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SUMMARY REPORT  
ON THE 1988 EXPLORATION ACTIVITY  
OF  
UNITED REEF PETROLEUMS LIMITED  
ON THE  
NICKEL OFFSETS PROPERTY,  
FOY AND BOWELL TOWNSHIPS, ONTARIO

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OM 88-8-L-130

## SUMMARY

United Reef Petroleums Limited of Toronto optioned the Nickel Offsets Property from Canhorn Mining Corporation in November of 1986. The Property is located in Foy and Bowell Townships approximately 40 km northwest of Sudbury, Ontario.

The Property straddles the Foy Offset, a quartz diorite dyke extending from the Sudbury Igneous Complex. The claims encompass the Nickel Offsets Mine which produced 208,551 tons of nickel-copper ore with associated PGM from 1943 to 1957.

United Reef carried out geophysical surveys, geological mapping and diamond drilling in 1987. The program identified 11 zones of interest. Of these, Area 1 showed the most favourable geophysical response. Hole FB-87-01, the first diamond drill hole to test Area 1, intersected 30.2 feet assaying 0.112 oz/t Au, 2.237% Cu, 0.325% Ni with minor platinum group values. Subsequent drill holes in Area 1 intersected disseminated, stringer and massive sulphide mineralization.

The 1988 exploration program focused on the Area 1 mineralization. Borehole Transient EM Surveys were used to identify the geometry and attitudes of the Area 1 mineralization. The mineralization was found to strike east-west, dipping at approximately 50-70°S. Based on this geometry an IN LOOP Transient EM Survey was conducted over the Area 1 mineralization. A strong conductor was identified between L13+50E, 3+50 N and L15+50E, 3+25N. This anomaly was the focus of the 1988 drill program.

The drill program consisted of 8 drill holes totalling 4,039 feet. The majority of holes intersected massive sulphide mineralization. Semi-massive to disseminated sulphide mineralization was encountered in all the holes. With encouraging results garnered from both the 1987 and 1988 drill programs further delineation drilling is recommended.



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Figure 2 Claim Map of the Nickel Offsets Property

## 1.0 INTRODUCTION

By an agreement dated November 16, 1986, United Reef Petroleum Limited of Toronto, Ontario acquired an option on the Nickel Offsets property from Canhorn Mining Corporation, also of Toronto. The property consists of 52 contiguous patented claims and an additional block of 3 patented claims. The Nickel Offsets property is situated in Foy and Bowell Townships, located approximately 40 km northwest of Sudbury, Ontario (see Figure 1).

This report summarizes the 1987 exploration program survey results which targeted Area 1 for follow-up and reviews the 1988 exploration results on the Nickel Offset Property.

## 2.0 LOCATION AND ACCESS

The Nickel Offsets property is located in central eastern Foy and western Bowell Townships, Ontario. The western portion of the property can be reached via the Sand Cherry Creek gravel and dirt road which connects the old Nickel Offsets mine site to the town of Chelmsford situated approximately 20 km to the south. The eastern portion of the property (Area 1) is accessible by all terrain vehicle via the Nickel Offsets drill road which connects with the Sand Cherry Creek road.

The main center of service and supply is Sudbury, a mining community with a population of approximately 150,000.

## 3.0 PROPERTY

The property is comprised of two claim blocks, totalling approximately 1,920 acres (see Figure 2). The first block contains 52 contiguous patented claims in Foy and Bowell Townships. The remaining block consists of 3 patented claims in Foy Township. The claims are listed as follows:

### Foy Township

5368  
5668  
5867  
9617 to 9625  
9628  
9723 to 9734  
10932 to 10937  
11667 to 11674  
11928, 11929  
31254, 31257  
34607 to 34610

### Bowell Township

9626, 9627  
31540-31542

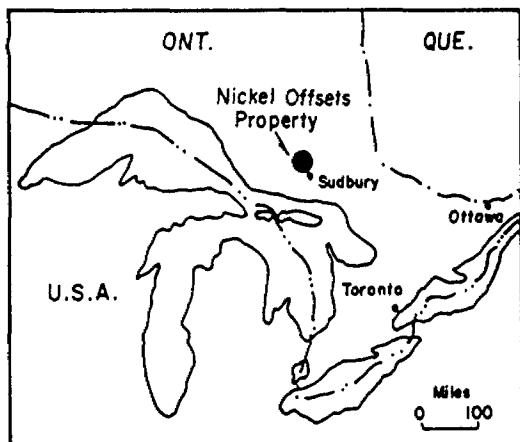


FIGURE 1. LOCATION MAP  
UNITED REEF PETROLEUMS LTD.  
NICKEL OFFSETS PROPERTY  
FOY & BOWELL TWPS.  
SUDBURY MINING DIVISION

Scale: 1 Inch to 4 Miles

Inches | 0 4 8 Miles

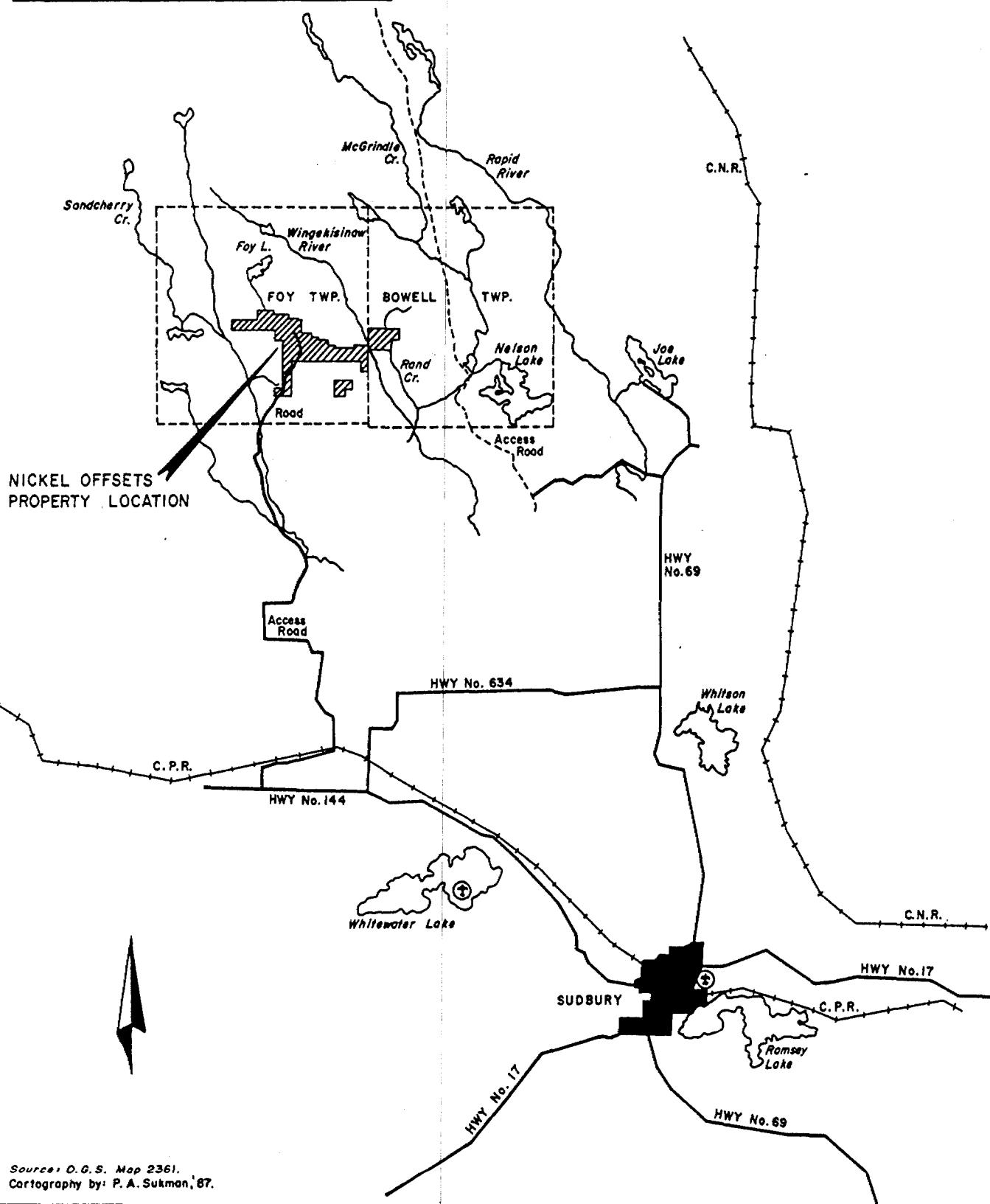
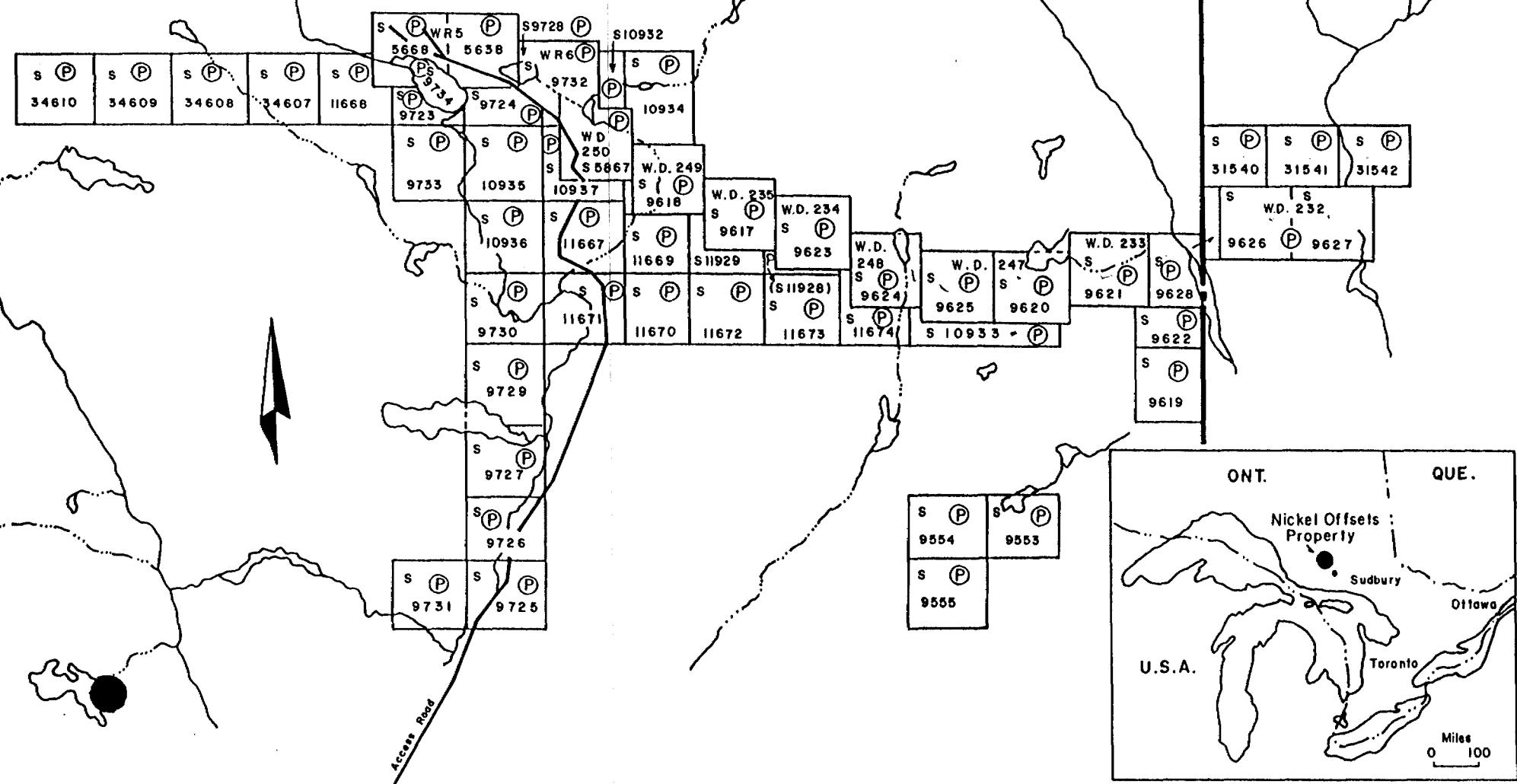


FIGURE 2. CLAIM MAP  
 UNITED REEF PETROLEUMS LTD.  
 NICKEL OFFSETS PROPERTY  
 FOY & BOWELL TWPS.  
 SUDBURY MINING DIVISION

Scale: 1 Inch = 2640 Feet  
 FEET 0 1000 2000 4000 6000 8000  
 METRES 0 200 1000 (1 Km) 2000 (2 Km)



#### 4.0 REGIONAL GEOLOGY AND MINERALIZATION

The Nickel Offsets property straddles the Foy Offset Dyke, one of several radial dykes which extend from the Main Mass of the Sudbury Igneous Complex into the surrounding Pre-Cambrian gneissic terrain.

The Foy Offset Dyke is primarily composed of quartz diorite and quartz diorite breccia. The dyke can be traced over a distance of 28 km west-northwest from the Sudbury Irruptive. It measures 400m in width close to the Sudbury Complex narrowing to 200m on the Nickel Offsets property. Contacts with the country rocks are irregular, generally east-west trending and subvertical.

A number of Ni-Cu-PGM deposits are found within radial offset dykes associated with the Sudbury Complex. They include: the Copper Cliff, Totten, Worthington, Kidd Copper, and Nickel Offsets mines.

The style of mineralization in the dykes is large massive xenoliths or pods within quartz diorite breccia. The sulphide minerals consists mainly of pyrrhotite, pentlandite and chalcopyrite. Platinum group elements are generally associated with the more massive sulphide concentrations. These sulphide-rich zones are mainly concentrated towards the center of the dykes.

The Canhorn Mining Corporation-United Reef Petroleum Limited's Nickel Offsets mine is located at the west end of the property. Production reportedly exceeded 4.5 million lbs of nickel and 3.3 millions tons of copper from 208,551 tons of ore milled during the period 1943-1944 and 1953-1957.

#### 5.0 THE 1987 EXPLORATION PROGRAM

The property was examined briefly in November, 1986. Sampling of mineralized mine dump material returned assays of up to 0.16 oz Pt/t, and 0.26 oz Pd/t. Anomalous gold values of up to 0.19 oz/t accompanied the platinum group mineralization. Based on these results the 1987 exploration program was implemented. The program consisted of line-cutting, geophysical surveys, geological mapping, and diamond drilling.

##### 5.1 Geophysical Surveys

In February of 1987, VLF-EM, magnetometer and DEEP EM surveys were conducted by Crone Geophysics of Mississauga, Ontario. The surveys were controlled by a grid consisting of 71 grid lines spaced every 100 metres with 25 metre station intervals.

A total of 43 east-west trending VLF-EM conductors were detected. Ten of these had strong crossovers that appeared to be unrelated to terrain or contact effects. The magnetometer survey identified six anomalous areas with a relief of over 3000 gammas. The magnetic highs are subparallel to the trend of the dyke. Four conductive zones were depicted during the course of the DEEP EM survey.

An Induced Polarization Survey was conducted by Remy Belanger Geophysics Inc. of Evain, Quebec during the summer of 1987. Twelve anomalous zones were detected.

### 5.2 Geological Mapping

Geological mapping of the Nickel Offsets property at a scale of 1:2500 was undertaken by Arpad Farkas, Ph.D. of Montreal, Quebec during the summer of 1987. A number of geochemically anomalous areas of outcrop were identified from rock samples collected during the course of mapping.

### 5.3 1987 Diamond Drill Program

A diamond drill program was designed to test the geophysical and geochemical anomalies within the Foy Offset dyke. A total of 30,855 feet were drilled in 54 holes during May to December 1987. The program was supervised by Steve Dawson, Geologist, and Neil Willoughby, Project Geologist of United Reef Petroleum Limited.

### 6.0 CORRELATION AND COMPIILATION

A total of 11 zones of interest were determined in 1987. Of these zones, Area 1 became the primary focus for the 1988 drill program.

Area 1 covers the Foy Offset dyke just to the east of the Wingeekisinaw River with grid references Baseline 2, L13E to L18E, 1+50N to 4+00N (see accompanying Area 1 Diamond Drill Location Map). This zone is coincident with a strong VLF-EM conductor (L13E, 3+50N to L15E, 3+00N), a magnetic anomaly (L13E to L26E from 0 to 5+00N) and a broad IP anomaly of low resistivity and 10-12% frequency effect (L13E to L18E from 1+50N to 4+00N).

The 1987 drill program concentrated 12,075 feet in 20 holes over Area 1. Hole FB-87-01 intersected 30.2 feet averaging 0.112 oz Au/t, 2.237% Cu, 0.325% Ni and minor platinum group metals. Subsequent drill holes in Area 1 intersected disseminated, stringer and massive sulphide mineralization. All of these holes intersected several zones of highly anomalous copper, nickel, gold and platinum group mineralization.

## 7.0 THE 1988 NICKEL OFFSETS EXPLORATION PROGRAM

The 1988 exploration program consisted of Transient EM surveys and diamond drilling.

### 7.1 TRANSIENT EM (TEM) SURVEYS

#### 1. Borehole TEM Survey

Utilizing a Geonics EM-37 TEM System, Quantech Consulting Inc. of Toronto, Ontario conducted a borehole survey of Area 1 drill holes (FB-87-55, FB-87-47, FB-87-61, FB-87-45, FB-87-50 and FB-87-52) in December 1987 and January 1988. The purpose of this survey was to provide diagnostic information as to the geometry and location of any other potential massive sulphide targets in the vicinity of these holes.

The survey detected a series of ribbon-like conductors which strike east-west and dip approximately 50-70°S. These ribbons pinch and swell along strike and are open both to the east and west.

#### 2. In-Loop TEM Survey

The In-Loop TEM Survey was selected as the most appropriate geophysical method on the basis of the results obtained from the borehole TEM Survey. A Geonics EM-37 TEM System was utilized by Quantech Consulting Inc. on the Area 1 mineralization during May and June, 1988.

The survey delineated a strong conductor between L13+50E, 3+50N and L15+50E, 3+25N at an approximate depth of 250 to 300 feet. The subsequent drill program tested this anomaly.

### 7.2 THE 1988 DRILL PROGRAM

4,039 foot of drilling was completed during June to September, 1988 under the supervision of Grayme Anthony of United Reef Petroleum Limited. A total of seven new holes were drilled (see Appendix 1 for drill logs and assay certificates). In addition, FB-87-61 was extended from a depth of 1,016 to 1,406 feet. (See Table 1).

TABLE 1 THE 1988 DRILL PROGRAM-AREA 1,  
NICKEL OFFSET PROPERTY AND THE  
FOY-BOWELL TOWNSHIP, ONTARIO

<u>Hole Number</u>	<u>Grid Location</u>	<u>Dip</u>	<u>Footage</u>
FB-88-61	13+97E, 3+41N	-90°	390 (1016 to 1406)
FB-88-66	13+53E, 3+45N	-90°	597
FB-88-67	14+53E, 3+35N	-90°	517
FB-88-68	15+07E, 3+12.5N	-90°	447
FB-88-69	15+42E, 3+25N	-90°	447
FB-88-70	17+50E, 1+62N	-90°	477
FB-88-71	13+00E, 3+54N	-90°	617
FB-88-72	13+00E, 3+90N	-90°	<u>547</u>
		TOTAL	4039 ✓

All of the drill holes intersected semi-massive to disseminated sulphide mineralization (see Area 1 Cu-Ni-PGM Zone, Section 3+50N enclosed). The majority of the drill holes intersected massive sulphide mineralization across narrow widths (see Table 2).

**TABLE 2 SUMMARY OF SIGNIFICANT DRILL RESULTS  
OF THE 1988 PROGRAM**

Drill Hole	Footage	Interval (feet)	Cu (%)	Ni (%)	Au (oz/t)	Pt (oz/t)	Pd (oz/t)
FB-88-61	1130.6-1135.9	5.3	.235	--	.005	.009	.005
FB-88-66	87.4-92.4	5.0	1.552	--	.013	--	--
	111.0-117.0	6.0	1.248	.368	.011	.012	.020
	219.5-226.5	6.9	1.912	.178	--	.010	.018
	224.2-226.5	2.2	2.272	.114	.005	.025	.048
	395.1-445.1	50.0	.868	--	.005	.014	.005
INCLUDES:							
	(a) 395.1-405.1	10.0	1.448	.121	.008	.046	.021
	(b) 420.1-425.1	5.0	1.760	--	.007	.007	.006
	(c) 435.1-440.1	5.0	1.056	--	.010	.011	.006
	469.1-510.5	41.4	2.382	--	--	--	--
INCLUDES:							
	(a) 469.1-475.5	6.4	13.880	1.475	.092	.043	.018
	(b) 480.5-485.5	5.0	1.184	.200	.032	.006	.008
	548.3-557.5	9.2	3.079	1.516	.027	.028	.028
INCLUDES:							
	(a) 553.3-557.5	4.2	4.896	3.088	.036	.045	.052
	582.0-587.3	5.3	1.440	--	.005	.012	.009
FB-88-67	216.7-221.7	5.0	1.296	--	.005	.006	.010
	280.1-285.1	5.0	.570	.169	.007	.008	.008
	345.0-365.7	20.7	1.284	--	--	--	--
INCLUDES:							
	(a) 350.0-355.0	5.0	4.640	.338	--	.007	.008
	413.5-418.8	5.3	.738	--	--	.009	.007

Drill Hole	Footage	Interval (feet)	Cu (%)	Ni (%)	Au (oz/t)	Pt (oz/t)	Pd (oz/t)
FB-88-68	252.8-269.5	16.7	1.787	.110	--	.010	.010
INCLUDES:							
	(a) 262.8-267.8	6.7	3.725	.222	.005	.017	.016
	339.7-357.0	17.3	2.499	--	--	--	--
INCLUDES:							
	(a) 354.7-357.0	2.3	19.840	.265	.009	.019	.026
FB-88-70	171.6-174.8	3.2	.812	--	--	--	--
FB-88-71	42.0-58.0	16.0	.956	--	--	--	--
INCLUDES:							
	(a) 46.0-50.0	4.0	1.534	--	.014	.021	.015
	(b) 54.0-58.0	4.0	.981	--	.006	.010	.006
	192.0-193.0	1.0	.950	.136	.005	.023	.005
	213.5-214.5	1.0	7.958	.210	.007	.007	.030
	319.6-320.6	1.0	.808	--	.004	.013	.008
	418.0-422.0	4.0	.830	--	.003	.005	.004
	576.0-582.5	6.5	1.031	--	.003	.004	.004
	594.0-598.0	4.0	.835	--	.003	.003	.003
FB-88-72	301.1-305.1	4.1	.819	.259	.003	.012	.009
	329.0-344.0	15.0	.750	--	--	.006	.004
INCLUDES:							
	(a) 329.0-333.0	4.0	1.359	.113	--	.007	.007
	521.0-528.0	7.0	2.190	.206	.006	.008	.009
INCLUDES:							
	(a) 521.0-524.0	3.0	4.032	.339	.012	.012	.016

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

The Nickel Offset property covers a large segment of the Foy Offset dyke, a radial quartz diorite intrusive extending from the Sudbury Igneous Complex. The property has considerable nickel-copper-PGM potential as indicated by the former producing Nickel Offsets Mine located at the west end of the property.

The 1988 IN-LOOP and Borehole Transient-EM Surveys confirmed and refined previous geophysical results. Diamond drilling in 1987 uncovered massive and semi-massive-sulphide mineralization and undoubtably is the source of the geophysical signatures in Area 1.

The 1988 drilling also intersected sulphide mineralization returning additional interesting Ni-Cu-PGM values.

A 10,000 foot drill program estimated to cost \$300,000 is recommended to delineate the Ni-CU-PGM mineralized Zone.

**APPENDIX 1**

**DIAMOND DRILL HOLE LOGS**

## U N I T E D R E E F P E T R O L E U M S L I M I T E D

**DIAMOND DRILL RECORD**

DIAMOND DRILL RECORD  
PROPERTY NAME Nickel Offsets  
HOLE NO. FB-88-61 LENGTH 1016.0 - 1406.0  
LOCATION 13+97E, 3+41N (chained) BL2  
LATITUDE DEPARTURE  
ELEVATION AZIMUTH 0 DIP -90°  
STARTED June 17/88 FINISHED July 2/88

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
1416	-87°	0			

HOLE NO. FB-88-61 SHEET NO. 1 OF 6  
REMARKS Continuation of FB-87-61  
(0 - 1016.0')

E. G. Anthony

# DIAMOND DRILL RECORD

NAME OF PROPERTY NICKEL OFFSETS

HOLE NO. FB-88-61

SHEET NO. 2 of 6

FOOTAGE		DESCRIPTION	SAMPLE			ASSAYS						
FROM	TO		NO.	% SULPH IDES	FOOTAGE	FROM	TO	TOTAL	%	%	OZ.TON	OZ.TON
0	1016	See FB-87-61										
1061	1091.9	QUARTZ DIORITE BRECCIA, XENOLITHS > 20% - dark grey colour, fine to medium grained matrix, texture varies from slightly gabbroic to granitic textured dependent on presence of contaminating feldspar xenoliths. The texture is slightly inequigranular. - the mafic content consists of 45-50% amphibole, slightly to moderately chloritized, 1-2 mm in long dimension, subhedral prisms. Biotite varies from trace to 2%, increasing near felsic rich areas. The dominant feldspar is plagioclase (orthoclase?), occurring as fine grained anhedral aggregates interstitial to the amphibole prisms, 45%. Quartz may accompany the plagioclase, forming anhedral grains, < 1 mm, 2-5%. K-feldspar is generally restricted to the proximity of the granitic xenoliths. Quartz content also rises with Kspar percentage. The sulfide content is largely pyrrhotite (< 1%) though trace chalcopyrite and pyrite are present. Pyrrhotite occurs as fine grained disseminated grains but also is occasionally in blebs up to 5 mm in long dimension. These blebs are often closely associated with a rare blackish amphibole. The xenolithic content, 20 to 50%, averages 25% and is of several types. Early xenoliths (embayed and subspherical) are generally of ultramafic to mafic in content, and less than 1 cm in diameter. Fine grained gabbro and pyroxenite may reach 7%, but may average 1 to 2% of the section. In the more pyrrhotite rich areas, these early xenoliths show a corresponding rise.										

# DIAMOND DRILL RECORD

NAME OF PROPERTY NICKEL OFFSETS

HOLE NO. FB-88-61

SHEET NO. 3 OF 6

FOOTAGE		DESCRIPTION	SAMPLE					ASSAYS					
FROM	TO		NO.	% SULPH IDES	FOOTAGE			Au	Pt	Pd	Cu	Ni	
					FROM	TO	TOTAL	X	X	ppb	ppb	%	
1016.0	1091.9 contd.	<p>Country rock forms the dominant xenolithic type, 25% of the section. These xenoliths range from diorite to mainly granodiorite in composition, are medium to coarse grained, and equigranular, and may reach 20 feet of section. These country rock xenoliths are angular and brecciated in appearance and are often accompanied by trains of brecciated feldspar fragments. Groundmass feldspar and quartz content often rises proximal to these local xenoliths.</p> <p>1016.0 - 1018.6 - Quartz diorite breccia, &lt; 1% sulfides</p> <p>1018.6 - 1019.8 - Granodiorite xenolith, annealed texture, contacts at 50° to core axis.</p> <p>1019.8 - 1023.1 - Quartz diorite breccia, &lt; 1% sulfides.</p> <p>1023.1 - 1024.2 - Contaminated Quartz diorite.</p> <p>1024.2 - 1043.7 - Granodiorite Xenolith. Texture appears annealed. Gradational contact over several feet with contaminated quartz diorite. Highly sausseritized and epidotized in gradational area.</p> <p>1043.7 - 1046.0 - Contaminated Quartz diorite. Contact in broken core.</p> <p>1046.0 - 1091.9 - Quartz diorite breccia (see 1016.0 - 1091.9). Occasional diorite gneiss inclusions, 5-7%. Pyrrhotite reaches 1%, occurring in blebs with chalcopyrite, trace. Section contains pale green epidote veinlets at 15°, 35° to core axis, about 2%.</p> <p>1076.5 - 1081.5 - pyrrhotite reaches 1.5% + chalcopyrite in blebs up to 5 mm in diameter.</p> <p>1078.1 - 1078.4 - 4" quartz veinlets with epidote and 1% pyrite, trace pyrrhotite.</p>	16	001	1.5	1076.5	1081.5	5.0	10	<15	<10	.006	.006

# DIAMOND DRILL RECORD

NAME OF PROPERTY NICKEL OFFSETS

HOLE NO. FB-88-61

SHEET NO. 4 of 6

FOOTAGE		DESCRIPTION	SAMPLE					ASSAYS				
FROM	TO		NO.	SULPHIDES	FOOTAGE			Au	Pt	Pd	Cu	Ni
					FROM	TO	TOTAL	ppb	ppb	ppb	%	%
FOOTAGE	FOOTAGE	FOOTAGE	NO.	SULPHIDES	FROM	TO	TOTAL	ppb	ppb	ppb	%	%
1016.0	1091.9	1081.5 - 1091.6 - Contaminated quartz diameter/granodiorite inclusion.										
	contd.											
1091.9	1130.6	QUARTZ DIORITE BRECCIA WITH 20% XENOLITHS - similar to previous but only 15% xenoliths. Country rock (including brecciated feldspar fragments, 12%; 3% gabbroic xenoliths. 1091.9 - 1103.7 - Quartz Diorite Breccia, 12% Xenoliths, sulfides < 1%. 1103.7 - 111.5 - Quartz Diorite Breccia, 38% xenoliths, zone of 4-8" (diameter) dioritic gneiss inclusions 25%. Dioritic xenoliths are bleached of mafics which tend to concentrate along the periphery. 1111.5 - 1130.6 - Quartz diorite breccia, 13-15% xenoliths, < 1 cm diameter, pyrrhotite < 1%. 1126.5 - Bleb of pyrrhotite and specks of pyrite appears to be drawn out along fracture at 40° to core. Fracture has chloritized selvages.	16	002	1	1130.6	1135.9	5.3	160	320	171	.235 .016
		CONTAMINATED QUARTZ DIORITE, XENOLITHS LESS THAN 10% 1131.0 - 1135.9 - Pyrite and Chalcopyrite drawn out along 70° fractures which have chloritized selvages. May form 0.5 - 1% of section but pyrite coats entire fracture surface. Pyrrhotite blebs are smaller and less frequent than previous.										
1130.6	1135.9											
		QUARTZ DIORITE BRECCIA, XENOLITHS < 20%, SLIGHTLY CONTAMINATED 1136.1 - 1137.4 - Dioritic xenolith with adjacent contaminated zones.										
1135.9	1176.8											

# DIAMOND DRILL RECORD

NAME OF PROPERTY NICKEL OFFSETS

HOLE NO. FB-88-61

SHEET NO. 5 of 6

FOOTAGE		DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO		NO.	% SULPHIDES	FOOTAGE			Au	Pt	Pd	Cu	Ni	
					FROM	TO	TOTAL	%	x	x	ppb	ppb	%
1135.9	1176.8	1137.4 - 1171.7 - Quartz Diorite Breccia, 18-19% xenoliths, contd. Pyrite < 1%. Occasional light dusting of pyrite around zone of the larger granodioritic xenoliths (5-10cm diameter). Pyrrhotite (tr.) accompanies pyrite. Rare epidote + chlorite veinlets, < 2 mm. wide at 70° to core axis. Also buff-white (sericite?) Fractures + chloritized amphibole. Swarm of carbonate veinlets at various attitudes often accompany buff white veinlets. 1171.7 - 1173.9 - Granodioritic xenolith. 1173.9 - 1176.8 - Quartz diorite, < 10% xenoliths, fine grained.											
1176.8	1184.6	QUARTZ DIORITE/GABBRO - mafic content rises to 55-60% sulfides rise as well. - 1-2% pyrrhotite, trace chalcopyrite and pyrite. Xenoliths are less than 5%. Slight biotite alteration. Rare carbonate veinlets, < 1 mm diameter, at 80° to core.	16	003	1-2	1176.8	1181.8	5.0	<5	<15	<10	.006	.005
1184.6	1220.3	QUARTZ DIORITE, XENOLITHS < 10%. - medium grained, pyrrhotite ≈ 0.5%.											
1220.3	1247.1	QUARTZ DIORITE BRECCIA, XENOLITHS > 20% - 22% xenoliths, largely granodioritic in composition, pyrrhotite 0.5%.											
1247.1	1281.4	QUARTZ DIORITE - pyrrhotite 0.5 - 1%, medium grained groundmass.											
1281.4	1285.5	QUARTZ DIORITE BRECCIA, XENOLITHS > 20% - 35-40% xenoliths of feldspar and granodiorite.											

# DIAMOND DRILL RECORD

NAME OF PROPERTY NICKEL OFFSETS

HOLE NO. FB-88-61

SHEET NO. 6 OF 6

FOOTAGE		DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO		NO.	% SULPH. IDES	FOOTAGE	FROM	TO	TOTAL	%	%	OL.TON
1285.5	1339.8	GRANODIORITE XENOLITH - pinkish-white colour, coarse grained, equigranular, igneous to locally annealed texture. Mafics 5-10%. Blackish hornblende is the dominant mafic; however, biotite, trace - 1%, may accompany the hornblende. Contacts with the quartz diorite are rough and brecciated at 35° to core axis. Fragments of granodiorite in the quartz diorite and lack of chill indicate xenolithic nature.									
1339.8	1341.9	QUARTZ DIORITE/GABBRO - dark green colour, fine grained, equigranular. Contacts at 15° to core axis. Chilled contacts, may be a dyke.									
1341.9	1366.7	GRANODIORITE (see 1285.5 - 1339.8).									
1366.7	1370.4	GABBRO DYKE - dark green, fine grained, well carbonated groundmass, pyrite 1-2%. Carbonate veinlets and other structural elements appear slightly folded.									
1370.4	1406.0	GRANODIORITE									
	1406.0	END OF HOLE									

## **DIAMOND DRILL RECORD**

NAME OF PROPERTY UNITED REEF: NICKEL OFFSET  
HOLE NO. FB-88-69 LENGTH 447 feet  
LOCATION L15+42E 3+25 AL.  
LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
STARTED Sept. 10 1948 FINISHED Sept. 12, 1948

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
437.0	-87°				

HOLE NO. FB-8864 SHEET NO. 1/3  
REMARKS Marked silicification  
and K spar.

LOGGED BY - R. Ken Germundson

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL OFFSET  
HOLE NO. E10-BB-69 LENGTH 447 feet  
LOCATION \_\_\_\_\_  
LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
STARTED Sept. 10, 1988 FINISHED Sept. 12, 1988

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH
497.0	-87°				

HOLE NO. FB-88-69 SHEET NO. 2/3

**REMARKS** —

LOGGED BY R. Ken Germuedson

# **DIAMOND DRILL RECORD**

NAME OF PROPERTY UNITED REEF  
HOLE NO. FB-8B-69 LENGTH \_\_\_\_\_  
LOCATION \_\_\_\_\_  
LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP: -90°  
STARTED Sept. 10/88 FINISHED Sept. 12, 1988

HOLE NO. E3-8869 SHEET NO. 3/3

**REMARKS** \_\_\_\_\_

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

LOGGED BY R.Ken Germundsen

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL OFFERT  
 HOLE NO. FB-88-70 LENGTH 477.0 feet  
 LOCATION L17+50 E 1762 N  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED Sept. 13, 1988 FINISHED Sept. 15, 1988

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-70 SHEET NO. 1/4  
 REMARKS Fault conductor  
at 131.0 feet

LOGGED BY R. Kerr Germarudson

FOOTAGE	DESCRIPTION	SAMPLE			ASSAYS		
		NO.	SULPHIDES	FOOTAGE	Cu %	Ni %	Pb ppb
FROM	TO	FROM	TO	TOTAL			
0.0	5.0 Casing						
5.0	131.0 Diorite and Diorite - Granodiorite Gneiss, locally brecciated. Area around margins of breccia blocks composed of ground up material which has been epidotized. Epidote occurs in randomly oriented fractures.  (K-spars) alteration Pink-orange granitic rock occurs in gneiss and parallels gneissosity, forms dykelets, and can be present as irregular masses. Silicification evident but not pervasive.						
	Pyrite as minor component in fractures and usually as fine-grained disseminations (locally coarse). Less altered sections slightly to moderately magnetic.						
9.0-9.0:	Broken, rusty, epidotized.						
17.0	feet: Gneissosity at 45° to core axis.						
41.0	feet: Gneissosity at 10° to 20° to core axis						
85.0	feet: Gneissosity at 25° to core axis						
79.0-110.0:	red iron oxide						
97.0-100.0:	Pyrite parallel banding.		KGPB				
110.0-131.0:	Evidence of bleaching with silicification; alteration granite.	16115	<2%	113.0	117.0	4.0	.003 .005 6
129.0 feet:	Rusty fracture at 32° to core axis. Blacky to 131 feet. (Compare to chalcocite of FB-88-68).	16116	<1%	117.0	120.0	3.0	.004 .004

# DIAMOND DRILL RECORD

NAME OF PROPERTY United Reef: Nickel Offset  
 HOLE NO. FB-88-70 LENGTH 477.0'  
 LOCATION \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED Sept. 13, 1988 FINISHED Sept. 15, 1988

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-70 SHEET NO. 2/4  
 REMARKS \_\_\_\_\_

LOGGED BY R. Kerr Germundson

FOOTAGE	DESCRIPTION	SAMPLE			ASSAYS		
		NO.	SULPH. IDES	FOOTAGE	Cu %	Ni %	Al ppb
FROM	TO			FROM	TO	TOTAL	
131.0	131.3 Fault gauge.						
131.2	132.9 Dyke: Dark grey-black, with small lathes and needles of light gray mineral. Pyrite smeared on cleavage planes. Moderately magnetic. Bottom contact at 28° to c-axis.	16117	2%	131.2	132.9	1.7	.091 .009 7
132.9	135.0 Diorite and Gneiss as 0.0 to 131.0 but with less epidote and silification.						
132.9 - 147.0	Bleached, local silification.						
141.0 - 142.0	3% coarse pyrite.						
172.0 - 173.2	coarse pyrite.						
* 173 - 173.9	: 0.6 inch and fracture filled with chalcopyrite.	16118	70.4%	178.6	174.8	3.2	.812 .043 70 6.5 75
185.0	222.0 Pink granitic alteration. Sample contains gabbro + silification	16119	To 3%	198.0	203.6	4.6	.012 .008 78
	209.6 feet: Fault. Minor epidote <del>now</del> below.						
222.0	242.0 Diorite and Gneiss						
224.0 - 227.0	: Brecciated block with porphyritic texture						
	235.0 feet : Banding at 90° to core axis.						

# DIAMOND DRILL RECORD

NAME OF PROPERTY United Reef: Nickel Offset  
 HOLE NO. FB-88-70 LENGTH 477.0 feet  
 LOCATION \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED Sep. 13, 1984 FINISHED Sep. 15, 1984

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-70 SHEET NO. 3/4  
 REMARKS \_\_\_\_\_

LOGGED BY R. Ken Germundson

FOOTAGE	DESCRIPTION		SAMPLE				ASSAYS				
			NO.	SULPH- IDES	FOOTAGE			%	%	OZ/TON	OZ/TON
FROM	TO				FROM	TO	TOTAL				
242.0	277.0	Diabase Dyke: Medium to dark grey, medium to coarse-grained, massive. Upper contact at 25° parallels gneissic banding. Lower contact at about 20°. 0.3 inches fracture filling of carbonatite at 257.0.									
277.0	296.0	Fine-grained, dark grey matrix with minor addition of granitic rock. Minor epidote. Pyrite blebs at lower contact.									
296.0	345.0	Gneiss: dark and light grey banded. Minor epidote, slightly pyritic; occasional pink granite alteration or injection and local silicification									
345.0	394.5	Gneiss: light and dark grey banded with minor pink coloration. Precciated and intruded as mafic dyke blocks and dykes. Variable core axis angles.									
*		Main dyke sections: 372-380 390.8-394.7. Both sections contain gneissic xenoliths.									

# **DIAMOND DRILL RECORD**

NAME OF PROPERTY United Reef: Nickel Offset  
HOLE NO. FB-88-70 LENGTH 477.0 feet  
LOCATION \_\_\_\_\_  
LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
STARTED Sep 13, 1988 FINISHED Sep 15, 1988

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-70 SHEET NO. 4 / 4

**REMARKS** —

LOGGED BY R. Ken Germundson

FOOTAGE	DESCRIPTION	SAMPLE				ASSAYS					
		NO.	SILPH- IDES	FOOTAGE			Cu	Ni	Pb	pt	ppb
FROM	TO			FROM	TO	TOTAL	%	%			
394.5	423.0	Coarse gneiss with major light grey component.									
423.0	442.0	Gneiss with pronounced pink granitic alteration + silicification Minor mafic dyke lenses or fragments	16120	minor	427.0	431.0	4.0	.002	.002		
			16121	minor	431.0	434.0	3.0	.001	.002		
442.0	458.5	Gneiss, dark and light grey banded with increasing pink granitic alteration towards the base.									
458.5	460.5	Dark grey-black, dense dyke. Broken, red iron oxide, Faulted margins. Smeared pyrite. Red color internal.	16122	2 1/2%	458.5	460.5	2.0	.004	.008	7	
460.5	477.0	Gneiss with granitic alteration and fine-grained dyke lenses.									
	477.0	END OF HOLE.	<i>R.K. recommended</i>								

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL DEEGET  
 HOLE NO. FB-8B-71 LENGTH 617 feet  
 LOCATION -613700 E 3754 N  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED Sept. 15, 1984 FINISHED Sept. 18, 1984

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-71 SHEET NO. 1/4

REMARKS Chalcopyrite zones  
None massive

LOGGED BY R.Ken Germundson

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL OFFSET  
 HOLE NO. FB-88-71 LENGTH 617  
 LOCATION \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED \_\_\_\_\_ FINISHED \_\_\_\_\_

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-71 SHEET NO. 2/4  
 REMARKS \_\_\_\_\_

LOGGED BY R. Ken Germundson

FOOTAGE	DESCRIPTION	SAMPLE			ASSAY				
		NO.	% PH. IDEE	FOOTAGE	%	%	As	Pt	Pd
FROM	TO	FROM	TO	TOTAL	Cu	Ni	Pb	Pt	Pd
	5.0 - 46.0 : Blocky								
	Silicified sections rusty. Many rusty fracture directions	16123	<1%	38.0 - 42.0	4.0	.015	.006	30	
→ *	46.0 - 57.0 : Chalcopyrite scattered throughout	16124	1%	42.0 - 46.0	4.0	.706	.099	33	185 104
	Best = 46.0 - 50.0	16125	2+%	46.0 - 50.0	4.0	1.534	.065	469	733 514
		16126	1%	50.0 - 54.0	4.0	.604	.049	93	128 94
		16127	1%	54.0 - 58.0	4.0	.981	.064	193	331 221
	60.0 - 61.5 : Rusty blocky	16128	1%	58.0 - 62.0	4.0	.086	.011	13	21 16
	160.3 - 160.5 : Reddish black dyke at right angle to core axis								
	179.0 - 184.0 : Dense, hard, silicic diorite-gabbro	16129	<1%	190.0 - 192.0	2.0	.033	.010		
	184.0 - 231.0 : Persistent silicification	16130	4%	192.0 - 193.0	1.0	.950	.136	177	794 167
→ *	192.0 - 192.7 : 4% chalcopyrite.	16131	<1%	193.0 - 195.0	2.0	.015	.008		
	209.5 - 216.0 : Highly fractured, silicic shear zone.	16132	1%	211.5 - 213.5	2.0	.095	.016	6	
→ *	213.5 - 214.5 : Fault with quartz vein + chalcopyrite	16133	10%	213.5 - 214.5	1.0	7.958	.210	242	260 10.70
		16134	<1%	214.5 - 216.5	2.0	.038	.017	48	
→ *	: Chalcopyrite in and adjacent to epidotized area separating breccia blocks.	16135	5%	319.6 - 320.6	1.0	.808	.042	131	447 270
	322-363 : Local silicification, minor epidote + K-spar.								

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL DEPOSIT  
 HOLE NO. FB-88-71 LENGTH 617 feet  
 LOCATION \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ -90°  
 STARTED Sept 15, 1988 FINISHED Sept 16, 1988

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-71 SHEET NO. 3/4

REMARKS \_\_\_\_\_

LOGGED BY R. Ken Germundsen

FOOTAGE FROM	TO	DESCRIPTION	SAMPLE			ASSAYS							
			NO.	SULPH. IDES	FOOTAGE	FROM	TO	TOTAL	Cu %	Ni %	Al ppb	Pt ppb	Pd ppb
		371 → Increase epidote and Kspar											
386.0 - 387.0 :		pink and silicic; 90° and 30° fract. at 387	16136	2%	412.5	414.0	1.5	.159	.011	13	49	26	
388.0 - 492.0 :		Significant Potassium feldspar	16137	2%	413.0	418.0	5.0	.016	.006	24	15		
394.5 - 396.0 :		epidote	16138	2%	418.0	423.0	4.0	.830	.052	97	174	146	
→ *	411.5 - 427.0 :	K spar, epidote, chalcopyrite, minor py.	16139	2%	412.0	427.0	5.0	.263	.021	167	46	49	
427.0 - 430.0 :		Mafic dyke with lower contact at 90° to ca.											
430.0 - 444.0 :		Contaminated.											
→	444, 468, 472 :	Minor chalcopyrite.											
480.0 - 485.0 :		Well fractured and reddish fault zone.											
485.0 - 490.0 :		High Kspar zone - part of fault zone.											
490.0 - 527.0 :		fine and medium-grained phases of mafic dyke with <del>wide</del> chill margin <sup>at 5 1/2"</sup> and narrow chill margin separating phases. at 506.0'.											
→	506, 516, 518 :	Minor chalcopyrite.											
527.0 - 542.5 :		Chalcopyrite zone. Upper contact = 30° to c.a. In contaminated diorite.	16140	1 1/2%	527.0	528.0	1.0	.009	.008	15			
		Note distinct contacts.	16141	2%	528.5	530.5	2.0	.175	.016	65	28	37	
			16142	2%	530.5	534.0	3.5	.025	.008	14			
			16143	2%	534.0	536.0	4.0	.378	.033	47	58	51	
			16144	2%	536.0	542.5	4.5	.042	.010	7			
		542.5 - 545.5: Blocky, rusty-red zone (fault.)											

# DIAMOND DRILL RECORD

NAME OF PROPERTY United Reef - Nickel Offset  
HOLE NO. FB-88-71 LENGTH 617 feet  
LOCATION \_\_\_\_\_  
LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
STARTED Sept. 15/48 FINISHED Sept. 15., 1948

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-71 SHEET NO. 4/4

**REMARKS**

LOGGED BY R. Kerr Germundsen

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL OFFSET  
 HOLE NO. FB-88-72 LENGTH 547 feet  
 LOCATION 613700E 3490N  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED Sept. 18, 1988 FINISHED Sept. 21, 1988

HOLE NO. FB-88-72 SHEET NO. 1/3  
 REMARKS Chalcopyrite sections below 300'

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

LOGGED BY R. Ken Germundson

FOOTAGE FROM	TO	DESCRIPTION	SAMPLE				ASSAYS			
			NO.	SULPH. IDES	FOOTAGE FROM	TO	TOTAL	Cu %	Ni %	As ppb
0.0	6.0	<u>Casing</u>								
6.0	547.0	DIORITE, CONTAMINATED DIORITE, DIORITE BRECCIA. DIORITE GNEISS: with minor gabbroic sequences. Potassium feldspar (and quartz) alteration, epidotization and silicification all locally developed. Minor pyrite throughout. Slightly magnetic.								
6.0	282.0	Mainly diorite, breccia and gneiss. Local K-spar + epi. 6.0-43.0: Silicified with minor epidote and K-spar 40.0: Fractures at 45° to ca. 60.0 - 60.5: rubble and fracture at 50°. 81.0; 84.0-86.0: coarse pyrite.								
101.0	104.0	Coarse pyrite in diorite-gabbro	16152	3	101.0	104.0	3	.028	.020	9
108.0	122.0	Silicified - bottom contact at 25° to ca.								
127.0	156.0	Silicified with occasional epi. & K-spar								
151.0	182.0	Massive diorite + gneiss becoming finer grained downsection.								
156.0	163.0	- brecciated, epi., K-spar								
182.0	187.0	- same with minor pyrite - epidote at 60-70° to ca.								

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL DEESEY  
 HOLE NO. EB-88-72 LENGTH 547 feet  
 LOCATION \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DEPARTURE \_\_\_\_\_  
 ELEVATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP -90°  
 STARTED Sept. 16 / 96 FINISHED Sept. 21 / 96

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. EB-88-72 SHEET NO. 2/3  
 REMARKS \_\_\_\_\_

LOGGED BY P. Ken Germundson

FOOTAGE FROM	TO	DESCRIPTION	SAMPLE				ASSAYS			
			NO.	SULPH. IDES	FOOTAGE FROM	TO	TOTAL	%	%	ppb
		202.0 - 547.0: Mainly Contaminated Diorite with breccia.								
		202.0 - 213.0: K-spar as irregular masses.								
		213.0 - 218.0: Massive dark grey, fine-grained gabbro.								
		232.0 - 248.0: Breccia. Abundant epidote around blocks.								
		257.0 Broken								
		257.0 - 259.5: Possible felsic-intermediate porphyry.								
*		301.0 - 303.1: Cpx and py with steel grey powdery metallic	16153	5	301.0	303.1	2.1	1.344	.159	85 98 209
*		303.1 - 305.1: Mainly pyrite; 0.5 inch veins at 30460° to core axis.	16104	8	303.1	305.1	2.0	.267	.365	106 757 425
		Mineralization in fine-grained, dark grey matrix with minor K-spar								
		307.5 Minor cpx at margin of breccia block.								
*		329.0 - 344.0: Cpx zone: many fractures at 30-90° to core axis. Soft = easy to split. Minor broken areas	16155	L1	327.0	329.0	2.0	.008	.006	7
			16106	1-3	329.0	333.0	4.0	1.359	.113	83 247 241
			16157	1-3	332.0	337.0	4.0	.699	.037	69 242 154
			16158	1-3	337.0	341.0	4.0	.415	.039	65 114 79
			16159	1-3	341.0	344.0	3.0	.455	.033	63 227 103
			16160	L1	344.0	346.0	2.0	.015	.005	

# DIAMOND DRILL RECORD

NAME OF PROPERTY UNITED REEF: NICKEL OFFSET

HOLE NO. FB-88-72 LENGTH 547.0

LOCATION \_\_\_\_\_

LATITUDE \_\_\_\_\_

DEPARTURE \_\_\_\_\_

ELEVATION \_\_\_\_\_

AZIMUTH \_\_\_\_\_

DIP -90°

STARTED Sept. 18, 1988

FINISHED Sept. 21, 1988

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. FB-88-72 SHEET NO. 3/3

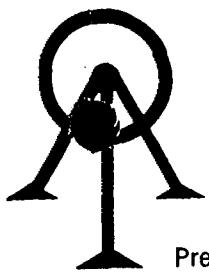
REMARKS \_\_\_\_\_

LOGGED BY R. Ken Germundson

FOOTAGE FROM	TO	DESCRIPTION	SAMPLE			ASSAYS				
			NO.	% SULPH- IDES	FOOTAGE FROM	TO	TOTAL	Cu %	Ni %	Al₂O₃ pt. ppb
		359.0 - 360.0: minor cpy	16161	<1	365.0	368.0	3.0	.009	.009	5
*		368.0 - 382.0: Cpy zone: 382.0 = epidote at breccia block	16162	1-3	368.0	371.0	3.0	.245	.026	42 94 40
		Epidote in fractures at 70°-90° to ca between 382.0 and 394.0.	16163	1-3	371.0	373.0	2.0	.039	.013	12 26 16
			16164	1-3	373.0	376.0	3.0	.370	.031	47 72 59
			16165	1-3	376.0	379.0	3.0	.282	.022	36 45 28
			16166	1-2	379.0	382.0	3.0	.046	.010	11 24 15
		404.0 - 417.0: Much epidote and Kspar - brecciation	16179	1	473.0	477.0	4.0	.007	.005	10
		424.0 - 427.5: Rusty red - dark grey dyke; faulted. Contacts look as if 90° to ca.	16167	2	477.0	482.0	5.0	.060	.010	16 51 24
			16178	1	482.0	483.0	1.0	.007	.008	
			16168	1	483.0	493.0	4.0	.032	.012	
		477.0 - 482.0: Coarse pyrite Local brecciation and Kspar below	16169	1	493.0	497.0	3.0	.097	.013	24 56 35
			16167	1-2	497.0	501.0	4.0	.230	.020	107 82 63
		485.0 - 486.0; 488.5: Minor cpy.	16170	1-3	501.0	505.0	4.0	.156	.015	42 32 33
			16171	1-3	505.0	510.0	5.0	.180	.020	51 46 44
		493.0 - 528.0: Cpy zone:	16172	1-3	510.0	515.0	5.0	.112	.009	17 .19
			16173	1-3	515.0	518.0	3.0	.075	.009	12 15
		Cpy in 2"-1" bands.	16174	3	518.0	521.0	3.0	.348	.073	20 103 61
		541.0 - 542.0: Minor cpy.	16175	10	521.0	524.0	3.0	.4032	.339	417 417 536
		547 - END OF HOLE	16176	1-2	524.0	528.0	4.0	.041	.005	21 57 23

APPENDIX 2

ASSAY CERTIFICATES



# ACCURASSAY LABORATORIES LTD.

P.O. BOX 604  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J5  
TEL.: (705) 567-6343

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

## Certificate of Analysis

Page: 1

19277 G.Anthony  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: July 26 1988

Work Order # : 880776  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER Customer	Copper %	Nickel %
137652	16001	0.006	0.006
137653	16002	0.235	0.016
137654	16003	0.006	0.005
137655	16004	1.552	0.027
137656	16005	0.160	0.011
137657	16006	1.248	0.368
137658	16007	0.182	0.011
137659	16008	1.744	0.208
137660	16009	2.272	0.114
137661	16010	0.296	0.021
137662	16011	1.872	0.176
137663	16012	1.024	0.066
137664	16013	0.240	0.019
137665	16014	0.158	0.009
137666	16015	0.800	0.023
137667	16016	1.760	0.098
137668	16017	0.562	0.033
137669	16018	0.777	0.058
137670	16019	1.056	0.028
137671	16020	0.434	0.032
137672	16021	0.602	0.034
137673	16022	12.528	2.112
137674	16023	15.072	0.912
137675	16024	0.532	0.049
137676	16025	1.184	0.200
137677	16026	0.344	0.102
137678	16027	0.262	0.051
137679	16028	0.338	0.027
137680	16029	0.416	0.059
137681	16030	1.552	0.196
137682	16031	4.896	3.088

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## Certificate of Analysis

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19278 United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

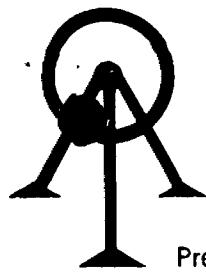
Date: July 26 1988

Work Order # : 880776  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER Customer	Copper %	Nickel %
137683	16032	0.228	0.043
137684	16033	0.488	0.037
137685	16034	0.464	0.050
137686	16035	1.440	0.056
137687	16036	0.022	0.014
137688	16037	0.011	0.014
137689	16038	0.029	0.016
137690	16039	0.029	0.016
137691	16040	0.030	0.014
137692	16041	0.007	0.004
137693	16042	0.070	0.009
137694	16043	0.096	0.012
137695	16044	0.032	0.006
137696	16045	0.150	0.015
137697	16046	1.296	0.048
137698	16047	0.514	0.034
137699	16048	0.604	0.054
137700	16049	0.448	0.038
137701	16050	0.110	0.018
137702	16051	0.042	0.014
137703	16052	0.456	0.035
137704	16053	0.570	0.169
137705	16054	0.304	0.038
137706	16055	0.288	0.034
137707	16056	0.478	0.019
137708	16057	0.267	0.032
137709	16058	4.640	0.338
137710	16059	0.026	0.006
137711	16060	0.230	0.026
137712	16061	0.738	0.011
137713	16062	0.191	0.013

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Page: 1

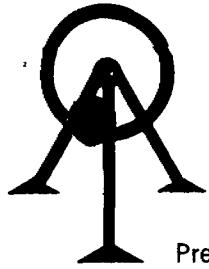
G. Anthony  
19333 United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: July 27 1988

Work Order # : 880781  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER Customer	Copper %	Nickel %
138160	16067	0.021	0.007
138161	16068	0.073	0.022
138162	16069	0.028	0.009
138163	16070	0.190	0.015
138164	16071	0.664	0.054
138165	16072	0.312	0.018
138166	16073	0.928	0.074
138167	16074	11.952	0.656
138168	16075	0.217	0.022
138169	16076	0.188	0.015
138170	16077	0.166	0.015
138171	16078	0.379	0.215
138172	16079	0.060	0.022
138173	16080	0.284	0.031
138174	16081	0.363	0.051
138175	16082	0.168	0.024
138176	16083	0.493	0.015
138177	16084	0.172	0.027
138178	16085	0.562	0.024
138179	16086	0.078	0.013
138180	16087	0.043	0.008
138181	16088	0.373	0.053
138182	16089	0.183	0.020
138183	16090	0.312	0.033
138184	16091	19.840	0.265
138185	16092	0.077	0.022
138186	16093	0.036	0.004

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Page: 1

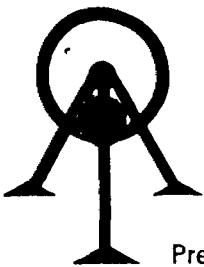
19335 G. Anthony  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: July 27 1988

Work Order # : 880798  
Project :

SAMPLE NUMBERS Accurassay	Customer	Gold ppb	Platinum ppb	Palladium ppb
139111	16094	134	50	40
139112	16095	371	133	104
139113	16096	13	21	17
139114	16097	48	22	17
139115	16098	81	47	39
139116	16099	<5	<15	<10
139117	16100	73	<15	<10
139117	16100	105	<15	<10 Check

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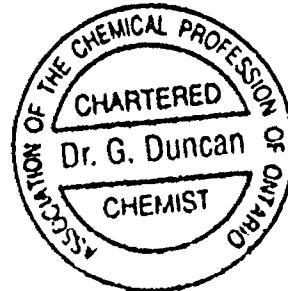
Page: 1

21463 G. Anthony  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: October 24 1988

Work Order # : 880997  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER Customer	Copper %	Nickel %
148448	16101	0.008	0.012
148449	16102	0.009	0.006
148450	16103	0.002	0.004
148451	16104	0.009	0.005
148452	16105	0.008	0.004
148453	16106	0.010	0.004
148454	16107	0.002	0.004
148455	16108	0.003	0.003
148456	16109	0.035	0.002
148457	16110	0.087	0.005
148458	16111	0.087	0.005
148459	16112	0.008	0.003
148460	16113	0.004	0.004
148461	16114	0.004	0.002
148462	16115	0.003	0.005
148463	16116	0.004	0.004
148464	16117	0.091	0.009
148465	16118	0.812	0.043
148466	16119	0.012	0.008
148467	16120	0.002	0.002
148468	16121	0.001	0.002
148469	16122	0.004	0.008
148470	16123	0.015	0.006
148471	16124	0.706	0.099
148472	16125	1.534	0.065
148473	16126	0.604	0.049
148474	16127	0.981	0.064
148475	16128	0.086	0.011
148476	16129	0.033	0.010
148477	16130	0.950	0.136
148478	16131	0.015	0.008



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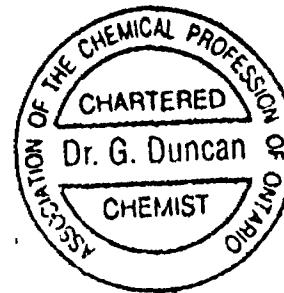
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21464 United Reef Petroleum Ltd.  
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Date: October 24 1988

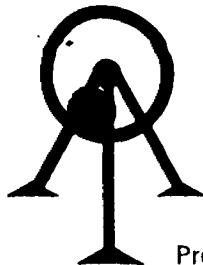
Work Order # : 880997  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER	Copper %	Nickel %
148479	16132	0.095	0.016
148480	16133	7.958	0.210
148481	16134	0.038	0.017
148482	16135	0.808	0.042
148483	16136	0.159	0.011
148484	16137	0.016	0.006
148485	16138	0.830	0.052
148486	16139	0.263	0.021
148487	16140	0.009	0.008
148488	16141	0.175	0.016
148489	16142	0.025	0.008
148490	16143	0.378	0.033
148491	16144	0.042	0.010
148492	16145	0.009	0.005
148493	16146	0.387	0.033
148494	16147	0.021	0.004
148495	16148	0.724	0.027
148496	16149	1.167	0.044
148497	16150	0.083	0.010
148498	16151	0.835	0.031
148499	16152	0.028	0.020
148500	16153	1.344	0.159
148501	16154	0.267	0.365
148502	16155	0.008	0.006
148503	16156	1.359	0.113
148504	16157	0.699	0.037
148505	16158	0.415	0.039
148506	16159	0.455	0.033
148507	16160	0.015	0.005
148508	16161	0.009	0.009
148509	16162	0.245	0.026



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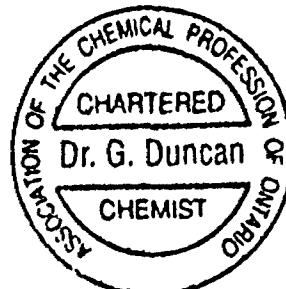
Page: 3

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21465 United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: October 24 1988

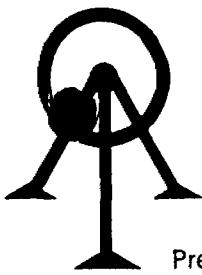
Work Order # : 880997  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER Customer	Copper %	Nickel %
148510	16163	0.039	0.013
148511	16164	0.370	0.031
148512	16165	0.282	0.022
148513	16166	0.046	0.010
148514	16167	0.060	0.010
148515	16168	0.097	0.013
148516	16169	0.230	0.020
148517	16170	0.156	0.015
148518	16171	0.180	0.020
148519	16172	0.112	0.009
148520	16173	0.075	0.009
148521	16174	0.348	0.073
148522	16175	4.032	0.339
148523	16176	0.041	0.005
148524	16177	0.007	0.004
148525	16178	0.053	0.010
148526	16179	0.007	0.005
148527	16180	0.038	0.009
148528	16181	0.002	0.002
148529	16182	0.001	0.001



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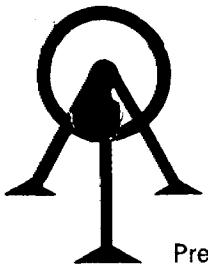
19224 Mr. Murray Rogers  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: July 21 1988

Work Order # : 880776  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER	Gold ppb	Platinum ppb	Palladium ppb	
137652	16001	10	<15	<10	
137653	16002	160	320	171	
137654	16003	<5	<15	<10	
137655	16004	453	75	35	
137656	16005	24	24	19	
137657	16006	389	422	684	
137658	16007	40	199	50	
137659	16008	37	100	147	
137660	16009	156	874	1649	
137661	16010	12	22	21	
137661	16010	13	23	26	Check
137662	16011	185	1361	405	
137663	16012	354	1826	426	
137664	16013	223	265	42	
137665	16014	42	50	25	
137666	16015	95	162	120	
137667	16016	246	235	203	
137668	16017	59	101	52	
137669	16018	72	150	148	
137670	16019	387	374	193	
137670	16019	275	402	206	Check
137671	16020	144	128	81	
137672	16021	58	351	126	
137673	16022	6020	1802	989	
137674	16023	631	1166	296	
137675	16024	93	74	78	
137676	16025	1102	201	258	
137677	16026	75	30	86	
137678	16027	24	65	229	
137679	16028	140	29	49	
137679	16028	201	28	49	Check

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Page: 1

19216 Mr. Murray Rogers  
United Reef Petroleum Ltd.  
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M5E-1J8

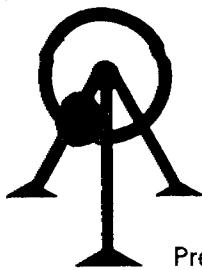
Date: July 21 1988

Work Order # : 880781  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER	Gold ppb	Platinum ppb	Palladium ppb	
138160	16067	53	<15	<10	
138161	16068	15	16	<10	
138162	16069	13	<15	<10	
138163	16070	32	56	20	
138164	16071	70	155	208	
138165	16072	41	229	131	
138166	16073	198	359	240	
138167	16074	156	1208	1498	
138168	16075	32	32	34	
138169	16076	34	36	34	
138169	16076	30	44	35	Check
138170	16077	41	39	36	
138171	16078	30	75	85	
138172	16079	15	18	20	
138173	16080	58	125	93	
138174	16081	97	137	96	
138175	16082	12	27	17	
138176	16083	51	43	34	
138177	16084	9	21	14	
138178	16085	16	34	73	
138178	16085	34	40	75	Check
138179	16086	12	23	22	
138180	16087	8	18	<10	
138181	16088	68	65	39	
138182	16089	38	33	27	
138183	16090	39	47	34	
138184	16091	304	636	908	
138185	16092	7	<15	<10	
138186	16093	<5	<15	<10	
138186	16093	<5	<15	<10	Check

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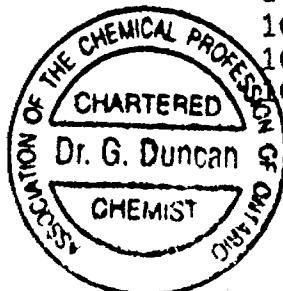
Page: 1

20323 G. Anthony  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: October 3 1988

Work Order # : 880997  
Project :

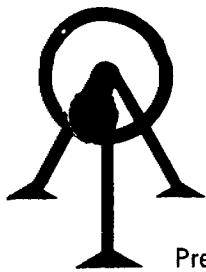
SAMPLE NUMBERS Accurassay	CUSTOMER	Gold ppb	Platinum ppb	Palladium ppb	
148448	16101	9	<15	<10	
148449	16102	22	<15	<10	
148450	16103	5	<15	<10	
148451	16104	<5	<15	<10	
148452	16105	15	<15	<10	
148453	16106	<5	<15	<10	
148454	16107	5	<15	<10	
148455	16108	<5	<15	<10	
148456	16109	10	<15	<10	
148457	16110	<5	<15	<10	
148457	16110	6	<15	<10	Check
148458	16111	5	<15	<10	
148459	16112	12	<15	<10	
148460	16113	<5	<15	<10	
148461	16114	<5	<15	<10	
148462	16115	6	<15	<10	
148463	16116	<5	<15	<10	
148464	16117	7	<15	<10	
148465	16118	70	65	75	
148466	16119	78	<15	<10	
148466	16119	<5	<15	<10	Check
148467	16120	<5	<15	<10	
148468	16121	<5	<15	<10	
148469	16122	7	<15	<10	
148470	16123	30	<15	<10	
148471	16124	33	185	104	
148472	16125	469	733	514	
148473	16126	93	128	94	
148474	16127	193	331	221	
148475	16128	13	21	16	
148475	16128	10	16	12	Check



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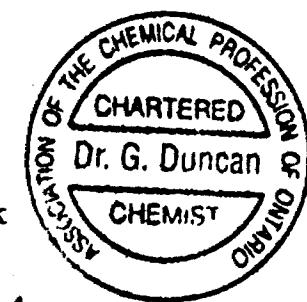
Page: 2

20324 G. Anthony  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: October 3 1988

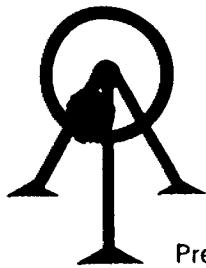
Work Order # : 880997  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER	Gold ppb	Platinum ppb	Palladium ppb	
148476	16129	<5	<15	<10	
148477	16130	177	794	167	
148478	16131	<5	<15	<10	
148479	16132	6	<15	<10	
148480	16133	242	250	1020	
148481	16134	48	<15	<10	
148482	16135	131	447	270	
148483	16136	13	49	26	
148484	16137	<5	<15	<10	
148484	16137	24	15	<10	Check
148485	16138	97	174	146	
148486	16139	187	46	49	
148487	16140	15	<15	<10	
148488	16141	65	28	37	
148489	16142	14	<15	<10	
148490	16143	47	58	51	
148491	16144	7	<15	<10	
148492	16145	<5	<15	<10	
148493	16146	62	103	71	
148493	16146	39	123	82	Check
148494	16147	6	<15	<10	
148495	16148	106	82	110	
148496	16149	106	140	131	
148497	16150	21	<15	<10	
148498	16151	108	115	95	
148499	16152	9	<15	<10	
148500	16153	85	98	209	
148501	16154	106	757	425	
148502	16155	7	<15	<10	
148502	16155	<5	<15	<10	Check
148503	16156	83	247	241	



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President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

## Certificate of Analysis

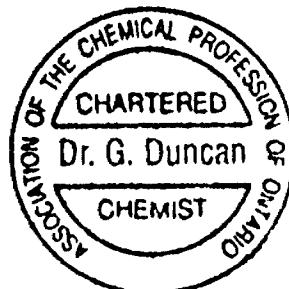
Page: 3

20325 G. Anthony  
United Reef Petroleum Ltd.  
400 - 67 Yonge Street  
Toronto, Ontario  
M5E-1J8

Date: October 3 1988

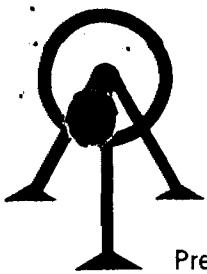
Work Order # : 880997  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER	Gold ppb	Platinum ppb	Palladium ppb	
148504	16157	69	242	154	
148505	16158	65	114	79	
148506	16159	63	227	103	
148507	16160	<5	<15	<10	
148508	16161	5	<15	<10	
148509	16162	42	94	40	
148510	16163	12	26	16	
148511	16164	47	72	59	
148511	16164	52	111	69	Check
148512	16165	36	45	28	
148513	16166	11	24	15	
148514	16167	16	51	24	
148515	16168	24	56	35	
148516	16169	107	82	63	
148517	16170	42	32	33	
148518	16171	51	48	44	
148519	16172	17	<15	19	
148520	16173	12	<15	15	
148520	16173	19	21	17	Check
148521	16174	20	103	61	
148522	16175	417	417	536	
148523	16176	21	57	23	
148524	16177	6	<15	<10	
148525	16178	36	67	39	
148526	16179	10	<15	<10	
148527	16180	39	49	33	
148528	16181	<5	<15	<10	
148529	16182	5	<15	<10	
148529	16182	<5	<15	<10	Check



Per:

ORIGINAL



# ACCURASSAY LABORATORIES LTD.

P.O. BOX 604  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J5  
TEL.: (705) 567-6343

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

## Certificate of Analysis

20382

G. Anthony  
United Reef Petroleum Ltd.  
400, 67 Yonge St.  
Toronto, Ontario  
M5E 1J8

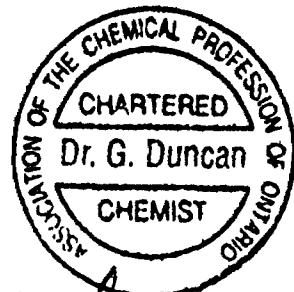
Assay results are as follows:

SAMPLE NUMBER	Original Gold	Check
Accurassay Customer	ppb	ppb
148472 16125	469	494
148522 16175	417	563

Page #1

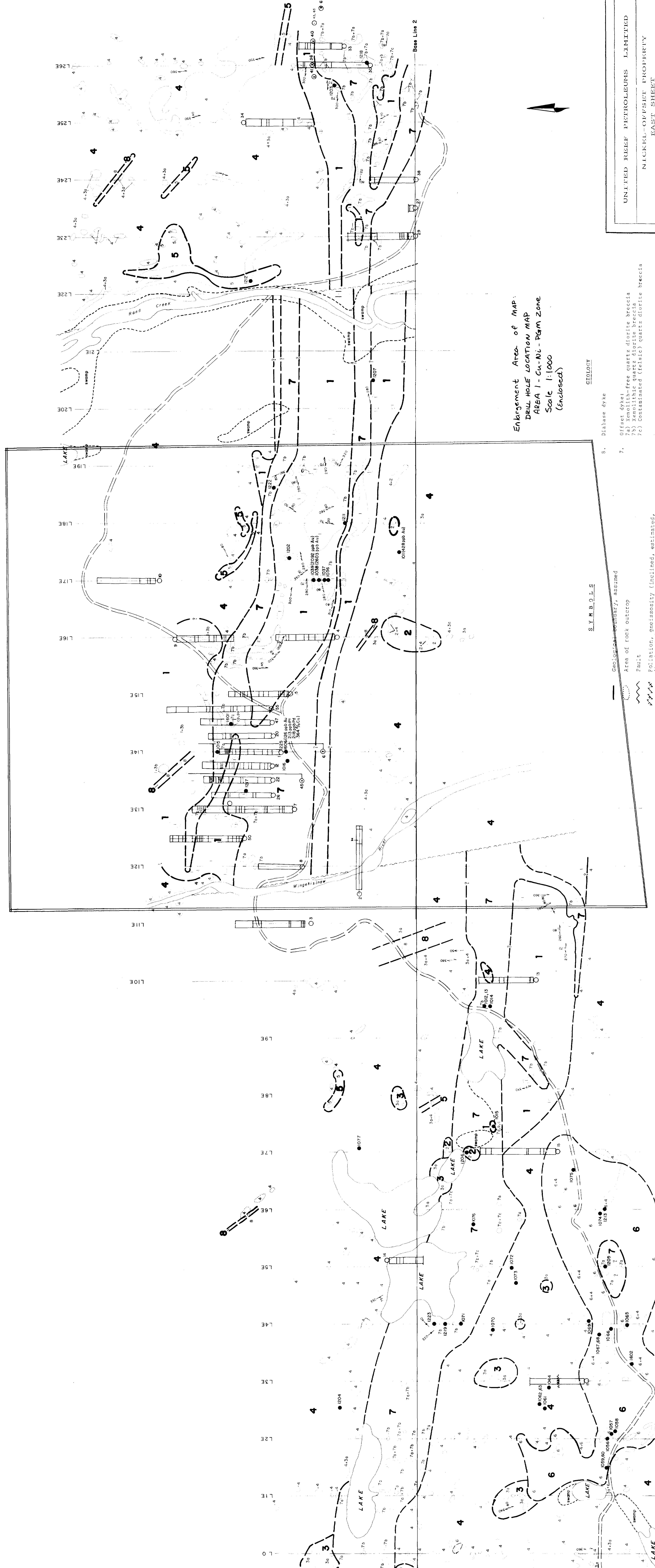
Date: 10/05/88 19

Work Order 880997  
Project  
R E A S S A Y



Per:

ORIGINAL



UNITED RIGGIE PETROLEUMS LIMITED	NICKEL-OFFSHORE PROPERTY	FOX & BOWELL TOWNSHIPS ONTARIO	SCALE 1:2500	100 50 0 50 100 150 METRES	DATE:	FIG NO:	MAP NO:
	EAST SHEET			100 0 50 100 150 FEET			
SUPPLEMENT TO ENCLOSED.							

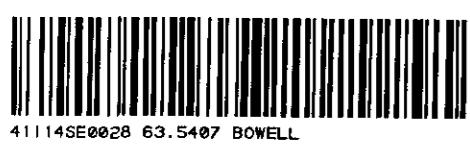
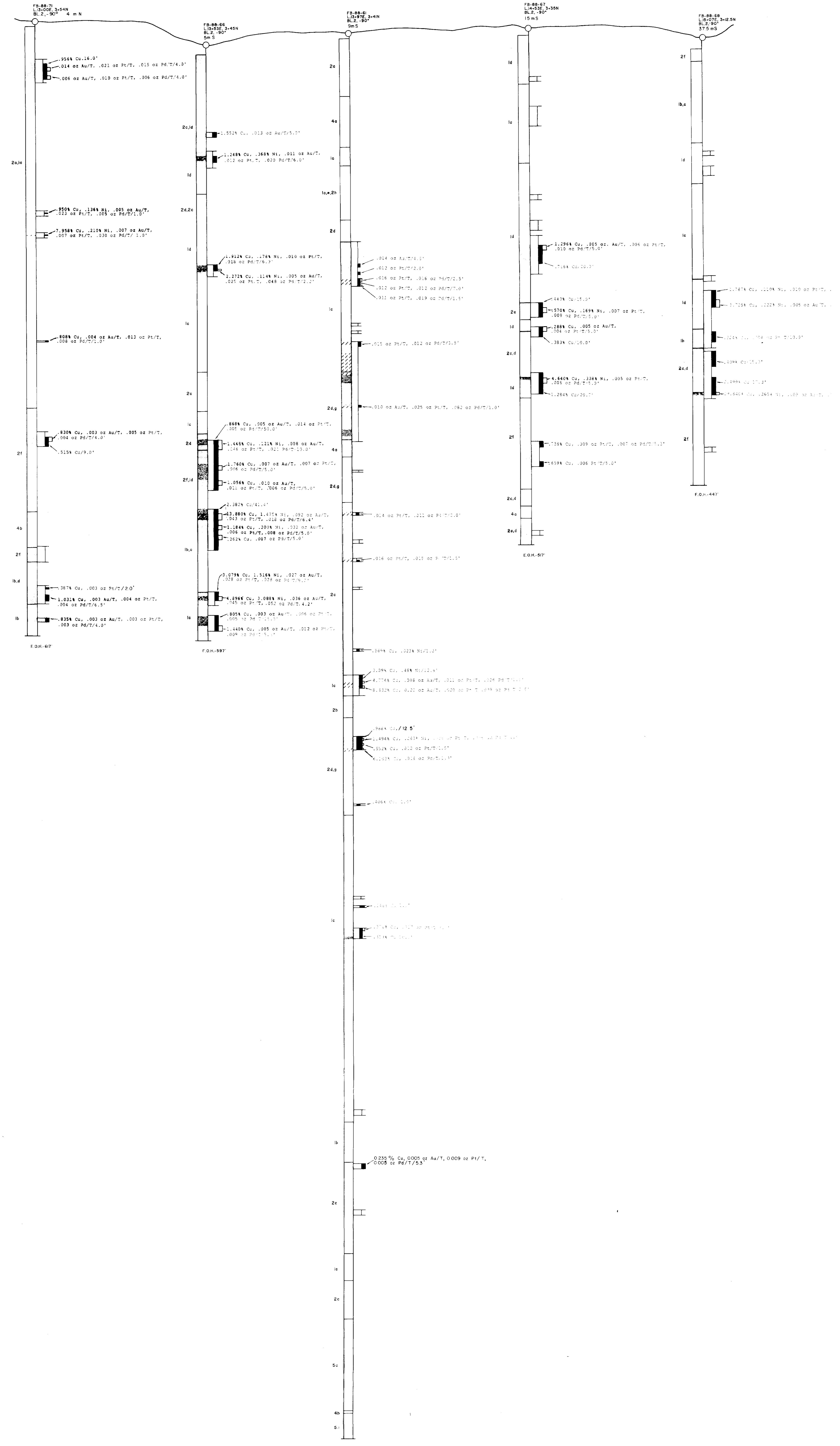
63 6402  
21:00 12



Om 88-130 63.5407

210

4114SE0028 63.5407 BOWELL



FB-88-69  
15-42E, 3-28N  
BL.2, -30°

29.21

29

28

27

26

E.D.L.-447'

GEOLOGICAL LEGEND

5 Granitic rocks  
a) Undifferentiated  
b) Granite  
c) Granodiorite  
d) Tonalite to quartz diorite

4 Mafic Intrusive Rocks  
a) Diabase  
b) Fine grained to aphanitic mafic rocks; generally magnetite-bearing  
(In part may be Sudbury breccia-matrix)

3 Sudbury Breccia

2 Diorite, Gabbro  
a) Undifferentiated  
b) Quartz Diorite  
c) Gabbro  
d) Gabbro  
e) Pegmatitic  
f) Contaminated (K-Feldspathization)  
g) Altered  
h) Magnetite-bearing

1 Quartz-Diorite Breccia (Offset Dyke)  
a) Undifferentiated  
b) With < 20% Xenoliths  
c) With > 20% Xenoliths  
d) Contaminated  
e) Altered  
f) Fine-grained, Feldspar-Porphyritic

A Xenoliths  
i) Granitic  
ii) Aphanitic  
iii) Gabbroic  
iv) Volcanic

Symbols for minerals - very low tone.  
ONLY - cp., po mineralization

1 - 5 %

5 - 10 %

10 - 50 %

> 50 %

Sample interval (low Cu, Ni, Au, Pt, Pd assays  
unless otherwise noted).

## Diamond Drill Section

### UNITED REEF PETROLEUMS LIMITED.

NICKEL OFFSET PROPERTY - ONTARIO  
FOY & BOWELL TOWNSHIPS  
DIAMOND DRILL HOLE No.

FB-88-69

SCALE : 1 INCH = 40 FEET

Inches 1 0 40 Feet

Interpretation by: N.O. Willoughby, Sept. '87  
Cartography by: P.A. Sukman, '87

DWG.



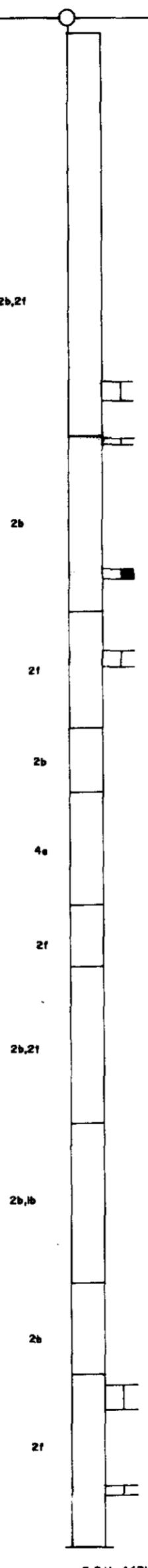
41114SE0028 63.5407 BOWELL

230

OMB88-130

63. S407

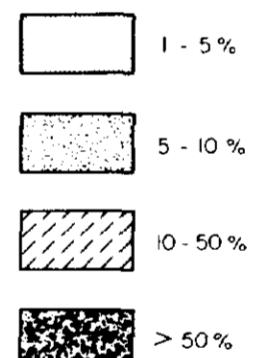
FB-88-70  
L17+50E, I-62N  
BL.2, -90°



GEOLOGICAL LEGEND

5	Granitic rocks
a)	Undifferentiated
b)	Granite
c)	Granodiorite
d)	Tonalite to quartz diorite
4	Mafic Intrusive Rocks
a)	Diorite
b)	Fine grained to aphanitic mafic rocks; generally magnetite-bearing (In part may be Sudbury breccia-matrix)
3	Sudbury Breccia
2	Diorite, Gabbro
a)	Undifferentiated
b)	Diorite
c)	Quartz Diorite
d)	Gabbro
e)	Pegmatitic
f)	Contaminated (K-Feldspathization)
g)	Altered
h)	Magnetite-bearing
1	Quartz Diorite Breccia (Offset Dyke)
a)	Undifferentiated
b)	With < 20% Xenoliths
c)	With > 20% Xenoliths
d)	Contaminated
e)	Altered
f)	Fine-grained, Feldspar-Porphyritic
A	Xenoliths
i)	Granitic
ii)	Migmatitic
iii)	Gabbroic
iv)	Volcanic

Symbols for minerals - very low tone.  
ONLY - cp, po mineralization



— Sample interval (low Cu, Ni, Au, Pt, Pd assays unless otherwise noted).

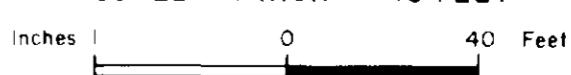
## Diamond Drill Section

### UNITED REEF PETROLEUMS LIMITED.

NICKEL OFFSET PROPERTY - ONTARIO  
FOY & BOWELL TOWNSHIPS  
DIAMOND DRILL HOLE No.

FB-88-70

SCALE : 1 INCH = 40 FEET



Interpretation by N O Willoughby, Sept.'87  
Cartography by P A Sukman, 87

DWG.



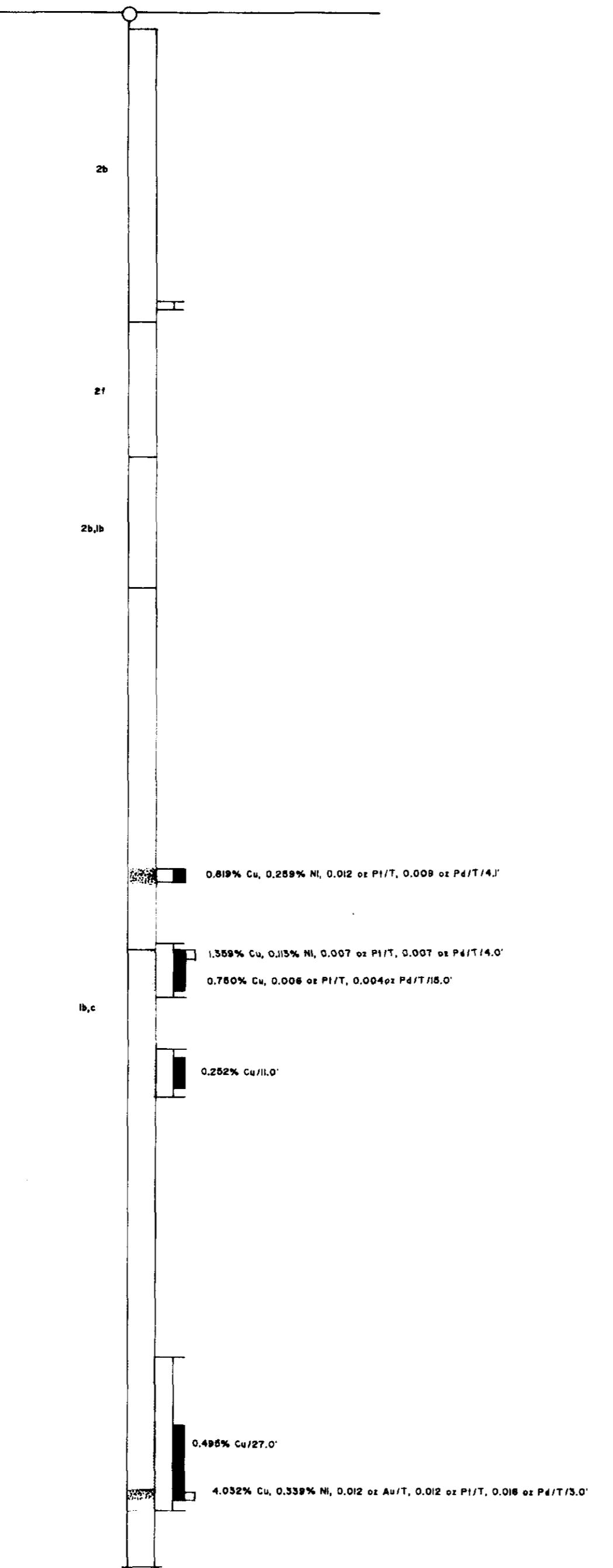
41114SE0028 63.5407 BOWELL

240

OM88-130

63-5407

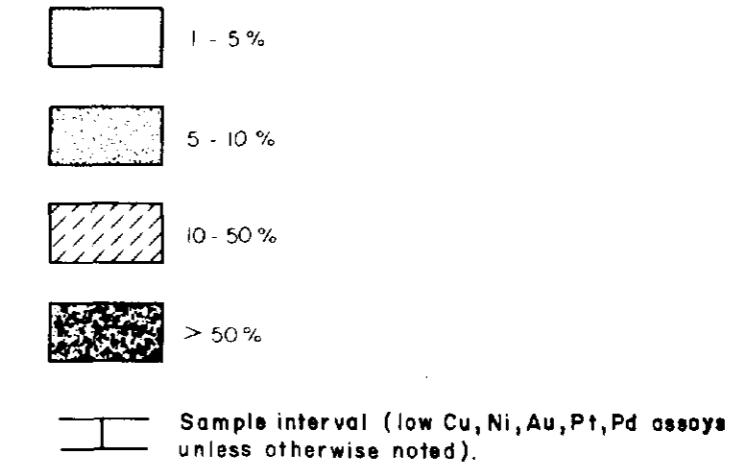
FB-88-72  
L13.00E, 3.50N  
BL.2, -80°



GEOLOGICAL LEGEND

- Granitic rocks**
  - a) Undifferentiated
  - b) Granite
  - c) Granodiorite
  - d) Tonalite to quartz diorite
- Mafic Intrusive Rocks**
  - e) Diabase
  - f) Fine grained to aphanitic mafic rocks; generally magnetite-bearing (in part may be Sudbury breccia-matrix)
- Sudbury Breccia**
- Diorite, Gabbro**
  - g) Undifferentiated
  - h) Diorite
  - i) Quartz Diorite
  - j) Gabbro
  - k) Pegmatitic
  - l) Contaminated (K-Feldspathization)
  - m) Altered
  - n) Magnetite-bearing
- Quartz Diorite Breccia (Offset Dyke)**
  - o) Undifferentiated
  - p) With > 20% Xenoliths
  - q) With > 20% Xenoliths
  - r) Contaminated
  - s) Altered
  - t) Fine-grained, Feldspar-Porphyritic
- Xenoliths**
  - i.) Granitic
  - ii.) Migmatitic
  - iii.) Gabbroic
  - iv.) Volcanic

Symbols for minerals - very low tone.  
ONLY cp, po mineralization



Diamond Drill Section  
UNITED REEF PETROLEUMS LIMITED.

NICKEL OFFSET PROPERTY - ONTARIO  
FOY & BOWELL TOWNSHIPS  
DIAMOND DRILL HOLE No.

FB-88-72

SCALE : 1 INCH = 40 FEET

Inches : 0 40 Feet

Interpretation by: N O Willoughby, Sept. 87  
Cartography by: P A Sukman, 87

OM88-130

DWG.



41114SE0028 63.5407 BOWELL

250

E.O.H.-847

63.5407

