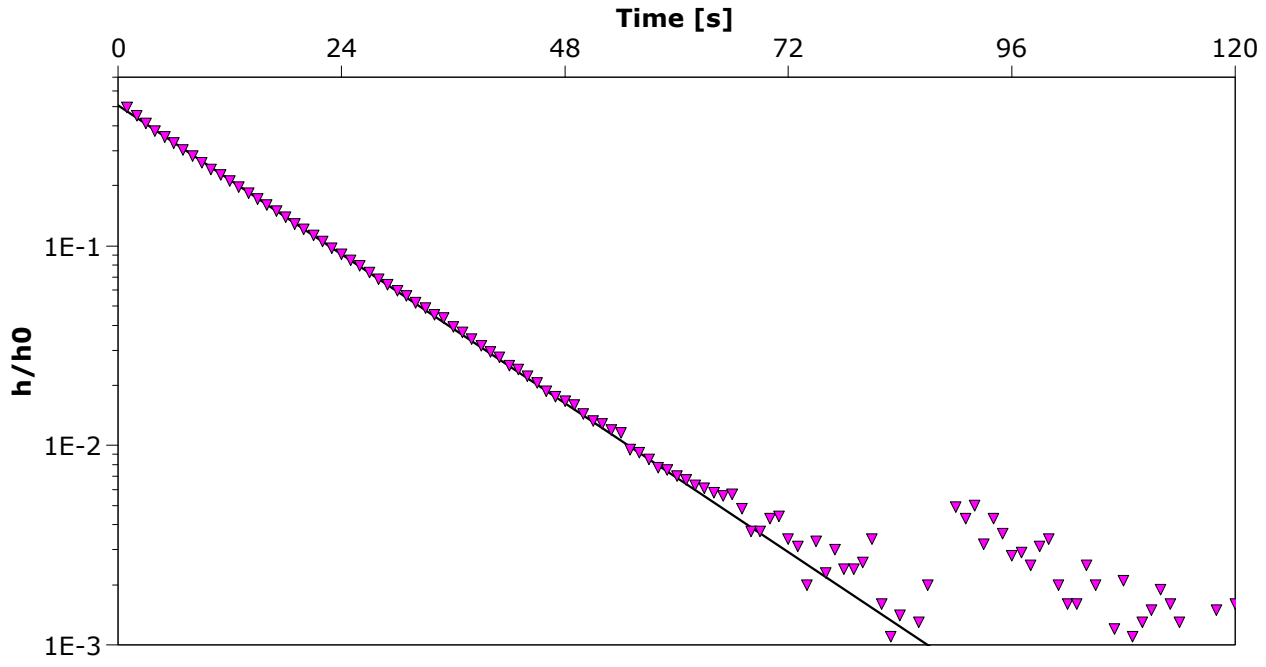
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 2. RH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 2. RH	3.54×10^{-5}	

Burnaby, BC
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Jacques Whitford Stantec AXYS

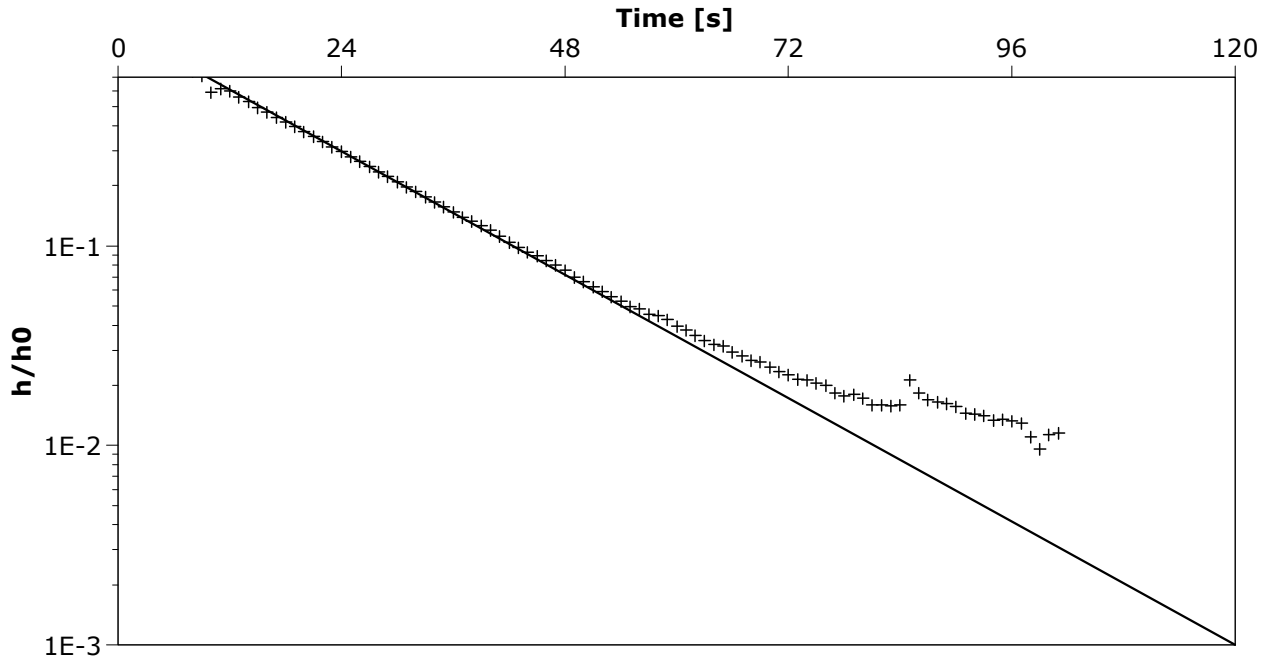
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 3. RH
Test conducted by:JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 3. RH	2.94×10^{-5}	

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Jacques Whitford Stantec AXYS

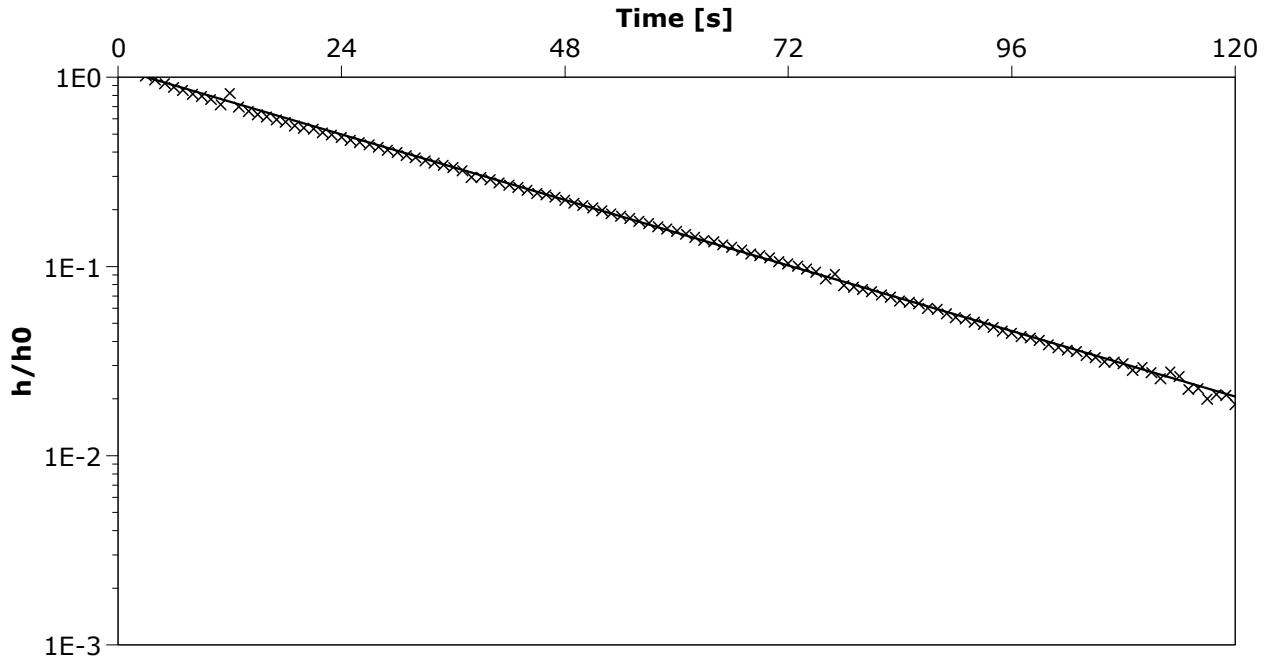
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test 4. FH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



Calculation after Hvorslev

Observation well	K [m/s]	
Test 4. FH	1.64×10^{-5}	

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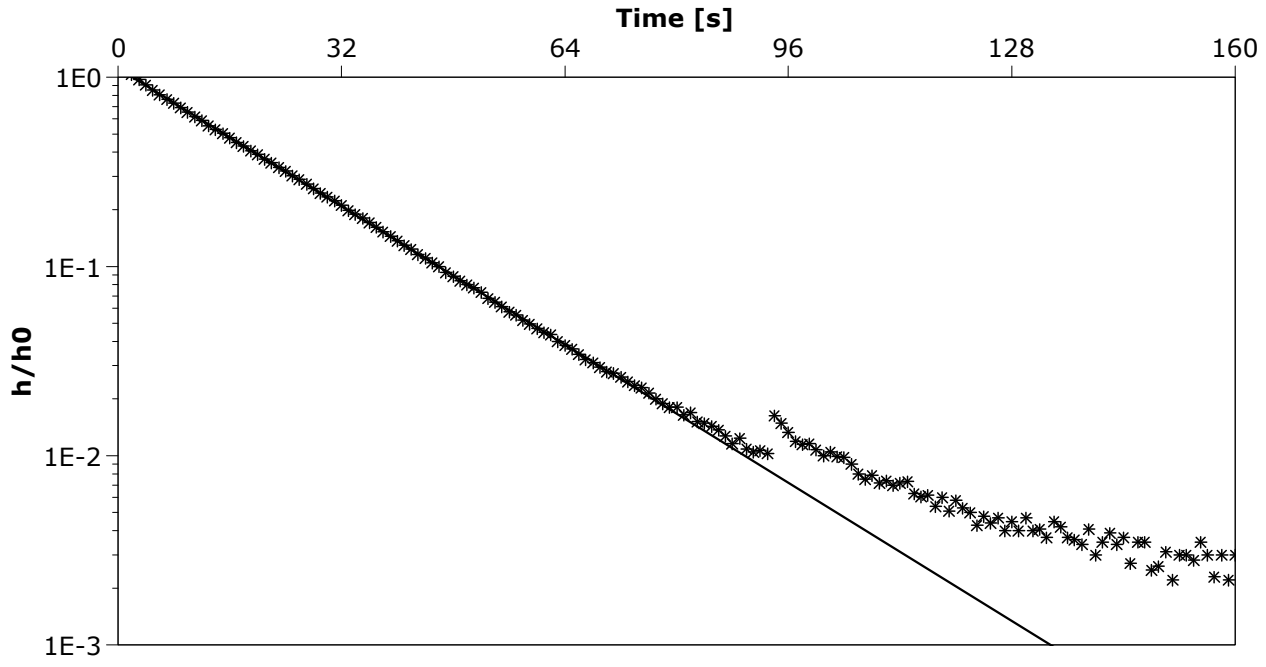
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

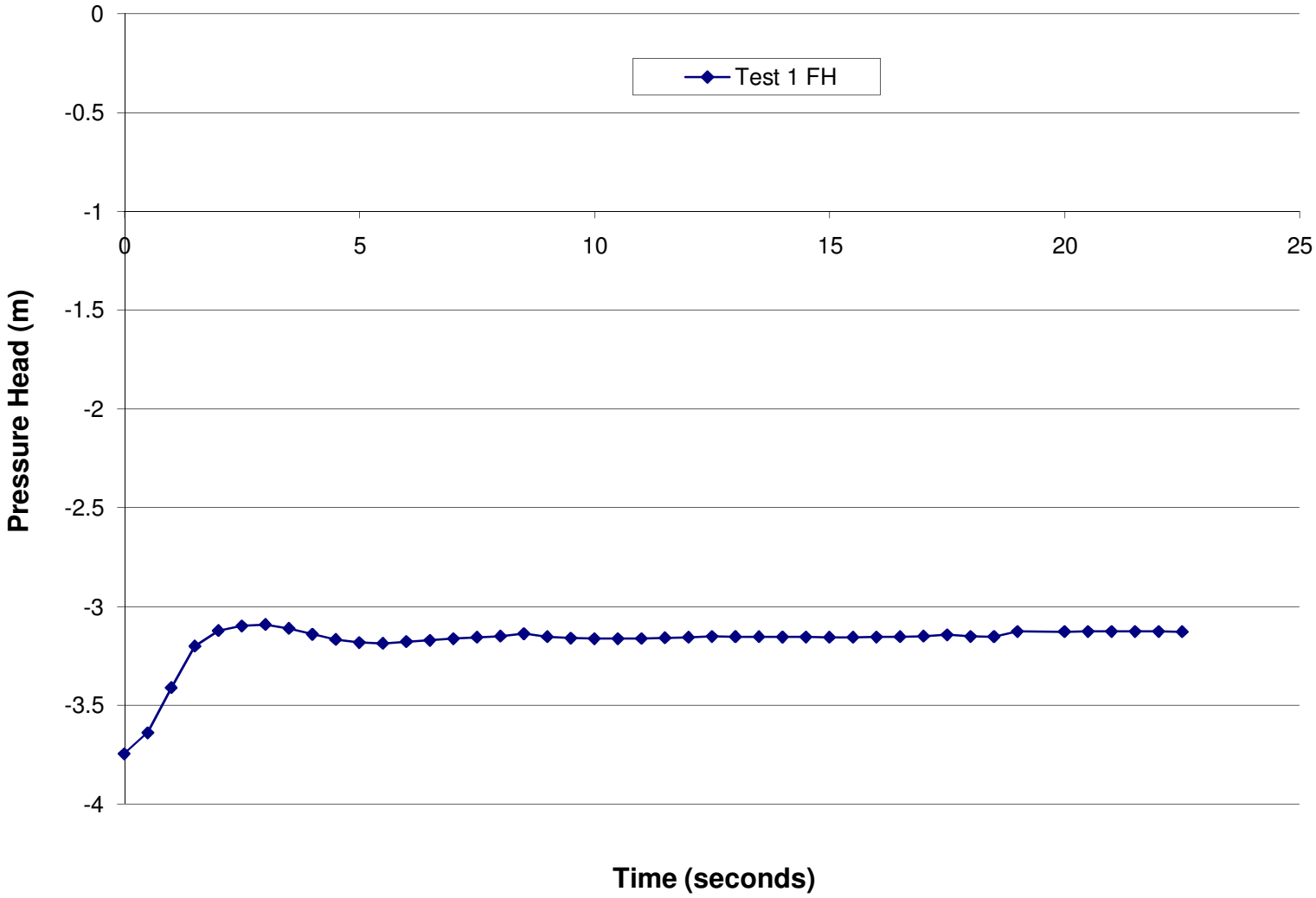
Location: Dublin Gulch	Slug Test: Slug Test 7	Test Well: Test4. RH
Test conducted by: JT		Test date: 08/18/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness:		



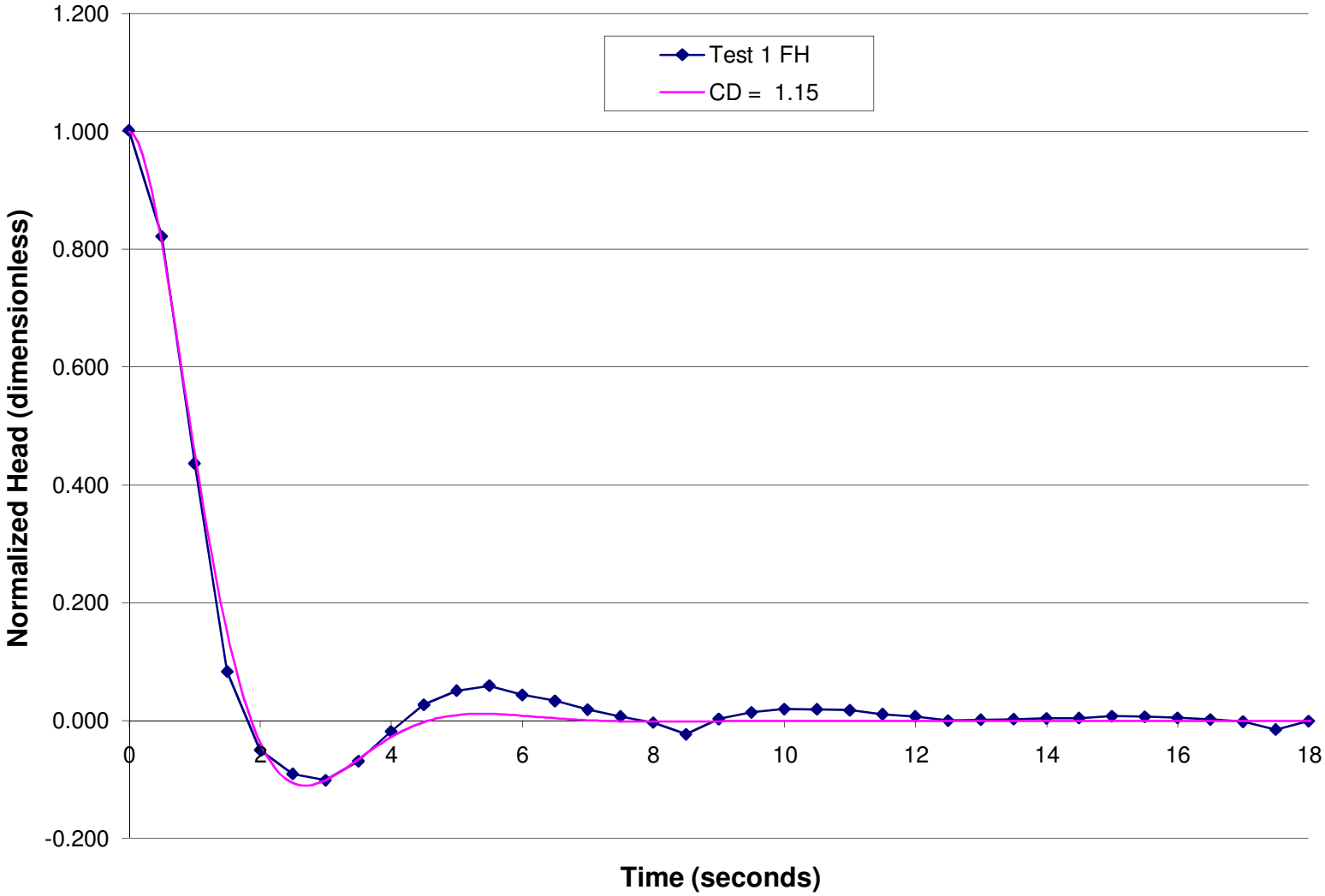
Calculation after Hvorslev

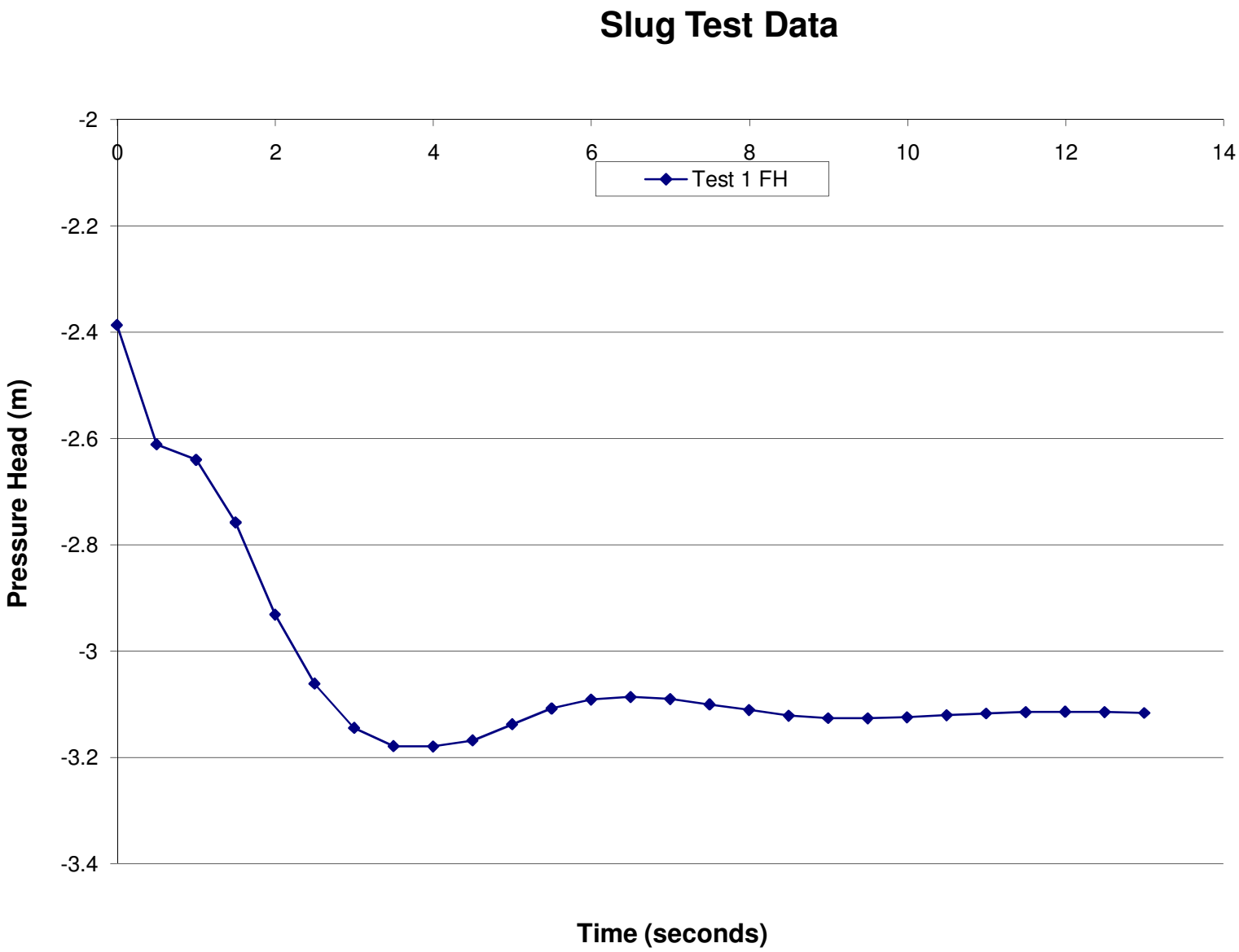
Observation well	K [m/s]	
Test4. RH	2.60×10^{-5}	

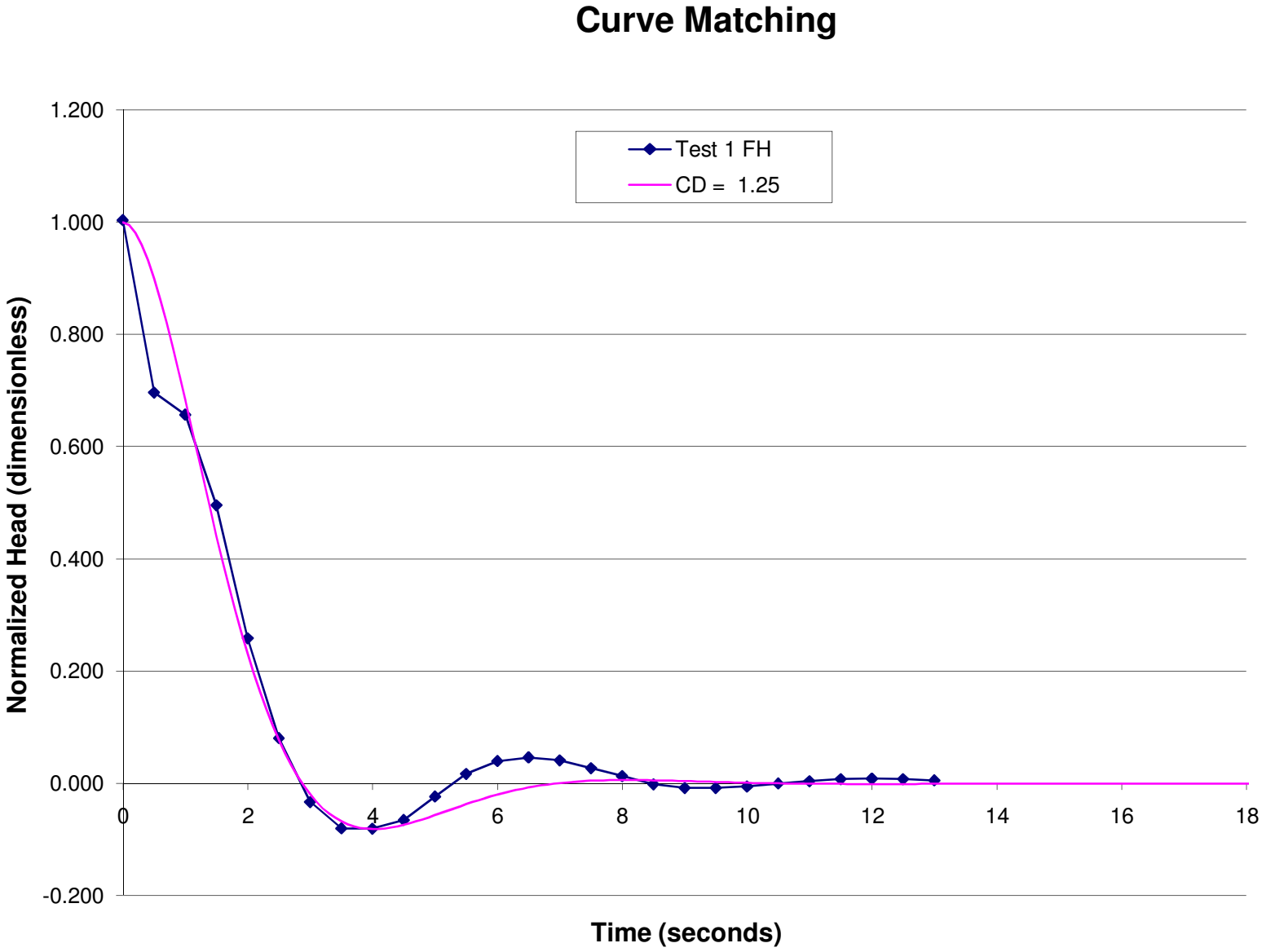
Slug Test Data



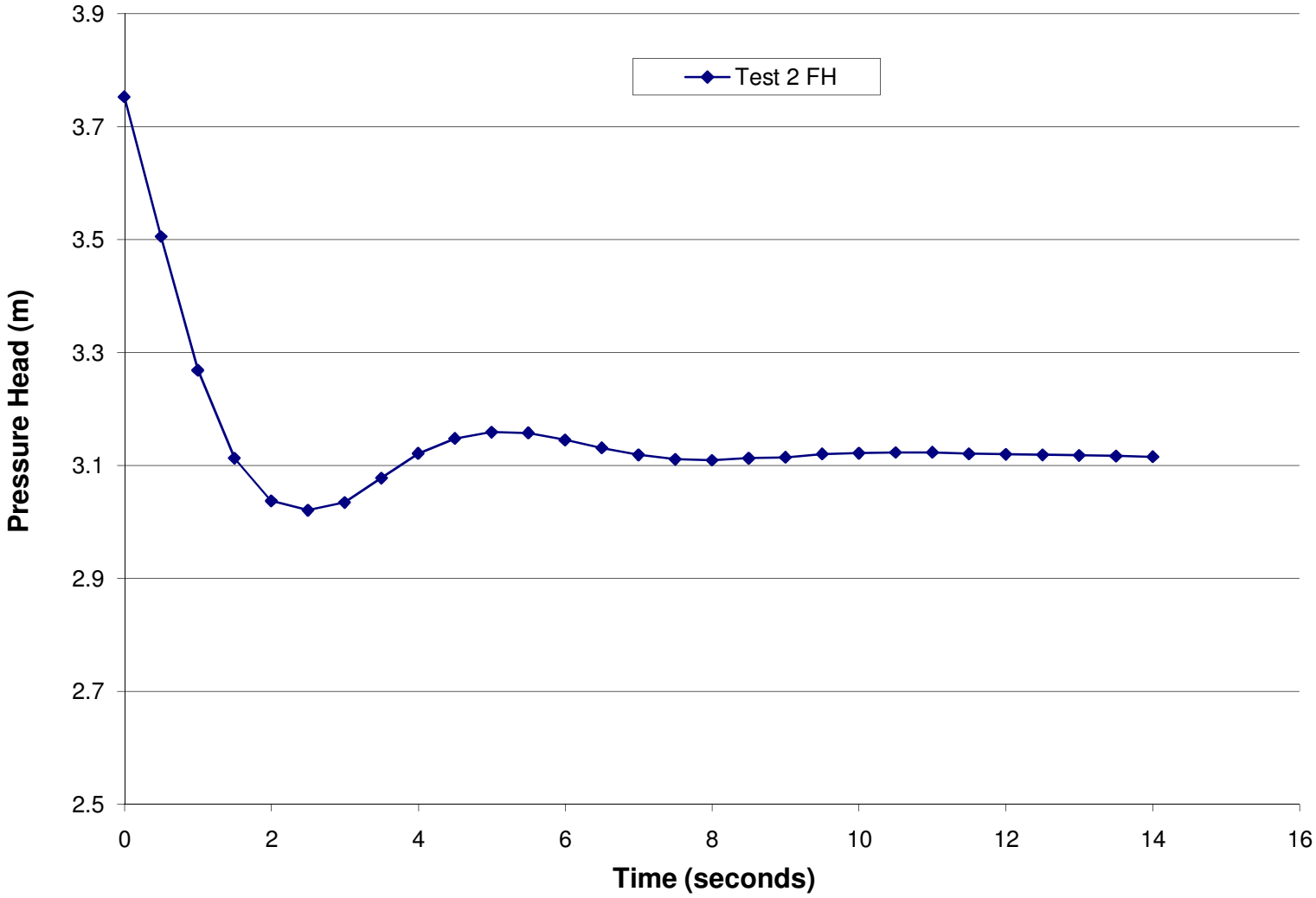
Curve Matching

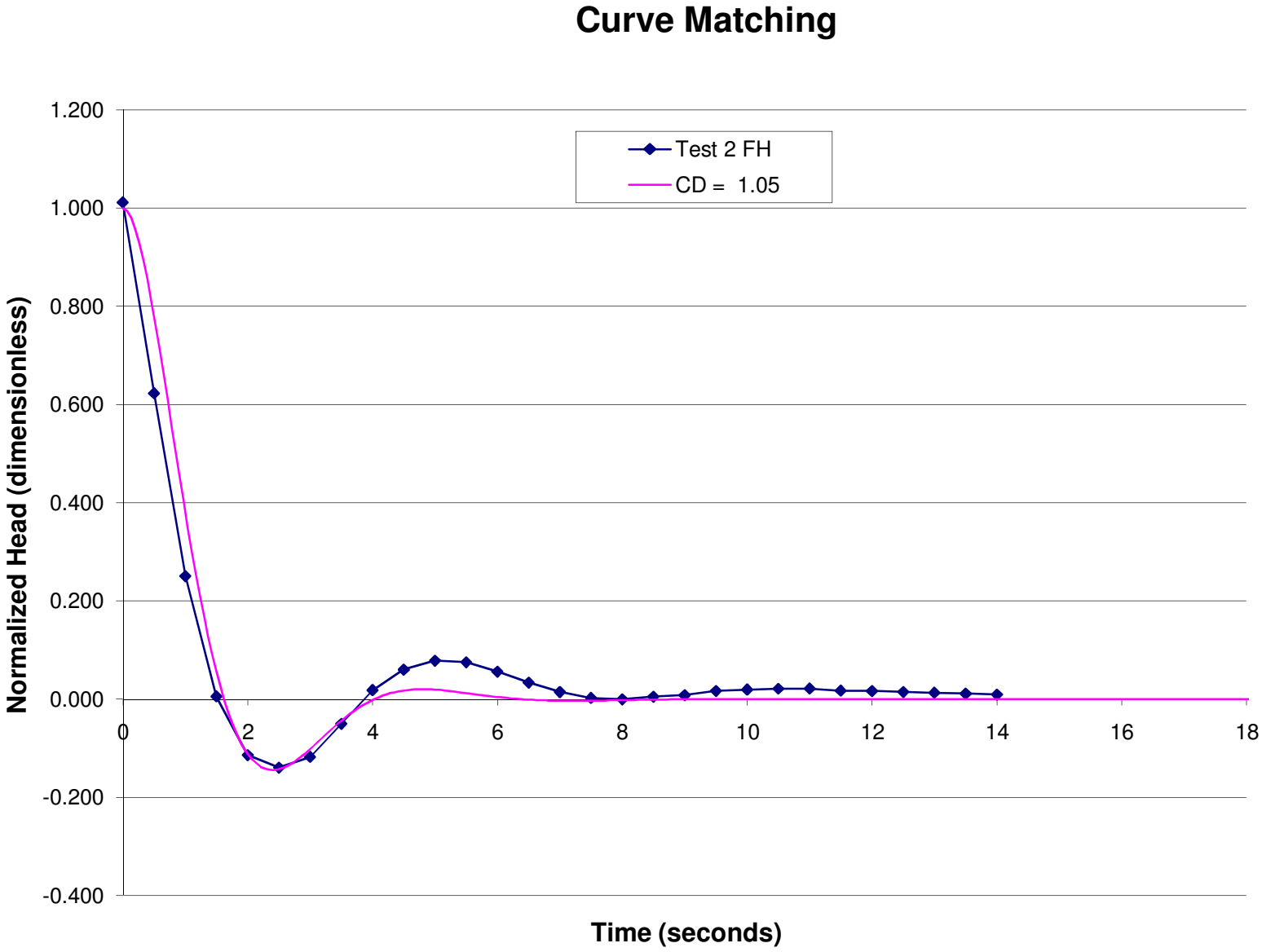



Slug Test Data
Test 1 FH
Pressure Head (m)
Time (seconds)
-2
-2.2
-2.4
-2.6
-2.8
-3
-3.2
-3.4
0
2
4
6
8
10
12
14

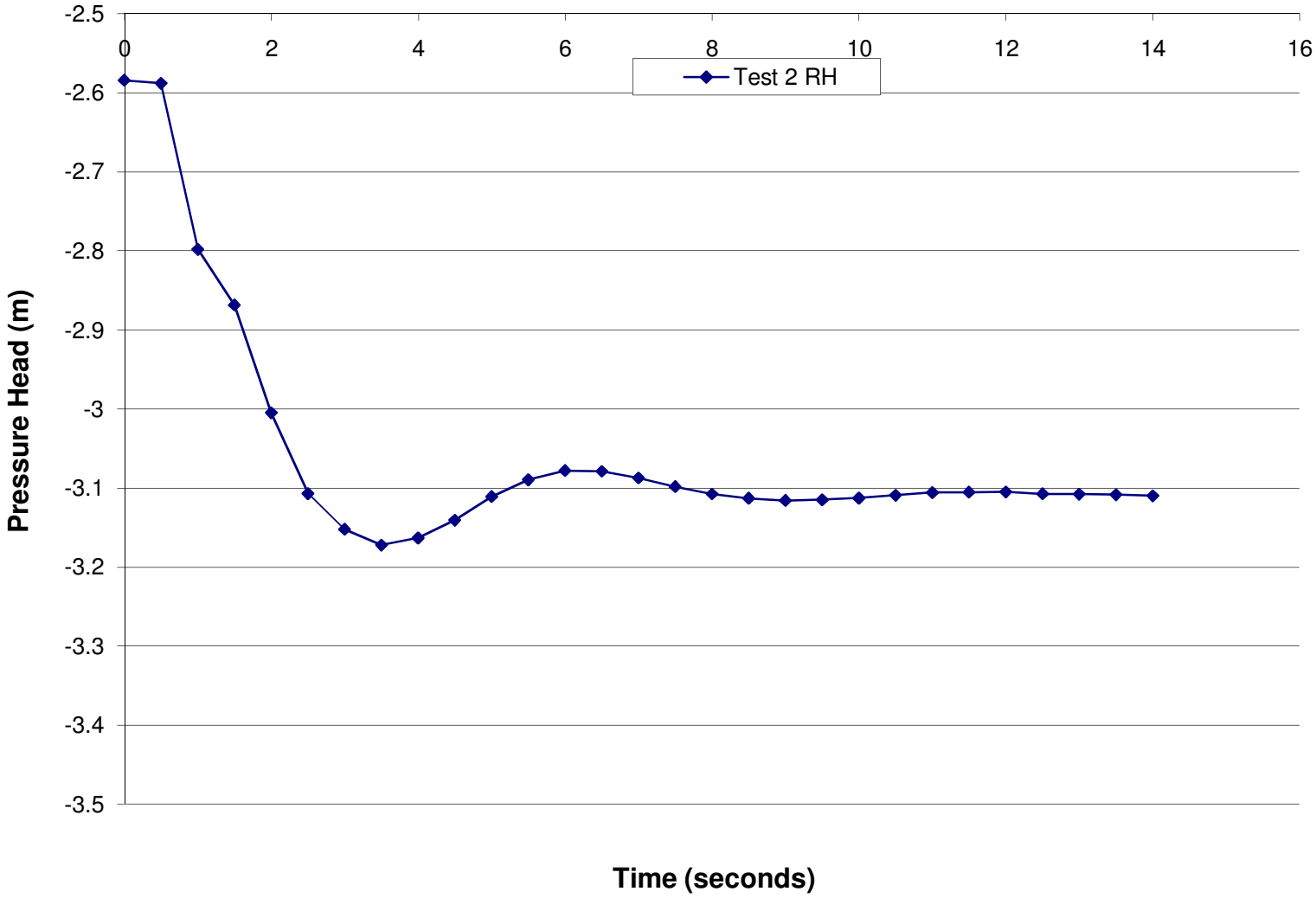

Curve Matching
Test 1 FH
CD = 1.25
Normalized Head (dimensionless)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
2
4
6
8
10
12
14
16
18
Time (seconds)

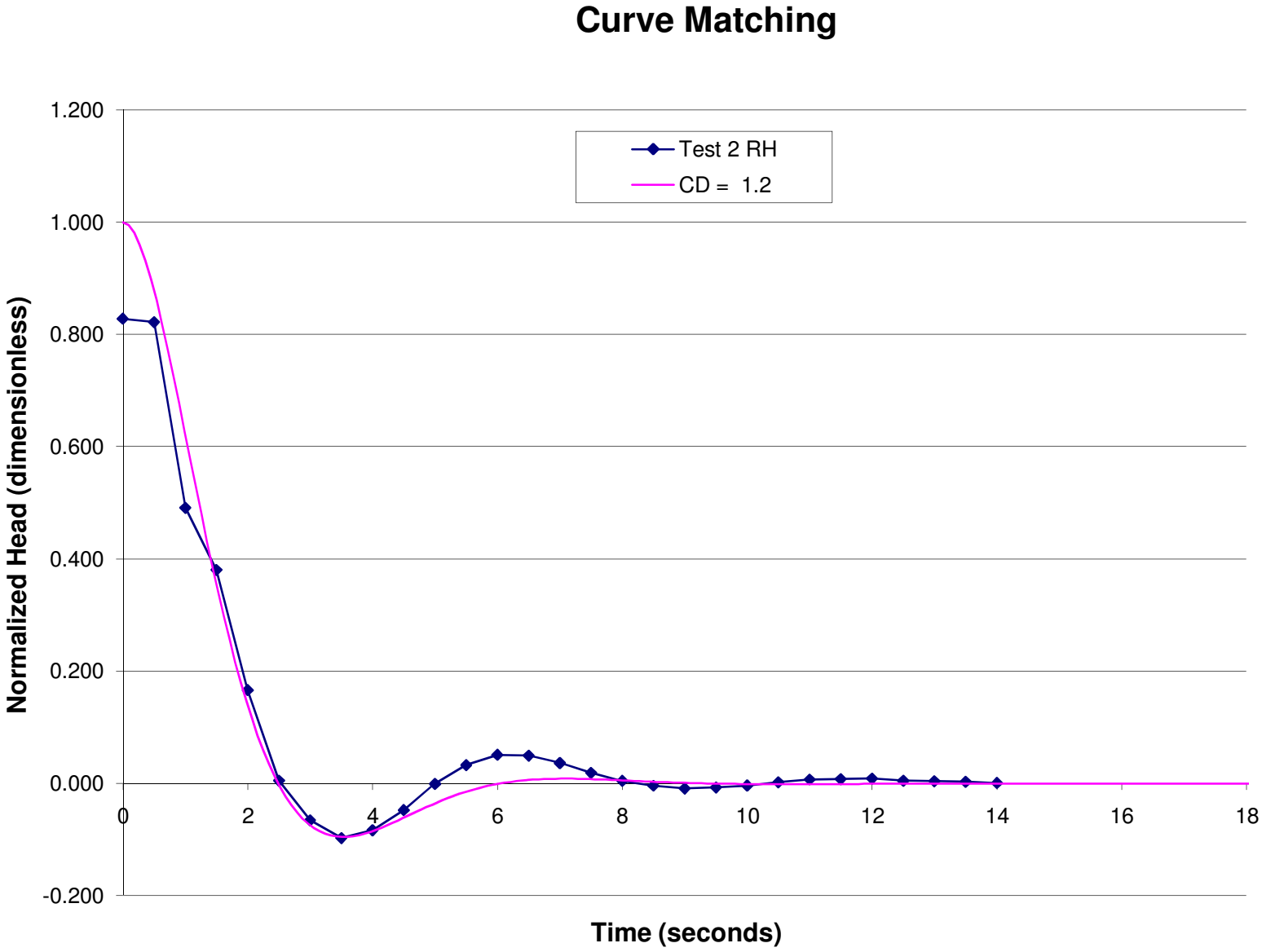
Slug Test Data



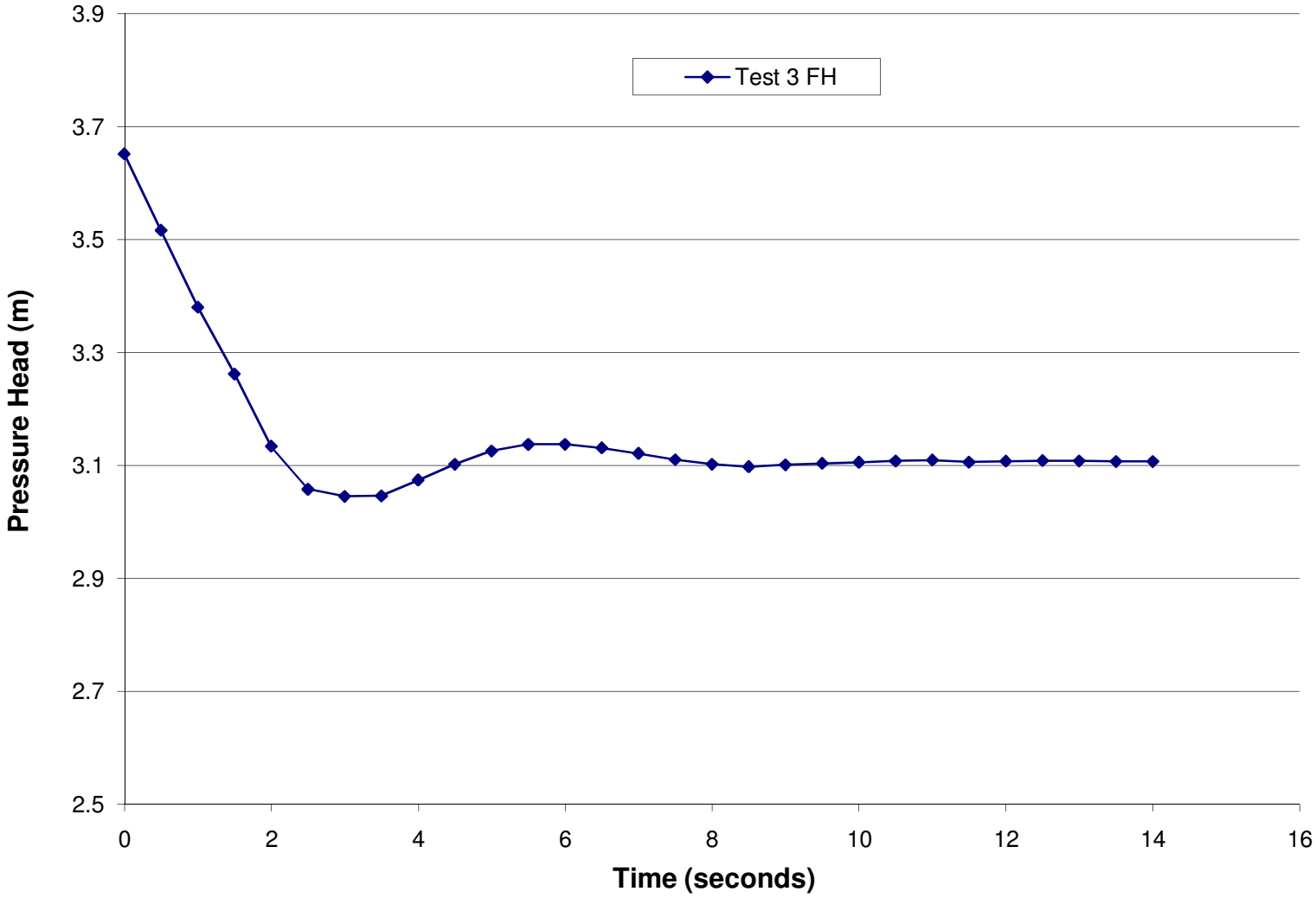

Curve Matching
Test 2 FH
CD = 1.05
Normalized Head (dimensionless)
Time (seconds)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
0
2
4
6
8
10
12
14
16
18

Slug Test Data

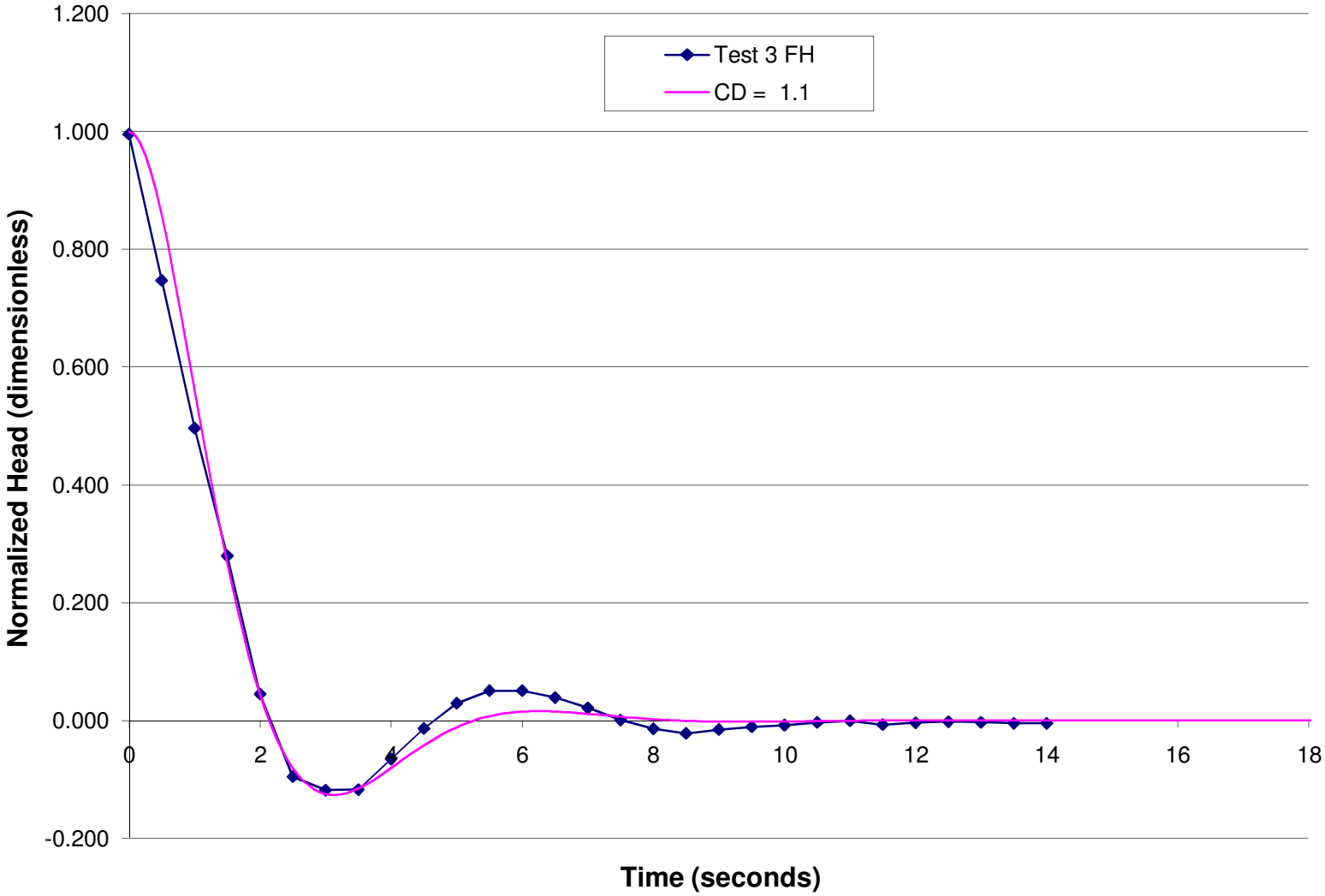



Curve Matching
Test 2 RH
CD = 1.2
Normalized Head (dimensionless)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
2
4
6
8
10
12
14
16
18
Time (seconds)

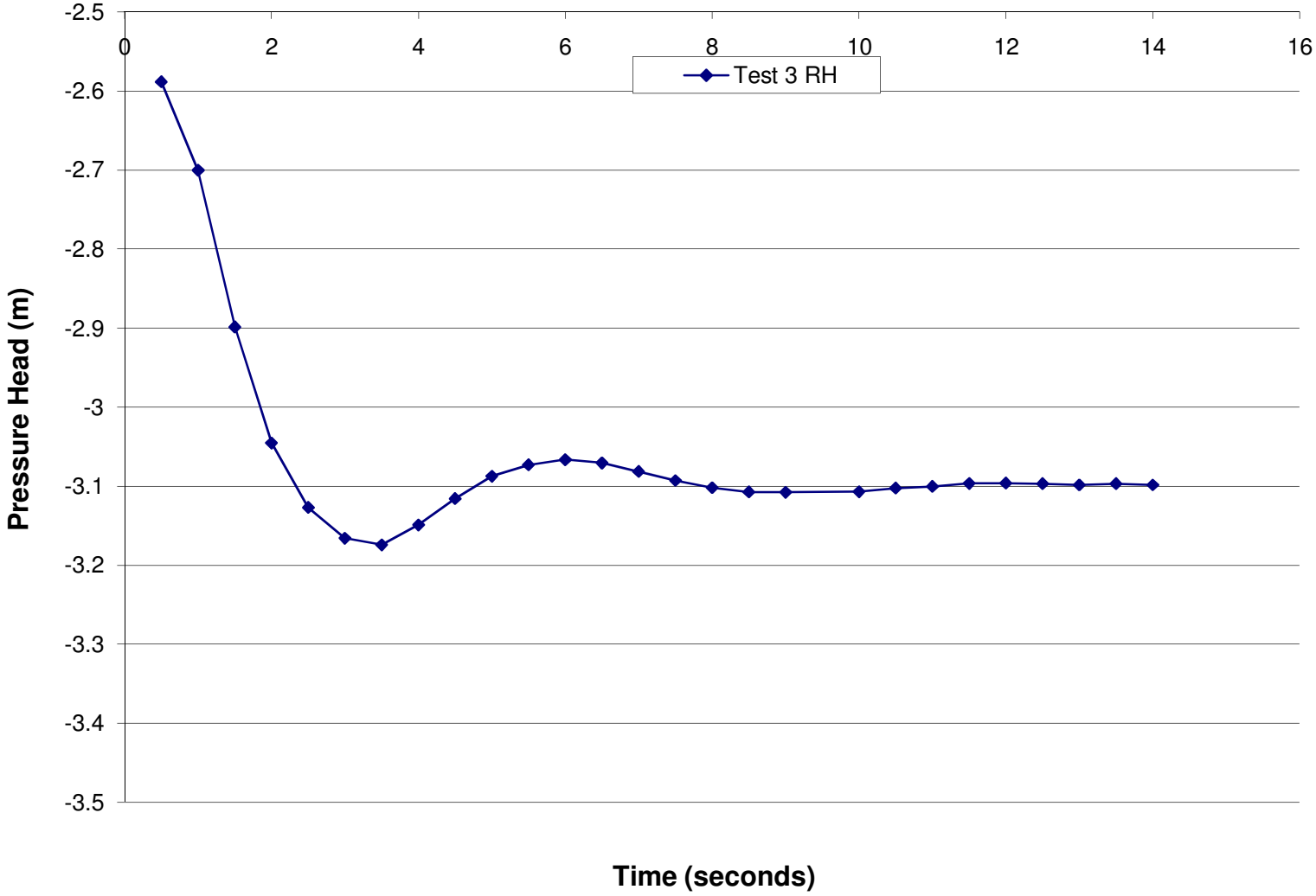
Slug Test Data



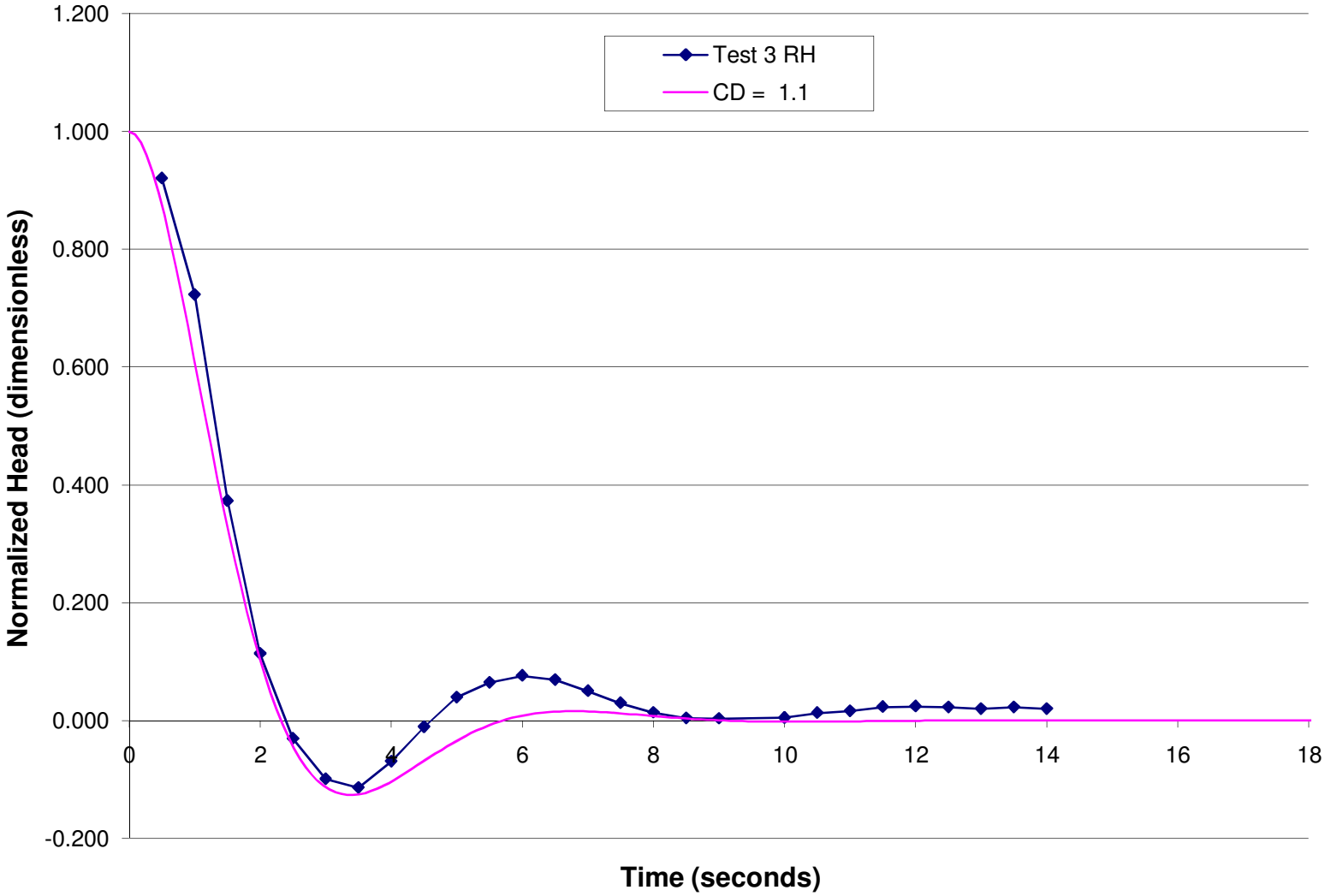
Curve Matching

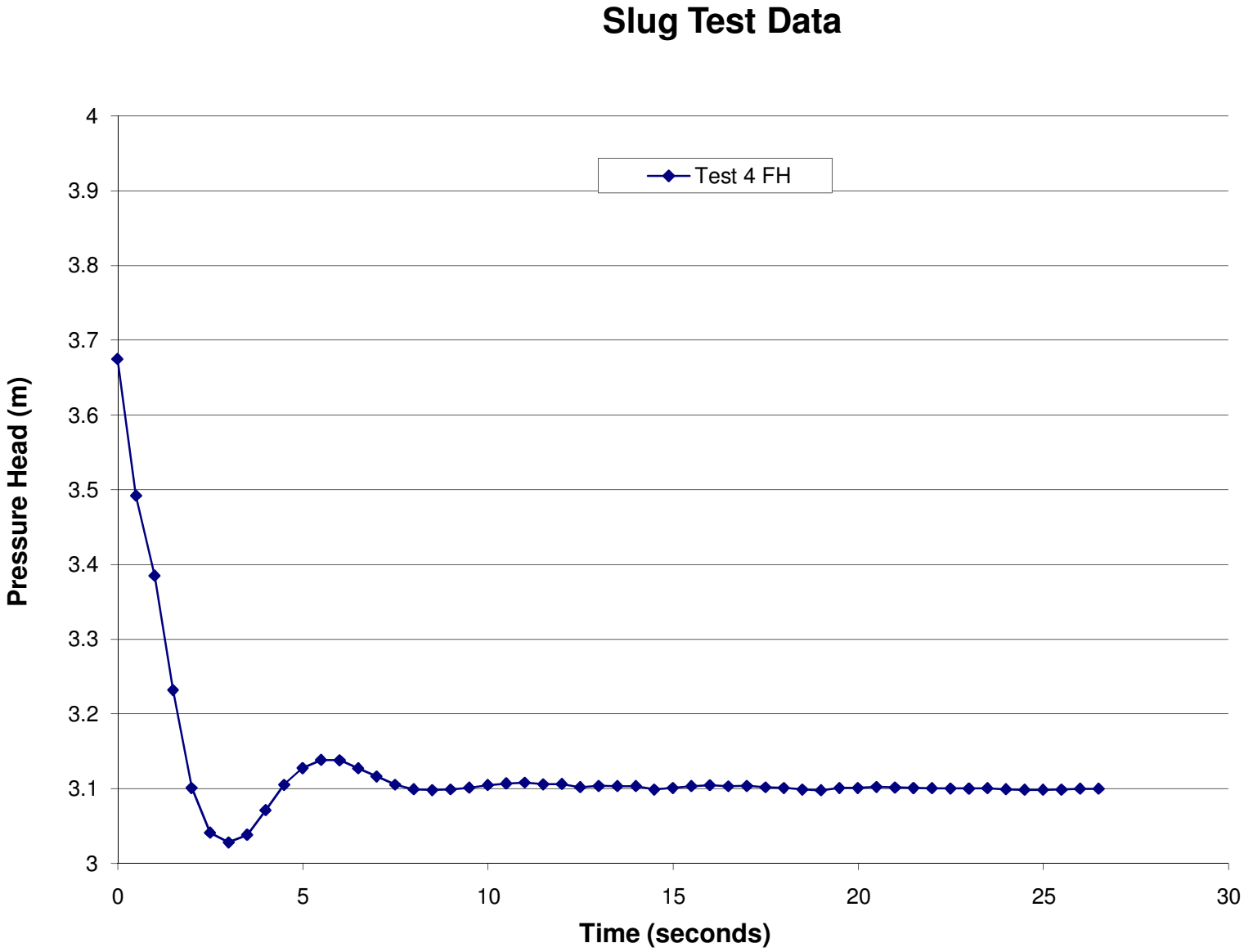


Slug Test Data

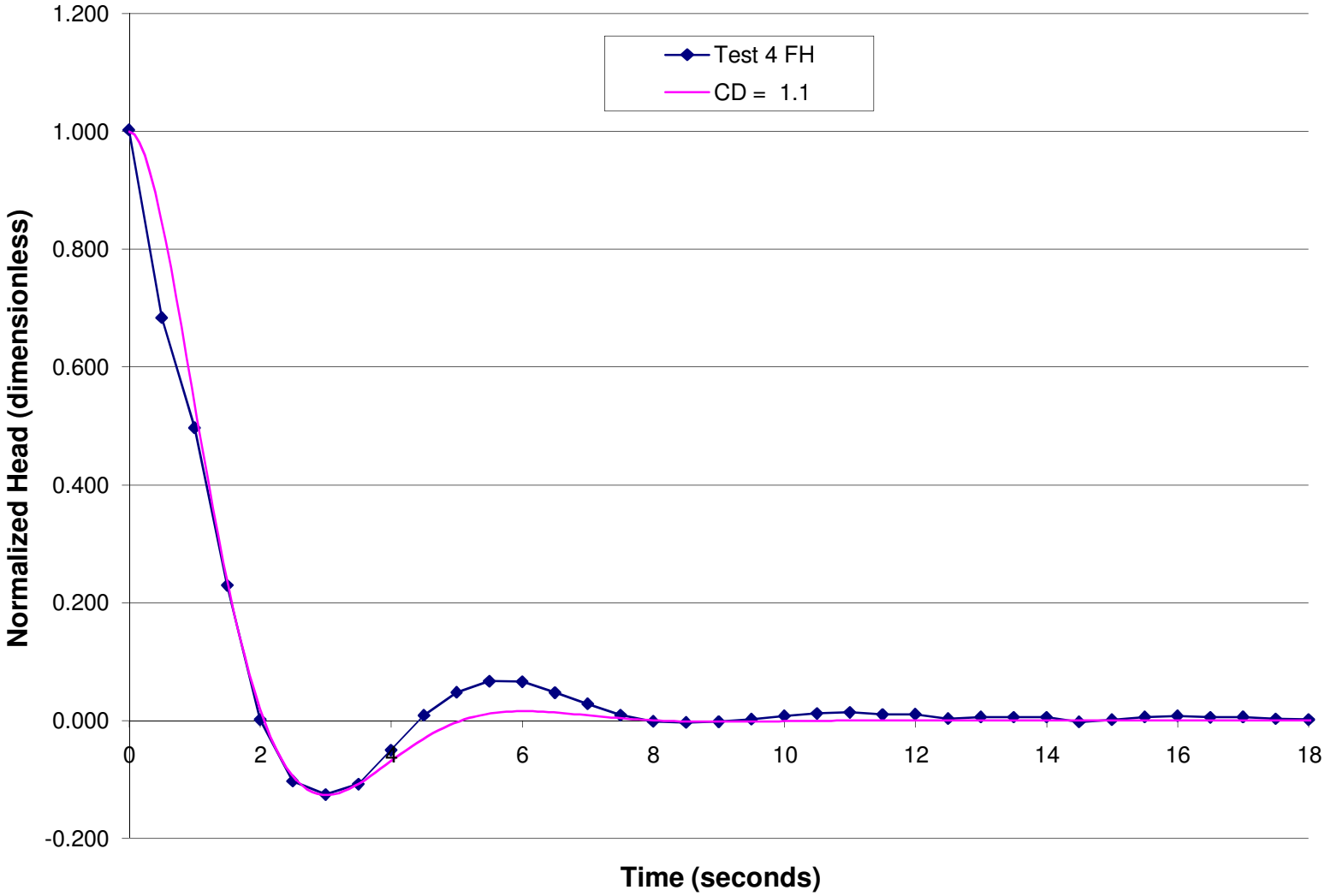


Curve Matching

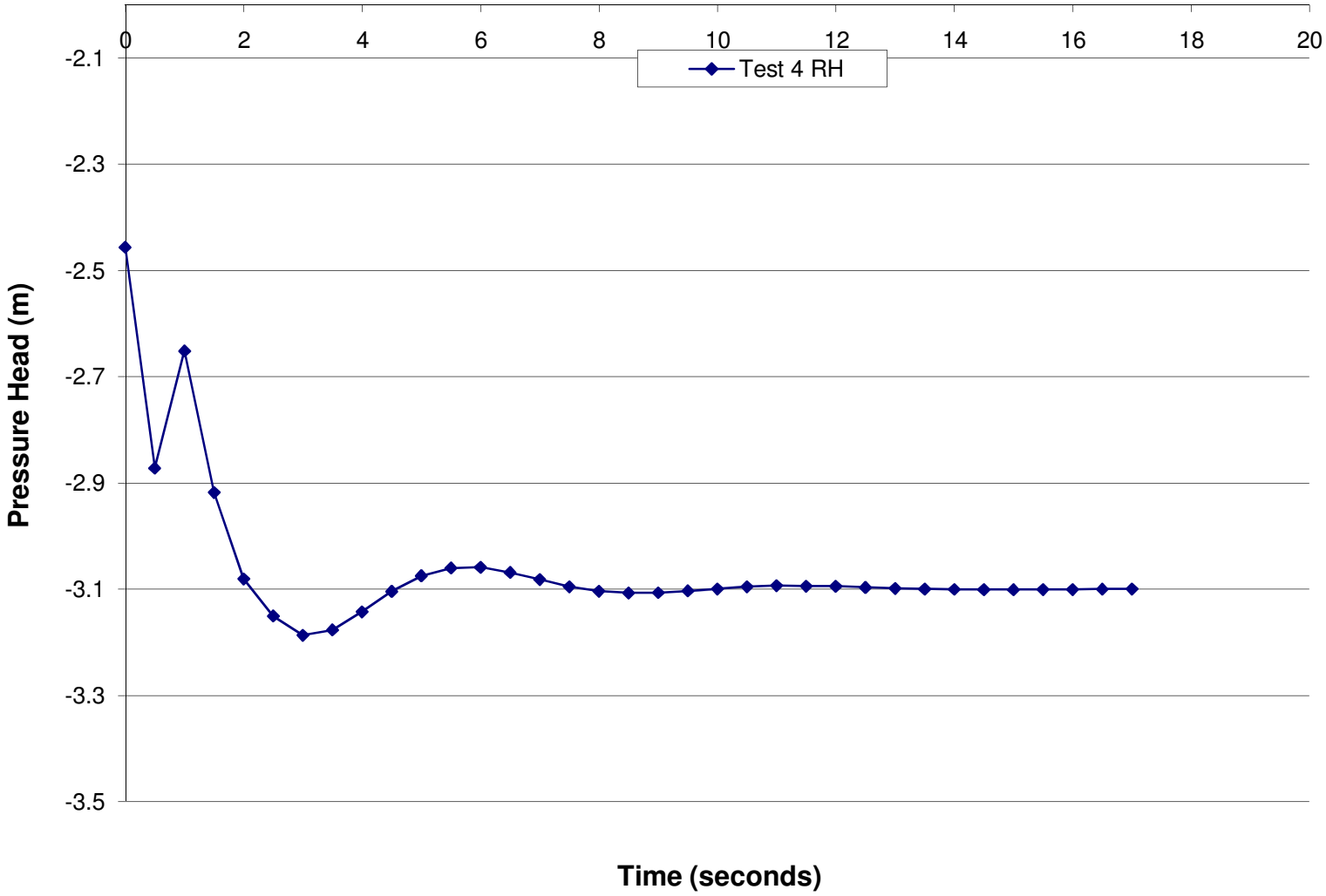



Slug Test Data
Test 4 FH
Pressure Head (m)
4
3.9
3.8
3.7
3.6
3.5
3.4
3.3
3.2
3.1
3
0
5
10
15
20
25
30
Time (seconds)

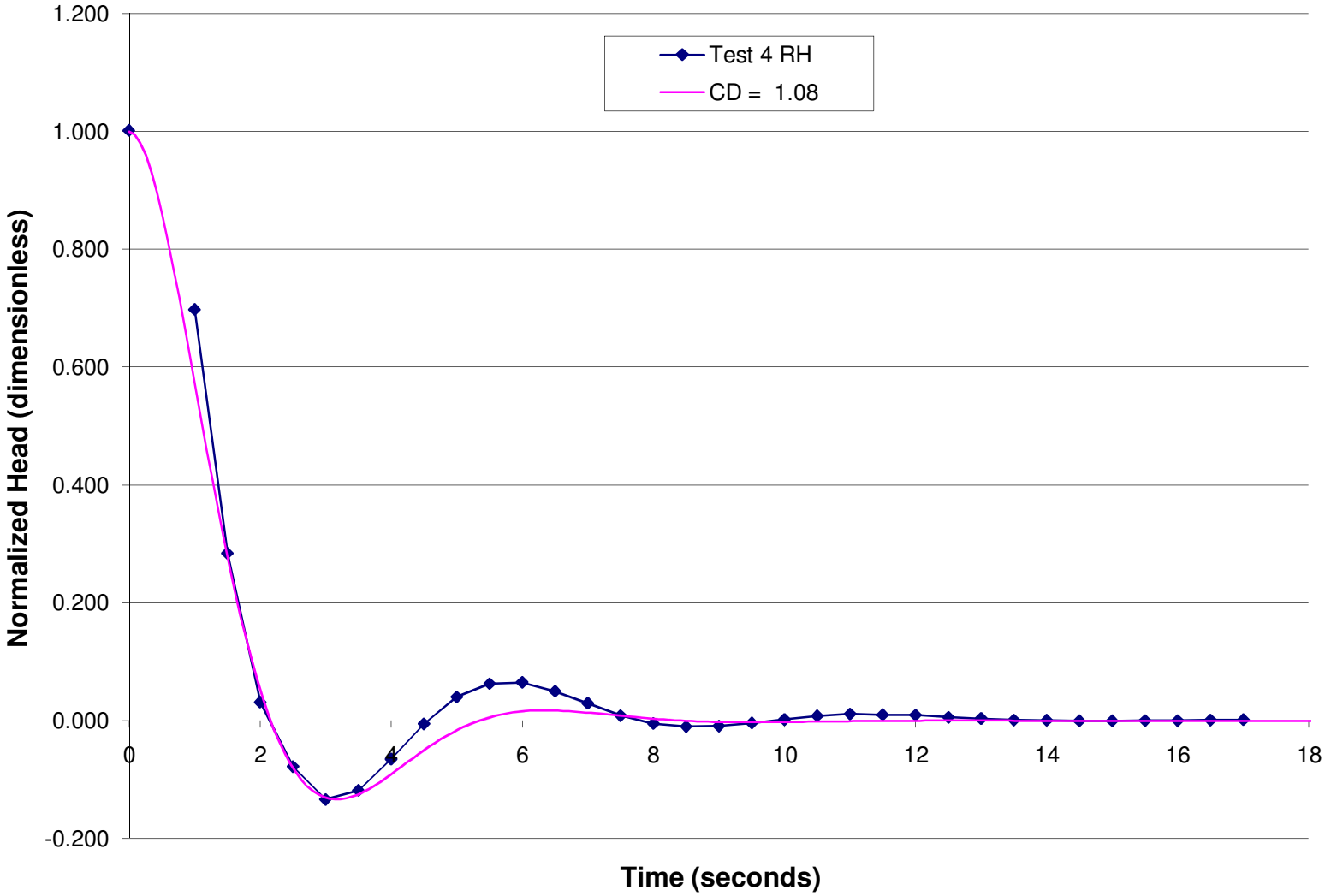
Curve Matching



Slug Test Data



Curve Matching



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Jacques Whitford Stantec AXYS

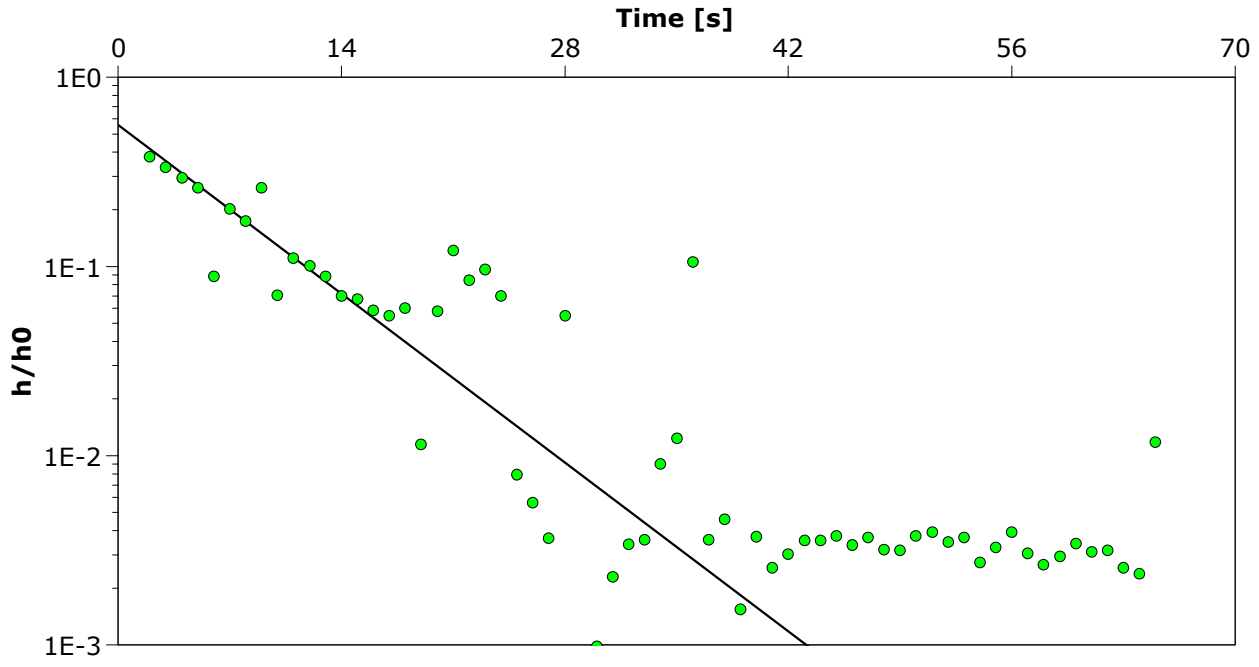
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 1.FH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	5.62×10^{-5}	

Burnaby, BC
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604.436.3014
Jacques Whitford Stantec AXYS

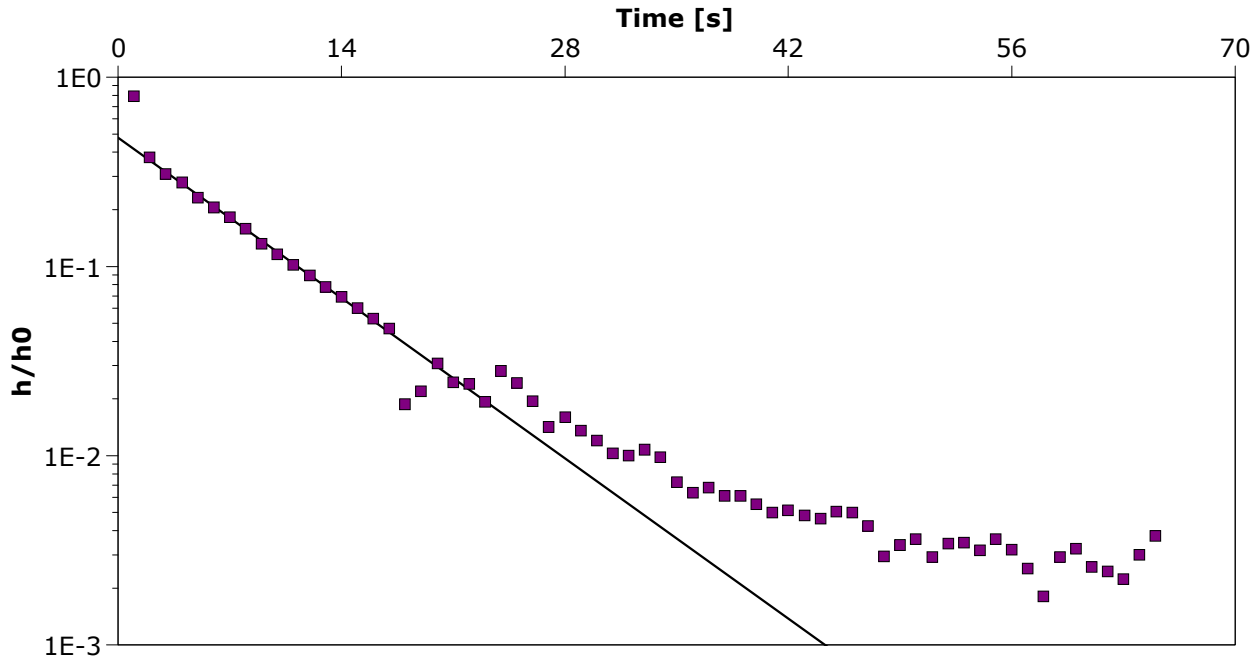
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 1.RH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	5.33×10^{-5}	

Burnaby, BC
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Jacques Whitford Stantec AXYS

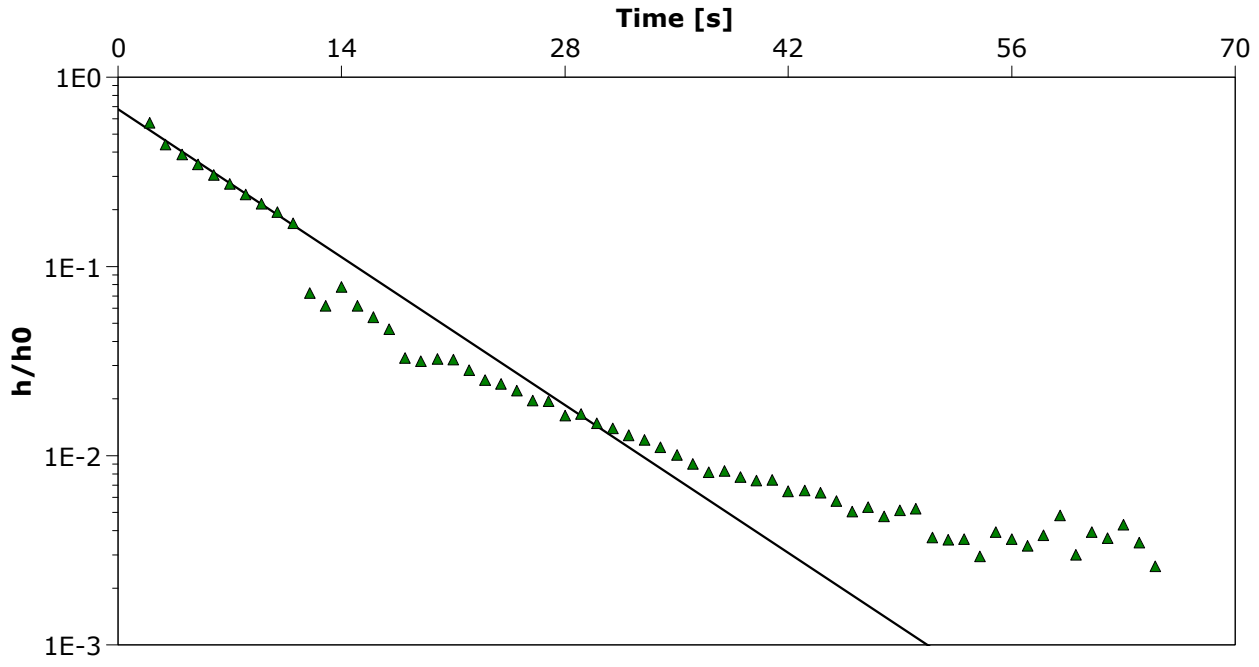
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 2.FH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	4.92×10^{-5}	

Burnaby, BC
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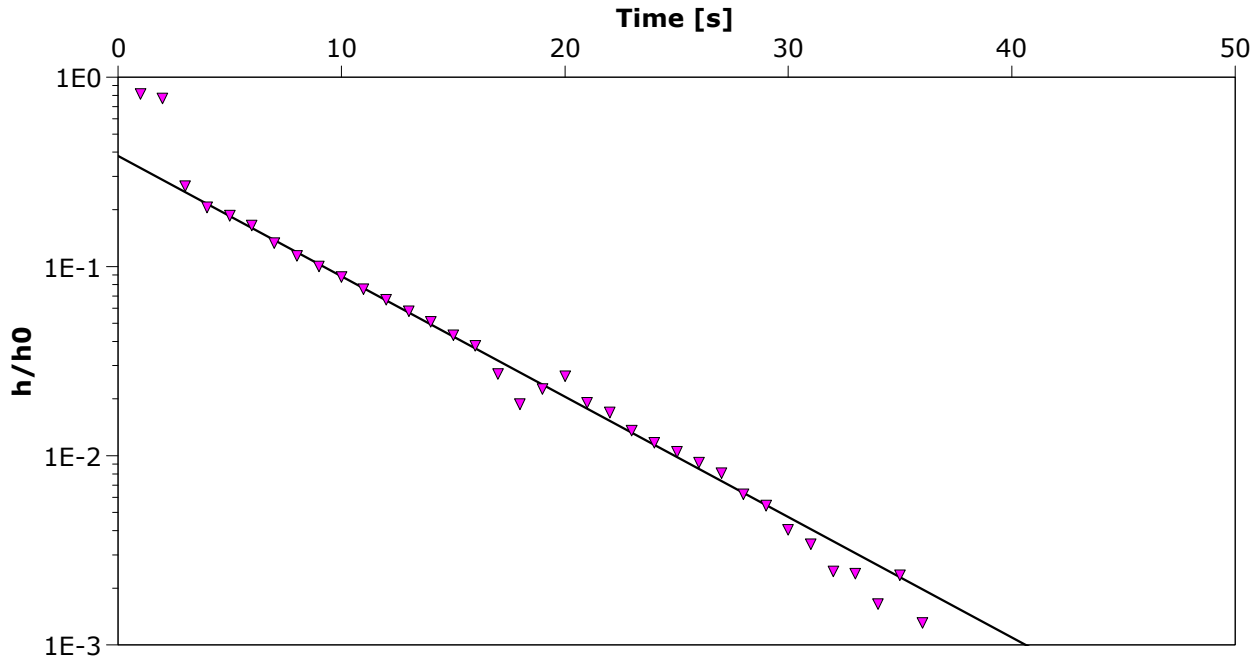
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 2. RH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2. RH	5.61×10^{-5}	

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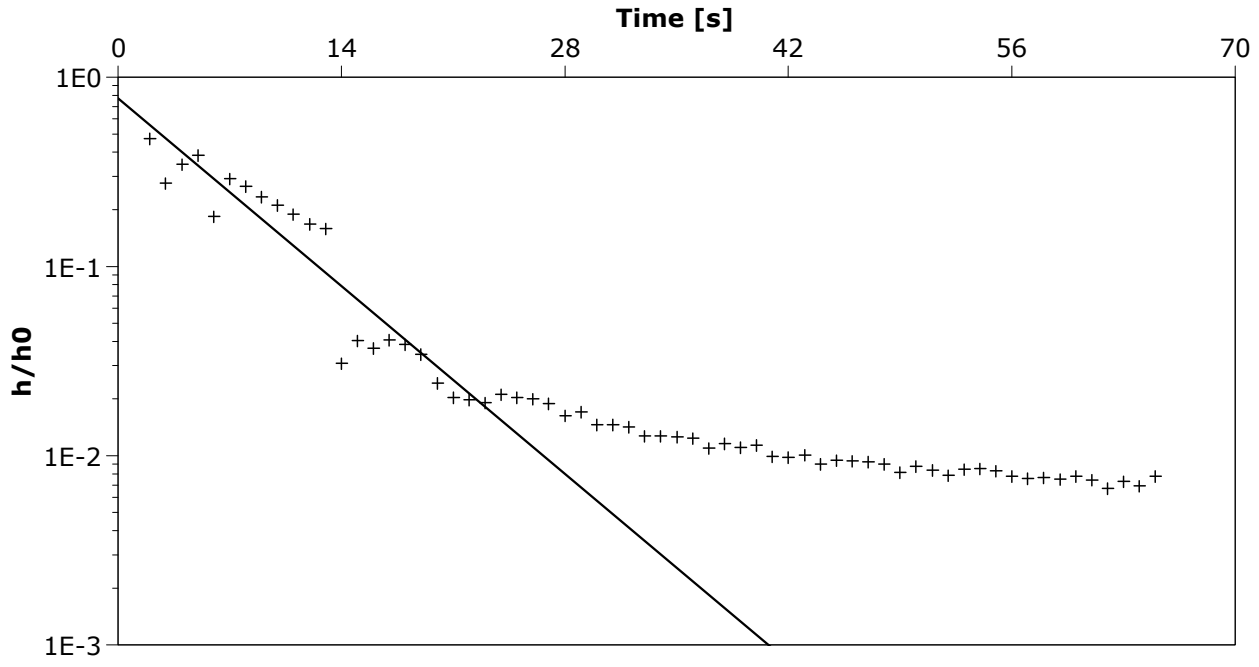
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 3. FH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. FH	6.25×10^{-5}	

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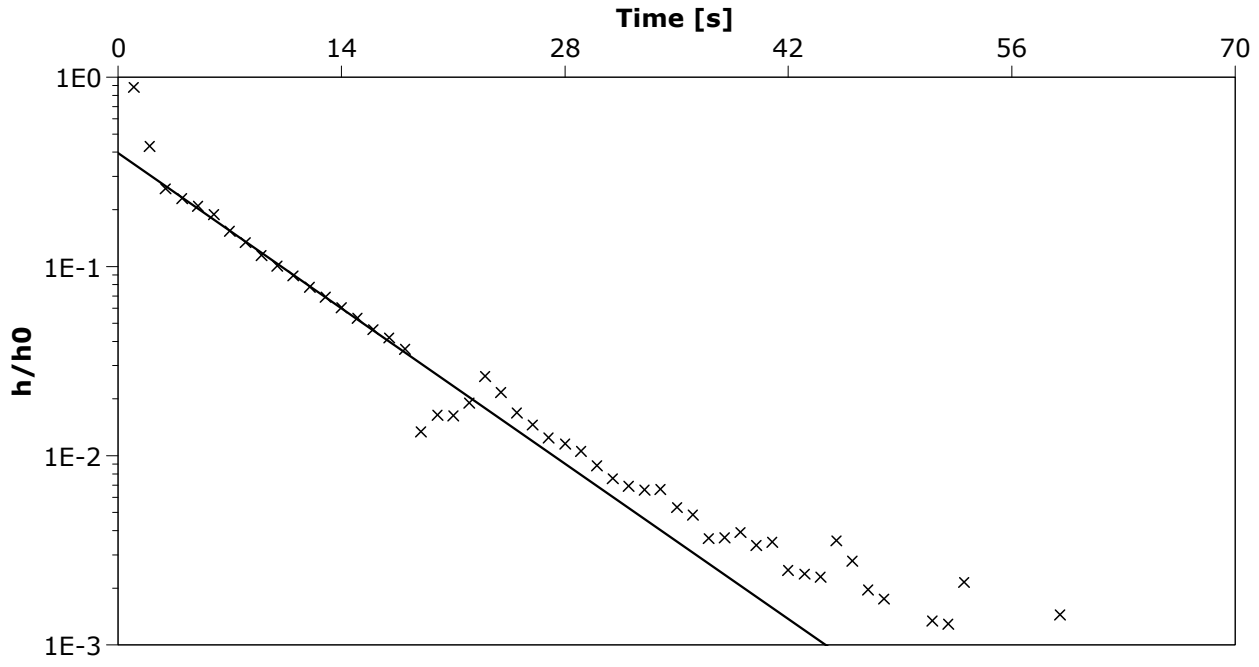
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-DG4	Test Well: Test 3. RH
Test conducted by: HP		Test date: 09/03/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 12.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. RH	5.17×10^{-5}	

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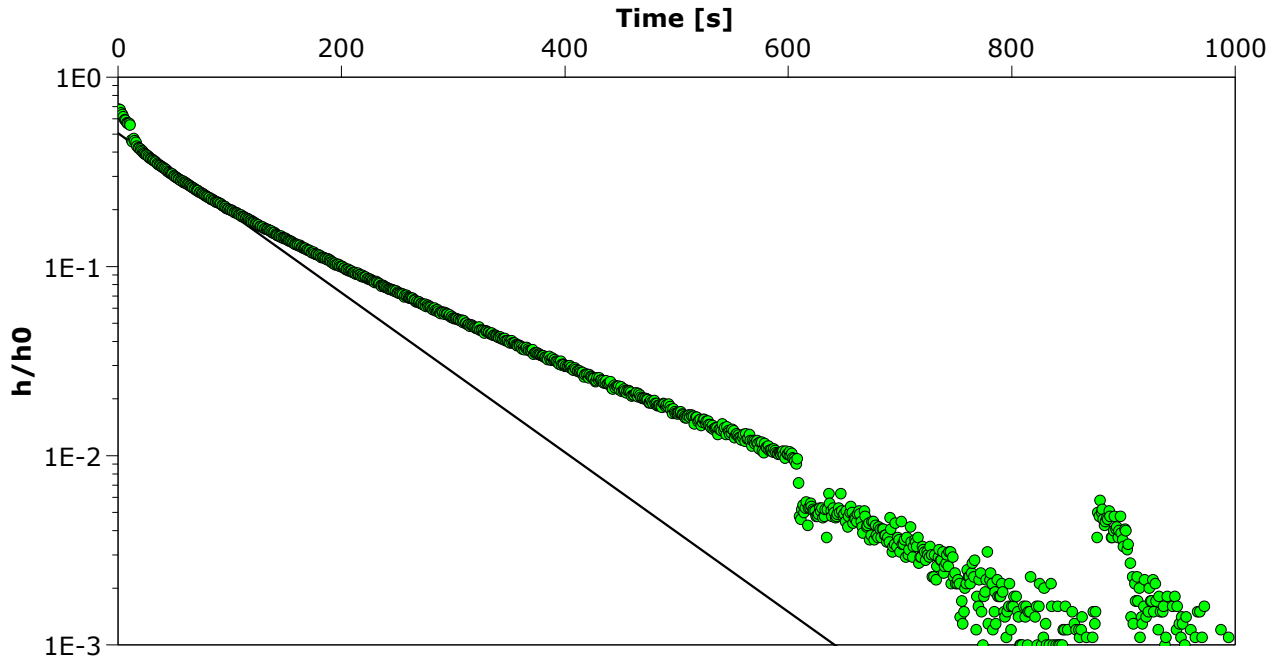
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 1.FH
Test conducted by: HP		Test date: 09/02/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 8.40 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	3.72×10^{-6}	

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Jacques Whitford Stantec AXYS

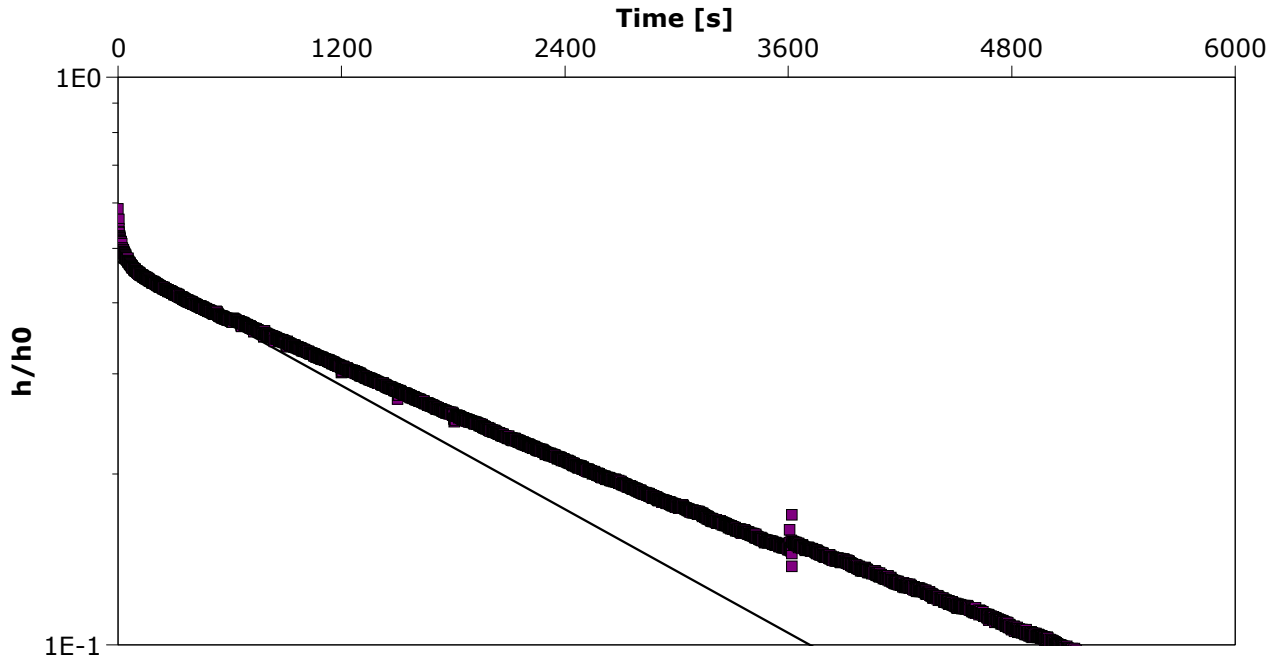
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG2	Test Well: Test 1.RH
Test conducted by: HP		Test date: 09/02/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 16.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	1.60×10^{-7}	

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Jacques Whitford Stantec AXYS

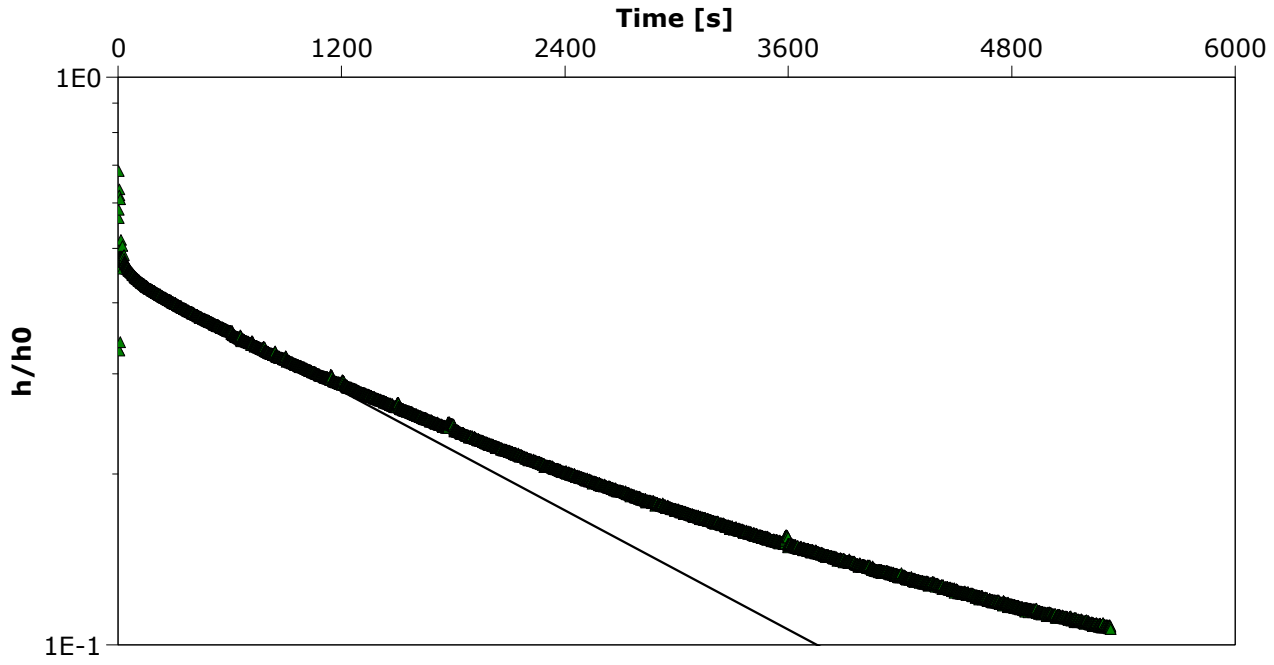
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG2	Test Well: Test 2.FH
Test conducted by: HP		Test date: 09/02/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 16.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	1.54×10^{-7}	

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Jacques Whitford Stantec AXYS

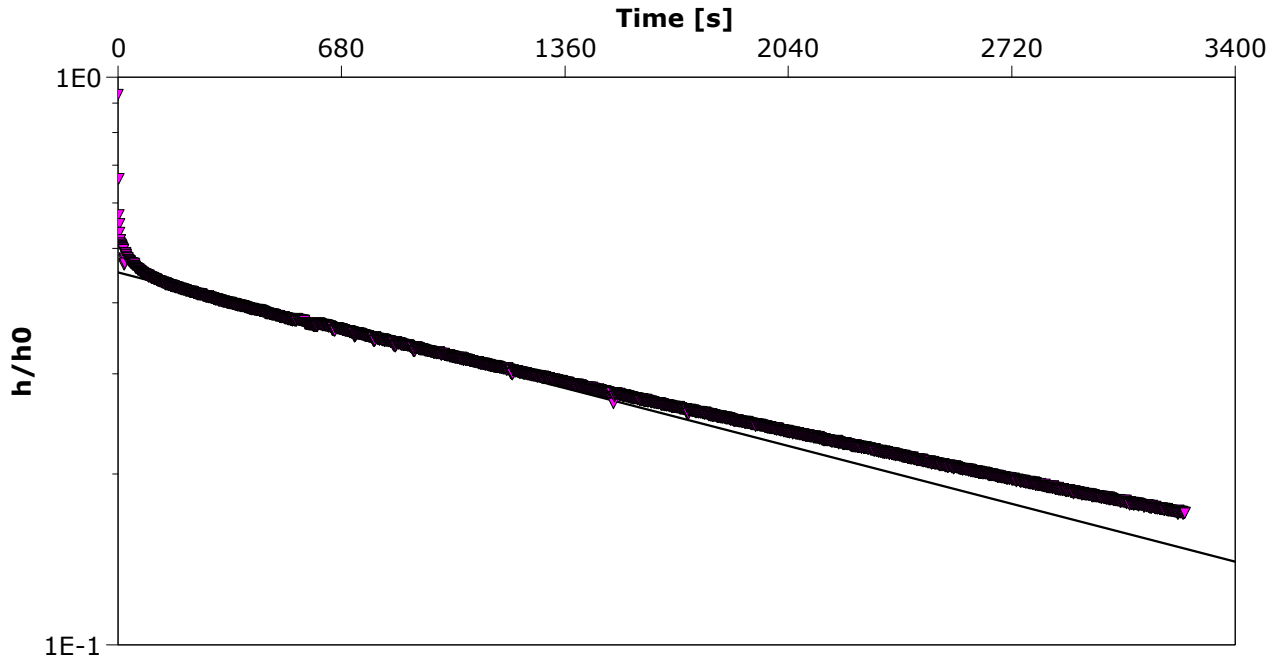
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG2	Test Well: Test 2.RH
Test conducted by: HP		Test date: 09/02/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 16.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	1.32×10^{-7}	

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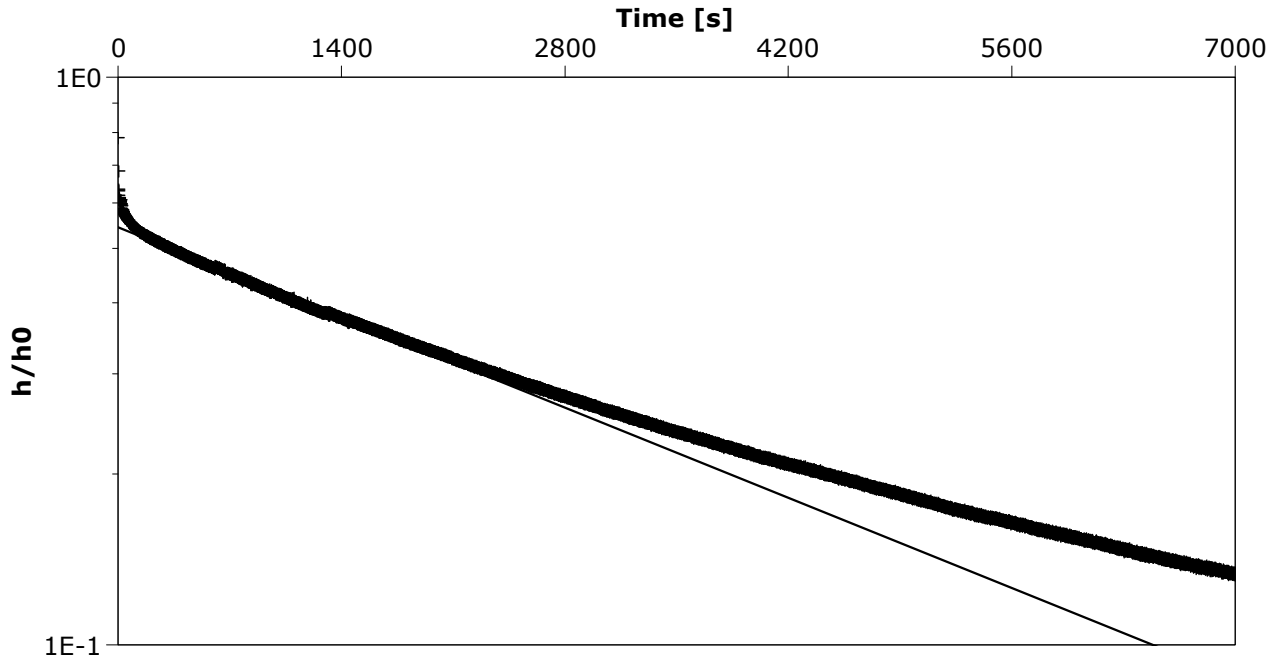
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG2	Test Well: Test 3. FH
Test conducted by: HP		Test date: 09/02/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 16.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. FH	9.99×10^{-8}	

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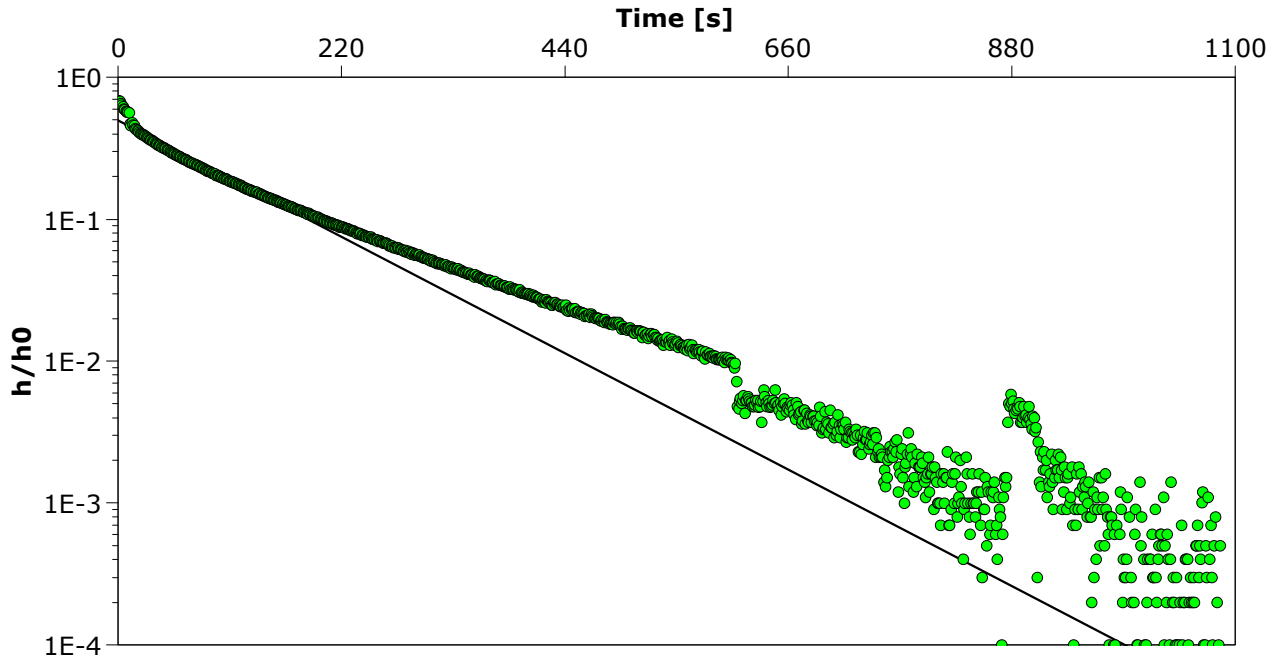
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 1.FH
Test conducted by: HP		Test date: 08/30/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/21/2009
Aquifer Thickness: 8.40 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	3.29×10^{-6}	

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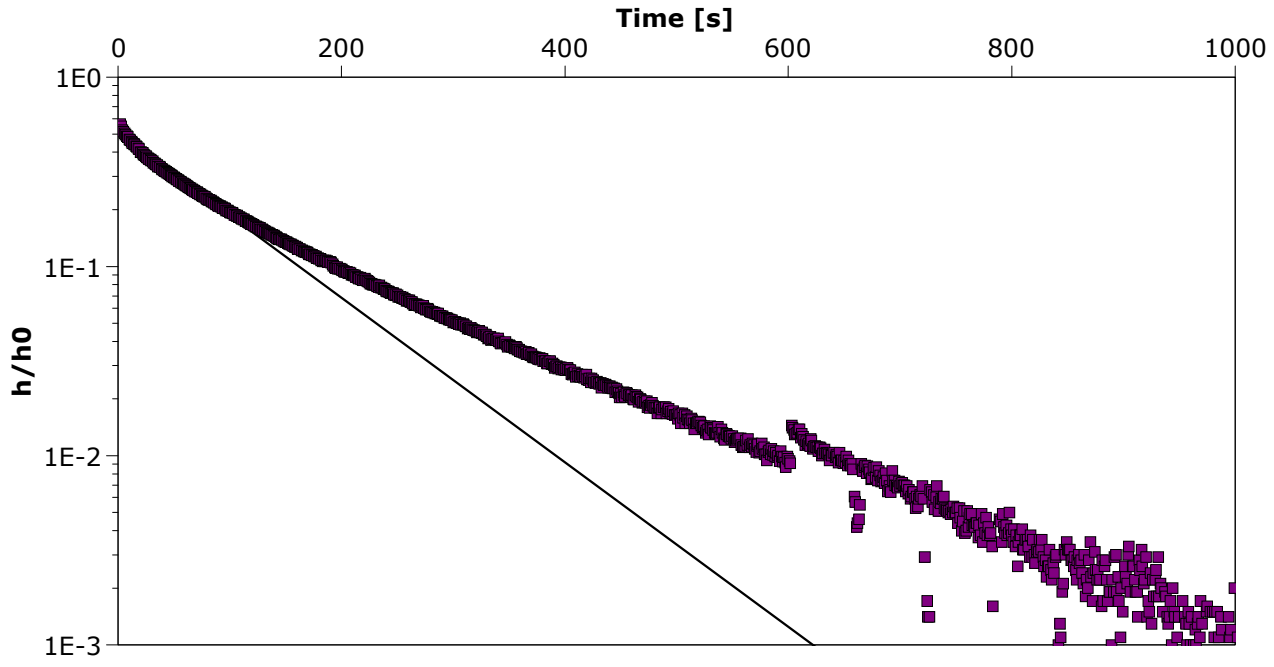
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 1.RH
Test conducted by: HP		Test date: 08/30/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 8.40 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	3.83×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

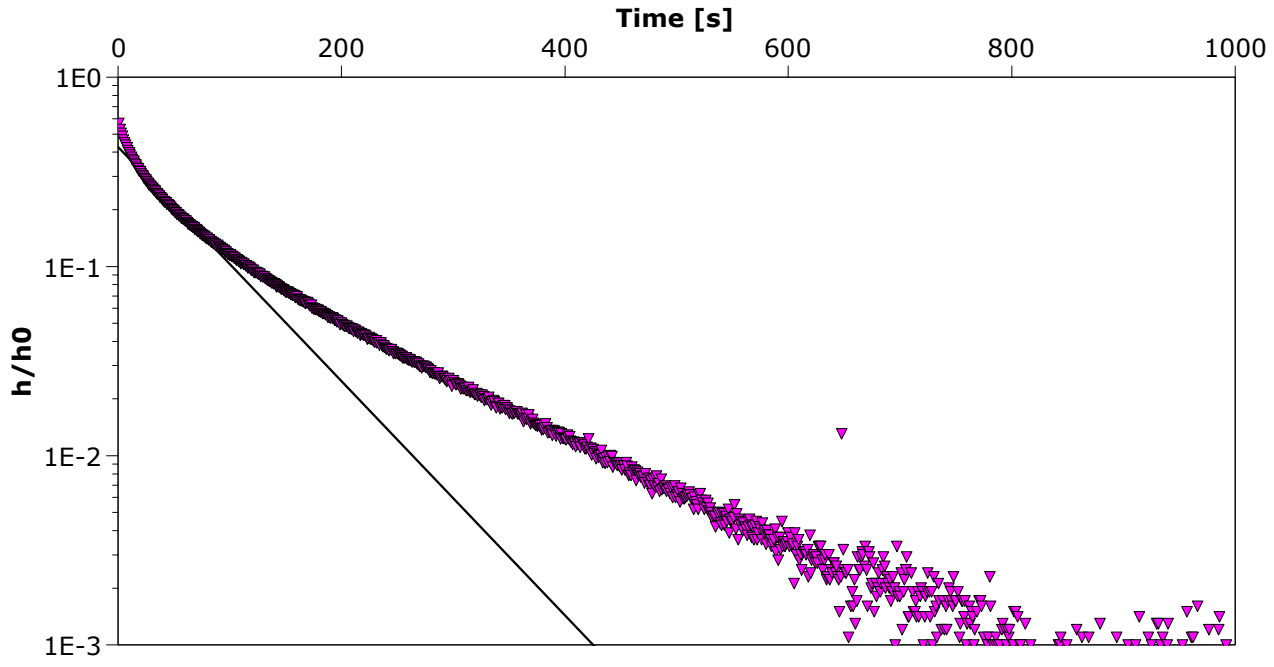
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 2.RH
Test conducted by: HP		Test date: 08/30/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 8.40 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	5.46×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

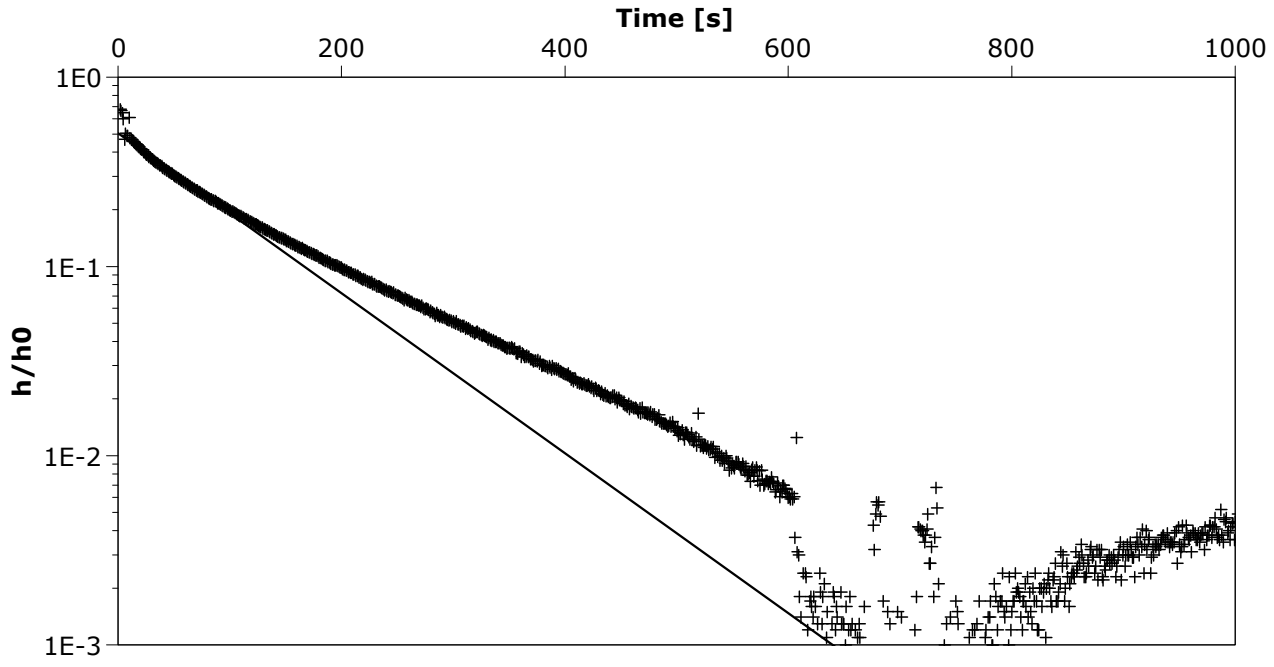
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 3. FH
Test conducted by: HP		Test date: 08/30/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 8.40 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. FH	3.73×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

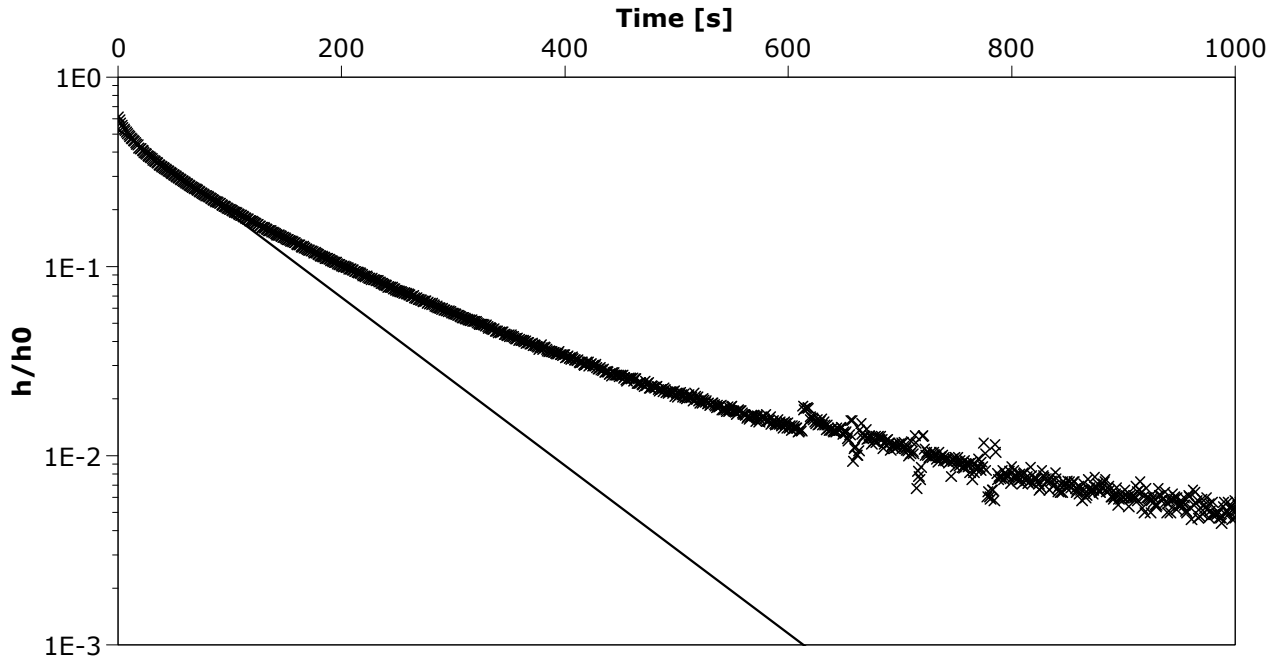
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 3. RH
Test conducted by: HP		Test date: 08/30/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 8.40 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. RH	3.92×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

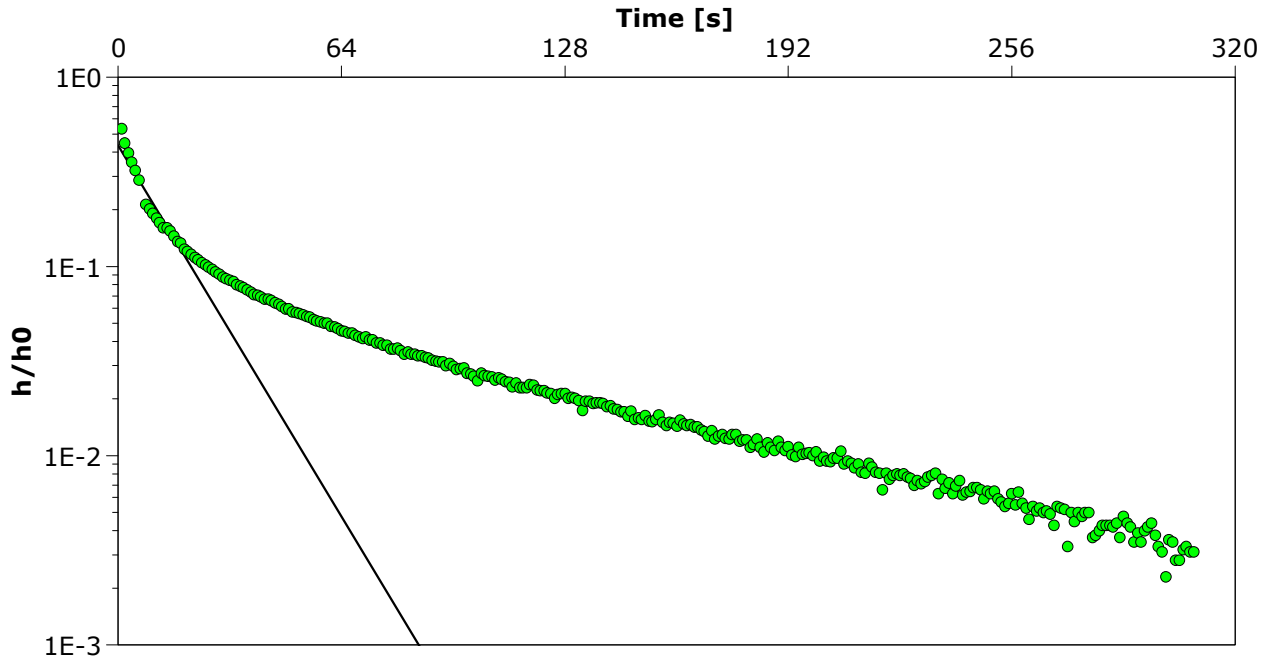
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		

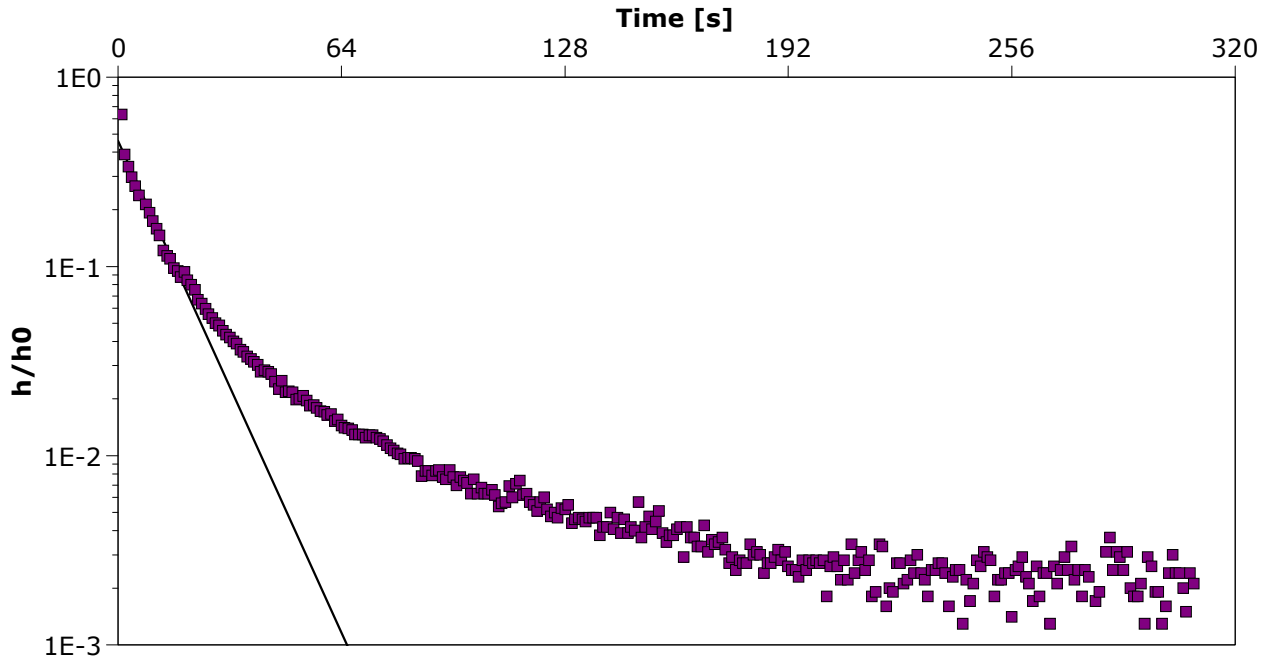


Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	2.70×10^{-5}	

Burnaby, BC **4370 Dominion St. 5th Floor** **604.436.3014** **Jacques Whitford Stantec AXYS**	**Slug Test Analysis Report**	
	Project: Eagle Gold	
	Number: 1053550	
	Client: Victoria Gold	

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	3.58×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

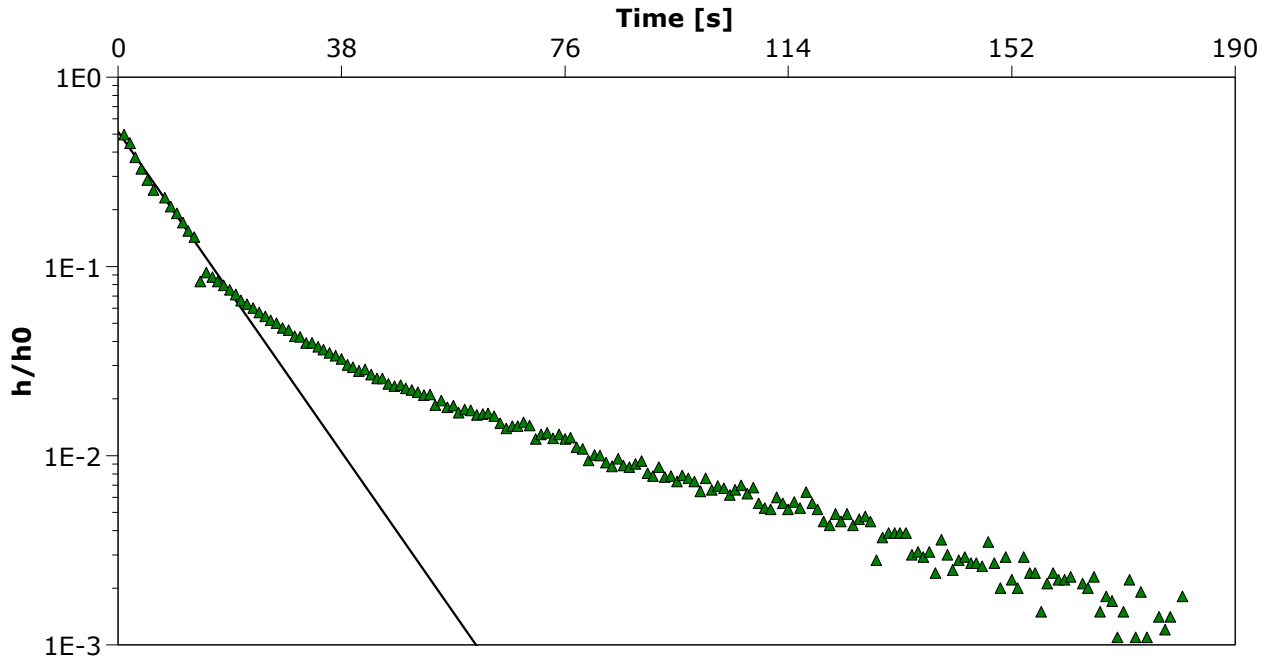
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	3.93×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

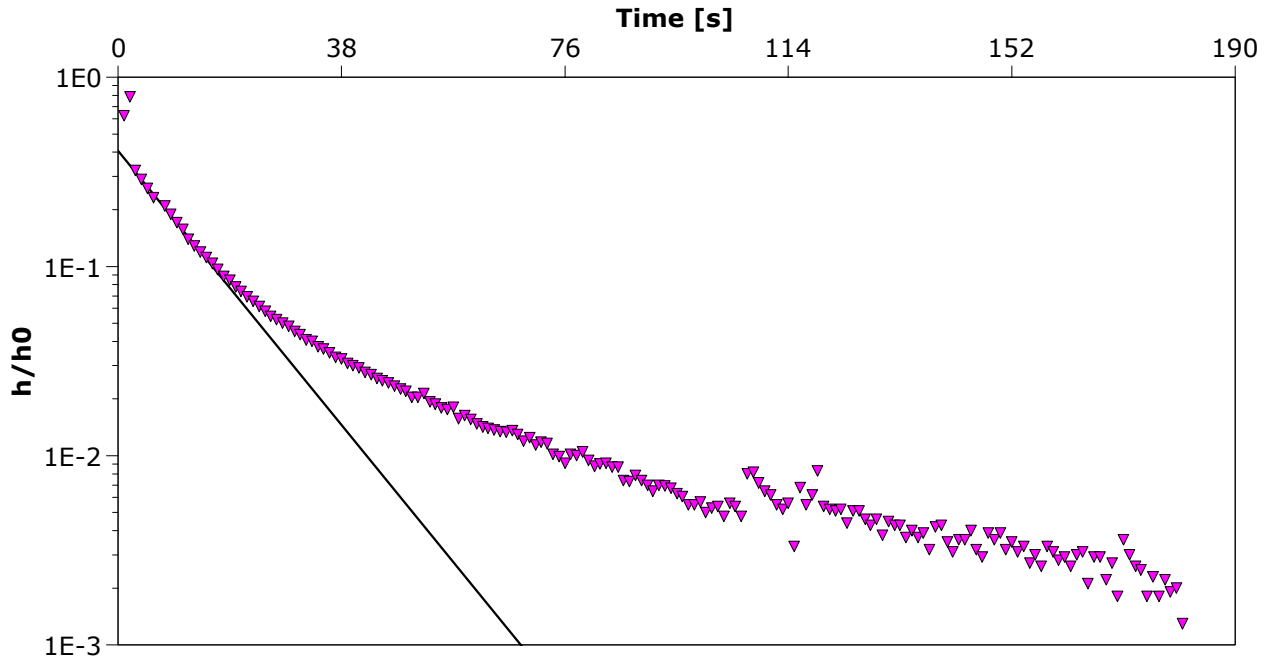
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 2.RH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	3.36×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

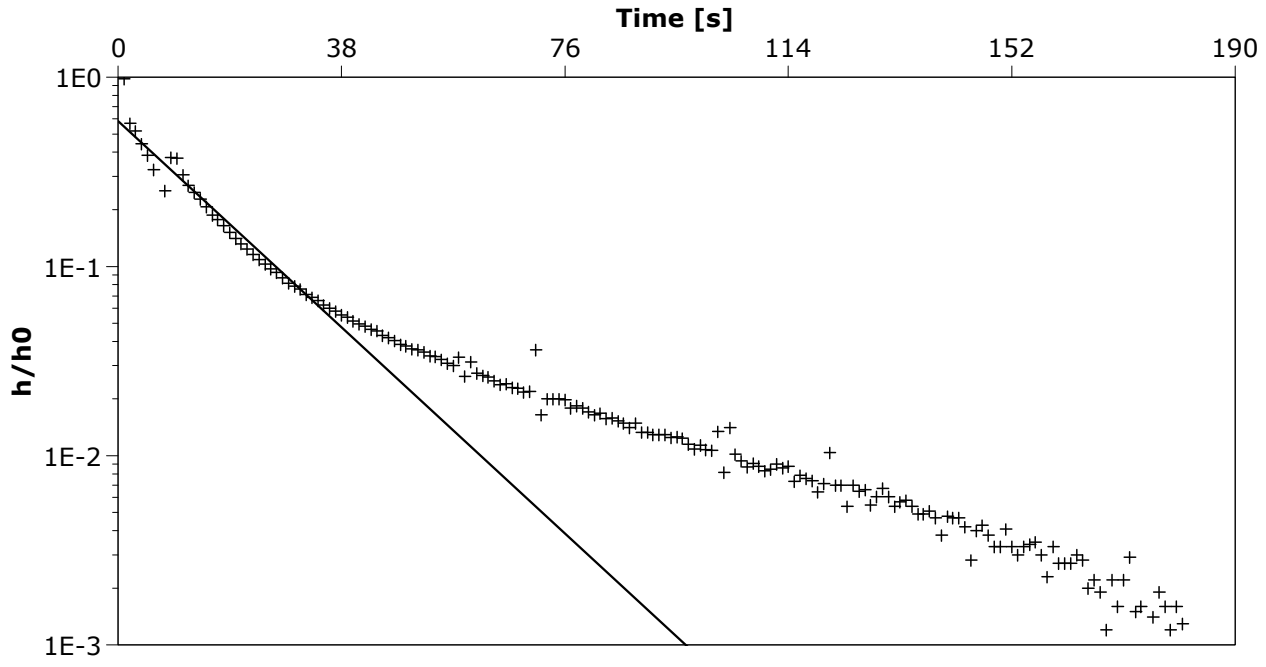
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 3. FH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. FH	2.53×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

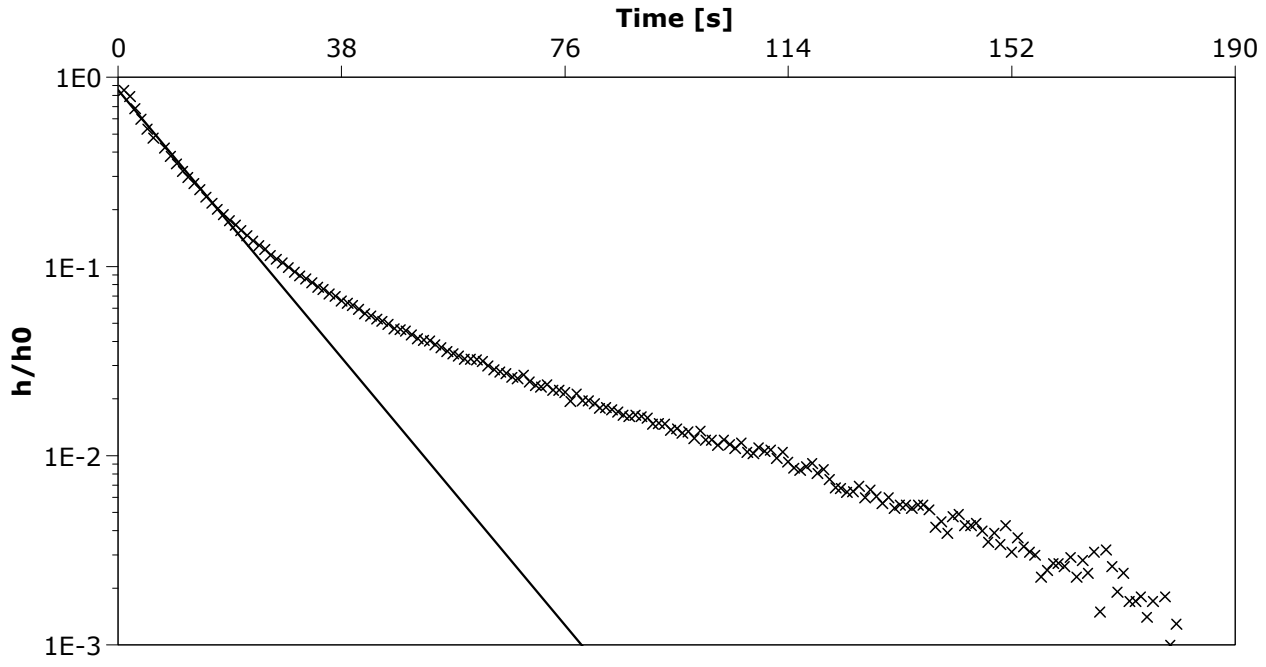
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 3. RH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. RH	3.28×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

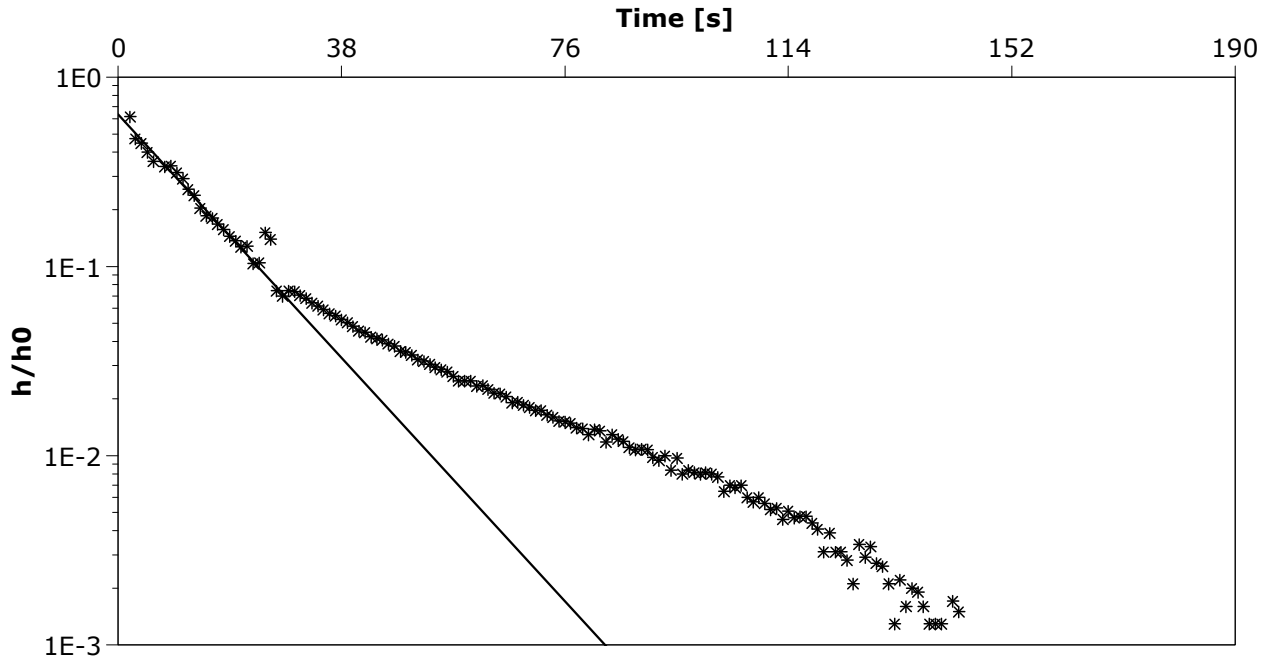
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 4. FH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		

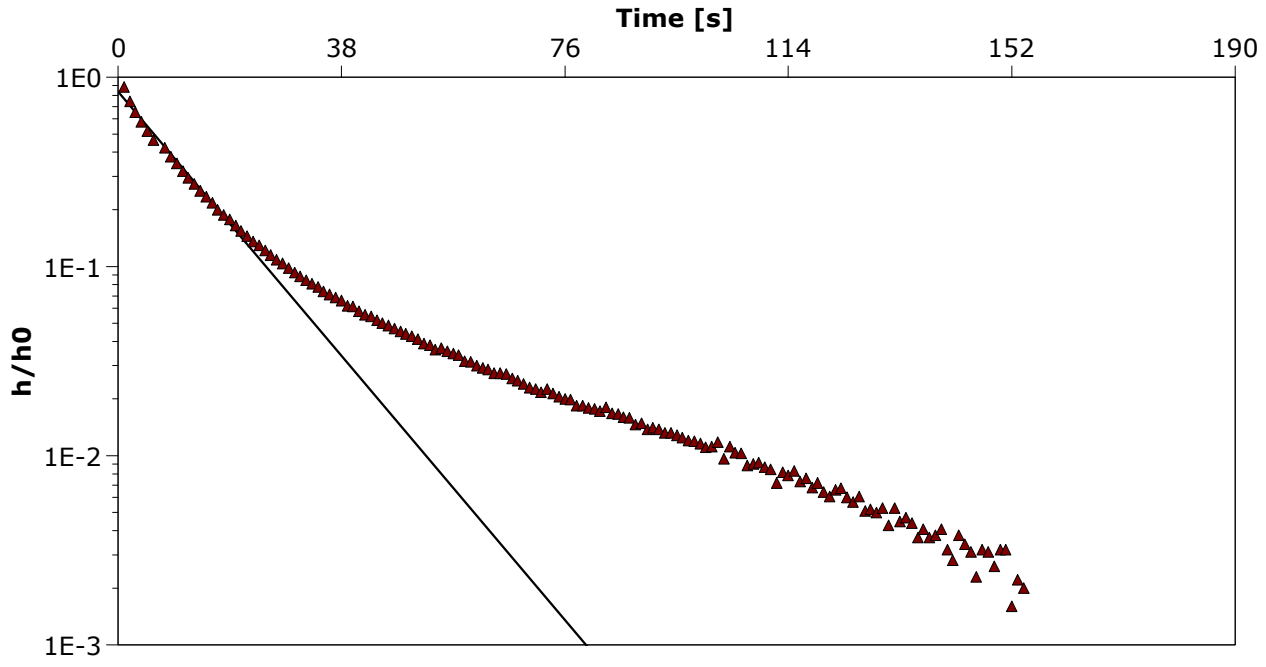


Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 4. FH	2.98×10^{-5}	

Burnaby, BC **4370 Dominion St. 5th Floor** **604.436.3014** **Jacques Whitford Stantec AXYS**	**Slug Test Analysis Report**	
	Project: Eagle Gold	
	Number: 1053550	
	Client: Victoria Gold	

Location: Dublin Gulch	Slug Test: MW09-OG3	Test Well: Test 4. RH
Test conducted by: JT		Test date: 08/24/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 7.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 4. RH	3.24×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

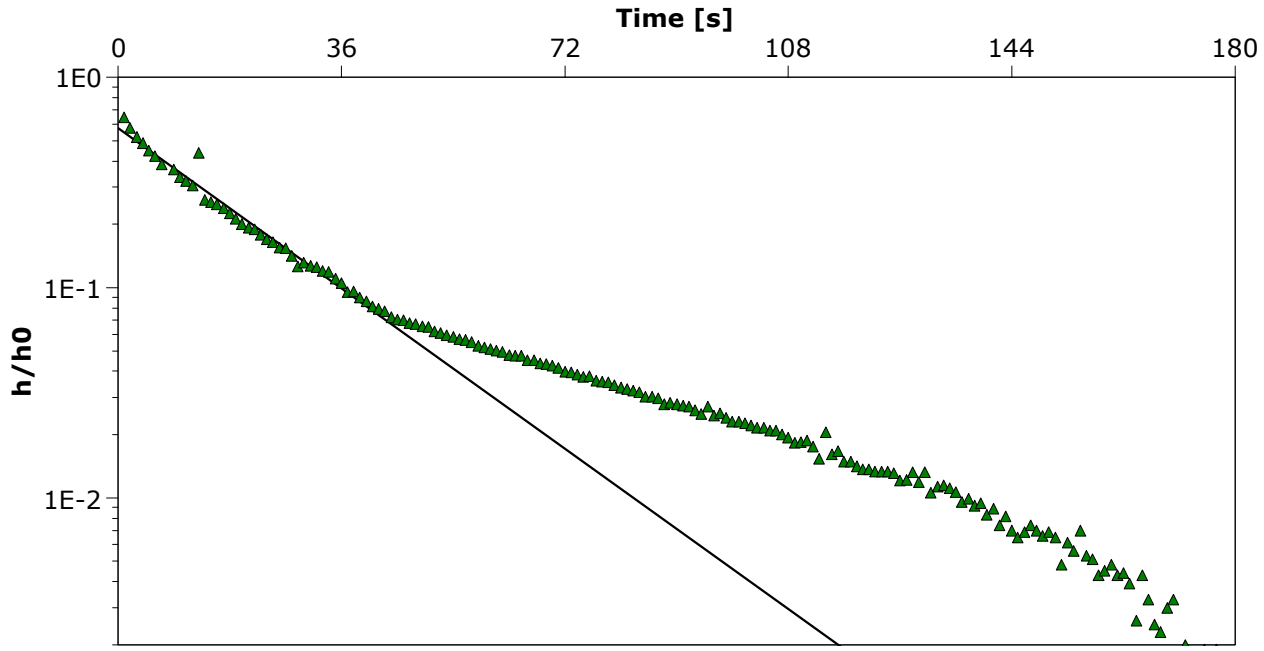
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW95-151	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 30.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	1.87×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

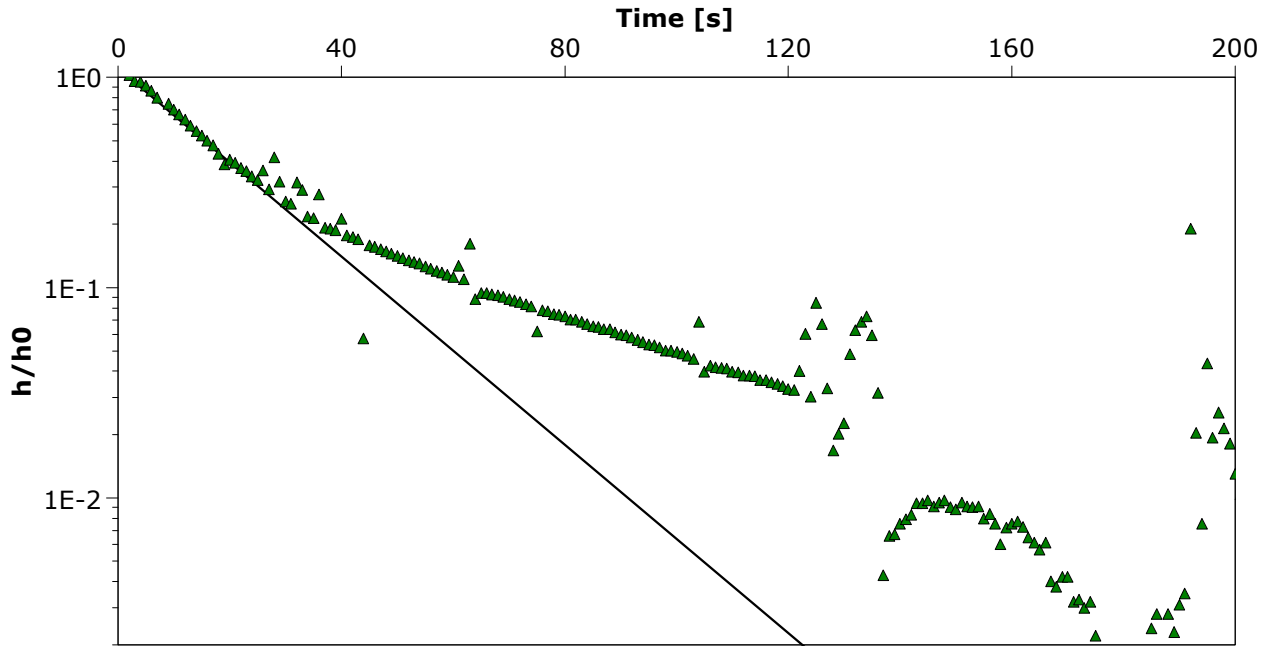
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW95-151	Test Well: Test 3.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 30.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3.FH	1.97×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

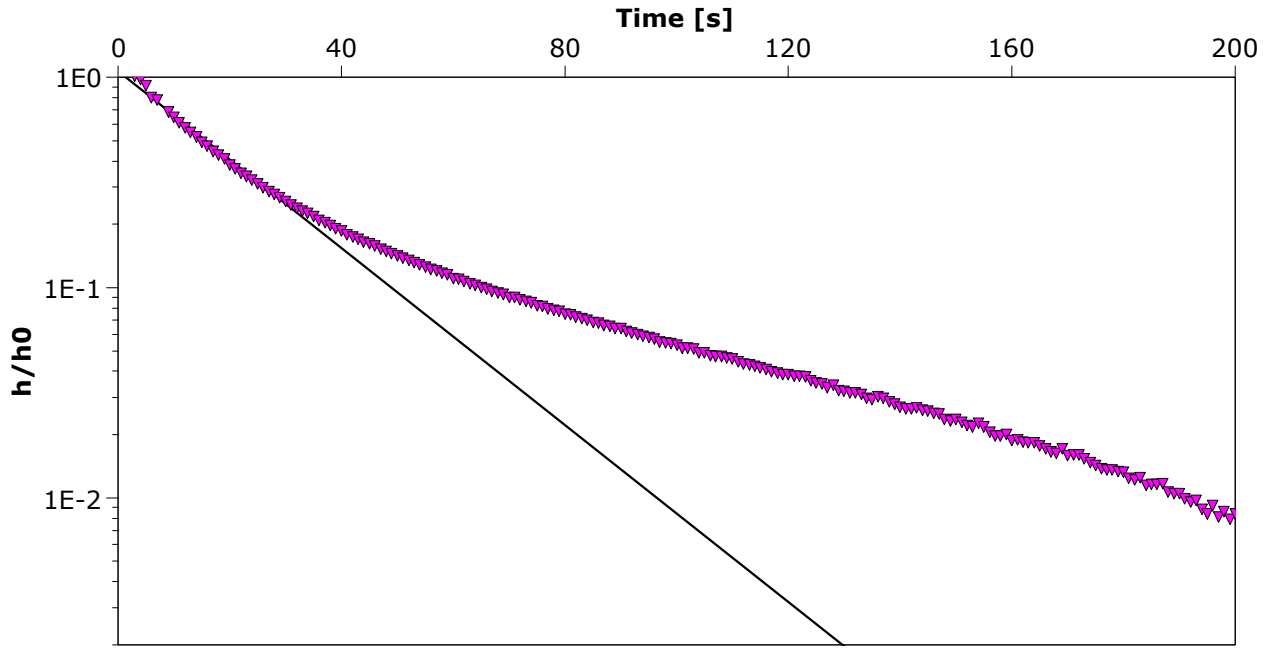
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW95-151	Test Well: Test 3. RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 30.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. RH	1.85×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

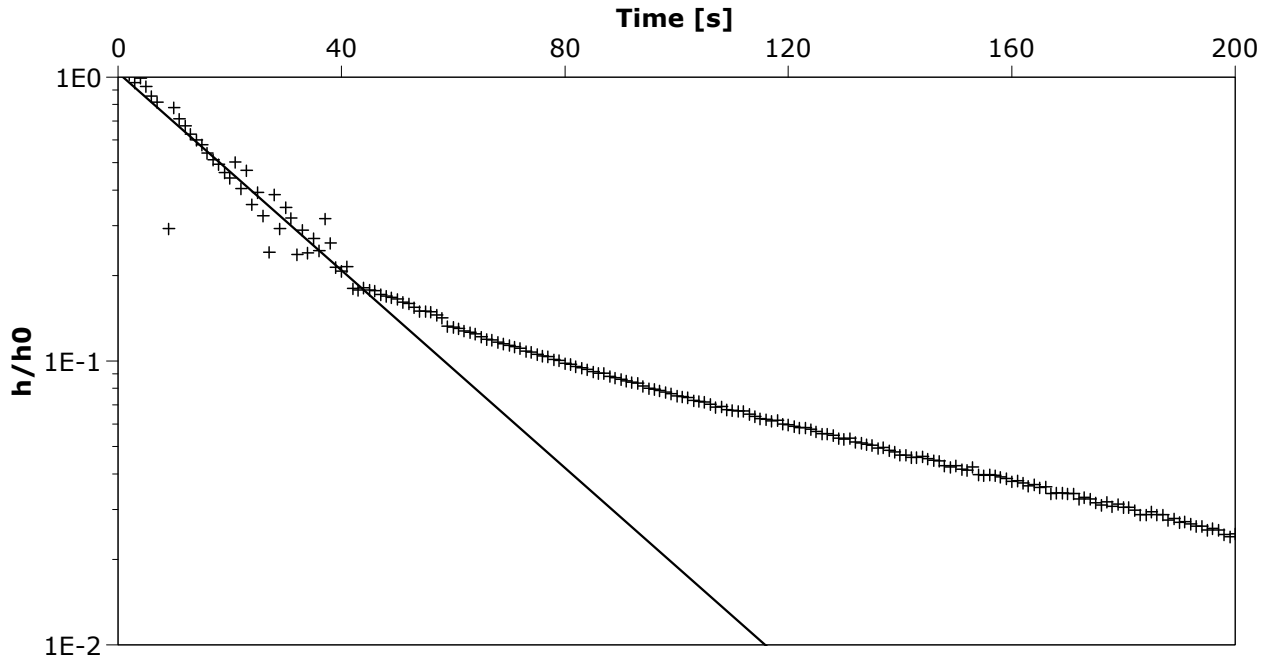
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW95-151	Test Well: Test 4. FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 30.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 4. FH	1.53×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

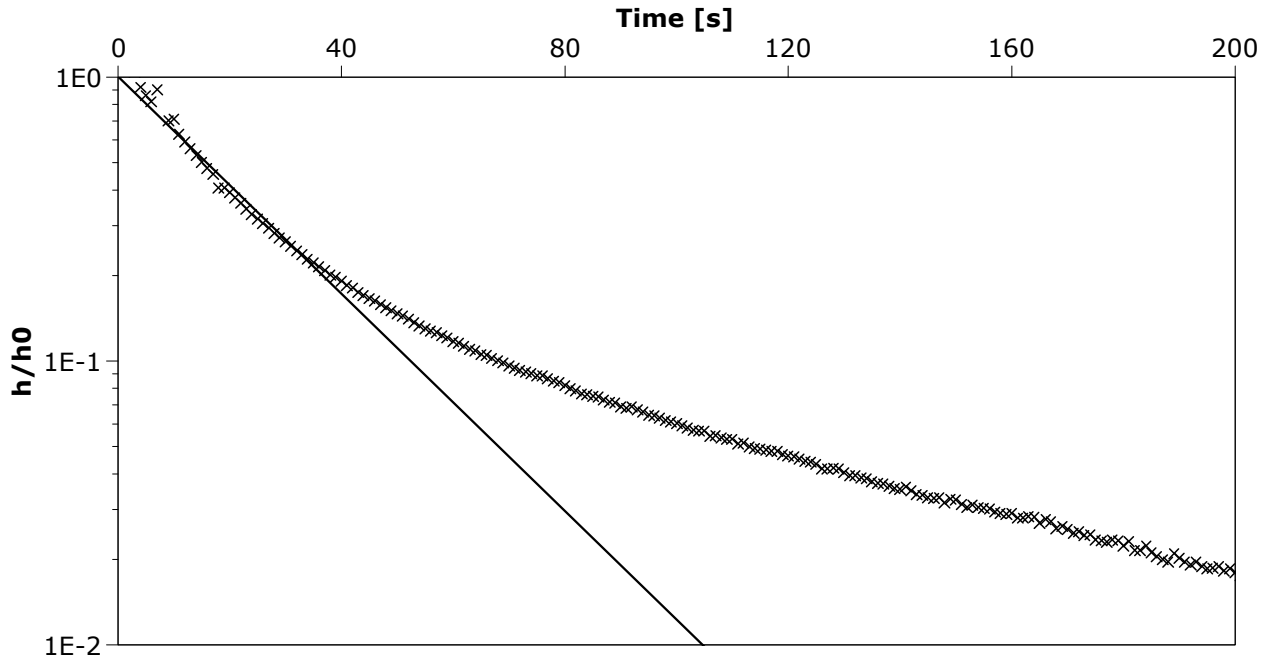
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW95-151	Test Well: Test 4. RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 30.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 4. RH	1.69×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

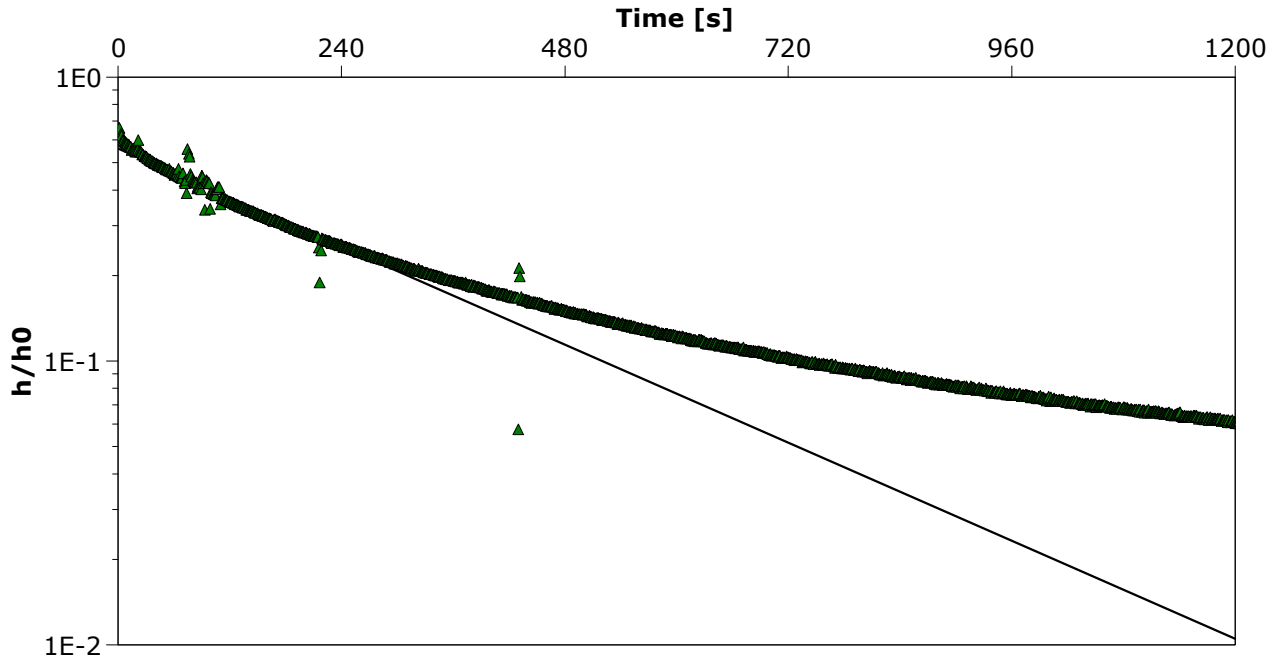
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 3	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/23/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 50.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	7.36×10^{-7}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

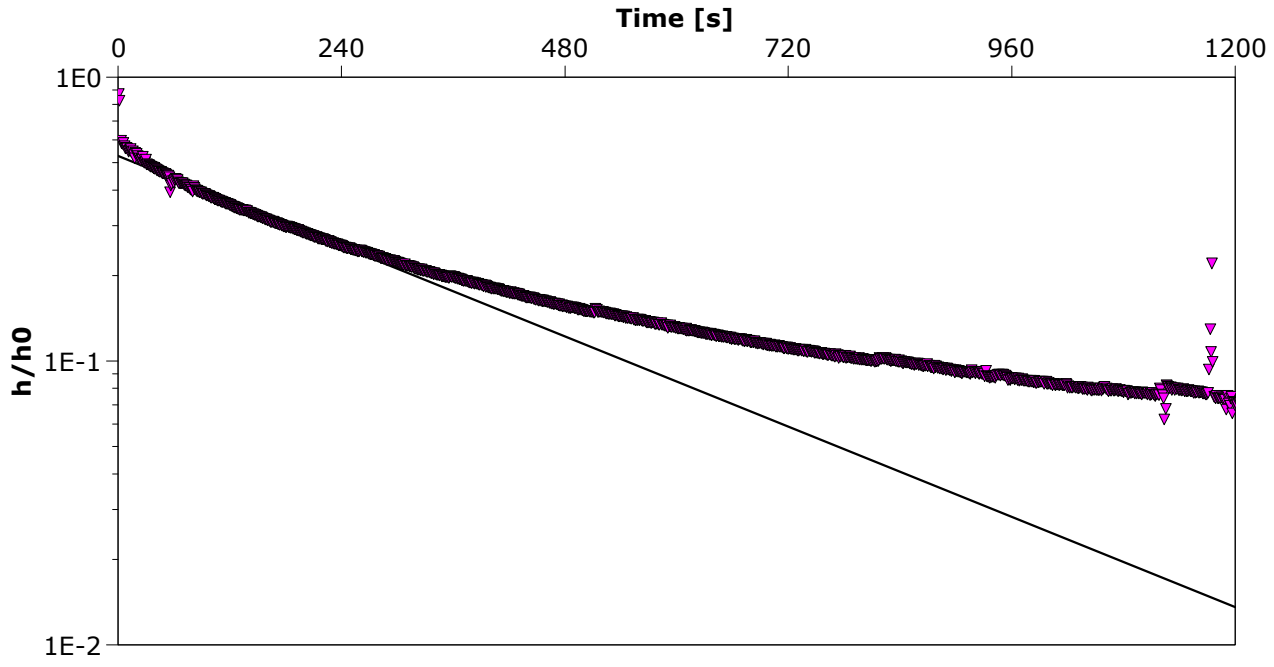
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 3	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/23/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 50.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	6.76×10^{-7}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

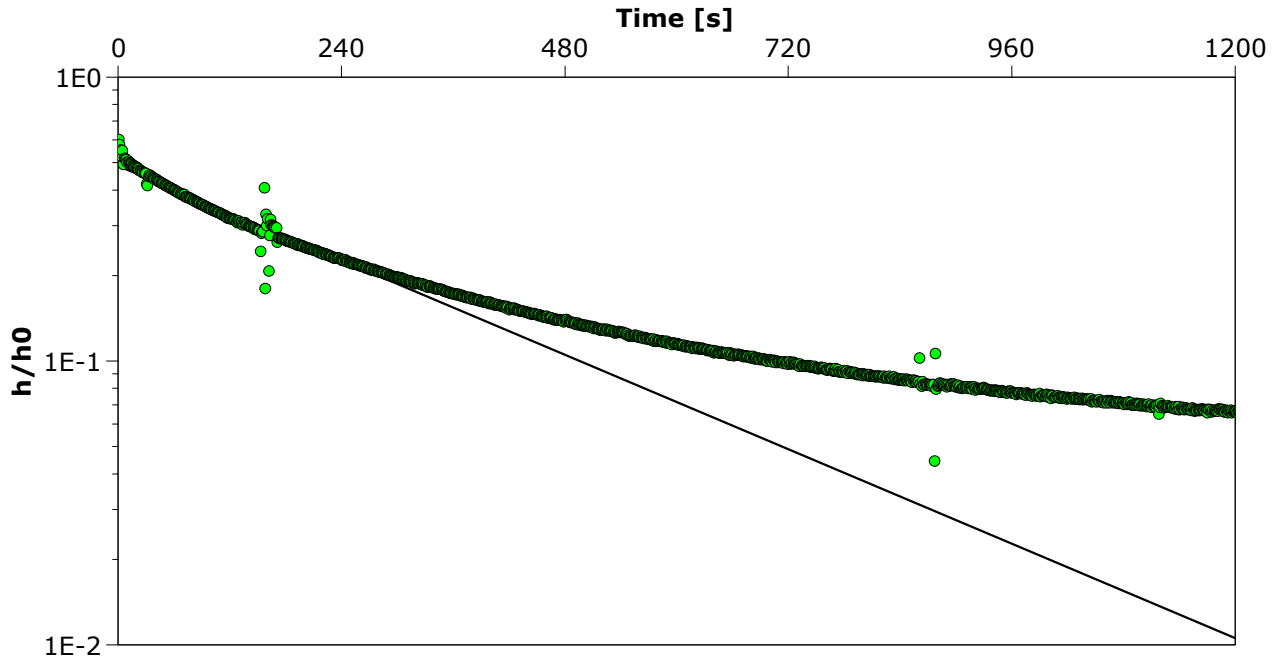
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 3	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/23/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 50.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	7.08×10^{-7}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

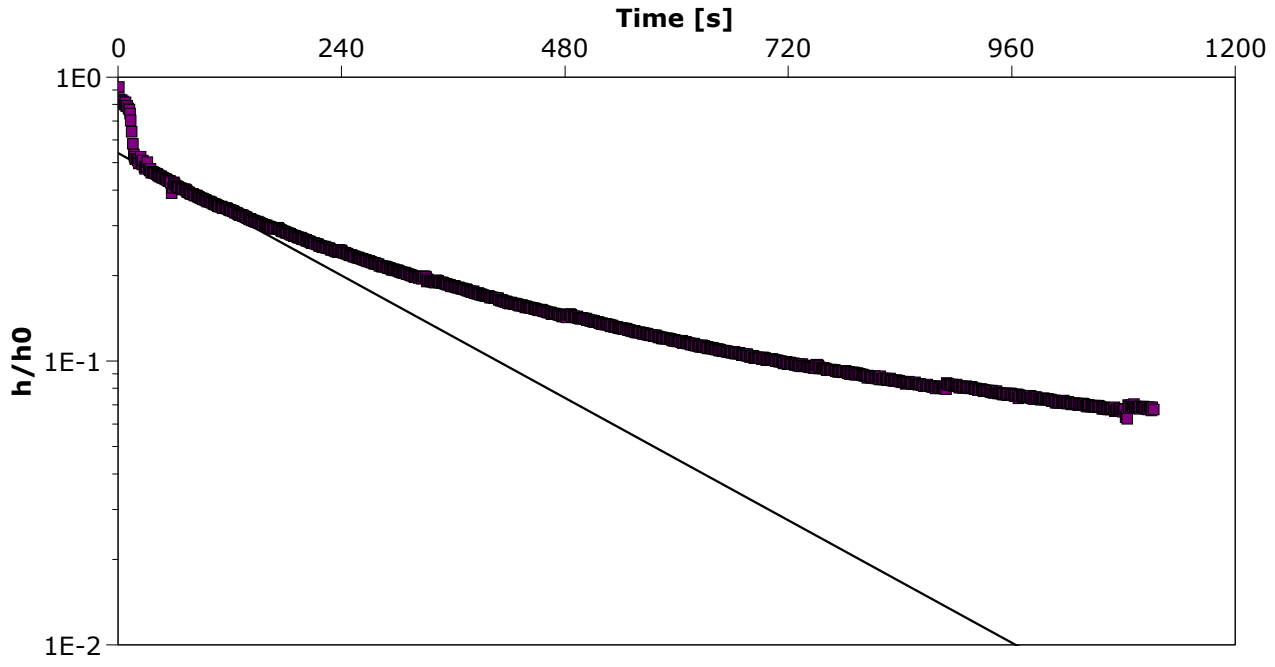
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: Slug Test 3	Test Well: Test 2.RH
Test conducted by: JT		Test date: 08/23/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 50.30 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	9.18×10^{-7}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

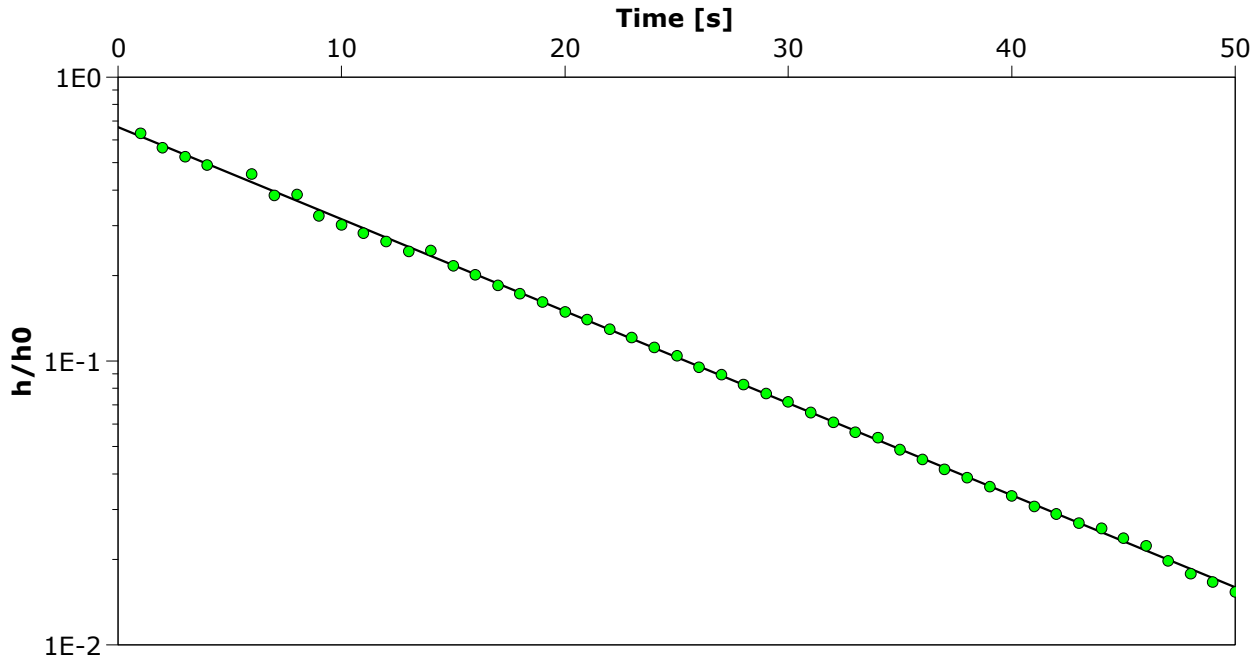
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	4.66×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

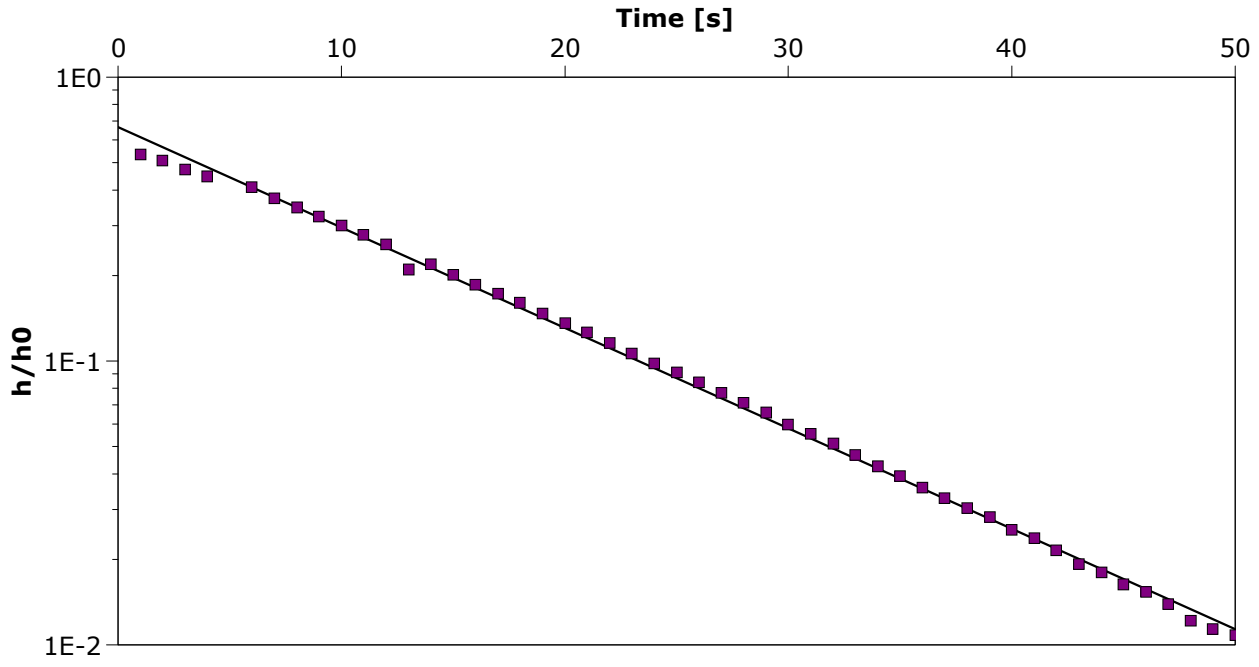
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	5.07×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

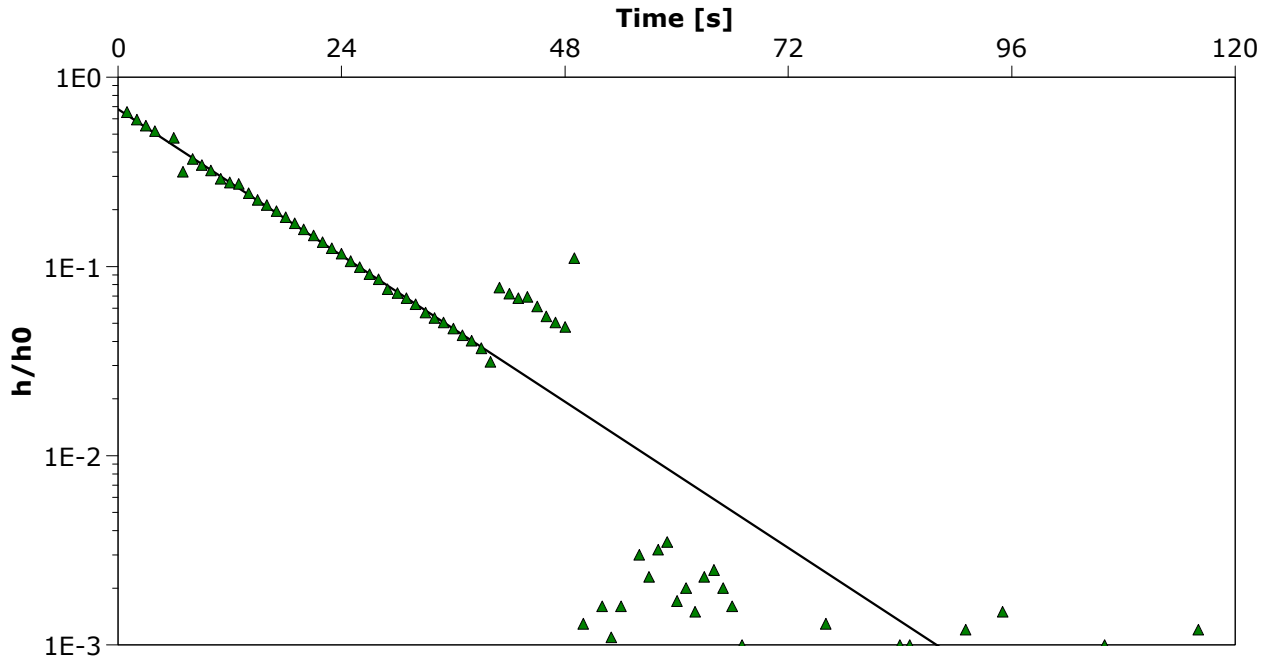
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test 2. FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2. FH	4.62×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

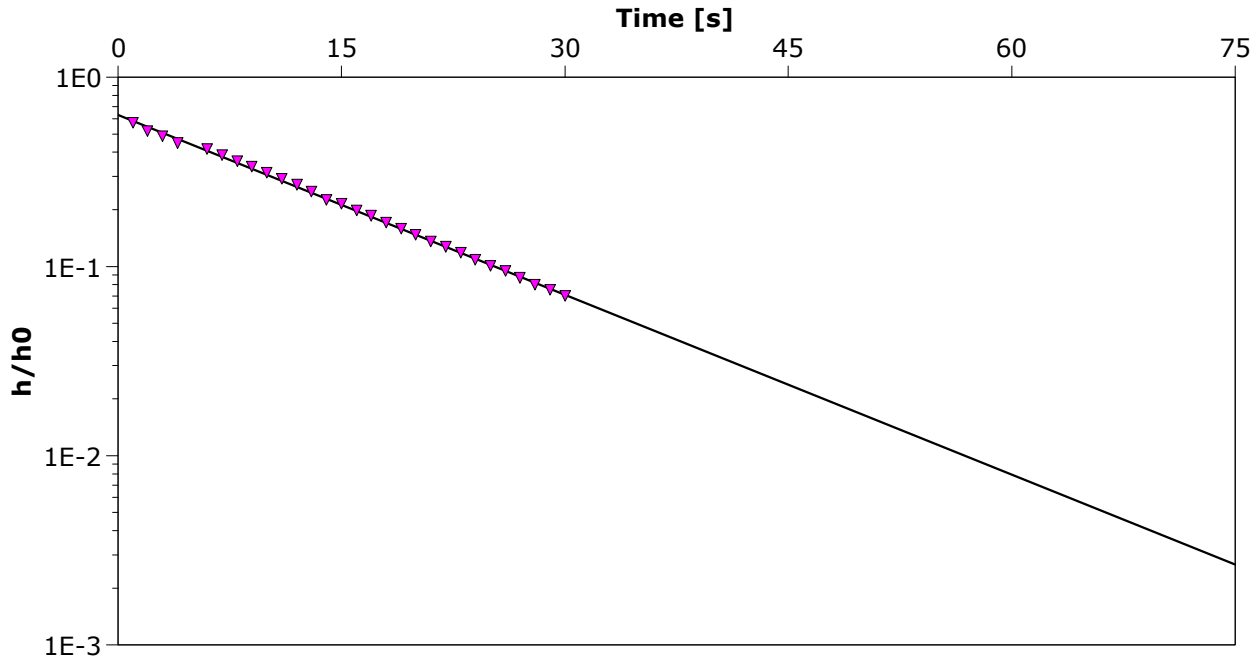
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test 2.RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	4.55×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

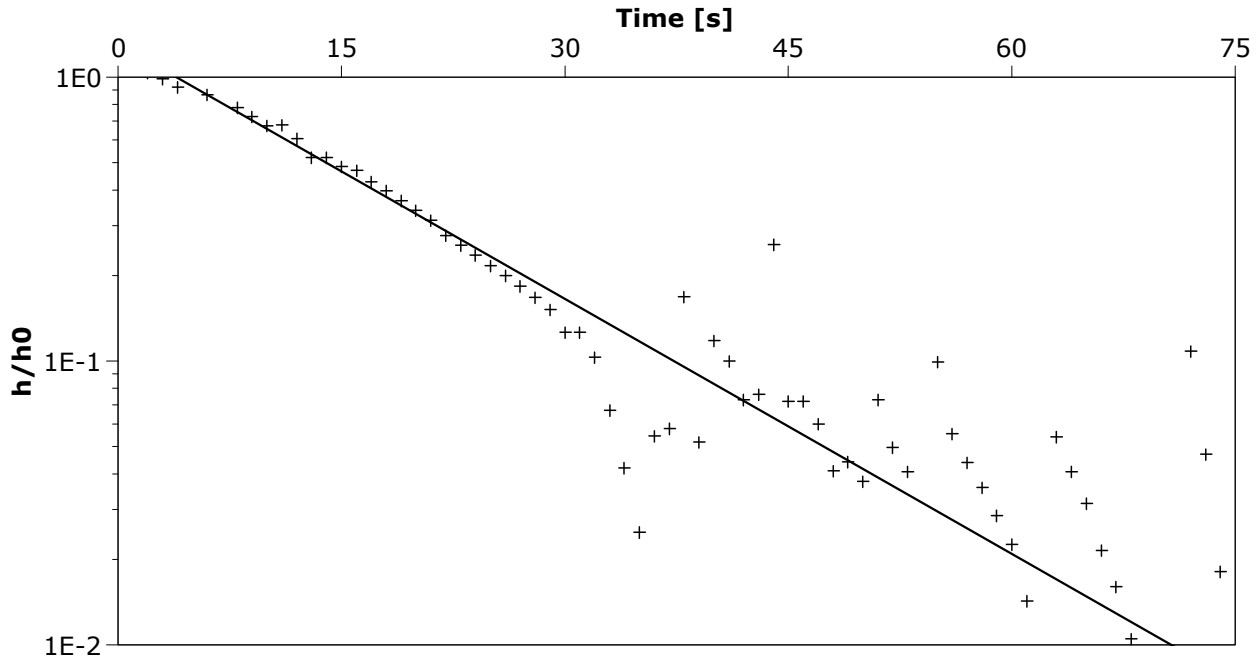
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test3.FH
Test conducted by:JT		Test date: 08/10/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test3.FH	4.29×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

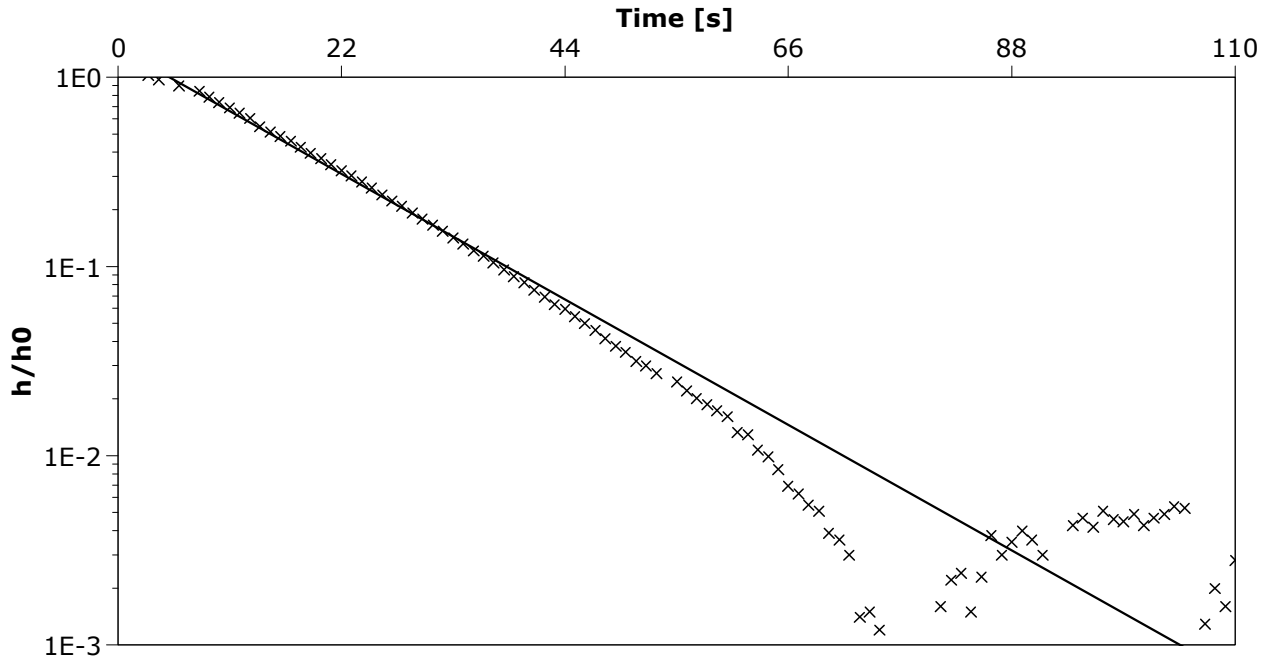
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test3.RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test3.RH	4.33×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

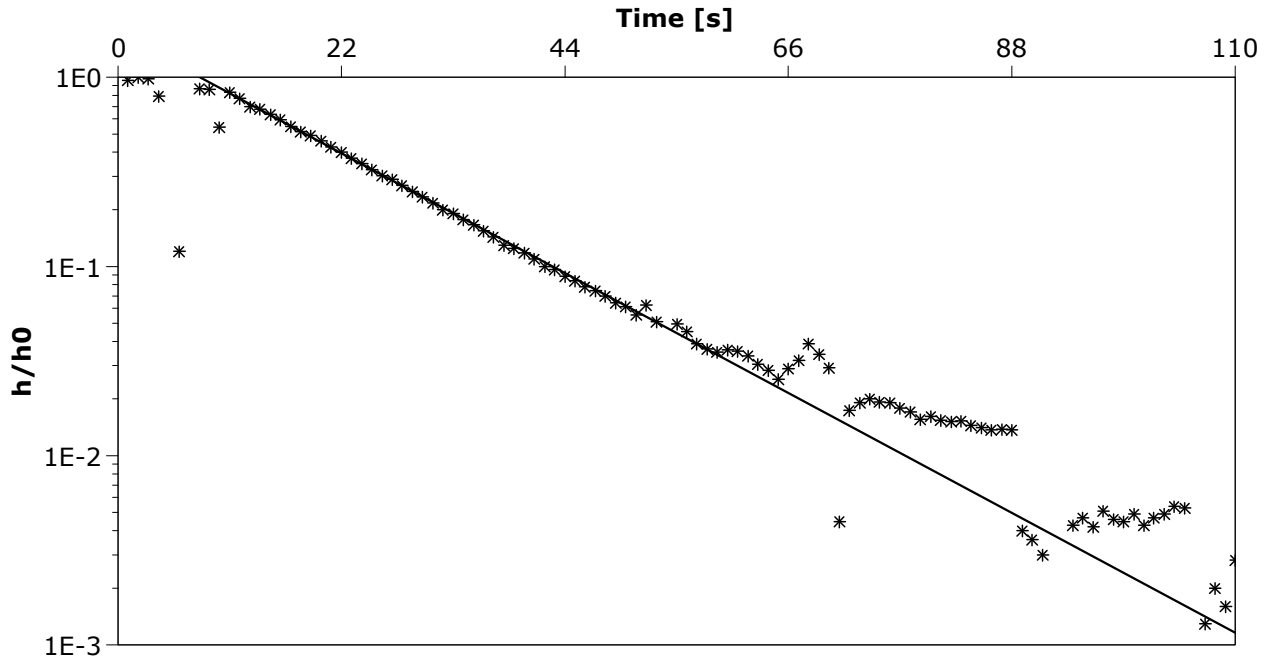
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test4.FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by:JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test4.FH	4.14×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

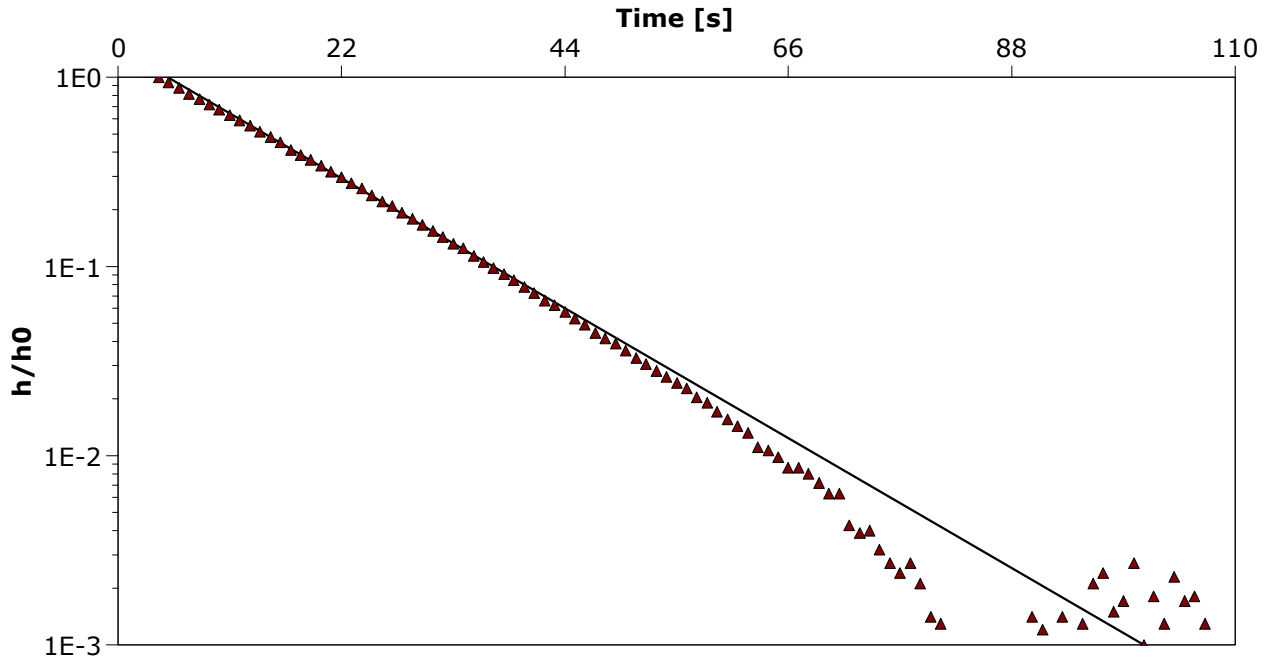
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW96-08	Test Well: Test4.RH
Test conducted by:JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 5.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test4.RH	4.48×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

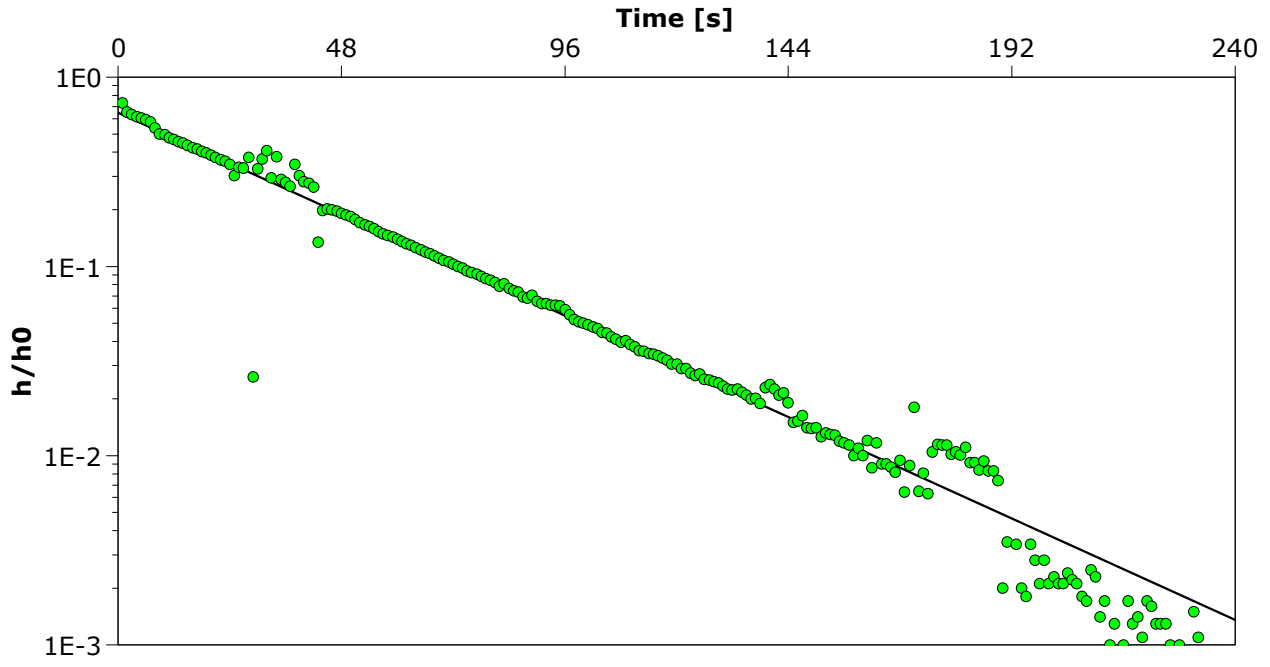
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW69-09b	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 20.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	1.03×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

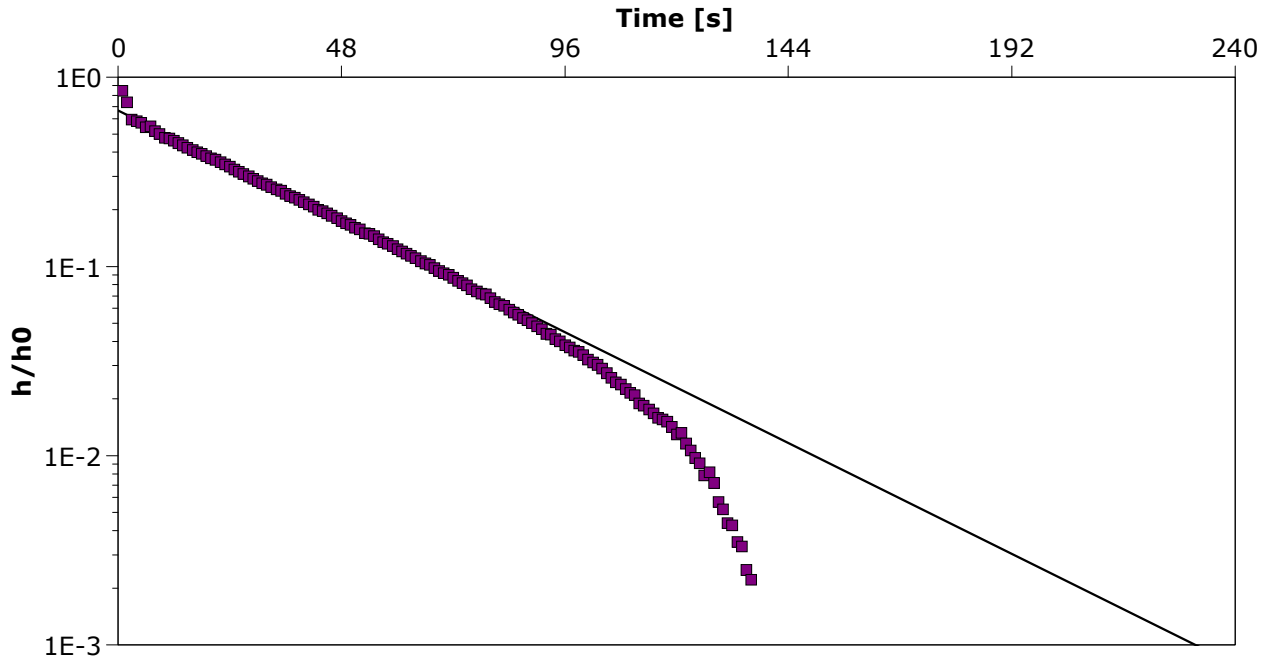
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW69-09b	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 20.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	1.12×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

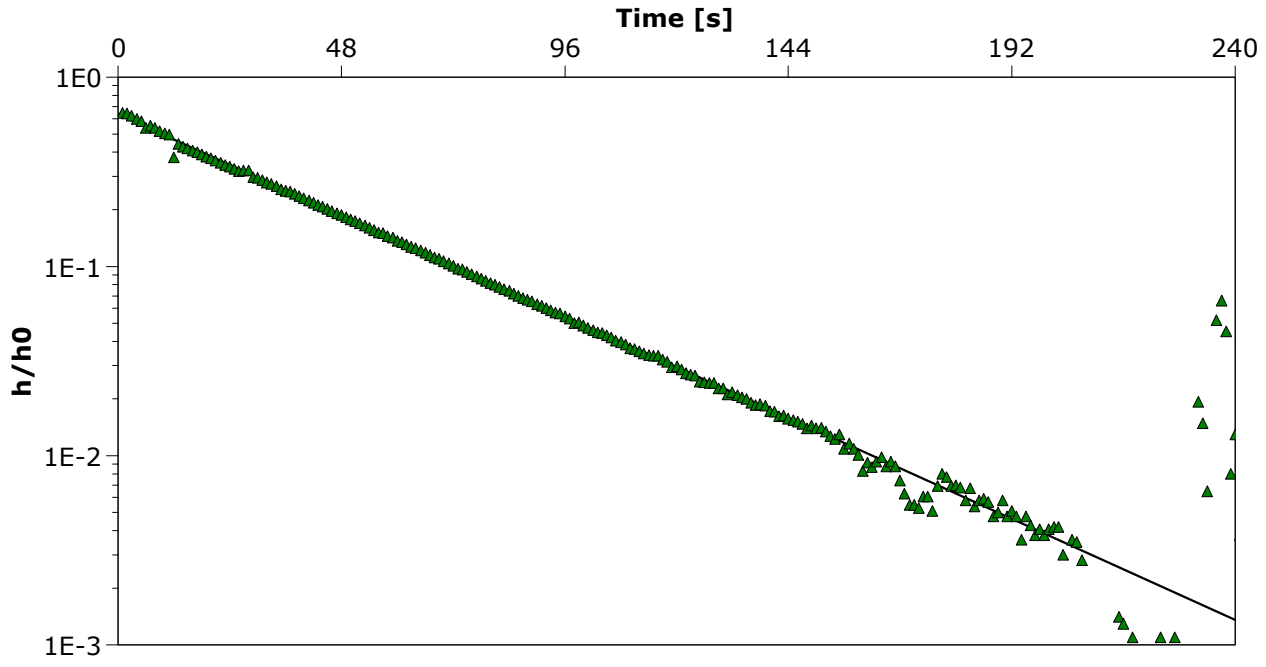
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW69-09b	Test Well: Test 2. FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 20.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2. FH	1.03×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

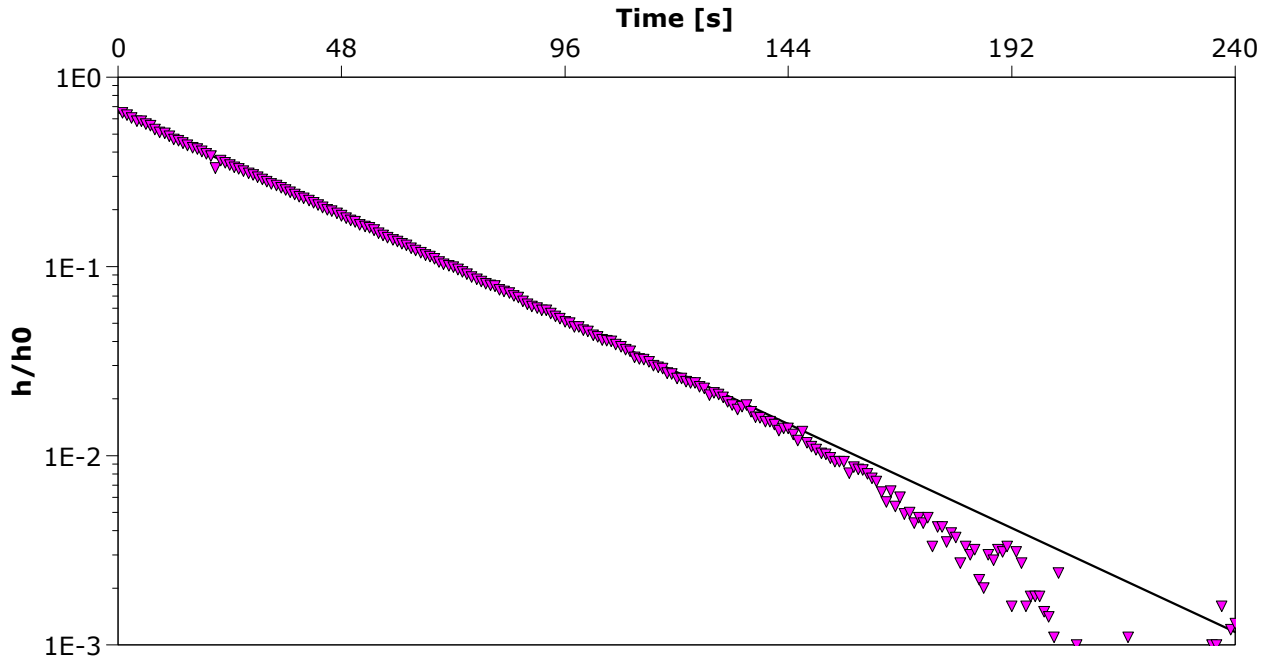
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW69-09b	Test Well: Test 2.RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 20.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	1.05×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

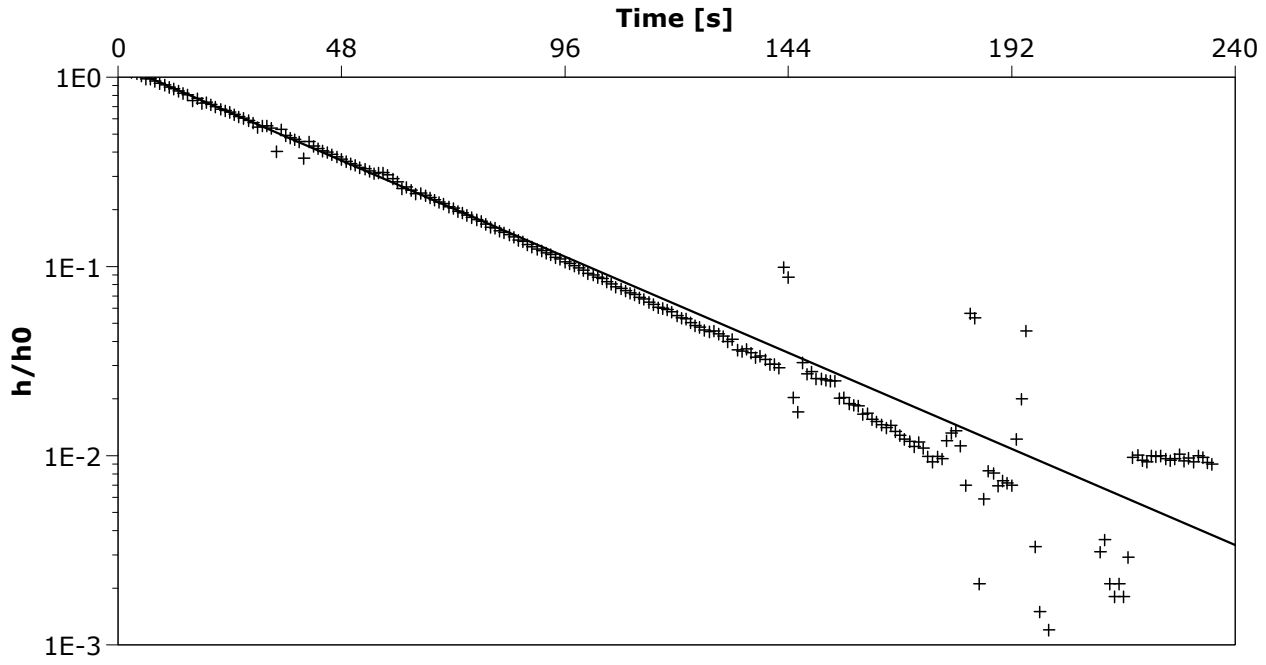
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW69-09b	Test Well: Test3.FH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 20.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test3.FH	9.76×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

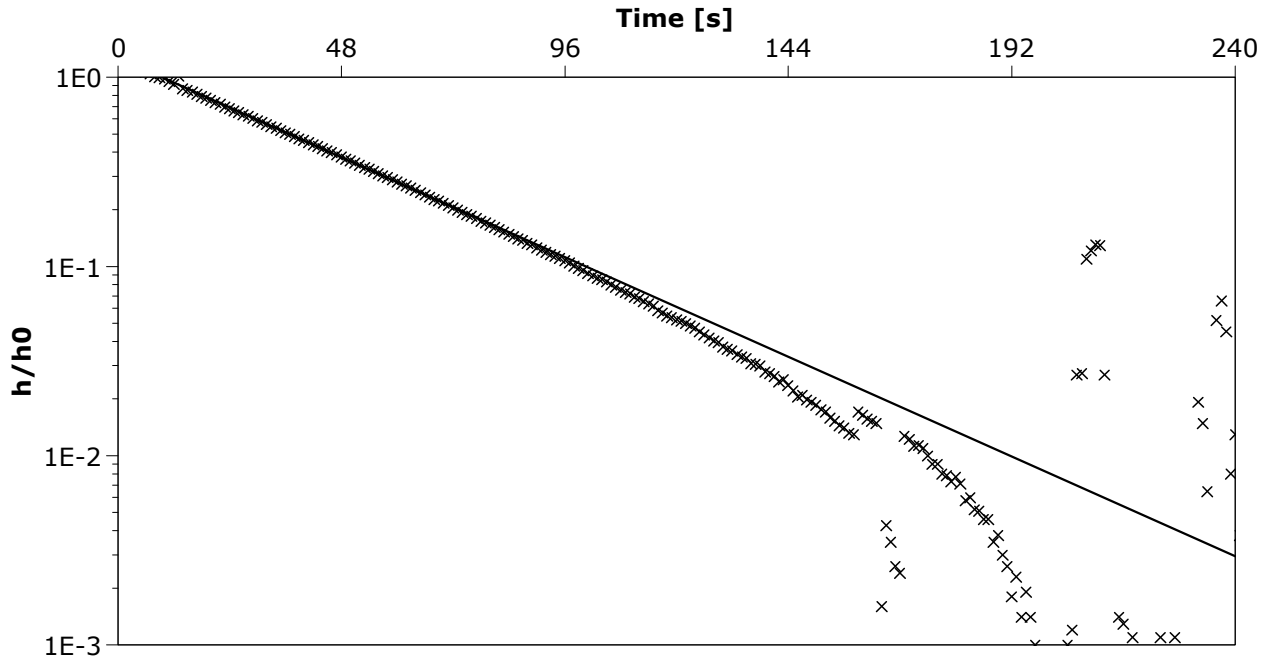
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW69-09b	Test Well: Test3.RH
Test conducted by: JT		Test date: 08/10/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 20.00 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test3.RH	1.01×10^{-5}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

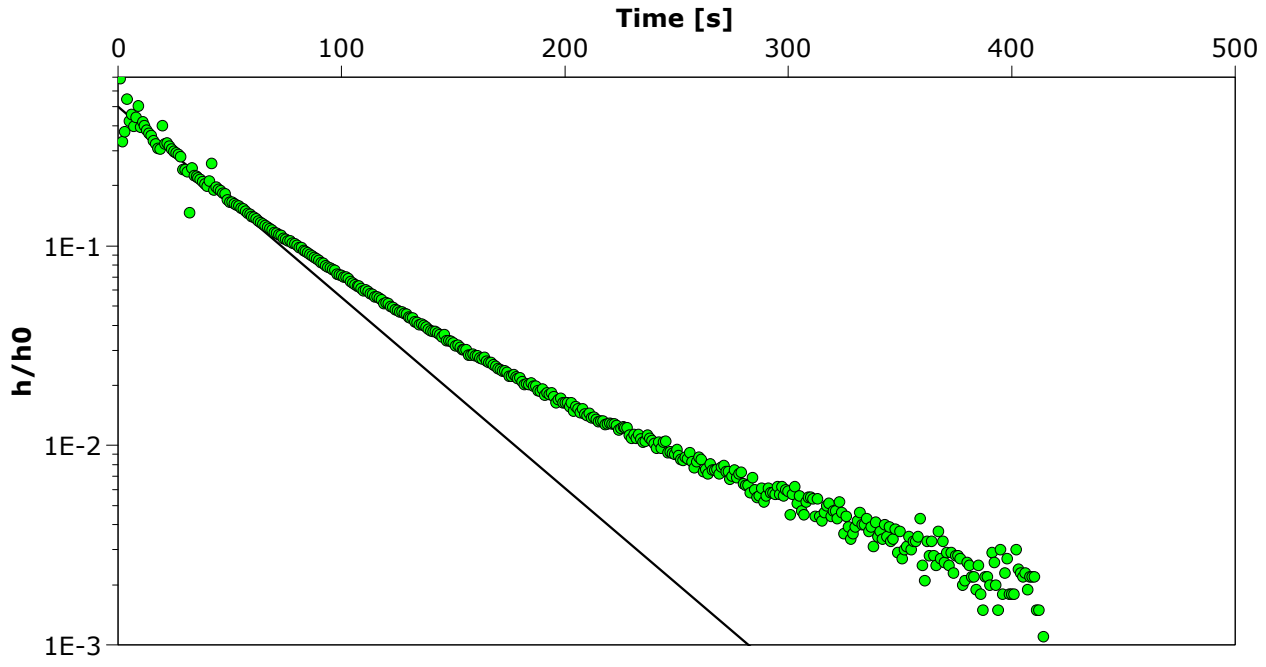
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 1.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.FH	8.51×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

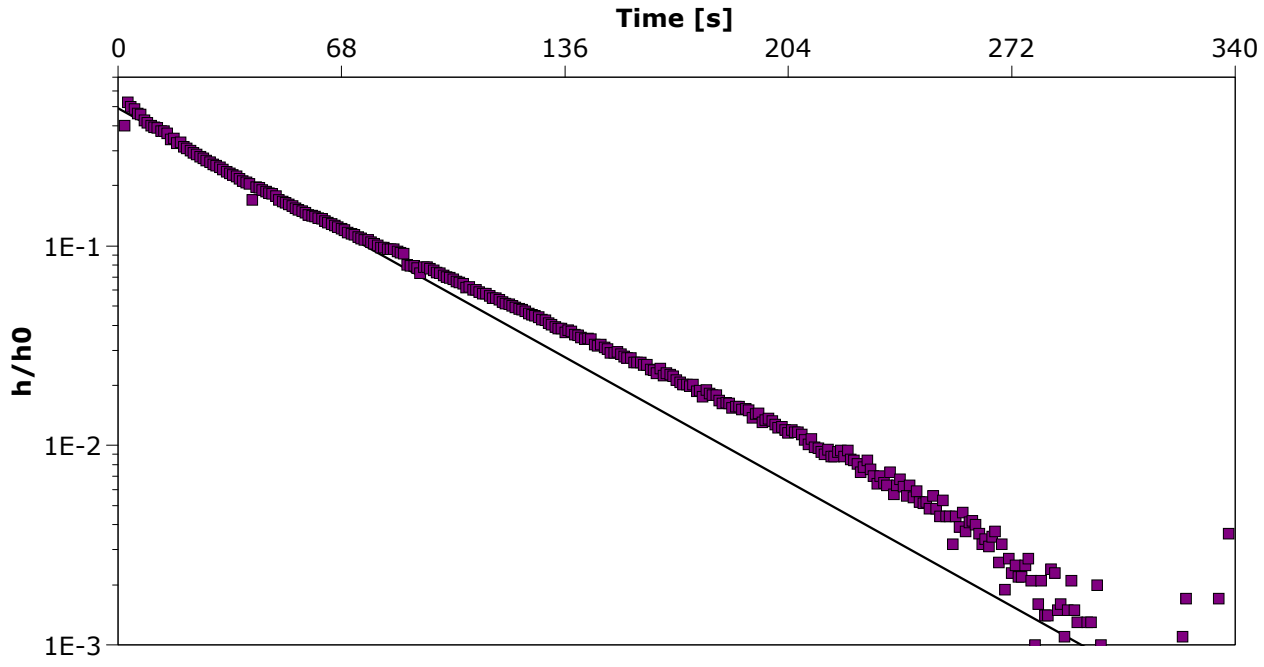
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 1.RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 1.RH	8.15×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

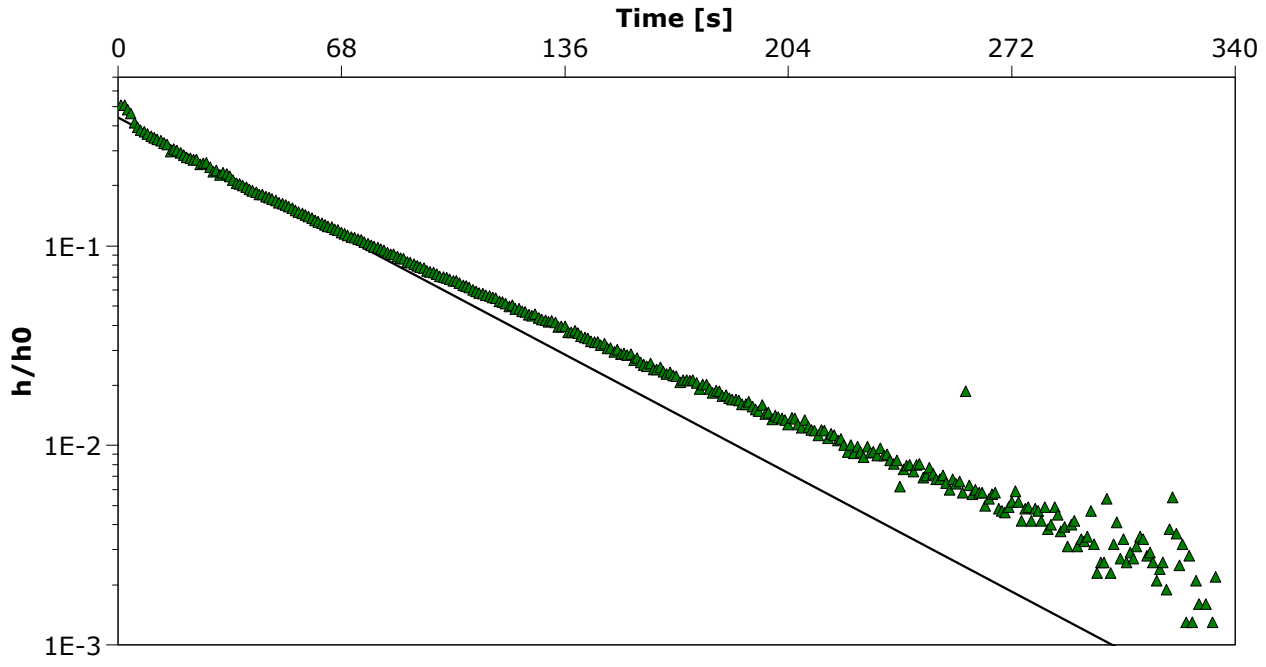
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 2.FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.FH	7.77×10^{-6}	

Burnaby, BC
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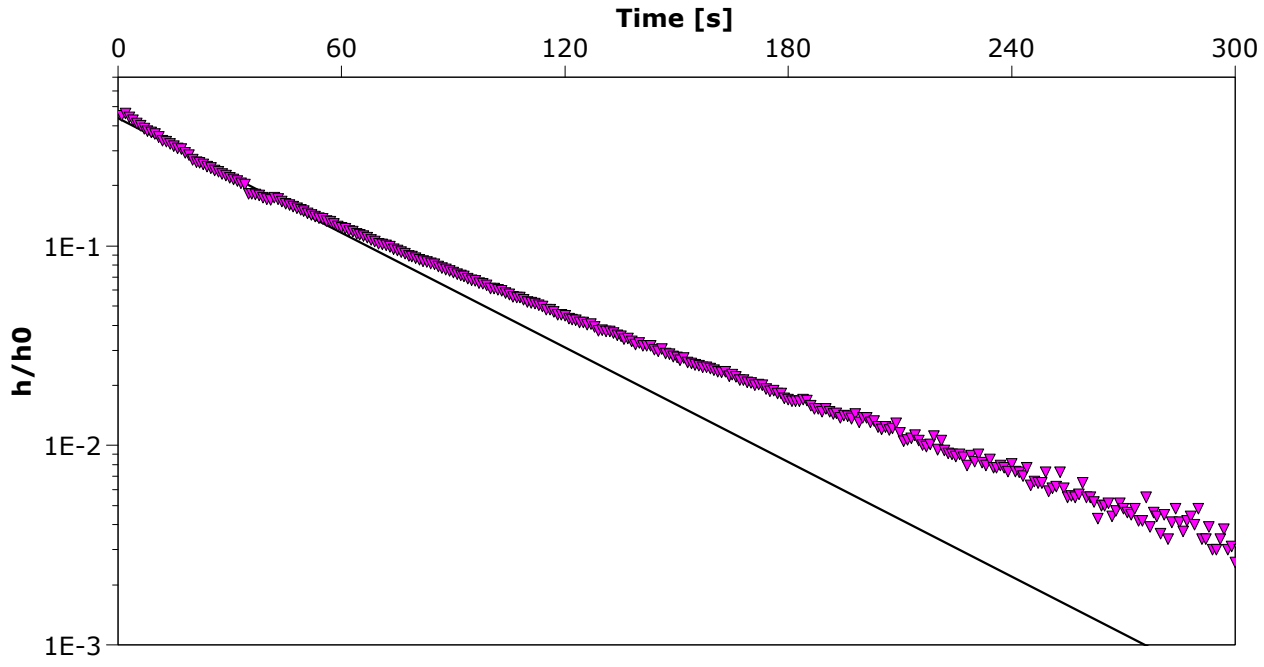
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 2.RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 2.RH	8.52×10^{-6}	

Burnaby, BC
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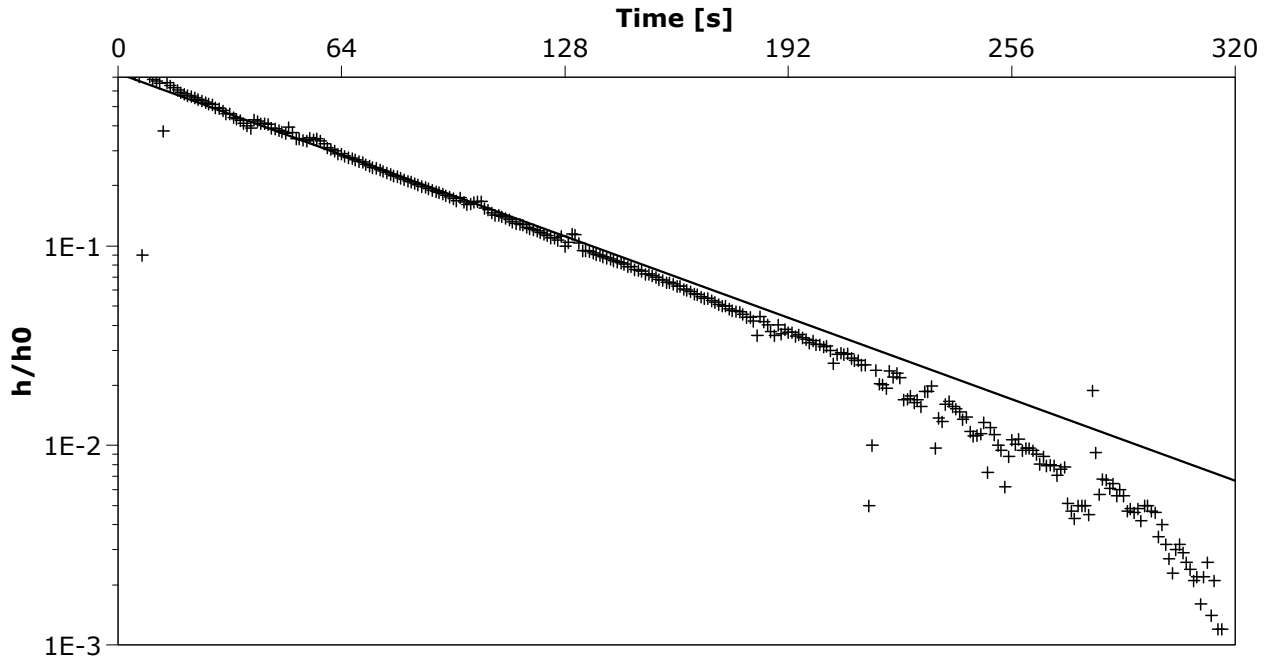
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 3. FH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 3. FH	5.67×10^{-6}	

Burnaby, BC
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604.436.3014
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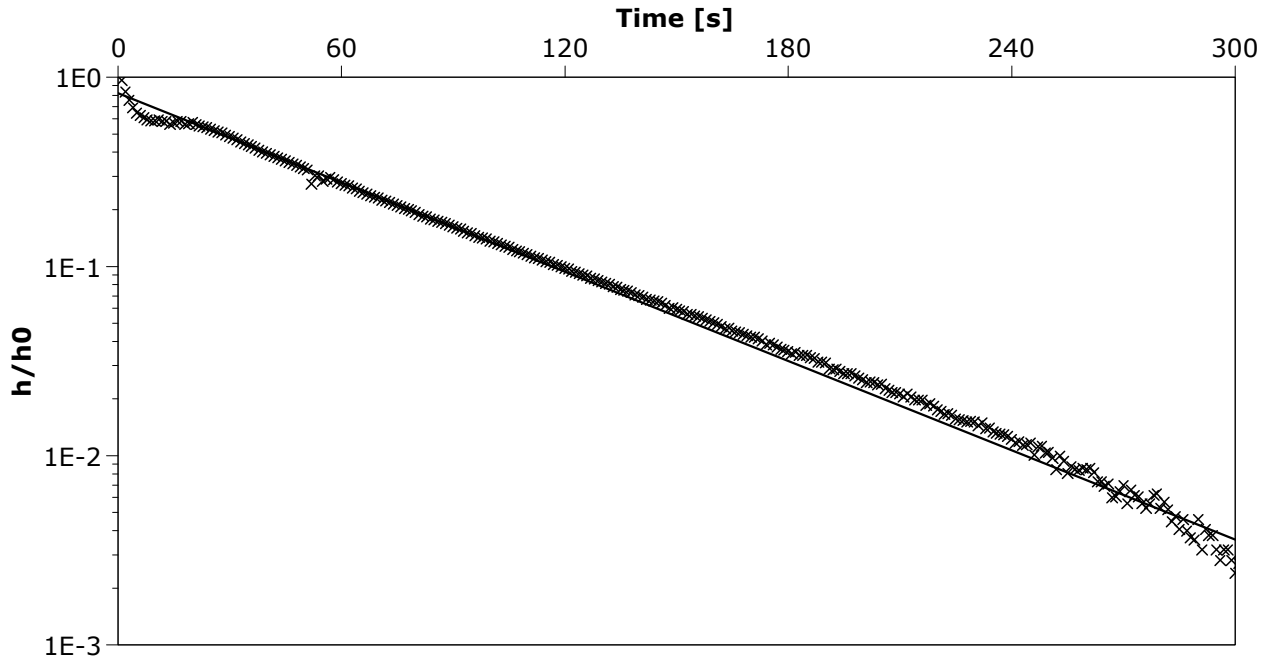
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test3. RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test3. RH	7.00×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

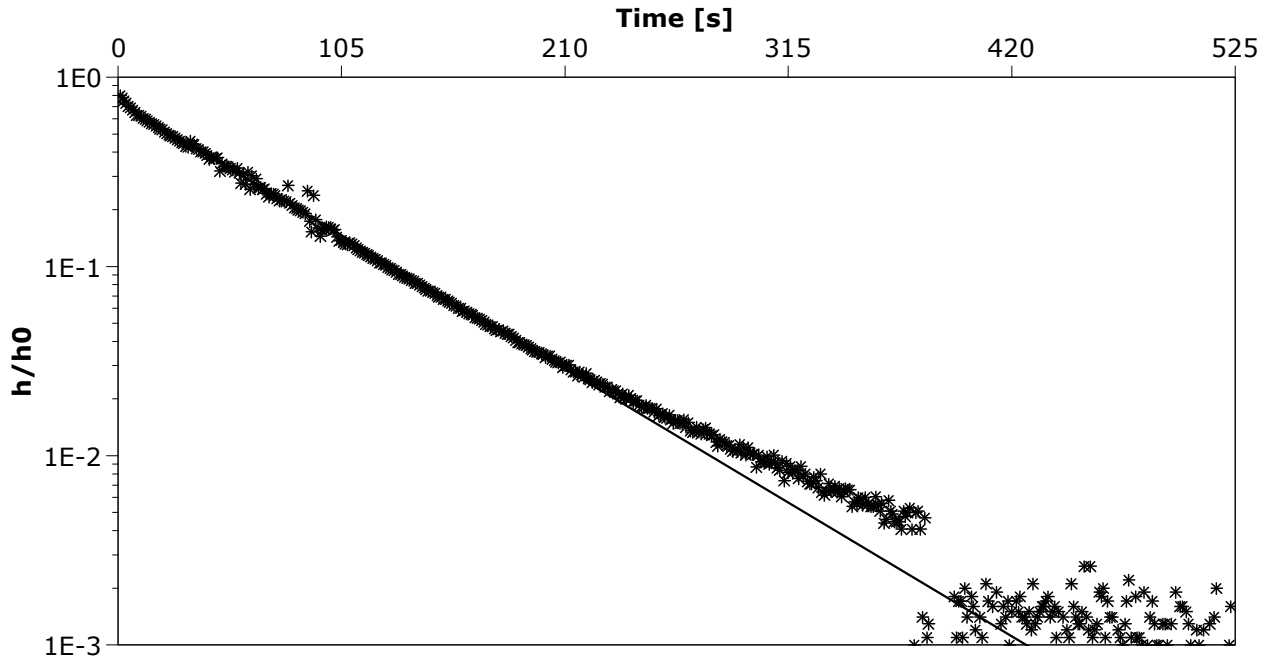
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 4. FH
Test conducted by:JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		



Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 4. FH	6.00×10^{-6}	

Burnaby, BC
4370 Dominion St. 5th Floor
604.436.3014
Jacques Whitford Stantec AXYS

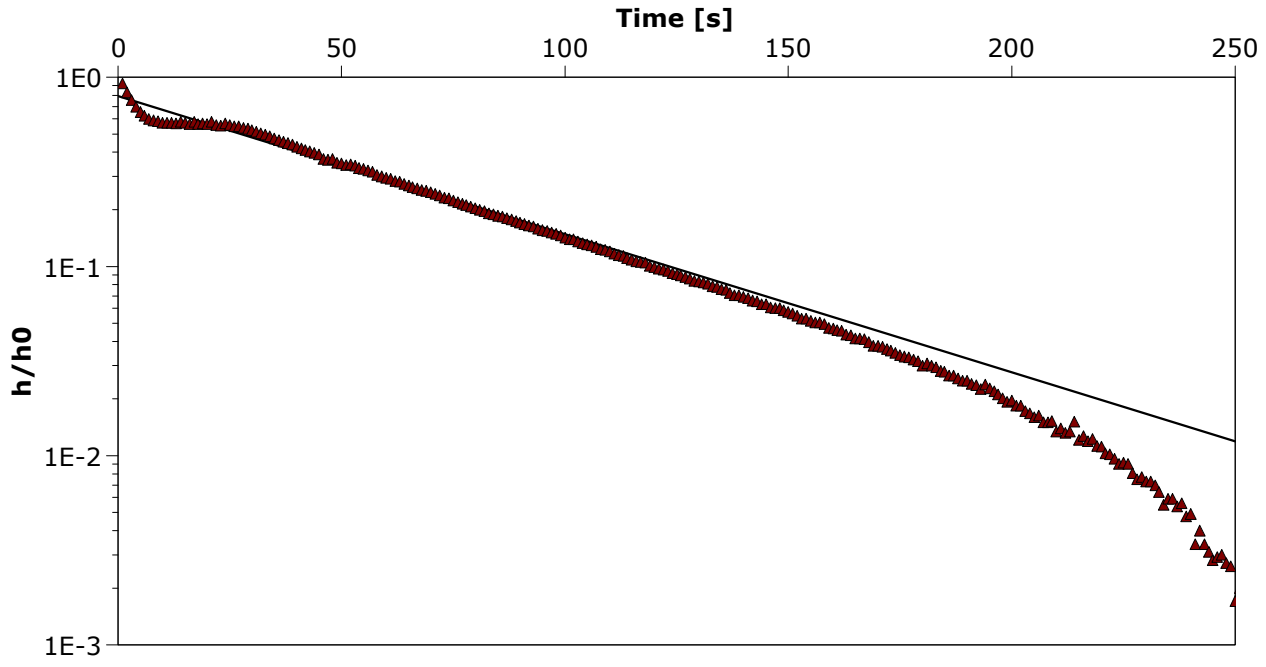
Slug Test Analysis Report

Project: Eagle Gold

Number: 1053550

Client: Victoria Gold

Location: Dublin Gulch	Slug Test: MW196-13b	Test Well: Test 4. RH
Test conducted by: JT		Test date: 08/11/2009
Analysis performed by: JT	Bouwer & Rice	Date: 10/20/2009
Aquifer Thickness: 19.80 m		

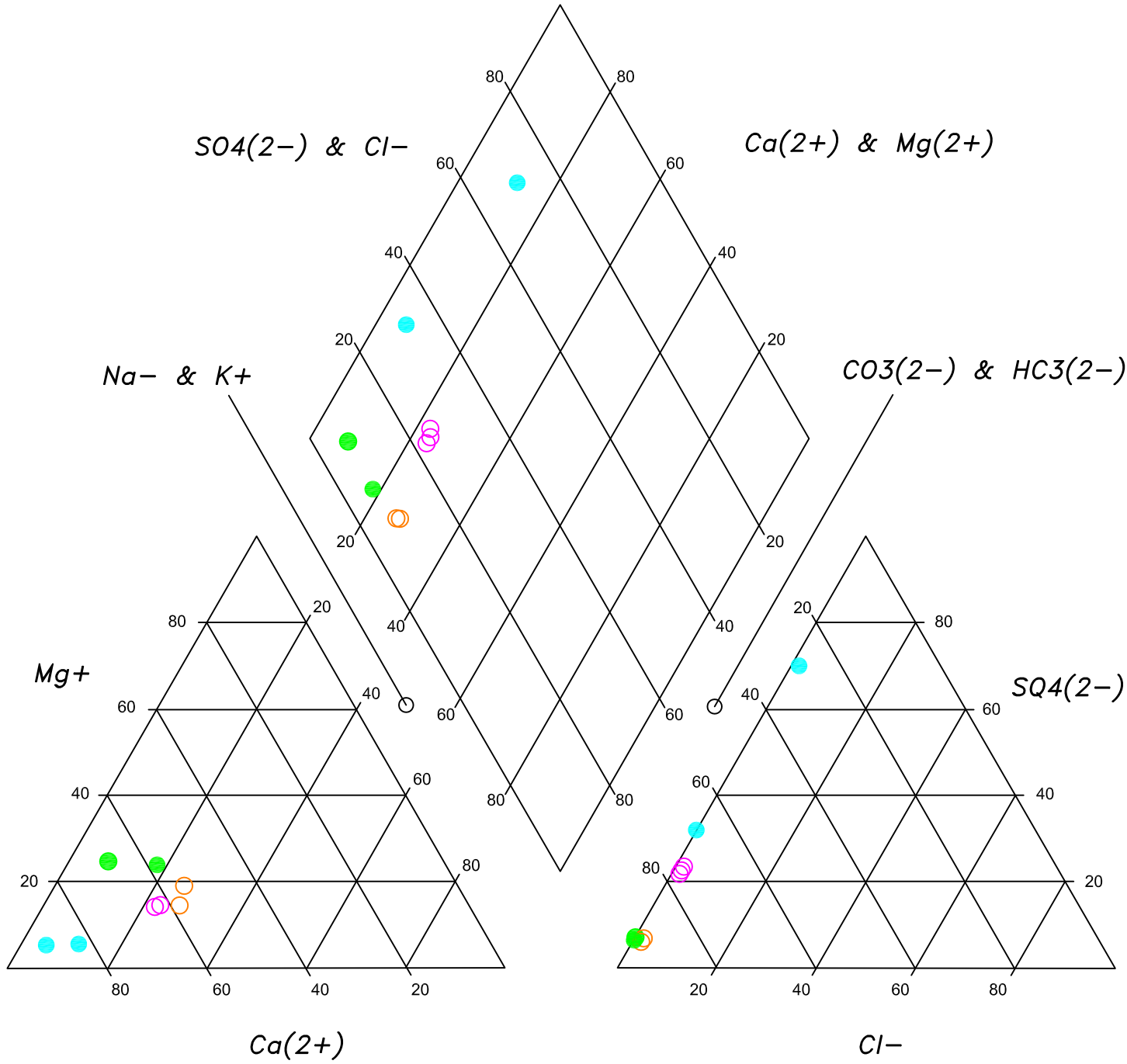


Calculation after Bouwer && Rice

Observation well	K [m/s]	
Test 4. RH	6.51×10^{-6}	

APPENDIX D

Hydrogeochemical Plots



LEGEND

- MW96-1
- MW96-8
- MW96-9
- GT96-26

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

BAWN BOY GULCH PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Job No.:	1053550
Scale:	N.T.S.
Date:	20-Nov-09
Dwn. By:	SS
App'd By:	

Figure No.: 1

Client: VICTORIA GOLD CORP

Stantec

R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D01 R0__BawnBoyGulch.dwg PRINTED: Nov 20, 2009

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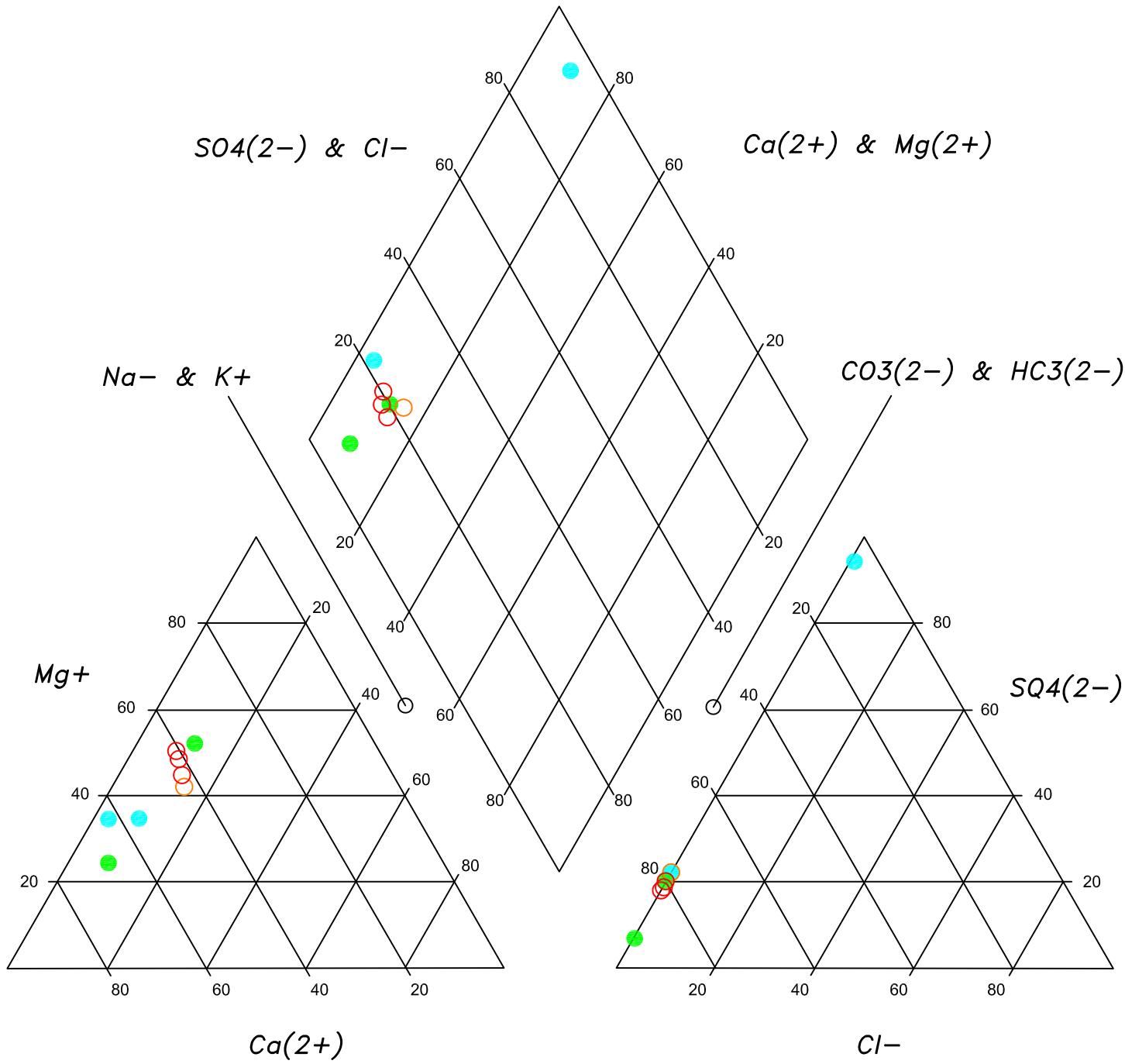

LEGEND

- MW09-DG1
- MW09-DG2
- MW09-DG4
- DH95-152

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

DUBLIN GULCH PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Job No.:	1053550
Scale:	N.T.S.
Date:	16-Dec-09
Dwn. By:	SS
App'd By:	

Figure No.: 2

Client: VICTORIA GOLD CORP

Stantec

R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D02 R0__DublinGulch.dwg PRINTED: Dec 16, 2009

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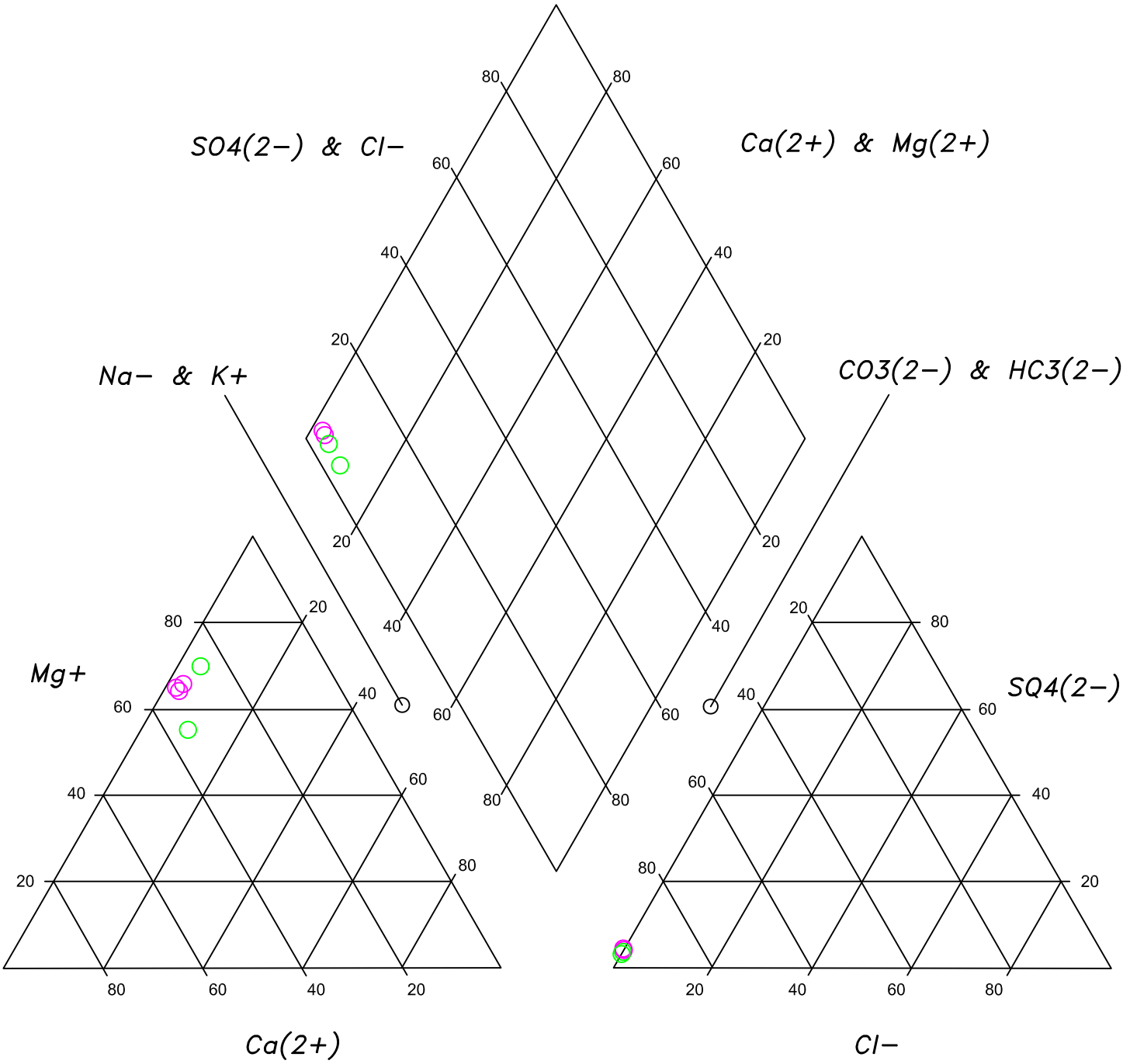

LEGEND

- MW96-15
- MW96-13

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

EAGLE PUP PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Job No.:	1053550
Scale:	N.T.S.
Date:	20-Nov-09
Dwn. By:	SS
App'd By:	

Figure No.: 3

Client: VICTORIA GOLD CORP

Stantec

R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D03 R0_EaglePup.dwg PRINTED: Nov 20, 2009

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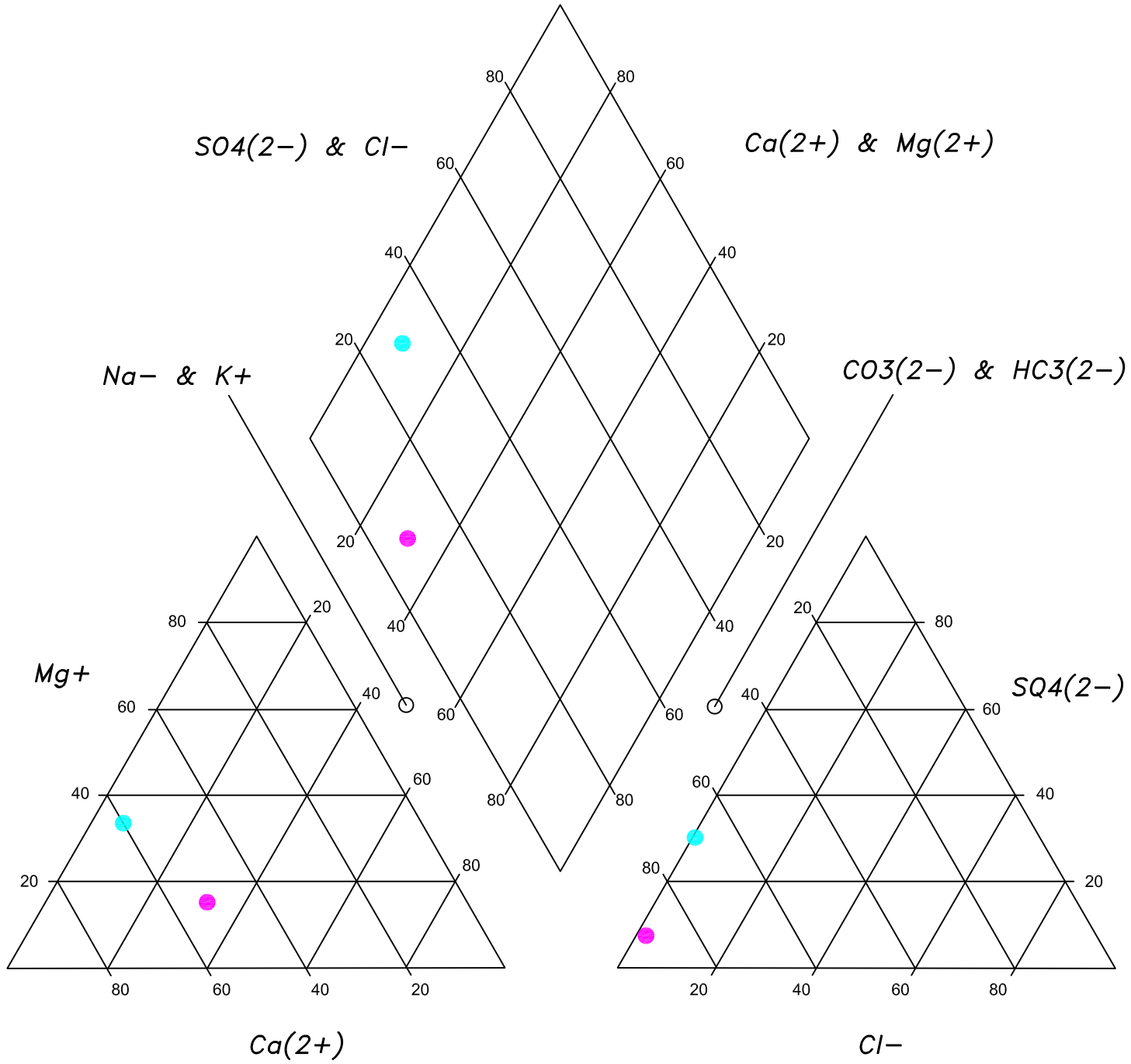

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

OLIVE GULCH PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Job No.:	1053550
Scale:	N.T.S.
Date:	20-Nov-09
Dwn. By:	SS
App'd By:	
Client:	VICTORIA GOLD CORP

Figure No.: 4

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R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D04 R0_OliveGulch.dwg PRINTED: Nov 20, 2009

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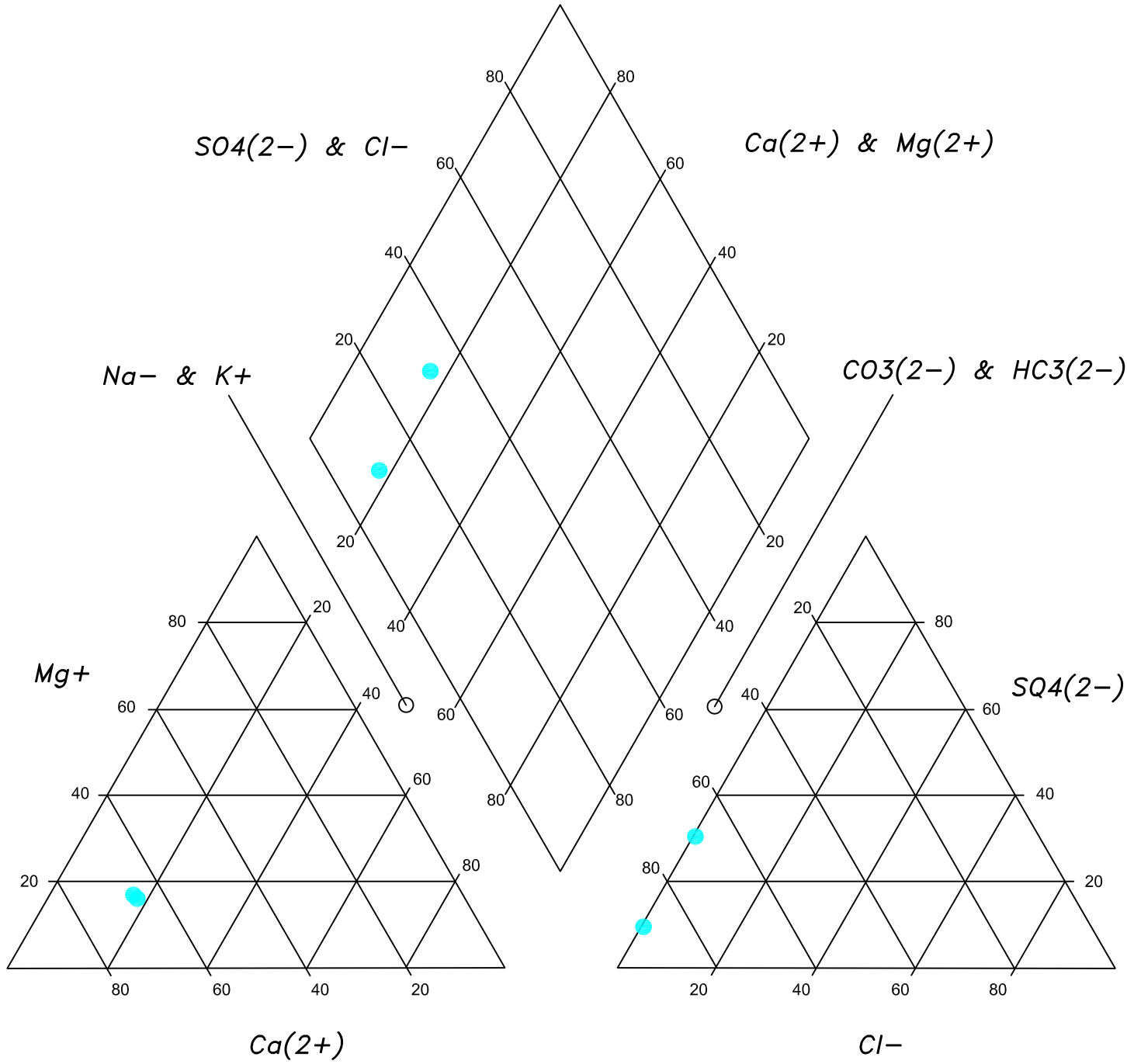

LEGEND

MW96-23

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PLATINUM GULCH PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Job No.:	1053550
Scale:	N.T.S.
Date:	20-Nov-09
Dwn. By:	SS
App'd By:	

Figure No.: 5

Client: VICTORIA GOLD CORP

Stantec

R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D05 R0__PlatinumGulch.dwg PRINTED: Nov 20, 2009

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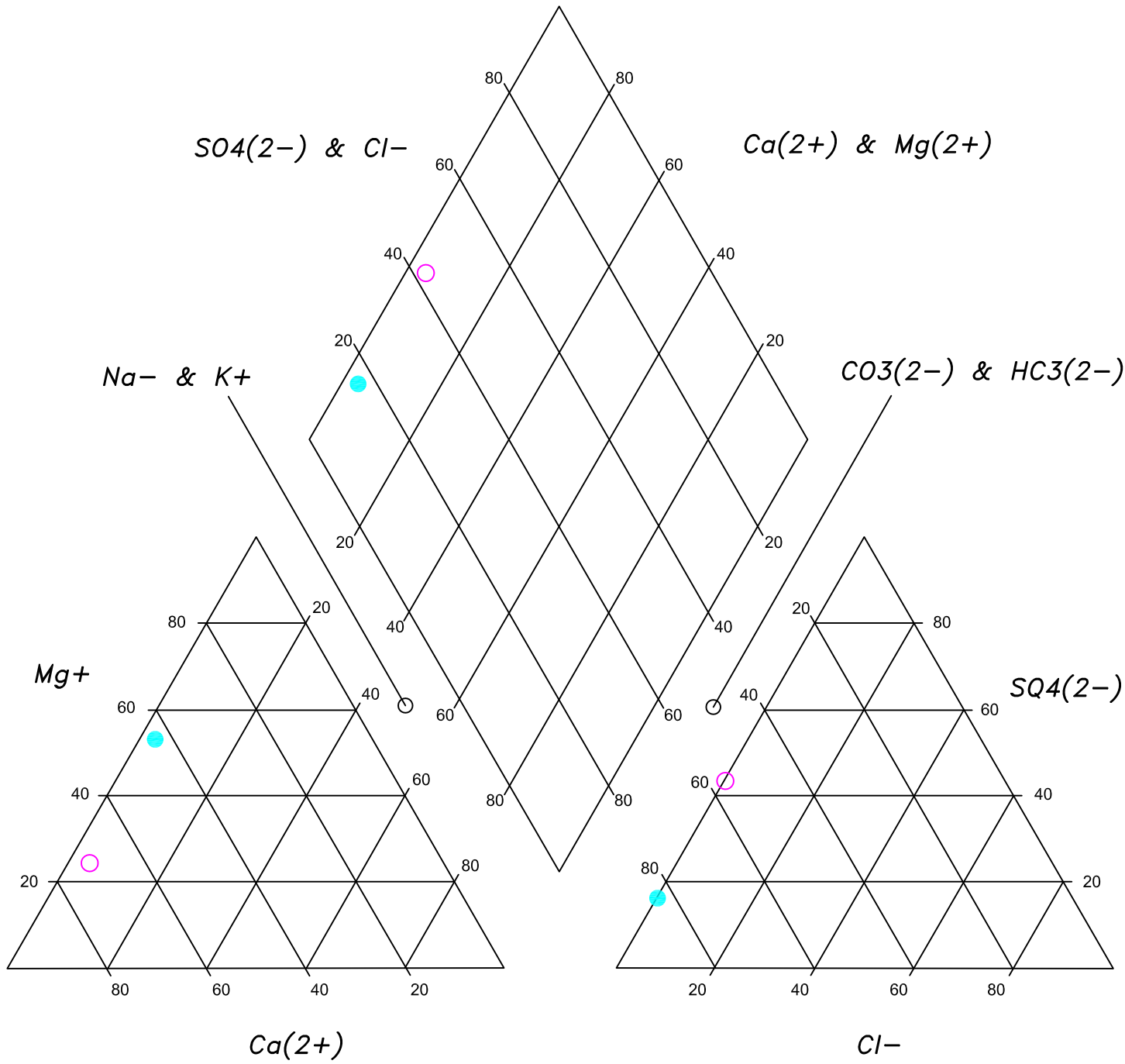

LEGEND

- MW09-STU 2
- MW96-18

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

STUTTLE GULCH PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Job No.:	1053550
Scale:	N.T.S.
Date:	16-Dec-09
Dwn. By:	SS
App'd By:	
Client:	VICTORIA GOLD CORP

Figure No.: 6

Stantec

R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D06 R0_StuttleGulch.dwg PRINTED: Dec 16, 2009

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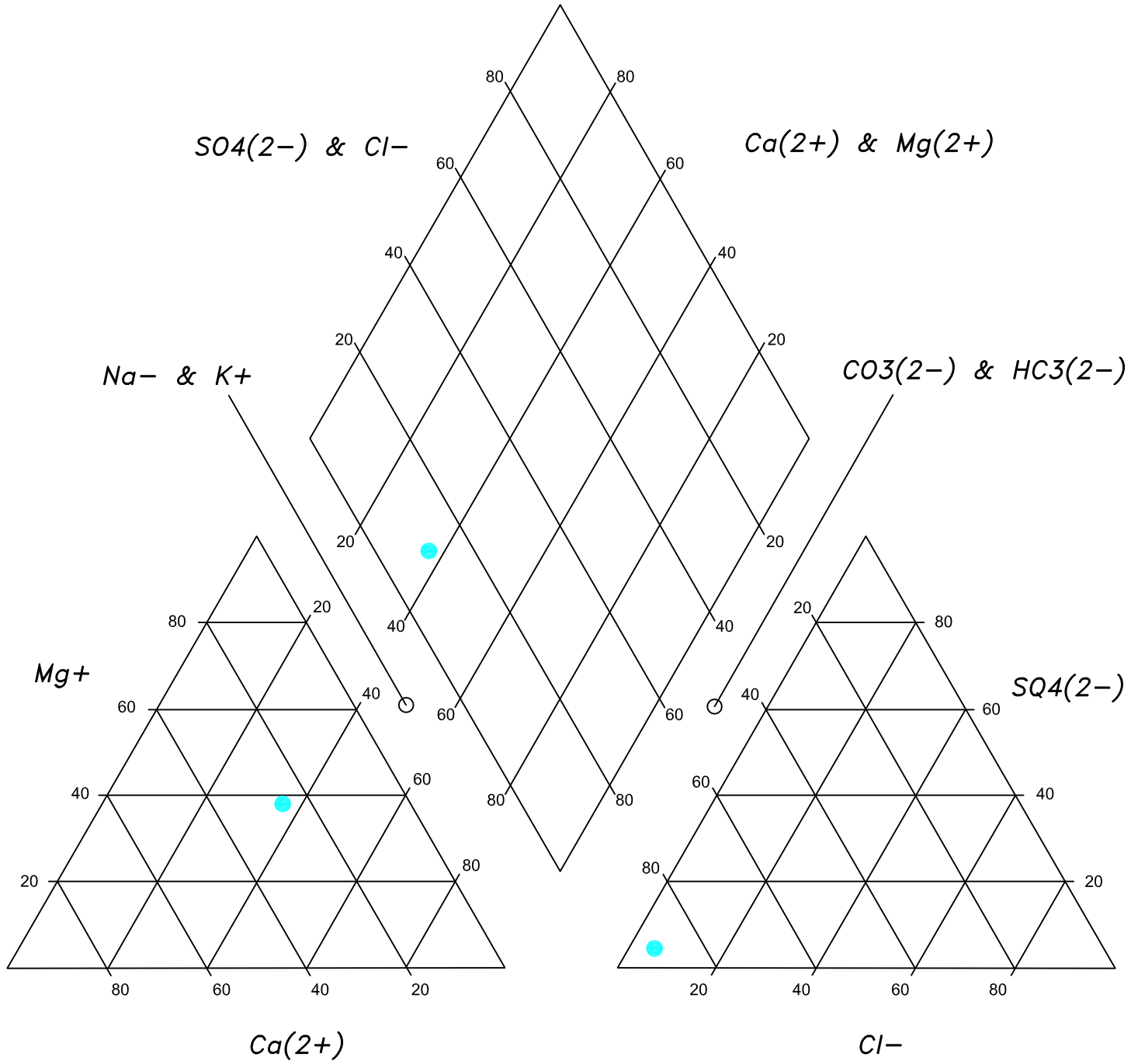

LEGEND

MW09-AG2

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD STANTEC LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

ANN GULCH PIPER PLOT

EAGLE GOLD PROJECT
YUKON TERRITORY

Client:	VICTORIA GOLD CORP
Job No.:	1053550
Scale:	N.T.S.
Date:	20-Nov-09
Dwn. By:	SS
App'd By:	

Figure No.: 7

Stantec

R:\2009Fiscal\1053550_EagleGold\CAD\For Jennifer Todd\1053550 D07 R0_Ann Gulch.dwg PRINTED: Nov 20, 2009

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Chart: 8

Ann Gulch

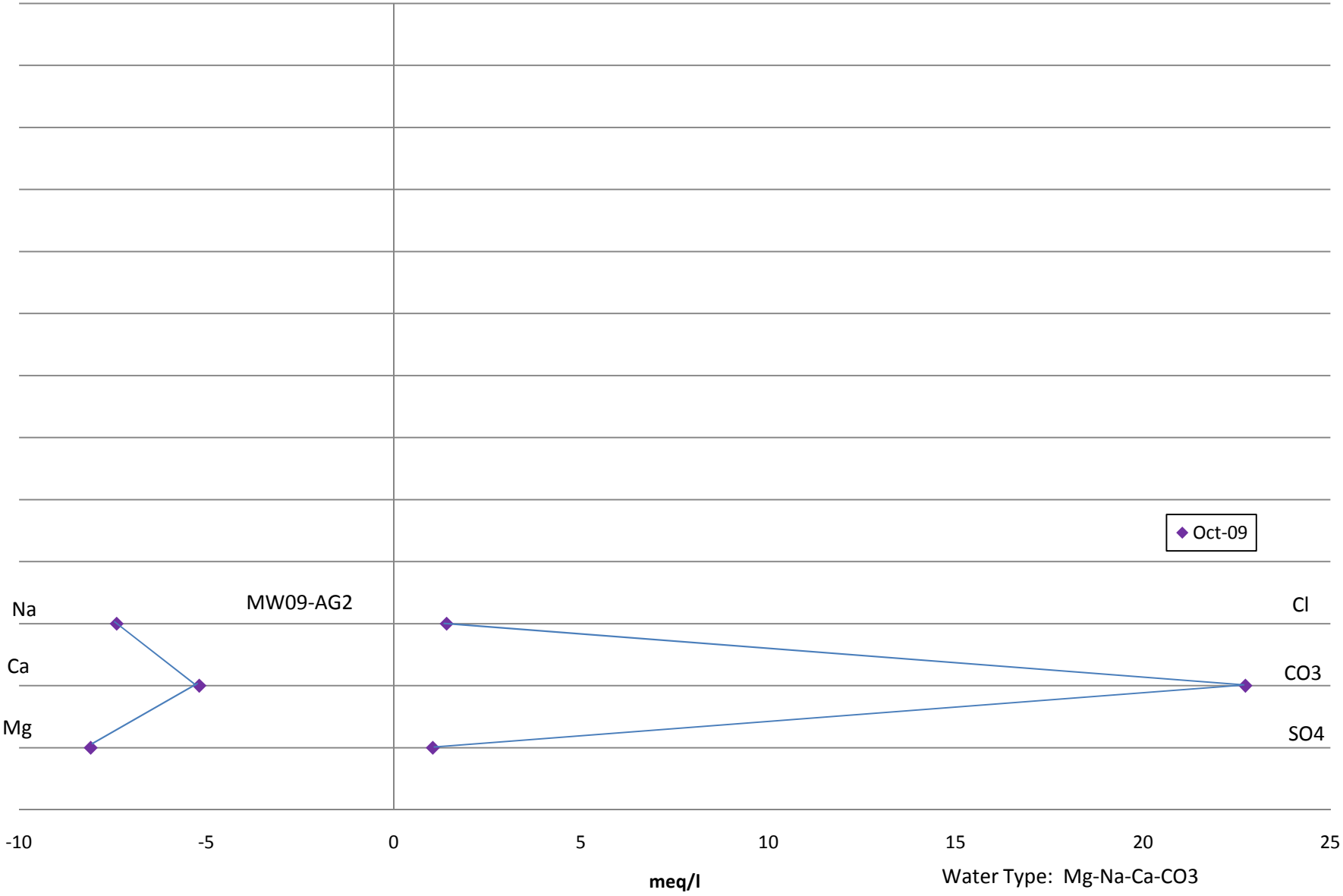
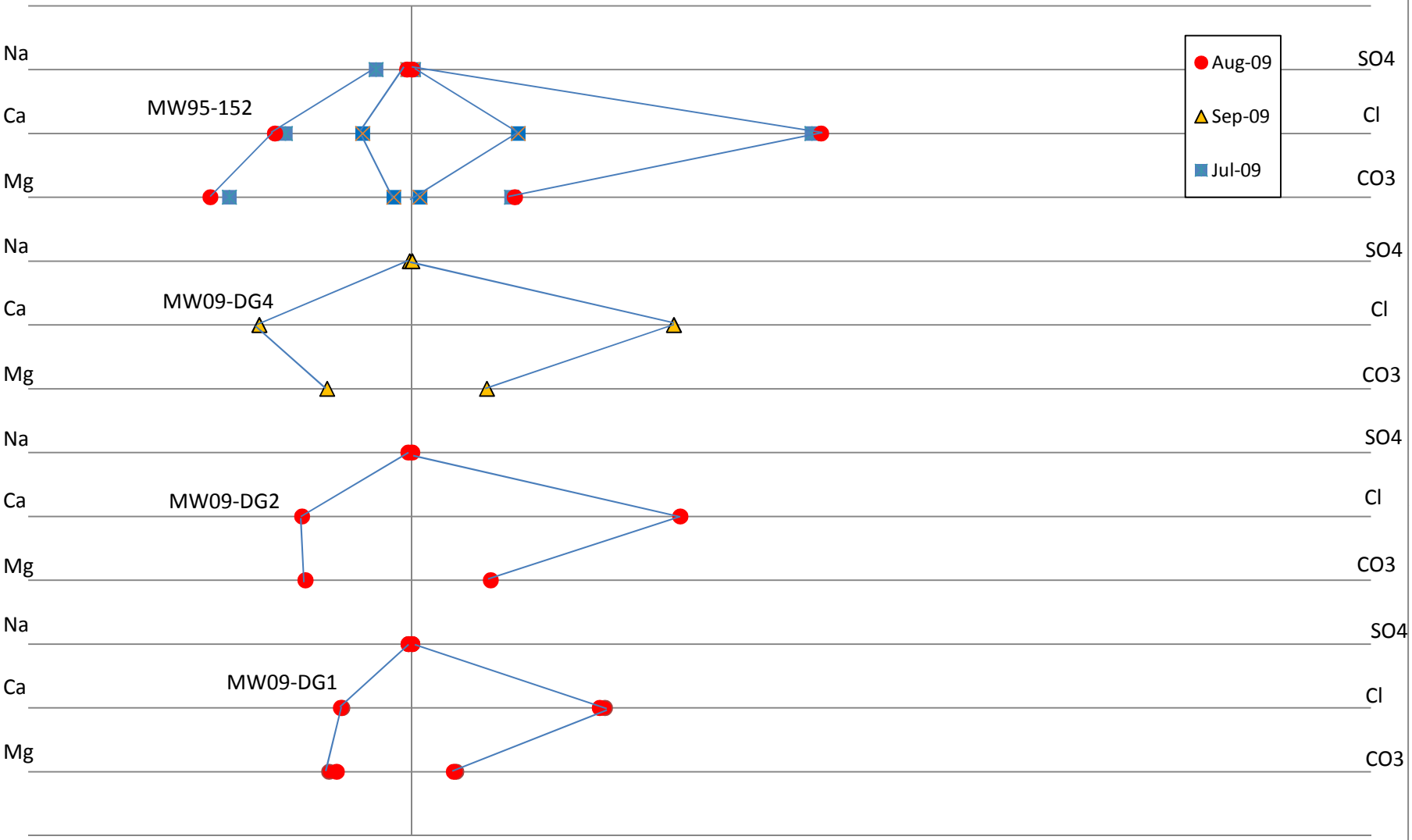


Chart: 9

Dublin Gulch



Water Type: Mg-Ca-CO3-SO4

Chart: 10

Platinum Gulch

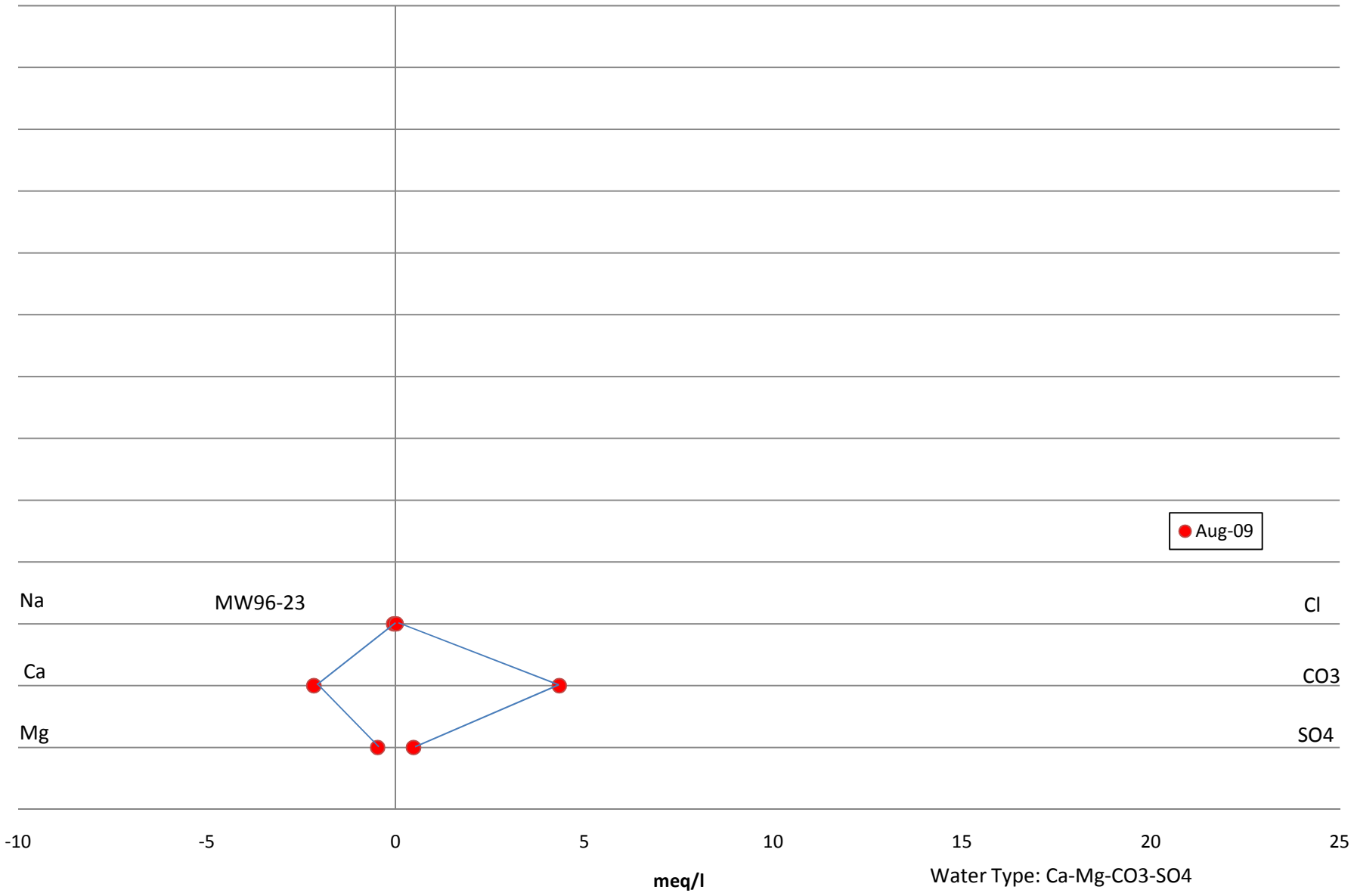


Chart: 11

Stuttle Gulch

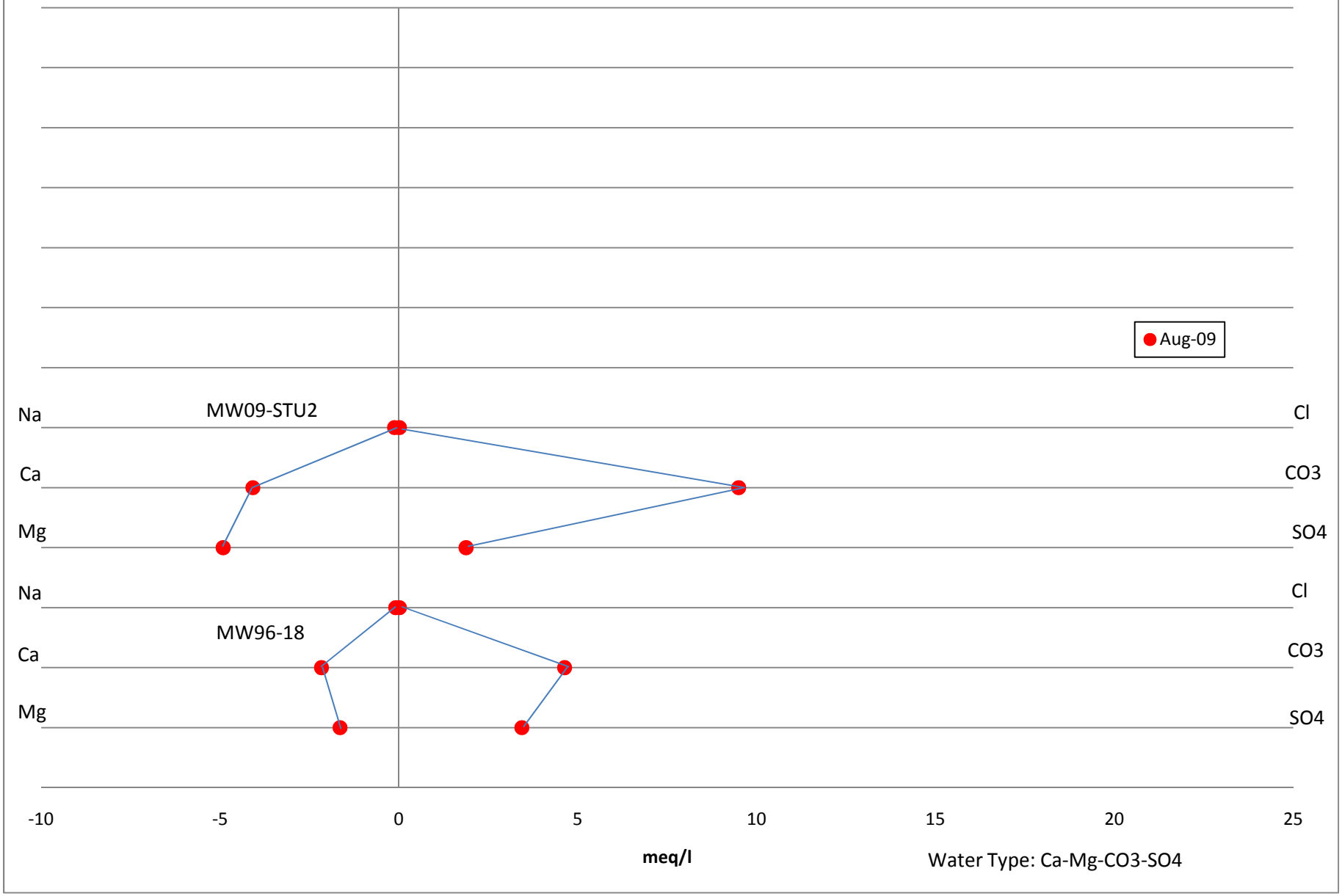


Chart: 12

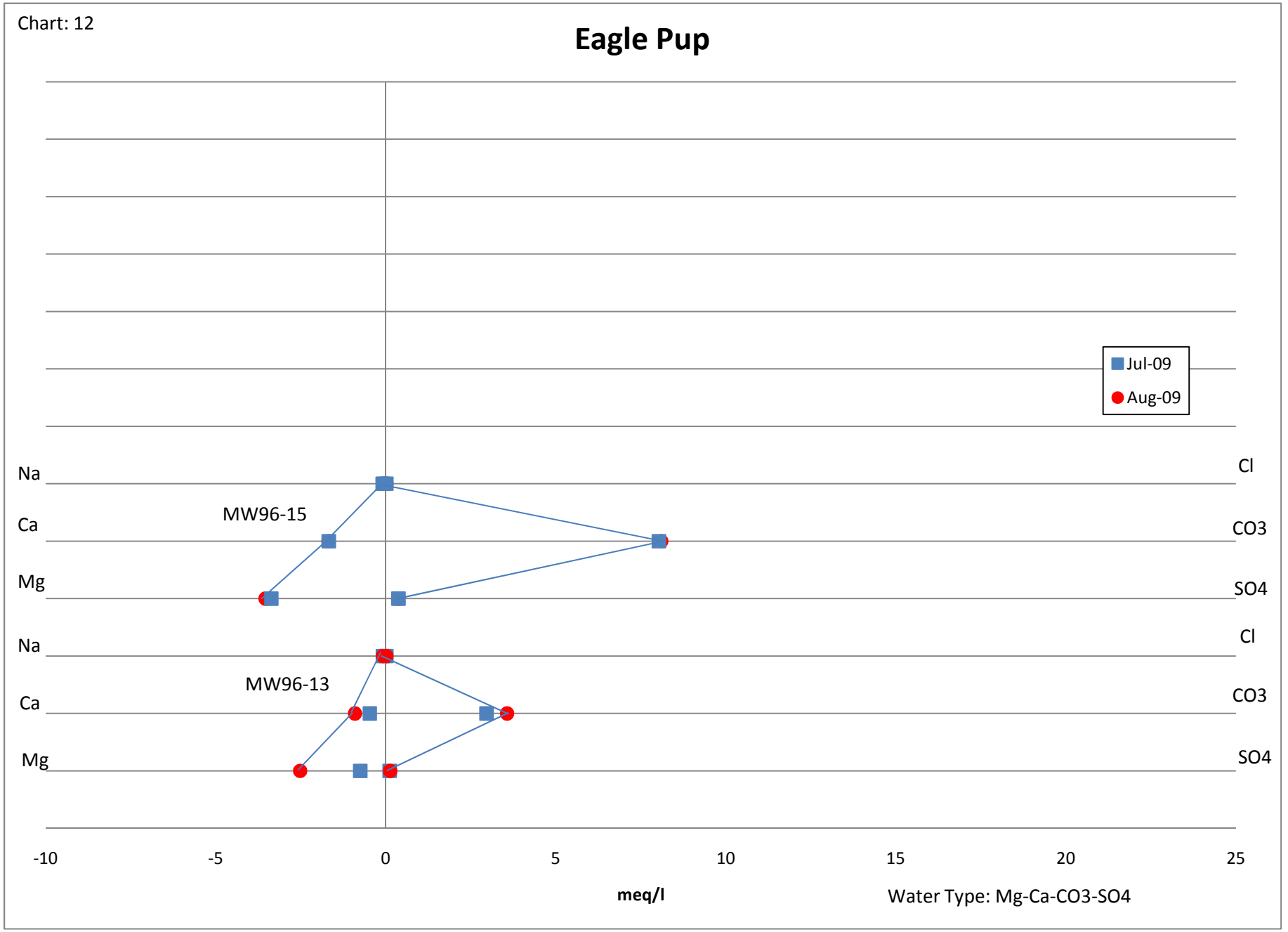
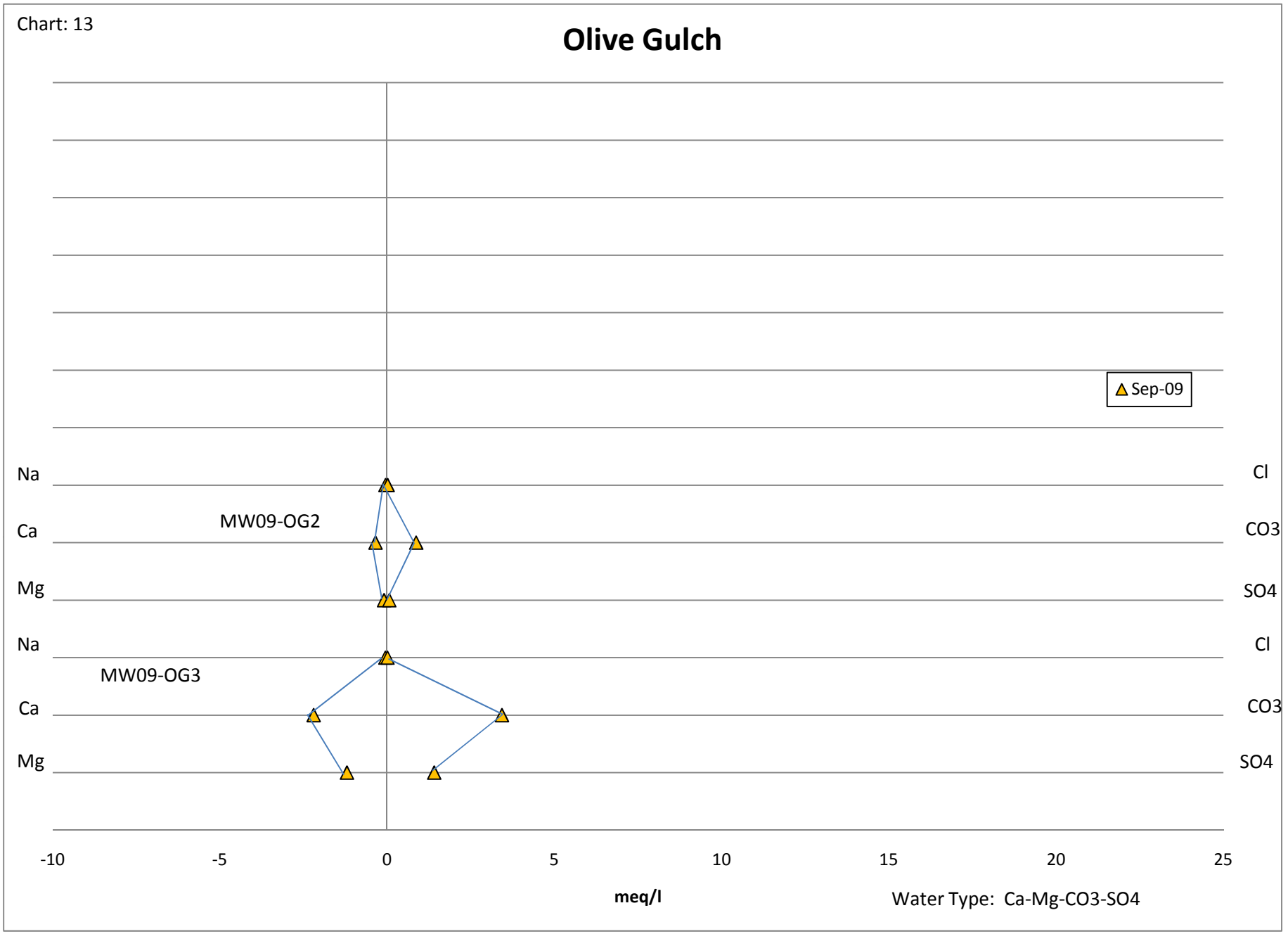

Eagle Pup
Jul-09
Aug-09
Na
Ca
Mg
Cl
CO3
SO4
MW96-15
MW96-13
-10
-5
0
5
10
15
20
25
meq/l
Water Type: Mg-Ca-CO3-SO4

Chart: 13

Olive Gulch



Water Type: Ca-Mg-CO3-SO4

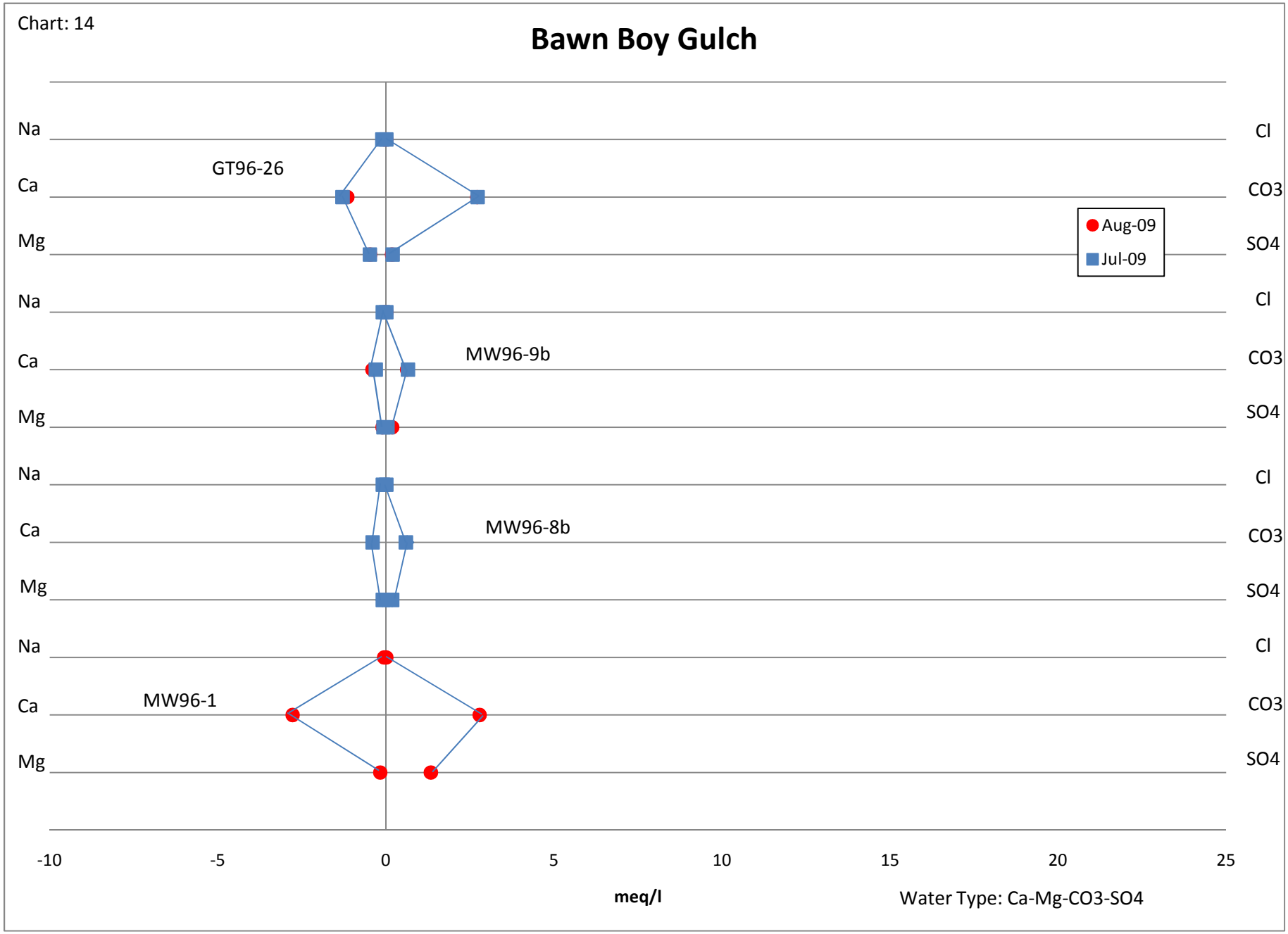


Chart: 14
Bawn Boy Gulch
Na
Ca
Mg
Cl
CO3
SO4
GT96-26
MW96-9b
MW96-8b
MW96-1
Aug-09
Jul-09
-10
-5
0
5
10
15
20
25
meq/l
Water Type: Ca-Mg-CO3-SO4

APPENDIX E

Laboratory Certificates

Certificate of Analysis

JACQUES WHITFORD

ATTN: JENNIFER TODD

4370 DOMINION STREET, 5TH FLOOR
PO BOX 21
BURNABY BC V5G 4L7

Report Date: 12-AUG-09 14:34 (MT)
Version: FINAL

Lab Work Order #: L798225 **Date Received:** 28-JUL-09

Project P.O. #:
Job Reference: 1053550.02/C2404
Legal Site Desc: VICTORIA GOLD DUBLIN GULCH
CofC Numbers: 08-039672

Other Information:

Comments: For samples identified as L798225-2 and L789225-4, the measured concentration of specific dissolved metals is greater than the corresponding total parameters concentration. Both Dissolved and Total cuts were re-analyzed and all data confirmed.The explanation for these findings is one or a combination of the following:

- laboratory method variability;
- analytical bias introduced during sample filtration;
- analytical bias introduced during general handling, storage, transportation and/or analysis of the sample;
- sample grab bias - where separate grab samples are processed to produce total and dissolved samples;
- sample split bias - where total and dissolved parameters samples are produced from the same grab sample.

Natasha Markovic-M.

NATASHA MARKOVIC-MIROVIC
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L798225-1	L798225-2	L798225-3	L798225-4	L798225-5
		Description					
		Sampled Date	27-JUL-09	27-JUL-09	27-JUL-09	27-JUL-09	27-JUL-09
		Sampled Time	09:30	10:00	10:30	11:00	11:30
		Client ID	113	114	102	63	85
Grouping	**Analyte**						
WATER							
Physical Tests	Conductivity (uS/cm)		186	62.5	50.0	181	453
	Hardness (as CaCO3) (mg/L)		89.0	24.0	18.6	148	260
	pH (pH)		7.72	7.38	7.04	8.01	8.17
	Total Suspended Solids (mg/L)		27.5	66.5	32.5	1310	44.0
	Total Dissolved Solids (mg/L)		126	49	42	98	231
	Turbidity (NTU)		28.9	30.8	25.9	679	50.8
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		81.9	17.9	19.8	88.9	241
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)		81.9	17.9	19.8	88.9	241
	Ammonia as N (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050	0.0077
	Bromide (Br) (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)		<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)		0.247	0.046	0.028	0.092	0.372
	Nitrate (as N) (mg/L)		<0.0050	0.0976	0.399	0.174	0.0071
	Nitrite (as N) (mg/L)		<0.0010	<0.0010	0.0049	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)		0.092	<0.050	0.592	<0.050	<0.050
	Ortho Phosphate as P (mg/L)		0.0053	0.0077	0.0337	<0.0010	0.0058
	Total Phosphate as P (mg/L)		0.053	0.066	0.086	0.283	0.047
	Sulfate (SO4) (mg/L)		9.76	8.99	2.41	5.52	17.8
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)		1.79	0.92	5.74	5.54	2.14
Total Metals	Aluminum (Al)-Total (mg/L)		0.209	0.0085	0.394	0.527	0.0302
	Antimony (Sb)-Total (mg/L)		0.0208	0.00055	0.00143	0.00057	0.00064
	Arsenic (As)-Total (mg/L)		0.589	0.0709	0.0751	0.0120	0.117
	Barium (Ba)-Total (mg/L)		0.0406	0.0267	0.0283	0.0159	0.0516
	Beryllium (Be)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)		0.000063	<0.000017	0.000047	0.000061	<0.000017
	Calcium (Ca)-Total (mg/L)		25.8	7.81	5.98	9.45	33.6
	Chromium (Cr)-Total (mg/L)		<0.00050	<0.00050	0.00097	0.00109	<0.00050
	Cobalt (Co)-Total (mg/L)		0.00211	<0.00010	0.00057	0.00099	<0.00010
	Copper (Cu)-Total (mg/L)		0.00198	0.00010	0.00228	0.00168	0.00092
	Iron (Fe)-Total (mg/L)		3.60	<0.030	0.736	1.61	0.271
	Lead (Pb)-Total (mg/L)		0.000824	<0.000050	0.00219	0.00608	0.000251
	Lithium (Li)-Total (mg/L)		0.0064	<0.0050	<0.0050	<0.0050	0.0180
	Magnesium (Mg)-Total (mg/L)		5.73	1.06	0.88	9.14	40.9
	Manganese (Mn)-Total (mg/L)		0.324	0.000286	0.0668	0.0766	0.100
	Molybdenum (Mo)-Total (mg/L)		0.00802	0.000704	0.000533	0.000493	0.00408
	Nickel (Ni)-Total (mg/L)		0.00520	<0.00050	0.00143	0.00318	<0.00050

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L798225-6	L798225-7	L798225-8		
	Description					
	Sampled Date	27-JUL-09	27-JUL-09			
	Sampled Time	12:10	09:30			
	Client ID	133	DUP1	TRAVEL BLANK		
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	779	186	<2.0		
	Hardness (as CaCO3) (mg/L)	409	87.7			
	pH (pH)	8.08	7.79	5.70		
	Total Suspended Solids (mg/L)	53.0	18.5	<3.0		
	Total Dissolved Solids (mg/L)	463	124	<10		
	Turbidity (NTU)	54.7	23.0	<0.10		
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	313	83.2	<2.0		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0		
	Alkalinity, Total (as CaCO3) (mg/L)	313	83.2	<2.0		
	Ammonia as N (mg/L)	0.406	<0.0050	<0.0050		
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)	1.50	<0.50	<0.50		
	Fluoride (F) (mg/L)	0.130	0.257	<0.020		
	Nitrate (as N) (mg/L)	0.262	<0.0050	<0.0050		
	Nitrite (as N) (mg/L)	0.0127	<0.0010	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)	0.607	0.077	<0.050		
	Ortho Phosphate as P (mg/L)	0.0115	0.0054	<0.0010		
	Total Phosphate as P (mg/L)	0.101	0.034	<0.0020		
	Sulfate (SO4) (mg/L)	125	10.2	<0.50		
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	5.74	1.15	<0.50		
Total Metals	Aluminum (Al)-Total (mg/L)	0.112	0.268	<0.0010		
	Antimony (Sb)-Total (mg/L)	0.00077	0.0227	<0.00010		
	Arsenic (As)-Total (mg/L)	0.530	0.579	<0.00010		
	Barium (Ba)-Total (mg/L)	0.0236	0.0423	<0.000050		
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050		
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050		
	Boron (B)-Total (mg/L)	0.011	<0.010	<0.010		
	Cadmium (Cd)-Total (mg/L)	0.000148	0.000061	<0.000017		
	Calcium (Ca)-Total (mg/L)	66.1	25.7	<0.050		
	Chromium (Cr)-Total (mg/L)	<0.00050	0.00069	<0.00050		
	Cobalt (Co)-Total (mg/L)	0.00030	0.00213	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00295	0.00265	<0.00010		
	Iron (Fe)-Total (mg/L)	0.901	3.87	<0.030		
	Lead (Pb)-Total (mg/L)	0.00104	0.00113	<0.000050		
	Lithium (Li)-Total (mg/L)	0.0929	0.0060	<0.0050		
	Magnesium (Mg)-Total (mg/L)	57.8	5.69	<0.10		
	Manganese (Mn)-Total (mg/L)	0.0744	0.324	<0.000050		
	Molybdenum (Mo)-Total (mg/L)	0.000281	0.00791	<0.000050		
	Nickel (Ni)-Total (mg/L)	0.0117	0.00543	<0.00050		

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L798225-1	L798225-2	L798225-3	L798225-4	L798225-5
		Description					
		Sampled Date	27-JUL-09	27-JUL-09	27-JUL-09	27-JUL-09	27-JUL-09
		Sampled Time	09:30	10:00	10:30	11:00	11:30
		Client ID	113	114	102	63	85
Grouping	**Analyte**						
WATER							
Total Metals	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Total (mg/L)		14.5	6.56	6.50	6.14	5.77
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	0.000016	<0.000010
	Sodium (Na)-Total (mg/L)		2.3	2.0	<2.0	<2.0	2.2
	Strontium (Sr)-Total (mg/L)		0.171	0.0483	0.0319	0.0634	0.257
	Thallium (Tl)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)		0.00097	<0.00010	0.00199	0.00153	0.00029
	Titanium (Ti)-Total (mg/L)		0.012	<0.010	0.027	0.030	<0.010
	Uranium (U)-Total (mg/L)		0.000899	0.000235	0.00102	0.000386	0.00704
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.0690	<0.0030	0.0186	0.0076	0.0141
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)		0.0012	<0.0010	0.0203	<0.0010	<0.0010
	Antimony (Sb)-Dissolved (mg/L)		0.0137	0.00046	0.00075	0.00013	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.605	0.0708	0.0580	0.00087	0.132
	Barium (Ba)-Dissolved (mg/L)		0.0369	0.0266	0.0199	0.00299	0.0520
	Beryllium (Be)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.000026	<0.000017	0.000024	<0.000017	0.000037
	Calcium (Ca)-Dissolved (mg/L)		26.2	7.86	6.12	18.5	34.8
	Chromium (Cr)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)		0.00197	<0.00010	0.00021	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)		0.00023	0.00096	0.00125	0.00033	0.00030
	Iron (Fe)-Dissolved (mg/L)		2.59	<0.030	<0.030	<0.030	0.055
	Lead (Pb)-Dissolved (mg/L)		0.000107	<0.000050	0.000114	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.0053	<0.0050	<0.0050	<0.0050	0.0188
	Magnesium (Mg)-Dissolved (mg/L)		5.75	1.07	0.81	24.8	42.1
	Manganese (Mn)-Dissolved (mg/L)		0.321	0.00109	0.0423	0.00137	0.0826
	Molybdenum (Mo)-Dissolved (mg/L)		0.00875	0.000673	0.000499	0.000675	0.00433
	Nickel (Ni)-Dissolved (mg/L)		0.00420	<0.00050	0.00077	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Dissolved (mg/L)		14.3	6.61	6.25	4.43	5.86
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		2.4	2.1	2.0	<2.0	2.2
	Strontium (Sr)-Dissolved (mg/L)		0.176	0.0484	0.0320	0.118	0.267
	Thallium (Tl)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)		0.00011	<0.00010	0.00055	<0.00010	0.00012

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L798225-6	L798225-7	L798225-8		
	Description					
	Sampled Date	27-JUL-09	27-JUL-09			
	Sampled Time	12:10	09:30			
	Client ID	133	DUP1	TRAVEL BLANK		
Grouping	**Analyte**					
WATER						
Total Metals	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30		
	Potassium (K)-Total (mg/L)	4.5	<2.0	<2.0		
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Silicon (Si)-Total (mg/L)	7.46	14.4	<0.050		
	Silver (Ag)-Total (mg/L)	0.000077	0.000013	<0.000010		
	Sodium (Na)-Total (mg/L)	21.4	2.4	<2.0		
	Strontium (Sr)-Total (mg/L)	0.650	0.166	<0.00010		
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/L)	0.00505	0.00134	<0.00010		
	Titanium (Ti)-Total (mg/L)	0.014	0.017	<0.010		
	Uranium (U)-Total (mg/L)	0.00306	0.000909	<0.000010		
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Zinc (Zn)-Total (mg/L)	0.0241	0.0710	<0.0010		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0012	0.0011			
	Antimony (Sb)-Dissolved (mg/L)	0.00048	0.0165			
	Arsenic (As)-Dissolved (mg/L)	0.644	0.576			
	Barium (Ba)-Dissolved (mg/L)	0.0219	0.0355			
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050			
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050			
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017	0.000024			
	Calcium (Ca)-Dissolved (mg/L)	67.6	25.8			
	Chromium (Cr)-Dissolved (mg/L)	<0.00080	<0.00050			
	Cobalt (Co)-Dissolved (mg/L)	0.00017	0.00186			
	Copper (Cu)-Dissolved (mg/L)	0.00027	0.00061			
	Iron (Fe)-Dissolved (mg/L)	0.293	2.58			
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000091			
	Lithium (Li)-Dissolved (mg/L)	0.0896	0.0052			
	Magnesium (Mg)-Dissolved (mg/L)	58.4	5.66			
	Manganese (Mn)-Dissolved (mg/L)	0.0712	0.306			
	Molybdenum (Mo)-Dissolved (mg/L)	0.000228	0.00835			
	Nickel (Ni)-Dissolved (mg/L)	0.00964	0.00414			
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30			
	Potassium (K)-Dissolved (mg/L)	4.5	<2.0			
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010			
	Silicon (Si)-Dissolved (mg/L)	7.37	14.1			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	21.4	2.2			
	Strontium (Sr)-Dissolved (mg/L)	0.672	0.168			
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010			
	Tin (Sn)-Dissolved (mg/L)	0.00142	0.00010			

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L798225-1	L798225-2	L798225-3	L798225-4	L798225-5
	Description					
	Sampled Date	27-JUL-09	27-JUL-09	27-JUL-09	27-JUL-09	27-JUL-09
	Sampled Time	09:30	10:00	10:30	11:00	11:30
	Client ID	113	114	102	63	85
Grouping	**Analyte**					
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000806	0.000177	0.000223	0.000511	0.00735
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0297	0.0125	0.0233	0.0014	0.0025

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L798225-6	L798225-7	L798225-8		
	Description					
	Sampled Date	27-JUL-09	27-JUL-09			
	Sampled Time	12:10	09:30			
	Client ID	133	DUP1	TRAVEL BLANK		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.00313	0.000771			
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	0.0077	0.0277			

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA Water Ammonia by Colour APHA 4500-NH3 "Nitrogen (Ammonia)"

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NH3-COL-VA Water Ammonia by Colour APHA 4500-NH3 Nitrogen (Ammonia)

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # **08- 039672**

Page ____ of ____

Report to:		Report Format / Distribution		Service Requested: (rush - subject to availability)
Company:	Stantec	Standard: ____ Other: ____		Regular (Default) ✓
Contact:	Jennifer Todd	Select: PDF ✓ Excel ✓ Digital		Priority (2-3 Business Days) - 50% Surcharge
Address:	4370 Dominion St. Burnaby, BC V5G 4L7	Email 1: jennifer.todd@stantec.com		Emergency (1 Business Day) - 100% Surcharge
		Email 2:		For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone:	604.436.3014 Fax: 604.436.3752			**Analysis Request**
Invoice To:	Same as Report ? (Yes) / No ?	**Client / Project Information:**		(Indicate Filtered or Preserved, F/P)
Company:		Job #:	053550.02 / C2404	
Contact:		PO / AFE:		
Address:		Legal Site Description:	Victoria Gold Dublin Gulch	
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)	L798225	ALS Contact:	Sampler: Jennifer Todd	

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	Total metals P	Dissolved Metals F/P	Raw Parameters P	TKN/ NH_3 P	TOC P	Number of Containers
113		July 27	9:30	groundwater	✓	✓	✓	✓	✓	5
114		July 27	10:00	groundwater	✓	✓	✓	✓	✓	5
102		July 27	10:30	groundwater	✓	✓	✓	✓	✓	5
63		July 27	11:00	groundwater	✓	✓	✓	✓	✓	5
85		July 27	11:30	groundwater	✓	✓	✓	✓	✓	5
133		July 27	12:10	groundwater	✓	✓	✓	✓	✓	5
Dup1		July 27	9:30	groundwater	✓	✓	✓	✓	✓	5

Special Instructions / Regulations / Hazardous Details

CCME / CSR QAQC/EDT

Total = 35

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by:	Date & Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date & Time:	Observations: Yes / No ? If Yes attach SIF
		HD	09/07/28	14:20	12°C			

Certificate of Analysis

JACQUES WHITFORD

ATTN: JENNIFER TODD

4370 DOMINION STREET, 5TH FLOOR
PO BOX 21
BURNABY BC V5G 4L7

Report Date: 24-SEP-09 10:23 (MT)
Version: FINAL REV. 2

Lab Work Order #: L812430 **Date Received:** 31-AUG-09

Project P.O. #:
Job Reference: 1053550.08
Legal Site Desc: DUBLIN GULCH
CofC Numbers: 08-023699, 08-023703

Other Information:

Comments:

Please note that certain Metals limits have been increased for some of the samples due to the interferences encountered during the analysis.

Furthermore, for some of the submitted water samples, the measured concentration of specific dissolved parameters is greater than the corresponding total parameters concentration. The explanation for these findings is one or a combination of the following:

- laboratory method variability;
- analytical bias introduced during sample filtration;
- analytical bias introduced during general handling, storage, transportation and/or analysis of the sample;
- sample grab bias - where separate grab samples are processed to produce total and dissolved samples;
- sample split bias - where total and dissolved parameters samples are produced from the same grab sample.

This revision, 2, of the report replaces and supersedes all previous revisions. The missing Mercury results have been added to all samples analyzed for metals. All other data remains unchanged.

NATASHA MARKOVIC-MIROVIC
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L812430-1	L812430-2	L812430-3	L812430-4	L812430-5
	Description					
	Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09
	Sampled Time					
	Client ID	MW96-1	MW96-8	MW96-9	MW96-13	MW96-15
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	282	62.9	53.4	203	446
	Hardness (as CaCO3) (mg/L)	151	25.0	23.2	83.9	274
	pH (pH)	7.36	7.14	6.94	7.73	7.90
	Total Suspended Solids (mg/L)	148	23.3	42.3	487	7.3
	Total Dissolved Solids (mg/L)	190	47	44	108	236
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	83.8	19.0	22.6	107	243
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	83.8	19.0	22.6	107	243
	Ammonia as N (mg/L)	0.0606	<0.0050	0.0297	0.0076	0.0245
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.062	0.038	0.025	0.061	0.318
	Nitrate (as N) (mg/L)	0.0054	0.0939	0.145	0.177	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.126	0.056	0.159	0.091	0.094
	Ortho Phosphate as P (mg/L)	<0.0010	0.0050	0.0016	<0.0010	0.0026
	Total Phosphate as P (mg/L)	0.088	0.0202	0.0428	0.121	0.0045
	Sulfate (SO4) (mg/L)	64.4	9.16	2.51	6.12	17.3
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	3.18	0.85	0.80	2.56	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.815	0.274	0.802	2.50	0.0665
	Antimony (Sb)-Total (mg/L)	0.00370	0.00138	0.00203	0.00204	0.00021
	Arsenic (As)-Total (mg/L)	0.0183	0.0653	0.0673	0.0457	0.118
	Barium (Ba)-Total (mg/L)	0.0178	0.0331	0.0397	0.0421	0.0578
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000127	0.000045	0.000049	0.000172	0.000037
	Calcium (Ca)-Total (mg/L)	55.5	8.01	6.71	18.2	33.8
	Chromium (Cr)-Total (mg/L)	0.00221	0.00087	0.00190	0.00434	<0.00050
	Cobalt (Co)-Total (mg/L)	0.00059	0.00019	0.00055	0.00393	<0.00010
	Copper (Cu)-Total (mg/L)	0.00417	0.00092	0.00315	0.00631	0.00062
	Iron (Fe)-Total (mg/L)	1.69	0.381	1.25	6.06	0.239
	Lead (Pb)-Total (mg/L)	0.00440	0.000672	0.00419	0.0171	0.000371
	Lithium (Li)-Total (mg/L)	0.0087	<0.0050	<0.0050	0.0061	0.0180
	Magnesium (Mg)-Total (mg/L)	2.01	1.18	1.40	30.6	43.0
	Manganese (Mn)-Total (mg/L)	0.103	0.00876	0.0270	0.234	0.0376
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)	0.00309	0.000669	0.000498	0.000956	0.00455

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L812430-6	L812430-7	L812430-8	L812430-9	L812430-10
	Description					
	Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09
	Sampled Time					
	Client ID	MW96-18	MW96-23	GT96-26	MW95-152	DUP
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	568	287	180	787	384
	Hardness (as CaCO3) (mg/L)	315	140	81.6	443	183
	pH (pH)	7.64	7.83	7.33	7.74	7.72
	Total Suspended Solids (mg/L)	133	29.8	106	7.8	42.3
	Total Dissolved Solids (mg/L)	385	170	125	494	221
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	139	130	81.6	320	151
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<1.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<1.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	139	130	81.6	320	151
	Ammonia as N (mg/L)	0.361	<0.0050	<0.0050	0.412	0.0839
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.50	<0.050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<5.0	<0.50
	Fluoride (F) (mg/L)	0.073	0.056	0.131	<0.20	0.139
	Nitrate (as N) (mg/L)	0.0085	0.479	<0.0050	<0.050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.32	0.119	0.363	1.20	0.186
	Ortho Phosphate as P (mg/L)	0.0027	0.0331	0.0808	0.0082	<0.0010
	Total Phosphate as P (mg/L)	0.259	0.0585	0.543	0.0297	0.018
	Sulfate (SO4) (mg/L)	165	22.8	8.89	129	55.6
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.24	2.18	7.28	3.90	2.65
Total Metals	Aluminum (Al)-Total (mg/L)	0.203	0.540	2.88	0.106	0.215
	Antimony (Sb)-Total (mg/L)	0.0215	0.00182	0.0299	0.00075	0.00178
	Arsenic (As)-Total (mg/L)	0.618	0.250	0.267	0.554	0.119
	Barium (Ba)-Total (mg/L)	0.0251	0.0201	0.0590	0.0259	0.0382
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.0010	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	0.00062	<0.00050	<0.0010	<0.00050
	Boron (B)-Total (mg/L)	<0.010	0.011	0.010	<0.020	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000043	0.000099	0.000077	<0.000034	0.000045
	Calcium (Ca)-Total (mg/L)	87.5	43.4	22.9	71.5	36.4
	Chromium (Cr)-Total (mg/L)	0.00087	0.00112	0.00139	<0.0010	0.00111
	Cobalt (Co)-Total (mg/L)	0.00148	0.00087	0.00284	0.00030	0.00109
	Copper (Cu)-Total (mg/L)	0.00153	0.00449	0.0116	0.00260	0.00177
	Iron (Fe)-Total (mg/L)	2.39	0.720	9.09	0.344	2.01
	Lead (Pb)-Total (mg/L)	0.00324	0.00167	0.00296	0.00109	0.000731
	Lithium (Li)-Total (mg/L)	<0.0050	0.0112	0.0068	0.111	0.0270
	Magnesium (Mg)-Total (mg/L)	20.0	5.79	5.69	63.8	26.2
	Manganese (Mn)-Total (mg/L)	0.341	0.0191	0.377	0.0747	0.311
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)	0.00448	0.00725	0.00976	0.00030	0.00520

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L812430-11	L812430-12	L812430-13		
		Description					
		Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09		
		Sampled Time					
		Client ID	MW09-DG1	MW09-DG2	MW09-STU 2		
Grouping	**Analyte**						
WATER							
Physical Tests	Conductivity (uS/cm)		377	557	659		
	Hardness (as CaCO3) (mg/L)		189	293	452		
	pH (pH)		7.74	7.50	7.62		
	Total Suspended Solids (mg/L)		27.8	6.3	28.8		
	Total Dissolved Solids (mg/L)		217	350	397		
	Turbidity (NTU)				23.0		
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		147	210	285		
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0	<2.0	<2.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0	<2.0	<2.0		
	Alkalinity, Total (as CaCO3) (mg/L)		147	210	285		
	Ammonia as N (mg/L)		0.0554	0.0315	0.152		
	Bromide (Br) (mg/L)		<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)		<0.50	<0.50	<0.50		
	Fluoride (F) (mg/L)		0.138	0.104	0.110		
	Nitrate (as N) (mg/L)		<0.0050	<0.0050	0.0065		
	Nitrite (as N) (mg/L)		<0.0010	0.0104	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)		0.191	0.339	0.488		
	Ortho Phosphate as P (mg/L)		0.0012	<0.0010	0.0011		
	Total Phosphate as P (mg/L)		<0.010	<0.0020	0.024		
	Sulfate (SO4) (mg/L)		52.6	98.9	90.1		
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)		2.35	4.74	2.32		
Total Metals	Aluminum (Al)-Total (mg/L)		0.499	0.595	0.0280		
	Antimony (Sb)-Total (mg/L)		0.00412	0.00800	0.00029		
	Arsenic (As)-Total (mg/L)		0.0712	0.0548	1.32		
	Barium (Ba)-Total (mg/L)		0.0489	0.0797	0.0224		
	Beryllium (Be)-Total (mg/L)		<0.00050	<0.00050	<0.00050		
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.00050		
	Boron (B)-Total (mg/L)		0.013	<0.010	<0.010		
	Cadmium (Cd)-Total (mg/L)		0.000062	0.000085	<0.000017		
	Calcium (Ca)-Total (mg/L)		37.1	57.3	81.8		
	Chromium (Cr)-Total (mg/L)		0.00220	0.00191	<0.00070		
	Cobalt (Co)-Total (mg/L)		0.00144	0.00161	<0.00010		
	Copper (Cu)-Total (mg/L)		0.00403	0.00415	0.00019		
	Iron (Fe)-Total (mg/L)		2.23	1.89	1.57		
	Lead (Pb)-Total (mg/L)		0.00170	0.00250	0.000317		
	Lithium (Li)-Total (mg/L)		0.0211	0.0257	0.0578		
	Magnesium (Mg)-Total (mg/L)		23.8	33.7	59.7		
	Manganese (Mn)-Total (mg/L)		0.292	0.411	0.0645		
	Mercury (Hg)-Total (mg/L)		<0.000050	<0.000050	<0.000050		
	Molybdenum (Mo)-Total (mg/L)		0.0121	0.00729	0.000208		

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L812430-1	L812430-2	L812430-3	L812430-4	L812430-5
		Description					
		Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09
		Sampled Time					
		Client ID	MW96-1	MW96-8	MW96-9	MW96-13	MW96-15
Grouping	**Analyte**						
WATER							
Total Metals	Nickel (Ni)-Total (mg/L)		0.00267	0.00074	0.00218	0.0135	<0.00050
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		<2.0	<2.0	<2.0	3.3	2.3
	Selenium (Se)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Total (mg/L)		8.21	6.80	9.53	8.41	5.85
	Silver (Ag)-Total (mg/L)		0.000119	0.000014	<0.000020	0.000140	<0.000010
	Sodium (Na)-Total (mg/L)		2.7	2.3	2.5	<2.0	2.5
	Strontium (Sr)-Total (mg/L)		0.326	0.0473	0.0471	0.150	0.341
	Thallium (Tl)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)		0.00477	0.00029	0.00095	0.00109	0.00012
	Titanium (Ti)-Total (mg/L)		0.048	0.013	0.037	0.087	<0.010
	Uranium (U)-Total (mg/L)		0.000384	0.000267	0.000423	0.00128	0.00747
	Vanadium (V)-Total (mg/L)		0.0019	<0.0010	0.0018	0.0032	<0.0010
	Zinc (Zn)-Total (mg/L)		0.0185	0.0098	0.0676	0.0271	0.0034
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)		0.0075	0.0019	0.0045	0.0017	0.0016
	Antimony (Sb)-Dissolved (mg/L)		0.00026	0.00044	0.00072	0.00015	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00615	0.0649	0.0477	0.00095	0.104
	Barium (Ba)-Dissolved (mg/L)		0.00696	0.0133	0.0215	0.00276	0.0551
	Beryllium (Be)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		<0.000017	<0.000017	0.000032	<0.000017	0.000022
	Calcium (Ca)-Dissolved (mg/L)		57.4	8.16	7.35	12.2	36.7
	Chromium (Cr)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)		0.00012	0.00089	0.00082	0.00026	<0.00010
	Iron (Fe)-Dissolved (mg/L)		<0.030	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	0.000125	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.0074	<0.0050	<0.0050	<0.0050	0.0182
	Magnesium (Mg)-Dissolved (mg/L)		1.79	1.12	1.18	13.0	44.1
	Manganese (Mn)-Dissolved (mg/L)		0.0607	0.00140	0.00768	0.00230	0.0192
	Mercury (Hg)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)		0.00286	0.000619	0.000478	0.000711	0.00454
	Nickel (Ni)-Dissolved (mg/L)		<0.00050	<0.00050	0.00073	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0	2.1
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Dissolved (mg/L)		7.34	6.64	8.69	4.73	6.02
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		2.5	2.2	2.3	<2.0	2.2
	Strontium (Sr)-Dissolved (mg/L)		0.319	0.0454	0.0429	0.0874	0.336

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L812430-6	L812430-7	L812430-8	L812430-9	L812430-10
Description					
Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09
Sampled Time					
Client ID	MW96-18	MW96-23	GT96-26	MW95-152	DUP
Grouping / **Analyte**					
WATER					
Total Metals Nickel (Ni)-Total (mg/L)	0.00840	0.00221	0.0253	0.0104	0.00249
Phosphorus (P)-Total (mg/L)	<0.30	<0.30	0.59	<0.30	<0.30
Potassium (K)-Total (mg/L)	3.5	<2.0	<2.0	4.9	3.3
Selenium (Se)-Total (mg/L)	<0.0010	0.0023	<0.0010	<0.0020	<0.0010
Silicon (Si)-Total (mg/L)	3.99	5.23	18.7	7.79	5.41
Silver (Ag)-Total (mg/L)	<0.000030	<0.000030	<0.000040	<0.000020	<0.000060
Sodium (Na)-Total (mg/L)	4.7	12.3	6.9	22.0	8.3
Strontium (Sr)-Total (mg/L)	0.619	0.208	0.239	0.966	0.327
Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010
Tin (Sn)-Total (mg/L)	0.00153	0.00263	0.00044	0.00216	0.00037
Titanium (Ti)-Total (mg/L)	0.018	0.023	0.053	0.011	0.010
Uranium (U)-Total (mg/L)	0.00733	0.00465	0.00113	0.00360	0.00173
Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	0.0012	<0.0020	<0.0010
Zinc (Zn)-Total (mg/L)	0.0088	0.0110	0.0250	0.0134	0.0632
Dissolved Metals Aluminum (Al)-Dissolved (mg/L)	0.0026	0.0034	0.0027	0.0035	0.0046
Antimony (Sb)-Dissolved (mg/L)	0.0192	0.00113	0.0312	0.00053	0.00343
Arsenic (As)-Dissolved (mg/L)	0.0828	0.222	0.0862	0.557	0.0203
Barium (Ba)-Dissolved (mg/L)	0.0213	0.0123	0.0192	0.0226	0.0398
Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.0010	<0.00050
Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.0010	<0.00050
Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.020	0.013
Cadmium (Cd)-Dissolved (mg/L)	<0.000017	0.000044	0.000036	<0.000034	<0.000017
Calcium (Ca)-Dissolved (mg/L)	92.7	46.6	24.2	73.8	35.3
Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.0010	<0.00050
Cobalt (Co)-Dissolved (mg/L)	0.00127	<0.00010	0.00146	<0.00020	0.00111
Copper (Cu)-Dissolved (mg/L)	<0.00010	0.00115	0.00400	0.00028	0.00091
Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	0.176	<0.030
Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	0.00012	<0.000050
Lithium (Li)-Dissolved (mg/L)	<0.0050	0.0102	0.0057	0.099	0.0174
Magnesium (Mg)-Dissolved (mg/L)	20.3	5.85	5.15	63.0	23.0
Manganese (Mn)-Dissolved (mg/L)	0.326	0.000096	0.302	0.0656	0.279
Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)-Dissolved (mg/L)	0.00432	0.00688	0.00832	0.00024	0.0136
Nickel (Ni)-Dissolved (mg/L)	0.00705	0.00070	0.0111	0.0085	0.00336
Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)-Dissolved (mg/L)	3.7	<2.0	<2.0	4.8	3.1
Selenium (Se)-Dissolved (mg/L)	<0.0010	0.0021	<0.0010	<0.0020	<0.0010
Silicon (Si)-Dissolved (mg/L)	3.77	4.59	12.6	7.68	4.57
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010
Sodium (Na)-Dissolved (mg/L)	4.4	11.8	6.6	20.0	11.5
Strontium (Sr)-Dissolved (mg/L)	0.608	0.198	0.213	0.860	0.252

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L812430-11	L812430-12	L812430-13		
	Description					
	Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09		
	Sampled Time					
	Client ID	MW09-DG1	MW09-DG2	MW09-STU 2		
Grouping	**Analyte**					
WATER						
Total Metals	Nickel (Ni)-Total (mg/L)	0.00433	0.00600	<0.00050		
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30		
	Potassium (K)-Total (mg/L)	3.3	3.6	4.9		
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Silicon (Si)-Total (mg/L)	5.37	6.79	7.53		
	Silver (Ag)-Total (mg/L)	0.000158	<0.000080	<0.000010		
	Sodium (Na)-Total (mg/L)	11.0	20.3	5.8		
	Strontium (Sr)-Total (mg/L)	0.274	0.445	0.642		
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/L)	0.00081	0.00106	0.00017		
	Titanium (Ti)-Total (mg/L)	0.026	0.031	<0.010		
	Uranium (U)-Total (mg/L)	0.00161	0.00469	0.00175		
	Vanadium (V)-Total (mg/L)	<0.0010	0.0012	<0.0010		
	Zinc (Zn)-Total (mg/L)	0.0712	0.0466	0.0041		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0040	0.143	0.0010		
	Antimony (Sb)-Dissolved (mg/L)	0.00365	0.00690	0.00023		
	Arsenic (As)-Dissolved (mg/L)	0.0309	0.0492	1.33		
	Barium (Ba)-Dissolved (mg/L)	0.0394	0.0661	0.0214		
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050		
	Boron (B)-Dissolved (mg/L)	0.012	<0.010	<0.010		
	Cadmium (Cd)-Dissolved (mg/L)	0.000018	0.000064	<0.000017		
	Calcium (Ca)-Dissolved (mg/L)	37.2	61.2	81.6		
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	0.00537	<0.00080		
	Cobalt (Co)-Dissolved (mg/L)	0.00106	0.00124	<0.00010		
	Copper (Cu)-Dissolved (mg/L)	0.00084	0.00367	0.00018		
	Iron (Fe)-Dissolved (mg/L)	<0.030	0.948	1.46		
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.00187	0.000052		
	Lithium (Li)-Dissolved (mg/L)	0.0197	0.0243	0.0570		
	Magnesium (Mg)-Dissolved (mg/L)	23.3	34.1	60.1		
	Manganese (Mn)-Dissolved (mg/L)	0.276	0.411	0.0623		
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		
	Molybdenum (Mo)-Dissolved (mg/L)	0.0136	0.00633	0.000190		
	Nickel (Ni)-Dissolved (mg/L)	0.00316	0.00472	<0.00050		
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30		
	Potassium (K)-Dissolved (mg/L)	3.2	3.2	5.1		
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010		
	Silicon (Si)-Dissolved (mg/L)	4.53	6.40	7.49		
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Sodium (Na)-Dissolved (mg/L)	11.7	18.2	6.0		
	Strontium (Sr)-Dissolved (mg/L)	0.267	0.426	0.632		

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L812430-1	L812430-2	L812430-3	L812430-4	L812430-5
	Description					
	Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09
	Sampled Time					
	Client ID	MW96-1	MW96-8	MW96-9	MW96-13	MW96-15
Grouping	**Analyte**					
WATER						
Dissolved Metals	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)	0.00034	<0.00010	0.00026	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000298	0.000175	0.000061	0.000134	0.00763
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0013	0.0051	0.0168	0.0011	0.0010

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L812430-6	L812430-7	L812430-8	L812430-9	L812430-10
	Description					
	Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09	27-AUG-09
	Sampled Time					
	Client ID	MW96-18	MW96-23	GT96-26	MW95-152	DUP
Grouping	**Analyte**					
WATER						
Dissolved Metals	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010
	Tin (Sn)-Dissolved (mg/L)	0.00033	0.00129	<0.00010	0.00143	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.00732	0.00438	0.000543	0.00334	0.00141
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0030	0.0024	0.0297	0.0085	0.0341

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L812430-11	L812430-12	L812430-13		
	Description					
	Sampled Date	27-AUG-09	27-AUG-09	27-AUG-09		
	Sampled Time					
	Client ID	MW09-DG1	MW09-DG2	MW09-STU 2		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Dissolved (mg/L)	<0.00010	0.00109	<0.00010		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	0.013	<0.010		
	Uranium (U)-Dissolved (mg/L)	0.00149	0.00446	0.00174		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010		
	Zinc (Zn)-Dissolved (mg/L)	0.0374	0.0346	0.0050		

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-CVAFS-VA	Water	Total Mercury in Water by CVAFS	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA	Water	Dissolved Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA	Water	Diss. Metals in Water by ICPMS (Ultra)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA	Water	Total Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA	Water	Total Metals in Water by ICPMS (Ultra)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA	Water	Ammonia by Colour	APHA 4500-NH3 "Nitrogen (Ammonia)"

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NH3-COL-VA	Water	Ammonia by Colour	APHA 4500-NH3 Nitrogen (Ammonia)

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NH3-SIE-VA	Water	Ammonia by SIE	APHA 4500 D. - NH3 NITROGEN (AMMONIA)

This analysis is carried out, on sulphuric acid preserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using an ammonia selective electrode.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # **08-023699**

Page 1 of 2

Report to:	Jacques Whitford Starrec Axys Jennifer Todd
Company:	
Contact:	
Address:	4370 Dominion St Burnaby BC V5C 4L7
Phone:	604 436 3014 Fax:
Invoice To:	Same as Report ? (Yes) / No ?
Company:	
Contact:	
Address:	
Phone:	Fax:

Report Format / Distribution	
Standard:	✓ Other:
Select:	PDF ✓ Excel ✓ Digital
Email 1:	jenn.fer.todd@Starrec.com
Email 2:	
Client / Project Information:	
Job #:	1053850.08
PO / AFE:	
Legal Site Description:	Dublin Gulch
Quote #:	
ALS Contact:	Sampler:

Service Requested: (rush - subject to availability)
- Regular (Default) ✓
- Priority (2-3 Business Days) - 50% Surcharge
- Emergency (1 Business Day) - 100% Surcharge
- For Emergency < 1 Day, ASAP or Weekend - Contact ALS

Analysis Request
(Indicate Filtered or Preserved, F/P)

Sample Identification (This description will appear on the report)	Date	Time	Sample Type	Dissolved Metals (F)	Dissolved Metals (P)	Total Metals (P)	TKN / NH3 (P)	TOC (P)	Raw: Anions, TDS, Alk	Conductivity	TSS, T-PO4,	O-PO4	Speciated Alk)			Number of Containers
MW96-1	Aug 27		Groundwater	✓		✓	✓	✓	✓							5
MW96-8					✓	✓	✓	✓	✓							5
MW96-9				✓		✓	✓	✓	✓							5
MW96-13				✓		✓	✓	✓	✓							5
MW96-19				✓		✓	✓	✓	✓							5
MW96-18				✓		✓	✓	✓	✓							5
MW96-23				✓		✓	✓	✓	✓							5
GT96-26					✓	✓	✓	✓	✓							5
MW95-152					✓	✓	✓	✓	✓							5
DUP				✓		✓	✓	✓	✓							5
MW09-DG1				✓		✓	✓	✓	✓							5
MW09-DG2					✓	✓	✓	✓	✓							5

Please filter + preserve remaining dissolved metal samples (MW96-1/9/13/15/18/23 DUP + MW09-DG1) JL

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

Released by:	Date & Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date & Time:	Observations: Yes / No ? If Yes attach SIF
Jen Todd	Aug 28/09	[illegible]	Aug 31/09	10:13am	4°C			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - REPORT COPY, PINK - FILE COPY, YELLOW - CLIENT COPY

GENF 18.00 Front

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 08-023703

Page 2 of 2

Report to:	
Company:	Jacques Whitford Stantec Ltd
Contact:	Jennifer Todd
Address:	4370 Dominion St
	Burnaby BC V5G 4L7
Phone:	604 436 3014 Fax:
Invoice To:	Same as Report ? (Yes) / No ?
Company:	
Contact:	
Address:	
Phone:	Fax:

Report Format / Distribution	
Standard: ___	Other: ___
Select: PDF ✓	Excel ✓ Digital
Email 1:	jennifer.todd@stantec.com
Email 2:	
Client / Project Information:	
Job #:	1053550.08
PO / AFE:	
Legal Site Description:	Dublin Gulch
Quote #:	
ALS Contact:	Natasha
Sampler:	Jennifer Todd

Service Requested: (rush - subject to availability)

- Regular (Default) ✓
- Priority (2-3 Business Days) - 50% Surcharge
- Emergency (1 Business Day) - 100% Surcharge
- For Emergency < 1 Day, ASAP or Weekend - Contact ALS

Analysis Request

(Indicate Filtered or Preserved, F/P)

Sample # (ALS use only)	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	F Metals Dissolved ✓	P Metals Total ✓	Ranges (Anions, TDS, ✓	Alk., Turb., pH, Conductivity,	TSS, T-PO_4,	DOC,	Speciated Alk.)	F TKN / NH_3 ✓	P TOC ✓			Number of Containers
	MW09-STU 2	Aug 28/09		Groundwater	✓	✓	✓					✓	✓			5

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

Released by:	Date & Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date & Time:	Observations: Yes / No ? If Yes attach SIF
Jen Todd	Aug 28/09	KS	Aug 31/09	10:13[illegible]	4°C			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

JACQUES WHITFORD

ATTN: JENNIFER TODD

4370 DOMINION STREET, 5TH FLOOR
PO BOX 21
BURNABY BC V5G 4L7

Report Date: 18-SEP-09 16:19 (MT)
Version: FINAL

Lab Work Order #: **L815386** **Date Received:** **08-SEP-09**

Project P.O. #: C3106
Job Reference: 1053550.08
Legal Site Desc: EAGLE GOLD
CofC Numbers: 08-022572

Other Information:

Comments: Please note that certain Metals limits have been increased for some of the samples due to the interferences encountered during the analysis.

Furthermore, for some of the submitted water samples, the measured concentration of specific dissolved parameters is greater than the corresponding total parameters concentration. The explanation for these findings is one or a combination of the following:

- laboratory method variability;
- analytical bias introduced during sample filtration;
- analytical bias introduced during general handling, storage, transportation and/or analysis of the sample;
- sample grab bias - where separate grab samples are processed to produce total and dissolved samples;
- sample split bias - where total and dissolved parameters samples are produced from the same grab sample.

NATASHA MARKOVIC-MIROVIC
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS Canada Ltd.
Part of the **ALS Laboratory Group**
1988 Triumph Street, Vancouver, BC V5L 1K5
Phone: +1 604 253 4188 Fax: +1 604 253 6700 www.alsglobal.com
A Campbell Brothers Limited Company

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L815386-1	L815386-2	L815386-3	L815386-4	
		Description					
		Sampled Date	04-SEP-09	04-SEP-09	04-SEP-09	03-SEP-09	
		Sampled Time					
		Client ID	MW09-OG3	MW09-OG2	MW09-DG4	MW09-DG5	
Grouping	**Analyte**						
WATER							
Physical Tests	Conductivity (uS/cm)		62.0	332	545		
	Hardness (as CaCO3) (mg/L)		20.2	169	310	452	
	pH (pH)		6.56	7.30	7.31		
	Total Suspended Solids (mg/L)		33.8	66.3	42.8		
	Total Dissolved Solids (mg/L)		40	205	342		
	Turbidity (NTU)		10.0	31.1	11.5		
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		26.0	103	205		
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0	<2.0	<2.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0	<2.0	<2.0		
	Alkalinity, Total (as CaCO3) (mg/L)		26.0	103	205		
	Ammonia as N (mg/L)		<0.020	<0.020	<0.020		
	Bromide (Br) (mg/L)		<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)		<0.50	<0.50	<0.50		
	Fluoride (F) (mg/L)		0.025	0.282	0.080		
	Nitrate (as N) (mg/L)		0.125	0.0255	0.116		
	Nitrite (as N) (mg/L)		0.0011	0.0043	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)		2.30	0.301	0.117		
	Ortho Phosphate as P (mg/L)		<0.0010	<0.0010	<0.0010		
	Total Phosphate as P (mg/L)		0.0185	0.049	0.0228		
	Sulfate (SO4) (mg/L)		3.12	67.7	94.1		
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)		1.82	2.17	1.43		
Total Metals	Aluminum (Al)-Total (mg/L)		0.736	0.495	0.223		
	Antimony (Sb)-Total (mg/L)		0.00060	0.00260	0.00092		
	Arsenic (As)-Total (mg/L)		0.00242	0.0215	0.00496		
	Barium (Ba)-Total (mg/L)		0.0152	0.0849	0.120		
	Beryllium (Be)-Total (mg/L)		<0.00050	<0.00050	<0.00050		
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.00050		
	Boron (B)-Total (mg/L)		<0.010	<0.010	<0.010		
	Cadmium (Cd)-Total (mg/L)		0.000035	0.000198	0.000038		
	Calcium (Ca)-Total (mg/L)		6.95	44.0	79.6		
	Chromium (Cr)-Total (mg/L)		0.00055	0.00125	0.00142		
	Cobalt (Co)-Total (mg/L)		0.00048	0.00084	0.00067		
	Copper (Cu)-Total (mg/L)		0.00384	0.00590	0.00283		
	Iron (Fe)-Total (mg/L)		0.555	0.936	0.784		
	Lead (Pb)-Total (mg/L)		0.000907	0.00263	0.00193		
	Lithium (Li)-Total (mg/L)		0.0056	0.0073	0.0117		
	Magnesium (Mg)-Total (mg/L)		1.13	14.6	26.8		
	Manganese (Mn)-Total (mg/L)		0.0496	0.107	0.0684		
	Mercury (Hg)-Total (mg/L)		<0.000050	<0.000050	<0.000050		
	Molybdenum (Mo)-Total (mg/L)		0.00235	0.00232	0.000618		

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L815386-1	L815386-2	L815386-3	L815386-4	
		Description					
		Sampled Date	04-SEP-09	04-SEP-09	04-SEP-09	03-SEP-09	
		Sampled Time					
		Client ID	MW09-OG3	MW09-OG2	MW09-DG4	MW09-DG5	
Grouping	**Analyte**						
WATER							
Total Metals	Nickel (Ni)-Total (mg/L)		0.00376	0.00419	0.00175		
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30		
	Potassium (K)-Total (mg/L)		<2.0	2.1	2.2		
	Selenium (Se)-Total (mg/L)		<0.0010	<0.0010	<0.0010		
	Silicon (Si)-Total (mg/L)		7.75	7.93	5.31		
	Silver (Ag)-Total (mg/L)		0.000015	0.000012	0.000015		
	Sodium (Na)-Total (mg/L)		3.8	4.8	3.4		
	Strontium (Sr)-Total (mg/L)		0.0318	0.170	0.303		
	Thallium (Tl)-Total (mg/L)		<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/L)		0.00034	0.00028	0.00064		
	Titanium (Ti)-Total (mg/L)		0.026	0.030	0.022		
	Uranium (U)-Total (mg/L)		0.000175	0.00213	0.00677		
	Vanadium (V)-Total (mg/L)		<0.0010	0.0010	<0.0010		
	Zinc (Zn)-Total (mg/L)		0.0226	0.0275	0.0054		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)		0.0248	0.0079	0.0014	0.0045	
	Antimony (Sb)-Dissolved (mg/L)		0.00020	0.00230	0.00037	0.00238	
	Arsenic (As)-Dissolved (mg/L)		0.00038	0.0113	0.00047	0.00208	
	Barium (Ba)-Dissolved (mg/L)		0.00605	0.0639	0.113	0.0431	
	Beryllium (Be)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	0.019	
	Cadmium (Cd)-Dissolved (mg/L)		0.000019	0.000088	0.000019	0.000108	
	Calcium (Ca)-Dissolved (mg/L)		6.49	43.9	79.8	100	
	Chromium (Cr)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00060	
	Cobalt (Co)-Dissolved (mg/L)		0.00026	0.00041	0.00021	0.00339	
	Copper (Cu)-Dissolved (mg/L)		0.00336	0.00366	0.00278	0.0105	
	Iron (Fe)-Dissolved (mg/L)		<0.030	<0.030	<0.030	0.068	
	Lead (Pb)-Dissolved (mg/L)		<0.000050	0.000146	<0.000050	0.000347	
	Lithium (Li)-Dissolved (mg/L)		0.0052	0.0063	0.0111	0.0943	
	Magnesium (Mg)-Dissolved (mg/L)		0.96	14.4	26.8	49.0	
	Manganese (Mn)-Dissolved (mg/L)		0.0379	0.0780	0.0432	0.411	
	Mercury (Hg)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	
	Molybdenum (Mo)-Dissolved (mg/L)		0.00250	0.00278	0.000942	0.00560	
	Nickel (Ni)-Dissolved (mg/L)		0.00273	0.00267	0.00075	0.00664	
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	2.2	22.1	
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	
	Silicon (Si)-Dissolved (mg/L)		6.04	6.91	4.92	3.39	
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Dissolved (mg/L)		3.8	4.9	3.5	23.9	
	Strontium (Sr)-Dissolved (mg/L)		0.0305	0.162	0.308	0.407	

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L815386-1	L815386-2	L815386-3	L815386-4	
	Description					
	Sampled Date	04-SEP-09	04-SEP-09	04-SEP-09	03-SEP-09	
	Sampled Time					
	Client ID	MW09-OG3	MW09-OG2	MW09-DG4	MW09-DG5	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Tin (Sn)-Dissolved (mg/L)	<0.00010	0.00015	<0.00010	0.00243	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Dissolved (mg/L)	0.000090	0.00179	0.00685	0.000768	
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	0.0138	0.0253	0.0122	0.0354	

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-CVAFS-VA	Water	Total Mercury in Water by CVAFS	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA	Water	Dissolved Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA	Water	Diss. Metals in Water by ICPMS (Ultra)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA	Water	Total Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA	Water	Total Metals in Water by ICPMS (Ultra)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-SIE-VA	Water	Ammonia by SIE	APHA 4500 D. - NH3 NITROGEN (AMMONIA)

This analysis is carried out, on sulphuric acid preserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using an ammonia selective electrode.

		pH by Meter (Automated)	APHA 4500-H "pH Value"

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
PH-PCT-VA	Water		

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # **08-022572**

Page 1 of 1

Report to:		Report Format / Distribution		Service Requested: (rush - subject to availability)	
Company:	Stantec	Standard:	Other:	Regular (Default)	✓
Contact:	Jennifer Todd	Select: PDF ✓	Excel ✓ Digital	Priority (2-3 Business Days) - 50% Surcharge	
Address:	4370 Dominion St 5th Flor	Email 1:	jennifer.todd@stantec.	Emergency (1 Business Day) - 100% Surcharge	
	Burnaby BC V5G 4L7	Email 2:	james.davies@stantec.com	For Emergency < 1 Day, ASAP or Weekend - Contact ALS	
Phone:	604 436 3014 Fax: 604 4363752				
Invoice To:	Same as Report ? (Yes) / No ?	Client / Project Information:		Analysis Request	
Company:		Job #:	1053550 08	(Indicate Filtered or Preserved, F/P)	
Contact:		PO / AFE:	C3106		
Address:		Legal Site Description:	Eagle Gold		
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)	L815386	ALS Contact:	Sampler: J. Davies		

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	F/P Dis. metals	F/P Total metals	F/P TOC	F/P Raw parameters	F/P TKN/NH3	Number of Containers
MW09-DG3		Sept 4/09		ground water	✓	✓	✓	✓	✓	5
MW09-DG2		Sept 4/09		↓	✓	✓	✓	✓	✓	5
MW09-DG4		Sept 4/09			✓	✓	✓	✓	✓	5
MW09-DG5		Sept 3/09		↓	✓					1

Special Instructions / Regulations / Hazardous Details

CCME / CSR QA/QC / GDT

Total = 16

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by:	Date & Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date & Time:	Observations: Yes / No ? If Yes attach SIF
J. Davies	Sept 8/09	Jody	09/08/09	12:53 PM	2°C			

Certificate of Analysis

JACQUES WHITFORD

ATTN: NEIL MACLEOD

4370 DOMINION STREET, 5TH FLOOR
PO BOX 21
BURNABY BC V5G 4L7

Report Date: 26-OCT-09 14:18 (MT)
Version: FINAL

Lab Work Order #: L829307 **Date Received:** 13-OCT-09

Project P.O. #:
Job Reference: 1053550.08 C3112 810.030
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

Lindsay Jones
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L829307-1	L829307-2	L829307-3	L829307-4	L829307-5
		Description					
		Sampled Date	05-OCT-09	05-OCT-09	05-OCT-09	05-OCT-09	05-OCT-09
		Sampled Time	12:00	12:30	15:30	12:00	13:30
		Client ID	MW-09-OG-3	MW-96-8	MW09-OG-2	MW96-19	MW96-15-B
Grouping	**Analyte**						
WATER							
Physical Tests	Conductivity (uS/cm)		336	64.2	42.7	565	445
	Hardness (as CaCO3) (mg/L)		183	25.8	15.7	313	262
	pH (pH)		7.11	7.08	6.99	7.60	7.90
	Total Suspended Solids (mg/L)		21.8	9.3	5.8	43.3	4.8
	Total Dissolved Solids (mg/L)		221	49	41	391	233
	Turbidity (NTU)		12.0	3.39	4.20	47.7	4.05
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)		108	20.1	20.5	141	239
	Ammonia as N (mg/L)		0.0342	0.0156	<0.0050	0.0480	<0.0050
	Bromide (Br) (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)		<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)		0.414	0.034	<0.020	0.097	0.337
	Nitrate (as N) (mg/L)		0.0139	0.0906	0.0937	0.0304	0.0060
	Nitrite (as N) (mg/L)		0.0025	0.0012	0.0023	0.0019	<0.0010
	Total Kjeldahl Nitrogen (mg/L)		0.207	0.193	0.081	0.244	0.136
	Ortho Phosphate as P (mg/L)		0.0021	0.0053	<0.0010	0.0013	0.0024
	Total Dissolved Phosphate As P (mg/L)		0.0028	0.0052	<0.0020	<0.0020	<0.0020
	Total Phosphate as P (mg/L)		0.0302	0.0221	0.0038	0.101	0.0079
	Sulfate (SO4) (mg/L)		66.8	8.98	1.04	165	17.3
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)		2.81	1.72	1.62	8.18	0.52
Total Metals	Aluminum (Al)-Total (mg/L)		0.251	0.171	0.243	0.423	0.100
	Antimony (Sb)-Total (mg/L)		0.00228	0.00340	0.00015	0.0164	0.00026
	Arsenic (As)-Total (mg/L)		0.0267	0.0667	0.00071	0.993	0.126
	Barium (Ba)-Total (mg/L)		0.0845	0.0315	0.00936	0.0303	0.0555
	Beryllium (Be)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010	0.011
	Cadmium (Cd)-Total (mg/L)		0.000051	0.000019	<0.000017	0.000078	0.000028
	Calcium (Ca)-Total (mg/L)		45.0	8.23	4.91	91.0	35.9
	Chromium (Cr)-Total (mg/L)		0.00105	0.00086	<0.00050	0.00167	<0.00050
	Cobalt (Co)-Total (mg/L)		0.00108	0.00011	0.00021	0.00178	0.00010
	Copper (Cu)-Total (mg/L)		0.00304	0.00136	0.00321	0.00258	0.00127
	Iron (Fe)-Total (mg/L)		0.482	0.247	0.350	3.04	0.316
	Lead (Pb)-Total (mg/L)		0.00157	0.00156	0.000306	0.00516	0.000653
	Lithium (Li)-Total (mg/L)		0.0080	<0.0050	<0.0050	<0.0050	0.0198
	Magnesium (Mg)-Total (mg/L)		17.2	1.21	0.83	20.9	42.9
	Manganese (Mn)-Total (mg/L)		0.0930	0.00774	0.0177	0.370	0.0270
	Mercury (Hg)-Total (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)		0.00207	0.000731	0.000950	0.00478	0.00480
	Nickel (Ni)-Total (mg/L)		0.00425	0.00062	0.00230	0.00923	0.00058
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L829307-6	L829307-7	L829307-8		
	Description					
	Sampled Date	05-OCT-09	05-OCT-09	05-OCT-09		
	Sampled Time	14:00	18:00	19:30		
	Client ID	MW09-DG-1	MW96-23	MW09-DG-4		
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	418	313	540		
	Hardness (as CaCO3) (mg/L)	221	153	293		
	pH (pH)	7.61	7.78	7.67		
	Total Suspended Solids (mg/L)	15.8	7.8	20.8		
	Total Dissolved Solids (mg/L)	254	192	358		
	Turbidity (NTU)	34.0	6.45	6.70		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	166	136	209		
	Ammonia as N (mg/L)	0.0280	<0.0050	<0.0050		
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50		
	Fluoride (F) (mg/L)	0.228	0.063	0.080		
	Nitrate (as N) (mg/L)	<0.0050	0.428	0.0826		
	Nitrite (as N) (mg/L)	<0.0010	0.0026	0.0075		
	Total Kjeldahl Nitrogen (mg/L)	0.188	0.193	0.138		
	Ortho Phosphate as P (mg/L)	<0.0010	0.0292	<0.0010		
	Total Dissolved Phosphate As P (mg/L)	<0.0020	0.0258	<0.0020		
	Total Phosphate as P (mg/L)	0.034	0.0406	0.0145		
	Sulfate (SO4) (mg/L)	67.7	29.1	92.8		
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.09	1.85	1.64		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0564	0.394	0.269		
	Antimony (Sb)-Total (mg/L)	0.00029	0.00257	0.00154		
	Arsenic (As)-Total (mg/L)	0.462	0.244	0.00478		
	Barium (Ba)-Total (mg/L)	0.0318	0.0203	0.111		
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.0025		
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.0025		
	Boron (B)-Total (mg/L)	<0.010	0.017	<0.050		
	Cadmium (Cd)-Total (mg/L)	<0.000017	0.000074	<0.000085		
	Calcium (Ca)-Total (mg/L)	40.1	47.9	74.8		
	Chromium (Cr)-Total (mg/L)	<0.00050	0.00104	<0.0025		
	Cobalt (Co)-Total (mg/L)	0.00020	0.00070	<0.00050		
	Copper (Cu)-Total (mg/L)	0.00070	0.00414	0.00216		
	Iron (Fe)-Total (mg/L)	3.73	0.549	0.86		
	Lead (Pb)-Total (mg/L)	0.000270	0.00133	0.00124		
	Lithium (Li)-Total (mg/L)	0.0327	0.0130	<0.025		
	Magnesium (Mg)-Total (mg/L)	30.1	6.75	28.0		
	Manganese (Mn)-Total (mg/L)	0.201	0.0235	0.0316		
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050		
	Molybdenum (Mo)-Total (mg/L)	0.00111	0.00729	0.00129		
	Nickel (Ni)-Total (mg/L)	0.00057	0.00223	<0.0025		
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<1.5		

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L829307-1	L829307-2	L829307-3	L829307-4	L829307-5
	Description					
	Sampled Date	05-OCT-09	05-OCT-09	05-OCT-09	05-OCT-09	05-OCT-09
	Sampled Time	12:00	12:30	15:30	12:00	13:30
	Client ID	MW-09-OG-3	MW-96-8	MW09-OG-2	MW96-19	MW96-15-B
Grouping	**Analyte**					
WATER						
Total Metals	Potassium (K)-Total (mg/L)	2.6	<2.0	<2.0	3.7	2.4
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Total (mg/L)	8.03	6.73	6.50	4.34	6.15
	Silver (Ag)-Total (mg/L)	0.000016	0.000015	<0.000010	0.000052	0.000013
	Sodium (Na)-Total (mg/L)	3.9	2.4	2.6	4.8	2.5
	Strontium (Sr)-Total (mg/L)	0.200	0.0483	0.0295	0.600	0.336
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)	0.00063	0.00050	0.00037	0.00452	0.00285
	Titanium (Ti)-Total (mg/L)	0.019	0.012	0.012	0.031	<0.010
	Uranium (U)-Total (mg/L)	0.000972	0.000267	0.000168	0.00741	0.00753
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	0.0122	0.0121	0.0087	0.0206	0.0104
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0025	0.0015	0.0048	0.0016	<0.0010
	Antimony (Sb)-Dissolved (mg/L)	0.00143	0.00043	<0.00010	0.0142	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.0171	0.0608	0.00028	0.0342	0.0988
	Barium (Ba)-Dissolved (mg/L)	0.0725	0.0250	0.00563	0.0190	0.0494
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000055	<0.000017	<0.000017	0.000028	<0.000017
	Calcium (Ca)-Dissolved (mg/L)	45.9	8.46	5.03	92.1	36.4
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	0.00078	<0.00010	0.00012	0.00117	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00129	0.00030	0.00199	0.00022	0.00022
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	0.031	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)	0.000260	0.000117	<0.000050	0.000081	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0070	<0.0050	<0.0050	<0.0050	0.0177
	Magnesium (Mg)-Dissolved (mg/L)	16.6	1.14	0.76	20.3	41.7
	Manganese (Mn)-Dissolved (mg/L)	0.0766	0.00155	0.0134	0.299	0.0110
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.00161	0.000611	0.000887	0.00408	0.00425
	Nickel (Ni)-Dissolved (mg/L)	0.00317	<0.00050	0.00184	0.00654	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	2.2	<2.0	<2.0	3.2	2.0
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Dissolved (mg/L)	7.71	6.62	6.12	3.64	5.94
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.5	2.1	2.4	4.2	2.1
	Strontium (Sr)-Dissolved (mg/L)	0.179	0.0443	0.0266	0.538	0.302
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)	0.00050	0.00026	0.00055	0.00149	0.00097

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L829307-6	L829307-7	L829307-8		
	Description					
	Sampled Date	05-OCT-09	05-OCT-09	05-OCT-09		
	Sampled Time	14:00	18:00	19:30		
	Client ID	MW09-DG-1	MW96-23	MW09-DG-4		
Grouping	**Analyte**					
WATER						
Total Metals	Potassium (K)-Total (mg/L)	3.1	2.1	<10		
	Selenium (Se)-Total (mg/L)	<0.0010	0.0023	<0.0050		
	Silicon (Si)-Total (mg/L)	5.99	5.23	5.59		
	Silver (Ag)-Total (mg/L)	0.000012	0.000034	0.000071		
	Sodium (Na)-Total (mg/L)	8.2	12.8	<10		
	Strontium (Sr)-Total (mg/L)	0.336	0.219	0.385		
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00050		
	Tin (Sn)-Total (mg/L)	0.00079	0.00516	0.00171		
	Titanium (Ti)-Total (mg/L)	<0.010	0.021	<0.050		
	Uranium (U)-Total (mg/L)	0.00173	0.00547	0.00980		
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0050		
	Zinc (Zn)-Total (mg/L)	0.0163	0.0135	<0.0050		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0023	0.0016	<0.0050		
	Antimony (Sb)-Dissolved (mg/L)	0.00018	0.00117	<0.00050		
	Arsenic (As)-Dissolved (mg/L)	0.196	0.225	0.00059		
	Barium (Ba)-Dissolved (mg/L)	0.0261	0.0142	0.0840		
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.0025		
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.0025		
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.050		
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017	0.000043	<0.000085		
	Calcium (Ca)-Dissolved (mg/L)	40.5	50.4	72.8		
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.0025		
	Cobalt (Co)-Dissolved (mg/L)	0.00013	0.00021	<0.00050		
	Copper (Cu)-Dissolved (mg/L)	0.00028	0.00196	<0.00050		
	Iron (Fe)-Dissolved (mg/L)	1.68	<0.030	<0.15		
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.00025		
	Lithium (Li)-Dissolved (mg/L)	0.0305	0.0115	<0.025		
	Magnesium (Mg)-Dissolved (mg/L)	29.0	6.59	27.0		
	Manganese (Mn)-Dissolved (mg/L)	0.171	0.0326	0.0191		
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		
	Molybdenum (Mo)-Dissolved (mg/L)	0.000925	0.00664	0.00120		
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00101	<0.0025		
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<1.5		
	Potassium (K)-Dissolved (mg/L)	2.7	<2.0	<10		
	Selenium (Se)-Dissolved (mg/L)	<0.0010	0.0023	<0.0050		
	Silicon (Si)-Dissolved (mg/L)	5.78	4.61	5.13		
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000050		
	Sodium (Na)-Dissolved (mg/L)	7.4	11.7	<10		
	Strontium (Sr)-Dissolved (mg/L)	0.303	0.203	0.390		
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00050		
	Tin (Sn)-Dissolved (mg/L)	0.00079	0.00188	<0.00050		

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L829307-1	L829307-2	L829307-3	L829307-4	L829307-5
	Description					
	Sampled Date	05-OCT-09	05-OCT-09	05-OCT-09	05-OCT-09	05-OCT-09
	Sampled Time	12:00	12:30	15:30	12:00	13:30
	Client ID	MW-09-OG-3	MW-96-8	MW09-OG-2	MW96-19	MW96-15-B
Grouping	**Analyte**					
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000908	0.000168	0.000134	0.00733	0.00747
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0118	0.0100	0.0074	0.0095	0.0036

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L829307-6	L829307-7	L829307-8		
	Description					
	Sampled Date	05-OCT-09	05-OCT-09	05-OCT-09		
	Sampled Time	14:00	18:00	19:30		
	Client ID	MW09-DG-1	MW96-23	MW09-DG-4		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.050		
	Uranium (U)-Dissolved (mg/L)	0.00167	0.00547	0.0102		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0050		
	Zinc (Zn)-Dissolved (mg/L)	0.0114	0.0071	<0.0050		

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-CVAFS-VA Water Total Mercury in Water by CVAFS EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA Water Ammonia by Colour APHA 4500-NH3 "Nitrogen (Ammonia)"

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NH3-COL-VA Water Ammonia by Colour APHA 4500-NH3 Nitrogen (Ammonia)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-TD-COL-VA	Water	Total Dissolved Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-TD-COL-VA	Water	Total Dissolved Phosphate by Colour	APHA 4500-P " Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
		sample digestion at 367 celcius with analysis using an ammonia selective electrode.	
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
		This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
		This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.	

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Laboratory Group
Environmental Division

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

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Company:	Stantec- Jacques Whitford	☑ Standard ☐ Other		☐	Regular Service (Default)
Contact:	Neil MacLeod	☑ PDF ☑ Excel ☐ Fax		☑	Rush Service (2-3 Days)
Address:	4370 Dominion St., 5th Floor, POBOX 21, Burnaby	Email 1:	neil.macleod@jacqueswhitford.com	☐	Priority Service (1 Day or ASAP)
		Email 2:	karen.munro@jacqueswhitford.com	☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-436-3014 Fax:			Analysis Request	
Invoice To:	☑ Same as Report	Indicate Bottles: Filtered / Preserved (F/P) →			
Company:		Client / Project Information:			
Contact:		Job #:	1053550.08 C3112 810.030		
Address:		PO/AFE:			
Sample		Legal Site Description:			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)	L829307	ALS Contact:	Natasha MM	Sampler (Initials):	Ken Nordin

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	pH, Conductivity, Turbidity,	TDS, TSS, T-Alkalinity	Total Cyanide / WAD Cyanide	Anion Scan (Cl, SO4, NO3,NO	TKN, NH3	TOC	Tot-PO4, Dis- PO4, Ortho-PO4	T-Met. ICPOES/MS + T-Hg	D-Met.ICPOES/MS + D-Hg		Hazardous?	Highly Contaminated?	Number of Containers
1	MW 09-OG-3	05-Oct-09	12:00	Water	X	X		X	X	X	X	X	X				
2	MW 96-8	05-Oct-09	12:30	Water	X	X		X	X	X	X	X	X				
3	MW09-OG-2	05-Oct-09	15:30	Water	X	X		X	X	X	X	X	X				
4	MW 96-19	06-Oct-09	12:00	Water	X	X		X	X	X	X	X	X				
5	MW 96-15-b	06-Oct-09	13:30	Water	X	X		X	X	X	X	X	X				
6	MW 09-DG-1	06-Oct-09	14:00	Water	X	X		X	X	X	X	X	X				
7	MW 96-23	06-Oct-09	18:00	Water	X	X		X	X	X	X	X	X				
8	MW 09-DG-4	06-Oct-09	19:30	Water	X	X		X	X	X	X	X	X				

Guidelines / Regulations	Special Instructions / Hazardous Details
	detection limits must meet CCME guidelines

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	KEN NORDIN	Date & Time:	09/10/2009 16:00	Received By:	Date & Time:	1200 OCT 13/09
Relinquished By:		Date & Time:		Received By:	Date & Time:	

Sample Condition (lab use only)

Temperature	Samples Received in Good Condition? Y / N (if no provided details)
10°C	

Certificate of Analysis

JACQUES WHITFORD

ATTN: NEIL MACLEOD

4370 DOMINION STREET, 5TH FLOOR
PO BOX 21
BURNABY BC V5G 4L7

Report Date: 09-NOV-09 13:58 (MT)
Version: FINAL

Lab Work Order #: **L833680** **Date Received:** **26-OCT-09**

Project P.O. #:
Job Reference: 1053550.08 C3112 810.030
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: Please note that Total and WAD Cyanide were analyzed for all samples where CN bottles were submitted as per the client's request.

Please note that the chain of custody requests DOC analysis for sample MW09-AG-2 but no bottle appropriate for this analysis was received. This analysis was cancelled as per the client's request.

Please note that some of the metals and anions detection limits have been increased due to interferences encountered during analysis.

Can Dang
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-1	L833680-2	L833680-3	L833680-4	L833680-5
	Description					
	Sampled Date	20-OCT-09	20-OCT-09	21-OCT-09	21-OCT-09	21-OCT-09
	Sampled Time	18:00	19:00	10:30	12:30	14:00
	Client ID	W-22 HAGGART UPSTREAM	W-21 DUBLIN GULCH	W-9 EAGLE PUP	MW09-AG-2	W-1 DUBLIN MIDWAY
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	297	175	405	964	111
	Hardness (as CaCO3) (mg/L)	166	84.9	238	355	51.9
	pH (pH)	7.87	7.82	7.91	7.24	7.74
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	821	<3.0
	Total Dissolved Solids (mg/L)	193	114	223	3100	61
	Turbidity (NTU)	0.41	0.25	1.20	437	0.46
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	89.9	59.2	171	682	41.4
	Ammonia as N (mg/L)	0.025	0.025	<0.020	1.39	0.020
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<5.0 *	<0.050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<50 *	<0.50
	Fluoride (F) (mg/L)	0.072	0.069	0.137	0.296	0.061
	Nitrate (as N) (mg/L)	0.108	0.0628	0.382	<0.50 *	0.0540
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.10 *	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.142	0.118	0.063	14.6	<0.050
	Total Nitrogen (mg/L)	0.250	0.181	0.445	14.6	<0.060
	Ortho Phosphate as P (mg/L)	<0.0010	0.0025	0.0031	<0.10	0.0049
	Total Dissolved Phosphate As P (mg/L)	<0.0020	0.0029	0.0044	<0.20	0.0036
	Total Phosphate as P (mg/L)	<0.0020	0.0032	0.0054	0.54	0.0040
	Sulfate (SO4) (mg/L)	64.8	31.3	50.3	<50 *	13.2
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050		<0.0050
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050		<0.0050
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.51	2.51	2.77		1.45
	Total Organic Carbon (mg/L)				345	
Total Metals	Aluminum (Al)-Total (mg/L)	<0.010	<0.010	0.0457	3.42	0.0134
	Antimony (Sb)-Total (mg/L)	0.00022	0.00133	0.00060	0.0026	0.00105
	Arsenic (As)-Total (mg/L)	0.00066	0.0342	0.0184	0.0610	0.0349
	Barium (Ba)-Total (mg/L)	0.0315	0.0431	0.0758	0.0668	0.0392
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.0050	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.0050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	0.20	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.00050	<0.000050
	Calcium (Ca)-Total (mg/L)	38.7	21.3	43.3	104	14.1
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	0.0170	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.0191	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00060	<0.00040	<0.00060	0.0789	<0.00050
	Iron (Fe)-Total (mg/L)	0.058	<0.030	0.066	10.2	<0.030
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	0.000101	0.00398	<0.000050
	Lithium (Li)-Total (mg/L)	0.0053	0.0080	0.0101	0.073	<0.0050
	Magnesium (Mg)-Total (mg/L)	13.3	7.12	29.1	98.3	3.46
	Manganese (Mn)-Total (mg/L)	0.0181	0.00206	0.00119	0.732	0.000480

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-6	L833680-7	L833680-8	L833680-9	L833680-10
	Description					
	Sampled Date	21-OCT-09	21-OCT-09	22-OCT-09	22-OCT-09	22-OCT-09
	Sampled Time	14:30	16:00	09:00	10:20	11:10
	Client ID	W-26 STEWART GULCH	W-20 BAWNBOY	W-27 EAGLE PUP	W-29 HAGGART CRK MID	W-23 HAGGART CRK D/S
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	291	65.9	343	322	323
	Hardness (as CaCO3) (mg/L)	165	28.7	194	182	182
	pH (pH)	7.91	7.65	8.10	7.95	7.87
	Total Suspended Solids (mg/L)	<3.0	4.5	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	179	44	215	202	217
	Turbidity (NTU)	0.36	1.24	2.33	1.37	0.55
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	124	25.9	122	101	95.3
	Ammonia as N (mg/L)	0.022	0.023	0.023	0.021	0.021
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.100	0.035	0.121	0.083	0.078
	Nitrate (as N) (mg/L)	0.147	0.0519	0.109	0.104	0.147
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.094	0.067	0.074	0.058	0.085
	Total Nitrogen (mg/L)	0.241	0.119	0.183	0.162	0.232
	Ortho Phosphate as P (mg/L)	0.0062	0.0031	0.0022	<0.0010	<0.0010
	Total Dissolved Phosphate As P (mg/L)	0.0062	0.0041	0.0031	<0.0020	0.0023
	Total Phosphate as P (mg/L)	0.0072	0.0067	0.0053	0.0021	0.0023
	Sulfate (SO4) (mg/L)	32.7	5.32	54.7	67.1	67.7
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.44	0.97	1.78	1.45	2.05
	Total Organic Carbon (mg/L)					
Total Metals	Aluminum (Al)-Total (mg/L)	0.0185	0.0534	0.0758	0.0212	0.112
	Antimony (Sb)-Total (mg/L)	0.00076	0.00061	0.00471	0.00068	0.00047
	Arsenic (As)-Total (mg/L)	0.0179	0.0686	0.0364	0.00417	0.00469
	Barium (Ba)-Total (mg/L)	0.0599	0.0250	0.0581	0.0354	0.0423
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Total (mg/L)	36.5	8.77	39.2	42.8	48.7
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.00210	<0.00030	0.00116	<0.00060	0.00103
	Iron (Fe)-Total (mg/L)	<0.030	0.066	0.132	0.072	0.036
	Lead (Pb)-Total (mg/L)	0.000060	0.000118	0.000261	0.000139	<0.000050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	0.0107	0.0064	<0.0050
	Magnesium (Mg)-Total (mg/L)	16.6	1.48	20.6	15.2	11.8
	Manganese (Mn)-Total (mg/L)	0.000607	0.00246	0.00483	0.0268	0.0223

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L833680-11 22-OCT-09 13:30 FIELD BLANK	L833680-12 TRAVEL BLANK	L833680-13 BD BLIND DUPLICATE	L833680-14 22-OCT-09 11:45 W-5 HAGGART CRK U/S
WATER						
Physical Tests	Conductivity (uS/cm)		<2.0	<2.0	318	340
	Hardness (as CaCO3) (mg/L)		<1.0	<1.0	181	191
	pH (pH)		5.53	5.48	7.85	7.97
	Total Suspended Solids (mg/L)		<3.0	<3.0	5.0	<3.0
	Total Dissolved Solids (mg/L)		<10	<10	211	222
	Turbidity (NTU)		<0.10	<0.10	1.26	0.66
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)		<2.0	<2.0	94.6	98.3
	Ammonia as N (mg/L)		<0.020	<0.020	<0.020	0.021
	Bromide (Br) (mg/L)		<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)		<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)		<0.020	<0.020	0.083	0.085
	Nitrate (as N) (mg/L)		<0.0050	0.0060	0.104	0.101
	Nitrite (as N) (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)		<0.050	<0.050	0.080	0.061
	Total Nitrogen (mg/L)		<0.060	<0.060	0.184	0.162
	Ortho Phosphate as P (mg/L)		<0.0010	<0.0010	0.0014	<0.0010
	Total Dissolved Phosphate As P (mg/L)		<0.0020	<0.0020	<0.0020	0.0025
	Total Phosphate as P (mg/L)		<0.0020	<0.0020	0.0027	0.0071
	Sulfate (SO4) (mg/L)		<0.50	<0.50	67.1	74.1
Cyanides	Cyanide, Weak Acid Diss (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)		<0.50	<0.50	1.40	1.68
	Total Organic Carbon (mg/L)					
Total Metals	Aluminum (Al)-Total (mg/L)		<0.0010	<0.0010	0.0420	0.0215
	Antimony (Sb)-Total (mg/L)		<0.00010	<0.00010	0.00069	0.00058
	Arsenic (As)-Total (mg/L)		<0.00010	<0.00010	0.00418	0.00326
	Barium (Ba)-Total (mg/L)		<0.000050	<0.000050	0.0368	0.0357
	Beryllium (Be)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Total (mg/L)		<0.050	<0.050	43.4	44.5
	Chromium (Cr)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)		<0.00010	<0.00010	<0.00010	0.00011
	Copper (Cu)-Total (mg/L)		<0.00010	<0.00010	<0.00060	<0.00060
	Iron (Fe)-Total (mg/L)		<0.030	<0.030	0.114	0.067
	Lead (Pb)-Total (mg/L)		<0.000050	<0.000050	0.000360	0.000078
	Lithium (Li)-Total (mg/L)		<0.0050	<0.0050	0.0065	0.0068
	Magnesium (Mg)-Total (mg/L)		<0.10	<0.10	15.3	16.3
	Manganese (Mn)-Total (mg/L)		<0.000050	<0.000050	0.0302	0.0518

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-1	L833680-2	L833680-3	L833680-4	L833680-5
	Description					
	Sampled Date	20-OCT-09	20-OCT-09	21-OCT-09	21-OCT-09	21-OCT-09
	Sampled Time	18:00	19:00	10:30	12:30	14:00
	Client ID	W-22 HAGGART UPSTREAM	W-21 DUBLIN GULCH	W-9 EAGLE PUP	MW09-AG-2	W-1 DUBLIN MIDWAY
Grouping	**Analyte**					
WATER						
Total Metals	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.00010	<0.000050
	Molybdenum (Mo)-Total (mg/L)	0.000120	0.00164	0.00128	0.0161	0.00186
	Nickel (Ni)-Total (mg/L)	0.00087	0.00065	<0.00050	0.0858	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<3.0	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<20	<2.0
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.010	<0.0010
	Silicon (Si)-Total (mg/L)	3.48	5.80	3.86	12.0	5.72
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	3.0	170	<2.0
	Strontium (Sr)-Total (mg/L)	0.178	0.125	0.337	0.850	0.0786
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00020	<0.00010	<0.00010	0.0022	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	0.12	<0.010
	Uranium (U)-Total (mg/L)	0.000876	0.000752	0.0100	0.00498	0.000450
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	0.014	<0.0010
	Zinc (Zn)-Total (mg/L)	0.0014	0.0013	<0.0010	0.115	<0.0010
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0031	0.0032	0.0020	<0.050	0.0035
	Antimony (Sb)-Dissolved (mg/L)	0.00020	0.00129	0.00064	<0.0050	0.00101
	Arsenic (As)-Dissolved (mg/L)	0.00071	0.0335	0.0185	0.0178	0.0339
	Barium (Ba)-Dissolved (mg/L)	0.0324	0.0412	0.0735	0.0326	0.0376
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.025	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.025	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.50	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.0025	<0.000050
	Calcium (Ca)-Dissolved (mg/L)	42.7	22.0	46.0	64.0	14.9
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.025	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	0.0101	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00033	0.00143	0.00159	0.0274	0.00018
	Iron (Fe)-Dissolved (mg/L)	0.033	<0.030	<0.030	0.35	<0.030
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000084	<0.000050	<0.0025	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0054	0.0075	0.0095	<0.25	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)	14.4	7.29	30.0	47.4	3.57
	Manganese (Mn)-Dissolved (mg/L)	0.0396	0.00198	0.000287	0.451	0.000108
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.00010	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000068	0.00153	0.00121	0.0175	0.00174
	Nickel (Ni)-Dissolved (mg/L)	0.00069	0.00057	<0.00050	0.057	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<3.0	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<20	<2.0
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.050	<0.0010
	Silicon (Si)-Dissolved (mg/L)	3.76	5.94	3.96	5.18	6.02
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.00050	<0.000010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L833680-6	L833680-7	L833680-8	L833680-9	L833680-10
Description					
Sampled Date	21-OCT-09	21-OCT-09	22-OCT-09	22-OCT-09	22-OCT-09
Sampled Time	14:30	16:00	09:00	10:20	11:10
Client ID	W-26 STEWART GULCH	W-20 BAWNBOY	W-27 EAGLE PUP	W-29 HAGGART CRK MID	W-23 HAGGART CRK D/S
Grouping	**Analyte**				
WATER					
Total Metals	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)	0.00305	0.000981	0.00110	0.000260	0.000535
	Nickel (Ni)-Total (mg/L)	0.00437	<0.00050	0.00061	0.00074	0.00059
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	2.1	<2.0	<2.0
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Total (mg/L)	5.20	6.09	4.89	3.82	3.94
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	2.7	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)	0.266	0.0534	0.246	0.197	0.198
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00020	<0.00020	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	0.00365	0.000300	0.00362	0.00134	0.00111
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	0.0018	0.0017	0.0017	0.0016	0.0011
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0028	0.0040	<0.0010	0.0025	0.0037
	Antimony (Sb)-Dissolved (mg/L)	0.00074	0.00060	0.00456	0.00067	0.00048
	Arsenic (As)-Dissolved (mg/L)	0.0182	0.0653	0.0351	0.00386	0.00470
	Barium (Ba)-Dissolved (mg/L)	0.0579	0.0235	0.0551	0.0355	0.0410
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Dissolved (mg/L)	38.3	9.04	42.5	46.4	52.4
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00038	0.00011	0.00078	0.00034	0.00052
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	0.0107	0.0059	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)	16.9	1.50	21.4	16.0	12.5
	Manganese (Mn)-Dissolved (mg/L)	0.000140	0.000517	0.00232	0.0233	0.0198
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.00286	0.000905	0.00107	0.000210	0.000528
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	0.00056	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silicon (Si)-Dissolved (mg/L)	5.38	6.21	5.03	4.04	4.20
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-11	L833680-12	L833680-13	L833680-14	
	Description					
	Sampled Date	22-OCT-09			22-OCT-09	
	Sampled Time	13:30			11:45	
	Client ID	FIELD BLANK	TRAVEL BLANK	BD BLIND DUPLICATE	W-5 HAGGART CRK U/S	
Grouping	**Analyte**					
WATER						
Total Metals	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	0.000228	0.000256	
	Nickel (Ni)-Total (mg/L)	<0.00050	<0.00050	0.00084	0.00086	
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Silicon (Si)-Total (mg/L)	<0.050	<0.050	3.83	3.67	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Strontium (Sr)-Total (mg/L)	<0.00010	<0.00010	0.193	0.209	
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	<0.000010	<0.000010	0.00130	0.00142	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0010	<0.0010	0.0019	0.0013	
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.0010		0.0028	0.0024	
	Antimony (Sb)-Dissolved (mg/L)	<0.00010		0.00068	0.00061	
	Arsenic (As)-Dissolved (mg/L)	<0.00010		0.00385	0.00311	
	Barium (Ba)-Dissolved (mg/L)	<0.000050		0.0353	0.0353	
	Beryllium (Be)-Dissolved (mg/L)	<0.00050		<0.00050	<0.00050	
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050		<0.00050	<0.00050	
	Boron (B)-Dissolved (mg/L)	<0.010		<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050		<0.000050	<0.000050	
	Calcium (Ca)-Dissolved (mg/L)	<0.050		46.2	48.0	
	Chromium (Cr)-Dissolved (mg/L)	<0.00050		<0.00050	<0.00050	
	Cobalt (Co)-Dissolved (mg/L)	<0.00010		<0.00010	<0.00010	
	Copper (Cu)-Dissolved (mg/L)	<0.00010		0.00032	0.00040	
	Iron (Fe)-Dissolved (mg/L)	<0.030		<0.030	<0.030	
	Lead (Pb)-Dissolved (mg/L)	<0.000050		<0.000050	<0.000050	
	Lithium (Li)-Dissolved (mg/L)	<0.0050		0.0063	0.0060	
	Magnesium (Mg)-Dissolved (mg/L)	<0.10		15.8	17.2	
	Manganese (Mn)-Dissolved (mg/L)	<0.000050		0.0232	0.0455	
	Mercury (Hg)-Dissolved (mg/L)	<0.000050		<0.000050	<0.000050	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050		0.000205	0.000195	
	Nickel (Ni)-Dissolved (mg/L)	<0.00050		0.00060	0.00066	
	Phosphorus (P)-Dissolved (mg/L)	<0.30		<0.30	<0.30	
	Potassium (K)-Dissolved (mg/L)	<2.0		<2.0	<2.0	
	Selenium (Se)-Dissolved (mg/L)	<0.0010		<0.0010	<0.0010	
	Silicon (Si)-Dissolved (mg/L)	<0.050		4.01	3.91	
	Silver (Ag)-Dissolved (mg/L)	<0.000010		<0.000010	<0.000010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-1	L833680-2	L833680-3	L833680-4	L833680-5
	Description					
	Sampled Date	20-OCT-09	20-OCT-09	21-OCT-09	21-OCT-09	21-OCT-09
	Sampled Time	18:00	19:00	10:30	12:30	14:00
	Client ID	W-22 HAGGART UPSTREAM	W-21 DUBLIN GULCH	W-9 EAGLE PUP	MW09-AG-2	W-1 DUBLIN MIDWAY
Grouping	**Analyte**					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	2.9	81	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.178	0.117	0.321	0.632	0.0742
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.0050	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.0050	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.10	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000895	0.000704	0.00966	0.00497	0.000407
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.050	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0028	0.0022	<0.050	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-6	L833680-7	L833680-8	L833680-9	L833680-10
	Description					
	Sampled Date	21-OCT-09	21-OCT-09	22-OCT-09	22-OCT-09	22-OCT-09
	Sampled Time	14:30	16:00	09:00	10:20	11:10
	Client ID	W-26 STEWART GULCH	W-20 BAWNBOY	W-27 EAGLE PUP	W-29 HAGGART CRK MID	W-23 HAGGART CRK D/S
Grouping	**Analyte**					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	2.7	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.248	0.0500	0.228	0.192	0.188
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.00340	0.000245	0.00340	0.00131	0.00105
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0024	<0.0010	0.0010	<0.0010	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L833680-11	L833680-12	L833680-13	L833680-14	
	Description					
	Sampled Date	22-OCT-09			22-OCT-09	
	Sampled Time	13:30			11:45	
	Client ID	FIELD BLANK	TRAVEL BLANK	BD BLIND DUPLICATE	W-5 HAGGART CRK U/S	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0		<2.0	<2.0	
	Strontium (Sr)-Dissolved (mg/L)	<0.00010		0.187	0.202	
	Thallium (Tl)-Dissolved (mg/L)	<0.00010		<0.00010	<0.00010	
	Tin (Sn)-Dissolved (mg/L)	<0.00010		<0.00010	<0.00010	
	Titanium (Ti)-Dissolved (mg/L)	<0.010		<0.010	<0.010	
	Uranium (U)-Dissolved (mg/L)	<0.000010		0.00128	0.00139	
	Vanadium (V)-Dissolved (mg/L)	<0.0010		<0.0010	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	<0.0010		<0.0010	0.0111	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjustment For Sample Matrix Effects

Samples with Qualifiers for Individual Parameters as listed above:

Sample Number	Client Sample ID	Parameters	Qualifier
L833680-4	MW09-AG-2	Chloride (Cl) Bromide (Br) Nitrite (as N) Sulfate (SO4) Nitrate (as N)	DLM

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

ALK-MAN-VA	Water	Alkalinity (Species) by Manual Titration	APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-MAN-VA	Water	Alkalinity (Species) by Manual Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN "Cyanide"
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
CN-WAD-MID-COL-VA	Water	Weak Acid Dissociable Cyanide by Dist.	APHA 4500-CN Cyanide
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Weak acid dissociable (WAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
EC-MAN-VA	Water	Conductivity (Manual)	APHA 2510 "Conductivity"
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EC-MAN-VA	Water	Conductivity (Manual)	APHA 2510 Conductivity
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
F-SIE-VA	Water	Fluoride by SIE	APHA 4500-F "Fluoride"
This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.			
F-SIE-VA	Water	Fluoride by SIE	APHA 4500-F Fluoride
This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.			
		Hardness	APHA 2340B

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
HARDNESS-CALC-VA	Water	Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.	
HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).	
HG-TOT-CVAFS-VA	Water	Total Mercury in Water by CVAFS	EPA 245.7
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).	
MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).	
MET-DIS-LOW-MS-VA	Water	Dissolved Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).	
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).	
MET-TOT-LOW-MS-VA	Water	Total Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).	
NH3-SIE-VA	Water	Ammonia by SIE	APHA 4500 D. - NH3 NITROGEN (AMMONIA)
		This analysis is carried out, on sulphuric acid preserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using an ammonia selective electrode.	
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H "pH Value"
		This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.	
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H pH Value
		This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.	

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA	Water	Dissolved ortho Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-TD-COL-VA	Water	Total Dissolved Phosphate by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-TD-COL-VA	Water	Total Dissolved Phosphate by Colour	APHA 4500-P " Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TN-CALC-VA	Water	TN by Calc (TKN + N+N)	BC MOE LABORATORY MANUAL (2005)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
		Total Nitrogen is determined by calculation by suming TKN and the NO2 and NO3 results.	
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
		This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
		This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.	

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Laboratory Group
Environmental Division

Chain of Custody / Analytical Request Form
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www.alsglobal.com

COC # _____

Report to:		Report Format / Distribution		Service Requested:	
Company:	Stantec- Jacques Whitford	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact:	Neil MacLeod	☑ PDF ☑ Excel ☐ Fax		☐	Rush Service (2-3 Days)
Address:	4370 Dominion St., 5th Floor, POBOX 21, Burnaby	Email 1:	neil.macleod@jacqueswhitford.com	☐	Priority Service (1 Day or ASAP)
		Email 2:	karen.munro@jacqueswhitford.com	☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-436-3014 Fax:			Analysis Request	
Invoice To:	☑ Same as Report		Indicate Bottles: Filtered / Preserved (F/P) →→		
Company:		Client / Project Information:			
Contact:		Job #:	1053550.08 C3112 810.030		
Address:		PO/AFE:			
Sample		Legal Site Description:			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)	L833680	ALS Contact:	Natasha MM	Sampler (Initials):	Ken Nordin

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	pH, Conductivity, Turbidity,	TDS, TSS, T-Alkalinity	Total Cyanide / WAD Cyanide	Anion Scan (Cl, SO4, NO3,NO	TKN, NH3, and T-Nitrogen	DOC	Tot-PO4, Dis- PO4, Ortho-PO4	T-Met. ICPOES/MS + T-Hg	D-Met.ICPOES/MS + D-Hg	TOC	Hazardous?	Highly Contaminated?	Number of Containers
	W-22 Haggart Upstream Dublin Gulch	20-Oct-09	18:00	Water	X	X		X	X	X	X	X	X				
	W-21 Dublin Gulch Upstream Haggart Creek	20-Oct-09	19:00	Water	X	X		X	X	X	X	X	X				
	W-9 Eagle Pup	21-Oct-09	10:30	Water	X	X		X	X	X	X	X	X				
	MW09-AG-2	21-Oct-09	12:30	Water	X	X		X	X	X	X	X	X	X			
	W-1 Dublin Midway	21-Oct-09	14:00	Water	X	X		X	X	X	X	X	X				
	W-26 Stewart Gulch	21-Oct-09	14:30	Water	X	X		X	X	X	X	X	X				
	W-20 Bawnboy	21-Oct-09	16:00	Water	X	X		X	X	X	X	X	X				
	W-27 Eagle Pup plus Suttle Gulch	22-Oct-09	9:00	Water	X	X		X	X	X	X	X	X				
	W-29 Haggart Creek Midway	22-Oct-09	10:20	Water	X	X		X	X	X	X	X	X				
	W-23 Haggart Creek Downstream Lynx Creek	22-Oct-09	11:10	Water	X	X		X	X	X	X	X	X				

Guidelines / Regulations	Special Instructions / Hazardous Details
	detection limits must meet CCME guidelines. Note: MW09AG-2 is mostly silicone - CAUTION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	KEN NORDIN	Date & Time:	23/10/2009 12:00	Received By:	[illegible]	Date & Time:	10/26/09, 9:20 AM	Sample Condition (lab use only)
Relinquished By:		Date & Time:		Received By:		Date & Time:		Temperature 2°C / Samples Received in Good Condition? Y / N (if no provided details)

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Page 2 of 2

Report to:		Report Format / Distribution		Service Requested:	
Company:	Stantec- Jacques Whitford	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact:	Neil MacLeod	☑ PDF ☑ Excel ☐ Fax		☐	Rush Service (2-3 Days)
Address:	4370 Dominion St., 5th Floor, POBOX 21, Burnaby	Email 1:	neil.macleod@jacqueswhitford.com	☐	Priority Service (1 Day or ASAP)
		Email 2:	karen.munro@jacqueswhitford.com	☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-436-3014 Fax:			Analysis Request	
Invoice To:	☑ Same as Report		Indicate Bottles: Filtered / Preserved (F/P) →		
Company:		Client / Project Information:			
Contact:		Job #:	1053550.08 C3112 810.030		
Address:		PO/AFE:			
Sample		Legal Site Description:			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)	L833680	ALS Contact:	Natasha MM	Sampler (Initials):	

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	pH, Conductivity, Turbidity,	TDS, TSS, T-Alkalinity	Total Cyanide / WAD Cyanide	Anion Scan (Cl, SO4, NO3,NO	TKN, NH3, and T-Nitrogen	DOC	Tot-PO4, Dis- PO4, Ortho-PO4	T-Met. ICPOES/MS + T-Hg	D-Met.ICPOES/MS + D-Hg		Hazardous?	Highly Contaminated?	Number of Containers
	Field Blank (ALS D.I. water)	22-Oct-09	13:30	Other	X	X	X	X	X	X		X	X				
	ALS Travel Blank			Other	X	X	X	X	X	X	X	X	X				
	BD Blind Duplicate			Water	X	X	X	X	X	X	X	X	X				
	W-5 Haggart Creek Upstream Lynx Creek	22-Oct-09	11:45	Water	X	X	X	X	X	X	X	X	X				

Guidelines / Regulations	Special Instructions / Hazardous Details
	detection limits must meet CCME guidelines

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	KEN NORDIN	Date & Time:	09/10/2009 16:00	Received By:	[signature]	Date & Time:	10/26/09 9:20 AM	Sample Condition (lab use only)
Relinquished By:		Date & Time:		Received By:		Date & Time:		Temperature: 2°C / Samples Received in Good Condition (Y) N (if no provided details)