

# MAR 20060030: PEACE RIVER-BUFFALO HILLS

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UCA / SUV JV Peace River / Buffalo Head Hills - September 2006

**Assessment Report**  
**UCA / SUV Joint Venture**  
**North Heart River Area**  
**Peace River - Buffalo Hills Diamond Play**

**Richard G. Walker in Trust for:**  
**United Carina Resources Ltd. / Star Uranium Corp.**

**Metallic & Industrial Minerals Permit #**

9304030972, 9304030976, and 9304091033

Centered on 56° 20' N 116° 35' W  
Located in N.T.S. Map Sheets  
84C / 1, 2, 3, 6, 7, and 8

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Hawkins Report # 06-090-02

**September 5, 2006.**



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**UCA / SUV Joint Venture**  
**North Heart River Area**  
**Peace River - Buffalo Hills Diamond Play**

**Executive Summary**

The Peace River – Buffalo Head Hills Diamond Play is located 350 km north of the City of Edmonton, Alberta. UCA / SUV JV lands are located 70 km. SW of the Ashton Mining JV holdings which hosts K252 kimberlite pipe and an additional 37 pipes of which 25 are diamondiferous. The UCA / SUV exploration program has consisted principally up until now of the collection of heavy mineral sampling for kimberlitic and diamond indicators supplemented by analysis of airborne geophysics. Recent till sampling, returned a further seven garnets, two possible chrome diopsides, thirteen possible chromites, and thirty olivines indicator mineral grains. Re-sampling of the North Heart River drainage confirmed the presence of garnets and olivine indicator mineral grains. The indicator mineral suite found to date is similar in composition to that found by Ashton, which is not comparable to the classical model for diamondiferous kimberlite with the associated G10 garnets. The kimberlitic indicator suite is dominated other mantle derived indicators from within the diamond stability field. The craton which underlies the Peace River – Buffalo Head Hills area is obvious not the same as other more conventional plays but still hosts 25 diamondiferous kimberlitic pipes. The next planned stage of exploration is follow-up overburden drilling on kimberlitic indicators found in overburden near circular geophysical targets. Several of the drill targets are accessible from new all weather roads.



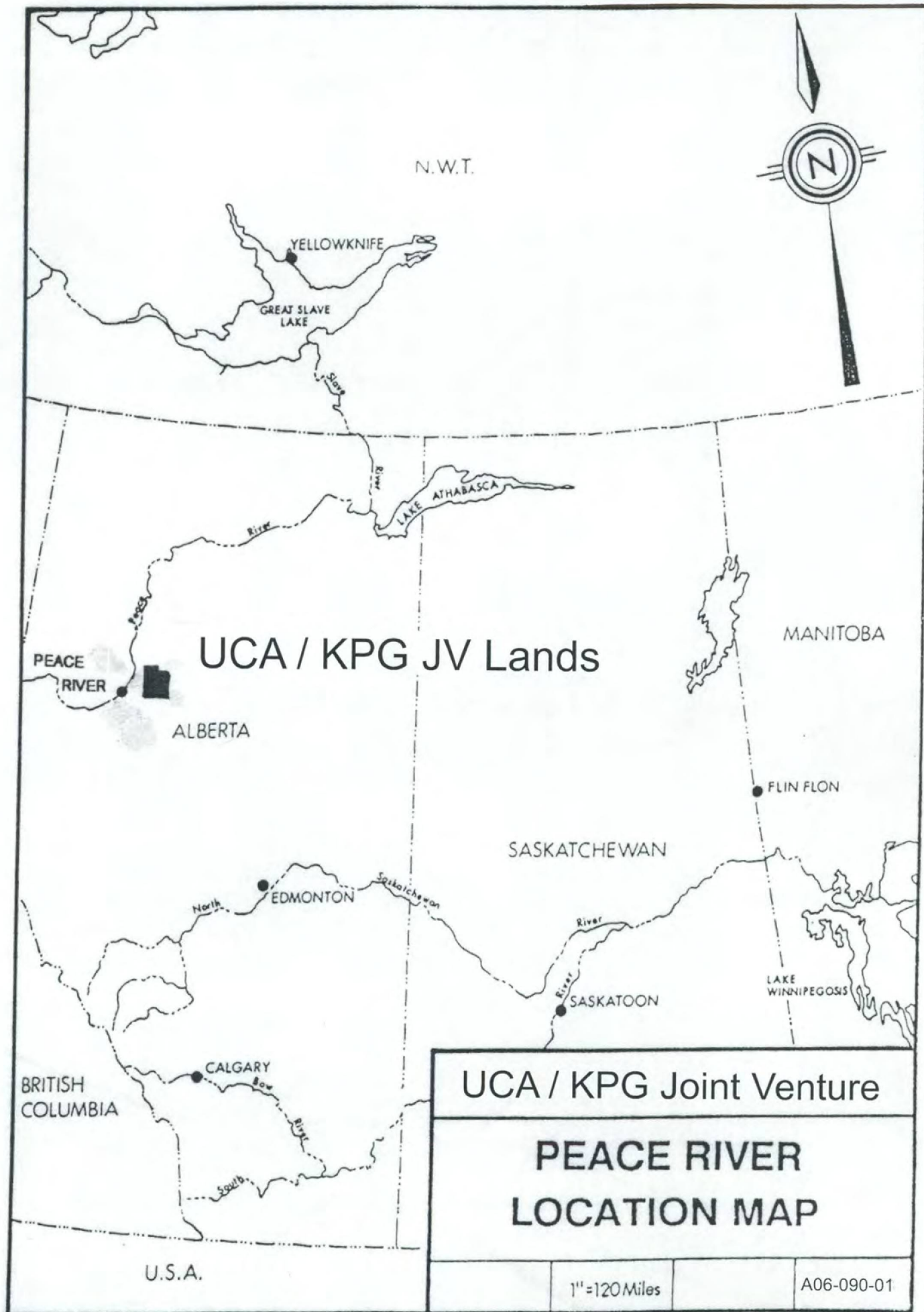
## 1.0 Introduction

In early January 2004, United Carina Resources Corp., (“UCA”) and 50% partner Consolidated Pine Channel Gold Corp., (“KPG”) acquired by paper staking 14 Metallic Minerals Permits north east of the town of Peace River in Peace River / Buffalo Head Hills Diamond Play. A fifteen permit was added to the block in September 2004. Subsequent to that Consolidated Pine Channel Gold Corp., changed its name to Star Uranium Corp. In April 2006, the JV surrendered 12 permits. The JV retained three permits filing an assessment report (Hawkins, 2006). This report documents work carried out on the property in between April and September 2006.

### 1.1 Property Description and Location

The Peace River / Buffalo Head JV property consists 3 Metallic and Industrial Minerals permits Held in trust by Mr. Richard G. Walker for the JV, which consists of United Carina Resources Corp. (50%), and Star Uranium Corp. (50%) both of which are listed on the TSX Venture Exchange. The three permits are located in the upper reaches of the North Heart River.

The Peace River Area is located 350 km. (220 miles) north of Edmonton in West central Alberta as shown on Drawing A06-090-01. The permit areas covered this report are located 35 km. NE of the town of Peace River within (N.T.S) map sheets 84C / 1, 2, 3, 6, 7, 8.



# UCA / KPG JV Lands

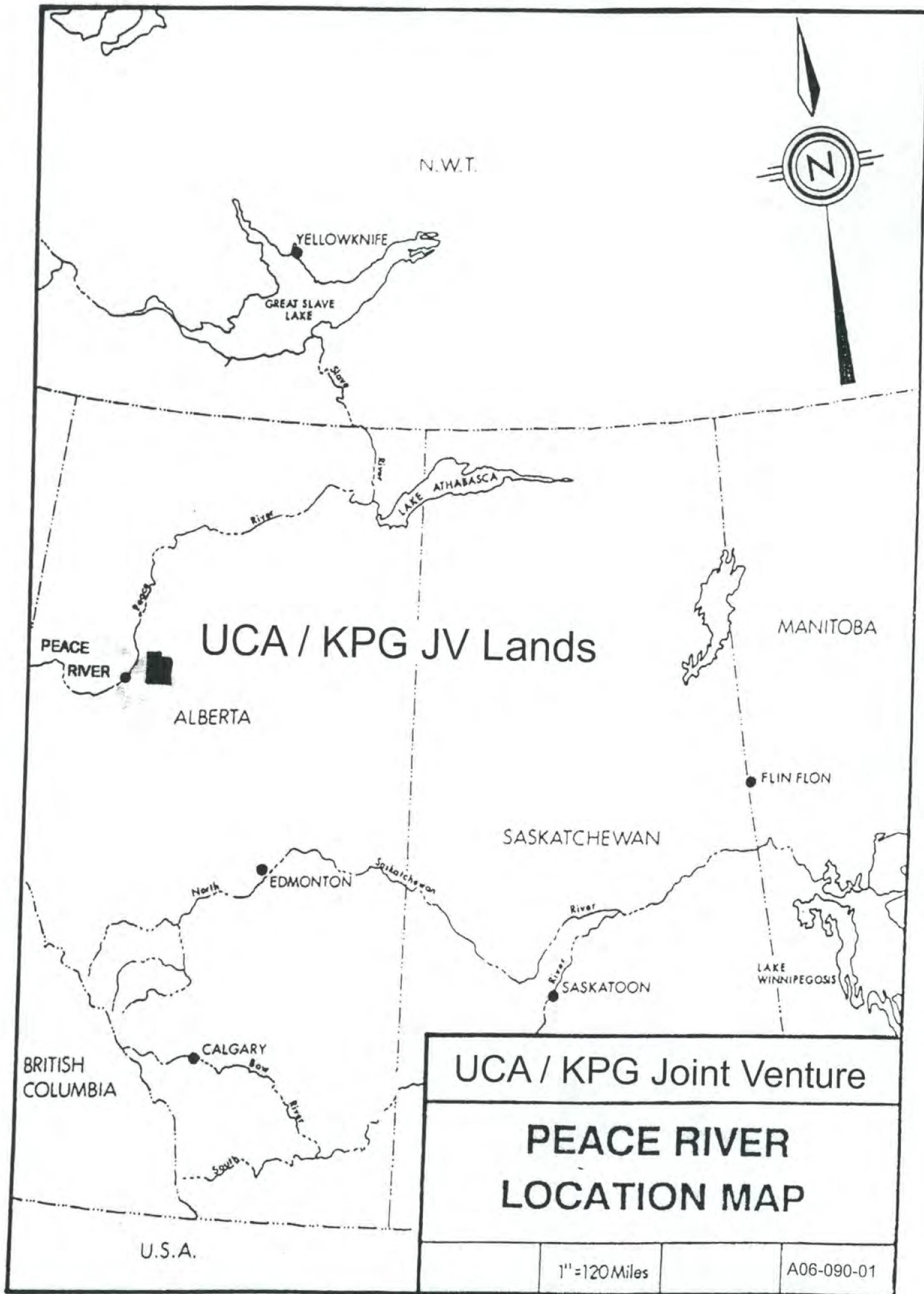
UCA / KPG Joint Venture

## PEACE RIVER LOCATION MAP

1" = 120 Miles

A06-090-01





# UCA / KPG JV Lands

UCA / KPG Joint Venture

**PEACE RIVER  
LOCATION MAP**

1" = 120 Miles

A06-090-01

Table 1.  
Peace River / Buffalo Head Hills JV Lands  
List of Permits

Permit #	Acquisition Date	Location	Area (Hectares)
<b>9304030972</b>	12-Mar-2004	Twp83R17W5	9,216.00
<b>9304030976</b>	12-Mar-2004	Twp84R17W5	9,216.00
<b>9304091033</b>	16-Sep-2004	Twp83R16W5	9,216.00
		Original Total Area =	138,202.00

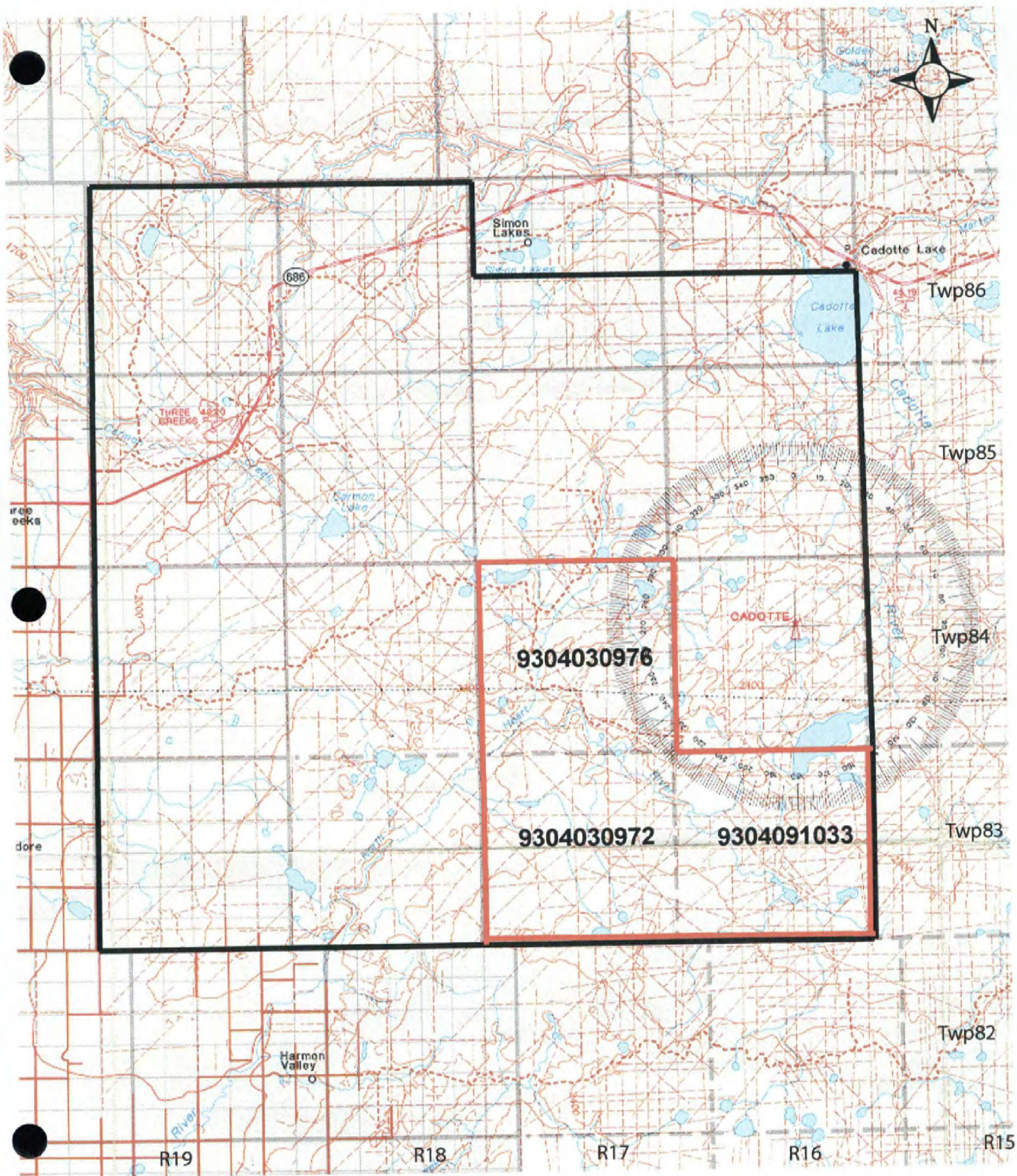
Current regulations require assessment work in the amount of \$5 per hectares during the first two year period, increasing to \$10 for second and third two year periods year and increasing to \$15 per hectares for fourth and fifth periods. Permits may be grouped and excess expenditures may be carried forward into next period. Permit locations are shown also on Drawing A06-090-02R.

#### 1.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

The Peace River area is for the most part fairly level with an average elevation of 600 m. (2000 ft.) with the most relief in the valley of the Peace River. Tributaries to the Peace also cut deep “V” shape valleys into the relative flat prairie. Rounded gentle hills also occur to the south and northeast. Elevations range from a low of 460 m. (1500 ft.) on the Peace River to 975 m. (3200 ft.) on the rounded hilltops to the northwest. The permit areas are relatively flat and generally swampy. Drainage is generally poor because the high clay content of soils and poorly developed drainage.

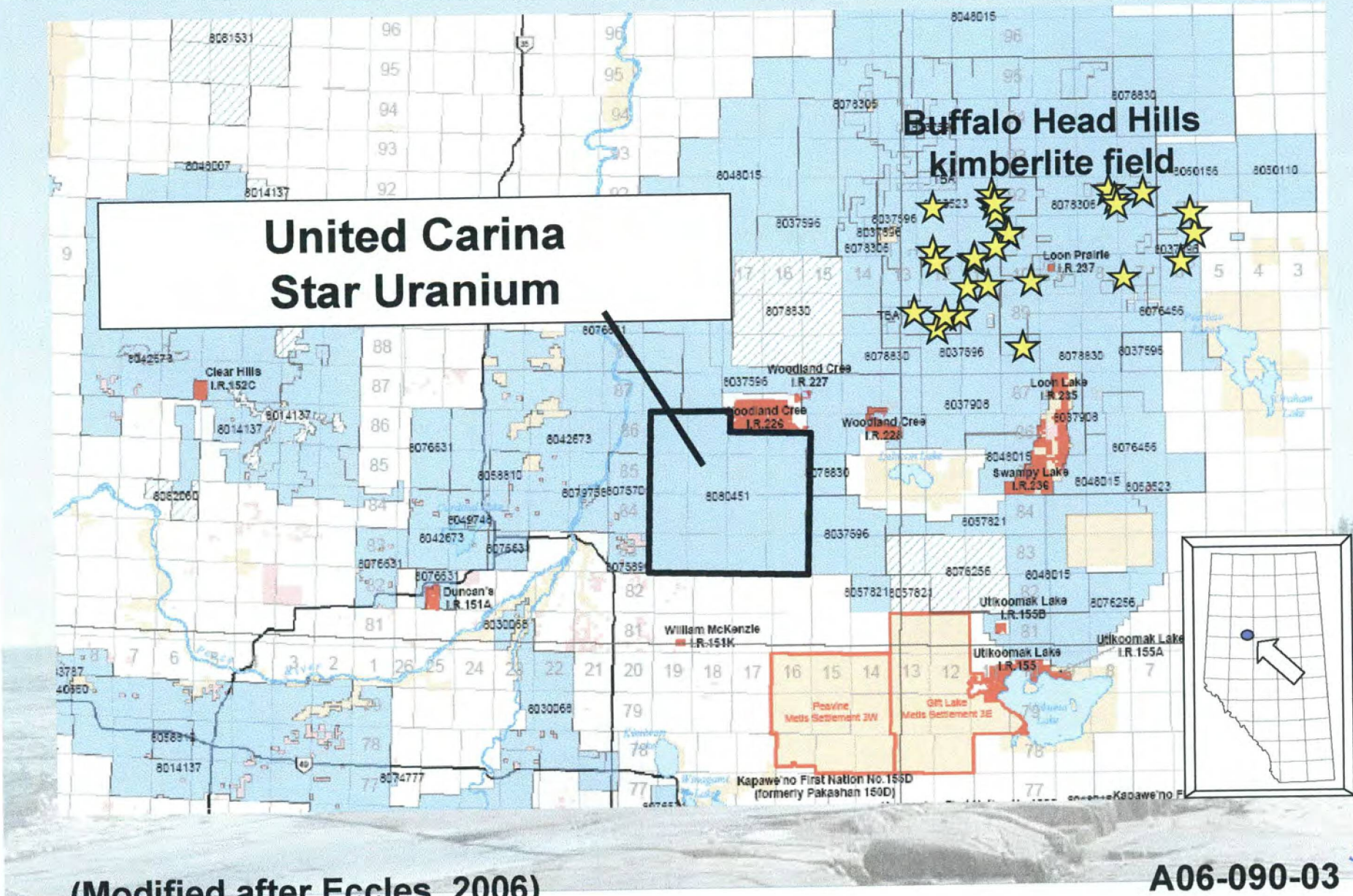


# 2006 UCA / SUV Permit Locations





# Peace River / Buffalo Head Hills Diamond Play



(Modified after Eccles, 2006)

A06-090-03



The Peace River area is accessible by several paved all weather highways from Edmonton as shown on Drawing A93-185-02. Peace River is also serviced by the Mackenzie Northern Railway, which is owned by RailAmerica. Scheduled air service from Peace River to Edmonton and Calgary also available. The area is well serviced in the energy sectors by Alberta power and natural gas companies. The infrastructure developed in the area, partly as a result of oil & gas development in the Peace River Area, provides an excellent infrastructure base for any future mineral development. The permit area is covered with many seismic lines and winter roads. Most logging is carried out in the winter months as is oil drilling and seismic surveying work because of the swampy nature of the terrain. Recent all weather road access development by Northern Sunrise County for the Peace Oil Sands Area to foster the development of production by Shell Canada, BlackRock Ventures, and Baytex Energy trust has greatly improved access into the permit block beyond what existed backing the 1996.

Peace River is the largest town north of Edmonton with a population of 6,240 (2001). The town has not seen the growth of other communities like Grande Prairie and Fort McMurray. Several of the smaller communities (Simon Lake, Cadotte Lake and Little Buffalo) to the north of the Permits have seen some population growth. The fertile Peace River Country continues to support cattle and grain farming with adjacent areas producing significant values in petroleum and forestry (pulp and paper). Diaishowa Canada Kraft Paper mill continues to operate 16 km. north of the town of Peace River. Several forest blocks nearby are logged as feed for the mill.

The Peace River area has a mean annual rainfall of 475 mm., with annual mean temperature of 1° C. Winters are cold with temperatures to -40° C, while summers can be very hot with temperatures to +35° C. However on the whole they are generally cool when compared to Edmonton. The long daylight hours in the spring and summer due to its northern location, more than make up for the cooler temperatures. Most area of good fertile land have been cleared while some more marginal lands are being used for grazing or allowed to go back to nature forest cover.





### 1.3 Regional Geology

The geology of the Peace River / Buffalo Head Hills is dominated by the data collected by the Oil and Gas industry during exploration in the Peace River Arch area (“PRA”). The area rocks have undergone a complex history of accretion, sedimentation, uplift, deformation, and intrusion.

The centre of attention of the diamond play coincides with the margins of the Peace River Arch. The Peace River Arch is an area of uplift where the Phanerozoic cover rocks have been disturbed within the Western Canadian Sedimentary Basin, which has given rise to the accumulations of Oil & Gas in strata from Devonian to Cretaceous in age. The area of the PRA is defined, for the purposes of this report, as the area within the Devonian sub-crop edge. The Arch’s Devonian uplift developed several fault structures on its crest and flanks, which commonly filled with locally derived clastic sediments. These structures are very important for the development of porosity for Oil & Gas, and were likely the later conduits for the ascent of kimberlitic intrusions in the area. These deep penetrating structures likely have often been re-activated over time.

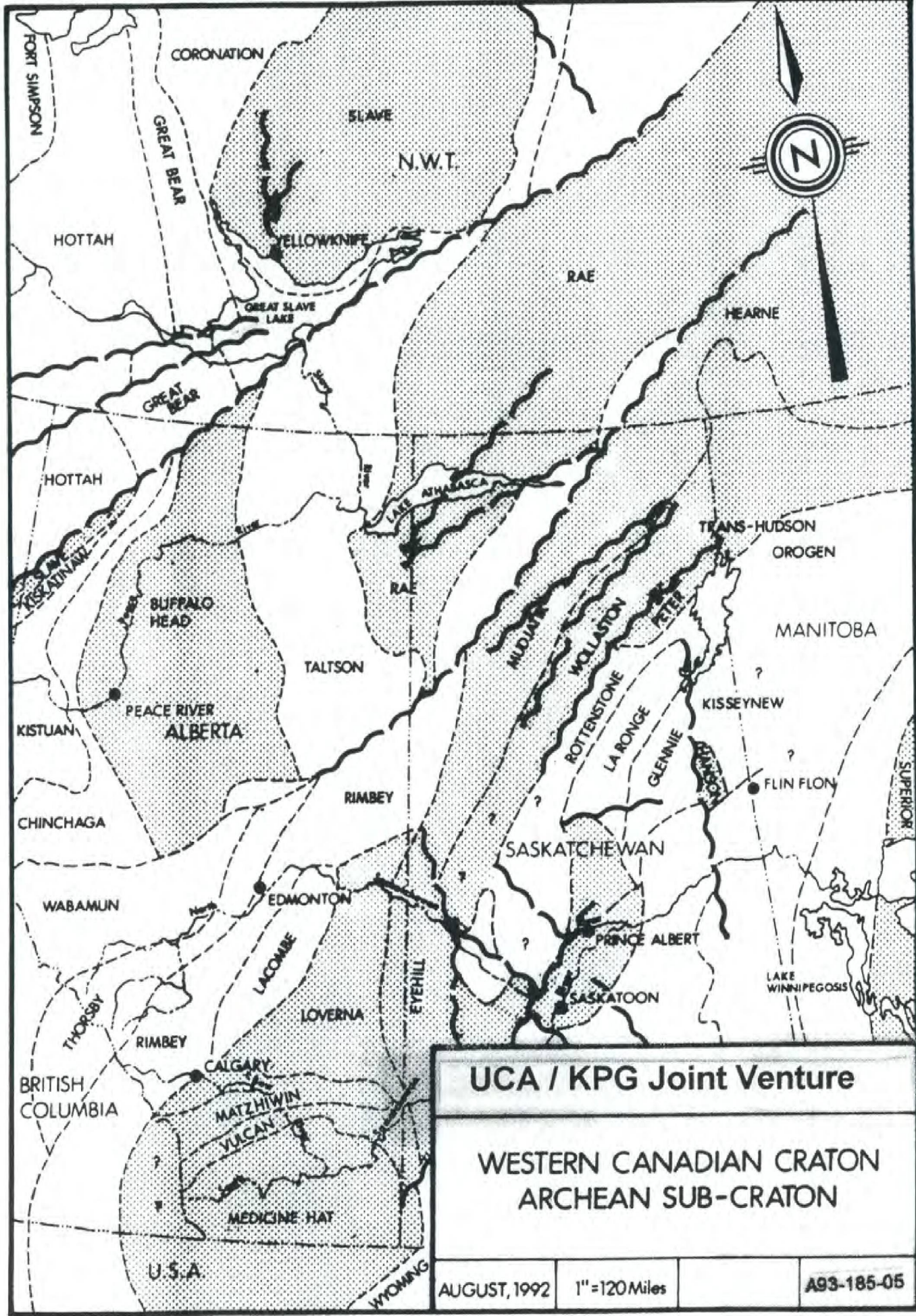
The underlying crystalline basement of Northern Alberta is made up of a series of Archean and Proterozoic tectonic domains as shown on Drawing A93-185-05. The tectonic history of the Western Canadian Craton is still not well understood but it appears that the Buffalo Head and Chinchaga Sub-craton appear to have been under-plated with Archean crust as a result of the subduction during collision when the domains were accreted to the shield 2.0 billion years ago. Previous to that, the Buffalo Head sub-craton may have been part of the Slave before being faulted off by the Hay River Fault. The under-plating of the Buffalo Head therefore may have provided a deep cool kneel required for diamond preservation.

The exposed bedrock strata in the PRA, is almost all of Cretaceous age. Some strata of Tertiary age may occur in the local area but has not been mapped. The various shallow sandstone and shale formations present are chiefly exposed along the valleys of the major rivers and in outcrops along roads. A Table of Formations is provided in Table 2. Regional Geology is shown on Drawing A06-090-04. The deeper formations are only exposed in drill cutting or core from the large number of wells drilled in the areas. Several shallow diamond drill holes have been completed in the property area, but many never reached bedrock.

The shallow underlying bedrock exposed in the area consists of a sequence of Lower to Upper Cretaceous sandstone and shale. The following is a description of the exposed units in the PRA (Green, 1972) in ascending order.

The Peace River Formation of Lower Cretaceous age outcrops in the Peace River Valley. It is mainly composed of fine grained quartzose sandstone (Cadotte Member), dark grey silty shale (Harmon Member), fine grained-grained glauconitic sandstone, silty inter-beds in lower part (Notikewin Member); shoreline complex. The Shaftesbury Formation of Upper and Lower Cretaceous age is composed of dark grey, fish-scale bearing shale, silty in upper part, numerous nodules and thin beds of concretionary ironstone, bentonite partings, lower part with thin silty and sandy intervals; marine. The Dunvegan Formation of Upper Cretaceous age consists of grey, fine-grained, feldspathic sandstone with hard calcareous beds, laminated siltstone and grey silty shale; deltaic to marine. The Kaskapau Formation of Upper Cretaceous age consists of dark grey silty shale, thin concretionary ironstone beds, inter-bedded in lower part with thin





**UCA / KPG Joint Venture**

**WESTERN CANADIAN CRATON  
ARCHEAN SUB-CRATON**

AUGUST, 1992

1" = 120 Miles

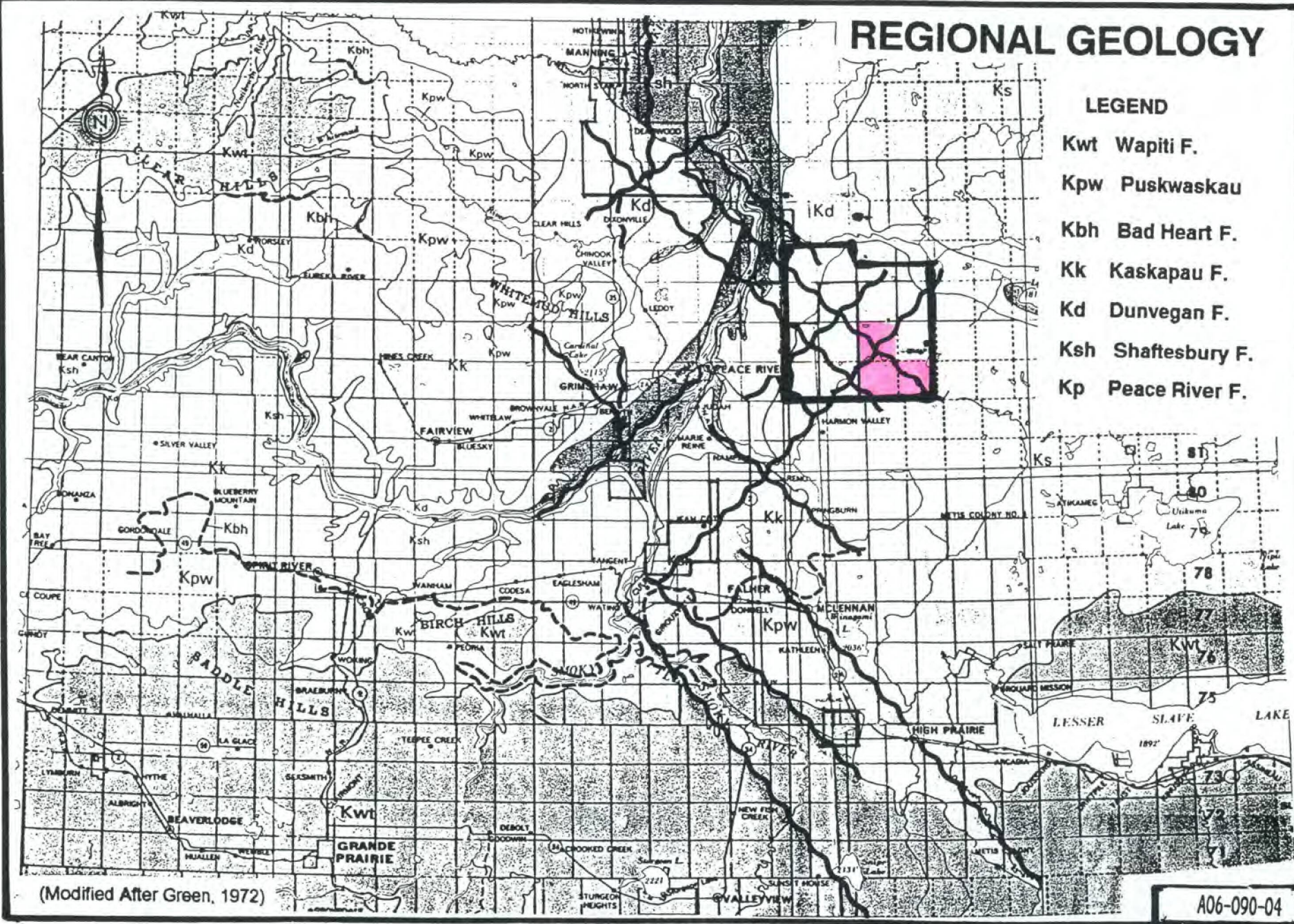
A93-185-05



# REGIONAL GEOLOGY

## LEGEND

- Kwt Wapiti F.
- Kpw Puskwaskau
- Kbh Bad Heart F.
- Kk Kaskapau F.
- Kd Dunvegan F.
- Ksh Shaftesbury F.
- Kp Peace River F.



(Modified After Green, 1972)

A06-090-04





concretionary ironstone beds, inter-bedded in ferruginous oolitic mudstone; marine. The Smoky Group of Upper Cretaceous age to the east of Peace River is composed of dark grey shale and silty shale, nodules and thin beds of concretionary ironstone; marine.

The structure of the Peace River area, appear dominated by basement features. The superposition of modern drainage networks on paleo-drainage network shows remarkable coincidence. Suggesting an underlying structural control. Major structures appear oriented N-S, E-W and NE.

A mantle of varying thickness of superficial Pleistocene and recent deposits cover the project area. These deposits are thickness in buried old channels and in present day channels. Some stratified drift is evident but no detailed property level mapping has taken place. At least two till sheets are likely present. Reworked gravels are present along several old channels ways. Some of these channels may be of tertiary age. Some till is inter-bedded with gravel suggesting some degree of complex fluvial-glacial gravel deposits. Overburden ranges in thickness from very shallow (less than 1 m.) to in excess of 300 m. but likely averages 30 – 90 m. in depth. The AGS has undertaken Surficial Mapping (Paulen et al, 1994a and 1994b) in the area and this data should be integrated into the exploration database. The AGS has also obtained anomalous kimberlitic indicators in till (Paulen, 1995) surrounding the property.

The property area is also underlain by bituminous oil sands of the Bluesky-Bullhead Formation of Lower Cretaceous age. These oil sands are similar in nature to those at Fort McMurray except the Peace River Oil Sands occur at a much greater depth of 550 m. Shell Canada is currently producing from this at zone at their existing Peace River Complex located in Twp85R18W5. This facility is licensed to produce 12,000 barrels of bitumen per day. Shell's proposed Carmon Creek Project would increase this to 30,000 barrels of bitumen per day. BlackRock Ventures has undertaken further development on their properties further to the SE. Recently BlackRock Ventures was taken over by Shell Canada. Baytex is also operating in the area.

Table 2.  
Peace River Area  
Table of Formations

Age	Symbol	Formation Name / Group	Age	Member	Description
Pleistocene	Qsg		Recent		Unconsolidated sands and gravels, glacial till
Tertiary			65		Pre-glacial sand and gravel
Cretaceous	Kwt	Montana Group Wapiti Formation			Gray brown clays with massive SST, ironstone nodules, thin clay seams, scattered coal beds, non marine
	Ks Kpw 1WS	Smoky Group Smoky Group Paskwaskau Formation		1 <sup>st</sup> White Spec	Dark gray shale and silty shale, ironstone partings and concretions
	Kbh Kk	Colorado Group Bad Heart Formation Kaskapau Formation	90-92	2 <sup>nd</sup> White Spec	Brown SST, medium to fine grained, fossiliferous, marine. Shale, dark to black, thin bedded, some sandstone
	Kd	Fort St. John Group Dunvegan Formation	92 – 95		Grey fine grained feldspathic SST, alternating SST/shale
	Ksh Kshu Kshl	Shaftesbury Formation	95 - 98	Upper Base of fish scales?? Lower	Dark gray fish scale bearing shale Numerous nodules with thin beds of Fe Silty and sandy shale
	Kp Kpc Kph Kpn	Peace River Formation	98 - 100	Paddy Cadotte Harmon Notikewia	Massive SST Fluvial deposits Quartzose SST, Shale, conglomerate Dark gray silty shale Fine grained glauconitic SST
	Ksr Bfsc	Spirit River Formation (Loon River Formation)		Falher Wilrich Base of the Fish Scales	Sandstone, shale, coal Shale
	Kb	Mannville / Bull Head Group Cadomin Gething Formation Bluesky	106	Basal Cretaceous	Conglomerate SST, Shale, oil sands Sandstone, shale, oil sands

(Modified after Green, 1972)



## 2.0 Previous Exploration

The project area has been explored by a number of companies in the past without the discovery of kimberlite. The Peace River / Buffalo Head Hills Diamond play has undergone several cycles of exploration. The initial staking rush took place in 1992 after it became apparent that De Beers Canadian subsidiary was exploring near Peace River. Carina staked its first permit in the area during the summer of 1992 after field examination (Hawkins, 1992). By 1994 most of the Peace River area was fully staked, as was most of Alberta. Activity did not pick up again until 1997 when Ashton made their Discovery in the Buffalo Head Hills some 48 km. to the NE of the project area. Interest again picked-up, with renewed as the marketplace for junior mining companies improved during 2004-2005. Another factor affecting interest in the play has been the success or failure of Ashton in finding new pipes or economic grade kimberlite. The following section summarizes past exploration on the property.

### 2.1 Consolidated Carina Resources Ltd. and Currie Rose Resources Ltd.

Carina and Currie Rose were one of the early claim stakers in the play. The Carina / Currie block adjoined a large block to the south controlled at the time by Monopros. The Carina / Currie Rose initial program consisted of limited fieldwork in support of Remote Sensing and Aerial Photography studies. Data was also compiled from available Oil Industry data. Two delineation oil wells drilled by Shell Canada were also sampled (Hawkins, 1993a) in January 1993, near Carmon Lake (Twp85 R18 S17 W5). The samples taken from the shale shaker returned 60 pyrope garnets, 15 chrome diopsides, and 7 urarovites. The samples were taken from a buried channel. Several aeromagnetic anomalies were investigated with ground magnetometer surveys (Hawkins, 1995) but were found to be "at depth" basement features or near small surface features in overburden. The property was allowed to lapse, before the discovery by Ashton in the Buffalo Hills in 1997.

### 2.2 Ridgeway Petroleum and Horseshoe Gold Corp.

Ridgeway Petroleum was the second staker in the area after Carina/Currie Rose. They staked the large horseshoe shaped block around the Carina / Currie Rose block. Ridgeway Petroleum ventured the ground with Horseshoe Gold Mines and flew a fixed wing Aeromagnetic survey over the property in 1993 (Marchand, 1995). In the associated Assessment Report Maps, incorrectly indicate this survey was a helicopter survey. The survey indicated 26 positive magnetic anomalies. Limited on the ground geophysics was conducted in preparation for drilling. Five of the anomalies were drilled without success.

In 1997, a low level Helicopter aeromagnetic (Marchand, 1997) was flown over several anomalies to provide higher resolution data more accurate data. This survey was flown at a 50m. line spacing at a 20m. terrain clearance. A evaluation report was completed on the property in 1998 (Bessere & Dufresne, 1998) but no further exploration was carried out by Ridgeway. The property was optioned to Ashton in 2000.

### 2.3 Ashton Mining of Canada Inc.

Ashton Mining of Canada optioned the remaining Ridgeway property in 2000 and re-drilled one of Ridgeway best circular magnetic anomalies (Anomaly #RW17 in Twp 85 R17 W5 S25). Ashton carried out limited ground geophysics consisting of Magnetometer and TDEM (time domain electro-magnetic) surveys (Skelton, 2000). The anomaly location (RW17) is shown on Drawing A06-090-08. Again drilling failed to locate any kimberlite. The property was returned to Ridgeway and the property lapsed.

Ashton itself held permits covering the extreme NE corner of the property near Cadotte Lake. They did complete an aeromagnetic survey of the area but the assessment files contain no information regarding any ground follow-up on the three anomalies (LL56, LL89 and LL90) noted in the area. These anomalies are located on Drawing A06-090-08. The area was allowed to lapse.

### 2.4 New Claymore

New Claymore acquired property in the area as permits lapsed in 1997. They jointed venture their property with Meteor Minerals in 1997. In May 1997 they completed a high-resolution aeromagnetic survey for the survey (Faragher & Ryzziuk, 1999). Few details of the survey are provided in the assessment report. The survey was likely a fixed wing survey with a terrain clearance of 85m. The survey defined 22 positive magnetic features of which 18 were tested with ground geophysics consisting of magnetometer and HLEM survey. In the winter of 1998, nine targets were drilled with out success. Five of the holes never reached bedrock. The property was allowed to lapse.

### 2.5 Ultrasonic Industrial Sciences

In the summer of 1997 Ultrasonic Industry Sciences (“UIS”) mounted a modest sampling program on the remains of their property originally acquired in April 14, 1993. UIS had filed the original qualifying report (Hawkins, 1993b) completed on the property as assessment work. No fieldwork was conducted until 1997 when APEX conducted a modest sampling program (Chin et al, 1997) within Twp83R16W5 and Twp84R16W5. This program consisted of the collection of six till samples. Indicator minerals found in 3 of the samples included 9 definite and 2 possible pyrope garnets, 1 definite and 3 possible chrome diopsides and 2 possible eclogitic garnets. More than 61 opaque grains were also picked as being possible chromite or limonite. The garnets were classified as largely G9 with one G10 and one G3. Those grains likely fall into the same group as defined by other published data sets for the Northern Alberta Diamond Field. UIS allowed the permits to lapse.



## 2.6 United Carina / Consolidated Pine Channel JV

In early January 2004, BlackRock Ventures notified the JV of plans to drill a number of development wells in Twp84R17W5. The JV received permission to sample the upper portion of these wells. Previous to this, samples had successfully been taken from Delineation Wells drilled by Shell Canada in 1993 at Carmon Lake (Hawkins, 1993). Samples are obtained from the shale shaker table during the drilling of the shallow part of the hole. Sample location is estimated given the transit time of cutting to the surface. Sampling procedure, although not ideal is likely reasonable as a preliminary exploration tool. With proper diligence and dedication it is possible to obtain samples even in  $-40^{\circ}\text{C}$  weather. Accurate sample position or location is somewhat subjective.

The three wells sampled are located on Drawing A06-090-07. Samples were collected large plastic bags then placed in 5-gallon plastic pails. Samples were obtained from the shale shaker table with a shovel on a representative basis. Usually the shaker produced significant more material and the volume was sub-sample to produce a representative volume for material for a given interval. The material was obtained from the cone that formed as a result of the output. Care was taken to discard earlier material so there was not cross contamination between intervals. This all assumes there is a continuous flow of material from down the hole. These assumptions are considered acceptable, given the nature of the sampling, which we consider geochemical in nature. Obtaining such samples is inexpensive and quick to obtain. They are only be relied upon to limited extent because the actual location is only approximate and we are assume they are representative. They do however provide an access to till at depth inexpensively that assists in the evaluation of the area.

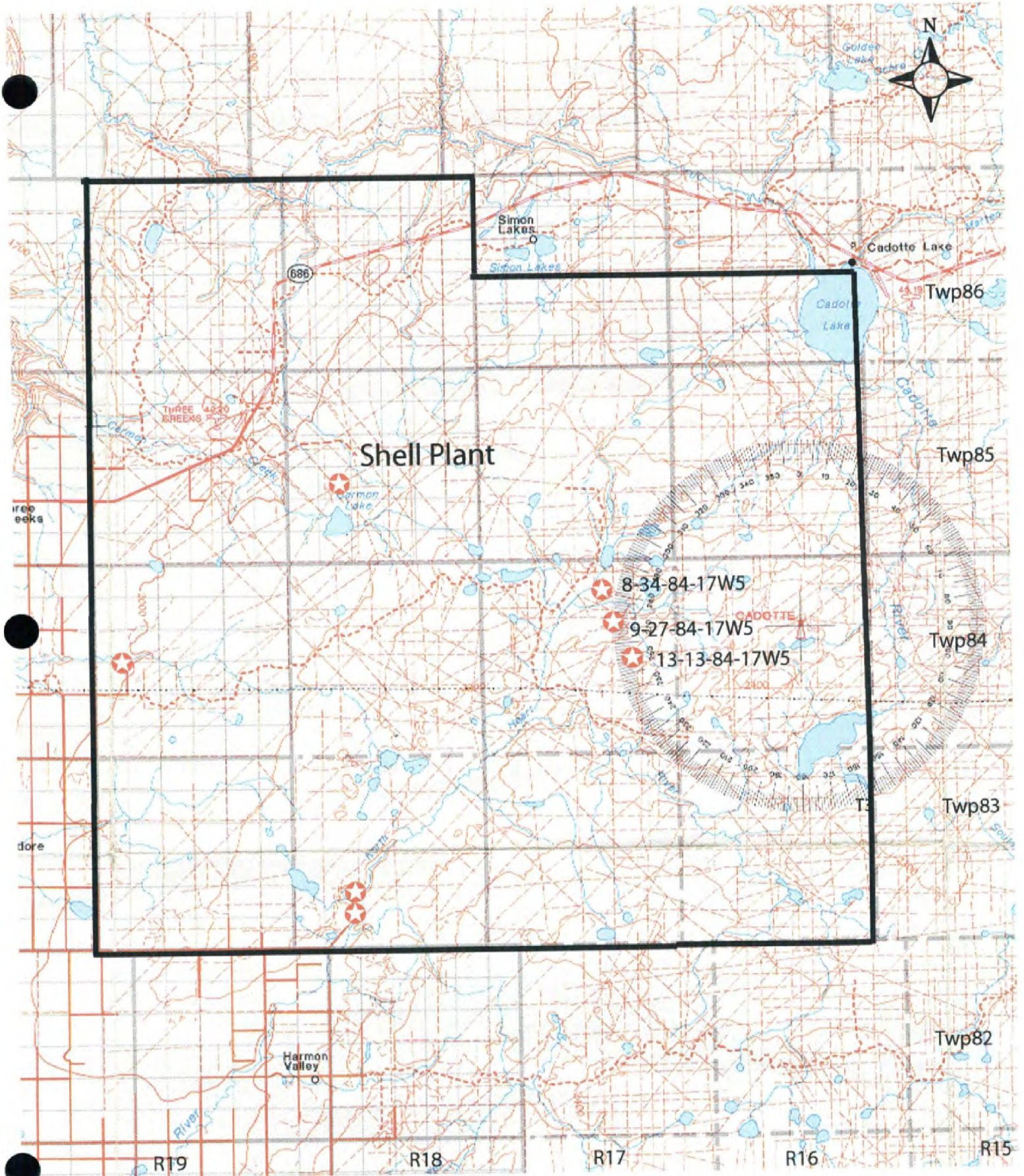
The three sampled wells are located on slight heights of ground above the generally swampy ground of the area. Future logging is planned in the area. The wells as located on Drawing A06-090-07 are situated in the headwaters of the North Heart River from which kimberlitic indicators were obtained this past summer. The wells are situated along the SW-NE trend that hosts the Ashton kimberlites to the northeast.

Initial picking of concentrate was encouraging with a significant number of garnets and ilmenites but micro probe analysis indicated few of the garnets were of interest and none of the ilmenites. Analysis did however return a modest number of garnets (10 G-3, 1 G-4, 48 G-5, 1 G6, and 5 G-8), 58 clino-pyroxenes and 7 olivines of interest (Hawkins, 2006). Probing indicated they were very low chrome garnets falling into G1, 3, 5, 6, and 8 classes of Dawson and Stephens (Dawson & Stephens, 1975). There were no G-9 recovered as previous seen from past sampling. These garnets may represent a different population of indicators. A small number do fall with the diamond inclusion fields. A number of the Olivine and Chrome Diopsides grains fall within the pyroxene classification of Dawson & Stephens (Dawson and Stephens, 1997). Further follow-up on these samples is pending.

As a result of these results it was decided to take further regional stream sediments and till samples.



# Sampled Oil Wells



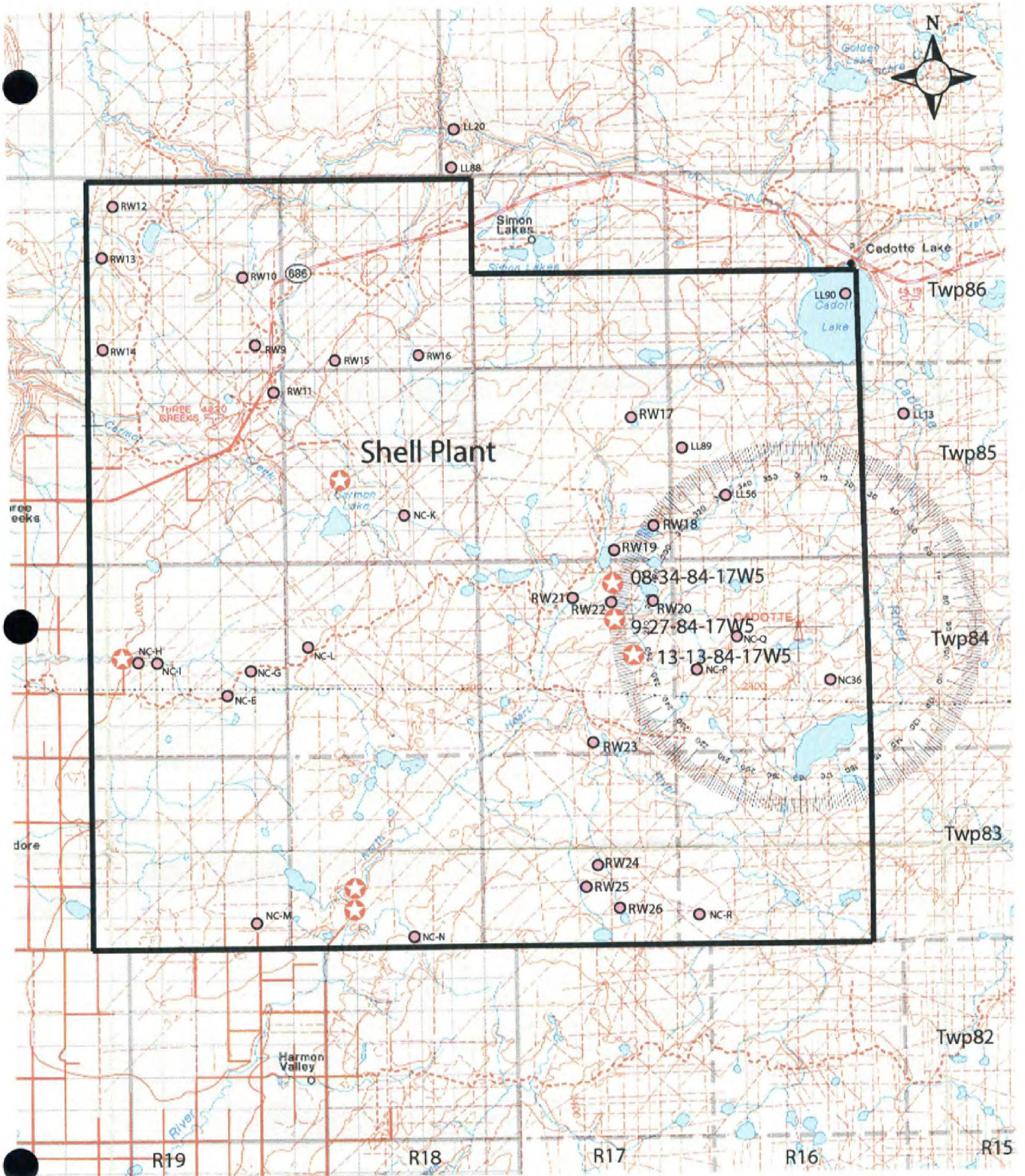
★ Kimberlitic Indicators

Peace River UCA/ KPG JV  
Scale 1:250,000

A06-090-07



# Airborne Anomaly Locations



★ Kimberlitic Indicators    ● Aeromag Anomaly (Previous)

Scale 1:250,000

A06-090-08



### 3.0 Current Exploration Program

Given the previous exploration results on the property, it decided to explore the property on a more integrated fashion. Past operators usually focused on a single exploration tool to carry out area selection or select drill targets. Past exploration on the property has shown numerous near surface magnetic high targets unrelated to any bedrock source. Data processing of this data assumed overburden was relatively shallow. The actual range of overburden of 30 – 90 m. made this interpretative model unreliable. Many identified anomalies were actually buried channel deposits. Little ground truthing was apparently done.

The use of regional data sets in hind-sight (Hawkins, 1992) lacked the resolution to properly define targets as compared to the success in Fort à la Cône Diamond Play in Saskatchewan. These regional data sets can provide good regional data but lack the necessary resolution for detailed anomaly investigation.

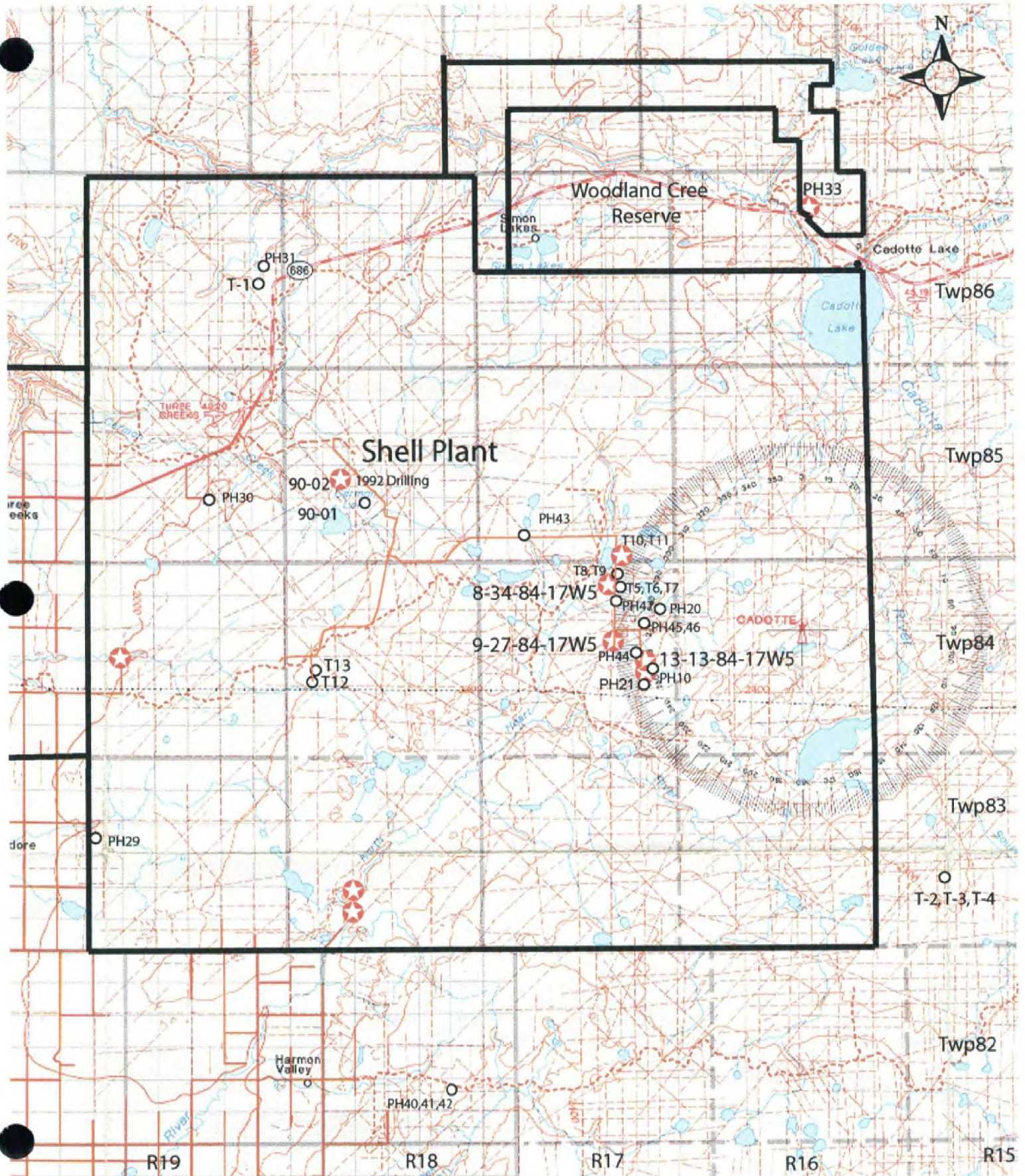
The JV opted to explore the property in an integrated fashion, collecting regional heavy mineral sampling, acquiring digital aeromagnetic data and compiling past exploration data. The acquired digital data was properly processed given the site-specific overburden thickness and other ground conditions. BlackRock Ventures development drilling in January 2005 provided an opportunity to collect drill cuttings from the shallow portions of several holes near a prospective target area. Initial probe results from these holes were disappointing but did indicate the presence of garnets, olivines and some clinopyroxenes of potential kimberlitic affinity (Hawkins, 2006). Further probe work is required to further define these indicators.

Regional heavy mineral sampling consisted of two sample types (Stream Sediment and Till samples). Samples were collected in 20 litre plastic pails (5 gallon) and sent for Indicator mineral processing. A small representative sample was also collected in a Kraft paper bag and sent for major element ICP analysis. Long delays in obtaining Electron Micro-probe results continue to present serious problems. Regional sampling has been the classical exploration technique more recently supplemented by airborne geophysics. United Carina / Star Uranium JV has been one of the few companies to use it. The Alberta Geological survey has collected a number of samples in the area with anomalous kimberlitic indicators.

This report documents preliminary results from a further 19 till samples and three additional stream sediments samples. Three of the till samples were duplicates of previous reported (Hawkins, 2006), from a BlackRock Ventures Development Well. The remaining Till samples for this report were collected in a number of burrow pits dug in the course of oil & gas development in the area. These samples were usually obtained in the centre of the pit at the deepest level. Till Sample Locations, are shown on Drawing A06-090-05R. Stream Sediment sample locations are provided in Drawing A06-090-06R.



# Sample Locations - Till Samples - July 2006



★ Kimberlitic Indicators

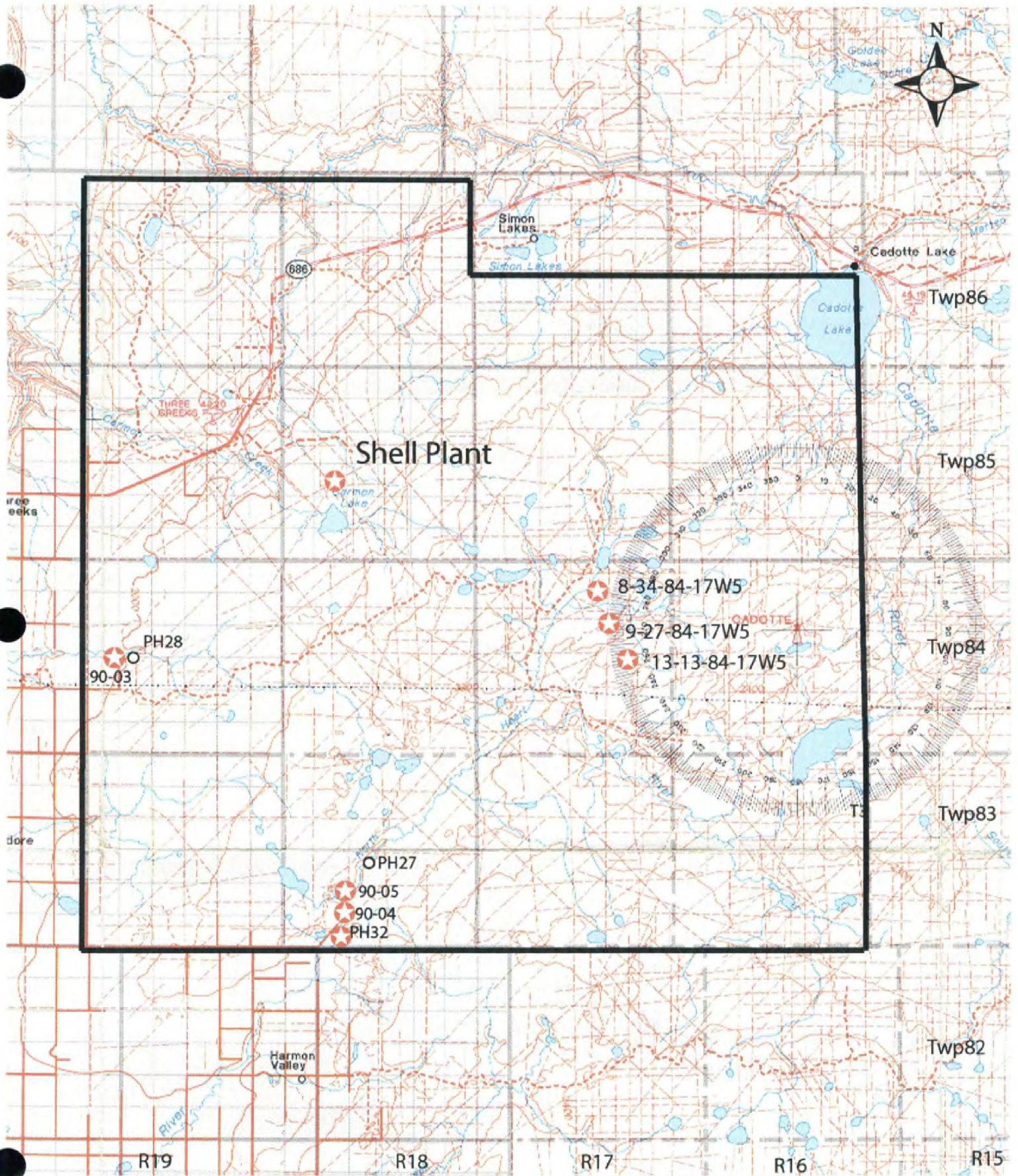
○ Till Sample Site

Peace River UCA/ SUV JV  
Scale 1:250,000

A06-090-05R



# Sample Locations - Stream Sediments Samples - July 2006



★ Kimberlitic Indicators      ○ Sample Site

Peace River UCA/ SUV JV  
Scale 1:250,000

A06-090-06R



### 3.1 Till Sampling

In June 2006, further till sampling was undertaken to collect a further 12 till samples from borrow pits or road cuts made during Access development for the Peace River Oil Sands and obtain samples for multi-element whole rock analysis to compare with results obtained by the AGS (Paulen et al, 2005). A further 7 samples in storage were also processed. Three duplicates of past samples were also processed. All the indicators picked for this report have yet to be probed so all mineral identification made, are only preliminary in nature and subject to confirmation. Full sample details and locations including UTM co-ordinates are provided in Appendix 1 & 2.

Table 3.  
Summary for Till Samples  
(Picked by SRC)

S/N	Garnets		CPX	Ilmenite	Chromite	Olivines	Depth
	Pyropes	Eclogitic					
T-2	-						0 - 1 m.
T-4	-				1		4 – 5 m.
T-5					1		0 – 2 m.
T-6	1					2	2 – 4 m.
T-7				1	3		4 – 5 m.
T-10					2	1	2 – 4 m.
T-11					1	1	4 – 6 m.
PH29	-						Pit
PH30					1		Surface
PH31	-						Surface
PH33	4	1		1	2	24	Surface
PH40	-		1				6.- 7 m.
PH41	-						5 – 6 m.
PH42	1						3 – 5 m.
PH43			1				0.5 m.
PH44						1	4 m.
PH45					1	1	4 m.
PH46	1				1		2 m.
PH47	-						3 m.

Samples T-2, T-3, and T-4 were taken off the western limits of the BlackRock Ventures Seal Lake Project access road as located on Drawing A06-0909-13. These samples were obtained from a burrow pit in clayey till. Only T-2 and T-4 were processed for indicators minerals. T-2 returned no indicators while T-4 one possible chromite grain. T-4 was likely a lower till equivalent given its depth of 4 m.

Sample T-5, T-6, and T-7 were obtained off of the BlackRock Access Road from a large burrow pit just east of 8-34-84R17W5 as shown on Drawing A06-090-14. The till was not of uniform composition with some gravel bands present locally within a otherwise massive till. All three samples returned collectively 1 garnet, 1 ilmenite, 5 chromites and 1 olivine.

Sample T-8 and T-9 were geochemical samples from a nearby road cut to the north.

Sample T-10 and T-11 were from a burrow pit off the BlackRock Access Road as shown on Drawing A06-090-14 within a relatively massive clay till. Material from samples from the upper part of the pit and lower part returned 3 possible chromites and two olivines.

Samples T-12 and T-13 were from near the Baytex battery of wells SW of the Shell Plant. T-12 was from a road cut. T-13 was from the margin of a stripped area. Both samples were collected as geochemical samples. Samples are located on Drawing A06-090-16.

Sample PH30 was taken from the margin of a shallow burrow pit just west of the Shell Plant as located on Drawing A06-090-19. Only one possible chromite was obtained.

Sample PH31 was taken in a farmer's field north of Highway 686 to provide some regional framework to the regional sampling. T-1 was also taken nearby as a geochemical sample. Sample are located on Drawing A06-090-21. No indicators were recovered.

Sample PH33 was taken just north of Highway 686 just east of the Woodland Cree First Nation Reserve. This sample returned a significant number of indicators which as of yet remain to be probed. A total of 5 garnets, 1 ilmenite, 2 chromites, and 24 olivines were present. The sample was a gravely till sample. The indicators present could be down ice from the Ashton pipes but we view this as unlikely. Further examination is likely. Sample is located on Drawing A06-090-20. A better understanding of the indicators here will be more likely possible once the grains have been micro-probed.

Samples PH40, PH41, PH42 were taken from a new burrow pit off of the rebuilt Harmon Valley Road. The three sample represent a profile of the till present in the pit. The three samples only returned 1 garnet and 1 cpx grain. PH40 was from the bottom of the pit at a depth of 6-7m., and was fairly well lithofied and was very hard. Till composition was variable over the pit's extent.

PH43 was taken off of the BlackRoad Access Road on a landing within a clear cut. This near surface sample returned one cpx grain.

PH44 was taken from a burrow pit across from a camp complex at a depth of 4 m. just north of 13-13-84R17W5. This sample only returned one olivine indicator.

PH45 and PH46 were taken on the western margin of a burrow pit adjoining a large cleared area. The shallow sample returned one garnet and one chromite while the deep sample returned one chromite and one olivine. Sample is located on Drawing A06-090-16.

Sample PH47 was taken from another burrow pit to the south as shown on Drawing A06-090-16. No indicators were recovered from this sample.

Surface till samples have returned a number of indicators consisting of garnets, cpx, ilmenites, chromites, and olivines. Without micro-probe analysis it is not possible to assess their importance. Inconsistence results between samples may be due to variations in till composition



# Kimberlite Indicator Mineral Grain Morphology Sheet

GROUP: 06-868

SAMPLE	QUANTITY	LOCATION	SIZE FRACTION	GRAIN TYPE *	COLOR	SHAPE	CLARITY	LUSTRE	SURFACE FEATURE	COMMENT	DATE	OBSERV
090PH40	1	1	-0.50/+0.25mm	pos chr diopside	green	ang	translucent	none	none		10/08/06	LB
090PH42	1	1	-0.50/+0.25mm	pyr-p	purple	fragm	translucent	vitreous	pitted		10/08/06	CLF
090PH43	1	1	-0.50/+0.25mm	chr diopside	green	rnd	translucent	none	none		10/08/06	LB
090PH44	1	1	-0.50/+0.25mm	pyr-p	purple	fragm	translucent	vitreous	none		10/08/06	NV
090PH44	1	2	-0.50/+0.25mm	olv	yellow	irr	translucent	glassy	striations		10/08/06	NV
090PH45	1	1	-0.50/+0.25mm	chr diopside	black	ang	opaque	matte	none		10/08/06	CLF
090PH45	1	2	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		10/08/06	CLF
090PH46	1	1	-0.50/+0.25mm	pyr-p	purple	fragm	transparent	vitreous	none		10/08/06	KH
090PH46	1	2	-0.50/+0.25mm	chr	black	irr	opaque	shiny	none		10/08/06	KH

\* Unless otherwise indicated all grains are considered definite

9

Appendix 2

Stream Sediment and Till Sample Data

Table 5

Table 6



## Appendix 2 - Stream Sediments and Till Sample Data

UCA / SUV JV Peace River / Buffalo Head Hills – September 2006

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The following tables compile results for regional stream sediments and till. The associated township location maps provide relative locations. GPS locations were obtained using a Garmin GPS 45XL hand held unit or a Garmin iQUE M6 Pocket PC using NAD 83. Indicator Mineral Processing for a number of samples is incomplete as of the date of this report. Indicators for samples 90-01 to 90-03 and PH01 to PH10 have been probed. All other indicators were picked based on visual examination of grains only at SRC. Multi-element ICP analysis is available for some of these samples either in this report or in a previous report (Hawkins, 2006). At some sample locations only a geochemical sample was obtained to determine regional variation of major element distribution.

## Appendix 2 - Stream Sediments and Till Sample Data

UCA / SUV JV Peace River / Buffalo Head Hills – September 2006

Table 5  
Updated Stream Sediment Data

S/N	ATS	NTS	Zone	Easting	Northing	Description	Results (Indicator Minerals from SRC)					Other	
							Garnets		cpx	ilmenite	Chromite		olivines
							Pyropes	eclogitic					
90-03	084R19W5	84C/07	11	501302	6238579	Sandy Gravel with clay	4	1	1	1		4	Bank Sample
90-04	083R18W5	84C/02	11	512044	6224876	Clayey Silt		1	2		4	4	Bank sample
90-05	083R18W5	84C/02	11	512115	6224793	Clayey Silt	9	1	9	1		>50	Active channel
PH27	083R18W5	84C/02	11	513959	6228579	Organic Silt							Flood Channel
PH28	084R19W5	084C/7	11	501302	6238985	Clay Silt	1				1	2	Bank sample
PH32	083R18W5	84C/02	11	511994	6223436	Organic Silt						3	Flood Channel



## Appendix 2 - Stream Sediments and Till Sample Data

UCA / SUV JV Peace River / Buffalo Head Hills – September 2006

Table 6  
Till Samples

S/N	ATS (all W5)	NTS	Zone	Easting	Northing	Description	Results (Indicator Minerals from Loring / UofA)					Other	
							Garnets		cpx	ilmenite	Chromite		olivines
							Pyropes	eclogitic					
90-01	3-85-18	84C	11	515014	6244905	Clay till	0			1		0	Burrow
90-02	10-85-18	84C	11	514475	6245230	Clay till	1			0		1	Burrow
PH01	13-13-84-17	84C	11	527497	6237912	Drill 5 – 15m.	1		3			1	Cuttings
PH02				“	“	Drill 15 – 25m.	1		3			1	“
PH03				“	“	Drill 25 – 35m.	8		10			2	“
PH04				“	“	Drill 35 – 50m.	1		-			-	“
PH05				“	“	Drill 50 – 56m.	14		1			-	“
PH06				“	“	Drill 56 – 65m.	10		7			2	“
PH07				“	“	Drill 65 – 75m.	19		6			-	“
PH08				“	“	Drill 75 – 85m.	9		8			-	“
PH09				“	“	Drill 85 – 100	-		13			-	“
PH10	13-13-84-17	84C	11	“	“	Gravel	2		7			Sump	

## Appendix 2 - Stream Sediments and Till Sample Data

UCA / SUV JV Peace River / Buffalo Head Hills – September 2006

S/N	ATS (all W5)	NTS	Zone	Easting	Northing	Description	Preliminary Results (SRC)						
							Garnets		cpx	ilmenite	Chromite		Olivines
							Pyropes	Ecolitic					
PH11 PH12 PH13	9-27-84-17	84C	11	525728 “ “	6240872 “ “	Drill 30-45m. Drill 60 – 85m. Drill 85 – 100	N/A						Cuttings “ “
PH14 PH15 PH16 PH17 PH18 PH19	08-34-84-17	84C	11	525515 “ “ “ “ “	6242288 “ “ “ “ “	Drill 0-20m. Drill 20 – 40m Drill 40 – 60m. Drill 60 – 80m. Drill 80 – 100 Drill 100 - 120	N/A						Cuttings “ “ “ “ “
PH20	11-25-84-17	84C	11	527973	6241088	Gravel Till	N/A						
PH21	84-17	84C	11	527458	6236692	Gravel Till	-					2	
<b>PH22</b>	08-34-84-17	84C	11	525515	6242288	Duplicate of PH19						6	Cuttings
<b>PH23</b>	08-34-84-17	84C	11	525515	6242288	Duplicate of PH16			1				Cuttings
<b>PH24</b>	08-34-84-17	84C	11	525515	6242288	Duplicate of PH17				1	8		Cuttings
PH29	83-19	84C	11	499685	6229796	Clay Till							Pit
PH30	85-19	84C	11	505857	6246258	Clay Till				1			Pit
PH31	86-19	84C	11	509035	6257190	Clay Till							Surface
PH33	80-16	84C	11	511994	6224474	Clay Till	4	1		1	2	24	Pit
<b>PH40</b>	82-18	84C	11	517811	6216967	Clay Till (pit)			1				6-7 m,
<b>PH41</b>	“	84C	11	“	“	“							5-6 m.
<b>PH42</b>	“	84C	11	“	“	“	1						3-5 m.
<b>PH43</b>	85-17	84C	11	522087	6244265	Silty Clay (pit)			1				0.5 deep
<b>PH44</b>	84-17	84C	11	526745	6240329	Clay Till (pit)						1	4m deep
<b>PH45</b>	84-17	84C	11	527821	6240087	Lower Till (pit)					1	1	4m deep
<b>PH46</b>	84-17	84C	11	“	“	Upper Till (pit)	1				1		2m deep
<b>PH47</b>	84-17	84C	11	525845	6241200	Clay Till (pit)							3m deep.

Notes: “N/A” denotes re-picking of concentrated required and Micro Probe data not yet completed  
 “-“ No indicators present except as noted



## Appendix 2 - Stream Sediments and Till Sample Data

UCA / SUV JV Peace River / Buffalo Head Hills – September 2006

S/N	ATS (all W5)	NTS	Zone	Easting	Northing	Description	Preliminary Results (SRC)					Other	
							Garnets		cpx	ilemenite	Chromite		Olivines
							Pyropes	Eclogitic					
T-1	86-19	84C	11	509067	6257215	Till	Soil	Only					Surface
T-2	83-15	84C	11	543553	6225676	Upper Till							0-1 m.
T-3	"	84C	11	"	"	Lower Till	Soil	Only					2 – 4m.
T-4	"	84C	11	"	"	Lower Till					1		4 - 5m.
T-5	84-17	84C	11	526058	6242250	Upper Till					1		0 - 2 m.
T-6	"	84C	11	"	"	Lower Till	1					2	2 – 4m.
T-7	"	84C	11	"	"	Lower Till				1	3		4 - 5 m.
T-8	"	84C	11	526096	6242232	Upper Till	Soil	Only					Road
T-9	"	84C	11	"	"	Lower Till	Soil	Only					Road
T-10	85-17	84C	11	526041	6242251	Upper Till	1				2	1	Pit
T-11	85-17	84C	11	"	"	Lower Till					1	1	Pit
T-12	18-84-17	84C	11	511246	6238145	Sandy Till	Soil	Only					Road
T-13	16-84-17	84C	11	511048	6238281	Sandy Till	soil	Only					Surface

Notes: "Soil Only" denotes geochemical sample only for major element ICP analysis.

Appendix 3

Major Element Analysis on Till Samples

(Please note samples with the prefix 213 relate to another project area..)





# Loring Laboratories Ltd.

629 Beaverdam Road N.E.,  
Calgary Alberta T2K 4W7  
Tel: 274-2777 Fax: 275-0541



TO: PAUL A. HAWKINS & ASSOCIATES LTD.

72 Strathlorne Cr. S.W.  
Calgary, Alberta  
T3H 1M8

Attn: Paul Hawkins

FILE: 48739

DATE: July 13, 2006

## 30 ELEMENT ICP ANALYSIS

Sample No.	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sr	Th	Ti	U	V	W	Zn
	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
090PH401(-250m)	<0.5	1.95	12	<1	54	351	<1	2.08	1	37	30	97	1.92	0.27	37	0.87	404	5	0.02	34	0.07	16	3	69	6	0.01	<1	58	<1	75
090PH401(+250m)	<0.5	1.58	11	<1	49	208	<1	2.39	1	30	25	42	1.55	0.22	35	0.60	352	2	0.02	31	0.06	5	1	62	2	0.01	<1	49	<1	60
090PH41(-250m)	<0.5	2.17	14	<1	55	308	<1	1.94	1	38	30	47	2.00	0.30	36	0.90	349	3	0.02	38	0.07	7	2	73	3	0.01	1	64	<1	77
090PH41(+250m)	<0.5	1.39	10	<1	44	215	<1	1.48	1	27	21	30	1.39	0.21	28	0.51	351	2	0.02	31	0.05	5	2	52	2	0.01	6	46	<1	54
090PH42(-250m)	<0.5	1.79	14	<1	38	264	<1	2.07	1	33	28	33	1.75	0.26	35	0.62	436	2	0.02	34	0.06	5	<1	65	<1	0.01	4	57	<1	61
090PH42(+250m)	<0.5	1.71	13	<1	45	249	<1	1.77	1	31	25	38	1.54	0.26	31	0.56	501	2	0.02	35	0.05	5	1	60	4	0.02	<1	51	<1	56
090PH43(-250m)	<0.5	2.67	10	<1	37	179	<1	0.29	1	33	31	28	1.87	0.26	19	0.40	201	2	0.02	27	0.04	1	2	37	3	0.02	7	71	<1	57
090PH43(+250m)	<0.5	2.43	9	<1	37	169	<1	0.27	1	33	28	26	1.77	0.23	19	0.37	183	2	0.02	27	0.04	1	3	36	8	0.02	10	65	<1	57
090PH44(-250m)	<0.5	1.99	12	<1	43	306	<1	1.55	1	32	29	34	1.77	0.29	30	0.65	359	2	0.02	31	0.06	7	1	60	5	0.02	4	63	<1	66
090PH44(+250m)	<0.5	1.46	10	<1	36	237	<1	1.34	1	27	25	25	1.41	0.20	25	0.52	360	1	0.01	29	0.05	4	<1	50	6	0.01	11	47	<1	54
090PH45(-250m)	<0.5	1.90	15	<1	46	237	<1	2.33	1	34	31	31	1.91	0.29	34	0.94	381	2	0.02	32	0.06	4	<1	66	6	0.02	8	54	<1	63
090PH45(+250m)	<0.5	1.50	10	<1	43	183	<1	2.14	1	28	24	23	1.49	0.23	32	0.65	355	1	0.02	28	0.05	2	2	53	5	0.01	<1	48	<1	50
090PH46(-250m)	<0.5	2.09	12	<1	48	244	<1	2.30	1	33	29	33	1.72	0.31	33	0.92	438	2	0.02	34	0.06	5	<1	67	2	0.02	2	59	<1	61
090PH46(+250m)	<0.5	1.60	10	<1	41	177	<1	2.22	1	26	21	24	1.32	0.24	31	0.60	450	1	0.02	33	0.05	4	2	56	4	0.02	13	48	<1	46
090PH47(-250m)	<0.5	1.88	12	<1	41	265	<1	1.89	1	32	28	34	1.66	0.28	32	0.68	363	2	0.02	35	0.06	7	<1	60	9	0.01	0	55	<1	65
090PH47(+250m)	<0.5	1.43	9	<1	39	213	<1	1.69	1	27	20	25	1.36	0.22	27	0.56	319	1	0.02	30	0.05	4	3	50	6	0.01	5	42	<1	56
090PH48(-250m)	<0.5	2.15	12	<1	50	392	<1	1.19	1	34	31	54	1.73	0.33	29	0.60	399	2	0.02	41	0.07	6	<1	71	7	0.01	2	69	<1	74
090PH48(+250m)	<0.5	1.92	12	<1	32	373	<1	0.98	1	34	29	36	1.58	0.29	27	0.54	398	2	0.02	40	0.07	6	2	66	10	0.01	5	62	<1	71
090PH49(-250m)	<0.5	1.61	10	<1	43	355	<1	2.10	1	48	21	28	2.97	0.23	35	0.72	1164	2	0.03	33	0.06	4	2	68	<1	0.01	19	46	<1	62
090PH49(+250m)	<0.5	1.19	11	<1	41	263	<1	2.34	1	38	18	21	2.21	0.18	31	1.10	819	1	0.02	28	0.05	3	<1	54	2	0.01	0	42	<1	54
090PH50(-250m)	<0.5	1.27	16	<1	42	870	<1	5.80	1	72	17	27	4.78	0.20	44	1.88	1961	3	0.05	39	0.11	3	3	80	2	0.02	32	44	<1	46
090PH50(+250m)	<0.5	0.96	11	<1	40	453	<1	4.22	1	59	18	17	3.72	0.16	38	1.20	1516	2	0.04	31	0.11	1	3	61	<1	0.02	17	38	<1	38
213PH51(-250m)	<0.5	1.87	15	<1	44	326	<1	1.28	2	49	27	35	2.54	0.27	29	0.62	835	7	0.03	51	0.12	6	2	80	<1	0.01	11	56	<1	119
213PH51(+250m)	<0.5	1.38	13	<1	33	245	<1	1.09	2	45	16	28	2.05	0.21	25	0.53	872	7	0.02	46	0.10	5	1	65	4	0.01	20	46	<1	101
213PH52(-250m)	<0.5	2.13	11	<1	44	227	<1	4.25	1	30	25	30	1.56	0.30	42	1.22	364	2	0.03	31	0.04	1	1	99	9	0.02	3	51	<1	51
213PH52(+250m)	<0.5	2.10	11	<1	43	260	<1	3.92	1	31	31	26	1.53	0.27	38	1.22	389	2	0.03	34	0.05	1	<1	112	2	0.01	<1	53	<1	51
213PH53(-250m)	<0.5	1.90	16	<1	50	326	<1	1.86	1	38	26	40	1.96	0.30	32	1.10	354	4	0.11	38	0.09	6	<1	74	5	0.01	<1	59	<1	96
213PH53(+250m)	<0.5	1.47	14	<1	46	270	<1	1.74	1	35	22	31	1.68	0.24	32	1.01	372	4	0.09	38	0.08	7	1	65	4	0.01	5	47	<1	84
213PH54(-250m)	<0.5	1.97	17	<1	48	325	<1	1.49	1	39	26	39	1.90	0.30	31	1.03	338	5	0.09	36	0.06	7	1	71	6	0.01	4	59	<1	95
213PH54(+250m)	<0.5	1.33	14	<1	42	245	<1	1.48	1	34	22	30	1.56	0.21	28	0.77	339	4	0.07	35	0.06	6	<1	60	6	0.01	5	43	<1	79

0.500 Gram sample is digested with Aqua Regia at 95 C for one hour and bulked to 10 ml with distilled water.  
Partial dissolution for Al, B, Ba, Ca, Cr, Fe, K, La, Mg, Mn, Na, P, Sr, Ti, and W.

Certified by:





# Loring Laboratories Ltd.

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TO: PAUL A. HAWKINS & ASSOCIATES LTD.

72 Strathlorne Cr. S.W.  
Calgary, Alberta  
T3H 1M8

Attn: Paul Hawkins

FILE: 48739

DATE: July 13, 2006

## 30 ELEMENT ICP ANALYSIS

Sample No.	Ag ppm	Al %	As ppm	Au ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
213PH55(-250m)	<0.5	1.68	22	<1	50	281	<1	1.38	2	52	17	52	2.36	0.27	30	0.90	542	14	0.10	54	0.06	13	3	71	7	0.01	12	56	<1	140
213PH55(+250m)	<0.5	1.35	18	<1	40	193	<1	1.76	2	42	18	36	1.87	0.22	28	0.65	494	11	0.08	46	0.05	9	2	65	6	0.01	10	47	<1	109
213PH56(-250m)	<0.5	1.85	18	<1	44	331	<1	1.70	1	42	23	38	2.00	0.28	30	0.72	364	10	0.03	45	0.05	10	<1	74	6	0.01	5	56	<1	114
213PH56(+250m)	<0.5	1.70	16	<1	43	262	<1	1.88	1	41	21	31	1.86	0.25	31	0.73	414	8	0.02	43	0.05	8	<1	71	<1	0.01	17	51	<1	104
213PH57(-250m)	<0.5	1.41	16	<1	41	46	<1	4.08	1	35	21	34	1.67	0.23	36	0.99	326	10	0.02	40	0.05	5	1	87	6	0.01	7	47	<1	90
213PH57(+250m)	<0.5	1.74	18	<1	46	244	<1	2.97	2	44	21	46	1.97	0.28	34	1.08	366	12	0.02	51	0.05	7	2	81	<1	0.01	5	55	<1	112
213PH58(-250m)	<0.5	1.88	17	<1	46	522	<1	1.06	1	45	21	62	2.08	0.26	27	0.59	455	6	0.12	43	0.05	10	2	94	4	0.01	7	49	<1	114
PH40(-250m) R	<0.5	1.89	12	<1	43	285	<1	2.02	1	33	27	91	1.80	0.25	32	0.69	384	3	0.02	30	0.06	15	1	65	8	0.01	<1	51	<1	69
PH49(+250m) R	<0.5	1.56	10	<1	38	246	<1	2.32	1	39	21	22	2.19	0.16	31	1.08	821	1	0.02	29	0.05	4	<1	54	4	0.01	7	40	<1	54
213PH58(+250m)	<0.5	1.65	13	<1	42	59	<1	2.78	1	41	21	36	1.79	0.22	33	0.50	639	4	0.11	46	0.05	7	<1	101	6	0.01	<1	46	<1	92
213PH59(-250m)	<0.5	1.66	12	<1	39	272	<1	1.46	1	35	20	48	1.79	0.25	29	0.68	470	2	0.19	34	0.05	8	1	75	<1	0.01	5	38	<1	83
213PH59(+250m)	<0.5	1.44	11	<1	40	213	<1	1.49	1	33	17	33	1.58	0.21	28	0.62	405	2	0.17	32	0.05	8	1	70	3	0.01	<1	35	<1	74
213TD100(-250m)	<0.5	1.59	14	<1	40	278	<1	0.97	2	48	18	53	2.39	0.23	26	0.50	763	6	0.02	42	0.08	8	2	72	6	0.01	4	47	<1	110
213TD100(+250m)	<0.5	1.09	10	<1	34	184	<1	0.89	1	36	11	27	1.68	0.15	22	0.43	586	4	0.02	33	0.06	5	<1	51	2	0.01	5	36	<1	82
213TD101(-250m)	<0.5	1.93	20	<1	46	325	<1	1.92	2	47	27	42	2.11	0.28	36	0.92	370	9	0.03	46	0.06	7	2	76	10	0.01	5	56	<1	120
213TD101(+250m)	<0.5	1.70	17	<1	42	175	<1	2.31	2	43	22	34	1.93	0.24	35	0.91	424	9	0.03	47	0.06	6	2	76	6	0.01	3	54	<1	105
213TD102(-250m)	<0.5	2.25	16	<1	42	318	<1	2.26	1	39	29	43	2.01	0.25	39	0.97	388	4	0.03	45	0.06	4	2	67	10	0.01	2	65	<1	82
213TD102(+250m)	<0.5	2.08	15	<1	44	282	<1	2.01	1	37	29	32	1.80	0.22	35	0.91	358	4	0.03	44	0.05	3	2	61	<1	0.01	<1	58	<1	75
213TD103(-250m)	<0.5	1.55	16	<1	42	258	<1	1.79	1	40	20	44	1.93	0.24	32	0.69	356	6	0.04	43	0.06	8	2	63	5	0.01	<1	49	<1	103
213TD103(+250m)	<0.5	1.49	15	<1	32	212	<1	1.75	1	36	19	34	1.75	0.22	30	0.65	352	5	0.03	40	0.06	7	1	60	4	0.01	2	47	<1	96
213TD104(-250m)	<0.5	1.97	17	<1	47	671	<1	1.13	1	48	23	51	2.25	0.29	30	0.61	569	6	0.14	50	0.06	11	1	103	2	0.01	14	51	<1	120
213TD104(+250m)	<0.5	1.66	14	<1	44	98	<1	2.51	1	44	22	39	1.90	0.24	35	0.53	648	5	0.13	50	0.05	8	1	101	6	0.01	<1	46	<1	99
213TD105(-250m)	<0.5	0.33	4	<1	35	53	<1	0.15	<1	14	7	25	0.62	0.06	15	0.09	239	<1	0.03	13	0.03	6	<1	11	5	0.01	<1	12	<1	15
213TD105(+250m)	<0.5	0.13	3	<1	35	20	<1	0.09	<1	8	3	12	0.35	0.03	7	0.05	100	<1	0.01	8	0.02	3	<1	7	<1	0.01	5	7	<1	9
213Rx001(-250m)	<0.5	0.61	<1	<1	60	126	22	0.84	5	218	10	<1	21.22	0.07	26	2.03	13150	2	0.04	63	0.03	3	11	42	<1	<0.01	94	31	<1	26
213Rx001(+250m)	<0.5	0.53	<1	<1	62	127	21	0.81	5	229	7	<1	21.57	0.06	25	1.93	13430	2	0.05	67	0.04	4	12	46	<1	<0.01	88	32	<1	28
213PH58(+250) R	<0.5	1.71	14	<1	43	63	<1	2.93	1	44	22	40	1.90	0.24	38	0.52	661	5	0.12	48	0.05	7	<1	107	4	0.01	<1	47	<1	96

0.500 Gram sample is digested with Aqua Regia at 95 C for one hour and bulked to 10 ml with distilled water.  
Partial dissolution for Al, B, Ba, Ca, Cr, Fe, K, La, Mg, Mn, Na, P, Sr, Ti, and W.  
"R" denotes duplicate sample analyzed.

Certified by: 



Appendix 4  
Sample Locations Maps

# Stream Sediment Sample Locations



084R19W5

16°20'00"

16°17'30"



TP.084 R.19

090-03

PH28

Cig.

A06-090-11R

Map Base Modified After  
Alberta Environmental Protection, 1998

56°15'00"  
117°00'00"

116°57'30"

116°55'00"

116°52'30"



116°52'30"

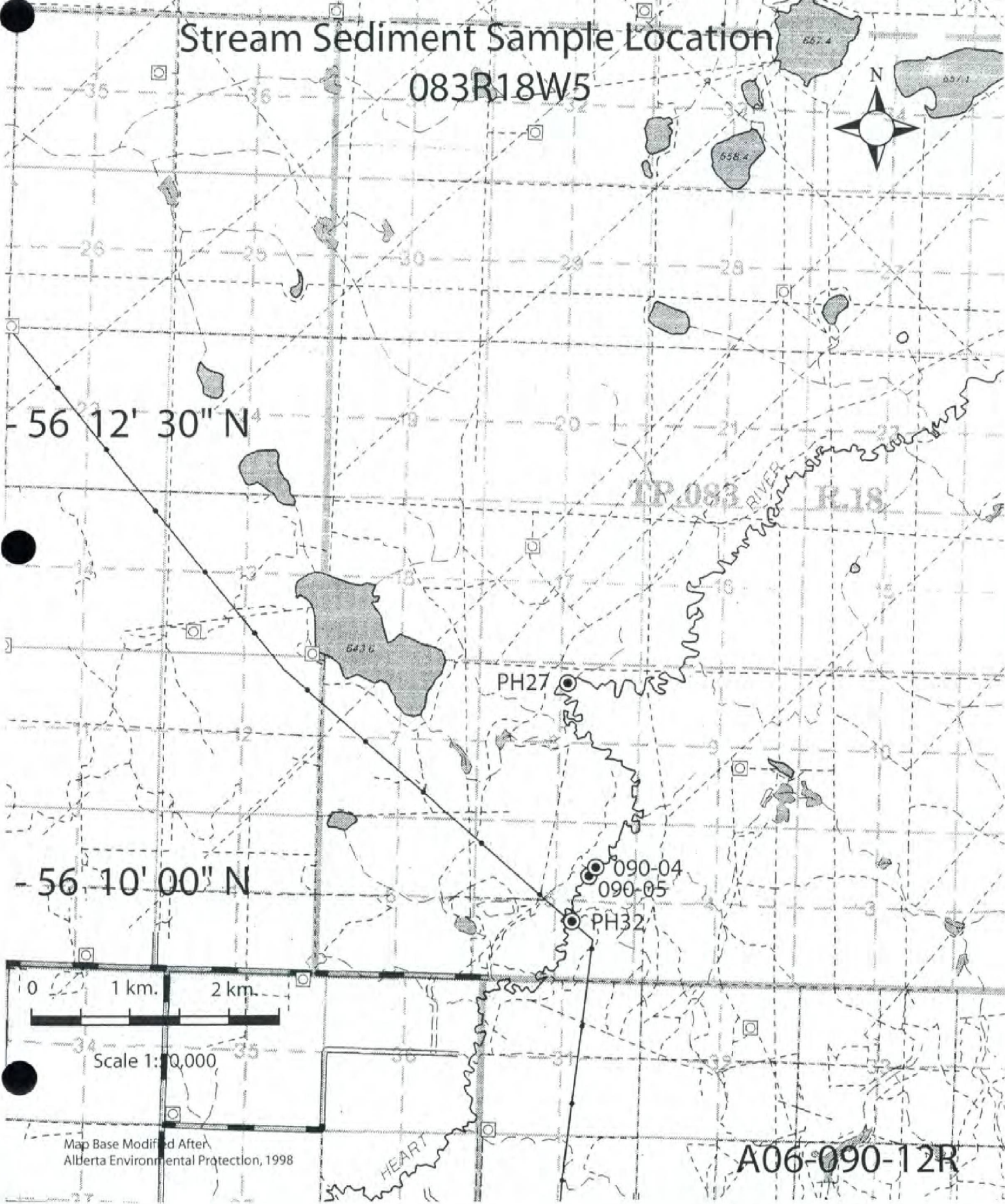
116°50'00"

116°47'30"

116°45'00"

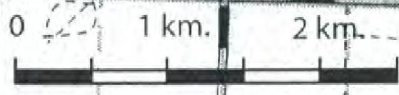
# Stream Sediment Sample Location

## 083R18W5



56°12'30" N

56°10'00" N



Scale 1:10,000

Map Base Modified After  
Alberta Environmental Protection, 1998

### A06-090-12R



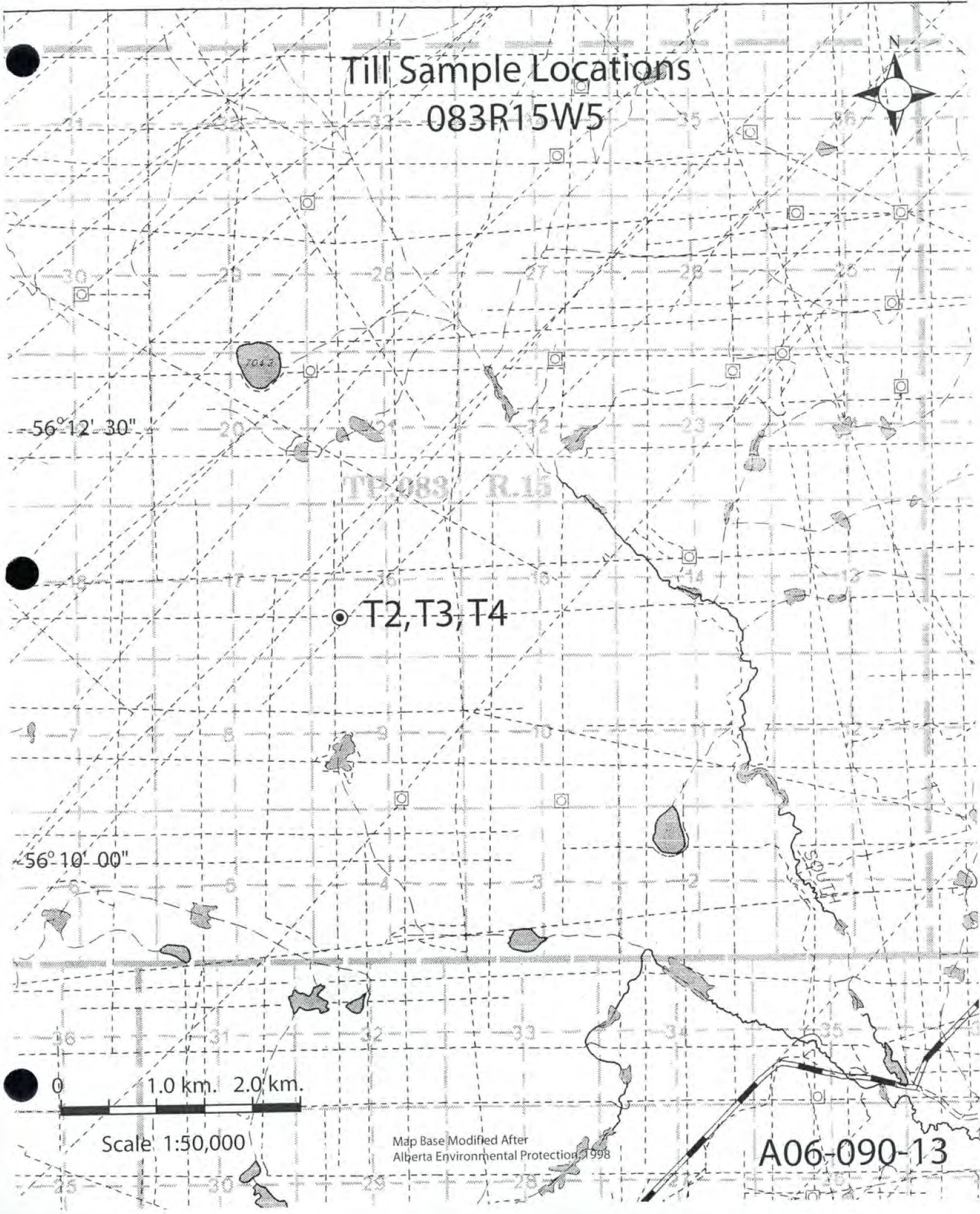
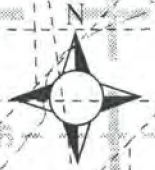
116°20'00"

116°17'30"

116°15'00"

116°12'30"

# Till Sample Locations 083R15W5



56°12'30"

T2, T3, T4

56°10'00"

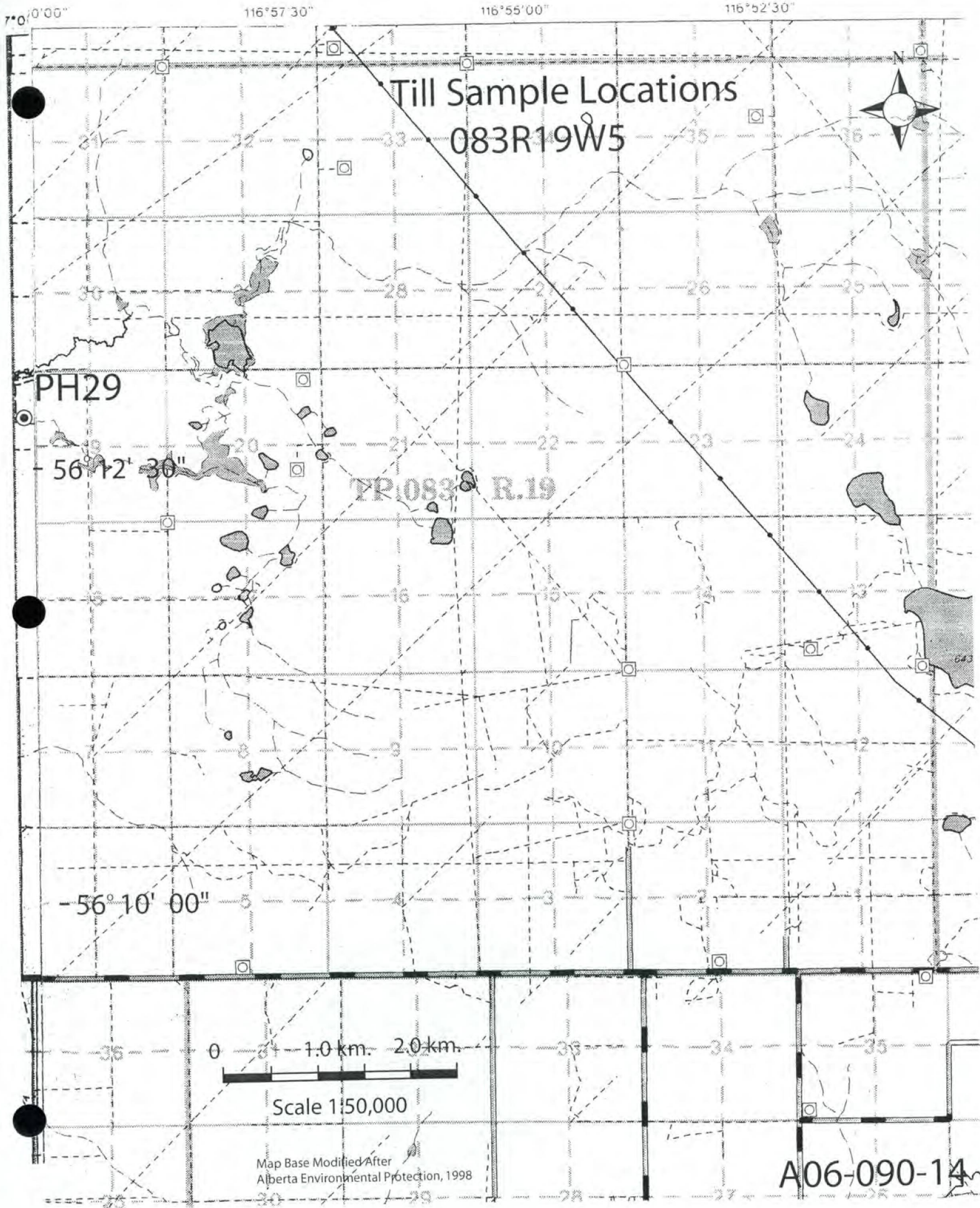
0 1.0 km. 2.0 km.

Scale 1:50,000

Map Base Modified After  
Alberta Environmental Protection 1998

A06-090-13





Map Base Modified After  
Alberta Environmental Protection, 1998

A06-090-14



# Till Sample Locations

PH43

084R17W5

T10, T11

T8, T9

T5, T6, T7

PH69

PH47

PH20

PH45

PH46

PH44

TR.084 R.17

PH10

PH21

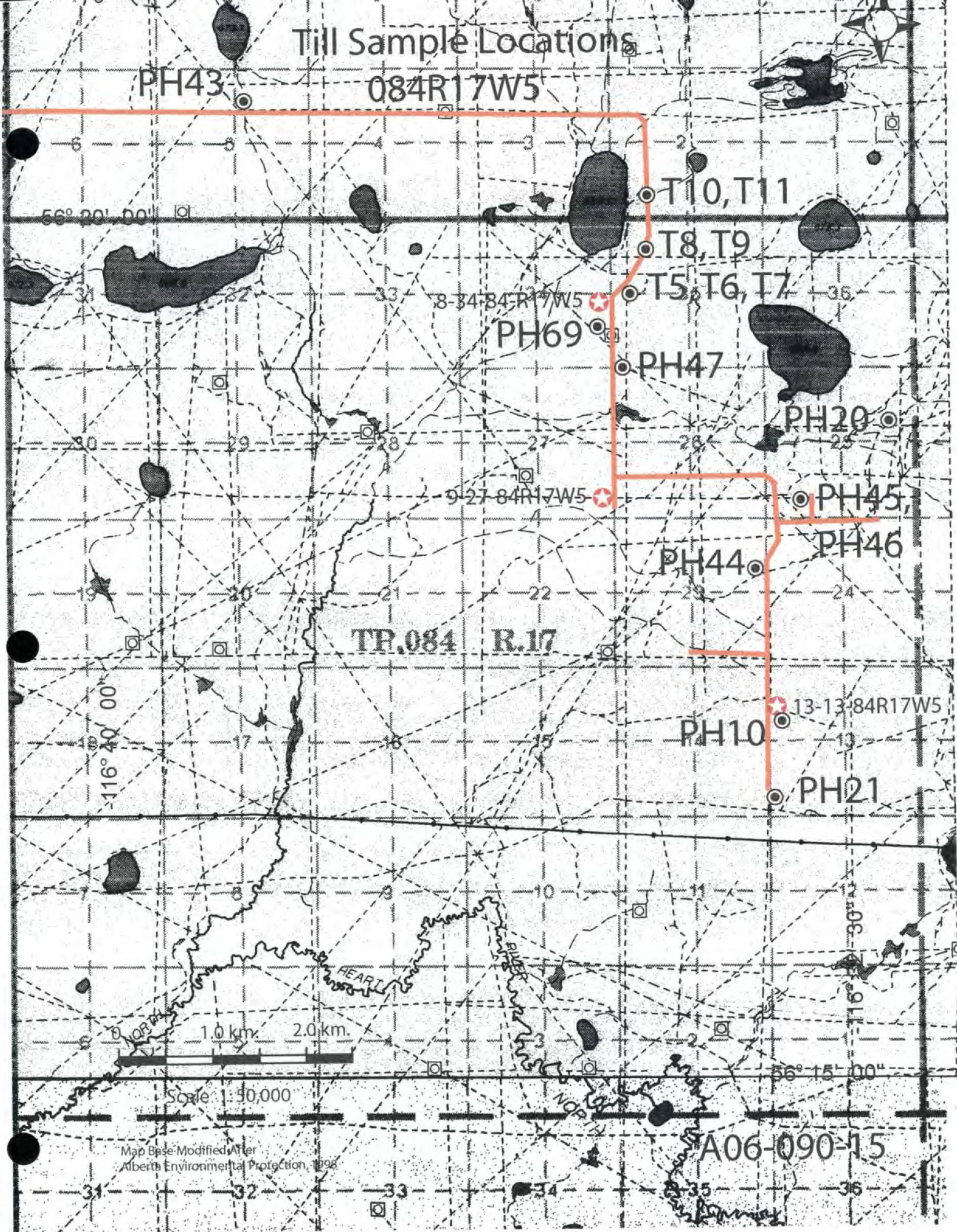
-116° 40' 00"

1.0 km. 2.0 km.

Scale: 1:50,000

Map Base Modified After  
Alberta Environmental Protection, 1998

A06-090-15





# Till Sample Locations

084R18W5



90-02  
90-01

22ND BASELINE

TP.084 R.18

T13

T12

56° 20' 00"

116° 50' 00"

116° 42' 30"

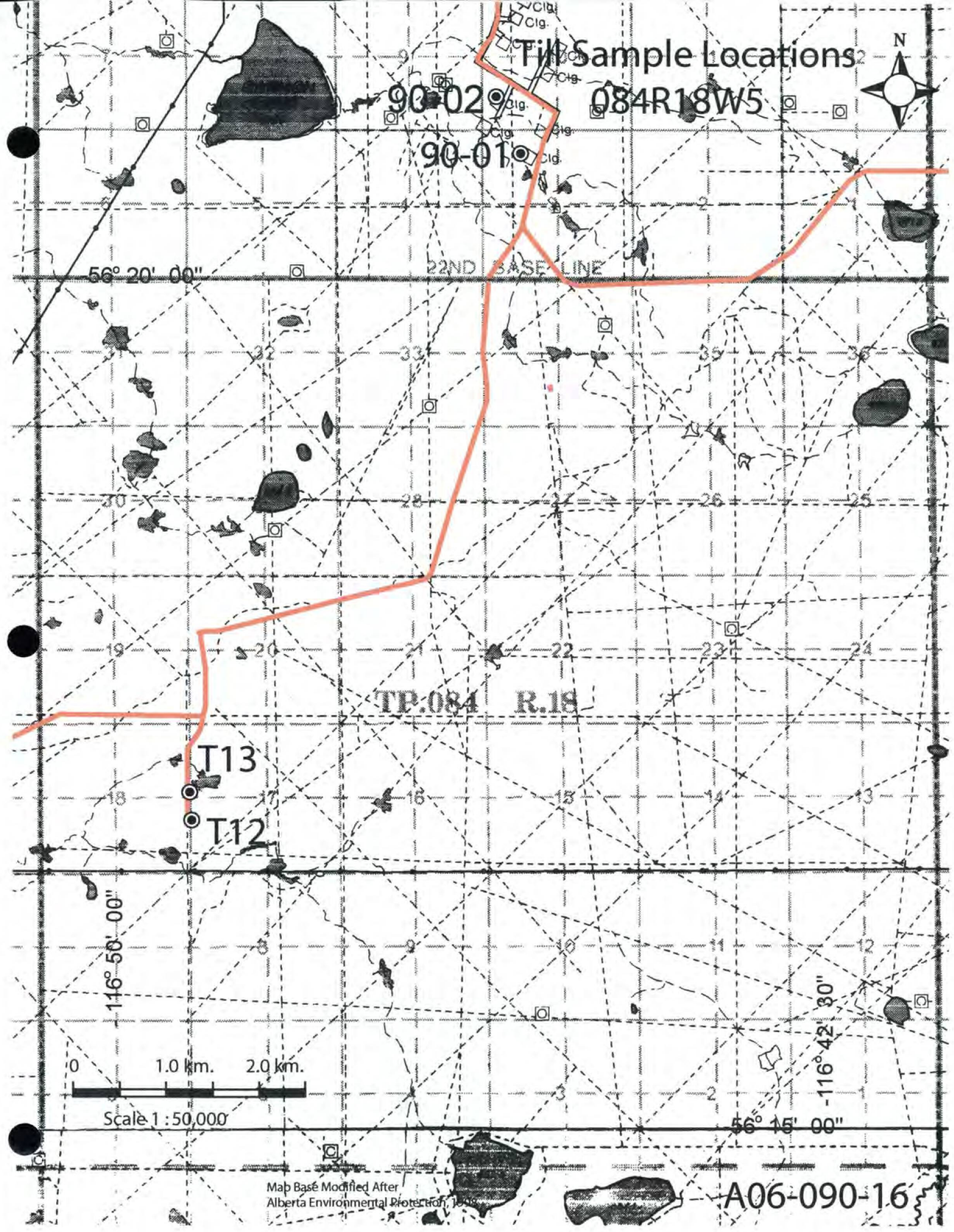
56° 15' 00"

0 1.0 km. 2.0 km.

Scale 1 : 50,000

Map Base Modified After  
Alberta Environmental Protection

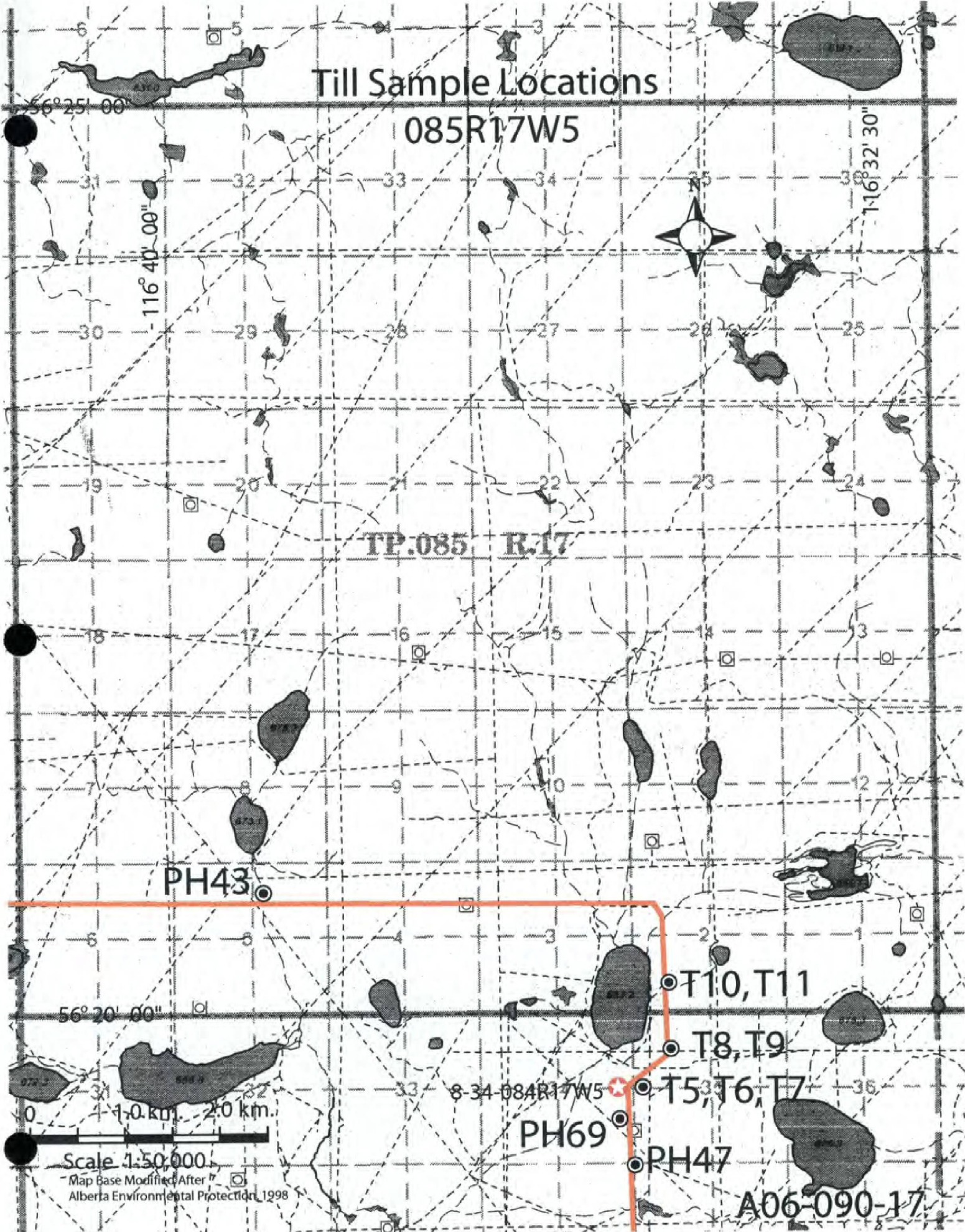
A06-090-16





# Till Sample Locations

## 085R17W5



Scale 1:50,000

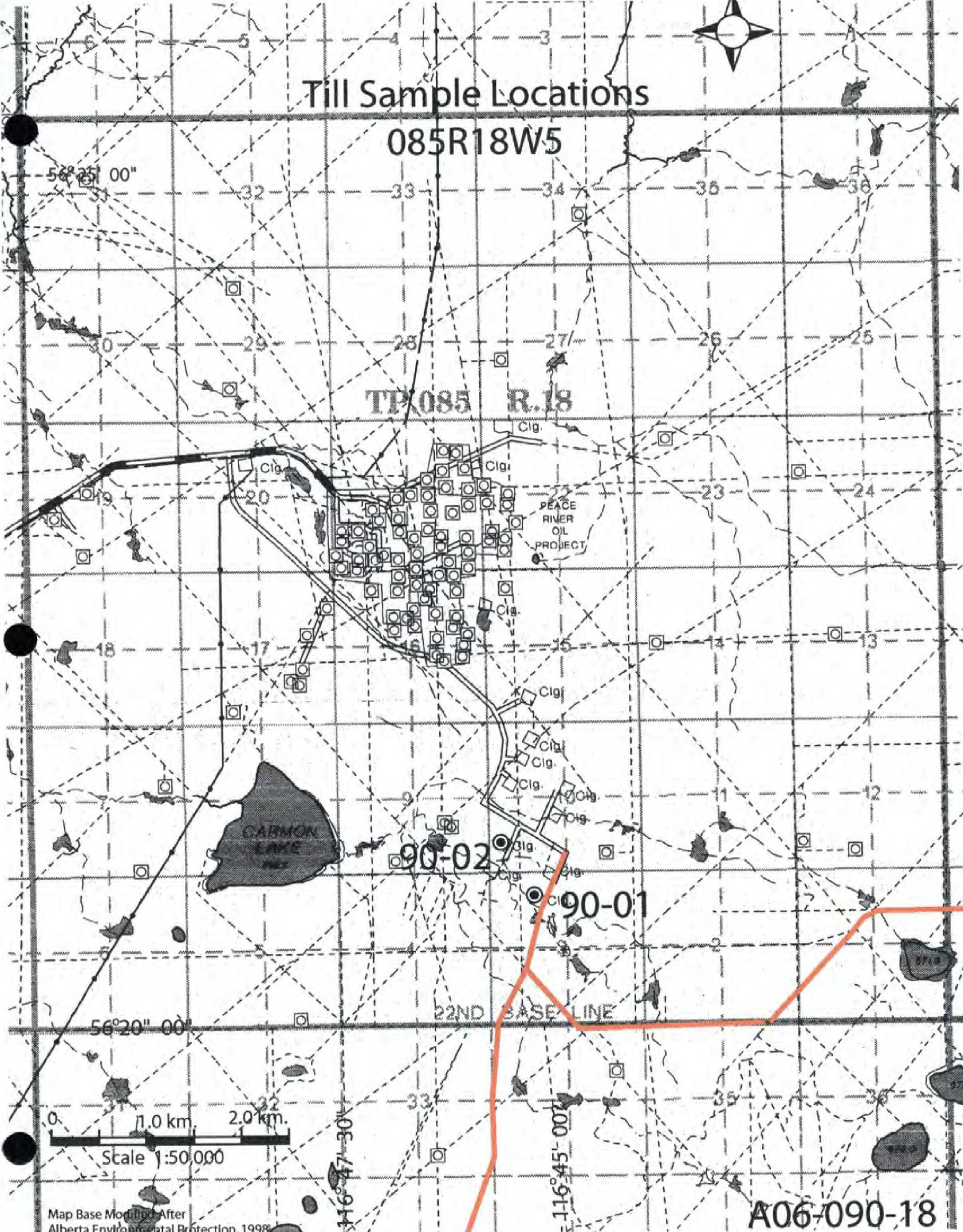
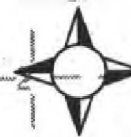
Map Base Modified After  
Alberta Environmental Protection, 1998

A06-090-17



# Till Sample Locations

## 085R18W5

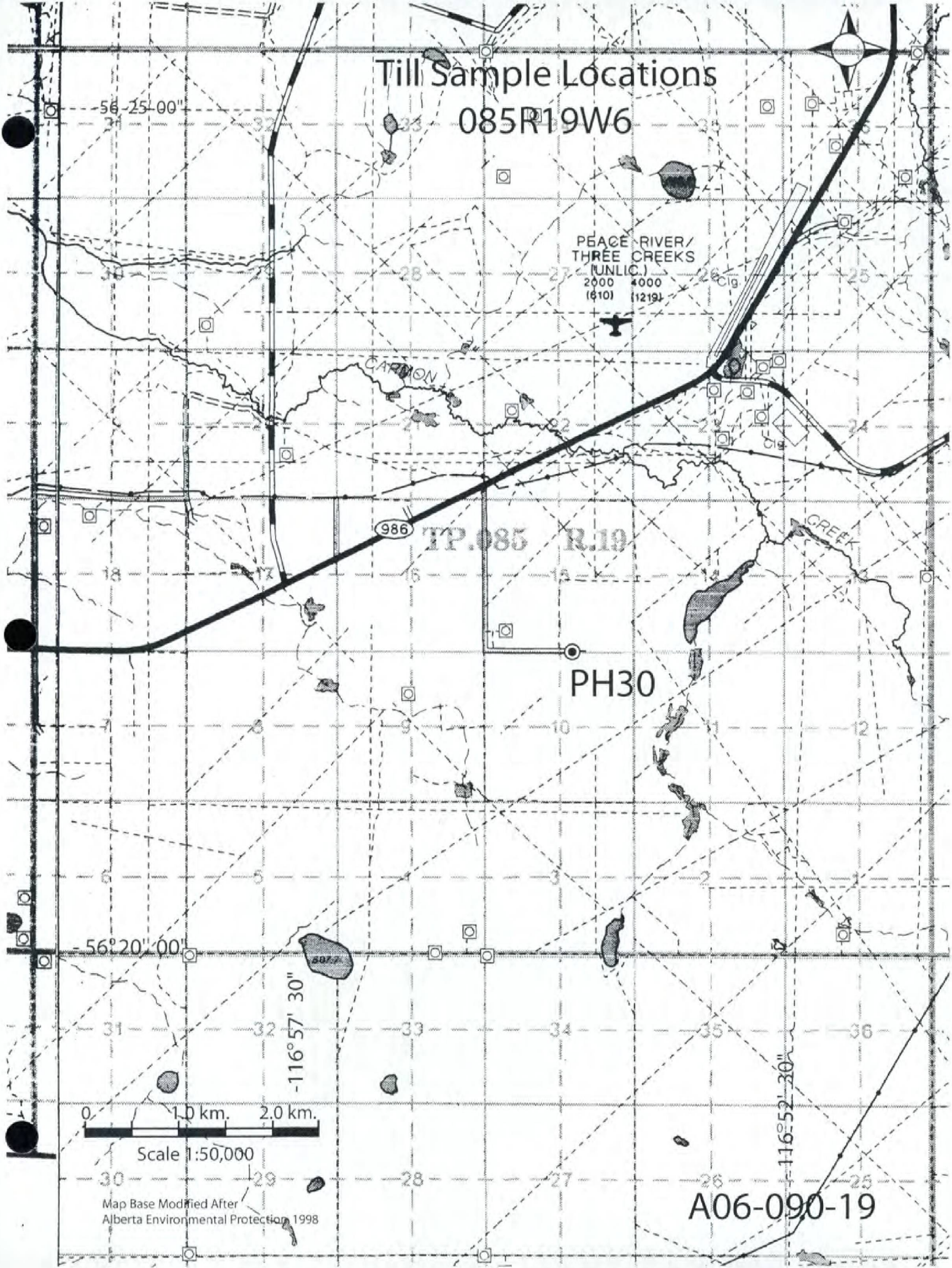


Map Base Modified After  
Alberta Environmental Protection, 1998

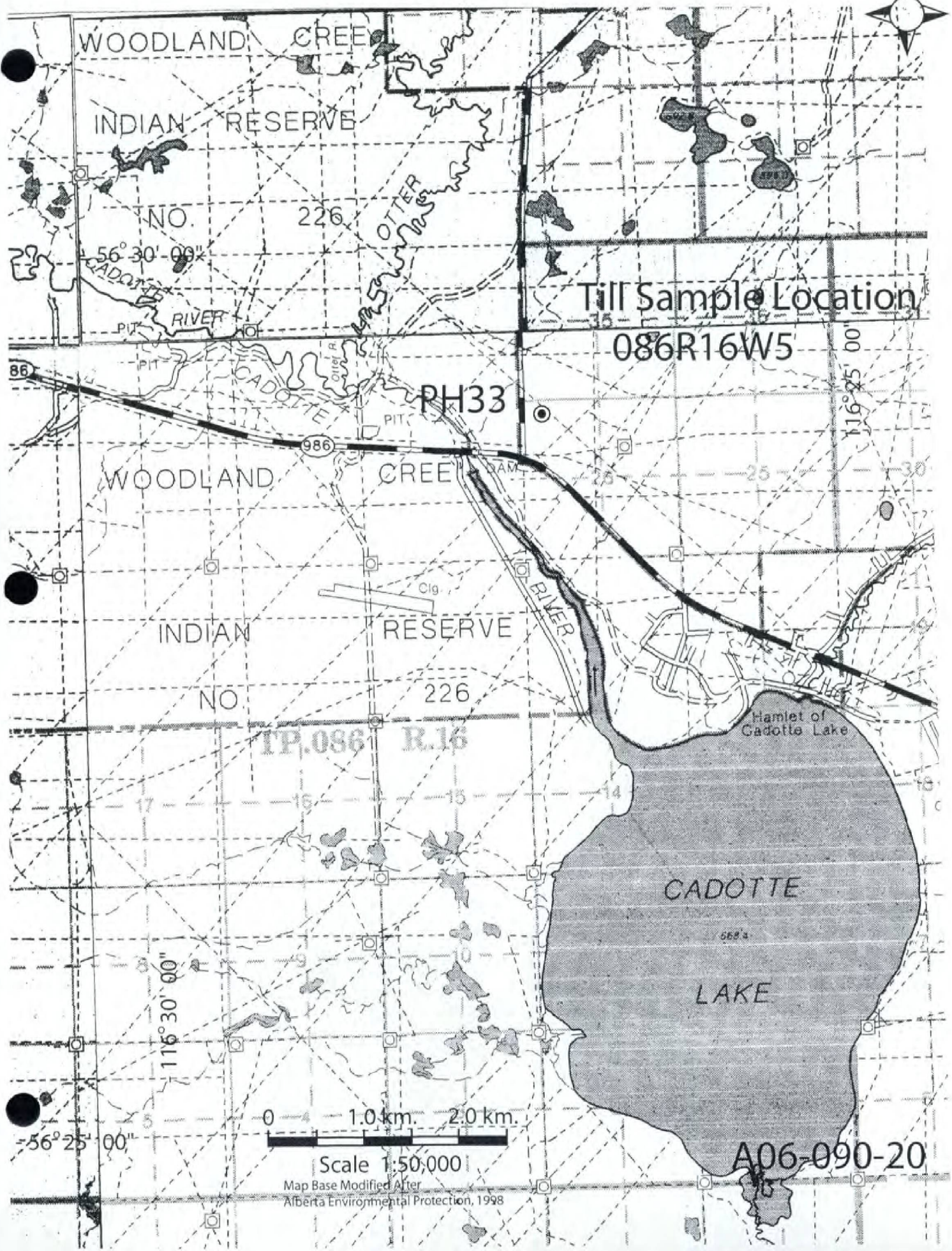
A06-090-18



# Till Sample Locations 085R19W6







Till Sample Location

086R16W5

PH33

WOODLAND CREEK

WOODLAND CREEK

INDIAN RESERVE

INDIAN RESERVE

TP.086 R.16

CADOTTE

LAKE

Hamlet of Cadotte Lake

0 1.0 km. 2.0 km.

Scale 1:50,000

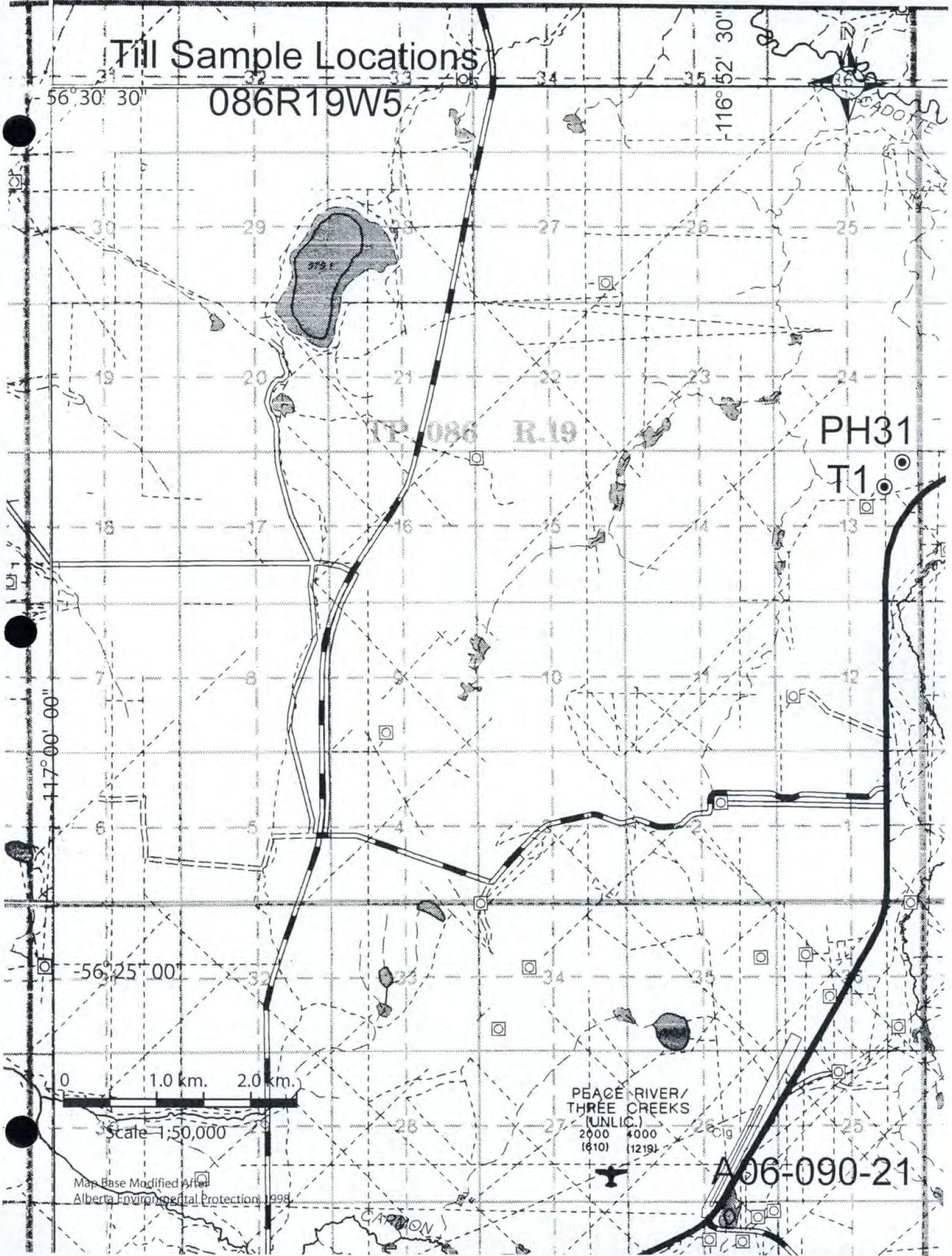
Map Base Modified After  
Alberta Environmental Protection, 1998

A06-090-20



# Till Sample Locations

## 086R19W5



0 1.0 km. 2.0 km.

Scale 1:50,000

Map Base Modified After  
Alberta Environmental Protection, 1998

PEACE RIVER/  
THREE CREEKS  
(UNLIC.)  
2000 4000  
(610) (1219)

A06-090-21



and origin. Better use should be made of Pleistocene mapping of the area to more fully understand the indicator mineral distribution of the property area  
Results do not show a consistent pattern of determining the Upper versus the Lower till. In hindsight, the samples should have been tested with acid.

Sampling of the development oil wells has provided relatively inexpensive samples but failed to provide good sample interval control and consistent results. Duplicate samples PH22, PH23 and PH24 processed at SRC failed to replicate earlier results. SRC did report the recovery of 14 olivine grains. Full probe results on both data sets will provide more information once completed. Our conclusion is that controlled sampling is required as might be possible with overburden drilling with a sonic drill.



### 3.2 Stream Sediment Sampling

Three follow-up Stream sediments were also collected along the Heart River (PH27 & PH32) and unnamed creek (PH28) to the west as shown on Drawing A06-090-06R. Past samples from these locations had returned un-expected number of indicators. Microprobe garnet analyses ( $n = 14$ ) contain garnet compositions with low to relatively high chromium and moderate calcium. Garnet compositions contain  $\text{Cr}_2\text{O}_3$  ranging from 4.12 to 6.83 wt. % (average 5.45 wt. %); CaO contents range from 1.34 to 7.80 wt. % (average 3.79 wt. %). The G9/G10 classification of garnet by Gurney (Gurney, 1993) is commonly used in diamond exploration methods. The  $\text{Cr}_2\text{O}_3$  vs. CaO plot for garnet shows that all garnets in this dataset appear to the right of the 85% line (Gurney, 1993) and can be classified as G9.

Past stream sediments also returned significant number of olivine grains. Microprobe olivine analyses ( $n = 56$ ) from these samples contain olivine with moderately low forsterite contents and a moderate nickel content. Olivine compositions range from  $\text{Fo}_{63}$  to  $\text{Fo}_{86}$  (average  $\text{Fo}_{81}$ ) with NiO content range from 0.19 to 0.48 wt. % (average 0.39 wt. %). Two anomalous analyses of olivine exhibit very low Fo ( $\text{Fo}_{62-75}$ ), and low Ni contents, NiO = 0.21 and 0.19 wt.% respectively.

Olivine from known kimberlitic sources in Alberta can be compared with those from these samples using the NiO wt. % and Fo content. (Eccles et al, 2004) shows a kimberlite field for Alberta kimberlitic olivine. When the dataset was compared with this known kimberlite field it reveals that the majority of grains from this dataset are within the range typically found in kimberlitic olivine. Several olivine grains appear unrelated to kimberlite; low Fo content and relatively low NiO samples are located outside the kimberlite field and may have been derived from an alternate source of olivine.

Electron Micro Probe analysis for these past samples was conducted by the Saskatchewan Research Council (“SRC”) which is an ISO1725 certified laboratory for specific testing.

Current sampling failed to reproduce the number of indicators present but generally returned similar indicators but in lower numbers. There is a reason for this, as samples were not normalized with regards to sample weight. Summary sample details are provided in Table 4. Detailed sample information is provided in Appendix 1 & 2.

Sample PH28 taken a short distance upstream of previous sample 90-03 as shown in Drawing A06090-11R, produced only one pyrope garnet and two olivines. Previous sample 90-03 had produced 4 pyrope garnets and 4 olivines. Sample 90-03 weighted 26.85 kg., while sample PH28 weighted only 9.85 kg. If samples are normalized for sample weights results are more comparable. These samples were taken in Twp 83R19 and tend to indicate a possible source to the east.

Recent samples PH27 and PH 32 taken on the North Heart River were about half the weight of previous samples 90-04 and 90-05. These samples are located on Drawing A06-090-12R. The two recent samples did not replicate the high numbers of olivines in 90-05 but exceed the number present in 90-04. Issues with differences in sample media are likely the cause here of the difference results here as the North Heart River was in near flood conditions during spring run



off. These samples tend to indicate a possible source to the northeast within the head waters of the North Heart River.

Table 4.  
Summary for Stream Sediments

S/N	Location	Garnets		Cpx	Ilmenite	Chromite	Olivines	Weight (kg.)
		Pyrope	Eclogitic					
90-03	084R19	4	1	1	1		4	26.85
PH28	084R19	1				1	2	9.85
90-04	Heart R		1	2		4	4	21.70
90-05	Heart R	9	1	9	1		>50	27.95
PH27	Heart R							12.95
PH32	Heart R						3	12.3

Detailed sample locations with UTM co-ordinates for stream sediments are provided in Appendix 2. The presence of very high water levels prevented sampling of ideal material. Electron Micro Probe analysis for recent samples has yet to be completed. It is likely similar results to those previous reported are expected.

The discovery of kimberlitic indicators within the North Heart River drainage shows that the drainage area likely hosts olivine kimberlitic intrusives.



#### 4.0 Conclusions

The Peace River Diamond Play / Buffalo Head Hills represents an exciting diamond play. With the proper use of exploration tools in an integrated it should be possible to effectively explore in the area. The presence of numerous kimberlitic indicators from samples collected by government (Paulen et al, 2005) and industry (Hawkins, 1994b) in areas at distance from known Kimberlites suggests are as yet undiscovered pipes to the SW of the known Ashton pipes. Significant further exploration is required and warranted to follow-up on these results.

#### 5.1 Recommended Program

The Phase I program will consist of follow-up to the success of recovery of Kimberlitic indicators in till. A significant part of this will be orientation surveys to test the anomalous till sample sites. A modest program of overburden drilling will be included to define the anomalous kimberlitic indicators and till stratigraphy. Ground geophysics (magnetics, EM and gravity) should be conducted over airborne geophysical targets in the area of anomalous kimberlitic indicators minerals.

For Phase II an airborne geophysics suite will be flown consisting of high-resolution magnetics and EM. The main part of phase II program will consist of diamond drilling. This program would given expected ground conditions, likely be a fall to winter program. Some drill sites will be road accessible while others will be winter access only. Additional Airborne Geophysics would be flown in areas where no high- resolution airborne data is available such as in new permit areas. The Phase II program is largely contingent on positive results from Phase I.

## 5.2 Cost Estimate

### Phase I

Overburden Drilling	\$300,000
Heavy Mineral Sampling and Processing	\$ 50,000
Ground Geophysics (Magnetic, EM, Gravity)	\$100,000
Project Management	<u>\$ 50,000</u>

Phase I Total = \$500,000

### Phase II

Airborne Geophysics	\$200,000
Diamond Drilling	\$375,000
Supervision an Project Management	<u>\$ 50,000</u>

Phase II Total = \$625,000



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## **CERTIFICATE of AUTHOR**

I, Paul A. Hawkins, B.Sc<sub>(Eng)</sub>., P. Eng., do hereby certify that:

1. I am Principal in the firm of: Paul A. Hawkins & Associates Ltd.  
72 Strathlorne Cr. SW.,  
Calgary, AB T3H 1M8
2. I graduated with a Bachelor of Science degree in Geological Engineering from the Queen's University in 1977.
3. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta and the Association of Professional Engineers and Geoscientists of the Province of British Columbia and the Association of Professional Engineers of Ontario.
4. I have worked as a geological engineer for a total of 29 years since my graduation from university.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I have prepared several papers on Diamond Exploration in Peace River, which were presented at the CIMM Annual meeting and the 1994 Calgary Mining Forum.
6. I am responsible for the preparation of all sections of the report. I have visited property in January 2005 for five days and September / October 2005 for six days, and again June 2006 for nine days. Previous to that I have been on the property numerous times (40 days in total) during 1992 and 1997.
7. During 1992 to 1996, I acted as project Manager for Consolidated Carina for their property, which covers some of the same land. I have held the property in Trust for the company and or JV partners but retained no interest whatsoever in the property. I am retained on a fee for service basis only. I do not own any stock in either company, nor do I expect to receive any.

Dated this 5th Day of September 2006.

  
Paul A. Hawkins, P.Eng.



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## Appendix 1 - SRC Results

Lot # 06-167 Samples: T-5, T-6, T-7, PH22, PH23, PH24  
Lot #06-700 Samples: T-2, T-3, T10, T-11, PH30, PH31  
Lot # 06-701 Samples: PH21, PH27, PH29, PH32, PH33  
Lot # 06-868 Samples: PH40 to PH 47

Paul A. Hawkins & Associates Ltd.

Attention:

PO #/Project:

Samples: 6

SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8

Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Report No: 06-167

Date: May 05, 2006

Kimberlite Indicator Minerals

Column Header Details

Original Sample Weight in kilograms (SWT)  
Mid Fraction -1.00+0.25MM Wet Weight in grams (MWT)  
+1.00mm Wet Weight in grams (+1.00MM)  
Permroll Magnetic Dry Weight in grams (PRM)  
Tetrabromoethane SG 2.96 Sinks Weight in grams (TBE)

Methylene Iodide SG 3.30 Sinks Weight in grams (MIS)  
Ferro Maqs -1.00+0.50mm Weight in grams (FM+)  
Ferro Maqs -0.50+0.25mm Weight in grams (FM-)  
Frantz Upper -1.00+0.50mm Weight in grams (UP+)  
Frantz Upper -0.50+0.25mm Weight in grams (UP-)

Frantz Lowers -1.00+0.50mm Weight in grams (LW+)  
Frantz Lowers -0.50+0.25mm Weight in grams (LW-)  
Pyrope Peridotitic Grains +0.5mm in Counts (Pyr-p +)  
Pyrope Peridotitic Grains -0.5mm in Counts (Pyr-p -)  
Pyrope Eclogitic Grains +0.5mm in Counts (Pyr-e +)

Pyrope Eclogitic Grains -0.5mm in Counts (Pyr-e -)  
Chrome-Diopside Grains +0.5mm in Counts (Chr D +)  
Chrome-Diopside Grains -0.5mm in Counts (Chr D -)  
Olivine Grains +0.5mm in Counts (Olv +)  
Olivine Grains -0.5mm in Counts (Olv -)

Lower Fraction +0.5 Observed Weight in grams (LW+Obs)  
Lower Fraction +0.5 Observed Weight in % (LW+)  
Lower Fraction -0.5 Observed Weight in grams (LW-Obs)  
Lower Fraction -0.5 Observed Weight in % (LW-)  
Lower Fraction Total Observed Weight in grams (LWT Obs)

Lower Fraction Total Observed Weight in % (LWT)  
Picroilmenite Grains +0.5mm in Counts (Picroilm+)  
Picroilmenite Grains -0.5mm in Counts (Picroilm-)  
Chromite Grains +0.5mm in Counts (Chr +)  
Chromite Grains -0.5mm in Counts (Chr -)

Upper Fraction +0.5 Observed Weight in grams (UP+Obs)  
Upper Fraction +0.5 Observed Weight in % (UP+)  
Upper Fraction -0.5 Observed Weight in grams (UP-Obs)  
Upper Fraction -0.5 Observed Weight in % (UP-)  
Upper Fraction Total Observed Weight in grams (UPT Obs)

Upper Fraction Total Observed Weight in % (UPT)  
Other Indicator Grains in Counts (Others)  
LW/UP Fraction -0.250MM Not Observed Weight in grams (-0.250)



Paul A. Hawkins & Associates Ltd.

Attention:  
PO #/Project:  
Samples: 6

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Report No: 06-167  
Date: May 05, 2006

**Kimberlite Indicator Minerals**

Sample Number	SWT kg	MWT g	+1.00MM g	PRM g	TBE g	MIS g	FM+ g	FM- g	UP+ g	UP- g	LW+ g	LW- g	Pyr-p + Counts	Pyr-p - Counts
05-T-05	18.05	2382	370	88	15.62	8.22	0.17	0.17	2.69	3.83	0.13	0.31	0	0
05-T-06	21.40	1499	700	116	17.20	5.08	0.08	0.12	2.25	1.92	0.16	0.06	0	1
05-T-07	18.30	2319	545	87	14.95	6.75	0.20	0.16	2.36	2.99	0.09	0.20	0	0
090-PH-22	7.75	3324	109	961	34.08	5.24	0.80	0.73	0.42	1.56	0.02	0.16	0	0
090-PH-23	10.85	1323	520	108	12.86	3.97	0.05	0.10	1.69	1.50	0.12	0.05	0	0
090-PH-24	8.70	1869	747	205	19.06	5.28	0.15	0.18	1.88	2.31	0.12	0.06	0	0

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Report No: 06-167  
Date: May 05, 2006

**Kimberlite Indicator Minerals**

Sample Number	Pyr-e + Counts	Pyr-e - Counts	Chr D + Counts	Chr D - Counts	Olv + Counts	Olv - Counts	LW+Obs g	LW+ %	LW-Obs g	LW- %	LWT Obs g	LWT %	Picroilm+ Counts	Picroilm- Counts
05-T-05	0	0	0	0	0	0	0.08	100	0.24	100	0.32	100	0	0
05-T-06	0	0	0	0	2	0	0.12	100	0.02	100	0.14	100	0	0
05-T-07	0	0	0	0	0	0	0.06	100	0.18	100	0.24	100	0	1
090-PH-22	0	0	0	0	0	6	0.01	100	0.10	100	0.11	100	0	0
090-PH-23	0	0	0	0	0	0	0.05	100	0.01	100	0.06	100	0	1
090-PH-24	0	0	0	0	6	2	0.06	100	0.03	100	0.09	100	0	0



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Samples: 6

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Report No: 06-167

Date: May 05, 2006

**Kimberlite Indicator Minerals**

Sample Number	Chr + Counts	Chr - Counts	UP+Obs g	UP+ %	UP-Obs g	UP- %	UPT Obs g	UPT %	Others Counts	-0.250 g
05-T-05	0	1	2.65	100	3.82	100	6.47	100	0	0.84
05-T-06	0	0	2.20	100	1.89	100	4.09	100	0	0.43
05-T-07	1	2	2.33	100	2.95	100	5.28	100	0	0.66
090-PH-22	0	0	0.35	100	1.49	100	1.84	100	0	1.45
090-PH-23	0	0	1.61	100	1.55	100	3.16	100	0	0.28
090-PH-24	1	0	1.79	100	2.22	100	4.01	100	0	0.52

# Kimberlite Indicator Mineral Grain Morphology Sheet

GROUP: 06-167

SAMPLE	QUANTITY	LOCATION	SIZE FRACTION	GRAIN TYPE *	COLOR	SHAPE	CLARITY	LUSTRE	SURFACE FEATURE	COMMENT	DATE	OBSERV
05-T-05	1	1	-0.50/+0.25mm	chr	black	octahedra	opaque	glassy	rough		03/05/06	TV
05-T-06	1	1	-0.50/+0.25mm	pyr-p	purple	fragm	translucent	vitreous	pitted		03/05/06	LE
05-T-06	1	2	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
05-T-06	1	3	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
05-T-07	1	1	-0.50/+0.25mm	pos picroilm	black	irr	opaque	matte	coated		03/05/06	LE
05-T-07	1	2	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	pitted		03/05/06	LE
05-T-07	1	3	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	pitted		03/05/06	LE
05-T-07	1	4	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	pitted		03/05/06	LE
090-PH-22	1	1	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	TV
090-PH-22	1	2	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	TV
090-PH-22	1	3	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	TV
090-PH-22	1	4	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	TV
090-PH-22	1	5	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	TV
090-PH-22	1	6	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	TV
090-PH-23	1	1	-0.50/+0.25mm	pos picroilm	black	irr	opaque	matte	coated		03/05/06	CLF
090-PH-24	1	1	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	2	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	3	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	4	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	5	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	6	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	7	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	8	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		03/05/06	LE
090-PH-24	1	9	-1.00/+0.50mm	chr	black	octahedra	opaque	shiny	pitted		03/05/06	LE

\* Unless otherwise indicated all grains are considered definite

24



# Kimberlite Indicator Mineral Microprobe Sheet

Group: 06-167

Checked by: \_\_\_\_\_

def-Definite

pos-Possible

No.	Sample Name	pyr-p		pyr-e		chr.diopside		olv		microilm		chr		Others
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	pos
1	05-T-05													1
	Comments:													
2	05-T-06		1						2					
	Comments:													
3	05-T-07										1	1	2	
	Comments:													
4	090-PH-22								6					
	Comments:													
5	090-PH-23										1			
	Comments:													
6	090-PH-24							6	2			1		
	Comments:													

Total Grains to Probe: 24

Grains Lost: 0

# Kimberlite Indicator Mineral Grain Description Sheet

Group: 06-167

Preliminary Data

Finalized Data \_\_\_\_\_

No.	Sample Name	p-pyr		ecl-pyr		chr diopside		olv		G - LW Observ	microilm		chr		G - UP Observ	Others picked by
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5		+0.5	-0.5	+0.5	-0.5		
1	05-T-05	0	0	0	0	0	0	0	0	0.32	0	0	0	1	6.47	0
Comments: TV																
2	05-T-06	0	1	0	0	0	0	2	0	0.14	0	0	0	0	4.09	0
Comments: LE																
3	05-T-07	0	0	0	0	0	0	0	0	0.24	0	1	1	2	5.28	0
Comments: LE																
4	090-PH-22	0	0	0	0	0	0	0	6	0.11	0	0	0	0	1.84	0
Comments: TV																
5	090-PH-23	0	0	0	0	0	0	0	0	0.06	0	1	0	0	3.16	0
Comments: CLF																
6	090-PH-24	0	0	0	0	0	0	6	2	0.09	0	0	1	0	4.01	0
Comments: LE																
7																
Comments:																
8																
Comments:																
9																
Comments:																
10																
Comments:																
Comments:																



Paul A. Hawkins & Associates Ltd.

Attention:

PO #/Project:

Samples: 6

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Report No: 06-700

Date: July 05, 2006

**Kimberlite Indicator Minerals**

Column Header Details

Original Sample Weight in kilograms (SWT)  
Mid Fraction -1.00+0.25MM Wet Weight in grams (MWT)  
+1.00mm Wet Weight in grams (+1.00MM)  
Permroll Magnetic Dry Weight in grams (PRM)  
Methylene Iodide SG 3.30 Sinks Weight in grams (MIS)

Ferro Maqs -1.00+0.50mm Weight in grams (FM+)  
Ferro Maqs -0.50+0.25mm Weight in grams (FM-)  
Frantz Upper -1.00+0.50mm Weight in grams (UP+)  
Frantz Upper -0.50+0.25mm Weight in grams (UP-)  
Frantz Lower -1.00+0.50mm Weight in grams (LW+)

Frantz Lower -0.50+0.25mm Weight in grams (LW-)  
Pyrope Peridotitic Grains +0.5mm in Counts (Pyr-p +)  
Pyrope Peridotitic Grains -0.5mm in Counts (Pyr-p -)  
Pyrope Eclogitic Grains +0.5mm in Counts (Pyr-e +)  
Pyrope Eclogitic Grains -0.5mm in Counts (Pyr-e -)

Chrome-Diopside Grains +0.5mm in Counts (Chr D +)  
Chrome-Diopside Grains -0.5mm in Counts (Chr D -)  
Olivine Grains +0.5mm in Counts (Olv +)  
Olivine Grains -0.5mm in Counts (Olv -)  
Lower Fraction +0.5 Observed Weight in grams (LW+Obs)

Lower Fraction +0.5 Observed Weight in % (LW+)  
Lower Fraction -0.5 Observed Weight in grams (LW-Obs)  
Lower Fraction -0.5 Observed Weight in % (LW-)  
Lower Fraction Total Observed Weight in grams (LWT Obs)  
Lower Fraction Total Observed Weight in % (LWT)

Picroilmenite Grains +0.5mm in Counts (Picroilm+)  
Picroilmenite Grains -0.5mm in Counts (Picroilm-)  
Chromite Grains +0.5mm in Counts (Chr +)  
Chromite Grains -0.5mm in Counts (Chr -)  
Upper Fraction +0.5 Observed Weight in grams (UP+Obs)

Upper Fraction +0.5 Observed Weight in % (UP+)  
Upper Fraction -0.5 Observed Weight in grams (UP-Obs)  
Upper Fraction -0.5 Observed Weight in % (UP-)  
Upper Fraction Total Observed Weight in grams (UPT Obs)  
Upper Fraction Total Observed Weight in % (UPT)

LW/UP Fraction -0.250MM Not Observed Weight in grams (-0.250)

Paul A. Hawkins & Associates Ltd.

Attention:

PO #/Project:

Samples: 6

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Report No: 06-700

Date: July 05, 2006

**Kimberlite Indicator Minerals**

Sample Number	SWT kg	MWT g	+1.00MM g	PRM g	MIS g	FM+ g	FM- g	UP+ g	UP- g	LW+ g	LW- g	Pyr-p + Counts	Pyr-p - Counts	Pyr-e + Counts
O5T-2	18.45	1075	424	86	2.74	0.07	0.21	0.80	1.35	0.02	0.05	0	0	0
O5T-4	17.60	2353	1106	187	3.15	0.09	0.19	0.76	1.65	0.04	0.04	0	0	0
O5T-10	22.85	1958	672	226	5.29	0.13	0.33	1.10	2.94	0.04	0.06	0	1	0
O5T-11	18.25	1268	480	109	3.79	0.06	0.15	1.03	1.94	0.07	0.06	0	0	0
090PH-030	7.20	421	126	421	0.84	0.04	0.04	0.19	0.40	0.04	0.20	0	0	0
090PH-031	10.95	1251	1070	397	6.87	1.16	1.07	1.65	2.37	0.06	0.04	0	0	0



Paul A. Hawkins & Associates Ltd.

Attention:

PO #/Project:

Samples: 6

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Report No: 06-700

Date: July 05, 2006

#### Kimberlite Indicator Minerals

Sample Number	Pyr-e - Counts	Chr D + Counts	Chr D - Counts	Olv + Counts	Olv - Counts	LW+Obs g	LW+ %	LW-Obs g	LW- %	LWT Obs g	LWT %	Picroilm+ Counts	Picroilm- Counts	Chr + Counts
O5T-2	0	0	0	0	0	0.04	100	0.06	100	0.10	100	0	0	0
O5T-4	0	0	0	0	0	0.05	100	0.04	100	0.09	100	0	0	1
O5T-10	0	0	0	1	0	0.03	100	0.08	100	0.11	100	0	0	0
O5T-11	0	0	0	1	0	0.14	100	0.13	100	0.27	100	0	0	1
090PH-030	0	0	0	0	0	0.07	100	0.07	100	0.14	100	0	0	0
090PH-031	0	0	0	0	0	0.10	100	0.08	100	0.18	100	0	0	0

Paul A. Hawkins & Associates Ltd.

Attention:  
PO #/Project:  
Samples: 6

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Report No: 06-700  
Date: July 05, 2006

**Kimberlite Indicator Minerals**

Sample Number	Chr - Counts	UP+Obs g	UP+ %	UP-Obs g	UP- %	UPT Obs g	UPT %	-0.250 g
O5T-2	0	0.82	100	1.36	100	2.18	100	0.22
O5T-4	0	0.76	100	1.65	100	2.41	100	0.36
O5T-10	2	1.12	100	3.01	100	4.13	100	0.65
O5T-11	0	1.04	100	1.96	100	3.00	100	0.45
090PH-030	1	0.24	100	0.43	100	0.67	100	0.11
090PH-031	0	1.68	100	2.42	100	4.10	100	0.51



# Kimberlite Indicator Mineral Microprobe Sheet

Group: 06-700

Checked by: \_\_\_\_\_

def-Definite

pos-Possible

No.	Sample Name	pyr-p		pyr-e		chr.diopside		olv		picroilm		chr		Others
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	pos
1	05T-4												1	
	Comments:													
2	05T-10		1					1						2
	Comments:													
3	05T-11							1					1	
	Comments:													
4	090PH-030													1
	Comments:													

Total Grains to Probe: 8

Grains Lost: 0

# Kimberlite Indicator Mineral Grain Description Sheet

Group: 06-700

Preliminary Data

Finalized Data \_\_\_\_\_

No.	Sample Name	p-pyr		ecl-pyr		chr diopside		olv		G - LW Observ	microilm		chr		G - UP Observ	Others picked by
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5		+0.5	-0.5	+0.5	-0.5		
1	05T-2	0	0	0	0	0	0	0	0	0.1	0	0	0	0	2.18	0
	Comments: KK															
2	05T-4	0	0	0	0	0	0	0	0	0.09	0	0	1	0	2.41	0
	Comments: NV															
3	05T-10	0	1	0	0	0	0	1	0	0.11	0	0	0	2	4.13	0
	Comments: CF															
4	05T-11	0	0	0	0	0	0	1	0	0.27	0	0	1	0	3	0
	Comments: LE															
5	090PH-030	0	0	0	0	0	0	0	0	0.14	0	0	0	1	0.67	0
	Comments: BR															
6	090PH-031	0	0	0	0	0	0	0	0	0.18	0	0	0	0	4.1	0
	Comments: KK															
7																
	Comments:															
8																
	Comments:															
9																
	Comments:															
10																
	Comments:															
	Comments:															



Kimberlite Indicator Mineral Grain Morphology Sheet

GROUP: 06-700

SAMPLE	QUANTITY	LOCATION	SIZE FRACTION	GRAIN TYPE *	COLOR	SHAPE	CLARITY	LUSTRE	SURFACE FEATURE	COMMENT	DATE	OBSERV
05T-4	1	1	-1.00/+0.50mm	chr	black	octahedra	opaque	shiny	none		26/06/06	NV
05T-10	1	1	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		26/06/06	CLF
05T-10	1	2	-0.50/+0.25mm	pyr-p	purple	irr	translucent	vitreous	none		26/06/06	CLF
05T-10	1	3	-0.50/+0.25mm	chr	black	irr	opaque	matte	none		26/06/06	CLF
05T-10	1	4	-0.50/+0.25mm	chr	black	irr	opaque	matte	none		26/06/06	CLF
05T-11	1	1	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		26/06/06	LE
05T-11	1	2	-1.00/+0.50mm	chr	black	octahedra	opaque	shiny	pitted		26/06/06	LE
090PH-030	1	1	-0.50/+0.25mm	chr	black	octahedra	opaque	matte	pitted	broken	26/06/06	BR

\* Unless otherwise indicated all grains are considered definite

8

Data sheet prepared by  
 Geoanalytical Laboratories  
 Saskatchewan Research Council  
 306-933-8118

Paul A. Hawkins & Associates Ltd.

Attention:

PO #/Project:

Samples: 6

### SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8  
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Report No: 06-701

Date: July 10, 2006

### Kimberlite Indicator Minerals

#### Column Header Details

Original Sample Weight in kilograms (SWT)  
Mid Fraction -1.00+0.25MM Wet Weight in grams (MWT)  
+1.00mm Wet Weight in grams (+1.00MM)  
Permroll Magnetic Dry Weight in grams (PRM)  
Methylene Iodide SG 3.30 Sinks Weight in grams (MIS)

Ferro Maqs -1.00+0.50mm Weight in grams (FM+)  
Ferro Maqs -0.50+0.25mm Weight in grams (FM-)  
Frantz Upper -1.00+0.50mm Weight in grams (UP+)  
Frantz Upper -0.50+0.25mm Weight in grams (UP-)  
Frantz Lower -1.00+0.50mm Weight in grams (LW+)

Frantz Lower -0.50+0.25mm Weight in grams (LW-)  
Pyrope Peridotitic Grains +0.5mm in Counts (Pyr-p +)  
Pyrope Peridotitic Grains -0.5mm in Counts (Pyr-p -)  
Pyrope Eclogitic Grains +0.5mm in Counts (Pyr-e +)  
Pyrope Eclogitic Grains -0.5mm in Counts (Pyr-e -)

Chrome-Diopside Grains +0.5mm in Counts (Chr D +)  
Chrome-Diopside Grains -0.5mm in Counts (Chr D -)  
Olivine Grains +0.5mm in Counts (Olv +)  
Olivine Grains -0.5mm in Counts (Olv -)  
Lower Fraction +0.5 Observed Weight in grams (LW+Obs)

Lower Fraction +0.5 Observed Weight in % (LW+)  
Lower Fraction -0.5 Observed Weight in grams (LW-Obs)  
Lower Fraction -0.5 Observed Weight in % (LW-)  
Lower Fraction Total Observed Weight in grams (LWT Obs)  
Lower Fraction Total Observed Weight in % (LWT)

Picroilmenite Grains +0.5mm in Counts (Picroilm+)  
Picroilmenite Grains -0.5mm in Counts (Picroilm-)  
Chromite Grains +0.5mm in Counts (Chr +)  
Chromite Grains -0.5mm in Counts (Chr -)  
Upper Fraction +0.5 Observed Weight in grams (UP+Obs)

Upper Fraction +0.5 Observed Weight in % (UP+)  
Upper Fraction -0.5 Observed Weight in grams (UP-Obs)  
Upper Fraction -0.5 Observed Weight in % (UP-)  
Upper Fraction Total Observed Weight in grams (UPT Obs)  
Upper Fraction Total Observed Weight in % (UPT)

LW/UP Fraction -0.250MM Not Observed Weight in grams (-0.250)



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**Kimberlite Indicator Minerals**

Sample Number	SWT kg	MWT g	+1.00MM g	PRM g	MIS g	FM+ g	FM- g	UP+ g	UP- g	LW+ g	LW- g	Pyr-p + Counts	Pyr-p - Counts	Pyr-e + Counts
090PH-021	10.60	1138	708	82	3.72	0.12	0.27	0.90	1.75	0.06	0.09	0	0	0
090PH-027	12.95	949	452	58	0.86	0.05	0.08	0.07	0.28	0.06	0.01	0	0	0
090PH-028	9.85	446	625	446	3.23	0.07	0.09	0.88	1.29	0.07	0.07	0	1	0
090PH-029	12.30	241	980	241	0.29	0.06	0.05	0.02	0.08	0.00	0.01	0	0	0
090PH-032	12.30	467	30	467	0.62	0.01	0.05	0.08	0.22	0.06	0.05	0	0	0
090PH-033	13.40	4053	538	561	59.89	6.31	8.15	11.54	29.57	0.45	0.33	0	4	0

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**Kimberlite Indicator Minerals**

Sample Number	Pyr-e - Counts	Chr D + Counts	Chr D - Counts	Olv + Counts	Olv - Counts	LW+Obs g	LW+ %	LW-Obs g	LW- %	LWT Obs g	LWT %	Picroilm+ Counts	Picroilm- Counts	Chr + Counts
090PH-021	0	0	0	2	0	0.06	100	0.09	100	0.15	100	0	0	0
090PH-027	0	0	0	0	0	0.06	100	0.01	100	0.07	100	0	0	0
090PH-028	0	0	0	1	1	0.07	100	0.07	100	0.14	100	0	0	0
090PH-029	0	0	0	0	0	0.01	100	0.01	100	0.02	100	0	0	0
090PH-032	0	0	0	0	3	0.06	100	0.05	100	0.11	100	0	0	0
090PH-033	1	0	0	15	9	0.46	100	0.33	100	0.79	100	0	1	0



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**Kimberlite Indicator Minerals**

Sample Number	Chr - Counts	UP+Obs g	UP+ %	UP-Obs g	UP- %	UPT Obs g	UPT %	-0.250 g
090PH-021	0	0.90	100	1.75	100	2.65	100	0.46
090PH-027	0	0.08	100	0.28	100	0.36	100	0.26
090PH-028	1	0.88	100	1.29	100	2.17	100	0.73
090PH-029	0	0.02	100	0.08	100	0.10	100	0.06
090PH-032	0	0.08	100	0.22	100	0.30	100	0.11
090PH-033	3	11.58	100	29.60	100	41.18	100	3.48

# Kimberlite Indicator Mineral Microprobe Sheet

Group: 06-701

Checked by: \_\_\_\_\_

def-Definite

pos-Possible

No.	Sample Name	pyr-p		pyr-e		chr.diopside		olv		picroilm		chr		Others
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	pos
1	090PH-021							2						
	Comments:													
2	090PH-028		1					1	1				1	
	Comments:													
3	090PH-032								3					
	Comments:													
4	090PH-033		4		1			15	9		1		2	
	Comments:													

Total Grains to Probe: 41

Grains Lost: 1



# Kimberlite Indicator Mineral Grain Description Sheet

Group: 06-701

Preliminary Data

Finalized Data

No.	Sample Name	p-pyr		ecl-pyr		chr diopside		olv		G - LW Observ	microilm		chr		G - UP Observ	Others picked by
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5		+0.5	-0.5	+0.5	-0.5		
1	090PH-021	0	0	0	0	0	0	2	0	0.15	0	0	0	0	2.65	0
	Comments:															KH
2	090PH-027	0	0	0	0	0	0	0	0	0.07	0	0	0	0	0.36	0
	Comments:															CF
3	090PH-028	0	1	0	0	0	0	1	1	0.14	0	0	0	1	2.17	0
	Comments:															CF
4	090PH-029	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0.1	0
	Comments:															KH
5	090PH-032	0	0	0	0	0	0	0	3	0.11	0	0	0	0	0.3	0
	Comments:															NV
6	090PH-033	0	4	0	1	0	0	15	9	0.79	0	1	0	3	41.18	0
	Comments:															RD
7																
	Comments:															
8																
	Comments:															
9																
	Comments:															
10																
	Comments:															
	Comments:															

# Kimberlite Indicator Mineral Grain Morphology Sheet

GROUP: 06-701

SAMPLE	QUANTITY	LOCATION	SIZE FRACTION	GRAIN TYPE *	COLOR	SHAPE	CLARITY	LUSTRE	SURFACE FEATURE	COMMENT	DATE	OBSERV
090PH-021	1	1	-1.00/+0.50mm	olv	yellow	rnd	translucent	vitreous	striations		26/06/06	KH
090PH-021	1	2	-1.00/+0.50mm	olv	yellow	rnd	translucent	vitreous	striations		26/06/06	KH
090PH-028	1	1	-0.50/+0.25mm	pyr-p	purple	irr	translucent	vitreous	none		27/06/06	CF
090PH-028	1	2	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	none		27/06/06	CF
090PH-028	1	3	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	CF
090PH-028	1	4	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	none		27/06/06	CF
090PH-032	1	1	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	none		26/06/06	NV
090PH-032	1	2	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	none		26/06/06	NV
090PH-032	1	3	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	none		26/06/06	NV
090PH-033	1	1	-0.50/+0.25mm	pyr-p	purple	fragm	translucent	vitreous	pitted		27/06/06	RD
090PH-033	1	2	-0.50/+0.25mm	pyr-p	purple	fragm	translucent	vitreous	pitted		27/06/06	RD
090PH-033	1	3	-0.50/+0.25mm	pyr-p	purple	fragm	translucent	vitreous	pitted		27/06/06	RD
090PH-033	1	4	-0.50/+0.25mm	pos pyr-p	purple	fragm	translucent	vitreous	pitted		27/06/06	RD
090PH-033	1	5	-0.50/+0.25mm	pyr-e	orange	fragm	translucent	vitreous	pitted		27/06/06	RD
090PH-033	1	6	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	7	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	8	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	9	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	10	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	11	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	12	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	13	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	14	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	15	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	16	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	17	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	18	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	19	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	20	-1.00/+0.50mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	21	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	22	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	23	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	24	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	25	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	26	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	27	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	28	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	29	-0.50/+0.25mm	olv	yellow	irr	translucent	vitreous	striations		27/06/06	RD
090PH-033	1	30	-0.50/+0.25mm	picroilm	black	irr	opaque	shiny	pitted		27/06/06	RD
090PH-033	1	31	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	pitted		27/06/06	RD
090PH-033	1	32	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	pitted		27/06/06	RD
090PH-033	1	33	-0.50/+0.25mm	chr	black	octahedra	opaque	shiny	pitted	lost in transit	27/06/06	RD

\* Unless otherwise indicated all grains are considered definite



Paul A. Hawkins & Associates Ltd.

Attention:

PO #/Project:

Samples: 8

SRC Geoanalytical Laboratories

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Report No: 06-868

Date: August 15, 2006

Kimberlite Indicator Minerals

Column Header Details

Original Sample Weight in kilograms (SWT)  
Mid Fraction -1.00+0.25MM Wet Weight in grams (MWT)  
+1.00mm Wet Weight in grams (+1.00MM)  
Permroll Magnetic Dry Weight in grams (PRM)  
LST SG 2.96 Sinks in grams (LSTS)

Methylene Iodide SG 3.30 Sinks Weight in grams (MIS)  
Ferro Mags -1.00+0.50mm Weight in grams (FM+)  
Ferro Mags -0.50+0.25mm Weight in grams (FM-)  
Frantz Upper -1.00+0.50mm Weight in grams (UP+)  
Frantz Upper -0.50+0.25mm Weight in grams (UP-)

Frantz Lower -1.00+0.50mm Weight in grams (LW+)  
Frantz Lower -0.50+0.25mm Weight in grams (LW-)  
Pyrope Peridotitic Grains +0.5mm in Counts (Pyr-p +)  
Pyrope Peridotitic Grains -0.5mm in Counts (Pyr-p -)  
Pyrope Eclogitic Grains +0.5mm in Counts (Pyr-e +)

Pyrope Eclogitic Grains -0.5mm in Counts (Pyr-e -)  
Chrome-Diopside Grains +0.5mm in Counts (Chr D +)  
Chrome-Diopside Grains -0.5mm in Counts (Chr D -)  
Olivine Grains +0.5mm in Counts (Olv +)  
Olivine Grains -0.5mm in Counts (Olv -)

Lower Fraction +0.5 Observed Weight in grams (LW+Obs)  
Lower Fraction +0.5 Observed Weight in % (LW+)  
Lower Fraction -0.5 Observed Weight in grams (LW-Obs)  
Lower Fraction -0.5 Observed Weight in % (LW-)  
Lower Fraction Total Observed Weight in grams (LWT Obs)

Lower Fraction Total Observed Weight in % (LWT)  
Picroilmenite Grains +0.5mm in Counts (Picroilm+)  
Picroilmenite Grains -0.5mm in Counts (Picroilm-)  
Chromite Grains +0.5mm in Counts (Chr +)  
Chromite Grains -0.5mm in Counts (Chr -)

Upper Fraction +0.5 Observed Weight in grams (UP+Obs)  
Upper Fraction +0.5 Observed Weight in % (UP+)  
Upper Fraction -0.5 Observed Weight in grams (UP-Obs)  
Upper Fraction -0.5 Observed Weight in % (UP-)  
Upper Fraction Total Observed Weight in grams (UPT Obs)

Upper Fraction Total Observed Weight in % (UPT)  
LW/UP Fraction -0.250MM Not Observed Weight in grams (-0.250)

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Report No: 06-868  
Date: August 15, 2006

**Kimberlite Indicator Minerals**

Sample Number	SWT kg	MWT g	+1.00MM g	PRM g	LSTS g	MIS g	FM+ g	FM- g	UP+ g	UP- g	LW+ g	LW- g	Pyr-p + Counts	Pyr-p - Counts
090PH40	20.50	1864	1260	115	18.13	4.37	0.09	0.17	0.84	1.96	0.52	0.37	0	0
090PH41	15.10	1464	956	96	14.79	3.14	0.04	0.12	0.77	1.44	0.29	0.18	0	0
090PH42	13.55	1511	776	134	15.15	3.57	0.06	0.16	0.60	1.67	0.50	0.13	0	1
090PH43	16.40	1279	447	122	12.81	3.44	0.12	0.19	0.70	1.95	0.05	0.04	0	0
090PH44	16.95	1441	752	136	11.97	2.99	0.04	0.13	0.76	1.59	0.06	0.06	0	1
090PH45	15.85	1720	728	93	16.77	4.44	0.10	0.17	0.78	1.95	0.45	0.50	0	0
090PH46	14.50	1810	688	146	13.11	3.19	0.03	0.15	0.64	1.56	0.26	0.10	0	1
090PH47	18.45	1706	1326	116	23.27	4.82	0.13	0.22	0.82	2.10	0.55	0.49	0	0



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Report No: 06-868  
Date: August 15, 2006

**Kimberlite Indicator Minerals**

Sample Number	Pyr-e + Counts	Pyr-e - Counts	Chr D + Counts	Chr D - Counts	Olv + Counts	Olv - Counts	LW+Obs g	LW+ %	LW-Obs g	LW- %	LWT Obs g	LWT %	Picroilm+ Counts	Picroilm- Counts
090PH40	0	0	0	1	0	0	0.52	100	0.35	100	0.87	100	0	0
090PH41	0	0	0	0	0	0	0.28	100	0.17	100	0.45	100	0	0
090PH42	0	0	0	0	0	0	0.50	100	0.12	100	0.62	100	0	0
090PH43	0	0	0	1	0	0	0.03	100	0.04	100	0.07	100	0	0
090PH44	0	0	0	0	0	1	0.01	100	0.01	100	0.02	100	0	0
090PH45	0	0	0	0	0	1	0.40	100	0.45	100	0.85	100	0	0
090PH46	0	0	0	0	0	0	0.23	100	0.05	100	0.28	100	0	0
090PH47	0	0	0	0	0	0	0.49	100	0.44	100	0.93	100	0	0

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Attention:  
PO #/Project:  
Samples: 8

Report No: 06-868  
Date: August 15, 2006

**Kimberlite Indicator Minerals**

Sample Number	Chr + Counts	Chr - Counts	UP+Obs g	UP+ %	UP-Obs g	UP- %	UPT Obs g	UPT %	-0.250 g
090PH40	0	0	0.84	100	1.98	100	2.82	100	0.38
090PH41	0	0	0.77	100	1.43	100	2.20	100	0.26
090PH42	0	0	0.60	100	1.67	100	2.27	100	0.42
090PH43	0	0	0.69	100	1.96	100	2.65	100	0.36
090PH44	0	0	0.70	100	1.54	100	2.24	100	0.32
090PH45	0	1	0.71	100	1.91	100	2.62	100	0.45
090PH46	0	1	0.60	100	1.50	100	2.10	100	0.41
090PH47	0	0	0.78	100	2.03	100	2.81	100	0.45



# Kimberlite Indicator Mineral Microprobe Sheet

Group: 06-868

Checked by: \_\_\_\_\_

def-Definite

pos-Possible

No.	Sample Name	pyr-p		pyr-e		chr.diopside		olv		picroilm		chr		Others
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	pos
1	090PH40						1							
	Comments:													
2	090PH42		1											
	Comments:													
3	090PH43						1							
	Comments:													
4	090PH44		1						1					
	Comments:													
5	090PH45								1				1	
	Comments:													
6	090PH46		1										1	
	Comments:													

Total Grains to Probe: 9

Grains Lost: 0

# Kimberlite Indicator Mineral Grain Description Sheet

Group: 06-868

Preliminary Data     
  Finalized Data \_\_\_\_\_

No.	Sample Name	p-pyr		ecl-pyr		chr diopside		olv		G - LW Observ	microilm		chr		G - UP Observ	Others picked by
		+0.5	-0.5	+0.5	-0.5	+0.5	-0.5	+0.5	-0.5		+0.5	-0.5	+0.5	-0.5		
1	090PH40	0	0	0	0	0	1	0	0	0.87	0	0	0	0	2.82	0
	Comments:															LB
2	090PH41	0	0	0	0	0	0	0	0	0.45	0	0	0	0	2.2	0
	Comments:															NV
3	090PH42	0	1	0	0	0	0	0	0	0.62	0	0	0	0	2.27	0
	Comments:															CLF
4	090PH43	0	0	0	0	0	1	0	0	0.07	0	0	0	0	2.65	0
	Comments:															LB
5	090PH44	0	1	0	0	0	0	0	1	0.02	0	0	0	0	2.24	0
	Comments:															NV
6	090PH45	0	0	0	0	0	0	0	1	0.85	0	0	0	1	2.62	0
	Comments:															CLF
7	090PH46	0	1	0	0	0	0	0	0	0.28	0	0	0	1	2.1	0
	Comments:															KH
8	090PH47	0	0	0	0	0	0	0	0	0.93	0	0	0	0	2.81	0
	Comments:															CF
9																
	Comments:															
10																
	Comments:															
	Comments:															