

6523

COMINCO LTD.

EXPLORATION

NTS: 92 H9

WESTERN DISTRICT

DIAMOND DRILLING REPORT

UP CLAIMS

PRINCETON AREA

SIMILKAMEEN MINING DIVISION

Period of Work

September 19, 1977

to

October 27, 1977

November 3, 1977

R.J. Nicholson, P. Eng.

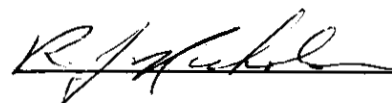
STATEMENT OF QUALIFICATIONS

I, Robert J. Nicholson, with business address Cominco Ltd., 200 Granville Square, Vancouver, British Columbia, do hereby certify that I have supervised the diamond drilling program and the logging of the drill core by W.E. Lumley, geologist, and have assessed and interpreted the data resulting from said program on the UP claim group.

I also certify that:

- 1) I am a graduate of The University of British Columbia with a B.A. Sc. degree in Geological Engineering (1953).
- 2) I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.

Submitted:



R.J. Nicholson
P. Eng.

November 3, 1977

Vancouver, British Columbia

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A DIAMOND DRILL PROGRAMME

CARRIED OUT ON THE MINERAL CLAIM UP 1

ON THE

UP CLAIM GROUP

Located near Princeton

in the Similkameen Mining Division of the

Province of British Columbia

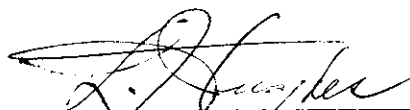
More Particularly N.T.S. 92 H9W

A F F I D A V I T

I, ROBERT J. NICHOLSON, OF THE CITY OF VANCOUVER IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I AM EMPLOYED AS A GEOLOGIST BY COMINCO LTD. AND, AS SUCH, HAVE A PERSONAL KNOWLEDGE OF THE FACTS TO WHICH I HEREINAFTER DEPOSE;
2. THAT ANNEXED HERETO AND MARKED AS "EXHIBIT A" TO THIS MY AFFIDAVIT IS A TRUE COPY OF EXPENDITURES INCURRED ON DIAMOND DRILLING ON THE MINERAL CLAIM UP 1;
3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE 19th DAY OF SEPTEMBER 1977 AND THE 27th DAY OF OCTOBER, 1977 FOR THE PURPOSE OF MINERAL EXPLORATION ON THE ABOVE NOTED CLAIM GROUP.

Sworn Before Me at the City)
of Vancouver in the Province)
of British Columbia this)
3rd day of November)
1977.)


A NOTARY PUBLIC IN AND FOR THE)
PROVINCE OF BRITISH COLUMBIA)


Robert J. Nicholson

SUB-MINING RECORDER

EXHIBIT "A"

DIAMOND DRILLING COSTS

ON THE

UP CLAIM GROUP

Situated near Princeton

49° 31' North Latitude
119° 29' West Longitude

NTS: 92H 9W

Salaries

W.E. Lumley; Geologist September 26 to October 27, 1977: 32 days @ \$85/day	\$ 2,720.
R.J. Nicholson; Supervisor September 19 to October 27, 1977: 10 days @ \$110/day	1,100.

Room and Board

W.E. Lumley: 32 days @ \$18/day	576.
R.J. Nicholson: 10 days @ \$18/day	180.

Transportation

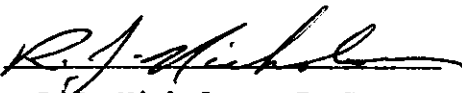
Truck rental September 26 to October 27/77: 32 days @ \$20.50/day	656.
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Drilling

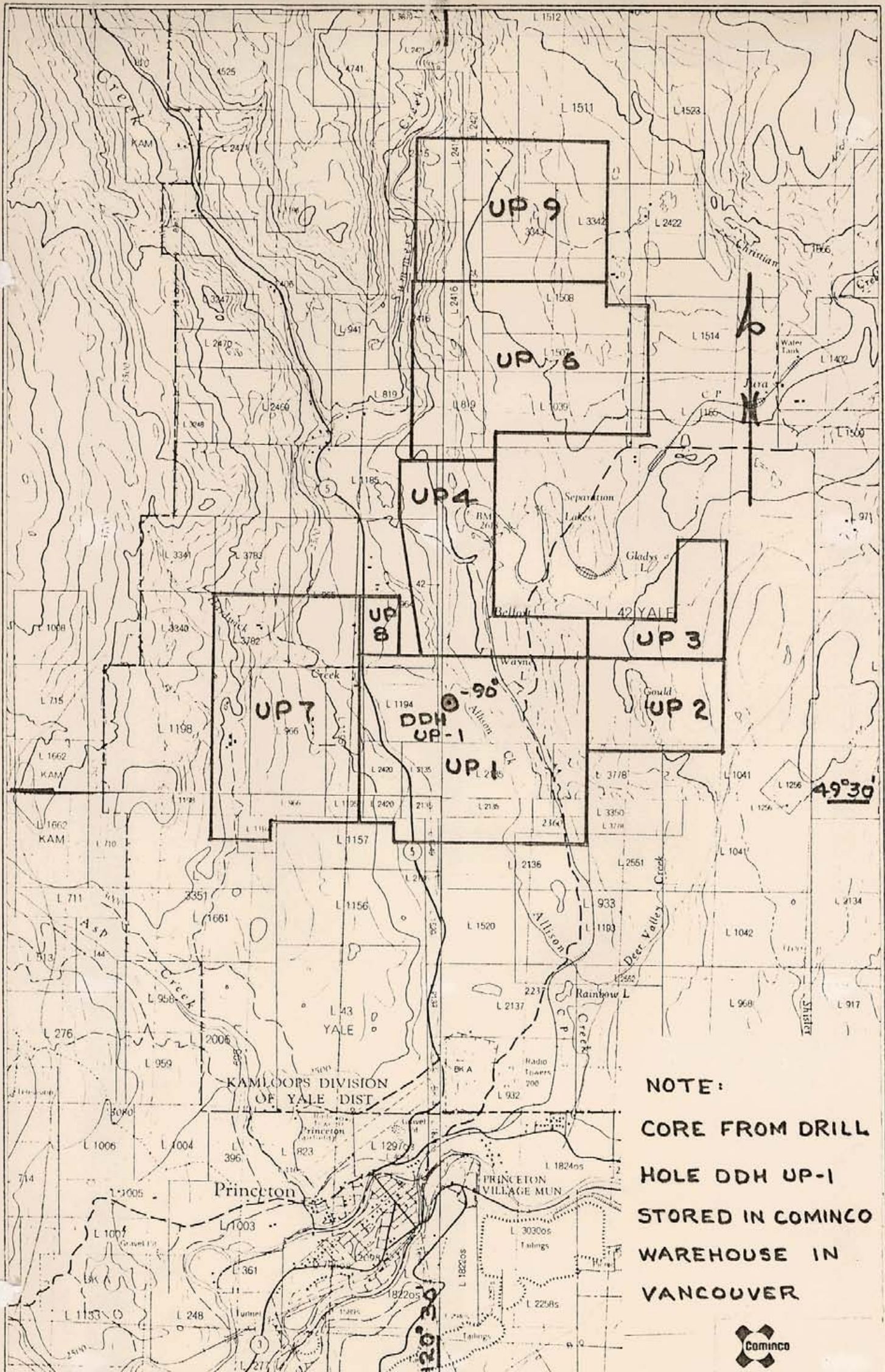
Drill hole DDH UP-1 (H. Allen Diamond Drilling Ltd.); Sept. 27 to Oct. 27/77: Size BQ to 877' @ \$14.18/ft, and Size AQ 877' to 1000' @ \$53.95/ft	<u>19,074.</u>
TOTAL	\$24,306.

Total Assessment Credit requested for 171 Unit Years = \$23,100.00

Signed:


R.J. Nicholson, P. Eng.

THIS IS EXHIBIT "A" TO THE AFFIDAVIT OF EXPENDITURES RELATING TO THE
DIAMOND DRILL PROGRAM DELARED BEFORE ME ON THE 31^d DAY OF NOVEMBER,
1977 A.D.



NOTE:
 CORE FROM DRILL
 HOLE DDH UP-1
 STORED IN COMINCO
 WAREHOUSE IN
 VANCOUVER



Drawn by:		Traced by: RJN	
Revised by	Date	Revised by	Date

UP CLAIMS

DRILL HOLE LOCATION 92 H 9

Scale: **1:50,000** Date: **Oct. 24, 1977** Plate

R.J. Nelson

Drill Hole Record



Property	UP CLAIMS	District	Western District	Hole No.	DDH UP-1
Commenced	Sept. 26, 1977	Location	Up 1 Claim	Tests at	Hor. Comp.
Completed	Oct. 27, 1977	Core Size	134-887 BQ Wirine	Corr. Dip	Vert. Comp.
Co-ordinates	887-1000' AQ "			True Brg.	Logged by W.E. Lumley
Objective	To determine stratigraphy and test the U ₃ O ₈ Potential of Princeton Basin			% Recov.	94.84%
				Date	October 1977

Claim

UP 1

T Brg.

Collar Dip

-90°

Elev.

2250'

Length

1000'

Hole No.

DDH UP-1

Sheet

1

Footage From	To	Description	Sample No.	Length	Analysis
0	- 24	H Casing			
24	- 54	N Casing			
54	- 134	B Casing			
134-	134.5	Granitic pebbles - possibly from overlying strata.			
134.5-	135.1	Clay: soft; gradually becoming more silty with depth.			
135.1-	137.0	Siltstone: banded; light grey and black contacts gradational			
137	- 139.5	Mudstone: black; weakly banded at 85° to core.			
139.5-	141	Sandstone: dark to light gray, medium to coarse grained to maximum 1mm in diameter fractured at 70° to core axis.			
141	- 147	Lost core			
147	- 150	Claystone: black, fractured at 70° to core, shiny waxy appearance when cut with knife. No silt detected when ground between teeth. All contacts between units are gradational unless stated.			
150	- 152	Mudstone: banded; caused by increase in grain size to silt banding at 75° to core axis. Shiny waxy appearance when cut with a knife. Silt detected when ground between teeth.			
152	- 153.4	Claystone: as above at 147-150.			
153.4	- 155	Sandstone: argillaceous, coarse grained, loosely consolidated.			
155	- 156	Lost core: some sand recovered.			
156	- 158.5	Mudstone: similar to section 150-152			

Scale

Colour Plot
& Dips

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.	Sheet
Commenced	Location	Tests at							
Completed	Core Size	Corr. Dip							
Co-ordinates		True Brg.							
Objective		% Recov.							
Footage From To	Description	Sample No.	Length	Analysis					
158.5-160.9	Grit Unit: light grey, loosely consolidated. Unit characterized by numerous dark grey quartz pebbles up to maximum of 7mm in diameter cemented by coarse sand silt and minor clay overall very well sorted. Some minor feldspar mica and secondary pyrite seen average grain size approximately 2mm in diameter.								
160.9-161.5	Claystone: dark green grey								
161.5-163.2	Grit Unit: As above with some minor coal partings.								
163.2-163.6	Claystone: as above.								
163.6-181.2	Grit Unit: as above at 161.5-163.2.								
181.2-181.4	Claystone:								
181.4-184	Grit Unit								
184-187	Mudstone: black, almost shale; some coal partings.								
187-188.2	Sandstone: light grey; medium to coarse grained (maximum 1mm in diameter); arkosic								
188.2-194.5	Mudstone: dark green grey, some laminations at 70° to core axis becoming carbonaceous with depth.								
194.5-207.9	Coal: Locally silty; exhibits shiny lustre with local resin pods.								
207.9-209.1	Mudstone: dark green grey.								
209.1-210.3	Coal: Minor Clay partings.								
210.3-211.2	Broken Core: recovery appears to be competent claystone unit.								
211.2 -212.7	Coal: shiny lustre hard								
212.7-213.2	Mudstone: dark green grey slightly silty.								

Scale

Colour Plot
& Dips

Drill Hole F cord



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.	Sheet
Commenced	Location	Tests at							
Completed	Core Size	Corr. Dip							
Co-ordinates		True Brg.							
Objective		% Recov.							
Footage	Description	Sample No.	Length	Analysis					
From To									
213.2-215.3	Coal: silty								
215.3-219	Mudstone: dark green grey with coalified wood detritus.								
219-233.6	Coal: locally silty with silty banding at 90° to core axis. Large 12mm wide resin pod at 227.5 locally fractured at 80° to core.								
233.6-236.3	Claystone: dark grey green.								
236.3-237	Broken core: above unit.								
237.0-238	Coal: silty layered numerous resin pods.								
238.2-240	Mudstone: layered, dark grey, layering at 80° to core axis. Some coalified wood detritus.								
240-240.8	Coal: very good, shiny lustre.								
240.8-245.4	Mudstone Unit: dark green grey								
	Coal seam: 18mm in thickness @ 243.4								
245.4-245.9	Coal seam								
245.9-246.7	Mudstone: as above								
246.7-247	Coal seam								
247-251	Claystone: dark grey green becoming black and carbonaceous with depth.								
251-260.5	Coal: silty and shaly fracturing at 70° to core axis.								
260.5 - 267	Grit Unit: Dark grey to black, very carbonaceous with coal = 25% of rock composition - large quartz pebbles up to 3mm in diameter.								
267-268.3	Claystone Unit: light green; contains some coalified wood.								
268.3-277	Grit Unit: silty, argillaceous large (5mm) dark grey quartz pebbles with carbon, mica clay and silt.								

Drill Hole F cord



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Sheet
Commenced	Location	Tests at	Hor. Comp.					
Completed	Core Size	Corr. Dip	Vert. Comp.					
Co-ordinates		True Brg.	Logged by					
Objective		% Recov.	Date					
Footage From To	Description	Sample No.	Length	Analysis				
277-277.3	Coal Seam							
277.3-278.6	Claystone: dark grey green							
278.6-279.3	Clay (Bentonite?): light green very soft unit cracked when desiccated.							
279.3-287.0	Siltstone: banded; dark to light grey bands dependant on grain size and at 75°-90° to core axis.							
287 - 297.4	Mudstone: waxy lustre when cut with a knife.							
297.4-303	Sandstone: silty, very fine grained, gradational contact between units above and below.							
303 - 316.5	Grit Unit: Moderate to well sorted, slightly argillaceous, characterized by pebble gravel (7mm maximum) in a matrix of very coarse sand (1-2mm in diameter) minor biotite, muscovite and secondary pyrite. Gravel consists of dark grey quartz, minor pink feldspar and volcanic (basalt).							
316.5-321.7	Sandstone: fine to medium grained, some coal partings, arkosic.							
321.7-322.2	Clay: very soft, light grey.							
322.2-327.7	Siltstone: weakly banded at 70° to core axis; some coal partings.							
327.7-334.4	Lost core: some recovery of coal (broken).							
334.4-335.7	Coal: shaly approximately 50% coal.							
335.7-336.3	Siltstone: dark grey weakly banded at 70° to core axis.							
336.3-336.8	Sandstone: light grey medium grained, arkosic.							
336.8-345.	Siltstone: as above at 335.7'-336.3'.							

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.	Sheet
Commenced	Location	Tests at						DDH UP-1	5
Completed	Core Size	Corr. Dip							
Co-ordinates		True Brg.							
Objective		% Recov.							
Footage	Description	Sample No.	Length	Analysis					
From To									
345-349	Claystone Unit: very soft; dark brown to black.								
349-365	Mudstone: soft; increase in silt and mica noted.								
365-367	Sandstone: fine to medium grained, some feldspar and mica.								
367-378.6	Mudstone: Black carbonaceous; locally pyritiferous, carbon = 10%.								
378.6-385	Conglomerate Unit: clasts of fine pebble gravel more numerous and more densely packed than grit unit. Clasts consist largely of dark grey quartz minor feldspar & volcanic fragments.								
	Some soft clay layers seen cutting the unit. These are found at:								
	379.6-379.9 - upper contact at 40° to core axis, lower contact at 90° to core axis.								
	381-381.5 - Upper contact at 70° to core axis; lower contact at 90° to core axis.								
	382-382.2, 382.3-382.4 - contacts at 90° to core axis.								
385.-392.4	Sandstone: silty, fine grained, light grey in colour.								
392.4-394.3	Claystone: same as unit found at 345.-349.								
394.3-398.5	Sandstone: not as silty as unit above at 385.								
398.5-438.2	Mudstone: dark green grey to light grey, uniform in composition and quite competent. Broken core 408.0-417.0.								
438.2-439.8	Grit Unit: grain size to 5mm maximum.								
439.8	Coal Seam: 5cm wide.								
439.8-447.4	Mudstone unit as above.								

Scale

Colour Plot
& Dip

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Analysis
Commenced	Location	Tests at						
Completed	Core Size	Corr. Dip						
Co-ordinates		True Brg.						
Objective		% Recov.						
Footage From To	Description	Sample No.	Length	Analysis				
447.4-450.3	Siltstone: light grey to white lower contact at 75° to core							
450.3-452.2	Mudstone: as above.							
452.2-456.1	Siltstone: identical to unit at 447.4-450.3. Coal: 1.2cm thick at 455.3							
456.1-491.2	Mudstone: similar to above mudstone but exhibits larger amount of coal partings, from 487-490.0 sedimentary breccia with clasts of grey green claystone set in a matrix of green grey mudstone.							
491.2-492.5	Siltstone: light grey fine grained.							
492.5-502	Mudstone - as above.							
502-502.8	Siltstone: as above.							
502.8-512	Mudstone: as above but is cut by following: at 510.0 2.5cm wide soft gougy clay; at 510.8 2.5cm wide siltstone lens.							
512-512.4	Siltstone - light grey.							
512.4-513	Mudstone - as above.							
513 - 513.2	Clay: soft, gougy (shear?)							
513.2-516.5	Mudstone: as above but cut by numerous soft clay layers (shears?) at 80° to core.							
516.5-521.5	Coal: silty, coal = 40% of section cut by numerous clay layers most prominent are at 517.9 (5cm thick) and at 520.2 (also 5cm thick).							
521.5-524.5	Siltstone: as above.							
524.5-528.7	Grit Unit: grains up to 5mm in diameter							
528.7-533.5	Sandstone & siltstone: alternating thin bands 1" to 9" in thickness.							

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Sheet
Commenced	Location	Tests at	Hor. Comp.					7
Completed	Core Size	Corr. Dip	Vert. Comp.					
Co-ordinates		True Brg.	Logged by					
Objective		% Recov.	Date					
Footage From To	Description	Sample No.	Length	Analysis				
533.5-535.5	Siltstone: light to dark grey becoming more carbon rich with depth.							
535.5-539.9	Coal: silty, shaly, numerous resin pods; coal = 40-50% of section, cut by several soft clay lenses which are seen at: 538.0 (2.5cm thick), 538.5 (2.5cm thick), 539.7-539.9.							
539.9-541.7	Grit: well sorted; upper contact sharp at 90° to core.							
541.7-543.3	Siltstone: banded, light grey to dark grey.							
543.3-547	Grit unit: as above.							
547-549.5	Sandstone: medium to coarse grained.							
549.5-551.8	Grit unit: as above.							
551.8-555	Lost core - some very large quartz and pebbles recovered.							
555-562.5	Grit Unit: lower contact gradational.							
562.5-563	Siltstone: banded as above.							
563-563.3	Coal: shaly							
563-564.2	Siltstone: as above.							
564.2-567	Grit Unit: finer grained than other grit units.							
567-569	Mudstone: banded, light grey to dark grey at 45° to 75° to core. Some minor coal partings.							
	Coal seam: 4cm thick at 75° to core at 569.							
569 - 571	Mudstone: as above.							
571 - 579	Lost core							
579 - 583	Mudstone: black carbonaceous becoming banded.							

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Sheet
Commenced	Location	Tests at	Hor. Comp.					
Completed	Core Size	Corr. Dip	Vert. Comp.					
Co-ordinates		True Brg.	Logged by					
Objective		% Recov.	Date					
Footage From To	Description	Sample No.	Length	Analysis				
583 - 587	Lost Core							
587 - 590.4	Sandstone: medium to coarse grained max. grain size 1mm. Clay: soft 4cm thick at lower contact (590.4).							
590.4-599.8	Coal: clay rich; coal 40-50%.							
599 - 610.2	Grit Unit: Graded bedding noted.							
610.2-612	Mudstone: black carbonaceous							
612 - 612.9	Coal: silty; coal 50-70%.							
612.9-617.6	Grit Unit: bordering on coarse grained sandstone, arkosic.							
617.6-619.4	Siltstone: banded; becomes more carbon rich with depth.							
619.4-620.9	Mudstone: coal rich in partings 20-30%.							
620.9-632.6	Sandstone: medium grained, grain size decreasing with depth.							
632.6-633.3	Siltstone: brown; 2.5cm thick coal seam at 630.8.							
633.3-661.3	Grit unit with minor silt and coal bands coal seams all 2.5cm thick are found at 633.5', 658.4' 659.0'.							
661.3-662.8	Siltstone: clay rich with coal seam 4cm thick at 661.6.							
662.8-664.1	Sandstone: coarse grained; some minor coal partings, arkosic.							
664.1-664.5	Coal: silty							
664.5-665.8	Sandstone: fine to medium grained							

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.	Sheet
Commenced	Location	Tests at							
Completed	Core Size	Corr. Dip							
Co-ordinates		True Brg.							
Objective		% Recov.							
Footage From To	Description	Sample No.	Length	Analysis					
	NOTE: 0-880' cased with BWL casing and drilling from 887-1000' was done with AQ wireline.								
890.9-892	Shale: very finely laminated (1mm maximum) very dark brown, well developed fissility.								
892.-907.2	Black and characterized by several thin soft silica rich laminations 1.0-1.2cm thick.								
907.2-912	Very dark brown; laminations widening into banding.								
912 - 924	Black, banded, with numerous soft clay rich silica bands up to 2.0 cm in thickness.								
924 - 924.7	Clay: very soft, silty, dark grey in colour.								
924.7-942.7	Shale: Brown shale with the soft silty bands becoming more numerous with depth.								
942.7-943.5	Clay: very soft as above.								
943.5-944.8	Shale: as above at 924.7-942.7.								
944.8-945.3	Clay: as above (924.0-924.7).								
945.3-970.0	Shale: Dark grey becoming more silty and competent with depth.								
970 - 975.6	Mudstone: very silty, quite competent, dark green grey passing to light grey at lower contact. Lacks fissility found above.								
975.6 987.4	Sandstone: medium grained competent and uniform throughout; increase in grain size abrupt at lower contact.								

DRILL DATA FOR DIAMOND DRILL HOLE

UP-1 ON THE UP CLAIM GROUP

<u>DRILL HOLE</u>	<u>LOCATION</u>	<u>DIP</u>	<u>BEARING</u>	<u>DEPTH</u>	<u>CORE SIZE</u>
UP-1	UP #1	-90°	---	1000'	BQ & AQ

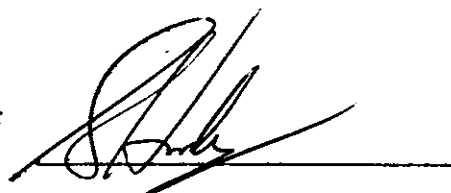
All drill core is stored in core trays at Cominco's Warehouse in Vancouver.

The location of the hole has not been surveyed and hence its exact location is not known.

Signed by:


R.J. Nicholson, P. Eng.

Approved for
Release by:



Attachments:

1. UP Claims - Drill Hole Location Map, 1:50,000
2. Drill Hole Record: DDH UP-1