

# MAR 19950020: PEACE RIVER

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19450020

# *Ultrasonic Industrial Sciences Ltd.*

200, 17834 - 106A Avenue, Edmonton, Alberta T5S 1V3  
Tel: (403) 448-0349 Fax: (403) 448-2160

July 5, 1995

Hazel Henson  
Alberta Energy  
Petroleum Plaza  
9945 - 108 Street  
Edmonton, Alberta  
T5K 2G6

**Re: Metallic & Industrial Minerals Permits**

9393030507,9393030508,9393030509,9393030510,9393030542,9393040025,  
9393040026,9393040027,9393040028,9393040029,9393040030,9393040031,  
9393040032:

I make reference to your letter dated June 15, 1995.

Please find enclosed a summary report covering the above Metallic & Industrial Minerals Permits.

If you have any questions regarding the above please contact the writer.

Yours Truly,

  
Ultrasonic Industrial Sciences Ltd.  
Ben Christensen

ENERGY/ENV. PROT.  
MAIL 2  
12 JUL 55 12 09

STATUTORY DECLARATION

CANADA ) IN THE MATTER OF THE MINES AND MINERALS  
 )  
 PROVINCE OF ALBERTA ) ACT, AND IN THE MATTER OF METALLIC AND  
 )  
 ) INDUSTRIAL MINERALS PERMITS NUMBERS  
 )  
 ) 9393030542, 9393030507, 9393030508,  
 ) 9393040027 ✓  
 TO WIT: ) 9393030509, 9393040029, 9393030510 ✓

I, TERRY HODGSON, Businessman, of the City of Edmonton, in the Province of Alberta, SOLEMNLY DECLARE THAT:

- I am Employee of Ultrasonic Industrial Sciences Ltd., the holder of the above captioned Metallic and Industrial Minerals Permits. The first permit is dated March 16, 1993 while the balance of the Permits are dated March 17, 1993.
- With respect to assessment work, Ultrasonic Industrial Sciences Ltd. has carried out assessment work totaling in value \$18,130.00 in respect of the following legal descriptions:

W5-R24-TP83-S16  
 W5-R23-TP83-S33  
 W5-R23-TP83-S30  
 -S29  
 -S19  
 -S20

W5-R17-TP82-S5  
 -S6  
 -S7  
 -S8

W5-R21-TP84-S11  
 -S14


W5-R16-TP81-S22  
 -S23

508  
 507  
 9393040027  
 Monopros 9390080057 - check this one - it goes it appear to be released

THAT I MAKE THIS SOLEMN DECLARATION CONSCIENTIOUSLY BELIEVING IT TO BE TRUE AND KNOWING THAT IT IS OF THE SAME FORCE AND EFFECT AS IF MADE UNDER OATH.

DECLARED before me at the City )  
of Edmonton, in the Province )  
of Alberta, this 14th, day of )  
June, A.D. 1995. )  
) )  
) )

Barry King  
Barry King  
Notary Public in and for the Province of Alberta

  
TERRY HODGSON

A Summary Report On the  
Ultrasonic Industrial Sciences Ltd.'s  
Peace River Area  
Metallic Minerals Permits

October 5, 1993.

This report covers the 272,828.17 acres in 13 Metallic Minerals Permits listed below held in trust for Ultrasonic Industrial Sciences Ltd. centred on 56° 12' north 117° 15' west in N.T.S. Sheets 83N and 84C.

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9393040032

By:

Paul A. Hawkins, P.Eng.  
Paul A. Hawkins & Associates Ltd.  
72 Strathlorne Cr. S.W.,  
Calgary, Alberta  
T3H 1M8  
(403) 242-7745

Report #045-R1

## Table of Contents

Title Page	i
Table of Contents	ii
List of Figures	iii
Executive Summary	iii
1.0 Introduction	1
1.1 Location and Access	1
1.2 Licence Tabulation	7
1.3 General Geology	16
2.0 Exploration History of Diamonds in Canada	19
2.1 Geology of Diamonds	20
2.2 Diamond Exploration Technology	26
3.0 Recent Activity in the Peace River Diamond Play	28
3.1 The Peace River Model	29
3.2 Peace River Blocks	31
3.3 East Nampa Block	33
3.4 Summary	34
4.0 Conclusions	37
4.1 Recommendations	38
Certification	39
References	40
Appendix I - Peace River Budget	43

## List of Figures

Peace River Location Map	A93-045-01
Peace River Alberta Diamond Play	A93-045-02
Peace River Highway Map	A93-045-03
Peace River Blocks	A93-045-04
East Nampa Block	A93-045-05
Western Canadian Craton	A93-045-06
Peace River Regional Geology	A93-045-07
Model of Idealized Kimberlite	A93-045-08
Peace River Aeromagnetics	A93-045-09
East Nampa Aeromagnetics	A93-045-10

## Executive Summary

### Peace River Diamond Play

The Ultrasonic Industrial Sciences Ltd. (UIS) holds an 100% interest in 272,828.17 acres (110sq.km.) in 13 Metallic Mineral Permits in the Peace River Arch Diamond Play. The three permit blocks adjoin land held since 1990 by De Beers Canadian exploration subsidiary Monopros. The play surrounds the town of Peace River, which is located 350 km. northwest of Edmonton. Recent exploration activity by Monopros had attracted the company's attention. Monopros had conducted airborne geophysical surveys, heavy mineral sampling and drilling in the area. Monopros has released no results from these programs.

The UIS Permits are located within the Peace River Arch, which is a broad area of cratonic uplift. Within the arch, Archean basement features overprint the Cretaceous age rocks and influenced the development of structural and sedimentary features. These structural features or faults are believed to be the pre-existing conduits for kimberlitic intrusion at the close of the Cretaceous. The UIS Permits were acquired on the basis of known local geology, Monopros exploration activity and oil industry data.

The UIS Permits cover several significant major fault structures with coincidental pipe type magnetic features. Most of the property area has nearby road access and exploration will be very cost-effective compared with more remote locations. A multi-phase work program is recommended to explore this new diamond property in Northern Alberta.

## 1.0 Introduction

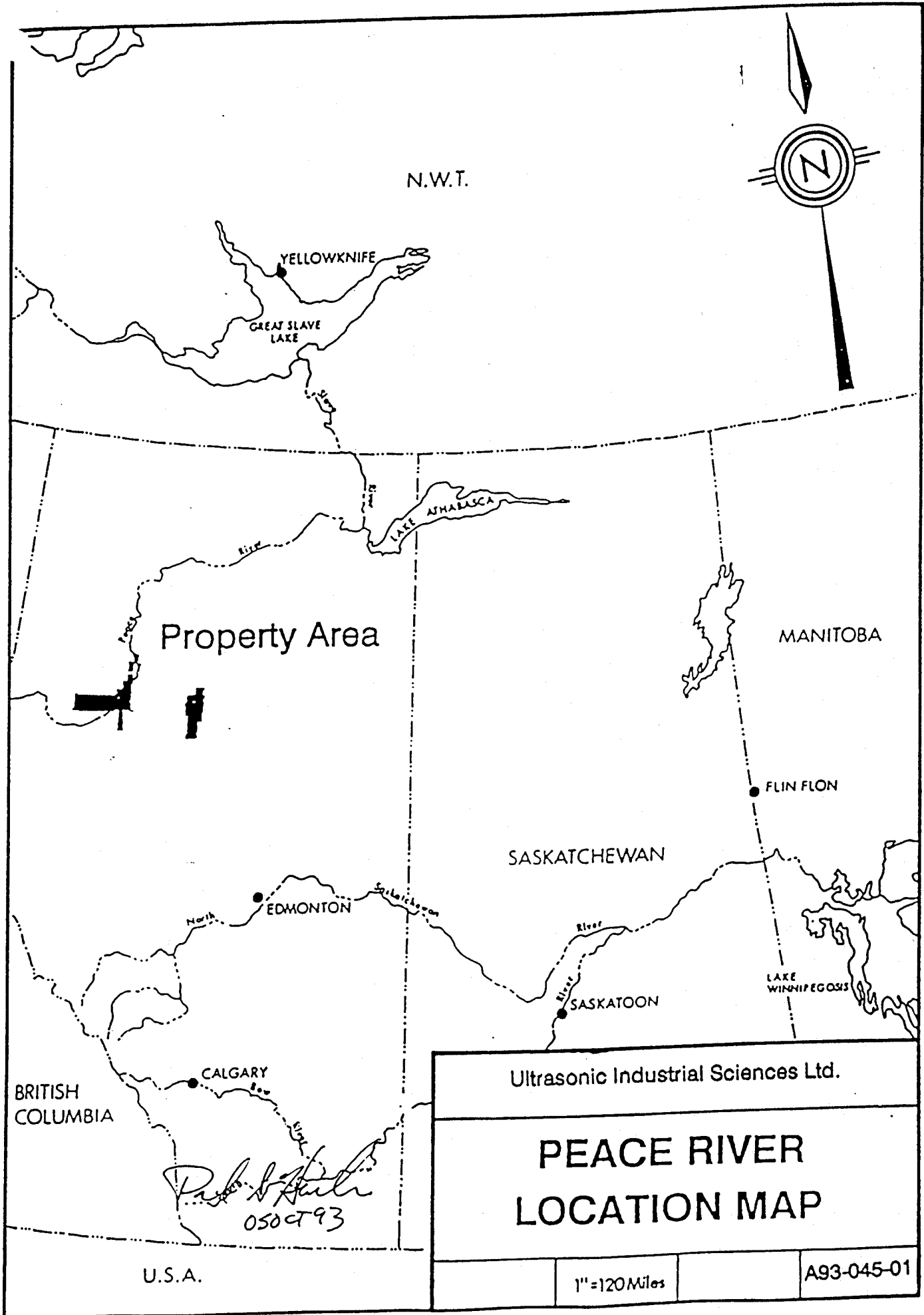
In August 1993, Paul A. Hawkins & Associates Ltd. was commissioned by Mr. Fred Cooke, President of Ultrasonic Industrial Sciences Ltd. to evaluate the companies's Peace River Diamond property and make recommendations for future exploration. The permits covered by this report were staked in September 1992.

The author has visited the Property Area several times in the past year and has completed several Qualifying Reports for other clients on other properties in the play. The author supervised an overburden drilling program to obtain till samples for diamond indicator mineral analysis between January 17-23, 1993 for an unrelated client 39 km. NE of Peace River. Comments made in this report are based on examination of government geological maps and reports (GSC and AGS), personal observation in the field and contacts with government officials.

### 1.1 Location and Access

The Peace River Area is located 350 km. (220 miles) northwest of Edmonton in west central Alberta, as shown on Drawing A93-045-01. The Peace River Arch lies between latitudes 56° and 58° north and longitudes 116° and 118° west. The project area covers two map sheets of National Topographic System (N.T.S.) maps 83N and 84C. The property area is shown on drawing A93-045-02. The 13 Metallic Minerals Permits in three blocks which make up the property are centered on 56° 37' north and 117° 15' west. They also occur within Townships 79 to 86 and Ranges 16 to 24 west of the Fifth Meridian.





N.W.T.

YELLOWKNIFE

GREAT SLAVE LAKE

LAKE ATHABASCA

Property Area

MANITOBA

FLIN FLON

SASKATCHEWAN

EDMONTON

SASKATOON

LAKE WINNIPEGOSIS

BRITISH COLUMBIA

CALGARY

U.S.A.

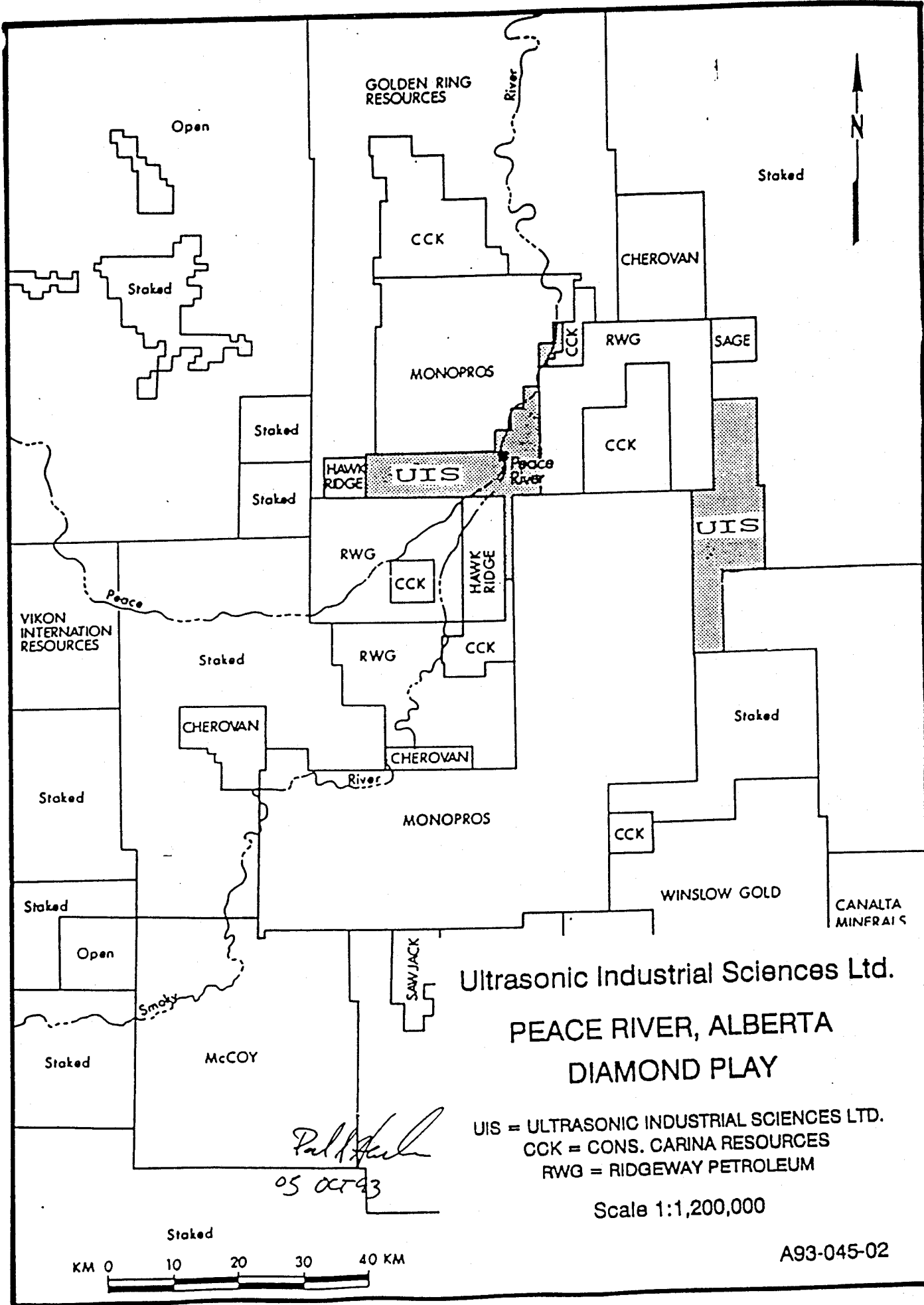
Ultrasonic Industrial Sciences Ltd.

# PEACE RIVER LOCATION MAP

1"=120 Miles

A93-045-01

*Paul H. ...*  
050793



Ultrasonic Industrial Sciences Ltd.  
 PEACE RIVER, ALBERTA  
 DIAMOND PLAY

UIS = ULTRASONIC INDUSTRIAL SCIENCES LTD.  
 CCK = CONS. CARINA RESOURCES  
 RWG = RIDGEWAY PETROLEUM

Scale 1:1,200,000

*Paul Heil*  
 05 Oct 93

A93-045-02

The Peace River area is for the most part fairly level with an average elevation of 600 m. (2000 ft.). 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 south and northwest of the area.

Streams, rivers, lakes and swamps are relatively numerous in the study area. The Peace River Valleys are deeply incised into relatively flat prairies. Tributaries equally have deep valleys within a few kilometers of the river. The Peace River ranges in width from 300 m. to 1500 m. and was once used as a major transportation route for steamers into British Columbia and the north in the early 1900's.

The Peace River area is accessible by several paved all weather highways from Edmonton which connect to the north with the Mackenzie, Alaska and Peace River Highways as shown on Drawing A93-045-03. Peace River is also served by the Northern Alberta Resource Railway branch of the C.N.R. Daily jet service also connects Peace River with the south. 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 the oil & gas developments in the Peace River Area, provides an excellent base for any future mineral development in the area. Peace River is the largest town north of Edmonton with a population of 6,580.

A well developed road access network exists in most areas of the Peace River area. In most farming areas, concession roads have been developed on most section lines. In forested areas, these concession roads are less extensively developed. These areas are, however, covered with many seismic lines and winter roads. This will provide good winter access for other areas without good gravel roads.

The Peace River area has a mean annual rainfall of 475 mm. with an annual mean temperature of 1°C. Winters are cold with temperatures to -40°C while summers can be very hot with temperatures to +30°C. On the whole, however, they are generally cool when compared to Edmonton. The long daylight hours due to its northern location makeup for the cooler temperatures and the shorter growing season.

## 1.2 Licence Tabulation

The 13 Metallic Minerals Permits covered by this report are held by Ben Christensen and George Moss in trust for Ultrasonic Industrial Sciences Ltd. The location of the permits is shown on drawing A93-045-02. The property consists of three blocks (Peace River, Peace River North and East Nampa Block). Ultrasonic Industrial Sciences Ltd. retains a 100% interest in all the Blocks.

The Metallic Minerals Regulation allows the deposition of metallic minerals (including diamonds) that are vested in or belonging to the Crown in right of Alberta by means of Metallic Minerals Permits. Permits are acquired by paper staking.

Under the new regulations (Alberta, 1993) a permit would have a term of ten years and require assessment work of \$5.00 per hectare for the first two years (\$2.50 per year), in the third and fourth years \$10.00 per hectare (\$5.00 per year), in the fifth and six years \$10.00 per hectare (\$5.00 per year), in the seventh and eighth years \$15.00 per hectare (\$7.50 per year) and in the ninth and tenth years \$15.00 per hectare (\$7.50 per year).

The UIS permits are listed in Table I. The permits are located on Drawings A93-045-04 and A93-045-05. Certain areas within the Peace River Block Joint Venture Lands have been excluded from the permitted areas. These areas include Queen Elizabeth Provincial Park west of the Town of Peace River, freehold parcels within the town of Peace River, Hudson Bay Company Land Grants, the proposed Shaftsbury Natural Area and an area covered by prior mineral leases north of Peace River covering Peace River Formation silicia sand deposits.

TABLE I

Ultrasonic Industrial Sciences Ltd.  
Land Holdings - Peace River

(All west of the Fifth Meridian)

Permit #	Date	Location	Hectares
9393030507	17MAR93	Twp83 R22 S19 S29-32	9216.00
		Twp83 R23 S1-17 S20-29 S33-36	
9393030508	17MAR93	Twp83 R23 S18-19 S30-32	9131.42
		Twp83 R24 S1-21 S22S, NW, L10, L15 S23-26 S27N, SW, SEP' S30 S34-36	
9393030509	17MAR93	Twp84 R21 S6-8 S17-18	9181.00
		Twp83 R22 S1-3 S4S, NP' S5-10 S11N, SE, SWP' S12-18 S20-28 S33-36	

Table I (Con't)

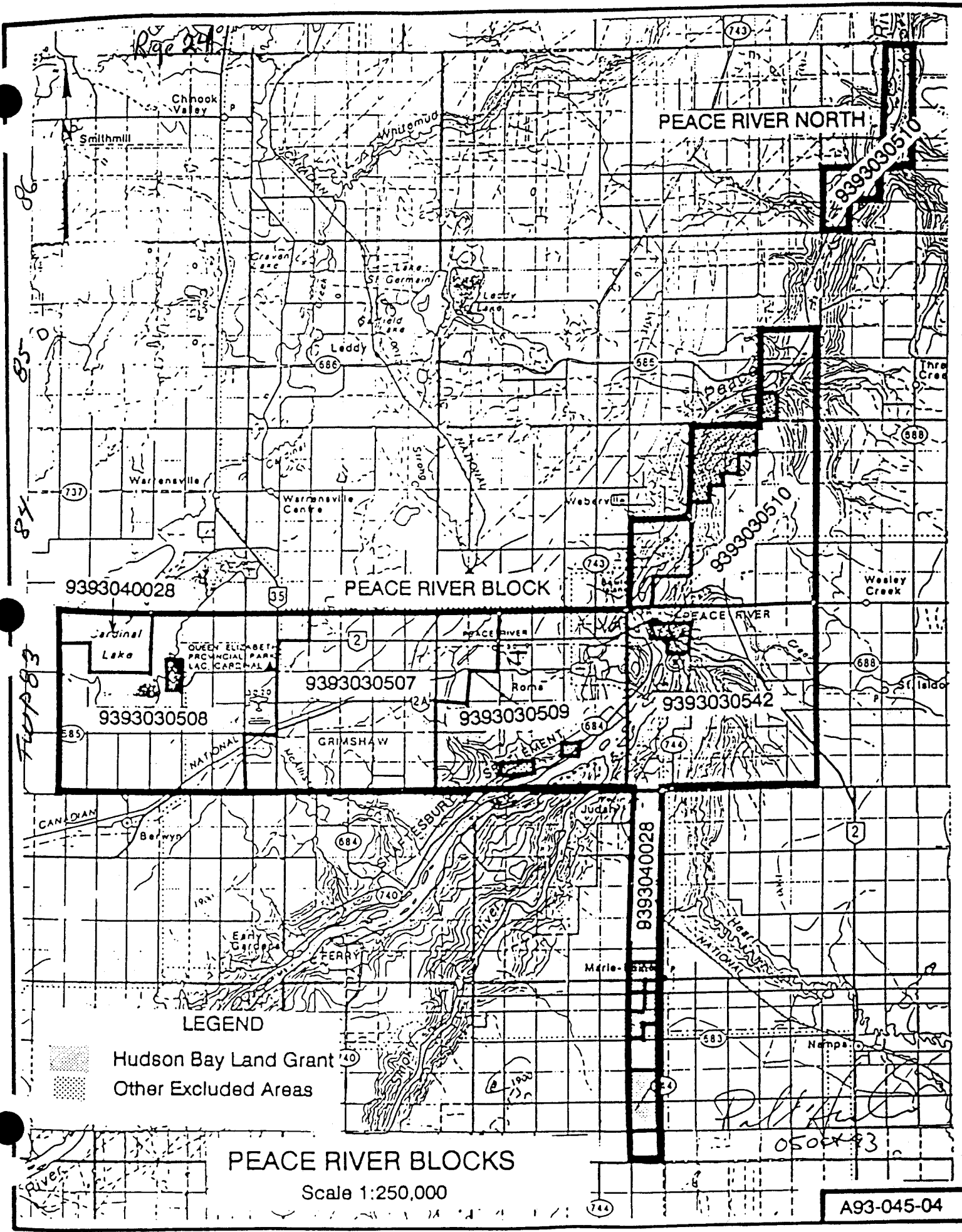
Permit #	Date	Location	Hectares
9393030510	17MAR93	Twp86 R20 S6-8 S16 S21 S28 S33 Twp84 R21 S1-5 S9-16 S21S, NE, NWP' S22-26 S27S, NE S28WP' S33WP' S35-36 Twp85 R21 S1 S2E, NWP' S11-14	8844.84
9393030542	16MAR93	Twp83 R21 S1-28 S29S, NE, NWP' S30 S31N, SW, SEP' S32N, SE, SWP' S33-36	9205.00
9393040025	14APR93	Twp79 R17 S1-4 S9-16 S21-28 Twp80 R17 S1-4	9216.00
9393040026	14APR93	Twp80 R17 S21-28 S33-36 Twp81 R17 S1-4 S9-16 S21-28 S33-36	9216.00
9393040027	14APR93	Twp81 R16 S1-36	9216.00

Table I (Con't)

Permit #	Date	Location	Hectares
9393040028	14APR93	Twp81 R21 S6 S19 S30SE S31SW,NE Twp82 R21 S6N S7 S18-19 S30-31 Twp83 R24 S28-29 S31-33	3392.00
9393040029	14APR93	Twp82 R17 S1-4 S9-16 S21-28 S33-36	6144.00
9393040030	14APR93	Twp82 R16 S1-36	9216.00
9393040031	14APR93	Twp83 R16 S1-36	9216.00
9393040032	14APR93	Twp84 R16 S1-36	9216.00

- Notes:
1. Portions lying outside the proposed Shaftsbury Natural area.
  2. Portions lying outside of Hudson's Bay Company reserve.
  3. Portions designated as Peace River.
  4. Portions lying outside River Lot 3 of the Peace River Landing Settlement.
  5. Portions designated as Cardinal Lake.





LEGEND

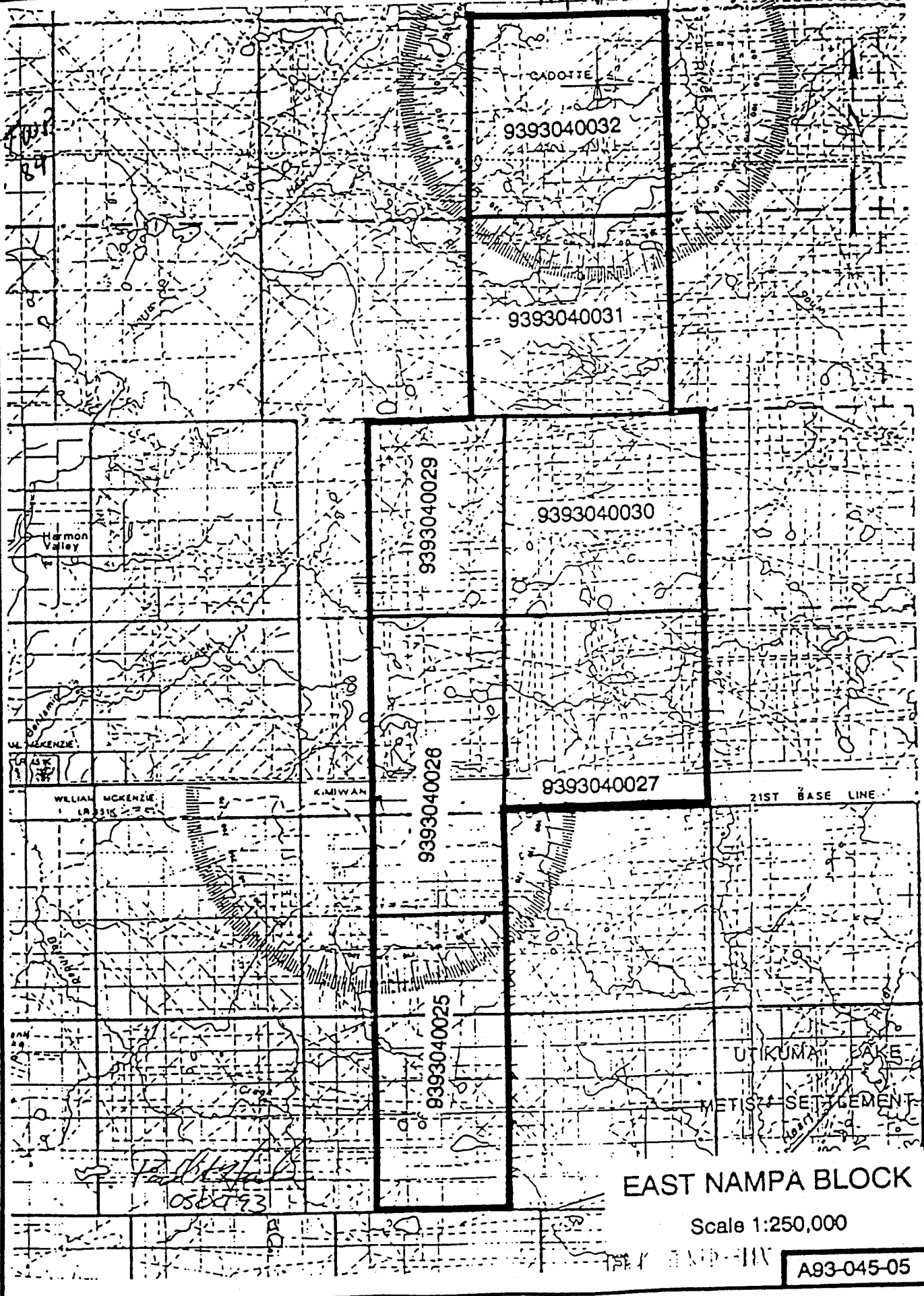
-  Hudson Bay Land Grant
-  Other Excluded Areas

PEACE RIVER BLOCKS

Scale 1:250,000

A93-045-04

Rqz 16WS



9393040032

9393040031

9393040029

9393040030

9393040028

9393040027

9393040025

84

HARMON VALLEY

WILLIAM MCKENZIE

WILLIAM MCKENZIE

KAMIWAN

21ST BASE LINE

UTIKUMAI LAKE

METIS SETTLEMENT

*Handwritten signature*  
05 OCT 93

EAST NAMPA BLOCK

Scale 1:250,000

A93-045-05

Some 15 quarter sections and 1 River Lot shown on Drawing A93-045-04, were part of the Hudson Bay Company Land Grant. In these areas Mineral Rights therefore remain with the Amoco Petroleum (Hudson Bay Company). No free hold lands except within the town of Peace River exist in the property area.

Some of the surface rights on the property may be held privately. A compilation of surface rights holders within the project area is beyond the scope of this report.

Expenditure requirements to keep all UIS Lands covered by this report in good standing through March 1995 are about \$324,170.00.

### 1.3 General Geology

The centre of attention in the Peace River Diamond Play coincides with the Peace River Arch (PRA), well known to the Oil & Gas Industry in Western Canada. The Peace River Arch is an area of uplift where the Phanerozoic cover rocks have been disturbed within the Western Canadian Basin which has given rise to 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 subcrop edge. The Arch's Devonian uplift developed several fault structures on its crest and flanks which are commonly filled with locally derived clastic sediments. These structures, which are very important for the developing of porosity for Oil & Gas, may also have been the later conduits for kimberlitic intrusion in the Peace River area.

The underlying crystalline basement of the Peace River Arch is made up of a series of Archean and Proterozoic tectonic domains as shown on Drawing A93-045-06. The basement of the PRA is made up of the Buffalo Head and Chinchaga sub-cratons, both of which appear to have origins in the Archean. The tectonic history of the western Canadian craton is still not well understood but it appears that the Archean 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 Buffalo Head and Chinchaga Archean tectonic sub-cratons are the focus of diamond exploration in the Peace River area.

The underlying exposed bedrock strata in the PRA is almost all of Cretaceous age. 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 II. Regional geology is shown on Drawing A93-045-07. The deeper formations are only exposed in drill cuttings or core from the large number of wells drilled in the area.

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

A mantle of varying thickness of superficial Pleistocene and recent deposits covers the study area. These deposits are thickest in buried old channels and in present day channels. Some stratified drift is evident but no detailed mapping has been undertaken. Reworked gravels are present along several old channel ways. Overburden ranges in thickness from very shallow (less than 1 m.) to in excess of 300 m. but averages perhaps 15 m in flat areas.

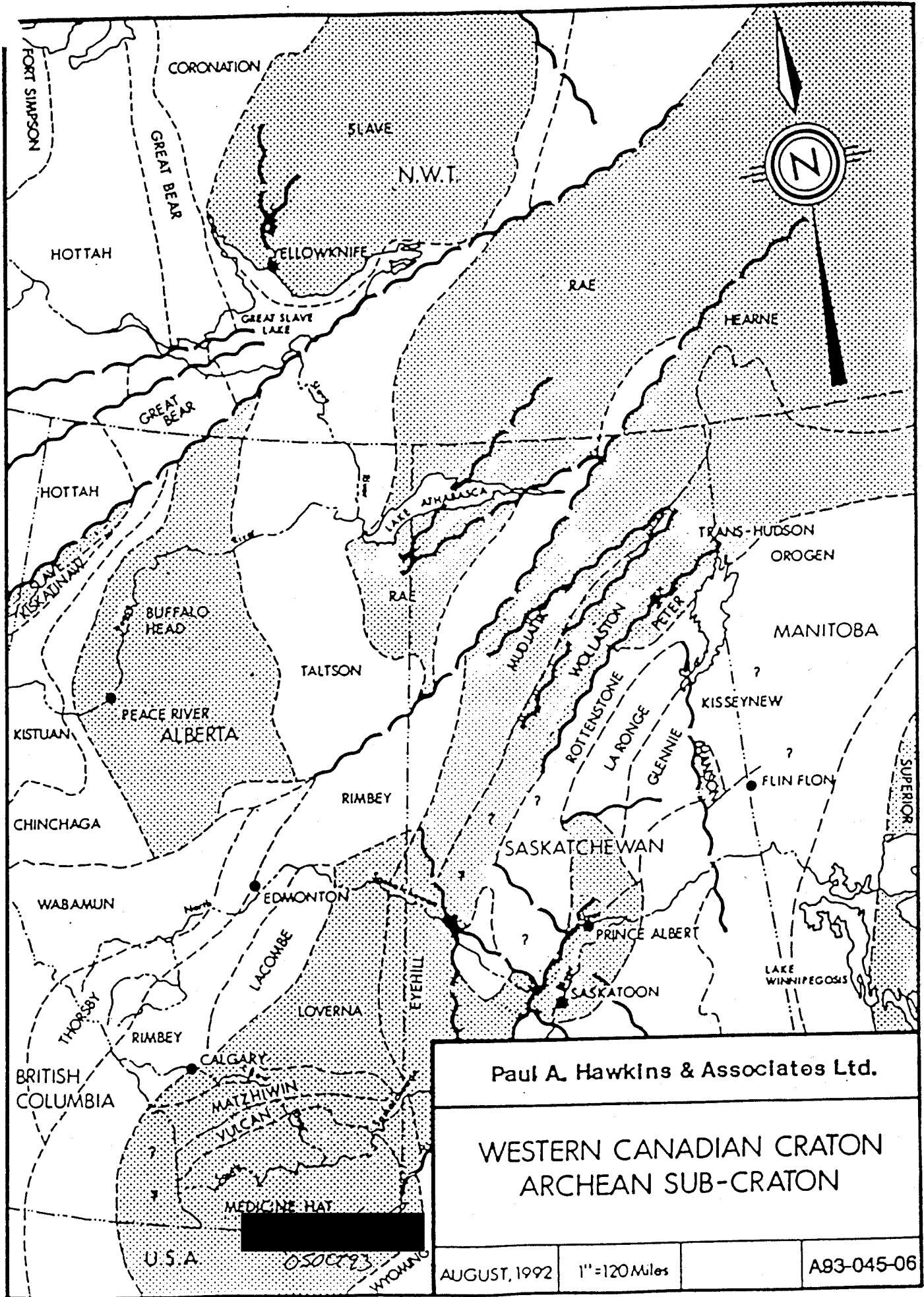


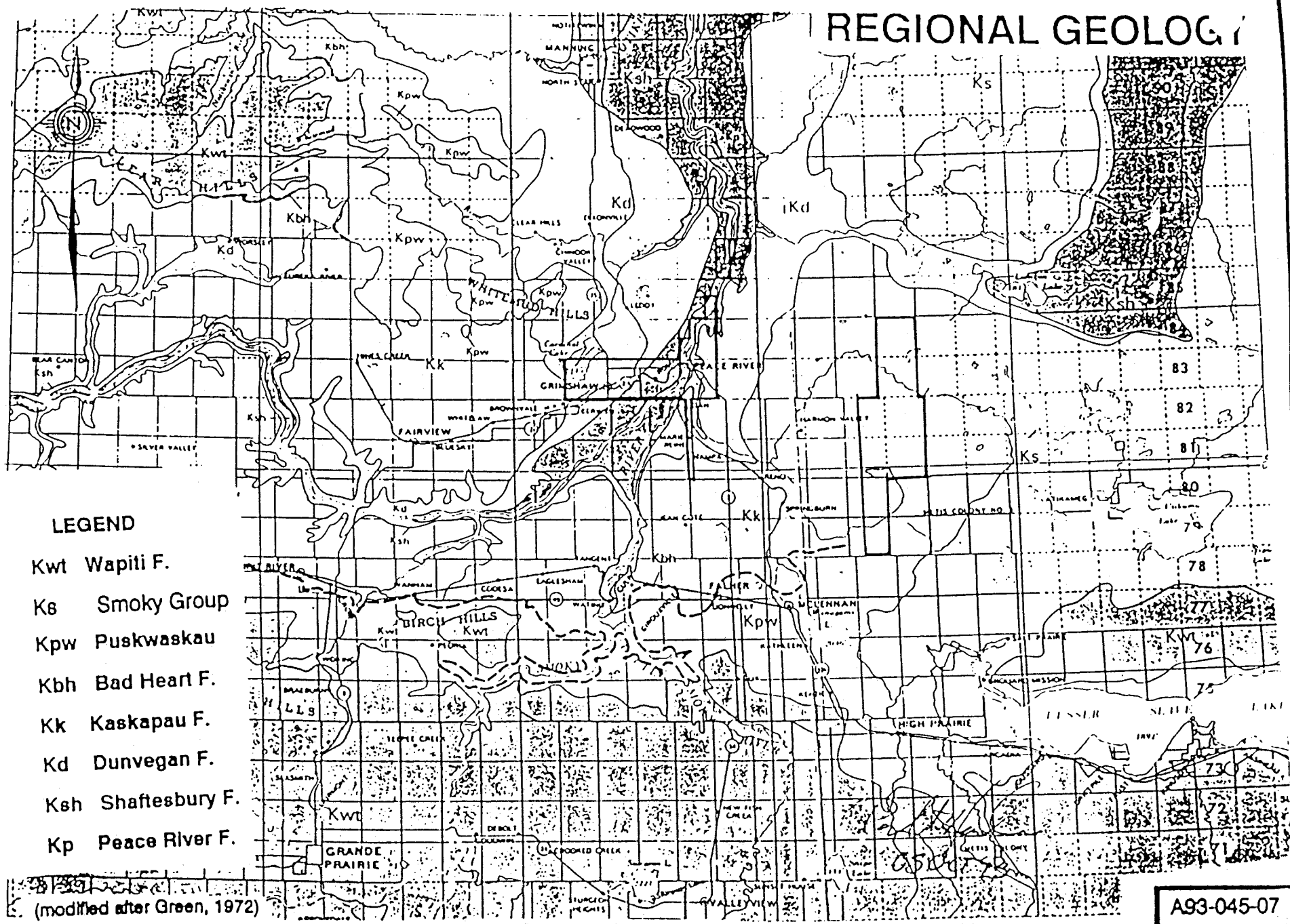
Table II

Peace River Area  
Table of Formations

Age	Sym	Formation	Age	Member	Description
Pleistocene	Qsg			Overburden	Unconsolidated Sand & Gravel
Tertiary			65		
Cretaceous	Kwl	MONTANA GROUP ? Wapiti F.			gray brown clays with massive SST, ironstone nodules, thin clay seams scattered coal beds, nonmarine
	Ks Kpw IWS	SMOKY GROUP Smoky Group Paskwaskau F.		First White Spec Zone	dark gray shale and silty shale, ironstone partings and concretions
	Kbh Kk	COLORADO GROUP ? Bad Heart F. Kaskapau F.			brown SST, medium to fine grained, fossiliferous, marine Shale, dark to black, thin bedded, some sandstone
	Kd	FORT ST. JOHN GROUP Dunvegan F.			grey line grained feldspathic SST, alternating SST/shale SST beds to silt., detrit to marine
	Ksh Kshu KSN	Shattisbury F.	100	Upper Member Base of Fish Scales ?? Lower Member	dark gray fish scale bearing shale, numerous nodules with thin beds of Fe silty and sandy shale
	Kp Kpc Kph Kpn	Peace River F.		Paddy Cadotte Member Harmon Member Notkewa Member	massive SST fluvial deposits quartzose SST, shale, conglomerate dark gray silty shale fine grained glauconitic SST
	Ksr Blsc	Spirit River F.		Father Wilrich Base of the Fish Scale??	sandstone, shale, coal Shale
	Kb	MANNVILLE/BULL HEAD GROUP Cadomin Gething F. Bluesky	106	Basal Cretaceous	conglomerate SST, shale, oil sands sandstone, shale, oil sands

(modified after Green, 1972.)

# REGIONAL GEOLOGY



## LEGEND

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

(modified after Green, 1972)

A93-045-07





## 2.0 Exploration History of Diamonds in Canada

The development and dissemination of knowledge regarding diamond exploration and associated technology to distinguish between productive diamondiferous and barren diatremes has changed the diamond exploration field dramatically (GSC,1990). This knowledge is no longer only possessed by De Beers and a few other individuals but more widely held. The practical application of this technology in exploration is only now being seen with the new discoveries in the N.W.T. and Saskatchewan.

Ten years ago the only well known diamond ore body model was the classical South African Model and associated mineral assemblage. Since then, the public domain knowledge has increased dramatically. Several scientific advances in the last decade have altered our understanding of models, age, origin and emplacement mechanism of diamonds (Kirkley et al, 1991). The discovery of the Argyle Mine in Australia demonstrated that related lamproites also are an important source of diamonds. The Argyle deposit has a significantly different geochemical signature than that of the South African Model and many of the established indicators used may not be applicable to lamproites.

Up until recently, the exploration that had taken place in Canada was largely confined to exposed Archean shield areas. Research into the make-up of the North America craton has shown much larger areas of Archean under the Phanerozoic cover of the prairies. These areas are now also considered prospective. The cratonic make-up of western Canada is shown on Drawing A93-045-06.

## 2.1 Geology of Diamonds

Diamonds in commercial quantities are found in kimberlite pipes (including related lamproites) and associated alluvial deposits. Kimberlite pipes consist of ultrabasic intrusive magmas and xenoliths. These ultrabasic magmas originate from depths of in excess of 150 km, and are emplaced during explosive volcanism. Xenoliths in kimberlites and lamproites are fragments of wall rock adjacent to the intrusion that have broken off and have been incorporated into the magma as it works its way along fractures or cracks to the surface. Diamonds are believed to be formed at depth under extremes of temperature and pressure prior to the intrusion of the kimberlite. The diamonds are not genetically related to the magma. Not all kimberlites contain diamonds. Diamonds or diamond-bearing xenoliths are only transported to the surface by kimberlite magmas.

The kimberlite when it picks up fragments of wall rock at depth effectively samples deep crustal formations. If the sampled formations are within the diamond stability field, the kimberlite may successfully carry the diamonds to the surface if the pressure/temperature conditions of the magma remain within the diamond stability field during transport. The occurrence of diamonds at surface is also controlled by the diamond grade of the pre-existing diamond bearing host rock at depth, the transport efficiency in bringing it to the surface and diamond preservation during transport.

The occurrence of kimberlites appears largely confined to regions of continental crust that are Archean cratons. A craton is part of the earth's crust that has attained relative stability and has undergone little deformation over the last 1.5GA (1.5 billion years ago). Craton includes both the exposed shield areas like the Canadian Shield and adjacent sedimentary platform areas covered with generally flat lying sediments and occasional minor volcanics. These platforms are covered extensions of the shield.

Cratons are the nuclei of all continents. Most present day continents are made up of more than one sub-craton which usually have different ages of formation resulting in composite aged cratons. In Western Canada these sub-cratons were accreted to the shield area during Proterozoic collisions resulting from continental drift. These collisions involved juvenile magmatic arcs, extensively deformed and reworked passive margins and other Archean sub-cratonic areas.

Suture lines of these sub-cratonic areas can be traced through Phanerozoic cover sediments by discrete gravity and magnetic signatures. Much of the Western Canadian Shield is overlain by sedimentary rocks of the interior platform which largely obscured the cratonic make-up. Recent compilation of gravity, magnetic, age dating of oil well drill core and remote sensing data has started to better define the cratonic make-up of Western Canada. This has specific important applications in diamond exploration. The Western Canadian Craton is shown on Drawing A93-045-06.

Diamond bearing kimberlites and lamproites occur primarily on Archean cratons where deep mantle roots or keels have not been subjected to pressure/temperatures in excess of the diamond stability field. Diamond preservation requires a relatively low density and low temperature mantle root. Off craton kimberlites, where roots have never existed or never were intersected or where they were eroded prior to kimberlite emplacement, will have low to nil diamond content.

The age, thickness of craton and cratonic make-up of an area therefore have a major control on the occurrence of economic grades of diamonds in kimberlites located there.

Kimberlite pipes are vertical carrot-shaped intrusions as shown in drawing A93-045-08. In this idealized kimberlite model, all facies rocks are shown, however individual kimberlites may be eroded or otherwise deformed. The pipes may also have multiple phases of intrusion and post-intrusive dikes. The pipes usually intrude along pre-existing zones of weakness and may be localized by structural intersections.

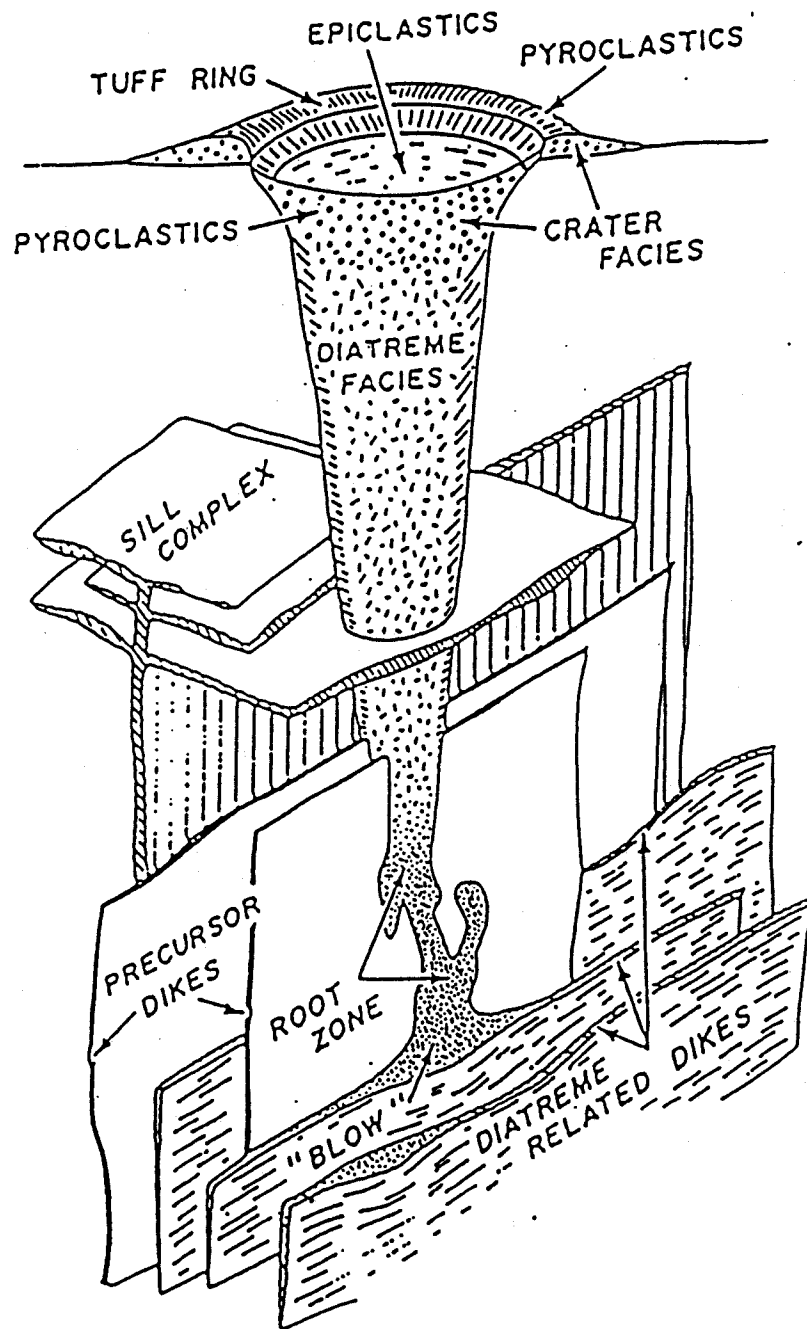
Typically kimberlites occur in clusters of 6 to 50 pipes which can cover an area of up to 50 km. in diameter. They have never been found in isolation. Pipes may or may not carry diamonds and of those that carry diamonds only a few will be economic, perhaps 1 in 30. Some clusters are totally barren, because of their tectonic position. Several clusters of pipes may occur within one craton. Diamonds in most kimberlites generally tend to be evenly distributed though the upper portion of a pipe. Distribution is less homogeneous at depth.

The determination of the value or grade of a kimberlite is complex. The value will vary according to the ratio of gem quality diamonds (high value) to other grades of stones (low value). Value is therefore a combination of grade, generally stated in carats per 100 tonnes, and average value per carat. Average South African and Siberian gem quality stones range in value from US\$50 to US\$120 per carat, while exceptional quality stones have been sold for over US\$25,000 per carat at auction. Industrial grade stones average about US\$1 per carat. Typical South African Mine grades range from 10 to several hundred carats per hundred tonnes with a range of gem content of 15 to 50%.

The kimberlite mineral assemblage consists of olivine, Mg-ilmenite (pico-ilmenite), chrome diopside, enstatite, titanium-poor phlogopite, spinels, perovskite, apatite, monticellite, calcite and serpentine. Hand specimens range from green to blue in colour and resemble concrete. Samples can be very soft. Diopside and garnets usually stand out in this nondescript rock. Classical kimberlite weathers to an ochre yellow to medium brown. The upper crater facies may resemble a sandstone and contain brecciated material. Microscopic mineral analysis is usually required to confirm the kimberlitic source of any sample.

The particular mineral assemblages of kimberlites provide a heavy mineral signature in the secondary environment that can be used to locate kimberlites. Heavy mineral sampling of overburden relies on identifying stable to semi-stable indicator minerals. These minerals include pyrope garnets, spinels, micro-ilmenite and chrome diopside.

These indicator minerals may also be used to assess the diamond potential of the source. Research has established criteria for comparing the chemical composition of these indicator minerals with inclusions within diamonds themselves from productive pipes and other standards. The identification of garnets and chromites of specific compositions is also an important diamond indicator. These indicators yield data to determine if the kimberlitic magma sampled diamond bearing units, how well diamonds were preserved during transport and how efficiently the diamonds were transported to the surface.



Model of an idealised kimberlite magmatic system, illustrating the relationship between crater, diatreme, and hypabyssal facies rocks (not to scale). Hypabyssal facies rocks include sills, dykes, root zone and "blow".

(Reproduced from G.S.C. Open File # 2124.)

## 2.2 Diamond Exploration Technology

Diamond exploration in Canada is still in the early stages of development. With the several Canadian discoveries, information will be more widely disseminated, weakening De Beers edge in diamond exploration technology. Recent discoveries have widened the knowledge and experience of home grown geologists. The activity of juniors who are required to make more timely disclosure of their results, will put more of the exploration results in the public domain. This evolution of technology presents an opportunity to develop a strategy of applying state of the art practical exploration techniques in an integrated approach in reasonably accessible areas of prospective terrain previously unrecognized or under-explored.

Diamond-bearing kimberlites appear restricted to thick stable Archean cratons. The principal reason for this restriction is the pressure temperature constraints of the diamond stability field where the diamondiferous rock at depth must remain relatively cool through time until transported to surface by a kimberlite or other related event. Archean shield areas represent just such cool thick crust areas. Crustal areas affected by hot igneous events such as the MacKenzie igneous event may cause prospective terraines like the northern Slave to be heated beyond the diamond stability field and to be without diamonds. The southern Slave with its MacKenzie dikes is still within the diamond stability because the dike intruded laterally, probably entirely within the brittle upper part of the crust, leaving the diamondiferous crustal roots preserved.

The evolution of the large scale tectonic picture now indicates that large areas of Western Canada covered by Phanerozoic Basin are of Archean age and therefore prospective for the occurrence of diamonds as shown on Drawing A93-045-06.



A classical diamond exploration program in Canada would focus on the collection of heavy minerals for the identification of the indicator minerals (chromites, Hi-Cr garnets, ilmenite, Hi-Cr clinopyroxene and Lo-Cr clinopyroxene). Specific compositions of these minerals are known to occur only in kimberlites. Some pyrope garnets are considered direct indicators of diamondiferous kimberlites. These indicators would normally be traced in overburden to a bedrock source. It is, however, sometimes possible to evaluate the source before its discovery by the geochemistry of these indicator minerals. For this reason, heavy mineral sampling is the preferred exploration tool. This procedure is a slow process.

In areas of glaciation, where ice direction is not well understood or where multiple till sheets exist, the exact location of the source of the indicator heavy minerals may not be found without additional work. Programs such as airborne geophysics, remote sensing, ground geophysics and drilling may help in locating the diamondiferous source.

Once a prospective region has been identified, analysis of the structural framework may suggest potential areas for closer examination: This examination could consist of the study of Landsat imagery, aerial photography, industry activity, available geological data and geophysical data. Areas of interest may be defined which warrant acquisition, based on the data compiled and industry activity in that play.

### 3.0 Recent Activity in the Peace River Diamond Play Area

The Peace River Diamond Play surrounds the town of Peace River Alberta, which is 350 km. (220 miles) north of Edmonton. Monopros has held ground in the area since 1990 and has been carrying out an exploration program of airborne geophysics, heavy minerals sampling and drilling in areas near Nampa, Marie Reine and Fairview. Monopros had located a portable processing plant in Grande Prairie to process samples both from Peace River and Lac De Gras. Monopros has released no results from these programs.

Monopros holdings in the Peace River area consist of two large blocks north and south of Peace River. The two blocks cover 650,000 hectares (1,600,000 acres). Monopros at the time of acquisition would have had to post a \$6,500,000.00 bond. This bonding requirement is no longer required, making land acquisition much easier. Monopros has recently renewed all their permits for another two year term.

Monopros has been very quiet about their activity in this area. They have not dropped any ground and have apparently been conducting a shallow drill program. Prior to August 1992 no other companies were active in this area, however Consolidated Carina Resources Ltd., Hawk Ridge Exploration, Golden Ring Resources, Prime Equities International Corp, Ridgeway Petroleum Corp. and Sawjack Holdings acquired ground in the area on the basis of area geology, magnetics, gravity, satellite imagery and geochronology of Precambrian basement rocks.

The property area was examined on August 11-15, 1992 by the author, to examine the general area, assess overburden thickness, cultural features, area geology and to determine previous activity by Monopros.

The author also supervised a overburden drilling program in January 1993 for Consolidated Carina Resources Ltd. north of Carmon Lake just 15km south of the Simon Lake Block. This overburden drilling recovered 44 pyrope garnets and 14 chrome diopsides (Walker, 1993).

### 3.1 Peace River Model

The Peace River Diamond Play is based on the application of a conceptual model developed by a number of workers (Clifford, 1970; Janse, 1991; Kirkley et al, 1991; and Helmstaedt & Gurney, 1991.). The model is based on the identification of where diamonds are formed (at depth in Archean Crust), preserved (thick and cool crust), the mechanism that transports them to surface (kimberlites) and the conduits they follow (faults). The practical application of this model in northern Alberta led to the development of the Peace River Diamond Play.

The Peace River Area (Buffalo Head Craton) is underlain by Archean Crust (Theriault & Ross, 1991) which likely represents a Archean Mantle Root which should be within the diamond stability field. Reactivation of Archean and Proterozoic faults in the Peace River Arch has disturbed the thick accumulation of sedimentary units developing the conduits for kimberlite intrusions to follow.

The bedrock surface lithology within the property area is Upper Cretaceous in age. The potential kimberlitic intrusives are thought to be Cretaceous in age, comparable to those reported in Saskatchewan (Gent, 1992) and therefore the kimberlites should be exposed close to the current bedrock surface under the overburden.

The drainage pattern present in the area appears to be a reflection of underlying structure. The deep structures propagate through the thick sedimentary sequence by repeated reactivation. The application of remote sensing techniques such as: satellite imagery, airborne geophysics and gravity (Rheault et al, 1991) assists in defining the regional structural framework.

In the Peace River area and the property area specifically, major structures appear oriented N-S, NW and NE. Kimberlites may have been intruded along these structures and could have been localized at fault intersections.

Interpretation of aeromagnetics (GSC, 1989a,b) by the author, indicates a number of high gradient magnetic features which could be due to intrusives like kimberlites. These anomalies occur in close proximity to major basement structures which propagate through the thick sedimentary sequence of the PRA and appear localized by fault intersection.

The above factors when applied to the current conceptual model define a previously unpublicized grassroots diamond play of merit.

### 3.2 Peace River Blocks

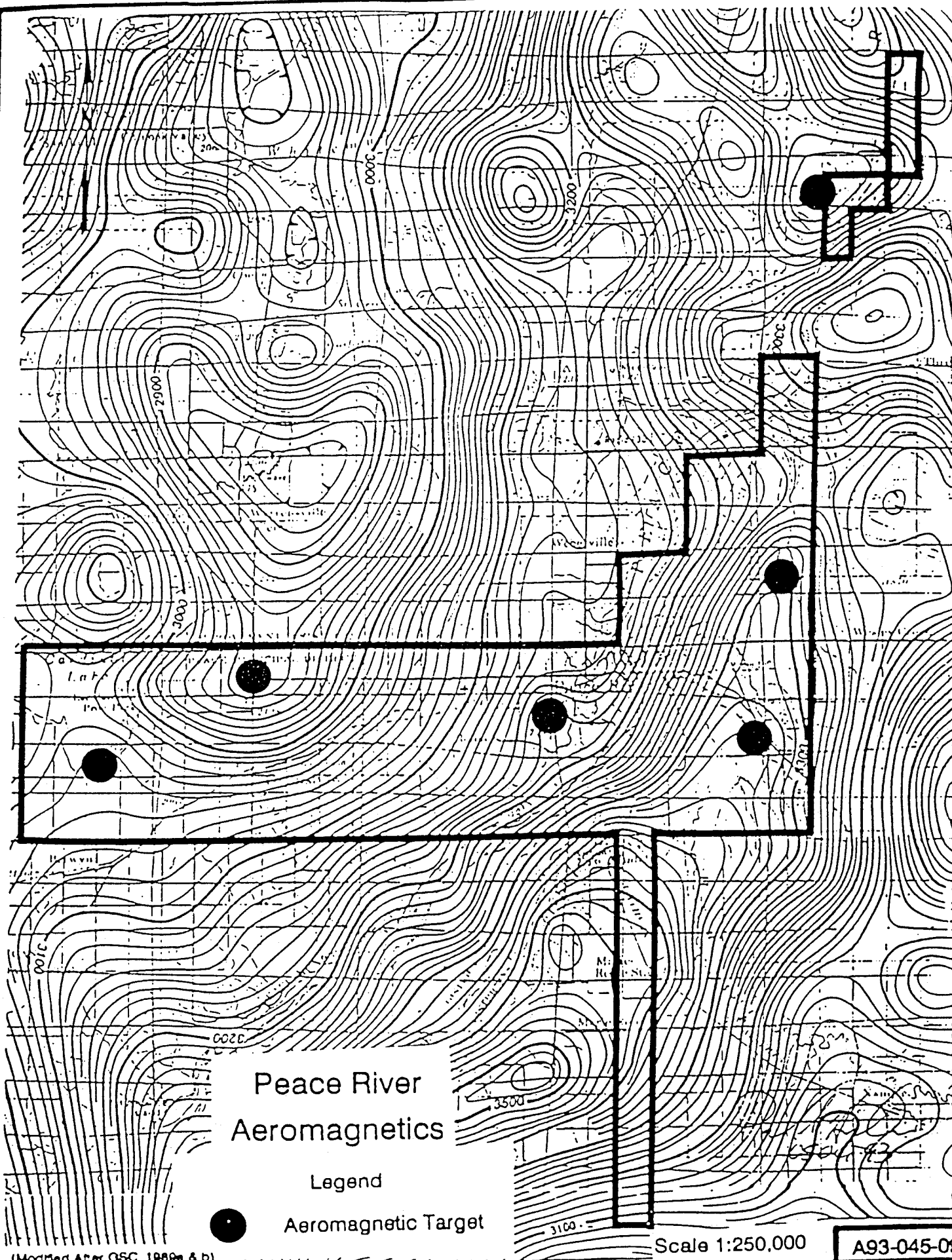
The six permits which make up the Peace Blocks surround the town of Peace River as shown previously on Drawing A93-045-04. They fill in the gap between Monopros' northern and southern blocks. The permits stretch from Cardinal Lake in the west to the town of Peace River, then north to the Diaishowa Paper Mill. A thin 1.6 km. (1 mile) wide gap, which was overlooked by early stakers, also extends the permit block 19 km. south from Peace River.

The permit area is dominated by the Peace River Valley. The permits host six pronounced aeromagnetic anomalies as shown on Drawing A93-045-09. Similar anomalies appear to occur on the adjacent Monopros property. The area is underlain by an essentially flat lying sequence of Late Cretaceous sandstones and shales masked by recent unconsolidated sands and gravels. Overburden on the flat plateau averages 20 m. while in the Peace River Valley, in an old channel, depths can exceed 300 m.

Two anomalies occur near Cardinal Lake on the plateau above the Peace River. These anomalies appear related to a N-S basement feature which runs north just west of Highway #35 north to Chinook Valley and beyond.

Four other aeromagnetic anomalies occur on or adjacent to the Peace River, which present course likely reflects a deep seated basement feature or structure. The two anomalies to the east of Peace River may be part of a dike system which stretches from Marie Reine to the NNE.

The Northern Peace River Block hosts a portion of an anomaly on the west side of the Peace River in common with Monopros.



Peace River  
Aeromagnetics

Legend

● Aeromagnetic Target

(Modified After GSC, 1989a & b)

Scale 1:250,000

A93-045-08

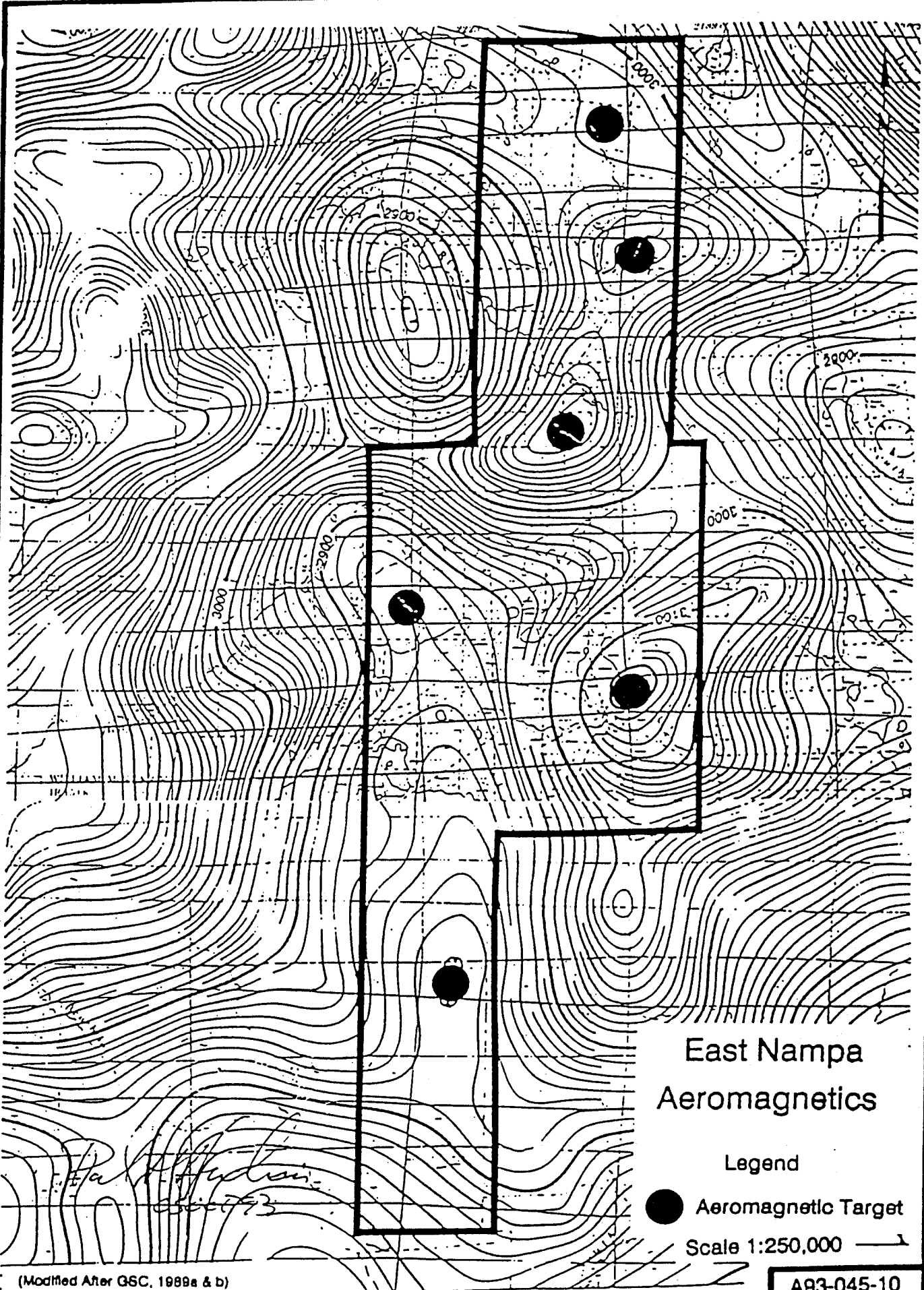
These six aeromagnetic pipe-like anomalies represent prime exploration targets especially because of their proximal location relative to Monopros holdings in the area. Monopros likely avoided these areas because of the associated urban development around Peace River. This urban development provides relatively excellent access throughout most of the permit block.

### 3.3 East Nampa Block

The East Nampa Block is located 35 km. east of the Town of Peace River or 25 km. east of Nampa. The block of 7 permits is just beyond the margin of the prairie farmland east of Peace River in forest cover. The six aeromagnetic anomalies present on the property as shown on Drawing A93-045-10, are similar to those to the west on permits held by Monopros.

The anomalies occur on either side of a N-S linear that cuts through the centre of the property. The anomalies occur in an area covered by an extensive network of seismic lines, indicating a high level of oil industry activity. The East Nampa area is underlain by a undivided sequence of Smoky Group sandstones and shales covered with recent unconsolidated sand and gravel averaging 100 m. thick.

These 6 aeromagnetic pipe-like anomalies represent prime exploration targets especially because of their proximal location relative to the adjoining Monopros holdings in the area. Access into the area is limited to several unimproved gravel roads while access around the property is limited to 4X4 trails and winter roads developed for oil exploration activity.



East Nampa  
Aeromagnetics

Legend

● Aeromagnetic Target

Scale 1:250,000

(Modified After GSC, 1989a & b)

A93-045-10



### 3.4 Summary

The UIS's 13 permit blocks cover several areas of interest in the Peace River Diamond Play. The permits are located within the Peace River Arch (PRA), which is a broad area of cratonic uplift in North Central Alberta. Within the PRA, Archean basement features overprint the Cretaceous age rocks and influence the development of structural and sedimentary features. These structural features or faults are believed to be the pre-existing conduits for kimberlitic intrusion at the close of the Cretaceous. The UIS permits were acquired on the basis of available airborne geophysics, local area geology, and scouting reports.

Monitoring of Monopros exploration activity by the writer in the Peace River area, indicates a centre of activity near Nampa, on the series of NE trending magnetic anomalies. Recent unconfirmed reports indicated that work was reaching an advanced drilling stage. Based on this activity it appears that Monopros has made a discovery in the Peace River area. The occurrence of diamond indicator minerals on the Carina permits confirms the merit of the play.

Kimberlite pipes typically occur in clusters of six to fifty or more in number. An area may contain several clusters as seen in the Fort a La Corne Area in Saskatchewan. In the PRA interpretation of aeromagnetics indicates a cluster of high gradient pipe-like magnetic features which could be kimberlitic intrusions. These anomalies occur in close proximity to major basement structures which propagate through the thick sedimentary sequence of the PRA and appear localized by fault intersections. Any of these clusters could contain one or more economic pipes.

The companies' Peace River holdings represent an excellent land position covering several significant major fault structures with coincidental pipe-like magnetic features. Most of the property area is road accessible and exploration will be very cost-effective compared with more remote locations.

#### 4.0 Conclusions

The Peace River Diamond Play represents a significant unpublicized diamond play. The UIS permits are located within the Peace River Arch where extensive faulting has reactivated Archean and Proterozoic faults disturbing the thick accumulations of Devonian to Cretaceous strata. This major faulting down through the basement rocks is excellent ground preparation, providing the pre-existing conduits for the younger kimberlite intrusions to follow.

The Buffalo Head Terraine is a complex region of crustal fragments where old deep mantle roots appear to have been preserved within the diamond stability field. Such a combination of deep crustal roots within the diamond stability field and structural conduits provides the suitable conditions for the generation of kimberlite magmas which could reach surface. These factors make the Peace River area a prospective cratonic area to explore for diamonds in Western Canada.

Monopros closely spaced drilling activity suggests that some positive results have been obtained and adds to the merit of the play. Carina discovery of indicator minerals in overburden confirms the presence of a kimberlitic intrusive in the Peace River area.

The property area has all the right geology and correct tectonic setting for diamondiferous kimberlites to be present. Given the property's accessibility, it will be possible to explore the property on a year round basis. The Peace River area is a diamond play of significant merit which has been relatively unknown until recently and offers significant potential for the discovery of diamondiferous kimberlite pipes.

#### 4.1 Recommendations

A multi-stage exploration program is recommended to examine the diamond potential of the permit areas. The initial phase of the recommended work program will involve data compilation, consisting of assembling and assessing the applicability of the geological and geophysical data base derived from petroleum exploration in the permit areas. A second phase of exploration will consist of the collection of regional heavy mineral stream sediment and till samples, completion of a low level airborne geophysical survey and follow-up ground geophysics. Later phases will focus on specific areas of interest and the definition and testing of specific targets.

An extensive data base exists for the area which has been collected during petroleum exploration. Data such as well logs, well drill core/cuttings, seismic data, gravity, remote sensing and basement geochronology should be examined for the area. It is possible that an oil company could have drilled through a unrecognized kimberlite; -therefore close examination is required of all associated data. The phase one program consisting of data compilation will cost \$18,640.00.

The second phase of exploration will aim to confirm the presence of diamond indicator minerals in the Peace River Area. Stream sediment samples will be collected, followed by systematic sampling of glacial till for diamond indicator minerals. Both airborne and ground geophysics will be used to define high priority target areas. These surveys will serve as a guide for future geophysical surveys and drilling. Ground geophysics (magnetometer and VLF-EM) will be used to define specific drill targets.

Detailed Heavy Mineral sampling will also be used to prioritize anomalies for later drilling. Positive results consisting of good indicator mineral assemblages and pipe like magnetic anomalies lead to the third phase. The phase two program will likely require three months to complete and cost \$281,360.00.

The third phase of exploration on the property will consist of a combination of rotary and core drilling on selected targets. Subsequent bulk testing would also be required to fully assess any diamond discoveries made. This program will likely take three to six months. The drilling should cost \$700,000.00.

Respectfully Submitted,

  
Paul A. Hawkins, P.Eng.  
Principal  
Paul A. Hawkins & Associates Ltd.

October 5, 1993.

## Certification

I, Paul A. Hawkins, of [REDACTED], in the City of Calgary, Province of Alberta, hereby certify:

1. That I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
2. That I am the Principal of the firm of Paul A. Hawkins & Associates Ltd. which holds Permit #P4521 to practice Engineering in Alberta.
3. That I am a graduate of Queen's University with a Bachelor of Science degree in Geological Engineering.
4. That I have worked continually as a practicing geological engineer for the past 16 years.
5. That I do not have any direct or indirect interest in the property, nor do I beneficially own directly or indirectly, any securities of the CMC Joint Venture or any of its associates or affiliates.
6. That I held a total of 391,040 acres in adjacent areas in trust for an unrelated client pending their extra-provincial corporate registration in Alberta, retaining no interest whatsoever.
7. That I have visited the property area several times in the past year and have prepared three other reports on the Diamond Potential of the Peace Area for two other unrelated Clients (Hawkins, 1992a, b, c).
8. That I am familiar with the geology of diamonds and the area geology and mineral potential.
9. That I hereby consent to the publication of this report or parts thereof in a Statement of Material Facts or publication of this report in its entirety for the propose of raising funds to finance my recommendations.

Dated at Calgary, Alberta this 5th day of October, 1993.

[REDACTED]  
Paul A. Hawkins, P.Eng.  
Principal  
Paul A. Hawkins & Associates Ltd.

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APPENDIX I

Proposed Budget Peace River  
UIS PROGRAM

===== Cost Centre =====	===== Phase I Initial Exam =====	===== Phase II Geophysics & Heavy M =====	===== Phase III Drilling =====
<b>Professional Services</b>			
Regional Study Participation	\$2,000.00		
Project Geologist	\$4,000.00	\$20,000.00	\$20,000.00
Field Assistant	\$1,250.00	\$3,500.00	\$8,000.00
Landman		\$1,800.00	\$2,000.00
Drafting	\$500.00	\$1,000.00	\$1,000.00
Word Processing	\$250.00	\$760.00	\$1,800.00
Reproduction	\$250.00	\$1,500.00	\$1,000.00
Computer	\$100.00	\$1,000.00	\$2,500.00
<b>Travel Expenses</b>			
Air Travel		\$1,000.00	\$1,000.00
Hotel	\$500.00	\$750.00	\$1,500.00
Meals	\$500.00	\$1,600.00	\$1,500.00
Fuel	\$400.00	\$900.00	\$1,200.00
Truck Rental	\$1,500.00	\$1,500.00	\$3,500.00
Telephone	\$250.00	\$300.00	\$300.00
Courier	\$100.00	\$150.00	\$250.00
<b>Field Equipment and Supplies</b>			
Indicator Mineral Processing	\$2,000.00	\$6,000.00	\$25,000.00
SEM Analysis	\$1,500.00	\$3,500.00	\$12,500.00
Equipment Rental	\$1,000.00	\$3,000.00	\$3,450.00
Reproduction	\$200.00	\$750.00	\$1,200.00
Geophysical Equipment	\$1,500.00		
Maps and Airphotos	\$590.00	\$600.00	\$1,000.00
Field Supplies	\$100.00	\$2,500.00	\$2,250.00
Fuel		\$200.00	\$500.00
Permit & Licences	\$150.00		
<b>Geophysical Program</b>			
Linecutting		\$50,000.00	\$3,000.00
Contract Geophysics		\$35,000.00	\$10,000.00
Digital Data Acquisition		\$2,400.00	
Airborne Geophysics		\$130,000.00	
Interpretation		\$10,000.00	\$2,000.00
Permits and Licences		\$150.00	
Surface Access		\$1,500.00	

Peace River Budget (Con't)

Cost Centre	Phase I	Phase II	Phase III
Drilling Program			
Mob-Demob			\$5,000.00
Freight			\$13,500.00
Permits & Licences			\$1,200.00
Drilling Footage Rate			\$470,000.00
Drilling Hourly Rate			\$25,000.00
Drilling Fluids			\$5,000.00
Hole Abandonment Cement Plugs			\$5,000.00
Equipment Lost in Hole			\$1,000.00
Sample Containers			\$4,500.00
Core Boxes			\$8,500.00
Lumber			\$1,500.00
Surface Leases			\$10,000.00
Site Preparation			\$20,000.00
Site Reclamation			\$10,000.00
Camp Rental			\$10,000.00
Radio Rental			\$1,500.00
Drill Hole Survey			\$1,850.00
Phase Totals	\$18,640.00	\$281,360.00	\$700,000.00
Total All Phases=			\$1,000,000.00

Addendum to  
A Summary Report On the  
Ultrasonic Industrial Sciences Ltd.'s  
Peace River Area  
Metallic Minerals Permits  
October 5, 1993.

This report covers the 272,828.17 acres in 13 Metallic Minerals Permits listed below held in trust for the Ultrasonic Industrial Sciences Ltd. centred on 56° 12' north 117° 15' west in N.T.S. Sheets 83N and 84C.

9393030507  
9393030508  
9393030509  
9393030510  
9393030542  
9393040025  
9393040026  
9393040027  
9393040028  
9393040029  
9393040030  
9393040031  
9393040032

By:

Paul A. Hawkins, P.Eng.  
Paul A. Hawkins & Associates Ltd.  
72 Strathlorne Cr. S.W.,  
Calgary, Alberta  
T3H 1M8  
(403) 242-7745

Report #055-R1

## 5.0 Introduction

In late August 1993, Paul A. Hawkins & Associates Ltd. was commissioned by Mr. Fred Cooke, a Director of Ultrasonic Industrial Sciences Ltd. (UIS) to place a fair market value on the UIS's Peace River Metallic Minerals Properties. The properties were previously examined in a report prepared by the author in June 1993 to which this report is appended.

The author has visited the Peace River area several times in the past year and completed several Qualifying Reports for other clients on other properties in the Peace River Diamond Play. The Author examined the Peace River block specifically on August 29-31, 1993. Analysis on Heavy Mineral samples collected during this examination are still pending.

## 5.1 Valuation

The Peace River Properties of UIS host 12 aeromagnetic anomalies which are similar in nature to anomalies associated with kimberlites. These anomalies occur along structural trends (faults) which are deep penetrating features which could have been conduits for kimberlitic intrusion at the close of the Cretaceous. The recovery of kimberlitic indicator minerals (pyrope and chrome diopside) near Carmon Lake indicates the likely presence of previously unknown (although suspected) kimberlitic intrusions in the Peace River area. On going exploration by Monopros in adjacent blocks to the UIS property confirms the merit of the area.

The UIS properties are grass roots in nature which are very well positioned within the Peace River Diamond Play based on structure, cratonic position, geophysical signature and proximity to the reported occurrence of kimberlitic indicator minerals. We have followed a valuation methodology based on the number of geophysical targets present on a property and proximity to Monopros property and/or presence of kimberlitic indicators nearby. Typical payments made on properties in Saskatchewan range from \$10,000 to \$25,000 per target. Given Monopros activity and results from other industry activity in the area, we value proximal properties to Monopros blocks equally between Fort á La Corne and Peace River.

The two Peace River Blocks consist of 6 permits which surround the town of Peace River as previously shown on Drawing A93-045-04. They fill the gap between Monopros' northern and southern blocks.

The main block hosts 5 good pipe-like anomalies. The anomalies appear similar in nature to those present on the Monopros northern block which adjoins immediately to the north and represent prime exploration targets. These anomalies are positioned so that they are unaffected by HB Company Land Grants. Some areas on the property are covered with deep overburden which may increase exploration costs but good access will likely balance out these added costs. We therefore assign based on their geophysical signature, structural setting and contiguous proximity to Monopros' northern block a value of \$25,000 per anomaly or \$125,000 in total for this block.

The small northern Peace River block hosts a portion of a good pipe-like anomaly along the Peace River. We therefore assign only 50% value of an Anomaly to the block for a total of \$12,500.


The East Nampa Block located SE of the two Peace River blocks, previously shown on Drawing A93-045-05, consists of seven permits and hosts six good pipe-like magnetic anomalies which occur just east and northeast of Nampa. The anomalies appear similar to those to the west on permits held by Monopros and represent prime exploration targets because of their proximal location and structural setting. We therefore assign, based on their geophysical signature, structural setting and contiguous proximity to Monopros southern Block, a value of \$25,000 per anomaly or \$150,000 in total for this block.

Total out of Pocket expenditures by the UIS and the Vendors to date have been limited to:

Filing Fees	\$ 5,850.00
Professional Fees	
(Summary Report)	\$ 1,401.87
(Evaluation Report)	\$ 835.00
(Field Examination)	\$ 3,175.00
	-----
Total Out of Pocket	\$11,261.87
	=====

We therefore put a fair market value at September 8, 1993. in cash or terms equivalent to cash for which the UIS Lands in Peace River would sell for in a competitive market, with the buyer and seller at arms length with a marketing time of one year at \$287,500.00. It is our opinion that in the present climate for diamond properties in Western Canada and in particular those which have evidence of kimberlitic intrusions in the area as indicated by the presence of kimberlitic indicator minerals and reasonable access, a willing buyer would consider the UIS Lands to have a Fair Market Value of \$287,500.00.

Respectfully Submitted 

  
 Paul A. Hawkins, P.Eng. 050CT93  
 Principal  
 Paul A. Hawkins & Associates Ltd.

## Certification

I, Paul A. Hawkins, of [REDACTED] in the City of Calgary, Province of Alberta, hereby certify:

1. That I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
2. That I am the Principal of the firm of Paul A. Hawkins & Associates Ltd. which holds Permit #P4521 to practice Engineering in Alberta.
3. That I am a graduate of Queen's University with a Bachelor of Science degree in Geological Engineering.
4. That I have worked continually as a practicing geological engineer for the past 16 years.
5. That I do not have any direct or indirect interest in the property, nor do I beneficially own directly or indirectly, any securities of Ultrasonic Industrial Sciences Ltd, the CMC Joint Venture or any of its associates or affiliates.
6. That I held a total of 391,040 acres in adjacent areas in trust for an unrelated client pending their extra-provincial corporate registration in Alberta, and now retain no interest whatsoever.
7. That I have visited the property area on August 29-31, 1993. and have prepared several other reports on the Diamond Potential of the Peace River Area for other unrelated Clients.
8. That I am familiar with the geology of diamonds and the area geology and mineral potential.
9. That I hereby consent to the publication of this report or parts thereof in a Statement of Material Facts or publication of this report in its entirety for the propose of raising funds to finance my recommendations.

Dated at Calgary, Alberta this 5th day of October, 1993.

[REDACTED]  
Paul A. Hawkins, P.Eng.  
Principal  
Paul A. Hawkins & Associates Ltd.

**STATUTORY DECLARATION**

CANADA ) IN THE MATTER OF THE MINES AND MINERALS  
) )  
PROVINCE OF ALBERTA ) ACT, AND IN THE MATTER OF METALLIC AND  
) )  
) ) INDUSTRIAL MINERALS PERMITS NUMBERS  
) )  
) ) 9393030542, 9393030507, 9393030508,  
) ) 9393040027  
TO WIT: ) 9393030509, 9393040029, 9393030510

I, TERRY HODGSON, Businessman, of the City of Edmonton, in the Province of Alberta, SOLEMNLY DECLARE THAT:

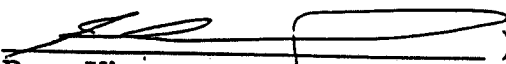
1. I am Employee of Ultrasonic Industrial Sciences Ltd., the holder of the above captioned Metallic and Industrial Minerals Permits. The first permit is dated March 16, 1993 while the balance of the Permits are dated March 17, 1993.

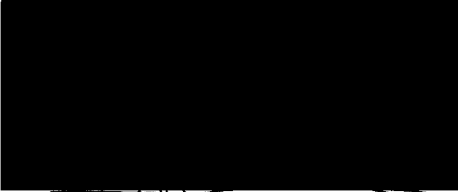
2. With respect to assessment work, Ultrasonic Industrial Sciences Ltd. has carried out assessment work totaling in value \$18,130.00 in respect of the following legal descriptions:

W5-R24-TP83-S16	W5-R17-TP82-S5	W5-R21-TP84-S11
W5-R23-TP83-S33	-S6	-S14
W5-R23-TP83-S30	-S7	
-S29	-S8	
-S19	W5-R16-TP81-S22	
-S20	-S23	

THAT I MAKE THIS SOLEMN DECLARATION CONSCIENTIOUSLY BELIEVING IT TO BE TRUE AND KNOWING THAT IT IS OF THE SAME FORCE AND EFFECT AS IF MADE UNDER OATH.

DECLARED before me at the City )  
of Edmonton, in the Province )  
of Alberta, this 14th, day of )  
June, A.D. 1995. )

  
Barry King )  
Notary Public in and for the Province of Alberta

  
TERRY HODGSON



**Ultrasonic Industrial Sciences Ltd.  
Assessment Expenses**

Description	Total	Total	2 Year
	1993	1994	Total
City of Edmonton Business Taxes	431.43	2,061.32	2,492.75
Rileys Reproduction	112.20	0.00	112.20
ABL Photographics	0.00	3,083.48	3,083.48
Oxford	4,120.16	14,058.44	18,178.60
First Call Express Inc.	0.00	357.65	357.65
Office Depot	995.24	970.48	1,965.72
[REDACTED]	0.00	534.00	534.00
Monoita Office Systems	333.84	175.15	508.99
Carina Holdings	4,603.21	149.03	4,752.24
Carswell Publishing	70.09	114.00	184.09
Commcorp	0.00	2,489.74	2,489.74
[REDACTED]	0.00	6,955.00	6,955.00
Petty Cash	0.00	523.20	523.20
Swarm Enterprises	438.70	2,065.10	2,503.80
Receiver General	5,863.66	1,219.72	7,083.38
Wages	6,850.65	168.00	7,018.65
Active Office	0.00	42.80	42.80
AT & T Capital	231.96	0.00	231.96
Winnifred Stewart Assoc.	0.00	35.00	35.00
CMB Insurance	283.25	0.00	283.25
Peterson Hustwick Wetsch & Moffat	10,270.22	31,350.51	41,620.73
Federal Express	17.66	30.95	48.61
Loomis Couier	0.00	251.55	251.55
Expense Report	3,235.89	88.33	3,324.22
Uniglob	3,443.27	3,285.10	6,728.37
Paul Hawkins & Assoc.	5,354.18	5,024.53	10,378.71
DHL Couriers	96.72	420.29	517.01
[REDACTED]	34,147.15	8,223.04	42,370.19
RM Trust	2,846.68	3,612.47	6,459.15
<b>Total</b>	<b>83,746.16</b>	<b>87,288.88</b>	<b>171,035.04</b>
<b>Total Hectre in Lease</b>	<b>9,216.00</b>	<b>22,772.74</b>	
	6,144.00	15,181.82	
	9,216.00	22,772.74	
	9,131.42	22,563.74	
	9,181.00	22,686.25	\$323.76 per quarter
	8,844.84	21,855.60	\$1,295.02 per section
	9,205.00	22,745.56	\$46,620.80 per township
	60,938.26	150,578.44	6.54 townships
Required Assessment \$per/hect	\$5.00	\$2.02	
	<b>\$304,691.30</b>	<b>\$304,691.30</b>	<b>\$304,691.30</b>

Usage  
56 quarters  
8,960.00 acres  
\$2.02 per/acre  
\$18,130.31

8,975.25  
14.02382426  
56.09529703