

PHASE I ENVIRONMENTAL SITE ASSESSMENT PROPOSED DEVELOPMENT NEAR GULL LAKE

**PORTION OF NW 1/4 14-41-28-W4M
LACOMBE COUNTY, ALBERTA**

PREPARED FOR

**LINCOLN RANCH DEVELOPMENTS
C/O STANTEC CONSULTING LTD.**

RED DEER, ALBERTA



PREPARED BY

PARKLAND GEOTECHNICAL CONSULTING LTD.

RED DEER, ALBERTA



PROJECT No.:

RD4846

DATE:

APRIL 9, 2014

EXECUTIVE SUMMARY

ParklandGEO was commissioned by Lincoln Ranch Developments, in care of Stantec Consulting Ltd., to conduct a Phase I Environmental Site Assessment (ESA) on a portion of NW 1/4 14-41-28-W4M, located in Lacombe County, Alberta. The Phase I ESA was requested prior to development of the Property.

Based on the available information gathered during the Phase I ESA, the following conclusions have been made relative to the Property:

- Historically the Property was agricultural land including pasture and crops. An acreage development was located on the west portion of the quarter section since before the mid 1960's. In 1995 the acreage parcel (4.87 acres) was subdivided from the quarter section. The Property was owned by the Kamlah family since 1982.
- Historical reports and correspondence with the Property owner, as well as municipal, provincial and federal government agencies indicated no environmental concerns pertaining to the Property.
- An abandoned well (Licence No. 0337338) was located on the northwest portion of the Property at LSD 13-14. The well was licenced to Vesta Energy Ltd. and was drilled and abandoned in October 2005. A limited investigation in 2009 found no exceedances from two samples analyzed for hydrocarbon, metals and detailed salinity parameters. No hydrocarbon odours were encountered in the six boreholes drilled to 1.5 or 3.0 m, and field hydrocarbon vapours were less than 100 ppm. The potential environmental risk regarding the 13-14 lease is considered moderate based on limited historical analytical data.
- A lease site, including an abandoned well (Licence No. 0157107), extended onto the southern portion of the Property from LSD 6-14. The well was drilled and abandoned in March 1993 and was licenced to Husky Oil Operations Limited. A Phase 2 ESA was conducted in 2008 and no soil samples were found to exceed the applicable Guidelines for metals and hydrocarbon parameters. Electrical conductivity (EC) and sodium adsorption ratio (SAR) values ranged from "Fair" to "Good" for both lease site samples and background samples. A reclamation certificate (No. 0157107) was issued for the well and lease site on November 1, 2010. The potential environmental risk regarding this abandoned lease is considered low based on historical analytical data.

Residential set backs from the wellhead must be set consistent with ERCB Guidelines and municipal requirements.

- A pipeline right-of-way ran through the eastern portion of the Property and included two operational natural gas pipelines. Another operational natural gas pipeline ran through the western portion of the Property. The potential environmental risk relating to these pipelines is considered moderate. If a release does occur at any oil and gas facility located on the

Property or in the area, the Owner/operators of such facilities are responsible for all cleanup efforts with regard to any potential impacts, but only if the owner is financially sound.

- One 200 L (estimate) aboveground fuel tank was located on the south side of the acreage, near the Property. Two 1,900 L (estimated) aboveground fuel tanks were located to the northwest on DeGraff's RV Resort. One 25,000 L (estimated) aboveground fuel tank was located approximately 50 m west of the Property and acreage entrance. The potential environmental risk regarding the tanks is considered to be low based on down and cross-gradient locations.
- The following potential environmental issues were not found to be of concern on the Subject Property: air emissions, asbestos containing materials, drains and sump, fill and stockpiles, freons and halons, hazardous waste, heating and cooling systems, landfills and dumps, lead, liquid effluent, mechanical equipment, mercury, methane, pesticides and herbicides, lagoons, polychlorinated biphenyls, radioactive materials and equipment, radon, solid wastes and sewage disposal, stains and spills, unidentified substances, urea formaldehyde foam insulation, utilities, roads, parking facilities, right-of-ways, vegetation, watercourses, ditches, standing water and wells.

ParklandGEO considers the level of potential environmental risk associated with the Property to be moderate based on the presence of abandoned wells and operational natural gas pipelines on the Property.

A limited Phase 2 ESA is recommended to assess subsoil and groundwater quality on the northwest portion of the Property near the 13-14 lease.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1.0 INTRODUCTION	1
1.1 PROJECT BACKGROUND	1
1.2 QUALIFICATIONS	1
2.0 SITE ASSESSMENT PROCESS	1
2.1 OBJECTIVES AND SCOPE OF WORK	1
2.2 METHODOLOGY	2
3.0 PROPERTY DESCRIPTION	3
3.1 LOCATION, SITE OCCUPANCY AND DEVELOPMENT DETAILS	3
3.2 PHYSICAL DESCRIPTION	3
3.3 TOPOGRAPHY AND DRAINAGE	4
3.4 REGIONAL GEOLOGY AND GROUNDWATER	4
4.0 HISTORICAL REVIEW	5
4.1 HISTORICAL OWNERSHIP AND TENANCY	5
4.2 HISTORICAL AIR PHOTO REVIEW	6
5.0 CORRESPONDENCE AND INTERVIEWS	8
5.1 SUMMARY OF INTERVIEWS	8
5.1.1 Subject Property	8
5.1.2 DeGraff's RV Resort - Northwest	9
5.1.3 Wilson's Beach Campground - Southwest	10
5.2 REGULATORY SEARCHES	11
5.2.1 Federal	11
5.2.2 Provincial	11
5.2.3 Municipal and Local	14
6.0 SITE INSPECTION RESULTS	15
6.1 SITE APPEARANCE	15
6.2 GENERAL SITE INFORMATION	15
6.3 ADJACENT LAND USE	16
6.4 ENVIRONMENTAL ISSUES	17

6.4.1	Air Emissions or Air Quality	17
6.4.2	Asbestos Containing Materials (ACMs)	17
6.4.3	Chemical Using Activity and Chemical Storage	17
6.4.4	Drains and Sumps	17
6.4.5	Fill and Stockpiles	17
6.4.6	Freons and Halons	17
6.4.7	Hazardous Materials Use and Storage	17
6.4.8	Hazardous Wastes	17
6.4.9	Heating and Cooling Systems	17
6.4.10	Landfills and Dumps	18
6.4.11	Lead	18
6.4.12	Liquid Effluents and Site Runoff	18
6.4.13	Mechanical Equipment	18
6.4.14	Mercury	18
6.4.15	Methane	18
6.4.16	Oil and Gas Facilities	18
6.4.17	Pesticides and Herbicides	18
6.4.18	Pits and Lagoons	19
6.4.19	Polychlorinated Biphenyls (PCBs)	19
6.4.20	Radioactive Materials and Equipment	19
6.4.21	Radon	19
6.4.22	Solid Wastes and Sewage Disposal	19
6.4.23	Stains and Spills	19
6.4.24	Underground (USTs) and Aboveground Storage Tanks (ASTs)	19
6.4.25	Unidentified Substances	20
6.4.26	Urea Formaldehyde Foam Insulation (UFFI)	20
6.4.27	Utilities, Roads, Parking Facilities and Right-of-Ways	20
6.4.28	Vegetation	20
6.4.29	Watercourses, Ditches and Standing Water	20
6.4.30	Wells	20
7.0	ASSESSMENT AND RECOMMENDATIONS	21
8.0	LIMITATIONS AND CLOSURE	23

FIGURES

Figure 1	Key Plan
Figure 2	Area Plan
Figure 3	Site Plan
Figure 4	Historic 13-14 Lease Site
Figure 5	Historic 6-14 Lease Site
Figures 6 to 14	Aerial Photographs

TABLES

Table 1	Land-use and Assessment Pathway
Table 2	Soil Analyses - Texture
Table 3	Soil Analyses - BTEX and PHC Fractions
Table 4	Soil Analyses - Metals and Inorganics
Table 5	Soil Analyses - Salinity

APPENDICES

Appendix A	Photographs
Appendix B	Searches and Regulatory Correspondence
Limitations	General Terms and Conditions

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Parkland Geotechnical Consulting Ltd. (ParklandGEO) was commissioned by Lincoln Ranch Developments, in care of Stantec Consulting Ltd., to conduct a Phase I Environmental Site Assessment (ESA) on a portion of NW 1/4 14-41-28-W4M, located in Lacombe County, Alberta. The Phase I ESA was requested prior to development of the site.

The property is referred to in this report as the “Property”, “Subject Property” or “Site” as shown on Figure 1. The Property in relation to surrounding properties is shown on Figure 2.

1.2 QUALIFICATIONS

The site inspection, historical searches, and report preparation was conducted by Ms. Lexya Oulton, EIT. Ms. Oulton has a B.Sc. in Civil Engineering from the University of Alberta.

Mr. Michael McCormick, M.Eng., P.Eng., provided senior technical guidance and review of the final report. Mr. McCormick has a B.Sc. in Civil Engineering from the University of Alberta, and has over 22 years of consulting experience, during which time he has completed over 150 Phase I investigations and reviewed over 350 Phase I ESA reports.

2.0 SITE ASSESSMENT PROCESS

2.1 OBJECTIVES AND SCOPE OF WORK

The primary objectives of this Phase I ESA were to identify environmental issues associated with the Property and to determine whether any issues identified during the assessment require an intrusive site investigation and, if so, the nature of such work. The scope of work for this assessment included:

- conducting a historical review of the Property and surrounding sites;
- interviewing and/or contacting local, municipal agencies and other parties familiar with the Property;
- conducting a site inspection of the Property to identify potential environmental concerns; and
- preparing a report summarizing the methodology and findings of this study.

Authorization to proceed with this assessment was provided by Mr. Glenn Fraser, President of Lincoln Ranch Developments, on March 20, 2014.

2.2 METHODOLOGY

The scope of work was conducted in accordance with ParklandGEO's standard environmental site assessment procedures which reflect CSA requirements¹ and Alberta Environment guidelines². Available historical information regarding the Property was reviewed to determine present and past land use and incidents or operations which could be associated with environmental concerns on the Property. Individual tasks included:

- reviewing time lapse aerial photography of the Property and surrounding region to record land use, development and historical site occupancy;
- obtaining current and historical land titles from Alberta Registries to determine past Property owners and review registered right-of-ways attached to the Property;
- searching the Alberta Environment Site Assessment Repository (ESAR), an online database of environmental assessment reports and reclamation certificates;
- contacting Alberta Environment (FOIP Records and Corporate Support Branch) to obtain information on spills or releases on local roads/highways/railways etc. and to obtain scientific/technical information routinely available or available through the Freedom of Information Act for the owners and Property;
- searching for approvals, licences, registrations and permits issued for the Property or surrounding sites under Alberta Environment's Water Act and Environmental Protection and Enhancement Act (EPEA);
- contacting Alberta Health Services to obtain any department records for the Property relative to investigations, tickets, prosecutions, landfills, waste sites, nuisance grounds, waste discharges, environmental nuisance or other environmental related events;
- contacting Lacombe County to obtain information on historical land-use (landfills, waste sites, nuisance grounds, waste discharges), bylaw investigations, tickets, prosecutions, reports of any other environmental issues and current zoning information;
- contacting the Petroleum Tank Management Association of Alberta (PTMAA) to determine if any historical or current underground storage tanks are located on or in the vicinity of the Property;

¹ *Phase I Environmental Site Assessment (CSA Z768-01)*. Canadian Standards Association (CSA). 2003. Ottawa, Canada.

² *Alberta Environmental Site Assessment Guidelines (Draft)*. Alberta Environment. June 2008. Edmonton, Alberta.

- contacting the Environmental Law Centre (ELC) for information about enforcement actions against owners, current and past Property occupants, along with neighboring occupants;
- conducting a search of the Alberta Environment Provincial Groundwater Well Database for groundwater wells in the vicinity of the Property;
- contacting the current Property owner for historical and current information;
- contacting the adjacent site owners for historical and current information;
- conducting an inspection of the Property and adjacent sites noting any environmental concerns; and
- preparing a report summarizing the findings and making recommendations regarding the Property.

3.0 PROPERTY DESCRIPTION

3.1 LOCATION, SITE OCCUPANCY AND DEVELOPMENT DETAILS

Legal Description:	Portion of NW 1/4 14-41-28-W4M
Municipal Address:	East of Gull Lake Lacombe County, Alberta
Current Owner:	Tony Elmer and Kathy Mae Kamlah
Water Supply:	Domestic Well
Sewer Service:	None (Septic field on acreage)
Current Zoning	Agricultural District
Property Size:	155 acres

3.2 PHYSICAL DESCRIPTION

The Property was located east of Gull Lake and was bordered by Township Road 282 to the west. The Property was relatively level with a slight grade to the south. An acreage including old barns, sheds and an occupied house was located on the west portion of the quarter section and was not included in the Property. An abandoned oil lease was located on the northwest portion of the Property and was accessed from the east.

The Property was bound to the north and east by agricultural land, to the south by agricultural land and residential development, and to the west by Range Road 282 and recreational land (Figure 2).

3.3 TOPOGRAPHY AND DRAINAGE

The Property was surfaced with grass and crop and generally sloped to the south. Approximately two feet of snow cover limited some observations. Overland drainage was directed towards the south.

The closest surface water bodies were a creek that ran along the east Property boundary and Gull Lake which was located approximately 100 m to the west.

3.4 REGIONAL GEOLOGY AND GROUNDWATER

A search of groundwater wells was conducted in the Alberta Environment Groundwater Information System. The search indicated that there were three (3) wells registered to the quarter section NW 1/4 14-41-28-W4M and three (3) wells registered to nearby sites, as summarized below:

WATER WELL DRILLING REPORTS

Well ID	Well Owner	Date Completed	Depth (m)	Perforated Section (m)	Use
275028	W.H. Kamlah	1967/06/28	39.6	N/A	Domestic
275029	A. Wilson	Unknown	25.9	N/A	Unknown
2085459	Tim Gibbs	2012/10/19	76.2	45.7 to 58.6	Domestic
275043	R. Ethier	Unknown	32.6	N/A	Domestic
275048	Calif Std Co#W-420	Unknown	271.2	N/A	Industrial
2085438	Tim Gibbs	2012/10/21	60.9	48.8 to 54.9	Domestic

Well ID 2085459 was located on the west boundary of the Property, while Well IDs 275028 and 275029 were registered to the centre of the quarter section and their exact location is unknown.

Well IDs 275048 and 2085438 were located immediately west of Range Road 282 and Well ID 275043 was located near the southeast corner of the Property.

The majority of the wells were for domestic use, however Well ID 275048 was registered to an oil company (California Standard Co.) and was used as a structure test hole.

Alternating layers of sandstone and shale bedrock were generally encountered at 14.6 m below grade and the average depth to the water level in the wells was 9.4 m.

4.0 HISTORICAL REVIEW

4.1 HISTORICAL OWNERSHIP AND TENANCY

A review of the current and historical ownership records for the Property is summarized below.

Location	From dd/mm/yyyy	To dd/mm/yyyy	Title #	Owner
Portion of NW 1/4 14-41-28-W4M	06/08/2008	PRESENT	082 327 610	Tony Elmer and Kathy Mae Kamlah
	09/02/1996	06/08/2008	962 034 422	Thelma Hope and Tony Elmer Kamlah
	16/10/1995	09/02/1996	952 276 195 +1	Thelma Hope Kamlah
NW 1/4 14-41-28-W4M	21/09/1994	16/10/1995	942 292 936	Thelma Hope Kamlah
	25/10/1982	21/09/1994	822 232 840	Vernon Henry and Thelma Hope Kamlah
	13/06/1967	25/10/1982	7 K 225	The Director of the Veterans' Land Act
	31/05/1963	13/06/1967	322 NL 10	Chipmunk Drilling Co. Ltd.

The Property consisted of 160 acres until 1995 when an acreage parcel (4.87 acres) was subdivided from the site. The Kamlah family has owned the Property since 1982.

4.2 HISTORICAL AIR PHOTO REVIEW

Aerial photographs were reviewed for the years 1966, 1970, 1976, 1983, 1987, 1993, 1998, 2007 and 2010. The aerial photographs were obtained from Alberta Sustainable Resources and Development (SRD) and are included in Figures 6 to 14.

Year	1966	- The Property was agricultural land and tree stands were located on the northwest portion. - An acreage development was visible on the west portion of the quarter section and was accessed by Range Road 282 to the west. - Grain bins were visible on the Property, east of the acreage. - Acreage developments were located to the north and south, and Gull Lake was located approximately 100 m to the west. - Two Chevron Canada abandoned oil wells were visible with 150 m of the Property and included 16-15 to the west and 7-14 to the east.
Job	66-83A	
Roll	AS945	
Line	5213	
Photo #	460	
Year	1970	The Property and surrounding land use were relatively unchanged.
Job	70-32283A	
Roll	AS1109	
Line	28	
Photo #	13	
Year	1976	- Cattle pens were visible on the Property, extending northerly from the acreage development. - Barns were located east of the acreage and south of the grain bins on the Property. - Additional residential development was located to the south along Range Road 282.
Job	76-023A83A	
Roll	AS1537	
Line	12	
Photo #	25	
Year	1983	- The barns near the acreage were removed and additional grain bins were visible on the Property. - Recreational campgrounds were visible approximately 150 m to the northwest.
Job	83-018	
Roll	AS2696	
Line	9	
Photo #	302	

Year	1987	• The Property was relatively unchanged. • An abandoned well was located at LSD 8-14, approximately 460 m to the east.
Job	87-08983A	
Roll	AS3611	
Line	25	
Photo #	15	
Year	1993	• A Husky oil lease extended onto the southern portion of the Property and was registered to LSD 6-14. • An abandoned oil well was located at LSD 8-22, approximately 580 m to the northwest.
Job	93-176	
Roll	AS4431	
Line	29	
Photo #	50	
Year	1998	• The Husky oil lease was no longer visible on the Property. • Additional residential and recreational development was visible to the southwest, near Gull Lake.
Job	98-097A83A	
Roll	AS4971	
Line	26	
Photo #	132	
Year	2007	• Some tree stands were removed from the northwest portion and replaced by a Vesta Energy lease located at LSD 13-14. • Approximately 220 m south of the Property was a natural gas well registered to Exoro Energy.
Job	07-02183Asw	
Roll	AS5408	
Line	-	
Photo #	175	
Year	2010	• The Property and surrounding land use was relatively unchanged.
Job	*Obtained from Abacus Datagraphics	
Roll		
Line		
Photo#		

5.0 CORRESPONDENCE AND INTERVIEWS

5.1 SUMMARY OF INTERVIEWS

5.1.1 Subject Property

Correspondence with Mr. Glenn Fraser, President of Lincoln Ranch Developments, provided information regarding the Property. Historically the Property was owned by the Kamlah family for many generations. The Property was currently agricultural land including crops and pasture, and a golf course and some residences were proposed for the site. Mr. Fraser confirmed that no buildings were located on the Property, as the existing farmstead was not included in the development.

It was reported that a septic field was located west of the house and two domestic wells were present on the acreage.

Mr. Fraser supplied information regarding the monitoring wells installed on the Property (Figure 3) that were part of an Alberta Environment approval for a proposed wastewater treatment plant and irrigation program. The three monitoring wells were installed in 2010 by Klohn Crippen Berger and the depth to the groundwater table ranged from 2.5 m to 3.9 m. The groundwater flow direction was determined to be to the southwest. A soil survey and groundwater assessment report was supplied by Mr. Fraser and is referenced and summarized as follows:

"Level II Land Classification: Soil Survey and Groundwater Assessment Report. NW-14-41-28-W4M, Lacombe County, Alberta." Prepared for Glennstar Builders Group. Prepared by Klohn Crippen Berger. January 31, 2011.

A wastewater treatment facility was proposed for the Property to treat effluent from DeGraff's RV Resort and the purpose of the assessment was to determine the baseline conditions and the suitability of wastewater application. In September 2010, nine test pits were excavated and three monitoring wells were installed throughout the Property. On-site soil was classified as both coarse-grained and fine-grained. Twenty-one soil samples were submitted for salinity analyses and the results indicated all samples met the applicable 2010 Alberta Tier 1 Guidelines. Sixteen soil samples were submitted for nutrient analysis and the results indicated parameters were within the Guidelines. Two groundwater samples were submitted for routine water analysis. The results indicated exceedances of iron in Monitoring Well 10-01, as well as manganese and total dissolved solids in Monitoring Well 10-02. The exceedances were considered to be attributed to natural site conditions. It was concluded that the Property was capable of receiving wastewater irrigation.

Mr. Fraser indicated that Mr. John Reitsma owned the land to the north which had been pasture for over 75 years. To the east was pasture and crop land, and to the south was a housing development called Wilson Beach Estates. DeGraff's Resort was an RV resort development located northwest of the Property.

It was reported that the aboveground storage tank located west of the Property and acreage entrance was located on a development called Eagles Nest, which was a private campground. Mr. Fraser suspected that the tank contained diesel for mowers.

Mr. Fraser reported no known environmental issues or concerns with the Property or nearby sites.

Mr. Lance Chorney, Senior Exploitation Engineer with Vesta Energy Ltd., was contacted regarding the abandoned well located on the northwest portion of the Property. Mr. Chorney provided a drilling fluid disposal report and limited soil investigation report, which are summarized below and included in Appendix B.

"Drilling Fluids Disposal Report: 13-14-41-28-W4M". Prepared for Highpine Oil and Gas Limited. Prepared by VegTec Inc. September 25, 2005.

The VegTech report included a diagram that showed cement and shale pits in the northwest corner of the fenced lease site, a shale tank near the well centre and a flare tank near the east boundary of the lease. The water table was found to be deeper than 4 m below grade as determined by lease construction. Drilling waste samples were collected from the surface, floc and main hole as per EUB Directive 50.

"Potential Cement Pit Search: 13-14-41-28-W4M". Prepared for Daylight Energy Ltd. Prepared by SNL Consulting Ltd. June 24, 2010.

A site investigation was conducted on September 18, 2009 to determine if 1 m of sufficient cover was located over the potential cement pit area on the lease site. Six boreholes (S09-01 to S09-06) were drilled to depths of 1.5 or 3.0 m on the lease and one borehole (S09-C1) was drilled to represent background conditions off-lease. Soil samples were collected for analysis of detailed salinity, metals and hydrocarbon parameters. No hydrocarbon odours were noted and field hydrocarbon vapours were less than 100 ppm, therefore only two samples were submitted for hydrocarbon analysis. SNL concluded that no cement pit was identified on the site and samples met the respective regulatory guidelines for all parameters. The historic borehole locations are shown on Figure 4, and analytical data is shown in Tables 1 and 3 to 5.

5.1.2 DeGraff's RV Resort - Northwest

Mr. Jack Stone, Salesperson for DeGraff's RV Resort, was contacted regarding the community located approximately 100 m northwest of the Property. Mr. Stone has sold lots for DeGraff's RV Resort since the business started approximately 6 year ago. The resort included a gated community, playgrounds and walking trails. All types of RV vehicles and park model homes were allowed on the lots, provided they were not over 12 years old. Previously the site was a campground and recreational property. Two aboveground storage tanks that contained approximately 1,900 L of fuel each were currently used for fueling equipment such as mowers. Mr. Stone reported no issues with the tank, however he did not know if the tank was registered with PTMAA.

PTMAA was contacted and no tanks were reported for the site. Aboveground storage tanks less than 2,500 L do not have to be registered with PTMAA.

Mr. Stone reported no known environmental concerns with his site or surrounding sites.

Mr. Glenn Fraser, Owner of DeGraff's RV Resort, was contacted regarding further information about the community to the northwest. Mr. Fraser confirmed that the site was previously a seasonal campground and historically was used as pasture land. Mr. Fraser commented that one of the aboveground storage tanks was located on the northeast portion of the site, while the other was located in the centre.

5.1.3 Wilson's Beach Campground - Southwest

Ms. Corrine Mathews, Manager of Wilson's Beach Campground, was interviewed by ParklandGEO on March 25, 2014 regarding the campground to the southwest. Ms. Mathews commented that the campground had been leased from Lacombe Fish and Game for approximately 40 years. The campground operated in the summer and was closed during the winter season. Quads and dirt bikes were not permitted. Ms. Mathews reported that there were no aboveground storage tanks on site, however an underground septic tank was present.

Ms. Mathews reported no known environmental concerns with her site or surrounding sites.

5.2 REGULATORY SEARCHES

Correspondence with Federal, Provincial and Municipal regulatory agencies is presented in Appendix B, and is summarized below.

5.2.1 Federal

The National Pollutant Release Inventory (NPRI), compiled and maintained by Environment Canada and updated up to 2012, was searched for significant releases for the Property and adjacent sites. There were no facilities registered or releases reported for the Property.

5.2.2 Provincial

The online Environmental Site Assessment Repository (ESAR), compiled and maintained by Alberta Environment, was searched for routinely available scientific/technical information for the Property and adjacent sites. The following records were found as detailed below:

- *Phase 1 ESA: File Review: 100/06-14-41-28-W4. Prepared for Husky Oil Operations Limited. Prepared by Gemini Twins Consulting Ltd. August 27, 2007.*

The Phase 1 File Review provided information regarding the abandoned well located at LSD 6-14, immediately south of the Property. The northern part of the lease extended onto the Property. The well was drilled from March 9th to 15th, 1993 to a final depth of 1870 m. There was no production associated with this well and there were no reported incidents on file for the lease. The drilling mud disposal method was unknown, as well as the location of the sump. It was reported that there were no underground or aboveground storage tanks on site. It was recommended to conduct a Phase II ESA in the former sump disposal area.

- *Phase 2 ESA: Wellsite: 100/06-14-41-28-W4M, Gull Lake, Alberta. Prepared for Husky Oil Operations Limited. Prepared by Bio-Synergy Resources Inc. January 30, 2008.*

A total of fifteen boreholes were drilled to a depth of 3.5 m during the Phase 2 investigation. Grey drilling mud was identified within Boreholes 2, 3, 5 and 7 (on the Property), at depths ranging from 0.6 to 2.5 m. Five samples were submitted metals analysis and six samples were submitted for hydrocarbon analysis. All samples met the applicable 2004 Guidelines for agricultural land use and coarse-grained soils. A total of ten soil samples were submitted for salinity analysis. The five on-lease soil samples had electrical conductivity (EC) ratings of "Good", while sodium adsorption ratio (SAR) values ranged from "Fair" to "Good". Five samples from off-site had EC and SAR ratings ranging from "Fair" to "Good".

The historical data from 2007 was compared to the 2010 Alberta Tier 1 Guidelines and the results are presented in Tables 1 to 5. The locations of the historic boreholes are shown on Figure 5.

The ESAR was searched for records of Reclamation Certificates applied for or issued for the Property or quarter section. The search indicated there were records found as summarized below:

- A reclamation certificate (No. 0157107) was issued to Husky Oil Operations Limited for the well and lease site at LSD 6-14-41-28-W4M, which extended onto the southern portion of the Property. The certificate was issued on November 1, 2010.
- On November 5, 1985 a reclamation certificate (No. 24298) was issued to Precambrian Shield Resources Limited for the well located at LSD 8-14-41-29-W4M, approximately 460 m to the east.
- A reclamation certificate (No. 35155) was issued to APL Oil and Gas Ltd. for the well located at LSD 8-22-41-28-W4M, approximately 580 m northwest of the Property. The certificate was issued on June 25, 1997.

An inquiry was made to the Alberta Environment FRCS (FOIP Records and Corporate Support) Branch for routinely available scientific/technical information for current or historical tenants of the Property. The Alberta Environment Routine Disclosure and Freedom of Information and Protection of Privacy Act Request results indicated there were no records for the Property.

An inquiry was made to the Petroleum Tank Management Association of Alberta (PTMAA) to determine if any petroleum storage tanks are presently or have historically been located on the Property. There were no records on file for the Property.

A request was made to the Alberta Energy Regulator (AER) and a search was conducted through the Abacus Datagraphics website to determine if there have been any upstream gas or oil wells, pipelines or licenced facilities on the Property or adjacent sites. The search results are summarized as follows:

- An abandoned well (Licence No. 0337338) at LSD 13-14-41-28-W4M was located on the northwest portion of the Property. The well was licenced to Vesta Energy Ltd. and was drilled on October 3, 2005 and abandoned on October 4, 2005.
- A lease site and abandoned well (Licence No. 0157107) were located on the south boundary at LSD 6-14-41-28-W4M. The well was drilled on March 15, 1993 and was licenced to Husky Oil Operations Limited. The well was abandoned on March 16, 1993.
- Immediately to the west was an abandoned well (Licence No. M0006027P) located at LSD 16-15-41-28-W4M. The well was registered to Chevron Canada Limited and was drilled on April 22, 1953. The abandoned date was not recorded.
- Approximately 130 m to the east was an abandoned well (Licence No. 0007350P) located at LSD 7-14-41-29-W4M. The well was drilled on November 23, 1953 and abandoned on November 24, 1953. The well was registered to Chevron Canada Limited.

- A suspended gas well (Licence No. 0231697) was located at LSD 6-14-41-28-W4M, approximately 220 m south of the Property. The well was licenced to Exoro Energy Inc. and was drilled on January 25, 2000.
- An abandoned well (Licence No. 0113959) was located at LSD 8-14-41-28-W4M, approximately 460 m to the east. The well was licenced to Enerplus Corporation and was drilled on March 30, 1985 and abandoned on April 1, 1985.
- Approximately 580 m to the northwest was an abandoned well (Licence No. 0154513) located at LSD 8-22-41-28-W4M. The well was drilled on December 1, 1992 and abandoned on December 4, 1992. The well was registered to Pengrowth Acquisition Corporation.
- An abandoned well (Licence No. M0006027H) was registered to Chevron Canada Limited and was located at LSD 1-23-41-28-W4M, approximately 640 m to the east. The well was drilled on April 22, 1953 and abandoned on April 23, 1953.
- An operational natural gas pipeline (Licence No. 10191-120) ran on the western portion of the Property from LSD 5-35-41-28-W4M to LSD 4-14-41-28-W4M. The pipeline was licenced to Atco Gas and Pipelines Ltd.
- A pipeline right-of-way ran on the eastern portion of the Property and contained two natural gas pipelines:
 - The most western pipeline (Licence No. 28398-1) within the right-of-way ran from LSD 13-11-41-28-W4M to LSD 14-22-41-28-W4M and was registered to Mosaic Energy Ltd.; and
 - The other pipeline (Licence No. 39118-3) ran from LSD 2-2-41-28-W4M to LSD 2-3-42-28-W4M and was licenced to Keyera Energy Ltd.
- Approximately 690 m to the northeast was a natural gas pipeline (Licence No. 27982-1) that ran from LSD 9-13-41-28-W4M to LSD 4-26-41-28-W4M. The pipeline was registered to AltaGas Ltd.

The AER was contacted and a search was conducted through the Abacus Datagraphics website to determine if there have been any incidents, complaints or spills on the Property or adjacent sites. The search indicated that there were no incidents, complaints or spills registered to the Property, however an incident complaint was found within 700 m on a nearby site:

- Approximately 580 m to the northwest a complaint was registered to LSD 8-22-41-28-W4M on September 10, 1993. The cause of the complaint was conversion and the licensee was 3504131 Canada Ltd.

The Environmental Law Centre (ELC) was contacted regarding the following owners/operators: Lincoln Ranch Developments, Tony Elmer Kamlah and Chipmunk Drilling Co Ltd. There were no records on file with the ELC for these owners or operators.

A search was conducted of Alberta Environment approvals, licences, registrations and permits issued under the Water Act and AEPEA (Alberta Environmental Protection and Enhancement Act) for the Property. There were two (2) active listings for the Property, which are summarized below:

- On February 27, 2012 an approval (No. 291343-00-00) was issued to 1510060 Alberta Ltd. (operating as Lincoln Utility Corp.) under the Environmental Protection and Enhancement Act for the construction, operation and reclamation of the Lincoln Lakeside Developments Wastewater System. The approval expires on February 15, 2022.
- An approval (No. 291343-00-01) was issued to 1510060 Alberta Ltd. under the Environmental Protection and Enhancement Act for the disposal of treated wastewater via irrigation from the Lincoln Lakeside Developments Wastewater System. The approval was issued on October 26, 2012 and expires on February 15, 2022.

A search of groundwater wells was conducted in the Alberta Environment Groundwater Information System. The search indicated there were three (3) wells registered to the quarter section NW 1/4 14-41-28-W4M and three (3) wells registered to nearby sites, as summarized in Section 3.4.

The Alberta Health Services office of Environmental Public Health was contacted regarding landfills, waste sites, nuisance grounds or environmental incidents on file regarding the Property. The results indicated no records on file for the Property.

5.2.3 Municipal and Local

A search was conducted with Lacombe County's Environmental and Protective Services Department regarding environmental incidents and investigations on file concerning the Property or surrounding sites. Mr. Blayne West, Environmental Coordinator, reported that the only environmental file on record for the quarter section was a setback request from a proposed wastewater treatment plant (on the Property) that gained approval in October 2011. The setback from the proposed wastewater treatment plant was reduced from 300 m to 50 m by Alberta Environment.

A search was conducted with Lacombe County's Planning and Development Department regarding landfills, waste sites, nuisance grounds or environmental incidents on file concerning the Property or surrounding sites. Ms. Allison Noonan, Planning and Development Secretary, reported that there were no records on file for the Property other than the previously mentioned setback approval.

6.0 SITE INSPECTION RESULTS

An inspection of the Property was conducted on March 26, 2014 by ParklandGEO to assess for environmental concerns on the Property. Site photographs are included in Appendix A.

6.1 SITE APPEARANCE

The Property was located east of Gull Lake and was bordered by Township Road 282 to the west. The Property was relatively level with a slight grade to the south. A roadway and an acreage including old barns, sheds and an occupied house was located on the west side of the quarter section and were not included in the Subject Property's parcel. An abandoned oil lease was located on the northwest portion of the Property and was accessed from the east.

The Property was bound to the north and east by agricultural land, to the south by agricultural land and residential development and to the west by Range Road 282 and recreational land (Figure 2).

6.2 GENERAL SITE INFORMATION

Two site entrances allowed access to the Property from Range Road 282 (Photographs 1 and 2).

An acreage and roadway were located on the quarter section, however they were not included in the Property (Photographs 1 and 3).

An Atco Gas pipeline ran on the western portion of the Property (Photograph 4) and a pipeline right-of-way was located on the eastern portion (Photograph 5).

A high pressure gas regulating station was located north of the acreage roadway (Photograph 6).

The Property was fenced on all boundaries and was relatively level with at least 2 feet of snow cover at the time of the inspection (Photographs 7 to 9). A treed area was located in the southeast corner (Photograph 8) and small tree stands were noted along the north boundary.

A fenced abandoned lease was located on the northwest portion (Photographs 2 and 10).

Monitoring wells were found north of the fenced lease and near the east and south Property boundaries (Photographs 10 to 12).

Two grain bins were located east of the acreage (Photograph 14).

Overhead power ran northwards from the south boundary to the acreage. An electrical transformer was located on the eastern portion of the acreage (Photograph 15).

An elevated aboveground storage tank was located on the southern portion of the acreage (Photograph 16). The tank was estimated to hold 200 L.

6.3 ADJACENT LAND USE

The site was surrounded by the following properties at the time of the assessment:

Direction from Property	Current Property Tenant/Owner
South	Agricultural land followed by residential development
East	Agricultural land and trees
North	Agricultural land followed by an acreage development
West	Range Road 282, private campground, Gull Lake
Southwest	Wilson's Beach Campground
Northwest	DeGraff's RV Resort

South of the Property was agricultural land followed further by residential development. To the east was agricultural land and trees (Photograph 8) and to north was an acreage development and agricultural land (Photograph 17). An aboveground storage tank and RV were stored on recreational land west of Range Road 282 (Photographs 18 and 19). Wilson's Beach Campground was located southwest of the Property and DeGraff's RV Resort was located to the northwest (Photographs 20 and 21). The closest gas station was a Shell located approximately 10 km southwest of the Property.

Environmental concerns were noted on adjacent sites during the assessment and included the presence of one small aboveground storage tank on the acreage and one large aboveground storage tank immediately to the west. Additionally, an abandoned oil well was located west of Range Road 282. Information collected concerning the adjacent and nearby sites is summarized in Section 5.0.

6.4 ENVIRONMENTAL ISSUES

Information regarding significant environmental issues is summarized below.

6.4.1 Air Emissions or Air Quality

No sources of air emissions were noted at the Property during the assessment.

6.4.2 Asbestos Containing Materials (ACMs)

No ACMs were noted.

6.4.3 Chemical Using Activity and Chemical Storage

No chemicals were currently stored on the Property.

Refer to Section 6.4.24 for information on fuel storage tanks.

6.4.4 Drains and Sumps

No sumps or drains were located on the Property.

6.4.5 Fill and Stockpiles

No fill or stockpiles were noted.

6.4.6 Freons and Halons

No sources of freons or halons were observed on the Property.

6.4.7 Hazardous Materials Use and Storage

No hazardous materials were noted during the assessment.

6.4.8 Hazardous Wastes

No hazardous wastes were stored on the Property.

6.4.9 Heating and Cooling Systems

No heating or cooling systems were noted during the assessment.

6.4.10 Landfills and Dumps

No landfills or dumps were registered with the government agencies on or in the vicinity of the Property. No signs of landfills or dumps were noted during the assessment.

6.4.11 Lead

No lead-containing materials were observed on the Property.

6.4.12 Liquid Effluents and Site Runoff

There were no liquid discharges observed on the Property. All surface water flow was to the south.

6.4.13 Mechanical Equipment

No mechanical equipment was stored on the Property.

6.4.14 Mercury

Sources of mercury were not noted during the assessment.

6.4.15 Methane

The Property was not located within a wetland area and no evidence of historical domestic waste landfills or dumps on the Property were found.

6.4.16 Oil and Gas Facilities

An abandoned well (Licence No. 0337338) was located on the northwest portion of the Property at LSD 13-14 (Figure 4). The well was licenced to Vesta Energy Ltd. Refer to Section 5.1.1 for more information.

A lease site and abandoned well (Licence No. 0157107) were located on the south boundary (Figure 5). The well was licenced to Husky Oil Operations Limited. Refer to Section 5.2.2 for more information.

A pipeline right-of-way was located on the east portion of the Property and contained two operational natural gas pipelines. Another natural gas pipeline was located on the west portion.

Refer to Section 5.2.2 for information regarding oil and gas facilities on nearby sites.

6.4.17 Pesticides and Herbicides

There were no pesticides or herbicides stored on the Property.

6.4.18 Pits and Lagoons

No lagoons were observed on the Property nor were any reported during correspondence with any provincial or municipal departments.

Pits for disposing of drilling mud/cement were located on the lease sites at LSD 13-14 and 6-14. Refer to Figures 4 and 5.

6.4.19 Polychlorinated Biphenyls (PCBs)

An overhead electrical transformer was noted on the acreage (Photograph 15). The vast majority of transformers in Alberta have been confirmed to be non-PCB containing.

6.4.20 Radioactive Materials and Equipment

No radioactive materials or equipment were observed.

6.4.21 Radon

Radon gas is not common in central Alberta since the area is not underlain by the Canadian Shield bedrock, and therefore concentrations of radon gas are not considered to be a concern.

6.4.22 Solid Wastes and Sewage Disposal

No solid wastes were found on the Property.

A septic field was located on the acreage, west of the residence.

6.4.23 Stains and Spills

There have been no reportable spills on the Property or on adjacent sites, and surface stains were not noted during the inspection, however snow cover limited some observations.

6.4.24 Underground (USTs) and Aboveground Storage Tanks (ASTs)

There were no storage tanks recorded with PTMAA and none were observed on the Property.

On the south side of the acreage (near the Property) a small aboveground storage tank was present (Photograph 16). The 200 L (estimated) tank historically held fuel for farm equipment.

A 25,000 L (estimated) aboveground storage tank was noted approximately 50 m west of the acreage entrance on a private campground called Eagles Nest (Photographs 18 and 19). The tank was suspected to contain diesel for fueling of on-site mowers.

6.4.25 Unidentified Substances

There were no unidentified substances observed on the Property at the time of the assessment.

6.4.26 Urea Formaldehyde Foam Insulation (UFFI)

There was no urea formaldehyde foam insulation observed on the Property.

6.4.27 Utilities, Roads, Parking Facilities and Right-of-Ways

A Telus right-of-way ran along the west side of Range Road 282 and serviced the acreage located on the west side of the quarter section.

A pipeline right-of-way was located on the east portion of the Property and included two operational natural gas pipelines. Refer to Section 5.2.2 for more information.

6.4.28 Vegetation

Snow cover limited vegetation observations, however the majority of the Property consisted of crop or grass pasture.

Tree stands were located on the northwest portion and in the southeast corner.

6.4.29 Watercourses, Ditches and Standing Water

No standing water was observed on the Property due to freezing conditions.

Gull Lake was located approximately 100 m to the west and a creek ran along the east boundary of the Property.

6.4.30 Wells

The Alberta Environment Groundwater Information System indicated there were three (3) wells registered to the quarter section NW 1/4 14-41-28-W4M and three (3) wells registered to nearby sites. Further information regarding wells in the area is noted in Section 3.4.

7.0 ASSESSMENT AND RECOMMENDATIONS

The Phase I ESA was requested prior to development of the Property. Based on the available information gathered during the Phase I ESA, the following conclusions have been made relative to the Property:

- Historically the Property was agricultural land including pasture and crops. An acreage development was located on the west portion of the quarter section since before the mid 1960's. In 1995 the acreage parcel (4.87 acres) was subdivided from the quarter section. The Property was owned by the Kamlah family since 1982.
- Historical reports and correspondence with the Property owner, as well as municipal, provincial and federal government agencies indicated no environmental concerns pertaining to the Property.
- An abandoned well (Licence No. 0337338) was located on the northwest portion of the Property at LSD 13-14. The well was licenced to Vesta Energy Ltd. and was drilled and abandoned in October 2005. A limited investigation in 2009 found no exceedances from two samples analyzed for hydrocarbon, metals and detailed salinity parameters. No hydrocarbon odours were encountered in the six boreholes drilled to 1.5 or 3.0 m, and field hydrocarbon vapours were less than 100 ppm. The potential environmental risk regarding the 13-14 lease is considered moderate based on limited historical analytical data.
- A lease site, including an abandoned well (Licence No. 0157107), extended onto the southern portion of the Property from LSD 6-14. The well was drilled and abandoned in March 1993 and was licenced to Husky Oil Operations Limited. A Phase 2 ESA was conducted in 2008 and no soil samples were found to exceed the applicable Guidelines for metals and hydrocarbon parameters. Electrical conductivity (EC) and sodium adsorption ratio (SAR) values ranged from "Fair" to "Good" for both lease site samples and background samples. A reclamation certificate (No. 0157107) was issued for the well and lease site on November 1, 2010. The potential environmental risk regarding this abandoned lease is considered low based on historical analytical data.

Residential set backs from the wellhead must be set consistent with ERCB Guidelines and municipal requirements.

- A pipeline right-of-way ran through the eastern portion of the Property and included two operational natural gas pipelines. Another operational natural gas pipeline ran through the western portion of the Property. The potential environmental risk relating to these pipelines is considered moderate. If a release does occur at any oil and gas facility located on the Property or in the area, the Owner/operators of such facilities are responsible for all cleanup efforts with regard to any potential impacts, but only if the owner is financially sound.

- One 200 L (estimate) aboveground fuel tank was located on the south side of the acreage, near the Property. Two 1,900 L (estimated) aboveground fuel tanks were located to the northwest on DeGraff's RV Resort. One 25,000 L (estimated) aboveground fuel tank was located approximately 50 m west of the Property and acreage entrance. The potential environmental risk regarding the tanks is considered to be low based on down and cross-gradient locations.
- The following potential environmental issues were not found to be of concern on the Subject Property: air emissions, asbestos containing materials, drains and sump, fill and stockpiles, freons and halons, hazardous waste, heating and cooling systems, landfills and dumps, lead, liquid effluent, mechanical equipment, mercury, methane, pesticides and herbicides, lagoons, polychlorinated biphenyls, radioactive materials and equipment, radon, solid wastes and sewage disposal, stains and spills, unidentified substances, urea formaldehyde foam insulation, utilities, roads, parking facilities, right-of-ways, vegetation, watercourses, ditches, standing water and wells.

ParklandGEO considers the level of potential environmental risk associated with the Property to be moderate based on the presence of abandoned wells and operational natural gas pipelines on the Property.

A limited Phase 2 ESA is recommended to assess subsoil and groundwater quality on the northwest portion of the Property near the 13-14 lease.

8.0 LIMITATIONS AND CLOSURE

The American Society for Testing and Materials Standard of Practice notes that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of a standardized environmental site assessment protocol is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the Subject Property, given reasonable limits of time and cost.

This report has been prepared for the exclusive use of **Lincoln Ranch Developments c/o Stantec Consulting Ltd.** and their approved agents. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. PARKLAND GEOTECHNICAL CONSULTING LTD., and The ParklandGEO Consulting Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. No other warranty, expressed or implied, is made.

We trust that this report meets with your current requirements. If there are any questions, please contact the undersigned at 403-343-2428.

Respectfully Submitted,

PARKLAND GEOTECHNICAL CONSULTING LTD.
APEGA Permit To Practice #07312

Lexya Oulton, EIT
Geo-Environmental Engineer

Reviewed by:



The image shows a circular professional seal for the Province of Alberta. The outer ring of the seal contains the text "PROFESSIONAL ENGINEER ALBERTA". Inside the ring, the name "MICHAEL D. MCCORMICK" is written. The center of the seal features a stylized mountain range and a sun. A handwritten signature, which appears to be "Michael D. McCormick", is written across the seal. Below the seal, the date "April 9, 2014" is printed.

Michael McCormick, M.Eng., P.Eng.
Principal Geo-Environmental Engineer

FIGURES

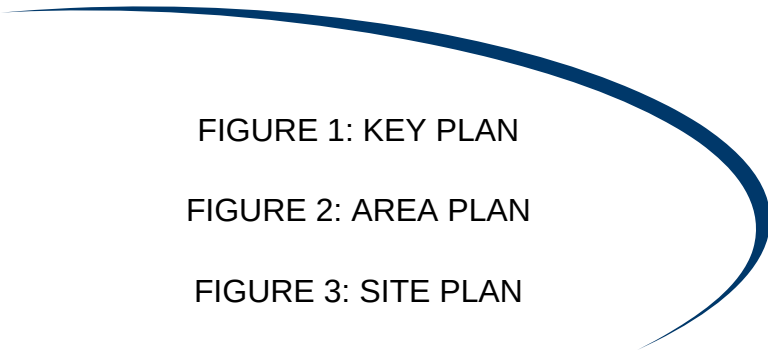


FIGURE 1: KEY PLAN

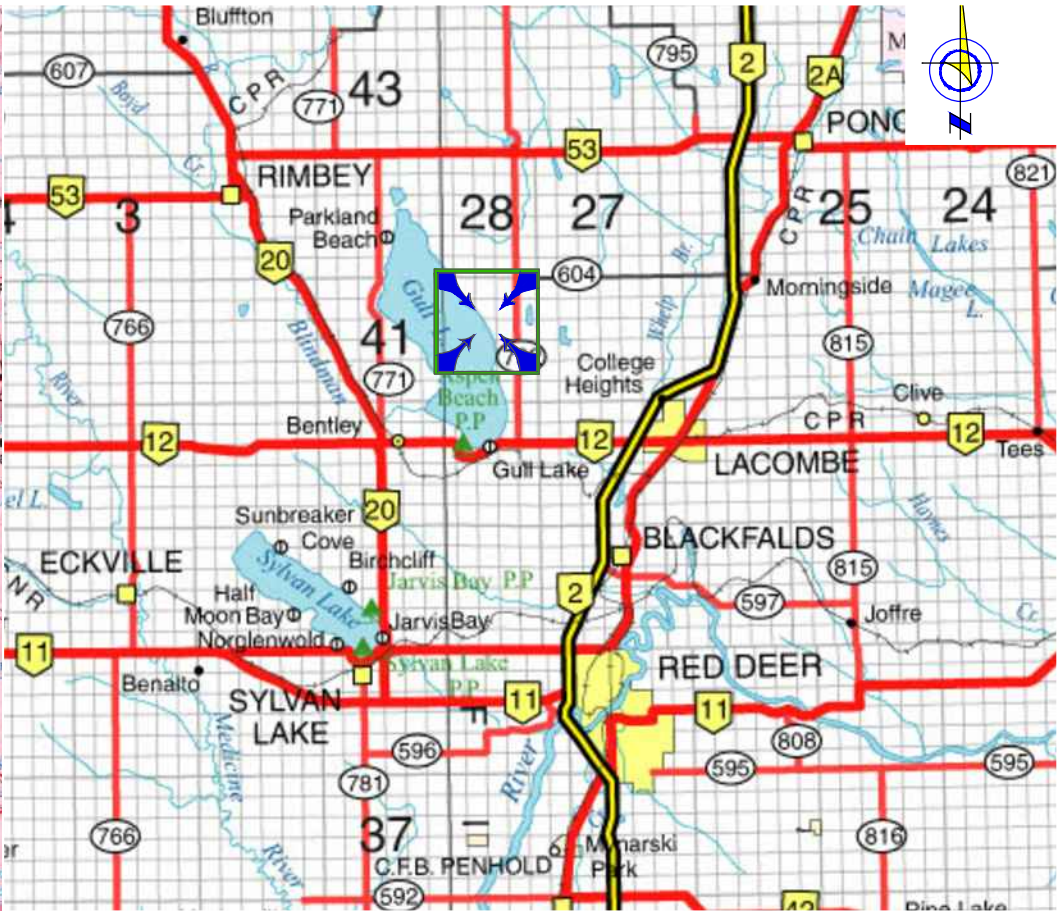
FIGURE 2: AREA PLAN

FIGURE 3: SITE PLAN

FIGURE 4: HISTORIC 13-14 LEASE SITE

FIGURE 5: HISTORIC 6-14 LEASE SITE

FIGURES 6 TO 14: AERIAL PHOTOGRAPHS



	CLIENT: 	KEY PLAN			
		PHASE 1 ESA PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB			
		DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
		SCALE: N.T.S.	JOB NO. RD4846	DRAWING NO. FIGURE 1	



AERIAL PHOTOGRAPH OBTAINED FROM ABACUS DATAGRAPHS DATED OCTOBER 1, 2009 TO JULY 8, 2010.

CLIENT:



AREA PLAN

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN:	CHK'D:	REV #:	DATE:
LO	MMc	1	MARCH 2014
SCALE:	JOB NO.	DRAWING NO.	
1:10000	RD4846	FIGURE 2	



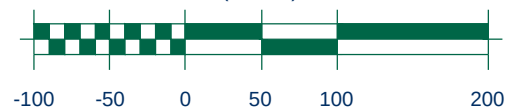
AERIAL PHOTOGRAPH OBTAINED FROM ABACUS DATAGRAPHS DATED AUGUST 16, 2012 TO SEPTEMBER 27, 2012.

REFER TO FIGURE 2 FOR PIPELINE LEGEND.

LEGEND

- SUBJECT PROPERTY
- x — BARBED WIRE FENCE
- ⊗ APPROXIMATE MONITORING WELL LOCATION

SCALE (metres)



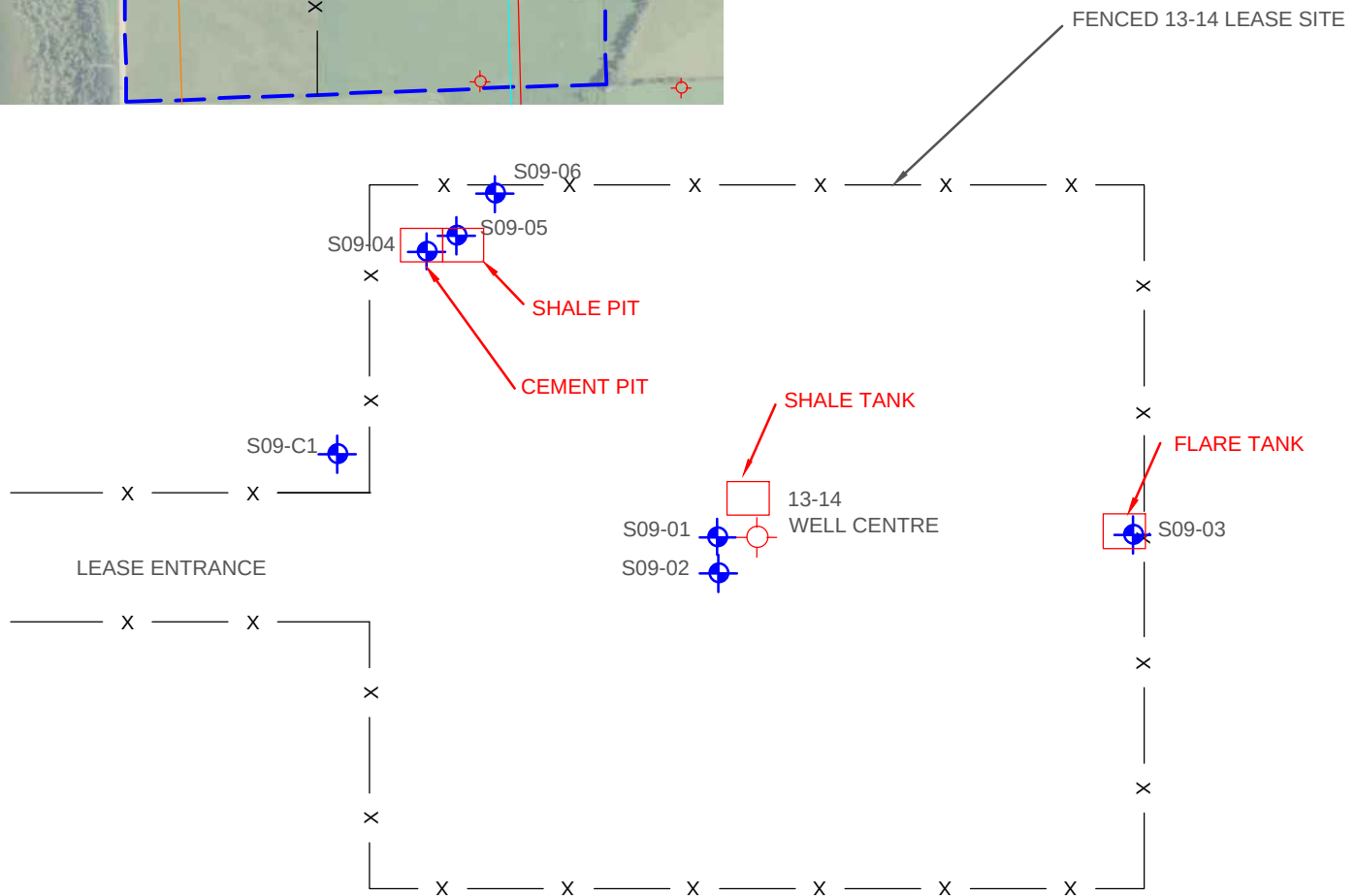
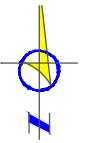
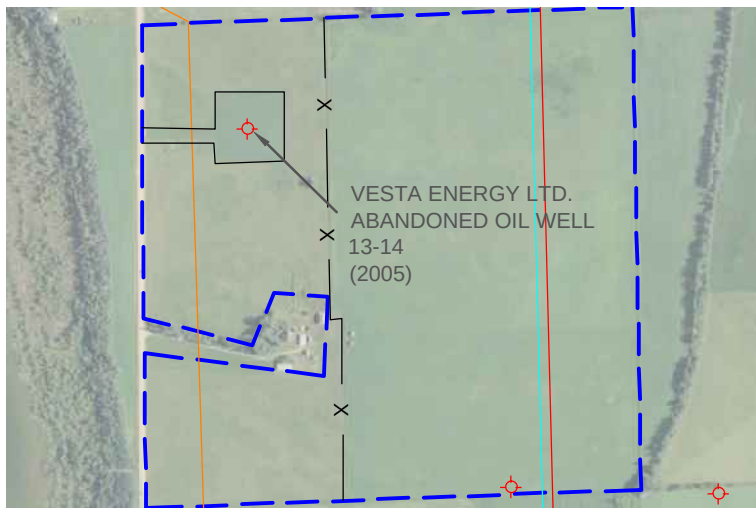
CLIENT:



SITE PLAN

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

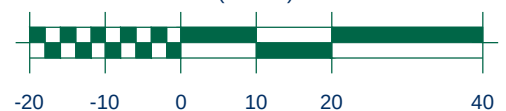
DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:5000	JOB NO. RD4846	DRAWING NO. FIGURE 3	



LEGEND

- SUBJECT PROPERTY
- x — BARBED WIRE FENCE
- ⊕ APPROXIMATE BOREHOLE LOCATION

SCALE (metres)



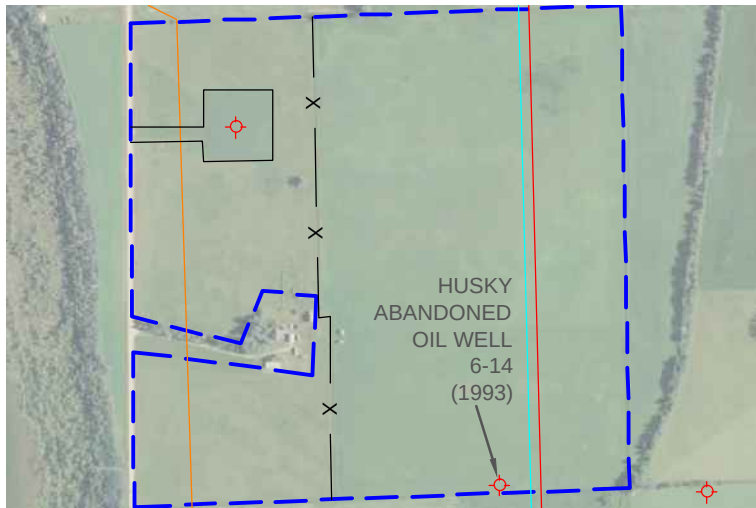
CLIENT:



HISTORIC 13-14 LEASE SITE

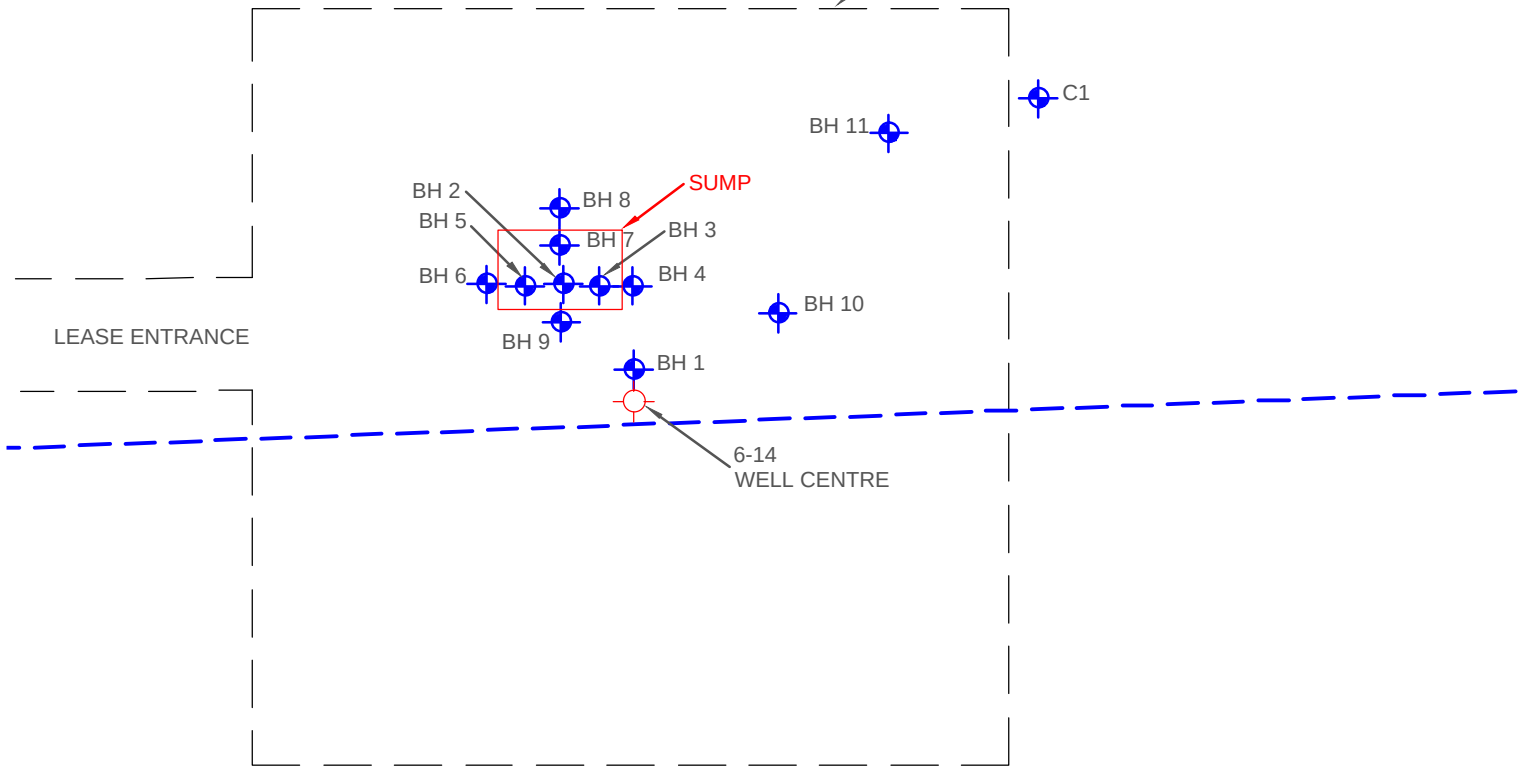
PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:1000	JOB NO. RD4846	DRAWING NO. FIGURE 4	



C 2

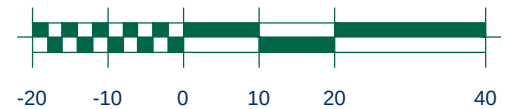
6-14 LEASE SITE



LEGEND

- SUBJECT PROPERTY
- x — BARBED WIRE FENCE
- ⊕ APPROXIMATE BOREHOLE LOCATION

SCALE (metres)



CLIENT:



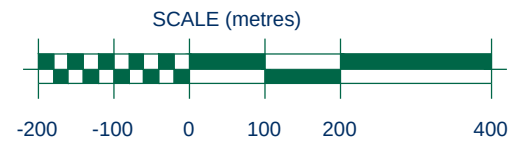
HISTORIC 6-14 LEASE SITE

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:1000	JOB NO. RD4846	DRAWING NO. FIGURE 5	



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED AUGUST 22, 1966.



CLIENT:



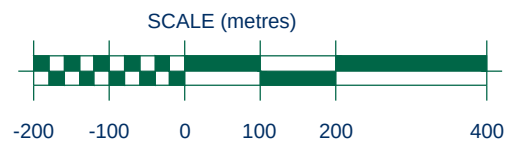
1966 AERIAL PHOTOGRAPH

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

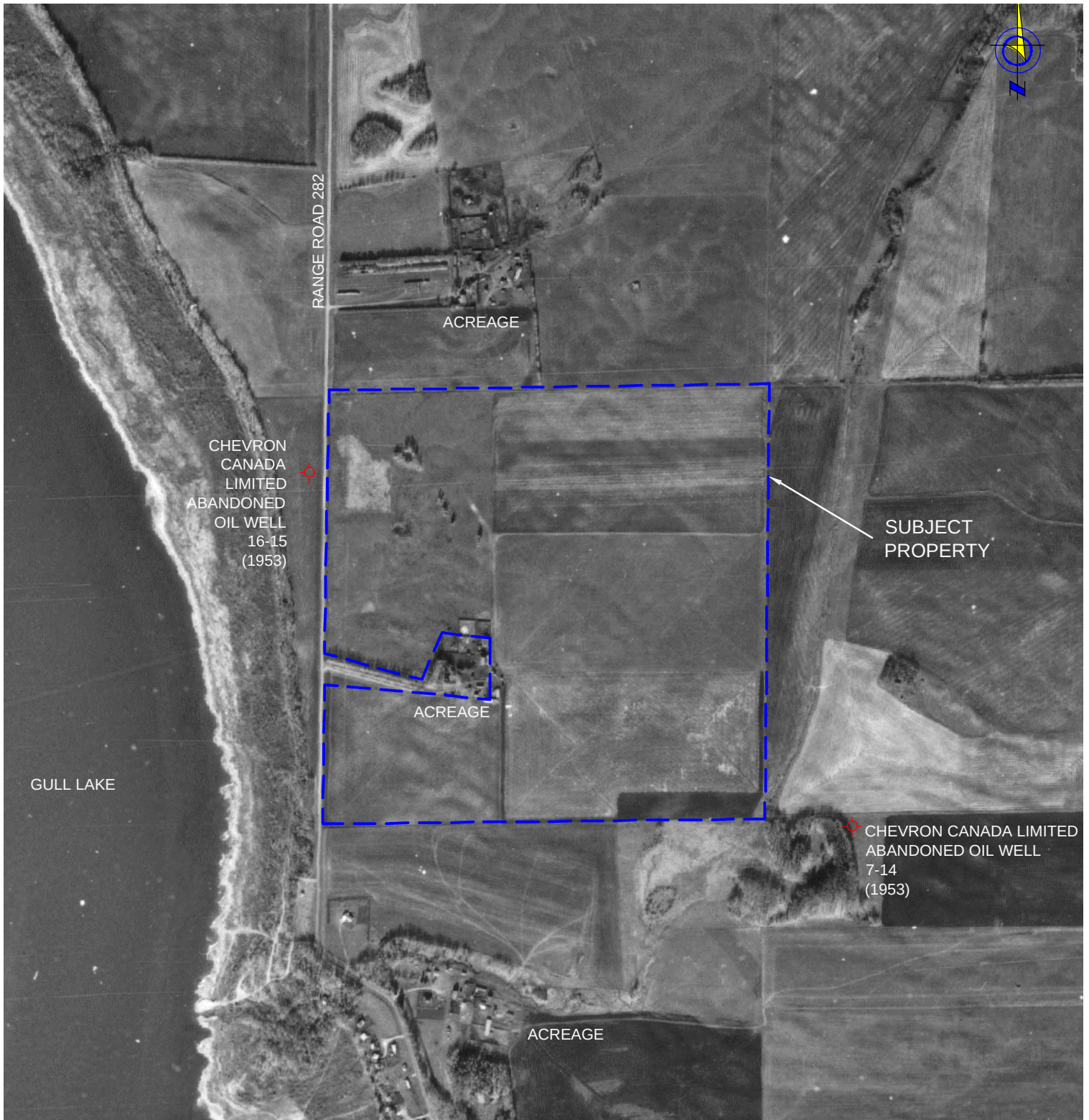
DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 6	



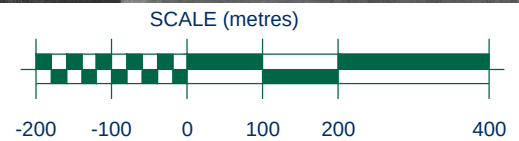
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED AUGUST 4, 1970.



	CLIENT:		1970 AERIAL PHOTOGRAPH	
			PHASE 1 ESA PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB	
	DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
	SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 7	



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED OCTOBER 18, 1976.



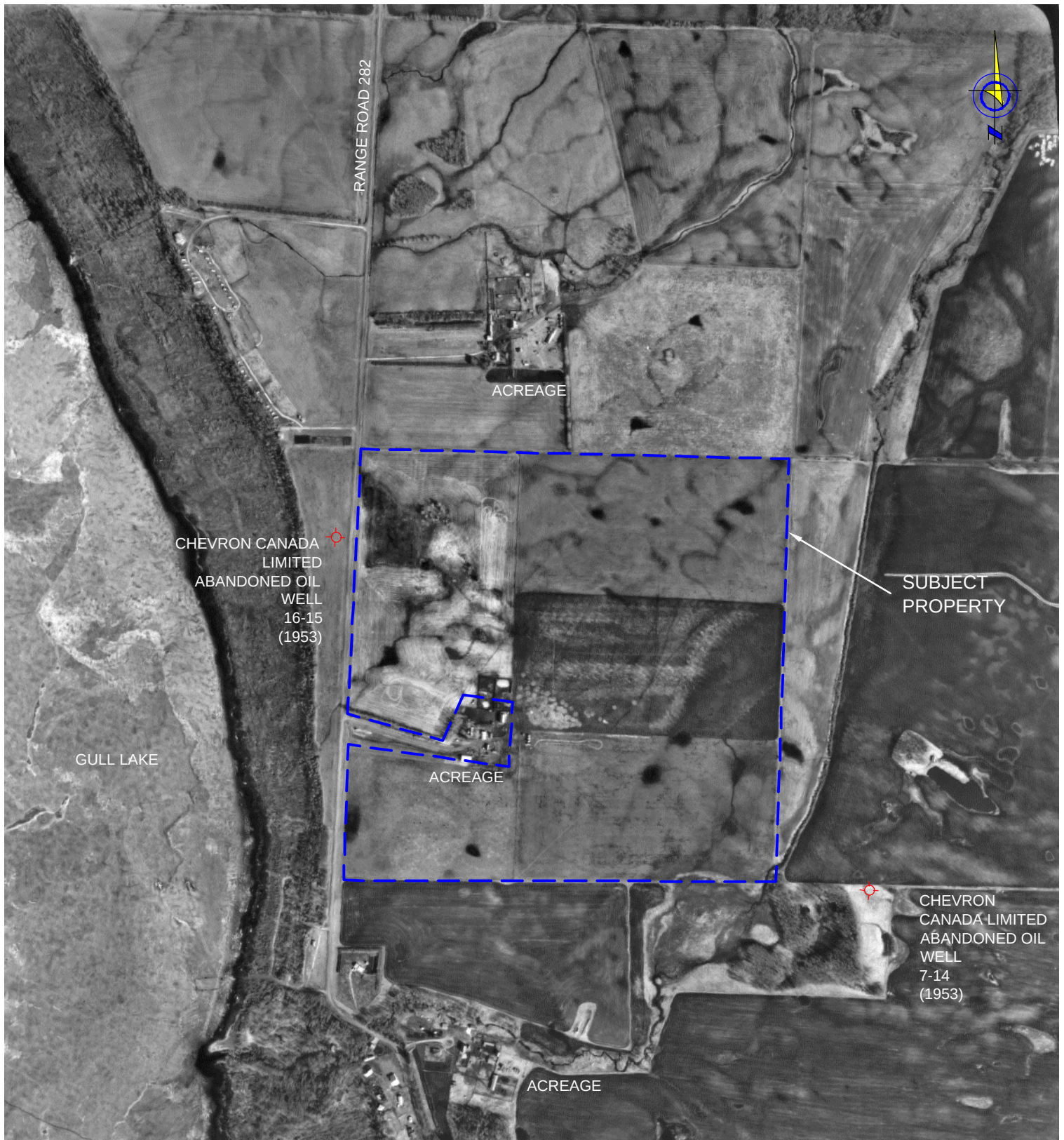
CLIENT:



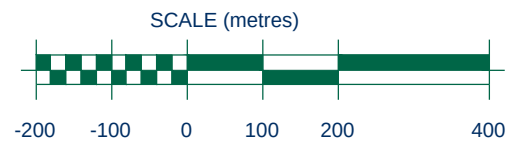
1976 AERIAL PHOTOGRAPH

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 8	



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED APRIL 20, 1983.



CLIENT:



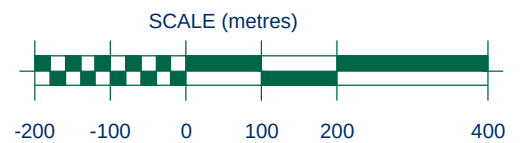
1983 AERIAL PHOTOGRAPH

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 9	



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED JULY 25, 1987.

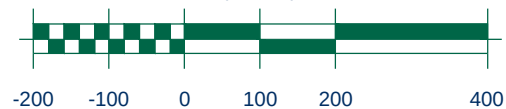


	CLIENT:		1987 AERIAL PHOTOGRAPH			
			PHASE 1 ESA			
			PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB			
			DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000		JOB NO. RD4846		DRAWING NO. FIGURE 10		



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED SEPTEMBER 3, 1993.

SCALE (metres)



CLIENT:



1993 AERIAL PHOTOGRAPH

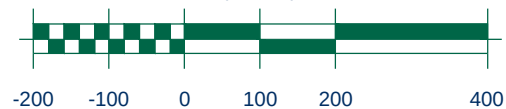
PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 11	



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED MAY 13, 1998.

SCALE (metres)



CLIENT:



1998 AERIAL PHOTOGRAPH

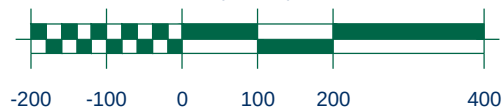
PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 12	



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES,
DATED MAY 31, 2007.

SCALE (metres)



CLIENT:



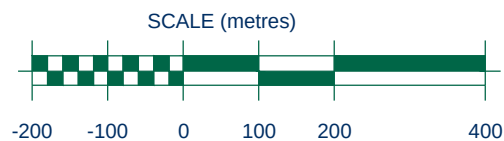
2007 AERIAL PHOTOGRAPH

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 13	



AERIAL PHOTOGRAPH OBTAINED FROM ABACUS DATAGRAPHS DATED OCTOBER 1, 2009 TO JULY 8, 2010.



CLIENT:



2012 AERIAL PHOTOGRAPH

PHASE 1 ESA
PORTION OF NW 14-41-28-W4M, LACOMBE COUNTY, AB

DRAWN: LO	CHK'D.: MMc	REV #: 1	DATE: MARCH 2014
SCALE: 1:10000	JOB NO. RD4846	DRAWING NO. FIGURE 14	

TABLES

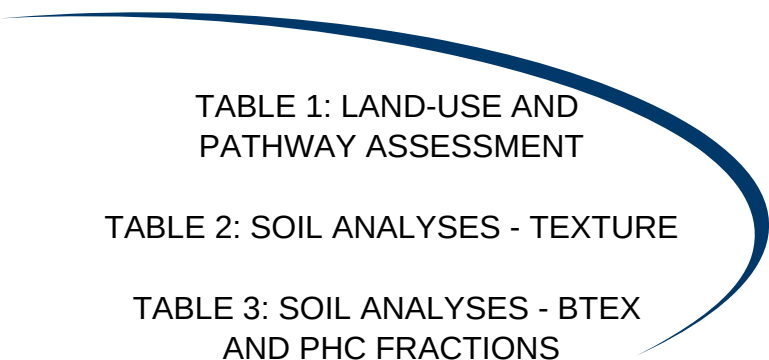


TABLE 1: LAND-USE AND
PATHWAY ASSESSMENT

TABLE 2: SOIL ANALYSES - TEXTURE

TABLE 3: SOIL ANALYSES - BTEX
AND PHC FRACTIONS

TABLE 4: SOIL ANALYSES - METALS AND INORGANICS

TABLE 5: SOIL ANALYSES - SALINITY

TABLE: 1

TITLE: LAND-USE AND PATHWAY ASSESSMENT

PROJECT#: RD4846
 CLIENT: Lincoln Ranch Developments
 PROJECT: Proposed Blackfalds Development Phase 1 ESA
 SITE: NW 1/4 14-41-28-W4M
 LOCATION: Gull Lake, Alberta

1. Tier 1/2 Applicability

Condition	Applicable	Comments
Source of volatile contaminants present within 30 cm of a building foundation	NO	
Land/water use not captured by Generic Tier 1 land uses	NO	
Exposure Pathway is present that is not considered at Tier 1 for the land use	NO	
Human receptors spend more time at site than average or receiver higher levels of exposure	NO	
Ecological receptors with high sensitivity	NO	
Unusual structural features (ie. earthen floor, unusually low air exchange rates)	NO	
Groundwater flow to stagnant waterbodies	NO	
Groundwater within 10 m of a surface water body	NO	
Very coarse textured materials enhancing groundwater or vapour transport	NO	
Fractured bedrock	NO	
Source length of groundwater contamination greater than 10 m	NO	
Inorganic contaminants in organic soil	NO	

Note: If any of the above conditions are applicable, Tier 1 Guidelines cannot be used; a Tier 2 approach must be used. If none of the above conditions are applicable, a Tier 1 or Tier 2 approach may be used.

2. Applicable Land Use

Land Use	Applicable	Comments
Natural Area (away from human habitation; primary concern is the protection of ecological receptors)	YES	
Agricultural (primary land use is growing crops or tending livestock)	YES	
Residential (primary activity is residential or residential activity, includes urban parks, campgrounds)	YES	A residence is located on the western portion of the quarter section.
Commercial (primary activity is commercial, and there is free access to all members of the public)	NO	
Industrial (primary activity is production / manufacturing - public access is restricted)	NO	

3. Applicable Soil Type

Soil Type	Applicable	Comments
Fine-Grained	YES	
Coarse-Grained	YES	

4. Applicable Surface Water Use

Water Use	Applicable	Comments
Drinking Water	YES	
Aquatic Life	YES	
Irrigation	YES	
Livestock Water	YES	
Wildlife Water	YES	

5. Pathway Exclusion

Pathway	Applicable	Comments
Human Exposure Pathways		
Direct Soil Contact	YES	
Vapour Inhalation (basement)	YES	
Vapour Inhalation (slab-on-grade)	YES	
Protection of Domestic Use Aquifer*	YES	
Off-Site Migration by Wind or Water Erosion	YES	
Ecological Exposure Pathways		
Direct Soil Contact	YES	
Nutrient/Energy Cycling	YES	
Livestock Ingestion	YES	
Wildlife Ingestion	YES	
Freshwater Aquatic Life*	YES	
Livestock Watering*	YES	
Wildlife Watering*	YES	
Irrigation Watering*	YES	
Off-Site Migration by Wind or Water Erosion	YES	
Other Pathways		
Management Limit	YES	

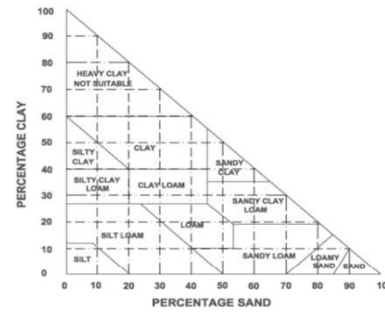
* Pathway can be excluded at Tier 2 approach.

Refer to Each Table for the Most Stringent Guideline for the Applicable Legislation, Land-Use and Soil Type

TABLE: 2

TITLE: SOIL ANALYSES - TEXTURE

PROJECT#: RD4846
CLIENT: Lincoln Ranch Developments
PROJECT: Proposed Blackfalds Development Phase 1 ESA
SITE: NW 1/4 14-41-28-W4M
LOCATION: Gull Lake, Alberta



REFERENCE: ALBERTA TIER 1 SOIL AND GROUNDWATER GUIDELINES, DECEMBER 2010
 UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

Sample ID	Depth (m)	Sand (%)	Silt (%)	Clay (%)	Gravel (%)	Class
BH 2	2.0 - 3.0	67.0	23.0	10.0	0.0	SANDY LOAM
BH 3	2.0 - 3.0	64.0	23.0	13.0	0.0	SANDY LOAM
BH 5	2.5 - 3.5	60.0	25.0	15.0	0.0	SANDY LOAM
BH 7	2.4 - 3.4	49.0	30.0	21.0	0.0	LOAM

Sample Dates		
BH 2-7	13-Nov-07	*Boreholes located within LSD 6-14

TABLE: 3

TITLE: SOIL ANALYSES - BTEX AND PETROLEUM HYDROCARBON (PHC) FRACTIONS; SURFACE

PROJECT#: RD4846
 CLIENT: Lincoln Ranch Developments
 PROJECT: Proposed Blackfolds Development Phase 1 ESA
 SITE: NW 1/4 14-41-28-W4M
 LOCATION: Gull Lake, Alberta

CRITERIA: ALBERTA TIER 1 SOIL AND GROUNDWATER REMEDIATION GUIDELINES, DECEMBER 2010
 TABLES A-1 TO A-5 SURFACE SOIL REMEDIATION GUIDELINE VALUES FOR ALL LAND USES AND EXPOSURE PATHWAYS

Surface Guidelines for BTEX and F1-F4 must be applied to a depth of 1.5 m within 5 m setback from a wellhead OR to a depth of 3 m at any other site.

LAND USE	
Natural Area	YES
Agricultural	YES
Residential	YES
Commercial	NO
Industrial	NO

SOIL TYPE	
Fine	YES
Coarse	YES

NGR = No Guideline Required
 BDL = Below Detection Limit
 HVC = Hydrocarbon Vapour Concentration (in parts per million per volume (ppmv))
 PHC = Petroleum Hydrocarbon Fraction; F1 = C6-C10 (minus BTEX); F2 = C10-C16; F3 = C16-C34; F4 = C34-C50

All concentrations in mg/kg unless otherwise noted
Bold = Exceeds Criteria
NO = Does not meet QA/QC for Laboratory

PATHWAY	APPLICABLE	MOST STRINGENT CRITERIA FOR LAND USE AND SOIL TYPE							
		Benzene	Toluene	Ethylbenzene	Xylenes	PHC F1	PHC F2	PHC F3	PHC F4
Human Exposure Pathways									
Direct Soil Contact	YES	78	20000	8500	140000	12000	6800	15000	21000
Vapour Inhalation (basement)	YES	0.1	130	60	16	30	160	-	-
Vapour Inhalation (slab-on-grade)	YES	0.073	95	44	12	24	130	-	-
Protection of Domestic Use Aquifer*	YES	0.046	0.52	0.11	15	1100	1500	-	-
Off-Site Migration by Wind or Water Erosion	YES	-	-	-	-	-	-	-	-
Ecological Exposure Pathways									
Direct Soil Contact	YES	31	75	55	65	210	150	300	2800
Nutrient/Energy Cycling	YES	-	-	-	-	-	-	-	-
Livestock Ingestion	YES	44	2500	1600	6600	27000	25000	30000	21000
Wildlife Ingestion	YES	18	980	640	2600	11000	9800	16000	8400
Freshwater Aquatic Life*	YES	1.6	0.49	540	250	1300	520	-	-
Livestock Watering*	YES	0.2	26	36	160	6600	16000	-	-
Wildlife Watering*	YES	0.33	1000	17000	16000	30000	30000	-	-
Irrigation Watering*	YES	-	-	-	-	-	-	-	-
Off-Site Migration by Wind or Water Erosion	YES	-	-	-	-	-	-	-	-
Other Pathways									
Management Limit	YES	-	-	-	-	700	1000	2500	10000

SAMPLE				MOST STRINGENT CRITERIA FOR APPLICABLE PATHWAY(S)								QA/QC		
				Benzene	Toluene	Ethylbenzene	Xylenes	PHC F1	PHC F2	PHC F3	PHC F4	Hold Times Met	Acceptable Limits Met	Notes
Sample ID	Depth (m)	Location	Lab ID	0.046	0.49	0.11	12	24	130	300	2800			
BH 2	1.5 - 2.0	6-14	H96204	<0.005	<0.02	<0.01	<0.04	<12	16	31	<10	YES	YES	
BH 3	1.5 - 2.0		H96206	<0.005	<0.02	<0.01	<0.04	<12	15	220	150	YES	YES	
BH 5	1.4 - 2.5		H96208	<0.005	<0.02	<0.01	<0.04	<12	13	36	<10	YES	YES	
BH 7	0.6 - 1.0		H96211	<0.005	<0.02	<0.01	<0.04	<12	18	29	<10	YES	YES	
BH 7	1.0 - 2.4		H96210	<0.005	<0.02	<0.01	<0.04	<12	15	22	<10	YES	YES	
BH 10	0 - 0.6		H96213	<0.005	<0.02	<0.01	<0.04	<12	11	<10	<10	YES	YES	
S09-01	0.0-0.2	13-14	-	<0.02	<0.02	<0.02	<0.02	<0.1	<10	59	94			*QA/QC not provided
S09-03	2.0-2.2		-	<0.02	<0.02	<0.02	<0.02	<0.1	<10	<10	<10			*QA/QC not provided

Sample Dates	Lab	Consultant
BH 2-7	13-Nov-07	Maxxam Analytics Inc.
S09-01 to 03	18-Sep-09	Access Analytical
		SNL Environmental Consulting Ltd.

TABLE: 4

TITLE: SOIL ANALYSES - METALS AND INORGANICS

PROJECT#: RD4846
CLIENT: Lincoln Ranch Developments
PROJECT: Proposed Blackfalds Development Phase 1 ESA
SITE: NW 1/4 14-41-28-W4M
LOCATION: Gull Lake, Alberta

CRITERIA: ALBERTA TIER 1 SOIL AND GROUNDWATER REMEDIATION GUIDELINES, DECEMBER 2010
TABLES A-1 TO A-5 FOR ALL LAND USES AND EXPOSURE PATHWAYS; SURFACE GUIDELINES

LAND USE	CURRENT	SOIL TYPE		NGR Guideline values based on total metals
Natural Area	YES	Fine	YES	
Agricultural	YES	Coarse	YES	
Residential	YES			
Commercial	NO			
Industrial	NO			

All concentrations in mg/kg unless otherwise noted

Bold	= Exceeds Criteria
NO	= Does not meet QA/QC for Laboratory

PATHWAY	APPLICABLE	MOST STRINGENT CRITERIA FOR LAND USE AND SOIL TYPE																			
		Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (hex)	Chromium (total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Tin	Vanadium	Zinc
Human Exposure Pathways																					
Direct Soil Contact	YES	-	21	-	-	-	1.4	-	220	-	1100	140	6.6	-	-	80	-	1	-	-	-
Vapour Inhalation (basement)	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vapour Inhalation (slab-on-grade)	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protection of Domestic Use Aquifer*	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Off-Site Migration by Wind or Water Erosion	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ecological Exposure Pathways																					
Direct Soil Contact	YES	20	17	500	5	2	10	0.4	64	20	63	300	12	4	50	1	20	1.4	5	130	200
Nutrient/Energy Cycling	YES	-	-	-	-	-	54	-	52	-	350	723	20	-	146	-	-	-	-	255	200
Livestock Ingestion	YES	-	380	-	-	-	3.8	-	-	-	300	70	-	-	355	4.5	-	1	-	-	640
Wildlife Ingestion	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freshwater Aquatic Life*	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livestock Watering*	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife Watering*	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation Watering*	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Off-Site Migration by Wind or Water Erosion	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Pathways																					
Management Limit	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SAMPLE				MOST STRINGENT CRITERIA FOR APPLICABLE PATHWAY(S)																			QA/QC				
				Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (hex)	Chromium (total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Tin	Vanadium	Zinc	Hold Times Met	Acceptable Limits Met	Notes	
Sample ID	Depth (m)	Location	Lab ID	20	17	500	5	2	1.4	0.4	52	20	63	70	6.6	4	50	1	20	1	5	130	200				
BH 2	1.5 - 2.0	6-14	H96204	<1	5	200	<0.4	0.5	0.3	<0.2	21	6	12	10	<0.05	0.8	17	<0.5	<1	<0.3	<1	17	38	YES	YES		
BH 3	1.5-2.0		H96206	<1	5	210	<0.4	0.5	0.3	<0.2	22	6	12	14	<0.05	0.9	17	<0.5	<1	<0.3	<1	18	41	YES	YES		
BH 5	1.4-2.5		H96208	<1	6	210	<0.4	0.4	0.3	<0.2	24	7	18	10	<0.05	0.9	20	0.5	<1	<0.3	<1	24	56	YES	YES		
BH 7	0.6-1.0		H96211	<1	6	210	<0.4	0.5	0.2	<0.2	17	6	13	11	<0.05	0.8	15	<0.5	<1	<0.3	<1	19	41	YES	YES		
BH 7	1.0-2.4		H96210	<1	4	180	<0.4	0.4	0.2	<0.2	17	5	12	8	<0.05	0.5	13	<0.5	<1	<0.3	<1	16	37	YES	YES		
S09-01	0.0-0.2	13-14	-	-	3.9	283	<0.6	1.7	0.3	-	12.2	5.2	12.5	7.3	<0.5	1	15.8	<0.5	-	<0.5	-	16.3	53.1			*QA/QC not provided	
S09-03	2.0-2.2		-	-	5.7	243	<0.6	0.2	0.2	-	13.1	5.4	10.2	7.4	<0.5	1	16.9	<0.5	-	<0.5	-	15.7	32.4			*QA/QC not provided	

Sample Dates		Lab	Consultant
BH 2-7	13-Nov-07	Maxxam Analytics Inc.	Bio-Synergy Resources Inc.
S09-01 to 03	18-Sep-09	Access Analytical	SNL Environmental Consulting Ltd.

TABLE: 5

TITLE: SOIL ANALYSES - SALINITY

PROJECT#: RD4846
 CLIENT: Lincoln Ranch Developments
 PROJECT: Proposed Blackfalds Development Phase 1 ESA
 SITE: NW 1/4 14-41-28-W4M
 LOCATION: Gull Lake, Alberta

CRITERIA: ALBERTA TIER 1 SOIL AND GROUNDWATER REMEDIATION GUIDELINES, DECEMBER 2010
 TABLE 4, ALBERTA TIER 1 SALT REMEDIATION GUIDELINES

Topsoil Guidelines apply to surface A, L, F, H and O horizons or the equivalent surface soil where these horizons are not present.
 Subsoil Guidelines apply to B and C horizons and the upper portion of the parent material.
 Material characterized by SAR of 12 to 20 may be rated as "Poor" if the texture is sandy loam or coarser and saturation % is less than 100.

SAR and pH are unitless. All other concentrations in mg/kg unless otherwise noted.

NO = Does not meet QA/QC

EC = Electrical Conductivity
 TGR = Total Gypsum Ratio

SAR = Sodium Adsorption Ratio

TOPSOIL			EC	Rating	SAR	pH	Calcium	Chloride	Magnesium	Potassium	Sodium	Sulphate	Sat. %	TGR (t/ha)						
			<2	Good	<4	6-8.5														
			2-4	Fair	4-8															
			4-8	Poor	8-12															
			>8	Unsuitable	>12															
															QA/QC					
Sample ID	Depth (m)	Location	EC (mS/cm)	Rating	SAR	Rating	pH	Ca	Cl ⁻	Mg	K	Na	SO ₄ ²⁻	Sat. %	TGR (t/ac)	Hold Times Met	Acceptable Limits Met	Notes		
BH 2	1.5-2.0	6-14	1.2	Good	2.2	Good	7.8	129	25	25	3	106	468	44.7	<0.1	YES	YES			
BH 3	1.5-2.0		1.4	Good	4.2	Fair	7.9	114	15	23	3	190	581	45.8	<0.1	YES	YES			
BH 5	1.4-2.5		1.4	Good	3.3	Good	7.9	124	20	28	9	154	539	54.1	<0.1	YES	YES			
BH 7	0.6-1.0		2.2	Fair	4.6	Fair	7.9	221	5	36	4	282	1060	42.9	<0.1	YES	YES			
BH 7	1.0-2.4		2	Fair	2.8	Good	7.8	250	39	48	6	183	952	43.7	<0.1	YES	YES			
BH 11	0.6		2.8	Fair	5.4	Fair	7.9	263	<5	46	4	363	1470	44.1	<0.1	YES	YES			
C1	0.3		3.7	Fair	6.4	Fair	7.8	392	<5	58	2	516	2100	59.6	<0.1	YES	YES			
C1	1.0		1.3	Good	5.2	Fair	8.1	74	8	13	4	185	501	60	<0.1	YES	YES			
C2	1.5		0.45	Good	1	Good	8.1	36	<5	8	2	24	41	66.4	<0.1	YES	YES			
C3	0.6		0.73	Good	1.3	Good	8.2	82	<5	13	<1	48	148	60.9	<0.1	YES	YES			
S09-01	0.0-0.2	13-14	1.09	Good	0.4	Good	7.2	173	20.7	-	42	17	65	80	-			*QA/QC not provided		
S09-03	2.0-2.2		0.52	Good	1	Good	7.6	27	7.5	-	3	19	39	50	-			*QA/QC not provided		

Sample Dates		Lab		Consultant	
BH 2-7	13-Nov-07	Maxxam Analytics Inc.	Bio-Synergy Resources Inc.		
S09-01 to 03	18-Sep-09	Access Analytical	SNL Environmental Consulting Ltd.		

APPENDIX A

SITE PHOTOGRAPHS





Photograph 1: Taken from Range Road 282 showing the site entrance to the acreage which was subdivided from the Property (March 26, 2014).



Photograph 2: Facing northeast from Range Road 282 showing the entrance to the abandoned lease located on the northwest portion of the Property (March 26, 2014).



Photograph 3: Looking west showing the fenced acreage including barns and sheds (March 26, 2014).



Photograph 4: Standing near the acreage roadway and facing southwest showing a sign for the Atco Gas pipeline located on the western portion (March 26, 2014).



Photograph 5: Facing south showing a survey marker and general location of the east pipeline right of way (March 26, 2014).



Photograph 6: Showing the high pressure gas regulating system located north of the acreage roadway (March 26, 2014).



Photograph 7: Taken from the south boundary facing east (March 26, 2014).



Photograph 8: Facing north from the east boundary showing a treed area in the southeast corner (March 26, 2014).



Photograph 9: Looking west from the north boundary showing an adjacent acreage in a treed area to the north (March 26, 2014).



Photograph 10: Facing south showing a monitoring well and fenced lease area in the background (March 26, 2014).



Photograph 11: Looking north near the east boundary showing a monitoring well (March 26, 2014).



Photograph 12: Facing northeast showing another monitoring well and the acreage in the background (March 26, 2014).



Photograph 13: Taken north of the acreage facing east showing RV storage near the Property and a barn and wooden fence (March 26, 2014).



Photograph 14: Facing east showing two grain bins located on the Property near the acreage (March 26, 2014).



Photograph 15: Showing overhead power and an electrical transformer on the east portion of the acreage (March 26, 2014).



Photograph 16: An aboveground storage tank and barn located on the southern portion of the acreage (March 26, 2014).



Photograph 17: Showing an acreage to the north (March 26, 2014).



Photograph 18: Taken from Range Road 282 facing southwest showing an RV and aboveground storage tank to the west (March 29, 2014).



Photograph 19: The aboveground storage tank to the west (March 26, 2014).



Photograph 20: Facing southwest showing a campground adjacent to Range Road 282 (March 26, 2014).



Photograph 21: Showing the gated community of DeGraff's RV Resort, located northwest of the Property (March 26, 2014).

APPENDIX B



SEARCHES AND REGULATORY CORRESPONDENCE



LAND TITLE CERTIFICATE

S

LINC SHORT LEGAL
0026 533 969 4;28;41;14;NW

TITLE NUMBER
082 327 610

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 28 TOWNSHIP 41
SECTION 14
QUARTER NORTH WEST
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

	HECTARES	(ACRES)	MORE OR LESS
A) PLAN 9524452 SUBDIVISION	1.97	4.87	
EXCEPTING THEREOUT ALL MINES AND MINERALS			

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REFERENCE NUMBER: 962 034 422

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
082 327 610	06/08/2008	TRANSFER OF LAND	\$700,000	SEE INSTRUMENT

OWNERS

TONY ELMER KAMLAH

AND

KATHY MAE KAMLAH

BOTH OF:

RR 3, SITE 3, BOX 4

LACOMBE

ALBERTA T4L 2N3

AS JOINT TENANTS

(DATA UPDATED BY: CHANGE OF ADDRESS 092242788)

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
082 327 610

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
762 013 151	23/01/1976	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD. 10035-105 ST EDMONTON ALBERTA T5J2V6 (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 012027323)

952 048 977	23/02/1995	UTILITY RIGHT OF WAY GRANTEE - PENGROWTH CORPORATION. 2900,111-5TH AVENUE SW CALGARY ALBERTA T2P3Y6 (DATA UPDATED BY: CHANGE OF NAME 042186308) (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 042562308)
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952 296 164	03/11/1995	CAVEAT RE : RIGHT OF WAY AGREEMENT CAVEATOR - KEYERA ENERGY LTD. SUITE 600 SUN LIFE PLAZA WEST TOWER 144-4TH AVE SW CALGARY ALBERTA T1Y4R3 AGENT - NOEL SMYTH (DATA UPDATED BY: CHANGE OF ADDRESS 962340519) (DATA UPDATED BY: TRANSFER OF CAVEAT 022173267) (DATA UPDATED BY: TRANSFER OF CAVEAT 022363644) (DATA UPDATED BY: CHANGE OF NAME 122099981)
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052 370 967	31/08/2005	CAVEAT RE : SURFACE LEASE UNDER 20 ACRES CAVEATOR - VESTA ENERGY LTD. 325, 300-5 AVE SW CALGARY ALBERTA T2P3C4 AGENT - CURTIS COOK (DATA UPDATED BY: CHANGE OF ADDRESS 062224814) (DATA UPDATED BY: TRANSFER OF CAVEAT 112194521)
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TOTAL INSTRUMENTS: 004

(CONTINUED)

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 20 DAY OF MARCH,
2014 AT 12:26 P.M.

ORDER NUMBER: 25557031

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON AUGUST 06,2008

S
LINC SHORT LEGAL TITLE NUMBER
0026 533 969 4;28;41;14;NW 962 034 422

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 28 TOWNSHIP 41
SECTION 14
QUARTER NORTH WEST
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

	HECTARES	(ACRES)	MORE OR LESS
A) PLAN 9524452 SUBDIVISION	1.97	4.87	
EXCEPTING THEREOUT ALL MINES AND MINERALS			

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REFERENCE NUMBER: 952 276 195 +1

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION

962 034 422	09/02/1996	TRANSFER OF LAND	\$108,500	NOMINAL

OWNERS

THELMA HOPE KAMLAH

AND

TONY ELMER KAMLAH

BOTH OF:

R.R. 3

LACOMBE

ALBERTA T0C 1S0

AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
962 034 422

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
762 013 151	23/01/1976	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD. 10035-105 ST EDMONTON ALBERTA T5J2V6 (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 012027323)
802 003 646	08/01/1980	MORTGAGE MORTGAGEE - MONTREAL TRUST COMPANY. AFFECTS UTILITY RIGHT OF WAY 752148958 "MORTGAGE OF UTILITY RIGHT OF WAY NO. 762013151"
952 048 977	23/02/1995	UTILITY RIGHT OF WAY GRANTEE - PENGROWTH CORPORATION. 2900,111-5TH AVENUE SW CALGARY ALBERTA T2P3Y6 (DATA UPDATED BY: CHANGE OF NAME 042186308) (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 042562308)
952 296 164	03/11/1995	CAVEAT RE : RIGHT OF WAY AGREEMENT CAVEATOR - KEYSpan ENERGY CANADA INC. C/O KEYSpan ENERGY CANADA PARTNERSHIP 1700 400 3RD AVE SW CALGARY ALBERTA T2P4H2 AGENT - NOEL SMYTH (DATA UPDATED BY: CHANGE OF ADDRESS 962340519) (DATA UPDATED BY: TRANSFER OF CAVEAT 022173267) (DATA UPDATED BY: TRANSFER OF CAVEAT 022363644)
962 340 519	10/12/1996	CHANGE OF ADDRESS FOR SERVICE RE: NORTHSTAR ENERGY CORPORATION. P.O.BOX 1448 STATION "M" CALGARY ALBERTA T2P2L6 AFFECTS INSTRUMENT: 952296164
002 348 968	23/11/2000	DISCHARGE OF MORTGAGE 802003646
012 027 323	25/01/2001	TRANSFER OF UTILITY RIGHT OF WAY 762013151 TRANSFEREE - ATCO GAS AND PIPELINES LTD. 10035-105 ST

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 3

962 034 422

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS
-----EDMONTON
ALBERTA T5J2V6

022 173 267 17/05/2002 TRANSFER OF CAVEAT 952296164
TRANSFeree - ADDISON ENERGY INC.
1100, 635-8 AVENUE SW
CALGARY
ALBERTA T2P3M3

022 363 644 26/09/2002 TRANSFER OF CAVEAT 952296164
TRANSFeree - KEYSpan ENERGY CANADA INC.
C/O KEYSpan ENERGY CANADA PARTNERSHIP
1700 400 3RD AVE SW
CALGARY
ALBERTA T2P4H2
AGENT - NOEL SMYTH

042 186 308 12/05/2004 CHANGE OF NAME
RE: 3504131 CANADA LTD.
P.O. BOX 2721, STATION "M"
CALGARY
ALBERTA T2P3Y3
AFFECTS INSTRUMENT: 952048977

042 562 308 23/12/2004 TRANSFER OF UTILITY RIGHT OF WAY 952048977
TRANSFeree - PENGROWTH CORPORATION.
2900, 111-5TH AVENUE SW
CALGARY
ALBERTA T2P3Y6

052 370 967 31/08/2005 CAVEAT
RE : SURFACE LEASE UNDER 20 ACRES
CAVEATOR - HIGHPINE OIL & GAS LIMITED.
P.O. BOX 6989, STATION D
CALGARY
ALBERTA T2P2G2
AGENT - LYNDSey HERDER
(DATA UPDATED BY: CHANGE OF ADDRESS 062224814)

062 224 814 30/05/2006 CHANGE OF ADDRESS FOR SERVICE
RE: HIGHPINE OIL & GAS LIMITED.
P.O. BOX 6989, STATION D
CALGARY
ALBERTA T2P2G2
AFFECTS INSTRUMENT: 052370967

082 327 610 06/08/2008 TRANSFER OF LAND
OWNERS - TONY ELMER KAMLAH
OWNERS - KATHY MAE KAMLAH
BOTH OF:

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 4
962 034 422

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

RR 3
LACOMBE
ALBERTA T4L2N3
AS JOINT TENANTS
NEW TITLE ISSUED

TOTAL INSTRUMENTS: 014

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 21 DAY OF MARCH,
2014 AT 04:15 P.M.

ORDER NUMBER: 25569283

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S) .



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON FEBRUARY 09,1996

S
LINC SHORT LEGAL TITLE NUMBER
0026 533 969 4;28;41;14;NW 952 276 195 +1

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 28 TOWNSHIP 41
SECTION 14
QUARTER NORTH WEST
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

	HECTARES	(ACRES)	MORE OR LESS
A) PLAN 9524452 SUBDIVISION	1.97	4.87	
EXCEPTING THEREOUT ALL MINES AND MINERALS			

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REFERENCE NUMBER: 942 292 936

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION

952 276 195	16/10/1995	SUBDIVISION PLAN		

OWNERS

THELMA HOPE KAMLAH
OF R.R. 3
LACOMBE
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS

762 013 151	23/01/1976	UTILITY RIGHT OF WAY GRANTEE - NORTHWESTERN UTILITIES LIMITED.

802 003 646	08/01/1980	MORTGAGE MORTGAGEE - MONTREAL TRUST COMPANY.
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(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

952 276 195 +1

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

AFFECTS UTILITY RIGHT OF WAY 752148958
"MORTGAGE OF UTILITY RIGHT OF WAY NO. 762013151"

952 048 977 23/02/1995 UTILITY RIGHT OF WAY
GRANTEE - APL OIL & GAS LTD.

952 296 164 03/11/1995 CAVEAT
RE : RIGHT OF WAY AGREEMENT
CAVEATOR - NORTHSTAR ENERGY CORPORATION.
300,535-7TH AVE., S.W. CALGARY
ALBERTA T2P0Y4
AGENT - ANTELOPE LAND SERVICES LTD.

962 034 422 09/02/1996 TRANSFER OF LAND
OWNERS - THELMA HOPE KAMLAH
OWNERS - TONY ELMER KAMLAH
BOTH OF:
R.R. 3
LACOMBE
ALBERTA T0C1S0
AS JOINT TENANTS
NEW TITLE ISSUED

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 21 DAY OF MARCH,
2014 AT 04:15 P.M.

ORDER NUMBER: 25569283

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON OCTOBER 16, 1995

S
LINC SHORT LEGAL TITLE NUMBER
0022 889 836 4;28;41;14;NW 942 292 936

LEGAL DESCRIPTION
MERIDIAN 4 RANGE 28 TOWNSHIP 41
SECTION 14
QUARTER NORTH WEST
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 64.7 HECTARES (160 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REFERENCE NUMBER: 822 232 840

REGISTERED OWNER(S)
REGISTRATION DATE (DMY) DOCUMENT TYPE VALUE CONSIDERATION

942 292 936 21/09/1994 AFFIDAVIT OF
 SURVIVING JOINT
 TENANT

OWNERS

THELMA HOPE KAMLAH
OF R.R. 3
LACOMBE
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION
NUMBER DATE (D/M/Y) PARTICULARS

762 013 151 23/01/1976 UTILITY RIGHT OF WAY
 GRANTEE - NORTHWESTERN UTILITIES LIMITED.

802 003 646 08/01/1980 MORTGAGE
 MORTGAGEE - MONTREAL TRUST COMPANY.
 AFFECTS UTILITY RIGHT OF WAY 752148958
 "MORTGAGE OF UTILITY RIGHT OF WAY NO. 762013151"

(CONTINUED)

PAGE 2
942 292 936

NUMBER	DATE (D/M/Y)	PARTICULARS
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TOTAL INSTRUMENTS: 004

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S) .



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON SEPTEMBER 21, 1994

S
LINC SHORT LEGAL TITLE NUMBER
0022 889 836 4;28;41;14;NW 822 232 840

LEGAL DESCRIPTION
MERIDIAN 4 RANGE 28 TOWNSHIP 41
SECTION 14
QUARTER NORTH WEST
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 64.7 HECTARES (160 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
822 232 840	25/10/1982		\$250,000	

OWNERS

VERNON HENRY KAMLAH (FARMER)

AND

THELMA HOPE KAMLAH

BOTH OF:

R.R. 3

LACOMBE

ALBERTA

AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
762 013 151	23/01/1976	UTILITY RIGHT OF WAY GRANTEE - NORTHWESTERN UTILITIES LIMITED.
802 003 646	08/01/1980	MORTGAGE MORTGAGEE - MONTREAL TRUST COMPANY. AFFECTS UTILITY RIGHT OF WAY 752148958

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
822 232 840

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

"MORTGAGE OF UTILITY RIGHT OF WAY NO. 762013151"

942 292 935 21/09/1994 STATUTORY DECLARATION RE LOST DCT

942 292 936 21/09/1994 AFFIDAVIT OF SURVIVING JOINT TENANT
NEW TITLE ISSUED

AFFECTED PARTY: VERNON HENRY KAMLAH

TOTAL INSTRUMENTS: 004

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 21 DAY OF MARCH,
2014 AT 04:15 P.M.

ORDER NUMBER: 25569283

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

Certificate of Title

Canada



NO.	8	2	2	2	3	2	8	4	0
REF.		7	-	K	-	2	2	5	
VALUES	2	5	0	0	0	0	0	0	0

M	RG	TWP	SEC	Q	PT
4	2	8	4	1	4 NW

PLAN	BLK	LOT	PT
2			

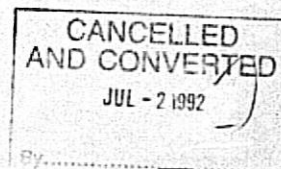
North Alberta Land Registration District

THIS IS TO CERTIFY that VERNON HENRY KAMLAH (FARMER) AND THELMA HOPE KAMLAH (HIS WIFE) BOTH OF LACOMBE, IN THE PROVINCE OF ALBERTA ARE now the owner s of an estate in fee simple AS JOINT TENANTS

of and in

THE NORTH WEST QUARTER OF
SECTION FOURTEEN (14)
TOWNSHIP FORTY ONE (41)
RANGE TWENTY EIGHT (28)
WEST OF THE FOURTH MERIDIAN
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS.

EXCEPTING THEREOUT ALL MINES AND MINERALS.



SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 25 day of OCTOBER, A.D. 1982

Post Office Address R.R. #3

LACOMBE, ALBERTA

BR

A.G. 1625 (DEC 81)



A.D. Registrar

North Alberta Land Registration District

ABBREVIATIONS:

E	— Easement
C	— Caveat
Tr	— Transmission
Tfr	— Transfer
Mtgs	— Mortgage
U/RW	— Utility Right of Way
BL	— Builders Lien
TN	— Tax Notification
WE	— Writ of Execution
CC	— Covenants and Conditions
ENDUM	— Encumbrance

Certificate of Title

NAME VERNON HENRY KAMLAH ET AL

LAND W4TH -28 - 41 - 14 N.W.

CHARGES, LIENS AND INTERESTS.

**CANCELLED
AND CONVERTED**
Show Other Abbreviations Here

JUL - 2 1992

[illegible]

Canada
RENEWAL
1830 P.G.

Certificate of Title
CANCELLED



NO.	7	-	K	-	2	2	5
REF.	8	4	-	R	-	1	9
VALUES	2	5	6	0	0	0	0

M	R.G.	TWP.	SEC.	C.	FT.
1	4	2	8	4	1

PLAN	BLK.	LOT	FT.
2			

North Alberta Land Registration District

THIS IS TO CERTIFY that THE DIRECTOR, THE VETERANS' LAND ACT

IS now the owner of an estate in fee simple
of and in

THE NORTH WEST QUARTER OF SECTION FOURTEEN (14)
TOWNSHIP FORTY ONE (41)
RANGE TWENTY EIGHT (28)
WEST OF THE FOURTH MERIDIAN, CONTAINING ONE HUNDRED
AND SIXTY (160) ACRES MORE OR LESS

RESERVING UNTO HER MAJESTY ALL MINE AND MINERALS

TITLE CANCELLED	822232840
IN FULL	
on this	25 day of OCT 1982
A. D. Registrar	

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN
ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 13 day of JUNE, A.D. 1982.

Post Office Address P.O. BOX 640
EDMONTON, ALBERTA



A. D. Registrar

Show Other Abbreviations Here

R.E. LIEN - RURAL ELECTRIFICATION LIEN

THE VETERANS' LAND ACT.

LAND 4 28 41 14 NM

CHARGES, LIENS AND INTERESTS.

CANCELLED

ABBREVIATIONS

E – Easement	URW – Utility Right of Way
C – Caveat	BL – Builders Lien
Tr – Transmission	TN – Tax Notification
Tfr – Transfer	WE – Writ of Execution
Mtge – Mortgage	C.C. – Covenants and Conditions
	ENCUM – Encumbrance

[illegible]

CANCELLED

7-K-225

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of title granted under this Act shall by implication and without any express reservation, be subject to:-

- (1) Any subsisting reservations or easements including royalties contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including municipal and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created, upon, over or to the use of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (5) Any doctrine, equity or exemption against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of reversion, which may be claimed by virtue of any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 4.14 o'clock

on the 30 day of JUNE

A.D. 19 57

Number 1830 Book P.G. 57

L.A. DURANEL

Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$25,600.00

Refer. Cert. No. 84-R-199

North Alberta Land Registration District.

JUL 4 - 1967

This is to Certify that THE DIRECTOR, THE VETERANS' LAND ACT,

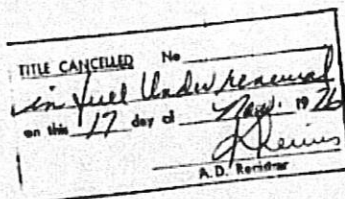
IMPORTANT NOTICE
It will be to the interest of every Owner and Mortgagee to forward the Land Titles Office, Edmonton, with his full address (Post Office and Street number) any change in address where notice of discharge with this Title may be sent.

is now the owner of an estate in fee simple

of and in

THE NORTH WEST QUARTER OF SECTION FOURTEEN (14) TOWNSHIP FORTY ONE (41) RANGE TWENTY EIGHT (28) WEST OF THE FOURTH MERIDIAN, IN THE PROVINCE OF ALBERTA, CANADA, CONTAINING ONE HUNDRED AND SIXTY (160) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.



subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this THIRTIETH day of JUNE A.D. 19 57

P.O. Address P.O. BOX 640, EDMONTON, ALTA.

North Alberta Land Registration District

6002 R.2, LIEN DATED 28-JAN-64 REG. 10.36 AM 7-FEB-64 ABOVE LAND SUBJ. TO A LIEN UNDER THE RURAL ELEC. REV. FUND ACT IN FAVOUR OF THE FAIRVIEW RURAL ELEC. ASSOC. LTD. (R.G. BEAUPRE, A.D. REG.)

OVER

The above mentioned Lot 1002 R.R.
is discharged by instrument dated the 7 day
of July 1967 Registered at 10:34 A.M.
the 12 day of July 1967 as D.B.
No. 3745 T.Y.

AD Registrar 246

THE LAND COMPRISED IN THIS TITLE IS SUBJECT TO A
LIEN UNDER THE RURAL ELECTRIFICATION REVOLVING
FUND ACT IN FAVOUR OF THE Fairview
Rural Elec. Assn. Ltd. RECEIVED BY
ME ON THE 15 DAY OF August 1967
10:28 A.M.
ENDORSED BY ME THIS 21 DAY OF August 1967
4313 T.Y. AD Registrar

EASEMENT - REG. NO. 762013151
23 JANUARY 76 TO NORTHWESTERN
UTILITIES LIMITED

ADR/IS MI

GAS LIEN - REG. NO. 762202952
17-NOV-76 IN FAVOR OF FAIRVIEW
GAS CO-OP ASSOC. LTD.

ADR/DA

LAND TITLES ACT, Sec. 84.—The land contained in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- Any subsisting reservations or exceptions including royalties mentioned in the original grant of the land from the Crown;
- All unpaid taxes, including original and distress district rates;
- Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- Any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- Any right of expropriation which may by statute be vested in any person, body corporate, or the Majesty;
- Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



CANCELLED

Issued on instrument registered at 1.34 o'clock
P. m. on the 31 day of MAY
A.D. 19 63
Number 322 Book N.L. Folio 10
L.A. DUHAMEL
Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$21,500.00

Refer Cert. No. 36-V-114

North Alberta Land Registration District

This is to Certify that CHIPMUNK DRILLING CO. LTD.

is now the owner of an estate in fee simple

of and in FIRSTLY: THE NORTH WEST QUARTER OF SECTION FOURTEEN (14) TOWNSHIP FORTY ONE (41)

RANGE TWENTY EIGHT (28) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA, CANADA, CONTAINING ONE HUNDRED AND SIXTY (160) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

SECONDLY: ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION FIFTEEN (15) SAID TOWNSHIP AND RANGE NOT COVERED BY THE WATERS OF GULL LAKE AS SHOWN ON A PLAN OF SURVEY OF THE SAID TOWNSHIP SIGNED AT OTTAWA ON THE 19 DAY OF JANUARY, A.D. 1897 CONTAINING TWENTY SIX AND FIFTY HUNDREDTHS (26.50) ACRES MORE OR LESS.

RESERVING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED 782025877
IN FULL
on this 6 day of FEB. 1978
A.D. Registrar

THIS CERTIFICATE OF TITLE IS CANCELLED
IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. _____
ISSUED THIS _____ DAY OF _____ 19____
TO _____
DB _____
A.D. REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this THIRTY FIRST day of MAY A.D. 19 63

NN

P.O. Address CALGARY, ALBERTA.

North Alberta Land Registration District

8824 M.L. LIEN DATED 11-JAN-60 REG. 1.42 PM 14-JAN-60 AS TO N.W. 14 AND OTHER LAND 13 SUBJECT TO A LIEN UNDER THE RURAL ELECT. REVOLVING FUND ACT IN FAVOUR OF THE FAIRVIEW RURAL ELECT. ASSOC. LTD. (A. FRASER, A.D. REG.)

OVER

AS TO N.W. - 14

THE LAND COMPRISED IN THIS TITLE IS SUBJECT TO A
LIEN UNDER THE RURAL ELECTRIFICATION REVOLVING
FUND ACT IN FAVOUR OF THE Fairview

Rural Electrification Board RECEIVED BY

ME ON THE 28 DAY OF January 1964

10:36 AM. 7 DAY OF Feb. 1964

ENDORSED BY ME THIS 6002 R.2. [Signature] A.D. Registrar

The above mentioned R.F. No. 262443

is discharged by instrument dated the 2 day

of March 1964 Registered at 11:52 AM.

the 5 day of March 1964, as D. B.

No. 64-73 R.2. [Signature]

Registrar

THIS CERTIFICATE OF TITLE IS CANCELLED

As to N.W. - 14

IN ACCORDANCE WITH THE TRANSFER SUB-
JECT TO ANY EXCEPTIONS AND RESER-
VATIONS THEREIN AND A NEW CERTIFICATE
OF TITLE NO. 7K 225

ISSUED THIS 30 DAY OF June 1967

TO The Director, Veterans' Land Act

DB 1830 P.G. [Signature]

A.D. REGISTRAR



Parkland Geotechnical Consulting Ltd.
#102 - 4756 Riverside Drive
Red Deer, AB, T4N 2N7
www.parklandgeo.com
T: 403 343 2428
F: 403 343 7699

March 20, 2014
File # PRO3386

Shane.Stafford@stantec.com
Original will remain on file

GS Communities
c/o Stantec Consulting Ltd.
1100, 4900 50th Street
Executive Place
Red Deer, Alberta
T4N 1X7

Attention: Mr. Shane Stafford

RE: Phase I Environmental Site Assessment
Approval to Release Information
Portion of NW-14-41-28-W4M; Lacombe County, Alberta

Dear Mr. Stafford:

ParklandGEO has been retained by your company to conduct a Phase I Environmental Site Assessment on the above property and buildings.

This letter grants permission to release all requested information to ParklandGEO for the purposes of this Phase I Environmental Site Assessment. The **current property owner** must give authorization.

Company Name: Lincoln Ranch

Name: Glenn Fraser

Signature: [Handwritten Signature]

Please print and sign for authorization



Parkland Geotechnical Consulting Ltd.
#102 - 4756 Riverside Drive
Red Deer, AB, T4N 2N7
www.parklandgeo.com
T: 403 343 2428
F: 403 343 7699

March 20, 2014

File # PRO3386

Shane.Stafford@stantec.com

Original will remain on file

**GS Communities
c/o Stantec Consulting Ltd.
1100, 4900 50th Street
Executive Place
Red Deer, Alberta
T4N 1X7**

Attention: Mr. Shane Stafford

**RE: Phase I Environmental Site Assessment
Initial Questions for Phase 1 ESA
Portion of NW 14-41-28-W4M; Lacombe County, Alberta**

Dear Mr. Stafford:

To begin the Phase 1 Environmental Site Assessment (ESA) there are several pieces of information we need to collect to begin our investigation. Please answer the questions on the following pages to the best of your ability. We realize that you may not have the answers to all of them and that some may not be relevant to your property, but please do your best to **answer as many as possible and with as much detail as possible.**

Respectfully submitted,
PARKLAND GEOTECHNICAL CONSULTING LTD.

A handwritten signature in cursive script, appearing to read "Lexya Oulton".

Lexya Oulton, EIT
Geo-Environmental Engineer

Who is my on-site contact? What is their contact info?

Glenn Fraser 403-318-3405

When was the property purchased by you (or the current owners)?

Original farm family purchased in the 40's maybe.

Is any other business currently leasing or operating on the property (Please provide full names, full company names, how long they have been leasing and their contact information)?

No

Is the intended future land use of the property different from what it is currently?

Currently Ag Pasture + Cropland to be Golf Course + some housing.

What is the reason for conducting the Phase 1 ESA?

Approval process requirement

List all known previous land owners for this property:

(If known, please provide full names, full company names, how long they had been associated with the property and their contact information)

Karliah family 1940s - 2014

List any known previous leasers/operators on the property:

(If known, please provide full names, full company names, how long they had been associated with the property and their contact information)

None

What has the land been used for in the past?

Pasture + Cropland

Please list all buildings on the property:

(if known, please also provide when they were constructed, their square footage, and what they are used for)

NO Buildings on our parcel. Existing
farmstead not included in development

Were there any buildings on the property in the past that are no longer there?

(If known, please provide their square footage, when were they were constructed, removed/demolished, and what were they used for)

NO

Do you know of any environmental spills or releases on the property or in the area?

NO

Are there any wetland or low lying areas on the property? Where?

NO

Are there currently any underground or aboveground storage tanks (UST's or AST's) on the property?

If so.... What size is the tank? What does it (they) contain? Has there been any leakage or spills from the tank(s) above or below ground?
The approximate location of the tank(s) on the property? Are there any pumps or islands currently/historically which are associated with the tank(s)? Is there any secondary containment for the tank(s)?
When were they installed?

NO

Historically, were there any UST/AST's on the property?

If so... What size was the tank? What did it (they) contain? Has there been any leakage or spills from the tank(s) above or below ground?
The approx. location of the tank(s) on the property? Are there any pumps or islands currently/historically which are associated with the tank(s)? Is there any secondary containment for the tank(s)? When were they installed? When were they removed?

NO

Please provide some basic information on the land uses of surrounding properties, the owners of surrounding land and any historical data you know about surrounding land:

North:

John Reitsma - Pasture land for 75 years +

East:

Crop land for 100 years
Pasture

South:

Joe Doeff - Current housing development called
WILSON BEACH ESTATES

West:

Degraffs RESORT - RV resort development. You did
a phase I ESA on that for me 4 years ago.

Are there any other people we can contact who may be helpful to the investigation?

no

Anyone who can provide additional historical information?

Glenn

Additional Environmental Concerns / Comments:

none.



Environment and Sustainable
Resource Development

FOIP & Information Mgmt. Section
5th Floor, Great West Life,
9920 - 108 Street
Edmonton, Alberta, T5K 2M4
Telephone: 780-427-4429
Fax: 780-427-9838
www.esrd.alberta.ca

April 4, 2014

Ms. Lexya Oulton
Parkland Geotechnical Consulting Ltd.
102-4756 Riverside Drive
Red Deer, Alberta T4N 2N7

Access Request: E14-G-0428

Dear Ms. Oulton,

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at NW Sec 14 Twp 41 Rge 28 W4M, Gull Lake, AB.

The following is in response to your request of March 28, 2014, for access under the *Freedom of Information and Protection of Privacy Act* to the subject records.

A search of Alberta Environment record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

This file did have an EPEA Approval #00291343 registered. You may obtain information about the Approval on our website at (<https://avw.alberta.ca/ApprovalViewer.aspx>) and entering the Approval number 00291343. If you would like to view the approval documents, please contact Carole-Anne Nielsen in Calgary at (403) 340-7784 to set up an appointment and make the appropriate arrangements.

If you have any questions or concerns about the processing of your request, please write to the above address or call me at (780) 644-3290, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, you have the right to ask the Information and Privacy Commissioner to conduct a review under section 65 of the Act. You have 60 days from the receipt of this notice to request a review by writing to:

Information and Privacy Commissioner
410, 9925 - 109 Street
Edmonton, Alberta, T5K 2J8
Telephone (780) 422-6860
Fax (780) 422-5682

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

Respectfully,
Donna Harasymec,
Access & Privacy Advisor



April 4, 2014

Ms. Lexya Oulton
Parkland Geotechnical Consulting Ltd.
102-4756 Riverside Drive
Red Deer, Alberta T4N 2N7

Fax: (403) 343-7699
Your File # RD4846

Dear Ms. Oulton,

**Re: Routine Disclosure Request 0369-RD-14 for information routinely available
under the Environmental Protection and Enhancement (EPEA) Legislation.**

Our office received your request dated March 28, 2014 for the following subject records.

Location: NW Sec 14 Twp 41 Rge 28 W4M, Gull Lake

Name(s): Tony Elmer Kamlah and Kathy Mae Kamlah; Thelma Hope Kalmah; Vernon
Henry Kalmah; The Director of the Veterans' Land Act; Chipmunk Drilling
Company Ltd.; Lincoln Ranch Developments.

Time Frame: 1960 to March 28, 2014

Records: Scientific/technical information which may include reports documenting
the nature and extent of soil, ground and surface water contamination;
remedial measures taken to clean-up the site or status of the site; and
external correspondence between the submitter and the Department of
Environment and Sustainable Resource Development pertaining to the
reports.

Alberta Environment and Sustainable Resource Development has conducted a search of
department records based on the search parameters you provided to this office and has not
identified any routinely available records relating to the subject of your request. As a result of
our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at (780) 644-3290.

Yours truly,

Donna Harasymec
Access & Privacy Advisor



Petroleum Tank Management Association of Alberta

Suite 980, 10303 Jasper Avenue
Edmonton, Alberta T5J 3N6
PH: (780)425-8265 or 1-866-222-8265
FAX: (780)425-4722

March 24, 2014

Lexya Oulton
Parkland Geotechnical Consulting Ltd
#102, 4756 Riverside Dr.
Red Deer, AB
T4N 2N7

Dear Lexya Oulton:

As per your request, the PTMAA has checked the registration of active tank sites and inventory of abandoned tank sites and there are no records for the property with the legal land description:

NW 14-41-28-W4, Lacombe County (Gull Lake)

Please note that both databases are not complete. The main limitation of these databases is that they only include information reported through registration or a survey of abandoned sites completed in 1992 and should not be considered as a comprehensive inventory of all past or present storage tank sites. The PTMAA cannot guarantee that tanks do not or have not existed at this location. Information in the databases is based on information supplied by the owner and the PTMAA cannot guarantee its accuracy. Information on storage tanks or on past or present contaminant investigations may be filed with the local Fire Department or Alberta Environment.

Yours truly,

Connie Jacobsen
PTMAA



Petroleum Tank Management Association of Alberta

Suite 980, 10303 Jasper Avenue
Edmonton, Alberta T5J 3N6
PH: (780)425-8265 or 1-866-222-8265
FAX: (780)425-4722

April 4, 2014

Lexya Oulton
Parkland Geotechnical Consulting Ltd
#102, 4756 Riverside Dr.
Red Deer, AB
T4N 2N7

Dear Lexya Oulton:

As per your request, the PTMAA has checked the registration of active tank sites and inventory of abandoned tank sites and there are no records for the property with the legal land description:

SE 22-41-28-W4, Lacombe County
Unit C 102 2165-2

Please note that both databases are not complete. The main limitation of these databases is that they only include information reported through registration or a survey of abandoned sites completed in 1992 and should not be considered as a comprehensive inventory of all past or present storage tank sites. The PTMAA cannot guarantee that tanks do not or have not existed at this location. Information in the databases is based on information supplied by the owner and the PTMAA cannot guarantee its accuracy. Information on storage tanks or on past or present contaminant investigations may be filed with the local Fire Department or Alberta Environment.

Yours truly,

Connie Jacobsen
PTMAA



Petroleum Tank Management
Association of Alberta

Suite 980, 10303 Jasper Avenue
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FAX: (780)425-4722

April 4, 2014

Lexya Oulton
Parkland Geotechnical Consulting Ltd
#102, 4756 Riverside Dr.
Red Deer, AB
T4N 2N7

Dear Lexya Oulton:

As per your request, the PTMAA has checked the registration of active tank sites and inventory of abandoned tank sites and there are no records for the property with the legal land description:

NE 15-41-28-W4, Lacombe County

Please note that both databases are not complete. The main limitation of these databases is that they only include information reported through registration or a survey of abandoned sites completed in 1992 and should not be considered as a comprehensive inventory of all past or present storage tank sites. The PTMAA **cannot** guarantee that tanks do not or have not existed at this location. Information in the databases is based on information supplied by the owner and the PTMAA cannot guarantee its accuracy. Information on storage tanks or on past or present contaminant investigations may be filed with the local Fire Department or Alberta Environment.

Yours truly,

Connie Jacobsen
PTMAA

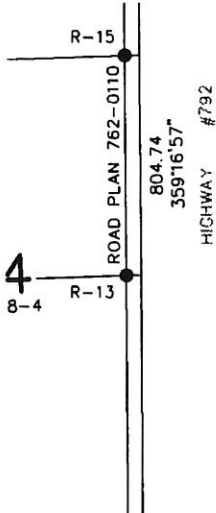
AER DATA		ATTACHED FILES		Close Screen	
WELL INFORMATION CURRENT TO FEBRUARY 28, 2014					
EVENT: 3 v					
WELL ID:		02 / 06-14-041-28 W4 / 3			
LICENCE #:		0231697		LICENCE DATE: JANUARY 5, 2000	
WELL NAME:		EXORO ENERGY MORNSIDE 6-14-41-28			
WITHIN:		06-14-041-28 W4		H2S (mol/kmol): NOT AVAILABLE	
LICENCEE:		EXORO ENERGY INC.			
SPUD DATE:		JANUARY 20, 2000		FINAL DRILL DATE: JANUARY 25, 2000	
STATUS:		GAS SUSP			
SURFACE:		ABANDONED DATE:			
OFFSETS:		N 584.7 E 559.5		DOWNHOLE:	
LATITUDE:		52.526774		OFFSETS: N 584.7 E 559.5	
LONGITUDE:		113.931582		LATITUDE: 52.526774	
GROUND ELEVATION:		909.3 m 2983 '		LONGITUDE: 113.931582	
WELL TYPE:		NOT AVAILABLE		TOTAL DEPTH: 1757 m 5764 '	
		SUBSTANCE:		NOT AVAILABLE	

OPTIONS
[Open Well Plat](#)
[Request Divestco Log](#)
[Create CBM Report](#)
[Add To Custom Well List](#)
[Print Screen](#)

MORE INFO
Select Info to View

within

L.S. 6 Sec. 14 Twp 41 Rge 28 W.4 M.



NOTE: The proposed Well is:

- Outside any potential Coal development area
- At least 5.0 km from a licensed Airport listed in Part "A" of Schedule 3, Oil and Gas Con. Regs.
- At least 1.6 km from a licensed Airport listed in Part "B" of Schedule 3, Oil and Gas Con. Regs.
- There are residences within 3.0 km of Well Centre.
- The Town of Lacombe is within 15.0 km of Well Centre.
- There are no surface improvements within 200m of Well Centre unless shown otherwise.

Elevation : of ground at Wellcentre = 908.33

Co-ords: 822.12 N. of the S. Sec. 14
617.82 E. of the W. Sec. 14

Areas:	Hectares	Acres
Well Site N.W. 14	0.537 ha	1.33 Ac.
Well Site S.W. 14	0.587 ha	1.45 Ac.
Access Road	0.847 ha	2.09 Ac.
Total	1.971 ha	4.87 Ac.

GROUND ELEVATIONS AT:

N.E. CORNER = 908.65
N.W. CORNER = 910.02
S.W. CORNER = 908.78
S.E. CORNER = 908.09

Scale = 1:5000

Datum: A.S.C.M. 52112.239

NOTE:

- Survey monuments found are shown thus: ●
- Survey monuments planted are shown thus: ○
- Portion referred to bounded thus: _____
- Distances and elevations are in metres.



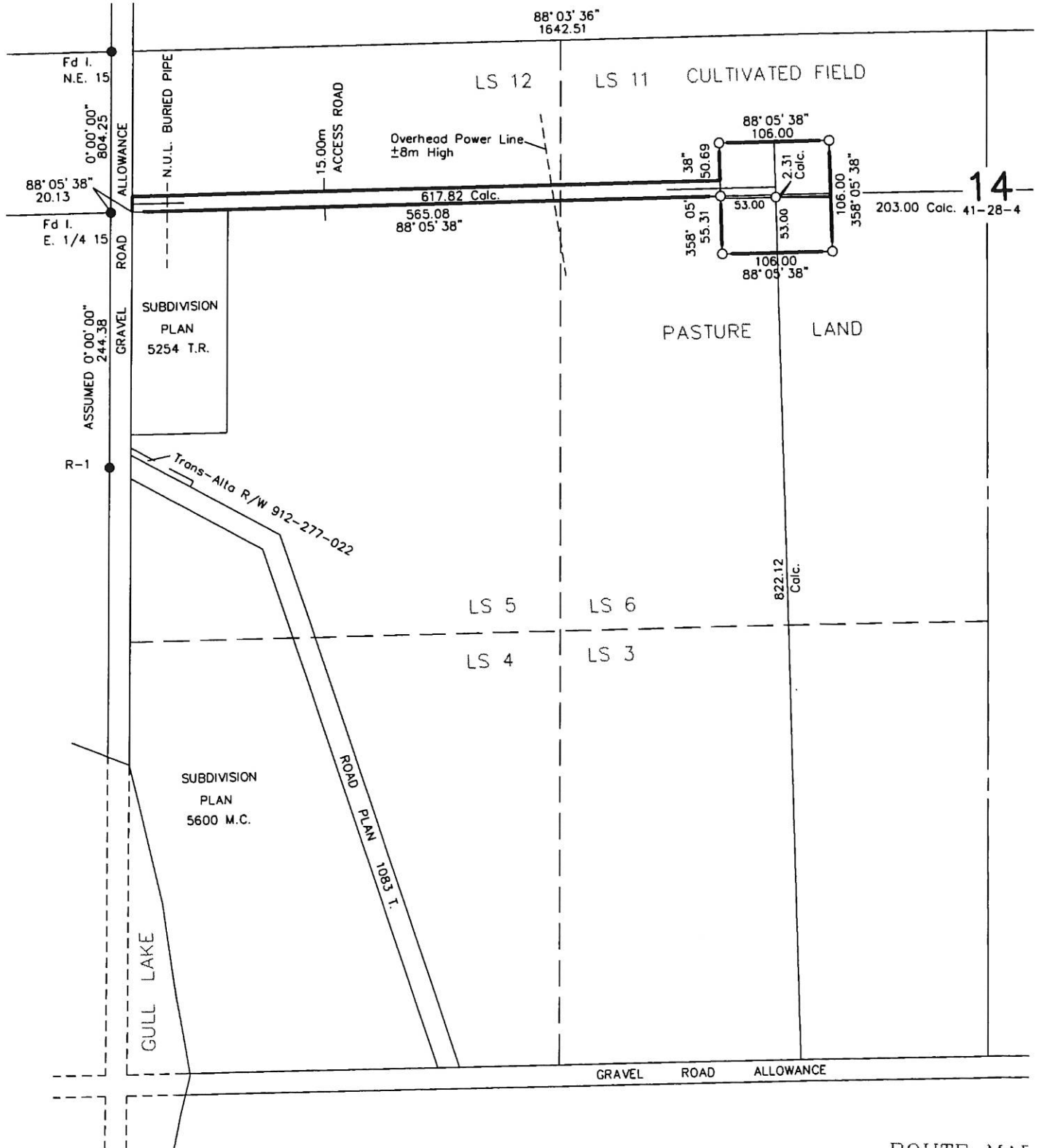
I certify that the survey represented by this plan
is correct and true to the best of my knowledge
and was completed on the 24th day of February 1993

George Smith, Alberta Land Surveyor

Witness

MAP
ALE

TARRAGON OIL AND GAS LIMITED



ROUTE MAP
NOT TO SCALE

PRINT REPORT

CLOSE REPORT

WELL ID: 00 / 06-14-041-28 W4 / 0**AER COMPANY INFORMATION
CURRENT TO February 28, 2014**

COMPANY NAME:	HUSKY OIL OPERATIONS LIMITED		
ADDRESS:	PO Box 6525 Stn D Calgary, AB T2P 3G7		
PHONE #:	403-298-6111	BUSINESS ASSOCIATE CODE:	0R46

There is no Production data for this well.

AER WELL LICENSING DATA

UNIQUE WELL ID:	0414281406000	WELL LICENCE NUMBER:	0157107
REGULATION SECTION:	Section 2.020	WELL LICENCE DATE:	MARCH 9, 1993
SURFACE LOCATION:	06-14-041-28 W4	SURFACE OFFSETS:	N 822.1 E 617.8
ACTUAL SURFACE LATITUDE:	52.528927	LONGITUDE:	113.930688
THEORETICAL SURFACE LATITUDE:	0	LONGITUDE:	0
LICENCEE:	HUSKY OIL OPERATIONS LIMITED		
AER AREA OFFICE:	RED DEER	TERMINATING FORMATION:	BANFF FM
LAHEE CLASSIFICATION:	NEW POOL WILDCAT	CONFIDENTIAL STATUS:	NON CONFIDENTIAL
SURFACE OWNER:	FREEHOLD	MINERAL RIGHTS OWNER:	CROWN
AGREEMENT NUMBER:	0492120280	AGREEMENT TYPE:	5 YEAR PLAINS PETROLEUM & NATURAL GAS LEASES
AGREEMENT EXPIRY DATE:		DRILL COST AREA:	
SCHEME APPROVAL NUMBER:		SCHEME EXPIRY DATE:	
INCENTIVE CERTIFICATE NUMBER:	00000	INCENTIVE CERTIFICATE DATE:	
SURFACE ABANDONED TYPE:	OTHER	SURFACE ABANDONED DATE:	MARCH 16, 1993

AER WELL DRILLING OCCURRENCE DATA

WELL NAME:	TARRAGON HARDY GULL 6-14-41-28	FIELD:	MORNINGSIDE
POOL:		OIL SANDS AREA:	
OIL SANDS DEPOSIT:		DOWNHOLE OFFSETS:	N 822.1 E 617.8
ACTUAL DOWNHOLE LATITUDE:	52.528927	LONGITUDE:	113.930688
THEORETICAL DOWNHOLE LATITUDE:	0	LONGITUDE:	0
GROUND ELEVATION:	908.3	KB ELEVATION:	912.8
CF ELEVATION:	0	WELL TOTAL DEPTH:	1870
TRUE VERTICAL DEPTH:	0	PB DEPTH:	0
SPUD DATE:	MARCH 9, 1993	FINAL DRILL DATE:	MARCH 15, 1993
RIG RELEASE DATE:	MARCH 16, 1993	ON PRODUCTION DATE:	
DRILLING CONTRACTOR:	CACTUS DRILLING & EXPLORATION LTD.	RIG NUMBER:	0014

AER WELL TOPS & MARKERS DATA KB Elevation: 912.8m

GEO REVISED DATE	FORMATION	DEPTH LOG	DEPTH TVD	QUALITY	DESCRIPTION
Dec 16 1993	LEA PARK FM	1061		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	COLORADO GRP	1185.5		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	CARDIUM FM	1334		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	CARDIUM SD	1365.6		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	SECOND WHITE SPECKS	1444		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	BASE FISH SCALES MARKER	1574		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	VIKING FM	1608.5		GOOD PICK FROM LOGS	TOP OF UNIT
Dec 16 1993	VIKING SANDSTONE	1611.5		GOOD PICK FROM LOGS	TOP OF UNIT

Dec 16 1993	JOLI FOU FM	1640		GOOD PICK FROM LOGS	TOP OF UNIT				
Dec 16 1993	MANNVILLE GRP	1656		GOOD PICK FROM LOGS	TOP OF UNIT				
Dec 16 1993	GLAUCONITIC SS	1774.5		QUESTIONABLE PICK FROM LOGS	TOP OF UNIT				
Dec 16 1993	LOWER MANNVILLE FM	1795.5		QUESTIONABLE PICK FROM LOGS	TOP OF UNIT				
Dec 16 1993	ELLERSLIE MBR	1808.6		GOOD PICK FROM LOGS	TOP OF UNIT				
Dec 16 1993	BANFF FM	1855		GOOD PICK FROM LOGS	TOP OF UNIT				
Total Depth		1,870.00	0.00						
AER WELL LOG DATA									
LOG RUN NUMBER	LOG RUN DATE	LOG TYPE	TOP INTERVAL	BASE INTERVAL	DESCRIPTION				
1	Mar 15 1993	BHC SONIC	326.2	1865					
1	Mar 15 1993	COMP NEUTRON LITHO DENSITY	326.2	1863					
1	Mar 15 1993	DUAL INDUCTION LATEROLOG	326.2	1868.2					
1	Mar 15 1993	MUD LOG-HYDROC WELL LOG	1600	1850					
1	Mar 16 1993	CEMENT PLUG	311	1869					
There is no DST data for this well.									
There is no Tour - Occurrence data for this well.									
There is no Tour - Direction Drilling data for this well.									
AER WELL TOUR - CASING DATA									
DATE	CASING	SIZE	SHOE SET DEPTH	LINER TOP DEPTH	DENSITY	STEEL PROCESS	YIELD STRENGTH	COLLAR TYPE	MXD STRING
Mar 10 1993	SURFACE	219.1	326	0	35.7	J	55	STC	NO
AER WELL TOUR - CEMENTING DATA									
STAGE NO	UNIT	AMOUNT	TYPE		RECEMENT				
0	TONNEST	25	CLASS A NEAT		1				
There is no Tour - Cores Cut data for this well.									
There is no Tour - Perforation/Treatment data for this well.									
There is no Tour - Initial Production data for this well.									
AER WELL TOUR - PLUG BACK / ABANDONMENT DATA									
DATE	RUN TYPE	INTERVAL TOP	INTERVAL BASE	CEMENT UNIT	CEMENT AMOUNT	TOP FOUND DEPTH	SURF ABAND DATE		
Mar 16 1993	ABANDON	1700	1869	TONNEST	9	1697	Mar 15 1993		
Mar 16 1993	ABANDON	1596	1648	TONNEST	3.8	1592	Mar 15 1993		
Mar 16 1993	ABANDON	732	762	TONNEST	2.2	731	Mar 15 1993		
Mar 16 1993	ABANDON	311	341	TONNEST	3.3	272	Mar 15 1993		
AER WELL STATUS HISTORY DATA									
DATE		STATUS							
Mar 9 1993									
Mar 16 1993		ABD							
There is no Completion data for this well.									

There is no Production Control data for this well.
There is no Surface Case Vent Flow data for this well.

PRINT REPORT

CLOSE REPORT

WELL ID: 00 / 13-14-041-28 W4 / 0**AER COMPANY INFORMATION
CURRENT TO February 28, 2014**

COMPANY NAME:	VESTA ENERGY LTD.		
ADDRESS:	410-333 5 Ave SW Calgary, AB T2P 3B6		
PHONE #:	403-233-2898	BUSINESS ASSOCIATE CODE:	A0L1

There is no Production data for this well.

AER WELL LICENSING DATA

UNIQUE WELL ID:	0414281413000	WELL LICENCE NUMBER:	0337338
REGULATION SECTION:	Section 2.020	WELL LICENCE DATE:	AUGUST 30, 2005
SURFACE LOCATION:	13-14-041-28 W4	SURFACE OFFSETS:	S 175 E 175
ACTUAL SURFACE LATITUDE:	52.534436	LONGITUDE:	113.937133
THEORETICAL SURFACE LATITUDE:	0	LONGITUDE:	0
LICENCEE:	VESTA ENERGY LTD.		
AER AREA OFFICE:	RED DEER	TERMINATING FORMATION:	BANFF FM
LAHEE CLASSIFICATION:	DEVELOPMENT	CONFIDENTIAL STATUS:	NON CONFIDENTIAL
SURFACE OWNER:	FREEHOLD	MINERAL RIGHTS OWNER:	CROWN
AGREEMENT NUMBER:		AGREEMENT TYPE:	
AGREEMENT EXPIRY DATE:		DRILL COST AREA:	
SCHEME APPROVAL NUMBER:		SCHEME EXPIRY DATE:	
INCENTIVE CERTIFICATE NUMBER:	00000	INCENTIVE CERTIFICATE DATE:	
SURFACE ABANDONED TYPE:		SURFACE ABANDONED DATE:	

AER WELL DRILLING OCCURRENCE DATA

WELL NAME:	VESTA MORNSIDE 13-14-41-28	FIELD:	MORNINGSIDE
POOL:		OIL SANDS AREA:	
OIL SANDS DEPOSIT:		DOWNHOLE OFFSETS:	S 175 E 175
ACTUAL DOWNHOLE LATITUDE:	52.534436	LONGITUDE:	113.937133
THEORETICAL DOWNHOLE LATITUDE:	0	LONGITUDE:	0
GROUND ELEVATION:	912	KB ELEVATION:	915.7
CF ELEVATION:	0	WELL TOTAL DEPTH:	1885
TRUE VERTICAL DEPTH:	0	PB DEPTH:	0
SPUD DATE:	SEPTEMBER 25, 2005	FINAL DRILL DATE:	OCTOBER 3, 2005
RIG RELEASE DATE:	OCTOBER 5, 2005	ON PRODUCTION DATE:	
DRILLING CONTRACTOR:		RIG NUMBER:	1

There is no Tops & Markers data for this well.

AER WELL LOG DATA

LOG RUN NUMBER	LOG RUN DATE	LOG TYPE	TOP INTERVAL	BASE INTERVAL	DESCRIPTION
1	Oct 3 2005	MICRO LOG	363	1883.5	
1	Oct 3 2005	MINILOG	363	1883.5	
1	Oct 3 2005	BHC SONIC	363	1883.5	
1	Oct 3 2005	COMP NEUTRON LITHO DENSITY	363	1883.5	
1	Oct 3 2005	DUAL INDUCTION LATEROLOG	363	1883.5	
1	Oct 4 2005	CEMENT PLUG	260	1570	
1	Oct 4 2005	MUD LOG-HYDROC WELL LOG	363	1885	

There is no DST data for this well.

There is no Tour - Occurrence data for this well.

There is no Tour - Direction Drilling data for this well.

AER WELL TOUR - CASING DATA

DATE	CASING	SIZE	SHOE SET DEPTH	LINER TOP DEPTH	DENSITY	STEEL PROCESS	YIELD STRENGTH	COLLAR TYPE	MXD STRING
Sep 26 2005	SURFACE	219.1	363	0	35.7	J	203		

AER WELL TOUR - CEMENTING DATA

STAGE NO	UNIT	AMOUNT	TYPE	RECEMENT
0	TONNEST	24.5	CLASS G NEAT	0

There is no Tour - Cores Cut data for this well.

There is no Tour - Perforation/Treatment data for this well.

There is no Tour - Initial Production data for this well.

AER WELL TOUR - PLUG BACK / ABANDONMENT DATA

DATE	RUN TYPE	INTERVAL TOP	INTERVAL BASE	CEMENT UNIT	CEMENT AMOUNT	TOP FOUND DEPTH	SURF ABAND DATE
Oct 4 2005	ABANDON	1615	1885	TONNEST	20	1615	
Oct 4 2005	ABANDON	765	1065	TONNEST	18.4	765	
Oct 4 2005	ABANDON	348	684	TONNEST	20	348	

AER WELL STATUS HISTORY DATA

DATE	STATUS
Aug 30 2005	
Oct 4 2005	ABD

There is no Completion data for this well.

There is no Production Control data for this well.

There is no Surface Case Vent Flow data for this well.

Plan Showing Location of Well Site and Access Road for
HIGHPINE MORNINGSIDE 13-14-41-28
 IN L.S. 13 - Sec. 14 - Twp. 41 - Rge. 28 - W.4M.
 LACOMBE COUNTY, ALBERTA

WELL SITE COORDINATE TABLE

Location	Local Coords	N.A.D. 1983 (A.T.S. VER. 2.6Q)			N.A.D. 1927 (A.T.S. VER. 2.6Q)		
		Geographical		U.T.M.(m)	Geographical	U.T.M.(m)	
SURFACE	175.0 S. of N.	Decimal Degree.	Degree Min. Sec.	C.M. = 111° W.	Degree Min. Sec.	C.M. = 111° W.	
	175.0 E. of W. BDY. OF SEC. 14	52.534415° N. Latitude 113.936478° W. Longitude	52°32'03.9" N. Latitude 113°56'11.3" W. Longitude	5 824 532.4 N. 300 841.2 E.	52°32'03.7" N. Latitude 113°56'07.7" W. Longitude	5 824 305.8 N. 300 902.3 E.	

SKID INFORMATION

Location	Requested	Placed	Difference	Referred To Boundary of
SURFACE	175.0 S. of N.	175.0 S. of N.	000.0	Sec. 14
	175.0 E. of W.	175.0 E. of W.	000.0	41-28-W.4M.

ELEVATION TABLE (GROUND) (m)

Well Centre 912.0			
N.W.	911.1	N.E.	913.1
S.W.	911.4	S.E.	911.7
ASCM 171124			

AREA TABLE

	Hectares	Acres
Well Site	1.440	3.56
Access Road	0.230	0.57
Total	1.670	4.13

OTHER SURFACE IMPACT CONSIDERATIONS

A	Atco Gas Co-op
B	

LEGEND

Survey Monument Found: ●
 Iron Spike Placed: ▲ Found: ▲ Temporary point: ⊕
 Wooden hub Placed: □ Found: ■ Portions referred to: —▲—
 Distances are in metres and decimals thereof.

NOTES

The closest Urban Centre is Gull Lake 7.9km W. from Well Centre.
 The closest Surface Development is 0.4km N from Well Centre.

The Proposed Well :

	Yes	No
Is at least 1.5 km from an Urban Centre.	☒	☐
Is outside any Potential Coal Development area	☒	☐
Is at least 5.0 km from a Lighted Aerodrome	☒	☐
Is at least 1.6km from an Unlighted Aerodrome.	☒	☐
Is at least 100m from any Surface Improvements.	☒	☐
Is at least 40m from any surveyed road	☒	☐
Is at least 100m from any water body.	☒	☐
Is within Caribou Protection Area	☐	☒
Is located in an Enviromentally Sensitive Area as defined by Alberta Environment criteria.	☐	☐
Requires Historical Resources Act clearance	☐	☒

OWNER(S)

1. Title Number: 962 034 422
 Thelma Hope Kamlah
 Tony Elmer Kamlah
 As Joint Tenants

LANDOWNER AGREEMENT

I/We agree to the location of the Well Site / Access Road and
 have no objection to the E.U.B. issuing a licence for same.

 Thelma Hope Kamlah Date _____

 Tony Elmer Kamlah Date _____

FOR: HIGHPINE ENERGY LTD.



AFFIDAVIT

I, Iain Skinner, Alberta Land Surveyor, of The City of Calgary, Alberta,
 Certify that the survey represented by this plan is true and correct to the best
 of my knowledge, has been carried out in accordance with the Alberta Land
 Surveyors' Association Manual of Standard Practice, and was completed on the
 25th day of July, AD 2005.

 Iain Skinner A.L.S. Witness _____

Rev.	Description	Job No.	Date	Checked	Drawn	AFE No. :
						REQ No. :
						Client File No. :



THE CADASTRAL GROUP INC.

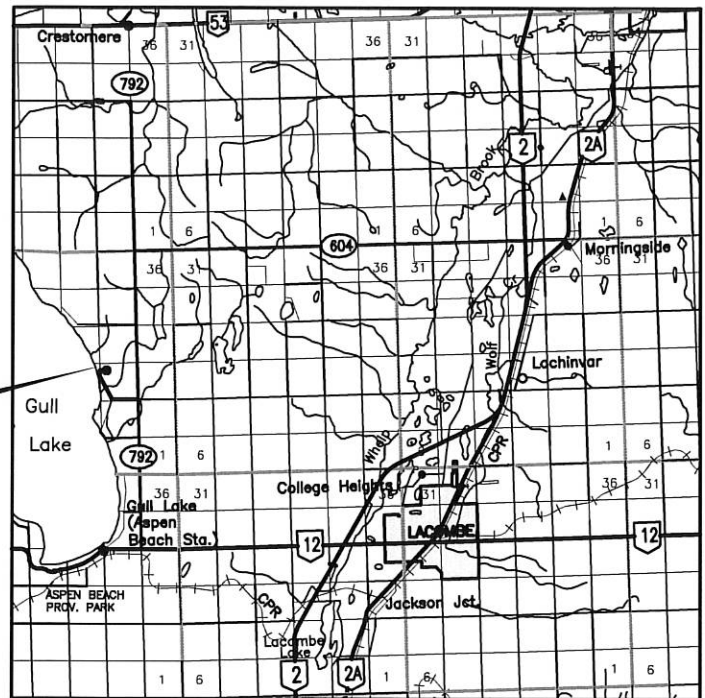
400, 500-4th Avenue S.W.,
 Calgary, AB. T2P 2V6
 Ph.: (403) 263-8200 Fax: (403) 263-8210
 Email: mailroom@cadastralgroup.ca

Box 2358
 Slave Lake, AB. T0G 2A0
 Ph.: (780) 849-5580 Fax: (780) 849-5221

Drawn : WLG	Date : 2005-07-29
Checked : TJB	Job No. : 2917-05
Surveyed: BF	File No. : 2917W005
Layout: Layout	Page : 1 of 3



WELL LOCATION
HIGHPINE MORNINGSID
13-14-41-28-W.4M.



FIFTH MERIDIAN

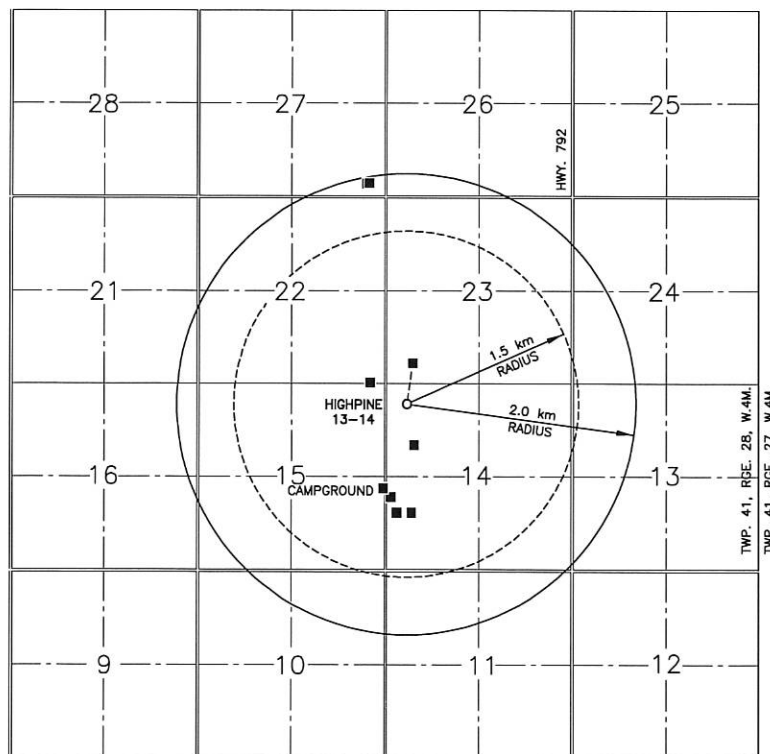
RGE. 28

RGE. 27

RGE. 26

W.4M.

ACCESS ROUTE MAP Scale 1:250 000



PLAN SHOWING
Surface Developments within 2.0 km.
Surface Developments shown thus■
Scale: 1:50 000

AER DATA		ATTACHED FILES		Close Screen	
WELL INFORMATION CURRENT TO FEBRUARY 28, 2014					
EVENT: 0 v					
WELL ID:		00 / 01-23-041-28 W4 / 0		RecExempt	
LICENCE #:		M0006027H		LICENCE DATE: APRIL 22, 1953	
WELL NAME:		CALF MORNINGSIDE 39 TH 1-23-41-28			
WITHIN:		01-23-041-28 W4		H2S (mol/kmol): NOT AVAILABLE	
LICENCEE:		CHEVRON CANADA LIMITED			
SPUD DATE:		APRIL 22, 1953		FINAL DRILL DATE: APRIL 22, 1953	
STATUS:		ABD		ABANDONED DATE:	
SURFACE:		DOWNHOLE:			
OFFSETS:		N 18.3 W 179.8		OFFSETS: N 18.3 W 179.8	
LATITUDE:		52.536449		LATITUDE: 52.536449	
LONGITUDE:		113.918253		LONGITUDE: 113.918253	
GROUND ELEVATION:		922 m 3025 '		TOTAL DEPTH: 281 m 922 '	
WELL TYPE:		NOT AVAILABLE		SUBSTANCE: NOT AVAILABLE	

OPTIONS
[Open Well Plat](#)
[Request Divestco Log](#)
[Create CBM Report](#)
[Add To Custom Well List](#)
[Print Screen](#)

MORE INFO

AER DATA		ATTACHED FILES		Close Screen	
WELL INFORMATION CURRENT TO FEBRUARY 28, 2014					
EVENT: 0 v					
WELL ID:		00 / 08-14-041-28 W4 / 0		RecCertified	
LICENCE #:		0113959		LICENCE DATE: MARCH 14, 1985	
WELL NAME:		PRECAM ET AL ARMENA 8-14-41-28			
WITHIN:		08-14-041-28 W4		H2S (mol/kmol): NOT AVAILABLE	
LICENCEE:		ENERPLUS CORPORATION			
SPUD DATE:		MARCH 17, 1985		FINAL DRILL DATE: MARCH 30, 1985	
STATUS:		ABD		ABANDONED DATE: APRIL 1, 1985	
SURFACE:		DOWNHOLE:			
OFFSETS:		N 751.6 W 358.7		OFFSETS: N 751.6 W 358.7	
LATITUDE:		52.528508		LATITUDE: 52.528508	
LONGITUDE:		113.920847		LONGITUDE: 113.920847	
GROUND ELEVATION:		916.6 m 3007 '		TOTAL DEPTH: 1879 m 6165 '	
WELL TYPE:		NOT AVAILABLE		SUBSTANCE: NOT AVAILABLE	

OPTIONS
[Open Well Plat](#)
[Request Divestco Log](#)
[Create CBM Report](#)
[Add To Custom Well List](#)
[Print Screen](#)

MORE INFO

AER DATA		ATTACHED FILES		Close Screen	
WELL INFORMATION CURRENT TO FEBRUARY 28, 2014					
EVENT: 0 v					
WELL ID:	00 / 16-15-041-28 W4 / 0		RecExempt		
LICENCE #:	M0006027P	LICENCE DATE:	APRIL 22, 1953		
WELL NAME:	CALF MORNINGSIDE 45 TH 16-15-41-28				
WITHIN:	16-15-041-28 W4	H2S (mol/kmol):	NOT AVAILABLE		
LICENCEE:	CHEVRON CANADA LIMITED				
SPUD DATE:	APRIL 22, 1953	FINAL DRILL DATE:	APRIL 22, 1953		
STATUS:	ABD	ABANDONED DATE:			
SURFACE:			DOWNHOLE:		
OFFSETS:	S 158.5 W 3.7		OFFSETS:	S 158.5 W 3.7	
LATITUDE:	52.534542		LATITUDE:	52.534542	
LONGITUDE:	113.940064		LONGITUDE:	113.940064	
GROUND ELEVATION:	910 m	2986 '	TOTAL DEPTH:	270 m	886 '
WELL TYPE:	NOT AVAILABLE		SUBSTANCE:	NOT AVAILABLE	

OPTIONS
[Open Well Plat](#)
[Request Divestco Log](#)
[Create CBM Report](#)
[Add To Custom Well List](#)
[Print Screen](#)

MORE INFO
All Data

AER DATA		ATTACHED FILES		Close Screen	
WELL INFORMATION CURRENT TO FEBRUARY 28, 2014					
EVENT: 0 v					
WELL ID:		00 / 07-14-041-28 W4 / 0		RecExempt	
LICENCE #:		0007350P		LICENCE DATE: AUGUST 5, 1954	
WELL NAME:		CALF MORNINGSIDE 131 TH 7-14-41-28			
WITHIN:		07-14-041-28 W4		H2S (mol/kmol): NOT AVAILABLE	
LICENCEE:		CHEVRON CANADA LIMITED			
SPUD DATE:		NOVEMBER 23, 1953		FINAL DRILL DATE: NOVEMBER 23, 1953	
STATUS:		ABD		ABANDONED DATE: NOVEMBER 24, 1953	
SURFACE:		DOWNHOLE:			
OFFSETS:		N 785.2 W 676.7		OFFSETS: N 785.2 W 676.7	
LATITUDE:		52.52871		LATITUDE: 52.52871	
LONGITUDE:		113.925538		LONGITUDE: 113.925538	
GROUND ELEVATION:		913.1 m 2996 '		TOTAL DEPTH: 274 m 899 '	
WELL TYPE:		NOT AVAILABLE		SUBSTANCE: NOT AVAILABLE	

OPTIONS
[Open Well Plat](#)
[Request Divestco Log](#)
[Create CBM Report](#)
[Add To Custom Well List](#)
[Print Screen](#)

MORE INFO

**Reclamation and Remediation Audit Program
Completeness Checklist – Routine Applications**

Region: North Central South

Municipality: CO14

Reviewer: Lidia Lizama Application No: 001- 00275681

Company Name: Husky Oil Operations Limited

Completeness Review		Review Date: <u>2010/11/01</u>
Part 1 – General Information		
- Operator Name & Address	☒ Complete	☐ Incomplete
- L/O Names & Addresses	☒ Complete	☐ Incomplete
- Occupant Names & Addresses	☒ Complete	☐ Incomplete
- Activity Type	☒ Complete	☐ Incomplete
- Associated Facilities	☒ Complete	☐ Incomplete
- Criteria Category Default (if yes-info in schedule 1?)	☒ Complete	☐ Incomplete
- Part of application on Crown Land?	☐ Yes ☒ No	☐ If yes have they issued on their portion
Part 2 Other Information Required		<i>If yes - was appropriate documentation attached</i>
- Overlapped Exemption Requirements	☐ Yes ☒ No	☐ Yes ☐ No
- End Land Use Changed	☐ Yes ☒ No	☐ Yes ☐ No
- Other Certificates Issued	☐ Yes ☒ No	☐ Yes ☐ No
- Non-Oilfield Waste	☐ Yes ☒ No	☐ Yes ☐ No
- Facility/Access Road Releases (signed by all L/O's)	☐ Yes ☒ No	☐ Yes ☐ No
Part 3 – Contamination Information	☒ Complete	☐ Incomplete
Part 4 – Routine vs. Non-Routine <i>All should be checked NO</i>	☒ Complete	☐ Incomplete
Part 5 – Professional Assurance	☒ Complete	☐ Incomplete
Part 6 – Declaration Signed by Operator	☒ Complete	☐ Incomplete
➤ Are all items checked off on Schedule 1 thru 5 included behind each schedule?		
Schedule 1 - Attachments	☒ Complete	☐ Incomplete
Schedule 2 – Phase 1 ESA	☒ Complete	☐ Incomplete
Schedule 3 – Drilling Waste Documentation	☒ Complete	☐ Incomplete
Schedule 4 – Phase 2 ESA	☒ Complete	☐ Incomplete
Schedule 5 – Reclamation Site Assessment	☒ Complete	☐ Incomplete
Reclamation Certificate Decision		☒ Issue ☐ Refuse
COMMENTS		



NF

707 7th Avenue S.W.
Box 6525, Station D
Calgary, Alberta, Canada
T2P 3G7

Bus: (403) 298-6111

June 2010

Alberta Environment
Regulatory Approval Centre
Main Floor
9820 – 106 Street
Edmonton, AB
T5K 2J6

To: Wendy Jones

**Re: Routine Application for Reclamation Certificate on wellsite and access road:
 Tarragon Hardy Gull 6-14-41-28
 UWI: 100/06-14-041-28 W4
 License#: 0157107
 Surface Location: 06-14-041-28 W4M**



Please be advised that Husky Oil wishes to apply for a Reclamation Certificate on the above referenced land. Enclosed are one hardcopy and one scanned copy of the Wellsite Reclamation Certificate Application and a cheque to cover the \$700 application fee.

Enclosed are the following:

Reclamation Certificate Application Form
Schedule One: Current Title, Survey Plan
Schedule Two: Phase I Environmental Site Assessment
Schedule Three: Drilling Waste Disposal Information
Schedule Four: Phase II Environmental Site Assessment
Schedule Five: Detailed Site Assessment Report

The subject well was spud on March 9, 1993. It was drilled and abandoned and therefore there is no production associated with this wellsite. The drilling waste disposal method and location were not known; a compliance option two checklist was completed and the salt load calculations exceeded the criteria. A Phase II ESA was recommended to investigate previous sump area.

A Phase II ESA was completed on November 13, 2007 targeting well centre area, previous drilling sump area and high apparent conductivity area based on EM31 survey. For all contaminants of potential concern, no exceedances were found above the applicable criteria.

Weed control was completed during several years by Marathon before Husky acquired the lease. Vegetation was monitored for several years, and a Detailed Site Assessment was conducted on June 30, 2009. The wellsite and access road meet the criteria for soils, landscape and vegetation. The fence was removed on June 3, 2010.

A copy of the reclamation certificate package was mailed to landowners 1300382 Alberta Ltd. C/O Johan Doef, and Tony and Kathy Kamlah on March 17, 2010.

Should you have any questions, please contact the undersigned at 403-750-1677.

Yours truly,
HUSKY OIL OPERATIONS LIMITED

Andrea Barrera, B.Sc.
Area Reclamation Technologist
Encl.

APPLICATION FEE PAID

Payment Id: 25780

JUN 1 8 2010

WELLSITE RECLAMATION CERTIFICATE APPLICATION FORM – REVISED 2007

PART 1 – GENERAL INFORMATION

Applicant (Operator): Husky Oil Operations Ltd.

Contact Person: Andrea Barrera

Address: Box 6526 Station D 707 8th Avenue SW

Calgary, AB

T2P 3G7

Phone Number: 403-740-1677

e-mail address: andrea.barrera@huskyenergy.ca

Landowner Name(s): 1300382 Alberta Ltd. C/O Johan Doef

Address: R.R. 3, Site 1, Box 14

Lacombe, Alberta T4L 2N3

Phone Number: 403-782-2702

Landowner Name(s): Tony E. and Kathy M. Kamlah

Address: R.R. 3, Site 3, Box 4 Lacombe, Alberta T4L 2N3

Phone Number: 403-782-4194

Occupant: ☐ Yes ☒ No

Name: _____

Address: _____

Phone Number: _____

Complete Surface Legal Land Description(s): (lease, access road, facility)

W1/2 -14-041-28 W4M

☐ **Public Land** Crown Disposition No.(s) _____

Upon issuance of the Reclamation Certificate, do you want your public land disposition cancelled? ☐ Yes ☐ No (attach explanation)

☒ **Private Land** County/MD/ID/SA Lacombe County

☐ **Parks and Protected Area** _____

☒ **Company File No.** S55402-00 & 02

EUB Information

Applicant is EUB Licensee? ☒ Yes ☐ No

If No, provide Licensee Name _____

EUB Well/Battery Name: Tarragon Hardy Gull 6-14-41-28

EUB Unique Well/Facility Identifier(s): 00/06-14-041-28 W4M

EUB License No(s): 0157107

Total area of land to be certified (in acres): 4.87

Activity Type: (check all that apply)

- | | |
|--|--|
| ☐ Prepared Wellsite (Not Drilled) | ☒ D & A Wellsite |
| ☐ Oil Wellsite | ☐ Disposal Well |
| ☐ Sweet Gas Wellsite | ☐ Oil Production Site |
| ☐ Sour Gas Wellsite | ☐ Battery Site |
| ☐ Other EUB Facility (Describe) _____ | |

Associated Facilities (must be certified),

- | | | |
|--|--|--------------------------------------|
| ☐ Campsite | ☐ Borrow Site | ☐ Remote Sump |
| ☒ Access Road | ☐ Log Deck/Storage (Green Area) | |
| ☐ Other (Describe) _____ | | |
| ☐ No Associated Facilities tied to this Activity. | | |

Criteria Category Used: ☒ Cultivated ☐ Grassland

☐ Forested (White) ☐ Forested (Green) ☐ Peat

Has the criteria used to assess the site been changed/defaulted to another? ☐ Yes ☒ No

If yes, attach documentation in schedule 1 showing acceptance by the landowner and prior approval by the appropriate government agency (AENV or SRD).

PART 2 – OTHER INFORMATION REQUIRED

If any of the following questions are answered "Yes" include required documentation in Schedule 1.

- Does this site require an overlap exemption? ☐ Yes ☒ No
- Has the end land use for the site changed? ☐ Yes ☒ No
New Land Use
☐ Agriculture ☐ Commercial ☐ Industrial
☐ Residential/Parkland ☐ Other _____
- Have any other certificates been obtained for this site or any associated facilities? i.e. remote sump in connection with another wellsite, remediation certificate etc.
☐ Yes ☒ No
If yes, Certificate No. _____
- Non-oilfield waste (e.g., concrete, gravel or debris) buried on-site?
☐ Yes ☒ No
If Yes, what material is buried? _____
and at what depth: _____ metres
- Facilities or features (e.g., water well, access road, well pad, fences, others) to remain in place? ☐ Yes ☒ No
If Yes, what features remain? _____
If Yes, facilities or features are stable and non-hazardous?
☐ Yes ☐ No Include releases from all registered landowners for all facilities or features to remain in place.

PART 3 – CONTAMINATION INFORMATION

- Contamination Information** (check off all appropriate boxes.)
☐ Phase 1 not required since wellsite was prepared not drilled.
☐ The Phase 1 ESA showed no contamination was likely present so no Phase 2 ESA or remediation was done.
☐ The Phase 1 ESA showed contamination was likely present so a Phase 2 ESA was done.
☒ The Phase 1 ESA showed insufficient information to determine if contamination was likely present so a Phase 2 ESA was done.
☒ The Phase 2 ESA showed contamination was not present or was within acceptable values.
☐ The Phase 2 ESA showed contamination was present so remediation was done.
☐ Site was known to be contaminated so remediation was done, and a Phase 1 ESA completed.
- Was confirmatory testing done following remediation? ☐ Yes ☐ No
If Yes, attach data. If No, explain _____
- For remediated sites one of the following remediation requirements has been implemented and the site now meets the criteria.
☐ Alberta Tier 1 Soil and Groundwater Remediation Guidelines (AENV 2007)
☐ Alberta Tier 2 Soil and Groundwater Remediation Guidelines (AENV 2007); Sec. 4.2.1 Pathways and Receptor Exclusions
☐ Alberta Tier 2 Soil and Groundwater Remediation Guidelines (AENV 2007); Sec. 4.2.2 Guideline Adjustments
☐ Alberta Tier 2 Soil and Groundwater Remediation Guidelines (AENV 2007); Sec. 5.0 Site Specific Risk Assessment.
☐ Alberta Soil and Water Quality Guidelines For Hydrocarbons at Upstream Oil and Gas Facilities (Vol. 1-3) (AENV 2001)*
☐ Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification (AENV 2007)**
* To be eligible for a reclamation certificate at any time in the future, the lab analytical data report(s) from a Phase 2 environmental site assessment or confirmatory sampling event must be dated on or before December 1, 2007 and indicate compliance with the Alberta Soil and Water Quality Guidelines For Hydrocarbons at Upstream Oil and Gas Facilities (Vol. 1-3) (AENV 2001).
** For drilling waste disposal areas only.
Contaminant type(s) ☐ Hydrocarbons ☐ Salts ☐ Metals ☐ Pesticides/Sterilants ☐ Others (describe)
- Were subsoil criteria used to address or remediate hydrocarbon contamination as per the Alberta Tier 1 Soil and Groundwater Remediation Guidelines (AENV 2007).
☒ No ☐ Yes, below 3 metres ☐ Yes, below 1.5 metres within 15 metres of the wellhead (Until June 30, 2007)
☐ Yes, below 1.5 metres within 5 metres of the wellhead (From July 1, 2007)

PART 4 – ROUTINE vs. NON-ROUTINE APPLICATIONS

If **yes** is checked off in any of the following questions, this application will be processed as non-routine and forwarded to an inspector for review prior to the issuance or refusal of a Reclamation Certificate, as warranted.

☐ Yes ☒ No	Unresolved landowner complaint OR complaint form submitted with this application. (Schedule 1)
☐ Yes ☒ No	Activity/facility meets appropriate reclamation criteria based on land use for soils and vegetation with justifications. (Schedule 5)
☐ Yes ☒ No	Subsoil criteria used to address/remediate hydrocarbon contamination. ☐ Below 3metres ☐ Below 1.5 metres within 15 metres of the wellhead (Until June 30, 2007) ☐ Below 1.5 metres within 5 metres of the wellhead (From July 1, 2007)
☐ Yes ☒ No	Was this site constructed before 1983, and was it reclaimed using a management plan? (Schedule 4)
☒ Routine ☐ Non - Routine	

PART 5 – PROFESSIONAL ASSURANCE

Professional members who signed off on the reclamation and remediation assessments:

Assessment	Name	Company	Professional Designation(s) Registration Number
Phase 1 ESA	Colette Cloutier	Gemini Twins Consulting Ltd.	P.Ag. 172
Drilling Waste Disposal Compliance Option(s)	Colette Cloutier	Gemini Twins Consulting Ltd.	P.Ag. 172
Phase 2 ESA – Site Investigation	Tim Wyatt	Bio-Synergy Resources Inc.	P.Ag. 2398 ✓
Remediation and Confirmatory Results	Not Applicable		
Reclamation Soils Assessment (DSA)	Jim Fairgrieve	Echo Environmental	P.Ag. 1438 ✓
Reclamation Vegetation Assessment (DSA)	Jim Fairgrieve	Echo Environmental	P.Ag. 1438 ✓

PART 6 – DECLARATION

This Declaration must be signed by the Operator (consultant signatures are NOT acceptable).

I, Andrea C. Barrera of Husky Oil Operations Ltd. declare that,
(Print name) (Operator)

This application was prepared and completed under my direction. Based on my inquiries of the person or persons who managed the application components required to complete this application the information is, to the best of my knowledge and belief, true, accurate and complete;

- We contacted the landowner/occupant and inquired about any outstanding concerns with the site and documented their response in the application;
- We conducted a detailed reclamation assessment (DSA) of the site and all requirements described in the appropriate reclamation certification criteria have been met;
- We have attached a copy of the Notification of Drilling Waste Disposal form or equivalent, the appropriate drilling waste compliance option Checklist, and/or Phase II Environmental Site Assessment that includes sampling of drilling waste disposal areas;
- We carried out a Phase I, and/or Phase II Environmental Site Assessment (copy attached);
- We identified and remediated all contamination resulting from the use of this site to meet Alberta Environment's requirements and there are no soil chemical or physical conditions that resulted from our use of this land that may adversely affect soil, vegetation or groundwater on or off the site described in this application package;
- We provided the landowner(s) a complete copy of this application package at least 30 days prior to making this submission.
- We included the listing of people who performed the reclamation and remediation assessments and their professional designation, if any. For any work completed after January 1, 2008, we included the Alberta Environment Professional Declaration Form(s), completed and signed by the professional members who conducted or supervised the work;
- We understand that incomplete applications will not be accepted and we will have to reapply including the appropriate fee once the missing information has been added.

I also declare that, to the best of my knowledge, all of the information contained within this Application is accurate and includes a complete representation of all the information that is required to be submitted in the Application for a Reclamation Certificate. I am aware that it is an offence under section 227 of the Environmental Protection and Enhancement Act to provide false or misleading information and that there are significant fines for committing an offence of section 227, including the possibility of imprisonment, the relevant sections which read as follows:

- Offences s. 227 A person who
(a) knowingly provides false or misleading information pursuant to a requirement under this Act to provide information,
(b) provides false or misleading information pursuant to a requirement under this Act to provide information

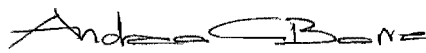
is guilty of an offence.

Penalties s. 228 (1) A person who commits an offence referred to in section 60, 87, 108(1), 109(1) or 227(a), (d), (f) or (h) is liable to
(a) in the case of an individual, to a fine of not more than \$100 000 or to imprisonment for a period of not more than 2 years or to both fine and imprisonment, or
(b) in the case of a corporation, to a fine of not more than \$1 000 000.

(2) A person who commits an offence referred to in section 61, 67, 75, 76, 79, 88, 108(2), 109(2), 110(1) or (2), 111, 112, 137, 148, 149, 155, 157, 163, 169, 170, 173, 176, 188, 191, 192, 209, 227(b), (c), (e), (g), or (i) or 251 is liable

(a) in the case of an individual, to a fine of not more than \$50 000, or
(b) in the case of a corporation, to a fine of not more than \$500 000.

Andrea Barrera



Reclamation Technologist

March 15, 2010

NAME

SIGNATURE

POSITION

DATE

You must submit payment in the amount of \$700 (Cheques are payable to the Minister of Finance) together with 2 copies of the following documents (clipped with a binder clip):

- Cover letter
- Application Package including the application form and all applicable schedules (Check boxes below of those schedules attached)
 - ☒ Schedule One, Attachments
 - ☒ Schedule Two, Phase 1
Environmental Site Assessment
 - ☒ Schedule Three, Drilling Waste
Documentation
 - ☒ Schedule Four, Phase 2 Environmental Site
Assessment
 - ☒ Schedule Five, Reclamation Information

The copy of the application sent to the landowner (or occupant on public land) must also include the *Acknowledgement of Information Disclosure and Complaint* forms.

Do not send copies to Public Land District Offices unless a Grazing Reserve is involved and they are the registered owner of the reserve.

For Public Lands, applications are being scanned and stored electronically in computer databases.

Only one copy of the application is required. Please ensure that there are no bindings, staples or clips of any sort attached to the application and no additional filler sheets (i.e. coloured sheets between sections, header pages, or any non-essential paperwork) are included in the application.

As much as possible, make sure all information is on standard 8.5"x11" paper single sided only.

For all lands, including lands administered under the *Public Lands Act* send the application to:

Alberta Environment,
Regulatory Approvals Centre,
9820 – 106 Street,
EDMONTON, Alberta T5K 2J6

Schedule One

Attachments

Please check off the appropriate boxes indicating which documents are included in this Schedule.

- ☒ Land Titles (private land only)
- ☐ Special Areas Board Search
- ☒ Survey Plan (4 copies for private lands; 1 copy for public lands; all copies to be outlined in yellow)
- ☒ Acknowledgement of Information Disclosure
- ☐ Complaint Form
- ☐ Releases
- ☐ Overlapping Exemption
- ☐ Other Certificates
- ☐ Criteria Change Authorization*
- ☐ Land Use Change Documentation
- ☐ _____
- ☐ _____

*The *Reclamation Criteria for Wellsites and Associated Facilities – 1995 Update* (AENV 1995) provides for justification when the reclamation criteria for the appropriate end land use cannot be achieved due to site-specific conditions.



LAND TITLE CERTIFICATE

S
LINC 0012 239 661 SHORT LEGAL 4;28;41;14;SW TITLE NUMBER 072 310 859

LEGAL DESCRIPTION

ALL THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FOURTEEN (14)
TOWNSHIP FORTY ONE (41)
RANGE TWENTY EIGHT (28)
WEST OF THE FOURTH MERIDIAN
NOT COVERED BY ANY OF THE WATERS OF GULL LAKE AS SHOWN ON A PLAN OF SURVEY
OF THE SAID TOWNSHIP SIGNED AT OTTAWA ON THE 19TH DAY OF JANUARY A.D.
1897 CONTAINING 60.7 HECTARES (150 ACRES) MORE OR LESS
EXCEPTING THEREOUT: (A) 0.975 HECTARES (2.41 ACRES) MORE OR LESS AS
SHOWN ON SUBDIVISION PLAN 1314P
(B) 1.36 HECTARES (3.36 ACRES) MORE OR LESS FOR ROAD AS SHOWN ON
ROAD PLAN 1083T
(C) 9.72 HECTARES (24.03 ACRES) MORE OR LESS SUBDIVIDED UNDER PLAN
5600MC
(D) 0.975 HECTARES (2.41 ACRES) MORE OR LESS, ALL THAT PORTION LYING
WITHIN THE LIMITS OF PLAN OF SUBDIVISION BY J.C. HORN, 1ST AUGUST 1974 AND
REGISTERED AS PLAN 5254TR
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REFERENCE NUMBER: 892 337 934

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
072 310 859	29/05/2007	TRANSFER OF LAND		\$850,000	\$850,000

OWNERS

1300382 ALBERTA LTD..
OF R.R. 3, SITE 1, BOX 14
LACOMBE
ALBERTA T4L 2N3

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
072 310 859

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
7026VC	06/01/1975	CAVEAT RE : DEFERRED RESERVE CAVEATOR - RED DEER REGIONAL PLANNING COMMISSION.
752 176 474	03/12/1975	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD.. 10035-105 ST EDMONTON ALBERTA T5J2V6 (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 012021992)
912 277 022	09/10/1991	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC.. 320 - 17 AVENUE S.W. CALGARY ALBERTA T2S2Y1 AS TO PORTION OR PLAN:PORTION (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 002299932) (DATA UPDATED BY: CHANGE OF NAME 052026780)
952 048 976	23/02/1995	UTILITY RIGHT OF WAY GRANTEE - PENGROWTH CORPORATION. 2900,111-5TH AVENUE SW CALGARY ALBERTA T2P3Y6 (DATA UPDATED BY: CHANGE OF NAME 042186308) (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 042562308)
952 296 165	03/11/1995	CAVEAT RE : RIGHT OF WAY AGREEMENT CAVEATOR - KEYSPAN ENERGY CANADA INC.. C/O KEYSPAN ENERGY CANADA PARTNERSHIP 1700 400 3RD AVE SW CALGARY ALBERTA T2P4H2 AGENT - NOEL SMYTH (DATA UPDATED BY: CHANGE OF ADDRESS 962340519) (DATA UPDATED BY: TRANSFER OF CAVEAT 022173267) (DATA UPDATED BY: TRANSFER OF CAVEAT 022363644)
052 001 867	04/01/2005	CAVEAT

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 3
072 310 859

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

RE : AMENDING AGREEMENT
CAVEATOR - EXORO ENERGY INC..
630, 999 - 8TH STREET SW
CALGARY
ALBERTA T2R1J5
(DATA UPDATED BY: TRANSFER OF CAVEAT
072290329)

072 310 860 29/05/2007 MORTGAGE
MORTGAGEE - FARM CREDIT CANADA.
SUITE #1200, 10250-101 ST
EDMONTON
ALBERTA T5J3P4
ORIGINAL PRINCIPAL AMOUNT: \$600,000

072 561 052 17/09/2007 CAVEAT
RE : LEASE INTEREST UNDER 20 ACRES
CAVEATOR - EXORO ENERGY INC..
630, 999 - 8TH STREET SW
CALGARY
ALBERTA T2R1J5
AGENT - SHARON BITZ

072 607 716 11/10/2007 AMENDING AGREEMENT
AMOUNT: \$1,000,000
AFFECTS INSTRUMENT: 072310860

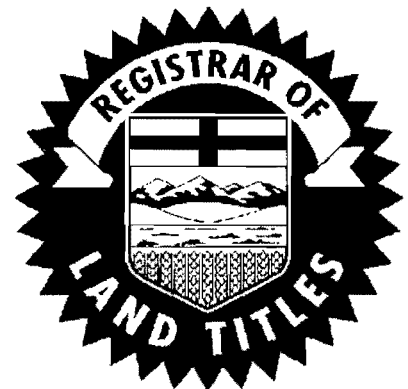
TOTAL INSTRUMENTS: 009

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE
REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED
HEREIN THIS 15 DAY OF MARCH, 2010 AT 12:41 P.M.

ORDER NUMBER:16055899

CUSTOMER FILE NUMBER: 69608

END OF CERTIFICATE



THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE
SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS

(CONTINUED)

SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0026 533 969 4;28;41;14;NW 082 327 610

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 28 TOWNSHIP 41
SECTION 14
QUARTER NORTH WEST
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

	HECTARES	(ACRES)	MORE OR LESS
A) PLAN 9524452 SUBDIVISION	1.97	4.87	
EXCEPTING THEREOUT ALL MINES AND MINERALS			

ESTATE: FEE SIMPLE

MUNICIPALITY: LACOMBE COUNTY

REFERENCE NUMBER: 962 034 422

REGISTERED OWNER(S)				
REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
082 327 610	06/08/2008	TRANSFER OF LAND	\$700,000	SEE INSTRUMENT

OWNERS

TONY ELMER KAMLAH

AND

KATHY MAE KAMLAH

BOTH OF:

RR 3, SITE 3, BOX 4

LACOMBE

ALBERTA T4L 2N3

AS JOINT TENANTS

(DATA UPDATED BY: CHANGE OF ADDRESS 092242788)

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
082 327 610

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

762 013 151	23/01/1976	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD.. 10035-105 ST EDMONTON ALBERTA T5J2V6 (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 012027323)
952 048 977	23/02/1995	UTILITY RIGHT OF WAY GRANTEE - PENGROWTH CORPORATION. 2900,111-5TH AVENUE SW CALGARY ALBERTA T2P3Y6 (DATA UPDATED BY: CHANGE OF NAME 042186308) (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 042562308)
952 296 164	03/11/1995	CAVEAT RE : RIGHT OF WAY AGREEMENT CAVEATOR - KEYSpan ENERGY CANADA INC.. C/O KEYSpan ENERGY CANADA PARTNERSHIP 1700 400 3RD AVE SW CALGARY ALBERTA T2P4H2 AGENT - NOEL SMYTH (DATA UPDATED BY: CHANGE OF ADDRESS 962340519) (DATA UPDATED BY: TRANSFER OF CAVEAT 022173267) (DATA UPDATED BY: TRANSFER OF CAVEAT 022363644)
052 370 967	31/08/2005	CAVEAT RE : SURFACE LEASE UNDER 20 ACRES CAVEATOR - HIGHPIKE OIL & GAS LIMITED. P.O. BOX 6989, STATION D CALGARY ALBERTA T2P2G2 AGENT - LYNDSLEY HERDER (DATA UPDATED BY: CHANGE OF ADDRESS 062224814)
092 242 787	17/07/2009	MORTGAGE MORTGAGEE - AGRICULTURE FINANCIAL SERVICES CORPORATION. 4910 52 ST, BOX 5000 STN. MAIN CAMROSE ALBERTA T4V4E8

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 3
082 327 610

REGISTRATION
NUMBER DATE (D/M/Y) PARTICULARS

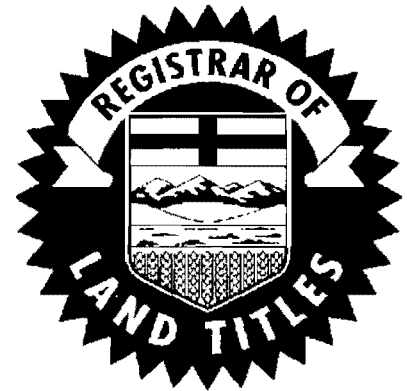
ORIGINAL PRINCIPAL AMOUNT: \$425,000

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE
REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED
HEREIN THIS 15 DAY OF MARCH, 2010 AT 12:41 P.M.

ORDER NUMBER:16055899

CUSTOMER FILE NUMBER: 69608

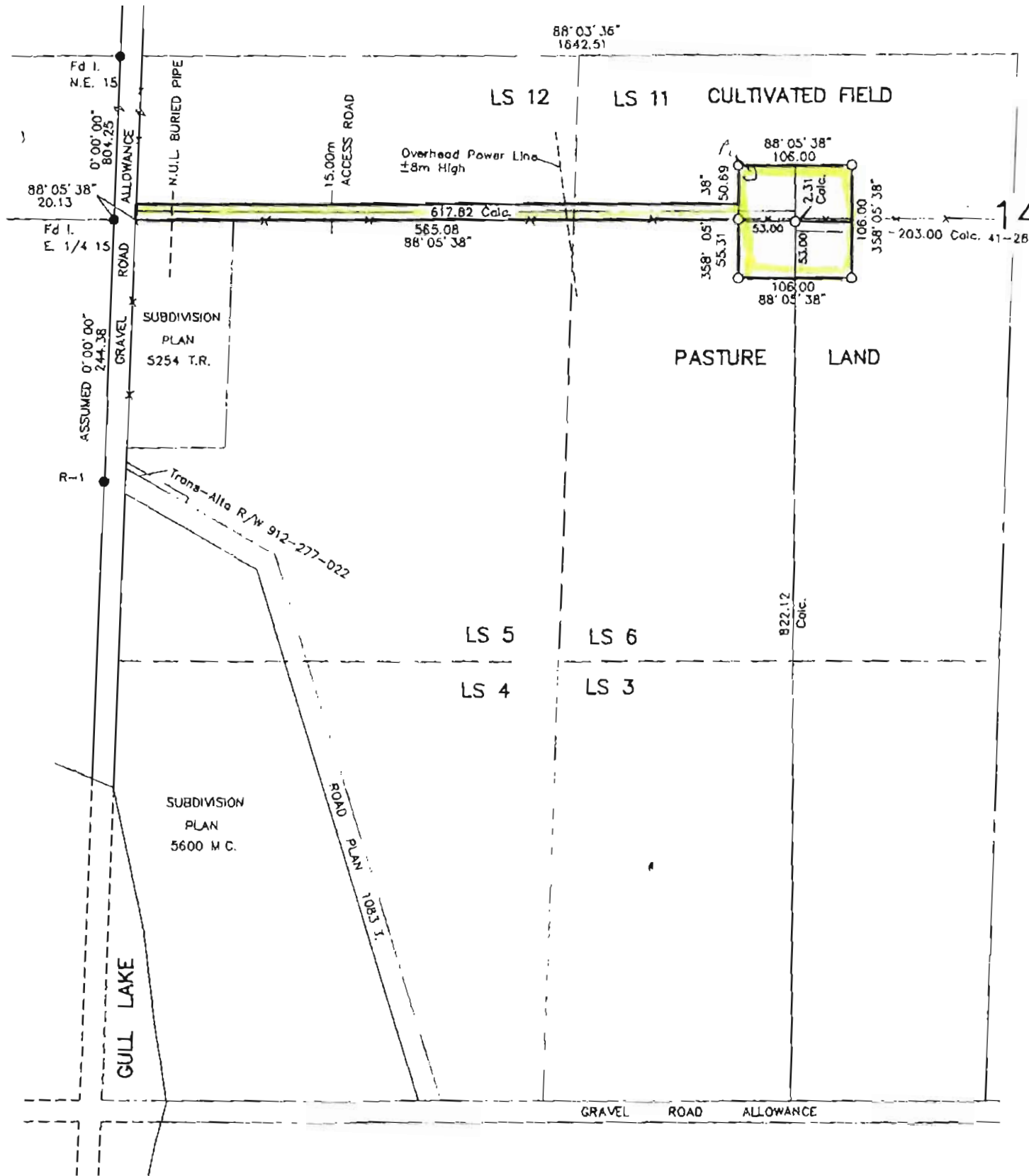


END OF CERTIFICATE

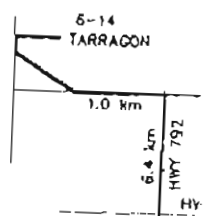
THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE
SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS
SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR
OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL
PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR
THE BENEFIT OF CLIENT(S).

Tony rester of North side of fence
 782-4194



ROUTE M
 NOT TO SCALE



TARRAGON HARDY GILBY 6-14-41-28

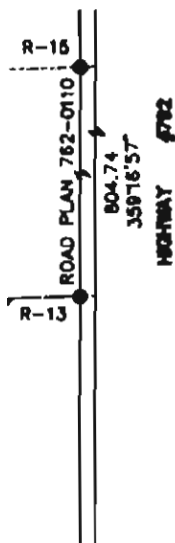
Well Site and Access Road

within

L.S. 6 Sec. 14 Twp 41 Rge 28 W. 4 M.

NOTE: The proposed Well is:

- Outside any potential Coal development area
- At least 5.0 km from a licensed Airport listed in Part "A" of Schedule 3, Oil and Gas Con. Regs.
- At least 1.6 km from a licensed Airport listed in Part "B" of Schedule 3, Oil and Gas Con. Regs.
- There are residences within 3.0 km of Well Centre.
- The Town of Lacombe is within 15.0 km of Well Centre.
- There are no surface improvements within 200m of Well Centre unless shown otherwise.



Elevation : of ground at Wellcentre = 908.33

Co-ords: 822.12 N. of the S. Sec. 14
617.82 E. of the W. Sec. 14

Areas:	Hectares	Acres
Well Site N.W. 14	0.537 ha	1.33 Ac.
Well Site S.W. 14	0.587 ha	1.45 Ac.
Access Road	0.817 ha	2.09 Ac.
Total	1.971 ha	4.87 Ac.

GROUND ELEVATIONS AT:

N.E. CORNER = 908.65
N.W. CORNER = 910.02
S.W. CORNER = 908.78
S.E. CORNER = 908.09

Scale = 1:5000

Datum: A.S.C.M. 52112.239

NOTE:

- Survey monuments found are shown thus: ●
- Survey monuments planted are shown thus: ○
- Portion referred to bounded thus: ---
- Distances and elevations are in metres.

I certify that the survey represented by this plan
is correct and true to the best of my knowledge
and was completed on the 24th day of February 1993

George Smith, Alberta Land Surveyor

Witness

TARRAGON OIL AND GAS LIMITED



BEMOCO LAND
SURVEYING LTD.

#21-7895-40th AVENUE
S.W. CALGARY, ALTA.

FILE No. W-008-93

**Tracking Number**

3987353261663905

Please note that this is the most up-to-date information available in our system. Our telephone agents have access to the same information presented here.

Track Status**Product Type:** Xpresspost**Expected Delivery :** 2010/03/19**Updated Delivery :** 2010/03/22**Delivery date changed :** Item was received by Canada Post after cut-off time.

Date	Time	Location	Description	Retail Location	Signatory Name
2010/03/22	13:27	LACOMBE	Item successfully delivered		

Track History

Date	Time	Location	Description	Retail Location	Signatory Name
2010/03/22	13:27	LACOMBE	Item successfully delivered		
2010/03/22	13:27		Signature image recorded for Online viewing		johan doef @ 1300382 alberta
2010/03/18	AM	LACOMBE	Attempted delivery. Notice card left indicating where item can be picked up.		
2010/03/18	10:55	LACOMBE	Item available for pickup at Post Office		
2010/03/18	09:36	LACOMBE	Item out for delivery		
2010/03/17	19:44	CALGARY	Item transferred for processing		
2010/03/17	19:44	CALGARY	Order received at postal facility		
2010/03/17	18:12	CALGARY	An order has been electronically submitted		

Shipping Options and Features for this Item

Signature Required

**Tracking Number**

3987353261507902

Please note that this is the most up-to-date information available in our system. Our telephone agents have access to the same information presented here.

Track Status**Product Type:** Xpresspost**Expected Delivery :** 2010/03/19**Updated Delivery :** 2010/03/22**Delivery date changed :** Item was received by Canada Post after cut-off time.

Date	Time	Location	Description	Retail Location	Signatory Name
2010/03/23	15:41	LACOMBE	Item successfully delivered		

Track History

Date	Time	Location	Description	Retail Location	Signatory Name
2010/03/23	15:41	LACOMBE	Item successfully delivered		
2010/03/23	15:41		Signature image recorded for Online viewing		tony & kathy kamlah
2010/03/18	AM	LACOMBE	Attempted delivery. Notice card left indicating where item can be picked up.		
2010/03/18	10:54	LACOMBE	Item available for pickup at Post Office		
2010/03/18	09:36	LACOMBE	Item out for delivery		
2010/03/17	19:44	CALGARY	Item transferred for processing		
2010/03/17	19:44	CALGARY	Order received at postal facility		
2010/03/17	18:12	CALGARY	An order has been electronically submitted		

Shipping Options and Features for this Item

Signature Required

Schedule Two

Phase 1 Environmental Site Assessment

Please check off the appropriate boxes indicating which documents are included or sections completed in this Schedule.

Following sections completed:

- ☐ A – Drilling Information (Checklists and calculation tables from the guideline, *Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification* should be attached to Schedule 3.
- ☐ B – Production/Storage & Environmental Information
- ☐ C – Phase 1 Environmental Site Assessment: Site Visit
- ☐ D – Aerial/Satellite Review
- ☐ E – Interviews
- ☐ F – Conclusions and Recommendations
- ☐ G - Declaration
- ☐ Construction and Operation Sketches

Attach the following:

- ☐ Phase 1 Environmental Site Assessment: Site Visit Photos
- ☐ Aerial or satellite photographs
- ☐ List of available aerial photographs from Air Photo Distribution
- ☐ AENV Professional Declaration Form – This form must be signed for work completed after January 1, 2008

OR

- ☒ Phase 1 Environmental Site Assessment form (AENV 2002)* including all of the above information.
- ☒ Phase 1 Environmental Site Assessment; Site Visit Photos
- ☒ Aerial or satellite photographs
- ☒ List of available aerial photographs from Air Photo Distribution
- ☐ AENV Professional Declaration Form - This form must be signed for work completed after January 1, 2008
- ☒ Accucard, ERCB Pipe Plat, ERCB FIS Incident Report, Alberta Water Well Report

* A Phase 1 Environmental Site Assessment (ESA) completed prior to November 1, 2007 can be submitted using the Phase 1 ESA form (AENV 2002). Ensure that all information required on the new Phase 1 ESA form (AENV 2007) is included.

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
FILE REVIEW

Husky Oil Operations Limited

100/06-14-41-28-W4



Gemini Twins Consulting Ltd.

August 27, 2007

1.0 GENERAL SITE INFORMATION:

Facility Name : tarragon Hardy Gull 6-14-41-28

Surface Location (LSD) 06-14-41-28-W4

License No : 0157107

MSL/ROE /LOC, if Public Land: _____

Licensee: Husky Oil Operations Limited

Operator: Husky Oil Operations Limited

Current Regulatory Status: Abandoned

Type of Reclamation Certificate Applied For:

☐ Pipeline ☐ Battery ☐ Oil Production Site ☒ Wellsite

Pipeline Information (answer if ☐ Pipeline is checked)

Pipeline Type: ☐ Oil ☐ Gas ☐ Saltwater ☐ Other _____

From: _____ To: _____

Diameter: _____ Depth: _____ Abandoned: ☐ In-Place ☐ Removed

Well Type ☒ D&A ☐ Oil ☐ Gas ☐ Disposal ☐ Other _____

Sour: (>1%) ☐ Yes ☐ No ☐ Unknown

Condensate ☐ Yes ☐ No ☐ Unknown

Depth TVD (m): 1870.0m

Producer Well: ☐ Fluid was piped from the site ☐ Fluid was trucked from the site

Disposal Well: ☐ Fluid was piped to the site ☐ Fluid was trucked to the site

Battery Information (answer if ☐ Battery is checked)

☐ Single well battery ☐ Multi-well battery

☐ Fluid was piped to the site ☐ Fluid was trucked to the site

2.0 RECORDS REVIEW

2.1 COMPANY FILE REVIEW

Review Date: July 23, 2007 Reviewed By: Shawna Longeuay

2.1.1 Drilling Information (wells and oil production sites)

Were drilling records reviewed? ☒ Yes ☐ No

Drilling Date: March 9-15, 1993

Sump Location (attach diagram if present): Unknown

Mud Type/ Additives: Gel Chem.

Mud/Fluid Disposal Method(s): Unknown

Mud/Fluid Disposal Location(s): Unknown, likely on site

Other (includes waste storage/handling, etc.): _____

2.1.2 Production/Storage Information Available

Was production/storage information obtained? ☐ Yes ☐ No ☒ Not Applicable, Never Produced

Historical or current associated infrastructure (includes tankage, pipelines, process skids, and access roads.): _____

Abandoned wellbore

Flare Pits: ☐ Yes ☒ No ☐ Inconclusive

Details/Location: _____

Underground Storage Tanks: ☐ Yes ☒ No ☐ Unknown If YES, number of tanks _____

Capacity: _____ Location: _____
Aboveground Storage Tanks Noted: ☐ Yes ☒ No ☐ Unknown If YES, number of tanks _____
Capacity: _____ Location: _____
Herbicide Used: ☒ Yes ☐ No
Details: July 7, 1999 and September 14, 1999, sprayed round up and lontre (thistle control).
Other (includes waste storage/handling/chemical storage, buried pits and landfills, etc.): _____

2.1.3 Environmental Information (all facilities)

Spills Releases: ☐ Yes ☒ No ☐ Unknown (if yes, attach a brief description including spill material, volume & date)
Location/Extent: _____
Type (EUB codes): _____ Volume Recovered: _____
Remediation Action (when initiated, target completion date, attach assessment and remediation details if available):

Reported to Regulatory Agency: ☐ Yes ☐ No
If Yes, Identify Regulatory Agency: _____

2.1.5 Land Information (all facilities)

Landowner/Occupant Complaints From Company File Review: ☐ Yes ☒ No
Identify Issue(s) of Concern: _____

2.1.6 Former Third Party ESA(s) Information Available

Has a previous ESA been conducted: ☒ Yes ☐ No
If Yes, Consultant: Soil Info Ltd. Report Title: Certification Site Assessment
Report Date: August 24, 2004 Report Findings: Failed due to weed infestation.

2.2 HISTORICAL AERIAL PHOTOGRAPH REVIEW

For producing wells and batteries the following aerial photographs are required, if available: one pre-disturbance; one post-disturbance; one photograph for every 2 to 3 year interval while the site was active.
For dry and abandoned wells, one aerial photograph of the active sites, if available, is required.
For pipeline above ground facilities and spills, aerial photos of the site before, during (if available), and after the spill cleanup or facility removal are required.
For all aerial photographs, please use a scale of 1:5000 or 1:7500 to show detail. This scale will likely require an enlargement of the original aerial photograph.

Review Date: July 28, 2007 Reviewed By: Shawna Longueay, Colette Cloutier P. Ag.

Photo ID: Roll AS 4971 Print 132 Year: 1998 Scale: 1: 2500

Evidence of Former Infrastructure or Areas of Potential Contamination: There was no infrastructure on the site. The access was not visually obvious. Only the SE portion of the lease boundary was visible.

3.0 INTERVIEWS (e.g., Present and Past Operators and Landowners)

Interview Held With: ☒ Landowner (s) ☐ Operator(s)

Is the Interview Information: ☒ Specifically for this Site ☐ Generally for the Area or Type of Operation

Interview Date: July 26, 2007 Interviewed By: Shawna Longeuay

Name of Person Interviewed and Position: Johan Doef – Landowner

Details of the Interviewee's Comments: *(request information on previous complaints, former facilities, presence and details of spills, pits, waste storage/handling, vegetation control, etc.)* Mr. Doef explained that he has just recently acquired the land and is not familiar with the site. He was not able to answer any of the interview questions.

4.0 SITE VISIT

Date: (m/d/y): August 24, 2004 Assessors: Soil-Info Ltd.

Surrounding Land Use: N: Cultivated S: Cultivated E: Cultivated W: Cultivated

Topography: Unknown Vegetation: Hay/Alfalfa

Proximity to (fill in distance to all that apply):

Residence 500 m Water well ~200m Surface waterbody (e.g. dugout, stream, river): ~188m

Equipment or Tankage Present (or visual signs of former facilities): ☐ Yes ☒ No

What was observed?:

Visual Signs of Open or Potentially Buried Earthen Pits? ☐ Yes ☒ No

What was observed?:

Evidence of Past Spills (includes cumulative releases and well centre impacts): ☐ Yes ☒ No

What was observed?:

Adjacent land affected by operations on the site: ☐ Yes ☒ No

Vegetation Stress Apparent?: ☐ Yes ☒ No

Details (location, evidence):

Does Site Visit Information Conflict with Specific File or Air Photo Review Information: ☐ Yes ☒ No

If YES, explain:

Photographs of the Site: (not aerial photographs)

Photo 1 (photo description):

5.0 CONCLUSIONS AND RECOMMENDATIONS

Phase I ESA information is sufficient to form a conclusion about contamination? ☐ Yes ☒ No

If NO, indicate what was done to gain sufficient information (e.g., Phase 2 ESA)

Details (type of investigation, date): _____

Phase I ESA showed contamination is likely present? ☐ Yes ☐ No ☒ unknown

If YES, indicate what follow-up work was done on the site (e.g., Phase 2 ESA, remediation work):

Details (type of investigation, date): _____

Comments:

- There was no production associated with this well.
- There were no reported incidents.
- **The salt calculations exceeded/failed the target.**
- Metal calculations met/passed the target.

It may be prudent to conduct a Phase II ESA in the previous sump/drill waste disposal area to ensure applicable clean up criteria is met.

6.0 DECLARATION

I Colette Cloutier P. Ag. of Gemini Twins Consulting Ltd. certify that, to the best of my knowledge, all of the aforementioned information is accurate. This Phase I Environmental Site Assessment (ESA) was conducted for Husky Oil Operations Limited, for the above noted location. All the pertinent information gathered during the Phase I ESA has been provided within this report.

Date: August 27, 2007 Phone: (403) 934-6454

Operator Mailing Address: 707- 8th Ave. SW PO Box 6525 Stn D. Calgary Alberta T2P 3G7

Operator Contact: Meridith Ball P. Ag. Phone: (403) 298-6752 Fax: (403) 750-1723

Email: Meridith.Ball@huskyenergy.ca

7.0 ATTACHMENTS

Assessing Drilling Waste Disposal Areas: Compliance Option two and calculations
Survey Plan
Accucard, Pipecard
Daily Drilling Reports - TOURS
AEUB FIS EDD Complaint and Release Incident External Record Reports
Alberta Water Well Search and reports
List of available aerial photographs from Air Photo Services
Photo years: 1998

SITE SKETCHES

Site sketches documented:

☒ below ☐ on air photos or attached sketch ☐ both locations

CONSTRUCTION PHASE – Mandatory for any site constructed since 1994

Not Available. This is an acquired wellsite, and the lease was constructed prior to 1994

At a minimum, please indicate all of the following applicable information on both sketches:

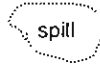
Drainage/direction 

Wellhead  W/H

Berms berm

Cut/fill 

Spoil sp

Spills  spill

Trenches tr

Access ac

Topsoil Pile tsp

Subsoil Pile ssp

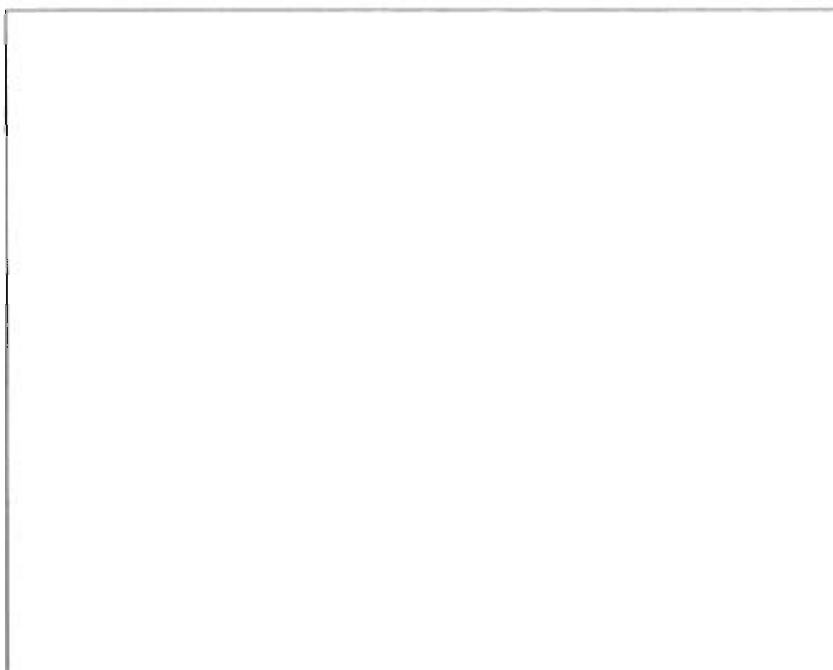
Sump  S

Flare Pit fp

Tank Storage

Teardrop

OPERATIONS PHASE



APRS Results of Search By Legal Description

*Search is based on section. When ordering, please provide the **required project numbers** and a **more precise location** (i.e. site diagram, quarter section, legal subdivision or street address).*

Legal Description (Sec. Twp. Rge. W Meridian): 14 - 41 - 28 - 4

Project No.	Sub. ID	Coverage (P/C)	Date	Scale (1:)	Emulsion	Comments
98-097A 83A	2	C	1998-00-00	30000	B/W Agfa-50	
93-176	25	C	1993-00-00	30000	B/W PAN	
87-089	9	C	1987-00-00	30000	B/W PAN	
84-103	5	C	1984-07-10	60000	PAN 2402	Ext. into 73D
83-017	13	C	1983-04-22	30000	B/W Pan-2405	Gull Lake
83-018	5	C	1983-04-20	10000	B/W PAN-2405	Gull Lake
82-086 83A	16	C	1982-09-00	30000	B/W Pan-2405	
80-121	2	C	1980-09-08	60000	PAN 2405	
76-023A 83A	4	C	1976-10-15	31680	B/W Pan-2405	
75-169	15	C	1975-00-00	31680	B/W DOUBLE	
70-322 83A	2	C	1970-00-00	80000	B/W Pan-2405	
69-028	1	C	1969-06-02	6000	PAN 2405	
69-167 83A	8	C	1969-00-00	31680	B/W.	
66-83A	5	C	1966-00-00	31680	B/W	
62-83A	4	C	1962-00-00	31680	B/W	
49-83A	2	C	1949-00-00	40000	B/W Super.	



Pre-Disturbance Air Photo
100/06-14-041-28 w4M
Roll 3611 Print 16
July 26, 1987
1: 7,500

↑ N

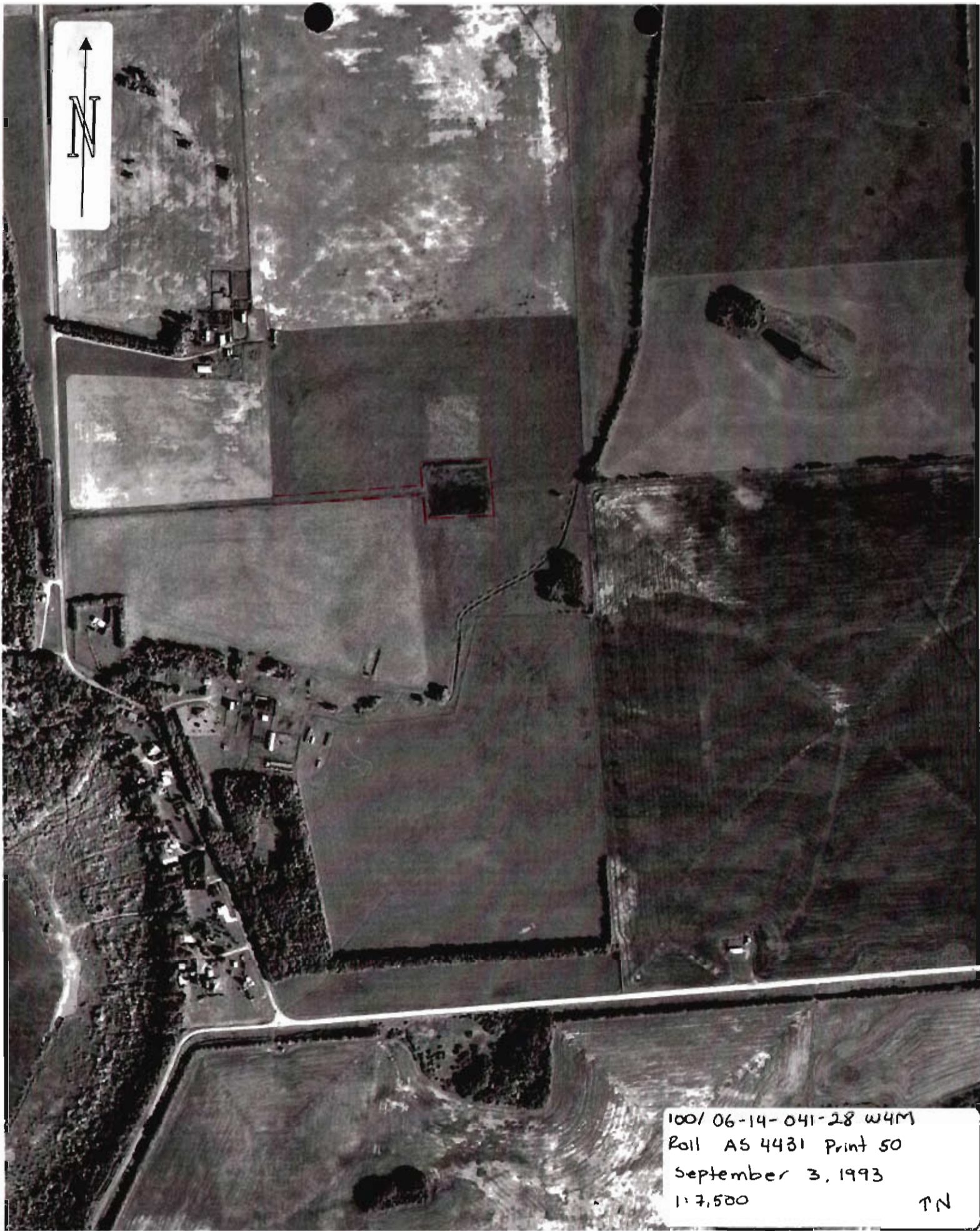
Air Photo Enlargement

Reference _____
Date of Photo 870725
Roll 3611
Print 16
Legal Des. 6-14-41-28-4
Org. Scale* 1:30 000
Enlargement Factor 4x

* Please note the original scale is a nominal value. Over the entire project, the scale will average out to the stated value. On an individual print, the scale may vary depending on local conditions.



Air Photo Distribution
Main Floor, 9920 - 108 Street
Edmonton, Alberta T5K 2M4
Telephone (780) 427-3520
Fax (780) 422-9683



100/06-14-041-28 W4M
Roll AS 4431 Print 50
September 3, 1993
1:7,500

TN

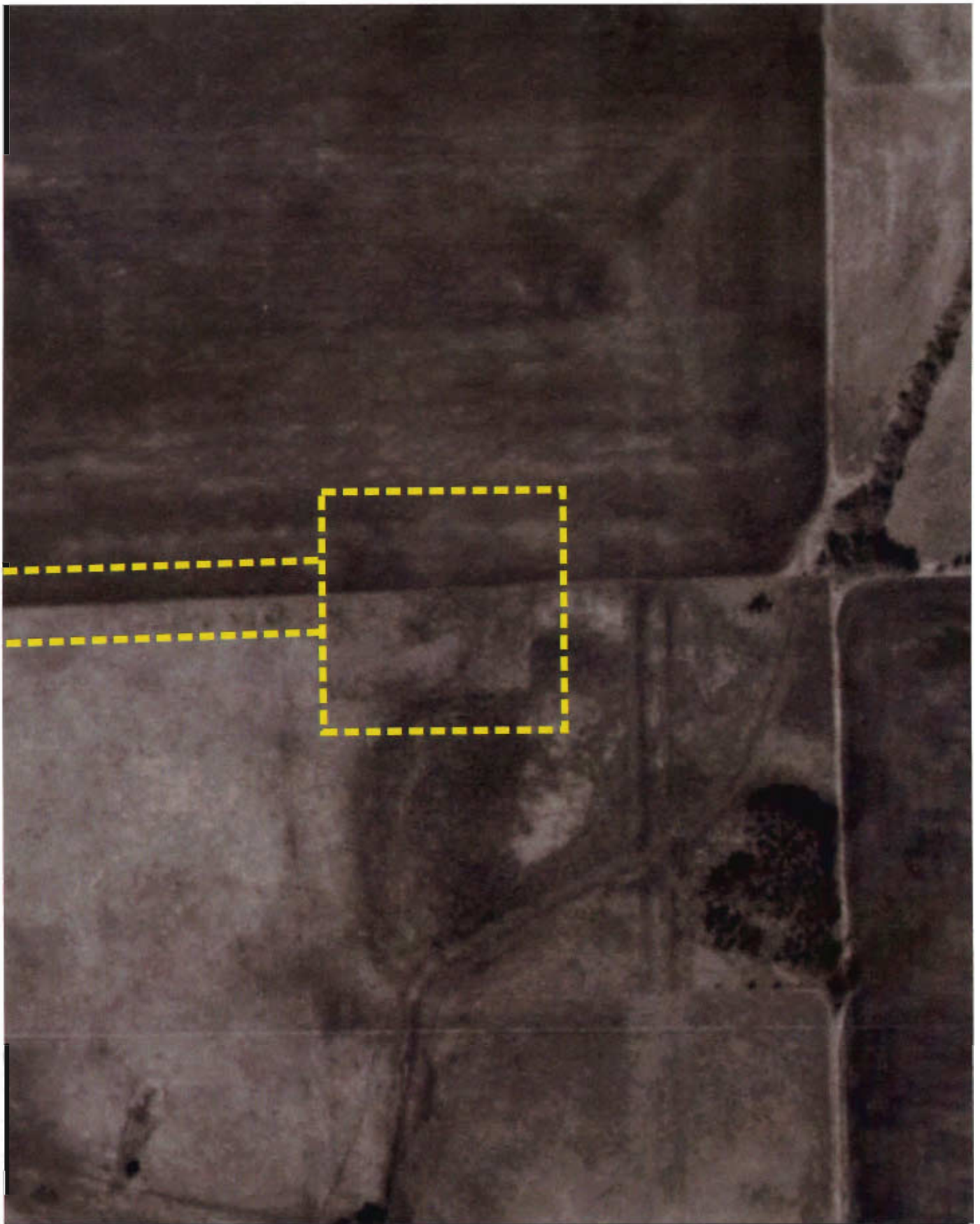
Air Photo Enlargement

Reference _____
Date of Photo 93 09 03
Roll 4431
Print 50
Legal Des. 6-14-41-28-4
Org. Scale* 1:20 000
Enlargement Factor 4x

* Please note the original scale is a nominal value. Over the entire project, the scale will average out to the stated value. On an individual print, the scale may vary depending on local conditions.



Air Photo Distribution
Main Floor, 9920 - 108 Street
Edmonton, Alberta T5K 2M4
Telephone (780) 427-3520
Fax (780) 422-9683



100/06-14-41-28-W4

↑ N

Print: 132
Roll: 4971

May 13, 1998
Scale 1: 2500

Gemini Twins Consulting Ltd.
★ ★

Well / Battery Name: Tarragon Hardy Gull
Legal Surface Location: LSD 6-14-41-28-W4



Photo 1. Northwest view of lease from southeast corner of lease



Photo 2. Northwest view of lease from southwest corner



Photo 3. Southeast view of lease from northwest corner



Photo 4. Eastern view along northern boundary of lease



Photo 5. Southwest view from northeast corner of lease



Photo 6. Western view of alfalfa on northern side of fence



Photo 7. Northeast view of lease from well bore



Photo 8. Southeast view of lease from well bore



Photo 9. Southwest view of lease from well bore



Photo 10. Northwest view of lease from well bore



Photo 11. West view of access road



Photo 12. West view of area infested with night-flowering catchfly



Photo 13. East view of controls on access road (note shorter vegetation)



Photo 14. West view of access road

Well Header [as of July 13, 2007]

Surface UWI: 100061404128W400	License: 1993-03-09
Well Name: TARRAGON HARDY GULL 6-14-41-28	Spud: 1993-03-09
Curr Licensee: HUSKY OIL OPERATIONS LIMITED	Rig Rel: 1993-03-16
Facility Op: N/A	Conf: 1994-03-15
Orig Licensee: HUSKY OIL OPERATIONS LIMITED	Current: 1993-03-16
Lahee: New Pool Wildcat	

Prd Zones: None	Fluid: N/A
Field: MORNINGSIDE (725)	Mode: Abandoned
Pool: Unknown	
Unit: Unknown	

KB: 912.8 m	SH Coord: S786.2 E617.3 (m)
Gr Elev: 908.3 m	BH Coord: S786.2 E617.3 (m)
TVD: 1870.0 m	Bore: Vertical
	BH Lat: 52.528862
	BH Long: -113.928972

Tops

System Tops (KB: 912.8 m)

Formation	TVD	Subsea	Isopach	Por Int
BLRV	782.0	130.8	278.6	6.0
LPRK	1060.6	-147.8	25.4	
MLKR	1086.0	-173.2	99.0	
CLRD	1185.0	-272.2	149.0	
CRDZ	1334.0	-421.2	31.0	
CRDM	1365.0	-452.2	10.0	
BLCK	1375.0	-462.2	111.0	
SSPK	1486.0	-573.2	87.7	
BFS	1573.7	-660.9	36.9	
VKNG	1610.6	-697.8	23.4	
JLFU	1634.0	-721.2	21.5	
MNVL	1655.5	-742.7	90.5	21.0
GLCC	1746.0	-833.2	23.0	15.0
OCNZ	1769.0	-856.2	18.0	2.0
ELRL	1787.0	-874.2	68.0	5.0
BNFF	1855.0	-942.2	0.0	

User Tops

No user tops have been entered for this well.

TVD: 1870.0 m
Est TD: N/A (BNFF)

DSTs and IPs
None available.

Cores
None available.

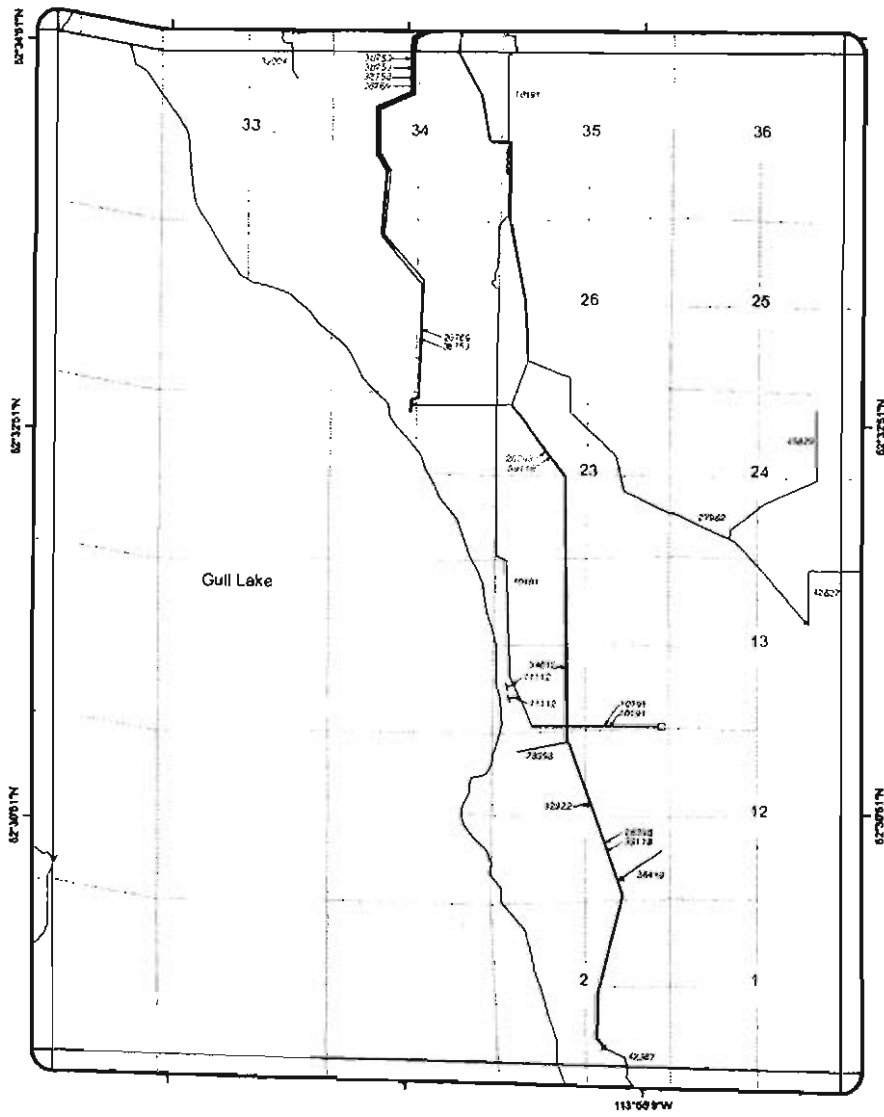
Perfs
None available.

Casings
1. 0.0 326.0 Sz 219.1mm

Logs Run

1.	GAMMA RAY
2.	SONIC/ACOUSTILOG
3.	CALIPER
4.	COMPENSATED NEUTRON
5.	FORMATION DENSITY/DENSILOG
6.	DUAL INDUCTION LATERLOG/GUARD LOG
7.	LITHOLOGY LOG
8.	CEMENT TOP LOCATION/CEMATON
9.	MUD/HYDROCARBON LOG

Production
There is no production associated with this well.



Coordinate System: 10TM



**ALL PIPELINES IN
TWP 041- 28W4**

REVISION DATE:
13 June 2007

CAUTION
- THIS PLOT REPRESENTS THE BEST
INFORMATION AVAILABLE TO THE
BOARD AT THIS TIME.
- SPECIFIC PIPELINE LOCATIONS
SHOULD BE OBTAINED FROM SURVEY
PLANS, OWNERS AND FIELD
OBSERVATION BEFORE DIGGING.
- LOW-PRESSURE GAS DISTRIBUTION
LINES ARE NOT SHOWN.
CONTACT THE GAS DISTRIBUTOR
IN THIS AREA FOR LINE LOCATION

LEGEND

PERMITTED: -----
LICENSED: -----
DISCONTINUED,
ABANDONED,
OR ABANDONED
AND PARTIALLY
REMOVED: -----

R28W4

CHEVRON CANADA

00/1-23/0 ◆

ON CANADA
00/16-15/0 ◆ HIGHPIKE O&G
00/13-14/0 ◆

HUSKY OIL

00/6-14/0 ◆

CHEVRON CANADA

00/7-14/0 ◆

ENERMARK INC.

00/8-14/0 ◆

T41

T41

EXORO ENERGY, EXORO ENERGY, EXORO ENERGY

02/6-14/0, 02/6-14/2, 02/6-14/3 * [B]

[RS]

[RS]

CHEVRON CANADA
00/13-14/0 ◆

[CS]

R28W4

WELL LEGEND

Bottom Hole Locations:

* Gas ◆ Dry & Abandoned
Abandoned Gas

Well Postings:

License: Curr
Well ID (UWI) *

STD. PIPELINES LEGEND

Pipeline Substances:

— Natural Gas

Husky Oil Ltd.

100/06-14-041-28W4

AccuMap

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Created in AccuMap™
Product of IHS
Datum: NAD 27
Vol. 17 No. 42, Jul. 9 2007
(483) 778-4646Author: autorod
Date: July 31, 2007
File: None
Scale: 1:9785
Projection: Stereographic
Center: NS2-52783 W113-92811

Scale 1:9785



Pipeline Header [as of July 11, 2007]

Approval: 39118

Licensee: KEYERA ENERGY LTD. (AOC0)

Address: 600, 144 - 4 AVENUE SW
CALGARY, ALBERTA T2P 3N4

Area Office: Red Deer

Substance: Natural Gas

H2S Conc: 0.00 mol/kmol

Pipeline Specification

ID	Outside Diam(mm)	Wall Thick(mm)	Material	Type	Grade	MOP (kPag)	Stress Level	Joints	Internal Protection
1	273.10	7.80	Steel	Z245.1	3592	9930.0	48.0	Welded	Uncoated
2	273.10	9.30	Steel	Z245.1	3592	9930.0	41.0	Welded	Uncoated
3*	114.30	4.00	Steel	Z245.1	3592	9930.0	40.0	Welded	Uncoated

Pipeline Location and Status

Line Nbr	From Location	From Facility	To Location	To Facility	Length (km)	Status	Env	ID	Licence Date
1	02-03-042-28W4	Compressor station	01-D5-044-01W5	Gas processing plant	24.80	Operating		1	1995-04-20
2	01-05-044-01W5	Pipeline	01-05-044-01W5	Pipeline	0.32	Operating		2	1995-10-23
3*	02-02-041-28W4	Well	02-03-042-28W4	Compressor station	11.00	Operating		3	1996-04-04

Pipeline Header (as of July 11, 2007)

Approval:	28398
Licensee:	BERKANA ENERGY CORP. (0C28)
Address:	2100, 801 - 6 AVENUE SW CALGARY, ALBERTA T2P 3W2
Area Office:	Red Deer
Substance:	Natural Gas
H2S Conc:	0.00 mol/kmol

Pipeline Specification

ID	Outside Diam(mm)	Wall Thick(mm)	Material	Type	Grade	MOP (kPag)	Stress Level	Joints	Internal Protection
1*	168.30	4.80	Steel	Z245.1	2902	9930.0	60.0	Welded	Uncoated
2	168.30	4.80	Steel	Z245.1	2902	9930.0	60.0	Welded	Uncoated

Pipeline Location and Status

Line Nbr	From Location	From Facility	To Location	To Facility	Length (km)	Status	Env	ID	Licence Date
1*	13-11-041-28W4	Well	14-22-041-28W4	Compressor station	5.00	Operating		1	1999-07-02
2	02-02-041-28W4	Well	14-11-041-28W4	Pipeline	3.20	Operating		2	1996-07-23

Pipeline Header [as of July 11, 2007]

Approval:	10191
Licensee:	ATCO GAS AND PIPELINES LTD. (SOUTH) (0144)
Address:	10035 - 105 STREET EDMONTON, ALBERTA T5J 2V6
Area Office:	Red Deer
Substance:	Natural Gas
H2S Conc:	0.00 mol/kmol

Pipeline Specification

ID	Outside Diam(mm)	Wall Thick(mm)	Material	Type	Grade	MOP (kPag)	Stress Level	Joints	Internal Protection
1	60.30	2.77	Steel	Z245.3	2901	8000.0	30.0	Welded	Uncoated
2	60.30	2.80	Steel	Z245.3	2901	4830.0	18.0	Welded	Uncoated
3	42.20	3.56	Steel	Z245.3	1721	2410.0	0.0	Welded	Uncoated
4	42.20	3.56	Steel	Z245.3	1721	2410.0	0.0	Welded	Uncoated
5	60.30	2.77	Steel	Z245.3	421	2410.0	0.0	Welded	Uncoated
29	60.30	2.77	Aluminum	6063	T1A	0.0	0.0	High Energy	Uncoated
111	60.30	3.20	Steel	Z245.1	2901	4830.0	16.0	Welded	Uncoated
112	60.30	2.80	Steel	Z245.3	2901	0.0	0.0	Welded	Uncoated
113	60.30	3.96	Steel	Z245.3	2901	4830.0	13.0	Welded	Uncoated
114	60.30	2.80	Steel	Z245.3	2901	4830.0	18.0	Welded	Uncoated
115	60.30	2.80	Steel	Z245.3	2901	0.0	0.0	Welded	Uncoated
116	60.30	3.96	Steel	Z245.3	2901	4830.0	13.0	Welded	Uncoated
117	60.30	2.80	Steel	Z245.3	2901	4830.0	18.0	Welded	Uncoated
118	60.30	2.80	Steel	Z245.3	2901	0.0	0.0	Welded	Uncoated
119	60.30	3.96	Steel	Z245.3	2901	4830.0	13.0	Welded	Uncoated
120*	60.30	2.80	Steel	Z245.3	2901	4830.0	18.0	Welded	Uncoated

Pipeline Location and Status

Line Nbr	From Location	From Facility	To Location	To Facility	Length (km)	Status	Env	ID	Licence Date
1	15-27-042-28W4	Pipeline	16-27-042-28W4	Regulator Station	0.42	Operating		1	1977-04-19
2	16-27-042-28W4	Regulator Station	16-27-042-28W4	Pipeline	0.03	Operating		2	1999-02-28
3	01-27-042-28W4	Pipeline	01-27-042-28W4	Regulator Station	0.03	Operating		3	1977-04-19
4	16-22-041-28W4	Pipeline	16-22-041-28W4	Regulator Station	0.03	Operating		4	1977-04-19
5	01-15-042-28W4	Pipeline	01-15-042-28W4	Regulator Station	0.03	Operating		5	1977-04-19
29	04-14-041-28W4	Blind end	01-14-041-28W4	Blind end	1.24	Abandoned		29	N/A
111	04-14-041-28W4	Pipeline	01-14-041-28W4	Regulator Station	1.25	Operating		111	1998-03-17
112	16-27-042-28W4	Blind end	01-27-042-28W4	Blind end	1.56	Abandoned		112	N/A
113	16-27-042-28W4	Pipeline	01-27-042-28W4	Pipeline	2.04	Operating		113	2002-10-04
114	01-27-042-28W4	Pipeline	04-02-042-28W4	Pipeline	7.02	Operating		114	1999-02-28
115	04-02-042-28W4	Blind end	13-35-041-28W4	Blind end	0.11	Abandoned		115	N/A
116	04-02-042-28W4	Pipeline	13-35-041-28W4	Pipeline	0.11	Operating		116	2002-10-04
117	13-35-041-28W4	Pipeline	05-35-041-28W4	Pipeline	0.87	Operating		117	1999-02-28
118	05-35-041-28W4	Blind end	05-35-041-28W4	Blind end	0.20	Abandoned		118	N/A
119	05-35-041-28W4	Pipeline	05-35-041-28W4	Pipeline	0.21	Operating		119	2002-10-04
120*	05-35-041-28W4	Pipeline	04-14-041-28W4	Regulator Station	5.70	Operating		120	1999-02-28

Alberta Energy and Utilities Board
FIS Release Incident External Record Report

Data Date: January 3, 2006

100/06-14-41-28-w4

Incident Number	19950387	19800724
Incident Type	Release	Release
Location	04-13-041-28W4	13-14-042-01W4
Licence Number		
Licence Type		
Incident Date	31-Jan-95	04-Sep-80
Incident Notification Date	31-Jan-95	04-Sep-80
Incident Complete Date	31-Jan-95	08-Sep-80
Source	Oil Well	Miscellaneous
Cause	Conversion	Conversion
Failure Type	Pump Failure	Operator Error
Injury Count	0	0
Fatality Count	0	0
Field Centre	Red Deer	Wainwright
Jurisdiction		Crown Public Lands
Strike Area	MORNSIDE	CHAUVINS
Licensee	EnCana Corporation	Canadian Reserve Oil And Gas Ltd.
Pipeline Lic Segment ID		
Pipeline Lic Line No		
Damage Type		
Test Failure		
Pipeline OD (mm)		
Pipe Grade		
Wall Thickness (mm)		
Substance Released	Salt/Produced Water	Crude Oil
Volume Released	1	21
Volume Recovered	1	0
Substance Released		
Volume Released		
Volume Recovered		
Substance Released		
Volume Released		
Volume Recovered		
Substance Released		
Volume Released		
Volume Recovered		
Release Offsite	No	Yes
Environment Affected	Air/Land	Air/Land
Sensitive Area	No	No
Wildlife/Livestock Affected	Conversion from ENV system	Conversion from ENV system
Public Affected	Conversion from ENV system	Conversion from ENV system
Area Affected		
Public Evacuated Count	Conversion from ENV system	Conversion from ENV system
Release Cleanup Date	31-Jan-95	08-Sep-80

Alberta Energy and Utilities Board
FIS Complaint Incident External Record Report



Data Date: January 3, 2006

100/08-14-41-28-w4

Incident_Number	19960037	19951832
Incident Type	Complaint	Complaint
Location	13-11-041-28W4	07-20-041-28W4
Licence Number	183202	
Licence Type	Well Licence	
Incident Date	18-Dec-95	29-Jul-95
Incident Notification Date	18-Dec-95	29-Jul-95
Incident Complete Date	19-Dec-95	29-Jul-95
Source	Unknown	Unknown
Cause Category	Conversion	Conversion
Cause Type	Conversion	Conversion
Strike Area	MORNSIDE	MORNSIDE
Field Centre	Red Deer	Red Deer
Licensee ID	380	0X27
Licensee Name	3504131 Canada Ltd.	own Operator/Address - Used by Field Survei
Source In Compliance		
Concern Category	Operational Impact	Operational Impact
Concern Type	Noise	Flare
Concern Category		
Concern Type		
Concern Category		
Concern Type		
Concern Category		
Concern Type		
Concern Category		
Concern Type		

Husky Oil Operations Limited 100/06-14-41-28-W4

Alberta Water Well Search



Legend

- Water Well
- Wellsite



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0275043
 Map Verified: Not Verified
 Date Report: 1987/06/22
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information		2. Well Location	
Company Name: UNKNOWN DRILLER		Drilling Company Approval No.: 99999	
Mailing Address: UNKNOWN		Postal Code: T0C 1S0	
City or Town: UNKNOWN AB CA		1/4 or Sec Twp Rge West of LSD 00 14 041 28 M 4	
Well Owner's Name: ETHIER, R.		Location in Quarter 0 FT from Boundary 0 FT from Boundary	
P.O. Box Number:		Lot Block Plan	
Mailing Address: RR3, LACOMBE		Well Elev: FT	
City:		How Obtain: Not Obtain	
3. Drilling Information		6. Well Yield	
Type of Work: Chemistry		Test Date (yyyy/mm/dd):	
Reclaimed Well		Start Time:	
Date Reclaimed:		Test Method:	
Materials Used:		Non pumping FT	
Method of Drilling: Unknown		static level:	
Flowing Well: No		Rate of water Gallons/Min removal:	
Rate: Gallons		Depth of FT	
Oil Present: No		pump intake: FT	
4. Formation Log		Water level at FT	
Depth from ground level (feet)		end of pumping:	
Lithology Description		Distance from Inches	
		top of casing to ground level:	
		Depth To water level (feet)	
		Elapsed Time	
		Drawdown Minutes: Sec Recovery	
		Total Drawdown: FT	
		If water removal was less than 2 hr duration, reason why:	
		Recommended pumping rate: Gallons/Min	
		Recommended pump intake: FT	
		Type pump installed	
		Pump type:	
		Pump model:	
		H.P.:	
		Any further pump test information?	
5. Well Completion			
Date Started (yyyy/mm/dd):		Date Completed (yyyy/mm/dd):	
Well Depth: 107 FT		Borehole Diameter: 0 Inches	
Casing Type:		Liner Type:	
Size OD: 0 Inches		Size OD: 0 Inches	
Wall Thickness: 0 Inches		Wall Thickness: 0 Inches	
Bottom at: 0 FT		Top: 0 FT Bottom: 0 FT	
Perforations from: 0 FT to: 0 FT		Perforations Size: 0 Inches x 0 Inches	
from: 0 FT to: 0 FT		0 Inches x 0 Inches	
from: 0 FT to: 0 FT		0 Inches x 0 Inches	
Perforated by:			
Seal: from: 0 FT to: 0 FT			
Seal: from: 0 FT to: 0 FT			
Seal: from: 0 FT to: 0 FT			
Screen Type: from: 0 FT to: 0 FT		Screen ID: 0 Inches	
Screen Type: from: 0 FT to: 0 FT		Slot Size: 0 Inches	
Screen Installation Method:			
Fittings Top: Bottom:			
Pack: Grain Size: Amount:			
Geophysical Log Taken: Retained on Files:			
Additional Test and/or Pump Data			
Chemistries taken By Driller: No			
Held: 1 Documents Held: 1			
Pitless Adapter Type:			
Drop Pipe Type:			
Length: Diameter:			
Comments:			
7. Contractor Certification			
Driller's Name: UNKNOWN DRILLER			
Certification No.:			

This well was constructed in accordance with the Water
Well regulation of the Alberta Environmental Protection
& Enhancement Act. All information in this report is true.
Signature Yr Mo Day

Report 1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0274996
 Map Verified: Not Verified
 Date Report
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information		2. Well Location	
Company Name: UNKNOWN DRILLER		Drilling Company Approval No.: 99999	
Mailing Address: UNKNOWN		Postal Code:	
City or Town: UNKNOWN AB CA		1/4 or Sec Twp Rge Westof LSD 07 14 041 28 M 4	
WellOwner's Name: CALIF STD CO#390		Location in Quarter 64 FT from N Boundary 420 FT from W Boundary	
P.O. Box Number:		Lot Block Plan	
City:		Well Elev: 2992.5 FT	
Province:		How Obtain: Survey-Air	
Country:			
3. Drilling Information		6. Well Yield	
Type of Work: Structure Test Hole		Test Date Start Time: (yyyy/mm/dd):	
Reclaimed Well		Test Method:	
Date Reclaimed:		Non pumping FT static level:	
Materials Used:		Rate of water Gallons/Min removal:	
Method of Drilling: Drilled		Depth of FT pump intake:	
Flowing Well: No		Water level at FT end of pumping:	
Gas Present: No		Distance from Inches top of casing to ground level:	
Rate: Gallons		Depth To water level (feet)	
Oil Present: No		Elapsed Time	
		Drawdown Minutes:Sec Recovery	
		Total Drawdown: FT	
		If water removal was less than 2 hr duration, reason why:	
		Recommended pumping rate: Gallons/Min	
		Recommended pump intake: FT	
		Type pump installed	
		Pump type:	
		Pump model:	
		H.P.:	
		Any further pumptest information?	
4. Formation Log		5. Well Completion	
Depth from ground level (feet)	Lithology Description	Date Started(yyyy/mm/dd):	Date Completed (yyyy/mm/dd): 1953/10/06
		Well Depth: 920 FT	Borehole Diameter: 0 Inches
		Casing Type:	Liner Type:
		Size OD: 0 Inches	Size OD: 0 Inches
		Wall Thickness: 0 Inches	Wall Thickness: 0 Inches
		Bottom at: 0 FT	Top: 0 FT Bottom: 0 FT
		Perforations from: 0 FT to: 0 FT	Perforations Size: 0 Inches x 0 Inches
		from: 0 FT to: 0 FT	0 Inches x 0 Inches
		from: 0 FT to: 0 FT	0 Inches x 0 Inches
		Perforated by:	
		Seal: from: 0 FT to: 0 FT	
		Seal: from: 0 FT to: 0 FT	
		Seal: from: 0 FT to: 0 FT	
		Screen Type: from: 0 FT to: 0 FT	Screen ID: 0 Inches Slot Size: 0 Inches
		Screen Type: from: 0 FT to: 0 FT	Screen ID: 0 Inches Slot Size: 0 Inches
		Screen Installation Method:	
		Fittings Top: Bottom:	
		Pack: Grain Size: Amount:	
		Geophysical Log Taken: ELECTRIC	
		Retained on Files: ELECTRIC yes	
		Additional Test and/or Pump Data	
		Chemistries taken By Driller: No	
		Held: 0 Documents Held: 1	
		Pitless Adapter Type:	
		Drop Pipe Type:	
		Length: Diameter:	
		Comments:	
7. Contractor Certification			
Driller's Name: UNKNOWN DRILLER			
Certification No.:			

This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true. Signature _____ Yr Mo Day _____
--

Report 1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0274998
 Map Verified: Not Verified
 Date Report: 1985/04/03
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: MIDWEST WATER WELL LTD.
 Mailing Address: City or Town: Postal Code:
 Well Owner's Name: PRECAMBRIAN/ARGUS 2#RIG WELL
 Well Location Identifier:
 P.O. Box Number: Mailing Address: Postal Code:
 City: Province: Country:

Drilling Company Approval No.:

2. Well Location

1/4 or Sec Twp Rge West of
 LSD M
 08 14 041 28 4
 Location in Quarter
 0 FT from Boundary
 0 FT from Boundary
 Lot Block Plan
 Well Elev: FT
 How Obtain: Not Obtain

3. Drilling Information

Type of Work: New Well
 Reclaimed Well
 Date Reclaimed: Materials Used:
 Method of Drilling: Rotary
 Flowing Well: No
 Gas Present: No
 Rate: Gallons
 Oil Present: No
 Proposed well use: Industrial
 Anticipated Water Requirements/day: 0 Gallons

6. Well Yield

Test Date: 1985/03/17
 Start Time: 11:00 AM
 Test Method: Pump
 Non pumping static level: 86 FT
 Rate of water removal: 10 Gallons/Min
 Depth of pump intake: 0 FT
 Water level at end of pumping: 242 FT
 Distance from top of casing to ground level: 156 FT
 Depth To water level (feet)
 Elapsed Time
 Drawdown Minutes: Sec Recovery
 Total Drawdown: 156 FT
 If water removal was less than 2 hr duration, reason why:
 Recommended pumping rate: 0 Gallons/Min
 Recommended pump intake: 242 FT
 Type Pump Installed
 Pump Type: GOULD
 Pump Model:
 H.P.: 3
 Any further pump test information?

4. Formation Log

Depth from ground level (feet)
Lithology Description
 110 Clay
 360 Shale & Sandy Stringers

5. Well Completion

Date Started (yyyy/mm/dd): 1985/03/17
 Date Completed (yyyy/mm/dd): 1985/03/17
 Well Depth: 360 FT
 Borehole Diameter: 0 Inches
 Casing Type: Steel
 Liner Type:
 Size OD: 5.5 Inches
 Size OD: 0 Inches
 Wall Thickness: 0.244 Inches
 Wall Thickness: 0 Inches
 Bottom at: 110 FT
 Top: 0 FT Bottom: 0 FT
 Perforations from: 0 FT to: 0 FT
 Perforations Size: 0 Inches x 0 Inches
 Perforations from: 0 FT to: 0 FT
 Perforations Size: 0 Inches x 0 Inches
 Perforations from: 0 FT to: 0 FT
 Perforations Size: 0 Inches x 0 Inches
 Perforated by:
 Seal: Driven
 from: 0 FT to: 110 FT
 Seal:
 from: 0 FT to: 0 FT
 Seal:
 from: 0 FT to: 0 FT
 Screen Type:
 from: 0 FT to: 0 FT
 Screen ID: 0 Inches
 Slot Size: 0 Inches
 Screen Type:
 from: 0 FT to: 0 FT
 Screen ID: 0 Inches
 Slot Size: 0 Inches
 Screen Installation Method:
 Fittings
 Top: Bottom:
 Pack:
 Grain Size: Amount:
 Geophysical Log Taken:
 Retained on Files:
 Additional Test and/or Pump Data
 Chemistries taken By Driller: Yes
 Held: 0 Documents Held: 1
 Pitless Adapter Type:
 Drop Pipe Type:
 Length: 22 FT Diameter: 1.25 Inches
 Comments:
 DRILLER REPORTS MEDIUM HARD WATER.

7. Contractor Certification

Driller's Name:	UNKNOWN DRILLER
Certification No.:	
This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true.	
Signature	Yr Mo Day

Report 1 Pump Test 1 page1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0167392
 Map Verified: Map
 Date Report: 1986/12/08
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information			2. Well Location		
Company Name: UNKNOWN DRILLER		Drilling Company Approval No.: 99999	1/4 or LSD	Sec NE	Twp 14
Mailing Address: UNKNOWN		City or Town: UNKNOWN AB CA	Rge 041	West of 28	Boundary 4
Well Owner's Name: SCOTT, WENDY		Well Location Identifier:	Location in Quarter 0 FT from Boundary 0 FT from Boundary		
P.O. Box Number:		Mailing Address: RR3 LACOMBE	Postal Code: T0C 1S0	Lot Block Plan	
City:		Province:	Country:	Well Elev: FT	How Obtain: Not Obtain
3. Drilling Information			6. Well Yield		
Type of Work: Chemistry		Proposed well use: Domestic	Test Date (yyyy/mm/dd):		
Reclaimed Well		Anticipated Water Requirements/day 0 Gallons	Start Time:		
Date Reclaimed:		Materials Used:	Test Method:		
Method of Drilling: Unknown			Non pumping FT static level:		
Flowing Well: No		Rate: Gallons	Rate of water removal: Gallons/Min		
Gas Present: No		Oil Present: No	Depth of pump intake: FT		
4. Formation Log		5. Well Completion		Water level at end of pumping: FT	
Depth from ground level (feet)	Lithology Description	Date Started (yyyy/mm/dd):	Date Completed (yyyy/mm/dd):	Distance from top of casing to ground level: Inches	
		Well Depth: 100 FT	Borehole Diameter: 0 Inches	Depth To water level (feet)	
		Casing Type:	Liner Type:	Elapsed Time	
		Size OD: 0 Inches	Size OD: 0 Inches	Drawdown Minutes: Sec Recovery	
		Wall Thickness: 0 Inches	Wall Thickness: 0 Inches	Total Drawdown: FT	
		Bottom at: 0 FT	Top: 0 FT Bottom: 0 FT	If water removal was less than 2 hr duration, reason why:	
		Perforations from: 0 FT to: 0 FT	Perforations Size: 0 Inches x 0 Inches	Recommended pumping rate: Gallons/Min	
		from: 0 FT to: 0 FT	0 Inches x 0 Inches	Recommended pump intake: FT	
		from: 0 FT to: 0 FT	0 Inches x 0 Inches	Type pump installed	
		Perforated by:		Pump type:	
		Seal:		Pump model:	
		from: 0 FT to: 0 FT		H.P.:	
		Seal:		Any further pump test information?	
		from: 0 FT to: 0 FT			
		Screen Type:	Screen ID: 0 Inches		
	from: 0 FT to: 0 FT	Slot Size: 0 Inches			
	Screen Type:	Screen ID: 0 Inches			
	from: 0 FT to: 0 FT	Slot Size: 0 Inches			
	Screen Installation Method:				
	Fittings				
	Top:	Bottom:			
	Pack:				
	Grain Size:	Amount:			
	Geophysical Log Taken:				
	Retained on Files:				
	Additional Test and/or Pump Data				
	Chemistries taken By Driller: No				
	Held: 2	Documents Held: 2			
	Pitless Adapter Type:				
	Drop Pipe Type:				
	Length:	Diameter:			
	Comments:				
7. Contractor Certification					
Driller's Name:		UNKNOWN DRILLER			
Certification No.:					

This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true. Signature _____ Yr Mo Day
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Report 1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0275029
 Map Verified: Not Verified
 Date Report: 1935/08/06
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: UNKNOWN DRILLER Drilling Company Approval No.: 99999
 Mailing Address: UNKNOWN City or Town: UNKNOWN AB CA Postal Code:
 Well Owner's Name: WILSON, A. Well Location Identifier:
 P.O. Box Number: Mailing Address: LACOMBE Postal Code:
 City: Province: Country:

2. Well Location

1/4 or Sec Twp Rge West of
 LSD M
 NW 14 041 28 4
 Location in Quarter
 0 FT from Boundary
 0 FT from Boundary
 Lot Block Plan
 Well Elev: 3000 FT How Obtain: Estimated

3. Drilling Information

Type of Work: Federal Well Survey Proposed well use: Unknown
 Reclaimed Well: Anticipated Water
 Date Reclaimed: Materials Used: Requirements/day
 Method of Drilling: Unknown 0 Gallons
 Flowing Well: No Rate: Gallons
 Gas Present: No Oil Present: No

6. Well Yield

Test Date Start Time:
 (yyyy/mm/dd):
 Test Method:
 Non pumping FT
 Static level:
 Rate of water Gallons/Min
 removal:
 Depth of FT
 pump intake:
 Water level at FT
 end of
 pumping:
 Distance from inches
 top of casing
 to ground
 level:
 Depth To water level (feet)
 Elapsed Time
 Drawdown Minutes: Sec Recovery

4. Formation Log

Depth
 from
 ground
 level
 (feet)
 Lithology Description

5. Well Completion

Date Started (yyyy/mm/dd): Date Completed (yyyy/mm/dd):
 Well Depth: 85 FT Borehole Diameter: 0 Inches
 Casing Type: Liner Type:
 Size OD: 0 Inches Size OD: 0 Inches
 Wall Thickness: 0 Inches Wall Thickness: 0 Inches
 Bottom at: 0 FT Top: 0 FT Bottom: 0 FT
 Perforations Perforations Size:
 from: 0 FT to: 0 FT 0 Inches x 0 Inches
 from: 0 FT to: 0 FT 0 Inches x 0 Inches
 from: 0 FT to: 0 FT 0 Inches x 0 Inches
 Perforated by:
 Seal:
 from: 0 FT to: 0 FT
 Seal:
 from: 0 FT to: 0 FT
 Seal:
 from: 0 FT to: 0 FT
 Screen Type: Screen ID: 0 Inches
 from: 0 FT to: 0 FT Slot Size: 0 Inches
 Screen Type: Screen ID: 0 Inches
 from: 0 FT to: 0 FT Slot Size: 0 Inches
 Screen Installation Method:
 Fittings
 Top: Bottom:
 Pack:
 Grain Size: Amount:
 Geophysical Log Taken:
 Retained on Files:
 Additional Test and/or Pump Data
 Chemistries taken By Driller: Yes
 Held: 0 Documents Held: 1
 Pitless Adapter Type:
 Drop Pipe Type:
 Length: Diameter:
 Comments:
 OWNER REPORTS SOFT WATER.

Total Drawdown: FT
 If water removal was less than 2 hr
 duration, reason why:
 Recommended pumping rate:
 Gallons/Min
 Recommended pump intake: FT
 Type pump installed
 Pump type:
 Pump model:
 H.P.:
 Any further pump test information?

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
 Certification No.:

This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true. Signature _____ Yr Mo Day _____
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Report 1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0152894
 Map Verified: Not Verified
 Date Report: 1990/09/06
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: G&S WATER WELL SERVICING
 Mailing Address: City or Town: Postal Code:
 Well Owner's Name: PRINS, RAY
 Well Location Identifier:
 P.O. Box Number: Mailing Address: RR 3, LACOMBE
 Postal Code:
 City: Province: Country:

Drilling Company Approval No.:

2. Well Location

1/4 or Sec Twp Rge West of
 LSD M
 SE 14 041 28 4
 Location in Quarter
 0 FT from Boundary
 0 FT from Boundary
 Lot Block Plan
 Well Elev: How Obtain:
 FT Not Obtain

3. Drilling Information

Type of Work: New Well
 Reclaimed Well
 Date Reclaimed: Materials Used:
 Method of Drilling: Rotary
 Flowing Well: No
 Gas Present: Rate: Gallons
 Oil Present: 0 Gallons

Proposed well use:
 Domestic
 Anticipated Water
 Requirements/day
 0 Gallons

6. Well Yield

Test Date: Start Time:
 (yyyy/mm/dd):
 1990/05/10 11:00 AM
 Test Method: Bailer
 Non pumping
 static level: 80 FT

4. Formation Log

Depth from ground level (feet)	Lithology Description
75	Clayey Sand & Gravel
80	Clay
85	Shale
90	Sandstone
100	Shale
128	Shale
132	Sandstone
152	Shale
157	Sandstone
165	Shale

5. Well Completion

Date Started (yyyy/mm/dd): 1990/05/08
 Date Completed (yyyy/mm/dd): 1990/05/10
 Well Depth: 165 FT
 Borehole Diameter: 0 Inches
 Casing Type: Steel
 Liner Type: Plastic
 Size OD: 5.56 Inches
 Size OD: 4 Inches
 Wall Thickness: 0.244 Inches
 Wall Thickness: 0.244 Inches
 Bottom at: 95 FT
 Top: 94 FT Bottom: 165 FT
 Perforations from: 130 FT to: 165 FT
 Perforations Size: 0.375 Inches x 0 Inches
 from: 0 FT to: 0 FT
 0 Inches x 0 Inches
 from: 0 FT to: 0 FT
 0 Inches x 0 Inches
 Perforated by: Machine
 Seal: Driven from: 95 FT to: 0 FT
 Seal: from: 0 FT to: 0 FT
 Seal: from: 0 FT to: 0 FT
 Screen Type: Screen ID: 0 Inches
 from: 0 FT to: 0 FT Slot Size: 0 Inches
 Screen Type: Screen ID: 0 Inches
 from: 0 FT to: 0 FT Slot Size: 0 Inches
 Screen Installation Method:
 Fittings
 Top: Bottom:
 Pack:
 Grain Size: Amount: 0
 Geophysical Log Taken:
 Retained on Files:
 Additional Test and/or Pump Data
 Chemistries taken By Driller: No
 Held: 0 Documents Held: 1
 Pitless Adapter Type:
 Drop Pipe Type:
 Length: FT Diameter: Inches
 Comments:

Rate of water removal: 4 Gallons/Min
 Depth of pump intake: 140 FT
 Water level at end of pumping: 125 FT
 Distance from top of inches casing to ground level:
 Depth To water level (feet)
 Elapsed Time
 Drawdown Minutes: Sec Recovery
 Total Drawdown: 45 FT
 If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: 4 Gallons/Min
 Recommended pump intake: 0 FT
 Type Pump Installed
 Pump Type:
 Pump Model:
 H.P.:
 Any further pump test information?

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
 Certification No.:

Certification No. 3092

This well was constructed in accordance with the Water
Well regulation of the Alberta Environmental Protection
& Enhancement Act. All information in this report is true.

Signature

Yr Mo Day

Report 1 Pump Test 1 page1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0280613
 Map Verified: Map
 Date Report: 1983/09/20
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information		2. Well Location	
Company Name: FRASER, JACK		Drilling Company Approval No.:	
Mailing Address:		City or Town:	
Well Owner's Name: MACLEOD, ALLAN		Well Location Identifier:	
P.O. Box Number: 1959		Mailing Address: (WILSON BEACH), CLARESHOLM	
City:		Postal Code: T0L 0T0	
Province:		Country:	
3. Drilling Information		6. Well Yield	
Type of Work: New Well		Test Date: 1983/08/18	
Reclaimed Well		Start Time: 11:00 AM	
Date Reclaimed:		Test Method: Pump	
Method of Drilling: Cable Tool		Non pumping static level: 25 FT	
Flowing Well: No		Rate of water removal: 10 Gallons/Min	
Gas Present: No		Depth of pump intake: 75 FT	
4. Formation Log		Water level at end of pumping: 50 FT	
Depth from ground level (feet)		Distance from top of casing to ground level:	
Lithology Description		Depth To water level (feet) Elapsed Time	
4 Black Topsoil		Drawdown Minutes: Sec Recovery	
44 Medium Grained Sand		Total Drawdown: 25 FT	
62 Brown Clay & Gravel		If water removal was less than 2 hr duration, reason why:	
82 Blue Clay & Gravel		Recommended pumping rate: 0 Gallons/Min	
90 Blue Fine Grained Sandstone		Recommended pump intake: 75 FT	
5. Well Completion		Type Pump Installed	
Date Started (yyyy/mm/dd): 1983/08/16		Pump Type:	
Date Completed (yyyy/mm/dd): 1983/08/18		Pump Model: GOULD 7EHOS	
Well Depth: 90 FT		H.P.: .5	
Borehole Diameter: 0 Inches		Any further pump test information?	
Casing Type: Steel			
Liner Type:			
Size OD: 5.56 Inches			
Wall Thickness: 0 Inches			
Bottom at: 84 FT			
Top: 0 FT Bottom: 0 FT			
Perforations from: 0 FT to: 0 FT			
Perforations Size: 0 Inches x 0 Inches			
Perforations from: 0 FT to: 0 FT			
Perforations Size: 0 Inches x 0 Inches			
Perforations from: 0 FT to: 0 FT			
Perforations Size: 0 Inches x 0 Inches			
Perforated by:			
Seal: Driven			
Seal: from: 0 FT to: 0 FT			
Seal: from: 0 FT to: 0 FT			
Seal: from: 0 FT to: 0 FT			
Screen Type:			
Screen ID: 0 Inches			
Slot Size: 0 Inches			
Screen Type:			
Screen ID: 0 Inches			
Slot Size: 0 Inches			
Screen Installation Method:			
Fittings			
Top: Bottom:			
Pack:			
Grain Size: Amount:			
Geophysical Log Taken:			
Retained on Files:			
Additional Test and/or Pump Data			
Chemistries taken By Driller: No			
Held: 0 Documents Held: 1			
Pitless Adapter Type:			
Drop Pipe Type:			
Length: 75 FT Diameter: 1 Inches			
Comments:			
ORIGINALLY IN SE-10-41-28-4			
7. Contractor Certification			
Driller's Name: UNKNOWN DRILLER			
Certification No.:			

This well was constructed in accordance with the Water
Well regulation of the Alberta Environmental Protection
& Enhancement Act. All Information in this report is true.
Signature Yr Mo Day

Report 1 Pump Test 1 page1



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 1200088
 Map Verified: Not Verified
 Date Report: 2006/10/16
 Received:
 Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: CLIFF'S DRILLING
 Mailing Address: BOX 3
 Well Owner's Name: SCHELLENBERG, JAKE
 P.O. Box Number:
 City: LACOMBE
 Drilling Company Approval No.: 119381
 City or Town: BASHAW AB CA
 Well Location Identifier:
 Mailing Address: RR 3
 Province: AB
 Postal Code: T0B 0H0
 Postal Code: T4L 2N3
 Country: CA

2. Well Location

1/4 or Sec Twp Rge West of
 LSD M
 SW 14 041 28 4
 Location in Quarter
 FT from N Boundary
 FT from E Boundary
 Lot 19 Block 8 Plan 5600MC
 Well Elev: FT
 How Obtain: Not Obtain

3. Drilling Information

Type of Work: New Well
 Reclaimed Well
 Date Reclaimed:
 Method of Drilling: Rotary
 Flowing Well: No
 Gas Present: No
 Proposed well use: Domestic
 Anticipated Water Requirements/day
 Gallons
 Materials Used: Unknown
 Rate: Gallons
 Oil Present: No

6. Well Yield

Test Date (yyyy/mm/dd): 2003/05/14
 Start Time: 11:00 AM
 Test Method: Air
 Non pumping static level: 36 FT

4. Formation Log

Depth from ground level (feet)	Lithology Description
30	Sand
63	Blue Till
72	Blue Shale
79	Sandstone
85	Blue Shale
93	Sandstone
100	Blue Shale

5. Well Completion

Date Started (yyyy/mm/dd): 2003/05/14
 Date Completed (yyyy/mm/dd): 2003/05/14
 Well Depth: 100 FT
 Borehole Diameter: 5.125 Inches
 Casing Type: Plastic
 Liner Type: Plastic
 Size OD: 6 Inches
 Size OD: 4.5 Inches
 Wall Thickness: 0.432 Inches
 Wall Thickness: 0.237 Inches
 Bottom at: 71 FT
 Top: 56 FT Bottom: 100 FT
 Perforations from: 80 FT to: 100 FT
 Perforations Size: 0.25 Inches x 10 Inches
 from: FT to: FT
 Inches x Inches
 from: FT to: FT
 Inches x Inches
 Perforated by: Saw
 Seal: Driven
 from: FT to: 71 FT
 Seal: Formation Packer
 from: FT to: 60 FT
 Seal: Formation Packer
 from: FT to: 80 FT
 Screen Type: Unknown
 Screen ID: Inches
 from: FT to: FT
 Slot Size: Inches
 Screen Type: Unknown
 Screen ID: Inches
 from: FT to: FT
 Slot Size: Inches
 Screen Installation Method: Unknown
 Fittings
 Top: Unknown Bottom: Unknown
 Pack: Unknown
 Grain Size: Amount: Unknown
 Geophysical Log Taken:
 Retained on Files:
 Additional Test and/or Pump Data
 Chemistries taken By Driller: No
 Held: Documents Held:
 Pitless Adapter Type:
 Drop Pipe Type:
 Length: FT Diameter: Inches
 Comments:

Rate of water removal: 30 Gallons/Min
 Depth of pump intake: 55 FT
 Water level at end of pumping: 55 FT

Distance from top of 24 inches casing to ground level:

Depth To water level (feet)	Elapsed Time
Drawdown Minutes:Sec Recovery	
2:00	40
3:00	39.8
4:00	38.1
5:00	38.6
6:00	38.4
7:00	38.2
8:00	38.1
9:00	37

Total Drawdown: 19 FT
 If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: 15 Gallons/Min
 Recommended pump intake: 55 FT

Type Pump Installed
 Pump Type:
 Pump Model:
 H.P.:

Any further pump test information? No

7. Contractor Certification

Driller's Name: CLIFFORD BUELOW
 Signature:

Certification NO..	VA3400
This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true.	
Signature	Yr Mo Day

Report 1 Pump Test 1 page1

Schedule Three

Drilling Waste Documentation

Please check off the appropriate boxes indicating which documents are included in this Schedule.

- ☐ Guide 50 Notification Form (*Directive 50: Drilling Waste Management, EUB 1996*) or form with equivalent information used for reporting under *Guide G-50: Drilling Waste Management* (ERCB 1993).
- ☒ Assessing Drilling Waste Disposal Areas: Compliance Option Checklist
- ☒ Assessing Drilling Waste Disposal Areas: Compliance Option Calculations
- ☐ AENV Professional Declaration Form - This form must be signed for work completed after January 1, 2008
- ☐ _____
- ☐ _____

Compliance Option 2 - Drilling Waste Disposal Assessment Checklist

If any response to the checklist questions leads to a phase 2 ESA requirement, one must be conducted in accordance with Compliance Options Three. If the information required in the Compliance Option Two Checklist is not available, a Phase 2 ESA must be completed.

1. General Disposal and Drilling Fluid Information:

The well licensee should be able to review various sources of information pertaining to the drilling activities on-site. Many information sources, other than the *Notification of Drilling Waste Disposal* form from *Directive 50*, can be reviewed for information relating to the drilling waste disposal and drilling fluid systems. These can include Tour Reports, daily drilling records, well files, and contractor invoices.

- 1.0 Well Information: Unique Identifier (UI) 100/06-14-041-28W4/00
 Spud Date March 9, 1993
 Well Depth 1870.0m
- 1.1 Disposal Method (if known)*: Unknown
 *If waste was disposed of at an EUB or AENV approved facility, list supporting documentation under Reference Documents.
- 1.2 Disposal Location (if known)**: Unknown, likely on site
 **If checklist indicates that a Phase 2 ESA is required, it must be undertaken at the disposal location. If the disposal location is unknown, the Phase 2 ESA must be undertaken at the wellsite.

For the purpose of this form: if the disposal method and/or location remains unknown after all available information sources have been checked, the drilling waste disposal location is assumed to be onsite.

	Yes	No
1.3 Was the well re-entered or another well drilled on the same site using fluids containing fluid additives? If yes, were the disposal areas separate from one another?	☐ ☐ Drilling waste information must be evaluated for each disposal.	☒ ☐ Drilling waste information must be evaluated by combining the combined drilling fluid additives and well depths. If drilling waste information is missing or incomplete for one or both wells, a Phase 2 is required.
1.4 Has the well licensee reviewed the Daily Drilling Records and other available drilling documentation?	☒	☐ Phase 2 required

1.5 Can it be determined from the available records what type of drilling fluid system was used?	☒	☐ Phase 2 required
1.6 Were water-based drilling fluids used for all sections (i.e., gel chemical drilling fluid systems)? If No, is there evidence that demonstrates the non water-based wastes were disposed of in a manner consistent with <i>Directive 50</i> or <i>Directive 58</i> (i.e. appropriately approved waste management facility)?	☒ ☐	☐ ☐ Phase 2 required
1.7 Is a mud list available? If Yes, can all the additives on the mud list be identified and described? Record the additives and their description (e.g., chrome-free lignosulfonate, aldehyde-based bactericide etc.) on the attached form.	☒ ☒	☐ Phase 2 required ☐ Phase 2 required
1.8 Do the Daily Drilling Records show evidence of a flow or kick that may have resulted in the introduction of produced fluids (i.e., hydrocarbons or salts) into the drilling fluids? If Yes, is there information/documentation available to demonstrate that they were appropriately treated or disposed of as per <i>Directive 50</i> or <i>Directive 58</i> (i.e. , approved waste management facility)?	☐ ☐	☒ ☐ Phase 2 required
1.9 Do the Daily Drilling Records show evidence of returned drill stem test fluids containing salt or oil? If Yes, is there information/documentation available to demonstrate that they were appropriately treated or disposed of as per <i>Directive 50</i> or <i>Directive 58</i> (i.e. , approved waste management facility)? If No, is there sufficient information/documentation available to complete the DST calculations?	☐ ☐ ☐ Show calculation on attached form	☒ ☐ ☐ Phase 2 required

2. Hydrocarbon Management

	Yes	No
2.1 Was the well a horizontal oil well? If Yes, Is there evidence that wastes were disposed of in a manner consistent with <i>Directive 50 or Directive 58</i> (i.e. approved waste management facility)?	☐ ☐	☒ ☐ Phase 2 required
2.2 Was the well drilled using under-balanced techniques? If Yes, is there information/documentation available to demonstrate that the drilling wastes were disposed of in a manner consistent with <i>Directive 50 or Directive 58</i> (i.e., approved waste management facility)?	☐ ☐	☒ ☐ Phase 2 required
2.3 Was hydrocarbon added to the drilling fluid? If Yes, was the hydrocarbon contaminated drilling waste disposed of in a manner consistent with <i>Directive 50 or Directive 58</i> (i.e., approved waste management facility)?	☐ ☐	☒ ☐ Phase 2 required

3. Metals (Trace Elements) Management

	Yes	No
3.1 Was barite added to the drilling fluid? If Yes, did it meet the requirements specified in the attached metal calculation table?	☐ ☐ Show calculation on attached form	☒ ☐ Phase 2 required
3.2 Was zinc carbonate added to the drilling fluid? If Yes, did it meet the requirements specified in the attached metal calculation table?	☐ ☐ Show calculation on attached form	☒ ☐ Phase 2 required
3.3 Were chrome-based thinners added to the drilling fluid? If Yes, did it meet the requirements specified in the attached metal calculation table?	☒ ☒ Show calculation on attached form	☐ ☐ Phase 2 required
3.4 Were any other additives used that would have triggered testing for metals under Guide 50? If Yes, are waste analytical data and application rates (land treatment, landspreading) or maximum application (mix-bury-cover) available? If above data are available, did the application rate or maximum application meet Directive 50 requirements?	☐ ☐ ☐	☒ ☐ Phase 2 required ☐ Phase 2 required

4. Salinity Management

	Yes	No
4.1 Does the water based drilling waste meet the requirements specified in the attached Salt Calculation Table?	☐ Show calculation on attached form	☒ Phase 2 required
4.2 Was a salt zone encountered during drilling? If Yes, is there evidence that demonstrates the drilling wastes were disposed of in a manner consistent with Directive 50 or Directive 58 (i.e. appropriately approved waste management facility)?	☐ ☐	☒ ☐ Phase 2 required

Mud Additives (Attach additional pages if necessary.)

Product Name	Amount Used (sacks)	Brief Description of Product
enkapsulator	1	Liquid polyacrylamide; shale control inhibitor, filtrate reducer, flocculant, lubricant.
gel	323	Viscosifier
caustic soda	8	NaOH; bactericide, calcium remover
soda ash	5	Na ₂ CO ₃ ; calcium remover
lime	17	Hydrated lime; shale control inhibitor, pH control
lignite	6	Filtrate reducer, weighting material, thinner
CMC	1	Carboxymethyl cellulose; filtrate reducer
gypsum	116	Calcium sulphate; flocculant
pelthin	1	Chrome lignosulphonate; thinner
floc II	9 pails	Polyacrylamide; flocculant

Reference Documents (List all source documents used in the completion of this checklist. Attach additional pages if necessary. Documents must be supplied to Alberta Environment, if requested.)

Husky wellsite files
Various websites for drill mud additive information

Comments (Please provide any additional comments relevant to the decision process within the checklist. Attach additional pages if necessary.)

Chromium-based Thinner:

Alternative 2:

If the above data is not available use the following equation to calculate the number of sacks of chrome thinner added per meter drilled. If the number of sacks exceeds the limits below, a Phase 2 is required.

Directions: Fill in the number of sacks and adjust for sack weight if different than 25 kg. Enter the Well Depth in metres. The spreadsheet will calculate the number of sacks per metre. This value must be less than or equal to **0.020**. If the value exceeds the objective, a Phase 2 ESA must be conducted.

Total Number of Sacks (25 kg/sack*)		Well Depth (m)		Mix Ratio**		Sacks per Metre
1	÷	1870	÷	1	=	0.000535

* Sack weight may be adjusted by dividing the number of sacks by 25 and multiplying by the actual sack weight in kilograms. This value should be entered as the number of sacks.

** Enter the number of parts of soil mixed with one part of waste. For example, for a 3:1 mix ratio (3 parts soil to 1 part waste) enter "3". If this value is not known, enter 1 for wells drilled before October 22 1996, or 3 for wells drilled on or after this date.

0.000535 = Meets/passes

Alternative 2

If the volume of drilling waste is not known, use the following calculator to determine the NaOH Equivalent Sacks per metre of well depth. This value must be less than **0.0260** for wells drilled before October 22 1996, or **0.0350** for wells drilled on or after this date. If the value exceeds the target, a Phase 2 ESA must be conducted.

Directions: Fill in the number of sacks and adjust for sack weight if different than 25 kg. Enter the Well Depth in metres. The spreadsheet will calculate the NaOH Equivalent Sacks per Metre.

Additive	Number of sacks (25 kg/sack*)		NaOH Equivalency Factor		NaOH Equivalent Sacks
Caustic Soda	8	X	1.00	=	8
Soda Ash	5	X	0.75	=	3.75
Sodium Chloride		X	0.68	=	0
Sodium Bicarbonate		X	0.95	=	0
Sodium Silicate		X	1.37	=	0
Sodium acid pyrophosphate (SAPP)		X	0.22	=	0
Calcium Chloride		X	0.72	=	0
Calcium Nitrate		X	0.34	=	0
Envirofloc		X	0.41	=	0
Gypsum**	37.4	X	0.59	=	22.066
Lime**	17	X	1.08	=	18.36
** Max = 0.02 x well depth (m)					
Potassium chloride		X	0.54	=	0
Potassium sulphate		X	0.46	=	0
Caustic potash		X	0.71	=	0
Potassium formate		X	0.47	=	0
Potassium silicate		X	0.32	=	0
Potassium nitrate		X	0.40	=	0
Diammonium phosphate		X	0.63	=	0
Ammonium nitrate		X	0.57	=	0
Ammonium sulphate		X	0.61	=	0
Drill Stem Test Returns		X	0.68	=	0
Total NaOH Equivalent Sacks					= 52.176
Well Depth (m)					÷ 1870
NaOH Equivalent Sacks per Metre					= 0.027901604

* Sack weight may be adjusted by dividing the number of sacks by 25 and multiplying by the actual sack weight in kilograms. This value should be entered as the number of sacks.

** Note: Up to 0.02 sacks of gypsum and lime per metre of well depth should be counted with other salt additives. Because of the limited solubility of gypsum and lime, sacks in excess of this value need not be counted.

0.028 = Exceeds/fails

Schedule Four

Phase 2 Environmental Site Assessment

Please check off the appropriate boxes indicating which documents are included in this Schedule.

- ☒ Phase 2 Environmental Site Assessment including Lab Analytical Data
- ☐ Report describing Remediation Work
- ☐ Confirmatory Lab Analytical Data
- ☒ Site Photographs
- ☒ AENV Professional Declaration Form - This form must be signed for work completed after January 1, 2008
- ☒ Record of Site Condition Form
- ☐ _____

RECORD OF SITE CONDITION

1 REPORT AND FORM INFORMATION

Title of report	Phase II Environmental Site Assessment		
Report date (dd-mon-yyyy)	30-Jan.-2008	Record of Site Condition (RSC) ID No. ^ψ	

2 SITE IDENTIFICATION AND PHYSICAL LOCATION

2.1 Site name	Tarragon Hardy Gull 6-14-41-28							
2.2 Address of site	06-14-041-28 W4M							
	Municipality		Lacombe County				Alberta	
2.3 Legal land description of site (if multiple, list all.)								
Plan, Block, Lot (PBL)			Alberta Township System (ATS)					
Plan	Block	Lot	LSD	Quarter	Section	Township	Range	Meridian
			06	W1/2	14	041	28	W4

3 STAKEHOLDERS

3.1 Operator			
Company	Husky Oil Operations	Contact person	Steve Kullman
		Position held	Remediation Engineer
Mailing address	707 8th Avenue SW Box 6526, Station D Calgary, Alberta T2P 3G7	Business phone No.	403-298-7426
		Business fax No.	403-750-1723
		Business e-mail	steve.kullman@huskyenergy.com
3.2 Consultant ☐ Not applicable			
Company	Bio-Synergy Resources Inc.	Contact person	Kyla Downey
		Position held	
Mailing address	Bay 2, 5571 - 45 Street, Red Deer, Alberta T4N 1L2	Business phone No.	888-569-1234
		Business fax No.	
		Business e-mail	Kyla@biosynergyresources.com
3.3 Landowner(s)			
Land type	☒ Private ☐ Special Areas ☐ Parks and protected area ☐ Public (if not private, provide Disposition No.: _____)		
Landowner(s)	☐ Same as operator ☒ Other		

^ψ: Do not fill in. Reserved for internal administrative purposes only.

RECORD OF SITE CONDITION

3.4 Occupant(s)			
Are there occupants at the site?	☒ Yes	☐ No	☐ To be determined (TBD)
Occupant(s)	☐ Same as operator	☒ Same as landowner	☐ Other
What is the type of occupancy?	☐ Apartment building	☐ Town house	☐ Single detached house
	☒ Agricultural	☐ Industrial	☐ Commercial
	☐ Other (specify) _____		

4 OPERATING STATUS				
☐ Operating	☐ Suspended	☒ Abandoned	☐ Decommissioning in progress	☐ Closed
☐ Reclaimed (provide Reclamation Certificate No.(s): _____)			☐ Not applicable	

5 TYPE OF ACTIVITY AND SITE					
5.1 Petroleum Storage Tank Site				☐ Yes	
5.1.1 AENV file No.(s)				PTMAA site No.	
5.1.2 Types of activity					
☐ Retail gas station	☐ Aviation fuelling station	☐ Bulk fuel	☐ Other (specify): _____		
5.2 Upstream Oil and Gas Facility				☒ Yes	
5.2.1 AENV file No.(s)				ERCB authorization No.(s)	
				0157107	
5.2.2 ERCB authorization type		☐ Approval ☒ License ☐ Permit ☐ Order ☐ Other (specify) _____			
5.2.3 Types of activity					
☒ Wellsite and associated facility	☐ Satellite	☐ Battery	☐ Pipeline		
☐ Compressor and pumping station	☐ Other (specify): _____				
5.3 Approved Facility Under Environmental Protection and Enhancement Act (EPEA)					☐ Yes
5.3.1 AENV approval No.(s)					
5.3.2 Types of approved activity					
☐ Chemical manufacturing plant	☐ Enhanced recovery in-situ oil sands or heavy oil processing plant	☐ Fertilizer manufacturing plant	☐ Landfill		
☐ Metal manufacturing plant	☐ Oil refinery	☐ Oilsands processing plant	☐ Oil production site		
☐ Pesticide manufacturing plant	☐ Petrochemical manufacturing plant	☐ Pipeline	☐ Power plant		
☐ Pulp and paper processing plant	☐ Sour gas processing plant	☐ Sulphur manufacturing or processing plant	☐ Waste management facility		
☐ Wood treatment plant	☐ Other (specify): _____				

RECORD OF SITE CONDITION

5.4 Facility Under EPEA Code of Practice		☐ Yes	
5.4.1 AENV registration No.(s)			
5.4.2 Type of Code of Practice			
☐ Asphalt paving plant	☐ Compressor and pumping station	☐ Concrete producing plant	☐ Landfill
☐ Pesticides	☐ Pipeline	☐ Land treatment of soils containing hydrocarbons	☐ Sand and gravel pit
☐ Small incinerator	☐ Sweet gas processing plant	☐ Other (specify): _____	
5.5 Other Activity		☐ Yes	
5.5.1 AENV file No.(s)	Other site ID No.(s)	Authorized by	
5.5.2 Types of activity			
☐ Dry cleaning operation	☐ Highway maintenance yard	☐ Transportation	
☐ Other (specify): _____			

6 SITE CHARACTERIZATION			
6.1 What Environmental Site Assessments (ESA) Have Been Conducted and Completed to Date?			
☒ Phase I ESA ☒ Phase II ESA (check all that apply.) ☒ Initial intrusive sampling ☐ delineation completed ☐ post-remediation monitoring ☐ final confirmatory sampling			
6.2 Contaminants of Potential Concern (COPC)			
6.2.1 Does the site have any of the conditions that require the mandatory use of Alberta Tier 2 Soil and Groundwater Remediation Guidelines (2008), as amended? (check all that apply in Section 6.2.1.1.) ☐ Yes ☒ No (→ proceed to Section 6.2.2.)			
6.2.1.1 Identify any conditions that require the approaches of the Alberta Tier 2 guidelines. (see Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2008), as amended, for details.)			
☐ Contamination within 30 cm of building foundation	☐ Unusual building feature (eg. earthen floor)	☐ Contamination within 10 m distance of surface water body	
☐ Fractured bedrock	☐ Potentially high hydraulic conductivity ($> 10^{-5}$ m/sec.)	☐ Other (see Alberta Tier 1 guidelines and specify): _____	
6.2.1.2 Did the Alberta Tier 2 approach lead to a soil or groundwater guideline that was lower than the corresponding Tier 1 guideline for the same contaminant(s)? ☐ Yes ☐ TBD ☐ No (→ proceed to Section 6.2.2.)			
6.2.1.3 If you answered 'yes' or 'TBD' to Section 6.2.1.2, identify the group of contaminants for each COPC with a mandatory Tier 2 guideline that is lower than the corresponding Tier 1 guideline (check all that apply, see Alberta Tier 1 guidelines, Tables 1-4 for detailed listing).			
☐ General and inorganic parameters	☐ Metals		
☐ Hydrocarbons	☐ Halogenated aliphatics		
☐ Chlorinated aromatics	☐ Pesticides		
☐ Other organics	☐ Radionuclides		
☐ Salt	☐ Other (specify): _____		

RECORD OF SITE CONDITION

6.2.1.4 Did any past or current ESA relevant to this investigation identify an exceedance of the mandatory Tier 2 guidelines referred to in Section 6.2.1.3 (e.g. Tier 2 guidelines that are lower than the corresponding Tier 1 guidelines)?		☐ Yes	☐ No	☐ TBD
6.2.1.5 If you answered 'yes' in Section 6.2.1.4, have all relevant COPC been remediated to meet the mandatory Tier 2 guidelines?		☐ Yes	☐ No	
6.2.2. Did any past or current ESA relevant to this investigation identify a drilling waste disposal area?				
☒ Yes ☐ No (→ proceed to Section 6.2.3.)				
6.2.2.1 If a drilling waste disposal area was identified, did any past or current ESA identify non-compliance with the compliance options outlined in <i>Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification</i> (AENV, 2007), as amended?				
☐ Yes ☒ No				
6.2.2.2 If you answered 'yes' in Section 6.2.2.1, have all COPC been remediated to meet the compliance options outlined in <i>Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification</i> (AENV, 2007), as amended?				
☐ Yes ☐ No				
6.2.2.3 For any COPC that did not meet the compliance options in <i>Assessing Drilling Waste Disposal Areas</i> , identify the group of contaminants (check of all that apply, see the Alberta Tier 1 guidelines, Tables 1-4 for detailed listing).				
☐ General and inorganic parameters	☐ Metals			
☐ Hydrocarbons	☐ Halogenated aliphatics			
☐ Chlorinated aromatics	☐ Pesticides			
☐ Other organics	☐ Radionuclides			
☐ Salt	☐ Other (specify): _____			
6.2.3 For all areas and COPCs not assessed under Sections 6.2.1 or 6.2.2, did any ESA relevant to this investigation identify an exceedance over the Alberta Tier 1 guidelines?				
☐ Yes ☒ No (→ proceed to Section 6.3.)				
6.2.3.1 If you answered 'yes' in Section 6.2.3, have all COPC been remediated to meet the Alberta Tier 1 guidelines?				
☐ Yes ☐ No ☐ TBD				
6.2.3.2 For any COPC that exceeded Alberta Tier 1 guidelines in Section 6.2.3.1, identify the group of contaminants. (check all that apply, see the Alberta Tier 1 guidelines, Tables 1-4 for detailed listing.)				
☐ General and inorganic parameters	☐ Metals			
☐ Hydrocarbons	☐ Halogenated aliphatics			
☐ Chlorinated aromatics	☐ Pesticides			
☐ Other organics	☐ Radionuclides			
☐ Salt	☐ Other (specify): _____			

RECORD OF SITE CONDITION

6.3 Status of Investigation

6.3.1 Identify soil and groundwater guidelines used to assess the COPCs that are the subject of this investigation (check all that apply).

- ☒ Alberta Tier 1 Soil and Groundwater Remediation Guidelines – 2007
☒ Coarse grained ☐ Fine grained
☐ Alberta Tier 2 Soil and Groundwater Remediation Guidelines – 2008, as amended
☐ Pathway exclusion ☐ Guideline adjustment ☐ Site specific remediation objectives
☒ Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification (AENV, 2007), as amended
☒ Other (specify): Salt Contamination Assessment & Remediation Guidelines (AENV 2007) - Soil Quality Guidelines for Barite (AENV 2004) - Canadian Environmental Quality Guidelines (CCME, 2006)

6.3.2 What land use classification(s) is used?

- ☐ Natural ☒ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify: _____)

6.3.3 What is the outcome of the investigation? (check one only.)

- ☒ For all COPCs on-site and off-site, no exceedance has been found above any applicable soil and groundwater guidelines in any prior and current assessments.
☐ All contamination on-site and off-site has been completely remediated and meets the applicable soil and groundwater guidelines.
☐ One or more COPC still exceeds the applicable soil or groundwater guidelines.

6.3.4 How many contaminated areas are there currently at the site?

- _____
☒ None ☐ TBD

6.3.5 Are all contaminated areas and potential contaminated areas assessed during this investigation?

- ☒ Yes ☐ No

6.3.6 For all areas of potential environmental concern, list the dates when the contamination was discovered (specify dd-mon-yyyy): _____; _____

6.3.7 For all areas that have been identified in Section 6.3.4, have all substance releases been reported to AENV?

- ☐ Yes ☐ No ☒ Not applicable

6.3.8 If the answer to Section 6.3.7 is 'yes', list all Incident No.(s) (attach separate sheet if necessary): _____; _____

- _____
☐ Not assigned

6.3.9 What is the approximate, cumulative amount of land area remaining exceeding applicable remediation guidelines? _____ (m²) ☒ None ☐ TBD

6.3.10 Is there non-aqueous phase liquid (NAPL) product remaining on site? ☐ Yes ☒ No ☐ TBD

6.3.11 Is there non-aqueous phase liquid (NAPL) product remaining off site? ☐ Yes ☒ No ☐ TBD

6.3.12 What is the remediation status of the contaminated areas at site?

- | | |
|---|--|
| ☒ No remediation required | ☐ Site has exceedance but no remediation plan |
| ☐ Remediation plan developed | ☐ Active remediation |
| ☐ Remediation completed | ☐ Post remediation assessment completed |
| ☐ Ongoing risk management plan – on-site | ☐ Ongoing risk management plan – off-site |
| ☐ Remediation Certificate issued for some area(s) (provide Remediation Certificate No.(s): _____) | |
| ☐ Remediation Certificate cancelled for some area(s) (provide Remediation Certificate No.(s): _____) | |

RECORD OF SITE CONDITION

Direction for Completing the Remainder of the Form

Attach the analytical summary tables of the COPCs that are the subject of this investigation and still present at this site. A detailed listing of COPCs can be found with Tables 1-4 in *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* (AENV, 2008), as amended. Refer to the *RSC User's Guide* for detailed information on format and other requirements regarding the summary table.

For the remainder of the form, follow the directions below:

- If the COPCs on-site and off-site have never exceeded any applicable soil and groundwater guidelines in any prior and current assessments, → proceed to Section 8, or
- If the COPCs on-site and off-site have been completely remediated and meet the applicable soil and groundwater guidelines, → proceed to Section 8, or
- For all other circumstances, continue with Section 6.4.

6.4 Key Transport Factors for Existing COPCs

6.4.1 What is the horizontal distance to the nearest water well from the edge of the nearest contaminated area?

☐ 0-50 m ☐ 50-100 m ☐ 100-300 m ☐ 300-1000 m ☐ > 1000 m

6.4.2 What is the horizontal distance to the nearest surface water body from the edge of the contaminated area?

☐ ≤10 m ☐ 10-50 m ☐ 50-100 m ☐ 100-300 m ☐ 300-1000 m ☐ > 1000 m

6.4.3 Does delineation achieve closure above the groundwater water table that is nearest to the ground surface?

☐ Yes (→ go to Section 6.5.) ☐ No ☐ TBD

6.4.4 Is the groundwater that is nearest the ground surface a domestic use aquifer (DUA) as defined in Alberta Tier 2 guidelines?

☐ Yes ☐ No ☐ TBD ☐ Not required (NR)

6.4.5 Is there a hydraulic barrier, as defined in Alberta Tier 2 guidelines, between the base of the contaminated area and the DUA?

☐ Yes ☐ No ☐ TBD ☐ NR

6.4.6 If you answered 'yes' to Section 6.4.5, provide the measured largest value of the hydraulic conductivity (as value $\times 10^{-7}$ m/sec.) for the 5.0 m vertical layer from the bottom of the contaminated zone.

____ ($\times 10^{-7}$ m/sec.) ☐ TBD ☐ NR

6.5 On-site Characterization

6.5.1 What is the dominant soil texture that governs substance transport at the site?

☐ Coarse grained ☐ Fine grained ☐ TBD ☐ Not applicable (must identify reason in Section 6.2.1.1.)

6.5.2 What are the shallowest and deepest measured depths (meters below ground surface) of the water table at site?

Shallowest: ____ (m) Deepest: ____ (m) ☐ TBD ☐ NR (specify max. depth assessed: ____ (m))

6.5.3 What is the dominant horizontal direction of groundwater flow for the near surface water table?

(N, NW, etc.: ____) ☐ TBD ☐ NR

6.5.4 What is the existing land use classification?

☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) ____

6.5.5 What is the end land use classification?

☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) ____

RECORD OF SITE CONDITION

6.5.6 Identify exposure pathways for which the applicable guidelines are exceeded on-site (check all that apply).	
☐ Vapour inhalation	☐ Soil ingestion
☐ Ingestion of potable water	☐ Soil dermal (skin) contact
☐ Fresh water aquatic life	☐ Soil contact for plants and invertebrates
☐ TBD	☐ Other (specify): _____

6.6 Off-site Characterization								
6.6.1 Are there COPCs off-site exceeding applicable soil or groundwater guidelines?								
☐ No (→ if on-site contamination was reported, proceed to Section 7, otherwise, proceed to Section 8.) ☐ Yes ☐ TBD								
6.6.2 What is the current land use classification for any off-site area(s) identified in Section 6.6.1?								
☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) _____								
6.6.3 What is the end land use classification for any off-site area(s) identified in Section 6.6.1?								
☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) _____								
6.6.4 Is there any substance concentration under a road allowance exceeding the applicable soil or groundwater guidelines?								
☐ Yes ☐ No (→ proceed to Section 6.6.6.) ☐ TBD								
6.6.5 What is the most sensitive land use classification adjacent to the road allowance?								
☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) _____								
6.6.6 Identify exposure pathways for which the applicable guidelines are exceeded off-site (check all that apply).								
<table border="1"> <tr> <td>☐ Vapour inhalation</td> <td>☐ Soil ingestion</td> </tr> <tr> <td>☐ Ingestion of potable water</td> <td>☐ Soil dermal (skin) contact</td> </tr> <tr> <td>☐ Fresh water aquatic life</td> <td>☐ Soil contact for plants and invertebrates</td> </tr> <tr> <td>☐ TBD</td> <td>☐ Other (specify): _____</td> </tr> </table>	☐ Vapour inhalation	☐ Soil ingestion	☐ Ingestion of potable water	☐ Soil dermal (skin) contact	☐ Fresh water aquatic life	☐ Soil contact for plants and invertebrates	☐ TBD	☐ Other (specify): _____
☐ Vapour inhalation	☐ Soil ingestion							
☐ Ingestion of potable water	☐ Soil dermal (skin) contact							
☐ Fresh water aquatic life	☐ Soil contact for plants and invertebrates							
☐ TBD	☐ Other (specify): _____							

RECORD OF SITE CONDITION

7 RISK MANAGEMENT PLAN (RMP)		
7.1 What is the Plan for Contaminated Areas Still Remaining on and off the Site? (check one only.)		
☐ Complete remediation (→ proceed to Section 8). ☐ Partial remediation with risk management for some residual contamination. ☐ Risk management for all remaining contamination.		
7.2 Key Progress of RMP		
7.2.1 If the site needs an on-going RMP, answer all the following questions that apply to the RMP.		
☐ Yes	☐ No	Are contaminated areas completely delineated horizontally and vertically in soil?
☐ Yes	☐ No	Are contaminated areas completely delineated horizontally and vertically in groundwater?
☐ Yes	☐ No	Is source identified and completely delineated?
☐ Yes	☐ No	Is source migrating or has migrated off-site?
☐ Yes	☐ No	Is source left as is?
☐ Yes	☐ No	Is source partially removed and residual source being managed?
☐ Yes	☐ No	Is source controlled with physical or administrative methods?
☐ Yes	☐ No	Are all pathways of concern identified?
☐ Yes	☐ No	Have all relevant receptors been identified and protected?
☐ Yes	☐ No	Is there a monitoring program in place to verify RMP success?
☐ Yes	☐ No	Are there third parties related to this RMP? (if the answer is 'no', skip the next question.)
☐ Yes	☐ No	If there are third parties, have all of them accepted the RMP?
☐ Yes	☐ No	Is there a commitment from person(s) responsible to implement and monitor the RMP until final remediation guidelines are achieved?
☐ Yes	☐ No	Is there a contingency plan in place should the RMP fail?
☐ Yes	☐ No	Is the RMP implemented for the site?

Public Disclosure and Privacy Notification
The <i>Record of Site Condition</i> form is a public record that is disclosed in accordance with section 35 of the <i>Environmental Protection and Enhancement Act</i>, <i>Disclosure of Information Regulation</i>, and <i>Ministerial Order 23/2004</i>. Reasonable efforts have been made to minimize collection of personal information where possible. Personal information on the form is collected under the authority of section 12(c) and other provisions of the <i>Environmental Protection and Enhancement Act</i> and is in compliance with section 33(a) and 33(c) of the <i>Freedom of Information and Protection of Privacy Act</i> (FOIP). Personal information collected on this form will be used by Alberta Environment for the purposes of administering its programs.
Accuracy of Information
The information in this document has been submitted by persons other than Alberta Environment. The Department and the Government of Alberta cannot and do not warrant that the information in this document is current, accurate, complete, or free of errors. Persons accessing the information provided should not rely on it, and any reliance on the information provided is taken at the sole risk of the user. Users of this information are advised to conduct their own due diligence to satisfy themselves of the environmental condition of the property of interest.

RECORD OF SITE CONDITION

8 DECLARATION

This *Record of Site Condition* form was prepared for the purpose of reporting on the state of environmental site conditions and, where applicable, for the purpose of remediation or reclamation, for:

Tarragon Hardy Gull 6-14-41-28 (06-14-041-28 W4M) (site name) (the "Site").

I, as the licensed operator or authorized representative, have reviewed all information that was used in preparation of this form and I am satisfied that it was prepared in a manner consistent with the Applicable Standard¹ together with any relevant additional guidance that is available from Alberta Environment as of this date for conducting environmental site assessments.

Having conducted reasonable inquiries to obtain all relevant information, to my knowledge, the statements made in this form are true as of this date. I have disclosed all pertinent information of which I am aware concerning the historical and current environmental condition of the Site to the Director.

Any use which a third party, other than the Crown in right of Alberta, makes of this form, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The undersigned accepts no responsibility for damages, if any, suffered by any third party, other than the Crown in right of Alberta, as a result of decisions made or actions based on this form. Any exclusions or disclaimers to the contrary contained in any attachment to this form are of no force or effect as against the Crown in right of Alberta.

Footnote ¹:

"Applicable Standard" means

a) for the purposes of upstream oil and gas sites,

i) *Alberta Environment Phase I Environmental Site Assessment Guideline for Upstream Oil and Gas Sites* (AENV 2001),

ii) *CSA Standard Z769, Phase II Environmental Site Assessment*, as amended, for any Phase II site assessment information used in preparation of this form on all upstream oil and gas sites not included in a) i);

b) for the purposes of all other sites, *CSA Standard Z768, Phase I Environmental Site Assessment*, as amended, for any Phase I site assessment information and with *CSA Standard Z769, Phase II Environmental Site Assessment*, as amended, for any Phase II site assessment information used in preparation of this form.

By signing below, I as the licensed operator or authorized representative, confirm the information provided herein is correct and complete, to the best of my knowledge and belief.

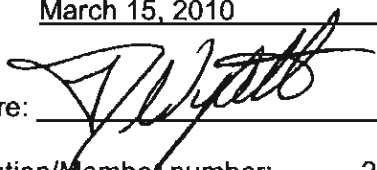
Husky Oil Operations	Andrea Barrera	Reclamation Technologist	Andrea C Barrera	15-Mar-10
Name of operator	Name of authorized representative	Title of authorized representative (e.g. officer, director)	Signature	Date (dd-mon-yyyy)



Professional Declaration for Reclamation Certificate Applications

1. This Declaration is made in conjunction with an application for a reclamation certificate (the "Application") made by Husky Oil Operations Limited for the following land(s): 100/06-14-041-28 W4M.
2. I am a practicing professional member of the Alberta Institute of Agrologists, which is a regulated professional organization (the "Professional Organization"). I have a minimum of five years verifiable experience in remediation or reclamation relevant to the Competencies Table contained in the *Competencies for Remediation and Reclamation Advisory Committee's Recommendations Report* (AENV 2006).
3. As a member of the Professional Organization, I have the ability to sign off on work required for reclamation certificate applications as defined by Alberta Environment and am authorized by the Applicant to prepare and submit the attached report(s) or document(s), entitled Phase 2 Environmental Site Assessment (ESA) (the "Professional Reports").
4. To the best of my knowledge and the best of my professional ability, recognizing the standard of care expected of a reasonable professional doing this work, it is my professional opinion that all the information contained in the Professional Report(s) is accurate and complete, and contains all the relevant information for the purposes of this Application.
5. The results reported in the Professional Report(s) are consistent with all current and applicable Provincial policy, criteria, standards and guidelines for the remediation or reclamation.
6. The Professional Report(s), including all attachments, data and supplemental information, were prepared by me, or under my direct supervision, or was prepared by a third party(ies) and has been reviewed and accepted by me; and was prepared in accordance with an appropriate quality assurance/quality control system that ensured qualified personnel properly gathered and evaluated all the information contained in and underlying the Professional Reports. All the information submitted is, to the best of my knowledge, true, accurate and complete.
7. I carry, or my employer (Ridgeline Environment Inc.) carries professional liability insurance (errors and omissions). This insurance will be maintained for the specified liability period, subject to insurance availability.
8. I am aware that it is an offence under section 227 of the *Environmental Protection and Enhancement Act* to provide false, misleading or inaccurate information and that there are significant fines for committing these offences, including the possibility of imprisonment. See below for the relevant sections.

Date: March 15, 2010

Signature: 

Registration/Member number: 2398

OR

Stamp/Seal:

Section 227 of the Environmental Protection and Enhancement Act

Offences s. 227 A person who

- (c) knowingly provides false or misleading information pursuant to a requirement under this Act to provide information,
- (d) provides false or misleading information pursuant to a requirement under this Act to provide information

is guilty of an offence.

Penalties s. 228(1) A person who commits an offence referred to in section 60, 87, 108(1), 109(1) or 227(a), (d), (f) or (h) is liable to

- (c) in the case of an individual, to a fine or not more than \$100,000 or to imprisonment for a period of not more than 2 years or to both fine and imprisonment, or
- (d) in the case of a corporation, to a fine of not more than \$1,000,000.

(2) A person who commits an offence referred to in section 61, 67, 75, 76, 79, 88, 108(2), 109(2) 110(1) or (2), 111, 112, 137, 148, 149, 155, 157, 163, 169, 170, 173, 176, 188, 191, 192, 209, 227(b), (c), (e), (g), or (l) or 251 is liable.

- (c) in the case of an individual, to a fine or not more than 450,000, or
- (d) in the case of a corporation, to a fine of not more than \$500,000.

**FINAL REPORT
HUSKY OIL OPERATIONS LIMITED
PHASE II ENVIRONMENTAL SITE ASSESSMENT
WELLSITE**

**100/06-14-041-28 W4M
GULL LAKE, ALBERTA**

January 30, 2008

Prepared For

HUSKY OIL OPERATIONS LIMITED

Box 4490
707 – 8th Avenue S.W.
Calgary, Alberta
T2P 3G7

Prepared By

BIO-SYNERGY RESOURCES INC.

Bay 2, 5571-45th Street
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Edmonton, Alberta T6E 0A6

EXECUTIVE SUMMARY

Bio-Synergy Resources Inc. (Bio-Synergy) was retained by Husky Oil Operations Limited (Husky) to conduct a Phase II Environmental Site Assessment (ESA) at the Terragon Hardy Gull 100/06-14-041-28 W4M wellsite. The wellsite is located approximately 7 km north of Gull Lake, Alberta. A site diagram of the subject property along with a lease survey are included in Appendix A (Drawing Number 1 and Drawing Number 2, respectively).

The purpose of the Phase II ESA was to identify and characterize potential soil impacts associated with past operations at the site and to assess and document compliance with the Alberta Energy and Utilities Board's (EUB) Directive 50 – *Drilling Waste Management* as part of the wellsite reclamation process. This report presents a summary of the information gathered between November 13, 2007 and January 30, 2008 by Bio-Synergy. A discussion of the analytical results in the context of the applicable guidelines is included.

Based on the information gathered from the Phase II ESA, the following conclusions can be made:

- The Terragon Hardy Gull 100/06-14-041-28 W4M wellsite was originally drilled in March 1993 and never produced;
- There were no recorded spills on the Alberta Energy and Utilities Board (EUB) Environmental Information System for the subject property;
- The dominant soil series associated with this site is the Tweedsmuir (designated TWS. The TWS soil is classified as an Orthic Black Chernozemic soil. This soil is developed on moderately coarse fluvial material (RRTAC, 1993);
- Soil surficial deposits at the assessment area primarily consist of sandy clay loam to sandy clay soil texture to a depth of at least 3.5 mbg;
- During the assessment, the former drilling sump was identified within boreholes BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg) and BH7 0.6-1.0 and 1.0-2.4 mbg;
- OVA concentrations for soil samples collected from the on-site boreholes ranged from 0 to 160 ppm. Samples BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg), BH7 (0.6-1.0 mbg and 1.0-2.4 mbg) and BH10 (0.6 mbg) were submitted to Maxxam Analytics Inc. (Maxxam) within 72 hours with a request for benzene, toluene, ethylbenzene and xylenes (BTEX) and petroleum hydrocarbon (PHC)

analyses The selected sample from BH10 at 0.6 mbg represents the “worst-case” results for the site as a whole based on field screening. Samples BH2 at 1.5-2.0 mbg, BH3 at 1.5-2.5 mbg, BH5 at 1.4-2.5 mbg and BH7 at 0.6-1.0 mbg and 1.0-2.4 mbg represented the buried sump material;

- All the submitted samples submitted for BTEX and PHC analysis met the most stringent exposure pathways for agricultural land use guidelines for coarse-grained surface soil and subsoil (AENV, 2001).
- Metals soil analytical results from the assessment satisfied either the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* (2006) or Alberta Environment *Alberta Tier 1 Criteria for Contaminated Soil Assessment and Remediation* and the AENV (2004) *Soil Quality Guidelines for Barite: Environmental and Human Health*;
- Field screens for EC from the on-site boreholes ranged from 0.20 to 1.80 dS/m;
- Field screens for pH from the on-site boreholes ranged from 7.9 to 8.4;
- The on-site soil samples submitted for EC from the site visit had values ranging from 1.2 dS/m to 2.8 dS/m (“Good” subsoil rating category). The same soil samples submitted for on-site Sodium Adsorption Ratio (SAR) had values ranging from 2.2 to 5.4 (“Good” to “Fair” subsoil rating categories). When five samples from within three off-site control boreholes were analysed for salinity and sodicity parameters, EC values between 0.5 dS/m and 3.7 dS/m (“Good” to “Fair” subsoil rating categories) and SAR values between 1.0 to 6.4 (“Good” to “Fair” subsoil rating categories) were reported, and
- All of the samples submitted for analysis met the applicable guidelines for BTEX, PHC, metals and salinity/sodicity.

TABLE OF CONTENTS

	Page No.
EXECUTIVE SUMMARY	ii
1.0 INTRODUCTION	1
1.1 Background Information	1
1.2 Site Description	1
1.3 Soils and Climate	1
1.3.1 Physiography.....	1
1.3.2 Soils.....	2
1.3.3 Ecoregion and Climate.....	2
1.4 Hydrogeological Setting.....	2
1.5 Scope of Work.....	2
2.0 PHASE II ESA.....	3
2.1 Assessment Criteria.....	3
2.2 Methodology	4
2.3 Safety.....	4
2.4 Borehole Location Rationale.....	5
2.4.1 Drilling Assessment	6
3.0 ASSESSMENT RESULTS.....	6
3.1 Field Assessment Results	6
3.1.1 Stratigraphy.....	6
3.1.2 Soil Organic Vapour Analysis	6
3.1.3 Soil Field Screening for EC and pH	7
3.2 Soil Analytical Results	7
3.2.1 Soil BTEX and PHC Results	8
3.2.2 Soil Metals Results	8
3.2.3 Soil Salinity/Sodicity Results	8
4.0 CONCLUSIONS.....	8
5.0 LIMITATIONS	11
6.0 REFERENCES	11
7.0 CLOSURE	12

LIST OF DRAWINGS, TABLES AND APPENDICES

		Page No.
LIST OF DRAWINGS		
Drawing 1	Site Diagram.....	Appendix A
Drawing 2	Site Survey.....	Appendix A
Drawing 3	Typical Lease Arrangement.....	Appendix A

		Page No.
LIST OF TABLES		
Table 1	Field Screening (OVA/EC/pH) Results.....	Appendix G
Table 2	BTEX and PHC Analytical Results.....	Appendix G
Table 3	Metals Analytical Results.....	Appendix G
Table 4	Salinity/Sodicity Analytical Results.....	Appendix G

LIST OF APPENDICES	
Appendix A	Drawings
Appendix B	Water Well Drilling Reports
Appendix C	Assessment Methodologies
Appendix D	Safety Documentation
Appendix E	Site Photographs
Appendix F	Borehole Logs
Appendix G	Tables
Appendix H	Laboratory Results



1.0 INTRODUCTION

Bio-Synergy Resources Inc. (Bio-Synergy) was retained by Husky Oil Operations Limited (Husky) to conduct a Phase II Environmental Site Assessment (ESA) at the Terragon Hardy Gull 100/06-14-041-28 W4M wellsite. The wellsite is located approximately 7 km north of Gull Lake, Alberta. A site diagram of the subject property along with a lease survey are included in Appendix A (Drawing Number 1 and Drawing Number 2, respectively).

The purpose of the Phase II ESA was to identify and characterize potential soil impacts associated with past operations at the site and to assess and document compliance with the Alberta Energy and Utilities Board's (EUB) Directive 50 – *Drilling Waste Management* as part of the wellsite reclamation process. This report presents a summary of the information gathered between November 13, 2007 and January 30, 2008, by Bio-Synergy. A discussion of the analytical results in the context of the applicable guidelines is included.

1.1 Background Information

The Terragon Hardy Gull 100/06-14-041-28 W4M wellsite was originally drilled in March 1993 and never produced. A search of the Alberta Environment (AENV) electronic water well database conducted on December 20, 2007 indicated there are five registered water wells located within a 500 m radius of the site (well ID 0275034, 0274996, 0280613, 1200088 and 0275029). Copies of the water well drilling reports are included in Appendix B. Based on site reconnaissance, the surrounding land use would be classified as Agricultural as described by the Alberta Environment (AENV) *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, 2007.

1.2 Site Description

The assessment covers the wellsite which is 1.124 hectares in area and is surrounded by cultivated land to the north and tame pasture to the south. The general trend of the surficial drainage is in a south-eastern direction. The site topography is relatively flat.

1.3 Soils and Climate

1.3.1 Physiography

The Terragon Hardy Gull 100/06-14-041-28 W4M wellsite is located within the Aspen Beach Plain region of Alberta. The surrounding landscape is undulating. (AGRASID, 1998).

1.3.2 Soils

Generally within this area, soils are characterized by Black Chernozems developed on medium textured till. More specifically, the soil series associated with this site is Tweedsmuir (designated TWS) soil. The TWS soil is classified as an Orthic Black Chernozemic soil. This soil is developed on moderately coarse fluvial material (RRTAC, 1993).

1.3.3 Ecoregion and Climate

The Terragon Hardy Gull 100/06-14-041-28 W4M site is located within the Aspen Parkland ecoregion. The general climate of the area is typically characterized by moderately warm summer and relatively cold winter temperatures. In general there is a lower mean temperature in the eastern section of the region. July is on average the warmest month and January the coldest. Snow lies on the ground throughout winter as this area is not influenced by Chinooks. (U of A, Soil Survey of Peace Hills Sheet, Bulletin No. 48, 1947).

1.4 Hydrogeological Setting

The Peace Hills sheet lies about half way up the third prairie steppe and is, in general, an undulating plain. The major portion of the Peace Hills sheet is drained by the Battle river, a tributary of the North Saskatchewan river. The extreme north-west corner drains directly into the North Saskatchewan river and the extreme north-east corner into the North Saskatchewan via the Vermilion river. Most of the area is covered by a mantle of glacial drift originating, in the main, from the immediately underlying bedrock. (U of A, Soil Survey of Peace Hills Sheet, Bulletin No. 48, 1947).

1.5 Scope of Work

The scope of work completed at the site was as follows:

- Review previously completed Phase I ESA supplied by Husky;
-
- Assist with the coordination of ground disturbance activities and review all documentation with Husky field supervisor;
- Conduct an electromagnetic (EM31) survey for use as screening tool to assist with the selection of borehole placement;
- Advancement of fifteen boreholes using a solid-stem truck mounted- auger to evaluate soil conditions, subsurface staining, petroleum hydrocarbon (PHC) organic vapour analysis (OVA) levels, and field electrical conductivity (EC) and pH measurements;

- Submission of select soil samples (based on field screening results) to Maxxam Analytics Inc. (Maxxam) for analyses; and,
- Submission of a summary report of the findings in context with the applicable guidelines.

2.0 PHASE II ESA

Based on the scope of work for this project a Phase II ESA was conducted to assess potential impacts associated with past operations at the site and document compliance with the Alberta Energy and Utilities Board's (EUB) Directive 50 – *Drilling Waste Management* as part of the wellsite reclamation process. The following sections present a summary of the field data gathered by Bio-Synergy between the site visit on November 13, 2007 and January 30, 2008.

2.1 Assessment Criteria

The relevant soil guidelines currently approved for use in assessing oil and gas sites in Alberta for the purposes of reclamation are the following:

- AENV. June 2007. *Alberta Tier 1 Soil And Groundwater Remediation Guidelines*.

These criteria have been used as the assessment criteria for the BTEX and PHC fractions F1-F4 concentrations in soils for the assessment area. For this location, an agricultural land use was used in conjunction with the most stringent exposure pathway for determining appropriate criteria. These guidelines are also used as assessment criteria for pH and for all other parameters that are not covered by any other criteria and/or guidelines included in this report.

- EUB. Directive 050, October 1996. *Drilling Waste Management*.

These criteria were used, in conjunction with Alberta Environment (AENV) *Assessing Drilling Waste Disposal Areas* (2007) as the assessment criteria with respect to assessing the compliance with drilling waste disposal regulations on-site.

- AENV. August 2007. *Salt Contamination Assessment & Remediation Guidelines*.

These criteria have been used as the assessment criteria for the salinity/sodicity parameters for the soils on-site.

- Alberta Environment (AENV). January 2007. *Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification*. ISBN: 0-7785-5318-3 (On-Line Edition).

Where drilling waste disposal areas are concerned, the Directive 050 Equivalent Salinity Guidelines outlined in this document are used as criteria for salinity/sodicity parameters.

- AENV. January 2004. *Soil Quality Guidelines for Barite: Environmental and Human Health*.

These guidelines were used to evaluate barium concentrations in the soil.

- Canadian Council of Ministers of the Environment (CCME), 2006. *Canadian Environmental Quality Guidelines*.

For all other parameters of concern, the above criteria were used as the assessment criteria. These guidelines are intended to maintain, improve and/or protect environmental quality and human health at contaminated sites in general. They include numerical values for the assessment of soil in the context of agricultural, residential / parkland, commercial, and industrial land uses. These criteria include the *Canadian Soil Quality Guidelines (SQG) for the Protection of Environmental and Human Health* (CCME 2006 SQG) and the *Guidelines for Canadian Drinking Water Quality* (CCME 2006 DW).

Based on the current and foreseeable land use at the site, the CCME 2006 SQG for agricultural sites are recommended for evaluation of environmental impacts to soils. For all samples taken within 5 metres of well centre, the Human Vapour Inhalation pathways can be excluded.

2.2 Methodology

Methodologies related to EM survey, drilling boreholes, soil sampling, OVA screening and field screens for EC/pH are presented in Appendix C.

2.3 Safety

All Bio-Synergy personnel working on this project followed the safe work practices outlined in Bio-Synergy's accredited Health, Safety and Environment Manual (BSR, 2006). Any additional safety standards and requirements presented by Husky were reviewed and if conflicts arose, the more stringent protocol was adopted. All safety documents applicable to this project are included in Appendix D.

2.4 Borehole Location Rationale

A summary of the borehole location rationale is provided below.

<i>Area of Assessment</i>	<i>Borehole No.</i>	<i>Test Location</i>	<i>Rationale</i>
On-Site	BH1	1 metre north of well centre.	Assess potential soil impacts associated with the area around well centre.
	BH2	15 metres north and 10 metres west of well centre.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations
	BH3	5 metres east of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations.
	BH4	10 metres east of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations
	BH5	5 metres west of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations.
	BH6	10 metres west of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations.
	BH7	5 metres north of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations.
	BH8	10 metres north of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations.
	BH9	5 metres south of BH2.	Assess potential buried drilling sump location and confirm compliance with EUB Directive 50 regulations.
	BH10	11 metres north and 20 metres east of well centre.	Assess area of high apparent conductivity based on the EM survey.
	BH11	50 metres northeast of well centre.	Assess potential soil impacts associated with potential drilling flare location.
Off-Site	C1	40 metres north and 56 metres east of well centre.	Assess background soil conditions based on EM31 survey.
	C2	39 metres west and 69 metres north of well centre.	Assess background soil conditions based on EM31 survey.
	C3	54 metres west and 60 metres south of well centre.	Assess background soil conditions based on EM31 survey.
	C4	60 metres south and 6 metres east of well centre.	Assess background soil conditions based on EM31 survey.

2.4.1 Drilling Assessment

Private, on-site utility locates were arranged by Husky prior to the commencement of the borehole drilling portion of the Phase II ESA.

All ground disturbance documentation was reviewed with the Husky field supervisor prior to the borehole drilling portion of the phase II ESA.

All boreholes were drilled using a truck-mounted auger equipped with six inch diameter, solid stem augers, operated by J.E.D. Anchors and Environmental (J.E.D.) of Eckville, Alberta. Four inch diameter augers are also supplied by J.E.D. and made available. A collection of digital photos taken during the assessment can be found in Appendix E.

Boreholes BH2 through BH9 were advanced in specific locations where a potential drilling sump would most likely be situated based on a typical lease arrangement for drilling operations. An example of such a drilling arrangement is included as Drawing No. 3, Appendix A. During the assessment the drilling sump was identified within boreholes BH2 (1.5-2.0 metres below grade (mbg)), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg) and BH7 0.6-1.0 and 1.0-2.4 mbg).

3.0 ASSESSMENT RESULTS

3.1 Field Assessment Results

On November 13, 2007 fifteen boreholes were advanced to a maximum depth of 3.5 mbg. The borehole locations are shown on Drawing No. 1, Appendix A.

3.1.1 Stratigraphy

Based on the Bio-Synergy findings to date, the soil surficial deposits at the assessment area primarily consist of sandy clay loam to sandy clay soil texture to a depth of at least 3.5 mbg. Detailed descriptions of the soil conditions encountered are presented in the Borehole Logs located in Appendix F.

3.1.2 Soil Organic Vapour Analysis

During the field program, combustible headspace vapour screening was performed on soil samples obtained from each of the boreholes, using an RKI Eagle OVA meter set to methane elimination. Vapour concentrations are presented in the borehole logs located in Appendix F and Table 1.

OVA concentrations for soil samples collected from the on-site boreholes ranged from 0 to 160 parts per million (ppm). Samples BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5

(1.4-2.5 mbg), BH7 (0.6-1.0 mbg and 1.0-2.4 mbg) and BH10 (0.6 mbg) were submitted to Maxxam within 72 hours with a request for benzene, toluene, ethylbenzene, and xylene (BTEX), and PHC analyses. From the time of sampling until receipt at Maxxam, all samples were kept in insulated coolers containing ice packs. The selected sample from BH10 at 0.6 mbg represents the “worst-case” results for the site as a whole based on field screening. Samples BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg) BH5 (1.4-2.5 mbg) and BH7 (0.6-1.0 mbg and 1.0-2.4 mbg) represented the buried sump material.

3.1.3 Soil Field Screening for EC and pH

All soil samples collected during the assessment were screened to estimate the relative soil EC and pH between soil samples. Conductivity and pH were measured using Oakton field portable EC and pH meters. Field EC and pH results are presented in Table 1 (Field Screening OVA/EC/pH Results) located in Appendix G.

On-site field EC measurements ranged from 0.2 dS/m to 1.80 dS/m. On-site field pH measurements ranged from 7.9 to 1.8. Samples from boreholes BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg), BH7 (0.6-1.0 mbg and 1.0-2.4 mbg), and BH11 (0.6 mbg) were submitted to Maxxam for detailed salinity/sodicity analysis. Control samples submitted for detailed salinity/sodicity were from boreholes C1 (0.3, 0.6 and 1.0 mbg), C2 (1.5 mbg) and C3 (0.6 mbg). The selected sample from BH11 at 0.6 mbg represents the “worst-case” results for the site as a whole based on field screening. Samples BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg) and BH7 (0.6-1.0 mbg and 1.0-2.4 mbg) represent composite sump samples.

3.2 Soil Analytical Results

Based on the field screening results and field observations, representative soil samples were collected from the boreholes in zones of suspected “worst-case” impact. Soil samples were submitted for BTEX, PHC fractions (F1-F4), detailed salinity/sodicity and grain-size analyses. An on-site summary of soil samples submitted are presented below.

SUMMARY OF ON-SITE SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS HUSKY OIL OPERATIONS LIMITED (100/06-14-041-28 W4M) November 13, 2007				
Sample	BTEX, PHC (F1-F4)	Salinity	Metals	Grain Size
BH2 at 1.5-2.0 mbg	X	X	X	
BH2 at 2.0-3.0 mbg				X
BH3 at 1.5-2.0 mbg	X	X	X	
BH3 at 2.0-3.0 mbg				X
BH5 at 1.4-2.5 mbg	X	X	X	

BH5 at 2.5-3.5 mbg				X
BH7 at 0.6-1.0 mbg	X	X	X	
BH7 at 1.0-2.4 mbg	X	X	X	
BH7 at 2.4-3.4 mbg				X
BH10 at 0.6 mbg	X			
BH11 at 0.6 mbg		X		

Soil sample analytical results along with the appropriate criteria are presented in Table 2 (BTEX and PHC (F1-F4), Table 3 (Metals) and Table 4 (Detailed Salinity/Sodicity) in Appendix G. Copies of the detailed laboratory analytical results are included in Appendix H.

3.2.1 Soil BTEX and PHC Results

All the submitted samples met the most stringent exposure pathways for agricultural land use guidelines for coarse-grained surface soil and subsoil (AENV, 2007).

3.2.2 Soil Metals Results

Metals soil analytical results from the assessment satisfied either the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* (2006) or Alberta Environment *Alberta Tier 1 Criteria for Contaminated Soil Assessment and Remediation* (2007) and the AENV (2004) *Soil Quality Guidelines for Barite: Environmental and Human Health*.

3.2.3 Soil Salinity/Sodicity Results

The on-site soil samples submitted for EC from the site visit had values ranging from 1.2 dS/m to 2.8 dS/m ("Good" subsoil rating category). The same soil samples submitted for on-site Sodium Adsorption Ratio (SAR) had values ranging from 2.2 to 5.4 ("Good" to "Fair" subsoil rating categories).

When five samples from within three off-site control boreholes were analysed for salinity and sodicity parameters, EC values between 0.5 dS/m and 3.7 dS/m ("Good" to "Fair" subsoil rating categories) and SAR values between 1.0 and 6.4 ("Good" to "Fair" subsoil rating categories) were reported.

4.0 CONCLUSIONS

Based on the information gathered from the Phase II ESA, the following conclusions can be made:

- The Terragon Hardy Gull 100/06-14-041-28 W4M wellsite was originally drilled in March 1993 and never produced;

- There were no recorded spills on the Alberta EUB Environmental Information System for the subject property;
- The dominant soil series associated with this site is the Tweedsmuir (designated TWS. The TWS soil is classified as an Orthic Black Chernozemic soil. This soil is developed on moderately coarse fluvial material (RRTAC, 1993);
- Soil surficial deposits at the assessment area primarily consist of sandy clay loam to sandy clay soil texture to a depth of at least 3.5 mbg;
- During the assessment, the former drilling sump was identified within boreholes BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg) and BH7 0.6-1.0 and 1.0-2.4 mbg);
- OVA concentrations for soil samples collected from the on-site boreholes ranged from 0 to 160 ppm. Samples BH2 (1.5-2.0 mbg), BH3 (1.5-2.0 mbg), BH5 (1.4-2.5 mbg), BH7 (0.6-1.0 mbg and 1.0-2.4 mbg) and BH10 (0.6 mbg) were submitted to Maxxam within 72 hours with a request for BTEX and PHC analyses. The selected sample from BH10 at 0.6 mbg represents the "worst-case" results for the site as a whole based on field screening. Samples BH2 at 1.5-2.0 mbg, BH3 at 1.5-2.5 mbg, BH5 at 1.4-2.5 mbg and BH7 at 0.6-1.0 mbg and 1.0-2.4 mbg represented the buried sump material;
- All the submitted samples submitted for BTEX and PHC analysis met the most stringent exposure pathways for agricultural land use guidelines for coarse-grained surface soil and subsoil (AENV, 2001).
- Metals soil analytical results from the assessment satisfied either the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* (2006) or Alberta Environment *Alberta Tier 1 Criteria for Contaminated Soil Assessment and Remediation* and the AENV (2004) *Soil Quality Guidelines for Barite: Environmental and Human Health*;
- Field screens for EC from the on-site boreholes ranged from 0.20 to 1.80 dS/m;
- Field screens for pH from the on-site boreholes ranged from 7.9 to 8.4;
- The on-site soil samples submitted for EC from the site visit had values ranging from 1.2 dS/m to 2.8 dS/m ("Good" subsoil rating category). The same soil samples submitted for on-site SAR had values ranging from 2.2 to 5.4 ("Good" to "Fair" subsoil rating categories). When five samples from within three off-site control boreholes were analysed for salinity and sodicity parameters, EC values between 0.5



dS/m and 3.7 dS/m ("Good" to "Fair" subsoil rating categories) and SAR values between 1.0 to 6.4 ("Good" to "Fair" subsoil rating categories) were reported; and,

- All of the samples submitted for analysis met the applicable guidelines for BTEX, PHC, metals and salinity/sodicity.

5.0 LIMITATIONS

Bio-Synergy confirms that it performed the assessment work as described in this report. This report is based on site conditions and on information available to Bio-Synergy at the time of the assessment, as described in this report. Bio-Synergy has no obligation to update this report based on changes in conditions or new information arising after the date of the assessment. This report has been prepared for the exclusive use of Husky. Analysis has been carried out for a limited number of chemical parameters; Bio-Synergy has not tested for chemical parameters except as described in this report, and it should not be inferred that other chemicals are not present. Bio-Synergy assures that it exercised reasonable due diligence in the collection of information but cannot guarantee the accuracy or validity of such information. This report is based on the assumptions set out in this report. Unless stated otherwise, Bio-Synergy has not independently verified the accuracy of such assumptions and gives no assurance of the accuracy or validity of such assumptions. Information presented in this report was accumulated and interpreted exclusively for conducting the assessment work described in this report. Bio-Synergy does not accept any liability for the use of this report for any purpose other than as stated.

6.0 REFERENCES

Bio-Synergy Resources Inc., 2006. *Health, Safety and Environment Manual*. Current COR No. 20060321-0349. Valid until March 21, 2009.

CAESA-Soil Inventory Project Working Group. 1998. AGRASID: Agricultural Region of Alberta Soil Inventory Database (Version 1). Edited by J.A. Brierley, B.D. Walker, P.E. Smith and W.L. Nikiforuk. Alberta Agriculture Food and Rural Development, Publication. CDROM.

Pedocan Land Evaluation Ltd., 1993. *Soil Series Information for Reclamation Planning in Alberta. Volume 2*. Alberta Conservation and Reclamation Council Report No. RRTAC 93-7. ISBN 0-7732-6041-2.

University of Alberta. *Soil Survey of Peace Hills Sheet*. Edmonton, Alberta. Bulletin No.48, September 1947.



7.0 CLOSURE

This report was prepared Kyla Jamieson, B.Sc. and reviewed by Tim Wyatt, B.Sc., P.Ag. Bio-Synergy thanks Husky for the opportunity to provide you with the work described in this report. Should you have any questions or require additional copies of the report, please contact the undersigned.

Respectfully submitted,

BIO-SYNERGY RESOURCES INC.

Kyla
Kyla Jamieson, B.Sc.
Environmental Technician

Tim
Tim Wyatt, B.Sc., P.Ag.
Senior Reviewer



Appendix A Drawings



**SITE DIAGRAM
(DRAWING No. 1)**

100/06-14-041-28 W4M

IN

L.S.D 06 SEC. 14 TWP. 041 RGE. 28 W4M

LEGEND:

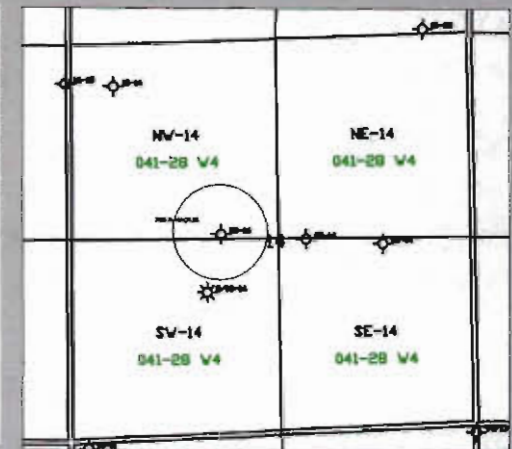
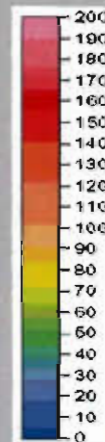
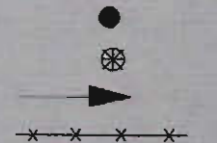
GOVERNMENT ROAD ALLOWANCE

BOREHOLE (BH)

WELL CENTER (W/C)

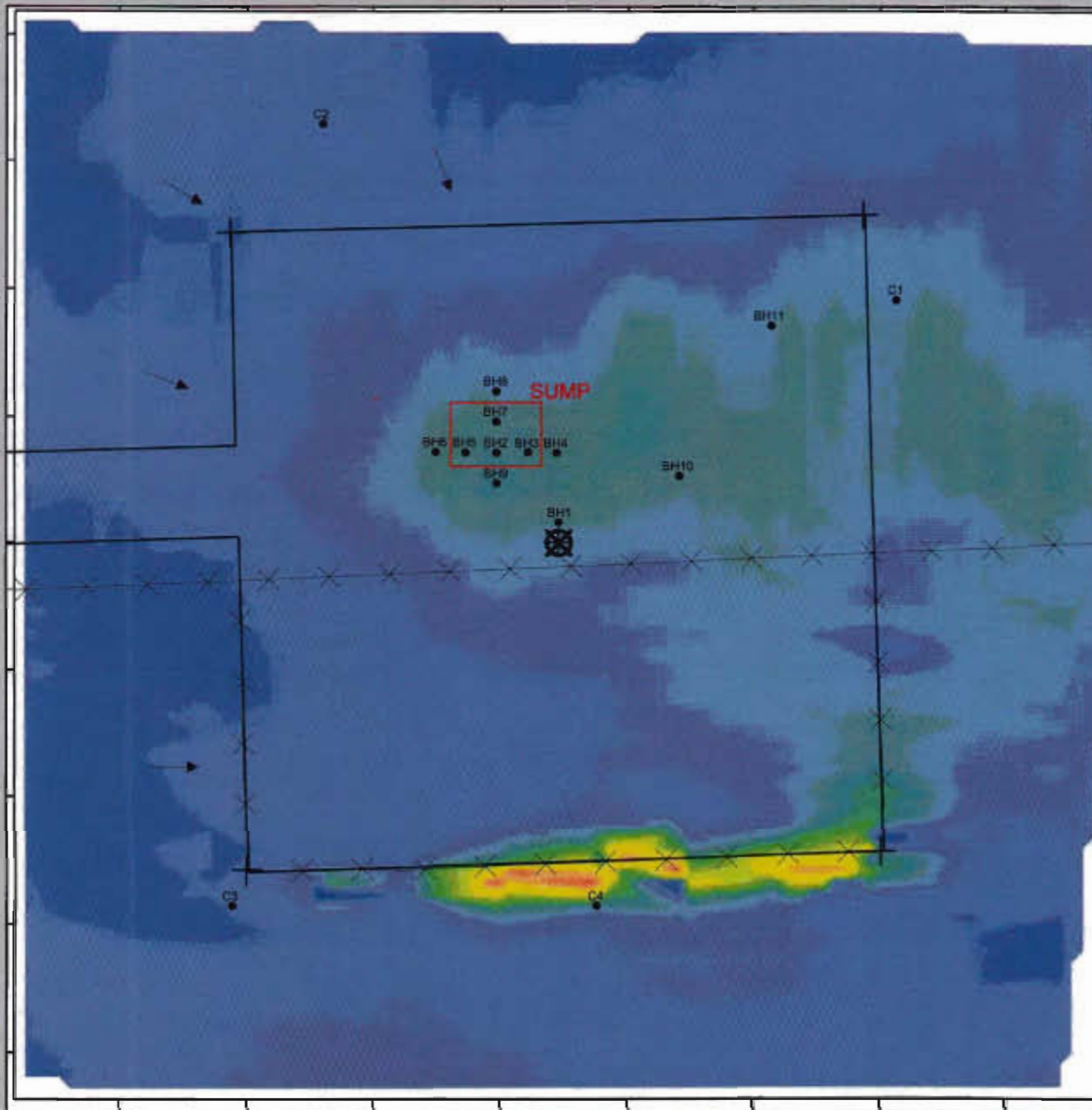
SURFACE SLOPE

FENCELINE



KEY PLAN

SCALE 1:20 000

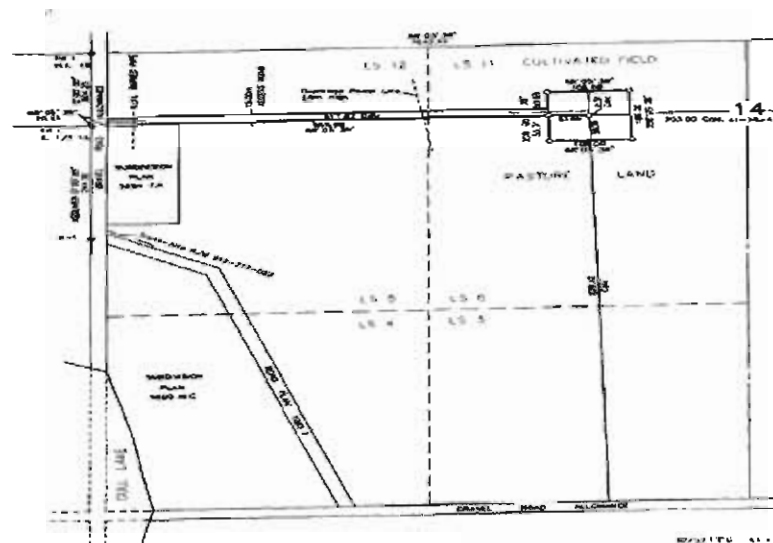


EM 31 SURVEY SUPPLIED BY:
BIO-SYNERGY RESOURCES INC.

0	ISSUED	2007-12-09	GP	BM
No.	REVISIONS	DATE	BY	CKD
BIO-SYNERGY RESOURCES INC.				
SCALE 1:1126				
DRAWN: GP		Checked by: GP		



SITE SURVEY
(DRAWING No. 2)
100/06-14-041-28 W4M
IN
L.S.D 06 SEC. 14 TWP.041 RGE 28 W4M



TARRAGON HARDY GILBY 6-14-41-28
Well Site and Access Road
L.S. 6 Sec. 14 Twp 41 Rge 28 W.4 M.



NOTE: See attached map 11
- Define any boundary line development map
- Define any boundary line development map
- Define any boundary line development map
- Define any boundary line development map
- Define any boundary line development map
- Define any boundary line development map
- Define any boundary line development map
- Define any boundary line development map

Elevation of ground at well site = 200.33
Co-ords. 200.33 N. of Sec. 14, Rge. 28
200.33 E. of Sec. 14, Rge. 28

Area: 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33
Well site S.W. 1/4 200.33

Scale: 1:1000
Datum: A.S.C.M. 2011.228

NOTE:
- Survey measurements made and shown that
- Survey measurements made and shown that
- Survey measurements made and shown that
- Survey measurements made and shown that
- Survey measurements made and shown that
- Survey measurements made and shown that
- Survey measurements made and shown that
- Survey measurements made and shown that

I certify that the survey represented by this plan
was made and used in the field at my knowledge
and was completed on the 15th day of February 1993

George Smith, Surveyor
Witness

TARRAGON OIL AND GAS LIMITED



0	ISSUED	2007-12-21	KW	BM
No.	REVISIONS	DATE	BY	CKD
 BIO-SYNERGY RESOURCES INC.				
DRAWN: KW		Checked by: BM		



TYPICAL LEASE ARRANGEMENT (DRAWING No. 3)

DEEP GAS
RIG LAYOUT
WORKING AREA
(110 WIDE X 120 LONG)

10.0m GRID

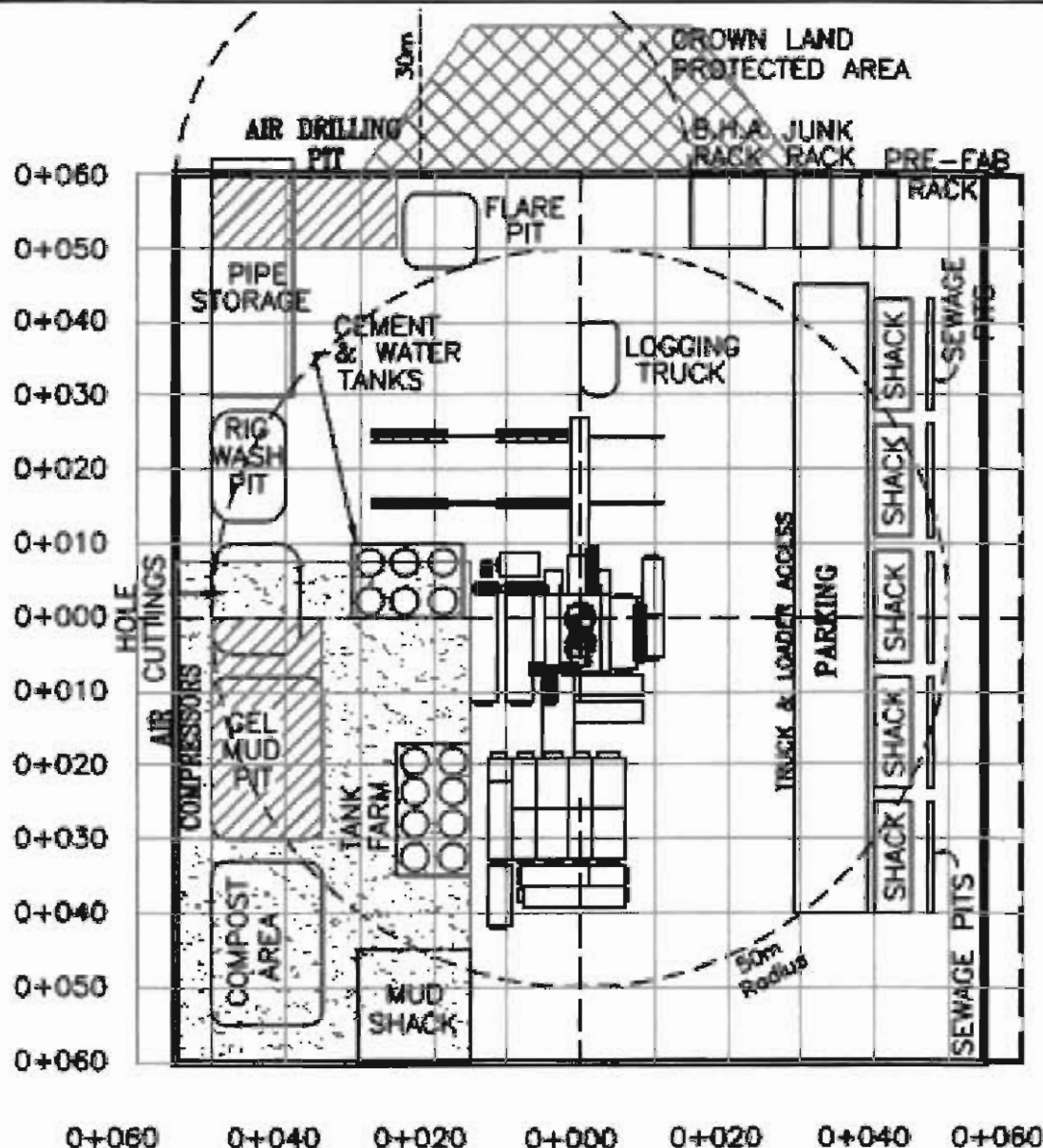


SCALE 1:1250

NOTE:

Shape may vary but acreage
will remain the same.

- — — — — EXTRA AREA REQUIRED FOR
WELLS IN BRITISH COLUMBIA
- ▨ EXTRA AREA MAY BE REQUIRED
FOR RIGGING UP
- ▨ AIR DRILLING PIT &
AIR COMPRESSORS
- ▨ SUMP & SPOIL PILE AREA
(IF REQUIRED)
NOTE: SIZE VARIES BY DEPTH



0	ISSUED	DATE	VB	BSR
No.	REVISIONS	2007-06-01	BY	CKD
BIO-SYNERGY RESOURCES INC.				
SCALE: 1:1250				
DRAWN: Va		Checked by: BSR		



Appendix B
AENV Water Well Drilling Reports



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0275043
Map Verified: Not Verified
Date Report Received: 1987/06/22
Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: UNKNOWN DRILLER
Drilling Company Approval No.: 99999
Mailing Address: UNKNOWN
City or Town: UNKNOWN AB CA
Postal Code:
Well Owner's Name: ETHIER, R.
Well Location Identifier:
P.O. Box Number:
Mailing Address: RR3, LACOMBE
Postal Code: T0C 1S0
City:
Province:
Country:

2. Well Location

1/4 or Sec Twp Rge West of
LSD M
00 14 041 28 4

Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan

Well Elev: FT
How Obtain: Not Obtain

3. Drilling Information

Type of Work: Chemistry
Reclaimed Well
Date Reclaimed:
Materials Used:
Method of Drilling: Unknown
Flowing Well: No
Rate: Gallons
Gas Present: No
Oil Present: No
Proposed well use:
Domestic
Anticipated Water
Requirements/day
0 Gallons

6. Well Yield

Test Date(yyyy/mm/dd): Start Time:

Test Method:

Non pumping FT

static level:

Rate of water Gallons/Min
removal:

Depth of pump FT
intake:

Water level at FT

end of
pumping:

Distance from Inches
top of casing to
ground level:

Depth To water level (feet)
Elapsed Time
Drawdown Minutes: Sec Recovery

Total Drawdown: FT

If water removal was less than 2 hr
duration, reason why:

Recommended pumping rate:
Gallons/Min

Recommended pump intake: FT

Type pump installed

Pump type:

Pump model:

H.P.:

Any further pump test information?

4. Formation Log

Depth from
ground
level (feet)
Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd): Date Completed(yyyy/mm/dd):

Well Depth: 107 FT Borehole Diameter: 0 Inches

Casing Type: Liner Type:

Size OD: 0 Inches Size OD: 0 Inches

Wall Thickness: 0 Inches Wall Thickness: 0 Inches

Bottom at: 0 FT Top: 0 FT Bottom: 0 FT

Perforations
from: 0 FT to: 0 FT
from: 0 FT to: 0 FT
from: 0 FT to: 0 FT
Perforations Size:
0 Inches x 0 Inches
0 Inches x 0 Inches
0 Inches x 0 Inches

Perforated by:

Seal:
from: 0 FT to: 0 FT

Seal:
from: 0 FT to: 0 FT

Seal:
from: 0 FT to: 0 FT

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Installation Method:

Fittings
Top: Bottom:

Pack:
Grain Size: Amount:

Geophysical Log Taken:
Retained on Files:

Additional Test and/or Pump Data
Chemistries taken By Driller: No
Held: 1 Documents Held: 1

Pileless Adapter Type:

Drop Pipe Type:
Length: Diameter:

Comments:

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER

Certification No.:

This well was constructed in accordance with the Water Well
regulation of the Alberta Environmental Protection &
Enhancement Act. All information in this report is true.

Signature Yr Mo Day



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0274996
Map Verified: Not Verified
Date Report Received:
Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: UNKNOWN DRILLER
Drilling Company Approval No.: 99999
Mailing Address: UNKNOWN
City or Town: UNKNOWN AB CA
Postal Code:
Well Owner's Name: CALIF STD CO#390
Well Location Identifier:
P.O. Box Number:
Mailing Address:
Postal Code:
City:
Province:
Country:

2. Well Location

1/4 or Sec Twp Rge West of
LSD 07 14 041 28 M
4

Location in Quarter
64 FT from N Boundary
420 FT from W Boundary
Lot Block Plan

Well Elev: 2992.5 FT
How Obtain: Survey-Air

3. Drilling Information

Type of Work: Structure Test Hole
Reclaimed Well
Date Reclaimed: Materials Used:
Method of Drilling: Drilled
Flowing Well: No
Gas Present: No
Rate: Gallons
Oil Present: No
Proposed well use:
Industrial
Anticipated Water
Requirements/day
0 Gallons

6. Well Yield

Test Date(yyyy/mm/dd): Start Time:

Test Method:

Non pumping FT

static level:

Rate of water Gallons/Min
removal:

Depth of pump FT
intake:

Water level at FT
end of
pumping:

Distance from Inches
top of casing to
ground level:

Depth To water level (feet)
Elapsed Time
Drawdown Minutes:Sec Recovery

Total Drawdown: FT

If water removal was less than 2 hr
duration, reason why:

Recommended pumping rate:
Gallons/Min

Recommended pump intake: FT

Type pump installed

Pump type:

Pump model:

H.P.:

Any further pump test information?

4. Formation Log

Depth from
ground
level (feet)
Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd):
1953/10/06
Date Completed(yyyy/mm/dd):

Well Depth: 920 FT
Borehole Diameter: 0 Inches

Casing Type: Liner Type:

Size OD: 0 Inches
Size OD: 0 Inches

Wall Thickness: 0 Inches
Wall Thickness: 0 Inches

Bottom at: 0 FT
Top: 0 FT Bottom: 0 FT

Perforations
from: 0 FT to: 0 FT
from: 0 FT to: 0 FT
from: 0 FT to: 0 FT
Perforations Size:
0 Inches x 0 Inches
0 Inches x 0 Inches
0 Inches x 0 Inches

Perforated by:

Seal:
from: 0 FT to: 0 FT

Seal:
from: 0 FT to: 0 FT

Seal:
from: 0 FT to: 0 FT

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Installation Method:

Fittings

Top: Bottom:

Pack:
Grain Size: Amount:

Geophysical Log Taken: ELECTRIC

Retained on Files: ELECTRIC yes

Additional Test and/or Pump Data

Chemistries taken By Driller: No

Held: 0 Documents Held: 1

Pitless Adapter Type:

Drop Pipe Type:

Length: Diameter:

Comments:

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER

Certification No.:

This well was constructed in accordance with the Water Well
regulation of the Alberta Environmental Protection &
Enhancement Act. All information in this report is true.

Signature Yr Mo Day



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0280613
Map Verified: Map
Date Report Received: 1983/09/20
Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: FRASER, JACK
Mailing Address: _____ City or Town: _____ Postal Code: _____
Drilling Company Approval No.: _____
Well Owner's Name: MACLEOD, ALLAN
Well Location Identifier: _____
P.O. Box Number: 1959
Mailing Address: (WILSON BEACH), CLARESHOLM
Postal Code: T0L 0T0
City: _____ Province: _____ Country: _____

2. Well Location

1/4 or Sec Twp Rge West of
LSD M
SW 14 041 28 4

Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan

Well Elev: _____ How Obtain: _____
FT Not Obtain

3. Drilling Information

Type of Work: New Well
Reclaimed Well
Date Reclaimed: _____ Materials Used: _____
Proposed well use: Domestic
Anticipated Water Requirements/day
0 Gallons
Method of Drilling: Cable Tool
Flowing Well: No Rate: Gallons
Gas Present: No Oil Present: No

6. Well Yield

Test Date (yyyy/mm/dd): Start Time:
1983/08/18 11:00 AM

Test Method: Pump

Non pumping static level: 25 FT

Rate of water removal: 10 Gallons/Min

Depth of pump intake: 75 FT

Water level at end of pumping: 50 FT

Distance from top of casing to ground level: _____ Inches

Depth To water level (feet)
Elapsed Time
Drawdown Minutes: Sec Recovery
Total Drawdown: 25 FT
If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: 0 Gallons/Min

Recommended pump intake: 75 FT

Type Pump Installed

Pump Type:
Pump Model: GOULD 7EHOS
H.P.: .5

Any further pump test information?

4. Formation Log

Depth from ground level (feet)	Lithology Description
4	Black Topsoil
44	Medium Grained Sand
62	Brown Clay & Gravel
82	Blue Clay & Gravel
90	Blue Fine Grained Sandstone

5. Well Completion

Date Started (yyyy/mm/dd): 1983/08/16
Date Completed (yyyy/mm/dd): 1983/08/18
Well Depth: 90 FT
Borehole Diameter: 0 Inches
Casing Type: Steel
Liner Type:
Size OD: 5.56 Inches
Size OD: 0 Inches
Wall Thickness: 0 Inches
Wall Thickness: 0 Inches
Bottom at: 84 FT
Top: 0 FT Bottom: 0 FT

Perforations from: 0 FT to: 0 FT
Perforations Size: 0 Inches x 0 Inches
from: 0 FT to: 0 FT
0 Inches x 0 Inches
from: 0 FT to: 0 FT
0 Inches x 0 Inches

Perforated by:

Seal: Driven
from: 0 FT to: 0 FT

Seal:
from: 0 FT to: 0 FT

Seal:
from: 0 FT to: 0 FT

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Installation Method:

Fittings
Top: Bottom:

Pack:
Grain Size: Amount:

Geophysical Log Taken:
Retained on Files:

Additional Test and/or Pump Data
Chemistries taken By Driller: No
Held: 0 Documents Held: 1

Pitless Adapter Type:
Drop Pipe Type:
Length: 75 FT Diameter: 1 Inches

Comments:
ORIGINALLY IN SE-10-41-28-4

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
Certification No.: _____
This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true.
Signature _____ Yr Mo Day



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 1200088
Map Verified: Not Verified
Date Report Received: 2006/10/16
Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: CLIFF'S DRILLING
Mailing Address: BOX 3
Well Owner's Name: SCHELLENBERG, JAKE
P.O. Box Number:
City: LACOMBE
Drilling Company Approval No.: 119381
City or Town: BASHAW AB CA
Well Location Identifier:
Mailing Address: RR 3
Province: AB
Postal Code: T4L 2N3
Country: CA

2. Well Location

1/4 or Sec Twp Rge West of
LSD SW 14 041 28 M
Location in Quarter
FT from N Boundary
FT from E Boundary
Lot 19 Block 8 Plan 5600MC
Well Elev: FT
How Obtain: Not Obtain

3. Drilling Information

Type of Work: New Well
Reclaimed Well
Date Reclaimed:
Method of Drilling: Rotary
Flowing Well: No
Gas Present: No
Proposed well use: Domestic
Anticipated Water Requirements/day
Gallons
Materials Used: Unknown
Rate: Gallons
Oil Present: No

6. Well Yield

Test Date (yyyy/mm/dd): 2003/05/14
Start Time: 11:00 AM
Test Method: Air
Non pumping static level: 36 FT
Rate of water removal: 30 Gallons/Min
Depth of pump intake: 55 FT
Water level at end of pumping: 55 FT
Distance from top of casing to ground level: 24 Inches
Depth To water level (feet)
Elapsed Time
Drawdown Minutes: Sec Recovery
2:00 40
3:00 39.8
4:00 38.1
5:00 38.6
6:00 38.4
7:00 38.2
8:00 38.1
9:00 37

4. Formation Log

Depth from ground level (feet)	Lithology Description
30	Sand
63	Blue Till
72	Blue Shale
79	Sandstone
85	Blue Shale
93	Sandstone
100	Blue Shale

5. Well Completion

Date Started (yyyy/mm/dd): 2003/05/14
Date Completed (yyyy/mm/dd): 2003/05/14
Well Depth: 100 FT
Borehole Diameter: 5.125 Inches
Casing Type: Plastic
Liner Type: Plastic
Size OD: 6 Inches
Size OD: 4.5 Inches
Wall Thickness: 0.432 Inches
Wall Thickness: 0.237 Inches
Bottom at: 71 FT
Top: 56 FT Bottom: 100 FT
Perforations
from: 80 FT to: 100 FT
from: FT to: FT
from: FT to: FT
Perforations Size:
0.25 Inches x 10 Inches
Inches x Inches
Inches x Inches
Perforated by: Saw
Seal: Driven
from: FT to: 71 FT
Seal: Formation Packer
from: FT to: 60 FT
Seal: Formation Packer
from: FT to: 80 FT
Screen Type: Unknown
from: FT to: FT
Screen ID: Inches
Slot Size: Inches
Screen Type: Unknown
from: FT to: FT
Screen ID: Inches
Slot Size: Inches
Screen Installation Method: Unknown
Fittings
Top: Unknown Bottom: Unknown
Pack: Unknown
Grain Size: Amount: Unknown
Geophysical Log Taken:
Retained on Files:
Additional Test and/or Pump Data
Chemistries taken By Driller: No
Held: Documents Held:
Pitless Adapter Type:
Drop Pipe Type:
Length: FT Diameter: Inches
Comments:

Total Drawdown: 19 FT
If water removal was less than 2 hr duration, reason why:
Recommended pumping rate: 15 Gallons/Min
Recommended pump intake: 55 FT
Type Pump Installed
Pump Type:
Pump Model:
H.P.:
Any further pump test information? No

7. Contractor Certification

Driller's Name: CLIFFORD BUELOW
Certification No.: VA3466
This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true.
Signature Yr Mo Day



Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.: 0275029
Map Verified: Not Verified
Date Report Received: 1935/08/06
Measurements: Imperial

1. Contractor & Well Owner Information

Company Name: UNKNOWN DRILLER
Mailing Address: UNKNOWN
Well Owner's Name: WILSON, A.
P.O. Box Number:
City:

Drilling Company Approval No.: 99999
City or Town: UNKNOWN AB CA
Well Location Identifier:
Mailing Address: LACOMBE
Province:

Postal Code:
Postal Code:
Country:

2. Well Location

1/4 or Sec Twp Rge West of
LSD M
NW 14 041 28 4
Location in Quarter
0 FT from Boundary
0 FT from Boundary
Lot Block Plan

3. Drilling Information

Type of Work: Federal Well Survey
Reclaimed Well
Date Reclaimed:
Method of Drilling: Unknown
Flowing Well: No
Gas Present: No

Proposed well use:
Unknown
Anticipated Water
Requirements/day
0 Gallons

Materials Used:
Rate: Gallons
Oil Present: No

6. Well Yield

Test Date(yyyy/mm/dd): Start Time:
Test Method:
Non pumping FT
static level:
Rate of water Gallons/Min
removal:
Depth of pump FT
intake:
Water level at FT
end of
pumping:
Distance from Inches
top of casing to
ground level:
Depth To water level (feet)
Elapsed Time
Drawdown Minutes: Sec Recovery

4. Formation Log

Depth from
ground
level (feet)

Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd): Date Completed(yyyy/mm/dd):
Well Depth: 85 FT Borehole Diameter: 0 Inches
Casing Type: Liner Type:
Size OD: 0 Inches Size OD: 0 Inches
Wall Thickness: 0 Inches Wall Thickness: 0 Inches
Bottom at: 0 FT Top: 0 FT Bottom: 0 FT
Perforations Perforations Size:
from: 0 FT to: 0 FT 0 Inches x 0 Inches
from: 0 FT to: 0 FT 0 Inches x 0 Inches
from: 0 FT to: 0 FT 0 Inches x 0 Inches
Perforated by:
Seal:
from: 0 FT to: 0 FT
Seal:
from: 0 FT to: 0 FT
Seal:
from: 0 FT to: 0 FT
Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches
Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches
Screen Installation Method:
Fittings
Top: Bottom:
Pack:
Grain Size: Amount:
Geophysical Log Taken:
Retained on Files:
Additional Test and/or Pump Data
Chemistries taken By Driller: Yes
Held: 0 Documents Held: 1
Pitless Adapter Type:
Drop Pipe Type:
Length: Diameter:
Comments:
OWNER REPORTS SOFT WATER.

Total Drawdown: FT
If water removal was less than 2 hr
duration, reason why:

Recommended pumping rate:
Gallons/Min

Recommended pump intake: FT

Type pump installed
Pump type:
Pump model:
H.P.:
Any further pumptest information?

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
Certification No.:
This well was constructed in accordance with the Water Well
regulation of the Alberta Environmental Protection &
Enhancement Act. All information in this report is true.
Signature Yr Mo Day



Appendix C

Assessment Methodologies



BSR-BCOP 03-016

STANDARD OPERATING PROCEDURES ELECTROMAGNETIC SURVEY (EM31-MK2)

INTRODUCTION

An Electromagnetic Survey has proven to be a cost-effective "screening tool" that can aid in delineating inorganic anomalies that may correspond to a drilling waste sump and/or other ion-contaminated regions (ie: chlorides associated with salt water spills). It has also proven to be useful for establishing representative locations for offsite controls.

Bio-Synergy Resources Inc. (BSR) conducts electromagnetic surveys using the EM31-MK2 Ground Conductivity Meter. BSR's instrument is digitally synchronized to Differential Global Positioning System (DGPS) which allows accurate positioning of the geophysical data.

PROCEDURE

The procedure for conducting an EM survey is as follows:

- The EM31 instrument c/w DGPS system is either carried with a shoulder strap or mounted on a plastic sled depending on the terrain.
- The instrument is operated in the vertical dipole mode, reaching a depth of 5-6 meters below surface. The EM31 is set for taking five readings per second while the GPS readings are one reading per second.
- The operator proceeds at a speed of approximately one meter per second and completes a 'S' or 'Cross-hatch' pattern over the desired area. Both patterns will result in the same conclusions due to the one reading per second.
- After scanning a site, BSR then produces a color image map that the field consultant can use to determine potential areas of concern for coring purposes. Lab results from targeted soil samples should be combined and correlated with the findings on the EM map.



CALIBRATION

BSR has a calibration and test certificate from the manufacturer Geonics Ltd.

The Manufacturer procedure for the EM31 instrument calibration is as follows:

The 'range' switch is set at 100 mS/meter

- a) The 'mode' switch is set to operator position
The 'inphase' is adjusted to '0' with a tolerance of 0.1ppt

The phase instrument is checked by setting the 'mode' switch to the 'phase' position. The conductivity reading is noted and the 'coarse control' is rotated one step clockwise. If the conductivity reading remained the same (tolerance ± 0.2 mS/meter), the 'phase' is already correct and the 'coarse control' is returned to its original position. If there is a difference in the conductivity readings, a 'phase' adjustment is required. With the 'coarse control' in original position, the 'phase potentiometer' is rotated $\frac{1}{4}$ turn clockwise and the new conductivity reading is noted. The 'coarse control' is rotated one step clockwise, a reading is taken, and it is returned to its original position. The 'phase potentiometer' is continuously adjusted until a tolerance of ± 0.2 mS/meter is achieved.

The sensitivity of the instrument is checked by setting the 'mode' switch to the 'comp' position and rotating the 'coarse control' one step clockwise. The conductivity reading should range between 22-26 mS/meter. This reading is noted for use in comparing with the outcome at a later date.

The coarse switch is returned to its original setting and the mode switch is returned to 'operator'. The EM 31 is now ready to make ground conductivity measurements.



BSR-BCOP 03-024

BOREHOLE DRILLING AND SOIL SAMPLING

1.0 BOREHOLE DRILLING

Before each borehole is drilled, all downhole drilling equipment should be clean to avoid potential cross contamination. In non-potable aquifers, more stringent cleaning procedures must be applied to downhole equipment that will be used below the water table. The use of any greases or lubricants on downhole drilling equipment is strictly prohibited. When borehole drilling, it is preferred to start in the least contaminated area of the site and finish in the most contaminated area.

2.0 BOREHOLE SAMPLING

A clean bottom must be obtained in every borehole. Discrete interval sampling of the borehole will be performed. Prior to taking a sample, the outer core must be discarded. Representative discrete samples are taken from each distinct zone within the core. A minimum of one sample per borehole should be sent to the laboratory for analysis at downstream sites; this is not required for upstream sites.

3.0 SOIL FIELD SCREENING

Visual observations of the soil should be made and summarized in the borehole logs. Olfactory observations should be made and summarized in the borehole logs. The preferred practice for measuring the soil vapour is to fill a plastic bag $\frac{1}{4}$ full and allow the broken up soil to equilibrate for 20 minutes at a minimum temperature of 15°C before measuring the peak headspace concentration.

4.0 BOREHOLE AND MONITORING WELL LOG

Each borehole and/or monitoring well should be individually logged, using either the Canadian System of Soil Classification (CSCS) or the Unified Soil Classification System (USCS). As much as possible, graphical depictions of the borehole logs are preferred. Specific details of the well construction and elevations, with respect to a local geodetic reference, should also be included in the borehole log.



5.0 BOREHOLE BACKFILLING AND MONITORING WELL DECOMMISSIONING

Boreholes that are not being completed as monitoring wells must be backfilled immediately. If contamination is suspected, boreholes should be backfilled with bentonite chips to 0.3 m below grade. The last 0.3 m is backfilled with topsoil. Borehole cuttings should not be used to backfill the borehole if contamination is suspected.

Over drilling is the preferred practice for removal of the monitoring well casing. Alternatively, an acceptable practice is to cut the PVC casing at grade. The monitoring well should be backfilled with bentonite chips to 1.3 m below grade. The next 1 m is filled with a hydrated bentonite seal and the last 0.3 m is backfilled with topsoil.

6.0 DISCREPENCIES

Bio-Synergy recognizes that some clients also maintain an SOP for this type of work and in any situation where a discrepancy exists between a policy or procedure between the Bio-Synergy program and the client's program, the client's policy or procedure will apply.

SOIL OVA ANALYSIS

1.0 INTRODUCTION

The soil samples should be field-screened for volatile hydrocarbons using Organic Vapour Analysis (OVA) headspace tests. The instrument used for the OVA headspace testing is an RKI Eagle Organic Vapour analyzer. This instrument employs a catalytic element detection method and is calibrated to a hexane standard. The instrument detects volatile hydrocarbons in the 0 to 1000 parts per million (ppm) range and 0 to 100 % Lower Explosive Limit (LEL) range.



2.0 PROCEDURE

The procedure for the soil OVA headspace analysis is as follows:

- Each sample consists of approximately 500 mL (1/4 bag) of soil, which is then placed in a clean Ziploc plastic bag.
- Allow analyser to warm up for at least 5 minutes. Ensure the methane response switch is in the "off" position, methane occurs in most soils and will present a false positive.
- Insert the Eagle 's probe into the Ziploc plastic bag after approximately 20 minutes (at a minimum temperature of 15 °C) to allow vapours to accumulate in the headspace. Care must be taken to avoid opening the bag no larger than the diameter of the probe.
- All readings are recorded in ppm or Lower Explosive Limit (LEL).

Duplicate soil samples should be collected at each location in clean 250 mL glass jars with Teflon lined lids and filled to minimize headspace in the jar (avoid overfilling). The soil samples should then be placed in a cooler for possible laboratory analysis.

3.0 CALIBRATION

The procedure for the calibration of the unit is as follows (do weekly):

- Using a known calibration standard (hexane-15% LEL), fill the plastic bag provided in the calibration kit ½ full. Press and hold the SHIFT button on the analyser, then press the DISP button until the calibration menu appears.
- Select "Auto Calibration" and ensure the value presented is 15%. Use the AIR or SHIFT buttons to change the value if needed, then press ENTER.
- Insert the Eagle's probe into the plastic bag and wait approximately 1 minute, then press ENTER. If "Auto Calibration End" is displayed the unit is calibrated, press SHIFT and return to "Normal Operation".



FIELD SCREENING SOIL pH/EC

1.0 INTRODUCTION

Soil samples collected during test pitting or drilling are field screened to estimate the relative soil pH and electrical conductivity (EC) between soil samples. This screening procedure involves placing 30 ml of each soil sample into 120 ml of distilled water, making a 1:4 soil to water concentration. The solution is then mixed for one minute and allowed to sit for approximately 15 minutes to stabilize.

Conductivity and pH of the samples are then measured using field portable pH and EC meters and results are documented on the field logs. Due to the 1:4 saturated paste solution it is important to remember to multiply your EC readings to compensate for dilution. The conductivity levels obtained are used as a rough guide to salinity concentrations in the soil and are utilized in sample selection for laboratory analysis.

Portable pH and EC metres should be re-calibrated after use at each site, and/or if an unusually high reading is noted during use.

2.0 PROCEDURE

The procedure for field screening soil for pH and EC are as follows:

- Each sample consists of 30 ml of soil which is then added to 120 ml of distilled water.
- The solution, containing a 1:4 soil to water concentration is mixed for one minute and then allowed to sit for 15 minutes in order to stabilize.
- Using field portable pH and EC meters the saturated paste is measured and results are recorded.

In order to accurately compensate for saturated paste dilution results, the EC must be multiplied directly by 4.

It should be noted that pH readings are independent of the dilution factor and therefore, should be reported as such.



Appendix D

Safety Documentation



BIO-SYNERGY
RESOURCES INC.

GROUND DISTURBANCE CHECKLIST

This checklist must be kept on site until project is completed

Phone: (403) 342-2130

Fax: (403) 342-2005

(N/A = Not Applicable)

CROSSING NUMBER				CROSSING NUMBER			
LOCATION				LOCATION			
6-14-41-28u4				4			
YES	NO	N/A	INITIAL	YES	NO	N/A	INITIAL
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	

Record Confirmation

- Do you have a copy of the survey drawing for the well site, access road, and/or proposed ground disturbance area?
**NOTE* If the survey drawing is older than 60 days, consideration should be given to getting an updated survey drawing.*
- Do you have a copy of the surface acquisition report (line list)?
- Does the survey drawing table of crossing match with the surface acquisition report (line list) table of crossings?
- Do you have a recent copy of the Land Title Certificate?
- Do you have a copy of all crossing agreements identified in items #1 and #2?
- Do you have a copy of the most recent (within 30 days) EUB pipeline baseline map?
- Did you notify the crossing stakeholders of your intentions?
- Are proximity notifications in place for pipelines, power lines or utilities within a 100-meter zone from wellhead?
- Is the 30-meter buffer zone free of any pipelines, power lines, or utility obstructions?
- Did you notify the land agent or land owner of your intentions?
- Did you adhere to the crossing notification requirements?
- Has Alberta First Call been notified of our intentions? Assigned Ticket # 7411010
- Did you contact BSR and other production office(s) and review scope of work and crossings?
- Have the operators been contacted to discuss what may be in the Area?

Visual Inspection

- Have all underground facility owners staked their lines and/or facilities?
- Are all the lines within the 30-meter external search zone identified on the ground?
- Are there any signs of new ground disturbances within the proposed working area, including the buffer zone?
This may include pipelines, power lines, gas co-op, utility cables, new clearings, road construction, pipeline signs, settlement, vegetation color change or growth. If there is any visual sign of activity that is not reflected on the survey drawing, re-surveying should be considered.
- When blind searching, the area must be swept in four separate "grid patterns" (i.e. north ↔ south, east ↔ west, then angular) to ensure maximum detection capabilities. Otherwise, the more accurate method of direct connection or clamping should be used.
The competent operations person must ensure that the locator(s) locate and mark (stake) all known pipelines and utilities on the plot/site plan that are within 30-meters of either side of the ground disturbance.
When locating and marking BSR facilities, it should be ensured that markings for the location of the facility extends off of the BSR right-of-way on each side of the right-of-way to provide added assurance that live markings will remain visible. Has this been completed?

YES	NO	N/A	INITIAL	YES	NO	N/A	INITIAL
☐	☐	☒	GL	☐	☐	☐	
☐	☐	☒	GL	☐	☐	☐	
☐	☐	☐		☐	☐	☐	
☐	☐	☐		☐	☐	☐	

Pre-Construction

- Is the proposed ground disturbance expected to be less than 30 centimeters?
**CAUTION* The 30 centimeter depth is a general rule. Ground disturbances less than 30 centimeters may encounter lines improperly installed or changed due to shifting ground disturbances. Additional crossing material should be considered*
- Are there any pipelines, power lines or utility cables being crossed?
- Are the conditions of the crossing agreements (commonly more stringent requirements), being met?
- Has the control area been checked out/staked?
a. Third party (specify) ADVANCED LOCATING
b. Owner company _____
- Are overhead power line caution signs in place?
- Have all the underground facilities been hand exposed or hydrovaced as per the company requirements and regulations?
- Did you conduct a pre-job safety meeting with all personnel involved in undertaking the ground disturbance?
Ensure personnel have not changed.

YES	NO	N/A	INITIAL	YES	NO	N/A	INITIAL
☐	☒	☐	GL	☐	☐	☐	
☐	☒	☐	GL	☐	☐	☐	
☐	☐	☒	GL	☐	☐	☐	
☐	☐	☐		☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	
☐	☐	☒	GL	☐	☐	☐	
☒	☐	☐	GL	☐	☐	☐	

Comments

NO LINES ON SITE
→ STAY WITHIN 5M OF EAST BOUNDARY (FOR CONTROLS)

NOTE: This document is designed to be a GUIDE to the minimum safety standards for a ground disturbance. Refer to the Energy & Utilities Board (EUB) regulations, company EH&S Handbook, Contractor Safety Requirements, and Occupations Health & Safety (OH&S) statute and regulations for further details.
If a project involves interprovincial activity, the National Energy Board (NEB) has additional requirements.

[Signature] Nov. 13/07
Company Representative Sign Date

[Signature] Nov. 13/07
Contractor Representative Sign Date

ON-SITE EMERGENCY RESPONSE PLAN

Location: Husky Phase II	06-14-41-28 W4M	Date:	Nov. 13, 2007
Muster Point:	BSR Company Truck	Communication System:	☒ Cell Phone ☐ Radio ☐ Other: _____
Alarm (describe):	Two Horn Blasts	Communication checked:	☒ Yes ☐ No
First Aid/ Emergency Equipment:	First Aid Kit	Rescue Workers:	George Lasich (1) Dylan Luckwell (2)
Fire Protection Equip:	Fire Extinguisher	Training requirements:	H2S, G.D., CPR, TDG,
Location of Equipment:	BSR Company Truck		WHMIS, First Aid
Potential emergencies:	Fires, Vehicle/Machinery Accidents, Slips/Trips	Medical Conditions:	None
Emergency Response/Evacuation Plan (attach info as required):			STOP → THINK → ACT
Meet at muster point and assess situation, responder 1 to provide medical assistance, responder 2 call/notify for assistance (or vice versa), drive to Medical facility in Lacombe, Ab at 5430 47 th Ave. (~21 km) OR call for medical assistance to drive out to site.			1) Protect Yourself
			2) Call for Help
			3) Assess hazards
			4) Initiate rescue
Hospital Directions- East on hwy 12, south on C&East trail, east on 47th Ave., hospital is half block down. (google map attached to ERP)			5) Secure the area
			6) Continue response
Order	Emergency Contact Name	Phone # 1	Phone # 2
#1)	Brooke McBride	403-588-9095	403-342-2130
#2)	Clint Wolstenholm	24h: 403-2919181	C: 588-6911
#3)	Russell Watts	403-740-5494	
#4)			
#5)			
Emergency Link Centre:		1-888-888-4567	Fire: 911
Provincial Fire Centre:		310-3473	Local Hospital: 403-782-3336
Other Contacts:		911	
		STARS	1-888-888-4567
Detailed Directions to site: UTM GPS Coordinates: LatE. Long: N.			
From Lacombe: Head west on highway 12 ~8miles, north on highway 792 for 4 miles, west on township 412 for ~1 mile, north into. To meet assistance at Highway 792 and TWP 412 if possible.			
Working Alone Check System: (Who is working alone, contact person, check frequency, etc.)			
Environmental Concerns/Plan: Spill Kit requirement (Describe): Absorbent Pads			

Sign-Off:

Name	Initial	Company
George Lasich		BSR
Dylan Luckwell		BSR
Harley Green	H.G.	JED Anchors
Trace Nickolsen	T.N.	BSR

Name	Initial	Company



BIO-SYNERGY

Emergency #: SEE ERP**SITE SPECIFIC PRE-JOB SAFETY MEETING / HAZARD ASSESSMENT**

This form must be completed by operations and the on-site supervisor prior to the start of each project. This replaces the need for daily safe work permits but does not replace the need for daily tailgate meetings by the on-site supervisor. A COPY MUST REMAIN ON SITE.

Location: 6-14-41-28W4 Contractor: JED ANCHORS LTD.

Job Description and Directions to Site: PHASE II ESA

SEE ERP

Safety Checklist: Check off the hazards that are specific to tasks carried out on this location. List the hazards and the controls that will be put in place in the assigned area.

- | | | | |
|---|---|--|--|
| ☒ Access/Egress | ☒ Equipment backing | ☐ Ignition Sources | ☒ Overhead work |
| ☐ Aerial devices | ☒ Equipment operation | ☐ Illumination | ☒ Pinch points/crushing |
| ☐ Asbestos | ☐ Excavations | ☐ Inhalation dust/vapor | ☐ Rigging/ropes/slings/cable |
| ☒ Awareness of others | ☐ Explosive gas | ☒ Land owner relations | ☐ Scaffolds |
| ☐ Chemical handling | ☐ Fire fighting | ☐ Leg protection | ☒ Slips/trips/falls |
| ☐ Compressed gas cylinder | ☐ Flammable Gas | ☒ Manual lifting | ☐ Toxic gas |
| ☐ Cranes/hoisting | ☒ Flying debris/dust | ☐ Mechanical lifting | ☒ Traffic |
| ☐ Driving habits | ☐ Fueling equipment | ☐ Noise levels | ☒ Underground facilities |
| ☐ Electrical hazards | ☐ Hot fluids | ☐ Operating ATV's | ☐ Weather |
| ☐ Entanglement | ☐ Housekeeping/insp. | ☐ Overhead lines | ☐ Working alone |
| | | | ☐ Working at heights |

Safety Equipment/PPE: Check off the items that are specific to the tasks to be carried out on this location.

- | | | | |
|--|--|--|--|
| ☐ Back up alarms | ☒ FRC (Live sites) | ☒ Hard hat | ☐ Rules |
| ☐ Checklists | ☐ Full body clothing | ☐ Hearing protection | ☐ Safety vests |
| ☐ Face shields | ☒ Gloves | ☐ Leg protection | ☐ SCBA |
| ☒ Fire extinguishers | ☒ Safety Glasses | ☐ Positive air shut off | ☐ Shoring |
| ☒ Foot protection | ☒ Ground disturbance | ☐ Respirator | ☐ Tag lines |
| ☐ Fence/Barricades | ☐ Gas Monitor | ☐ Reflective Coating | ☐ Warning signs |

Procedures/Checklists: Check off and review the procedures that pertain to the tasks on this site.

- | | | | |
|--|---|--|---|
| ☐ Change management | ☐ Grounding/bonding | ☐ MSDS | ☐ Signs |
| ☐ Confined space | ☐ H2S | ☐ Mentoring for new workers | ☐ Site Inspection |
| ☐ Excavation, shoring | ☐ Incident reporting | ☐ Orientations | ☐ Smoking |
| ☒ Ground disturbance | ☐ Lockout/Tag out | ☐ Scaffold inspection | ☐ Towing vehicles |
| | | | ☐ Training Checked for all Workers |

- ☒ Emergency Response Plan Attached (separate form, but will keep with document) ☐ Work Alone Check System (if yes, need separate sheet)
- ☒ All Documentation Completed including Scope of Work (check if signed)

Hazards	Controls
ACCESS / TRAFFIC - THROUGH 40 YARD	WATCH SPEED / CLOSE GATES
DRIVING HABITS - COMING ESCAPING / HIT	
AWARENESS OF OTHERS	KEEP GOOD VERBAL COMMUNICATION
EQUIP BACKING, OPERATING	STAY 10m BACK WHEN TRANSIT ON SITE
L/O RELATIONS	USE HAND SIGNALS TO BACK UP
MANUAL LIFTING	DIRECT TO GEORGE / BE RESPECTFUL
SLIP/FALL / PINCH	USE LEGS / 2. POL
	ENGAGE PPE AT ALL TIMES
UNDERGROUND FACILITIES	SI CALL / REVIEW GD PACKAGE / HAVE

Attendance/Training: *NO LINES ON SITE *LINE LOCATE - START ON BACK OF LINES

Name (Print)	Signature	ORIG	RES	PAD	LOG	WHIS	GRD	USE
GEORGE LATSCH		☒	☒	☒	☒	☒	☒	☒
Tara Nickolson		☒	☒	☒	☒	☒	☒	☒
Harvey Greene		☒	☒	☒	☒	☒	☒	☒
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐

Bio-Synergy Representative: GEORGE LATSCH

On-Site Supervisor:

403.588.9066 NOV 13/17

Signature / Ph #

Date

Signature / Ph#

Date



Appendix E

Site Photographs

Site Photographs:



Photograph 1: This photograph was taken from well center facing north toward cultivated land.



Photograph 2: This photograph was taken from well center facing east. The south half of the lease is fenced-off separately from the north half.



Photograph 3: This photograph was taken from well center facing south. This half of the lease is fenced-off and contains dense vegetation. There is a low lying area to the south-east (off-lease).



Photograph 4: This photograph was taken from well center facing west. The former access road entered from the north-west corner of the lease and is now cultivated and farmed.



Appendix F Borehole Logs



BIO-SYNERGY
RESOURCES INC.

FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH1

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
SITE LOCATION: 100/06-14-041-28 W4M
LOGGED BY: George Lasich B.Sc.
PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
DATE DRILLED: November 13, 2007
DRILLING CO.: JED Anchors and Environmental Limited
DRILLER: Harley Greene
RIG TYPE: 1 ton truck-mounted auger
DRILLING METHOD: Solid Stem Auger
SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
BASE OF SAND PACK:
SCREENED INTERVAL:
SCREEN SIZE:
GROUND ELEVATION:
TOP OF CASING:
BORING DIAMETER:
CASING DIAMETER:
DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Well Centre

BOREHOLE LOCATION: 0301209/ 5823901 (NAD 83 UTM)

DEPTH (mbsg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S, Si, C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.	0.3 m	10	0.60	7.9					Topsoil
			0.2-0.6 m: Sandy clay loam, dark yellow brown, friable, moist, blocky, disturbed, admixing.	0.6 m	15	0.40	8.1					Bentonite
			0.6-1.6 m: Sand, yellow brown, loose, moist, granular.	1.0 m	30	0.20	8.2					Soil
1				1.5 m	25	0.20	8.1					
			1.6-3.2 m: Sandy clay, grey brown, loose, wet, granular, common, coarse gleying.	2.0 m	15	0.20	8.3					
2				2.4 m	10	0.20	8.2					
			3.2-3.5 m: Clay loam, grey, firm, blocky, granular, common, coarse gleying.	3.0 m	0	0.20	8.3					
3			End of BH1 at 3.5 m	3.5 m	25	0.40	8.2					
4												
5												
6												

Legend

Topsoil



Bentonite



Clay



Sand



Silt



Sump





BIO-SYNERGY
RESOURCES INC.

FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH2

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
SITE LOCATION: 100/06-14-041-28 W4M
LOGGED BY: George Lasich B.Sc.
PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
DATE DRILLED: November 13, 2007
DRILLING CO.: JED Anchors and Environmental Limited
DRILLER: Harley Greene
RIG TYPE: 1 ton truck-mounted auger
DRILLING METHOD: Solid Stem Auger
SAMPLING METHOD: Grab

GEOLOGIC LOG

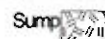
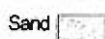
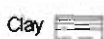
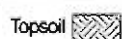
TOP OF SAND PACK:
BASE OF SAND PACK:
SCREENED INTERVAL:
SCREEN SIZE:
GROUND ELEVATION:
TOP OF CASING:
BORING DIAMETER:
CASING DIAMETER:
DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump

BOREHOLE LOCATION: 0301199/ 5823915 (NAD 83 UTM)

DEPTH (mbg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil									Topsoil
			0.2-1.5 m: Sandy clay loam, greyish brown, friable, moist, blocky. Prominent admixing, disturbed.	0.3 m	30	0.60	8.0					
				0.6 m	35	1.80	8.0					
1				1.0 m	15	1.20	8.1					
			1.5-2.0 m: Sandy clay loam, greyish brown, soft, moist, amorphous, disturbed. Mix-bury-cover sump material evident. Grey drilling mud present. Well mixed.	1.5 m	00	1.40	8.0					
				1.5-2.0 m	05	0.60	8.2	✓	✓	✓		Bentonite
2			2.0-3.5 m: Sandy clay, yellowish brown, friable, moist, amorphous	2.0 m	10	0.60	8.2					
				2.0-3.0 m	10	na	na				✓	
				2.4 m	05	0.20	8.4					
3				3.0 m	30	0.20	8.3					
			End of BH2 at 3.5 m	3.5 m	40	0.60	8.2					
4												
5												
6												

Legend





FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH3

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump

BOREHOLE LOCATION: 0301204/ 5823915 (NAD 83 UTM)

DEPTH (mbg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (+)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									Topsoil
			0.2-1.5 m: Sandy clay loam, greyish brown, friable, moist, blocky. Prominent admixing, disturbed.	0.3 m	150	0.80	8.2					
				0.6 m	130	1.60	8.2					
1				1.0 m	40	1.40	8.2					
			1.5-2.0 m: Sandy clay loam, greyish brown, friable, moist, amorphous, disturbed. Mix-bury-cover sump material evident. Gray drilling mud present. Traces of grey cement present. Well mixed.	1.5 m	00	1.00	8.2					
				1.5-2.0 m	15	0.80	8.2	✓	✓	✓		Bentonite
2			2.0-3.0 m: Sandy clay, yellowish brown, soft, moist, amorphous.	2.0 m	10	0.40	8.3					
				2.0-3.0 m	10	na	na				✓	
				2.4 m	00	0.20	8.0					
3			3.0-3.5 m: Sandy clay, grey, friable, moist, blocky. Common, coarse, prominent gleying.	3.0 m	00	0.20	8.4					
			End of BH3 at 3.5 m	3.5 m	15	0.20	8.3					
4												
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



BIO-SYNERGY
RESOURCES INC.

FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH4

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
SITE LOCATION: 100/06-14-041-28 W4M
LOGGED BY: George Lasich B.Sc.
PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
DATE DRILLED: November 13, 2007
DRILLING CO.: JED Anchors and Environmental Limited
DRILLER: Harley Greene
RIG TYPE: 1 ton truck-mounted auger
DRILLING METHOD: Solid Stem Auger
SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
BASE OF SAND PACK:
SCREENED INTERVAL:
SCREEN SIZE:
GROUND ELEVATION:
TOP OF CASING:
BORING DIAMETER:
CASING DIAMETER:
DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump Delineation

BOREHOLE LOCATION: 0301209/ 5823915 (NAD 83 UTM)

DEPTH (mbsg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									Topsoil
			0.2-1.3 m: Sandy clay loam, greyish brown, friable, moist, blocky. Admixed.	0.3 m	00	1.00	8.2					Bentonite
				0.6 m	00	1.00	8.0					
1				1.0 m	10	1.00	8.2					
			1.3-3.0 m: Sandy clay, yellowish brown, friable, moist, amorphous. Common, fine, faint gleying and mottling.	1.5 m	00	0.40	8.3					Soil
2				2.0 m	00	0.20	8.2					
				2.4 m	00	0.20	8.2					
3			3.0-3.5 m: Sandy clay, grey, firm, moist, blocky. Common, medium, distinct gleying.	3.0 m	10	0.20	8.4					
			End of BH4 at 3.5 m	3.5 m	20	0.40	8.1					
4												
5												
6												

Legend

Topsoil

Bentonite

Clay

Sand

Silt

Sump



BIO-SYNERGY
RESOURCES INC.

FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH5

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
SITE LOCATION: 100/06-14-041-28 W4M
LOGGED BY: George Lasich B.Sc.
PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
DATE DRILLED: November 13, 2007
DRILLING CO.: JED Anchors and Environmental Limited
DRILLER: Harley Greene
RIG TYPE: 1 ton truck-mounted auger
DRILLING METHOD: Solid Stem Auger
SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
BASE OF SAND PACK:
SCREENED INTERVAL:
SCREEN SIZE:
GROUND ELEVATION:
TOP OF CASING:
BORING DIAMETER:
CASING DIAMETER:
DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump

BOREHOLE LOCATION: 0301194/ 5823915 (NAD 83 UTM)

DEPTH (m)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									Topsoil
			0.2-1.4 m: Sandy clay loam, greyish brown, friable, moist, blocky. Few gravel aggregates. Prominent admixing, disturbed.	0.3 m	15	0.60	8.2					
				0.6 m	45	1.80	8.2					
1				1.0 m	25	1.40	8.2					
			1.4-2.5 m: Sandy clay loam, greyish brown, friable, moist, amorphous, disturbed. Mix-bury-cover sump material evident. Grey drilling mud present. Well mixed.	1.5 m	10	1.80	8.2					
				1.4-2.5 m	15	1.40	8.2	✓	✓	✓		Bentonite
2				2.0 m	15	1.60	8.3					
			2.5-3.5 m: Sandy clay, yellowish brown, friable, moist, blocky. Common, medium, distinct gleying.	2.4 m	20	0.40	8.0					
				2.5-3.5 m	25	na	na				✓	
3				3.0 m	20	0.40	8.4					
			End of BH5 at 3.5 m	3.5 m	15	0.40	8.3					
4												
5												
6												

Legend

Topsoil



Bentonite



Clay



Sand



Silt



Sump





FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH6

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump Delineation

BOREHOLE LOCATION: 0301189/ 5823915 (NAD 83 UTM)

DEPTH (m)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S, Si, C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									Topsoil
			0.2-1.5 m: Sandy clay loam, greyish brown, friable, moist, blocky. Few gravel aggregates. Admixed.	0.3 m	05	0.80	8.1					
				0.6 m	25	1.20	8.1					Bentonite
1				1.0 m	25	1.00	8.1					
			1.5-3.5 m: Sandy clay, greyish brown, soft, moist, amorphous. Many, medium, distinct gleying.	1.5 m	00	1.20	8.1					Soil
2				2.0 m	60	0.20	8.1					
				2.4 m	25	0.20	8.1					
3				3.0 m	15	0.20	8.2					
				3.5 m	15	0.60	8.1					
4			End of BH-6 at 3.5 m									
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH7

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump

BOREHOLE LOCATION: 0301199/ 5823920 (NAD 83 UTM)

DEPTH (mbsg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (*)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									
			0.2-0.6 m: Sandy clay loam, yellowish brown, friable, moist, blocky, disturbed.	0.3 m	35	0.60	8.2					Topsoil
				0.6 m	60	1.20	8.1					
			0.6-2.4 m: Sandy clay loam, greyish brown, friable, moist, amorphous, disturbed. Mix-bury-cover sump material evident. Grey drilling mud present. Well mixed.	0.6-1.0 m	05	0.80	8.2	✓	✓	✓		
1				1.0 m	25	0.60	8.1					
				1.5 m	25	1.20	8.0					
				1.0-2.4 m	05	1.40	8.1	✓	✓	✓		Bentonite
2				2.0 m	05	0.80	8.2					
			2.4-3.5 m: Sandy clay, yellowish brown, soft, moist, amorphous. Many, coarse, prominent gleying.	2.4 m	00	0.60	8.1					
				2.4-3.4 m	10	na	na				✓	
3				3.0 m	10	0.20	8.3					
				3.5 m	15	0.40	8.2					
4			End of BH7 at 3.5 m									
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



BIO-SYNERGY
RESOURCES INC.

FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH8

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
SITE LOCATION: 100/06-14-041-28 W4M
LOGGED BY: George Lasich B.Sc.
PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
DATE DRILLED: November 13, 2007
DRILLING CO.: JED Anchors and Environmental Limited
DRILLER: Harley Greene
RIG TYPE: 1 ton truck-mounted auger
DRILLING METHOD: Solid Stem Auger
SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
BASE OF SAND PACK:
SCREENED INTERVAL:
SCREEN SIZE:
GROUND ELEVATION:
TOP OF CASING:
BORING DIAMETER:
CASING DIAMETER:
DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump Delineation

BOREHOLE LOCATION: 0301199/ 5823925 (NAD 83 UTM)

DEPTH (mbg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									
			0.2-1.5 m: Sandy clay loam, yellowish brown, friable, moist, blocky. Few, fine, faint gleying and mottling. Admixed.	0.3 m	60	0.40	8.1					Topsoil
				0.6 m	55	0.80	8.2					Bentonite
1				1.0 m	10	1.40	8.0					
			1.5-3.5 m: Sandy clay, yellowish brown, loose, moist, granular. Common, medium, distinct gleying. Few gravel aggregates.	1.5 m	05	0.80	8.2					Soil
2				2.0 m	70	0.60	8.1					
				2.4 m	05	0.60	8.1					
3				3.0 m	00	0.40	8.2					
				3.5 m	10	0.20	8.2					
4			End of BH8 at 3.5 m									
5												
6												

Legend

Topsoil



Bentonite



Clay



Sand



Silt



Sump





BIO-SYNERGY
RESOURCES INC.

FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH9

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
SITE LOCATION: 100/06-14-041-28 W4M
LOGGED BY: George Lasich B.Sc.
PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
DATE DRILLED: November 13, 2007
DRILLING CO.: JED Anchors and Environmental Limited
DRILLER: Harley Greene
RIG TYPE: 1 ton truck-mounted auger
DRILLING METHOD: Solid Stem Auger
SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
BASE OF SAND PACK:
SCREENED INTERVAL:
SCREEN SIZE:
GROUND ELEVATION:
TOP OF CASING:
BORING DIAMETER:
CASING DIAMETER:
DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Sump Delineation

BOREHOLE LOCATION: 0301199/ 5823910 (NAD 83 UTM)

DEPTH (m)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S, Si, C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									
			0.2-0.5 m: Sandy clay loam, yellowish brown, friable, moist, blocky. Slightly admixed.	0.3 m	150	1.20	8.0					Topsoil
			0.5-1.5 m: Sandy clay, yellowish brown, very friable, moist, granular. Many, coarse, prominent gleying.	0.6 m	110	1.20	8.2					Bentonite
1				1.0 m	70	0.60	8.1					
			1.5-2.4 m: Clay, yellowish brown, very plastic, moist, platy. Common, coarse, prominent gleying and mottling.	1.5 m	15	0.40	8.2					Soil
2				2.0 m	25	1.00	8.1					
			2.4-3.5 m: Sandy clay, yellowish brown, loose, moist, granular. Common, medium, distinct gleying.	2.4 m	05	0.60	8.1					
3				3.0 m	10	0.40	8.2					
			End of BH9 at 3.5 m	3.5 m	20	0.40	8.3					
4												
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH10

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

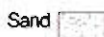
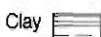
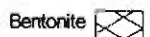
TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Relatively High Apparent Conductivity

BOREHOLE LOCATION: 0301220/ 5823920 (NAD 83 UTM)

DEPTH (mbsg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									
			0.2-1.0 m: Sandy clay loam, yellowish brown, friable, moist, blocky. Few, fine, faint gleying and mottling.	0.3 m	60	1.40	8.2					Topsoil
				0.6 m	160	1.00	8.2			✓		Bentonite
1			1.0-3.0 m: Sandy clay, yellowish brown, loose, moist, granular. Common, medium, distinct gleying and mottling. Few gravel aggregates.	1.0 m	45	0.40	8.1					
				1.5 m	45	0.20	8.2					Soil
2				2.0 m	25	0.40	8.2				✓	
				2.4 m	05	0.40	8.2					
3			3.0-3.5 m: Clay, grey, very plastic, moist, platy. Few white precipitate.	3.0 m	40	0.60	8.2					
			End of BH10 at 3.5 m	3.5 m	05	0.60	8.2					
4												
5												
6												

Legend





FIELD BOREHOLE LOG

BOREHOLE NUMBER: BH11

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

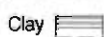
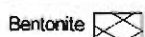
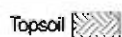
TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Drilling Flare

BOREHOLE LOCATION: 0301254/ 5823947 (NAD 83 UTM)

DEPTH (mbsg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (✓)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.									
			0.2-1.0 m: Sandy clay loam, yellowish brown, friable, moist, blocky. Few fine, faint gleying and mottling.	0.3 m	00	1.60	8.0					Topsoil
				0.6 m	15	1.60	8.1		✓		✓	Bentonite
1			1.0-3.0 m: Sandy clay, yellowish brown, loose, moist, granular. Common, medium, distinct gleying and mottling. Few gravel aggregates.	1.0 m	15	0.60	8.2					
				1.5 m	20	0.40	8.2					Soil
2				2.0 m	10	0.40	8.2					
				2.4 m	35	0.40	8.2					
3			3.0-3.5 m: Clay, grey, very plastic, moist, platy. Few white precipitate.	3.0 m	10	0.60	8.3					
			End of BH11 at 3.5 m	3.5 m	10	0.60	8.3					
4												
5												
6												

Legend





FIELD BOREHOLE LOG

BOREHOLE NUMBER: C1

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Control

BOREHOLE LOCATION: 0301267/ 5823940 (NAD 83 UTM)

DEPTH (mbs)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (/)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.	0.0-0.3 m	05	1.80	7.9					Topsoil
			0.2-1.6 m: Sand clay loam, yellowish brown, friable, moist, blocky. Many, medium, prominent gleying and mottling.	0.3 m	10	1.40	8.0		✓			Bentonite
				0.3-0.6 m	20	1.60	8.0					
				0.6 m	10	1.60	8.1		✓			
				0.6-1.0 m	10	0.80	8.2					
1				1.0 m	25	1.00	8.3		✓			Soil
				1.0-1.5 m	25	0.40	8.3					
				1.5 m	60	0.40	8.3					
			1.6-2.5 m: Sandy clay loam, yellowish brown, friable, moist, amorphous. Many, coarse, prominent gleying. Few gravel aggregates.	2.0 m	45	0.60	8.2					
2				2.4 m	30	0.80	8.4					
			2.5-3.5 m: Sandy clay loam, yellowish brown, firm, moist, platy. Many, medium, distinct gleying and mottling. Few gravel aggregates. Few coal fragments.	3.0 m	30	0.60	8.3					
3				3.5 m	35	0.60	8.3					
			End of C1 at 3.5 m									
4												
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



FIELD BOREHOLE LOG

BOREHOLE NUMBER: C2

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Control

BOREHOLE LOCATION: 0301170/ 5823969 (NAD 83 UTM)

DEPTH (mbg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (/)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.4 m: Black topsoil.	0.0-0.3 m	00	0.20	7.5					
				0.3 m	05	0.20	7.5					
			0.4-1.7 m: Silty clay loam, yellowish brown, very friable, moist, blocky sub-angular. Few, fine, faint gleying and mottling.	0.3-0.6 m	05	0.20	7.8					
				0.6 m	05	0.00	7.5					
				0.6-1.0 m	05	0.00	8.1					
1				1.0 m	10	0.20	7.9					
				1.0-1.5 m	10	0.20	8.0					
				1.5 m	05	0.40	8.1			✓		
2			1.7-3.5 m: Sandy clay loam, yellowish brown, very friable, moist, amorphous. Common, medium, distinct, gleying and mottling. Few cobble aggregates.	2.0 m	40	0.40	7.9					
				2.4 m	20	0.40	7.9					
3				3.0 m	05	0.40	8.2					
				3.5 m	10	0.40	8.3					
4			End of C2 at 3.5 m									
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



FIELD BOREHOLE LOG

BOREHOLE NUMBER: C3

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Control

BOREHOLE LOCATION: 0301155/ 5823840 (NAD 83 UTM)

DEPTH (mbg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY: (interval), texture (S, Si, C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (%)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.4 m: Black topsoil.	0.0-0.3 m	00	0.40	7.9					Topsoil
				0.3 m	00	0.20	8.0					
			0.4-1.5 m: Sandy clay loam, dark yellowish brown, semi-plastic, moist, platy. Common, medium, distinct, gleying and mottling. Few white precipitate.	0.3-0.6 m	05	0.40	8.2					Bentonite
				0.6 m	05	0.40	8.0		✓			
				0.6-1.0 m	05	0.20	8.1					
1				1.0 m	15	0.40	8.0					
				1.0-1.5 m	00	0.20	8.0					
			1.5-3.5 m: Sandy clay, yellowish brown, semi-plastic, moist, amorphous. Many, medium, distinct gleying and mottling. Few gravel aggregates and coal fragments.	1.5 m	05	0.20	7.9					Soil
2				2.0 m	00	0.20	8.0					
				2.4 m	00	0.20	8.0					
3				3.0 m	00	0.20	8.1					
			End of C3 at 3.5 m	3.5 m	05	0.20	8.2					
4												
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



FIELD BOREHOLE LOG

BOREHOLE NUMBER: C4

TOTAL DEPTH: 3.5 m

PROJECT INFORMATION

CLIENT: Husky Oil Operations Limited
 SITE LOCATION: 100/06-14-041-28 W4M
 LOGGED BY: George Lasich B.Sc.
 PROJECT MANAGER: Brooke McBride B.Sc., P.Ag.
 DATE DRILLED: November 13, 2007
 DRILLING CO.: JED Anchors and Environmental Limited
 DRILLER: Harley Greene
 RIG TYPE: 1 ton truck-mounted auger
 DRILLING METHOD: Solid Stem Auger
 SAMPLING METHOD: Grab

GEOLOGIC LOG

TOP OF SAND PACK:
 BASE OF SAND PACK:
 SCREENED INTERVAL:
 SCREEN SIZE:
 GROUND ELEVATION:
 TOP OF CASING:
 BORING DIAMETER:
 CASING DIAMETER:
 DRAFTED BY: George Lasich B.Sc.

BOREHOLE RATIONALE: Control

BOREHOLE LOCATION: 0301215/ 5823845 (NAD 83 UTM)

DEPTH (mbg)	Elevation (relative)	LITHOLOGY	SOIL DESCRIPTION LITHOLOGY:-(interval), texture (S,Si,C), colour, consistency, moisture, staining, odors.	SAMPLE	OVA (ppm)	FIELD EC (dS/m)	FIELD pH	SAMPLE TO LAB (*)				Backfill and/or Well Completion Data
								METALS	SALINITY	PHC	OTHER	
0			0.0-0.2 m: Black topsoil.	0.0-0.3 m	00	0.80	7.5					Topsoil
			0.2-1.2 m: Clay loam, grey, plastic, moist, platy. Common, medium, distinct gleying.	0.3 m	05	0.80	7.6					Bentonite
				0.3-0.6 m	00	0.80	7.9					
				0.6 m	00	0.60	7.9					
				0.6-1.0 m	00	0.40	7.8					
1				1.0 m	00	0.20	8.1					Soil
			1.2-1.6 m: Sandy clay, grey brown, semi-plastic, moist, blocky. Many, medium, distinct gleying and mottling. Few gravel aggregates. Few white precipitate and coal fragments.	1.0-1.5 m	05	0.20	8.2					
			1.6-2.0 m: Clay, grey, very plastic, moist, platy. Many, coarse, prominent gleying. Ground water at 2.0m.	1.5 m	15	0.00	8.1					
2			2.0-3.5 m: Sandy clay, greyish brown, non plastic, moist, granular.	2.0 m	00	0.20	8.3					
				2.4 m	05	0.40	8.2					
3				3.0 m	15	0.20	8.3					
				3.5 m	00	0.20	8.4					
4			End of C4 at 3.5 m									
5												
6												

Legend

Topsoil Bentonite Clay Sand Silt Sump



Appendix G Tables

Table 1: Field Screening (OVA/CpA) Results
Husky Oil Operations Limited 10006-14-041-28 W4M

[illegible]

Control		OVA		IL (desin)		pH		Control		OVA		pH		Control		OVA		pH						
Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)	Depth (m)	Up (m)					
C1	0.0-0.3	1	1.80	7.9	5	0.20	7.5	C2	0.0-0.3	0	0.40	7.9	C3	0.0-0.3	0	0.40	7.9	C4	0.0-0.3	0	0.80	7.5		
	0.3	5	1.40	8.0	0	0.20	7.5		0.3	0	0.20	8.0		0.3	0	0.20	8.0		0.3	0	0.80	7.6		
	0.3-0.6	10	1.60	8.0	5	0.20	7.8		0.3-0.6	5	0.40	8.2		0.3-0.6	5	0.40	8.2		0.3-0.6	5	0.80	7.9		
	0.6	20	1.40	8.1	0	0.6	8.0		0.6	15	0.40	8.0		0.6	15	0.40	8.0		0.6	15	0.60	7.9		
	1.0	25	1.80	8.3	1.0	0.20	7.9		1.0	10	0.20	8.0		1.0	10	0.20	8.0		1.0	10	0.20	8.1		
	0.6-1.0	5	2.00	8.2	0.6-1.0	5	0.40		8.1	0.6-1.0	5	0.20		8.1	0.6-1.0	5	0.20		8.1	0.6-1.0	5	0.80	7.6	
	0.6	15	0.60	8.0	0.6	0.40	8.1		0.6	1.5	0.20	7.9		0.6	1.5	0.20	7.9		0.6	1.5	0.40	8.0		
	1.0-1.5	5	0.40	8.2	1.0-1.5	5	0.20		8.0	1.0-1.5	5	0.20		8.0	1.0-1.5	5	0.20		8.0	1.0-1.5	5	0.20	8.2	
	1.0	15	0.60	8.2	1.0	0.40	7.9		1.0	2.0	0	0.30		8.0	1.0	2.0	0		0.30	8.0	2.0	0	0.20	8.3
	2.0-4.5	45	0.60	8.2	2.0	0.40	7.9		2.0	0	0.30	8.0		2.0	0	0.30	8.0		2.0	0	0.40	8.2		
1.0	30	0.80	8.3	1.0	0.20	8.2	1.0	3.0	0	0.20	8.1	1.0	3.0	0	0.20	8.1	3.0	1.5	0.20	8.3				
1.0	30	0.60	8.3	1.0	0.40	8.2	1.0	3.5	5	0.20	8.2	1.0	3.5	5	0.20	8.2	3.5	0	0.20	8.4				
3.5	35	0.60	8.3	3.5	10	0.40	8.3	3.5	5	5	0.20	8.2	3.5	5	5	0.20	8.2	3.5	0	0.20	8.4			

	mean	max
Boreholes:		
OVA	0	160
EC	0.20	1.30
H4	7.9	8.4

	min	max
Cratichneumon	0	60
count	0.00	1.80
	7.5	5.1

Notes:
Values in **Bold** indicate the sample was sent to lab for analysis of RTX, FI-E4, PHC and/or Solubility/Solubility parameters.
* indicates sample submitted.

Table 2: BTEX and PHC Analytical Results
Husky Oil Operations Limited 100/06-14-041-28 W4M
Coarse-Grained Soils Criteria

Date Sampled	Sample Description	Depth (mbg)	Sample Location	OVA (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	F1 (C6-C10) (mg/kg)	F2 (C11-C16) (mg/kg)	F3 (C17-C34) (mg/kg)	F4 (C34-C50+) (mg/kg)	Particle Size % Retained
11/13/07	S07-BH2	1.5-2.0	Sump	5	<0.0050	<0.020	<0.010	<0.040	<12	16	31	<10	na
11/13/07	S07-BH2	2.0-3.0	Sump	10	na	na	na	na	na	na	na	na	55.7
11/13/07	S07-BH3	1.5-2.0	Sump	15	<0.0050	<0.020	<0.010	<0.040	<12	15	220	150	na
11/13/07	S07-BH3	2.0-3.0	Sump	10	na	na	na	na	na	na	na	na	67.3
11/13/07	S07-BH5	1.4-2.5	Sump	15	<0.0050	<0.020	<0.010	<0.040	<12	13	36	<10	na
11/13/07	S07-BH5	2.5-3.5	Sump	25	na	na	na	na	na	na	na	na	52.3
11/13/07	S07-BH7	0.6-1.0	Sump	75	<0.0050	<0.020	<0.010	<0.040	<12	18	29	<10	na
11/13/07	S07-BH7	1.0-2.4	Sump	5	<0.0050	<0.020	<0.010	<0.040	<12	15	22	<10	na
11/13/07	S07-BH7	2.4-3.4	Sump	10	na	na	na	na	na	na	na	na	57.6
11/13/07	S07-BH10	0.6	On-Site	160	<0.0050	<0.020	<0.010	<0.040	<12	11	<10	<10	na
11/13/07	BH10	2.0	On-Site	25	na	na	na	na	na	na	na	na	57.5
11/13/07	BH11	0.6	Flare	15	na	na	na	na	na	na	na	na	45
Agricultural Surface Soil Criteria					0.073	0.49	0.21	12	24	130	300	2800	nc
Agricultural Sub-Soil Criteria					0.078	0.49	0.21	16	30	160	600	5600	nc
												Average	55.9

Notes:

Bold values exceeds applicable criterion.

nc = no criterion

na = not analysed

< = below specified detection limit.

mbg - metres below grade.

All combustible vapour readings measured using an RKI Eagle portable gas monitor.

Criteria - AENV (2007) Alberta Tier 1 Soil And Groundwater Remedial Guidelines.

ppm = parts per million

Table 3: Metals Analytical Results
Husky Oil Operations Limited 100/06-14-041-28 W4M

Date Sampled	Sample Description	Depth (m)	Sample Location	Extractable Ba (mg/kg)	B ¹ (mg/kg)	Hg (mg/kg)	Sb (mg/kg)	As (mg/kg)	Total Ba (mg/kg)	Pb (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Co (mg/kg)	Cu (mg/kg)	Pb (mg/kg)	Mo (mg/kg)	Ni (mg/kg)	Se (mg/kg)	Ag (mg/kg)	Ti (mg/kg)	Se (mg/kg)	V (mg/kg)	Zn (mg/kg)
11/13/07	S07-BH2	1.5-2.0	Sump	na	0.5	<0.05	<1	5.0	200.0	<0.4	0.3	21.0	6.0	12.0	10.0	0.8	17.0	<0.5	<1	<0.3	<1	17.0	38.0
11/13/07	S07-BH1	1.5-2.0	Sump	na	0.5	<0.05	<1	5.0	210.0	<0.4	0.3	22.0	6.0	12.0	14.0	0.9	17.0	<0.5	<1	<0.3	<1	18.0	41.0
11/13/07	S07-BH5	1.4-2.5	Sump	na	0.4	<0.05	<1	6.0	210.0	<0.4	0.3	24.0	7.0	18.0	10.0	0.9	20.0	0.5	<1	<0.3	<1	24.0	56.0
11/13/07	S07-BH7	0.6-1.0	Sump	na	0.5	<0.2	<1	6.0	210.0	<0.4	0.2	17.0	6.0	13.0	11.0	0.8	15.0	<0.5	<1	<0.3	<1	19.0	41.0
11/13/07	S07-BH7	1.0-2.4	Sump	na	0.4	<0.2	<1	4.0	180.0	<0.4	0.2	17.0	5.0	12.0	8.0	0.5	13.0	<0.5	<1	<0.3	<1	16.0	37.0
CCME Criteria				nc	2	6.6	20	12	750	4	1.4	64	40	63	70	5	50	1	20	1	5	130	200
AENV Criteria (Agricultural)				nc	2	6.6	20	17	3200*	5	1.4	64	20	63	70	4	50	1	20	1	5	130	200

Notes:

nc - value exceeds CCME criteria.

Underlining - value exceeds AENV criteria.

na = not analyzed.

< = below detection limit.

* = not water soluble.

Criteria - Canadian Council of Ministers of the Environment (CCME), 2006. Canadian Environmental Quality Guidelines - Agricultural Land Use.

Criteria - AENV (2007) Alberta Alberta Tier 1 Soil and Groundwater Remediation Guidelines Agricultural Land Use.

* = Barium criteria - AENV (2007) Soil Quality Guidelines for Barium: Environment and Human Health.

Agricultural	
Extractable Ba	Total Ba
(mg/kg)	(mg/kg)
<260	3200
>260	750

Extractable Barium <260 mg/kg, therefore Total Barium criteria of 3200 mg/kg applies.

Table 4: Salinity/Sodicity Analytical Results
Husky Oil Operations Limited 100/06-14-041-28 W4M

Date Sampled	Sample Description	Depth (m)	Sample Location	Lab pH*	Lab EC dS/m	SAR	TGR tons/ac	Na mg/kg	Ca mg/kg	Mg mg/kg	K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Soil Horizon	Salinity Rating	Sodicity Rating
11/13/07	S07-BH2	1.5-2.0	Sump	7.8	1.2	2.2	<0.1	106	129	25	3	25	468	Subsoil	Good	Good
11/13/07	S07-BH3	1.5-2.0	Sump	7.9	1.4	4.2	<0.1	190	114	23	3	15	581	Subsoil	Good	Fair
11/13/07	S07-BH5	1.4-2.5	Sump	7.9	1.4	3.3	<0.1	154	124	28	9	20	539	Subsoil	Good	Good
11/13/07	S07-BH7	0.6-1.0	Sump	7.9	2.2	4.6	<0.1	282	221	36	4	5	1060	Subsoil	Good	Fair
11/13/07	S07-BH7	1.0-2.4	Sump	7.8	2.0	2.8	<0.1	183	250	48	6	39	952	Subsoil	Good	Good
11/13/07	BH11	0.6	Flare	7.9	2.8	5.4	<0.1	363	263	46	4	<5	1470	Subsoil	Good	Fair
11/13/07	C1	0.3	Control	7.8	3.7	6.4	<0.1	515	392	58	2	<5	2100	Subsoil	Fair	Fair
11/13/07	C1	0.6	Control	8.0	2.3	5.8	<0.1	319	182	28	4	<5	1120	Subsoil	Good	Fair
11/13/07	C1	1.0	Control	8.1	1.3	5.2	<0.1	185	74	13	4	8	501	Subsoil	Good	Fair
11/13/07	C2	1.5	Control	8.1	0.5	1.0	<0.1	24	36	8	2	<5	41	Subsoil	Good	Good
11/13/07	C3	0.6	Control	8.2	0.7	1.3	<0.1	48	82	13	<1	23	148	Subsoil	Good	Good
AENV Criteria*				6.0-8.5	na	na	nc	nc	nc	nc	nc	nc	nc	-	-	-
D50 Equivalent***				nc	2-6	6-10	nc	nc	nc	nc	nc	nc	nc	-	-	-

Notes:

Bold - value exceeds applicable criteria.

nc = no criterion.

na = not analysed.

* = below detection limit.

** = Alberta Tier 1 Soil and Groundwater Remediation Guidelines (AENV, 2007)

*** = Soil Quality Guidelines for Unrestricted Land Use from "Salt Contamination Assessment and Remediation Guidelines" (AENV, 2007)

Good topsoil - EC < 2 dS/m; SAR < 4	Good subsoil - EC < 3 dS/m; SAR < 4
Fair topsoil - EC 2 to 4 dS/m; SAR 4 to 8	Fair subsoil - EC 3 to 5 dS/m; SAR 4 to 8
Poor topsoil - EC 4 to 8 dS/m; SAR 8 to 12	Poor subsoil - EC 5 to 10 dS/m; SAR 8 to 12
Unsuitable topsoil - EC > 8 dS/m; SAR > 12	Unsuitable subsoil - EC > 10 dS/m; SAR > 12

*** = D50 Equivalent Salinity Guidelines (AENV, 2005)

Depth	EC	SAR
Topsoil	2	6
Below topsoil to 1 m	3	8
Below 1 m	6	10



Appendix H

Laboratory Results



Your P.O. #: 2Z-2000240
Your Project #: PHASE II ESA
Site: 6-14-41-28 W4
PO# 8500037168

Attention: BROOKE MCBRIDE
BIO-SYNERGY RESOURCES INC.
BAY 2, 5571-45th Street
RED DEER, AB
CANADA T4N 1L2

Report Date: 2007/11/21

Job/Sample	Analysis Type	Well Name/Sample ID	Sample Point
A756733/ H96204	Soil	S07-BH2-1.5-2.0MBG	
A756733/ H96205	Soil	S07-BH2-2.0-3.0MBG	
A756733/ H96206	Soil	S07-BH3-1.5-2.0MBG	
A756733/ H96207	Soil	S07-BH3-2.0-3.0MBG	
A756733/ H96208	Soil	S07-BH5-1.4-2.5MBG	
A756733/ H96209	Soil	S07-BH5-2.5-3.50MBG	
A756733/ H96210	Soil	S07-BH7-1.0-2.4MBG	
A756733/ H96211	Soil	S07-BH7-0.6-1.0MBG	
A756733/ H96212	Soil	S07-BH7-2.4-3.4MBG	
A756733/ H96213	Soil	S07-BH10-0.6MBG	

Encryption Key

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

JEREMY WAKARUK, B.Sc. Biology, Senior Project Manager
Email: jwakaruk@maxxamanalytics.com
Phone# (780) 577-7105 Ext:7105

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

Report Distribution			
0	Reports(A756733)BROOKE MCBRIDE	BIO-SYNERGY RESOURCES INC.	BAY 2, 5571-45th Street
0	Reports(A756733)BRYAN CHUBB	BIO-SYNERGY RESOURCES INC.	BAY 2, 5571-45th Street
			RED DEER, CANADA
			RED DEER, CANADA

Date of Issue

2007/11/21

All analyses are performed according to internal procedures that are based on current published reference methods.

A756733:H96204

HUSKY ENERGY INC.

Operator Name: LSD Well ID: _____

Well Name: _____ Name of Sampler: _____ Company: _____

Field or Area: _____ Pool or Zone: _____ Sample Point: _____ Container Identity: _____ Percent Full: _____

Test Recovery: _____ Interval 1: _____ Interval 2: _____ Interval 3: _____ Elevations (m): _____ Sample Gathering Point: _____ Solution Gas: _____

Test Type: No Multiple Recovery From: _____ To: _____ KB GRD Well Fluid Status: _____ Well Status Mode: _____

Production Rates: _____ Gauge Pressure kPa: _____ Temperature °C: _____ Well Status Type: _____ Well Type: _____

Water m3/d Oil m3/d Gas 1000m3/d Source As Received Source As Received Gas or Condensate Project Licence No.:

2007/11/13 2007/11/15 AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5
Date Sampled Start Date Sampled End Date Received Date Reported Date Reissued Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Calculated Parameters			
Anion Sum	10.5	meq/L	
Cation Sum	13.2	meq/L	
Ion Balance	1.26	N/A	
Elements			
Soluble (Hot water) Boron (B)	0.5	mg/kg	EPA SW846 6010C 0.1
Hex. Chromium (Cr 6+)	<0.2	mg/kg	EPA 7196A 0.2
Mercury (Hg)	<0.05	mg/kg	EPA SW846 7471B 0.05
Soluble Parameters			
Sodium Adsorption Ratio	2.2	N/A	
Soluble Chloride (Cl)	25	mg/L	SM 4110B 5
Soluble Conductivity	1.2	dS/m	SM 2510B 0.01
Soluble pH	7.8	N/A	SM 4500-H+B
Soluble Calcium (Ca)	129	mg/L	EPA SW846 6010C 2
Soluble Magnesium (Mg)	25	mg/L	EPA SW846 6010C 1
Soluble Sodium (Na)	106	mg/L	EPA SW846 6010C 3
Saturation %	44.7	%	Carter Chapter 16
Soluble Potassium (K)	3	mg/L	EPA SW846 6010C 1
Soluble Sulphate (SO4)	468	mg/L	EPA SW846 6010C 5
Theoretical Gypsum Requirement	<0.1	tons/ac	0.1
Physical Properties			
Moisture	17.4	%	Carter SSMA 51.2 0.3

Results relate only to items tested

Remarks:

A756733:H96204

HUSKY ENERGY INC.

Operator Name _____ LSD _____ Well ID _____

Well Name _____ Name of Sampler _____ Company _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval 1 _____ Interval 2 _____ Interval 3 _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type No. Multiple Recovery _____ From: _____ To: _____ KB GRD _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____
 Water m3/d Oil m3/d Gas 1000m3/d Source As Received Source As Received Gas or Condensate Project Licence No.

2007/11/13 2007/11/15 AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5
 Date Sampled Start Date Sampled End Date Received Date Reported Date Reissued Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Ext. Pet. Hydrocarbon			
F2 (C10-C16 Hydrocarbons)	16	mg/kg CWS PHCS Tier 1	10
F3 (C16-C34 Hydrocarbons)	31	mg/kg CWS PHCS Tier 1	10
F4 (C34-C50 Hydrocarbons)	<10	mg/kg CWS PHCS Tier 1	10
Reached Baseline at C50	YES	mg/kg CWS PHCS Tier 1	

Results relate only to items tested

Remarks:

A756733:H96204

HUSKY ENERGY INC.

Operator Name

Motor Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type No. Multiple Recovery

From:

To:

KPI

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d Oil m3/d Gas 1000m3/d

Source As Received

Source As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MGS

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Elements			
Total Antimony (Sb)	<1	mg/kg	EPA SW-846 6020A 1
Total Arsenic (As)	5	mg/kg	EPA SW-846 6020A 1
Total Barium (Ba)	200	mg/kg	EPA SW-846 6020A 10
Total Beryllium (Be)	<0.4	mg/kg	EPA SW-846 6020A 0.4
Total Cadmium (Cd)	0.3	mg/kg	EPA SW-846 6020A 0.1
Total Chromium (Cr)	21	mg/kg	EPA SW-846 6020A 1
Total Cobalt (Co)	6	mg/kg	EPA SW-846 6020A 1
Total Copper (Cu)	12	mg/kg	EPA SW-846 6020A 5
Total Lead (Pb)	10	mg/kg	EPA SW-846 6020A 1
Total Molybdenum (Mo)	0.8	mg/kg	EPA SW-846 6020A 0.4
Total Nickel (Ni)	17	mg/kg	EPA SW-846 6020A 1
Total Selenium (Se)	<0.5	mg/kg	EPA SW-846 6020A 0.5
Total Silver (Ag)	<1	mg/kg	EPA SW-846 6020A 1
Total Thallium (Tl)	<0.3	mg/kg	EPA SW-846 6020A 0.3
Total Tin (Sn)	<1	mg/kg	EPA SW-846 6020A 1
Total Vanadium (V)	17	mg/kg	EPA SW-846 6020A 1
Total Zinc (Zn)	38	mg/kg	EPA SW-846 6020A 10

Results relate only to items tested

Remarks:

A756733:H96204

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1

Interval 2

Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:

To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

License No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Volatiles			
Benzene	<0.0050	mg/kg EPA 8260C / CCME	0.0050
Toluene	<0.020	mg/kg EPA 8260C / CCME	0.020
Ethylbenzene	<0.010	mg/kg EPA 8260C / CCME	0.010
Xylenes (Total)	<0.040	mg/kg EPA 8260C / CCME	0.040
m & p-Xylene	<0.040	mg/kg EPA 8260C / CCME	0.040
o-Xylene	<0.020	mg/kg EPA 8260C / CCME	0.020
F1 (C06-C10) - BTEX	<12	mg/kg EPA 8260C / CCME	12
F1 (C06-C10)	<12	mg/kg EPA 8260C / CCME	12

Results relate only to items tested

Remarks:

A756733:H96205

HUSKY ENERGY INC.

Sample Point I.D.		Client I.D.		Meter Number		Laboratory Number	
Operator Name				LSD		Well ID	
Well Name				Name of Sampler		Company	
Field or Area		Pool or Zone		Sample Point		Container Identity	
Percent Full							
Test Recovery		Interval 1 Interval 2 Interval 3		Elevations (m)		Sample Gathering Point	
From:		To:		KB GRD		Well Fluid Status	
Test Type No Multiple Recovery						Well Status Mode	
Production Rates		Gauge Pressures kPa		Temperature °C		Well Status Type	
Water m3/d Oil m3/d Gas 1000m3/d		Source As Received		Source As Received		Well Type	
						Gas or Condensate Project	
						Licence No.	

2007/11/13

2007/11/15

KB4,KA

Date Sampled Start Date Sampled End Date Received Date Reported Date Reissued Analysis

PARAMETER DESCRIPTION	Result	unit	MDL
Physical Properties			
% sand by hydrometer	67	% Carter SSMA 47.3	2
% silt by hydrometer	23	% Carter SSMA 47.3	2
Clay Content	10	% Carter SSMA 47.3	2
Physical Properties			
Texture	SANDY LOAM	N/A Carter Method 47.3	
Moisture	13.5	% Carter SSMA 51.2	0.3
Results relate only to items tested			

Remarks:

A756733:H96206

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

From: To:

Elevations (m)

KB

GMD

Sample Gathering Point

Solution Gas

Test Type No Multiple Recovery

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Calculated Parameters			
Anion Sum	12.5	meq/L	
Cation Sum	16.0	meq/L	
Ion Balance	1.28	N/A	
Elements			
Soluble (Hot water) Boron (B)	0.5	mg/kg	EPA SW846 6010C 0.1
Hex. Chromium (Cr 6+)	<0.2	mg/kg	EPA 7196A 0.2
Mercury (Hg)	<0.05	mg/kg	EPA SW846 7471B 0.05
Soluble Parameters			
Sodium Adsorption Ratio	4.2	N/A	
Soluble Chloride (Cl)	15	mg/L	SM 4110B 5
Soluble Conductivity	1.4	dS/m	SM 2510B 0.01
Soluble pH	7.9	N/A	SM 4500-H+B
Soluble Calcium (Ca)	114	mg/L	EPA SW846 6010C 2
Soluble Magnesium (Mg)	23	mg/L	EPA SW846 6010C 1
Soluble Sodium (Na)	190	mg/L	EPA SW846 6010C 3
Saturation %	45.8	%	Carter Chapter 16
Soluble Potassium (K)	3	mg/L	EPA SW846 6010C 1
Soluble Sulphate (SO4)	581	mg/L	EPA SW846 6010C 5
Theoretical Gypsum Requirement	<0.1	tons/ac	0.1
Physical Properties			
Moisture	18.0	%	Carter SSMA 51.2 0.3

Results relate only to items tested

Remarks:

A756733:H96206

HUSKY ENERGY INC.

Operator Name _____ LSD _____ Well ID _____

Well Name _____ Name of Sampler _____ Company _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval 1 _____ Interval 2 _____ Interval 3 _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type No. Multiple Recovery _____ From: _____ To: _____ KB GAD _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____

Water m3/d Oil m3/d Gas 1000m3/d _____ Source As Received _____ Source As Received _____ Gas or Condensate Project _____ Licence No. _____

2007/11/13 _____ 2007/11/15 _____ AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Reissued _____ Analyst _____

PARAMETER DESCRIPTION	Result	unit	MDL
Ext. Pet. Hydrocarbon			
F2 (C10-C16 Hydrocarbons)	15	mg/kg CWS PHCS Tier 1	10
F3 (C16-C34 Hydrocarbons)	220	mg/kg CWS PHCS Tier 1	10
F4 (C34-C50 Hydrocarbons)	150	mg/kg CWS PHCS Tier 1	10
Reached Baseline at C50	YES	mg/kg CWS PHCS Tier 1	

Results relate only to items tested

Remarks:

A756733:H96206

HUSKY ENERGY INC.

Operator Name _____ LSD _____ Well ID _____

Well Name _____ Name of Sampler _____ Company _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery Test Type No. Multiple Recovery			Interval 1 Interval 2 Interval 3 From: _____ To: _____		Elevations (m) KB _____ GAD _____		Sample Gathering Point Well Fluid Status _____ Well Status Mode _____	
Production Rates Water m3/d _____ Oil m3/d _____ Gas 1000m3/d _____			Gauge Pressures kPa Source _____ As Received _____		Temperature °C Source _____ As Received _____		Well Status Type _____ Well Type _____ Gas or Condensate Project _____ Licence No. _____	

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Released _____ Analyst _____

PARAMETER DESCRIPTION	Result	unit	MDL
Elements			
Total Antimony (Sb)	<1	mg/kg	1
Total Arsenic (As)	5	mg/kg	1
Total Barium (Ba)	210	mg/kg	10
Total Beryllium (Be)	<0.4	mg/kg	0.4
Total Cadmium (Cd)	0.3	mg/kg	0.1
Total Chromium (Cr)	22	mg/kg	1
Total Cobalt (Co)	6	mg/kg	1
Total Copper (Cu)	12	mg/kg	5
Total Lead (Pb)	14	mg/kg	1
Total Molybdenum (Mo)	0.9	mg/kg	0.4
Total Nickel (Ni)	17	mg/kg	1
Total Selenium (Se)	<0.5	mg/kg	0.5
Total Silver (Ag)	<1	mg/kg	1
Total Thallium (Tl)	<0.3	mg/kg	0.3
Total Tin (Sn)	<1	mg/kg	1
Total Vanadium (V)	18	mg/kg	1
Total Zinc (Zn)	41	mg/kg	10

Results relate only to items tested

Remarks:



Certificate of Analysis

A756733:H96206

HUSKY ENERGY INC.

Sample Point I.D.		Client I.D.		Meter Number		Laboratory Number	
Operator Name				LSD		Well ID	
Well Name				Name of Sampler		Company	
Field or Area		Pool or Zone		Sample Point		Container Identity	
Percent Full							
Test Recovery		Interval 1 Interval 2 Interval 3		Elevations (m)		Sample Gathering Point	
From		To		KB GRD		Solution Gas	
Test Type No. Multiple Recovery				Well Fluid Status		Well Status Mode	
Production Rates		Gauge Pressures kPa		Temperature °C		Well Status Type	
Water m3/d Oil m3/d Gas 1000m3/d		Source As Received		Source As Received		Well Type	
						Gas or Condensate Project	
						Licence No.	

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, J76, KB4, LUL, LL2, ASC, MG5

Date Sampled Start	Date Sampled End	Date Received	Date Reported	Date Reissued	Analyst
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PARAMETER DESCRIPTION	Result	unit	MDL
Volatiles			
Benzene	<0.0050	mg/kg EPA 8260C / CCME	0.0050
Toluene	<0.020	mg/kg EPA 8260C / CCME	0.020
Ethylbenzene	<0.010	mg/kg EPA 8260C / CCME	0.010
Xylenes (Total)	<0.040	mg/kg EPA 8260C / CCME	0.040
m & p-Xylene	<0.040	mg/kg EPA 8260C / CCME	0.040
o-Xylene	<0.020	mg/kg EPA 8260C / CCME	0.020
F1 (C06-C10) - BTEX	<12	mg/kg EPA 8260C / CCME	12
F1 (C06-C10)	<12	mg/kg EPA 8260C / CCME	12

Results relate only to items tested

Remarks:



Certificate of Analysis

A756733:H96207

HUSKY ENERGY INC.

Sample Point I.D.		Client I.D.		Meter Number		Laboratory Number																	
Operator Name				LSD		Well ID																	
Well Name				Name of Sampler		Company																	
Field or Area		Pool or Zone		Sample Point		Container Identity		Percent Full															
Test Recovery		Interval 1		Interval 2		Interval 3		Elevations (m)	Sample Gathering Point	Solution Gas													
From		To		KB		GRD		Well Fluid Status	Well Status Mode														
Test Type		No		Multiple Recovery		Production Rates		Gauge Pressures kPa		Temperature °C													
Water m3/d		Oil m3/d		Gas 1000m3/d		Source		As Received		Source	As Received	Well Status Type	Well Type	Gas or Condensate Project	Licence No.								
2007/11/13				2007/11/15				KB4,KA															
Date Sampled Start				Date Sampled End				Date Received				Date Reported				Date Reissued				Analyst			

PARAMETER DESCRIPTION	Result	unit	MDL
Physical Properties			
% sand by hydrometer	64	% Carter SSMA 47.3	2
% silt by hydrometer	23	% Carter SSMA 47.3	2
Clay Content	13	% Carter SSMA 47.3	2
Physical Properties			
Texture	SANDY LOAM	N/A Carter Method 47.3	
Moisture	13.8	% Carter SSMA 51.2	0.3

Results relate only to items tested

Remarks:

A756733:H96208

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1

Interval 2

Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type No. Multiple Recovery

From

To

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Calculated Parameters			
Anion Sum	11.8	meq/L	
Cation Sum	15.4	meq/L	
Ion Balance	1.31	N/A	
Elements			
Soluble (Hot water) Boron (B)	0.4	mg/kg	EPA SW846 6010C 0.1
Hex. Chromium (Cr 6+)	<0.2	mg/kg	EPA 7196A 0.2
Mercury (Hg)	<0.05	mg/kg	EPA SW846 7471B 0.05
Soluble Parameters			
Sodium Adsorption Ratio	3.3	N/A	
Soluble Chloride (Cl)	20	mg/L	SM 4110B 5
Soluble Conductivity	1.4	dS/m	SM 2510B 0.01
Soluble pH	7.9	N/A	SM 4500-H+B
Soluble Calcium (Ca)	124	mg/L	EPA SW846 6010C 2
Soluble Magnesium (Mg)	28	mg/L	EPA SW846 6010C 1
Soluble Sodium (Na)	154	mg/L	EPA SW846 6010C 3
Saturation %	54.1	%	Carter Chapter 16
Soluble Potassium (K)	9	mg/L	EPA SW846 6010C 1
Soluble Sulphate (SO4)	539	mg/L	EPA SW846 6010C 5
Theoretical Gypsum Requirement	<0.1	tons/ac	0.1
Physical Properties			
Moisture	18.9	%	Carter SSMA 51.2 0.3

Results relate only to items tested

Remarks:

A756733:H96208

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1

Interval 2

Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:

To:

KB

GAD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures APa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No

2007/11/13

2007/11/15

AST, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Ext. Pet. Hydrocarbon			
F2 (C10-C16 Hydrocarbons)	13	mg/kg CWS PHCS Tier 1	10
F3 (C16-C34 Hydrocarbons)	36	mg/kg CWS PHCS Tier 1	10
F4 (C34-C50 Hydrocarbons)	<10	mg/kg CWS PHCS Tier 1	10
Reached Baseline at C50	YES	mg/kg CWS PHCS Tier 1	

Results relate only to items tested

Remarks:

A756733:H96208

HUSKY ENERGY INC.

Operator Name _____ LSD _____ Well ID _____

Well Name _____ Name of Sampler _____ Company _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval 1 _____ Interval 2 _____ Interval 3 _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type No _____ Multiple Recovery _____ From: _____ To: _____ K₁ _____ GR₁ _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____

Water m³/d _____ Oil m³/d _____ Gas 1000m³/d _____ Source _____ As Received _____ Source _____ As Received _____ Gas or Condensate Project _____ Licence No. _____

2007/11/13

2007/11/15

AS7.LN.SY1.JK2.JT6.KB4.LUL.LL2.ASC.MG5

Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Reissued _____ Analyst _____

PARAMETER DESCRIPTION	Result	unit	MDL
Elements			
Total Antimony (Sb)	<1	mg/kg	EPA SW-846 6020A 1
Total Arsenic (As)	6	mg/kg	EPA SW-846 6020A 1
Total Barium (Ba)	210	mg/kg	EPA SW-846 6020A 10
Total Beryllium (Be)	<0.4	mg/kg	EPA SW-846 6020A 0.4
Total Cadmium (Cd)	0.3	mg/kg	EPA SW-846 6020A 0.1
Total Chromium (Cr)	24	mg/kg	EPA SW-846 6020A 1
Total Cobalt (Co)	7	mg/kg	EPA SW-846 6020A 1
Total Copper (Cu)	18	mg/kg	EPA SW-846 6020A 5
Total Lead (Pb)	10	mg/kg	EPA SW-846 6020A 1
Total Molybdenum (Mo)	0.9	mg/kg	EPA SW-846 6020A 0.4
Total Nickel (Ni)	20	mg/kg	EPA SW-846 6020A 1
Total Selenium (Se)	0.5	mg/kg	EPA SW-846 6020A 0.5
Total Silver (Ag)	<1	mg/kg	EPA SW-846 6020A 1
Total Thallium (Tl)	<0.3	mg/kg	EPA SW-846 6020A 0.3
Total Tin (Sn)	<1	mg/kg	EPA SW-846 6020A 1
Total Vanadium (V)	24	mg/kg	EPA SW-846 6020A 1
Total Zinc (Zn)	56	mg/kg	EPA SW-846 6020A 10

Results relate only to items tested

Remarks:

A756733:H96208

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type No. Multiple Recovery

From:

To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Volatiles			
Benzene	<0.0050	mg/kg EPA 8260C / CCME	0.0050
Toluene	<0.020	mg/kg EPA 8260C / CCME	0.020
Ethylbenzene	<0.010	mg/kg EPA 8260C / CCME	0.010
Xylenes (Total)	<0.040	mg/kg EPA 8260C / CCME	0.040
m & p-Xylene	<0.040	mg/kg EPA 8260C / CCME	0.040
o-Xylene	<0.020	mg/kg EPA 8260C / CCME	0.020
F1 (C06-C10) - BTEX	<12	mg/kg EPA 8260C / CCME	12
F1 (C06-C10)	<12	mg/kg EPA 8260C / CCME	12

Results relate only to items tested

Remarks:

A756733:H96209

HUSKY ENERGY INC.

Operator Name _____ LSD _____ Well ID _____

Well Name _____ Name of Sampler _____ Company _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval 1 _____ Interval 2 _____ Interval 3 _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type No. Multiple Recovery _____ From _____ To _____ KB GRD _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____

Water m3/d Oil m3/d Gas 1000m3/d _____ Source As Received _____ Source As Received _____ Gas or Condensate Project _____ Licence No. _____

2007/11/13 _____ 2007/11/15 _____ KB4,KA _____

Date Sampled Start _____ Date Sampled End _____ Date Received _____ Date Reported _____ Date Reissued _____ Analyst _____

PARAMETER DESCRIPTION	Result	unit	MDL
Physical Properties			
% sand by hydrometer	60	% Carter SSMA 47.3	2
% silt by hydrometer	25	% Carter SSMA 47.3	2
Clay Content	15	% Carter SSMA 47.3	2
Physical Properties			
Texture	SANDY LOAM	N/A Carter Method 47.3	
Moisture	16.7	% Carter SSMA 51.2	0.3

Results relate only to items tested

Remarks:

A756733:H96210

HUSKY ENERGY INC.

Operator Name

Meter Number

LSD

Laboratory Number

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

From: _____

To: _____

Elevations (m)

KB

GRD

Sample Gathering Point

Solution Gas

Test Type No. Multiple Recovery

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d Oil m3/d Gas 1000m3/d

Source As Received

Source As Received

Gas or Condensate Project

License No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Calculated Parameters			
Anion Sum	20.9	meq/L	
Cation Sum	24.5	meq/L	
Ion Balance	1.17	N/A	
Elements			
Soluble (Hot water) Boron (B)	0.4	mg/kg	EPA SW846 6010C 0.1
Hex. Chromium (Cr 6+)	<0.2	mg/kg	EPA 7196A 0.2
Mercury (Hg)	<0.05	mg/kg	EPA SW846 7471B 0.05
Soluble Parameters			
Sodium Adsorption Ratio	2.8	N/A	
Soluble Chloride (Cl)	39	mg/L	SM 4110B 5
Soluble Conductivity	2.0	dS/m	SM 2510B 0.01
Soluble pH	7.8	N/A	SM 4500-H+B
Soluble Calcium (Ca)	250	mg/L	EPA SW846 6010C 2
Soluble Magnesium (Mg)	48	mg/L	EPA SW846 6010C 1
Soluble Sodium (Na)	183	mg/L	EPA SW846 6010C 3
Saturation %	43.7	%	Carter Chapter 16
Soluble Potassium (K)	6	mg/L	EPA SW846 6010C 1
Soluble Sulphate (SO4)	952	mg/L	EPA SW846 6010C 5
Theoretical Gypsum Requirement	<0.1	tons/ac	0.1
Physical Properties			
Moisture	19.7	%	Carter SSMA 51.2 0.3

Results relate only to items tested

Remarks:

A756733:H96210

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sample

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No

Multiple Recovery

From:

To:

Kil

(GR)

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Ext. Pet. Hydrocarbon			
F2 (C10-C16 Hydrocarbons)	15	mg/kg CWS PHCS Tier 1	10
F3 (C16-C34 Hydrocarbons)	22	mg/kg CWS PHCS Tier 1	10
F4 (C34-C50 Hydrocarbons)	<10	mg/kg CWS PHCS Tier 1	10
Reached Baseline at C50	YES	mg/kg CWS PHCS Tier 1	

Results relate only to items tested

Remarks:

HUSKY ENERGY INC.
 Operator Name _____ Meter Number _____ Laboratory Number **A756733:H96210**
 Well Name _____ Name of Sampler _____ Company _____
 Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____
 Test Recovery _____ From: _____ Interval 1 _____ Interval 2 _____ Interval 3 _____ To: _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____
 Test Type No. Multiple Recovery _____ KB _____ GPD _____ Well Fluid Status _____ Well Status Mode _____
 Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____
 Water m3/d Oil m3/d Gas 1000m3/d Source As Received Source As Received Gas or Condensate Project Licence No. _____
 2007/11/13 2007/11/15 AS7_LN,SY1,JK2,JB4,LUL,U2,ASC,MG5
 Date Sampled Start Date Sampled End Date Received Date Reported Date Reissued Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Elements			
Total Antimony (Sb)	<1	mg/kg	1
Total Arsenic (As)	4	mg/kg	1
Total Barium (Ba)	180	mg/kg	10
Total Beryllium (Be)	<0.4	mg/kg	0.4
Total Cadmium (Cd)	0.2	mg/kg	0.1
Total Chromium (Cr)	17	mg/kg	1
Total Cobalt (Co)	5	mg/kg	1
Total Copper (Cu)	12	mg/kg	5
Total Lead (Pb)	8	mg/kg	1
Total Molybdenum (Mo)	0.5	mg/kg	0.4
Total Nickel (Ni)	13	mg/kg	1
Total Selenium (Se)	<0.5	mg/kg	0.5
Total Silver (Ag)	<1	mg/kg	1
Total Thallium (Tl)	<0.3	mg/kg	0.3
Total Tin (Sn)	<1	mg/kg	1
Total Vanadium (V)	16	mg/kg	1
Total Zinc (Zn)	37	mg/kg	10

Results relate only to items tested

Remarks:

A756733:H96210

HUSKY ENERGY INC.

Operator Name _____ LSD _____ Well ID _____

Well Name _____ Name of Sampler _____ Company _____

Field or Area _____ Pool or Zone _____ Sample Point _____ Container Identity _____ Percent Full _____

Test Recovery _____ Interval 1 _____ Interval 2 _____ Interval 3 _____ Elevations (m) _____ Sample Gathering Point _____ Solution Gas _____

Test Type No. Multiple Recovery _____ From: _____ To: _____ KB GRD _____ Well Fluid Status _____ Well Status Mode _____

Production Rates _____ Gauge Pressures kPa _____ Temperature °C _____ Well Status Type _____ Well Type _____

2007/11/13 2007/11/15 AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5
Date Sampled Start Date Sampled End Date Received Date Reported Date Reissued Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Volatiles			
Benzene	<0.0050	mg/kg EPA 8260C / CCME	0.0050
Toluene	<0.020	mg/kg EPA 8260C / CCME	0.020
Ethylbenzene	<0.010	mg/kg EPA 8260C / CCME	0.010
Xylenes (Total)	<0.040	mg/kg EPA 8260C / CCME	0.040
m & p-Xylene	<0.040	mg/kg EPA 8260C / CCME	0.040
o-Xylene	<0.020	mg/kg EPA 8260C / CCME	0.020
F1 (C06-C10) - BTEX	<12	mg/kg EPA 8260C / CCME	12
F1 (C06-C10)	<12	mg/kg EPA 8260C / CCME	12

Results relate only to items tested

Remarks:

A756733:H96211

HUSKY ENERGY INC.

Sample Point I.D.		Client I.D.		Meter Number		Laboratory Number	
Operator Name				LSD		Well ID	
Well Name				Name of Sampler		Company	
Field or Area		Pool or Zone		Sample Point		Container Identity	
Percent Full							
Test Recovery		Interval 1 Interval 2 Interval 3		Elevations (m)		Sample Gathering Point	
From:		To:		KIB GRD		Solution Gas	
Test Type No. Multiple Recovery						Well Fluid Status	
						Well Status Mode	
Production Rates		Gauge Pressures kPa		Temperatures °C		Well Status Type	
Water m3/d Oil m3/d Gas 1000m3/d		Source As Received		Source As Received		Well Type	
						Gas or Condensate Project	
						Licence No.	

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start Date Sampled End Date Received Date Reported Date Reissued Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Calculated Parameters			
Anion Sum	22.1	meq/L	
Cation Sum	26.4	meq/L	
Ion Balance	1.19	N/A	
Elements			
Soluble (Hot water) Boron (B)	0.5	mg/kg	EPA SW846 6010C 0.1
Hex. Chromium (Cr 6+)	<0.2	mg/kg	EPA 7196A 0.2
Mercury (Hg)	<0.05	mg/kg	EPA SW846 7471B 0.05
Soluble Parameters			
Sodium Adsorption Ratio	4.6	N/A	
Soluble Chloride (Cl)	5	mg/L	SM 4110B 5
Soluble Conductivity	2.2	dS/m	SM 2510B 0.01
Soluble pH	7.9	N/A	SM 4500-H+B
Soluble Calcium (Ca)	221	mg/L	EPA SW846 6010C 2
Soluble Magnesium (Mg)	36	mg/L	EPA SW846 6010C 1
Soluble Sodium (Na)	282	mg/L	EPA SW846 6010C 3
Saturation %	42.9	%	Carter Chapter 16
Soluble Potassium (K)	4	mg/L	EPA SW846 6010C 1
Soluble Sulphate (SO4)	1060	mg/L	EPA SW846 6010C 5
Theoretical Gypsum Requirement	<0.1	tons/ac	0.1
Physical Properties			
Moisture	14.5	%	Carter SSMA 51.2 0.3

Results relate only to items tested

Remarks:

A756733:H96211

HUSKY ENERGY INC.

Operator Name

Meter Number

LSD

Laboratory Number

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

From: To:

Elevations (m)

KB GPO

Sample Gathering Point

Solution Gas

Test Type No Multiple Recovery

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d Oil m3/d Gas 1000m3/d

Source As Received

Source As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Released

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Ext. Pet. Hydrocarbon			
F2 (C10-C16 Hydrocarbons)	18	mg/kg CWS PHCS Tier 1	10
F3 (C16-C34 Hydrocarbons)	29	mg/kg CWS PHCS Tier 1	10
F4 (C34-C50 Hydrocarbons)	<10	mg/kg CWS PHCS Tier 1	10
Reached Baseline at C50	YES	mg/kg CWS PHCS Tier 1	

Results relate only to items tested

Remarks:

A756733:H96211

HUSKY ENERGY INC.

Operator Name

Meter Number

LSD

Laboratory Number

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Test Type No. Multiple Recovery

From:

To:

Elevations (m)

KB

GRD

Sample Gathering Point

Solution Gas

Well Fluid Status

Well Status Mode

Well Status Type

Well Type

Gas or Condensate Project

Licence No.

Production Rates

Gauge Pressures kPa

Temperature °C

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Elements			
Total Antimony (Sb)	<1	mg/kg	1
Total Arsenic (As)	6	mg/kg	1
Total Barium (Ba)	210	mg/kg	10
Total Beryllium (Be)	<0.4	mg/kg	0.4
Total Cadmium (Cd)	0.2	mg/kg	0.1
Total Chromium (Cr)	17	mg/kg	1
Total Cobalt (Co)	6	mg/kg	1
Total Copper (Cu)	13	mg/kg	5
Total Lead (Pb)	11	mg/kg	1
Total Molybdenum (Mo)	0.8	mg/kg	0.4
Total Nickel (Ni)	15	mg/kg	1
Total Selenium (Se)	<0.5	mg/kg	0.5
Total Silver (Ag)	<1	mg/kg	1
Total Thallium (Tl)	<0.3	mg/kg	0.3
Total Tin (Sn)	<1	mg/kg	1
Total Vanadium (V)	19	mg/kg	1
Total Zinc (Zn)	41	mg/kg	10

Results relate only to items tested

Remarks:

A756733:H96211

HUSKY ENERGY INC.

Operator Name

Meier Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

From: To:

Elevations (m)

Kil GRD

Sample Gathering Point

Solution Gas

Test Type No. Multiple Recovery

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d Oil m3/d Gas 1000m3/d

Source As Received

Source As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

AS7, LN, SY1, JK2, JT6, KB4, LUL, LL2, ASC, MG5

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Volatiles			
Benzene	<0.0050	mg/kg EPA 8260C / CCME	0.0050
Toluene	<0.020	mg/kg EPA 8260C / CCME	0.020
Ethylbenzene	<0.010	mg/kg EPA 8260C / CCME	0.010
Xylenes (Total)	<0.040	mg/kg EPA 8260C / CCME	0.040
m & p-Xylene	<0.040	mg/kg EPA 8260C / CCME	0.040
o-Xylene	<0.020	mg/kg EPA 8260C / CCME	0.020
F1 (C06-C10) - BTEX	<12	mg/kg EPA 8260C / CCME	12
F1 (C06-C10)	<12	mg/kg EPA 8260C / CCME	12

Results relate only to items tested

Remarks:

A756733:H96212

Sample Point I.D.

Client I.D.

Meter Number

Laboratory Number

HUSKY ENERGY INC.

Operator Name

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1 Interval 2 Interval 3

From: To:

Elevations (m)

K/B

G/RD

Sample Gathering Point

Solution Gas

Test Type No. Multiple Recovery

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

KB4,KA

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Physical Properties			
% sand by hydrometer	49	% Carter SSMA 47.3	2
% silt by hydrometer	30	% Carter SSMA 47.3	2
Clay Content	21	% Carter SSMA 47.3	2
Physical Properties			
Texture	LOAM	N/A Carter Method 47.3	
Moisture	19.1	% Carter SSMA 51.2	0.3

Results relate only to items tested

Remarks:

A756733:H96213

HUSKY ENERGY INC.

Sample Point I.D.		Client I.D.		Meter Number		Laboratory Number	
Operator Name				LSD		Well ID	
Well Name				Name of Sampler		Company	
Field or Area		Pool or Zone		Sample Point		Container Identity	
Percent Full							
Test Recovery		Interval 1 Interval 2 Interval 3		Elevations (m)		Sample Gathering Point	
From:		To:		KB GRD		Well Fluid Status	
Well Status Mode							
Production Rates		Gauge Pressures kPa		Temperature °C		Well Status Type	
Water m3/d Oil m3/d Gas 1000m3/d		Source As Received		Source As Received		Well Type	
						Gas or Condensate Project	
						Licence No.	
2007/11/13		2007/11/15		LN ,KB4			
Date Sampled Start		Date Sampled End		Date Received		Date Reported	
						Date Reissued	
						Analyst	

PARAMETER DESCRIPTION	Result	unit	MDL
Ext. Pet. Hydrocarbon			
F2 (C10-C16 Hydrocarbons)	11	mg/kg CWS PHCS Tier 1	10
F3 (C16-C34 Hydrocarbons)	<10	mg/kg CWS PHCS Tier 1	10
F4 (C34-C50 Hydrocarbons)	<10	mg/kg CWS PHCS Tier 1	10
Reached Baseline at C50	YES	mg/kg CWS PHCS Tier 1	

Results relate only to items tested

Remarks:

A756733:H96213

HUSKY ENERGY INC.

Operator Name

Meter Number

Laboratory Number

LSD

Well ID

Well Name

Name of Sampler

Company

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval 1

Interval 2

Interval 3

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From

To

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2007/11/13

2007/11/15

LN,KB4

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	Result	unit	MDL
Volatiles			
Benzene	<0.0050	mg/kg EPA 8260C / CCME	0.0050
Toluene	<0.020	mg/kg EPA 8260C / CCME	0.020
Ethylbenzene	<0.010	mg/kg EPA 8260C / CCME	0.010
Xylenes (Total)	<0.040	mg/kg EPA 8260C / CCME	0.040
m & p-Xylene	<0.040	mg/kg EPA 8260C / CCME	0.040
o-Xylene	<0.020	mg/kg EPA 8260C / CCME	0.020
F1 (C06-C10) - BTEX	<12	mg/kg EPA 8260C / CCME	12
F1 (C06-C10)	<12	mg/kg EPA 8260C / CCME	12

Results relate only to items tested

Remarks:

Your P.O. #: 2Z-2000240
Your Project #: HUSKY PHII
Site: 06-14-041-18 W4M

Attention: BROOKE MCBRIDE
BIO-SYNERGY RESOURCES INC.
BAY 2, 5571-45th Street
RED DEER, AB
CANADA T4N 1L2

Report Date: 2007/12/20

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A761841
Received: 2007/12/13, 09:32

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cation/EC Ratio	6	N/A	2007/12/19		
Chloride (soluble)	6	2007/12/18	2007/12/18	EENVSOP-00055	SM 4110B
Conductivity (Soluble)	6	2007/12/18	2007/12/18	EENVSOP-00052	SM 2510B
Ion Balance	6	N/A	2007/12/19		
Sum of Cations, Anions	6	N/A	2007/12/18		
Moisture	2	N/A	2007/12/17	EENVSOP-00139	Carter SSMA 51.2
pH (Soluble)	6	2007/12/18	2007/12/18	EENVSOP-00053	SM 4500-H+B
Particle Size by Sieve (75 micron)	2	2007/12/18	2007/12/18	EENVSOP-00077	Carter SSMA 47.4
Sodium Adsorption Ratio	6	N/A	2007/12/18		
Ca,Mg,Na,K,SO4 (Soluble)	6	2007/12/18	2007/12/18	EENVSOP-00034	EPA SW846 6010C
Soluble Paste	6	2007/12/18	2007/12/18	EENVSOP-00046	Carter Chapter 16
Theoretical Gypsum Requirement	6	N/A	2007/12/18		

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

Encryption Key

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

JEREMY WAKARUK, B.Sc. Biology, Senior Project Manager
Email: jwakaruk@maxxamanalytics.com
Phone# (780) 577-7105 Ext:7105

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

Total cover pages: 1

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Page 1 of 6

SOIL SALINITY 4 (SOIL)

Maxxam ID		I33611	I33613		I33614		
Sampling Date		2007/11/13	2007/11/13		2007/11/13		
	Units	BH11 @ 0.6 MBG	C1 @ 0.3 MBG	QC Batch	C1 @ 0.6 MBG	RDL	QC Batch

Calculated Parameters							
Anion Sum	meq/L	30.6	43.8	2017364	23.3	N/A	2018356
Cation Sum	meq/L	32.8	46.8	2017364	25.4	N/A	2018356
Cation/EC Ratio	N/A	11.7	12.6	2017355	11.2	0.1	2018350
Ion Balance	N/A	1.07	1.07	2017362	1.09	0.01	2018354
Soluble Parameters							
Soluble Chloride (Cl)	mg/L	<5	<5	2028547	<5	5	2028547
Soluble Conductivity	dS/m	2.8	3.7	2026156	2.3	0.01	2026156
Soluble pH	N/A	7.9	7.8	2026155	8.0	N/A	2026155
Sodium Adsorption Ratio	N/A	5.4	6.4	2018344	5.8	0.1	2018344
Soluble Calcium (Ca)	mg/L	263	392	2027551	182	2	2027551
Soluble Magnesium (Mg)	mg/L	46	58	2027551	28	1	2027551
Soluble Sodium (Na)	mg/L	363	516	2027551	319	3	2027551
Soluble Potassium (K)	mg/L	4	2	2027551	4	1	2027551
Saturation %	%	44.1	59.6	2026154	57.5	N/A	2026154
Soluble Sulphate (SO4)	mg/L	1470	2100	2027551	1120	5	2027551
Theoretical Gypsum Requirement	tons/ac	<0.1	<0.1	2017368	<0.1	0.1	2018359

N/A = Not Applicable

RDL = Reportable Detection Limit

SOIL SALINITY 4 (SOIL)

Maxxam ID		I33615	I33616	I33617		
Sampling Date		2007/11/13	2007/11/13	2007/11/13		
	Units	C1 @ 1.0 MBG	C2 @ 1.5 MBG	C3 @ 0.6 MBG	RDL	QC Batch

Calculated Parameters						
Anion Sum	meq/L	10.6	0.855	3.73	N/A	2018356
Cation Sum	meq/L	12.9	3.56	7.24	N/A	2018356
Cation/EC Ratio	N/A	9.9	7.9	9.9	0.1	2018350
Ion Balance	N/A	1.21	4.17	1.94	0.01	2018354
Soluble Parameters						
Soluble Chloride (Cl)	mg/L	8	<5	23	5	2028547
Soluble Conductivity	dS/m	1.3	0.45	0.73	0.01	2026156
Soluble pH	N/A	8.1	8.1	8.2	N/A	2026155
Sodium Adsorption Ratio	N/A	5.2	1.0	1.3	0.1	2018344
Soluble Calcium (Ca)	mg/L	74	36	82	2	2027551
Soluble Magnesium (Mg)	mg/L	13	8	13	1	2027551
Soluble Sodium (Na)	mg/L	185	24	48	3	2027551
Soluble Potassium (K)	mg/L	4	2	<1	1	2027551
Saturation %	%	60.0	66.4	60.9	N/A	2026154
Soluble Sulphate (SO4)	mg/L	501	41	148	5	2027551
Theoretical Gypsum Requirement	tons/ac	<0.1	<0.1	<0.1	0.1	2018359

N/A = Not Applicable
RDL = Reportable Detection Limit

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		I33611	I33612		
Sampling Date		2007/11/13	2007/11/13		
	Units	BH11 @ 0.6 MBG	BH10 @ 2.0 MBG	RDL	QC Batch

Physical Properties					
Sieve - #200 (>0.075mm)	%	45.0	57.5	0.1	2026315
Sieve - <200 Mesh	%	55.0	42.5	0.1	2026315
Moisture	%	13.6	20.8	0.3	2023464
RDL = Reportable Detection Limit					



Maxxam Job #: A761841

Report Date: 2007/12/20

BIO-SYNERGY RESOURCES INC.

Client Project #: HUSKY PHII

Site Reference: 06-14-041-18 W4M

Your P.O. #: 2Z-2000240

Sampler Initials: BM

General Comments

Results relate only to the items tested.

Quality Assurance Report

Maxxam Job Number: EA761841

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2023464 JL8	BLANK	Moisture	2007/12/17	<0.3		%	
	RPD [I33611-01]	Moisture	2007/12/17	3.0		%	20
2026154 LX	QC STANDARD	Saturation %	2007/12/18		102	%	87 - 113
	BLANK	Saturation %	2007/12/18	0.00		%	
	RPD [I33611-01]	Saturation %	2007/12/18	1.3		%	12
2026156 JT6	Calibration Check	Soluble Conductivity	2007/12/18		101	%	80 - 120
	QC STANDARD	Soluble Conductivity	2007/12/18		109	%	86 - 114
	BLANK	Soluble Conductivity	2007/12/18	<0.01		dS/m	
	RPD [I33611-01]	Soluble Conductivity	2007/12/18	2.2		%	35
2026315 JB9	RPD	Sieve - #200 (>0.075mm)	2007/12/18	0.3		%	35
		Sieve - <200 Mesh	2007/12/18	28.9		%	35
2027551 DZ1	Calibration Check	Soluble Calcium (Ca)	2007/12/18		100	%	80 - 120
		Soluble Magnesium (Mg)	2007/12/18		101	%	80 - 120
		Soluble Sodium (Na)	2007/12/18		103	%	80 - 120
		Soluble Potassium (K)	2007/12/18		102	%	80 - 120
	BLANK	Soluble Calcium (Ca)	2007/12/18	<2		mg/L	
		Soluble Magnesium (Mg)	2007/12/18	<1		mg/L	
		Soluble Sodium (Na)	2007/12/18	<3		mg/L	
		Soluble Potassium (K)	2007/12/18	<1		mg/L	
		Soluble Sulphate (SO4)	2007/12/18	<5		mg/L	
	RPD [I33611-01]	Soluble Calcium (Ca)	2007/12/18	1.7		%	35
		Soluble Magnesium (Mg)	2007/12/18	1.4		%	35
		Soluble Sodium (Na)	2007/12/18	1.7		%	35
		Soluble Potassium (K)	2007/12/18	NC		%	35
		Soluble Sulphate (SO4)	2007/12/18	2.4		%	35
2028547 SY1	Calibration Check	Soluble Chloride (Cl)	2007/12/18		101	%	80 - 120
	MATRIX SPIKE						
	[I33611-01]	Soluble Chloride (Cl)	2007/12/18		94	%	75 - 125
	QC STANDARD	Soluble Chloride (Cl)	2007/12/18		118	%	76 - 124
	BLANK	Soluble Chloride (Cl)	2007/12/18	<5		mg/L	
	RPD [I33611-01]	Soluble Chloride (Cl)	2007/12/18	NC		%	35

NC = Non-calculable

RPD = Relative Percent Difference

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Schedule Five

Reclamation Information

Please check off the appropriate boxes indicating which documents are included in this Schedule.

- ☒ Reclamation Information section completed (next page)
- ☒ Detailed Site Assessment (DSA)
- ☒ Reclamation Site Visit Photos
- ☐ Criteria Justifications*
- ☐ Management Plan**
- ☒ AENV Professional Declaration Form – This form must be signed for work completed after January 1, 2008
- ☐ _____
- ☐ _____

*The *Reclamation Criteria for Wellsites and Associated Facilities – 1995 Update* (AENV 1995) provides for justification when the reclamation criteria for the appropriate end land use cannot be achieved due to site specific conditions.

** A Management Plan can be used for sites constructed prior to 1983 that do not have sufficient soil salvaged to meet the *Reclamation Criteria for Wellsites and Associated Facilities – 1995 Update* (AENV 1995). The Management Plan must be agreed to by the landowner and the Inspector.

RECLAMATION INFORMATION

1. GPS Co-ordinates at well head (please indicate datum used, and all decimal places) (NAD 83) N 52 31' 44" W 113 55' 50.5"
2. Survey Date: February 24, 1993
3. Construction Date: March 1993
4. Pre-construction assessment done? ☐ Yes ☒ No
If Yes, date and by whom. _____
5. Soil salvaged on access? ☒ Yes ☐ No
If No, ☐ existing trail ☐ undisturbed
Access developed? ☐ Yes ☒ No
If Yes: ☐ Low Profile ☐ High Profile
☐ Pit Run ☐ Crush
6. Seeding date: Aug. 20, 2003
Attach species mix list (if available). Marathon seeded poor growth areas to hay
7. Fertilizers: Identify types and rates: None recorded
Date last used: _____
8. Herbicides/Sterilants use pre & post reclamation: Provide details of chemicals used, dates, rates of applications, and remedial action taken: Herbicide application information is incomplete as all applications were completed prior to acquiring the lease from Marathon. Lease and access were sprayed on Jul 7, 1999 (chemical and rate unknown); Sept. 14, 1999 with Bantrel and Roundup (rate unknown); Sep. 13, 2002, with unknown chemical at 40 gal/acre; May 29, 2003 (chemical and rate unknown)
9. Soil amendments: Identify types, amounts, rates, date(s) of application and method of incorporation: None recorded
Accepted by landowner: ☐ Yes ☐ No

Interviews

Details of Interviewee's Comments (*request information on previous complaints, former facilities, presence and details of spills, pits, waste storage/handling, vegetation control, and any post reclamation concerns etc.*)

Interviews documented:

- ☐ below ☒ within attached Phase I ESA report ☒ in both locations

1. Landowner Interview: Date: March 15, 2010 Interviewed By: Andrea Barrera

Mr. Kamlah was contacted regarding this reclaimed wellsite and associated access road. Mr. Kamlah does not have any concerns associated to this lease, and he has been farming it for several years

2. Occupant Interview: Date: _____ Interviewed By: _____

Additional Site History/Comments/Clarification



Echo Environmental

685249 Alberta Ltd.

#50, 419 3rd Street SE
Medicine Hat, Alberta,
T1A 0G9

Phone: 403-504-4078 Fax 403-504-4085, Cell 403-502-5062

Date: October 10, 2009

To: Meredith Ball P.Ag.

Cc: Mike Leischner

From: Jim Fairgrieve P.Ag.

RE: Detailed Site Assessment for Tarragon Hardy Gull 100/6-14-41-28 W4M

The following is a detailed site assessment for the Tarragon Hardy Gull 100/6-14-41-28 W4M well site and access road. After reviewing Allan Alexander's assessment I found that there are no areas of concern at this time.

If there are any further questions regarding this report please phone me at 403-504-4078 for clarification. Thank you for your attention on this matter.

Yours truly,

Jim Fairgrieve P.Ag.

JF





Professional Declaration for Reclamation Certificate Applications

1. This Declaration is made in conjunction with an application for a reclamation certificate (the "Application") made by Husky Energy (Applicant) for the following land(s): 100/6-14-41-28-W4 (insert legal description).
2. I am a practicing professional member of the Alberta Institute of Agrologists, which is a regulated professional organization (the "Professional Organization"). I have a minimum of five years verifiable experience in remediation or reclamation relevant to the Competencies Table contained in the *Competencies for Remediation and Reclamation Advisory Committee's Recommendations Report* (AENV 2006).
3. As a member of the Professional Organization, I have the ability to sign off on work required for reclamation certificate applications as defined by Alberta Environment and am authorized by the Applicant to prepare and submit the attached report(s) or document(s), entitled (the "Professional Reports").
4. To the best of my knowledge and the best of my professional ability, recognizing the standard of care expected of a reasonable professional doing this work, it is my professional opinion that all the information contained in the Professional Report(s) is accurate and complete, and contains all the relevant information for the purposes of this Application.
5. The results reported in the Professional Report(s) are consistent with all current and applicable Provincial policy, criteria, standards and guidelines for the remediation or reclamation.
6. The Professional Report(s), including all attachments, data and supplemental information, were prepared by me, or under my direct supervision, or was prepared by a third party(ies) and has been reviewed and accepted by me; and was prepared in accordance with an appropriate quality assurance/quality control system that ensured qualified personnel properly gathered and evaluated all the information contained in and underlying the Professional Reports. All the information submitted is, to the best of my knowledge, true, accurate and complete.
7. I carry, or my employer (insert legal name of employer) carries professional liability insurance (errors and omissions). This insurance will be maintained for the specified liability period, subject to insurance availability.
8. I am aware that it is an offence under section 227 of the *Environmental Protection and Enhancement Act* to provide false, misleading or inaccurate information and that there are significant fines for committing these offences, including the possibility of imprisonment. See below for the relevant sections.

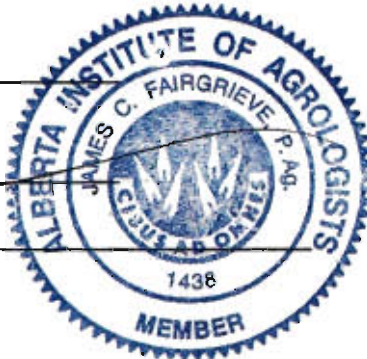
Date: October 26th, 2009

Signature: [Signature]

Registration/Member number: _____

OR

Stamp/Seal: _____



Section 227 of the Environmental Protection and Enhancement Act

Offences s. 227 A person who

- (c) knowingly provides false or misleading information pursuant to a requirement under this Act to provide information,
- (d) provides false or misleading information pursuant to a requirement under this Act to provide information

is guilty of an offence.

Penalties s. 228(1) A person who commits an offence referred to in section 60, 87, 108(1), 109(1) or 227(a), (d), (f) or (h) is liable to

- (c) in the case of an individual, to a fine or not more than \$100,000 or to imprisonment for a period of not more than 2 years or to both fine and imprisonment, or
- (d) in the case of a corporation, to a fine of not more than \$1,000,000.

(2) A person who commits an offence referred to in section 61, 67, 75, 76, 79, 88, 108(2), 109(2) 110(1) or (2), 111, 112, 137, 148, 149, 155, 157, 163, 169, 170, 173, 176, 188, 191, 192, 209, 227(b), (c), (e), (g), or (i) or 251 is liable.

- (c) in the case of an individual, to a fine or not more than 450,000, or
- (d) in the case of a corporation, to a fine of not more than \$500,000.



RECLAMATION CRITERIA WELLSITE ASSESSMENT

on

Tarragon Hardy Gull 100/6-14-41-28 W4M

As At

June 30, 2009

For:

**Husky Energy
Calgary, Alberta**

By:

**Echo Environmental
Medicine Hat, Alberta**



Reclamation Criteria Well Site Assessment
Legal: Tarragon Hardy Gull 100/6-14-41-28 W4M
Landowner: John Doef Phone: (403) 782-2702

SCOPE OF REPORT:

The scope of this report is restricted to visual inspections of this site including vegetation, soil profiles and general parameters under the methodology described below. All other information in this report has been provided by others. It is assumed that such information is accurate but cannot be warranted by Echo Environmental. No responsibility is assumed for any previous practices or processes that were not readily observable within the limited scope of this report.

PURPOSE:

Attached is the information obtained from the site inspection conducted on June 30, 2009. The purpose of this inspection was to access the characteristics of the site in reference to the 1995 Reclamation Criteria for Well Sites and Associated Facilities. These criteria are used by Alberta Environment in the determination of sites, which should receive a reclamation certificate. The following is a brief summary of the results of this inspection.

AREA DESCRIPTION:

This site is located within the grassland Eco-region of southern Alberta. General soils of this area are sandy loam textured Chernozemic soils. The soils series is Morningside and the soil is Orthic Black Chernozem on very coarse textured (S, LS) sediment deposited by wind or water (MGS) (Agrisid 2007). The well site is in cultivation and will be assessed using the cultivated land criteria.

BACKGROUND:

This well site and access road was constructed on March 9, 1993, therefore it will be assessed using the reclamation criteria for well sites constructed between 1983-1994 (1983-1994).

ASSESSMENT METHODOLOGY:

This well site was located using directions and measurements given on the survey plan and the down-hole was located using both GPS and a Pinfinder. The lease dimensions are 106 metres by 106 metres. Therefore the soil profile and vegetation data was collected at twenty-five (25) assessment points on the lease and eight (8) control points surrounding the lease. The access road is approximately 565.08 metres in length and was assessed at six (6) paired points both on and off the right of way.



Reclamation Criteria Well Site Assessment
Legal: Tarragon Hardy Gull 100/6-14-41-28 W4M
Landowner: John Doef Phone: (403) 782-2702

COMMENTS AND RECOMMENDATIONS:

- 1) These soils have been identified as to belonging to the Morningside (MGS) soil series and are classified as Orthic Black Chernozemic soils.
- 2) For well sites constructed in the 1983-1994 criteria period, the admixing criteria can not exceed 40% admixing. There are no grids that exceed the 40% admixing criteria. The admixing on site is also comparable to off site conditions.
- 3) This area has an average control depth of 20.1 cm, and the average replacement depth is 19.8 cm. This is above the required replacement depth of 14.1 cm (80% of the ACD). The average control depth is greater than 15 cm, so the minimum replacement depth requirement (80% of RRD) is 11.3 cm. There were no grids below the minimum replacement depth.
- 4) The vegetation on the north half of the lease has been seeded to wheat, while the south half of the lease was in improved pasture. The east end of the access road was in wheat while the west half of the access road was grazed improved pasture. The vegetation on the lease and access road is acceptable and comparable to off site conditions, thus meeting criteria.
- 5) GPS coordinates (NAD 83) for the well centre are as follows:

Longitude: N: 52 31' 44"
Latitude: W: 113 55' 50.5"
- 6) Therefore with this in mind, this site meets the established criteria for soil and vegetation quality and quantity as outlined in the 1995 Reclamation Criteria for Well Sites and Associated Facilities. A Reclamation Certificate application should be made for this well site and access road.

LANDOWNER/OCCUPANT COMMENTS:

The landowner has not been contacted though telephone messages have been left.



Reclamation Criteria Well Site Assessment
Legal: Tarragon Hardy Gull 100/6-14-41-28 W4M
Landowner: John Doef Phone: (403) 782-2702

CERTIFICATION:

I hereby certify that:

I personally inspected the subject property and considered the factors and influences, which I believe within the scope of the assessment.

I have no past, present or contemplated interest in the property being assessed.

Respectfully submitted,

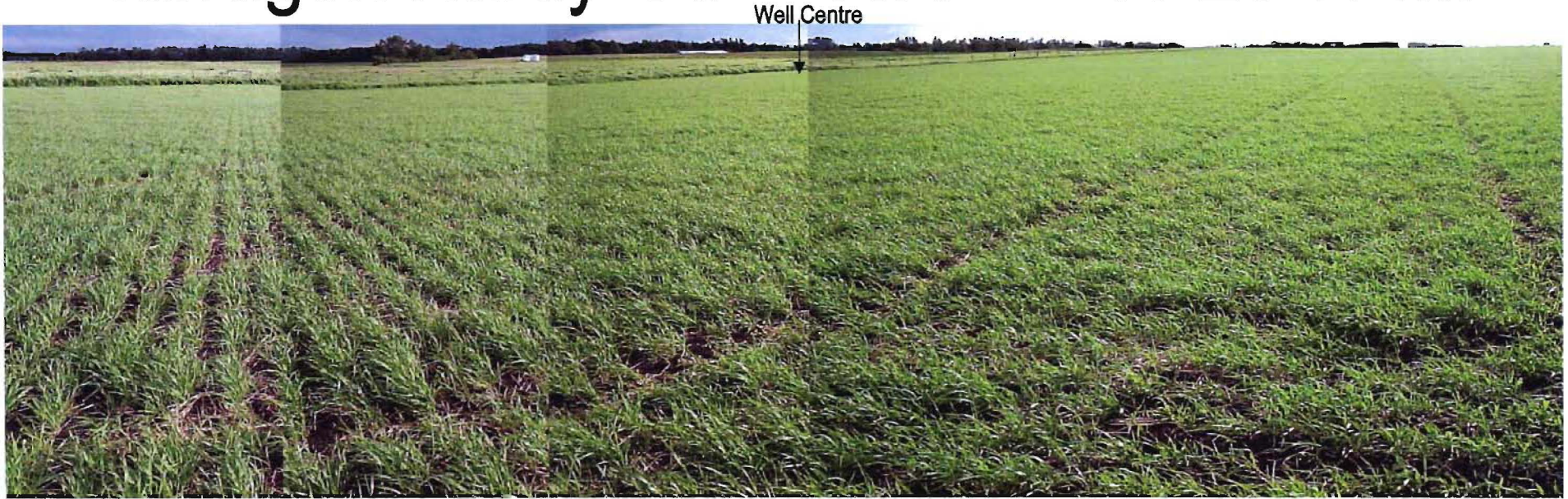

Allan Alexander B.Sc.

Reviewed by:


Jim Fairgrieve B.Sc. P.Ag.
Echo Environmental



Tarragon Hardy Gull 100/6-14-41-28 W4M



Photograph 1: Panoramic view of the lease from the north east corner looking towards the south west (well centre indicated above).

Photograph 2: View of well centre looking towards the south (right).



Photographed by: Allan Alexander

Dated: June 29, 2009

Tarragon Hardy Gull 100/6-14-41-28 W4M



Photograph 3: Panoramic view of the lease from the south west corner looking towards the north east (above).

Photograph 4: Another view of well centre looking towards the north (right).



Photographed by: Allan Alexander

Dated: June 29, 2009

Tarragon Hardy Gull 100/6-14-41-28 W4M



Photograph 5: View of the access road looking east towards the lease (above).



Photograph 6: Another view of the access road looking towards the west (right).



Photographed by: Allan Alexander

Dated: June 29, 2009

POST RECLAMATION SITE ASSESSMENT

LEGAL DESCRIPTION: Tarragon Hardy Gull 100/6-14-41-28 W4M ABS/WSL#
 LAND USE: Cultivation GROUND MOISTURE CONDITION (during DSA): Dry
 LEASE CONSTRUCTION DATE (spud date): March 9, 1993 CRITERIA PERIOD: 1983-1994
 VEGETATION 3 YRS OLD: Yes VEGETATION OVERRIDE: No
 AREAS NOT DISTURBED-EXPLAIN:
 DOES LEASE PASS CRITERIA: Yes DOES ACCESS ROAD PASS CRITERIA: Yes
 EXPLAIN:

LANDSCAPE

	LEASE		ACCESS ROAD	
	PASS/ FAIL	EXPLAIN	PASS/ FAIL	EXPLAIN
Drainage - obstructions - changes	Pass	No obstructions	Pass	No obstructions
Erosion - rills - gullies - blowouts	Pass	No signs of erosion	Pass	No signs of erosion
Contour & Roughness	Pass	Same as surrounding area	Pass	Meets criteria
Stability - slumping - cracking - subsidence	Pass	Stable and no signs of slumping	Pass	Stable and no signs of slumping
Gravel/Rock <u>Cultivated</u> 10% inc. gravel 0 % inc. rock	Pass	Same as control	Pass	Same as control
Debris - industrial - domestic	Pass	No debris present	Pass	No debris present
Vegetation: - species type - plant health vigour density cover (%/m ²) - bare areas	Pass	Meets criteria	Pass	Meets criteria

DOES LANDSCAPE PASS CRITERIA: Yes

FLAGS

Admixing Target	1994 & Later:	☐ 30% difference than control
X	1983 & Later:	☐ 40% difference in control
	Pre-1983	Record observations

SOIL QUALITY									SOIL PROFILE					
Sample Site	Topsoil Depth (cm)	Texture Class HC SIC-SC SCL-SCL SHL SL S	Aggregate Size <2 cm 2-5 cm 5-10 cm >10 cm	Colour as per the Munsell Colour Chart	Aggregate Strength Friable Firm Hard	Stones In Profile Pass/Fail <10% Increase Gravel <10cm No Increase In Rock >10cm	Stones on Surface (May not be pried) <10% Increase Gravel <10cm No Increase In Rock >10cm	Admixtures 0-10% 10-20% 20-30% 30-40% >40%	Root or Soil Restrictions (Y/N)	Root Restrictions eg. Slight moderate/severe	Liming (Y/N)	Soil Drainage & Aeration Restrictions eg. Slight moderate/severe	Liming (Y/N)	
1	21	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
2	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
3	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
4	22	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
5	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
6	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
7	18	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
8	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
9	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
10	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
11	21	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
12	18	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
13	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
14	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
15	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
16	18	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
17	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
18	21	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
19	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
20	22	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
21	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
22	19	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
23	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
24	20	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
25	21	LS	0-2	10YR 3/2	friable	0/0 Pass/Pass	0/0 Pass/Pass	10-20%	N	nil	N	nil	N	
Average Replacement Depth A.R.O.	19.8													
						CONTROL								
C1	21	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C2	20	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C3	19	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C4	20	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C5	19	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C6	21	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C7	21	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
C8	20	LS	0-2	10YR 3/2	friable	0/0 N/A	0/0 N/A	10-20%	N	nil	N	nil	N	
Control Average	20.1													
Comments														
Topsoil typically found on and off the lease site is a loam sand textured soil.														
The soil aggregate size and strength is similar comparing on and off the lease site.														
The percent gravel and rock is similar comparing on and off the lease site														



Detailed Site Assessment Form

Lease - Vegetation Data

Lease Name\Legal Location: Tarragon Hardy Gull 100/6-14-41-28 W4M

Land Use: Cultivation

Age Class: 1983-1994

Date: June 30, 2009

Reviewer: Allan Alexander, B. Sc.

Sample Site	Species Composition	Plant Density (plants/m ²)	Plant Height (cm)	Plant Condition (Growth Stage)	Plant Health (excellent/good/fair/poor)	% Cover (10, 10-20, 20-30 etc.)		
						% live	% litter	% bare
1	I. P.	290	68	mature	good	75	15	10
2	I. P.	310	67	mature	good	75	15	10
3	wheat / I. P.	250	65	mature	good	75	15	10
4	wheat	200	33	mature	good	90	5	5
5	wheat	210	34	mature	good	90	5	5
6	wheat	200	32	mature	good	90	5	5
7	wheat	190	32	mature	good	90	5	5
8	wheat / I. P.	260	66	mature	good	75	15	10
9	I. P.	210	68	mature	good	75	15	10
10	I. P.	210	70	mature	good	75	15	10
11	I. P.	200	68	mature	good	75	15	10
12	I. P.	200	65	mature	good	75	15	10
13	wheat / I. P.	270	65	mature	good	75	15	10
14	wheat	210	33	mature	good	90	5	5
15	wheat	210	30	mature	good	90	5	5
16	wheat	190	32	mature	good	90	5	5
17	wheat	200	32	mature	good	90	5	5
18	wheat / I. P.	250	65	mature	good	75	15	10
19	I. P.	290	69	mature	good	75	15	10
20	I. P.	300	68	mature	good	75	15	10
21	I. P.	300	68	mature	good	75	15	10
22	I. P.	310	68	mature	good	75	15	10
23	wheat	200	33	mature	good	90	5	5
24	wheat	200	33	mature	good	90	5	5
25	wheat	190	30	mature	good	90	5	5
Averages		234.0	51.8			81.6	10.6	7.8

Control								
1	I. P.	300	65	mature	good	75	15	10
2	I. P.	290	70	mature	good	75	15	10
3	wheat	190	33	mature	good	90	5	5
4	wheat	200	32	mature	good	90	5	5
5	wheat	200	33	mature	good	90	5	5
6	wheat	200	33	mature	good	90	5	5
7	I. P.	280	68	mature	good	75	15	10
8	I. P.	300	68	mature	good	75	15	10
Averages		245.0	50.3			82.5	10.0	7.5

Comments Regarding Plant Health

Lease site: Improved Pasture (I.P.) mainly; meadow brome with some rough fescue & kentucky bluegrass

Controls: Improved Pasture (I.P.) mainly; meadow brome with some rough fescue & kentucky bluegrass

Vegetation density, height, health, condition and percent cover is similar comparing on and off the lease site.



Detailed Site Assessment Form

Soils Lease Road

Lease Name/ Legal Location: Tarragon Hardy Gull 10006-14-41-28 W4M

Land Use: Cultivation

Age Class: 1983-1994

Date: June 30, 2008

Reviewer: Allan Alexander, B. Sc.

SOIL QUALITY														SOIL PROFILE												
Sample Site	Topsoil Depth (cm)		Texture Class HC SIC-SC SICL-SCL SL-L SL LS-S		Aggregate Size <2 cm 2-5 cm 5-10 cm >10 cm		Aggregate Strength Friable Firm Hard		Stones in Profile & Surface Meets Criteria				Admixing 0-10% 10-20% 20-30% 30-40% 40-50%		Soil Colour		Root or Soil Restrictions (Y/N)		Root Restrictions Slight Moderate Severe		Limiting (Y/N)		Soil Drainage & Aeration Restrictions Slight Moderate Severe		Limiting (Y/N)	
									% Gravel < 10 cm Profile/Surface		% Rocks > 10 cm Profile/Surface															
									Road	Control	Road	Control														
R1VRC1	20	19	LS	LS	0-2	0-2	friable	friable	0/0 pass/pass	0/0 N/A	0/0 pass/pass	0/0 N/A	10-20 %	10-20 %	10YR 3/2	10YR 3/2	N	N	nil	nil	N	N	nil	nil	N	N
R2VRC2	20	20	LS	LS	0-2	0-2	friable	friable	0/0 pass/pass	0/0 N/A	0/0 pass/pass	0/0 N/A	10-20 %	10-20 %	10YR 3/2	10YR 3/2	N	N	nil	nil	N	N	nil	nil	N	N
R3VRC3	19	18	LS	LS	0-2	0-2	friable	friable	0/0 pass/pass	0/0 N/A	0/0 pass/pass	0/0 N/A	10-20 %	10-20 %	10YR 3/2	10YR 3/2	N	N	nil	nil	N	N	nil	nil	N	N
R4VRC4	18	19	LS	LS	0-2	0-2	friable	friable	0/0 pass/pass	0/0 N/A	0/0 pass/pass	0/0 N/A	10-20 %	10-20 %	10YR 3/2	10YR 3/2	N	N	nil	nil	N	N	nil	nil	N	N
R5VRC5	17	19	LS	LS	0-2	0-2	friable	friable	0/0 pass/pass	0/0 N/A	0/0 pass/pass	0/0 N/A	10-20 %	10-20 %	10YR 3/2	10YR 3/2	N	N	nil	nil	N	N	nil	nil	N	N
R6VRC6	19	18	LS	LS	0-2	0-2	friable	friable	0/0 pass/pass	0/0 N/A	0/0 pass/pass	0/0 N/A	10-20 %	10-20 %	10YR 3/2	10YR 3/2	N	N	nil	nil	N	N	nil	nil	N	N
Average	18.8	18.8																								

Mean Control	18.8
Average Replacement Depth	18.8

Comments
Topsoil typically found on and off the access is a loam sand textured soil. Soil aggregate size and strength is similar comparing on and off the access. The percent gravel and rock is similar comparing on and off the access.



Detailed Site Assessment Form

Vegetation - Lease Road

Lease Name/Legal Location: Tarragon Hardy Gull 100/6-14-41-28 W4M

Land Use: Cultivation

Age Class: 1983-1994

Date: June 30, 2009

Reviewer: Allan Alexander, B. Sc.

Sample Site	Species Composition		Plant Density (plants/m ²)		Plant Height (cm)		Plant Condition (growth stage)		Plant Health (excellent/good/fair/poor)		% Cover (10, 10-20, 20-30 etc.)					
	Road	Control	Road	Control	Road	Control	Road	Control	Road	Control	% Live		% Litter		% Bare	
											Road	Control	Road	Control	Road	Control
R1VRC1	wheat	wheat	210	200	33	30	flagleaf	flagleaf	good	good	90	90	5	5	5	5
R2VRC2	wheat	wheat	200	200	32	31	flagleaf	flagleaf	good	good	90	90	5	5	5	5
R3VRC3	wheat	wheat	200	190	32	31	flagleaf	flagleaf	good	good	90	90	5	5	5	5
R4VRC4	I. P.	I. P.	280	280	21	22	mid growth	mid growth	good	good	75	75	15	15	10	10
R5VRC5	I. P.	I. P.	290	280	20	20	mid growth	mid growth	good	good	75	75	15	15	10	10
R6VRC6	I. P.	I. P.	280	300	22	20	mid growth	mid growth	good	good	75	75	15	15	10	10
Averages			243.3	241.7	26.7	25.7					82.5	82.5	10.0	10.0	7.5	7.5

Comments Regarding Plant Health

Access: Wheat and Improved Pasture (I.P.) mainly: meadow brome with some rough fescue & kentucky bluegrass

Control: Wheat and Improved Pasture (I.P.) mainly: meadow brome with some rough fescue & kentucky bluegrass

Plant species, density, height, health, condition and percent cover is similar comparing on and off the access.

There are a few Canada thistle plants along the access road both on and off site.



5800 49 Alberta Ltd.
4005 Phone: 403-502-5000 Fax: 403-504-

Reclamation Criteria Lease Summary

Lease

Lease Name\Legal Location: Tarragon Hardy Gull 100/6-14-41-28 W4M

Land Use: Cultivation

Well Site Age Class: 1983-1994

Soil Series: Morningside (MGS)

Soil Classification: Orthic Black Chernozem

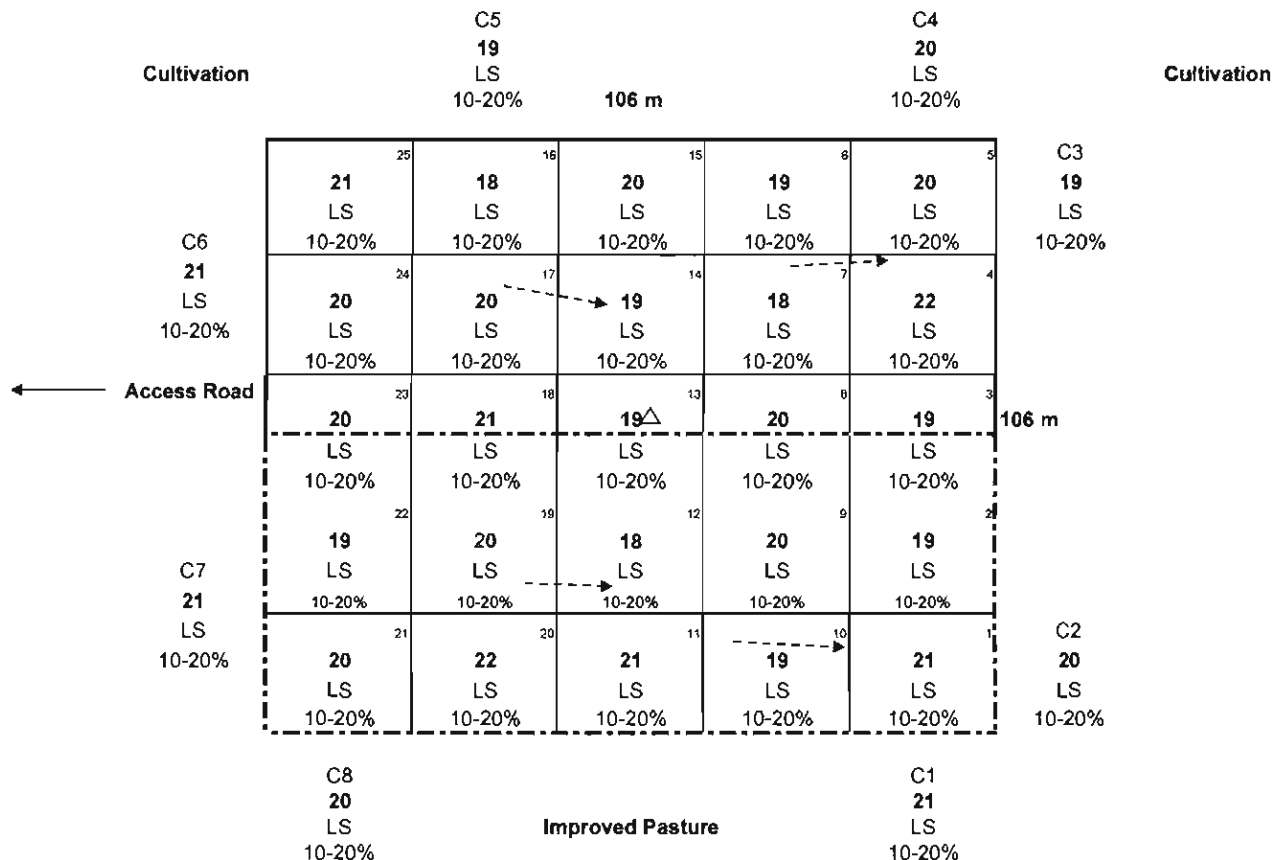
Date: June 30, 2009

Reviewer: Allan Alexander, B. Sc.

Lease Size: 106 x 106 metres

Depths in cm

△ Well Center
- - - - - Fenced portion of lease
- - - - - Slope



Key:

20	Site Sample #
LS	Topsoil Depth (cm)
10-20%	Soil Texture
	% Admixing

Construction Year	% Topsoil Requirement	Average Replacement Depth	Average Control Depth	Required Replacement Depth	Minimum Replacement Depth
		ARD	ACD	RRD	MRD
1993	70%	19.8	20.1	14.1	N/A



Reclamation Criteria Access Road Summary

Access Road

Lease Name/Lease Location: Tarragon Hardy Gull 1009-14-41-28 W4M

Land Use: Cultivation

Well Site Age Class: 1993-1994

Date: June 30, 2009

Reviewer: Allan Alexander, B. Sc.

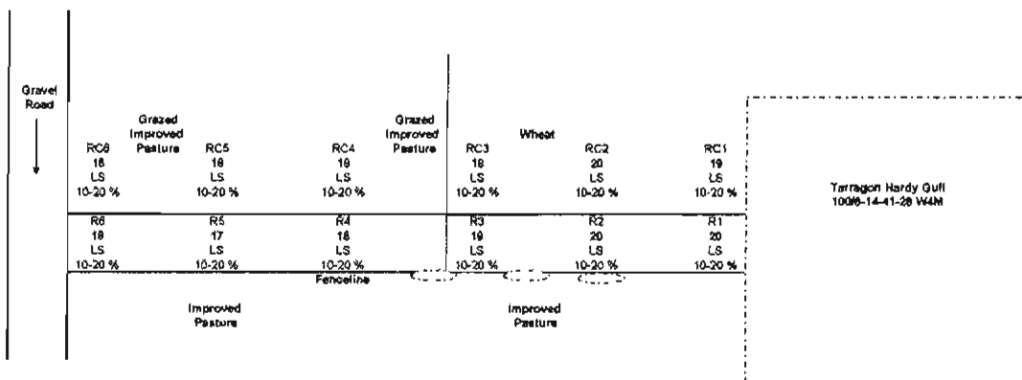
Access Road Length: 886.08 metres

1000 metres (1:1000)

Photo: 01/01/2009 10:00 AM

Not to Scale

Lease
Canada Thistle plants



Key:

20	Photo Sample #
LS	Soil Sample (cm)
10-20%	Soil Sample

Mean Control	18.8
Average Replacement Depth	18.8

**Echo Environmental**

(Alberta 685749 Ltd.)

Cell: (403) 302-3062 Office: (403) 304-4078

Fax: (403) 304-4085

150, 419 - 3rd St. S.E. Medicine Hat, Alberta, T1A 0C9

Page 1 of 2

LANDOWNER QUESTIONNAIRE

The purpose of this questionnaire is to assist both industry and Government with the evaluation of the site. The observations and hands on experience provided by the landowners / Occupants have proven to be a valuable tool in the past. It should however, be noted that even though some changes as outlined in this questionnaire may be observed, if a site may still meet reclamation objectives.

Landowner Contact Check List

Landowners (all L/O's) _____

Occupants: _____

1 Date & Time: June 29, 09 Message Left? (yes or no): Yes2 Date & Time: June 30, 09 Message Left? (yes or no): Yes3 Date & Time: Oct. 10, 09 Message left? (yes or no): Yes4 Date & Time: Oct. 15, 2009 Message left? (yes or no): Yes

Note: at this questionnaire should be filled out even if the landowner or occupant is not contacted

Well Battery Name: Tarragon Hardy GullLocation: 100-6-14-41-28 W 4mCompany: Husky

Land File#:

Date: Oct. 15, 2009Reviewer: Al AlexanderLandowner/Occupant: John DoefPhone #(s): (403) 782-2702**General Questions:**

1. Are you satisfied with the vegetation growth on the lease and access?

Yes ☐ No ☐ N/A ☐

Details: _____

2. Are you satisfied with the topsoil replacement on the lease and access?

Yes ☐ No ☐ N/A ☐

Details: _____

3. Reclamation of the well site and access? Were you advised of the site reclamation by the company prior to the final

Yes ☐ No ☐ N/A ☐

	Echo Environmental
	(Alberta GHS 19 Ltd.)
	Cell: (403) 502-5062 Office: (403) 504-4078
	Fax: (403) 504-4085
#50, 419 - 3 rd St S.E. Medicine Hat, Alberta, T1A 0G9	

Page 2 of 2

4. What remedial work has been done to the well site? Have you had any involvement in cleanup of the site?

Yes ☐ No ☐ N/A ☐

Details: _____

5. Do you have any knowledge of past spills, or other contamination found on the well site and access? Any material buried on site? Is this acceptable to the landowner?

Yes ☐ No ☐ N/A ☐

Details: _____

6. Was there a flare pit or buried sump present on the well site? If so, how was it remediated?

Yes ☐ No ☐ N/A ☐

Details: _____

7. Is there evidence of any of the following on the lease or access? (a) slumping, (b) increase in gravel and rock, (c) debris, or (d) erosion?

Yes ☐ No ☐ N/A ☐

Details: _____

8. What improvements have been made to the site, do you require these improvements to be left in place (i.e. fence, access road)?

Yes ☐ No ☐ N/A ☐

Details: _____

9. Additional Comments and Suggestions:

Company/Field Representative

Landowner/Occupant

Identify Results[Metadata](#)

Soil Polygon Information				
POLYNUMB	13300			
HECTARES	491			
LSRSRATING	3HT(5) - 4M(3) - 5W(2)			
MUNAME	MGTW8/U1h			
Soil Components				
NEW_SYMBOL	MGS	TWS	ZERzbl	ZGW
PERCENT	35	35	15	15
SERIES	MORNINGSIDE	TWEEDSMUIR	MISC.ERODED-ZBL	MISC.GLEYSOL
DRAINAGE	R	W	W	P
MAS_PM	C2	C3	U0	U0
SG	O.BLC	O.BLC	R.BLC	O.HG
COMPONENT	1	2	3	4

Coordinate Position

Geographic: 52° 31' 16" N, 113° 55' 36" W

Click on the button to the right to get textual and visual landscape information for the currently identified soil polygon.

[More Info](#)

Click on the button to the right to print Identify Results.

[Print Results](#)

Description for Soil Polygon: 13300**MGTW8/U1h**

Orthic Black Chernozem on very coarse textured (S, LS) sediments deposited by wind or water (MGS).

Orthic Black Chernozem on moderately coarse textured (SL) sediments deposited by wind or water (TWS).

The polygon includes poorly drained soils and soils with Rego profiles (8).

Undulating, high relief landform with a limiting slope of 4% (U1h).

Example site picture(s)

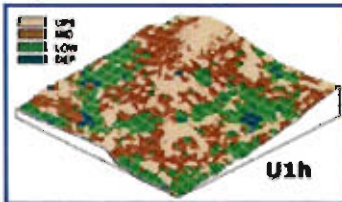
There may be more than one example since different field locations may all fall into the same landform classification.



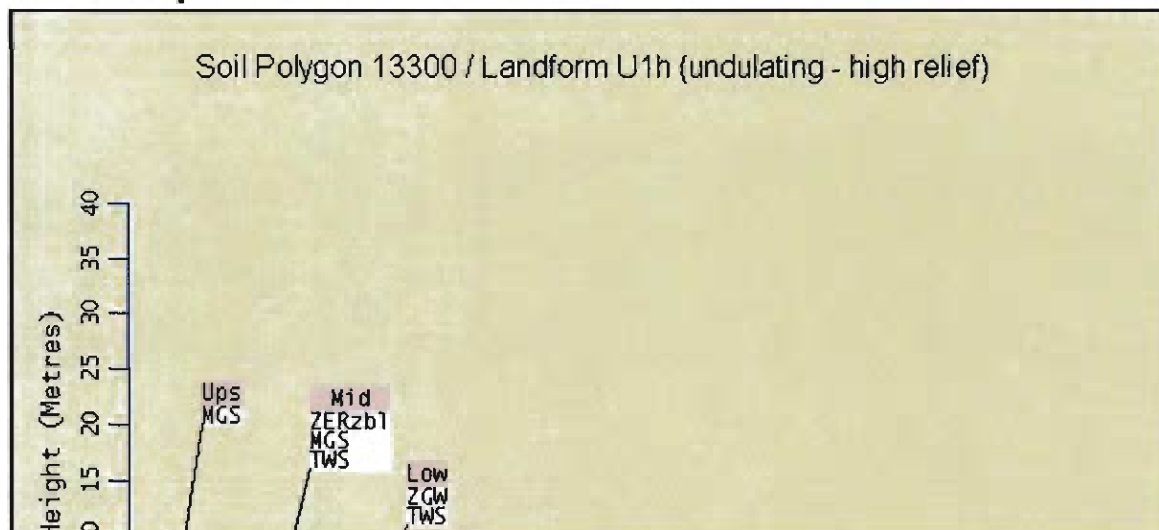
Click on picture(s) above for larger image.

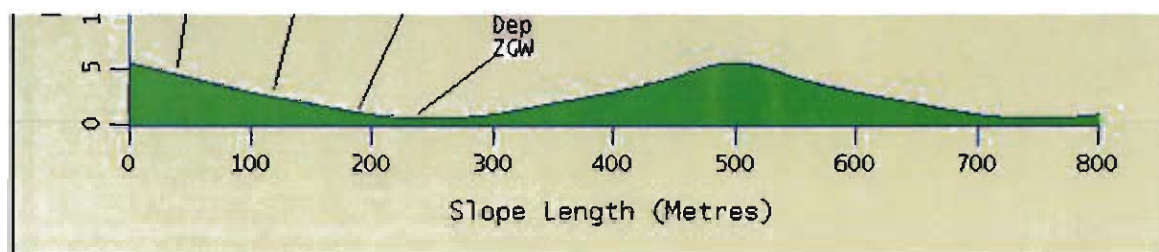
Example 3D picture

Digital elevation picture showing slope distribution.



Click on picture(s) above for larger image.

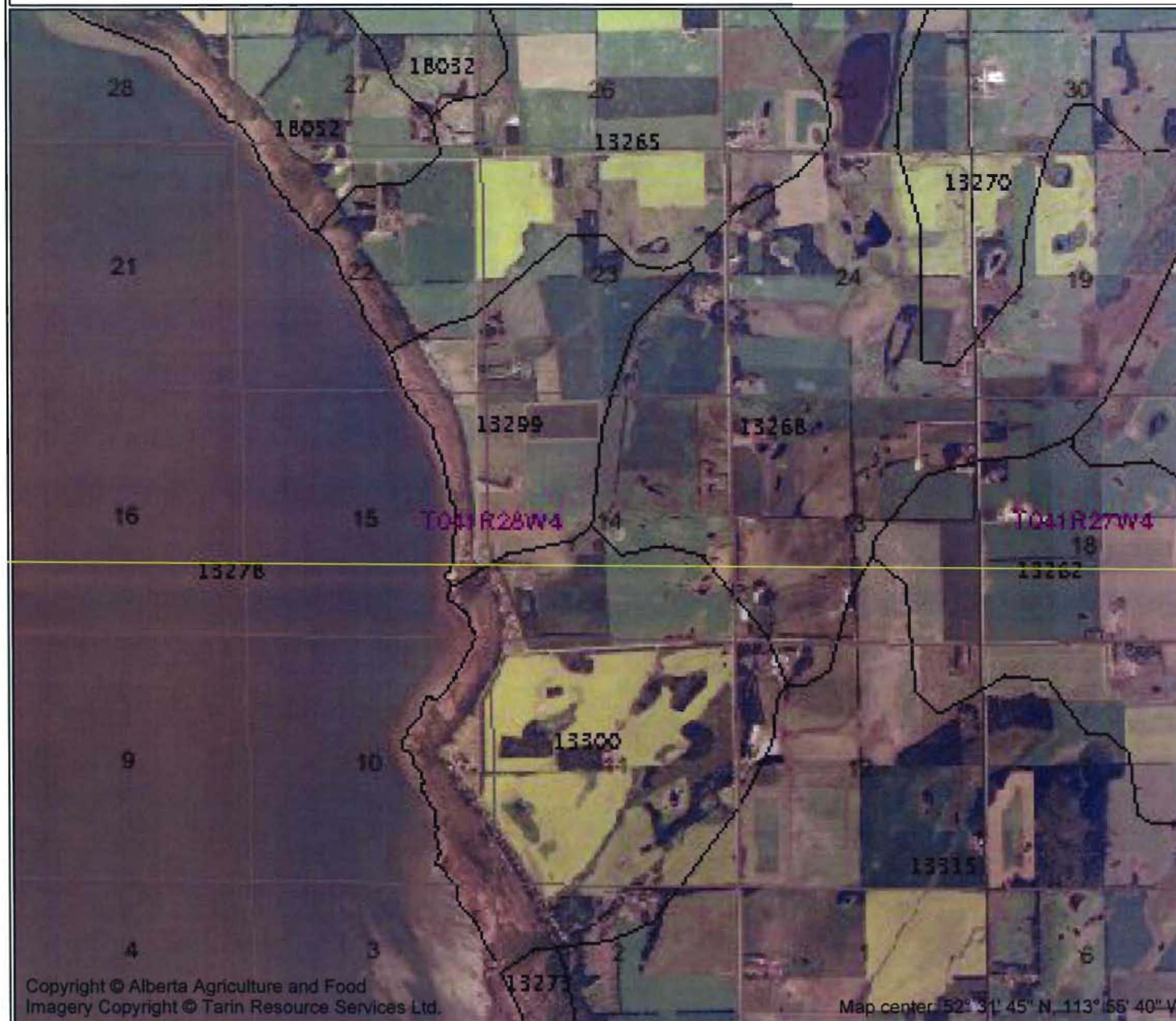
Landform profile and soil distribution



Print

Close Window

100/6-14-41-28-W4



- Roads
- Primary
- Township Grid
- Section Grid
- AGRASID
- Green Area



Information presented here is from AGRASID, the Agricultural Region of Alberta Soil Inventory Database. It contains soil and landscape information with defining spatial polygons for the agricultural region of Alberta.



Scale 1:38,619
Alberta Agriculture and Food
Printed: Oct 27, 2009 2:35:18 PM

INTERPRETATION GUIDELINES

SCA 9

09/01/93

SOIL SERIES:	TWEEDSMUIR (TWS)	LANDFORM:	TERRACED
SOIL ZONE:	THICK BLACK	TYPICAL SLOPES:	0-5%
SOIL CLASSIFICATION:	ORTHIC BLACK CHERNOZEMIC	USUAL SOIL MOISTURE:	DROUGHTY
PARENT MATERIAL:	MODERATELY COARSE FLUVIAL	SURFACE STONINESS:	NON

TYPICAL SOIL PROFILE:

Horizon	Depth	Color Code	Color Name	Structure	Consistence	Texture	O.C.	pH	EC	Sat%	SAR
AP	0-50	10YR 2/1	BLACK	SGR	VFR	FSL	2.8	8.	0.6	37.	
BK	50-110	2.5Y 5/4	LIGHT OLIVE BROWN	SGR	L	FSL		8.1	0.6	34.	

SOIL QUALITY RATINGS:

Horizon	Depth	Consistence	Texture	O.C.	pH	EC	Sat%	SAR	Overall Rating
AP	0-50	G	G	G	F	G	G		F (Topsoil)
BK	50-110	F	G		F	G	G		F (Subsoil)

TOPSOIL INTERPRETATIONS:

TYPICAL THICKNESS: 30 cm
 THICKNESS RANGE: 10-50 cm
 COLOR CHANGE TO SUBSOIL: OBVIOUS
 STRIPPING LIMITATIONS: VERY THICK
 WIND EROSION RISK: LOW
 WATER EROSION K=: 0.032
 RISK ON <5% SLOPE: LOW
 RISK ON 5-9% SLOPE: MODERATE
 RISK ON 9-15% SLOPE: HIGH

SUBSOIL (TO 1.5 M) INTERPRETATIONS:

SEASONALLY HIGH W.T.: NO
 HARD BEDROCK: NO
 NON-SODIC SOFTROCK: NO
 SODIC SOFTROCK: NO
 GRAVEL: NO
 STONY LAYER: NO
 FACE INSTABILITY: YES
 SOLONETZIC B HORIZON: NO
 SALINE OR SODIC LOWER SUBSOIL: NO
 IMPORTANT TEXTURE CHANGE: NO

NOTES: DEVELOPED ON FINE SANDY LOAM TEXTURED TERRACES AND DISSECTED CHANNELS.
 EXPOSED FACES ARE UNSTABLE WHEN VERTICALLY DITCHED. B HORIZONS ARE
 OFTEN VERY THIN OR ABSENT.

INTERPRETATION GUIDELINES

9

SCA 9

09/01/93

SOIL SERIES: MORNINGSIDE (MGS) LANDFORM: BLANKET
 SOIL ZONE: THICK BLACK TYPICAL SLOPES: 2-30%
 SOIL CLASSIFICATION: ORTHIC BLACK CHERNOZEMIC USUAL SOIL MOISTURE: DROUGHTY
 PARENT MATERIAL: VERY COARSE FLUVIAL OR SURFACE STONINESS: NON
 EOLIAN

TYPICAL SOIL PROFILE:

Horizon	Depth	Color Code	Color Name	Structure	Consistence	Texture	O.C.	pH	EC	Sat%	SAR
AP	0-22	10YR 3/2	VERY DARK GRAYISH BROWN	SGR	L	LS		6.3	0.3	36.	0.2
BM	22-60	10YR 4/4	DARK YELLOWISH BROWN	SGR	L	LS		6.8	0.2	36.	0.3
BC	60-110	10YR 5/4	YELLOWISH BROWN	SGR	L	LS					
CK	110-140	2.5Y 5/4	LIGHT OLIVE BROWN	SGR	L	LS		8.2	0.6	25.	0.4

SOIL QUALITY RATINGS:

Horizon	Depth	Consistence	Texture	O.C.	pH	EC	Sat%	SAR	Overall Rating
AP	0-22	F	P		F	G	G	G	P (Topsoil)
BM	22-60	F	P		G	G	G	G	P (Subsoil)
BC	60-110	F	P						P (Subsoil)
CK	110-140	F	P		F	G	F	G	P (Subsoil)

TOPSOIL INTERPRETATIONS:

TYPICAL THICKNESS: 20 cm
 THICKNESS RANGE: 10-25 cm
 COLOR CHANGE TO SUBSOIL: OBVIOUS
 STRIPPING LIMITATIONS: NONE
 WIND EROSION RISK: HIGH
 WATER EROSION K=: 0.011
 RISK ON <5% SLOPE: LOW
 RISK ON 5-9% SLOPE: LOW
 RISK ON 9-15% SLOPE: MODERATE

SUBSOIL (TO 1.5 M) INTERPRETATIONS:

SEASONALLY HIGH W.T.: NO
 HARD BEDROCK: NO
 NON-SODIC SOFTROCK: NO
 SODIC SOFTROCK: NO
 GRAVEL: NO
 STONY LAYER: NO
 FACE INSTABILITY: YES
 SOLONETZIC B HORIZON: NO
 SALINE OR SODIC LOWER SUBSOIL: NO
 IMPORTANT TEXTURE CHANGE: NO

NOTES: DEVELOPED ON SANDS AND LOAMY SANDS. EXPOSED FACES ARE UNSTABLE BECAUSE OF LOOSE CONSISTENCE AND SANDY TEXTURES.

VIEW SOIL LAYERS PRINT CLOSE			
AGRICULTURAL REGION OF ALBERTA SOIL INVENTORY DATABASE			
AGRASID			
POLYNUMB 13299			
SOIL CORRELATION AREA #:	9	SURFACE FORM MODIFIER:	
SOIL LANDSCAPE OF CANADA #:	482280	GENERATED SOIL SYMBOL:	MGTW4/U1h
ECO DISTRICT:	Red Deer	ECO REGION:	Aspen Parkland
1st CO-DOMINANT SOIL (greater than 30% and less than 60%)			
SERIES:	TWEEDSMUIR	VARIANT:	
LAND USE:	Native (Ah horizon)		
CALCAREOUSNESS CLASS:	M	SALINITY CLASS:	N
FIRST PARENT MATERIAL			
TEXTURE:	MC	GENETIC ORIGIN:	FLUV
SECOND PARENT MATERIAL			
TEXTURE:	-	GENETIC ORIGIN:	-
AGRASID TEXTURE:	Moderately coarse (SL,FSL) sediments deposited by wind or water		
SOIL DRAINAGE:	Well Drained	TAXONOMIC CHAR:	
REPORT:	Calgary Urban Report	SOIL ORDER:	Chernozemic
SOIL SUBGROUP:	Orthic Black		
COMMENTS:			
SERIES:	TWEEDSMUIR	VARIANT:	
LAND USE:	Agricultural (Ap horizon)		
CALCAREOUSNESS CLASS:	M	SALINITY CLASS:	N
FIRST PARENT MATERIAL			
TEXTURE:	MC	GENETIC ORIGIN:	FLUV
SECOND PARENT MATERIAL			
TEXTURE:	-	GENETIC ORIGIN:	-
AGRASID TEXTURE:	Moderately coarse (SL,FSL) sediments deposited by wind or water		
SOIL DRAINAGE:	Well Drained	TAXONOMIC CHAR:	
REPORT:	Calgary Urban Report	SOIL ORDER:	Chernozemic
SOIL SUBGROUP:	Orthic Black		
COMMENTS:			
2nd CO-DOMINANT SOIL (greater than 30% and less than 60%)			
SERIES:	MORNINGSIDE	VARIANT:	
LAND USE:	Agricultural (Ap horizon)		
CALCAREOUSNESS CLASS:	M	SALINITY CLASS:	N
FIRST PARENT MATERIAL			
TEXTURE:	VC	GENETIC ORIGIN:	EOLI
SECOND PARENT MATERIAL			
TEXTURE:	-	GENETIC ORIGIN:	-
AGRASID TEXTURE:	Very coarse (S,LS) sediments deposited by wind or water		
SOIL DRAINAGE:	Rapidly Drained	TAXONOMIC CHAR:	
REPORT:	Cansis taxadjunct	SOIL ORDER:	Chernozemic
SOIL SUBGROUP:	Orthic Black		
COMMENTS:	Replaced Peace Hills loamy sand, as used on the old maps, pre-AGRASID.		
SERIES:	MORNINGSIDE	VARIANT:	
LAND USE:	Native (Ah horizon)		
CALCAREOUSNESS CLASS:	M	SALINITY CLASS:	N
FIRST PARENT MATERIAL			
TEXTURE:	VC	GENETIC ORIGIN:	EOLI
SECOND PARENT MATERIAL			
TEXTURE:	-	GENETIC ORIGIN:	-
AGRASID TEXTURE:	Very coarse (S,LS) sediments deposited by wind or water		
SOIL DRAINAGE:	Rapidly Drained	TAXONOMIC CHAR:	

REPORT:	Cansis taxadjunct	SOIL ORDER:	Chernozemic
SOIL SUBGROUP:	Orthic Black		
COMMENTS:	Replaced Peace Hills loamy sand, as used on the old maps, pre-AGRASID.		
1st SIGNIFICANT SOIL (less than 30%)			
SERIES:	MISC.ERODED-ZBL	VARIANT:	
LAND USE:	Agricultural (Ap horizon)		
CALCAREOUSNESS CLASS:	-	SALINITY CLASS:	-
FIRST PARENT MATERIAL			
TEXTURE:	-	GENETIC ORIGIN:	UNDM
SECOND PARENT MATERIAL			
TEXTURE:	-	GENETIC ORIGIN:	-
AGRASID TEXTURE:	Undifferentiated		
SOIL DRAINAGE:	Well Drained	TAXONOMIC CHAR:	
REPORT:		SOIL ORDER:	Chernozemic
SOIL SUBGROUP:	Rego Black		
COMMENTS:			

ERCB DATA		ATTACHED FILES		Close Screen																																																																															
WELL INFORMATION CURRENT TO SEPTEMBER 30, 2009																																																																																			
EVENT: 0 																																																																																			
<table border="1"><tr><td>WELL ID:</td><td colspan="5">00 / 06-14-041-28 W4 / 0</td></tr><tr><td>LICENCE #:</td><td>0157107</td><td>LICENCE DATE:</td><td colspan="3">MARCH 9, 1993</td></tr><tr><td>WELL NAME:</td><td colspan="5">TARRAGON HARDY GULL 6-14-41-28</td></tr><tr><td>WITHIN:</td><td>06-14-041-28 W4</td><td>H2S (mol/kmol):</td><td colspan="3">NOT AVAILABLE</td></tr><tr><td>LICENCEE:</td><td colspan="5">HUSKY OIL OPERATIONS LIMITED</td></tr><tr><td>SPUD DATE:</td><td>MARCH 9, 1993</td><td>FINAL DRILL DATE:</td><td colspan="3">MARCH 15, 1993</td></tr><tr><td>STATUS:</td><td>ABD</td><td>ABANDONED DATE:</td><td colspan="3">MARCH 16, 1993</td></tr><tr><td>SURFACE:</td><td colspan="5">DOWNHOLE:</td></tr><tr><td>OFFSETS:</td><td>N 822.1 E 617.8</td><td>OFFSETS:</td><td colspan="3">N 822.1 E 617.8</td></tr><tr><td>LATITUDE:</td><td>52.528927</td><td>LATITUDE:</td><td colspan="3">52.528927</td></tr><tr><td>LONGITUDE:</td><td>113.930688</td><td>LONGITUDE:</td><td colspan="3">113.930688</td></tr><tr><td>GROUND ELEVATION:</td><td>908.3 m</td><td>2980'</td><td>TOTAL DEPTH:</td><td>1870 m</td><td>6135'</td></tr><tr><td>WELL TYPE:</td><td>NOT AVAILABLE</td><td>SUBSTANCE:</td><td colspan="3">NOT AVAILABLE</td></tr></table>						WELL ID:	00 / 06-14-041-28 W4 / 0					LICENCE #:	0157107	LICENCE DATE:	MARCH 9, 1993			WELL NAME:	TARRAGON HARDY GULL 6-14-41-28					WITHIN:	06-14-041-28 W4	H2S (mol/kmol):	NOT AVAILABLE			LICENCEE:	HUSKY OIL OPERATIONS LIMITED					SPUD DATE:	MARCH 9, 1993	FINAL DRILL DATE:	MARCH 15, 1993			STATUS:	ABD	ABANDONED DATE:	MARCH 16, 1993			SURFACE:	DOWNHOLE:					OFFSETS:	N 822.1 E 617.8	OFFSETS:	N 822.1 E 617.8			LATITUDE:	52.528927	LATITUDE:	52.528927			LONGITUDE:	113.930688	LONGITUDE:	113.930688			GROUND ELEVATION:	908.3 m	2980'	TOTAL DEPTH:	1870 m	6135'	WELL TYPE:	NOT AVAILABLE	SUBSTANCE:	NOT AVAILABLE		
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Government of Alberta ■
Environment

Finance and Administration Division
Regulatory Approvals Centre
9th Floor, Oxbridge Place
9820 - 106 Street
Edmonton, Alberta T5K 2J6
Canada
Telephone: (780) 427-7271
Fax: (780) 422-0154
www.environment.alberta.ca

File Reference No. 00275681

November 1, 2010

Andrea Barrera
Husky Oil Operations
Box 6526 Station D 707 8th AVE SW
Calgary, AB, T2P 3G7

Dear Ms. Barrera:

RE: TARRAGON HARDY GULL 6-14-41-28 WELL
W Sec. 14 Tp. 41 Rge. 28 W4M
Your File No. S55402-00 & 02

Your application for a reclamation certificate on the above site has been reviewed and found to be satisfactory.

Please find enclosed **Reclamation Certificate No. 00275681-00-00** for your records.

Sincerely,

for 
Wendy Jones

cc: 1300382 Alberta Ltd. - Johan Doef
Tony E. and Kathy M. Kamlah

RECLAMATION CERTIFICATE NO. 00275681-00-00
LICENSE NO. 0157107

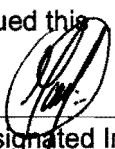
This reclamation certificate is issued pursuant to section 138 of the Environmental Protection and Enhancement Act, following a review of the information contained in the application submitted to Alberta Environment. No field inquiry was held.

This certifies that the surface of the land held by Husky Oil Operations Limited

within W Sec. 14 Tp. 041 Rge. 28 W4M

in connection with or incidental to TARRAGON HARDY GULL 6-14-41-28 WELL, as shown outlined on the attached plan(s), complies with the conservation and reclamation requirements of Part 6 of the Act.

Issued this 1 day of November, 20 10



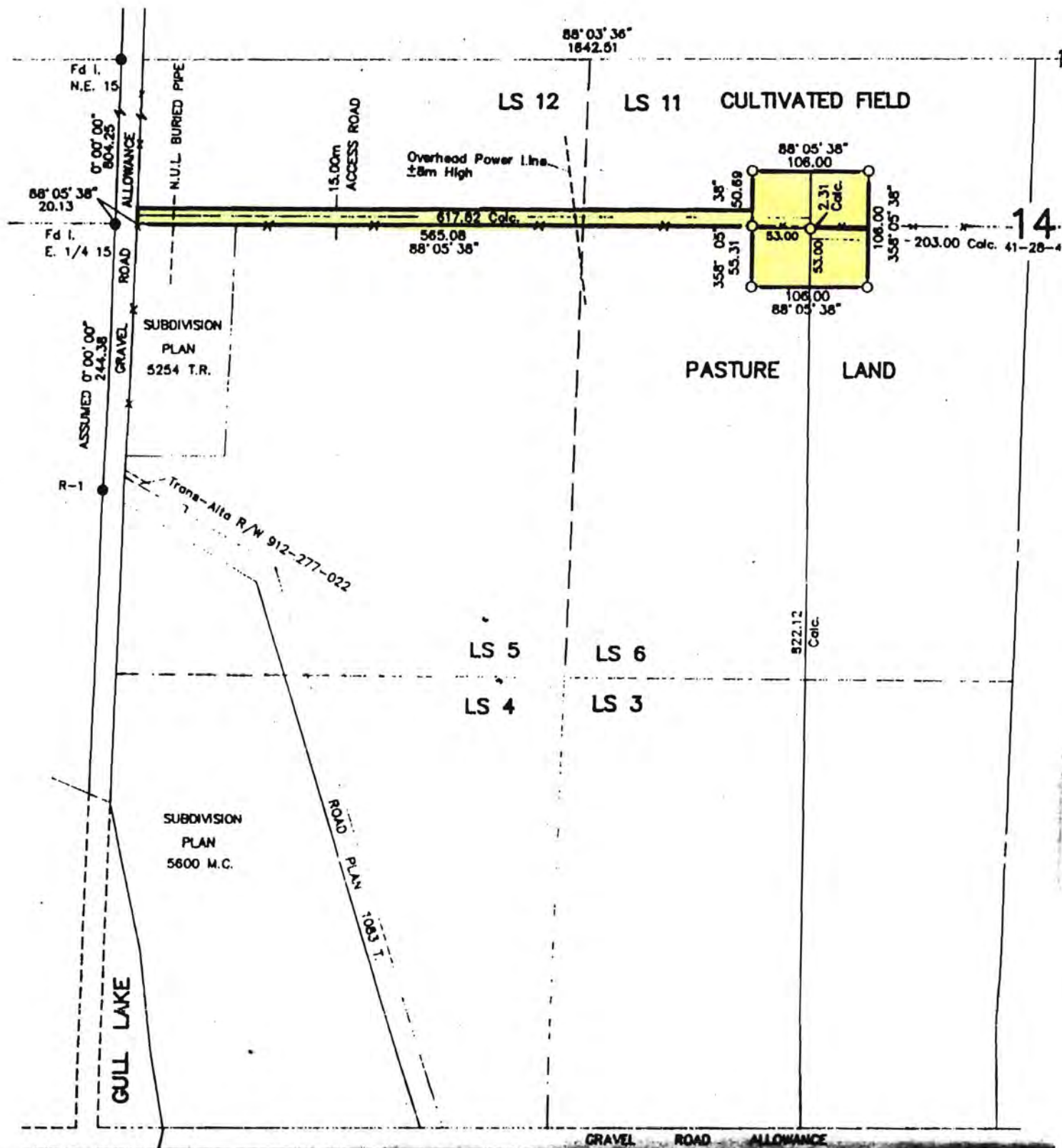
Designated Inspector under the Act

Operator/Agent:

Husky Oil Operations Limited
707 8 AVE SW
BOX 6525 STN D
Calgary, Alberta
T2P 3G7

The Director may cancel this reclamation certificate where he/she is of the opinion that further work may be necessary to conserve and reclaim the above specified land to which this certificate relates.

Section 91 of the Environmental Protection and Enhancement Act may provide a right of appeal against this decision to the Chair, Environmental Appeals Board. There may be a strict time limit for filing such an appeal. For further information contact the Board Secretary of the Environmental Appeals Board at 3rd Floor, Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta T5J 3S8. Telephone (780)427-6207; Fax (780)427-4693.

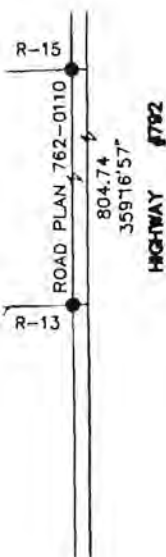


TARRAGON HARDY GILBY 6-14-41-28

Well Site and Access Road

within

L.S. 6 Sec. 14 Twp 41 Rge 28 W.4 M.



NOTE: The proposed Well is:

- Outside any potential Coal development area
- At least 5.0 km from a licensed Airport listed in Part "A" of Schedule 3, Oil and Gas Con. Regs.
- At least 1.6 km from a licensed Airport listed in Part "B" of Schedule 3, Oil and Gas Con. Regs.
- There are residences within 3.0 km of Well Centre.
- The Town of Lacombe is within 15.0 km of Well Centre.
- There are no surface improvements within 200m of Well Centre unless shown otherwise.

Elevation : of ground at Wellcentre = 908.33

Co-ords: 822.12 N. of the S. Sec. 14
617.82 E. of the W. Sec. 14

Areas:	Hectares	Acres		
Well Site N.W. 14	0.537	ha	1.33	Ac.
Well Site S.W. 14	0.587	ha	1.45	Ac.
Access Road	0.847	ha	2.09	Ac.
Total	1.971	ha	4.87	Ac.

GROUND ELEVATIONS AT:

N.E. CORNER = 908.65
N.W. CORNER = 910.02
S.W. CORNER = 908.78
S.E. CORNER = 908.09

Scale = 1:5000

Datum: A.S.C.M. 52112.239

NOTE:

- Survey monuments found are shown thus: ●
- Survey monuments planted are shown thus: ○
- Portion referred to bounded thus: —
- Distances and elevations are in metres.



I certify that the survey represented by this plan
is correct and true to the best of my knowledge
and was completed on the 24th day of February 1993

George Smith, Alberta Land Surveyor

Witness



TARRAGON OIL AND GAS LIMITED



Highpine Oil And Gas Limited
Highpine Morningside 13-14-41-28 W4M
Surface Location: 13-14-41-28 W4M
Drilling Fluids Disposal Report / Gel Chem
September 25, 2005





WELL RECAP AND SUMMARY

OPERATOR	Highpine Oil And Gas Limited
WELL NAME AND LOCATION	Highpine Morningside 13-14-41-28 W4M
CONTRACTOR	Kinnell
RIG NUMBER	1
OPERATOR REPRESENTATIVE	Byron Christensen
CONTRACTOR TOOLPUSH	Steve Hann
ENVIRONMENTAL REPRESENTATIVE	Rick Jewers
SPUD DATE	September 25, 2005
SURFACE DRILL OUT DATE	September 27, 2005
DAYS TO TOTAL DEPTH	8
RIG RELEASE DATE	October 5, 2005
DAYS ON WELL	11

HOLE SIZE	INTERVAL	CASING SIZE	DEPTH SET @
251 mm	0m to 363m	219.6 mm	363m
159 mm	363m to 1877m	139.7 mm	1877m

USAGE

Hyperdrill	X	Gel	X
Alkapam		Kelzan XCD	
Barite	X	Lignite	X
Can Break		Lime	
Hec 10		Prima / Maxi Seal	
Poleflak		Newxan	X
Caustic Soda	X	SAPP	
Celloflake		Sawdust	
Defoamer		Soda Ash	X
Desco		Staflor	X
Detergent	X	Chem-Break EBS	
Drispac Reg.		K2	
Drispac SL		Starpak DP	
Envirofloc	X	T 2001	

WELL SUMMARY

WELLNAME: Highpine Morningside 13-14-41-28 W4M		LICENSE: 337338	
Surface Location: 13-14-41-28 W4M		AFE: 30285-9310-349	
OPERATOR: Highpine Oil And Gas Limited		RIG: Kinnell 1	
DATE: October 5, 2005			
TECHNICIAN: Rick Jewers			

LEASE INFORMATION		LEASE LAND DISPOSITION	
Lessor	Tony and Thelma Kamlah	Crown	
Address	RR#3, Site 3, Box 4, Lacombe, Ab., T4L2N3	Private	X
Lease Cond.	Dry	Forest Green	
Access cond.	Dry	Forest White	
Weather	Warm	Special Areas	
On site cement pit	Yes	Metis	
Shale pit	Pit / Tank	Reserve	
Fenced	No		
CURRENT LAND USAGE		Grass	

SPREADFIELD		ACCESS TO WATER	
Landowner	Tony and Thelma Kamlah	Crown	
Address	RR#3, Site 3, Box 4, Lacombe, Ab., T4L2N3	Private	X
Spread Fee to	Tony and Thelma Kamlah	Forest Green	
Spread Fee	\$ 1,000.00	Forest White	
		Special Areas	
		Metis	
Land Usage	Pasture	Loc	SW 25-41-28 W4M
Spreadfield Loc	NW 13-41-28 W4M	Description	Sleugh
		Access	Ian Ross
		Phone	403-782-2686

EQUIPMENT			
Vacuum Truck	Orion Vacuum Service	Billed direct to operator	
Driver	Ivan Paulson		
Phone	780-706-5853		
		Cost	Unit #
			Invoice #
			n/a
			n/a
		m ³ Total Volume LWD	260
		barrels	1632.8
		Hectares Used	15
		Acres Used	37.5
		m ³ Drilling Only	260
		Spread Rate in m ³ /ha	17.3

WELL INFORMATION	
Drilling Consultant	Byron Christensen
Phone #	403-852-3993
Vegtec Technician	Rick Jewers
Technician's Invoice	337338
24 Hour On Site	
Day Checks	
Per Section	x

REMARKS	
Drilled, logged and plugged.	



Well Name: Highpine Morningside 13-14-41-28 W4M
 Operator Company: Highpine Oil And Gas Limited
 Operator Rep: Byron Christensen

Drilling Company: Kinnell
 Rig #: 1
 Rig Manager: Steve Hann

Comprehensive Drilling Waste Data Sheet

Well Lic #: 0337338

Technician: Rick Jewers

Date	September 25, 2005	September 25, 2005	September 27, 2005	October 4, 2005
Assigned Volumes		30	100	130
Check	MAKE UP WATER	Surface	2	3
Depth		363m	368	1877
Fluid Type & or Activity	Water	Gel / Chem	Floccing Ahead	Cement Check
Viscosity	28	41	28	42
Density	1001	1040	1010	1060
Turbidity	Clear	Solid	Clear	Solid
Conductivity	0.53	1.62	5.7	5.60
Temperature	20.00	20.00	20	20
T factor	1	1	1	1
Temp corrected	1.00	20	20.00	20.00
TDS	371.00	1134	3990.00	3920.00
pH	6.50	11.00	9.00	9.00
Sample Temp	20.0	20.00	20.0	20.0
TO1 EDTA using 1 ml.	0.19	0.22	2.4	0.08
Total Hardness	76	88	960	32
Ca EDTA USING 1 ml.	0.17	0.22	2.16	0.07
Ca in mg/L	68	88	864	28
Mg by Diff in mg/L	8		96	4
Sodium Reading	34	47	18	1700
Na Dilution	1		1	1
Sample Temp	20	20.00	20.0	20.0
Conc of Na	34	47	18	1700
Chlorides Pipet reading	0.13	0.15	0.2	0.24
Conc of K	0.1	0.1	0.1	0.1
Conc of SO4	0.1	0.1	0.1	0.1
Conc of Stable K	0.1	0.1		0.01
Conc of Cl	130	150	200	240
Nitrate N	0.001	0.001	0.001	0.001
Nitrate NO3				
Ammonia N	0.001	0.001	0.001	0.001
Ammonia NH3 N				
Ammonium NH4	0.0013	0.0013	0.0013	0.0013
SAR	1.04	1.38	0.16	79.59
Dry Bulk Wgt	1.6	64.2	16.1	96.4
TDS mg/kg dried solids	230860	17224	246928	39200
TDS mass in kg		33.2	396.6	491.1
TDS max rate in m3/ha	4852.0	1625.8	453.6	476.2
TDS max rate Final	20	20	20	20
TDS kg/ha	7.42	22.13	79.32	75.33
K+ mg/kg dried solids	62.23	1.52	6.19	1.00
K+ mass in kg		0.00	0.01	0.01
K+ max rate in m3/ha	10996664.65	11263043.48	11057012.20	11404716.98
K+ max rate Final	20.00	20.00	20.00	20.00
K+ kg spread/ha	0.00	0.00	0.00	0.00
SO4 mg/kg in dried solids	62.23	1.52	6.19	1.00
SO4 mass in kg		0.00	0.01	0.01
SO4 max rate in m3/ha	890539.72	912111.80	895426.83	923584.91
SO4 max rate Final	20.00	20.00	20.00	20.00
SO4 kg spread/ha	0.002	0.002	0.002	0.002
Cl mg/kg in dried solids	80894.34	2278.30	12377.36	2400.00
Cl mass in kg		4.39	19.88	30.07
Cl max rate in m3/ha	3071.09	2726.09	2007.16	1725.24
Cl	20.00	20.00	20.00	20.00
Cl kg spread/ha	2.60	2.93	3.98	4.63
Na mg/kg in dried solids	21157	714	1114	17000
Na mass in kg		1.38	1.79	212.96
Na max rate in m3/ha	7527.97	5429.30	13917.68	132.00
Na max rate Final	20	20	20	20
Na kg spread/ha	0.7	0.9	0.4	32.8
Salt Content	214.5	247.5	330	396
MAX SPREAD RATE	20	20	20	20

Highpine Oil And Gas Limited
Highpine Morningside 13-14-41-28 W4M

Well Lic # 0337338

Vac Truck Co. Orion Vacuum Service
Driver Ivan Paulson
Phone (780) 706-5853

LANDOWNER Tony and Thelma Kamlah
ADDRESS RR#3, Site 3, Box 4, Lacombe, Ab., T4L2N3
PHONE 403-782-4194

DATE	LOADS	VOLUME IN m3	TAKEN FROM	SPREAD RATE	HOLE SECTION	HECTARES USED
27-Sep-05	3	30	Pit & Tanks	17.33	Surface	1.7
28-Sep-05	4	40	Pit & Tanks	17.33	Floc	2.3
29-Sep-05	6	60	Pit & Tanks	17.33	Floc	3.5
30-Sep-05	4	40	Pit & Tanks	17.33	Mud	2.3
1-Oct-05	5	50	Pit & Tanks	17.33	Mud	2.9
4-Oct-05	4	40	Pit & Tanks	17.33	Mud	2.3
						15.0
TRUCK CAPACITY IN m3		10 m^3				

OBSERVATION	
CONDITIONS	Dry
FLOTATION TIRES	Yes
CEMENT PIT?	Yes
SHALE PIT?	Yes
SHALE SLOOP?	Tank

SPREADFIELD STATUS	
PRIVATE	X
PUBLIC	
CROWN	
GREEN	
WHITE	
METIS	

TOTAL LAND USED IN HECTARES	15.0
-----------------------------	------

TOTAL VOLUME IN m3	260
--------------------	-----

SPREAD FIELD	NW 13-41-28 W4M	Slope < 1%
AVAILABLE	150 Acres	60 ha's



MAKE UP WATER INFORMATION	
Conductivity	0.53 dS/m
TDS	371.0
pH	6.5
Chlorides	130.0 mg/L
Sodium	34.0 mg/L
Total Hardness	76.0 mg/L
Calcium	68.0 mg/L
Magnesium	8.0 mg/L
SAR	1.04

Hauled Between:	9/25/2005	10/5/2005
-----------------	-----------	-----------

TRUCK CAPACITY IN m3	16
----------------------	----

BOILER	
To Dedicated Holding Pit	
TOTAL VOLUME SPREAD IN m3	260



DRILLING WASTE MANAGEMENT

Lease Report & LWD Notations

Company:	Highpine Oil And Gas Limited
Well Licence #:	0337338
Well Name & Location:	Highpine Morningside 13-14-41-28 W4M
Surface / Pad Location:	13-14-41-28 W4M
Location of Spreadfield:	NW 13-41-28 W4M
Condition of Lease:	Dry
Condition of Access:	Dry
Total Volume LWD (m3):	260 m3
Additional Comments:	Cement Isolated in Pit
	Drilled, logged and ran plugs.
Analysis Conducted:	During the Drilling of the Well. Receiving Soils Analyzed Prior to Landspray Operations.
Water Table:	Established in area by construction >4m.
Cement Pit:	Cement 5.0 m3
Flare Pit:	Tank
Shale Pit:	Tank / Sloop Emptied
Drilling Waste Samples:	Surface, Floc, Main Hole. As per EUB / G-50 / LWD
*Note:	All samples are composites. All volumes include consideration for partial loads.

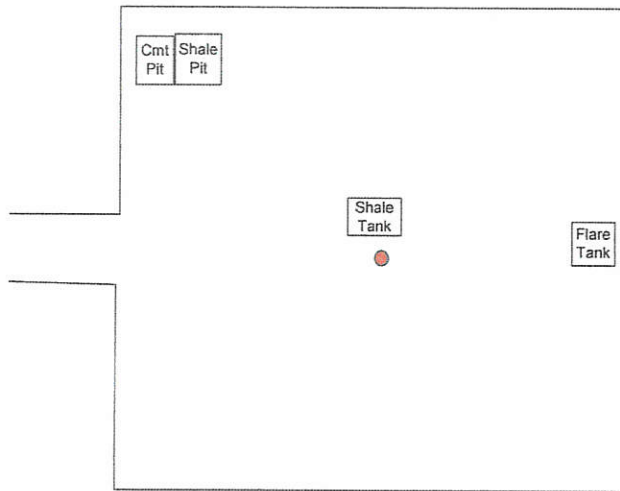


WELL SITE DIAGRAM
LEASE DIAGRAM

Company:
Well Name & Location:

Highpine Oil And Gas Limited
Highpine Morningside 13-14-41-28 W4M

N↑



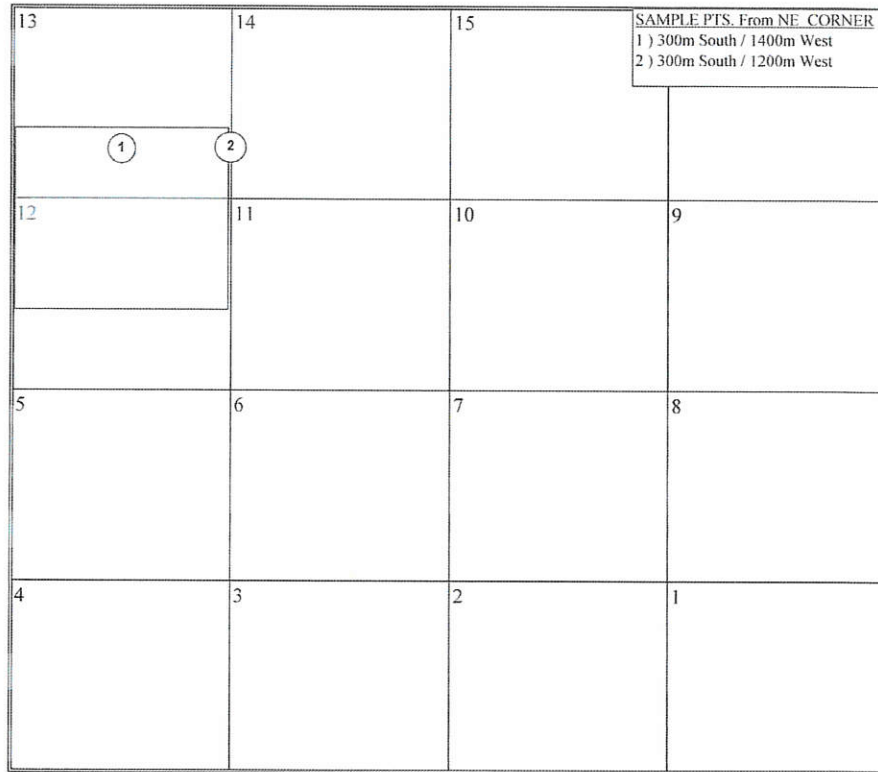
DRILLING MANAGEMENT SITE DIAGRAM
POST-LANDSPRAY WHILE DRILLING SKETCH



Highpine Oil And Gas Limited
Highpine Morningside 13-14-41-28 W4M

License
0337338

N↑



Landspray Location:

NW 13-41-28 W4M

Length of spread
Width Adj. Estimate

375 m
400 m
15.0

Soil Type Sandy / Clay
Soil Usage: Pasture
S.Samples 2 sets

Hectares used 15.0
Slope < 1%
Water Bodies No

Mud Type Gel/Chem

Volume Spread 260 m³
Spread Rate 17.33 m³/ha

OFF-SITE DISPOSAL LOCATION ----- (REFERENCED FROM THE NORTH EAST CORNER OF THE SECTION)								
WITHIN					Section	Township	Range	Meridian
NE corner	250 m	South	1200 m	West	13	41	28	4
SW corner	625 m	South	1600 m	West	13	41	28	4

[illegible]

[illegible]

CHIMO ETS SOFTWARE VERSION:



Chimo Equipment
A Varco Company

Based on the CADO ETS file standard

DATE: 27-Sep-2005

WELL TYPE: RE-SERIAL

WELL NO: 27

WELL NAME: HOLEPINE MORNSD 13-14-41-28

WELL STATUS: OPEN

WELL LOCATION: HOLEPINE MORNSD 13-14-41-28

WELL OPERATOR: HOLEPINE MORNSD 13-14-41-28

WELL CONTRACTOR: HOLEPINE MORNSD 13-14-41-28

WELL DRILLER: HOLEPINE MORNSD 13-14-41-28

WELL LOG: HOLEPINE MORNSD 13-14-41-28

WELL LOG NO: HOLEPINE MORNSD 13-14-41-28

WELL LOG DATE: HOLEPINE MORNSD 13-14-41-28

WELL LOG TIME: HOLEPINE MORNSD 13-14-41-28

WELL LOG BY: HOLEPINE MORNSD 13-14-41-28

WELL LOG FOR: HOLEPINE MORNSD 13-14-41-28

WELL LOG OF: HOLEPINE MORNSD 13-14-41-28

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WELL LOG FOR: HOLEPINE MORNSD 13-14-41-28

ETS SERIAL NUMBER: KINN_20050827_1A

CHIMO ETS SOFTWARE VERSION:

[illegible]

TIME HRS

STARTING TIME		STOPPING TIME		BIT RECORD		MUD RECORD	
DATE	TIME	DATE	TIME	TIME	TIME	TIME	TIME
2025-09-25	17:00						
HOLE DEPTH		HOLE DEPTH		HOLE DEPTH		HOLE DEPTH	
1037.728		1037.728		1037.728		1037.728	

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

METERS DRILLED

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

TIME LOG

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
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DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
2025-09-25	17:00						
1037.728		1037.728		1037.728		1037.728	

DETAILS OF OPERATIONS IN SINKHOLE AND REMARKS

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CHIMO ETS SOFTWARE VERSION

[illegible]



Based on the CAODC ETS file standard

WELL TYPE: VERTICAL DATE: 05-Oct-2005

WELL NAME: HIGH PINE MONROD 13-14-1-28

WELL NO: 1

WELL STATUS: 1

WELL DEPTH: 1100

WELL DIRECTION: 1

WELL DIRECTION: 1

WELL DIRECTION: 1

WELL DIRECTION: 1

WELL DIRECTION: 1

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Form containing various sections: TIME-HRS, BIT RECORD, MUD RECORD, METER DRILLED, DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS, SECOND TOUR, and CREW SCHEDULE. Includes data for well parameters, drilling progress, and crew assignments.

June 24, 2010

Daylight Energy Ltd.
Sun Life Plaza, West Tower
Suite 2100, 144 - 4th Avenue SW
Calgary, Alberta T2P 3N4



Attention: Jeff Wilton, B.Sc.
Manager, Construction & Environment

Dear Mr. Wilton:

Re: 13-14-41-28W4M – Potential Cement Pit Search

SNL Environmental Consulting Ltd. (S.N.L.) was retained by Daylight Energy Ltd. (Daylight) to conduct an intrusive investigation in order to ensure that 1 meter of sufficient cover is located over the potential cement pit area at the above referenced site (the "Site"). The investigation on the Site was conducted on September 18th 2009. This letter report documents the methods and findings of the intrusive investigation activities conducted to date by S.N.L. with the primary objective of locating the physical presence of the potential cement pit area.

Six boreholes (S09-01 through S09-06) were advanced at the Site (Appendix IV). One borehole (S09-C01) was advanced within the southwest portion of the Site to represent background soil condition. Two boreholes (S09-01 and S09-02) were advanced in the vicinity of well center. Soil samples were collected for detailed salinity, metals, hydrocarbon and soil grain size analysis. All analyzed parameters were below their respective regulatory guidelines (Alberta Environment. 2007a. Alberta Tier 1 Soil and Groundwater Remediation Guidelines) are outlined in Appendix III. Headspace field screening on the collected samples detected OVA hydrocarbon readings less than 100ppm; consequently, only one sample (the sample with the highest OVA reading) was selected for Alberta Tier 1 hydrocarbons. Three boreholes were advanced northwest of well center and one borehole was advanced east of well center as probable locations of a potential cement pit area (Appendix IV). The soil profiles of boreholes S09-03 through S09-06 were consistent with the background boreholes soil profile; consequently, no samples were collected for laboratory analysis. All collected samples were submitted to Access Analytical

S.N.L. Environmental Consulting Ltd.

Unit I, 7882 Edgar Industrial Way, Red Deer, Alberta T4P 3R2 P: 403.352.1856 F: 403.358.3032 E: lorne.bates@snlconsulting.ca

Laboratories Inc. located in Calgary, Alberta for analyses.



Based on the results of the potential cement pit investigation, it can be inferred that no cement pit could be identified on the Site. Additionally, the results for all collected and analyzed parameters were determined to be below their respective regulatory guidelines.

Attached are the appendixes.

We trust this meets your current requirements. Should you have any questions or concerns please call the undersigned at 403.597.0804 or Lorne Bates at 403.352.1856.

Respectfully submitted,
S.N.L Environmental Consulting Ltd.

A handwritten signature in cursive script, appearing to read 'Nicole Johnson', is located below the typed name.

Nicole Johnson, B.App.Sc.
Environmental Consultant

Reviewed By:

Dr. Roger Saint Fort, P.Ag.
Environmental Scientist

Attachments:

- Appendix I: Soil Assessment Methods
- Appendix II: Soil Borehole Logs
- Appendix III: Tables & Laboratory Data Report
- Appendix IV: Site Sketch & Site Photos

APPENDIX I
SOIL ASSESSMENT METHODS

APPENDIX I: SOIL ASSESSMENT METHODS

All boreholes were advanced using a truck or track-mounted auger system. The solid stem augers used for sampling were six inches in diameter. The following sampling methodology was utilized for all soil sampling:

- Ensure all ground disturbance codes of practice have been adhered to;
- inspect drill rig augers for cleanliness and in good condition;
- drill rig operator is instructed were to begin drilling by site supervisor or designate;
- prior to obtaining a soil sample, sterile Nitrile/Latex gloves are donned;
- visual observations made regarding soil type/texture, structure, moisture content (depth to water table), etc. and logged in supervisors log book;
- discreet sample intervals identified on the drill auger i.e.) 0.5-0.75 m below ground surface;
- identified soil samples removed from auger using stainless steel soil knife and placed directly into laboratory provided zero headspace/Teflon lined (lid) jars for hydrocarbon samples and directly into laboratory supplied soil bags for organic vapour analysis (OVA), salinity and or total metals analyses;
- hydrocarbon sample jars placed directly on ice in cooler to preserve sample integrity;
- OVA sample bags placed in warm {(i.e.) truck} environment to ensure hydrocarbon volatilization and equalization;
- ensure OVA instrument has been recently calibrated and should be calibrated at the beginning of each work day or new site location;
- ensure methane response mode is disengaged on OVA instrument;
- place OVA probe in soil bag and wait until concentration has stabilized, record measurement in log book;
- sample bags packed on ice prior to shipment to certified laboratory for analyses;
- once the soil auger has been logged and the samples removed, instruction to advance the borehole may be given to the drill operator from the supervisor;
- an effort is made to ensure vertical delineation of impacts while drilling i.e.) obtain a clean sample at the bottom of the drill depth for each borehole; and
- once the borehole is completed, instruction is given by the supervisor to backfill the borehole, bentonite chips are used to backfill each borehole.

APPENDIX II
SOIL BOREHOLE LOGS

CLIENT HIGHPINE		Project #: 13-14-41-28 W4M		BOREHOLE: S09-01				
PROJECT Assessment at 13-14-41-28 W4M				ELEVATION: n/a				
BOREHOLE LOCATION N 52.53446° W 113.93725°				DATUM: n/a				
DRILLER Git R Down Drilling		DATE DRILLED September 18 2009		TOP OF CASING: n/a				
DRILLING SUPERVISED BY Nicole Johnson				MEASURING PT: n/a				
DRILLING METHOD 4 inch solid stem auger				MINOR COMPONENTS AND 35%-50% ___ Y 20%-35% SOME 10%-20% TRACE 1%-10%				
MONITORING WELL DATA				 Well Screen  Water level  Elev. m  year/month/day  Gas monitor screen  Vapour reading  year/month/day				
-PIPE: n/a				Sample type				
-SCREEN: n/a				SS - Split Spoon Sample				
-OTHER: n/a				WA - Wash Sample				
				AU - Auger Sample				
				CN - Continuous Sampler				
				RX - Rock Core				
				GS - Grab Sample				
SAMPLE								
DEPTH (m)	Soil Description	Start Plot	Depth Scale		Monitoring Details	ID	TYPE	SAMPLE STORAGE
			(ft)	(m)	EC (dS/m)	OVA (ppm)		
0.0-0.45	Loam, dark brown-black, friable, moderate moisture, lots of roots, coarse fragments, admixed organic odor, no HC's.		1			35	S09-01 (0.0-0.2 m)	AU BAG/JAR
0.45-1.5	Sand, light brown-grey, admixed with some clay, moderate moisture, very friable, Fe streaks, no HC's.		2	0.5				
			3	1.0				
			4			10	S09-01 (1.3-1.5 m)	AU BAG/JAR
1.5-3.0	Sandy Clay, light brown, common sand pockets, coal flecks, Fe flecks, rocks, moist, friable, native/undisturbed, no HC's.		5	1.5				
			6	2.0				
			7	2.5		0	S09-01 (2.0-2.2 m)	AU BAG/JAR
			8					
			9	3.0				
	End of borehole at 3.0 m. Backfilled with cuttings		10	3.5				
			11	4.0				
			12	4.5				
			13	5.0				
			14	5.5				
			15	6.0				
			16	6.5				
			17	7.0				
			18					
			19					
			20					
			21					
			22					
PREPARED BY: Nicole Johnson		CHECKED BY: Lorne Bates		DATE PREPARED: February				

CLIENT HIGHPINE		Project #: 13-14-41-28 W4M		BOREHOLE: S09-02				
PROJECT Assessment at 13-14-41-28 W4M				ELEVATION: n/a				
BOREHOLE LOCATION N 52.53443° W 113.93724°				DATUM: n/a				
				TOP OF CASING: n/a				
				MEASURING PT: n/a				
DRILLER Git R Down Drilling		DATE DRILLED September 18 2009		MINOR COMPONENTS AND 35%-50% ___ Y 20%-35% SOME 10%-20% TRACE 1%-10%				
DRILLING SUPERVISED BY Nicole Johnson				 Well Screen  Water level  Elev. m  year/month/day  Gas monitor screen  Vapour reading  year/month/day				
DRILLING METHOD 4 inch solid stem auger				Sample type SS - Split Spoon Sample WA - Wash Sample AU - Auger Sample CN - Continuous Sampler RX - Rock Core GS - Grab Sample				
MONITORING WELL DATA -PIPE: n/a -SCREEN: n/a -OTHER: n/a								
SAMPLE								
DEPTH (m)	Soil Description	Start Plot	Depth Scale	Monitoring Details		ID	TYPE	SAMPLE STORAGE
			(ft) (m)	EC (dS/m)	OVA (ppm)			
0.0-0.5	Loam, dark brown-black, friable, moderate moisture, lots of roots, coarse fragments, admixed organic odor, no HC's.		1 0.5		35	S09-02 (0.0-0.2 m)	AU	BAG/JAR
0.5-0.7	Transition zone, rocks present		2					
0.7-1.5	Silty clay, light brown-grey, admixed with some sand, large silt pockets, friable, moderate moisture, coarse fragments, no HC's.		3 1.0					
			4		15	S09-02 (1.3-1.5 m)	AU	BAG/JAR
1.5-3.0	Sandy Clay, light brown, common sand pockets, coal flecks, Fe flecks, rocks, moist, friable, native/undisturbed, no HC's.		5 1.5					
			6 2.0					
			7 2.5		0	S09-02 (2.0-2.2 m)	AU	BAG/JAR
			8 3.0					
			9 3.5					
			10 4.0					
			11 4.5					
			12 5.0					
			13 5.5					
			14 6.0					
			15 6.5					
			16 7.0					
	End of borehole at 3.0 m. Backfilled with cuttings							
PREPARED BY: Nicole Johnson CHECKED BY: Lorne Bates DATE PREPARED: February								

CLIENT HIGHPINE		Project #: 13-14-41-28 W4M		BOREHOLE: S09-03		
PROJECT Assessment at 13-14-41-28 W4M				ELEVATION: n/a		
BOREHOLE LOCATION N 52.53448° W 113.93645°				DATUM: n/a		
				TOP OF CASING: n/a		
				MEASURING PT: n/a		
DRILLER Git R Down Drilling		DATE DRILLED September 18 2009		MINOR COMPONENTS AND 35%-50% Y 20%-35% SOME 10%-20% TRACE 1%-10%		
DRILLING SUPERVISED BY Nicole Johnson				 Well Screen  Water level  Elev. m  year/month/day  Gas monitor screen  Vapour reading  year/month/day		
DRILLING METHOD 4 inch solid stem auger				Sample type SS - Split Spoon Sample WA - Wash Sample AU - Auger Sample CN - Continuous Sampler RX - Rock Core GS - Grab Sample		
MONITORING WELL DATA				SAMPLE		
-PIPE: n/a				ID		
-SCREEN: n/a				TYPE		
-OTHER: n/a				SAMPLE STORAGE		
DEPTH (m)	Soil Description	Start Plot	Depth Scale		Monitoring Details	
			(ft)	(m)	EC (dS/m)	OVA (ppm)
0.0-0.4	Loam, dark brown-black, friable, moderate moisture, lots of roots, coarse fragments, admixed organic odor, no HC's.		1			
0.4-2.2	Silty clay, light brown-grey, admixed with some sand, large silt pockets, friable, moderate moisture, coarse fragments, no HC's.		2	0.5		
			3	1.0		
			4			
			5	1.5		
			6			
2.2-3.0	Sandy Clay, light brown, common sand pockets, coal flecks, Fe flecks, rocks, moist, friable, native/undisturbed, no HC's.		7	2.0		
			8	2.5		
			9			
	End of borehole at 3.0 m. Backfilled with cuttings		10	3.0		
			11	3.5		
			12			
			13	4.0		
			14			
			15	4.5		
			16	5.0		
			17			
			18	5.5		
			19			
			20	6.0		
			21	6.5		
			22			
				7.0		
PREPARED BY: Nicole Johnson		CHECKED BY: Lorne Bates		DATE PREPARED: February		

CLIENT <u>HIGHPINE</u>		Project #: <u>13-14-41-28 W4M</u>		BOREHOLE: S09-04					
PROJECT <u>Assessment at 13-14-41-28 W4M</u>				ELEVATION: <u>n/a</u>					
BOREHOLE LOCATION <u>N 52.53481° W 113.93785°</u>				DATUM: <u>n/a</u>					
				TOP OF CASING: <u>n/a</u>					
				MEASURING PT: <u>n/a</u>					
DRILLER <u>Git R Down Drilling</u>		DATE DRILLED <u>September 18 2009</u>		MINOR COMPONENTS AND 35%-50% <u>Y</u> 20%-35% SOME 10%-20% TRACE 1%-10%					
DRILLING SUPERVISED BY <u>Nicole Johnson</u>									
DRILLING METHOD <u>4 inch solid stem auger</u>				 Well Screen  Water level  Elev. m  year/month/day  Gas monitor screen  Vapour reading  year/month/day					
MONITORING WELL DATA									
-PIPE: <u>n/a</u>				Sample type					
-SCREEN: <u>n/a</u>				SS - Split Spoon Sample					
-OTHER: <u>n/a</u>				WA - Wash Sample					
				AU - Auger Sample					
				CN - Continuous Sampler					
				RX - Rock Core					
				GS - Grab Sample					
SAMPLE									
DEPTH (m)	Soil Description	Start Plot	Depth Scale		Monitoring Details		ID	TYPE	SAMPLE STORAGE
			(ft)	(m)	EC (dS/m)	OVA (ppm)			
0.0-0.5	Loam, dark brown-black, friable, moderate moisture, lots of roots, coarse fragments, admixed organic odor, no HC's.		1						
0.5-0.8	CL, grey, friable, moderate moisture, white precipitates, no HC's.		2	0.5					
0.8-1.5	Clay - sandy clay, light brown-grey, friable, moist, coarse fragments, plastic, native/undisturbed, no HC's.		3	1.0					
			4						
	End of borehole at 1.5 m. Backfilled with cuttings		5	1.5					
			6						
			7	2.0					
			8						
			9	2.5					
			10						
			11	3.0					
			12						
			13	3.5					
			14						
			15	4.0					
			16						
			17	4.5					
			18						
			19	5.0					
			20						
			21	5.5					
			22						
				6.0					
				6.5					
				7.0					
PREPARED BY: <u>Nicole Johnson</u>		CHECKED BY: <u>Lorne Bates</u>		DATE PREPARED: <u>February</u>					

CLIENT HIGHPINE		Project #: 13-14-41-28 W4M		BOREHOLE: S09-05				
PROJECT Assessment at 13-14-41-28 W4M				ELEVATION: n/a				
BOREHOLE LOCATION N 52.53483° W 113.93778°				DATUM: n/a				
				TOP OF CASING: n/a				
				MEASURING PT: n/a				
DRILLER Git R Down Drilling		DATE DRILLED September 18 2009		MINOR COMPONENTS AND 35%-50% Y 20%-35% SOME 10%-20% TRACE 1%-10%				
DRILLING SUPERVISED BY Nicole Johnson				 Well Screen  Water level  Elev. m  year/month/day  Gas monitor screen  Vapour reading  year/month/day				
DRILLING METHOD 4 inch solid stem auger				Sample type SS - Split Spoon Sample WA - Wash Sample AU - Auger Sample CN - Continuous Sampler RX - Rock Core GS - Grab Sample				
MONITORING WELL DATA								
-PIPE: n/a								
-SCREEN: n/a								
-OTHER: n/a								
SAMPLE								
DEPTH (m)	Soil Description	Start Plot	Depth Scale		Monitoring Details	ID	TYPE	SAMPLE STORAGE
			(ft)	(m)	EC (dS/m)	OVA (ppm)		
0.0-0.5	Loam, dark brown-black, friable, moderate moisture, lots of roots, coarse fragments, admixed organic odor, no HC's.		1	0.5				
0.5-0.8	CL, grey, friable, moderate moisture, white precipitates, no HC's.		2					
0.8-1.5	Clay - sandy clay, light brown-grey, friable, moist, coarse fragments, plastic, native/undisturbed, no HC's.		3	1.0				
			4					
	End of borehole at 1.5 m. Backfilled with cuttings		5	1.5				
			6	2.0				
			7					
			8	2.5				
			9					
			10	3.0				
			11	3.5				
			12					
			13	4.0				
			14					
			15	4.5				
			16	5.0				
			17					
			18	5.5				
			19					
			20	6.0				
			21	6.5				
			22					
				7.0				
PREPARED BY: Nicole Johnson		CHECKED BY: Lorne Bates		DATE PREPARED: February				

CLIENT HIGHPINE		Project #: 13-14-41-28 W4M		BOREHOLE: S09-06					
PROJECT Assessment at 13-14-41-28 W4M				ELEVATION: n/a					
BOREHOLE LOCATION N 52.53492° W 113.93773°				DATUM: n/a					
				TOP OF CASING: n/a					
				MEASURING PT: n/a					
DRILLER Git R Down Drilling		DATE DRILLED September 18 2009		MINOR COMPONENTS					
DRILLING SUPERVISED BY Nicole Johnson				AND 35%-50%					
DRILLING METHOD 4 inch solid stem auger				☐ Y 20%-35%					
				SOME 10%-20%					
				TRACE 1%-10%					
MONITORING WELL DATA -PIPE: n/a -SCREEN: n/a -OTHER: n/a		Well Screen Water level Elev. m year/month/day Gas monitor screen Vapour reading year/month/day		Sample type SS - Split Spoon Sample WA - Wash Sample AU - Auger Sample CN - Continuous Sampler RX - Rock Core GS - Grab Sample					
SAMPLE									
DEPTH (m)	Soil Description	Start Plot	Depth Scale		Monitoring Details		ID	TYPE	SAMPLE STORAGE
			(ft)	(m)	EC (dS/m)	OVA (ppm)			
0.0-0.5	Loam, dark brown-black, friable, moderate moisture, lots of roots, coarse fragments, admixed organic odor, no HC's.		1						
0.5-0.8	CL, grey, friable, moderate moisture, white precipitates, no HC's.		2	0.5					
0.8-1.5	Clay - sandy clay, light brown-grey, friable, moist, coarse fragments, plastic, native/undisturbed, no HC's.		3	1.0					
	End of borehole at 1.5 m. Backfilled with cuttings		4						
			5	1.5					
			6						
			7	2.0					
			8	2.5					
			9						
			10	3.0					
			11	3.5					
			12						
			13	4.0					
			14						
			15	4.5					
			16	5.0					
			17						
			18	5.5					
			19						
			20	6.0					
			21	6.5					
			22						
				7.0					
PREPARED BY: Nicole Johnson		CHECKED BY: Lorne Bates		DATE PREPARED: February					

CLIENT HIGHPINE		Project #: 13-14-41-28 W4M		BOREHOLE: S09-C01					
PROJECT Assessment at 13-14-41-28 W4M				ELEVATION: n/a					
BOREHOLE LOCATION N 52.53452° W 113.93804°				DATUM: n/a					
DRILLER Git R Down Drilling		DATE DRILLED September 18 2009		TOP OF CASING: n/a					
DRILLING SUPERVISED BY Nicole Johnson				MEASURING PT: n/a					
DRILLING METHOD 4 inch solid stem auger				MINOR COMPONENTS AND 35%-50% ___Y 20%-35% SOME 10%-20% TRACE 1%-10%					
MONITORING WELL DATA				 Well Screen  Water level  Elev. m year/month/day  Gas monitor screen Vapour reading year/month/day					
-PIPE: n/a				Sample type					
-SCREEN: n/a				SS - Split Spoon Sample					
-OTHER: n/a				WA - Wash Sample					
				AU - Auger Sample					
				CN - Continuous Sampler					
				RX - Rock Core					
				GS - Grab Sample					
SAMPLE									
DEPTH (m)	Soil Description	Start Plot	Depth Scale		Monitoring Details		ID	TYPE	SAMPLE STORAGE
			(ft)	(m)	EC (dS/m)	OVA (ppm)			
0.0-0.4	Loam, dark brown-black, friable, moderate moisture, lots of roots, organic odor, no HC's.					40	S09-C01 (0.0-0.2 m)	AU	BAG
0.4-0.7	CL, grey, friable, moderate moisture, white precipitates, no HC's.		1	0.5		15	S09-C01 (0.5-0.7 m)	AU	BAG
0.7-1.3	Clay - sandy clay, light brown-grey, friable, moist, coarse fragments, plastic, no HC's.		2						
			3	1.0		5	S09-C01 (1.0-1.2 m)	AU	BAG
1.3-1.6	Sand, light brown-grey, moist, friable, no HC's.		4			0	S09-C01 (1.3-1.5 m)	AU	BAG
			5	1.5					
1.6-3.8	Sandy Clay, light brown, gleyed, silt pockets, common sand pockets, coal flecks, Fe flecks, white precipitates, rocks, very moist, very friable,		6						
			7	2.0		0	S09-C01 (2.0-2.2 m)	AU	BAG
			8	2.5					
			9						
			10	3.0		0	S09-C01 (3.0-3.2 m)	AU	BAG
			11	3.5					
3.8-4.2	Silty clay, light brown-grey, large silt pockets, friable, moderate moisture-dry, common sand pockets, coarse fragments, no HC's.		12			5	S09-C01 (3.8-4.0 m)	AU	BAG
4.2-4.5	Clay till, dark brown, friable, tight, rocks, coal flecks, Fe flecks, coarse fragments, white precipitates, sand pockets, silt pieces, no HC's.		13	4.0					
			14			0	S09-C01 (4.3-4.5 m)	AU	BAG
			15	4.5					
	End of borehole at 4.5 m. Backfilled with cuttings		16	5.0					
			17						
			18	5.5					
			19						
			20	6.0					
			21	6.5					
			22						
				7.0					
PREPARED BY: Nicole Johnson		CHECKED BY: Lorne Bates		DATE PREPARED: February					

APPENDIX III
LABORATORY DATA REPORTS

TABLE 1. SALINITY/SODICITY DATA FOR SOIL SAMPLES

Sample	Soil Depth (m)	Date	Saturation % (%)	EC (dS/m)	pH - Saturated Paste (units)	Sodium Adsorption Ratio (ratio)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Chloride (mg/L)	Sulphate (mg/L)
AENV (2007) Tier 1 Remediation Guidelines												
S09-01 S09-03	0.0-0.2	18-Sep-09	80.0	1.09	7.2	0.4	173	29	42	17	20.7	65
	2.0-2.2	18-Sep-09	50.0	0.52	7.6	1.2	27	6	3	19	7.5	39
NOTES:												
ND denotes parameter not detected.												
denotes value exceeds AENV Tier 1 Remediation Guidelines (2007): Agriculture/Natural End Land Use												

TABLE 2. HYDROCARBON DATA FOR SOIL SAMPLES

Sample	Soil Depth (m)	Date (d-m-y)	Physical Properties			Petroleum Hydrocarbons							
			Moisture (%W/W)	< 200 Mesh (%A/W)	> 200 Mesh (%A/W)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes-total (mg/kg)	F1 (C ₆ -C ₁₀)-BTX (mg/kg)	F2 (C ₁₀ -C ₁₆) (mg/kg)	F3 (C ₁₆ -C ₃₄) (mg/kg)	F4 (C ₃₄ -C ₅₀) (mg/kg)
AENV (2007) Tier I Remediation Guidelines Agricultural Area: Fine-grained			—	—	—	0.046	0.52	0.11	15	210	150	1,300	5,600
AENV (2007) Tier I Remediation Guidelines Agricultural Area: Coarse-grained			—	—	—	0.073	0.49	0.21	12	24	130	300	2,800
S09-01	0.0-0.2	18-Sep-09	12.5			<0.02	<0.02	<0.02	<0.02	<0.1	<10	59	94
S09-03	2.0-2.2	18-Sep-09	9.3			<0.02	<0.02	<0.02	<0.02	<0.1	<10	<10	<10
NOTES: ND denotes parameter not detected. — denotes parameter not analysed or not applicable. denotes value exceeds AENV Tier I Remediation Guidelines (2007): Agriculture Area Land Use													

TABLE 3. REGULATED METAL AND INORGANIC DATA FOR SOIL SAMPLES

Sample	Soil Depth (m)	Date (d-m-y)																			
			Arsenic:1 (mg/kg)	Barium:1 (mg/kg)	Barium (Extractable) (mg/kg)	Beryllium:1 (mg/kg)	Boron-Hot Water Soluble (mg/kg)	Cadmium:1 (mg/kg)	Chromium (HEX):1 (mg/kg)	Chromium:1 (mg/kg)	Cobalt:1 (mg/kg)	Copper:1 (mg/kg)	Lead:1 (mg/kg)	Mercury:1 (mg/kg)	Molybdenum:1 (mg/kg)	Nickel:1 (mg/kg)	Selenium:1 (mg/kg)	Thallium:1 (mg/kg)	Vanadium:1 (mg/kg)	Zinc:1 (mg/kg)	
AENV (2007) Alberta Tier 1 Remediation Guidelines Agricultural Area: fine-grained AENV (2007) Alberta Tier 1 Remediation Guidelines Agricultural Area: Coarse-grained AENV (2007) Alberta Tier 1 Remediation Guidelines Natural Area: fine-grained AENV (2007) Alberta Tier 1 Remediation Guidelines Natural Area: Coarse-grained			17	750		5.0	2.0	1.4	0.4	64.0	20.0	63.0	70	6.6	4	50	1	1	130	200	
			17	750		5.0	2.0	1.4	0.4	64.0	20.0	63.0	70	6.6	4	50	1	1	130	200	
			17	750		5.0	2.0	3.8	0.4	64.0	20.0	63.0	70	12	4	50	1	1	130	200	
			17	750	3200	5.0	2.0	3.8	0.4	64.0	20.0	63.0	70	12	4	50	1	1	130	200	
S09-01 S09-03	0.0-0.2 2.0-2.2	18-Sep-09 18-Sep-09	3.9 5.7	283 243	— —	<0.6 <0.6	1.7 0.2	0.3 0.2	— —	12.2 13.1	5.2 5.4	12.5 10.2	7.3 7.4	<0.5 <0.5	1 1	15.8 16.9	<0.5 <0.5	<0.5 <0.5	16.3 15.7	53.1 32.4	
	NOTES:																				
			--- denotes parameter not analyzed or not applicable. denotes value exceeds AENV Tier 1 Remediation Guidelines (2007); Agricultural Area Land Use for coarse-grained surface soils																		

**APPENDIX IV
SITE SURVEY**

Site Sketch

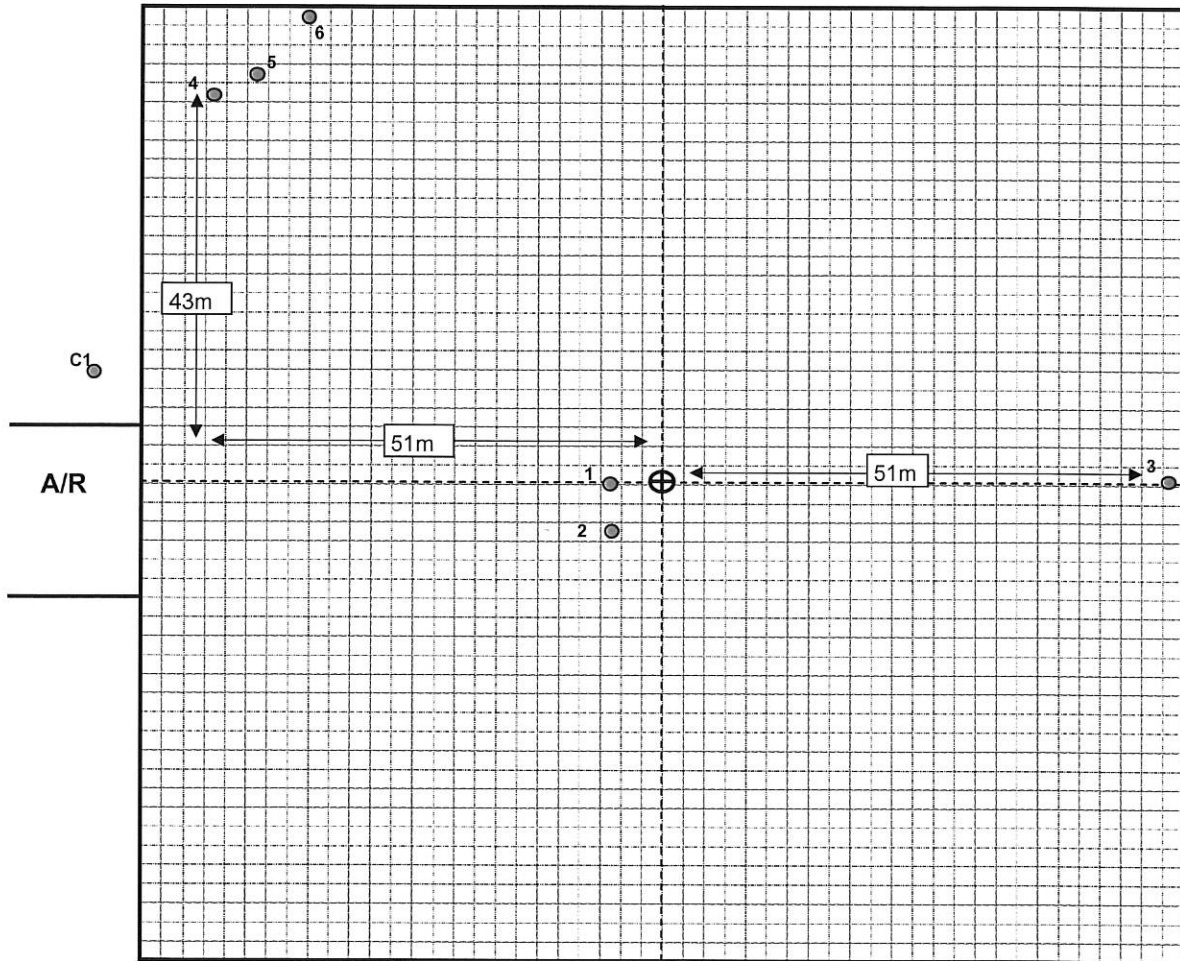
Client: HIGHPINE OIL & GAS LIMITED

Date: September 18 2009

Project #:

Project Name: Phase II Drilling

Location: 13-14-41-28W4M



LEGEND

- ⊕ = Well Center
- = 2m x 2m
- = Boreholes
- ↑ = Gradient Direction

Lease Dimentions
100m x 100m



Photo 1: View of north lease boundary from well center



Photo 2: View of east lease boundary from well center

13-14-41-28 W4M	Operator:	Highpine Oil & Gas Ltd.
	Reclamation Consultant:	S.N.L. Environmental Consulting Ltd.
	Photo Date: September 18 2009	Page: 1 of 2



Photo 3: View of south lease boundary from well center



Photo 4: View of west lease boundary from well center

13-14-41-28 W4M	Operator: Highpine Oil & Gas Ltd.	
	Reclamation Consultant: S.N.L. Environmental Consulting Ltd.	
	Photo Date: September 18 2009	Page: 2 of 2



Professional Declaration for Reclamation Certificate Applications

1. This Declaration is made in conjunction with an application for a reclamation certificate (the "Application") made by _____ (Applicant) for the following land(s): _____ (insert legal description).
2. I am a practicing professional member of the _____, which is a regulated professional organization (the "Professional Organization"). I have a minimum of five years verifiable experience in remediation or reclamation relevant to the Competencies Table contained in the *Competencies for Remediation and Reclamation Advisory Committee's Recommendations Report* (AENV 2006).
3. As a member of the Professional Organization, I have the ability to sign off on work required for reclamation certificate applications as defined by Alberta Environment and am authorized by the Applicant to prepare and submit the attached report(s) or document(s), entitled Phase II Environmental Site Assessment.
4. To the best of my knowledge and the best of my professional ability, recognizing the standard of care expected of a reasonable professional doing this work, it is my professional opinion that all the information contained in the Professional Report(s) is accurate and complete, and contains all the relevant information for the purposes of this Application.
5. The results reported in the Professional Report(s) are consistent with all current and applicable Provincial policy, criteria, standards and guidelines for the remediation or reclamation.
6. The Professional Report(s), including all attachments, data and supplemental information, were prepared by me, or under my direct supervision, or was prepared by a third party(ies) and has been reviewed and accepted by me; and was prepared in accordance with an appropriate quality assurance/quality control system that ensured qualified personnel properly gathered and evaluated all the information contained in and underlying the Professional Reports. All the information submitted is, to the best of my knowledge, true, accurate and complete.
7. I carry, or my employer (insert legal name of employer) carries professional liability insurance (errors and omissions). This insurance will be maintained for the specified liability period, subject to insurance availability.
8. I am aware that it is an offence under section 227 of the *Environmental Protection and Enhancement Act* to provide false, misleading or inaccurate information and that there are significant fines for committing these offences, including the possibility of imprisonment. See below for the relevant sections.

Date:

July 6/2010

Signature:

[Signature]

Registration/Member number:

3289

OR

Stamp/Seal:



Section 227 of the Environmental Protection and Enhancement Act

Offences s. 227 A person who

- (c) knowingly provides false or misleading information pursuant to a requirement under this Act to provide information,
- (d) provides false or misleading information pursuant to a requirement under this Act to provide information

is guilty of an offence.

Penalties s. 228(1) A person who commits an offence referred to in section 60, 87, 108(1), 109(1) or 227(a), (d), (f) or (h) is liable to

- (c) in the case of an individual, to a fine or not more than \$100,000 or to imprisonment for a period of not more than 2 years or to both fine and imprisonment, or
- (d) in the case of a corporation, to a fine of not more than \$1,000,000.

(2) A person who commits an offence referred to in section 61, 67, 75, 76, 79, 88, 108(2), 109(2) 110(1) or (2), 111, 112, 137, 148, 149, 155, 157, 163, 169, 170, 173, 176, 188, 191, 192, 209, 227(b), (c), (e), (g), or (i) or 251 is liable.

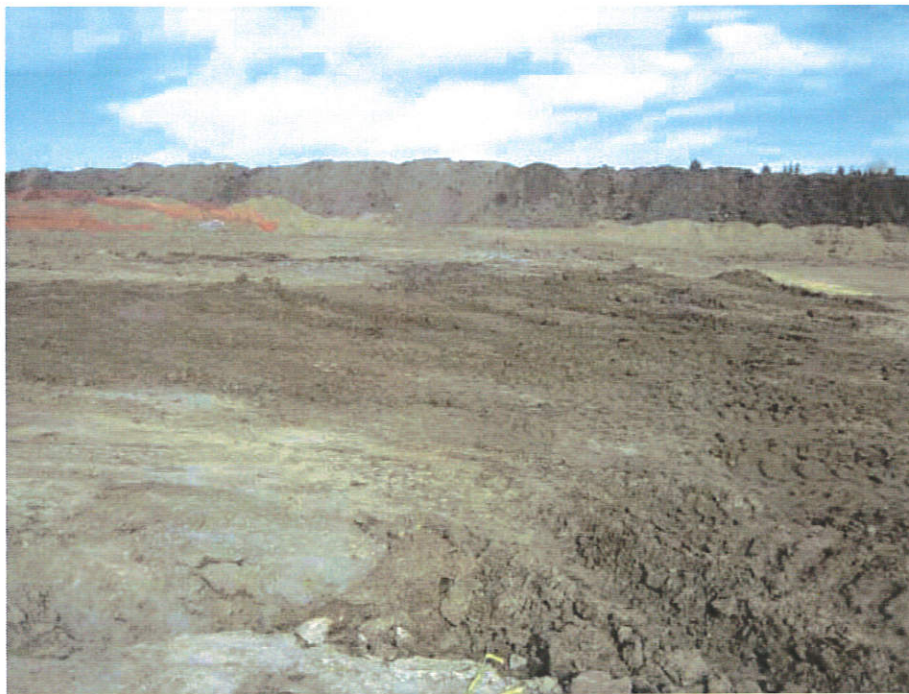
- (c) in the case of an individual, to a fine or not more than 450,000, or
- (d) in the case of a corporation, to a fine of not more than \$500,000.

HIGHPINE OIL & GAS LIMITED
Well Surface Abandonment – October 12, 2005

HIGHPINE MORNINGSIDE 00/13-14-041-28W4



Capped wellbore casings using Lionhead's triple security system



Backfilled

ENVIRONMENTAL LAW CENTRE

Suite 800, 10025 - 106 Street, Edmonton, AB T5J 1G4

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

March 31, 2014

Our File: 090312

Ms. Lexya Oulton
Parkland Geotechnical Consulting Ltd.
#102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Ms. Oulton:

RE: Search Requested - Chipmunk Drilling Co. Ltd.

In response to your request of March 27, 2014, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by Alberta Environment ("AENV"). AENV advises that they try to provide the best information possible. However, AENV advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents.

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

Suite 800, 10025 - 106 Street, Edmonton, AB T5J 1G4

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

March 31, 2014

Our File: 090313

Ms. Lexya Oulton
Parkland Geotechnical Consulting Ltd.
#102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Ms. Oulton:

RE: Search Requested - Lincoln Ranch Developments

In response to your request of March 27, 2014, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by Alberta Environment ("AENV"). AENV advises that they try to provide the best information possible. However, AENV advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents.

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

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Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

March 31, 2014

Our File: 090315

Ms. Lexya Oulton
Parkland Geotechnical Consulting Ltd.
#102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Ms. Oulton:

RE: Search Requested - Tony Elmer Kamlah

In response to your request of March 27, 2014, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by Alberta Environment ("AENV"). AENV advises that they try to provide the best information possible. However, AENV advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents.

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

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[Alberta.ca](#) > [Environment and Sustainable Resource Development](#) > [Authorization Viewer](#)

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- [Waste](#)
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Authorization Viewer - Search Results

The Search Used the Following Values:	
Legal Land Location:	NW 14-041-28-W4
Act / Document Type:	Water Act, EPEA
Show Inactive Authorizations:	Yes

The resulting Authorizations based on the search criteria will be displayed below. A  will appear next to the Authorization when documentation is available for viewing or downloading. Please click [Viewer Help](#) if you encounter problems viewing the Authorization document.

2 Result(s)

	Document 00291343-00-00 LINCOLN LAKESIDE DEVELOPMENTS WASTEWATER SYSTEM is held by 1510060 Alberta Ltd., under the provisions of the <i>Environmental Protection & Enhancement Act</i> . This Approval is currently issued as of Feb. 27, 2012 and expires on Feb. 15, 2022.
	Document 00291343-00-01 LINCOLN LAKESIDE DEVELOPMENTS WASTEWATER SYSTEM - WASTERWATER DISPOSAL VIA IRRIGATION is held by 1510060 Alberta Ltd., under the provisions of the <i>Environmental Protection & Enhancement Act</i> . This Approval is currently issued as of Oct. 26, 2012 and expires on Feb. 15, 2022.

Clear & Return

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Well Identification and Location										Measurement in Imperial	
Owner Name		Address		Town		Province		Country		Postal Code	
KAMLAH, W.H.		RR3, LACOMBE									
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description		
	NW	14	041	28	4						
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.532706 Longitude -113.933394					Elevation 2988.00 ft	
ft from					How Location Obtained					How Elevation Obtained	
					Map					Estimated	

Drilling Information	
Method of Drilling Rotary	Type of Work New Well
Proposed Well Use Domestic	

Formation Log			Measurement in Imperial
Depth from ground level (ft)	Water Bearing	Lithology Description	
40.00		Clay	
47.00		Shale	
90.00		Shale & Sandstone	
110.00	Yes	Water Bearing Sandstone	
130.00		Shale & Sandstone	

Yield Test Summary			Measurement in Imperial
Recommended Pump Rate			0.00 igpm
Test Date	Water Removal Rate (igpm)	Static Water Level (ft)	
1967/06/28	12.00	20.00	

Well Completion				Measurement in Imperial
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
130.00 ft			1967/06/28	
Borehole				
Diameter (in)	From (ft)	To (ft)		
0.00	0.00	130.00		
Surface Casing (if applicable)		Well Casing/Liner		
Unknown				
Size OD : 5.50 in		Size OD : 0.00 in		
Wall Thickness : 0.000 in		Wall Thickness : 0.000 in		
Bottom at : 47.00 ft		Top at : 0.00 ft		
		Bottom at : 0.00 ft		
Perforations				
From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length(in)	Hole or Slot Interval(in)
Perforated by				
Annular Seal				
Placed from 0.00 ft to 0.00 ft				
Amount				
Other Seals				
Type At (ft)				
Screen Type				
Size OD : 0.00 in				
From (ft)	To (ft)	Slot Size (in)		
Attachment				
Top Fittings		Bottom Fittings		
Pack				
Type		Grain Size		
Amount				

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name BROWN JIM	Copy of Well report provided to owner Date approval holder signed

Well Identification and Location										Measurement in Imperial	
Owner Name		Address		Town		Province		Country		Postal Code	
KAMLAH, W.H.		RR3, LACOMBE									
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description		
	NW	14	041	28	4						
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.532706 Longitude -113.933394					Elevation 2988.00 ft	
ft from					How Location Obtained					How Elevation Obtained	
					Map					Estimated	

Additional Information										Measurement in Imperial
Distance From Top of Casing to Ground Level in										
Is Artesian Flow										Is Flow Control Installed
Rate igpm										Describe
Recommended Pump Rate 0.00 igpm										Pump Installed
Recommended Pump Intake Depth (From TOC) 0.00 ft										Depth ft
										Type Make H.P. Model (Output Rating)
Did you Encounter Saline Water (>4000 ppm TDS)										Depth ft
Gas										Depth ft
										Well Disinfected Upon Completion
										Geophysical Log Taken
										Submitted to ESRD
Additional Comments on Well										Sample Collected for Potability
										Submitted to ESRD
DRILLER REPORTS MEDIUM HARD WATER.										

Yield Test				Taken From Ground Level	Measurement in Imperial
				Depth to water level	
Test Date	Start Time	Static Water Level		Drawdown (ft)	Elapsed Time
1967/06/28	12:00 AM	20.00 ft		Minutes:Sec	Recovery (ft)
Method of Water Removal					
Type Bailer					
Removal Rate 12.00 igpm					
Depth Withdrawn From 0.00 ft					
If water removal period was < 2 hours, explain why					

Water Diverted for Drilling		
Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well	Certification No
UNKNOWN NA DRILLER	1
Company Name	Copy of Well report provided to owner
BROWN JIM	Date approval holder signed

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 275029
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1935/08/06

Well Identification and Location										Measurement in Imperial	
Owner Name WILSON, A.		Address LACOMBE			Town		Province		Country		Postal Code
Location	1/4 or LSD NW	SEC 14	TWP 041	RGE 28	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.532706 Longitude -113.933394					Elevation 3000.00 ft	
ft from					How Location Obtained					How Elevation Obtained	
					Not Verified					Estimated	

Drilling Information	
Method of Drilling Unknown	Type of Work Federal Well Survey
Proposed Well Use Unknown	

Formation Log			Measurement in Imperial		
Depth from ground level (ft)	Water Bearing	Lithology Description			
			Yield Test Summary		
			Measurement in Imperial		
			Recommended Pump Rate igpm		
			Test Date	Water Removal Rate (igpm)	Static Water Level (ft)
			Well Completion		
			Measurement in Imperial		
			Total Depth Drilled Finished Well Depth Start Date End Date		
			85.00 ft		
			Borehole		
			Diameter (in) From (ft) To (ft)		
0.00 0.00 85.00					
Surface Casing (if applicable) Well Casing/Liner					
Size OD : 0.00 in Size OD : 0.00 in					
Wall Thickness : 0.000 in Wall Thickness : 0.000 in					
Bottom at : 0.00 ft Top at : 0.00 ft					
Bottom at : 0.00 ft					
Perforations					
Diameter or Slot Length(in) Hole or Slot Interval(in)					
From (ft)	To (ft)	Slot Width(in)			
Perforated by					
Annular Seal					
Placed from 0.00 ft to 0.00 ft					
Amount					
Other Seals					
Type At (ft)					
Screen Type					
Size OD : 0.00 in					
From (ft) To (ft) Slot Size (in)					
Attachment					
Top Fittings Bottom Fittings					
Pack					
Type Grain Size					
Amount					

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name UNKNOWN DRILLER	Copy of Well report provided to owner Date approval holder signed

Well Identification and Location										Measurement in Imperial	
<i>Owner Name</i> WILSON, A.		<i>Address</i> LACOMBE			<i>Town</i>		<i>Province</i>		<i>Country</i>		<i>Postal Code</i>
<i>Location</i>	<i>1/4 or LSD</i> NW	<i>SEC</i> 14	<i>TWP</i> 041	<i>RGE</i> 28	<i>W of MER</i> 4	<i>Lot</i>	<i>Block</i>	<i>Plan</i>	<i>Additional Description</i>		
<i>Measured from Boundary of</i>					<i>GPS Coordinates in Decimal Degrees (NAD 83)</i>					<i>Elevation</i> 3000.00 ft	
ft from					Latitude 52.532706 Longitude -113.933394					How Elevation Obtained	
ft from					How Location Obtained					Estimated	
Not Verified											

Additional Information										Measurement in Imperial	
<i>Distance From Top of Casing to Ground Level</i> in											
<i>Is Artesian Flow</i>										<i>Is Flow Control Installed</i>	
<i>Rate</i> igpm										<i>Describe</i>	
<i>Recommended Pump Rate</i> igpm										<i>Pump Installed</i>	
<i>Recommended Pump Intake Depth (From TOC)</i> ft										<i>Depth</i> ft	
<i>Type</i>										<i>Make</i> H.P.	
										<i>Model (Output Rating)</i>	
<i>Did you Encounter Saline Water (>4000 ppm TDS)</i>										<i>Depth</i> ft	
<i>Gas</i>										<i>Well Disinfected Upon Completion</i>	
<i>Depth</i> ft										<i>Geophysical Log Taken</i>	
										<i>Submitted to ESRD</i>	
<i>Additional Comments on Well</i>										<i>Sample Collected for Potability</i>	
OWNER REPORTS SOFT WATER.										<i>Submitted to ESRD</i>	

Yield Test			Taken From Ground Level		Measurement in Imperial	
<i>Test Date</i>	<i>Start Time</i>	<i>Static Water Level</i>	ft			
<i>Method of Water Removal</i>						
<i>Type</i>						
<i>Removal Rate</i> igpm						
<i>Depth Withdrawn From</i> ft						
<i>If water removal period was < 2 hours, explain why</i>						

Water Diverted for Drilling		
<i>Water Source</i>	<i>Amount Taken</i>	<i>Diversion Date & Time</i>
	ig	

Contractor Certification	
<i>Name of Journeyman responsible for drilling/construction of well</i>	<i>Certification No</i>
UNKNOWN NA DRILLER	1
<i>Company Name</i>	<i>Copy of Well report provided to owner</i> <i>Date approval holder signed</i>
UNKNOWN DRILLER	

Well Identification and Location										Measurement in Imperial	
Owner Name GIBBS, TIM		Address 512 HUNTERSTON BAY NW			Town CALGARY		Province ALBERTA		Country CANADA	Postal Code T2K 4N1	
Location	1/4 or LSD 13	SEC 14	TWP 41	RGE 28	W of MER 4	Lot	Block	Plan	Additional Description NORTH WELL - EAGLES NEST		
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.533230 Longitude -113.940360					Elevation 2948.00 ft	
ft from					How Location Obtained					How Elevation Obtained	
					Hand held autonomous GPS 20-30m					Hand held autonomous GPS 20-30m	

Drilling Information		Type of Work
Method of Drilling Rotary - Air		New Well
Proposed Well Use Domestic		

Formation Log			Measurement in Imperial
Depth from ground level (ft)	Water Bearing	Lithology Description	
20.00		Brown Sand	
51.00		Gray Clay	
66.00	Yes	Gray Sandstone	
90.00		Gray Shale	
123.00		Gray Sandstone	
130.00		Gray Shale	
182.00	Yes	Gray Sandstone	
206.00		Gray Shale	
231.00		Gray Sandstone	
250.00		Gray Shale	

Yield Test Summary			Measurement in Imperial
Recommended Pump Rate 5.00 igpm			
Test Date	Water Removal Rate (igpm)	Static Water Level (ft)	
2012/10/19	5.00	30.00	

Well Completion				Measurement in Imperial
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
250.00 ft	250.00 ft	2012/10/19	2012/10/19	

Borehole		
Diameter (in)	From (ft)	To (ft)
8.75	0.00	78.00
5.00	78.00	250.00

Surface Casing (if applicable)		Well Casing/Liner	
Plastic		Plastic	
Size OD :	6.00 in	Size OD :	4.50 in
Wall Thickness :	0.390 in	Wall Thickness :	0.214 in
Bottom at :	78.00 ft	Top at :	70.00 ft
		Bottom at :	250.00 ft

Perforations				
From (ft)	To (ft)	Diameter or Slot Width (in)	Slot Length (in)	Hole or Slot Interval (in)
150.00	170.00	0.500	12.00	

Perforated by Drill

Annular Seal	
Bentonite Chips/Tablets	
Placed from	0.00 ft to 78.00 ft
Amount	600.00 Pounds

Other Seals

Type	At (ft)
Drive Shoe	78.00

Screen Type		
Size OD :	in	
From (ft)	To (ft)	Slot Size (in)
Attachment		
Top Fittings	Bottom Fittings	

Pack	
Type	Grain Size
Amount	

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well LEONARD BLAIR	Certification No VA3129
Company Name BLACK DOG DRILLING & ENV SERV. LTD.	Copy of Well report provided to owner Yes
	Date approval holder signed 2012/10/19

Well Identification and Location										Measurement in Imperial	
Owner Name GIBBS, TIM		Address 512 HUNTERSTON BAY NW			Town CALGARY		Province ALBERTA		Country CANADA	Postal Code T2K 4N1	
Location	1/4 or LSD 13	SEC 14	TWP 41	RGE 28	W of MER 4	Lot	Block	Plan	Additional Description NORTH WELL - EAGLES NEST		
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.533230 Longitude -113.940360					Elevation 2948.00 ft	
ft from					How Location Obtained					How Elevation Obtained	
					Hand held autonomous GPS 20-30m					Hand held autonomous GPS 20-30m	

Additional Information										Measurement in Imperial
Distance From Top of Casing to Ground Level 24.00 in										
Is Artesian Flow										Is Flow Control Installed
Rate igpm										Describe
Recommended Pump Rate 5.00 igpm										Pump Installed
Recommended Pump Intake Depth (From TOC) 150.00 ft										Depth ft
										Type
										Make
										H.P.
										Model (Output Rating)
Did you Encounter Saline Water (>4000 ppm TDS)										Depth ft
Gas										Depth ft
										Well Disinfected Upon Completion Yes
										Geophysical Log Taken
										Submitted to ESRD
Additional Comments on Well										Sample Collected for Potability
										Submitted to ESRD

Yield Test			Taken From Top of Casing Depth to water level	Measurement in Imperial
Test Date 2012/10/19	Start Time 1:00 PM	Static Water Level 30.00 ft		
Method of Water Removal				
Type AIR				
Removal Rate 5.00 igpm				
Depth Withdrawn From 250.00 ft				
If water removal period was < 2 hours, explain why				
			Drawdown (ft)	Recovery (ft)
			Elapsed Time Minutes:Sec	
			0:00	250.00
			1:00	190.00
			2:00	157.00
			3:00	123.00
			4:00	88.00
			5:00	60.00
			6:00	30.00
			10:00	30.00
			20:00	30.00
			120:00	30.00

Water Diverted for Drilling		
Water Source SHOP	Amount Taken 2000.00 ig	Diversion Date & Time 2012/10/19 6:00 AM

Contractor Certification		
Name of Journeyman responsible for drilling/construction of well LEONARD BLAIR		Certification No VA3129
Company Name BLACK DOG DRILLING & ENV SERV. LTD.		Copy of Well report provided to owner Yes
		Date approval holder signed 2012/10/19

Well Identification and Location										Measurement in Imperial	
Owner Name ETHIER, R.		Address RR3, LACOMBE		Town		Province		Country		Postal Code T0C 1S0	
Location	1/4 or LSD 00	SEC 14	TWP 041	RGE 28	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude <u>52.529091</u> Longitude <u>-113.927462</u>					Elevation _____ ft	
ft from					How Location Obtained					How Elevation Obtained	
					Not Verified					Not Obtained	

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Domestic	

Formation Log		Measurement in Imperial	
Depth from ground level (ft)	Water Bearing	Lithology Description	

Yield Test Summary			Measurement in Imperial	
Recommended Pump Rate _____ igpm				
Test Date	Water Removal Rate (igpm)	Static Water Level (ft)		

Well Completion				Measurement in Imperial	
Total Depth Drilled	Finished Well Depth	Start Date	End Date		
107.00 ft					
Borehole					
Diameter (in)	From (ft)	To (ft)			
0.00	0.00	107.00			
Surface Casing (if applicable)			Well Casing/Liner		
Size OD :	0.00 in	Size OD :	0.00 in		
Wall Thickness :	0.000 in	Wall Thickness :	0.000 in		
Bottom at :	0.00 ft	Top at :	0.00 ft		
		Bottom at :	0.00 ft		
Perforations					
From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length(in)	Hole or Slot Interval(in)	
Perforated by					
Annular Seal					
Placed from		0.00 ft	to		0.00 ft
Amount					
Other Seals					
Type		At (ft)			
Screen Type					
Size OD :		0.00 in			
From (ft)	To (ft)	Slot Size (in)			
Attachment					
Top Fittings		Bottom Fittings			
Pack					
Type		Grain Size			
Amount					

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name UNKNOWN DRILLER	Copy of Well report provided to owner Date approval holder signed

GIC Well ID 275043
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1987/06/22

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

Well Identification and Location										Measurement in Imperial	
Owner Name		Address		Town		Province		Country		Postal Code	
ETHIER, R.		RR3, LACOMBE								T0C 1S0	
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description		
	00	14	041	28	4						
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.529091 Longitude -113.927462					Elevation ft	
ft from					How Location Obtained					How Elevation Obtained	
					Not Verified					Not Obtained	

Additional Information										Measurement in Imperial
Distance From Top of Casing to Ground Level in										
Is Artesian Flow										Is Flow Control Installed
Rate igpm										Describe
Recommended Pump Rate igpm										Pump Installed
Recommended Pump Intake Depth (From TOC) ft										Depth ft
										Type
										Make
										H.P.
										Model (Output Rating)
Did you Encounter Saline Water (>4000 ppm TDS)										Depth ft
Gas										Depth ft
										Well Disinfected Upon Completion
										Geophysical Log Taken
										Submitted to ESRD
Additional Comments on Well										Sample Collected for Potability
										Submitted to ESRD

Yield Test			Taken From Ground Level	Measurement in Imperial
Test Date	Start Time	Static Water Level		
		ft		
Method of Water Removal				
Type				
Removal Rate igpm				
Depth Withdrawn From ft				
If water removal period was < 2 hours, explain why				

Water Diverted for Drilling		
Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well	Certification No
UNKNOWN NA DRILLER	1
Company Name	Copy of Well report provided to owner
UNKNOWN DRILLER	Date approval holder signed

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

Well Identification and Location											Measurement in Imperial	
Owner Name	Address				Town	Province	Country	Postal Code				
CALIF STD CO#W-420												
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description			
16	15	041	28	4								
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)							
520.00 ft from North					Latitude 52.534543		Longitude -113.940041		Elevation 2992.00 ft			
12.00 ft from East					How Location Obtained					How Elevation Obtained		
					Not Verified					Survey-Air		

Drilling Information	
<i>Method of Drilling</i>	<i>Type of Work</i>
Drilled	Structure Test Hole
<i>Proposed Well Use</i>	
Industrial	

Formation Log		Measurement in Imperial	
Depth from ground level (ft)	Water Bearing	Lithology Description	

Yield Test Summary		Measurement in Imperial	
Recommended Pump Rate _____ igpm			
Test Date	Water Removal Rate (igpm)	Static Water Level (ft)	

Well Completion		Measurement in Imperial	
Total Depth Drilled	Finished Well Depth	Start Date	End Date
890.00 ft			1952/12/14
Borehole			
Diameter (in)	From (ft)	To (ft)	
0.00	0.00	890.00	
Surface Casing (if applicable)		Well Casing/Liner	
Size OD : _____	0.00 in	Size OD : _____	0.00 in
Wall Thickness : _____	0.000 in	Wall Thickness : _____	0.000 in
Bottom at : _____	0.00 ft	Top at : _____	0.00 ft
		Bottom at : _____	0.00 ft
Perforations			
From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length(in)
Perforated by _____			
Annular Seal			
Placed from _____ 0.00 ft to _____ 0.00 ft			
Amount _____			
Other Seals			
Type _____		At (ft) _____	
Screen Type			
Size OD : _____ 0.00 in			
From (ft)	To (ft)	Slot Size (in)	
Attachment _____			
Top Fittings _____		Bottom Fittings _____	
Pack			
Type _____		Grain Size _____	
Amount _____			

Contractor Certification <i>Name of Journeyman responsible for drilling/construction of well</i> UNKNOWN NA DRILLER <i>Company Name</i> UNKNOWN DRILLER		<i>Certification No</i> 1 <i>Copy of Well report provided to owner</i> <i>Date approval holder signed</i>
--	--	---

Well Identification and Location										Measurement in Imperial	
Owner Name		Address		Town		Province		Country		Postal Code	
CALIF STD CO#W-420											
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description		
16		15	041	28	4						
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
520.00 ft from North					Latitude 52.534543					Longitude -113.940041	
12.00 ft from East					How Location Obtained					Elevation 2992.00 ft	
					Not Verified					How Elevation Obtained	
										Survey-Air	

Additional Information										Measurement in Imperial	
Distance From Top of Casing to Ground Level _____ in											
Is Artesian Flow _____										Is Flow Control Installed _____	
Rate _____ igpm										Describe _____	
Recommended Pump Rate _____ igpm										Pump Installed _____	
Recommended Pump Intake Depth (From TOC) _____ ft										Depth _____ ft	
Type _____										Make _____	
										Model (Output Rating) _____	
Did you Encounter Saline Water (>4000 ppm TDS) _____										Depth _____ ft	
Gas _____										Well Disinfected Upon Completion _____	
Depth _____ ft										Geophysical Log Taken Electric	
										Submitted to ESRD Electric	
										Sample Collected for Potability _____	
										Submitted to ESRD _____	
Additional Comments on Well _____											

Yield Test			Taken From Ground Level		Measurement in Imperial	
Test Date	Start Time	Static Water Level				
		ft				
Method of Water Removal						
Type _____						
Removal Rate _____ igpm						
Depth Withdrawn From _____ ft						
If water removal period was < 2 hours, explain why _____						

Water Diverted for Drilling		
Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well	Certification No
UNKNOWN NA DRILLER	1
Company Name	Copy of Well report provided to owner
UNKNOWN DRILLER	Date approval holder signed

Well Identification and Location										Measurement in Imperial	
Owner Name GIBBS, TIM		Address 612 HUNTERSTON BAY NW			Town CALGARY		Province ALBERTA		Country CANADA		Postal Code T2K 4N1
Location	1/4 or LSD 16	SEC 15	TWP 41	RGE 28	W of MER 4	Lot	Block	Plan	Additional Description SOUTH WELL - EAGLES NEST		
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)						
ft from					Latitude 52.532950 Longitude -113.940550					Elevation 2948.00 ft	
ft from					How Location Obtained Hand held autonomous GPS 20-30m					How Elevation Obtained Hand held autonomous GPS 20-30m	

Drilling Information	
Method of Drilling Rotary - Air	Type of Work New Well
Proposed Well Use Domestic	

Formation Log			Measurement in Imperial		
Depth from ground level (ft)	Water Bearing	Lithology Description			
19.00		Brown Sand			
53.00		Gray Sandy Clay			
88.00	Yes	Gray Sandstone			
95.00		Gray Shale			
125.00		Gray Sandstone			
136.00		Gray Shale			
184.00	Yes	Gray Sandstone			
200.00		Gray Shale			

Yield Test Summary			Measurement in Imperial		
Recommended Pump Rate 5.00 igpm					
Test Date	Water Removal Rate (igpm)	Static Water Level (ft)			
2012/10/21	5.00	43.00			

Well Completion				Measurement in Imperial			
Total Depth Drilled	Finished Well Depth	Start Date	End Date				
200.00 ft	200.00 ft	2012/10/21	2012/10/21				

Borehole		
Diameter (in)	From (ft)	To (ft)
8.75	0.00	98.00
5.00	98.00	200.00

Surface Casing (if applicable)		Well Casing/Liner	
Plastic		Plastic	
Size OD : 6.00 in		Size OD : 4.50 in	
Wall Thickness : 0.390 in		Wall Thickness : 0.214 in	
Bottom at : 98.00 ft		Top at : 80.00 ft	
		Bottom at : 200.00 ft	

Perforations				
From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length(in)	Hole or Slot Interval(in)
160.00	180.00	0.500		12.00

Perforated by Drill

Annular Seal	
Bentonite Chips/Tablets	
Placed from	0.00 ft to 98.00 ft
Amount	600.00 Pounds

Other Seals

Type	At (ft)
Drive Shoe	98.00

Screen Type

Size OD : in

From (ft)	To (ft)	Slot Size (in)

Attachment

Top Fittings Bottom Fittings

Pack

Type Grain Size

Amount

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well LEONARD BLAIR	Certification No VA3129
Company Name BLACK DOG DRILLING & ENV SERV. LTD.	Copy of Well report provided to owner Date approval holder signed Yes 2012/10/21

Well Identification and Location										Measurement in Imperial
Owner Name GIBBS, TIM		Address 612 HUNTERSTON BAY NW			Town CALGARY		Province ALBERTA	Country CANADA	Postal Code T2K 4N1	
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description SOUTH WELL - EAGLES NEST	
Measured from Boundary of _____ ft from _____ _____ ft from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.532950</u> Longitude <u>-113.940550</u> How Location Obtained Hand held autonomous GPS 20-30m				Elevation <u>2948.00</u> ft How Elevation Obtained Hand held autonomous GPS 20-30m	

Additional Information										Measurement in Imperial
Distance From Top of Casing to Ground Level <u>24.00</u> in Is Artesian Flow _____ Is Flow Control Installed _____ Rate _____ igpm Describe _____										
Recommended Pump Rate <u>5.00</u> igpm Pump Installed _____ Depth _____ ft Recommended Pump Intake Depth (From TOC) <u>160.00</u> ft Type _____ Make _____ H.P. _____ _____ Model (Output Rating) _____										
Did you Encounter Saline Water (>4000 ppm TDS) _____ Depth _____ ft Well Disinfected Upon Completion <u>Yes</u> Gas _____ Depth _____ ft Geophysical Log Taken _____ _____ Submitted to ESRD _____ Sample Collected for Potability _____ Submitted to ESRD _____ Additional Comments on Well _____										

Yield Test			Taken From Top of Casing Depth to water level	Measurement in Imperial																																							
Test Date 2012/10/21	Start Time 2:00 PM	Static Water Level 43.00 ft																																									
Method of Water Removal Type <u>Air</u> Removal Rate <u>5.00</u> igpm Depth Withdrawn From <u>200.00</u> ft If water removal period was < 2 hours, explain why _____			<table border="1"> <thead> <tr> <th>Drawdown (ft)</th> <th>Elapsed Time Minutes:Sec</th> <th>Recovery (ft)</th> </tr> </thead> <tbody> <tr><td>43.00</td><td>0:00</td><td>200.00</td></tr> <tr><td></td><td>1:00</td><td>183.00</td></tr> <tr><td></td><td>2:00</td><td>150.00</td></tr> <tr><td></td><td>3:00</td><td>129.00</td></tr> <tr><td></td><td>4:00</td><td>101.00</td></tr> <tr><td></td><td>5:00</td><td>83.00</td></tr> <tr><td></td><td>6:00</td><td>67.00</td></tr> <tr><td></td><td>7:00</td><td>43.00</td></tr> <tr><td></td><td>10:00</td><td>43.00</td></tr> <tr><td></td><td>20:00</td><td>43.00</td></tr> <tr><td></td><td>60:00</td><td>43.00</td></tr> <tr><td></td><td>120:00</td><td>43.00</td></tr> </tbody> </table>		Drawdown (ft)	Elapsed Time Minutes:Sec	Recovery (ft)	43.00	0:00	200.00		1:00	183.00		2:00	150.00		3:00	129.00		4:00	101.00		5:00	83.00		6:00	67.00		7:00	43.00		10:00	43.00		20:00	43.00		60:00	43.00		120:00	43.00
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	20:00	43.00																																									
	60:00	43.00																																									
	120:00	43.00																																									

Water Diverted for Drilling		
Water Source SHOP	Amount Taken 2000.00 ig	Diversion Date & Time 2012/10/19 6:00 AM

Contractor Certification		
Name of Journeyman responsible for drilling/construction of well LEONARD BLAIR		Certification No VA3129
Company Name BLACK DOG DRILLING & ENV SERV. LTD.		Copy of Well report provided to owner Date approval holder signed Yes 2012/10/21



Alberta Health Services

Environmental Public Health
300 Jordan Parkway, Red Deer, AB T4P 0G8
Tel: 403 356 6335
Fax: 403 356 6433

INVOICE # CN-2014-016
April 7, 2014

Parkland Geotechnical Consulting Ltd.
#102 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Lexya,

Re: Your request for records search

On March 21, 2014, our office received your request for Information regarding the following property:

North of Wilson's Beach Estates and East of Range Road 282 near Gull Lake, AB
NW ¼ 14-41-28-W4M

We have conducted a search for records created in accordance with public health legislation, including records relating to hazardous waste sites, abandoned landfills and contamination sources constituting a public health nuisance.

No records responsive to your request have been located. However, it should be noted that the fact that records do not exist does not necessarily mean that the property complies with all applicable legislation.

Please be advised that records relevant to your search may be held by other agencies, such as Alberta Environment and Sustainable Resource Development, Alberta Energy and Utilities Board, local governments, and others. You should contact these agencies directly for further information.

The amount of \$50 is owing for this service. Please issue payment payable to:

Alberta Health Services
Environmental Public Health
300 Jordan Parkway
Red Deer, AB T4P 0G8

Sincerely,

Ann Vandermost
Administrative Assistant
Environmental Public Health
Johnstone Crossing Community Health Centre
300 Jordan Parkway
Red Deer, AB T4P 0G8

tel: 403-356-6335 fax: 403-356-6433

Lexya Oulton

From: Allison Noonan <arieger@lacombecounty.com>
Sent: Monday, April 07, 2014 12:31 PM
To: Lexya Oulton
Cc: Dale Freitag; Phil Lodermeier
Subject: Phase 1 Environmental Site Assessment - Request for Information
Attachments: Alberta Environment Letter.pdf

Lexya,

Regarding your request for Project No. RD4846 – the only information that we have on file is a consent for a setback variance from Alberta Environment – I have attached a copy of the letter.

If you have any further questions, please contact our office.

Thanks!

Allison



The information transmitted is intended only for the addressee and may contain confidential and/or privileged material. Any unauthorized review, distribution or other use of or the taking of any action in reliance upon this information is prohibited. If you received this in error, please contact the sender and delete or destroy this message and any copies.

Lexya Oulton

From: Blayne West <bwest@lacombecounty.com>
Sent: Monday, March 24, 2014 2:35 PM
To: Lexya Oulton
Subject: NW 14-41-28W4M Ph 1 search request
Attachments: NW 14-41-28W4M Setback request.pdf

Good afternoon Lexya,

Keith passed on your request to me. The only thing environmentally related on file was a setback request that gained approval in October 2011.

Please find a copy attached. Otherwise there is nothing additional on file.

Regards, Blayne



The information transmitted is intended only for the addressee and may contain confidential and/or privileged material. Any unauthorized review, distribution or other use of or the taking of any action in reliance upon this information is prohibited. If you received this in error, please contact the sender and delete or destroy this message and any copies.



February 27, 2012

Ben Ansaldo
Planner/Development Officer
Lacombe County
RR 3
Lacombe, AB T4L 2N3

Dear Mr. Ansaldo,

**RE: Lacombe County Request for AEW Consent to Setback Variance
from a Wastewater Plant, Proposed Development NW 14-41-28-W4**

Alberta Environment has reviewed your request dated October 17, 2011 for consent to allow Lacombe County to reduce the minimum three hundred (300) meter setback requirement from an operating wastewater treatment plant owned by Lincoln Utility Corp. to residential subdivision developments, located at NW 14-41-28-W4 in Lacombe County.

Consent Granted

In accordance with Section 12 of the *Municipal Government Act Subdivision and Development Regulation*, and based on the information provided, I hereby consent to the County's request to vary the minimum setback distance from three hundred (300) meters to fifty (50) metres from the wastewater plant to a residential, school, hospital, or food establishment subdivision development, within the development property and one hundred (100) metres from the wastewater plant to adjacent properties, pursuant to the following conditions:

- this variance applies only to the current application, and only with respect to the property located at NW 14-41-28-W4 in Lacombe County.
- the County is responsible for any complaint(s) arising from the reductions of the setback distances between the wastewater plant and the development.
- the County shall ensure that no development will take place within the reduced setback distances, and shall ensure all necessary municipal steps are taken to prevent encroachment beyond what is authorized in this variance and that all affected parties are aware of this.

This consent is based on:

- the engineering assessment report and other information the County has provided.
- the County's understanding of the nature and extent of the condition of the site.
- The Alberta Health Services Board letter of no-objection dated September 14, 2011 indicating that the Board would not object to the proposed development as long as the conditions outlined in their letter are met.

If you have any additional questions or comments about this written consent please contact Julian Huang at (403) 340-4988.

Sincerely,

A handwritten signature in blue ink, appearing to read 'T. Aasen', with a long horizontal flourish extending to the right.

Todd Aasen, P. Eng.
Designated Director Under the Act

cc: Glenn Fraser, Lincoln Utility Corp.
Bryon Miller, Alberta Health Services

LIMITATIONS

GENERAL TERMS AND CONDITIONS

The use of this attached report is subject to the following general terms and conditions.

1. **STANDARD OF CARE** - In the performance of professional services, ParklandGEO used the degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same or similar localities. No other warranty expressed or implied is made in any manner.
2. **INTERPRETATION OF THE REPORT** - The CLIENT recognizes that subsurface conditions will vary from those encountered at the location where borings, surveys, or explorations are made and that the data, interpretations and recommendation of ParklandGEO are based solely on the information available to him. Classification and identification of soils, rocks, geological units, contaminated materials and contaminant quantities will be based on commonly accepted practices in geotechnical or environmental consulting practice in this area. ParklandGEO will not be responsible for the interpretation by others of the information developed.
3. **SITE INFORMATION** - The CLIENT has agreed to provide all information with respect to the past, present and proposed conditions and use of the Site, whether specifically requested or not. The CLIENT acknowledged that in order for ParklandGEO to properly advise and assist the CLIENT, ParklandGEO has relied on full disclosure by the CLIENT of all matters pertinent to the Site investigation.
4. **COMPLETE REPORT** - The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to ParklandGEO by the CLIENT, communications between ParklandGEO and the CLIENT, and to any other reports, writings or documents prepared by ParklandGEO for the CLIENT relative to the specific Site, all of which constitute the Report. The word "Report" shall refer to any and all of the documents referred to herein. In order to properly understand the suggestions, recommendations and opinions expressed by ParklandGEO, reference must be made to the whole of the Report. ParklandGEO cannot be responsible for use of any part or portions of the report without reference to the whole report. The CLIENT has agreed that "This report has been prepared for the exclusive use of the named CLIENT. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. ParklandGEO accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report."

The CLIENT has agreed that in the event that any such report is released to a third party, the above disclaimer shall not be obliterated or altered in any manner. The CLIENT further agrees that all such reports shall be used solely for the purposes of the CLIENT and shall not be released or used by others without the prior written permission of ParklandGEO.

5. **LIMITATIONS ON SCOPE OF INVESTIGATION AND WARRANTY DISCLAIMER**
There is no warranty, expressed or implied, by ParklandGEO that:
 - a) the investigation uncovered all potential geo-hazards, contaminants or environmental liabilities on the Site; or
 - b) the Site is entirely free of all geo-hazards or contaminants as a result of any investigation or cleanup work undertaken on the Site, since it is not possible, even with exhaustive sampling, testing and analysis, to document all potential geo-hazards or contaminants on the Site.

The CLIENT acknowledged that:

- a) the investigation findings are based solely on the information generated as a result of the specific scope of the investigation authorized by the CLIENT;
 - b) unless specifically stated in the agreed Scope of Work, the investigation will not, nor is it intended to assess or detect potential contaminants or environmental liabilities on the Site;
 - c) any assessment regarding geological conditions on the Site is based on the interpretation of conditions determined at specific sampling locations and depths and that conditions may vary between sampling locations, hence there can be no assurance that undetected geological conditions, including soils or groundwater are not located on the Site;
 - d) any assessment is also dependent on and limited by the accuracy of the analytical data generated by the sample analyses;
 - e) any assessment is also limited by the scientific possibility of determining the presence of unsuitable geological conditions for which scientific analyses have been conducted; and
 - f) the laboratory testing program and analytical parameters selected are limited to those outlined in the CLIENT's authorized scope of investigation; and
 - g) there are risks associated with the discovery of hazardous materials in and upon the lands and premises which may inadvertently discovered as part of the investigation. The CLIENT acknowledges that it may have a responsibility in law to inform the owner of any affected property of the existence or suspected existence of hazardous materials and in some cases the discovery of hazardous conditions and materials will require that certain regulatory bodies be informed. The CLIENT further acknowledges that any such discovery may result in the fair market value of the lands and premises and of any other lands and premises adjacent thereto to be adversely affected in a material respect.
6. **COST ESTIMATES** - Estimates of remediation or construction costs can only be based on the specific information generated and the technical limitations of the investigation authorized by the CLIENT. Accordingly, estimated costs for construction or remediation are based on the known site conditions, which can vary as new information is discovered during construction. As some construction activities are an iterative exercise, ParklandGEO shall therefore not be liable for the accuracy of any estimates of remediation or construction costs provided.
 7. **LIMITATION OF LIABILITY** - The CLIENT has agreed that to the fullest extent permitted by the law ParklandGEO's total liability to CLIENT for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in anyway relating to the Project is contractually limited, as outlined in ParklandGEO's standard Consulting Services Agreement. Further, the CLIENT has agreed that to the fullest extent permitted by law ParklandGEO is not liable to the CLIENT for any special, indirect or consequential damages whatsoever, regardless of cause.
 8. **INDEMNIFICATION** - To the fullest extent permitted by law, the CLIENT has agreed to defend, indemnify and hold ParklandGEO, its directors, officers, employees, agents and subcontractors, harmless from and against any and all claims, defence costs, including legal fees on a full indemnity basis, damages, and other liabilities arising out of or in anyway related to ParklandGEO's work, reports or recommendations.