GOVERNMENT OF YUKON- PROPERTY MANAGEMENT AGENCY

WELL COMPLETION REPORT
IBEX FIRE HALL
BUILDING # 1950
WHITEHORSE
YUKON

EBA FILE: 1260028.001

February 2007

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1.0 INTRODUCTION

EBA Engineering Consultants Ltd. (EBA) was retained by Government of Yukon (YTG) Property Management Agency (PMA) to co-ordinate the deepening and testing of Well 1950-B at the Ibex Fire Hall, Whitehorse, Yukon (Ibex Fire Hall). A site location map is provided as Figure 1. Currently the Ibex Fire Hall water system is supplied by an 11.8 m deep well (Well 1950-A) located 12 m southwest of the building. The water system is designed to supply domestic water for the Fire Hall and storage water to a 5000 L storage tank for fire fighting purposes. Water quality monitoring conducted between October 2004 and February 2006 indicated that this well may be being impacted by septic leachate and/or was potentially under the direct influence of surface water. The evaluation of the well and water supply system are summarized by EBA in March 2006 entitled "Small Water System Assessments- Government of Yukon Maintained Buildings- Whitehorse Region". Within the assessment report, recommendations were made to drill a replacement well that would provide a supply of safe water, be constructed in accordance with applicable regulations, and be appropriately distanced from potential contaminant sources.

A replacement well (Well 1950-B) was drilled under the supervision of EBA in November 2005. The results of this drilling program were summarized in a letter report entitled "Results of Short Term Pumping and Water Quality Analysis – PMA Building #1950" to PMA dated March 31, 2006. Drilling at Well 1950-B was terminated at 65.5 m; the maximum depth the contractor was able to achieve with the available drill rod. No significant water flows were encountered. To enhance the yield, EBA provided two solutions: drill the well deeper; or, hydrofracture the bedrock formation. PMA elected to deepen Well 1950-B with the intent that it could then be commissioned to supply potable water to the Ibex Fire Hall. EBA was authorized to coordinate the well deepening and testing program under the terms of YTG contract GN655651940319 dated October 31, 2006.

1.1 SCOPE OF WORK

The following tasks were completed in accordance with EBA's proposal:

- Development of specifications;
- Arranging for qualified drilling and pumping test contractors;
- Co-ordinating and supervising well deepening and pumping tests; and
- Preparation of this well completion report.

2.0 FIELD PROGRAM

2.1 WELL DEEPENING AND CONSTRUCTION

The contract to deepen Well 1950-B was awarded to Double D Drilling of Terrace, BC on September 21, 2006. Well testing was awarded to Aqua Tech Supplies and Services (Aqua Tech) of Whitehorse, YT on November 14, 2006. Deepening of Well 1950-B commenced on November 8, 2006 and was completed on November 9, 2006. Testing took place between November 20 and 24, 2006. Photographs 1 and 2 were taken during the drilling event and pumping test (see Photographs section at end of report).

Well 1950-B was deepened from 65.5 m to 123.5 m using the dual air rotary drilling method. Samples were retained continuously during drilling. A summary of materials encountered and observations made during drilling is included on the well log in Appendix A.

The bedrock encountered during the well deepening consisted of a fine grained sedimentary rock with alterations from light brown to light green colouring. Bedrock geology mapping (YGS 2003) confirms that the primary bedrock unit in the area is the Aksala assemblage, which is described as a mixed clastic-carbonate assemblage divisible into three dominant facies including calcareous greywacke, locally thick carbonate and red-coloured clastics. Clastic components consist of igneous or limestone-clast pebbles and rare feldspar-augite.

Potential fracture zones were previously identified at 43.3 and 63.1 m-bg, and during the deepening of the well were observed at 67.1, 70.1 and 85.4 m-bg. The well is cased to 12.5 m below grade, with a surface sanitary seal installed to a depth of 6.1 m-bg and is completed as an open-hole bedrock well below 12.5 m to the depth of completion. The well casing extends 3.7 m below the top of the bedrock contact and is sealed with a cement plug from 8.8 to 12.5 m-bg. The purpose of the concrete plug is to prevent water that is perched on the bedrock formation from entering the well opening (i.e. to prevent mixing of water form the unconfined perched aquifer, with deeper water from within the bedrock formation). The well was developed by lifting and surging with air for 8 hours. A summary of relevant well construction details is included on Table 1 on the following page.

TABLE 1: SUMMARY OF WELL INFORMATION AND CONSTRUCTION DETAILS	
REQUIRED DETAILS	DETAILS OR REPORT REFERENCE
Date of construction:	Well was deepened between November 8th and 9th, 2006.
Name and address of well owner:	Government of Yukon- Department of Community Services – Protective Services - Box 2703, Whitehorse, Yukon Y1A 2C6
Description of the property:	Ibex Fire Hall, km 1443 Alaska Highway, Whitehorse, Yukon
UTM Co-ordinates(± 8 m):	UTM Zone 8 E 483119 N 6742155
Location of the well on the property:	See Figure 2.
Method of construction:	Dual air rotary drilling method.
Description, depth and thickness of geologic materials encountered during construction:	See Figure 3 Well log 1950-B. Double D Drilling Log is also included in Appendix A.
Depth and diameter of the well:	The well construction details are provided on Well log in Appendix A. Total depth of well completion is 123.5 m-bg.
Type of casing materials and thickness:	Steel Casing – 0.250 inches (6.35 mm) thick to 12.5 m-bg and open hole to bottom.
Static water level:	8.6 m-bg
Type, size, length and location of screen:	Open-hole bedrock well.
Location of major water-bearing zones:	Water bearing sedimentary bedrock. (Fracture zones)
Location, type and thickness of grout sealant placed around the well:	Bentonite seal was placed between annulus of the casing and native sand and gravel. Seal is completed from grade to 6.0 m-bg. Concrete plug from 6.1 to 12.5 m-bg.

2.2 WELL AND AQUIFER TESTING

Testing of the deepened well was completed between November 20 and 24, 2006 by Aqua Tech. A temporary submersible pump was installed in the well at a depth of 114 m–bg and flow was monitored during the pumping test with a totalizer and flow meter located near the wellhead, and checked using a graduated barrel and stopwatch. Water from the pumping well was conveyed to a location 30.5 m downgradient from the well and disposed of by infiltration.

A step rate test was first conducted to determine the optimal rate at which to perform the constant rate pumping test. The step rate test was initiated on November 20, 2006 at 9:00 AM. The initial step was started at 0.063 L/s, (1 USGPM); however, pumping problems arose during the testing and was terminated until the next day to allow for full recovery. On November 21, 2006 at 9:00 AM the remaining four 60 min steps were completed at rates of 0.126, 0.19, 0.252 and 0.328 L/s (2, 3, 4 and 5 USGPM, respectively).

The constant rate test was initiated at 0.22 L/s (3.5 USGPM) the following day after full recovery was achieved following the step tests. Drawdown was greater then expected; and the test was terminated prematurely, allowed to recover, and then re-started at a lower rate of 0.13 L/s (2.0 USGPM). The second constant rate test was conducted over 12 hours, and the water level and flow rate were monitored on specified intervals during the test. The test was concluded at 8:30 AM on November 24, 2006, and recovery was monitored for 2 hours. Data collected during the step test, constant rate test and recovery interval is included as Appendix B.

2.3 WATER QUALITY ANALYSIS

Water samples were collected from a sample port located at the wellhead at the end of the constant rate pumping test. Samples were collected in laboratory supplied sample containers in accordance with lab sampling procedures. Samples were shipped by air cargo to ALS Environmental in Vancouver, B.C. for detailed potability analysis including the following parameters: physical tests, dissolved anions, nutrients, total and dissolved metals, and total organic carbon. ALS is an accredited member of the Canadian Association of Environmental Analytical Laboratories (CAEAL).

Analytical results are summarized in Table 5. Laboratory reports and certificates are included as Appendix D.

3.0 HYRDRAULIC TESTING RESULTS

3.1 PUMPING TEST

Step Test

A plot of observed drawdown in Well 1950-B during the step rate pumping test is included as the upper graph in Figure 4. The lower graph details specific capacity and drawdown verses pumping rate observed at 60 min into each step. As the flow rate increased from

0.063 to 0.284 L/s, the specific capacity remained relatively constant between 0.18 and 0.10 L/s/m. As expected, drawdown vs. flow rate behaved in a relatively linear fashion.

Constant Rate Test

Analysis and interpretation are determined from the second constant rate pumping test. Drawdown observed in Well 1950-B during the constant rate pumping test is plotted on Figure 5. To facilitate pumping test analysis, the drawdown data has been plotted against elapsed time (log) since the beginning of the constant rate pumping interval. Also included on Figure 5 is residual drawdown vs. the log of the residual time factor (t/t')[1] as observed during the recovery interval.

The maximum drawdown observed during the constant rate pumping test was 56.1 m. A positive boundary condition was observed at approximately 300 min into the constant rate test possibly indicating vertical leakage or increasing connectivity due to fracturing.

The plot of log t/t' vs. residual drawdown intercepts zero on the residual drawdown axis at log t/t' greater than 1, suggesting that some recharge potentially occurred. Since fractured media is very unpredictable, the projected 100 day drawdown has been extrapolated from the mid and late pumping test which is approximately 84 and 153 m, respectively. To be conservative, an average of these two values (118.5 m) is used for safe yield calculations.

The observed and residual drawdown was analyzed using the Cooper-Jacob straight-line method. Although, the Jacob–Cooper methodology is not intended to be used as an analysis tool for fractured rock, it is often used to provide relatively conservative approximations for aquifer yields assuming entire rock mass permeability (i.e. that flow occurs over the entire rock mass rather than primarily through rock mass discontinuities).

The results of the Cooper-Jacob analysis for the constant rate pumping test are included on Figure 5 and summarized in Table 2 on the following page. The straight line approximation was applied separately for the early, mid and late pumping, and recovery intervals.

[1] t/t'= (time since pump started)/ (time since pump stopped)

TABLE 2: AQUIFER TRANSMISSIVITY AND HYDRAULIC CONDUCTIVITY		
CONDUCTIVITY BASED ON PUMPING TEST RESULTS		
INTERVAL	T TRANSMISSIVITY	K CONDUCTIVITY
EARLY PUMPING (T_1,K_1)	2.29 m^2/day	2 x 10^{-7} m/sec
MID PUMPING (T_2,K_2)	**0.21 m^2/day**	**2 x 10^{-8} m/sec**
LATE PUMPING (T_3,K_3)	0.68 m^2/day	7 x 10^{-8} m/sec
EARLY RECOVERY (T_4,K_4)	3.84 m^2/day	4 x 10^{-7} m/sec
MID RECOVERY (T_5,K_5)	**0.18 m^2/day**	**2 x 10^{-8} m/sec**
LATE RECOVERY (T_6,K_6)	0.25 m^2/day	2 x 10^{-8} m/sec

The straight line approximations for the mid pumping and recovery intervals are approximately parallel indicating a reasonable agreement between the two analyses. Conductivity results shown in **bold** above (from the mid to late pumping) are more representative of the aquifer characteristics than earlier interpretations (due to the effects of well storage). The pumping test results of the analysis indicate that the transmissivity of the aquifer is on the order of 0.18 m^2/day (this is relatively low). Using an equivalent aquifer thickness of 115 m assuming an average rock mass permeability yields an equivalent hydraulic conductivity of 2 x 10^{-8} m/s. As discussed previously, most water flow would be from rock mass discontinuities and the actual hydraulic conductivity of these fracture zones are much higher.

3.2 WELL CAPACITY

To calculate the safe yield of a well, the 100-day specific capacity was multiplied by the safe available drawdown. The 100-Day specific capacity of the well (at a given pumping rate) is based on the projection of the constant rate drawdown to 100 days as shown on Figure 5. This conservatively assumes that Well 1950-B would be continuously pumped at the same rate for 100-days with no recharge to the aquifer. The safe available drawdown of the well is determined by applying a safety factor of 70% of the physical available drawdown after an allowance has been made for seasonal fluctuations in static water level. For a well completed in a bedrock aquifer (such as 1950-B), the water level should never be drawn below the top of a major water bearing fracture. Since very limited flow is observed in the original well,

which was drilled to 65.5 m-bg, all major water bearing fractures are assumed to be below 65 m in depth. Table 2 below provides the details of the safe yield calculations for 1950-B.

TABLE 3: SAFE YIELD CALCULATIONS			
WELL PARAMTER	VALUE	UNIT	KEY
Constant Rate Pumping Test Discharge Rate	0.13	L/s	a
Projected 100-Day Drawdown	118.5	m	b
100-Day Specific Capacity	0.0011	L/s/m	c
Static Water Level m-bg	9.6	m	d
Recommended depth to pump intake	65	m	e
Available Drawdown	65	m	f = e-d
Safety Factor	70	%	g
Safe Available Drawdown	45.5	m	h = f x g
Safe Yield Based on Constant Rate Pumping Test			
Safe Estimated Sustainable Yield	0.05	L/s	c x h
Safe Estimated Sustainable Yield	**0.7**	IGPM	

Based on the above safe yield calculations, the capacity of Well 1950-B is 0.05 L/s or 4320 L/day (0.7 IGPM).

The water demands for the IBEX Fire Hall (potable use only - not including fire protection) would be similar to the demand of a domestic residence as indicated in Table 4:

TABLE 4: ESTIMATED POTABLE WATER DEMANDS				
Average Day Demand (ADD)	720	L/day	0.11	IGPM
Maximum Day Demand (MDD)	1140	L/day	0.18	IGPM
Peak Hourly Demand (PHD)	540	L/hr	2.0	IGPM
Peak Momentary Demand (PMD)	0.37	L/s	5.0	IGPM

In order for Well 1950-B to meet the demands for potable water use for this building, the long term well capacity must be greater than the average day demand for the building. Estimated at 4320 L/day (Table 3), the well capacity significantly exceeds the average day demand of 720 L/day (Table 4). The well capacity and storage must be capable of meeting the peak hourly demand. In this case, there is an estimated 1020 Liters of water in storage

between the static water elevation and the recommended pump intake (65 m), and therefore, the storage alone exceeds the peak hourly demand. The well pump must be capable of meeting the peak momentary demand, which is estimated to be approximately 0.37 L/s (5 IGPM).

Therefore, with a suitable pump installed at 65 m below grade, the well is capable of meeting the ADD, MDD and PMD for domestic use at the Fire Hall.

3.3 GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER (GUDI) ASSESSMENT

Well water or groundwater under the direct influence of surface water (GUDI) refers to groundwater supply sources that are hydraulically connected to nearby surface waters or rapidly infiltrating run-off (in the case of bedrock), and are thus vulnerable to contamination by pathogens. The implication of a well being classified GUDI means that the well water source requires treatment equivalent to that required for surface water sources.

The Yukon Department of Health and Social Services has prepared a draft document titled "Assessment Guideline for Well Water or Groundwater Under the Direct Influence of Surface Water" (GUDI) to determine if a well is potentially under the influence of surface water (YTG, November 28, 2005). It is understood that these guidelines are under review and subject to change.

Based on the Yukon GUDI Phase 1 Screening Criteria, Well 1950-B is completed within a clastic-carbonate rock, which triggers one of the four criteria for being potentially GUDI. Therefore Well 1950-B requires further hydrogeological assessment. The hydrogeological regime around the Ibex Valley Fire Hall has been interpreted from surficial and geological maps. Recharge occurs in the highlands to the south and discharge is to the Takhini River to the north. The closest upgradient surface water source is a small tributary of the Takhini River that is approximately 300 m to the south of Ibex Valley Fire Hall. Bedrock outcrops are located approximately 500 m both north and south of the Ibex Valley Fire Hall.

Although groundwater data is limited for this area, a travel time assessment can be calculated using the Darcy equation and conservative estimates of transmissivity, hydraulic conductivity and a range fracture thicknesses. The resulting hydraulic conductivities range from 210 to 21 m/day based on one to 10 mm thick fractures, respectively. Generally, hydraulic gradient is calculated based on groundwater elevation, however, due to lack of groundwater data within the area a conservative value was based on the average of the topographic gradient

and the groundwater level from Well 1950-B (0.02 m/m – a conservatively high gradient). Therefore, conservative estimates of groundwater velocity are estimated to range from 2.1 to 0.21 m/day. Based on these velocities, in a 90 day period, groundwater would travel between 19 to 190 m. The general rule of thumb is that travel times greater than 90 days would provide sufficient removal of surface water organisms. Therefore, based on these calculations, a conservative estimate of the farthest distance that groundwater would travel in 90 days is approximately 190 m which is less then the nearest surface water body (approximately 300 m upgradient) and the nearest bedrock outcrop (approximately 500 m). Based on analysis of this hydrogeological information, Well 1950-B can be considered NON-GUDI, and water from this well can be considered to be a groundwater source at this time.

4.0 RESULTS OF LABORATORY ANALYSIS

Historical groundwater analytical results from Well 1950-A and current groundwater analytic result from Well 1950-B are presented in Table 5, attached. Laboratory results and certificates can be found in Appendix C. Key observations from the November 24, 2006 sampling event are provided below:

- Water from Well 1950-B is calcium-bicarbonate type;
- Water from Well 1950-B met all current Canadian Drinking Water Quality Guidelines (CDWQG) for health and aesthetics based parameters on the date sampled;
- Laboratory results for water from Well 1950-B do not indicate any evidence of impacts from septic effluent;
- From an aesthetic perspective, water from Well 1950-B is of much better quality than water from Well 1950-A (lower hardness and TDS); and
- Radiological screening results indicate a gross alpha concentration of 0.13 +/- 0.05 Bq/L which is slightly above the CDWQG maximum acceptable concentration (MAC) of 0.1 Bq/L. Gross Alpha is used as screening method and an exceedance of 0.1 Bq/L is not always indicative of a health based exceedance. Individual radionuclide testing for naturally occurring radionuclide's with MACs less than 0.1 Bq/L indicates concentrations less than CDWQG MACs; which indicates that the gross alpha screening result is not indicative of a MAC exceedance.

5.0 WELL COMMISSIONING, OPERATION AND MAINTENANCE

It is EBAs understanding that YTG-PMA will be coordinating the hook-up and commissioning of Well 1950-B in 2007. Proper well commissioning, operation and maintenance are fundamental to ensuring a reliable drinking water source. Recommendations pertinent to the commissioning and operation of Well 1950-B are presented below:

- In accordance with CGWA well construction guidelines the casing of the well should project at least 0.50 m above ground surface (it is currently 1.0 m above grade);
- The well pump should not be set below 65 m-bg and should have an automatic shut-off when the pumping water level reaches the top of the pump. The pump should be sized in accordance with the system demand flow (estimated peak momentary demand of approximately 5 Igpm), and to overcome a pumping water level of up to 150 m below grade);
- After extended periods of non-pumping the well should be allowed to discharge to waste until the water runs clear, pumping of small amounts of sand or discoloured water is normal after extended periods of non-pumping;
- The pump should not be continuously turned off and on as this can severely decrease the lifetime of the pump, and promote sand build up within the casing thereby increasing the need for re-development of the well;
- The water level and specific capacity in a water supply well should be routinely monitored over time to facilitate evaluation of well performance;
- The well should be shock chlorinated (disinfected) prior to commissioning, and bi-annually with a 200 mg/L sodium hypochlorite solution; and
- Any alterations to Well 1950-B should be in compliance with the Draft Guidelines for Part III – Small Public Drinking Water Systems, or the final document when in effect.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the information presented in this well completion report:

- In November 2006, the Ibex Valley Fire hall Well 1950-B was deepened from a depth of 65.5 m to 123.5 m below ground in bedrock;
- The new well was constructed in accordance with proposed Government of Yukon Public Drinking Water System Regulations (YTG 2005);

- The new well is sited at a location ensuring compliance with current and proposed guidelines for setback distances from existing potential sources of contamination;
- The calculated transmissivity values range from 0.18 m^2/day to 0.68 m^2/day;
- The safe sustainable yield of Well 1950-B is 0.05 L/s (0.7 IGPM), however, there is an estimated 1023 L of storage in the well. The well will meet the current domestic demands for the system;
- Under the YTG draft GUDI assessment guidelines, the well is considered NON-GUDI and therefore can be considered to be a groundwater source suitable for potable drinking water;
- Water from Well 1950-B meets all current Canadian Drinking Water Quality Guidelines (CDWQG) for health and aesthetics based parameters;
- Individual radionuclide testing for naturally occurring radionuclide's with MACs less than 0.1 Bq/L indicates concentrations less than CDWQG MACs; and
- To date, well construction and water quality results are in compliance with the Draft Guidelines for Part III – Small Public Drinking Water Systems.

Recommendations resulting from this study are:

- Bacteriological testing should be completed prior to commissioning of the new well; and
- PMA should keep Well 1950-A as a supply for fire protection (only) and use Well 1950-B for potable water supply and as a back-up for fire supply.

CLOSURE

Conclusions and recommendations in this report are based upon the Hydrogeological Investigations as described in the previous sections. This report has been prepared for the use of the Government of Yukon Property Management Agency. It has been prepared in accordance with generally accepted hydrogeological practices. For further limitations regarding the use of the report, reference should be made to the EBA Environmental Report – General Conditions attached, which form a part of this report.

EBA trusts that this report satisfies your present requirements. Should you have any questions or comments please do not hesitate to contact the undersigned.

Respectfully submitted,

EBA Engineering Consultants Ltd.

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ENVIRONMENTAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of EBA's investigation. The client, and any other parties using this report with the express written consent of the client and EBA, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and EBA, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that EBA is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

2.1 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of this report, EBA may have relied on information provided by persons other than the client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

3.0 LIMITATION OF LIABILITY

The client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising out of the presence of those materials. In consideration of these risks, and in consideration of EBA providing the services requested, the client agrees that EBA's liability to the client, with respect to any issues relating to contaminants or other hazardous wastes located on the subject site shall be limited as follows:

1. With respect to any claims brought against EBA by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to EBA under this Agreement, whether the action is based on breach of contract or tort;
2. With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the client agrees to indemnify, defend and hold harmless EBA from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by EBA, whether the claim be brought against EBA for breach of contract or tort.

4.0 JOB SITE SAFETY

EBA is only responsible for the activities of its employees on the job site and is not responsible for the supervision of any other persons whatsoever. The presence of EBA personnel on site shall not be construed in any way to relieve the client or any other persons on site from their responsibility for job site safety.

5.0 DISCLOSURE OF INFORMATION BY CLIENT

The client agrees to fully cooperate with EBA with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for EBA to properly provide the service, EBA is relying upon the full disclosure and accuracy of any such information.

6.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

7.0 EMERGENCY PROCEDURES

The client undertakes to inform EBA of all hazardous conditions, or possible hazardous conditions which are known to it. The client recognizes that the activities of EBA may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect EBA employees, other persons and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The client agrees to pay EBA for any expenses incurred as a result of such discoveries and to compensate EBA through payment of additional fees and expenses for time spent by EBA to deal with the consequences of such discoveries.

8.0 NOTIFICATION OF AUTHORITIES

The client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

9.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The client acknowledges that all reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

10.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

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TABLES

TABLE 5: SUMMARY OF LABORATORY CHEMISTRY RESULTS OF WELLS 1950-A and 1950-B

	Well	Well 1950-A Ibex Valley Fire Hall- Old Well	Well 1950-A Ibex Valley Fire Hall- Old Well	Well 1950-B Ibex Valley Fire Hall- Early	Well 1950-B Ibex Valley Fire Hall- Late	Well 1950-B Ibex Valley Fire Hall- Early	Well 1950-B Ibex Valley Fire Hall- Late	Canadian Drinking Water Quality Guidelines [1]	
	ALS Report			X2039	X2039	L454625	L458160		
	Date	05-Oct-04	10-May-05	13-Feb-06	13-Feb-06	9-Nov-06	24-Nov-06		
	Sampled by:	EBA	EBA	EBA	EBA	EBA	EBA	MAC [2]	AO [3]
	Location	Washroom Tap	Kitchen Tap	Well	Well	Well	Well		
Physical Tests									
Colour	CU	5	<5.0	<5.0	-	-	<5.0	-	15
Conductivity (Lab)	uS/cm	512	847	313	-	-	249	-	-
Total Dissolved Solids (Lab)	mg/L	304	579	172	-	-	273	-	500
Hardness (CaCO3)	mg/L	265	392	112	112	121	116	-	-
pH (field)	pH units	7.8	8.21	-	-	-	-	-	-
pH (lab)	pH units	-	-	8.09	-	-	8.07	-	6.5 - 8.6
Turbidity	NTU	0.5	**4.92**	**11.3**	**158**	-	0.31	1	5
UV Abosrbance (254 nm)	Abs/cm-1	-	-	-	-	-	0.0117	-	-
Dissolved Anions									
Alkalinity-Total CaCO3	mg/L	190	230	141	-	-	124	-	-
Chloride	mg/L	52	1.67	15.3	-	-	0.73	-	250
Fluoride	mg/L	0.23	1.05	0.220	-	-	0.211	1.5	-
Sulphate	mg/L	23	109	15.6	-	-	12.8	-	500
Nutrients									
Nitrate Nitrogen	mg/L	1.5	<0.10	0.20	-	-	0.216	10	-
Nitrite Nitrogen	mg/L	<0.05	<0.10	<0.10	-	-	<0.001	3.2	-
Ammonia Nitrogen	mg/L	-	0.075	-	-	-	-	-	-
Total Metals									
Aluminum	mg/L	<0.02	<0.020	0.163	0.621	-	<0.0050	-	-
Antimony	mg/L	0.0008	<0.0010	<0.0025	<0.0025	-	0.00075	0.006	-
Arsenic	mg/L	0.0037	0.00384	0.00199	0.00231	-	0.0023	0.01	-
Barium	mg/L	0.0928	0.13	<0.10	<0.10	-	0.038	1	-
Beryllium		-	-	-	-	-	<0.001	-	-
Boron	mg/L	<0.02	<0.20	<0.50	<0.50	-	<0.1	5	-
Cadmium	mg/L	<0.0002	<0.00040	<0.0010	<0.0010	-	<0.000017	0.005	-
Calcium	mg/L	74.2	115	35.5	38.7	-	39.4	-	-
Chromium	mg/L	0.0014	<0.0040	<0.010	<0.010	-	0.0018	0.05	-
Cobalt		-	-	-	-	-	<0.0003	-	-
Copper	mg/L	0.344	0.295	<0.0050	0.0059	-	0.0019	-	1
Iron	mg/L	0.064	0.852	0.124	11.7	-	<0.03	-	0.3
Lead	mg/L	0.0013	0.0041	<0.0050	<0.0050	-	0.00313	0.01	-
Lithium		-	-	-	-	-	0.0143	-	-
Magnesium	mg/L	17.7	25.4	4.34	4.79	-	4.3700	-	-
Manganese	mg/L	0.006	0.0382	0.021	0.609	-	0.00179	-	0.05
Mercury	mg/L	<0.0002	<0.00020	<0.00020	<0.00020	-	<0.000020	0.001	-
Molybdenum		-	-	-	-	-	0.0039	-	-
Nickel		-	-	-	-	-	<0.001	-	-
Potassium	mg/L	1.6	1.75	0.980	1.44	-	<2.0	-	-
Selenium	mg/L	0.0006	<0.0020	<0.0050	<0.0050	-	0.0011	0.01	-
Silver		-	-	-	-	-	<0.00002	-	-
Sodium	mg/L	13	27.7	23.9	29.4	-	12.1	-	200
Thallium		-	-	-	-	-	<0.0002	-	-
Tin		-	-	-	-	-	<0.0005	-	-
Titanium		-	-	-	-	-	<0.01	-	-
Uranium	mg/L	0.0058	0.00869	0.004	0.00283	-	0.00425	0.02	-
Vanadium		-	-	-	-	-	0.00425	-	-
Zinc	mg/L	0.04	<0.10	<0.25	<0.25	-	0.0428	-	5
Dissolved Metals									
Aluminum	mg/L	-	-	<0.050	<0.050	0.279	-	-	-
Antimony	mg/L	-	-	<0.0025	<0.0025	<0.00050	-	0.006	-
Arsenic	mg/L	-	-	0.00156	<0.00050	0.00048	-	0.01	-
Barium	mg/L	-	-	<0.10	<0.10	0.040	-	1	-
Boron	mg/L	-	-	<0.50	<0.50	<0.10	-	5	-
Cadmium	mg/L	-	-	<0.0010	<0.0010	<0.00020	-	0.005	-
Calcium	mg/L	-	-	37.4	37.4	39.8	-	-	-
Chromium	mg/L	-	-	<0.010	<0.010	<0.0020	-	0.05	-
Copper	mg/L	-	-	<0.0050	<0.0050	0.0119	-	-	1
Iron	mg/L	-	-	<0.030	<0.030	0.333	-	-	0.3
Lead	mg/L	-	-	<0.0050	<0.0050	<0.0010	-	0.01	-
Magnesium	mg/L	-	-	4.52	4.67	5.31	-	-	-
Manganese	mg/L	-	-	<0.010	0.136	0.0537	-	-	0.05
Mercury	mg/L	-	-	<0.00020	<0.00020	<0.00020	-	0.001	-
Potassium	mg/L	-	-	0.95	1.27	0.75	-	-	-
Selenium	mg/L	-	-	<0.0050	<0.0050	<0.0010	-	0.01	-
Sodium	mg/L	-	-	23.4	30.5	12.7	-	-	200
Uranium	mg/L	-	-	0.00414	0.0026	0.00463	-	0.02	-
Zinc	mg/L	-	-	<0.25	<0.25	<0.050	-	-	5
Radiological Parameters									
Gross Alpha	Bq/L	-	-	-	-	-	**0.13**	0.1 [4]	
Gross Beta	Bq/L	-	-	-	-	-	0.06	1	
Lead-210	Bq/L	-	-	-	-	-	<0.02	0.1	
Thorium-232	Bq/L	-	-	-	-	-	<0.01	0.1	

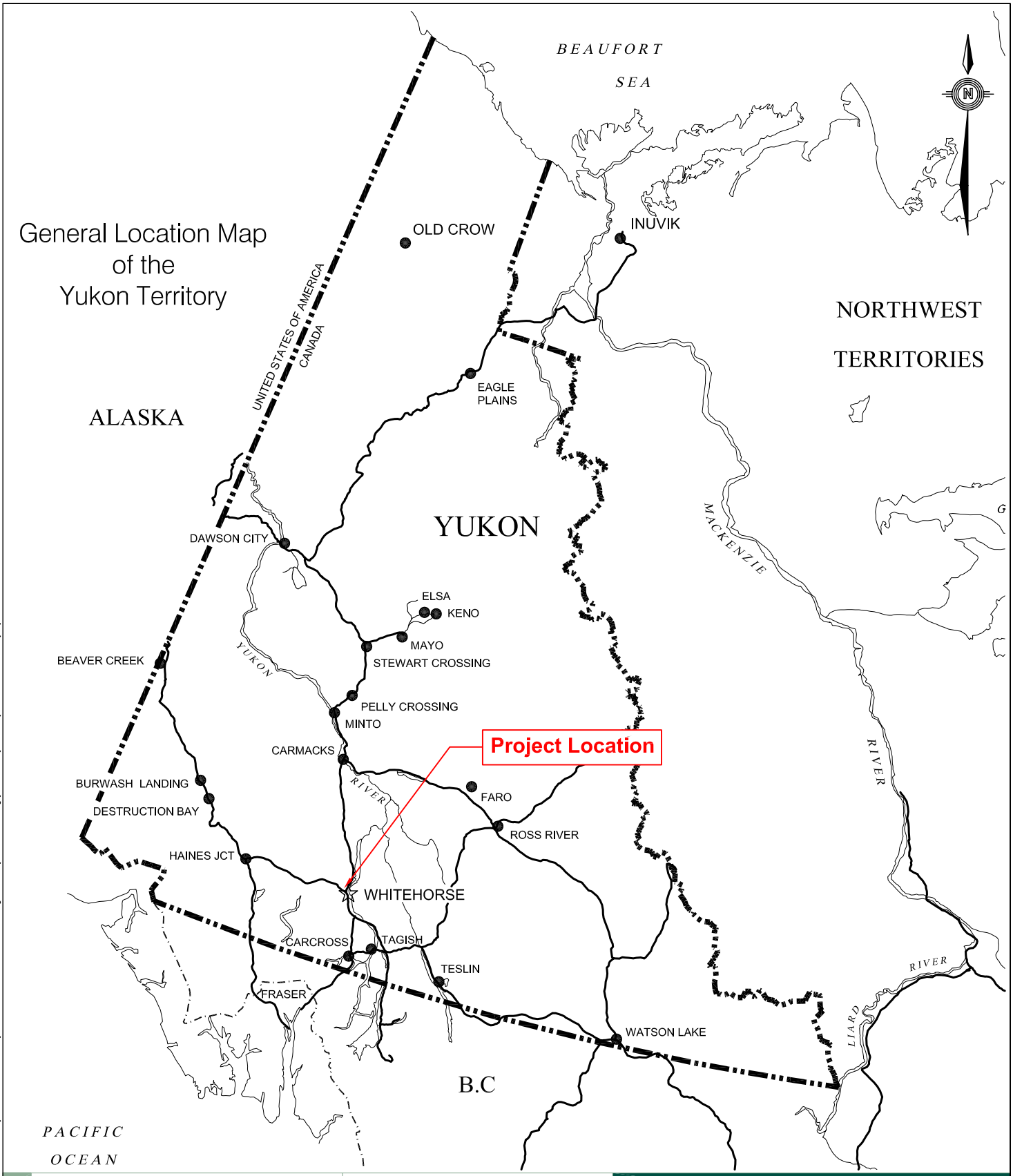
Notes:
"-" indicates not analyzed.

Bold - indicates parameter above proposed CDWQG MAC.
Underline - indicates parameter above CDWQG AO.

[1] CDWQG criteria are taken from the " Canadian Drinking Water Quality Guidelines, April 2004."
[2] MAC refers to the Maximum Acceptable Concentration according to the CDWQG criteria.
[3] AO refers to the Aesthetic Objective according to the CDWQG criteria.
[4] Gross Alpha is used as a screening tool, examination of natural radiological constituents with MAC's less than 0.1 Bq/L shows no exceedences.

EBA FILE: 1260028.001
February 2007

FIGURES



CLIENT

Yukon
Property Management Agency

WELL COMPLETION REPORT
IBEX VALLEY FIRE HALL - WHITEHORSE, YT

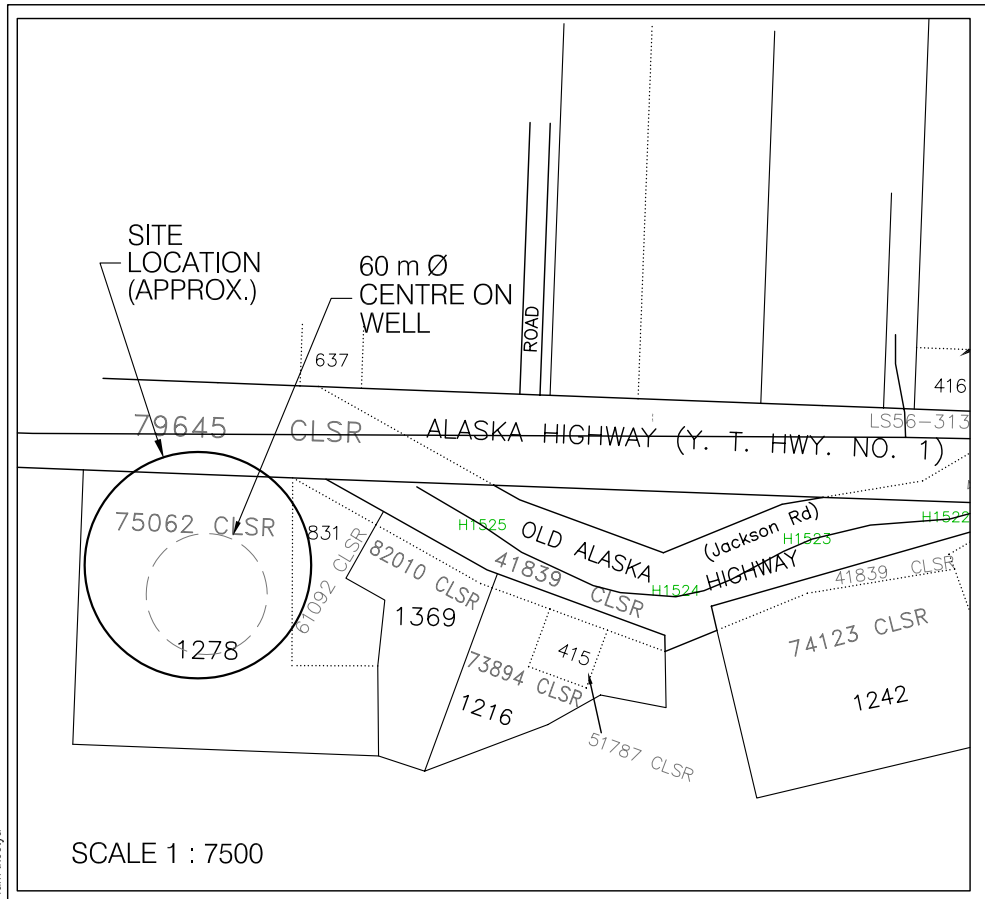
SITE LOCATION MAP

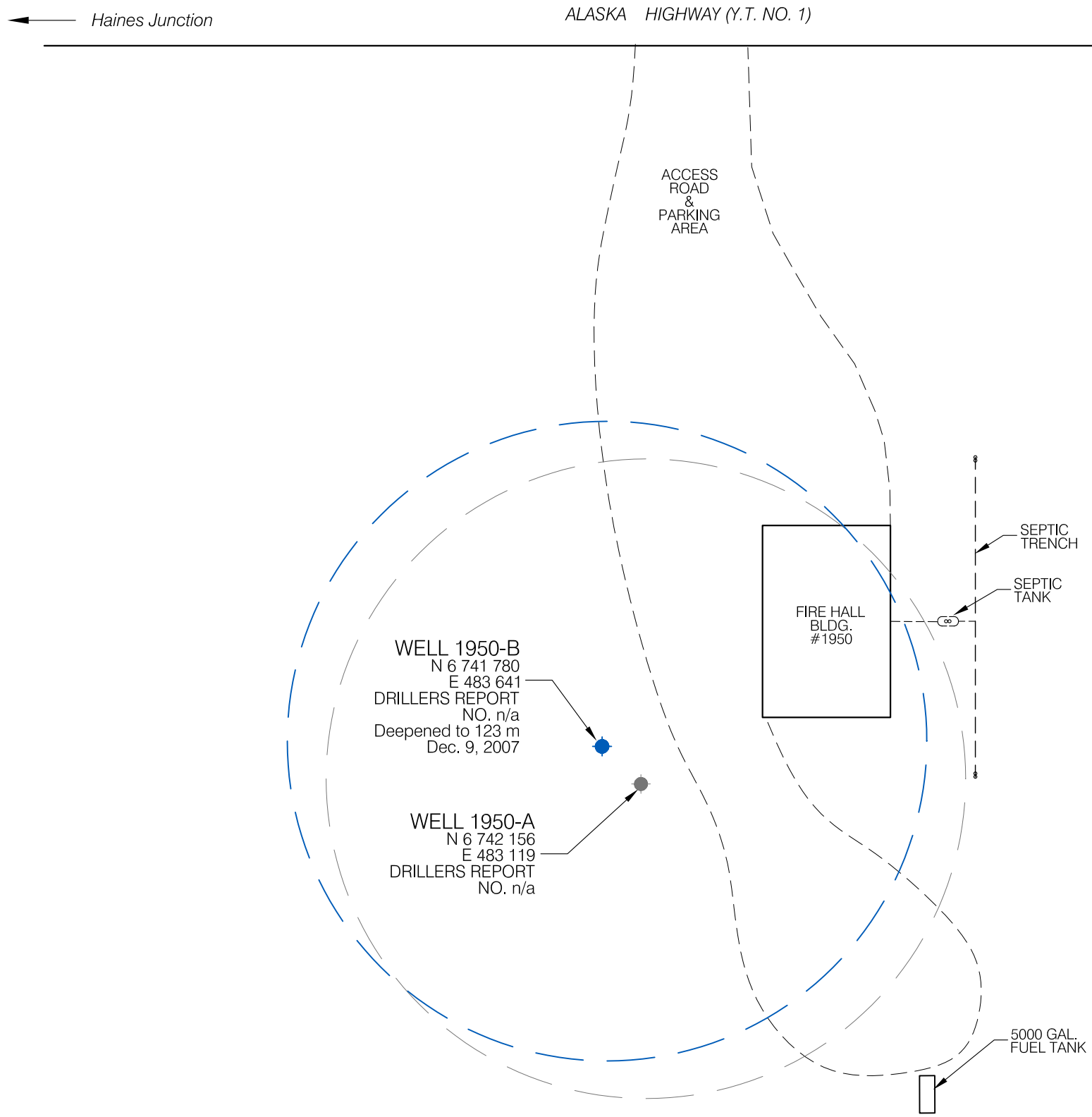
EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
1260028.001	JSB	TAK/RMM	0
OFFICE: EBA-WHSE	DATE: January 30, 2007		

Figure 1

Q:\Whitehorse\Data\0201drawings\S.Klondike-Haines Junction Hwy\1260008 Ibex Valley Fire Hall Water Well\1260028 Figure 1_Key Plan_Ibex.dwg [KEY PLAN] February 20, 2007 - 9:14am jbuyck





LEGEND:

30 m RADIUS FROM WATER WELL FOR CONSIDERATION OF PROXIMITY TO POTENTIAL CONTAMINANT SOURCES.

10m 0 10m 20m 30m 40m

SCALE 1 : 500

NOTES:

1. UTM COORDINATES OBTAINED WITH A HAND HELD GPS USING NAD83 SYSTEM AND ARE CONSIDERED TO BE ACCURATE TO 10.0 m, APPROXIMATELY.
2. BUILDING STRUCTURES RELATIVE TO PROPERTY LINES ARE APPROXIMATE ONLY.

CLIENT

Yukon Property Management Agency

EBA Engineering Consultants Ltd.

WELL COMPLETION REPORT
IBEX FIRE HALL - WHITEHORSE, YT

SITE PLAN AND WELL LOCATION
BUILDING # 1950
WELL ID: 1950-B

PROJECT NO.	DWN	CKD	REV
1260028.001	JSB	TAK/RMM	0
OFFICE: EBA-WHSE	DATE: January 30, 2007		

Figure 2

HYDROGEOLOGIC LOG

BOREHOLE NO. WELL 1950-B

PURPOSE OF HOLE: Water Supply Well
DRILLING METHOD: Dual Air Rotary
START DRILLING: November 8, 2006
SCREEN INSTALLED: N/A
CONTRACTOR: Double "D" Drilling

GROUND ELEV. (m-geod): N/A
TOP OF CASING (m-geod): N/A
CASING STICK UP (m): 1.40 m
DEPTH TO STATIC (m): 8.6 m below grd.
DEPTH TO SCREEN TOP (m): N/A
UTM Coordinates from GPS: Zone 7, 6741780 N, 483641 E

Lithology (Depth (m))	Comments	Well Installation Summary
0m SAND - some gravel, silty, brown, dry to moist 8.8 m 10m BEDROCK - fine grained, red/brown 20m 30m - Possible fracture @ 43.3 m-bg. 40m 50m 60m - Possible fracture @ 63.1 m - Color changes to grey at 65.0 m - extension of well from 65.5 m to 123.5 m 70m - Possible fracture @ 67.1 m - Possible fracture @ 70.1 m 80m - Possible fracture @ 85.4 m - color alteration from light green to dark green 90m between 82.3 m to 100.6 m 100m - color alteration from light green to dark green between 100.6 m to 123.5 m 110m 120m 123.5 m END OF BOREHOLE 130m	Static Water Level = 8.6 m (November 21, 2006)	Circle Plate - lockable Surface Seal 6.1 m Casing Concrete Plug 12.5 m DRILLED OPEN HOLE 6" (152 mm)

CLIENT

Yukon Property Management Agency

WELL COMPLETION REPORT
IBEX VALLEY FIRE HALL - WHITEHORSE, YT

WELL LOG 1950-B

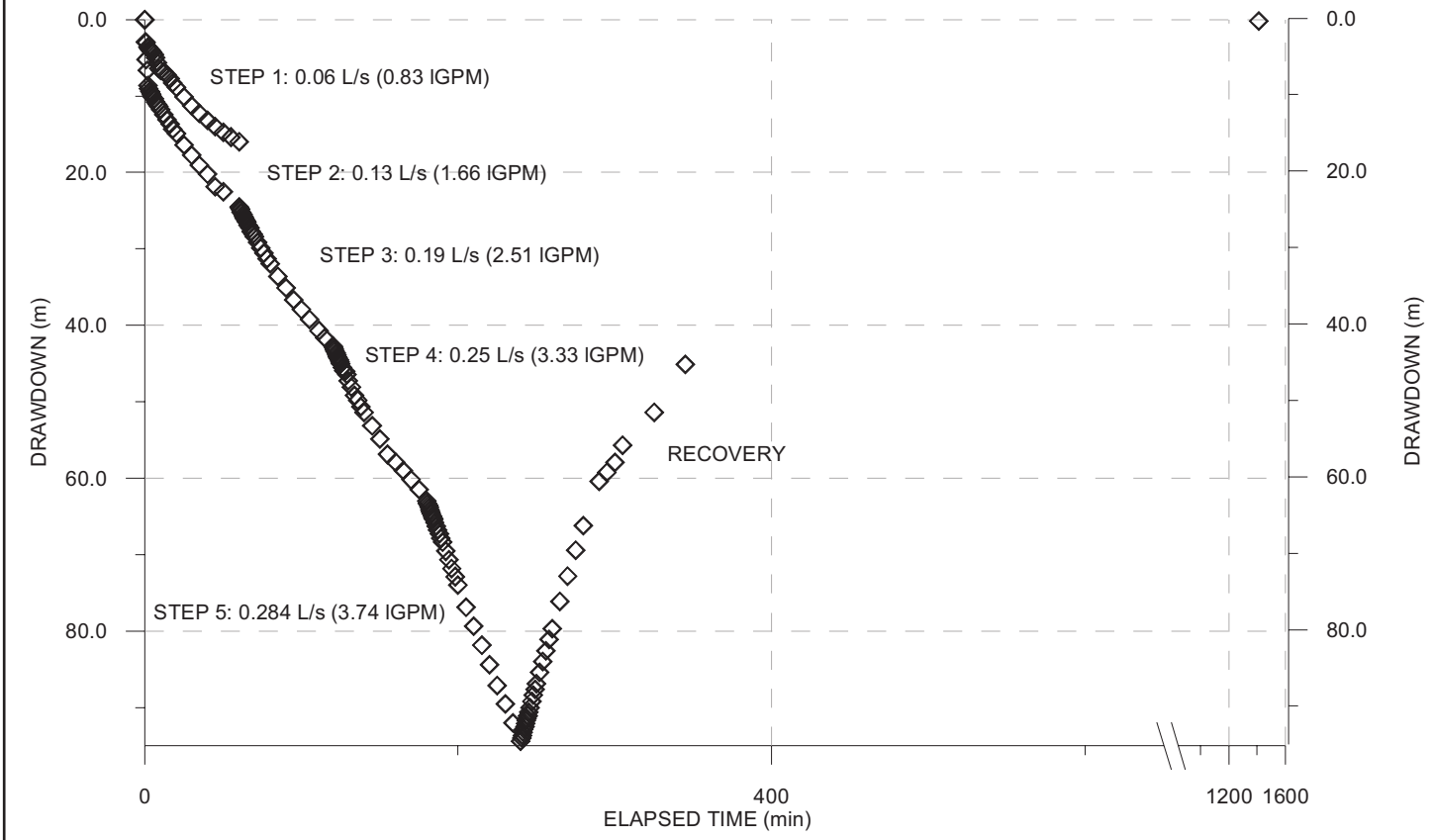
EBA Engineering Consultants Ltd.

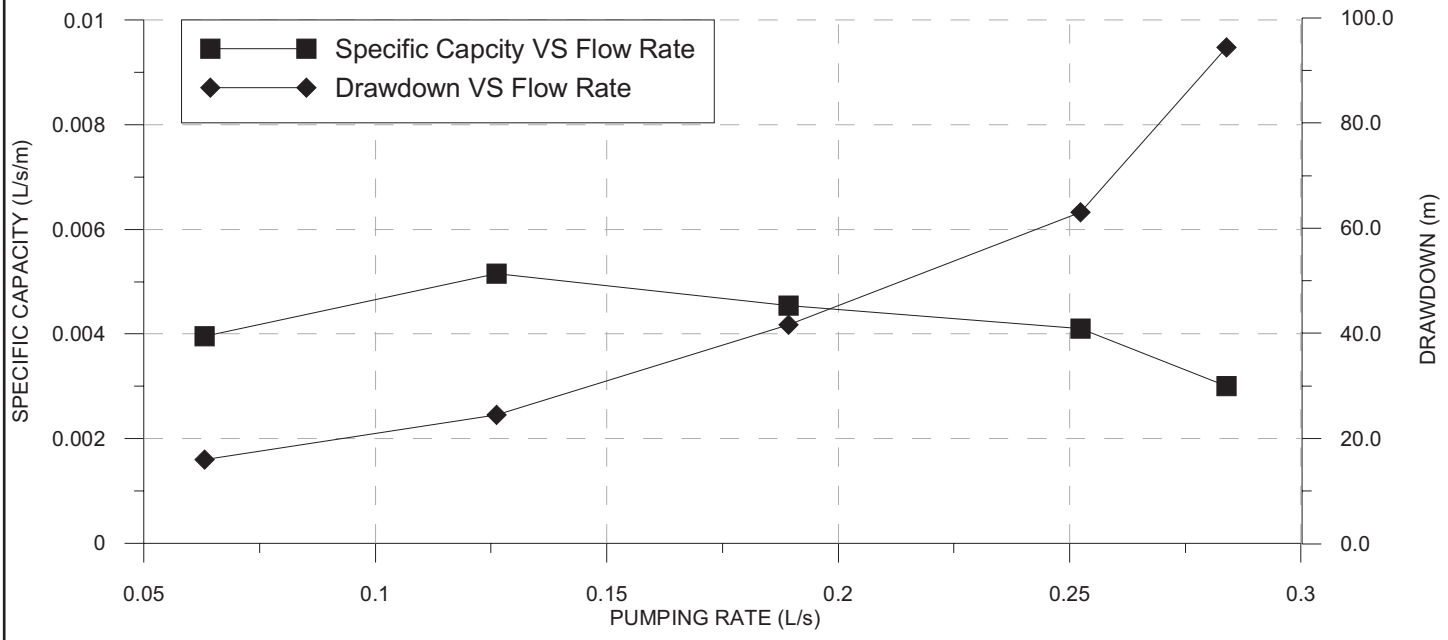
PROJECT NO.	DWN	CKD	REV
1260008.001	JSB	TAK/RMM	0

OFFICE: EBA-WHSE
DATE: January 30, 2007

Figure 3

\\eba.local\corp\Whitehorse\Data\0201drawings\S.Klondike-Haines Junction Hwy\1260028.001 Ibex Fire Hall Well Deepening\1260008 Figure 3 Well 1950_B.dwg [8.5 x 11 P] February 21, 2007 - 10:14am tkostya





CLIENT

Yukon Highways and Public Works Property Management Branch

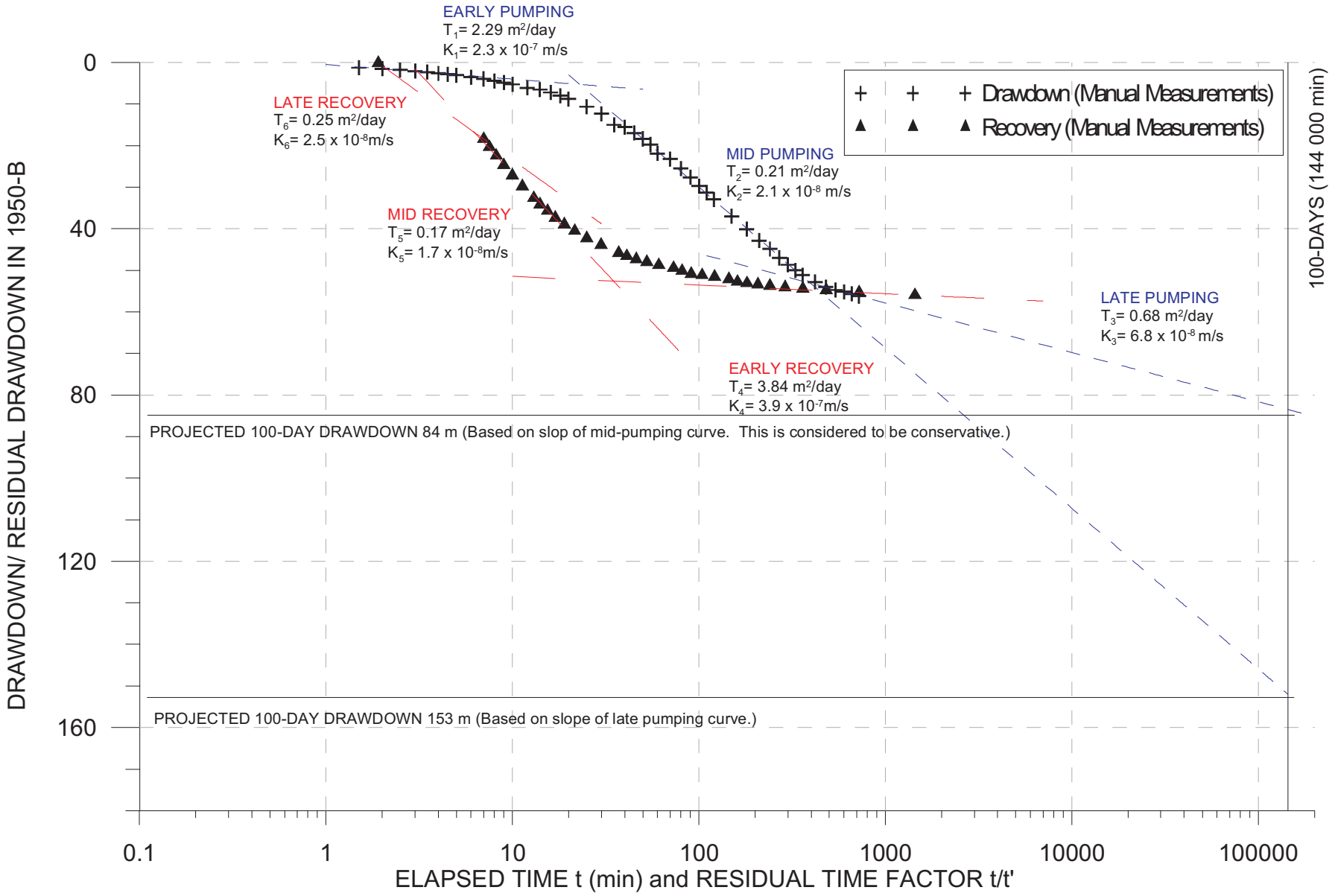
WATER WELL COMPLETION REPORT, IBEX FIRE HALL, WHITEHORSE, YUKON

STEP RATE PUMPING TEST

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
1260028.001	TAK	RMM	1
OFFICE: EBA-Whitehorse	DATE: February 2007		

Figure 4



CLIENT

Yukon Highways and Public Works Property Management Branch

EBA Engineering Consultants Ltd.

WELL COMPLETION REPORT, IBEX FIRE HALL, WHITEHORSE, YUKON

CONSTANT RATE PUMPING TEST

PROJECT NO.	DWN	CKD	REV
1260028.001	TAK	RMM	1

OFFICE	DATE
EBA-WHITEHORSE	February 2007

Figure 5

EBA FILE: 1260028.001
February 2007

PHOTOGRAPHS

Photo 1
Drilling operations during the deepening of Well 1950-B. (November 8, 2006)

Photo 2
Flow meter during the pumping test. (November 21, 2006)

APPENDIX

APPENDIX A DRILLERS WELL LOG

BRITISH COLUMBIA

BC Environment

Water Management Branch, Groundwater Section

WATER WELL RECORD

Date 06 / 11 / 09 (YR / MO / DY)

BCGS MAP ____ WELL No. ____ ELEV ____ Location Accuracy ____

UTM Z ____ E ____ N ____ UTM Date 19__ Well Type ____

Owners Name & Address ATT: KATHERINE T

Legal Description & Address ____

Descriptive Location IBEX FIRE HALL

1. TYPE OF WORK: 1 ☐ New Well 2 ☐ Reconditioned 3 ☐ ~~Deepened~~ 4 ☐ Abandoned

2. WORK METHOD: 1 ☐ Cable tool 2 ☐ Bored 3 ☐ Jetted 4 ☐ ~~Rotary~~ a ☐ mud b ☐ ~~air~~ c ☐ reverse ☐ Other ____

3. WATER WELL USE: 1 ☐ Domestic 2 ☐ ~~Municipal~~ 3 ☐ Irrigation 4 ☐ Comm. & Ind. ☐ Other ____

4. DRILLING ADDITIVES NONE

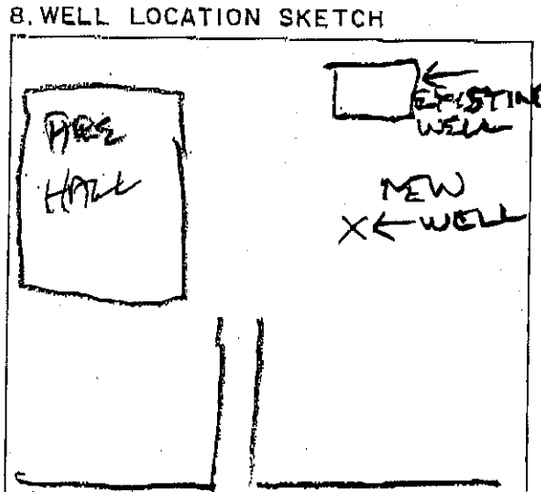
5. MEASUREMENTS from 1 ☐ ~~ground level~~ 2 ☐ top of casing; casing height above ground level N/A ft.

FROM ft	TO ft	6. WELL LOG DESCRIPTION	SWL ft
215	405	BEDROCK	
	+	FRACTURES ENCOUNTERED	
		@ 230 + 280	

7. CONSULTANT ____

Address ____

8. WELL LOCATION SKETCH



9. CASING: Materials 1 ☐ ~~Steel~~ 2 ☐ Galvanized 3 ☐ Wood 4 ☐ Plastic 5 ☐ Concrete ☐ Other ____

							units
Hole Diameter	6						ins
Diameter	N/A						ins
from							ft
to							ft
Thickness							ins
Weight							lb/ft

Pitless unit ____ ft 1 ☐ above 2 ☐ below ground level

1 ☐ Welded 2 ☐ Cemented 3 ☐ Threaded | 1 ☐ New 2 ☐ Used

Perforations: ____

Shoe (s): ____

Open hole, from 215 to 405 ft Diameter 6 ins

Grout: ____

10. SCREEN: 1 ☐ Nominal (Telescope) 2 ☐ Pipe Size

Type 1 ☐ Continuous Slot 2 ☐ Perforated 3 ☐ Louvre ☐ Other ____

Material 1 ☐ Stainless Steel 2 ☐ Plastic ☐ Other ____

Set from ____ to ____ ft below ground level

RISER, SCREEN & BLANKS							units
Length							ft
Diam. I D							ins
Slot Size							ins
from							ft
to							ft

Fittings, top ____ bottom ____

Gravel Pack ____

11. DEVELOPED BY: 1 ☐ Surging 2 ☐ Jetting 3 ☐ ~~Air~~ 4 ☐ Bailing 5 ☐ Pumping ☐ Other ____

12. TEST 1 ☐ Pump 2 ☐ Bail 3 ☐ ~~Air~~ Date 06 / 11 / 09 (YR / MO / DY)

Rate 3 ~~gpm~~ Temp ____ °C SWL before test ____ ft

Water Level ____ ft after test of ____ hrs

☐ DRAWDOWN in ft				☐ RECOVERY in ft			
mins	WL	mins	WL	mins	WL	mins	WL

13. RECOMMENDED PUMP TYPE ____ RECOMMENDED PUMP SETTING ____ ft RECOMMENDED PUMPING RATE ____ USgpm

14. WATER TYPE: 1 ☐ ~~fresh~~ 2 ☐ salty 3 ☐ ~~clear~~ 4 ☐ cloudy

colour ____ smell ____ ; gas 1 ☐ yes 2 ☐ no

15. WATER ANALYSIS: 1 Hardness ____ mg/L 2 Iron ____ mg/L 3 Chloride ____ mg/L 4 pH ____

Field Date ____ Lab Date ____ (YR / MO / DY)

SITE I D No ____

16. FINAL WELL COMPLETION DATA

Well Depth 405 ft Well Yield 3 ~~gpm~~

Static Water Level ____ ft Artesian Flow ____ US gpm Pressure Head ____ ft

Back filled ____

Well Head Completion 6" HINGED, LOCKABLE PLATE

17. DRILLER (PLEASE PRINT) SURNAME ____ FIRST NAME ____

Signature ____

18. CONTRACTOR, DBLE D DRILLING LTD.

Address BOX 766 TERRACE B.C. V8G-4R1

APPENDIX

APPENDIX B WELL 1950-B PUMPING TEST DATA

APPENDIX B1: STEP-RATE PUMPING TEST DATA

EBA PROJECT NUMBER:	1260028.001	PROJECT LOCATION:	Ibex Fire Hall
WELL NAME:	Ibex Fire Hall Well 1950 - B	PUMP INTAKE DEPTH (m):	111 m (364 ft)
STATIC WATER LEVEL (m):	8.61 m (28.24 ft) below ground level	SCREEN INTERVAL:	Open Hole - Bedrock
DATUM DESCRIPTION:	Top of Sounding Tube	SLOT SIZE ("):	Open Hole - Bedrock
DATUM STICK-UP(m):	1.0 m above ground level	AVAILABLE DRAWDOWN(m):	110.4 m (362.1 ft)
WELL DIAMETER:	152 mm (6 in)	SCREEN DIAMETER (mm):	Open Hole - Bedrock
TOTAL WELL DEPTH:	122.5 m (402 ft)	OBSERVER'S NAME:	Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING ^{3} (Total USG)	FLOW RATE (IGPM)	FLOW RATE (USGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	COMMENTS
21-Nov-06	9:00:00	0	8.610	0.000	-	3.33	4.00	0.252		**START STEP 1**
20-Nov-06	9:01:00	1	11.600	2.990	-	1.67	2.00	0.126	0.042	
21-Nov-06	9:02:00	2	12.180	3.570	-	2.50	3.00	0.189	0.053	Average rate 1.4 us g/m
21-Nov-06	9:02:30	2.5	12.330	3.720	-	1.67	2.00	0.126	0.034	
21-Nov-06	9:03:00	3	12.480	3.870	-	0.83	1.00	0.063	0.016	
21-Nov-06	9:03:30	3.5	12.600	3.990	-	0.83	1.00	0.063	0.016	
21-Nov-06	9:04:00	4	12.700	4.090	-	0.83	1.00	0.063	0.015	
21-Nov-06	9:04:30	4.5	12.810	4.200	-	0.83	1.00	0.063	0.015	
21-Nov-06	9:05:00	5	12.890	4.280	-	0.83	1.00	0.063	0.015	
21-Nov-06	9:06:00	6	13.200	4.590	-	0.83	1.00	0.063	0.014	
21-Nov-06	9:07:00	7	13.620	5.010	-	0.83	1.00	0.063	0.013	
21-Nov-06	9:08:00	8	14.260	5.650	-	0.83	1.00	0.063	0.011	
21-Nov-06	9:09:00	9	15.000	6.390	-	2.50	3.00	0.189	0.030	
21-Nov-06	9:10:00	10	15.250	6.640	-	1.67	2.00	0.126	0.019	
21-Nov-06	9:12:00	12	15.390	6.780	-	1.67	2.00	0.126	0.019	
21-Nov-06	9:14:00	14	15.840	7.230	-	1.67	2.00	0.126	0.017	
21-Nov-06	9:16:00	16	16.350	7.740	-	1.67	2.00	0.126	0.016	
21-Nov-06	9:18:00	18	16.930	8.320	-	1.67	2.00	0.126	0.015	
21-Nov-06	9:20:00	20	17.470	8.860	30	1.67	2.00	0.126	0.014	
21-Nov-06	9:25:00	25	18.740	10.130	-	1.25	1.50	0.095	0.009	
21-Nov-06	9:30:00	30	19.910	11.300	45	1.67	2.00	0.126	0.011	
21-Nov-06	9:35:00	35	20.900	12.290	-	0.83	1.00	0.063	0.005	
21-Nov-06	9:40:00	40	21.810	13.200	-	0.83	1.00	0.063	0.005	
21-Nov-06	9:45:00	45	22.620	14.010	-	0.83	1.00	0.063	0.005	
21-Nov-06	9:50:00	50	23.340	14.730	74	0.83	1.00	0.063	0.004	
21-Nov-06	9:55:00	55	23.980	15.370	-	0.83	1.00	0.063	0.004	
21-Nov-06	1:00:00	60	24.570	15.960	80	0.83	1.00	0.063	0.004	
22-Nov-06	9:00:00	0	8.600	0.000	-	4.16337	5.00	0.315		**STEP 2 REPEAT**
22-Nov-06	9:00:30	0.5	11.500	2.900	-	3.9968352	4.80	0.303	0.104	2 us g/m
22-Nov-06	9:01:00	1	13.800	5.200	-	4.3299048	5.20	0.328	0.063	STEP 2
22-Nov-06	9:01:30	1.5	15.240	6.640	-	3.8303004	4.60	0.290	0.044	Flow was not constant
22-Nov-06	9:02:00	2	17.250	8.650	-	1.665348	2.00	0.126	0.015	problems with pump mechanic
22-Nov-06	9:02:30	2.5	17.650	9.050	-	1.665348	2.00	0.126	0.014	rate at about 1.1 us g/m
22-Nov-06	9:03:00	3	17.940	9.340	-	1.665348	2.00	0.126	0.014	Will re-start
22-Nov-06	9:03:30	3.5	18.060	9.460	-	1.665348	2.00	0.126	0.013	
22-Nov-06	9:04:00	4	18.300	9.700	-	1.665348	2.00	0.126	0.013	
22-Nov-06	9:04:30	4.5	18.470	9.870	-	1.665348	2.00	0.126	0.013	
22-Nov-06	9:05:00	5	18.730	10.130	-	1.665348	2.00	0.126	0.012	
22-Nov-06	9:06:00	6	19.000	10.400	-	1.665348	2.00	0.126	0.012	
22-Nov-06	9:07:00	7	19.360	10.760	-	1.665348	2.00	0.126	0.012	
22-Nov-06	9:08:00	8	19.750	11.150	-	1.665348	2.00	0.126	0.011	
22-Nov-06	9:09:00	9	20.000	11.400	-	1.665348	2.00	0.126	0.011	
22-Nov-06	9:10:00	10	20.360	11.760	25	1.665348	2.00	0.126	0.011	
22-Nov-06	9:12:00	12	21.020	12.420		1.665348	2.00	0.126	0.010	
22-Nov-06	9:14:00	14	21.680	13.080		1.665348	2.00	0.126	0.010	
22-Nov-06	9:16:00	16	22.310	13.710		1.665348	2.00	0.126	0.009	
22-Nov-06	9:18:00	18	22.920	14.320		1.665348	2.00	0.126	0.009	
22-Nov-06	9:20:00	20	23.540	14.940	48	1.665348	2.00	0.126	0.008	
22-Nov-06	9:25:00	25	24.990	16.390		1.665348	2.00	0.126	0.008	
22-Nov-06	9:30:00	30	26.360	17.760	68	1.665348	2.00	0.126	0.007	
22-Nov-06	9:35:00	35	27.650	19.050		1.665348	2.00	0.126	0.007	
22-Nov-06	9:40:00	40	28.850	20.250	88	1.665348	2.00	0.126	0.006	
22-Nov-06	9:45:00	45	30.450	21.850		1.665348	2.00	0.126	0.006	

APPENDIX B1: STEP-RATE PUMPING TEST DATA

EBA PROJECT NUMBER:	1260028.001	PROJECT LOCATION:	Ibex Fire Hall
WELL NAME:	Ibex Fire Hall Well 1950 - B	PUMP INTAKE DEPTH (m):	111 m (364 ft)
STATIC WATER LEVEL (m):	8.61 m (28.24 ft) below ground level	SCREEN INTERVAL:	Open Hole - Bedrock
DATUM DESCRIPTION:	Top of Sounding Tube	SLOT SIZE (''):	Open Hole - Bedrock
DATUM STICK-UP(m):	1.0 m above ground level	AVAILABLE DRAWDOWN(m):	110.4 m (362.1 ft)
WELL DIAMETER:	152 mm (6 in)	SCREEN DIAMETER (mm):	Open Hole - Bedrock
TOTAL WELL DEPTH:	122.5 m (402 ft)	OBSERVER'S NAME:	Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING ^{3} (Total USG)	FLOW RATE (IGPM)	FLOW RATE (USGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	COMMENTS
22-Nov-06	9:50:00	50	31.110	22.510	109	1.665348	2.00	0.126	0.006	
22-Nov-06	10:00:00	60	33.070	24.470	128	1.665348	2.00	0.126	0.005	
22-Nov-06	10:00:30	60.5	33.250	24.650	-	2.498022	3.00	0.19	0.008	**STEP 3**
22-Nov-06	10:01:00	61	33.460	24.860	-	2.498022	3.00	0.19	0.008	3 us g/m
22-Nov-06	10:01:30	61.5	33.750	25.150	-	2.498022	3.00	0.19	0.008	
22-Nov-06	10:02:00	62	33.885	25.285	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:02:30	62.5	34.090	25.490	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:03:00	63	34.310	25.710	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:03:30	63.5	34.540	25.940	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:04:00	64	34.700	26.100	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:04:30	64.5	34.900	26.300	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:05:00	65	35.100	26.500	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:06:00	66	35.520	26.920	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:07:00	67	35.880	27.280	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:08:00	68	36.300	27.700	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:09:00	69	36.660	28.060	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:10:00	70	37.000	28.400	-	2.498022	3.00	0.19	0.007	
22-Nov-06	10:12:00	72	37.730	29.130	-	2.498022	3.00	0.19	0.006	
22-Nov-06	10:14:00	74	38.480	29.880	-	2.498022	3.00	0.19	0.006	
22-Nov-06	10:16:00	76	39.190	30.590	-	2.498022	3.00	0.19	0.006	
22-Nov-06	10:18:00	78	39.850	31.250	-	2.498022	3.00	0.19	0.006	
22-Nov-06	10:20:00	80	40.520	31.920	187	2.498022	3.00	0.19	0.006	
22-Nov-06	10:25:00	85	42.170	33.570		2.498022	3.00	0.19	0.006	
22-Nov-06	10:30:00	90	43.710	35.110	218	2.498022	3.00	0.19	0.005	
22-Nov-06	10:35:00	95	45.300	36.700		2.498022	3.00	0.19	0.005	
22-Nov-06	10:40:00	100	46.560	37.960	248	2.498022	3.00	0.19	0.005	
22-Nov-06	10:45:00	105	47.820	39.220		2.498022	3.00	0.19	0.005	
22-Nov-06	10:51:00	111	49.290	40.690	277	2.498022	3.00	0.19	0.005	
22-Nov-06	10:55:00	115	50.210	41.610	303	2.498022	3.00	0.19	0.005	
22-Nov-06	11:00:00	120	51.300	42.700	-	3.330696	4.00	0.25	0.006	**STEP 4**
22-Nov-06	0:00:00	120.5	51.510	42.910	-	3.330696	4.00	0.252	0.006	4 us g/m
22-Nov-06	11:01:00	121	51.760	43.160	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:01:30	121.5	51.980	43.380	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:02:00	122	52.230	43.630	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:02:30	122.5	52.500	43.900	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:03:00	123	52.720	44.120	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:03:30	123.5	52.920	44.320	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:04:00	124	53.150	44.550	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:04:30	124.5	53.400	44.800	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:05:00	125	53.620	45.020	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:06:00	126	54.080	45.480	-	3.330696	4.00	0.252	0.006	
22-Nov-06	11:07:00	127	54.530	45.930	-	3.330696	4.00	0.252	0.005	
22-Nov-06	11:08:00	128	54.590	45.990	-	3.330696	4.00	0.252	0.005	
22-Nov-06	11:09:00	129	55.030	46.430	-	3.330696	4.00	0.252	0.005	
22-Nov-06	11:10:00	130	55.840	47.240	343	3.330696	4.00	0.252	0.005	
22-Nov-06	11:12:00	132	56.690	48.090	-	3.330696	4.00	0.252	0.005	
22-Nov-06	11:14:00	134	57.800	49.200	-	3.330696	4.00	0.252	0.005	
22-Nov-06	11:16:00	136	58.400	49.800	-	3.330696	4.00	0.252	0.005	
22-Nov-06	11:18:00	138	59.280	50.680	-	3.2474286	3.90	0.246	0.005	
22-Nov-06	11:20:00	140	60.000	51.400	383	3.2474286	3.90	0.246	0.005	
22-Nov-06	11:25:00	145	61.780	53.180	402	3.2474286	3.90	0.246	0.005	
22-Nov-06	11:30:00	150	63.450	54.850	421	3.330696	4.00	0.252	0.005	
22-Nov-06	11:35:00	155	65.500	56.900	-	3.2474286	3.90	0.246	0.004	

APPENDIX B1: STEP-RATE PUMPING TEST DATA

EBA PROJECT NUMBER: 1260028.001
WELL NAME: Ibex Fire Hall Well 1950 - B
STATIC WATER LEVEL (m): 8.61 m (28.24 ft) below ground level
DATUM DESCRIPTION: Top of Sounding Tube
DATUM STICK-UP(m): 1.0 m above ground level
WELL DIAMETER: 152 mm (6 in)
TOTAL WELL DEPTH: 122.5 m (402 ft)

PROJECT LOCATION: Ibex Fire Hall
PUMP INTAKE DEPTH (m): 111 m (364 ft)
SCREEN INTERVAL: Open Hole - Bedrock
SLOT SIZE (''): Open Hole - Bedrock
AVAILABLE DRAWDOWN(m): 110.4 m (362.1 ft)
SCREEN DIAMETER (mm): Open Hole - Bedrock
OBSERVER'S NAME: Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING ^{3} (Total USG)	FLOW RATE (IGPM)	FLOW RATE (USGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	COMMENTS
22-Nov-06	11:40:00	160	66.500	57.900	460	3.2474286	3.90	0.246	0.004	
22-Nov-06	11:45:00	165	67.600	59.000	-	3.330696	4.00	0.252	0.004	
22-Nov-06	11:50:00	170	68.810	60.210	500	3.330696	4.00	0.252	0.004	
22-Nov-06	11:55:00	175	70.100	61.500	520	3.330696	4.00	0.252	0.004	
22-Nov-06	12:00:00	180	71.600	63.000	539	-	-	-	-	
22-Nov-06	12:00:30	180.5	71.900	63.300	-	4.4964396	5.40	0.341	0.005	**STEP 5**
22-Nov-06	12:01:00	181	72.130	63.530	-	4.4964396	5.40	0.341	0.005	5 us g/m
22-Nov-06	12:01:30	181.5	72.430	63.830	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:02:00	182	72.760	64.160	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:02:30	182.5	72.990	64.390	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:03:00	183	73.270	64.670	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:03:30	183.5	73.530	64.930	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:04:00	184	73.810	65.210	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:04:30	184.5	74.010	65.410	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:05:00	185	74.360	65.760	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:06:00	186	74.860	66.260	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:07:00	187	75.400	66.800	-	4.3299048	5.20	0.328	0.005	
22-Nov-06	12:08:00	188	75.900	67.300	-	4.2466374	5.10	0.322	0.005	
22-Nov-06	12:09:00	189	76.440	67.840	-	4.2466374	5.10	0.322	0.005	
22-Nov-06	12:10:00	190	77.000	68.400	-	4.2466374	5.10	0.322	0.005	
22-Nov-06	12:12:00	192	78.150	69.550	-	4.2466374	5.10	0.322	0.005	
22-Nov-06	12:14:00	194	79.290	70.690	-	4.2466374	5.10	0.322	0.005	
22-Nov-06	12:16:00	196	80.400	71.800	-	4.16337	5.00	0.315	0.004	
22-Nov-06	12:18:00	198	81.470	72.870	-	4.16337	5.00	0.315	0.004	
22-Nov-06	12:20:00	200	82.570	73.970	-	4.16337	5.00	0.315	0.004	
22-Nov-06	12:25:00	205	85.520	76.920	-	4.0801026	4.90	0.309	0.004	
22-Nov-06	12:30:00	210	87.950	79.350	-	3.9968352	4.80	0.303	0.004	
22-Nov-06	12:35:00	215	90.470	81.870	-	3.9968352	4.80	0.303	0.004	
22-Nov-06	12:40:00	220	93.000	84.400	-	3.9135678	4.70	0.297	0.004	
22-Nov-06	12:45:00	225	95.710	87.110	-	3.9135678	4.70	0.297	0.003	
22-Nov-06	12:50:00	230	98.150	89.550	-	3.9135678	4.70	0.297	0.003	
22-Nov-06	12:55:00	235	100.600	92.000	-	3.8303004	4.60	0.290	0.003	pH = 8.54, Temp = 6.0 degrees C,
22-Nov-06	13:00:00	240	102.980	94.380	-	3.747033	4.50	0.284	0.003	EC = 213 uS/cm
22-Nov-06	13:00:30	240.5	102.600	94.000	-	-	-	-	-	**RECOVERY**
22-Nov-06	13:01:00	241	102.270	93.670	-	-	-	-	-	
22-Nov-06	13:01:30	241.5	101.880	93.280	-	-	-	-	-	
22-Nov-06	13:02:00	242	101.480	92.880	-	-	-	-	-	
22-Nov-06	13:02:30	242.5	101.120	92.520	-	-	-	-	-	
22-Nov-06	13:03:00	243	100.750	92.150	-	-	-	-	-	
22-Nov-06	13:03:30	243.5	100.300	91.700	-	-	-	-	-	
22-Nov-06	13:04:00	244	100.050	91.450	-	-	-	-	-	
22-Nov-06	13:04:30	244.5	99.660	91.060	-	-	-	-	-	
22-Nov-06	13:05:00	245	99.200	90.600	-	-	-	-	-	
22-Nov-06	13:06:00	246	98.590	89.990	-	-	-	-	-	
22-Nov-06	13:07:00	247	97.780	89.180	-	-	-	-	-	
22-Nov-06	13:08:00	248	97.000	88.400	-	-	-	-	-	
22-Nov-06	13:09:00	249	96.230	87.630	-	-	-	-	-	
22-Nov-06	13:10:00	250	95.490	86.890	-	-	-	-	-	
22-Nov-06	13:12:00	252	94.030	85.430	-	-	-	-	-	
22-Nov-06	13:14:00	254	92.560	83.960	-	-	-	-	-	
22-Nov-06	13:16:00	256	91.190	82.590	-	-	-	-	-	
22-Nov-06	13:18:00	258	89.700	81.100	-	-	-	-	-	
22-Nov-06	13:20:00	260	88.320	79.720	-	-	-	-	-	
22-Nov-06	13:25:00	265	84.700	76.100	-	-	-	-	-	

APPENDIX B1: STEP-RATE PUMPING TEST DATA

EBA PROJECT NUMBER:	1260028.001	PROJECT LOCATION:	Ibex Fire Hall
WELL NAME:	Ibex Fire Hall Well 1950 - B	PUMP INTAKE DEPTH (m):	111 m (364 ft)
STATIC WATER LEVEL (m):	8.61 m (28.24 ft) below ground level	SCREEN INTERVAL:	Open Hole - Bedrock
DATUM DESCRIPTION:	Top of Sounding Tube	SLOT SIZE (''):	Open Hole - Bedrock
DATUM STICK-UP(m):	1.0 m above ground level	AVAILABLE DRAWDOWN(m):	110.4 m (362.1 ft)
WELL DIAMETER:	152 mm (6 in)	SCREEN DIAMETER (mm):	Open Hole - Bedrock
TOTAL WELL DEPTH:	122.5 m (402 ft)	OBSERVER'S NAME:	Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING ^{3} (Total USG)	FLOW RATE (IGPM)	FLOW RATE (USGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	COMMENTS
22-Nov-06	13:30:00	270	81.380	72.780	-	-	-	-	-	
22-Nov-06	13:35:00	275	78.000	69.400	-	-	-	-	-	
22-Nov-06	13:40:00	280	74.810	66.210	-	-	-	-	-	
22-Nov-06	13:50:00	290	69.000	60.400	-	-	-	-	-	
22-Nov-06	13:55:00	295	67.840	59.240	-	-	-	-	-	
22-Nov-06	14:00:00	300	66.550	57.950	-	-	-	-	-	
22-Nov-06	14:05:00	305	64.280	55.680	-	-	-	-	-	
22-Nov-06	14:25:00	325	59.980	51.380	-	-	-	-	-	
22-Nov-06	14:45:00	345	53.700	45.100	-	-	-	-	-	
22-Nov-06	15:00:00	360	47.960	39.360	-	-	-	-	-	
23-Nov-06	8:30:00	1410	8.790	0.190	-	-	-	-	-	END OF TEST

APPENDIX B2: CONSTANT RATE PUMPING TEST DATA (3.5 US GPM - 0.22 L/s)

EBA PROJECT NUMBER: 1260028.001
PROJECT LOCATION: Ibex Fire Hall
WELL NAME: Ibex Fire Hall Well 1950 - B
PUMP INTAKE DEPTH (m): 111 m (364 ft)
STATIC WATER LEVEL (m): 8.61 m (28.24 ft) below ground level
SCREEN INTERVAL: Open Hole - Bedrock
DATUM DESCRIPTION: Top of Sounding Tube
SLOT SIZE ("): Open Hole - Bedrock
DATUM STICK-UP(m): 1.0 m above ground level
AVAILABLE DRAWDOWN(m): 110.4 m (362.1 ft)
WELL DIAMETER: 152 mm (6 in)
SCREEN DIAMETER (mm): Open Hole - Bedrock
TOTAL WELL DEPTH: 122.5 m (402 ft)
OBSERVER'S NAME: Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING ^{3} (Total USG)	FLOW RATE (USGPM)	FLOW RATE (IGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	pH	EC	TEMP	COMMENTS
23-Nov-06	8:30:00	0	8.790	0.000	-	-	-	-	-	-	-	-	Constant Rate of
23-Nov-06	8:30:30	0.5	9.530	0.740	-	-	-	-	-	-	-	-	3.5 US GPM
23-Nov-06	8:31:00	1	10.150	1.360	-	4.2	3.50	0.26	0.195	-	-	-	
23-Nov-06	8:31:30	1.5	10.700	1.910	-	3.6	3.00	0.23	0.119	-	-	-	
23-Nov-06	8:32:00	2	11.140	2.350	-	3.6	3.00	0.23	0.097	-	-	-	
23-Nov-06	8:32:30	2.5	11.610	2.820	-	3.6	3.00	0.23	0.081	-	-	-	
23-Nov-06	8:33:00	3	12.060	3.270	-	3.6	3.00	0.23	0.069	-	-	-	
23-Nov-06	8:34:00	4	12.920	4.130	-	3.6	3.00	0.23	0.055	-	-	-	
23-Nov-06	8:34:30	4.5	13.360	4.570	-	3.7	3.08	0.23	0.051	-	-	-	
23-Nov-06	8:35:00	5	13.800	5.010	-	3.8	3.16	0.24	0.048	-	-	-	
23-Nov-06	8:36:00	6	14.610	5.820	-	3.7	3.08	0.23	0.040	-	-	-	
23-Nov-06	8:37:00	7	15.250	6.460	-	3.6	3.00	0.23	0.035	-	-	-	
23-Nov-06	8:38:00	8	15.670	6.880	-	3.6	3.00	0.23	0.033	-	-	-	
23-Nov-06	8:39:00	9	16.350	7.560	-	3.6	3.00	0.23	0.030	-	-	-	
23-Nov-06	8:40:00	10	17.100	8.310	38	3.6	3.00	0.23	0.027	-	-	-	
23-Nov-06	8:42:00	12	18.530	9.740	-	3.5	2.91	0.22	0.023	-	-	-	
23-Nov-06	8:44:00	14	19.920	11.130	-	3.5	2.91	0.22	0.020	-	-	-	
23-Nov-06	8:46:00	16	21.270	12.480	-	3.5	2.91	0.22	0.018	-	-	-	
23-Nov-06	8:50:00	20	23.900	15.110	74	3.5	2.91	0.22	0.015	-	-	-	
23-Nov-06	8:55:00	25	26.980	18.190	-	3.5	2.91	0.22	0.012	-	-	-	
23-Nov-06	9:00:00	30	29.880	21.090	108	3.5	2.91	0.22	0.010	-	-	-	
23-Nov-06	9:05:00	35	32.590	23.800	-	3.5	2.91	0.22	0.009	-	-	-	
23-Nov-06	9:10:00	40	35.170	26.380	-	3.4	2.83	0.21	0.008	8.57	240	6.6	
23-Nov-06	9:15:00	45	37.610	28.820	160	3.4	2.83	0.21	0.007	-	-	-	
23-Nov-06	9:20:00	50	39.920	31.130	176	3.4	2.83	0.21	0.007	-	-	-	
23-Nov-06	9:25:00	55	42.110	33.320	193	3.4	2.83	0.21	0.006	-	-	-	
23-Nov-06	9:30:00	60	44.370	35.580	210	3.6	3.00	0.23	0.006	8.47	246	6.6	
23-Nov-06	9:40:00	70	48.640	39.850	246	3.5	2.91	0.22	0.006	-	-	-	
23-Nov-06	9:50:00	80	52.350	43.560	281	3.5	2.91	0.22	0.005	-	-	-	
23-Nov-06	10:00:00	90	55.730	46.940	316	3.5	2.91	0.22	0.005	-	-	-	
23-Nov-06	10:10:00	100	59.000	50.210	351	3.5	2.91	0.22	0.004	-	-	-	
23-Nov-06	10:20:00	110	61.870	53.080	386	3.5	2.91	0.22	0.004	-	-	-	
23-Nov-06	10:30:00	120	64.370	55.580	421	3.5	2.91	0.22	0.004	8.62	260	6.6	
23-Nov-06	11:00:00	150	69.740	60.950	524	3.5	2.91	0.22	0.004	-	-	-	
23-Nov-06	11:30:00	180	76.500	67.710	632	3.6	3.00	0.23	0.003	-	-	-	
23-Nov-06	12:00:00	210	83.000	74.210	737	3.5	2.91	0.22	0.003	-	-	-	
23-Nov-06	12:30:00	240	89.650	80.860	838	3.4	2.83	0.21	0.003	-	-	-	
23-Nov-06	13:00:00	270	97.760	88.970	943	3.4	2.83	0.21	0.002	-	-	-	Maxium draw down
23-Nov-06	13:30:00	300	105.480	96.690	1044	3.3	2.75	0.21	0.002	-	-	-	to pump intake
23-Nov-06	13:33:30	303.5	106.400	97.610	1055	3.3	2.75	0.21	0.002	-	-	-	
23-Nov-06	13:35:30	305.5	106.300	97.510	-	-	-	-	-	-	-	-	RECOVERY #1
23-Nov-06	13:36:00	306	106.050	97.260	-	-	-	-	-	-	-	-	
23-Nov-06	13:37:00	307	105.470	96.680	-	-	-	-	-	-	-	-	
23-Nov-06	13:38:00	308	104.720	95.930	-	-	-	-	-	-	-	-	
23-Nov-06	13:39:00	309	104.000	95.210	-	-	-	-	-	-	-	-	
23-Nov-06	13:41:00	311	102.650	93.860	-	-	-	-	-	-	-	-	
23-Nov-06	13:45:00	315	100.110	91.320	-	-	-	-	-	-	-	-	
23-Nov-06	13:48:00	318	98.100	89.310	-	-	-	-	-	-	-	-	
23-Nov-06	13:51:00	321	96.100	87.310	-	-	-	-	-	-	-	-	
23-Nov-06	13:55:00	325	93.390	84.600	-	-	-	-	-	-	-	-	
23-Nov-06	14:00:00	330	90.130	81.340	-	-	-	-	-	-	-	-	
23-Nov-06	14:07:00	337	85.650	76.860	-	-	-	-	-	-	-	-	
23-Nov-06	14:15:00	345	81.100	72.310	-	-	-	-	-	-	-	-	
23-Nov-06	14:25:00	355	74.600	65.810	-	-	-	-	-	-	-	-	
23-Nov-06	14:39:00	369	68.400	59.610	-	-	-	-	-	-	-	-	
23-Nov-06	14:55:00	385	65.130	56.340	-	-	-	-	-	-	-	-	
23-Nov-06	15:15:00	405	60.400	51.610	-	-	-	-	-	-	-	-	
23-Nov-06	15:25:00	415	57.000	48.210	-	-	-	-	-	-	-	-	
23-Nov-06	15:35:00	425	55.000	46.210	-	-	-	-	-	-	-	-	
23-Nov-06	8:35:00	1445	8.885	0.095	-	-	-	-	-	-	-	-	END OF TEST # 1
24-Nov-06	8:30:00	0	8.885	0.000	-	1	0.83	0.06	-	-	-	-	Constant Rate of
24-Nov-06	8:31:30	1.5	10.110	1.225	-	1.8	1.50	0.11	0.093	-	-	-	2.0 US GMP
24-Nov-06	8:32:00	2	10.370	1.485	-	2	1.67	0.13	0.085	-	-	-	
24-Nov-06	8:32:30	2.5	10.670	1.785	-	2	1.67	0.13	0.071	-	-	-	
24-Nov-06	8:33:00	3	10.950	2.065	-	2.2	1.83	0.14	0.067	-	-	-	
24-Nov-06	8:33:30	3.5	11.200	2.315	-	1.8	1.50	0.11	0.049	-	-	-	
24-Nov-06	8:34:00	4	11.450	2.565	-	2	1.67	0.13	0.049	-	-	-	
24-Nov-06	8:34:30	4.5	11.680	2.795	-	2	1.67	0.13	0.045	-	-	-	
24-Nov-06	8:35:00	5	11.940	3.055	-	2	1.67	0.13	0.041				

APPENDIX B2: CONSTANT RATE PUMPING TEST DATA (3.5 US GPM - 0.22 L/s)

EBA PROJECT NUMBER: 1260028.001
WELL NAME: Ibex Fire Hall Well 1950 - B
STATIC WATER LEVEL (m): 8.61 m (28.24 ft) below ground level
DATUM DESCRIPTION: Top of Sounding Tube
DATUM STICK-UP(m): 1.0 m above ground level
WELL DIAMETER: 152 mm (6 in)
TOTAL WELL DEPTH: 122.5 m (402 ft)

PROJECT LOCATION: Ibex Fire Hall
PUMP INTAKE DEPTH (m): 111 m (364 ft)
SCREEN INTERVAL: Open Hole - Bedrock
SLOT SIZE ("): Open Hole - Bedrock
AVAILABLE DRAWDOWN(m): 110.4 m (362.1 ft)
SCREEN DIAMETER (mm): Open Hole - Bedrock
OBSERVER'S NAME: Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING ^{3} (Total USG)	FLOW RATE (USGPM)	FLOW RATE (IGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	pH	EC	TEMP	COMMENTS
24-Nov-06	8:36:00	6	12.390	3.505	-	2	1.67	0.13	0.036	-	-	-	
24-Nov-06	8:37:00	7	12.820	3.935	-	2	1.67	0.13	0.032	-	-	-	
24-Nov-06	8:38:00	8	13.270	4.385	-	2	1.67	0.13	0.029	-	-	-	
24-Nov-06	8:39:00	9	13.700	4.815	-	2	1.67	0.13	0.026	-	-	-	
24-Nov-06	8:40:00	10	14.140	5.255	20	2	1.67	0.13	0.024	-	-	-	
24-Nov-06	8:42:00	12	14.980	6.095	-	2	1.67	0.13	0.021	-	-	-	
24-Nov-06	8:44:00	14	15.370	6.485	-	2	1.67	0.13	0.019	-	-	-	
24-Nov-06	8:46:00	16	16.070	7.185	-	2	1.67	0.13	0.018	-	-	-	
24-Nov-06	8:48:00	18	16.850	7.965	-	2	1.67	0.13	0.016				
24-Nov-06	8:50:00	20	17.640	8.755	40	2	1.67	0.13	0.014	-	-	-	
24-Nov-06	8:55:00	25	19.500	10.615	50	2	1.67	0.13	0.012	-	-	-	
24-Nov-06	9:00:00	30	21.200	12.315	60	2	1.67	0.13	0.010	7.84	280	6.8	
24-Nov-06	9:05:00	35	23.840	14.955	70	2	1.67	0.13	0.008	-	-	-	
24-Nov-06	9:10:00	40	24.400	15.515	80	2	1.67	0.13	0.008	-	-	-	
24-Nov-06	9:15:00	45	25.870	16.985	90	2	1.67	0.13	0.007	-	-	-	
24-Nov-06	9:20:00	50	27.230	18.345	100	2	1.67	0.13	0.007	-	-	-	
24-Nov-06	9:25:00	55	28.600	19.715	110	2	1.67	0.13	0.006	-	-	-	
24-Nov-06	9:30:00	60	30.760	21.875	120	2	1.67	0.13	0.006	8.28	271	6.8	
24-Nov-06	9:40:00	70	32.080	23.195	140	2	1.67	0.13	0.005	-	-	-	
24-Nov-06	9:50:00	80	34.360	25.475	160	2	1.67	0.13	0.005	-	-	-	
24-Nov-06	10:00:00	90	36.470	27.585	180	2	1.67	0.13	0.005	8.25	265	6.6	
24-Nov-06	10:10:00	100	38.620	29.735	200	2	1.67	0.13	0.004	-	-	-	
24-Nov-06	10:20:00	110	40.180	31.295	220	2	1.67	0.13	0.004	-	-	-	
24-Nov-06	10:30:00	120	41.800	32.915	240	2	1.67	0.13	0.004	-	-	-	
24-Nov-06	11:00:00	150	45.870	36.985	300	2	1.67	0.13	0.003	8.11	250	6.6	
24-Nov-06	11:30:00	180	48.960	40.075	360	2	1.67	0.13	0.003	-	-	-	
24-Nov-06	12:00:00	210	51.710	42.825	420	2	1.67	0.13	0.003	8.19	255	6.6	
24-Nov-06	12:30:00	240	53.700	44.815	478	1.9	1.58	0.12	0.003	-	-	-	
24-Nov-06	13:00:00	270	55.870	46.985	538	2	1.67	0.13	0.003	-	-	-	
24-Nov-06	13:30:00	300	57.550	48.665	600	2	1.67	0.13	0.003	-	-	-	
24-Nov-06	14:00:00	330	58.890	50.005	659	2	1.67	0.13	0.003	8.31	264	6.6	
24-Nov-06	14:30:00	360	60.000	51.115	719	2	1.67	0.13	0.002	-	-	-	
24-Nov-06	15:30:00	420	61.690	52.805	836	2	1.67	0.13	0.002	8.22	266	6.8	
24-Nov-06	16:30:00	480	62.890	54.005	955	2	1.67	0.13	0.002	-	-	-	
24-Nov-06	17:30:00	540	63.620	54.735	1070	1.9	1.58	0.12	0.002	-	-	-	
24-Nov-06	18:30:00	600	64.040	55.155	1185	2	1.67	0.13	0.002	-	-	-	
24-Nov-06	19:30:00	660	64.560	55.675	1300	2	1.67	0.13	0.002	8.24	258	6.6	
24-Nov-06	20:30:00	720	65.030	56.145	1420	2	1.67	0.13	0.002	-	-	-	
24-Nov-06	20:30:30	720.5	64.830	55.945	-	-	-	-	-	-	-	-	RECOVERY # 2
24-Nov-06	20:31:00	721	64.200	55.315	-	-	-	-	-	-	-	-	
24-Nov-06	20:31:30	721.5	63.620	54.735	-	-	-	-	-	-	-	-	
24-Nov-06	20:32:00	722	63.300	54.415	-	-	-	-	-	-	-	-	
24-Nov-06	20:32:30	722.5	62.940	54.055	-	-	-	-	-	-	-	-	
24-Nov-06	20:33:00	723	62.610	53.725	-	-	-	-	-	-	-	-	
24-Nov-06	20:33:30	723.5	62.290	53.405	-	-	-	-	-	-	-	-	
24-Nov-06	20:34:00	724	61.970	53.085	-	-	-	-	-	-	-	-	
24-Nov-06	20:34:30	724.5	61.615	52.730	-	-	-	-	-	-	-	-	
24-Nov-06	20:35:00	725	61.020	52.135	-	-	-	-	-	-	-	-	
24-Nov-06	20:36:00	726	60.440	51.555	-	-	-	-	-	-	-	-	
24-Nov-06	20:37:00	727	60.030	51.145	-	-	-	-	-	-	-	-	
24-Nov-06	20:38:00	728	59.770	50.885	-	-	-	-	-	-	-	-	
24-Nov-06	20:39:00	729	59.020	50.135	-	-	-	-	-	-	-	-	
24-Nov-06	20:40:00	730	58.320	49.435	-	-	-	-	-	-	-	-	
24-Nov-06	20:42:00	732	57.600	48.715	-	-	-	-	-	-	-	-	
24-Nov-06	20:44:00	734	56.870	47.985	-	-	-	-	-	-	-	-	
24-Nov-06	20:46:00	736	56.170	47.285	-	-	-	-	-	-	-	-	
24-Nov-06	20:48:00	738	55.430	46.545	-	-	-	-	-	-	-	-	
24-Nov-06	20:50:00	740	54.710	45.825	-	-	-	-	-	-	-	-	
24-Nov-06	20:55:00	745	52.750	43.865	-	-	-	-	-	-	-	-	
24-Nov-06	21:00:00	750	51.120	42.235	-	-	-	-	-	-	-	-	
24-Nov-06	21:05:00	755	49.370	40.485	-	-	-	-	-	-	-	-	
24-Nov-06	21:10:00	760	47.820	38.935	-	-	-	-	-	-	-	-	
24-Nov-06	21:15:00	765	46.250	37.365	-	-	-	-	-	-	-	-	
24-Nov-06	21:20:00	770	44.560	35.675	-	-	-	-	-	-	-	-	
24-Nov-06	21:25:00	775	43.050	34.165	-	-	-	-	-	-	-	-	
24-Nov-06	21:30:00	780	41.500	32.615	-	-	-	-	-	-	-	-	
24-Nov-06	21:40:00	790	38.650	29.765	-	-	-	-	-	-	-	-	
24-Nov-06	21:50:00	800	36.020	27.135	-	-	-	-	-	-	-	-	
24-Nov-06	22:00:00	810	33.560	24.675	-	-	-	-	-	-	-	-	

APPENDIX B2: CONSTANT RATE PUMPING TEST DATA (3.5 US GPM - 0.22 L/s)

EBA PROJECT NUMBER: 1260028.001
PROJECT LOCATION: Ibex Fire Hall
WELL NAME: Ibex Fire Hall Well 1950 - B
PUMP INTAKE DEPTH (m): 111 m (364 ft)
STATIC WATER LEVEL (m): 8.61 m (28.24 ft) below ground level
SCREEN INTERVAL: Open Hole - Bedrock
DATUM DESCRIPTION: Top of Sounding Tube
SLOT SIZE ("): Open Hole - Bedrock
DATUM STICK-UP(m): 1.0 m above ground level
AVAILABLE DRAWDOWN(m): 110.4 m (362.1 ft)
WELL DIAMETER: 152 mm (6 in)
SCREEN DIAMETER (mm): Open Hole - Bedrock
TOTAL WELL DEPTH: 122.5 m (402 ft)
OBSERVER'S NAME: Tammera Kostya

DATE	TIME	ELAPSED TIME (min)	DEPTH TO WATER (m)	DRAWDOWN (m)	METER READING [3] (Total USG)	FLOW RATE (USGPM)	FLOW RATE (IGPM)	FLOW RATE (L/s)	SPECIFIC CAPACITY (L/s/m)	pH	EC	TEMP	COMMENTS
24-Nov-06	22:10:00	820	31.310	22.425	-	-	-	-	-	-	-	-	
24-Nov-06	22:20:00	830	29.220	20.335	-	-	-	-	-	-	-	-	
24-Nov-06	22:30:00	840	27.260	18.375	-	-	-	-	-	-	-	-	
24-Nov-06	9:45:00	1515	9.000	0.115	-	-	-	-	-	-	-	-	END OF TEST # 2

APPENDIX

APPENDIX C LABORATORY REPORTS AND CERTIFICATES

ANALYTICAL REPORT

EBA ENGINEERING CONSULTANTS LTD.

ATTN: TAMMERA KOSTYA

CALCITE BUSINESS CENTRE
UNIT 6 - 151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Reported On: 23-JAN-07 08:55 PM
Revision: 2

Lab Work Order #: **L458160** **Date Received:** **28-NOV-06**

Project P.O. #:
Job Reference: 1260028.001
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: ADDITIONAL 12-JAN-07 11:56

Joyce Chow
General Manager, Vancouver

For any questions about this report please contact your Account Manager:

CAN DANG

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L458160-1				
	Description					
	Sampled Date	24-NOV-06				
	Sampled Time					
	Client ID	1950- B IBEX FIRE HALL WELL				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	116				
	Colour, True (CU)	<5.0				
	Conductivity (uS/cm)	249				
	pH (pH)	8.07				
	Total Dissolved Solids (mg/L)	273				
	Turbidity (NTU)	0.37				
	UV Absorbance (254 nm) (Abs/cm-1)	0.0117				
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	124				
	Chloride (Cl) (mg/L)	0.73				
	Fluoride (F) (mg/L)	0.211				
	Sulfate (SO4) (mg/L)	12.8				
	Nitrate (as N) (mg/L)	0.216				
	Nitrite (as N) (mg/L)	<0.0010				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0050				
	Antimony (Sb)-Total (mg/L)	0.00075				
	Arsenic (As)-Total (mg/L)	0.00233				
	Barium (Ba)-Total (mg/L)	0.038				
	Beryllium (Be)-Total (mg/L)	<0.0010				
	Boron (B)-Total (mg/L)	<0.10				
	Cadmium (Cd)-Total (mg/L)	<0.000017				
	Calcium (Ca)-Total (mg/L)	39.4				
	Chromium (Cr)-Total (mg/L)	0.0018				
	Cobalt (Co)-Total (mg/L)	<0.00030				
	Copper (Cu)-Total (mg/L)	0.0019				
	Iron (Fe)-Total (mg/L)	<0.030				
	Lead (Pb)-Total (mg/L)	0.00313				
	Lithium (Li)-Total (mg/L)	0.0143				
	Magnesium (Mg)-Total (mg/L)	4.37				
	Manganese (Mn)-Total (mg/L)	0.00179				
	Mercury (Hg)-Total (mg/L)	<0.000020				
	Molybdenum (Mo)-Total (mg/L)	0.0039				
	Nickel (Ni)-Total (mg/L)	<0.0010				
	Potassium (K)-Total (mg/L)	<2.0				
	Selenium (Se)-Total (mg/L)	0.0011				
	Silver (Ag)-Total (mg/L)	<0.000020				
	Sodium (Na)-Total (mg/L)	12.1				
	Thallium (Tl)-Total (mg/L)	<0.00020				
	Tin (Sn)-Total (mg/L)	<0.00050				
	Titanium (Ti)-Total (mg/L)	<0.010				

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L458160-1				
	Description					
	Sampled Date	24-NOV-06				
	Sampled Time					
	Client ID	1950- B IBEX FIRE HALL WELL				
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.00425				
	Vanadium (V)-Total (mg/L)	<0.030				
	Zinc, (Total) (mg/L)	0.0428				
Organic Parameters	Total Organic Carbon (mg/L)	0.82				
Miscellaneous-No group	Gross Alpha (Bq/L)	0.13				
	Gross Beta (Bq/L)	0.06				

Reference Information

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-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

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)". All fractions of carbon are determined by the combustion-infrared method. Total carbon includes organic carbon (covalently bonded in organic molecules) and inorganic carbon (carbonate, bicarbonate and dissolved carbon dioxide). Total organic carbon is the calculated difference between the total carbon and the inorganic carbon determination. Dissolved carbon fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 "Color"

This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

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-TOT-CCME-CVAFS-VA	Water	Total Mercury in Water by CVAFS (CCME)	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).

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
MET-TOT-CCME-ICP-VA	Water	Total Metals in Water by ICPOES (CCME)	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, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

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

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 6020).

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

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 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.

TURB-MET-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.

UV-ABS-VA	Water	UV Absorbance by Spectrometry	APHA 5910B "UV ABSORPTION METHOD"

This analysis is carried out using procedures adapted from APHA Method 5910B "Ultraviolet Absorption Method" and Method 415.3 "Determination of Total Organic Carbon and Specific UV Absorbance at 254nm in Source Water and Drinking Water", published by the United States Environmental Protection Agency (EPA). The sample is filtered through a 0.45um filter and measured for absorbance in a quartz cell at 254nm and reported as absorbance per cm (i.e. cm-1). The analysis is carried out without pH adjustment. Alternatively, results can be reported as % Transmittance (over one cm) where the absorbance result is converted to % Transmittance by the following calculation: %T = 100(10 to the power of -A).

** 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.

SRC Group: 2006-7884

SRC ANALYTICAL

422 Downey Road
Saskatoon, Saskatchewan S7N 4N1
(306) 933-6932 1-800-240-8808

ALS
Aurora Laboratory Services Ltd.
1988 Triumph Street
Vancouver, British Columbia V5L 1K5
Attn: Can Dang

Dec-07-2006

Date Samples Received: Nov-30-2006 Client P.O.: LW07789

SAMPLE	CLIENT DESCRIPTION	
34506	1950 IBEX FIRE HALL WELL 11/24/2006 L458160-1	*WATER*

ANALYTE	UNITS	RESULT
RADIO CHEMISTRY		
Gross alpha	Bq/L	0.13±0.05
Gross beta	Bq/L	0.06±0.01

SRC Group: 2007-253

SRC ANALYTICAL

422 Downey Road
Saskatoon, Saskatchewan S7N 4N1
(306) 933-6932 1-800-240-8808

ALS Jan-22-2007
Aurora Laboratory Services Ltd.
1988 Triumph Street
Vancouver, British Columbia V5L 1K5
Attn: Can Dang

Date Samples Received: Jan-12-2007 Client P.O.: LW07789

SAMPLE CLIENT DESCRIPTION
1035 1950 IBEX FIRE HALL WELL 11/24/2006 L458160-1 (PREV. SRC GR# 06-7884 LAB# 34506) *WATER*

ANALYTE	UNITS	RESULT
RADIO CHEMISTRY		
Lead-210	Bq/L	<0.02
Thorium-232	Bq/L	<0.01

"<": not detected at level stated above

ALS Environmental
excellence in analytical testing

1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5
Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700

#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6
Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430

www.alsenviro.com

CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

PAGE 1 OF 1

SEND REPORT TO:

COMPANY: EBA Engineering Consultants Ltd.
ADDRESS: Unit 6, 151 Industrial Road
CITY: Whitehorse PROV: YT POSTAL CODE: Y1A 2V3
CONTACT: Tammera Kostya TELEPHONE: (867) 668-2071 ext 63
PROJECT NAME/#: 1260028.001 SAMPLER: Aqua Tech
ALSE QUOTE #: EBA Pricing ALSE CONTACT: Can Dang

REPORT FORMAT:
(●) Hardcopy ( ) Fax #:
( ) E-mail Specify file type: PDF and EXCEL
E-mail Address: tkostya@eba.ca

(●) Routine Turn Around
( ) Rush (Surcharges May Apply) Specify Due Date:

SEND INVOICE TO: (complete if different from Report To at left) Require copy of Report? [✓] Yes [ ] No

COMPANY: CONTACT:
ADDRESS: P.O. #:
CITY: PROV: POSTAL CODE: TEL:

INVOICE FORMAT:
(●) Hardcopy ( ) Fax #:
( ) E-mail (pdf format)
E-mail Address: Same

ANALYSIS REQUESTED:

WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YY-MM-DD	Time	MATRIX	Routin - CCME-CDWQ	UV Absorption	Total Metals	Radiological-Gross Alpha and Beta	TOC	NOTES (sample specific comments, due dates, etc.)
L458160	1950 - B Ibex Fire Hall Well	24-06-11		Water	X	X	X	X	X	

All detection limits conform to CCME - Canadian drinking water quality guidelines

FOR LAB USE ONLY

RELINQUISHED BY:				RECEIVED BY:			
NAME:	Tammera Kostya	DATE:	27-Nov-06	NAME:		DATE:	Nov 28
OF:	EBA Engineering Consultants Ltd.	TIME:	11:30 AM	OF:		TIME:	8:46
NAME:		DATE:		NAME:		DATE:	
OF:		TIME:		OF:	ALS Environmental	TIME:	

Special Instructions / Comments (billing details, QC reporting, etc.):

FOR LAB USE ONLY Cooler Seal Intact? Yes__X_ No___ N/A___ Sample Temperature: 7 °C Frozen? Yes___ No__X__ Cooling Method? Icepacks__X_ Ice___ None___