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ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA
REPORT ON GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL
AND DIAMOND DRILLING SURVEYS

ON THE
PUGWASH CLAIM GROUP NS 45
NTS 11E NORTH 21H NORTHEAST 434260

AUGUST 1981
HALIFAX, NOVA SCOTIA

J. R. O'SULLIVAN
P. ENG. (Part 1)

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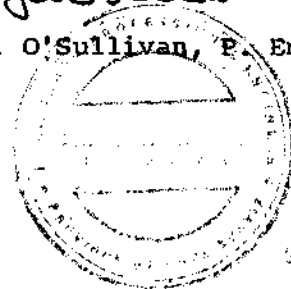


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SUMMARY AND CONCLUSIONS

During the summer of 1980 an extensive area within the Cumberland Basin was acquired as mineral exploration licenses by Esso Minerals Canada, to assess the copper potential of the Pennsylvanian Pictou Group Sandstones.

The program included diamond drilling of 57 holes, 24 of which were concentrated in the Canfield Creek area of License 6177, the remainder being drilled on a widely spaced pattern throughout the other licences. A subeconomic mineralized zone was outlined at Canfield Creek giving an indicated 300,000 tonnes grading 1.2% copper.

Reconnaissance prospecting was carried out over the license area with major emphasis on areas of potential copper mineralization.

In addition to the mineralization outlined in Canfield Creek, four other reconnaissance diamond drill holes intersected low order but significant copper mineralization (up to 0.25%),

As a result of the 1980-1981 program the area has been confirmed as having potential for economic copper mineralization.

The license areas have been reduced to 1083 claims, approximately 10% of the original holdings. The present holdings are located in the Canfield Creek and Wentworth "copper belt" plus a number of other minor scattered areas.

LIST OF FIGURES AND TABLE

Table 1 Diamond Drill Hole Summary Sheet

<u>Dwg. No.</u>	<u>Title</u>	<u>Scale</u>
NS 45-902-1	Canfield Creek Soil Geochemistry-Copper	1:10,000
NS 45-902-2	-Lead	"
NS 45-902-3	-Zinc	"
NS 45-902-4	Simpsons Lake Soil Geochemistry-Copper	1:10,000
NS 45-902-5	-Lead	"
NS 45-902-6	-Zinc	"
NS 45-901-1	Canfield Creek-Induced Polarization and S.P. Grid	1:2500
NS 45-901-2	-S.P. & I.P. Survey Line 1	"
NS 45-901-3	-S.P. & I.P. Survey Line 2	"
NS 45-904-1	Flemming Brook Prospecting	1"=400 m
NS 45-906-1	NS 45 Claim Block Outline, Diamond Drill Hole Location Plan and General Geology	1:250,000
NS 45-906-2	Canfield Creek Drill Hole Location Plan and Geology	1:2500
NS 45-906-3	Diamond Drill Section 73450 N	1:500
NS 45-906-4	73550 N	"
NS 45-906-5	P4,P5,P6	"
NS 45-906-6	73600 N	"
NS 45-906-7	73300 N	"

<u>Dwg. No.</u>	<u>Title</u>	<u>Scale</u>
NS 45-906-8	Diamond Drill Section 73500 N	1:500
NS 45-906-9	369950 E	"
NS 45-906-10	369450 E	"
NS 45-906-11	369850 E	"
NS 45-906-12	369600 E	"
NS 45-906-13	369750 E	"
NS 45-906-14	P25+P56	"
NS 45-906-15	P26	"
NS 45-906-16	P27	"
NS 45-906-17	P28	"
NS 45-906-18	P29+P55	"
NS 45-906-19	P30	"
NS 45-906-20	P31	"
NS 45-906-21	P32	"
NS 45-906-22	P33	"
NS 45-906-23	P34	"
NS 45-906-24	P35	"
NS 45-906-25	P36	"
NS 45-906-26	P37	"
NS 45-906-27	P39	"
NS 45-906-28	P43	"
NS 45-906-29	P46	"
NS 45-906-30	P47	"
NS 45-906-31	P48	"
NS 45-906-32	P57	"

INTRODUCTION

Several copper showings, some of which have been mined on a small scale, are present in grey sandstone of the Pennsylvanian Pictou Group.

During 1980-1981, a regional appraisal of this mineralization was undertaken, supplemented by detailed investigation of one of the more promising areas at Canfield Creek.

The surveys confirmed the presence of copper mineralization of economic potential; the most important deposit being 300,000 tonnes grading 1.2 % copper at Canfield Creek.

LOCATION AND ACCESS

The Pugwash group of licenses is located in Northwestern Nova Scotia. They occupy an area between Amherst in the west, Pictou in the east, Wentworth and Oxford in the south and the Northumberland Strait on the north.

Much of the area is open farmland, with the remainder being lightly forested.

Access is good throughout with paved and gravel roads serving the entire area.

PROPERTY

The Pugwash group of licenses as of September 2 consists of
1083 claims held in 29 licenses.

<u>License</u>	<u>Sheet</u>	<u>Whole Tracts + Claims</u>
6167	11E13A	Tract 9, E,F,G,H,J,K,L,M,N,O,P,Q + Tract 10, E,F,G,H,J,K,L,M,N,O,P,Q + Tract 11, E,F,G,H,J,K,L,M,N,O,P,Q
6168	11E13A	28,29 + Tract 27 Claims J,K,L,M,N,O,P,Q
6171	11E13A	55,56,57
6172	11E13A	44,45
6173	11E13A	46
6174	11E13A	18,19
6175	11E13A	15,16,17
6176	11E13A	30,31,42,43
6177	11E13A	32,33,34,40,41
6178	11E13A	39,58
6202	11E11C	42 + Tract 31 Claims J,K,L,M,N,O,P,Q
6203	11E11C	58,59,60 + Tract 39 Claims J,K,L,M,N, O,P,Q
6206	11E11C	19 + Tract 17 Claims A,B,C,D,E,F,G,H and Tract 18 A,B,C,D,E,F,G,H
6207	11E11C	40,41 + Tract 57 Claims A,B,C,D,E,F, G,H
6434	11E11C	Tract 30 Claims J,K,L,M,N,O,P,Q, + Tract 43 Claims A,B,C,D,E,F,G,H, + Tract 44 Claims A,B,C,D,E,F,G,H, + Tract 29 Claims L,M,N,O,P,Q

<u>License</u>	<u>Sheet</u>	<u>Whole Tracts + Claims</u>
6234	11E12D	Tract 53 Claims J,K,L,M,N,O,P,Q
6235	11E12D	69 + Tract 51 Claims J,K,L,M,N,O,P,Q and Tract 52 Claims J,K,L,M,N,O,P,Q
6236	11E12D	Tract 49 Claims J,K,L,M,N,O,P,Q and Tract 50 Claims J,K,L,M,N,O,P,Q
6239	11E12D	70,71,72,73
6238	11E12D	68 + Tract 77 Claims A,B,C,D,E,F,G,H
6241	11E12D	75,76,93,94
6264	11E13B	67.78
6265	11E13B	57
6266	11E13B	Tract 39 Claims N,O,P,Q + Tract 58 Claims A,B,C,D,E,F,G,H,J,K,L,M
6271	11E13B	Tract 92 Claims A,H,J + Tract 93 Claims A,B,C,D,E,F,G,H,J,K,L,M + Tract 94 Claims C,D,E,F,L,M
6330	11E13B	47 + Tract 49 Claims C,D,E,F,L,M,N,O + Tract 50 Claims A,B,G,H,J,K,P,Q
6218	11E11D	34,35
6332	11E12C	97,98,99,100,101
6335	11E12C	82,83 + Tract 63 Claims N,O,P,Q

HISTORY

The grey sandstones of the Pennsylvanian Pictou Group have for many years been known to contain widespread copper mineralization in subeconomic quantities. A few areas, such as Flemming Brook Mine, Riverside Mine and King Mine, produced small quantities of ore but generally no significant mineralization was discovered below 30 or 40 foot depths on any of the deposits.

Intermittent exploration has been carried out over the past 100 years. The most recent work for copper mineralization was that performed by Kennco Explorations (Canada) in 1955. They conducted geochemical, geophysical, and diamond drilling surveys. Only very minor copper values (up to 0.15%) were obtained in drill core, and apart from some weak anomalous uranium values, there was no real encouragement for further exploration. Kennco concluded that any copper or uranium mineralization in the area was of supergene origin, and was limited to present day erosional levels.

Cominco, Lacana, Norcen, and Noranda conducted exploration programs for uranium in the Pugwash, Tatamagouche and River John area without any success.

In August 1980, Esso Resources Canada acquired mineral rights to a large area of land covering the ground between Pictou and Amherst.

GEOLOGY

The Cumberland Basin is underlain by Upper Carboniferous Pennsylvanian Pictou Group clastic sediments. These predominantly Red Bed sandstones and mudstones have a total thickness of 2000 metres. The Pictou Group unconformably overlies Pennsylvanian Cumberland and Riversdale Groups which are both mainly Red Bed clastic sequences. These groups, in turn, are underlain by Lower Carboniferous Windsor Group rocks which consist of limestones, evaporites and shales.

The Claremont Anticline divides the area into two sub basins; one centred on Pugwash and the other in Tatamagouche. Locally, Windsor Group diapirs have pierced the Pictou Group clastics to produce salt and gypsum domes in the Pugwash Basin. Salt is being mined in one of these diapirs in Pugwash.

Copper mineralization is present through the Cumberland Basin as chalcocite nodules associated with carbonaceous material (plant debris) in grey sandstones, which are generally thin (up to 30 metres), in relation to the Red Bed section.

In the Canfield Creek Dome area the evaporite diapirs have domed the Pictou Group rocks, which on the east and north of the dome dip at about 30° off the dome. Within the grey sandstones of the Pictou Group,

in this area a zone of copper mineralization has been outlined. Pyrite mineralization is also present and occurs at a slightly higher stratigraphic level than the copper.

It is unlikely that the presence of an evaporite dome has had any major control on the distribution of copper mineralization.

No evaporites are known in the Tatamagouche Basin in the vicinity of Wentworth where significant copper mineralization is also present.

PROSPECTING

Reconnaissance prospecting was carried out along roads throughout the license area. Areas of grey sandstone were noted and particular attention was paid to areas of known copper mineralization.

Many of the previously known showings were visited. Copper mineralization was located in some, but other showings were overgrown and no evidence of mineralization was noted.

A few minor new showings were located, mostly consisting of trace to minor malachite, which appears to be widespread in the grey sandstones of the Pictou Group rocks.

SOIL GEOCHEMISTRY

Soil geochemical surveys were carried out over parts of licenses 6177, 6172, 6173 and 6170, covering the flanks of the Canfield Creek and Simpson's Lake domes.

Sample spacing was on a 100 x 100 metre grid, with #80 mesh B horizon material being analyzed for copper, lead and zinc.

Results of the sampling revealed only spotty high copper values (244 PPM maximum) on the north of the Canfield Creek dome. Two samples, also on the north flank of the Canfield Creek dome, gave peak values of 1144 PPM lead and 695 PPM zinc.

Assay results of geochemical soil sampling on the Simpsons Lake dome (licenses 6170, 6172, and 6173) showed 3 anomalous lead values, with a peak of 352 PPM close to a road. Zinc values showed four values higher than 100 PPM with a peak of 192 PPM. No significant anomalous copper values were noted.

Soil samples were analyzed by atomic absorption spectrometer by Atlantic Industrial Research Institute, Mineral Investigation Laboratory.

GEOPHYSICS

Following definition of the copper mineralized zone on the northeast flank of Canfield Creek Dome, an orientation program of Induced Polarization and SP surveying was carried out to try and establish a typical response for this type of mineralization in the Cumberland Basin.

A McPhar P660 Induced Polarization system (frequency domain) was used for the IP survey and a Scintrex IPR-10 unit for the SP survey.

The results from the SP survey showed no response to the mineralization.

The IP results for both lines were similar. A weak anomalous PFE response was observed on line 1. A drill hole would not have been recommended based on this response. Therefore, no further IP surveying is recommended.

ESSO MINERALS CANADA — DIAMOND DRILL HOLE SUMMARY

HOLE	DEPTH	ANGLE	AZ.	U. T. M.			started	finished	overburden	mineral interval	Copper %	Cumulative DEPTH (m)		
				EASTING	NORTHING	ELEV.								
P1	93.9	90°		370,130	73,450	1041	20 Aug	23 Aug 80	12.7	74.3 - 82.4	0.38 / 8.1 m	93.9		
P2	19.9	90°		370,150	73,300	1038	17 Dec	18 Dec	10.0	—	—	173.8		
P3	66.8	90°		370,080	73,450	1037	19 Dec	19 Dec	12.3	—	1.56 / 6.1 m	240.6		
P4	105.75	90°		370,170	73,450	1042	25 Jan 81	26 Jan	21.3	—	NIL	346.35		
P5	93.6	90°		370,140	73,400	1040	27 Jan	28 Jan		—	NIL	439.95		
P6	50.9	90°		370,110	73,365	1037	28 Jan	29 Jan	12.3	—	NIL	490.85		
P7	116.1	90°		370,150	73,550	1037	29 Jan	2 Feb		—	NIL	606.9		
P8	43.9	90°		370,030	73,450	1036	3 Feb	3 Feb	12.2	22.8 - 28.9	1.12 / 6.1 m	650.8		
P9	72.2	90°		370,050	73,500	1038	4 Feb	4 Feb		57.8 - 63.0	2.03 / 5.2 m	723.0		
P10	46.6	90°		370,000	73,500	1036	5 Feb	5 Feb	9.1	34.6 - 37.2	2.17 / 2.6 m	769.6		
P11	87.5	90°		370,050	73,550	1037	6 Feb	11 Feb	9.1	71.2 - 79.75	0.43 / 8.45 m	857.1		
P12	108.8	90°		370,100	73,550	1037	11 Feb	12 Feb	9.1	92.2 - 93.5 97.9 - 101.6	0.7 / 4.75 m	965.9		
P13	57.0	90°		370,000	73,550	1036	13 Feb	14 Feb		47.9 - 49.4	1.66 / 1.5 m	1022.9		
P14	25.0	90°		369,950	73,550	1034	14 Feb	14 Feb	14.0	29.2 - 29.6	0.27 / 0.4 m	1057.9		
P15	75.3	90°		370,000	73,600	1035	15 Feb	15 Feb	10.4	67.9 - 68.6	0.2 / 0.7 m	1193.2		
P16	77.7	90°		369,950	73,650	1032	16 Feb	16 Feb		—	NIL	1210.9		
P17	41.1	90°		369,850	73,650	1027	17 Feb	17 Feb	9.1	—	NIL	1252.0		
P18	63.1	90°		369,850	73,700	1025	18 Feb	18 Feb	9.1	—	NIL	1315.1		
P19	87.5	90°		369,750	73,750	1022	19 Feb	20 Feb		NIL	NIL	1402.6		
P20	99.7	90°		370,050	73,600	1036	20 Feb	21 Feb		NIL	NIL	1502.3		
P21	117.3	90°		370,100	73,600	1036	21 Feb	22 Feb	9.8	NIL	NIL	1619.6		
P22	124.0	90°		369,600	73,800	1012	23 Feb	24 Feb	10.7	62.6 - 63.8	3.12 / 1.2 m	1743.6		
P23	108.8	90°		369,600	73,850	1012	24 Feb	25 Feb		NIL	NIL	1852.4		
P24	108.8	90°		369,450	73,850	1011	25 Feb	26 Feb		NIL	NIL	1961.2		

ESSO MINERALS CANADA — DIAMOND DRILL HOLE SUMMARY

HOLE	DEPTH	ANGLE	AZ.	U. T. M.		ELEV. (m)	Started	finished	overburden (m)	mineral interval	Copper %	Cumulative Depth		
				EASTING	NORTHING									
P25	151.5	90°		377,900	5,064,130	10 m	1 June 81	2 June	6.18 m	147.2-148.4	0.56 / 1.2 m	2112.7		
P26	151.5	90°		378,600	5,061,650	49	3 June	4 June	5.5	—	—	2264.2		
P27	144.7	90°		376,050	5,071,750	15	4 June	5 June	9.0	—	—	2408.9		
P28	99.7	90°		454,100	5,073,500	10	5 June	5 June	4.4	—	—	2508.6		
P29	69.2	90°		367,250	5,068,550	16	6 June	6 June	6.2	10.25-10.58	0.87% / 0.33 m	2577.8		
P30	60.0	90°		366,020	5,070,800	13	6 June	6 June	6.1	—	—	2637.8		
P31	136.2	90°		366,800	5,073,850	16	7 June	7 June	6.03	—	—	2774.0		
P32	163.7	90°		362,400	5,069,850	46	8 June	10 June	4.90	47.26-48.15	0.10% / 0.9 m	2937.7		
P33	151.5	90°		348,050	5,064,480	15	11 June	11 June	2.3	—	—	3089.2		
P34	151.5	90°		355,400	5,067,000	8	12 June	12 June	10.2	—	—	3240.7		
P35	151.5	90°		359,800	5,073,950	15	13 June	14 June	15.0	—	—	3392.1		
P36	151.5	90°		353,560	5,078,200	30	14 June	15 June	3.7	—	—	3543.6		
P37	84.4	90°		358,800	5,079,400	15	15 June	15 June	7.8	—	—	3623.0		
P38	111.8	90°		350,950	5,081,999	30	16 June	16 June	3.7	—	—	3739.9		
P39	151.5	90°		394,300	6,063,600	61	18 June	19 June	5.3	11.74-12.2	0.22% / 0.45 m	3891.4		
P40	148.3	90°		333,550	5,073,850	30	19 June	20 June	6.4	—	—	4039.7		
P41	139.3	90°		334,530	5,082,700	30	20 June	21 June	5.18	—	—	4179.0		
P42	151.5	90°		339,270	5,090,580	8	21 June	22 June	9.45	120.0-121.0	0.19% / 1 m	4330.5		
P43	151.5	90°		385,190	5,060,540	60	23 June	23 June	5.8	139.95-140.05	0.25% / 0.2 m	4482.0		
P44	142.3	90°		385,600	5,066,150	53	24 June	24 June	6.2	—	—	4624.3		
P45	133.2	90°		394,300	6,063,600	30	25 June	25 June	7.95	—	—	4757.5		
P46	151.5	90°		394,350	5,059,900	30	26 June	26 June	7.9	—	—	4909.0		
P47	139.0	90°		293,520	5,055,750	76	27 June	27 June	7.22	—	—	5048.0		
P48	133.2	90°		405,250	5,097,500	46	28 June	28 June	11.27	—	—	5181.2		
P49	130.0	90°		414,650	5,059,100	61	29 June	29 June	6.95	—	—	5311.2		
P50	145.3	90°		419,250	5,062,500	61	30 June	30 June	11.4	—	—	5456.5		
P51	172.2	90°		191,750	5,068,180	16	1 July	2 July	8.26	—	—	5628.7		
P52	145.3	90°		192,100	5,064,020	67	5 July	6 July	3.5	—	—	5774.1		

ESSO MINERALS CANADA — DIAMOND DRILL HOLE SUMMARY

[illegible]

DIAMOND DRILLING(a) Canfield Creek Area

During August 1980, one hole (P1) was drilled on the east flank of the Canfield Creek Dome in License 6177.

Pennsylvanian red bed sandstones and shales were cut by the hole (P-1) which was completed at 93.9 metres. Grey sandstones with minor siltstone were intersected over the interval from 54.2 to 82.4 meters. Within this section, the 8.1 meter interval, from 74.3 to 82.4 meters averaged 0.58% copper.

A systematic drilling program on a 50 x 50 meter grid was carried out from December 1980 to February 1981 to define the mineralization obtained in hole P1.

A zone of copper mineralized, grey Pennsylvanian sandstone, was located dipping 30° to the northeast, off the flank of a Lower Carboniferous evaporite dome.

The Pennsylvanian Pictou Group, which hosts the mineralization, consists of up to 2000 meters thickness of red sandstone, shales and mudstones, with interbedded grey sandstone and shale.

The mineralization is generally confined to medium grained arkosic sandstones and medium grained cross bedded sandstones with dark finely laminated carbonaceous interbeds. As with the numerous surface showings in the region, black carbonaceous plant debris is commonly associated with the mineralization. The lithologies do not appear to change markedly down-dip, but along strike from the mineralized zone towards hole P2 on the southeast and Hole P17, P19 on the northwest, there is a definite change from sandstones to shales, which thin considerably, with accompanying fall off in mineralization.

It is interesting to note that hole P22 showed an increase in grey sandstone content (although only 2.4 meters thick compared with 20 - 30 meters thick on the mineralized zone). Hole 22 gave a mineralized intersection of 1.2 meters grading 3.12% copper. However, holes P23, 50 meters to the north and P24, 150 meters west failed to locate grey sandstone or shale at the expected stratigraphic levels.

On the northeastern flank of the dome, only one horizon of grey beds is present. In hole P22 three stratigraphic levels of grey beds were noted, the middle horizon containing copper mineralization. It is likely that individual "grey bed" horizon grade laterally into "red beds" and that the grey/red interfaces may not be wholly controlled by lithology.

Mineralization - Chalcocite is present as nodules up to 3 centimeters in diameter and as wispy infillings along bedding planes. Some lesser chalcocite is seen as 1 millimeter veinlets along fracture planes. Very minor covellite and chalcopyrite occur as veinlets, but do not play a significant role.

Copper mineralization is confined to the basal 2 to 8 meters of the grey sandstone unit. Pyrite in the form of rounded nodules occurs in quantities up to 5%, stratigraphically higher than the chalcocite and generally, there appears to be little overlap in chalcocite and pyrite mineralization.

(b) Reconnaissance Drilling

In June 1981, a reconnaissance drilling program was carried out to evaluate known showings and to test some of the more favorable locations for grey sandstone horizons. A total of 4434 meters was drilled in 33 holes, using one drill. Drill sites were chosen close to adequate water supplies and were situated adjacent to roads to reduce access problems. Minor copper mineralization was intersected in five holes, with traces noted in some of the other holes.

SUMMARY OF DRILL HOLESHoles P25 and P56 - License 6241 - Flemming Brook

Hole P25 was drilled on the north side of Flemming Brook on Highway 368. Hole P56 is located 85 meters due north of P25.

Both holes intersected red sandstones and mudstones, with subordinate grey sandstones and shales. Lithological correlations between holes show relatively flat dips. In hole P25, within a section of grey laminated sandstone, with carbonaceous trash from 147 to 149.5 meters, the interval from 147.2 to 148.36 (1.16 meters) assayed 0.56% copper. The equivalent sandstone horizon in hole P56 (148.8 - 150.5 meters) did not show any copper values (<100 PPM) of significance.

(see dwg. NS 45-906-14)

Hole P26 was drilled on the boundary of licenses 6235 and 6239 to test a possible down dip extension of copper mineralization seen at the site of the old Feeley Mine. Grey sandstones were intersected from 125.15 to 127.05 meters (1.9 meters). No copper mineralization was noted on the hole. Red and brown sandstones and mudstones were present throughout the remainder of the hole, which was completed at 151.5 meters. (dwg. NS 45-906-15)

Hole P27 - License 6168

Hole P27 was drilled 1 kilometer west of a copper showing. The rocks in the entire hole consisted of red and brown sandstones and shales. No copper mineralization was observed in the hole (dwg. NS 45-906-16)

Hole P28 - License 6172

Hole P28 was drilled on the western flank of the Simpsons Lake Dome. The dome does not outcrop, but sinkholes indicated its location. (dwg. NS 45-906-17)

Three zones of grey sandstone are present within the predominantly red siltstone sequence. Carbonaceous material in minor quantities is associated with two of these zones, but no copper sulphide mineralization was noted during logging.

Hole P29 and Hole P55 were drilled 800 and 650 meters southeast of Conns Mills in License 6175. (dwg. NS 45-906-18)

Hole P29, from 7.4 to 11.4 metres, grey laminated fine grained sandstone was cut. Within this section, coalified plant remains, with accompanying pyrite and chalcocite, was found. A section of 0.33 meters from 10.25 to 11.58 meters assayed 2.37% copper and 12.7 gm/tonne silver.

Below 11.44 meters, red brown mudstones and sandstones, with subordinate grey sandstones, were intersected to the end of the hole at 69.18 meters.

Hole P55 was drilled 150 meters to the north-northwest of P25 to test a possible downdip expression of the chalcocite mineralization in P26.

Similar lithologies were intersected showing an apparent dip along section of 4° to the northwest. Copper mineralization was not observed in this hole, but minor galena, up to 0.25% Pb over 0.23 meters, was present at 87.5 meters depth.

Hole P30 - License 6178

From base of overburden at 6.2 meters to 9.36 meters grey sandstones and conglomerates were intersected. Dark red and brown siltstone, mudstone and sandstone were present in the remainder of the hole (to 60.4 meters). No copper mineralization was noted. (dwg. NS 45-906-19)

Hole P31 - License 6178

This hole intersected brown sandstones and siltstones with minor grey sandstone, 24.95 to 25.85 meters and 91.15 to 98.55 meters. No copper mineralization was present. (dwg NS 45-906-20)

Hole P32 - License 6332

Located on bush track between Roslin and Hansford, 500 meters north of CN railway.

This hole drilled to 163.7 meters passed through red brown mudstones, siltstone and sandstones with the exception of the following grey sandstone sections: (a) 46.2 to 48.4 meters with minor carbonaceous stringers (47.25 - 48.15 meters assayed 0.1% copper) (b) 140.0 to 154.33 meters, medium to coarse grained grey sandstone with conglomeratic sections. (dwg NS 45-906-21)

Hole P33 - License 6235

Location near Black River 7.3 kilometers west-southwest of Oxford.

This hole intersected red brown sandstones and siltstones with minor conglomerate over much of its length. Minor sections of grey sandstone were present from 109.1 to 112.3 meters. Total depth was 151.5 meters. (dwg NS 45-906-22)

Hole P34 - License 6332

This hole was drilled 1.5 kilometers east-northeast of the town of Oxford.

The upper section of this hole (to 39 meters) consisted of conglomerate and sandstones. From 39 to 140 meters grey arkosic sandstone and minor conglomerate were cut. Below 140 meters mottled red brown siltstones and mudstones were intersected to the end of the hole at 151.5 meters (dwg. NS 45-906-23)

Hole P35 - License 6330

This hole was drilled near Dicksons Brook and consisted mainly of red brown mudstones and siltstones to 29.7 meters.

From 29.7 to 36.6 meters medium grey thin bedded sandstone was present below which reddish brown sandstones, siltstones and mudstones were intersected to the end of the hole at 151.58 meters. No copper mineralization was present. (dwg. NS 45-906-24)

Hole P36 - License 6264

This hole was drilled on Smiths Brook near the road between Mt. Pleasant and Shinimicas. Red brown siltstones, mudstones and sandstones were intersected throughout the 151.5 meters of this hole, with the exception of grey brown siltstones and sandstones, which were intersected from 51.3 - 52.0 meters. No copper mineralization was present. (dwg. NS 45-906-25)

Hole P37 - Licenses 6265 and 6266

This hole is located 1 kilometer north of Mansfield and was drilled to a depth of 84.4 meters.

Red brown to brown grey siltstones mudstone and sandstones were present over most of the hole. Greenish grey sandstone was cut from 51.5 - 54.0 meters and 58.7 - 61.5 meters. No copper mineralization was present. (dwg. NS 45-906-26).

Hole P39 - Licenses 3265 and 3266

This hole was drilled on the boundary of Licenses 3265 and 3266, 1 kilometer northeast of Mansfield.

The rock types encountered in this hole were red brown sandstone, with minor mudstone and conglomerate. Grey shale was present from 11.5 to 12.35 meters and grey sandstone from 91.8 to 97.7 meters. The hole was completed at 151.5 meters. (dwg NS 45-906-27).

Copper values of 0.22% and silver values of 4.1 grams/ton were obtained in grey shale from 11.74 to 12.2 meters (0.46 meters).

Hole P43 - License 6203

This hole was drilled near the highway, 1 kilometer east of the southern end of Mattatall Lake.

Red brown and brown mudstones, siltstone and sandstones were intersected in this hole with the exception of: (a) 64.4 to 65.3 meters grey black shale, (b) 137.7 to 140.15 greenish grey sandstone. This latter sandstone unit assayed 0.28% copper over the 0.2 meter interval from 139.85 to 140.05 meters. (dwg. NS 45-906-28)

Hole P46 - License 6434

Hole P46 was drilled near the road crossing Donaldson Mill Brook 4 kilometers north of New West Annan.

The hole intersected grey sandstone from 92.65 to 99.8 meters. No significant copper values were obtained. The remainder of the hole was drilled in red and brown siltstone and sandstone. (dwg. NS 45-906-29)

Hole P47 - License 6206

Hole P47 was drilled in New West Annan, just to the south of the town near French River.

From overburden at 7.2 meters to 50.8 meters, dark brown to red

brown siltstones and sandstones were intersected. From 50.8 to 136.2, grey laminated sandstones and shale with disseminated pyrite was present. Several sections of this interval were assayed but all copper values were less than 100 ppm. Red brown siltstone was present from 136.2 to the end of the hole at 139.3 meters. (dwg. NS 45-906-30)

Hole P48 - License 6218

Hole P47 was drilled 1.5 kilometers northwest of Balmoral Mills to test a possible downdip extension of malachite mineralization seen in bedrock.

The hole collared in grey sandstones and shales, probably representing the units showing malachite at surface. These rocks were present to 20.0 meters, below which red brown sandstones and siltstones were present to 91.9 meters. From 91.9 to 94.7 meters, pale grey sandstone was intersected. From 94.7 to the end of the hole at 133.2 meters, red brown sandstone and siltstone were present, with the exception of a 3 meter section of grey sandstone at 122.6 to 125.6 meters.

Assay results from the grey beds sections failed to produce any significant copper values. (dwg. NS 45-906-31)

Hole P57 - License 6234

Hole P57 was drilled on the west branch of the Wallace River, 6 kilometers northeast of Grenville Station.

The hole intersected red and brown mudstones and siltstones with subordinate sandstones, in a number of fining upward sequences. No grey sandstones were present. (dwg. NS 45-906-32)

Drill core samples were analyzed by Atomic Absorption Spectrometer by Atlantic Industrial Research Institute and the mine assay laboratory at Gays River.

The following holes were drilled on licenses which are not being renewed. Drill logs for these holes are enclosed with the report. No mineralization of significance was noted in these holes:

<u>Hole</u>	<u>License</u>
P38	6250
P40	6291
P41	6314
P42	6323
P44	6212
P45	6209
P49	6221
P50	6225
P51	6193
P52	6191
P53	6194

REFERENCES

- Brummer J. J. (1955) Report on operations on the
King Copper Closure Cumberland
County Nova Scotia
- Fletcher H. (1905) Malagash Sheet No. 60 G.S.C. No.
794 1"=1 mile
(1905) Pugwash Sheet No. 61 G.S.C. No.
795 1"=1 mile
- Messervey J. P. (1929) Copper in Nova Scotia Pamphlet
No. 7 1929 N.S. Dept. of Public
Works and Mines

11E/13A 13-E-33(01)

PUGWASH N.S. 45

ASSESSMENT REPORT **484260**

APPENDIX 1: DRILL LOGS

John O'Sullivan
August 1981

Part 3

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash N.S. 45. . . . LOCATION Pugwash Nova Scotia . Li: 6.77
 NTS CODE 11E.13A . - 41 HOLE NO. P-1 Depth 93.9m

LATITUDE N. 45° 48.0' AZIMUTH - PURPOSE
 DEPARTURE W. 63° 39.6' DIP - 90° STARTED 20 August 1980
 ELEVATION 1041m CORE NQ WIRELINE COMPLETED 23 August 1980
 SECTION LOGGED BY J. O'Sullivan
 REF. GRID UTM 370130E . . 73450N

DIP TESTS

FOOTAGE				DIP		LATITUDE		DEPARTURE	
TEST	FROM	TO	TOTAL		CORR.		CUM.		CUM.

RECEIVED
 14 13 81
 MINES
 NOVA SCOTIA

FOOTAGE METERS		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	12.7	<u>TRICONES</u> . Probable overburden 9 m.								
12.7	16.5	<u>BROWN SANDSTONE</u> 12.7 - 16.0 Brown medium to fine grained sandstone micaceous - bedding 63 to 55° core axis Some laminar reduction zones bedding. 16.0 - 16.5 grey laminated sandstone - fine black micaceous laminae - bedding 60° c/a.								
16.5	25.2	<u>Brown Siltstone / MUDSTONE</u> 16.5 - 17.6 Reddish brown mudstone with 8cm band gray siltstone at 17.0 m. A few nodular limonitic blebs at 17.3 m. (abt. 2cm) 17.6 - 19.1 Brown siltstone poorly defined bedding 70° core axis nodular pale siltstone clast at 17.9 m. 19.1 - 23.0 Brown silty mudstone - poorly defined bedding - minor blotchy green reduction wisps below 20 m. 23.0 - 23.4 gray siltstone - mud seam at base 23.4 - 23.9 Brown silty mudstone 23.9 - 25.2 Red brown mudstone								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
25.2	26.2	<u>BROWN SANDSTONE</u> grading to grey at base - fine grained micaceous - bedding 60° core axis.								
26.2	37.0	<u>RED BROWN MUDSTONE and SILTSTONE</u> 26.2 - 28.4 Red brown silty mudstone 28.4 - 28.9 Brown micaceous siltstone wavy bedding. - generally 70° core axis 28.9 - 31.1 Brown silty mudstone 31.1 - 32.2 Brown mudstone 32.2 - 33.7 Brown silty mudstone grading downward through siltstone to grey fine grained sandstone (crossbedded) at base. 33.7 - 34.4 Brown mudstone 34.4 - 37.0 Silty mudstone grading downward to brown siltstone.								
37.0	52.0	<u>BROWN SANDSTONE</u> 37.0 - 41.45 Brown sandstone micaceous fine grained bedding 45° core axis 41.45 - 42.1 Red brown mudstone - poorly consolidated 42.1 - 43.8 Brown medium to coarse grained sandstone min grey silt. bedding 60° core axis 43.8 - 51.0 Brown medium grained micaceous sandstone micaceous. 51.0 - 52.0 Conglomerate - rounded red brown mudstone clasts in a sandstone matrix - limonite concretions common.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Clay	Silver		AVERAGES
52.0	54.2	<u>Red Brown MUDSTONE</u> Red brown Mudstone with minor micaceous siltstone minor laminite								
54.2	82.4	<u>GREY SANDSTONE</u>								
	54.2 - 57.5	Medium grey laminated Shale. Sheared 55.2 - 55.6 m.								
	57.5 - 62.5	Medium grey fine grained sandstone coarser at base - some cross bedding bedding 65° core axis								
	62.5 - 63.2	Medium grey fine grained sandstone Laminated with black carbonaceous and micaceous material along bedding plane minor plant debris and pyrite								
	63.2 - 65.0	medium grained grey ss. uniform with minor black carbonaceous material along bedding planes - minor pyrite. bedding 70° core axis								
	65.0 - 66.6	Medium grey medium to coarse grained Sandstone - micaceous - minor black carbonaceous material - trace pyrite								
	66.6 - 67.5	Pale grey laminated grey siltstone and mudstone.	8401	66.6	67.5	0.9	0.031			
	67.5 - 73.1	Grey medium grained sandstone minor nodules of clay in upper 50 cm Pyrite development along fractures and bedding planes associated with carbonaceous material.	8402	67.5	69.0	1.5	0.016			
		Scattered laminations of black micaceous and carbonaceous material + pyrite and minor chlorite and bentonite (71.3 m) bedding 50° core axis	8403	69.0	70.5	1.5	0.014			
			8404	70.5	72.0	1.5	0.033			
			8405	72.0	73.5	1.5	0.04			

-FOOTAGE Feet		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Copper			AVERAGES
54.2		GREY SANDSTONE (contd)								
82.4 Contd.	73.1 - 73.5	Medium Gray laminated Siltstone								
	73.5 - 74.0	gray medium grained micaceous Sandstone. Trace chalcocite	8406	73.5	74.3	0.8	0.09			
	74.0 - 74.3	Laminated grey shale grading down to medium grained sandstone - black Carbonaceous partings along bedding planes.								
	74.3 - 75.6	Laminated medium fine grained Sandstone. black carbonaceous material along bedding planes + chalcocite as blebs up to 2cm. Crystalline chalcocite and pyrite at 75.0m.	8407	74.3	75.6	1.3	1.2			
	75.6 - 78.0	Gray medium grained Sandstone no well defined bedding.	8408	75.6	76.6	1.0	0.39			
	76.0 - 76.3	Roller nodules silty inclusions some scattered traces chalcocite along thin fractures and as blebs.	8409	76.6	78.0	1.4	0.10			
	78.0 - 78.7	Laminated pale-medium gray Siltstone - scattered blebs chalcocite dips 45° core axis	8410	78.0	78.7	0.7	0.93			
	78.7 - 79.9	Gray Medium grained Sandstone Some thin wispy carbonaceous material along bedding planes + minor chalcocite in fractures	8411	78.7	79.9	1.2	0.22			
	79.9 - 81.4	Laminated medium gray fine t. medium grained Sandstone. black carbonaceous partings with chalcocite in bands up to 3mm. bedding 60° core axis	8412	79.9	81.4	1.5	0.90			

FOOTAGE - meters		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	Copper			AVERAGES
54.2	82.4	81.4 - 82.4 Medium grey medium grained Sandstone trace to minor chert along fractures and associated with carbonaceous material along bedding planes - trace pyrite. Slightly conglomeratic towards base where chert content increases.	8413	81.4	82.4	1.0	0.37			
82.4	93.9 m end. (308 ft.)	<u>Red Brown MUDSTONE and SILTSTONE</u> 82.4 - 90.0 Red brown mudstone micaceous 84.7 - 85.5 90.0 - 93.9 Red brown siltstone uniform texture.	8414	82.4	83.9	1.5	0.07			
	93.9 end of hole.									

Essential Minerals

CORE SAMPLES

FOOTAGE		DESCRIPTION	NO.	FROM	TO	WIDTH					AVERAGES
FROM	TO										
C	10.2m	Overburden									
10.2	19.5	Greyish Brown SASN / SHALE <u>10.2-10.5</u> Reddish brown thin bedded hematitic shale Bp. 65°C/a <u>10.5-18.1m</u> Brownish grey uniform massive micaceous SASN. - Minor hematite staining along fracture planes. - Minor laminated/cross laminated siltstn interbedded with SASN. <u>18.1-19.2</u> Reddish brown thin bedded medium grained SASN. Minor red brown clasts ± 1cm in size, randomly distributed. (18.7-18.9) Hematite stained friable soft shale. Bp. 60°C/a <u>19.2-19.5</u> Red brown friable waxy shale grades into a grey shale. Grey Shale / Mdsstn / Sandstones <u>19.5-19.7</u> medium grey friable fissile shale - slightly fossiliferous. Bp. 60°C/a <u>19.7-20.7</u> Greenish grey thinly laminated shale. <u>20.7-21.5</u> Pale grey lenses + laminae of siltstn interbedded with brownish shale.									
19.5	34.6										

P-2

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>21.5-24.3</u> Greenish grey thinly laminated fissile mudstn. - Minor Fe staining along fractures. <u>B.p. 70°C/a</u> <u>24.3-26.2</u> Grey black fossiliferous shale. <u>26.2-27.5</u> Medium grey fissile thinly laminated mudstn. - Minor cross laminations of pale grey calcareous siltstone. <u>B.p. 60°C/a</u> <u>27.5-28.3</u> Dark grey to black fossiliferous shale. <u>28.3-30.7</u> Medium grey soft fissile mudstn. (Broken up, fractured) <u>30.7-34.0m</u> - Pale grey laminated medium grained micaceous slightly calcareous ssns, grades into a pale white coarse grained calcareous ssns around 31.6 m. - Minor lense like interbedded carbonaceous material. (32.6-32.9) Pale grey <u>B.p. 65°C/a</u> massive coarse grained calcareous ssns, numerous carbonaceous lenses, peels & laminae intermixed with pyritic granules & stringers. - Minor small grey silty clasts & 5mm in size. <u>34.0-34.4</u> Greenish grey calcareous silty pebble conglomerate. Pebbles are elliptical/rounded // to bedding <u>60°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
34.4	93.6	34.4-34.6 Greenish grey fissile mudstone. <u>Red Brown Siltstn / SASN / Mudstns</u> 34.6-35.5 Greenish grey fissile laminated silty mudstn. Slightly mottled, minor greenish grey blebs & blotches. 35.5-39.0m Dark reddish brown thinly laminated siltstone - " minor small calcite clasts ≤ 2 mm in size. " minor cross laminations. <u>Bp. 55°C/a</u> 39.0m - 43.0m Dark reddish brown fissile friable mudstn - minor calcite clasts & hematite staining. Numerous greenish grey blotches throughout. <u>Bp. poor $\approx 60^\circ\text{C/a}$</u> 43.0m - 45.9 Brown laminated very fine grained SASN. <u>Bp. poor $\approx 58^\circ\text{C/a}$</u> - minor calcite clasts. 45.9 - 64.0m Reddish brown to dark brown laminated / massive siltstones + mudstones. Grey green friable mottled shale betw 58.0m - 58.7m. Minor hematite staining. <u>Aur Bp 60-70°C/a</u>									

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
		64.0m - 66.5m Greyish brown laminated interbedded red brown siltstone. <u>Bp. 55°/a</u>									
		66.5 - 67.5 Greyish black fissile mudstone.									
		67.5 - 71.3 Reddish brown thin bedded fissile sandy siltstone. Numerous argillaceous clasts.									
		bln. 71.0 - 71.3m. <u>Bp. 60°/a</u>									
		71.3m - 78.5 Greyish brown fine to medium grained micaceous ss. Numerous red brown argillaceous clasts 4 1cm in size, 78.0 - 78.5m.									
		78.5m - 84.3 Dark brown pitted friable silty mudstone. Minor hematite staining. Minor greenish grey blebs & blotches. (Mudstone tends to have a weathered/waxy texture. Bedding plane very poor.)									
		84.3 - 91.7 Brownish grey very fine grained ss. lenses, pods, & laminae interbedded with brown hematite stained siltstone.									
End of hole		91.7 - 93.6m Reddish brown sandy siltstone with numerous greenish grey blotches.									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY . . . PUGWASH . . . N. S. 45

LOCATION . . . PUGWASH . N.S. . 45 . . . L: 6177

NTS CODE 11 E 13 A 41

HOLE NO. ... P-3 ... Depth. 66.8m. ..

LATITUDE N. 45° 48'

AZIMUTH

PURPOSE Follow up Cu mineralization outlined in P-1.

DEPARTURE . . . W 63° 39.6' . . .

DIP -90°

STARTED ... 19th Dec. 1980

ELEVATION

CORE 30 wireline

COMPLETED . 19th Dec. 80

SECTION

Depth 66.8 metres

LOGGED BY *John O. Sullivan*

REF. GRID UTM. 370,980.E. .73,450.N

DIP TESTS

[illegible]

FOOTAGE DEPTH metres		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	10.5	<u>OVERBURDEN</u>								
10.5	30.7	<u>RED BROWN SANDSTONE / MUDSTONE</u>								
	10.5 to 12.3	Red br. clay/mudstone - poor core recovery to 11.9 m.								
	12.3 to 13.6	med. fine grained Red br. SST. bedding 65° c/a								
	13.6 to 16.4	medium grained Red br. SST. Reduction zone bottom 5 cm to gray sst. bedding 60° c/a								
	16.4 to 17.0	Red br. mudstone conglomerate 5 cm green reduction band at 16.6								
	17.0 to 19.2	medium grained Br. SST. some concretions limonitic blebs at base - poorly defined bedding								
	19.2 to 23.2	medium coarse grained Red br. SST. feldspar grains common - nodular limonitic concretions								
	23.2 to 28.6	as above but more micaceous with bedding better defined (55° c/a) 26.1 3 cm conglomeratic band with limonite development 26.7 - 27.5 nodular partly calcareous conglomerate with limonite concretions. 27.5 - 28.6 bedding 40° c/a								
	28.6 to 28.7	Calcareous band with nodular limonite and sand								

FOOTAGE depth meters		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
10.5	30.7	28.7 to 30.7 Red br. Shale - becoming grayer and more reduced at base (some crossbedded siltstone) bedding 70° c/a.								
30.7	56.3	GREY BEDS - SANDSTONE								
		30.7 to 31.9 grey <u>Shale</u> - fissile bedding 65° c/a minor fault gouge 31.6 - 31.8 m.								
		31.9 to 34.2 grey <u>Shale</u> - poorly bedded								
		34.2 to 38.2 gray medium grained <u>SST.</u> black wispy carbonaceous interbeds notably over 36.0 to 36.7 m								
		37.5 } scattered nodular pyrite wh to 2 cm.								
		36.1 to 36.5 }								
		38.2 to 40.0 Coarse Arkosic <u>SST.</u> gray 39.2 wispy carbonaceous band with blebs Pyrite. Slightly calcareous at base								
		40.0 to 42.3 Medium grained gray <u>SST.</u> bedding prominent with wispy carbonaceous material along bedding planes. Scattered pyrite blebs associated with carbonaceous material at 42.1 to 42.3 m bedding 70° c/a. to 50° c/a 10 cm. gouge zone at base.								
		42.3 to 42.9 Pale gray <u>Shale</u> bedding 65° c/a 5 cm gouge zone at base.								
		42.9 to 44.0 medium grained gray Arkosic <u>SST</u> poorly defined bedding								

FOOTAGE depth meters		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH		Copper %		AVERAGES
30.7	56.3	GREY BEDS - SANDSTONE (contd.)								
	44.0 to 45.2	medium grained <u>SST</u> - minn wispy carbonaceous material. (Laminated SST)								
	45.2 - 47.1	<u>Concretion</u> - calcareous nodules in gray medium grained sandstone matrix								
	47.1 - 48.5	Laminated medium grained gray <u>SST</u> some pyrite nodules Carbonaceous material along bedding Planes 70° c/a.								
	(equivalent to 74.3-75.6m in hole P-1)									
	48.5 - 49.8	Pale gray Siltstone - poorly bedded at top becoming more pronounced at base - some crossbedding								
	49.8-52.2	Fine grained gray Sandstone - finely Laminated with minor black carbonaceous banding along bedding planes. Scattered Pyrite blebs at Top	8415	49.8	50.8	1.0m		0.46		
		50.1-50.3 trace chalcocite including enargite minor chalcopyrite 50.8 2.5cm nodule chalcocite 51.3 scattered 3mm blebs chalcocite minor Co mineral 50.8-52.2	8416	50.8	52.2	1.4m		1.85		
	52.2 - 54.8	Medium grained Gray Sandstone Poorly bedded - very minor carbonaceous material	8417	52.2	53.7	1.5		0.42		
		53.7-54.8 Some darker nodules of shale included in SST. sparse chalcocite	8418	53.7	54.8	1.1m		0.45		

FOOTAGE depth meters		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH		Cu %		AVERAGES
30.7	56.3	GREY BEDS SANDSTONE (contd).								
		54.8 to 55.8 Laminated pale gray medium grained Sandstone. black carbonaceous material along bedding planes chalcocite as minor constituent along with carbonaceous material and as 1/4" nodules at 55.6 and 55.7 m. and larger nodules at 55.8	8419	54.8	55.8	1.0m		5.2	(7m Repeat from original report)	
		55.8 to 56.3 transition to pale brown shale/siltst wavy bedded at top. no visible mineralization.								
56.3	66.8 end	RED BEDS - SANDSTONE								
		56.3 - 61.0 Pale brown siltstone - some cross bedding grading downwards to sandstone.								
		61.0 - 64.6 Pale brown fine grained Sandstone some cross bedding								
		64.6 - 66.8 brown tinged grey sandstone fine to medium grained. bedding 60°								
	66.8m end of hole									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash, NS-45.....

LOCATION Pugwash, Nova Scotia. L: 6:77

NTS CODE .11E.13A.-41.....

HOLE NO. P-4 Depth 105.75 m.

LATITUDE . . N 45° 48'

AZIMUTH

PURPOSE

DEPARTURE . . N 63° 39.6'

DIP -90°

STARTED 25. January. 1981

ELEVATION . . . 1042 m

CORE ... 30 WIRE LINE ...

COMPLETED 24 January 1981

SECTION

LOGGED BY ~~J. O'Sullivan~~ D. MacDonald

REF. GRID KTM 370,170E. 73,450N

DIP TESTS

[illegible]

Esso Minerals P-4

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	21.5	<u>Over burden</u>								
21.5	21.8	<u>Red Brown Mudstone</u> 21.5 - 21.8 Reddish brown mudstone gradational to grey brown silt. Bedding not visible								
21.8	26.2	<u>Grey Brown Laminated silt/SASN</u> 21.8 - 26.2 Grey brown laminated silt , minor f.g. grey SASN lenses. Also hematite staining along fractures. Greenish grey blebs increase at base of unit. (Minor Specs of calcite 25-25.5) 60°C/a								
26.2	28.5	<u>Grey Brown SASN</u> 26.2-28.2 Uniform greyish brown micaceous SASN Hematite staining along fractures. 28.2-28.5 Brown-grey laminated micaceous SASN. Minor cross bedding visible. SASN also contains reddish brown clasts in basal section.								
28.5	29.3	<u>Red Brown Conglomerate</u> 28.5 - 29.3 Reddish brown Conglomerate with clasts ranging from 5cm majority 1cm, set in a pale grey sandy calcareous matrix. Hematite is also abundant in the matrix.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Pb	%Zn	Avg
29.3	31.8	<u>Grey Coarsegrained SASN / Reddish brown Mudstone</u> 29.3-30.2 Grey Coarsegrained laminated SASN (minor cross bedding); Also minor nodules of calcite + greenish grey silty blebs. 30.2-30.4 Small band of reddish brown mudstone; minor rounded greenish grey calc. nodules. 30.4-31.8 Red brown silty mudstone; minor silty laminations								
31.8	36.8	<u>Red Brown Mudstone</u> 31.8-36.8 Reddish brown mudstone showing mottled grey silty blotches + blebs throughout. 33.9-36.5 Mottled greenish grey blebs in Red mudstone show <u>Chalite + Pyrite mineralization</u> along fracture planes.	8477	33.9	36.5	2.6m	2001	0.02	0.03	21.0
36.8	38.4	<u>Reddish brown + Greenish grey mottled siltstone / mudstone.</u> 36.8-38.4 mottled reddish brown + greenish grey siltstone. no visible mineralization. 62°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
38.4	51.1	<u>Brown - Dark brownish Grey mottled silty mudstn.</u> 38.4 - 39.7 mottled greenish grey blotches within dark brown-grey fig ssnw. 39.7 - 51.1 Red brown to dark brown silty mudstn. Broken up 60-60.2. - Minor greenish grey reduction blotches throughout. - Silty & laminated from 42.5 - 44.0 m. - Broken up fissile 44.5 - 44.7 m. - 47.0m - 47.6m Laminated - cross laminated brown-grey fig. ssnw. - 50.6 - minor green grey reduction blotches. Above silty mudstn unit grades sharply to medium grained ssnw. 70°c/a <u>Brownish Grey medium/Fine Grained ssnw.</u> - dark brownish laminae // to bedding appear to be biolite rich. - Minor cross laminations poorly visible. 65°c/a								
51.1	55.4									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
55.4	57.1	<u>mottled grey brown laminated f.g. SASN.</u> 55.4-55.5 Fine grained greyish brown laminated - cross lamin. minor grey elongated calcareous blebs // bedding <i>64°c/a</i> 55.5-57.1 mottled c.b. laminated grey brown f.g. SASN, minor grey calcareous blebs <i>61cm</i> // to bedding.								
57.1	59.7	<u>57.1-59.1 Fairly Uniform brownish grey micaceous</u> <u>Fine grained SASN. Slightly</u> <u>graded bedding fine → medium grained.</u> SASN facies is gradational to under lying red brown pebble conglomerate.								
59.7	63.1	<u>Redish Brown Pebble Conglomerate</u> 59.7-63.1 Redish brown pebble cong set in white grey sandy matrix which is slightly calcareous. Clasts average size .5-1cm. <i>66°c/a</i>								
63.1	68.6	<u>Brownish Grey Sandstone</u> 63.1-66.0 Brownish grey laminated medium grained micaceous SASN. SASN tends to contain alternating dark brown + brownish grey laminations. 66-66.1 Brownish Red Cong set in a med grained cal SASN matrix. 66.1-66.7 Med grained brownish grey SASN, laminated + mottled brown grey // to bedding in top section, becoming uniform + coarser grained at base.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		66.7 - 66.8 Red silty + muddy subangular clasts randomly orientated in a grey white calcareous ss/s matrix.								
		66.8 - 66.9 Brownish Grey micaceous medium grained ss/s, minor red/green mudstn clasts $\leq .5$ cm.								
		66.9 - 67.0 Grey white calcareous coarse grained ss/s, numerous red/grey angular clasts.								
		67.0 - 67.7 Brown Grey fine $\rightarrow$ medium grained lam. ss/s, gradational fine to med. Minor white calcareous blotches at the base of each graded sequence. (Reacts slightly 10% HCl)								
		67.7 - 68.5 Fairly uniform brownish grey med gr. ss/s $\rightarrow$ laminated $\rightarrow$ gradational to coarse gr. ss/s.								
		68.5 - 68.6 Greenish Grey - coarse grained calcareous ss/s. Few Reddish Brown angular clasts at base of facies from underlying pebble cong.								
68.6	69.2	<u>Reddish Brown Pebble Cong</u>								
		68.2 - 69.2 Reddish brown angular $\rightarrow$ rounded red/grey clasts ≤ 3 cm $\uparrow$ to bedding set in a dark brown calcareous matrix								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
69.2	70.4	<u>Greenish Grey Mudstone</u> 69.2 - 69.4 Greenish Grey → Reddish brown mottled mudstone, fissile and waxy throughout. 68°C/a numerous Red Haematite staining & blotches surrounded by a yellow oxidized material 69.4 - 69.9 Grey to dark grey green mottled mudstone. Minor haematite blotches & lam. Some slickensiding at 69.8. 69.9 - 70.0 Dark Red haematite stained mudstone, friable, soft waxy. 70.0 - 70.4 Greenish Grey mottled mudstone numerous Red haematite blotches surrounded by dark yellowish material. 70°C/a								
70.4	71.0	<u>Grey Mudstone</u> 70.4 - 71.0 uniform grey mudstone, minor red haematite staining.								
		<u>Grey Carbonaceous Shale / Mdstn</u> 71.0 - 72.0 - Grey carbonaceous shale & carbonaceous mudstone, fossilized material along b.p. 70°C/a. - minor nodular pyrite with carb material 72.2 - 72.5 - Grey silty mudstone, laminated gradational to underlying ss. - Minor thread like lenses of carbonate present.								

9 mm x 3 cm

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	Ag $\frac{g}{tonne}$	AVERAGES
71.0	99.1	<u>Grey Sandstones</u>									
		71.0 - 78.8 Fine to medium grained laminated cross lam SASN. Thin laminations of black carbonaceous material. Minor nodules pyrite & 4cm ill to bedding 608/a (cross bedding, scouring throughout) Above grey SASN gradational to coarse grained grey laminated SASN.									
		78.8 - 81.0 Fairly uniform grey fine grained mic SASN. Minor laminations of carbonaceous material, along with small 6cm nodules pyrite.									
		81.0 - 85.0 Fine to Coarse grained graded SASN. Minor laminations of carbonaceous material along with small nodules pyrite & 3mm Coarser grained SASN has calcareous matrix.									
		85.0 - 86.0 Dark Grey Fossiliferous Mudstone - minor siltstone lenses & 1cm.									
		86.0 - 88.2 Thin bedded Coarse grained grey SASN, slightly calcareous matrix. Base contains abundant pyritous with carbonaceous laminations.	8478	88.0m	89.3m	1.3m	0.01			1.6	
		88.2 - 92.9 Thinly laminated siltstone & fine grained SASN, minor pyrite & carb mlaminations. Base contains silty clasts & 3cm, also carb laminae and pyrite.	8479	91.2m	92.0m	0.8m	0.01			2.3	
		92.9 - 96.5 Coarse grained grey SASN with several laminated carbonaceous & 10% siltstone, containing numerous pyritic nodules. Also minor siltstone clasts in 5cm sections below last laminae									

P-4

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		96.5 - 96.7 Large grey siltstone clasts set in coarse grained grey sasn matrix								
		96.7 - 99.1 Coarse Grained, Pale grey sasn with several 20cm sections containing fig. laminated sasn, carbonaceous material, fossiliferous silt.								
99.1	99.3	<u>Greenish Grey Conglomerate</u> 99.1 - 99.3 Greenish Grey subrounded mudstone clasts set in a calcareous angular clastic material, minor carbonaceous laminations & crs. gr. sasn, becomes mottled grey green red at base as it grades into Red mudstones. $\approx 65^\circ \text{C}/\text{m}$								
		99.3 - 99.7 Greenish Grey Red Mottled Mudstone with several angular siltstone clasts 4cm in size								
99.7	105.8	<u>Red Mudstones & Sandstones</u> 99.7 - 100.8 Reddish brown mudstone with minor green reduction blotches & lenses. $\pm 2\text{cm}$ in thickness. Minor nodules calcite & bedding. $70^\circ \text{C}/\text{m}$ 100.8 - 102.2 Reddish brown fig sasn minor greenish grey blotches. 102.2 - 105.0 Reddish brown mudstone with minor greenish grey reduction dks. Mudstone is soft & friable.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<i>105.8. Reddish brown mudstone, friable & soft with numerous greenish grey reduction blotches & laminae.</i> <i>End of Hole</i>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash, NS, 45,

LOCATION Pugwash, Nova Scotia. L: 6177.

NTS CODE . . 11E 13A . - 41

HOLE NO. P-5.....DEPTH 93.6m.....

LATITUDE . . . N 45° 48' AZIMUTH — PURPOSE

DEPARTURE $463^{\circ}40'$ DIP 90° STARTED 27 January 1981

ELEVATION .. 1040 m CORE ... BQ. WIEFHE COMPLETED 28 January, 1981

SECTION

LOGGED BY ~~F.O. Sullivan~~ D. MacDonald

REF. GRID UTM 570,140E . 73,400N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
45.9	71.9	<u>Grey shale / mudstone / SASSN</u> <u>45.9 - 47.0</u> mudgrey thinly laminated mudstn <u>47.0 - 48.3</u> Interbedded grey mudstn & dark grey carbonaceous shale. Shale: slightly fossiliferous. <u>Bp = 60°C/a</u> <u>48.3 - 50.0</u> mudgrey uniform (slightly fissile silty) mudstn. <u>50.0 - 54.8</u> Pale grey thinly laminated v.f. fine grained ^{mic}SASN. : Cross laminations, scouring, cross ripples present. Most laminations are well defined by thin wispy carbonaceous matter. SASSN grades into a med grained SASSN around 54.8. <u>54.8 - 58.85m</u> Pale grey laminated ^{BP 60°C/a} fine to medium grained micaceous SASSN. Carbonaceous laminations, stringers, wisps throughout mixed with pyrite granules, nodules etc. (54.86-54.9), 55.2, 55.2, 55.45, 56.9m, 58.2, 58.3, 58.75. <u>58.85 - 59.7m</u> ^{BP 55-60°C/a} Grey laminated fissile mudstn. Shale, friable from 59.4-59.45. <u>59.7 - 66.1 m</u> ^{uniform - massive} Pale grey med. to coarse grained calcareous / micaceous SASSN. - minor carbonaceous laminations defining poor <u>b.p. 70°C/a</u> <u>66.1 - 69.5m</u> mudgrey thinly laminated fine grained SASSN. Laminations & cross laminations defined by wispy finely disseminated carbonaceous matter. <u>69.5m - 71.5</u> Pale grey massive / uniform fine grained SASSN. B.p. not visible. <u>71.5 - 71.9m</u> Grey laminated fine grained SASSN, with numerous wispy carbonaceous matter & elliptical pyritic nodules, also within parting 2-3mm thick containing several flattened pyrite nodules. 71.8 - 71.9								

P-5

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
71.9	93.6	<u>Red to light grey siltstone / sandstones</u> ✓ <u>71.9-72.2</u> Greenish-grey-red brown mottled friable silty mudstn. (broken up) ✓ <u>72.2-75.3</u> Dark red brown friable muddy siltstone. minor greenish grey blotches at 72.2-72.4m. (Fractured/broken up throughout) ✓ <u>75.3-78.3</u> Dark red brown sandy siltstone. Fairly uniform throughout, minor lamination defining a <u>Bp. $\approx 60^\circ/\alpha$</u> . minor bright green blotches at lower contact 78.2m. <u>78.3-80.4m</u> Brownish grey laminated w/ fine grained siltstn. 78.3-79.4 Greenish blotches throughout, also between 79.6-80.4 - greenish calcareous sandy siltstn. & mottling throughout. <u>80.4-82.2m</u> Brown $\rightarrow$ dark brown mottled thin bedded silty mudstn. Hematite staining throughout. <u>82.2-82.7m</u> Dark red brown fissile siltstone & shale <u>82.6-82.7m</u> mottled greenish grey red brown friable soft shale. - minor hematitic staining. <u>Bp. $62^\circ/\alpha$</u> <u>82.7m-86.3</u> Brown siltstn laminations & lenses up to 1m bedded with Red brown mudstone. <u>Bp. $\approx 60^\circ/\alpha$</u> <u>86.3-92</u> Red brown fairly uniform mudstn. laminated w/ g siltstn from <u>82.5-88.3</u> , <u>88.3-88.4</u> minor greenish grey blotches. <u>92-93.6m</u> Greyish brown thinly laminated siltstn. $\rightarrow$ Dark brown hematitic lamination blotches								

End of Hole

P-5.

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. N.S. - 45 .. LOCATION .. Pugwash .. Nova Scotia .. Li: 61.77

NTS CODE .. 11E 13A - 41 .. HOLE NO. .. P-6 .. DEPTH - 50.9 m ..

LATITUDE . . . N. 45° 48' AZIMUTH . . . 7 PURPOSE

DEPARTURE ... N. 63° 40' DIP - 90° STARTED 28 January 1981

ELEVATION ... 1037 m CORE .. BQ. Wireline COMPLETED 29 January 1981

SECTION

LOGGED BY ~~T. O'Sullivan~~ D. MacDonald

REF. GRID 47M 370,110E 73,365N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0 m	12.2 m	Overburden								
12.2	17.4	<u>Reddish brown / Brown siltstones</u> <u>Sandstones / Mudstones</u>								
		<u>12.2m - 12.5</u> Brownish grey thin bedded medium grained micaceous ss/sv. <u>BP. 55°C/a</u>								
		<u>12.5 - 13.5m</u> Dark reddish brown calcareous limonitic mixed nodular conglomerate. Numerous limonite nodules / hematite stained "Cardinal" / L. scattered.								
		<u>13.5 - 16.0m</u> Brownish grey laminated medium grained micaceous ss/sv. High porosity, slightly calcareous matrix. - Minor argillaceous hematite stained clasts. <u>BP. 65°C/a</u>								
		<u>16.0m - 17.5m</u> Reddish brown calcareous argillaceous mixed pebble cong. Pebbles are elliptical in shape ± 2cm in size ± 11 to bedding, set in a greyish white calcareous sandy matrix. <u>BP. 65°C/a</u>								
		<u>17.5m - 18.3m</u> Dark red brown thinly laminated sandy silt. - Minor cross laminations - scouring, hematite staining. <u>BP. 60°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	% Zn	% Ag
19.4	40.6	<u>18.3-19.4</u> Dark red brown fissile mudstone, gradational to underlying grey shales & mudstones. <u>19.4-21.8</u> Medium grey friable shale, minor laminations of silt. Minor pyrite nodules. Slightly fossiliferous along <u>Bp. 60°C/a</u> <u>21.8-24.7</u> Medium grey fissile laminated mudstn <u>Bp. 70°C/a</u> <u>24.7-26.5m</u> Pale grey laminated fine to medium grained carbonaceous silt. Thin carbonaceous (vitrain) laminations at 25.1m, 26.1-26.5. - Minor thin beds, stringers & irregular lamina of carbonaceous material along with pyritic nodules ± 2cm in size. <u>Bp. 60°C/a</u> <u>26.5m-27.6</u> Dark grey friable fossiliferous shale. - minor vitrain stringers & very thin lamina / pyritic nodules. <u>27.6-33.6</u> Pale grey to grey uniformly thin bedded medium to coarse grained carbonaceous silt. Thin bedded zones of carbonaceous material / pyrite granules at 30.1m, minor	8486	29.9	30.3	.4m	0.67	0.04		49

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		chalcocite rimming the carbonaceous pyritic lenses. Minor ± 1mm chalcopyrite specs. Base of ssnw grades into a very coarse grained calcareous ssnw. <u>Bp. 60°C/a</u> <u>33.6 - 35.71</u> Pale greyish brown pebble conglomerate. Conglomerate consists of grey brown silty + cherty elliptical / flattened pebbles + granules set in a pale greenish grey medium grained ssnw matrix. - Minor vitrinite / carb stringers throughout. <u>Bp 54°C/a</u> <u>35.71 - 37.0m</u> Medium grey thinly laminated silty mudstls. Minor cross-laminations + ripple laminae / scouring. <u>Bp ± 52°C/a</u> <u>37.0m - 39.4m</u> Pale grey thinly laminated fine to medium grained ssnw. Bedding plane well defined by numerous laminae of carbonaceous material. Minor small carbonate nodules / carbonaceous material along with pyrite granules. Med grained ssnw grades into a uniform medium grained ssnw with disseminated carb material.								

pyrite
carbonaceous material
chalcocite
rimmed with chalcocite

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
		<u>34.4 - 40.6</u> Grey greenish brown pebble conglomerate. Conglomerate consists of grey laminated siltstone fragments, deformed & irregularly orientated in the upper section (20cm), gradational to a greenish grey pebble conglomerate, consisting of subrounded to elliptical brownish green pebbles elongated // to bedding set in a calcareous sandy matrix. Carbonaceous laminae become frequent at a near base of cong unit. <u>Bp. 60°/a</u> <u>Red Brown Sand / Mudstone</u>									
40.6	50.9	<u>40.6 - 42.5</u> Reddish brown / grey mottled friable fissile mudstn. - Minor hematite staining. <u>42.5 - 47.9</u> Red brown laminated sandy siltstn. - minor cross laminations, - hematite staining <u>47.9 - 50.9</u> Dark reddish brown uniform mudstn. fissile / soft at 48.9 - 50.2 m.									
End of Hole											

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY *Pugwash NS-45* LOCATION *Pugwash Nova Scotia* . *Li: 6177*
NTS CODE *11E-13A-41* HOLE NO. *P-7* . . . *Depth 116.1 m* . . .

LATITUDE . . . N 45° 48'	AZIMUTH . . . <u> </u>	PURPOSE
DEPARTURE . . . N 63° 40'	DIP . . . - 90°	STARTED . 29 Jan. 1981 . .
ELEVATION . . 1037m	CORE . . BQ Wireline	COMPLETED . 2 Feb. 1981 . .

SECTION LOGGED BY ~~J.P. Sullivan~~ D MacDonald

REF. GRID UTM, 37Q, 150 E. . . .
73, 550 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.6 m	Overburden								
9.6 m	90.2	Red Brown Siltst. / Sandst. / Mudstone								
		<u>9.6-11.3</u> Dark brown soft friable siltstone, (broken up.)								
		<u>11.3-16.0m</u> Dark brown laminated friable sandy siltst. Minor greenish grey lenses & blotches throughout. <u>Bp. poor & 60%a</u>								
		<u>16.0m-17.4</u> Red brown fissile mudstone, - minor greenish grey blotch (B.p. poor)								
		<u>17.4-21.9</u> Reddish grey brown laminated sandy siltst. Minor greyish brown - brown mottling. - Minor greenish grey blotches. <u>B.p. 70%a</u>								
		<u>21.9-30.5m</u> Dark reddish brown finely laminated silty mudstone. <u>Bp. 45%a</u>								
		<u>30.5-39.0m</u> Dark brown uniform friable siltstone. Bedding plane poor. - Numerous greenish grey blebs throughout. - Minor small white clasts.								
		<u>39.0m-45.4m</u> Greyish brown finely laminated mottled fine grained micaceous siltst. - Mottling from numerous laminae of white sandst. throughout. <u>45.4-47.4m</u> Minor brown silty claystone shaped clasts within the fine siltst. <u>Bp. 65-70%a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	% Zn	$\frac{g}{tonn}$ ^A	
		45.4m - 46.7m Reddish brown calcareous silty pebble conglomerate. Conglomerate is composed of whitish brown silty pebbles, large pebbles < 2cm in size set in a greyish brown calcareous matrix. At base of the B.P. 70°C/a conglomerate is mudily hematite stained.									
		46.7m - 47.85m Brownish grey uniformly thin bedded f.g. SASN. B.P. 70°C/a									
		47.85 - 49.0m Reddish brown calcareous silty pebbly conglomerate. Pebbles are elongated 11 to bedding & 60°C/a set in a greyish brown silty micaceous SASN.									
		49.0m - 63.0m Dark brown - brown thinly laminated sandy siltstone. Minor greenish brown line & blotches throughout. Chalcocite streaks along slip at 61.9m Slip 15% B.P. 65°C/a									
		63.0m - 75.8m Greyish brown laminated f.g. micaceous SASN. → grades into a porous f.g. calc SASN. Mineralization = minor pyrite → chalcocite → chalcocite within greenish grey beds at 68.5-68.7m and 71.8-72.0m. Avg B.P. 65-70°C/a	8497	71.8	72.0	0.2m	10.01	0.09		41.0	
		75.8m - 84.8m Greyish brown laminated to thin bedded f.g. porous/micaceous SASN. B.P. 70°C/a									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
90.2	111.2m	88.9m - 89.6m Greyish brown laminated fig. micaceous SASN. - minor lenticular hematite staining. <u>Bp. 70°C/a</u>								
		89.6m - 90.2m - Greenish grey - reddish brown mottled friable/fissile mudstone. (broken up) - Bp. not visible.								
		<u>Grey SASN's / siltstones</u>								
		90.2m - 92.0m Dark greenish grey uniform siltst. - minor reddish brown hematitic blotches. siltst. at base contains minor pale brown sandy laminations. <u>poor Bp. 75°C/a</u>								
		92.0m - 94.6m Pale grey to black laminated fig. SASN, interbedded with black carb shale. - minor cross laminations.								
		94.6m - 102.8 Pale grey laminated fig. micaceous SASN. - Numerous thin carbonaceous lamination containing pyritic granular nodules interbedded with pale grey fig. SASN. At 99.1 - 99.3m. (100.6 - 100.7m) 108.0m + 101.0m, 102.25m also 102.7 - 102.8m <u>poor Bp. 70-75°C/a</u>								
		102.8 - 106.8m Pale grey thin bedded uniformly medium grained SASN. Minor wispy carbonaceous laminae at times defining Bp. at 65°C/a - minor pyrite nodules within the carbonaceous laminae.								
		106.8 - 108.3m Greenish grey - greyish brown uniformly laminated silty mudstn. - Slightly fissile. <u>Bp. good - 57-60°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	AVERAGES
111.2m	114.4m	109.3m - 110.6m Medium grey thinly laminated silty siltstone. Numerous bitumen threadlike laminae defining d.n. 70-75% <u>a</u> .	21182	109.3	109.9	1.0m	0.02		0.01	11.0
		110.6m - 110.9m Pale grey silty siltstone with numerous large dark grey silty clasts.	21183							
		110.9m - 111.2m Greenish grey shale Bp. 70% <u>a</u>								
		<u>Red Brown Silty / Silty / Mudstn</u>								
		111.2 - 112.5m Dark brown shale - minor greenish grey blocks. Bp poor 70% <u>a</u> (Broken up)								
		112.2m - 114.5m Dark greyish brown laminated sandy siltstone. Bp. 60% <u>a</u> - minor greenish grey blotches.								
		<u>Mineralization</u> Minor flake & specs of chalcocite/ chalcocypnrite within the greenish grey blocks & blotches. A long fracture plane (90% <u>a</u>) at 114.35m.								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash, N.S. 745

LOCATION Pugwash, Nova Scotia. L: 6177.

NTS CODE . . . 11E.13A : 44

HOLE NO. . . P. 8 Depth 43.9 m

LATITUDE . . N. 45° 45' AZIMUTH PURPOSE

DEPARTURE . N. 63° 40' DIP -90° STARTED . 3 Feb. 1981

ELEVATION ..1036m..... CORE ..B.O. Wireline..... COMPLETED ..3 Feb. 1981..

SECTION LOGGED BY J.O. Sullivan

REF. GRID UTM 37QD30E.
73,450N

DIP TESTS

[illegible]

Depth FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	ppm Ag			
0	12.2	overburden (triconed)									
12.2	35.4	GREY SANDSTONE/SHALE ("GREY BEDS")									
		12.2 - 14.3 Grey Shale									
		14.3 - 16.8 Laminated Sandstone bedding 50% Ca									
		16.8 - 21.0 grey Shale									
		21.0 - 23.2 med grained uniform SST. grey at 23.2, 150 mm conglomerate band with 3mm veinlet chalcocite	8424	22.8	23.8	1.0	0.866	3.5			
		23.2 - 25.8 medium grained poorly bedded grey SST. somewhat conglomeratic over 24.7 to 25.1	8425	23.8	25.4	1.6m	0.36	1.0			
		Chalcocite nodules up to 2.5cm at 25.9 manganese staining on fractures	8426	25.4	26.4	1.0	1.99	6.3			
		25.9 - 28.8 finely laminated grey sandstone manganese staining along fractures chalcocite along bedding plane associated with carbonaceous material at 27.4, 28.65, 28.3 some malachite stain	8427	26.4	27.5	1.1	0.71	5.1			
			8428	27.5	28.9	1.4	1.88	6.3			
		28.8 - 30.6 Uniform medium grained grey Sandstone	8429	28.9	29.9	1.0	0.117	0.2			
		30.6 - 31.7 Nodular lump conglomerate minor chalcocite									
		31.7 - 35.4 Rilled mudstone conglomerate grey - no mineralisation									
35.4	43.9	RED SANDSTONES/SHALE ("RED BEDS")									
		35.4 - 43.0									
		43.0 - 43.9 grey shale									
		43.9 end of hole									

1.12% Cu
6.1 m
(0.14 g/t)
4.2 ppm Ag
6.1 m

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY *Pugwash* *NS-45*.....

LOCATION Pugwash, Nova Scotia. L: 6177

NTS CODE . 11E-13A . — 41

HOLE NO. P-9 Depth 72.2 m

LATITUDE . N 45° 48' AZIMUTH PURPOSE

DEPARTURE W. 63° 40' DIP - 90° STARTED 4 Feb. 1981...

ELEVATION ..1038 m..... CORE ..BQ Wireline..... COMPLETED 4 Feb 1981..

SECTION

LOGGED BY J. O'Sullivan D MacDonald

REF. GRID UTM. 370,050E . . .
13,500N

DIP TESTS

[illegible]

Esso Minerals Hole P-9 D.M.D.

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	10.2 m	<u>Overburden</u>								
10.2 m	11.3 m	Pale Grey Argillaceous/calcareous mudst. - Poor recovery 37%							10.2 - 11.3 m	% Recovery 3m x 100" 1.1m = 27% rec
11.3 m	33.9 m	<u>Reddish Brown SASS/SILTS/MUDSTNS</u>								
		<u>11.3m - 14.25m</u> Greyish brown fine grained micaceous SASS. Slightly calcareous matrix. - Minor Argillaceous pebbles in SASS at base unit. - Minor hematite / yellow staining (limonite)? - minor greenish grey blotches. <u>Bp. 60-70°C/a</u>								
		<u>14.25 - 17.45m</u> Dark reddish brown friable fissile mudstn. Shaley 14.3 - 14.8 m. Greyish brown silt. bed from 15.3 - 15.8 m. <u>Bp. 70°C/a</u>								
		<u>17.45 - 20.1m</u> Greyish brown fine grained uniform calcareous SASS. <u>Bp. poor: 15-70°C/a</u>								
		<u>20.1m - 20.9m</u> Dark reddish brown soft fissile / friable mudstn. <u>Bp. 70°C/a</u>								
		<u>20.9m - 31.9m</u> Greyish Brown laminated fine grained SASS gradational to ... Greyish brown laminated medium grained micaceous SASS. - Slightly calcareous matrix throughout. <u>Dry Bp. 55°C/a</u> - minor hematite staining. Minor calc. at base.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
33.95	72.0	31.9 - 32.25 - Reddish brown calcareous sandy pelitic arg. pebbles no. flattened / elliptical / in shape. - Minor hematite staining Bp.								
		31.9 - 33.95 - Dark reddish brown fissile mudstn, (cherty) - Hematite staining throughout. Bp. 60%a								
		<u>Gray shale / mudstn / siltst / sandst</u>								
		33.95 - 37.60m - Medium to dark gray thinly laminated shale. 33.95 - 36.0 friable for calcareous shale.								
		36.0 - 37.0 - Off-white, gray, shale. Bp. 62%a								
		37.60m - 47.8m - Pale gray laminated fine grained sandstone to medium grained sandstone. 46.2m - thin calcareous laminae. - Minor cross laminations. - Minor pyritic nodules & carbonaceous laminae. At 40.05, 45.2, 47.25, 47.50m. Nodules are 1 cm in size inter bedded with carbonaceous laminae. Bp. 65%a								
		47.8m - 47.9m - Pale gray coarse grained calcareous sandst contains minor large siltst clasts 1/2 in size randomly dist throughout.								
		47.9m - 48.1m - Dark green mudstn, (cherty)								
		48.1m - 48.55 - Pale gray calcareous sandst. - minor pyrite granules. Bp. 65%a								
		48.55 - 51.0 - Pale gray thin bedded medium grained calcareous sandst. Bp.								
		- Numerous large nodules, lenses, in form of sandst or pyritic sandst, in calcareous material. At (48.55 - 48.52) (48.8 - 48.85)								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	Cu%	Ag gm/tonne		AVERAGES
		(49.25-49.2) Pyrite/Carbonaceous stringers/laminas (deformed) - Also minor pyrite / deformed dark mass at 49.2-49.9m. Bp. 60°C/a				(meter)				
	51.0-51.5	Grey fissile broken up mudstn								
	51.5-51.75	Med grey thinly laminated v.l.g. sasn - minor small sandy clasts near base, 51.70-51.75- Grey mudstn.								
	51.75-57.8	Pale grey uniform massive med gr. sasn - minor laminations defined by carbonaceous matter - Uniform sasn grades into fine grained laminated sasn around 57.8.	8430	56.8	57.8	1.0	0.284	0.6		
	57.8-58.3	Grey laminated f.g. sasn, mineralized mineralization Bp. 60°C/a	8431	57.8	58.3	0.5	15.00	63.7		
	58.3-59.3	57.87-57.96 - Chalcoite nodules (broken up) with minor carbonaceous + ferric + vitreous + sasn intermixed. Also visible chalcoite lense 2cm thick - 4cm in length some coated by calc. matter. 57.98m Chalcoite granules & small size nodules with some like carbonaceous / bitumen matter.	8432	58.3	59.3	1.0	0.18	0.3		
	59.3-60.4	59.3-59.4 Minor carbon laminas + chalcoite 59.5-59.6 Laminas of carbonaceous matter + chalcoite 59.7-59.8 Carbonaceous laminas + chalcoite 60.5-61.3 Thin laminas of carbonaceous matter + chalcoite 61.3-61.7 Two carbonaceous laminations + thread like bitumen 61.7-61.8m Med grey calcareous mixed pebble conglomerate. pebbles are elliptical + flattened 11 to 12mm Bp. 65°C/a	8433	59.3	60.4	1.1	0.56	1.0		
	60.4-61.0	60.4-61.0 Chalcoite granules & small size nodules with some like carbonaceous / bitumen matter.	8434	60.4	61.0	0.6	0.263	0.5		
	61.0-62.3	61.0-62.3 Med grey calcareous mixed pebble conglomerate. pebbles are elliptical + flattened 11 to 12mm Bp. 65°C/a	8435	61.0	62.3	1.3	1.00	3.1		
	62.3-63.1	62.3-63.1 Greenish grey mixed pebble conglomerate	8436	62.3	63.1	0.8	1.15	4.0		

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>63.0m - 63.8m</u> Greenish grey thinly laminated silty m. 63.6 - 63.8 Silty turns brownish grey as it nears contact with a red brown silty mudst n <u>63.8 - 66.1m</u> - Dark reddish brown ^{laminated} fissile silty mudst n <u>B.p. 60°C/a</u> - minor hematite staining, Bioturbation. <u>66.1m - 71.45</u> Pale grey uniformly laminated fine grained SASN. - slightly calcareous matrix. <u>Aur B.p. 70°C/a</u> <u>71.45 - 71.55</u> - Greenish grey calcareous s.s. SASN containing red brown mudst n clasts. <u>71.55 - 72.2</u> - <u>Dark reddish brown mudst n s.</u> <u>End of Hole</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash... N.S.-45....

LOCATION .. Pugwash .. Nova Scotia .. hi: 6177

NTS CODE . 11E 13A . — 41

HOLE NO. P. 10 Depth: 46.6 m.

LATITUDE $\cdot N 45^{\circ} 48'$ AZIMUTH — PURPOSE

DEPARTURE N. $63^{\circ} 40'$ DIP -90° STARTED 5 Feb 1951

ELEVATION ..1036 m..... CORE ..BQ Wireline..... COMPLETED 5 Feb 1981..

SECTION LOGGED BY J. O'Sullivan.

REF. GRID UTM. 370,000 E
73,500 N

DIP TESTS

[illegible]

FOOTAGE Depth		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	Ag PPM		AVERAGES
0	9.1	Overburden								
9.1	16.8	"RED BEDS"								
9.1	16.8	GREY SANDSTONE / SHALE ("GREY BEDS")								
16.8	40.0									
		16.8 - 19.8 Grey Shale								
		17.3 - 18.0 minor dark laminated section								
		19.8 - 20.9 Laminated grey Sandstone								
		Crossbedded. bedding 60°-65° c/a								
		20.9 - 23.2 Uniform non bedded Sst.								
		23.2 - 26.4 Coarser grained grey Sst. arkosic								
		wispy carbonaceous bands.								
		nodule Pyrite at 26.2								
		(Note (77-87 ft) 23.5-26.4 Run Recovery only 1.5m)								
		26.4 - 27.4 gray shale/mudstone - some								
		gouge material at base								
		27.4 - 29.6 Medium coarse grey arkosic Sst.								
		29.6 - 32.0 Mudstone conglomerate in arkose								
		matrix								
		at 30.5, 3mm chalcocite veinlet with								
		carbonaceous material								
		32.0 - 32.9 Laminated grey Sst. with black								
		carbonaceous interbeds								
		trace chalcopyrite 32.6-32.7								
		minor pyrite nodules								
		32.9 - 33.8 coarser Sst. conglomerate at base	8420	34.0	34.6	0.6	0.144	1.4		
		33.8 - 37.2 Laminated grey Sst.	8421	34.6	35.6	1.0	0.99	6.7		

FOOTAGE		DESCRIPTION	CORE SAMPLES							AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	PPM Ag		
		35.5 1.5 cm chalcocite nodule chalcocite also as minerals laminae along bedding planes evenly distributed to 37.2	8422	35.6	37.2	1.6	2.91	15.6		
			8423	37.2	38.2	1.0	0.114	0.2		
	40.0	37.2-40.0 medium coarse SST grey no obvious bedding or mineral							34.6-37.2m (2.6m)	2.17% Cu
40.0	40.69	Gray Rilled mudstone conglomerate								12.2 ppm Ag (0.39 g/tm)
40.69	46.6	LOWER RED BEDS								
	46.6	end of hole								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY *Pugwash*.. NB-45.....

LOCATION .. Pugwash, Nova Scotia .. Li: 6177

NTS CODE . 11E 13A . — 41

HOLE NO. ... 7:11 ... Depth: 87.5 m ...

LATITUDE . . . N 45° 48' AZIMUTH . . . — PURPOSE

DEPARTURE ... W 63° 40' DIP -90° STARTED .. 6 Feb 1981

ELEVATION .. 1037m CORE .. BQ Wireline COMPLETED .. 11 Feb 1981 ..

SECTION

LOGGED BY J. O'Sullivan. D. Mac Don. 14

REF. GRID UTM. 370,050 E
13,550 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
0	9.1m	<u>Overburden</u>									9.1
9.1m	54.25m	<u>Red Brown ssn/s/siltstones/mudstones</u> (poor recovery)									$\frac{9.1}{3.7}$
		<u>9.1m - 11.8</u> Greyish Brown medium to coarse grained ssn. Broken up poor recovery.									
		<u>11.8 - 15.5m</u> Reddish brown semiconsolidated scree, composed of rounded to sub rounded grey ssn pebbles set in a red brown ssn.									
		<u>15.5m - 26.0m</u> Reddish brown mottled greenish grey laminated silty fig. ssn. Minor reddish brown bands of mudstn. <u>B.p. = 65%a</u> relative to core									
		<u>26.0m - 30.4</u> Greyish brown mottled laminated fig. ssn. Thin red brown hematite laminations from 28.6 to 30.4m. <u>B.p. 65%a</u>									
		<u>30.4 - 37.0m</u> Dark reddish brown friable silty mudstone - hematite stained throughout. - Minor greenish grey blotches. <u>B.p. 60%a</u>									
		<u>37.0m - 45.1</u> Greyish brown massive fig. micaceous ssn. Minor greyish white calcareous banding. (B.p. poor)									
		<u>45.1 - 46.9m</u> Dark reddish brown laminated calcareous nodular conglomerate. Nodules of silty ssn set in a sandy brown cal matrix. <u>B.p. 65%a</u>									
		<u>46.9 - 51.8</u> Greyish Brown uniformly laminated fig. calcareous ssn. - Minor silty hematite stained streaks in fig. randomly dist throughout.									
		<u>(51.8 - 51.65)</u> Red brown calcareous pebbly cong. hematite stained									

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu			AVERAGES	
54.25	81.5	51.9 - 54.25 - Dark red brown fissile mudstone slightly shaley - becomes progressively lighter in color - grades into underlying grey shales. <u>Grey shales / 51.9 - 54.25</u> <u>Bp. 60°C/a</u>									
		54.25 - 56.7 - Dark grey to black carbonaceous shale slightly fossiliferous. <u>Bp. 65°C/a</u>									
		56.7 - 66.1 m Pale grey uniformly laminated fine grained sasn. Minor wispy carbonaceous laminations & pyritic granules. 65.0 - 65.5 carbonaceous laminated sasn with numerous pyritic granules. 65.9 m thin carbonaceous (vitrain) band 1 cm thick with several elliptical chert nodules / pyritic granules. <u>Bp. 60°C/a</u>									
		66.1 - 72.9 m Pale grey thin bedded coarse grained sasn. Chalcocite mineralization along carbonaceous laminations & vitrain partings - stringers. <u>Mineralization</u> <u>Bp. 65°C/a</u>	9437	67.8	69.2	1.4 m	0.051				
		67.26 - Thin wispy laminations of carbonaceous matter - minor pyritic granules & spec of chalcocite.	9438	69.2	71.2	2.0 m	0.194				
		67.6 m Grey arkose sasn with minor chalcocite / pyrite in vitrain lenses.	9439	71.2	72.4	1.2 m	0.94				
		71.0 m Pale grey sasn with a irregular vitrain stringer surrounded by chalcocite.	9440	72.4	73.1	0.7 m	0.87				
		71.5 m Vitrinite lense 2 mm thick surrounded by chalcocite 4 to 5 mm thick									
		71.8 m 1 cm vitrain / carbonaceous parting surrounded by chalcocite up to 3 mm thick									
		71.9 m Minor bituminous matter / spec chalcocite.									
		72.2 m Minor chalcocite / carbonaceous material									
		72.3 m Vitrinite lense 6 mm surrounded by chalcocite.									
72.90 m Minor chalcocite & carbonaceous matter.											

P-11

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	% Cu				AVERAGES
		72.9m - 73.9 Med grey laminated siltstone Minor specs of chalcocite - fine to medium.	8441	73.1	74.2	1.1m	0.27				
			8442	74.2	74.5	0.3m	1.38				
			8443	74.5	75.3	0.8m	0.38				
		73.9 - 79.9m Grey laminated fine grained sand. Numerous carbonaceous laminations containing chalcocite nodules & granules - thin stringers.	8444	75.3	76.5	1.2m	0.069				
			8445	76.5	76.8	0.3m	1.32				
			8446	76.8	77.5	0.7m	6.32				
			8447	77.5	78.3	0.8m	0.174				
			8448	78.3	79.55	1.25m	0.048				
			8449	79.55	79.75	0.2m	4.28				
			8450	79.75	79.9	0.15m	0.093				
		<u>Mineralization</u> 74.0m 2mm pebbles of chalcocite 1/16" dia. with carbon matter. 74.2m Several lenses (3mm in size) of chalcocite in carbon matter. 74.45m Discontinuous thin layers of chalcocite. 75.27m Several blue/purple oxidized laminations of chalcocite. 76.40m Minor specks of chalcocite. 76.8m - 77.5m Carbonaceous laminated sandstone with numerous chalcocite granules & nodules 1/32" in size along 1/16" bedding. 77.5m - 78.3m Minor small specks of chalcocite. 78.3m - 79.55m Minor specks of chalcocite. 79.55m - 79.75m Several pebbles (1/16" dia) of chalcocite with interbedded chalcocite. 79.75m - 79.9m Fine grained sand. 79.9 - 81.4m - Minor specks of chalcocite at 80.9m									
		79.9m - 81.4m Pale grey/brown red pebble conglomerate. - Slightly calcareous matrix.	8451	79.9	81.4	1.5m	0.21				
81.5	87.5	Contact with underlying Red beds sharp = 25% B.P. <u>Red Brown Sandstones/Siltstones</u> 81.5 - 83.1m Dark red-brown brown laminated siltstone f.g. sand. 83.1 - 84.3m Dark brown friable sandy siltstone. 84.3m - 87.5 Dark brown laminated silty sandstone.									

P-11.

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash NS-45.....

LOCATION Pugwash, Nova Scotia. Li: 6177

NTS CODE . 11E 13A — 41

HOLE NO. . . P-12 . . . Depth: 105.8m . . .

LATITUDE . N 45° 48' AZIMUTH . — PURPOSE

DEPARTURE . N. 63° 40' DIP 90° STARTED . . Feb. 1981 . .

ELEVATION ..1037 m..... CORE ..BQ Wireline..... COMPLETED 12 Feb. 1981..

SECTION

LOGGED BY J. O'Sullivan D MacDonald

REF. GRID UTM : 370,100 E. . . .
73,550 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	12.2	<u>Overburden</u>								
12.2	74.2	<u>Red Brown Mudstns / Siltstns / SASSNS</u>								
		<u>12.2-22.5</u> Dark red brown silty mudstn + red brown lam friable siltstone. Minor cross laminations within the siltstone. numerous greenish grey blebs & blotches with minor chalcocite flakes along the joints. <u>B.p. poor $\approx 60^{\circ}\text{C}/\text{a}$</u>								
		<u>22.5-32.5</u> Grey brown - dark brown laminated sig. ^{mica} SASSN. Minor hematite & limonitic staining. <u>B.p. $65^{\circ}\text{C}/\text{a}$</u>								
		<u>32.5-32.8</u> Pale grey calcareous sig. SASSN, with numerous elliptical brown silty clasts randomly distributed throughout.								
		<u>32.8-34.65</u> Dark brown laminated silty mudstone. - Numerous pale grey rounded/elliptical calcareous clasts throughout. <u>Bp $70^{\circ}\text{C}/\text{a}$</u> - minor greenish grey mottling & blotches.								
		<u>34.65-35.7</u> Greyish brown mottled greenish grey laminated sandy siltstone. <u>Bp $70^{\circ}\text{C}/\text{a}$</u>								
		<u>35.7-37.0</u> Dark reddish brown massive mudstone.								
		<u>37.0-47.5</u> Greenish grey - pale grey lenses & laminations of sig. SASSN $\rightarrow$ inter bedded with a reddish brown mudstone. - Hematite blotches throughout.								
		<u>47.5-47.7</u> Greenish grey - brown laminated sig. SASSN <u>Bp. $70^{\circ}\text{C}/\text{a}$</u>								
		<u>47.7-49.7</u> Dark brown laminated sandy siltstone. - Minor greenish grey blebs & laminations all to bedding $65-70^{\circ}\text{C}/\text{a}$								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>48.9-50.5m</u> Brown laminated fine grained ss. - Minor small red brown argillaceous clasts. Minor cross laminations. <u>B.p. poor 70°C/a</u>								
		<u>50.5m-53.2m</u> Red brown irregularly laminated sandy siltstone. - minor calcareous greenish grey clasts, blotches. <u>B.p. 70°C/a</u> (bioturbation)								
		<u>53.2-53.3</u> Mottled greenish grey - red brown f.g. ss. - Numerous silty clasts - calcareous.								
		<u>53.3-71.0m</u> Pale brown fairly uniformly massive f.g. - med grained ss. - Minor laminations								
		<u>63.0-71.0m</u> Red brown silty mudst. from								
		<u>63.4m-63.9m</u> <u>Mineralization</u> Minor chalcocite flakes along a joint 30°C/a at <u>62.8m</u> - Minor hematite staining. <u>B.p. 60-65°C/a</u>								
		<u>71.0m-72.2m</u> Dark red brown calcareous hematitic mixed pebbly cong. Pebbles are greenish grey calcareous to reddish brown hematite stained set in a brown laminated sandy matrix. <u>B.p. 65-70° (72.0-72.2)</u>								
		Bore logging is broken up / very friable soft.								
		<u>72.2m-73.6m</u> Pale brown uniformly thinly laminated silt. - minor hematite blotches throughout. Gradational tan brown shale → grey ss. -								
		<u>73.6-74.2m</u> Greyish brown shale, minor hematite blotches greenish grey laminae. <u>B.p. 65°C/a</u>								

P-12

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
74.2	161.8	<u>Grey Siltstones / Sandstones</u> <u>74.2-75.5m</u> Dark grey to black thinly laminated carbonaceous / fossiliferous shale. <u>B.p. 74°C/a</u> <u>75.5-83.2m</u> Grey to pale grey thinly laminated fine grained sandstone. Numerous wispy thread like carbonaceous laminations. - minor pyritic granules within the carbonaceous laminae elongated // to bedding at <u>75°C/a</u>. <u>Mineralization</u> Minor purplish blue rectangular oxidized chalcocite & covellite flakes. Along a fracture plane from 80.3 - 84.1m. <u>83.2-91.0m</u> Pale grey uniform medium grained micaceous sand. Minor carbonaceous laminations / partings. Sand has a slightly calcareous matrix. <u>Mineralization</u> <u>B.p. 65-70°C/a</u> <u>86.65-87.8</u> Minor carbonaceous / micaceous laminations / chalcocite. <u>87.8-89.1</u> Medium / fine grained sand minor specks of <u>chalcocite</u> <u>89.1-91.2</u> Coarse grained sand - minor specks of chalcocite. 92.								
			8452	86.65	87.8	1.15m	0.11			
			8453	87.8	89.1	1.3m	0.023			
			8454	89.1	91.2	2.1	0.051			

P-12

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
		90.1m - 92.75 Dark grey uniform carbonaceous laminated f.g. - SASN & silt. <u>B.p. 65%₂</u>	8455	91.2	91.8	0.6m	0.052			
		<u>Mineralization</u>	8456	91.8	92.15	0.35m	0.128			
		91.2 - 91.8m } Minor chalcocite laminae with carbonaceous 91.8 - 92.15m } matter.	8457	92.15	93.3	1.1m	0.72			
		92.15 - 93.3m } Pale grey w/g SASN with numerous carbonaceous 93.3 - 93.6m } fragments / thread like chalcocite.								
		93.6 - 96.0m } Minor pyrite / chalcocite stringers.	8458	93.3	93.6	0.3m	0.236			
		92.75 - 101.8m Pale grey uniformly massive fine grained SASN. Minor carbonaceous laminations. <u>B.p. 65%₂</u>	8459	93.6	95.0	1.4m	0.066			
		<u>Mineralization</u>								
		95.0 - 95.3m Chalcocite lense some 2mm within a silty lamina.	8460	95.0	95.3	0.3m	0.12			
		95.3 - 95.8m Chalcocite flakes along p at 95.4.	8461	95.3	95.8	0.5m	0.284			
		95.8 - 96.6m No visible chalcocite / mineralization	8462	95.8	96.6	0.78m	0.081			
		96.6 - 97.9m Minor thin laminae of chalcocite.	8463	96.6	97.9	1.3m	0.137			
		97.9 - 98.9m Several thin carbonaceous partings & chalcocite nodules	8464	97.9	98.7	0.8m	1.60			
		98.7 - 101.0m } Minor thin carbonaceous laminae & thread like 101.0 - 101.5m } lenses of chalcocite.	8465	98.7	101.0	1.67m	0.158			
		101.5 - 101.8m } <u>Red Brown Silt/SASN'S</u>	8466	101.0	101.5	0.5m	1.73			
		101.8 - 102.8 - Red brown / greenish grey mottled 102.8 - 104.8 - Red brown massive <u>B.p. 70%₂</u> 104.8 - 105.8 - Dark brown nodular.	8467	101.5	101.8	0.3m	0.09			
105.8		end of hole								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash.. N.S.:45.....

LOCATION Pugwash, Nova Scotia . . Li: 6177

NTS CODE . . . 11E13A . . . —41

HOLE NO. P-13 Depth 57.0 m

LATITUDE . . . N 46°48' AZIMUTH . . . — PURPOSE

DEPARTURE .. W 63° 40' DIP - 90° STARTED .. 13 Feb 1981 ...

ELEVATION .. 1036m..... CORE .. Bq. Wireline..... COMPLETED 14 Feb. 1981..

SECTION

LOGGED BY J. O'Sullivan D. MacDonald

REF. GRID UTM 370,000 E
73.550 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	15.2	<u>Overburden</u>								
15.2	34.34	<u>Red brown SASN's / Mudstns / Siltstones</u>								
		<u>15.2 - 16.1</u> Dark brown mottled greenish grey laminated sandy siltst. <u>B.p. 62°C/a</u>								
		<u>16.1 - 17.6</u> - Dark reddish brown fissile / friable silty mudstn gradational to a red brown siltst at base. - minor greenish grey blotches throughout. No bedding. <u>B.p. ≈ 65°C/a</u> sharp contact with underlying SASN.								
		<u>17.6 - 20.0 m</u> Brown laminated fine grained SASN, matrix is slightly calcareous. - Several thin laminations of greenish grey siltst. <u>B.p. 60°C/a</u>								
		<u>20.0 - 21.4 m</u> Dark reddish brown fissile / friable silty mudstn, minor greenish grey laminations.								
		<u>20.4 - 20.6</u> Shaly <u>B.p. ≈ 65-70°C/a</u>								
		<u>21.4 m - 25.6 m</u> Grayish brown uniform / massive fine grained micaceous SASN. Minor spec. - clasts of calcite. <u>B.p.</u>								
		<u>25.6 m - 31.8</u> Brown laminated fine to medium grained ^{med} SASN. Gradational to a coarse grained SASN → to Reddish brown calcareous silty pebbly cong. from 31.0 - 31.8. - Hematite staining throughout the pebbly cong. <u>Avg B.p. 65-70°C/a</u> - SASN's porosity progressively increases down to 30.0 m with the cong.								
		<u>31.8 - 34.34</u> Dark reddish brown shaly gradational to uniform grey shales. SASN - small brown shaly - hematite stained → becomes more sandy very								

(26.5 - 26.8) cross laminations
 & hematite staining

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	Pb	Zn	Ag $\frac{\%}{\text{ton}}$	AVERAGES
34.34	50.05	<u>Grey shale/siltstn/SNSNS</u> 34.34-37.4 Grey to black laminated carbonaceous shale, slightly fossiliferous. <u>B.p. 65°C/a</u> 37.4-44.8 Medium grey laminated & fine to medium grained siltstn. Thin wavy carbonaceous laminations & thin silty - Muscovite thin-bedded. (40.8-41.0m) Several carbonaceous bands with numerous pyritic granules, nodules, elliptical in shape. 11 to bedding <u>65°C/a</u> (41.4-41.6) thin carbonaceous laminations with numerous elliptical / flattened pyrite granules, nodules & thin in size. (43.2) 4cm band of carbonaceous siltstn with several large pyritic nodules & thin in size 11 to bedding. (43.6-44.0m) Uniform carbonaceous laminae surrounding pyritic siltstn within grey siltstn. <u>Avg B.p. 55°C/a</u> 44.8-45.35 Grey/Greenish grey thin bedded / laminated coarse grained siltstn. Minor carbonaceous laminations defining B.p. 50°C/a → 45.35-46.2 Medium grey broken up siltstn. 46.2-49.4 Pale grey medium to coarse grained siltstn. 49.4-49.9 Green 49.9-50.05 Mineralization (47.9) Minor chalcocite in thin wavy siltstn laminations. (48.14) Some carbonaceous laminations / nodules defining 7mm thick band of chalcocite. (48.2-49.0) Pale grey siltstn with thin plates of chalcocite & some stringers along nodules & plates. (49.16m) Some band of carbonaceous siltstn with several irregularly shaped nodules of chalcocite.	8468	47.9m	48.8m	0.9m	0.47			2.5	
			8469	48.8m	49.4m	0.6m	3.48			13.9	
			8470	49.4m	50.1m	0.7m	0.14			0.7	

P-13

NO 1887-78

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
50.05m	57.0m	<u>Red Brown Siltstone / Mudstones.</u> <u>50.05-51.0m</u> Dark reddish brown finely hematite stained silty mudstone with numerous greenish grey bluish blotches. <u>B.p. very poor 60°?</u> <u>51.0m-57.0m</u> Dark reddish brown siltstone laminated sandy mudstn/siltstn. - Hematite/limonite staining throughout. Minor greenish grey blotches and calcite clasts. <u>B.p. ~ 55°/a</u> <u>End of Hole</u>								
	57.0									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Dugwash, N.S. - 45

LOCATION .. Pugwash, Nova Scotia. .. Li: 4177

NTS CODE . 11E BA - 41

HOLE NO. . P. 14. . . Depth. 35.0m.

LATITUDE . . N. 45° 48' AZIMUTH PURPOSE

DEPARTURE N 63° 40' DIP - 90° STARTED 14 Feb 1981

ELEVATION ... 1034m CORE .. BQ Wireline COMPLETED 14 Feb 1981 ..

SECTION

LOGGED BY: J. O. Sullivan D MacDonald

REF. GRID UTM 369,950 E
73,550 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION PRELIMINARY Log	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	14.0	OVERBURDEN								
14.0	17.4	RED BEDS in 3.4 m. only 1.5 m core recovery								
17.4	31.1	GREY BEDS								
		17.4 - 18.2 Transition shales gray br. at top To grey at base								
		18.2 - 20.1 grey shale bedding 65° c/a.								
		20.1 - 22.7 medium gray fine to medium grained laminated sandstone crossbedded, becoming coarser at base minor pyritic nodules along bedding planes.								
		22.7 - 23.5 medium grained arkosic sandstone								
		23.5 - 23.8 fine grained laminated Sst.								
		23.8 - 24.8 medium coarse arkosic Sst. with minor wispy carbonaceous beds. Conglomeratic over bottom 0.5 metres some pyrite nodules								
		24.8 - 29.2 grey shale								
		24.8 - 26.5 (1.7m) only 70 cm recovered								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	Ag $\frac{g}{m}$		AVERAGES
17.4	31.1	Grey Beds contd. 29.2 - 31.1 medium grained arkosic SST. micaceous = minor chalcocite 29.4 - 29.5m (up to 2mm blebs)	8471	29.2	29.6	0.4	0.27	0.9		
			8472	29.6	31.1	1.5	0.11	0.4		
31.1	35.1 end of hole	RED BEDS 32.6 - 35.1 (2.5 meters only 50cm recovery)								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Phogwash... N.S. 45....

LOCATION Pugwash, Nova Scotia. L: 6177

NTS CODE .11E.BA.741.....

HOLE NO. ... 7.15 ... Depth: 75.3 m ...

LATITUDE . . . N 45° 48' AZIMUTH . . . — PURPOSE

DEPARTURE .. W 63° 40' DIP - 90° STARTED 15 Feb 1981 ...

ELEVATION ... 1035 m CORE .. 30 Wireline COMPLETED 15 Feb. 1981 ..

SECTION

LOGGED BY م. ج. البدر

REF. GRID UTM 370,000 E
73,600 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION PRELIMINARY Log.	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	Pb	Zn	Ag ^g /tonne	AVERAGES
0	10.4	OVERBURDEN									
10.4	53.4	RED BEDS									
53.4	69.5	GREY BEDS									
		53.4 - 55.5 grey shale									
		55.5 - 58.5 grey fine grained Sandstone minor laminations, crossbedded									
		58.5 - 60.3 as above but coarser grained									
		58.5 - 58.7 dk. laminated with carbonaceous material and pyrite									
		60.3 - 60.6 Laminated sandstone									
		60.6 - 63.4 medium to coarse gray sandstone with minor carbonaceous material and minor pyrite									
		63.4 - 66.6 Laminated sandstone medium grained thinly bedded with crossbedding and lamination increasing towards base Pyrite nodules up to 2 cm.									
		66.6 - 68.8 Medium to coarse grained Arkosic Sst. very minor plant debris.	8473	67.9	68.6	0.7	0.20			2.8	
		68.8 - 69.5 medium to fine grained Sandstone 5cm conglomerate at base.	8474	68.6	69.5	0.9	0.043			0.7	
69.5	75.3	RED BEDS									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Phogwash . NS-45

LOCATION Pugwash, Nova Scotia. Li: 6177

NTS CODE . 11E 13A - 41

HOLE NO. 7-16 Depth: 77.7m

LATITUDE N. 45° 48' AZIMUTH - PURPOSE

DEPARTURE W 63° 40' DIP -90° STARTED 16 Feb. 1981

ELEVATION 1032 m CORE BQ Wireline COMPLETED 16 Feb. 1981

SECTION LOGGED BY J.O. Sullivan. D MacDonal

REF. GRID UTM 369,950 E
73,650 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.1m	Overburden								
9.1m	19.7	<u>Brown Sandstone/Siltstn/Mdln</u> 9.1-9.3 Brown thinbedded fine grained micaceous ssstn. Sp. 55-60°c/a 9.3-11.3 Dark brown silty mudstone, 9.3-10.3m numerous greenish grey calcareous clasts, reduction blotches. 11.3-19.7 Greyish brown uniformly laminated fine to medium grained micaceous ssstn. 15.0m-16.0m ssstn turns light grey in color, coarse grained with calcareous matrix. 16.0m-19.7m - Dark brown/grey mottled, laminated f.g ssstn. 18.4-19.0 Numerous hematite stained siltstn + ssstn clasts.								
19.7	35.0	<u>Red/Brown Siltstn, Mudstone</u> 19.7-19.9 Red brown + greenish grey rounded clasts set in a greyish brown calcareous sandy matrix. Greenish grey reduction blotches at base.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		19.9 - 21.1 Red brown silty mudstone, 20.6 - 21.3 Numerous greenish grey calcareous clasts within a silty red mudstone.								
		21.1 - 25.9 Red brown laminated silty mudstone, minor greenish grey blotches & calcareous clasts ≤ 2 mm in size								
		25.9 - 35.7m Dark brown mottled greenish grey silty mudstone, minor hematite staining // to bedding. Minor fossilized plant impressions along bedding plane, 55 $\frac{c}{a}$ (35.0 - 35.1m) (35.3 - 35.5m) Grey brown laminated - cross laminated f.g. calcareous ss/silt.								
35.7	38.0m	Brown / Grey Fine Grained ss/silt/s 35.7 - 38.0m Brownish Grey laminated/cross laminated f.g ss/silt/s. Slightly calcareous matrix. Minor greenish grey calcareous nodules throughout, ≤ 1 cm in size <u>B.p. 69-72$\frac{c}{a}$</u>								
		38.0 - 38.6 Reddish brown mudstone.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
38.6	54.1	<u>Grey Brown Sandstone</u> 38.6 - 39.8 Greenish grey brown mottled fine grained SASN. numerous grey calcareous clasts ± 5mm in size, randomly spread throughout. - minor hematite staining along B.P. - slightly micaceous 39.8 - 43.9 Brownish grey fine grained micaceous SASN. Matrix slightly calcareous. <u>fig. 55-62 c/a</u> 43.9 - 44.5 Red brown friable fig. SASN - Hematite stained throughout - minor grey calcareous clasts. 44.5 - 54.1 Brownish grey laminated med to coarse grained micaceous SASN. - High porosity, matrix slightly calcareous.								
54.1	56.8	<u>Dark brown silty mudstone</u> 54.1 - 56.8 Dark brown silty mudstn grades into blackish grey shale.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
56.8	72.5	<u>Grey Siltstone / Mudstone</u> 56.8-58.9 Pale grey to dark grey carbonaceous shale, slightly fissile. 58.9-71.4 Pale grey laminated medium to coarse grained SASN. minor cross laminations & thin carbonaceous laminations throughout. 64.2-64.5 Numerous pyritic nodules associated with carbonaceous laminations. 65.7-65.8 Pyritic nodules $\pm$ 2cm in size associated with carbonaceous material. 66.3-67.2 Med to coarse grained laminated micaceous SASN. 68.0-68.5 Pale grey med grained SASN with abundant carbonaceous laminations / stringers & pyrite nodules. 68.5-69.3 Med grey sandy silt. 69.3-69.4 Pale grey coarse grained SASN with numerous dark grey silt clasts throughout <u>B.p. 65°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	% Ag Tons	AVERAGES
		69.4-69.6 Grey laminated medium grained SASN. - minor carbonaceous material // to B.p., Abrupt contact with underlying very coarse grained calcareous grey SASN.									
		69.6-70.5 Pale grey uniform coarse grained SASN. - minor grey brown silty clasts // to bedding ± 5mm in size. - Minor pyritic nodules & carbonaceous material <u>B.p. 50-60°C/a</u>									
		70.5-71.1 Grey laminated <u>fig</u> SASN, gradational to coarse grained SASN at base. - Minor vitreous lenses // to bedding.	8481	70.2	70.6	0.4m	0.03		0.01	24	
		71.1-71.7 Calcareous mixed pebble conglomerate, Pebbles are silty & sandy - greenish grey in color subrounded to rounded ± 3cm in size set in a micaceous sandy matrix.									
		71.7-72.5 Greenish grey / red brown mottled silty mudstone. - Minor grey silty calcareous clasts ± 2cm in size.									
72.5	77.8	<u>Red Brown Mudstone / Siltstone</u>									
		72.5-74.0 Brownish grey thinly laminated sandy silt. Numerous greenish grey blotches & minor grey calcareous clasts // to B.p. = <u>60°C/a</u>									
		74.0-77.8 Red brown laminated silty mudstone - minor hematite staining along fractures.									

nd of Hole

P-16

End of Hole

FOOTAGE		DESCRIPTION PRELIMINARY LOG.	CORE SAMPLES J. Sollara							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.1	OVERBURDEN								
9.1	56.9	RED BEDS								
56.9	72.6	GREY BEDS								
		56.9 - 59.1 grey shale								
		59.1 - 60.2 medium to fine grained grey Sandstone, min laminated sections.								
		60.2 - 66.3 Coarser grey Sandstone, cross bedding in upper part. Scattered black carbonaceous laminae from 62.8 onward. Min nodular pyrite below 64.2 m.								
		66.3 - 67.7 coarser arkosic sandstone no well defined bedding								
		67.7 - 68.7 Laminated Sandstone with black carbonaceous material and minor pyrite nodules								
		68.7 - 69.5 dark grey shale								
		69.5 - 70.6 coarse arkosic sandstone								
		70.6 - 71.2 Laminated Sandstone								
		71.2 - 72.6 Conglomeratic								
72.6	77.8 end	RED BEDS.								

No mineralisation

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY . Pugwash. . NS-45. LOCATION . Pugwash. N.S. . . LI: 6177. . .
NTS CODE . . 115-13A-44. HOLE NO. . F. 17. . . Depth: 41.1m.

LATITUDE	N. 45° 48'	AZIMUTH	—	PURPOSE	
DEPARTURE	N. 63° 40'	DIP	~ 90°	STARTED	17 Feb. 1981
ELEVATION	1027 m	CORE	3Q Wireline	COMPLETED	17 Feb. 1981
SECTION				LOGGED BY	J. O'Sullivan

REF. GRID UTM. 369,850 E. . . .
73,650 N

LOGGED BY J. O'Sullivan D MacDonald

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.5	<u>Overburden</u>								
9.5	15.0	<u>Red brown ss/silt/mudstone</u>								
		9.5-11.3 Greyish brown medium grained micaceous ss, fairly uniform throughout. - Minor laminated b/n 10.0 - 10.5 m <u>Bp. 50-55°/a</u>								
		11.3-14.3 Red brown friable soft silty mudstn, (Bp not visible)								
		14.3-15.0 Red brown laminated silty mudstn 14.8-15.0 Broken up, friable mudstn. Bp. 52°/a								
15.0	33.0	<u>Grey Sandstone/silt/mudstn</u>								
		15.0-16.4 Medium fissile mudstn and grey shale Fossilized plant remains (twigs & leaves) to bedding. <u>B.p. 49-52°/a</u>								
		16.4-20.5 Medium grey silty mudstn, B.p. poor.								
		20.5-22.0 Pale grey laminated ss, numerous stringers & laminations of carbonaceous material and small nodules of pyrite. <u>Bp. 30°/a</u>								
		22.0-27.0m Grey sandy siltstn gradational to siltstone and grey fissile mudstone.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		27.0m - 31.8m Grey silty mudstn, minor laminations as siltstone becomes SANDY (28.9-30.0) → Shaly.								
		31.8-32.8 Pale grey uniform medium to coarse grained SASN.								
		32.8-33.0 Grey pebble conglomerate, pebbles subrounded-subangular set in a ^{grey} med. grained calcareous SASN matrix. Bp. 50-60°C/a								
33.0	56.4	<u>Red Brown SASN / siltstn / Mdstr</u>								
		33.0-34.0 Red brown fine grained SASN. - minor greenish grey reduction blotches + blebs. - minor small blots of calcite. Mottled at upper contact with grey beds. B.p. 60°C/a								
		34.0-35.9 Red brown laminated fissile silty mdstr. - Minor greenish grey calcareous blotches. Mdstr slightly micaceous.								
		35.9-39.7 Dark brown thinly laminated sandy siltstn. - minor hematite staining in upper section. 35.9-36.9 Several grey reduction zones / stringers. Bp. 55-60°C/a								
		39.7-41.3 Brownish grey laminated micaceous SASN. Numerous dark brown staining → hematite + biotite Bp. 55-60°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	g/Tonne As	AVERAGES
		41.3-46.5 Brownish grey medium grained micaceous sand. minor greenish grey carnos blebs throughout. <u>Mineralization</u> 43.0m - minor flakes and specs of chalcocite & chalcopyrite along a fracture plane within small greenish grey reduced blotches. 43.4-43.8 Minor specs of chalcocite and chalcopyrite / pyrite along fracture planes within greenish grey reduction blotches. - Small spec of mala ± 2 mm in size. 46.5-50.6 Dark red brown mudstn, minor greenish grey mottling $\rightarrow$ visible along fracture planes. 47.0-47.9 Red brown friable/broken up hematite stained silty mudstn. <u>Mineralization</u> - Minor Chalcopyrite flakes ± 3 mm in size along a fracture plane. to 48.35m. - Minor imprints of twigs etc.. <u>B.p. $\approx 70^{\circ}\text{C/a}$</u>	8482	43.0	44.7	1.7m	0.01		0.01	0.0	

P-17

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	$\frac{3}{4}$ ton Ag	AVERAGES
50.6	52.6	<u>Brownish Grey Sandstone</u> 50.6 - 52.6 Brownish grey laminated f.g. micaceous ss/s - Numerous greenish grey mottling throughout → visible along fracture planes. <u>Mineralization</u> : Thin flakes of chalcocite and chalcopyrite usually associated with pyrite along fracture planes, from 50.7 - 51.2 m. <u>F.p. 0-20°C/a</u> <u>51.7-51.9m</u> Small flakes of chalcopyrite ± 2mm in size along with specs of chalcocite ± 1mm in size randomly distributed along a fracture plane within the greenish grey reduced areas. <u>52.4-52.6</u> Visible chalcopyrite rimmed with chalcocite ± .5cm in size along a fracture plane. <u>B.p. 60°C/a</u>	8483	50.6	52.6	2.6m	40.01		0.02	41.0	
52.6	56.4	<u>Red Brown Silty Mudstone</u> 52.6 - 56.4 Red brown silty mudstn, minor greenish grey mottling from 53.9 - 54.9 <u>B.p. 60-70°C/a</u>									
End of Hole											

11/5 1857 74

P-17

FOOTAGE		DESCRIPTION <i>PRELIMINARY Log.</i>	CORE SAMPLES <i>Joselic</i>								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
0	9.1	OVERBURDEN									
9.1	15.55	RED BEDS									
15.55	32.9	GREY BEDS									
		15.55 - 20.4 grey shale - poor recovery									
		20.4 - 23.5 Laminated Sandstone dips 40° c/a (steep dips) nodular pyrite at 22.2									
		23.5 - 26.5 shale/siltstone.									
		26.5 - 29.6 (3.1 m. only 1.5 m recovery)									
		26.5 - 32.0 mudstone/shale									
		32.0 - 32.9 Medium grained grey Sandstone slightly conglomeratic at base									
32.9	41.1 end	RED BEDS									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY *Pugwash* . NS 45

LOCATION . Pugwash, Nova Scotia, L.I. 6177

NTS CODE . 11E.13A - 41

HOLE NO. F. 18 . . . Depth: 63.1 m

LATITUDE . N. 45° 48'

AZIMUTH

PURPOSE

DEPARTURE . N. 63°.40'

DIP . . . -92°

STARTED 18 Feb. 1981 . .

ELEVATION . . 1025.m

CORE . B.Q. Wireline

COMPLETED 18 Feb. 1981.

SECTION

LOGGED BY J. O'Sullivan

REF. GRID UTM. 369,850.E . . .
73,700 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	10m	Overburden								
10.0m	44.4m	<u>Greenish brown / Greyish brown mdsch/siltstn / ss</u> 15N								
		<u>10-11.3m</u> Red brown argillaceous pebble conglomerate, pebbles are grey brown to red brown in color, subrounded ≤ 2 cm in size set in a fine to medium grained calcareous ss.								
		<u>11.3m-15.7m</u> Red brown silty mudstn; minor hematite staining. Small greenish grey reduction blotches throughout.								
		<u>15.7m-21.1m</u> Brownish grey mottled, laminated micaceous ss. <u>B.p. 55-60°C/a</u>								
		<u>21.1-23.5</u> Reddish brown siltstone with minor small greenish grey clasts 21.1-21.4m - Slightly micaceous throughout. - Minor hematite staining.								
		<u>23.5-24.1</u> Grey - Green to red brown mottled silty mudstone; slightly fissile. <u>B. p. 58-62°C/a</u>								
		<u>24.1-26.5</u> DARK brown thinly laminated fine grained ss; slightly calcareous matrix. - minor cross laminations + small ≤ 5 mm greenish grey calc clasts. <u>B.p. 60-70°C/a</u>								

P-18

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		26.5 - 28.3 - Dark brown fissile siltstone, minor greenish grey mottling.								
		28.3 - 29.6 - Dark brown fractured silty mudstone.								
		29.6 - 29.9 Greenish grey silty mudstn.								
		29.9 - 33.8m. Grey brown laminated f.g. ss/slv. upper 30cm contains numerous angular calcareous granules. - minor cross laminations.								
		33.2 - 38.1 Greyish brown uniformly laminated + thin bedded medium grained ss/sv. Porosity increases down to base of ss/sv. Laminations of biotite + muscovite define bedding plane $55-60^{\circ}/\text{N}$								
		38.1 - 38.9 Greyish brown thin bedded + laminated medium grained micaceous ss/sv. Porosity is high throughout unit.								
		38.8 - 38.9 Highly calcareous ss/sv.								
		38.9 - 40.1 Brownish grey medium grained micaceous ss/sv.								
		40.1 - 40.3 Dark brownish grey hematitic silty pebble conglomerate. Pebbles are elliptical in shape, set in calcareous sandy matrix.								
		40.3 - 41.6 Brownish grey medium grained ss/sv. Porosity decreases towards base as matrix becomes more calcareous. - Minor hematite staining. Dip $\approx 55^{\circ}/\text{N}$								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		41.6-42.8 Dark brown fissile silty mudstone Bp = 60°/a								
		42.8-43.3 Dark brown silty mudstn gradational to a brownish grey shale. - minor greenish grey mottling.								
		43.3-44.4 Greenish grey brown mottled silty mudstn - slightly fissile. Minor calcareous yellow laminations throughout.								
44.5	58.0	Grey Mudstn / shale / SASN								
		44.4-44.5 Dark grey - black silty mudstn - slightly fissile.								
		44.5-47.8 Dark grey carbonaceous shale.								
		47.8-48.5 Dark grey to black laminated fossiliferous sandy siltstone. Bp. 63°/a								
		48.5-53.0m Pale grey fine to medium grained SASN. Bedding plane poorly visible except when thin ultrafine lamina define bedding ≈ 60°/a Several pyrite nodules & granules associated with carbonaceous material at 49.0m + 52.6-52.7m.								
		53.0-58.0m Dark grey to greenish grey silty mudstn, slightly fissile. Bp. 60°/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
58.0	63.1	<u>Red Brown Silt / Sand / Mdsln</u> 58.0 - 60.4 Reddish brown silty mudstn. - minor greenish grey argillaceous clasts throughout. - minor grey mottling. 60.4 - 63.1 Reddish brown siltstone, minor pyrite in greyish green mottled zones. - Stickensiding at 61.0 & 61.2 m <u>Bp. ~ 60° - 70° C/a</u>								
<u>End of Hole</u>										

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
		PRELIMINARY LOG									
0	9.1	OVERBURDEN									
9.1	44.2	RED BEDS									
44.2	58.2	GREY BEDS									
		44.2 - 47.7 grey shale bedding 70° q/a.									
		47.7 - 51.2 uniform medium grained sandstone minor black carbonaceous bands with pyrite.									
		51.2 - 53.2 coarse grey arkosic sandstone minor black carbonaceous bands with pyrite in basal 30cm.									
58.2	63.1	53.2 - 58.2 dk grey shale/mudstone									
	end.	RED BEDS.									
		no mineralisation									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY *Dugwash... N.S. - 45.*

LOCATION Pugwash, Nova Scotia. L: 6177.

NTS CODE . 11.E. 13.A. - 41

HOLE NO. . . . P-19. . . . Depth . 87.5 m

LATITUDE N 45° 43'..... AZIMUTH —..... PURPOSE

DEPARTURE N 63° 40'..... DIP -90°..... STARTED 19 Feb. 1981...

ELEVATION . . 10.22 m. CORE BQ Wireline COMPLETED 20 Feb 1981 .

SECTION LOGGED BY J.O'Sullivan DMacDonald

REF. GRID UTM. 369,750E . . .
73,750N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.1	<u>Overburden</u>								
9.1	23.25	<u>Red Brown siltstone/SASN/mdstn</u> 9.1-13.8m Red brown thin bedded friable siltstone. - minor greenish grey mottling. - Slightly calcareous. Siltstone becomes sandy + laminated at 13.5-13.8m. 13.8-19.9m Dark red brown friable silty mudstn. Slightly fissile at base 19.7-19.9m - Minor greenish grey calcareous blebs ≤ 3 mm in size. <u>Bp. 70°C/a</u> 19.9-20.4 Red brown v. f. grained micaceous SASN. Uniform throughout except for minor red muddy clasts at base of unit, ≤ 1 cm in size. <u>Bp. 60-70°C/a</u> 20.4-23.25 Brownish grey laminated f.g. SASN. Dark brown mottling throughout, possibly biotite + hematite staining.								
23.25	43.3	<u>Brown Grey SASN/siltstones</u> 23.25-27.5 Brown grey massive fine grained SASN. Limonitic staining throughout, also slightly micaceous. <u>Bp. $\approx 65^\circ\text{C/a}$</u> DARK brown f. grained SASN with numerous silty + sandy pebbles/chips at 26.0-26.3.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>27.5-29.0</u> Pale grey thinly laminated fine grained ssuv. Cross laminations throughout. - Hematite / mica / calcite along fracture planes. <u>B.p. $\approx 70^{\circ}\text{C/a}$</u> <u>29.0-29.5</u> Pale greenish grey pebble conglomerate, pebbles $\leq 1\text{cm}$ in dia subrounded to rounded set in a greenish grey calcareous sandy matrix. <u>29.5-31.5</u> Brownish grey very fine grained micaceous ssuv. ssuv becomes mottled red brown at base near contact with red brown silt. <u>31.5-35.7</u> Brownish grey sandy siltstone. - minor laminations & cross laminations - slightly micaceous. <u>35.7-43.0</u> Brownish grey uniform f. grained micaceous ssuv. Slight dark brown mottling. Thin conglomerate beds (4cm) at 42.5-42.8 pebbles are red brown in color $\leq 1\text{cm}$ in size elongated // to bedding set in a pale grey calcareous sandy matrix. <u>B.p. $\approx 60^{\circ}\text{C/a}$</u> <u>43.0-43.3</u> Red brown silty hematitic pebble conglomerate. Pebbles $\leq 2\text{cm}$ in size elongated // to bedding set in a calcareous sandy matrix.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
43.3	53.3	<u>Red brown silty mudstn/siltstone/SASN</u> 43.3-44.1 Reddish brown silty fissile mudstn. - Minor grey mottling & laminations. - Greenish grey mudstn bed at 47.0m-47.05m <u>B.p. 70°C/a</u> 49.1-50.02 Greyish brown laminated fine grained SASN. Minor greenish grey mottling at 49.2m. <u>B.p. 50-60°C/a</u> 50.02-50.9m Red brown calcareous/Hematitic silty mixed pebble conglomerate. Conglomerate matrix becomes muddy at base 50.5-50.9m. 50.9m-52.2m Red brown silty mudstn. Numerous greenish grey calcareous clasts ≤ 2mm in size from 50.9-51.2. 52.2m-53.3 Reddish brown laminated very fine grained SASN. <u>B.p. 55-60°C/a</u>								
53.3	70.1	<u>Brown, Grey Siltn/SASN</u> 53.3-64.0 Greyish brown fine to medium grained micaceous SASN. Minor brown laminations of siltstone. SASN is porous throughout. <u>B.p. 55°C/a</u> - Red brown hematite stained clasts at base.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>64.0 - 64.81m</u> Red brown to grey brown calcareous / hematitic silty mixed pebble conglomerate. Pebbles and clasts elongated relatively // to bedding plane $\approx 54^\circ/\alpha$. <u>64.81m - 65.75m</u> Brownish grey medium grained micaceous ss/sv, gradational to very coarse grained ss/sv. At 65.0m containing minor red brown / greenish grey clayey clasts $\approx 2\text{mm}$ in size. Red brown calcareous / micaceous clayey pebble conglomerate from 65.1 - 65.75. <u>65.75m - 66.6m</u> Red brown thin bedded silty mudstone. <u>66.6m - 67.32m</u> Greenish grey laminated fissile mdstn, hematite stained. <u>67.32m - 68.6m</u> $\text{Dip } 60^\circ/\alpha$ Dark brown - brownish grey mottled f.g. ss/sv. $\text{Dip } 65^\circ/\alpha$ <u>68.6m - 70.1</u> Red brown - brownish grey mottled and friable silty mudstn. <u>70.1 - 71.3</u> <u>Grey Siltstone / Shale / ss/sv</u> Medium grey laminated siltstone. slightly fissile. - minor cross laminations. <u>71.3 - 72.1</u> Dark grey fossiliferous laminated shale. Carbonaceous material & pyrite disseminated along bedding plane.								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	% Ag	
		72.1 - 72.9 Dark grey to medium grey thinly laminated siltstone. Minor pyrite + carbonaceous material // to bedding.									
		72.9 - 73.8 medium grey broken up silt + sandy siltstn, slightly fissile, minor cross laminations. - Minor scour marks.									
		B.p. 65°C/a									
		73.8 - 80.05 m Medium grey fine grained laminated SASN. - Minor cross laminations throughout. - minor carbonaceous lamina throughout. SASN becomes fissile + shaley at base.									
		80.05 - 81.4 m Pale grey laminated fine to medium grained SASN. Minor cross laminations visible. Large pyrite / carbonaceous lamina + stringers at 80.06 m.	8484	80.05	81.4 m	1.35 m	20.04		20.01	21.0	
		80.3 - 80.4 Greenish grey - grey silty clasts ± 1 cm in size set in a pale grey calcareous matrix.									
		80.4 - 80.65 Greenish grey - red brown mottled siltstn.									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
80.65	87.5	<u>Red brown sandy siltstone</u> <u>80.65 - 84.4</u> Red brown laminated calcareous siltstone. - Minor cross laminations , hematite stained throughout, Also minor greenish grey mottling throughout. <u>84.4 - 87.5</u> DARK red brown silty mdstn, <u>Rp. 60°c/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH					
		PRELIMINARY Log									
0											
	71.0	RED BEDS									
71.0	81.4	GREY BEDS									
		71.0 - 75.0 gray shale and siltstone									
		75.0 - 75.9 gray siltstone/fine sandstone									
		75.9 - 76.5 gray shale									
		76.5 - 80.2 fine grained gray laminated sandst.									
		80.2 - 81.4 medium grained gray laminated sandstone									
81.4	87.5	RED BEDS									
	end	no mineralization									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash N.S. 45

LOCATION Pugwash, Nova Scotia. Loc 6177.

NTS CODE 11E 13A - 41

HOLE NO. P-20 Depth 99.7 m.

LATITUDE N 45° 48' AZIMUTH — PURPOSE

DEPARTURE N 63° 40' DIP -90° STARTED 20 Feb. 1981

ELEVATION . 1036 m CORE . 30 Wireline COMPLETED 21 Feb 1981 . .

SECTION

LOGGED BY J. O'Sullivan

REF. GRID UTM. 370,050E
73.600N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES										AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH							
		PRELIMINARY Log											
0	9.1	OVERBURDEN											
9.1	76.8	RED BEDS											
76.8	97.2	GREY BEDS											
		76.8 - 84.7 Medium grained grey Sandstone weakly bedded with black Carbonaceous material and trace Pyrite											
		84.7 - 94.2 coarse arkosic grey sandstone											
		94.2 - 96.0 medium to fine grained Sandstone laminated											
		96.0 - 97.2 medium grained sandstone no well defined bedding											
97.2	99.7 end	RED BEDS											
		no obvious mineralisation											

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Dugwash, N.S. - 45

LOCATION Pugwash, Nova Scotia. Loc. 177

NTS CODE . 11E-13A . - 41

HOLE NO. . . . P-21 Depth: 117.3 m . .

LATITUDE . N. 45° 48' AZIMUTH PURPOSE

DEPARTURE . N 63° 40' DIP - 90° STARTED 21 Feb. 1984 . . .

ELEVATION . 1036 m CORE . BQ wireline COMPLETED 22 Feb. 1981 . .

SECTION

LOGGED BY ~~F. G. Sullivan~~ D MacIneld

REF. GRID UTM. 370,100E . . .
73,600N

DIP TESTS

[illegible]

Esso Minerals

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.8 m	Overburden								
9.8	86.0	<u>Red Siltstones / SASN's / Mudstones.</u> <u>9.8 - 12.3 m</u> Dark reddish brown friable siltstn. - minor hematite staining <u>12.3 m - 20.4 m</u> Reddish brown thinly laminated sandy siltstone + mudstone. - Minor greenish grey bedding + laminae. <u>B.p. 60°C/a</u> <u>20.4 m - 28.3 m</u> Reddish brown silty mudstone with thin lenses of greyish brown v.f. grained SASN. - Minor greenish grey silty blotches. <u>B.p. 65°C/a</u> <u>28.3 m - 37.5 m</u> Dark reddish brown thinly laminated friable siltstone / mudstone 10/30 Mottled greenish grey from 36.0 - 37.5 m. <u>B.p. 65°C/a</u> - Minor cross laminations. <u>37.5 m - 44.8 m</u> Greyish brown thinly laminated fine grained micaceous SASN. Blotches + banding of hematite staining throughout. <u>B.p. 60°C/a</u> <u>44.8 m - 46.6 m</u> Greyish brown uniform fine grained micaceous SASN. Minor dark brown (Fe staining) banding throughout. (Poor Bedding)								

P-21

P-21.

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>46.6m - 48.1m</u> Greenish grey laminated fine grained sandstone. Numerous carbonaceous laminations/disseminated matter. <u>B.p. 70°C/a</u>								
		<u>48.1m - 48.6m</u> Brown to reddish brown calcareous/hematitic silty pebble conglomerate. <u>B.p. 70°C/a</u>								
		<u>48.6m - 48.7m</u> Pale greenish grey calcareous f.g. SASN. Minor disseminated bituminous matter.								
		<u>48.7m - 49.0m</u> Pale brown thin bedded fine grained SASN. Several thin beds of silty clasts. <u>B.p. 60°C/a</u>								
		<u>49.0m - 59.8m</u> Greyish brown → reddish brown mottled and laminated silt/mudstn. Greenish grey siltstn bed from 52.1m - 52.35m. <u>B.p. 60°C/a</u>								
		<u>59.8m - 60.0m</u> Greenish grey mudstone with small stringers of red hematite.								
		<u>60.0m - 60.7m</u> Interbedded greenish grey laminated fine grained SASN & reddish brown siltstone. <u>B.p. 55°C/a</u>								
		<u>60.7m - 61.4m</u> Dark brown pitted mudstone (B.p. poor)								
		<u>61.4m - 66.0m</u> Pale grey laminated/cross laminated fine grained SASN/several dark brown mudstn partings. <u>B.p. 65°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>66.0m - 67.2m</u> Greyish brown uniform sandy siltstone. Dark brown hematite blotches throughout.								
		<u>67.2m - 70.6m</u> Pale greyish brown thinly laminated fine grained SASN. <u>Bp 65%a</u>								
		<u>70.6m - 72.2m</u> Broken up/fractured brown f. grained SASN.								
		<u>72.2m - 76.5m</u> Greyish brown uniform fine grained micaceous SASN. Several thin beds of hematite stained siltstone clasts at 74.8m, 75.0m, 75.2m, 75.5m & 76.5m.								
		<u>76.5 - 84.4</u> Greyish brown laminated fine to medium grained micaceous SASN. (High porosity) <u>Bp. 60%a</u>								
		<u>84.4m - 85.5m</u> Pale grey-brown calcareous fine grained SASN.								
		<u>85.5m - 85.8m</u> Dark brown calcareous silty hematitic pebble conglomerate.								
		<u>85.8m - 86.0m</u> Dark brown siltstone, fissile at the base.								
		86.0m - 86.8m								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Pb	%Zn	Ag $\frac{2}{1000}$ AVERAGES
86.0	108.8	<u>Grey siltstones / Sandstones / Mudstones.</u>								
		<u>86.0m - 88.1m</u> Greenish grey & greyish brown mottled silty mudstn. - minor red-brown hematitic stringers.	1							
		<u>88.1m - 89.2m</u> medium grey uniform silty mudstone. B.p. poor								
		<u>89.2 - 91.0 m</u> medium grey thinly laminated fine grained ss/sv with interbedded dark grey carbonaceous & silty laminations. - Fissile throughout. <u>B.p. 60°C</u> - (90.5 - 91.2) - minor lamination of carbonaceous matter & chalcocite.	8489	90.5m	91.2m	0.7m	40.01	40.01		21.0
		<u>91.0m - 97.0m</u> medium grey laminated fine grained sandstone. minor very thin wavy laminations of carbonaceous matter & pyritic nodules.	8491	92.3m	93.6m	1.3m	40.01	40.01		21.0
		<u>97.0m - 105.15m</u> Pale grey thin bedded uniformly medium grained ss/sv. - minor laminations & cross laminations defined by disseminated carbonaceous matter along the bedding plane, minor pyritic granules & nodules within the carbonaceous matter. Slightly calcareous matrix (dolomitic?) reacts slightly with 10% HCl. <u>B.p. 70°C</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	% Zn	Ag $\frac{\%}{\text{ton}}$	AVERAGES
108.8	113.8	105.15 - 106.6m Medium to dark grey laminated sandy siltstone. Minor small silty clasts near the base at 106.5 - 106.6m.									
		106.6m - 107.5m Medium grey laminated carbonaceous fine grained sandstone. Pyrite lense at 107.35 - 1cm thick within a carbonaceous parting. - Vitrain parting 3-4mm thick at 108.4m $\rightarrow$ Several thin flakes of chalcopyrite.	8492	106.6m	107.7m	1.1m	0.01	0.02		21.0	
		107.5m - 108.5m Greenish grey siltstone. Minor small calcite clasts throughout. - Mottled greenish grey - red brown siltstone at the base.	8490	107.7m	108.5m	0.8m	0.11	20.01		1.8	
		<u>B.p. 73°C/a</u> <u>Red Brown siltstones / SASSY's / Mudstns</u>									
		108.8 - 110.3m Red brown laminated sandy siltstone. 108.8 - 110.0m Red brown - greenish grey mottled siltstone.									
		110.3m - 113.8m - Dark red brown interbedded silt + mudstone. <u>B.p. 70°C/a</u>									

P-21

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash . N.S. 45

LOCATION Pugwash, Nova Scotia. L: 6177

NTS CODE . JLE. 3A - 41

HOLE NO. P-22 Depth 124.0 m

LATITUDE N 45° 48' AZIMUTH — PURPOSE

DEPARTURE W. 63° 40' DIP -90° STARTED 23 Feb. 1981

ELEVATION . 1012 m CORE . BQ Wireline COMPLETED 24 Feb. 1981 . .

SECTION

LOGGED BY J. O'Sullivan. D MacDonale

REF. GRID UTM . 369,600.E. . . .
73,800N

D1P TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	% Ag Tonne		
0m	10.7m	<u>Overburden</u>									
10.7m	12.2m	<u>Grey Beds</u>									
		<u>10.7-12.1m</u> Grey laminated fine grained sandstone - minor chalcedony at 10.7m <u>B.p. 55°C/a</u>	8493	10.7	12.1	1.4	0.24	40.01	2.4		
		<u>12.1m - 12.2m</u> Greenish grey deformed pebble conglomerate									
12.2m	109.8m	<u>Red Brown Siltstones/Sandstones/Mudstones</u>									
		<u>12.2m - 13.4m</u> Reddish brown friable argillaceous siltstone. - Minor greenish grey blotcher <u>poor B.p.</u>									
		<u>13.4m - 18.0m</u> Red brown thin bedded siltstone. <u>B.p. poor ≈ 55°C/a.</u>									
		<u>18.0m - 21.5m</u> Dark brown fine grained micaceous sandstone - Hematite staining throughout. Minor yellowish oxidation / limonite.									
		<u>21.5m - 25.9m</u> Reddish brown friable siltstone. - Numerous greenish grey blebs + blotches. <u>B.p. poor 60°C/a</u>									
		<u>25.9m - 26.5m</u> Brown friable / fissile siltstone									
		<u>26.5m - 31.7m</u> Dark reddish brown siltstone, minor greenish grey blebs.									
		<u>31.7m - 36.0m</u> Dark reddish brown thinly laminated silty mudstone. <u>B.p. 65°C/a</u>									
		<u>36.0m - 43.6m</u> Interbedded / mottled reddish brown siltstone and greenish grey laminated fine grained sandstone. <u>B.p. 55-60°C/a</u>									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Ag Tonne		AVERAGES
		43.6m - 52.4m Dark reddish brown laminated sandy siltstone. Numerous greenish grey blebs and blotches throughout. Minor elliptically shaped silty clasts <u>B.p. 65°C/a</u>								
		52.4m - 58.6m Red brown-greyish brown wavy laminated sandy siltstone. Hematitic blotches throughout <u>B.p. 65°C/a</u>								
		58.6m - 61.4m Brown laminated very fine-grained sandstone. Numerous hematite blotches throughout <u>B.p. 65°C/a</u>								
		61.4m - 61.6m Greenish brown grey thinly laminated siltstone.								
		61.6m - 62.5m Dark grey to black uniform siltstone								
		62.5m - 63.7m Medium grey thinly laminated very fine-grained sandstone. 63.5-63.6m - numerous 40% flattened dark grey silty clasts.	8475	62.6	63.1	0.5m	6.35	243		
		<u>Mineralization</u> 62.8 - 63.1m Deformed bitumen/carbonaceous laminations with threads of chalcocite.	8476	63.1	63.8	0.7m	0.82	3.5		
		63.0m - vitrain stringer/lense 1cm x 2cm. surrounded by chalcocite and pyrite. 63.1-63.2m dark grey thinly laminated sandstone - minor wisps of bitumen - chalcocite. <u>B.p. 65°C/a</u>								
		63.7m - 64.3m Reddish brown sandy/silty pebble conglomerate. Pebbles are ≤ 3cm in size flattened - elongated parallel to bedding set in a calcareous matrix <u>B.p. 60°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>64.3m - 72.2m</u> Interbedded brown laminated siltstone and grey fine grained sandstone.								
		<u>72.2m - 75.9m</u> Greyish brown laminated fine grained micaceous sandstone. Brown (hematite) banding throughout B.p. 55°C/a.								
		<u>75.9m - 78.8m</u> Dark brown - red brown interbedded laminated siltstone and mudstone.								
		<u>78.8m - 84.1m</u> Dark reddish brown laminated sandy siltstone - Minor greenish grey blotches and blebs throughout. B.p. 65°C/a.								
		<u>84.1m - 87.4m</u> Greyish brown thinly laminated fine grey sandstone. Cross laminated throughout. 87.3-87.4m Numerous reddish brown silty clasts within the greenish grey fine grained sandstone B.p. 65°C/a.								
		<u>87.4m - 89.1m</u> Dark reddish brown laminated sandy siltstone.								
		<u>89.1m - 103.9m</u> Greyish red brown - laminated fine to medium grained micaceous sandstone. Red brown conglomerate bed from 101.85 - 102.2m. Hematite stained throughout B.p. 60°C/a.								
		<u>103.9m - 109.2m</u> Grey brown interbedded fine-grained sandstone - siltstone gradational to a dark brown friable siltstone.								
		<u>109.2 - 109.8m</u> Brown grey laminated fine-grained sandstone B.p. 65°C/a.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
109.8m	118.2m	<u>Grey Siltstones / Sandstones</u> <u>109.8m - 111.5m</u> Dark brown → black shale <u>111.5m - 113.5m</u> Grey - dark grey carbonaceous shale in interbedded with greyish brown fine grained sandstone lenses and laminae. <u>B.p. 60°C/a</u> <u>113.5 - 114.7m</u> Medium grey laminated sandy siltstone <u>114.7m - 115.5m</u> Pale grey thinly laminated fine grained sandstone. Very thin carbonaceous laminations (possibly minor chalcocite) <u>B.p. 60°C/a</u> <u>115.5m - 115.9m</u> Dark grey laminated siltstone. <u>115.9m - 118.05m</u> Pale grey fine to medium grained laminated / cross laminated sandstone → grades into a uniform grey sandstone around 117.5 - 118.05m. <u>118.05 - 118.2</u> greenish grey mudstone. <u>B.p. 65°C/a.</u>								
118.2m	124.1m	<u>Red Sandstones / Siltstones</u> <u>118.2m - 118.6m</u> Reddish brown silty mudstone - fissile <u>118.6m - 124.1m</u> Interbedded dark reddish brown siltstone and sandstone. <u>B.p. 60°C/a</u>								
<u>End of Hole</u>										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Dugwash N.S. 45

LOCATION Pugwash, Nova Scotia. Li: 6177

NTS CODE . 11E 13A - 41

HOLE NO. P-23 Depth 108.8 m

LATITUDE N 45°48' AZIMUTH — PURPOSE —

DEPARTURE W 63°40' DIP -90° STARTED 24 Feb 1981

ELEVATION 1012m CORE BA Wireline COMPLETED 25 Feb. 1981.

SECTION

LOGGED BY

D MacDonelch

REF. GRID UTM . 369,600E.
73,850N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	13.0m	<u>Overburden</u>								
13.0m	14.3m	<u>Brown Mudstone / Siltstone</u> 13.0m - 13.9m Reddish brown silty mudstone grades into brown siltstone. Poorly defined bedding. Minor greenish grey reduction blebs and lenses ≤ 2 cm. Several silty clasts at 13.5m. Hematite stained throughout. 13.9 - 14.3m. Dark brown laminated siltstone with numerous red brown mudstone clasts. ≤ 2 cm in size. Parallel to bedding <u>Bp. $\approx 60^\circ$ c/a.</u>								
14.3m	18.1m	<u>Grey Sandstones.</u> 14.3m - 14.5m Brownish grey laminated fine to medium grained sandstone. 14.5m - 14.9m Greenish grey laminated fine grained sandstone. Wavy carbonaceous laminations parallel to bedding. Minor hematite stringers along fractures, some cross bedding. Sandstone becomes shaly at 14.8 - 14.9m, carbonaceous material / fossils increase $\rightarrow$ 14.9m. <u>Bp. $\approx 65^\circ$ c/a.</u> 14.9 - 15.0m Grey fine grained micaceous sandstone. Minor cross bedding defined by carbonaceous material. 15.0 - 15.2m Grey fine grained sandstone, wavy laminate of carbonaceous material $\rightarrow$ also fossilized twigs etc parallel to bedding making sandstone slightly shaly in several places.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	g Ag 100g	AVERAGES
		<u>15.2m-15.6m</u> Pale grey fine to medium grained thin bedded → laminated sandstone, micaceous bedding. <u>15.6-15.9m</u> Pale grey-grey medium grained sandstone with numerous fossil remains parallel to bedding and threadlike carbonaceous material. Small pyrite cubes and nodules with carbonaceous material. <u>15.9m-16.3m</u> Grey medium grained laminated sandstone-thin carbonaceous laminations parallel to bedding 5cm of small silty clasts and blebs of pyrite at 16.0m. Some scattered pyrite nodules 4-1cm in size as with carbonaceous material. <u>16.3-17.5m</u> Grey medium grained laminated sandstone Bedding/laminations wavy irregular, carbonaceous material plant fossils parallel to bedding. Dense like pyrite carbonaceous material parallel to bedding 17.1m. Some cross bedding. <u>17.1-17.4m</u> (Scouring?) (Several small 2m vitrain lenses parallel to bed.) <u>17.5m-17.7m</u> Grey/Greenish grey pebble conglomerate composed of grey silty and sandy subrounded clasts 4-1cm long. 0.5cm thickness set in a medium grained grey calcareous sandstone. <u>17.7-17.8m</u> Grey medium grained laminated sandstone - broken up. <u>Poor bedding plane</u> <u>17.8m-18.0m</u> Broken up fissile dark grey silty mudstone	8480	15.7	16.9	1.2m	0.02	0.02	1.4.	

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
18.2m	23.7m	<u>18.0m - 18.2m</u> Pale grey pebble conglomerate with subrounded clasts ≤ 3 cm in size set in a medium to coarse grained calcareous sandstone.								
		<u>18.2m - 18.2m</u> Greenish grey to red mottled fine grained sandstone. Increase in grey angular clasts at base - gradational to red mudstone. <u>B.p. 65°C/a.</u>								
		<u>Red Brown Mudstone / Siltstones</u>								
		<u>18.2m - 18.3m</u> Red brown mudstone, numerous grey calcareous clasts up to 2cm in size. Minor green-grey reduction blotches around siltstone clasts.								
		<u>18.3m - 18.5m</u> Red brown silty mudstone - grades into siltstone $\rightarrow$ fine-grained sandstone.								
		<u>18.5m - 23.5m</u> Brown fine-grained laminated sandstone and interbedded brown mudstone. <u>B.p. 75°C/a.</u> Cross bedding throughout, also minor greenish grey mottled reduction blotches at 21.8m.								
		<u>22.0m - 22.2m</u> Several 5cm thick grey green medium grained sandstone beds. <u>22.2m - 22.5m</u> Red brown fissile mudstone. <u>22.5m - 23.0m</u> Mottled brown grey laminated medium grained sandstone. <u>23.0 - 23.5m</u> Red brown siltstone.								
		<u>23.5m - 23.7m</u> Red brown angular clasts set in a grey medium grained sandstone. <u>B.p. 68°C/a.</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
23.7m	32.1m	<u>Brown / Grey Sandstone</u> <u>23.7m - 25.7m</u> Uniform grey brown micaceous medium grained sandstone. <u>B.p. poor</u> <u>25.7m - 28.4m</u> Fine to medium grained laminated micaceous sandstone, slightly mottled dark brown grey (biotite blotches?) from 27.4m - 28.0m. Minor sandy calcareous clasts at base of sandstone, also grades into coarse grained sandstone. <u>28.4m - 28.8m</u> Brown grey coarse grained sandstone calcareous matrix, numerous small 1-3mm clasts throughout, gradational to coarse grained sandstone. <u>28.8m - 29.6m</u> Grey brown coarse grained micaceous sandstone. Laminated finer grained in lower .2m <u>29.6m - 29.7m</u> Pale brown pebble conglomerate composed of small 5-5cm silty and sandy elongated clasts - (Lower contact sharp) grey very fine grained calcareous sandy matrix. <u>29.7m - 30.4m</u> Red brown to medium grey, medium grained micaceous sandstone. Laminations of hematite stained sandstone throughout <u>B.p. 60°C/a</u> <u>30.4m - 31.3m</u> Red brown pebble conglomerate. Greenish grey to reddish brown subrounded clasts, set in a brown silty hematite calcareous rich matrix. Large 0.1m red muddy hematite clast at 31.0m.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>31.3m - 32.0m</u> Greyish brown laminated fine-grained sandstone. Wavy stringers and laminations of hematite stained sandstone parallel to bedding. Lower contact with red mudstone is marked by 2cm greenish grey reduction blotch parallel to bedding. <u>B.p. 60°C/a</u>								
		<u>32.0m - 32.7m</u> Red brown silty mudstone. Minor grey green reduction blebs and mudstone clasts from 32.4m - 32.6m								
		<u>32.7m - 33.4m</u> Mottled Red brown fine grained sandstone. Laminations poorly visible, few grey silty clasts at 33.3m.								
		<u>33.4m - 35.2m</u> Red brown soft mudstone, slightly fissile at 34.6m - 35.0m.								
		<u>35.2 - 39.6m</u> Mottled grey brown - dark brown laminated fine-grained sandstone. Dark blotches appear to be hematite staining. Micaceous and cross bedding throughout. Minor grey rounded silty clasts. <u>B.p. ~ 75°C/a?</u>								
		<u>39.6m - 40.4m</u> Grey-green - reddish brown mottled medium sandstone, slightly calcareous. Numerous red silty clasts. 40.3m								
40.4m	49.4m	<u>Silty Red Brown Mudstone</u>								
		<u>40.4m - 43.4m</u> Silty red brown mudstone. Numerous greenish grey calcareous reduction blotches mottled through the mudstone → <u>40.4m - 42.0m</u> - laminated where mudstone becomes silty → <u>43.0m - 47.0m</u> <u>B.p. 72°C/a</u> Reduction blotches at 44.4m.								
		<u>48.4m - 49.4m</u> Redbrown silty mudstone.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
50.4m	53.2m	<u>49.4m-50.4m</u> Red brown siltstone. Minor green grey reduction blebs 4-4cm. Randomly orientated. <u>B.p. poor</u> <u>Red Brown Sandstone</u> <u>50.4-50.7m</u> Fine grained reddish brown sandstone, minor greenish grey mottling. <u>B.p. poor</u> <u>50.7m-53.0m</u> Fine grained reddish brown sandstone. Minor grey-green calcareous rounded nodules at 50.9m-51.3m. Minor calcite at 52.0m. Minor calcareous grey-green reduction blebs at 53.0m.								
53.2m	60.9m	<u>Red Brown Mudstone</u> <u>53.2m-60.9m</u> Fairly uniform, dark red brown friable, silty mudstone. Broken up- minor slickensiding from 53.7m-53.9m. Minor grey silty calcareous blebs at 53.9m-54.1m - grey reduction blotch 55.4m-55.6m. Minor grey silty rounded clasts at 60.1m. <u>B.p. poorly visible</u>								
60.9m	81.7m	<u>Red Brown Silty Sandstone.</u> <u>60.9m-65.2m</u> Red brown fine-grained silty sandstone minor laminations and cross laminations throughout. Minor grey calcareous clasts and blotches throughout. 4.5cm, Bed of red brown mudstone from 62.9m-63.1m. 64.8m-65.2m Grey brown laminated, cross laminated fine grained sandstone. <u>B.p. 60°C/a</u> <u>65.2m-71.2m</u> Red brown silty mudstone, minor greenish grey blotches. <u>B.p. poor</u> Thin bed of red brown sandstone								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		(with numerous greenish grey clasts) at 66.9m-67.0m. Slightly laminated where mudstone becomes silty <u>B.p. 65% a</u> <u>71.2m-74.2m</u> Red-brown grey slightly mottled/laminated fine grained silty sandstone. Mottling becomes evident from 72.2m - 74.2m. <u>74.2m-77.1m</u> Red-brown grey mottled silty mudstone. Minor greenish grey blebs and clasts, slightly calcareous mudstone gradational to fine grained sandstone <u>B.p. poor #60% b</u> <u>77.1m-77.9m</u> Pale brown laminated and cross laminated fine grained silty sandstone. Minor calcareous grey clasts ≤ 3 mm in size. <u>B.p. #73% a.</u> <u>77.9m-78.4m</u> Red brown silty mudstone. Numerous greenish grey sandy blotches and clasts. Slickensiding at 77.2m-77.5m. Also at 77.8m-78.3m. <u>78.4m-81.7m</u> Silty/sandy. Red brown mudstone-mottled red brown to greenish grey silty mudstone from 78.4m-79.2m 79.2m-81.9m Red brown silty mudstone with numerous greenish grey calcareous blotches containing minor grey silty clasts at 79.8m-80.0m, 80.1m-80.2m, 80.7m-80.8m 80.4m-80.6m Slickensiding within reddish brown mudstone also at 81.0. <u>81.7m-88.6m</u> Mottled brownish grey-brown silty laminated fine-grained sandstone. Numerous grey-green calcareous clasts. 81.7m-83.9m also minor visible cross laminations.								
81.7m	88.6m									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
88.6m	101.8m	<u>83.9m - 88.6m</u> Fairly uniform brown grey / dark brown mottled fine-grained laminated sandstone <u>B.p. 70°C/a</u>								
		<u>88.6m - 93.1m</u> Fine to medium grained pale brown laminated sandstone with blotches of mica mottled throughout. Minor cross laminations <u>B.p. 80°C/a</u>								
94.4m	105.8m	<u>91.5m - 91.7m</u> Red brown hematite rich clasts elongated parallel to bedding set in a brown micaceous fine-grained sandstone.								
		<u>91.7m - 93.0m</u> Fine to coarse grained grey brown sandstone, blotches of biotite throughout, gradational to coarse grained sandstone.								
		<u>93.0 - 93.9m</u> Greyish brown laminated clasts ≤ 3 cm in size set in a pale brown calcareous sandstone matrix.								
		<u>93.9m - 94.4m</u> Pebble conglomerate - Brownish grey sub-rounded clasts ≤ 2 cm in size set in a fine-grained brown muddy matrix. <u>B.p. 70°C/a</u>								
		<u>94.4m - 105.8m</u> Fine to medium grained laminated micaceous sandstone. Minor greenish grey clasts, specks of calcite from 94.4m - 95.5m Minor dark brown mottling throughout.								
		<u>98.7m - 99.6m</u> Red brown silty mudstone with several laminations and thin beds of hematite rich siltstone.								
		<u>99.6m - 105.8m</u> Uniform fine to medium grained greyish brown sandstone, Minor grey sandstone laminations. 5cm bed greenish grey clasts in sandy matrix at 105.0m <u>B.p. 68°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
105.8m	108.8m	<u>Red Brown Silty Mudstone</u> <u>105.8m - 106.3m</u> Red brown shaly mudstone, minor fossils (twigs etc) - several greenish grey mudstone beds 6-4cm. <u>106.3m - 106.9m</u> Thin wavy laminated grey brown silty mudstone. Minor cross laminations <u>B.p. 60-70°C/a</u> <u>106.9m - 107.5m</u> Dark brown silty mudstone, thinly laminated, minor greenish grey calcareous stringers, small blotches 2cm - 4cm. <u>107.5m - 107.7m</u> Dark brown to greenish grey thinly laminated silty mudstone. Slightly calcareous. Minor cross laminations. <u>107.7m - 108.8m</u> Dark brown laminated siltstone. <u>B.p. 70°C/a.</u>								
<u>End of Hole</u>										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash, N.S. 45. LOCATION Pugwash, Nova Scotia . . L: 6177

NTS CODE .. 11E 13A - 41. HOLE NO. . . . P-24. . . . Depth 108.8 m. . .

LATITUDE	N 45° 48'	AZIMUTH	—	PURPOSE	
DEPARTURE	W 63° 40'	DIP	79°	STARTED	25 Feb. 1981
ELEVATION	1011 m	CORE	BQ Wireline	COMPLETED	26 Feb. 1981
SECTION				LOGGED BY	J.O. Sullivan
REF. GRID	WTM 369,450 E 73,850 N				

LOGGED BY J.O. Sullivan. D MacDonald

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	9.1m	<u>Overburden</u>								
9.1m	13.6m	<u>Brown/Red Sandstones (Red beds)</u> 9.1m-13.6m Red brown laminated to finely laminated fine grained micaceous sandstone B.p. 52°C/a-60°C/a 11.3-11.4m Several red mudstone clasts 2-6m in size								
13.6m	14.2m	<u>13.6m-14.2m Conglomerate</u> - red brown mudstone clasts 1mm-3cm in size, set in a calcareous red brownish grey sandstone matrix. Minor limonitic concretions.								
14.2m	15.0m	<u>14.2m-15.0m Reddish brown fine grained micaceous Sandstone</u> B.p. 70°C/a 14.4-14.5m Small band of pebble conglomerate - calcareous in brown fine grained sandstone matrix. 14.5m-15.0m Scattered mudstone and siltstone clasts elongated parallel to bedding. 1-2cm in size increasing at lower contact with mudstone.								
15.0m	17.2m	<u>Red Brown Mudstone</u> 15.3m Several grey calcareous silty clasts 6-1cm in size, 15.5m Blotch of greenish grey calcareous mudstone. 16.3m-16.5m greenish grey reduction zone. fissile/soft. 16.5m-17.2m Red brown fissile mudstone.								
17.2m	23.6m	<u>Brown Siltstone/Mudstone</u> 17.2m-20.4m Reddish brown silty mudstone.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		cont'd. numerous limonitic blotches with irregular thin beds of grey/green reduction zones. <u>19.4m - 20.4m</u> Highly broken up fissile red/brown mudstone with several small ≤ 1 cm grey-green reduction blebs. B.p. $65^{\circ}\text{C}/\text{a}$ <u>20.4m - 23.6m</u> Dark reddish brown silty mudstone. Several granish grey reduction blebs parallel to bedding. ≤ 1 cm in length. <u>Brown Red Sandstone.</u> Brownish red laminated fine grained sandstone. Minor cross bedding at base of unit. Greenish/grey calcareous nodules throughout. <u>25.5m - 25.6m</u> Red brown silty sandstone with minor bioturbation? <u>26.3 - 26.4m</u> Grey green siltstone and sandstone clasts ≤ 1 cm in size, calcareous (rounded-subrounded) set in a red brown laminated fine-grained sandstone. <u>26.4m - 26.5m</u> Red brown finely laminated fine-grained sandstone. Minor cross bedding. <u>26.5m - 26.55m</u> Calcareous grey silty pebble conglomerate. B.p. $71^{\circ}\text{C}/\text{a}$ <u>Brown Red Mudstone / Siltstone</u> <u>29.5m</u> B.p. $69^{\circ}\text{C}/\text{a}$ <u>26.6m - 26.7m</u> Hematite/manganese stained grey red mudstone								
23.6m	26.5m									
26.55m	31.4m									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>27.1m - 28.3m</u> Red brown silty mudstone with minor grey calcareous nodules throughout ± 2 cm. Minor grey reduction blotches parallel to bedding B.p. 58°C/a								
		<u>29.5m - 29.8m</u> Red siltstone, minor grey siltstone clasts ± 2 cm in length, hematite staining around the clasts. B.p. 64°C/a								
31.4m	32.5m	<u>Red Brown Siltstone</u> 31.4m - 32.5m. Reddish brown laminated siltstone, some cross bedding at base of unit, gradational into underlying sandstone.								
32.5m	37.4m.	<u>Red Brown Sandstone</u> B.p. 62°C/a <u>32.5m - 32.7m</u> - Pale reddish brown fine grained laminated sandstone, micaceous, minor hematite staining. Visible cross bedding B.p. 62°C/a <u>32.5 - 32.8m</u> Gradational to coarse sandstone <u>32.7m - 35.7m</u> Numerous red siltstone and mudstone lenses 2-3 cm in thickness. <u>35.7m - 37.4m</u> Fine to medium grained laminated mica sandstone (gradational) limonite blebs/hematite staining common throughout. B.p. 53°C/a								
37.4m	38.9m	<u>Grey Sandstone.</u> <u>37.4m - 38.9m</u> Fine grained thinly laminated sandstone containing numerous hematite blotches relatively parallel								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
38.9m	44.5m	to bedding 50°-60° but also stringers parallel to c/a. no mineralization. Hematite staining increases 50°-60° c/a at base of grey sandstone. Greenish grey at contact with underlying mudstone. <u>Red Mudstones</u> 38.9m - 39.1m Fissile brownish red mudstone 39.1m - 39.6m Minor red clay clasts ≤ 2cm in size. Red brown soft mudstone. 39.6m - 41.3m Numerous rounded - subrounded greenish grey clasts ≤ 1cm in size. slightly calcareous. 41.3m - 44.5m Reddish brown mudstone, minor grey silty clasts throughout <u>B.p. 50°-60° c/a</u>								
44.5m	50.6m	<u>Brown Grey Sandstone / Siltstone</u> 44.5m - 47.1m Dark greyish brown fine grained laminated sandstone. Minor cross bedding throughout. Also blebs of grey silty clasts. 47.1m - 49.8m Brownish grey fine grained laminated sandstone with blotches of hematite staining throughout. Also slightly micaceous <u>B.p. 55°-60° c/a</u> 49.8m - 50.1m Pebble conglomerate made up of red and grey silty clasts ≤ 2cm in size, set in a greenish grey sandy matrix slightly calcareous. 50.1m - 50.6m Reddish brown fine grained thinly laminated sandstone. Some visible cross bedding.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
50.6m	75.9m	<u>Red Mudstone / Siltstones</u> <u>50.6m - 51.4m</u> Reddish brown micaceous laminated siltstone with numerous grey / green subrounded clasts ≤ 1cm diameter. Randomly orientated throughout and slightly calcareous. <u>B.p. 55°-60°C/a.</u> <u>51.4m - 55.5m</u> Red brown thinly laminated muddy siltstone. Cross bedding visible (54.1-54.2m) Slightly fissile. Slightly fissile red mudstone. 55.4m. - Thin band of hematite 3cm in length along bedding plane <u>B.p. 60°C/a</u> <u>55.5m - 66.1m</u> Brownish red soft mudstone becomes shaly - fissile. Also small ≤ 1cm grey and red calcareous clasts are randomly distributed throughout / minor grey reduction blotch from 58.1m - 58.2m fissile. <u>B.p. 55°-60°C/a</u> <u>66.1m - 68.4m</u> Brownish red silty mudstone with minor grey calcareous clasts throughout. 68.3' - 68.4' fractured mudstone with minor calcite. <u>B.p. 60°C/a</u> <u>68.4m - 75.9m</u> Reddish brown laminated silty mudstone $\rightarrow$ cross bedding increasing towards base.								
75.9m	76.9m	<u>Grey Brown Siltstone</u> <u>75.9m - 76.9m</u> Grey brown laminated siltstone with reddish hematite blotches throughout. Minor carbonate material at base 76.8-76.9m <u>B.p. 62°C/a</u>								
76.9m	82.7m	<u>Red Brown Muddy Siltstone</u> <u>76.9m - 79.2m</u> Reddish brown laminated siltstone / minor grey silty clasts throughout.								

RG 1857-75

P.2

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
82.7m	84.8m	78.1m - 78.2m Grey silty reduced blotch relatively parallel to bedding.								
		79.2m - 82.7m Red brown laminated siltstone with numerous grey green blotches and lenses parallel to bedding. Few mudstone clasts throughout ≤ 2 cm B.p. 65°c/a								
		<u>Brownish Red Silty Mudstone</u>								
84.8m	87.8m	82.7m - 84.3m Brownish red mudstone minor grey silty lenses parallel to bedding with minor grey reduced blotches and grey calcareous clasts ≤ 2 cm in diameter.								
		84.3m - 84.7m Brownish red mudstone - broken up fissile along bedding B.p. 60°c/a								
		<u>Reddish Brown Silty Sandstone</u>								
		84.8m - 85.5m Reddish brown laminated fine-grained sandstone, minor grey calcareous blotches, and grey silty clasts ≤ 1 cm, elongated parallel to bedding B.p. 65°c/a								
		85.5m - 87.5m Reddish brown sandstone becomes clearly laminated / cross bedding is visible - also micaceous. B.p. 40°c/a								
		87.5m - 87.8m Red brown laminated fine grained sandstone with numerous grey calcareous clasts ≤ 1 cm diameter. B.p. 60°c/a This section is cut 20°c/a by a joint which is infilled by 2cm of fissile calcareous mudstone, minor small grey reduced blotches ≤ 5 mm (87.65m - thin 3cm band of grey calcareous siltstone.)								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
87.8m	92.2m	<u>Red Brown Silty Mudstone</u> <u>87.8m-89.8m</u> Reddish brown silty mudstone. Minor grey reduced laminations. <u>89.8m-90.0m</u> Thin grey bed (10cm) of calcareous clasts ≤ 2 mm in size, interbedded with red mudstone. <u>90.0m-92.2m</u> Red brown soft mudstone with minor grey rounded nodules ≤ 2 cm. Minor grey reduced lenses. Slightly calcareous. <u>B.p. 60°C/a</u>								
92.2m	95.7m	<u>Red Brown Siltstone</u> <u>92.2m-95.7m</u> Reddish brown laminated siltstone, minor subrounded red mudstone clasts throughout, along with small blebs of limonite stains. Grades into fine sandstone at base.								
95.7m	98.5m	<u>Greenish Grey Brown Sandstone/Siltstone</u> <u>95.7m-97.5m</u> Greenish grey brown laminated sandstone. Minor cross laminations <u>97.5m-98.5m</u> Greyish brown fine grained laminated sandstone with numerous dark brown limonitic, stained blebs, minor siltstone laminations. Becomes coarser grained/micaceous								
98.5m	100.8m	<u>Grey brown Fine grained Sandstone</u> <u>98.5m-100.8m</u> Greyish brown fine grained laminated micaceous sandstone. Limonite stained blebs throughout. <u>100.0-100.8m</u> Minor thin clay stringers parallel to laminations. Also thin laminations of black carbonaceous materials are visible.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
100.8m	103.1m	<u>Brown Grey Medium Grained Sandstone</u> <u>100.8m-102.4m</u> Grey brown medium grained laminated micaceous sandstone. Limonitic stains/blebs throughout <u>Bp. 50°C/a.</u> <u>102.4m-102.6m</u> Medium grained sandstone gradational to alternating red brown coarse grained bedding $\pm$ 10cm and grey brown medium grained laminated sandstone. <u>102.6-102.7m</u> Red brown silt and mudstone clasts $\pm$ 3cm set in grey brown fine grained calcareous sandstone. <u>102.7m-103.1m</u> Medium to fine-grained grey brown laminated sandstone.								
103.1m	103.4m	<u>Pebble Conglomerate.</u> <u>103.1m - 103.4m</u> Brown $\rightarrow$ brownish red pebble conglomerate set in calcareous red brown fine-grained sandstone matrix.								
103.1m	106.4m	<u>Grey Brown Silty Mudstone</u> <u>103.1m - 106.4m</u> Fairly uniform reddish brown silty mudstone. Several grey reduction blotches and minor grey brown angular silty clasts at 104.4m-104.5m <u>Bp 64°C/a.</u>								
106.4m	108.8m	<u>Grey Brown Sandy Siltstone</u> <u>106.4m-108.2m</u> Grey brown laminated siltstone (slightly micaceous) <u>108.2m-108.8m</u> Red brown silty mudstone with several grey green siltstone blotches.								
End of Hole.										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY ..Pugwash..N:545....

LOCATION Lower Wentworth, Nova Scotia Li: 6241

NTS CODE . 11E. 12. 75

HOLE NO. P-25 Depth: 151.5 m.

LATITUDE N. 45° 43' 00"..... AZIMUTH PURPOSE

DEPARTURE N 63° 33' 30"..... DIP -90°..... STARTED June 1981..

ELEVATION 1010 m. CORE BQ Wireline COMPLETED 2 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5064,130N. . . .
377900E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	% Ag	AVERAGES
0m	6.18m	<u>Overburden</u>								
6.18m	7.0m	<u>6.18m - 7.0m</u> Medium grey uniform fine grained sandstone. - minor small reddish brown argillaceous clasts, < 5mm in size at 6.5m. <u>B.p. 70°C/a</u>								
7.0m	8.0m	<u>Red Sandstones, Siltstones, Mudstones.</u>								
		<u>7.0m - 7.35m</u> Dark reddish brown clayey clasts and pebbles set in a pale grey-white calcareous matrix. <u>B.p. 80°C/a</u>								
		<u>7.35m - 8.0m</u> Reddish brown silty mudstone								
		<u>8.0 - 9.1m</u> Greyish brown very fine grained sandstone. Minor dark brown (Fe) blotches <u>B.p. 75°C/a</u>								
		<u>9.1m - 16.27m</u> Greyish brown uniformly laminated to massive fine-grained micaceous sandstone <u>B.p. 74°C/a</u>								
		<u>16.27m - 20.13m</u> Brownish grey uniform micaceous sandstone. - minor reddish brown clayey clasts at 17.38m <u>B.p. poor 70°C/a</u>	3242	19.65	20.1	0.45m	40.01	0.08	41.0	
		<u>20.13m - 23.79m</u> Medium grey - grey laminated fine-grained micaceous sandstone. Minor carbonaceous laminations with small pyritic lenses < 2mm in size.								
		<u>23.48 - 23.79m</u> Thin wavy laminations / carbonaceous with several disseminated pyritic parting <u>B.p. 80°C/a</u>								
		No visible mineralization / 23.48 - 23.79m possible.								
		<u>23.79m - 23.97m</u> Greenish grey siltstone with several large (> 3cm) Sandstone pebbles at 23.87m - 23.91m								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Pb	% Ag	AVERAGES
23.97 m	31.72 m	<u>Red brown Siltstones / Sandstones / Mudstones</u> <u>23.97m - 31.72m</u> Dark brown - red brown silty mudstone. Minor greenish grey blebs.								
31.72 m	38.43 m	<u>Grey shale / Siltstones / Sandstones</u> <u>31.72m - 32.64m</u> Dark grey to black carbonaceous fossiliferous thinly laminated shale <u>32.64m - 35.1m</u> Pale grey thinly laminated silty fine-grained sandstone. Minor carbonaceous (vitrain) lenses, thin partings and laminations surrounded by disseminated pyrite. <u>Carbonaceous pyrite at: 33.25m - 33.45m</u> pyritic lenses. 33.55m - 33.85m massive blotch of pyrite surrounding a carbonaceous/calcareous nodule. <u>B.p. 80°C/a.</u> <u>35.1m - 37.52m</u> Dark grey friable fissile shale <u>37.52m - 38.43m</u> Grey thinly laminated fine grained sandstone <u>B.p. 75°C/a.</u>	3243	32.8	33.6	0.8m	4001		1.9	
38.43 m	44.84	<u>Brown Sandstone / Siltstone / Mudstone</u> <u>38.43m - 39.65m</u> Greenish grey - brown mottled silty, fine-grained sandstone. Minor cross laminations <u>B.p. 75-80°C/a.</u> <u>39.65 - 44.6m</u> Greyish brown massive uniform fine-grained → medium grained micaceous sandstone. Porosity high throughout.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>44.6 - 44.9m</u> Red brown calcareous argillaceous pebbles set in a pale grey to white calcareous matrix <u>44.9m - 46.5m</u> Pale greyish brown massive medium-course grained sandstone. (Calcareous matrix.) Minor reddish brown hematite stained clasts / pebbles. <u>46.5m - 54.5m</u> Greyish brown thin bedded / laminated uniformly fine-grained micaceous sandstone. Fe and hematitic staining blotches, partings, lenses throughout. Minor small (≤ 5mm) red brown (hematite stained) silty clasts set in a pale grey brown sandy calcareous matrix at the base of sandstone unit → 53.4m - 54.5m <u>B.p. ~ 75-80°C/a</u> <u>54.5m - 60.1m</u> Medium brown thinly laminated fine-grained sandstone. Minor cross laminations. Minor small greenish grey calcareous clasts. Massive brown fine grained sandstone from 59.1m - 60.1m. (Contact with lower unit consists of a 0.1m section composed of large greenish grey clasts set in a red brown mudstone argillaceous matrix) <u>60.1m - 66.1m</u> Reddish brown thinly laminated sandy siltstone. Minor grey calcareous clasts in the upper 0.5m. Thin 0.1m red brown conglomerate consisting of elongated pebbles parallel to bedding ≤ 2cm in size underlain by 0.2m of grey fine-grained sandstone <u>B.p. 75-80°C/a.</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	AVERAGES
		<u>66.1m - 71.9m</u> Dark brown friable mudstone <u>71.9m - 136.1m</u> Red-brown siltstones, fine grained sandstones, mudstones. 75% laminated sandy siltstones - silty mudstones. <u>B.p. = 75°-82°c/a.</u> Hematite blotches throughout - minor greenish grey mottling between 76.6m - 71.1m. <u>136.1m - 147.0m</u> Brownish grey thinly laminated fine to medium grained sandstone, Minor hematite stained partings throughout. Several large grey laminated silty cobbles / clasts at base of sandstone unit between 146.0m - 147.0m <u>B.p. = 70°c/a.</u> <u>Grey Sandstones.</u>								
147.0m	149.48m	<u>147.0m - 147.28m</u> Pale grey thin bedded fine grained sandstone <u>B.p. 80°c/a</u> <u>147.28m - 147.42m</u> Pale grey laminated fine grained sandstone. <u>Mineralization: 147.28.</u> Thin carbonaceous lamination with several small pyritic pods 6 3mm in length, along with what appears to be several small lenses of disseminated chalcocite <u>147.32 - 147.42m</u> Several 1 cm thick beds of carbonaceous laminated fine-grained grey sandstone, numerous flattened pods of chalcocite, pyritic lenses surrounded by disseminated chalcocite.	3248	147.2	147.4	0.2m	1.29	0.02	60.01	

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	AVERAGES	
		147.63m - 147.8m Grey laminated fine-grained micaceous sandstone - several thin lenses of pyrite (≤ 2 cm in length) surrounded by disseminated chalcocite	3249	147.58	147.7	0.12m	0.64	0.02	40.01		
		147.8m - 148.48m Pale grey uniformly fine grained sandstone. 148.35m - thin carbonaceous parting with several small ≤ 3 mm elliptically shaped pods of chalcocite and pyrite.	3250	148.16	148.36	0.20m	0.42	0.01	40.01		
		148.48 - 148.53m Thin sandy carbonaceous bed with numerous pyritic pods (chalcocite?) elliptically shaped parallel to bedding. <u>B.p. $\approx 79^{\circ}\text{C/a}$.</u>									
		148.53 - 149.48m Pale greenish grey uniform fine grained sandstone. - Minor silty clasts ≤ 2 cm in size.									
149.48m	151.48m	149.48 - 151.48 Red brown silty mudstone.									
<u>End of Hole.</u>											

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash N.S. 45

LOCATION Wentworth Center, Nova Scotia. Li: 5235

NTS CODE . 11E12. - 51

HOLE NO. . . . P-26 Depth : 151.5 m

LATITUDE 45° 41' 35" N AZIMUTH — PURPOSE

DEPARTURE . 63° 33' 00" W DIP - 90° STARTED . 3. June 1981.

ELEVATION . 1048 m CORE . BQ Wireline COMPLETED 4 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM . 5,061,650 N. .
378,600 E.

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	5.5m	<u>Overburden</u>								
5.5m	12.5-15m	<u>Red Brown Sandstones / Siltstones / Mudstones</u>								
		<u>5.5m - 5.6m</u> Red brown laminated fine grained sandstone B.p. 80-90°C/a								
		<u>5.6m - 7.1m</u> Dark red brown broken up mudstone								
		<u>7.1m - 7.5m</u> Reddish brown slightly fissile mudstone. Numerous greenish grey blebs and blotches with minor flakes of chalcocite ≤ 2 mm in size.								
		<u>7.5m - 9.3m</u> Dark reddish brown highly broken up mudstone. Minor greenish grey blebs - no mineralization Hematite staining along B.p. 80-90°C/a								
		<u>9.3m - 12.5m</u> Dark reddish brown mudstone - (broken up) - Numerous greenish grey blebs ≤ 2 mm in size - no mineralization.								
		<u>12.5m - 18.1m</u> Dark red brown silty mudstone. Minor greenish grey blebs throughout. B.p. 80°C/a Micaceous where mudstones interbedded with siltstones.								
		<u>18.1m - 19.1m</u> Dark reddish brown massive fine grained micaceous sandstone.								
		<u>19.1m - 20.82m</u> Reddish brown silty mudstone, minor laminations (Broken up) B.p. 80°C/a								
		<u>20.82m - 22.0m</u> Brown thinly laminated fine-grained micaceous sandstone B.p. 80°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>21.4m - 21.6m</u> Greenish grey medium grained micaceous sandstone. Mottled greenish grey brown at the base $\approx$ 21.6 m. <u>22.0m - 22.5m</u> Dark brown uniform medium grained micaceous sandstone. <u>22.5m - 27.81m</u> Dark reddish brown, massive, micaceous, arkosic to coarse grained sandstone. Minor grey, brown pebbles throughout. <u>B.p. poor</u> <u>27.51m - 35.0m</u> Reddish brown laminated silty fine-grained sandstone. Minor cross laminations. Several greenish grey mottling at <u>28.9m - 29.1m</u> and between <u>34.4m - 35.0m</u> <u>B.p. 75-80°C/a</u> <u>35.0m - 35.66m</u> Greyish brown thin bedded fine grained micaceous sandstone. <u>35.66m - 38.0m</u> Brown laminated fine grained sandstone. 0.1m greenish grey calcareous siltstone at base of brown sandstone <u>B.p. 80°C/a</u> Minor greenish grey clasts at 36.7m - 36.8m. <u>38.0m - 45.2m</u> Interbedded dark brown laminated siltstone and silty mudstone. Numerous greenish grey calcareous clasts throughout, $\leq$ 2mm in size. Minor hematite staining. <u>45.2m - 47.85m</u> Greyish brown laminated fine grained sandstone. Wavy cross laminations throughout. 0.1m of								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		mottled disturbed greenish grey / grey brown sandstone at the base of unit. <u>B.p. 80°C/a</u> <u>47.85m - 51.2m</u> Dark reddish brown slightly fissile silty mudstone. Minor greenish grey blotches between 50.9m and 51.2m. <u>B.p. 80°C/a - 90°C/a</u> <u>51.2m - 55.0m</u> Dark brown fine grained sandstone - minor thin silty partings throughout. 52.2m - 52.5m - minor greyish white calcareous clasts $\leq 3\text{mm}$ in size. 0.2m of red brown mudstone at base <u>B.p. 75-80°C/a</u> of silty sandstone unit. <u>55.0m - 56.0m</u> Greyish brown to brownish grey massive medium grained sandstone $\rightarrow$ gradational to coarse grained sandstone $\rightarrow$ arkose. <u>56.0m - 63.7m</u> Brownish grey to pale grey massive calcareous arkose. Micaceous throughout - Minor quartz / argillaceous fragments / chips. 63.0 - 63.15m Siliceous pebble / granular conglomerate / lithic quartz sandstone, underlain by 10cm of brownish grey fine grained sandstone. 63.25 - 63.7m grey thin bedded coarse grained sandstone <u>B.p. 83°C/a</u> <u>63.7m - 66.24m</u> Dark red brown laminated silty fine - grained sandstone. Numerous greenish grey blotches and small calcareous clasts throughout. <u>66.24 - 66.94m</u> Medium grey brown laminated fine grained sandstone. Minor cross laminations <u>B.p. 78°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>66.94m - 67.3m</u> Pale greenish grey thin bedded fine-grained sandstone. Biotite flakes along bedding plane. <u>B.p. = 80°C/a</u>								
		<u>67.3m - 70.9m</u> Pale brown thin bedded fine grained micaceous sandstone. Slightly calcareous matrix. Minor thin red brown argillaceous laminations <u>B.p. 75-80°C/a</u>								
		<u>70.9m - 71.2m</u> Red brown silty calcareous pebble conglomerate - Pebbles are red brown in color, elongated and flattened parallel to bedding set in a white/grey calcareous matrix.								
		<u>71.2m - 71.65m</u> Brown laminated fine grained sandstone. <u>B.p. 78°C/a</u>								
		<u>71.65m - 72.1m</u> Dark reddish brown silty calcareous pebble conglomerate - white calcareous matrix. Flattened - elliptical pebbles ≤ 3 cm in length.								
		<u>72.1m - 78.0m</u> Brown thinly laminated fine-grained micaceous sandstone. Minor silty/muddy partings ≤ 4 cm in thickness - Minor greenish grey/brown mottling with several calcareous clast at 75.6m <u>B.p. 75-80°C/a</u>								
		<u>78.0m - 78.33m</u> Greenish grey $\rightarrow$ brown mottled fine-grained sandstone.								
		<u>78.33m - 78.73m</u> Red brown silty calcareous pebble conglomerate. Elongated pebbles ≤ 3 cm in length are set in a greenish-grey white calcareous matrix.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>78.73m - 81.1m</u> Dark red brown silty mudstone. Minor hematite staining along B.p. Slightly fissile throughout. <u>81.1m - 86.2m</u> Pale greyish brown uniformly thin laminated fine-grained micaceous sandstone. Minor red brown silty conglomerate at $\approx 85.8m - 86.0m$. <u>83.8m - 84.0m</u> Dark brown silty mudstone parting. <u>86.2m - 87.0m</u> Greenish grey $\rightarrow$ brown friable shale <u>87.0m - 87.5m</u> Dark brown silty/sandy hematitic pebble conglomerate - slightly calcareous. <u>87.5m - 89.3m</u> Dark red brown silty friable mudstone B.p. poor <u>89.3m - 90.52m</u> Brown laminated fine-grained micaceous sandstone. Minor cross laminations <u>B.p. 80°C/a</u> <u>90.52m - 98.5m</u> Dark brown friable fissile silty mudstone - minor silty partings and laminations throughout Minor greenish grey blots + mottling. <u>B.p. 80-90°C/a</u> . <u>98.5m - 101.5m</u> Medium brown wavy laminated $\rightarrow$ thin bedded fine-grained sandstone $\rightarrow$ gradational to a medium grained sandstone $\rightarrow$ silty lithic sandstone slightly calcareous B.p. 80-90°C/a <u>101.5m - 102.5m</u> Brown laminated sandy siltstone, minor cross laminations - minor greenish grey partings $\leq 1cm$ in thickness - minor cross laminations (poor B.p. $\approx 80^\circ C/a$)								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>102.5m - 108.5m</u> Dark reddish brown friable (laminated) siltstone - Minor greenish grey clasts ≤ 0.2 cm in size. Minor greenish blotches. <u>B.p. $80^{\circ}\text{C}/\text{a}$.</u> <u>108.5m - 114.4m</u> Dark brown laminated siltstone with numerous greyish brown sandy partings and lenses. Basal area 0.3m contains large silty clasts set in calcareous and muddy matrix. <u>114.4m - 117.1m</u> Medium brown laminated fine-grained sandstone. Minor greenish grey sandy stringers and blotches throughout. Laminations - contorted - cross laminated grades into a more massive brown sandstone $\approx 116 - 117.1$ m. <u>B.p. $75-80^{\circ}\text{C}/\text{a}$.</u> <u>117.1m - 117.4m</u> Dark brown laminated siltstone. <u>117.4m - 122.4m</u> Brown uniformly laminated sandy siltstone. Minor hematite staining / mica along bedding plane. <u>B.p. $78^{\circ}\text{C}/\text{a}$.</u> <u>122.4m - 122.8m</u> Greyish brown fine grained sandstone with numerous large red brown siltstone clasts up to 5cm in size. <u>122.8m - 125.15m</u> Brown thin bedded fine-grained medium grained micaceous sandstone. Gradational to underlying fine grained grey sandstone. <u>B.p. $80^{\circ}\text{C}/\text{a}$.</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
125.15m	125.6m	<u>Grey Sandstone.</u> <u>125.15m - 125.6m</u> - Grey to brownish grey fine-grained micaceous sandstone. Hematite blotches in the upper 0.1m and lower 0.1m of sandstone unit, grades into underlying greyish brown sandstones. <u>B.p. 75% a.</u> <u>125.6m - 127.0m</u> Greyish brown uniformly thinly laminated fine-grained micaceous sandstone. Numerous hematitic stained blotches elongated parallel to bedding. <u>127.0 - 128.2m</u> Dark brown - brown silty pebble conglomerate. 127.1m - 127.15m Silty red hematite stained B.p. granules ≤ 3 mm in size. <u>128.2m - 130.24m</u> Dark brown laminated sandy silty mudstone. <u>B.p. 84% a.</u> <u>130.24m - 137.4m</u> Dark brown laminated and cross laminated fine grained micaceous sandstone. <u>137.4m - 137.7m</u> Grey-greenish grey thin bedded calcareous fine-grained sandstone. <u>B.p. 78% a.</u> <u>137.7m - 141.25m</u> Medium-dark brown medium grained micaceous sandstone. 139.9 - 140.2m Greenish grey / brown interbedded siltstones. Minor laminations visible when sandstone interbedded with silty lenses. <u>141.25m - 141.4m</u> Brownish grey calcareous medium grained sandstone.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
<u>End of</u>	<u>Hole.</u>	141.40m - 151.48m Dark reddish brown → brown siltstone and silty mudstone - numerous greenish grey blotches and small < .5mm grey calcareous clasts. <u>B.p. 80-90°C/a.</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash . . N.S. 45 LOCATION Hantford, Nova Scotia . . L: 6168

NTS CODE . . 11E.13 29/28 HOLE NO. . . P-27 Depth: 144.7 m.

LATITUDE	45° 47' 10" N	AZIMUTH	—	PURPOSE	
DEPARTURE	63° 35' 00" N	DIP	-90°	STARTED	4 June 1981
ELEVATION	1015 m	CORE	BQ Wireline	COMPLETED	5 June 1981
SECTION				LOGGED BY	D. MacDonald
REF. GRID	WTM 5071.750 N 376.050 E				

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.0m	<u>Overburden</u>								
9.0 -	144.7	<u>Red + Brown Sandstone + Mudstone</u>								
		<u>9.0m - 9.4m</u> Brownish grey uniformly thin laminated f.g. SASN. <u>B.p. 60°C/a</u>								
		<u>9.4m - 45.97m</u> Reddish brown silty & laminated f.g. SASN's. <u>Avg B.p. 70 - 75°C/a</u>								
		<u>45.97m - 53.2m</u> Brownish grey massive to thin bedded medium grained micaceous SASN. (slightly calcareous)								
		<u>53.2m - 54.0m</u> Mottled brownish grey greenish grey silty mudstn - broken up - friable								
		<u>54.0m - 58.64m</u> Dark brown friable / broken up sandy silty. <u>B.p. 50°C/a</u>								
		<u>58.64m - 75.28m</u> Dark brown uniform / massive fine to medium grained mica SASN. <u>B.p. 72°C/a</u>								
		<u>75.28m - 88.63m</u> Dk red brown thin bedded fine grained SASN with numerous silty partings & 1cm in thick red. <u>B.p. 60°C/a</u>								
		<u>88.63m - 92.55m</u> Dark brown silty mudstn & silty's.								
		<u>92.55m - 95.83m</u> Medium brown uniform med grained SASN. (Poor bedding)								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>95.83m - 111.76m</u> Brown f.g. SASN's + friable silts. <u>B.p. 70°C/a</u>								
		<u>111.76m - 117.70m</u> Greyish brown coarse grained SASN.								
		<u>117.70m - 121.0m</u> Dark brown friable silt								
		<u>121.0m - 127.10m</u> Dark brown medium grained SASN with a. 2m quartzitic pebble conglomerate at base of unit. Slightly micaceous <u>B.p. 65°C/a</u>								
		<u>127.10m - 134.56m</u> Dark brown silty mudstn - minor greenish grey blebs - laminations. <u>B.p. 60°C/a</u>								
		<u>134.56m - 142.14m</u> Dark brown-grey brown medium grained SASN.								
		<u>142.14m - 144.50m</u> Pale grey silty-cherty pebble cong - sandy matrix.								
		<u>144.50m - 144.7m</u> Red brown silty mudstn								
		End of Hole								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash . . . N.S. 45

LOCATION L06072 . .

NTS CODE . . . IVE-13A . . . 53 . . .

HOLE NO. . . P-28 . . . Depth. 99.7 m. . .

LATITUDE .. 45°48'50" N AZIMUTH — PURPOSE

DEPARTURE .. 63° 35' 30" W DIP -90° STARTED .. 5 June 1981 ..

ELEVATION .. 1010 m. CORE .. BQ Wireline COMPLETED .. 5 June 1981

SECTION

LOGGED BY D. MacDonald

REF. GRID .UTM. 5073500 MN. . .
454100ME

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
0	4.4 m	<u>Overburden</u>								
4.4 m	7.8 m	<u>Grey SASN</u> <u>4.4m - 7.8m</u> Pale grey thin bedded medium grained SASN. - slightly calcareous matrix - Minor bititic laminations. Several carbonaceous fragments + minor disseminated pyrite // to Bp. at 5.2m. Grey SASN grades into a brown med gr SASN around 7.8m. <u>B.p. 75-80°C/a</u>								
7.8 m	94.6 m	<u>Red Brown SASN's / Silts</u> <u>7.8m - 10.0m</u> Med brown thinly laminated. Fine to medium grained mica SASN. - minor cross laminations throughout. Several DK red brown cong beds b/w <u>8.32m - 8.62m</u> <u>9.7m - 10.0m</u> . <u>B.p. 80°C/a</u> <u>10.0m - 19.8m</u> Dark red brown silty mudstr., minor greenish grey blotches throughout. <u>19.8m - 27.61m</u> Medium brown laminated - thin bedded f.g. mica SASN. <u>B.p. 70°-80°C/a</u>	3244	8.186	8.486	0.3m	0.02			
27.61 m	31.75 m	<u>Grey SASN</u> <u>27.61m - 31.75m</u> Medium grey uniform f.g. micaceous SASN.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	%G			AVERAGES
31.75 m	99.66 m	<u>Brown Silts/ ARDEN'S / SASN</u> <u>31.75m - 32.35m</u> Grey brown silty pebble cong. <u>32.35m - 69.6m</u> Dk reddish brown laminated siltstones + silty mudstones. Gradational to a greyish brown uniformly laminated sandy siltstn. <u>69.6m - 72.53</u> Greyish brown (silty) thin laminated sandy siltstn + f.g. mica SASN. <u>72.53m - 85.62m</u> Dk brown uniform BP. 75% silty mudstn. Minor sandy laminations + lenses. - Minor limonitic staining. <u>85.62 - 94.6m</u> Med grey thin bedded laminated fine grained mica SASN. - Minor carbonaceous + micaceous laminations btwn 87.57m - 88.57m (93.3m - 93.6m) Brown-Red silty pebble cong. (93.6m - 94.6m) Brownish grey thin bedded f.g. micaceous SASN. BP. 75.80% <u>94.6m - 99.66m</u> Dk reddish brown silty mudstn. End of Hole.								
	99.66		3245	87.57	88.07	0.5m	40.01			

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. NS:-45. . .

LOCATION Canns Mills., Nova Scotia. . L: 6167

NTS CODE . . . 11E-3A - 10

HOLE NO. . . P-29 . . . Depth 69.2 m . . .

LATITUDE .. 45° 45' 30" N AZIMUTH — PURPOSE

DEPARTURE 63° 42' 20" N... DIP -90°... STARTED 6 June 1981...

ELEVATION .. 1016 m. CORE .. BQ Wireline COMPLETED 6 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5068,550 N. . .
367,250 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	6.2m	<u>Overburden</u>								
6.2m	7.4m	<u>Brown Siltn</u> 6.2m - 7.4m Greyish brown uniformly laminated sandy siltn <u>B.p. 73°C</u>								
7.4m	11.44m	<u>Grey Shale / SASN / siltn</u> 7.4m - 9.15m Med to dk grey thinly laminated shale - Contact with underlying SASN sharp - minor cross laminations <u>B.p. 73°C</u> 9.15m - 9.9m Pale grey fine to medium grained micaceous SASN. - <u>MASSIVE</u> 9.9m - 10.1m Med grey thinly laminated fine grained SASN. - minor thin carbonaceous laminations btwn 9.9m - 10.0m - Minor disseminated pyrite → chalcocite. <u>Fossiliferous</u> 10.1m - 10.25m Pale grey fine grained SASN with minor thin wavy carbonaceous laminations. <u>B.p. 75°C</u> 10.25 - 10.41m Coalified linear stem structure partially replaced by pyrite + intermixed with a pale grey SASN. - Alternating laminations of disseminated pyrite + ultrain. several large blotches								

100 1657 75

P-29

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	$\frac{g}{tonne}$ Ag	
		of disseminated pyrite. <u>10.21m</u> deformed pyritic lamination - minor spots of chalcopyrite granules intermixed with pyrite + vitrain several specs of covellite. <u>Bp. 65%</u> <u>10.41 - 10.58m</u> Pale grey uniform f.g S&SN several thread like carb laminations. <u>Bp. poor</u> <u>10.58 - 11.44m</u> Med grey friable soft mdstn (Broken up.) <u>Red Brown Mdstr's S&SN's</u> End of Hole	3246	10.25	10.58	0.83m	0.37	0.34	0.03	12.7	
11.44	69.18										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash. N.S. 45

LOCATION Conns. Mills., Nova Scotia. .41:6175

NTS CODE . 11E.13A . - 14

HOLE NO. . . . P-30 . . . Depth: 60 m . . .

LATITUDE 45°46'40"N AZIMUTH — PURPOSE —

DEPARTURE 63° 43' 00" N DIP -90° STARTED 6 June 1981 . .

ELEVATION .. 10.13 m CORE .. BQ. Wireline COMPLETED 6 June 1981 ..

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 50701800 N. . .
366,020 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	6.1m	<u>Overburden</u>								
		<u>6.1-6.2m Brown Siltn</u>								
6.2m	9.36m	<u>Grey shale / mudstn / SASN's</u>								
		<u>6.2m - 7.65m</u> Dk grey soft friable shale + mudstn. Thin carbonaceous laminations at 6.8m. Slightly fossiliferous - Along B.P.								
		<u>B.P. 80°C/a</u>								
		<u>7.65m - 8.86m</u> Medium grey poorly laminated fine grained micaceous SASN. Minor thread like carbonaceous stringers & fragments // to bedding btwn 8.56m - 8.86m. Thin greenish grey - green silty argill pebble cong from <u>8.86m - 8.30 - 8.35m.</u> <u>B.P. 73°C/a</u>								
		<u>8.86m - 9.0m</u> Medium grey argill pebble cong - pebbles are elliptical to flattened // to bedding set in a pale grey sandy matrix.								
		<u>9.0m - 9.36m</u> Greenish grey uniform sandy siltn. Poor bedding. Base of siltn becomes mottled with the underlying red mudstones & siltns.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
9.36m	60.04m	<u>Red silt'n's / SASN's / Mudstns</u> <u>9.36m - 13.2m</u> Dark reddish brown thinly laminated / cross laminated silt'n + v.f.g. SASN. <u>B.p. 70°C/a</u> <u>13.2m - 13.6m</u> Red brown silty pebble conglomerate. <u>13.6m - 30.0m</u> Dark brown thinly laminated silty SASN's + mdstn. <u>B.p. 85°C/a</u> <u>30.0m - 41.75m</u> Dark reddish brown uniform thin bedded fine to medium grained SASN. <u>41.75m - 47.85</u> Brown thinly laminated sandy silt'n <u>B.p. 75-80°C/a</u> <u>47.85m - 50.9</u> Dark greyish brown friable mdstn. - Numerous greenish grey blebs throughout. Poorly bedded (soft) <u>50.9m - 56.9m</u> Medium brown uniform f.g. SASN. <u>56.9m - 58.1m</u> Dark brown medium grained SASN. - Minor hematite staining. <u>B.p. 75°C/a</u> <u>58.1m - 60.04m</u> Reddish brown argill silt'n. Poorly bedded. End of Hole								
	60.04									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Dugwash NS 45

LOCATION Pugwash River, Nova Scotia. L: 6178

NTS CODE . . 4E-13A 38

HOLE NO. P-31... Depth: 13.62m.....

LATITUDE 45°47'50" N. AZIMUTH — PURPOSE

DEPARTURE . 63°43'00" W DIP . . . -90° STARTED . 7 June 1981 . .

ELEVATION ... 1016 m. CORE .. BQ. Wireline. COMPLETED .. 7 June 1981.

SECTION

LOGGED BY D. MacDonald.

REF. GRID .4TM. 5073,850.N . . .
366,800E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	6.03m	<u>Overburden</u>								
6.03m	102.02	<u>Red-Brown SASN's / Silts / Mdsn's</u>								
		<u>6.03m - 13.5m</u> Reddish brown friable mdsn - poor bedding plane.								
		<u>13.5m - 15.82m</u> Greenish grey mottled red brown coarse grained SASN. <u>B.p. 70°C/a</u>								
		<u>15.82m - 19.37m</u> Brown uniformly fine grained micaceous SASN. Poor B.p.								
		<u>19.37m - 24.95m</u> Dark reddish brown soft mudstone								
		<u>24.95m - 25.85m</u> Greenish grey laminated med grained micaceous SASN. <u>B.p. 60-70°C/a</u>								
		<u>25.85m - 31.87m</u> Brown uniformly thin bedded med grained micaceous SASN - minor hematitic blotches & banding. <u>B.p. 65°C/a</u>								
		<u>31.87m - 35.29m</u> Dark brown friable broken up silty mdsn. - Base of unit is mottled greenish grey. <u>B.p. poor</u>								
		<u>35.29m - 66.14m</u> Dark brown to reddish brown friable siltstones - fine grained SASN's - Hematite stained thin partings within the siltstones. <u>B.p. 70°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>66.14m - 66.34m</u> Greenish grey → brown modeled fine grained micaceous SASN.								
		<u>66.34 - 71.59</u> Brown uniform- medium grained micaceous SASN. - 3m of red brown silty pebble conglomerate consisting of flattened + elliptical silty pebbles + clasts within a calcareous sandy matrix. <u>B.p. 65-70°C/a</u>								
		<u>71.59m - 87.0m</u> Red brown laminated silty fine grained SASN. Numerous calcareous greenish grey clasts ≤ 1cm in size <u>B.p. 75°C/a</u>								
		<u>87.0m - 91.15m</u> Med brown → dark grey brown uniformly laminated f.g. SASN. Minor hematitic mottling. <u>B.p. 75°C/a</u>								
		<u>91.15m - 98.55m</u> Dark grey massive medium grained micaceous SASN. 97.25 - 97.40m Red brown argill silty pebble cong → pale grey calc sandy matrix.								
		<u>98.55m - 99.55</u> Medium to dark brown thinly laminated silty SASN. - minor cross laminations <u>B.p. 60°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
102.02	136.24m	<u>99.55m - 102.02m</u> Pale brownish grey laminated fine grained SASN. <u>B.p. 60°/m</u> <u>102.02m - 104.68m</u> Dark grey laminated / cross laminated v.f.g. micaceous SASN Mica lamina defines <u>B.p. at 75°/m</u> <u>104.68m - 127.1m</u> Red → dark brown silt's + friable mudst's. <u>127.1m - 128.5m</u> Brownish grey. thin bedded fine grained SASN (minor grey carbonaceous fragments) <u>B.p. 70°/m</u> <u>128.5m - 136.24m</u> Red brown interbedded silt's + v.f.g. SASN.								
End of Hole 136.24										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY. Pugwash N.S. 45

LOCATION Roslin, Nova Scotia, Li: 6328

NTS CODE . 11E-13 . . . — 2

HOLE NO. . . P-32 . . . Depth : 163.7 m . . .

LATITUDE .. 44° 45' 25" N ... AZIMUTH PURPOSE

DEPARTURE .. 63° 46' 20" N. DIP - 90° STARTED .. 8. June 1981.

ELEVATION .. 1046 m. CORE .. BQ Wireline COMPLETED .. 10 June 1981

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5049,880 N. . . .
362,400 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH					AVERAGES
0m	4.9m	<u>Overburden</u>									
4.9	46.2	<u>4.9m - 5.18m</u> Pale grey broken up arkose									
		<u>5.18m - 6.16m</u> Dark greenish grey / red brown mottled friable silty mudstone. Poor bedding plane.									
		<u>6.16m - 11.24m</u> Pale grey → beige pebble conglomerate / arkose broken up - fractured.									
		<u>11.24m - 11.64m</u> Dark reddish brown uniform fine-grained sandstone.									
		<u>11.64m - 15.80m</u> Dark brown thinly laminated / fissile silty mudstone B.p. 75-80°C/a.									
		<u>15.80m - 18.7m</u> Dark red / brown uniform siltstone - several thin greenish grey siltstone banding.									
		<u>18.7m - 22.9m</u> Brown thinly laminated fine-grained sandstone. B.p. 70°C/a.									
		<u>22.9m - 25.0m</u> Brown-yellowish brown friable siltstone Reddish brown hematite staining throughout.									
		<u>25.0 - 25.75m</u> Pale brown wavy laminated fine-grained sandstone sericite film along fractures B.p. poor									
		<u>25.75m - 43.1m</u> Dark brown to reddish brown friable siltstone. Minor greenish grey reduced silty stringers. Yellowish brown siltstone between 25.8m - 26.5m and 30.0m - 32.6m.									
		<u>43.1m - 44.3m</u> Dark brown thin bedded medium grained sandstone. Hematite specks throughout. B.p. 65°C/a									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	AVERAGES
46.2m	48.4m	44.3m - 45.12m Greyish white / pale brown pebble conglomerate, sandy brown matrix. Minor hematitic stained pebbles and clasts. B.p. poor mineral								
		45.12m - 45.7m Dark red brown friable siltstone 45.7m - 46.2m Pale brown - beige mottled fine-grained sandstone.								
48.4m	48.4m	<u>Grey Sandstones / Arkose / Shale</u> 46.2m - 47.65m Pale grey - white medium to coarse grained - arkosic sandstones - Carbonaceous stringers and disseminated pyrite at 47.25m - 47.55m Arkosic base (0.1m) fossiliferous? 47.55m - Pyrite stringer replacing coaly matter poor B.p. 65% clay 47.65m - 48.15m Pale grey - dark grey thinly laminated fine-grained sandstone 47.65m - 47.95m - Numerous thin wispy carbonaceous stringers and laminations, minor pyritic lenses 6.1cm in size B.p. 70% clay mineral	3247	47.25	48.15	0.9m	0.10	0.05	4001.	
		48.15m - 48.3m Pale grey white uniform - massive medium grained sandstone. 48.3m - 48.4m Greenish grey friable (talc) siltstone. <u>Red Brown Siltstones / Sandstones / Mudstones</u> 48.4m - 99.56m Reddish brown friable siltstones and laminated sandy siltstone 99.56m - 101.5m Greyish brown medium grained sandstone Minor red brown elliptically shaped (hematite) stained clasts.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
140.0m	154.33m	<u>101.5m - 101.8m</u> Pale greyish brown thinly laminated fine grained sandstone. Slightly fossiliferous along the bedding plane. <u>B.p. 72°C/a</u> <u>101.8m - 140.0m</u> Dark brown - reddish brown laminated sandy siltstones / silty mudstones. <u>118.0m - 120.0m</u> Yellowish grey mudstone - mottled blood red hematite staining at base of unit. <u>Grey Sandstones / Conglomerate</u> <u>140.0m - 148.43m</u> Medium to pale grey massive (thin bedded) uniformly medium grained sandstone. Carbonaceous, laminated between 140m - 140.8m <u>B.p. 65°C/a - 70°C/a</u> <u>148.43m - 149.72m</u> Grey-greenish grey sandy pebble conglomerate <u>B.p. 65°C/a</u> <u>149.72m - 150.49m</u> Medium grey laminated - thin bedded medium grained sandstone. <u>B.p. 55°C/a</u> <u>150.49m - 150.89m</u> Grey / brown silty argillaceous thin bedded pebble conglomerate - several. <u>150.89m - 151.48m</u> Medium grey thin bedded medium grained sandstone → grades into a dark grey pebble conglomerate. 151.38m - 151.48m. <u>151.48m - 151.51m</u> Medium grey laminated fine-grained sandstone. laminations deformed - wavy - wispy carbonaceous matter. Minor pyritic lenses surrounded by carbonaceous matter.								

RG 1652-75

P. 3

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
154.33m	163.67m	151.51 - 154.33m Grey thin bedded medium grained sandstone. (Several carbonaceous, fossiliferous, laminations defining bedding plane at B.p. 60°C/a) <u>Red Mudstones / Siltstones</u> 154.33m - 155.08m Dark brown thinly laminated sandy siltstone B.p. 70°C/a 155.08m - 155.78m Medium grey thin / wavy laminated carbonaceous fine grained sandstone. Carbonaceous along bedding plane (fissile) B.p. 70°C/a 155.78m - 163.67m Dark red brown silty mudstone - Numerous greenish grey red blotches and partings ≤ 4cm in thickness * 154.26m - fracture with chalcocite flake.								
End of Hole	163.67									

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	2.3m	<u>Overburden</u>								
2.3	151.48	Red brown - Brown Sandstone + Mudstone <u>2.3m - 22.0m</u> Red brown laminated thin bedded f.g. SASN → silty SASN's. <u>B.p. 75% / a</u> <u>22.0m - 30.9m</u> Greyish brown thin bedded medium to coarse grained SASN. - minor hematitic argill. clasts. <u>B.p. 67% / a</u> <u>30.9m - 41.65m</u> Red brown laminated sandy siltst fissile between 38.0m - 39.5m. <u>B.p. 70 - 75% / a</u> <u>41.65m - 49.2m</u> Medium brown laminated medium grained micaceous SASN. <u>B.p. 70% / a</u> <u>49.2m - 50.80m</u> Red brown porous medium grained SASN with numerous red brown hematitic clasts. ≤ 1cm in size - B.p. poor. <u>50.08m - 67.3m</u> Red brown laminated f.g. SASN. / siltstns <u>AVG B.p. 68% / a</u> <u>67.3m - 67.4m</u> Greyish white quartz pebbles flattened set in a dark red brown sandy matrix. <u>67.4m - 72.5m</u> Greenish grey argill. / silt pebble conglomerate → brown sandy matrix.								

P-33

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>72.5m - 73.7m</u> Red brown (poorly laminated) fine grained SASN. - minor cross laminations <u>B.p. 70-75%_a</u>								
		<u>73.7m - 76.4m</u> Red brown laminated sandy siltstn / mdstn. <u>B.p. 75%_a</u>								
		<u>76.4m - 80.35m</u> Dark brown porous thin bedded medium grained SASN <u>B.p. 75%_a</u>								
		<u>80.35m - 95.5m</u> Dark brown-red brown friable siltstn's - greenish grey mottling - blebs throughout. laminated f.g. SASN. <u>B.p. 70%_a</u>								
		<u>95.5m - 104.6m</u> Dark brown thin bedded medium grained porous SASN. Greenish grey coarse SASN between 104.0m - 104.31m. <u>B.p. 75%_a</u>								
		<u>104.6m - 109.1</u> Red brown silty mdstn.								
		<u>109.1m - 112.3m</u> Pale grey uniform med grained SASN → mottled brownish red throughout. <u>B.p. 72%_a</u>								
		<u>112.3m - 151.48</u> Dark red brown fine grained → medium grained SASN.								
151.48		end of Hole								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash... N.S.45..... LOCATION .. Oxford .. Nova Scotia .. Li: 6332
NTS CODE .. 11E 12. T. 101..... HOLE NO. P-34..... Depth: 151.5m.....

LATITUDE	.. 45° 44' 30" N ..	AZIMUTH	 —	PURPOSE	
DEPARTURE	.. 63° 51' 00" W ..	DIP	 -90°	STARTED	12 June 1981 ..
ELEVATION	.. 1008 m	CORE	.. BQ. Wireline	COMPLETED	12 June 1981 ..
SECTION				LOGGED BY	D. MacDonald

REF. GRID UTM. 5067,000 N. . .
355,400 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	10.2m	<u>Overburden</u>								
10.2m	10.84m	<u>Grey Sandstone Conglomerate</u>								
		10.2m - 10.54m Greenish grey massive coarse grained sandstone - gradational to a pebble conglomerate at base of unit. (Graded bedding) B.p. poor								
		10.54m - 10.84m Greenish grey argillaceous pebble conglomerate. Pebbles are elliptical in shape ≤ 1 cm in size set in a grey sandy matrix.								
10.84m	20.5m	<u>Red / Brown Sandstones / Siltstones.</u>								
		10.84m - 15.3m Dark brown thin bedded medium grained micaceous sandstone. B.p. $\sim 70^\circ\text{C/a}$								
		15.3m - 20.5m Dark reddish brown laminated friable siltstone / sandy siltstones $\rightarrow$ gradational to a coarse grained sandstone at base. Manganese staining between 20.4m - 20.55m B.p. 70°C/a								
		20.5m - 26.0m Pale grey - silty - cherty pebble conglomerate. Pebbles ≤ 5 cm in size subrounded set in a coarse grained Manganese - hematite stained sandy matrix. Unit broken up.								
		26.51m - 27.15m Dark brown, coarse grained sandstone - numerous quartz pebbles and argillaceous clasts.								
		27.15m - 33.04m Dark brown massive coarse grained sandstone - Greenish grey - red banded shale between 30.03m - 30.5m B.p. poor 70°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
37.1m	38.12m	<u>33.04m - 37.1m</u> Dark brown - pale grey cherty pebble conglomerate - coarse brown sandy matrix (broken up) <u>Grey Shale</u> <u>37.1m - 38.12m</u> Greenish grey friable fossiliferous shale. Carbonaceous fossiliferous matter along fissile bedding planes, also disseminated pyrite along bedding plane.								
38.12m	39.1m	<u>Brown Sandstone.</u> <u>38.12m - 39.1m</u> Brown argillaceous lithic sandstone - minor red/black hematitic stained pebbles - grades into a siliceous conglomerate at 39.0m - 39.1m (Poor Bedding)								
39.1m	41.45m	<u>Grey Coarse Sandstone / Arkose / Conglomerate.</u> <u>39.1m - 39.7m</u> Pale grey very coarse grained sandstone - minor grey cherty pebbles > Arkosic? poor B.P. <u>39.7m - 39.85m</u> Massive crystalline pyrite - deformed around and replacing carbonaceous matter. <u>39.85m - 40.13m</u> Pale grey siliceous / cherty pebble conglomerate - minor carbonaceous films along fractures surrounded by disseminated pyrite <u>40.13m - 41.45m</u> Grey siliceous arkose - minor cherty pebbles throughout. Uniform - massive. <u>41.45m - 42.2m</u> Greyish brown thin bedded medium grained sandstone B.P. 65-70°C/a <u>42.2m - 42.6m</u> Grey fine grained sandstone - minor pyrite parallel to bedding. B.P. 70°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
42.6m	63.4m	<u>Brown Sandstones.</u> <u>42.6m - 44.4m</u> Brown siliceous lithic sandstone - grades into a mixed pebble conglomerate - brown argillaceous sandy matrix (<u>poor bedding</u>) <u>44.4m - 63.4m</u> Medium brown thin bedded medium to coarse grained sandstones - mixed pebble conglomerates <u>B.p. 65°C/a</u>								
63.4m	69.18m	<u>Grey Sandstones/Shale</u> <u>63.4m - 65.7m</u> Pale greyish brown calcareous coarse grained sandstone <u>Poor B.p. ~ 70°C/a.</u> <u>65.7m - 65.97m</u> Dark grey - black shale - broken up. <u>65.97m - 66.21m</u> Pale grey uniform medium grained sandstone. <u>66.21m - 69.18m</u> Pale grey thin bedded / uniform medium to coarse grained micaceous sandstone. Carbonaceous shale partings contained disseminated pyrite at 68.95m - 69.0m and 69.03m - 69.2m. Mottled greenish-brown at 69.18m.								
69.18m	73.23m	<u>Red Brown Siltstones - Sandstones</u> <u>69.18m - 70.4m</u> Reddish brown laminated / sandy siltstone gradational to a coarse grained brown sandstone. <u>70.4m - 73.3m</u> - Greyish brown massive coarse grained sandstone gradational to underlying greenish grey arkose.								
73.3m	78.4m	<u>Grey Arkose / Coarse Grained Sandstones / Shale</u> <u>73.3m - 78.4m</u> Massive greenish grey arkose (silty matrix) <u>78.4m - 79.7m</u> Dark brown laminated / cross laminated fine-grained sandstone <u>B.p. 65-70°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
96.32m	126.0m	<u>79.7m - 80.6m</u> Dark grey black thinly laminated shale B.p. 70°C/a								
		<u>80.6m - 83.6m</u> Pale grey thin bedded-laminated medium to coarse grained sandstone B.p. 70°C/a Minor thin carbonaceous laminations and disseminated pyrite.								
		<u>83.6m - 87.47m</u> Pale greenish grey arkose → pebble Conglomerate - Massive Poor B.p. 72°C/a								
		<u>87.47m - 94.18m</u> Dark red brown laminated sandy siltstone Red hematite staining from 93.57m - 94.18m B.p. 70°C/a								
		<u>94.18m - 96.32m</u> Pale brown uniform massive medium grained sandstone.	3251	94.4	95.9	1.5m	0.01			
		<u>Grey Sandstones / Arkose / Conglomerates / Shale.</u>								
		<u>96.32m - 102.71m</u> Pale greenish grey thin bedded to massive medium grained sandstone, conglomeritic between 97.9-98.2m and 101.8-102.0m. Greenish grey shale partings at 99.4-99.6m B.p. 70°C/a								
		<u>102.71m - 103.0m</u> Pale greenish grey arkose.								
		<u>103.0m - 104.76m</u> Medium grey massive fine to medium grained sandstone - * Mottled and deformed blotches and stringers - partings of carbonaceous matter - ulrain - fusain being replaced by massive pyrite between 103.67m - 103.68m, 104.04 - 104.14m, 104.14 - 104.6m, 104.9 - 104.96m.	3252	103.66	104.73	1.07m	0.01			
		<u>104.76 - 107.4m</u> Medium greenish grey thin bedded - massive coarse grained sandstone (silty matrix) - (Arkosic?) B.p. 70°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	%Ag tonne	AVERAGES
		<u>101.4m - 114.6m</u> Greenish grey thin bedded to uniform coarse grained sandstone. Several carbonaceous/pyritic partings at 107.83m, 111.56m and 111.76 - 111.86m. <u>B.p. 65°C/a</u> <u>114.6m - 115.03m</u> Dark grey black mudstone - slightly fissile minor disseminated pyrite along bedding plane. <u>115.03m - 126.0m</u> Pale grey uniform medium grained sandstone - Minor carbonaceous partings and stringers along with disseminated pyrite along bedding plane at 118.5m, 119.5m 0.1m of mixed pebble conglomerate at base of grey sandstone.									
126.0m	127.54m	<u>Red Brown Siltstone/Sandstone</u> <u>126.0 - 127.54m</u> Dark brown uniform sandy siltstone → gradational to a fine grained sandstone at base of unit.	1152	118.5	119.15	0.65m	40.01	0.04	40.01	1.1.	
127.54m	139.7m	<u>Grey Sandstones.</u> <u>127.54m - 138.8m</u> Pale grey thin bedded to massive medium grained to coarse grained sandstones. Minor carbonaceous pyritic lenses and partings at → 128.45m, 129.7m → 130.0m <u>B.p. 65°C/a</u> <u>138.8m - 139.7m</u> Greenish grey arkose - minor silty clasts 61cm throughout - base.	3255	128.33	128.62	0.29m	0.01				
			3253	129.71	130.11	0.4m	0.01				
139.7m	151.48m	<u>Red Brown Sandstones/Siltstones/Mudstones</u> <u>139.7m - 151.48m</u> Red brown laminated sandy siltstones, fine grained sandstones. Greenish grey - red hematite mottling between 148.23m - 148.73m <u>B.p. 70°C/a</u>									
End of	Hole										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. NS #5

LOCATION Riverview, Nova Scotia, Li: 6330

NTS CODE . . 11# 13B - 51

HOLE NO. . . P-35 . . . Depth 151.5 m . . .

LATITUDE 45° 48' 20" N AZIMUTH 7 PURPOSE

DEPARTURE 63°47'30"W DIP -90° STARTED 13 June 1981 . .

ELEVATION 1015 m CORE BQ Wireline COMPLETED 14 June 1981

SECTION LOGGED BY D. MacDonald

REF. GRID UTM. 5073,850 N. . .
359,800 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	15.0m	<u>Overburden</u> <u>Red Brown Beds</u> <u>15.0m - 15.1m</u> Grey blocky finegrained SASV. <u>15.1m - 17.37m</u> Reddish brown mudstn - laminated silty mudstn (broken up) <u>17.37m - 18.3m</u> Greenish grey to dk brown mottled silty SASV. <u>18.3m - 22.8m</u> Dark reddish brown friable silty mudstn + siltn. <u>22.8m - 24.3m</u> Greyish brown siltn - limonitic mottling throughout. <u>B.p. 70°C/a</u> <u>24.3m - 29.76m</u> Dark reddish brown friable broken up siltn. <u>Grey SASV's</u> <u>29.76m - 36.65m</u> Medium grey thin bedded fine grained micaceous SASV. <u>B.p. 74°C/a</u>								
36.65	151.49	<u>36.65m - 151.49m</u> Reddish brown thin bedded fig. SASV's - laminated siltn's - minor mudstn's - Greenish grey bebs + mottling within the silty mudstn's. <u>Avg. B.p. 70-80°C/a</u>								
End of Hole										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash.. NS 45

LOCATION Lake Killarney, Nova Scotia

NTS CODE . 11F.13. — .78.

HOLE NO. ... P-36 ... Depth: 151.5 m. ...

LATITUDE 45°50'40" N AZIMUTH — PURPOSE

DEPARTURE 63°52'25"W..... DIP -90°..... STARTED 14 June 1981.....

ELEVATION 1030m CORE BQ Wireline COMPLETED 15 June 1981

SECTION

LOGGED BY D. MacDonald

REF. GRID WTM. 5078 200 N. . . .
353 560E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	3.7m	Over burden								
3.7m	51.3m	Red brown sasn / siltn / mdsn								
		<u>3.7m - 16.1m</u> Medium brown thin bedded uniform - fine to medium grained micaceous sasv. <u>B.p. 65-70°/a</u>								
		<u>16.1m - 16.3m</u> Greenish grey uniform f.g. sasv.								
		<u>16.3m - 16.9m</u> Red brown friable mudsn.								
		<u>16.9m - 29.56m</u> Dark brown massive - thin bedded micaceous fine grained sasv. - Minor hematitic banding. <u>B.p. 65°/a</u>								
		<u>29.56m - 30.0m</u> Brown uniform coarse grained sasv. Numerous red brown argill laminated clasts ± 3cm in size.								
		<u>30.0m - 36.44m</u> Greyish brown silty mudsn.								
		<u>36.44m - 41.2m</u> Red brown laminated fine grained sasv. Minor cross laminations <u>B.p. 70°/a.</u>								
		<u>41.2m - 41.75m</u> Pale red brown mottled silty pebble conglomerate. greenish grey sandy matrix.								
		<u>41.75 - 51.3m</u> Reddish brown lam/cross lam								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
51.3m	56.96m	f.g. SASN. & sandy silt's. <u>B.p. 70°/a</u> <u>Grey Brown Silt/ SASN</u> <u>51.3m - 56.96m</u> Brownish grey thinly laminated micaceous f.g. grained SASN - minor limonitic blotches. Thin cong bed at base of unit, 0.5m in thickness. <u>B.p. 70°/a</u> <u>56.96 - 62.5m</u> Dark red brown friable broken up silt <u>62.5m - 66.3m</u> Dark grey - grey brown thinly laminated fine grained SASN, minor cross laminations - limonitic blotches <u>B.p. 70°/a</u> <u>66.3m - 82.3m</u> Reddish brown laminated cross laminated silt's, sandy silt's. - minor greenish grey mottling - small calcareous clasts <u>B.p. 70°/a</u> <u>82.3 - 92.5m</u> Pale brown thinly laminated, cross laminated fine grained SASN. <u>B.p. 73°/a</u> <u>92.5 - 92.7m</u> Pale brown silty hematitic pebble conglomerate - pebbles are flattened & elliptical in shape set in a red hematitic stained sandy matrix								

P-36

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>92.7m - 131.37m</u> Pale brown - red brown thinly laminated / cross laminated fine grained SASU - silt n's. <u>Avg. B.p. 70°</u>								
		<u>131.37m - 132.34m</u> Dark greenish grey - red mottled / laminated silt n + shale.								
		<u>132.34m - 132.90m</u> Grey laminated f.g. SASU.								
		<u>132.90m - 135.50m</u> Brown - greenish white argill mixed pebble cong.								
		<u>135.5m - 138.6m</u> Red brown sandy mudstn, minor greenish grey blotches.								
		<u>138.6m - 150.2m</u> Med brown laminated medium grained SASU. pebble cong parting at <u>148.33 - 148.43m</u> <u>B.p. 73°</u>								
		<u>150.2m - 151.48m</u> Reddish brown slightly fissile silt n.								
151.48		end of hole								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash . . N.S. 45 . . .

LOCATION Port Howe, Nova Scotia. Li: 6271

NTS CODE .11E.13.—94.

HOLE NO. . . . P-37 Depth 84.4 m. . . .

LATITUDE 45°51'20" N AZIMUTH — PURPOSE —

DEPARTURE $43^{\circ} 48' 15''$ W DIP 90° STARTED 15 June 1981 ..

ELEVATION .. 1015.m CORE .. BQ Wireline COMPLETED 15 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID . UTM. 5079,400 N. .
358,800 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	7.8m	<u>Overburden</u>								
7.8m	49.3m	<u>Red Brown SASN / siltst.</u>								
		<u>7.8m - 10.6m</u> Reddish brown laminated siltst. - minor greenish grey partings - slightly fissile. <u>B.p. 70°C/a</u>								
		<u>10.6m - 18.2m</u> Pale greyish brown laminated / cross laminated fine grained micaceous SASN. <u>B.p. 70°C/a</u>								
		<u>18.2m - 23.66m</u> Brown thinly laminated sandy siltst. - minor greenish grey silty blotches. <u>B.p. 70°C/a</u>								
		<u>23.66m - 32.11m</u> Red brown greenish grey mottled mudstn / siltstones - thinly laminated siltst near base of unit. <u>B.p. 80°C/a</u>								
		<u>32.11m - 49.3m</u> Dark red brown thin bedded medium grained micaceous SASN. - minor limonitic stained partings - slightly calcareous. <u>B.p. 78°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
49.3m	54.04m	<u>Grey - Brown SASN'S</u> <u>49.3m - 51.45m</u> Greyish brown uniform f.g micaceous SASN. - laminated at base of unit. <u>B.p. 75°C/a</u> <u>51.45 - 54.04m</u> Greenish grey laminated - mottled f.g. micaceous SASN. <u>B.p. 75°C/a</u>								
54.04	58.7	<u>54.04m - 58.7m</u> Dark red brown mudstn. - siltstn. Greenish grey blotches throughout.								
58.7	61.5m	<u>58.7m - 61.5m</u> Pale greenish grey thinly laminated - cross laminated shale & fine grained SASN. Purple - brown staining near base of unit <u>B.p. 75°C/a</u>								
61.5m	84.42	<u>61.5m - 73.4m</u> Greyish brown thin bedded to uniformly fine grained SASN. Minor red-brown argillaceous clasts; elongated // to bedding <u>B.p. 70°C/a</u> <u>73.4m - 84.42m</u> Medium grey to pale grey laminated uniformly fine grained micaceous SASN. <u>B.p. 78°C/a</u>								
End of Hole.										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. N.S. 45 ..

LOCATION Lake Killarney, Nova Scotia. Li: 6273

NTS CODE . 11.6.13. - 8.

HOLE NO. . . P-38 . . Depth. 111.8 m.

LATITUDE 45° 52' 30" N. AZIMUTH — PURPOSE

DEPARTURE $63^{\circ}54'05''N$ DIP 90° STARTED 16 June 1981..

ELEVATION .. 1030 m CORE .. BQ Wireline COMPLETED 16 June 1981.

SECTION LOGGED BY D. MacDonald

REF. GRID UTM. 5081999 N. . .
350, 980 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	3.7m	<u>Overburden</u>								
3.7	81.0	<u>Red Brown Sandstones</u>								
		<u>3.7m-4.5m</u> Broken up fine to medium grained micaceous sandstone <u>no. B.p.</u>								
		<u>4.5m-7.7m</u> Dark grey brown uniform fine grained micaceous sandstone (minor poorly visible laminations) - Hematite stained laminated at base <u>B.p. 68°C/a</u>								
		<u>7.7m-8.64m</u> Greenish grey soft mudstone.								
		<u>8.64m-10.1m</u> Dark brown silty micaceous mudstone <u>B.p. 65°C/a</u>								
		<u>10.1m-13.6m</u> Dark reddish brown laminated silty mudstone. <u>B.p. 70°C/a</u>								
		<u>13.6m-17.45m</u> Dark grey brown laminated - uniform medium grained micaceous sandstone <u>B.p. 70°C/a</u> - Mottled greenish grey - reddish brown at base of sandstone - Minor argillaceous clasts.								
		<u>17.45m-33.0m</u> Dark brown massive - slightly fissile silty mudstone. <u>B.p. poor</u> → fractures Minor greenish grey partings ≤ 1cm in thickness between 17.45m-18.00m Numerous greenish grey calcareous clasts and blotches - 20.45m - 21.0m.								
		<u>33.0m-37.2m</u> Brown thinly laminated - limonitic stained fine grained sandstone - minor cross laminations <u>B.p. 74°C/a</u>								
		<u>37.2m-44.1m</u> Medium brown thin bedded - hematitic medium grained micaceous sandstone. <u>B.p. 74°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	% Tenne	
81.0	91.9	<u>44.1m - 46.6m</u> Medium grey thin bedded medium grained micaceous sandstone. B.p. 70°C/a minimum									
		<u>46.6m - 48.8m</u> Pale grey laminated fine grained sandstone B.p. 78°C/a minimum									
		<u>48.8m - 51.25m</u> Brown friable siltstone - numerous greenish grey blebs throughout. (poorly bedded) (grades into a greyish brown shale)									
		<u>51.25m - 52.7m</u> Greyish brown friable shale.									
		<u>52.7m - 62.35m</u> Medium grey uniformly laminated fine to medium grained micaceous sandstone. Minor thin carbonaceous laminations throughout. B.p. 75°C/a minimum	3257	54.94	55.7	0.76m	40.01		0.01	41.0.	
		<u>62.35m - 63.01m</u> Dark grey friable shale.									
		<u>63.01m - 71.3m</u> Pale grey uniformly thin bedded medium grained micaceous sandstone B.p. 75°C/a minimum									
		<u>71.3m - 72.75m</u> Greenish grey-pink pebble conglomerate. Sandstone.									
		<u>72.75m - 81.0m</u> Brown → reddish brown poorly laminated sandy siltstone - Minor greenish grey reduced blotches. <u>Grey Sandstones</u>									
		<u>81.0m - 84.42m</u> Greyish brown thinly laminated fine-grained micaceous sandstone B.p. 70°C/a minimum									
		<u>84.42m - 87.57m</u> Pale grey thinly laminated fine-grained sandstone. Numerous thin carbonaceous laminations and lenses. No mineralization.	3256	86.27	87.03	0.76m					

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>87.57m - 91.9m</u> Dark greenish grey thin bedded-uniform medium grained sandstone <u>B.p. 70°C/a</u>								
91.9	111.86	<u>91.9m - 111.86m</u> Dark brown friable siltstones and laminated limonite mottled grey brown sandstone.								
<u>End of</u>	<u>Hole</u>	<u>111.86m</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash N.S. 45

LOCATION West Tatamagouche, Nova Scotia. L: 6209

NTS CODE . . 11E.11 - 37

HOLE NO. . . P-39. . . Depth: 151.5 m.

LATITUDE ..45°48'40" N.... AZIMUTH PURPOSE

DEPARTURE .. 63° 56' 20" W DIP .. -90° STARTED 18 June 1981 ..

ELEVATION .. 1061 m CORE .. BQ Wireline COMPLETED 19 June 1981.

SECTION LOGGED BY D. MacDonald

REF. GRID UTM 6,043,600 N...
394,300 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	Cu	Pb	Zn	Ag	AVERAGES
0	5.3m	<u>Overburden</u>									
5.3	11.5	<u>Grey Brown SASN's</u> 5.3m - 6.14m Pale brown calcareous sandy argillaceous pebble cong. Minor dark brown argill clasts / pebbles set in a pale grey white calcareous sandy matrix <u>B.p. 70% / a</u> 6.14m - 11.5m Pale greyish brown laminated fine grained mica SASN. Hematitic / limonitic blotches throughout. <u>B.p. 73% / a</u>									
11.5	13.9	<u>Grey Beds</u> 11.5m - 12.35m Medium grey thinly laminated shale. - minor pyritic granules. <u>B.p. 70% / a</u> 12.35m - 13.9m Greyish brown thinly laminated / cross laminated fine grained SASN. - Minor limonitic banding - blotches. <u>B.p. 70% / a</u> Red + Brown mudst + Sst. <u>B.p. 70% / a</u> 13.9m - 19.2m Brown med bedded fine → medium grained SASN. <u>B.p. 60-70% / a</u> 19.2m - 21.42m Red brown sandy argill ^{pebble} conglomerate. slightly calcareous matrix. <u>B.p. 65% / a</u>	3258	11.74	12.2	0.46m	22%			4.1gstr	
13.9	91.8										

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>21.42m - 50.5m</u> Alternating pale brown laminated sasn's and reddish brown friable siltstn's. - numerous greenish grey calcareous clasts $\pm$ 1cm in size. <u>Aug. B.p. 55-60°C/a</u> <u>50.5m - 51.55m</u> Brownish grey, thinly laminated f.g. micaceous sasn. limonitic- hematitic staining - minor cross laminations. <u>B.p. 70°C/a</u> <u>51.55m - 65.6m</u> Interbedded / Alternating red brown mdstn, laminated f.g. sasn, siltstn's. Red/brown siltstns are mottled greenish grey - numerous calc clasts. <u>B.p. 60°C/a</u> <u>65.6m - 67.64m</u> Pale brown uniformly thinly laminated f.g. mica sasn. <u>B.p. 70°C/a</u> <u>67.64m - 67.3m</u> Pale brown-greenish grey silty pebble conglomerate. calc matrix <u>67.3m - 75.5m</u> Dark red brown laminated sandy siltstn. - Minor greenish grey clasts & pebbles between 70.5-71.0m <u>B.p. 70°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>75.5m - 79.36m</u> Pale brown laminated fine grained SASN. Biotitic banding throughout. <u>B.p. 70%a</u>								
		<u>79.36m - 79.7m</u> Pale brown calcareous silty pebble conglomerate.								
		<u>79.7 - 83.0m</u> Dark brown - pale brown thinly laminated / cross laminated fine grained SASN. <u>B.p. 60%a</u>								
		<u>83.0m - 84.82m</u> Dark brown friable siltstn - broken up.								
		<u>84.82m - 91.80m</u> Red brown - grey brown laminated / cross laminated f.g. SASN - siltstn - grey brown mclstn at base of unit. <u>B.p. 73%a</u>								
91.8	97.72	<u>Grey SASN</u>								
		<u>91.80m - 97.72</u> Pale grey - med grey uniform fine grained SASN. - Minor red brown argill clasts between 93.57 - 97.0m. <u>B.p. 73%a</u>								
97.72	100 ^{151.48m}	<u>97.72 - 100.6m</u> Red brown laminated shale. with yellow stained banding throughout. <u>B.p. 75-80%a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	CU			AVERAGES
		<u>100.6m - 101.05m</u> Black waxy slightly fissile mdstr. (poor B.p.)	3259	100.6	101.05	0.45m	.04%			
		<u>101.05m - 133.19m</u> Red brown silty + laminated fig. SASN - minor greenish grey calcareous clasts - minor greenish grey mottling <u>B.p. 70°/h</u>								
		<u>133.19m - 133.94m</u> Pale yellowish brown silty pebble conglomerate. pebbles are ≤ 2 cm in size / elliptical in shape. <u>B.p. 70°/h</u>								
		<u>133.94m - 139.0m</u> Brownish red laminated fig. SASN. - numerous greenish grey blotches - specs throughout. $\rightarrow$ grades into a brownish white calc SASN. <u>B.p. 70°/h</u>								
		<u>139.0m - 145.08m</u> Red brown - white calcareous thin bedded med grained SASN.								
		<u>145.08m - 151.48m</u> Red brown laminated silty fig. SASN. - Numerous greenish grey calcareous blotches + blebs throughout.								
151.48		end of hole								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash. NS 45

LOCATION Brookdale, Nova Scotia. Li: 6291

NTS CODE . . . 214.16 - 42

HOLE NO. P-40 . . . Depth 148.3 m

LATITUDE .. 45° 48' 20" N AZIMUTH — PURPOSE

DEPARTURE . . 64°07'45" W. DIP . . . -90° STARTED . 19 June 1981 .

ELEVATION .. 1030m..... CORE .. BQ Wireline..... COMPLETED .. 20 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5,073,850.N . . .
333, 550 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	6.4m	<u>Overburden</u> <u>6.4m - 10.1m</u> Pale grey - brownish grey broken up, fine-grained sandstone. <u>poor B.p.</u> <u>10.1m - 11.14m</u> Brownish red soft siltstone. - minor laminations <u>poor B.p.</u> <u>11.14m - 15.16m</u> Medium brown, poorly bedded / uniformly medium grained, slightly calcareous matrix. <u>B.p. 70°C/a</u> <u>15.16 - 20.4m</u> Dark reddish brown friable shale. - minor laminations / cross laminations. <u>B.p. 68°C/a</u> <u>20.4m - 23.77m</u> Greyish brown → greenish white uniform medium grained sandstone. Gradational to a medium porous argillithic sandstone → white brown argillithic pebble conglomerate. <u>23.77m - 25.35m</u> Dark brown laminated fine-grained sandstone. Interbedded red brown siltstone. <u>B.p. 75°C/a</u> <u>25.35m - 33.55m</u> Pale brown poorly bedded medium to coarse-grained sandstone, several pebble conglomeritic zones, 1-2 m. in thickness. <u>B.p. 70°C/a</u> <u>33.55m - 35.86m</u> Red brown uniform sandy siltstone. <u>35.86 - 43.3m</u> Pale greenish grey to brown cherty pebble conglomerate. <u>no B.p.</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
		<u>43.3m - 43.8m</u> White - beige calcareous medium-grained sandstone								
		<u>43.8m - 55.0m</u> Red brown, poorly bedded fine-grained sandstone. Purplish grey - red mottling throughout. B.p. <u>70°C/a</u>								
		<u>55.0m - 57.4m</u> Whitish brown calcareous fine grained sandstone. Thin pebble conglomerate bed from <u>56.67m - 57.3m</u> B.p. <u>65-70°C/a</u>								
		<u>57.3m - 76.12m</u> Dark brown friable siltstones, pale brown laminated and cross laminated fine-grained sandstones along with medium beds of argillithic sandstones, brown calcareous - silty pebble conglomerates.								
		<u>76.12m - 77.1m</u> Greenish grey - wavy laminated (slightly deformed laminations) very fine-grained sandstone → minor thin beds of elliptically shaped silty clasts. Also several pyritic pods or lenses, surrounded by what appears to be ? chalcocite? → dark silty material.								
		<u>76.9m - 77.1m</u> Greenish grey shale - mottled dark brown sharp contrast with underlying fine grained sandstones.	3260	76.27	77.0	0.73m				
		<u>77.1m - 81.88m</u> Medium brown uniformly thin bedded (hard) fine-grained sandstone. B.p. <u>75°C/a</u>								
		<u>(78.21m - 78.46m)</u> Dark greenish grey friable siltstone Several dark brown siltstone beds between <u>poor B.p.</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		(79.95m - 80.18m) - minor dark brown siltstone partings throughout. ± 3 cm in thickness, minor thin beds or partings of argillaceous clasts.								
		<u>81.88m - 83.9m</u> Dark brown friable hematitic stained siltstone. Numerous greenish grey calcareous silty mottling. Grey sandy pods along basal contact with lower fine-grained sandstones. <u>B.p. 70°C/a.</u>								
		<u>83.9m - 88.2m</u> Medium brown laminated - cross laminated fine grained sandstone. Gradational to a white grey calcareous fine-grained sandstone. 87.4 - 88.2 m - upper portion dark brown sandstones $\rightarrow$ speckled hematite staining <u>B.p. 73°C/a.</u>								
		<u>88.2m - 91.8m</u> Dark brown poorly laminated friable sandy siltstone. Minor whitish grey round calcareous clasts randomly spread throughout. <u>B.p. 70°C/a.</u>								
		<u>91.8m - 93.25m</u> Grey-brown mottled hematitic stained fine-grained sandstone $\rightarrow$ fairly uniform throughout. <u>poor B.p.</u>								
		<u>93.25m - 102.77m</u> Dark brown deformedly laminated friable siltstone. - Minor grey calcareous clasts, - minor calcareous sandy mottling <u>B.p. 74°C/a.</u>								
		<u>102.77m - 105.9m</u> Brown greyish brown slightly calcareous uniformly laminated fine-grained sandstone.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		105.8m - 105.9m Mixed pebble conglomerate. B.p. 70°C/a.								
		<u>105.9 - 148.3m</u> Dark brown friable → sandy laminated siltstones. Mottled greenish grey → blotching throughout B.p. 70°C/a.								
		<u>End of Hole. 148.3</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash . . . NS.45. . . .

LOCATION Long Lake, Nova Scotia. Li: 6314

NTS CODE . 214.10-6

HOLE NO. P-41 Depth: 139.3 m

LATITUDE 45° 53' 10" N AZIMUTH — PURPOSE

DEPARTURE $64^{\circ}07'00''N$ DIP -90° STARTED $20 June 1981$.

ELEVATION .. 1030m..... CORE .. BQ Wireline..... COMPLETED .. 21 June 1981

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5082,700 N. . .
334,530 N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	5.18m	<u>Overburden</u>								
5.18m	139.38m	<u>Red Brown Sandstones / Siltstones</u>								
		<u>5.18m - 6.35m</u> Pale brown laminated fine-grained sandstone B.p. 70°C/a								
		<u>6.35m - 11.36m</u> Brown red laminated sandy siltstone Broken up between 10.50m - 11.36m.								
		<u>11.36m - 14.72m</u> Pale brown massive / uniformly laminated fine-grained micaceous sandstone.								
		<u>14.72m - 15.07m</u> Pale grey / white calcareous fine-grained sandstone - minor red brown argillaceous clasts parallel to bedding plane. B.p. 75°C/a								
		<u>15.07m - 15.61m</u> Red brown silty argillaceous pebble conglomerate - Red brown argillaceous elliptically shaped clasts ≤ 3 cm in length set in a grey brown sandy matrix.								
		<u>15.61m - 15.86m</u> Red brown argillaceous pebble conglomerate - Pale greyish white calcareous sandy matrix - Red hematite stained pebbles B.p. 70°C/a								
		<u>15.86m - 16.39m</u> Greyish white calcareous fine-grained sandstone with numerous red brown argillaceous partings and clasts parallel to bedding plane. B.p. 70°C/a								
		<u>16.39m - 24.76m</u> Reddish brown slightly fissile mudstone Minor greenish grey mottling.								
		<u>24.76m - 32.63m</u> Greyish brown uniform (poorly laminated) fine grained micaceous sandstone - Thin red argillaceous partings between 29.58m - 30.02m B.p. 80°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>32.63m - 38.73m</u> Red brown laminated sandy siltstone Minor greenish grey mottling. Minor cross laminations B.p. 75°C/a <u>38.73m - 77.77m</u> Pale - medium brown massive uniformly fine grained micaceous sandstone - Several zones of whitish brown calcareous fine grained sandstone with numerous red brown calcareous clasts. B.p. 65-70°C/a <u>77.77m - 81.43m</u> Medium brown laminated very fine grained micaceous sandstone - interbedded red brown siltstone B.p. 70°C/a <u>81.43m - 90.53m</u> Greyish brown uniform fine grained sandstone B.p. 70°C/a <u>90.53m - 94.02m</u> Red brown slightly fissile silty mudstone. (B.p. poor) <u>94.02m - 108.27m</u> Pale brown uniform - massive medium porous fine grained micaceous sandstone - slightly calcareous matrix B.p. 70°C/a <u>108.27m - 110.10m</u> Grey brown argillaceous silty pebble conglomerate <u>110.10m - 112.29m</u> Greyish brown uniform fine grained micaceous sandstone. <u>112.29m - 113.61m</u> Red brown mudstone. <u>113.61m - 139.38m</u> Pale brown (poorly laminated) uniform fine grained micaceous sandstones. Several 0.3m thick sections of pale grey white calcareous fine grained sandstones with numerous elliptically shaped red argillaceous clasts and pebbles. B.p. 70-75°C/a								

End of Hole

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. NS.45

LOCATION Tidnish River, Nova Scotia. L: 6323

NTS CODE ..Z14.14.-.70.....

HOLE NO. . . . P-42 . . . Depth: 151.5 m . . .

LATITUDE 45° 57' 25" N. AZIMUTH — PURPOSE

DEPARTURE . 64° 03' 20" W. DIP . . . -90° STARTED . 21 June 1981 . .

ELEVATION .. 1008m CORE .. Bq Wireline COMPLETED 22 June 1981.

SECTION

LOGGED BY D: MacDonald

REF. GRID UTM. 5090,580 N. . .
339,270E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	9.45m	<u>Overburden.</u>								
9.45	151.49	<u>Red Mudstones / Sandstones / Siltstones</u>								
		<u>9.45m - 9.53m</u> Piece of greenish grey fine grained micaceous sandstone.								
		<u>9.53m - 16.01m</u> Red brown argillaceous friable shale. Minor greenish grey blotches and clasts throughout the unit. <u>poor Bp</u>								
		<u>16.01m - 23.48m</u> Pale grey (poorly laminated) thin bedded fine-grained sandstone. Thin 0.3m zones of pale grey brown calcareous fine grained sandstone → minor red brown argillaceous elongated-flattened clasts or pebbles.								
		<u>23.48m - 23.89m</u> Reddish brown calcareous silty mixed pebble conglomerate → (hematite stained)								
		<u>23.89m - 27.22m</u> Dark red brown laminated very fine grained sandstones - siltstones.								
		<u>27.22m - 37.03m</u> Grey brown fine to medium grained (massive) sandstone. Minor 0.15m conglomeratic beds → red brown argillaceous pebbles set in a white grey sandy calcareous matrix. <u>B.p. 70°C/a</u>								
		<u>37.03m - 56.50m</u> Dark red brown sandy siltstone laminated very fine grained sandstones - Minor cross laminations <u>B.p. 75°C/a</u>								
		<u>56.50m - 58.02m</u> Greyish brown uniformly laminated fine to medium grained micaceous sandstone. Red-brown argillaceous laminations throughout. <u>B.p. 75-80°C/a</u>								
		<u>58.02m - 58.46m</u> Greyish brown calcareous silty conglomerate.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>58.46m - 59.27m</u> Reddish brown friable (broken up) siltstone. <u>59.27m - 64.00m</u> Pale reddish brown uniformly laminated - contorted interlaminated very fine grained sandstone - siltstones. Minor hematitic pods and lenses elongated parallel to bedding. <u>64.00m - 64.66m</u> Pale brown laminated / cross laminated very fine grained sandstone gradational to underlying uniform medium grained sandstone. <u>Bp. 72°C/a</u> <u>64.66m - 67.91m</u> Pale grey brown massive medium grained micaceous sandstone. Base of sandstone unit at contact with the underlying conglomerate is a thin greenish grey sandstone 2.2cm in thickness. <u>67.91m - 68.17m</u> Reddish brown argillaceous small pebble conglomerates grades into a larger silty pebble conglomerate around 68.04m. Sharp basal contact with underlying mudstone. <u>68.17m - 69.92m</u> Reddish brown friable - laminated sandy siltstone. 0.1m at base of unit → red brown argillaceous conglomerate - clasts. <u>69.92m - 74.62m</u> Pale brown uniformly laminated fine-grained micaceous sandstone. Several thin beds of red brown argillaceous conglomerate → calcareous matrix at 73.05m - 73.35m and 74.75m - 74.83m. <u>Bp. 68°C/a</u> <u>74.62m - 91.06m</u> Red brown friable siltstones - shale - interbedded laminated fine-grained sandstones. Minor cross laminations within the fine-grained sandstone. Minor round greenish grey reduced blotches - some round black carbonaceous centers.								

HC 1657 75

P-42

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	% Ag	
		<u>91.06m - 94.65m</u> Greyish brown laminated fine grained micaceous sandstone. Numerous red brown argillaceous laminations between 93.02m - 93.63m increasing near base of unit. <u>B.p. 75°C/a</u>									
		<u>94.65m - 96.52m</u> Reddish brown friable siltstone. Minor greenish grey blotches throughout.									
		<u>96.52m - 98.83m</u> Greyish brown laminated fine grained sandstone. <u>B.p. 70°C/a</u>									
		<u>98.83m - 117.17m</u> Dark reddish brown friable siltstones. Minor greenish grey partings ≤ 1 cm in thickness - Greenish grey calcareous blotches throughout. (Minor yellowish-red staining along B.p.) Also thin greyish brown sandy partings throughout. Red siltstone grades into a brownish grey laminated shale - then into the underlying greenish grey shales and siltstones. <u>B.p. 80°C/a</u>	3261	116.31	117.0	0.69m	0.01	0.01	0.01	<1.0	
		<u>117.17m - 121.1m</u> Greenish grey friable shale and siltstones. Laminated throughout. Pyritic granules and nodules. - lenses ≤ 1 cm in length - elliptically shaped parallel to bedding. Greenish grey siltstones - shales become dark grey - gradational to the underlying brown shale. <u>(B.p. poor)</u>	3262	117.0	118.0	1.0m					
			3263	118.0	119.0	1.0m	0.03	0.02	<0.01	1.4	
			3264	119.0	120.0	1.0m	0.03	0.02	<0.01	1.1	
			3265	120.0	121.0	1.0m	0.19	0.02	<0.01	1.0.	
		<u>121.1m - 122.02m</u> Brown friable siltstone - laminated at base of unit. Brown pebble conglomerate at base. <u>B.p. 75°C/a</u> - Minor nodules - granules of chalcocite between 121.0m - 121.8m.	3266	121.0	121.8	0.8m					

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>122.02m - 129.5m</u> Grayish brown uniform fine-grained micaceous sandstone. B.p. 75°C/a. (Several pale brown conglomerate beds - calcareous matrix) 4.3m in thickness. <u>129.5m - 151.49m</u> Red brown laminated very fine grained sandstones, friable siltstones. Numerous greenish grey partings and calcareous blotches / clasts. Minor cross laminations. B.p. 70°C/a.								
<u>End of</u>	<u>Hole</u>									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash... NS. 45. ...

LOCATION Lake Road, Nova Scotia. Li: 6203

NTS CODE . 114.11 - 59

HOLE NO. ... P-43 ... Depth : 151.5m ...

LATITUDE ..45°41'00"N..... AZIMUTH PURPOSE

DEPARTURE .. 63°28'05"W DIP -90° STARTED .. 23 June 1981

ELEVATION .. 1061 m. CORE .. BQ Wireline COMPLETED 23 June 1981

SECTION LOGGED BY D. MacDonald

REF. GRID UTM 5,060,540.N . .
385,190W

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	5.8m	<u>Overburden</u> <u>Red Brown Sandstones/Siltstones/Mudstones</u> <u>5.8m-9.6m</u> Medium brown poorly laminated fine-grained micaceous sandstone. Minor cross laminations. B.p. 80°C/a <u>9.6m-10.14m</u> Brown argillaceous shale (soft) - Minor greenish gray mottling. <u>10.14m-10.5m</u> Red brown argillaceous pebble conglomerate. (abrupt lower and upper contact with the conglomerate) <u>10.5m-22.51m</u> Reddish brown shale and fissile mudstones (poor bedding planes) Round greenish grey reduction spots ~2cm in diameter. Minor greenish grey partings ≤1cm in thickness. Several greenish grey spots have a black carbonaceous center. B.p. 80°C/a <u>22.51m-32.14m</u> Greyish brown uniformly laminated fine-grained micaceous sandstone. Limonitic/hematic banding throughout. B.p. 77°C/a <u>32.14m-37.04m</u> Brownish red friable (B.p. poorly visible) silty mudstone. Minor sandy lenses throughout. Minor greenish grey round calcareous clasts between 35.36m-35.61m <u>37.04m-37.7m</u> Dark brown laminated argillaceous shale B.p. 75°C/a <u>37.7m-44.90m</u> Medium brown uniform fine grained micaceous sandstone. Minor hematite and manganese								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		staining. banding. Argillaceous / calcareous / hematitic elliptical clasts between 43.7m - 44.3m. <u>B.p. 70°C/a</u> <u>44.90m - 46.54m</u> Red brown to pale brown calcareous silty pebble conglomerate (highly calcareous) → limestone conglomerate. <u>46.54m - 48.7m</u> Reddish brown friable - soft silty mudstone. Numerous greenish grey reduction spots ≤ 1cm in diameter along with greenish grey mottling at base of mudstone. <u>(no accurate Sp)</u> <u>48.7m - 49.3m</u> Greenish grey → brown mottled very fine grained sandstone. <u>49.3m - 54.3m</u> Medium brown laminated fine grained micaceous sandstone. Minor red brown and greenish grey argillaceous partings ≤ 1cm in thickness 52.2-52.5m. <u>B.p. 73°C/a</u> <u>54.3m - 57.9m</u> Dark red brown soft / argillaceous shale. Dark brown silty partings throughout. Minor grey laminations / partings. (Hematitic clasts at base) <u>B.p. 75°C/a</u> <u>57.9m - 61.7m</u> Brown uniform fine grained micaceous sandstone. limonitic banding. Argillaceous <u>B.p. 75°C/a</u> Conglomerate parting from 60.18m - 60.34m. Sandstone becomes greenish grey at base of unit. Massive. <u>61.7m - 63.1m</u> Red brown uniform - fissile - siltstone - mudstone. <u>63.1m - 64.4m</u> Brown laminated shale - greyish mottling at base of unit. <u>B.p. 75°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>64.4m-63.5m</u> Grey black shale								
		<u>63.5m-65.45m</u> Brown fine grained sandstone.								
		<u>65.45m-65.5m.</u> Grey black shale.								
		<u>65.5m-67.35m</u> Medium greyish brown laminated fine grained micaceous sandstone. Dark brown biotitic banding Minor hematitic banding. <u>B.p. 65°-70°C/a</u>								
		<u>67.35m-67.9m</u> Dark brown-grey brown mixed pebble conglomerate → gradational to greenish grey at base of unit.								
		<u>67.9m-69.18m</u> limonitic mottled fissile brown siltstone								
		<u>69.0-69.18m</u> pebble conglomerate <u>B.p. 65°C/a</u>								
		<u>69.18m-74.8m</u> Red brown soft friable mudstone.								
		<u>69.8m-72.23m</u> Pale brown laminated fine grained sandstone → greenish grey at base of sandstone unit. Minor hematitic stained blotches <u>B.p. 65-70°C/a</u>								
		<u>72.23m-75.98m</u> Dark red brown friable siltstone → grades into red brown mudstone at 75.3m → minor greenish grey mottling. <u>(B.p. poor)</u>								
		<u>75.98m-82.2m.</u> Greyish brown (biotitic) uniform → minorly laminated fine to medium grained sandstone <u>B.p. 68°C/a</u>								
		<u>82.2m-83.0m</u> Pale grey brown → greenish grey coarse grained sandstone. Numerous potassium feldspar fragments (orange) - Argillaceous fragments. <u>(B.p. poor)</u>								
		<u>83.0m-96.82m</u> Dark brown → greyish brown laminated cross laminated fine-grained sandstones. Uniform red								

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu				AVERAGES
		brown siltstones and limonitic mottled very fine grained sandstones - Minor greenish grey spots - blotches throughout. <u>B.p. 70-75°C/a.</u> <u>96.82m - 123.58m</u> Dark brown laminated uniformly fine-grained sandstones - fissile mudstones → (shale) Numerous greyish green → grey calcareous nodules - reduction spots. Grey fine grained sandstone at basal contact with lower friable mudstones. <u>B.p. 70°C/a.</u> <u>123.58m - 127.6m</u> Red-brown - grey mottled friable/fissile shale. Uniform red brown mudstone from 127.10m - 127.6m <u>(B.p. vague)</u> <u>127.6m - 137.7m</u> Greyish brown uniform → minor laminated medium grained micaceous sandstone. Minor carbonaceous micaceous laminations with several pyritic pods or granules between 126.24m - 126.84m <u>137.7m - 140.05m</u> Greenish grey uniform medium grained micaceous sandstone → Minor carbonaceous/micaceous laminations and pyritic nodules, small pods ≤ 5cm in length between 139.46m - 140.05m. <u>140.05m - 140.15m</u> Greenish grey → red brown mottled mudstone → marking contact with overlying grey beds and underlying red sandstones. <u>140.15m - 151.48m</u> Red brown - dark brown thinly laminated silty fine grained sandstone. Minor cross laminations. Minor cross laminations - scum marks + greenish grey red spotting. <u>B.p. 80°C/a.</u>									
			3267	136.74	136.94	0.2m	0.01				
			3268	139.85	140.05	0.2m	0.28				

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End of

Hole

P.43

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY . . Pugwash . . N.S. 45

LOCATION Wallace, Grant, Nova Scotia, Li:6212

NTS CODE 1150 86

HOLE NO. . . . P-44 . . . Depth: 142.3 m . . .

LATITUDE . . 45° 44' 00" N. AZIMUTH — PURPOSE

DEPARTURE .. 63°27'40"W..... DIP ...-90°..... STARTED 24 June 1981..

ELEVATION ..1093m..... CORE ..B.Q Wireline..... COMPLETED 24 June 1981.

SECTION LOGGED BY D. MacDonald

REF. GRID UTM. 5066.150N. . .
385.600W

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH					AVERAGES
0m	6.2m	<u>Overburden.</u>									
6.2m	47.2m	<u>6.2m - 15.1m</u> - Pale greyish brown uniform → massive, fine grained micaceous sandstone. Sandstone has minor white calcareous speckled zones → minor banding. <u>B.p. 70-75°C/a</u> <u>15.1m - 19.75m</u> Dark brown friable - broken up sandy siltstone. Pale brownish grey fine grained sandstone parting at 17.9m to 18.7m. Siltstone becomes more uniformly laminated stable at the base (more sandy) <u>B.p. 78°C/a</u> <u>19.75m - 26.93m</u> Brownish grey to pale grey massive medium grained micaceous sandstone. Gradational to a brownish white calcareous / argillaceous pebble conglomerate at ~26.41m to 26.93m <u>B.p. 74°C/a</u> <u>26.93m - 30.18m</u> Greyish brown laminated fine grained micaceous sandstone. Minor limonitic stained banding <u>B.p. 75°C/a</u> <u>30.18m - 31.7m</u> Greenish grey calcareous silty pebble conglomerate. Pebbles are elliptical - flattened parallel to bedding plane <u>B.p. 74°C/a</u> <u>31.7m - 35.94m</u> Greenish grey - brown mottled laminated fine grained sandstone. Minor bioturbation (worm burrows) - cross laminations common throughout. <u>B.p. 75°C/a</u> <u>35.94m - 47.2m</u> Dark brown thinly laminated fine-grained sandstones / friable siltstones. - Minor greenish grey rounded calcareous clasts. Minor limonitic banding <u>B.p. 80°C/a</u>									
47.2m	63.57m	<u>Grey Sandstones</u> <u>47.2m - 51.02m</u> Brownish grey thinly laminated fine-grained micaceous sandstone. Several greenish grey reduction blotches <u>B.p. 75°C/a</u>									

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FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% _{cl}			AVERAGES
63.57m	96.35m	<u>51.02m - 52.2m</u> Pale grey carbonaceously laminated fine-grained sandstone. No visible mineralization <u>B.p. 73°C/a</u>	3269	51.0	52.0	1.0m	40.01			
		<u>52.2m - 63.57m</u> Pale grey alternating uniform coarse grained sandstone and carbonaceous laminated fine grained sandstones. Minor pods - lenses - deformed laminations of coaly matter surrounding pyritic lenses and pods at 54.6m - 54.83m / 55.3m - 55.9m. <u>B.p. 73°C/a</u>	3270	54.48	56.00	1.52m	40.01			
96.35m	105.68m	<u>63.57m - 71.1m</u> Pale brown uniformly laminated fine-grained micaceous sandstone <u>B.p. 72°C/a</u>								
		Pale grey brown calcareous - silty pebble conglomerate from 64.12m - 64.27m and 64.44m - 64.66m. <u>71.1m - 74.05m</u> Dark brown friable siltstone → greenish grey mottled from 71.1m - 71.25m. <u>74.05m - 78.82m</u> Pale brown hematitic / limonitic mottled / banded → fine grained sandstone - micaceous - laminated <u>B.p. 78°C/a</u> <u>78.82m - 79.08m</u> Dark brown sandy calcareous pebble conglomerate. Whitish brown calcareous clasts set in a dark brown sandy matrix. <u>79.08m - 96.35m</u> Dark brown friable siltstones and thinly laminated - very fine grained sandstones <u>B.p. poor</u> Grey / Brown Sandstones. <u>96.35m - 102.40m</u> Grey brown laminated fine → medium grained micaceous sandstone - Minor limonitic banding <u>B.p. 68°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
105.68m	142.34m	<u>102.40m - 105.68m</u> Greyish brown to pale thin bedded coarse grained sandstone 105.08m-105.60m. Greenish grey thinly laminated - cross laminated shale and very fine grained sandstone <u>B.p. 70°C/a.</u>								
		<u>Brown Sandstones / Siltstones</u>								
		<u>105.68m - 107.4m</u> Dark brown laminated very fine grained sandstone → friable siltstones <u>B.p. poor</u>								
		<u>107.4m - 108.87m</u> Dark greyish brown hematitic stained - laminated fine-grained sandstone. <u>B.p. 70°C/a.</u>								
		<u>108.87m - 109.26m</u> Medium grey fine grained micaceous sandstone → numerous large red brown argillaceous clasts.								
		<u>109.26m - 113.5m</u> Medium grey uniformly laminated fine-grained micaceous sandstone - Minor micaceous / hematitic laminations and banding <u>B.p. 70°C/a.</u>								
		<u>113.5m - 115.0m</u> Brownish grey → dark brown silty pebble conglomerate - calcareous matrix. <u>B.p. 73°C/a.</u>	3271	113.5	115.0	2.5m	40.1			
		<u>115.0m - 118.4m</u> Dark red brown laminated sandy siltstone - mudstone. Mudstone has numerous grey-brown rounded calcareous clasts. <u>B.p. 70°C/a.</u>								
		<u>118.4m - 126.88m</u> Brownish grey - laminated - uniform fine-grained sandstone. Several calcareous marl-type pebble conglomerate, zones ≤ 0.1m in thickness.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
<u>End of Hole</u>		125.88m - 142.34m Grayish brown → red brown thinly laminated very fine-grained sandstones - siltstones. Cross bedding throughout. Minor whitish grey calcareous clasts. Several dark grey shale partings ± 3cm in thickness.								
		<u>B.p. 75-80°C/a</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash, NS. 45.

LOCATION West Tatamagouche, Nova Scotia Li: 6209

NTS CODE 115 115-77

HOLE NO. . . P-45 . . Depth: 133.2 m

LATITUDE 45° 42' 40" N AZIMUTH — PURPOSE

DEPARTURE 63°21'00" W DIP -90° STARTED 25 June 1981 .

ELEVATION .. 1039 m CORE .. Bo Wireline COMPLETED 25 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 6063,600 N. . .
394,300 W

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH	% Cu			AVERAGES
0	7.95m	<u>Overburden</u>								
7.95	14.4m	<u>Grey SAsu's</u>								
		<u>7.95m - 13.9m</u> Medium grey uniformly laminated fine to medium grained SAsu. - Minor red brown hematitic B.p. 70% stained argill. clasts - elongated // to bedding between 10.0m - 10.4m (slightly calcareous) <u>13.9m - 14.3m</u> Pebble conglomerate yellowish brown grey hematite stained calcareous pebbles set in a sandy grey matrix. B.p. 70% <u>14.3m - 14.4m</u> Mottled greenish grey - red brown mudstn - grades into a red brown mudstn. <u>Red brown f.g. SAsu + silt's</u> <u>14.4m - 42.3m</u> Dk reddish brown friable silt's + pale brown thinly laminated f.g. SAsu's. - minor cross laminations. - Hematitic spots throughout. <u>42.3 - 48.7m</u> Greyish brown thinly laminated f.g. micaceous SAsu. - limonitic - hematitic staining / laminations throughout.	3272	11.27	12.87	1.6m	0.01			

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		2 m. of Greenish grey calcareous f.g. SASN At contact with lower red siltstn's.								
		<u>49.7m - 85.36m</u> Red brown friable siltstone - minor greenish grey mottling. - Sandy partings - Minor green grey rounded calcareous clasts. <u>B.p. 70°C/a</u>								
		<u>85.36m - 94.45m</u> Greyish brown massive coarse grained → (granular conglomerate) SASN's. - Several Kspar crystals & hips throughout. Fe + Mg. stained brown <u>90.52 - 91.82m.</u> <u>B.p. 70°C/a</u>								
94.45	133.19m	<u>Brown-grey brown siltstn's & f.g. SASN's</u> <u>94.45m - 102m</u> Dk greyish brown thinly laminated shale & fissile f.g. SASN's. <u>B.p. 75°C/a</u>								
		<u>102m - 105m</u> Grey laminated f.g. micaceous SASN. Limonitic staining/banding.								
		<u>105m - 105.76m</u> Red brown silty mudstn - numerous greenish grey calcareous clasts.								
		<u>105.76m - 120.0m</u> Reddish brown thinly laminated fissile siltstn's & u.f.g. SASN's. Several .1m calcar sandy partings.								
		<u>120.0m - 120.6m</u> Pale red brown silty argillaceous pebble cong. - minor greenish grey shaley partings & 1cm <u>B.p. 80°C/a</u>								

End of Hole.

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY . . . *Pugwash* . . N.S. 45

LOCATION Mill Brook, Nova Scotia. L: 6434

NTS CODE . 11E 11 . - 444

HOLE NO. . . P: 44 . . . Depth: 151.5 m . . .

LATITUDE .. 45°40'30"N... AZIMUTH — PURPOSE

DEPARTURE . . 63° 21' 05" W. DIP -90° STARTED . 26 June 1981 .

ELEVATION .. 1039 m CORE .. BQ Wireline COMPLETED 26 June 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5059, 900. N . . .
394, 350 W

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0m	7.9m	<u>Overburden</u>								
7.9m	92.65m	<u>Brown Siltstones / Sandstones</u> <u>7.9m-12.24m</u> Medium brown thinly laminated / cross laminated sandy siltstone. Slightly fissile throughout. Greenish grey fine grained sandstone parting at base of unit. <u>B.p. 70-75°C/a</u> <u>12.24m-17.00m</u> Pale greyish brown laminated fine to medium grained micaceous sandstone. Several pale greyish brown calcareous zones $\leq 0.1m$ in thickness with red brown argillaceous laminations throughout. 0.1m greenish grey calcareous fine-grained sandstone at base of unit. <u>B.p. 70°C/a</u> <u>17.00m-50.16m</u> Reddish brown thinly laminated / cross laminated siltstones and very fine grained sandstones gradational to a red brown - greenish grey mottled shale at the base of silty sandstone unit. Greenish grey mottling at 42.68-43m. <u>50.16m-65.9m</u> Brownish grey massive medium to coarse grained calcareous feldspathic sandstone. Several thin zones 0.1m of calcareous pebble conglomerate - numerous feldspar chips and fragments. Medium porosity throughout. Manganese-hematite staining. <u>B.p. 60°C/a</u> <u>65.9m-92.65m</u> Red brown friable siltstones and laminated very fine-grained sandstone. Minor cross laminations. Minor greenish grey silty mottling between 75.28m-76.28m.								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu.	% Zn	% Pb.	% Ag	
92.65m	99.66m	<u>Grey Sandstones</u> <u>92.65m - 96.62m</u> Dark grey laminated micaceous banded medium grained sandstone. <u>Bp. 70°C/a</u> <u>96.62m - 98.2m</u> Pale grey uniform medium grained feldspathic sandstone. Minor thin carbonaceous laminations. <u>98.2m - 98.4m</u> Pale grey mottled fine grained and medium grained sandstones. Minor carbonaceous / fossiliferous fragments coated with a thin film of disseminated pyrite. Also several small disseminated spots of pyrite. <u>98.4m - 99.66m</u> Pale grey carbonaceous thinly laminated fine grained sandstone. Minor small pyritic lenses flattened along carbonaceous laminations. Micaceous throughout. Medium / coarse sandstone tends to be more calcareous. <u>Bp. 70-75°C/a</u> <u>99.66m - 99.76m</u> Greenish grey siltstone - minor sandy clasts / pebbles.									
			3273	98.18	98.5	0.32m	0.03				
			3274	99.9	100.3	0.4m	0.02	40.01	0.01	41.0.	
99.76m	151.48m	<u>99.76m - 151.48m</u> Red brown friable siltstones / laminated brown sandstones. Minor greenish grey mottling except at 148.00-148.53m <u>148.53 - 151.48m</u> Dark brown medium grained - uniform micaceous sandstone.									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	7.22m	<u>Overburden</u> <u>7.22-7.25</u> - grey quartzite. <u>7.25m-50.8m</u> Dark brown → red brown friable laminated siltstns + brown lamin. f.g. SASN's. - Greenish grey mottling + numerous grey white calcareous clasts. throughout the friable - bedded siltstones (50.3m-50.8m) Greyish brown laminated v.f.g. SASN. x laminations throughout <u>50.8m-53.25m</u> Medium greenish grey carbonaceously laminated + cross laminated fine grained SASN. Numerous thin pyritic lenses within the carb laminations // to bedding. B.P. 72%_a <u>53.25m-54.3m</u> Dark grey thinly laminated slightly friable shale. B.P. 65%_a <u>54.3m-55.7m</u> Med. grey thinly laminated cross laminated f.g. SASN. Dissem carb matter along the B.P. defining laminations & cross laminations. - Minor dissem pyrite // to bedding. B.P. 65%_a <u>55.7m-57.7m</u> Pale grey uniform → massive fine grained SASN. Minor thin wavy carb laminations along with dissem pyrite. B.P. 70%_a								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	7.22m	<u>Overburden</u> <u>7.22-7.25</u> - grey quartzite. <u>7.25m-50.8m</u> Dark brown → red brown friable laminated siltstns & brown lamin f.g. SASN's. - Greenish grey mottling & numerous grey white calcareous clasts. throughout the friable - bedded siltstones (50.3m-50.8m) Greyish brown laminated v.f.g. SASN. x laminations throughout <u>50.8m-53.25m</u> Medium greenish grey carbonaceously laminated + cross laminated fine grained SASN. Numerous thin pyritic lenses within the carb laminations // to bedding. B.p. 72% <u>53.25m-54.3m</u> Dark grey thinly laminated slightly friable shale. B.p. 65% <u>54.3m-55.7m</u> Med grey thinly laminated cross laminated f.g. SASN. Dissem carb matter along the B.p. defining laminations & cross laminations. - Minor dissem pyrite // to bedding. B.p. 65% <u>55.7m-57.7m</u> Pale grey uniform → massive fine grained SASN. Minor thin wavy carb laminations along with dissem pyrite. B.A. 70%								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%CU	%Zn	%Pb	%Ag	
		<u>57.7m - 58.37m</u> Pale grey laminated/cross laminated S.g. SASN - Disseminated carb material defining Bedding. <u>B.p. 60°/a</u>									
		<u>58.37m - 59.44m</u> Dark greenish grey friable shale - minor sandy - partings. ≤ 1 cm in thickness with minor diss pyrite. <u>B.p. 68°/a</u>									
		<u>59.44m - 67.9m</u> Pale greenish grey medium bedded med grained SASN. - Minor thin carb laminations - pyritic spots <u>B.p. 65°/a</u>	3283	69.8	71.0	1.2 m	4.01	1.05	.03	11.0	
		<u>67.9m - 69.9m</u> Dark greenish grey soft friable silt - several shale partings. Red brown mottling throughout. <u>B.p. 70°/a</u>	3284	71.0	72.0	1.0 m	2.01	1.02	2.01	11.0	
		<u>69.9 - 72.59m</u> Medium grey thinly carbonaceously laminated S.g. SASN. Numerous carb fragments/clasts / thin wavy lamina along with lenses, pods, spots of pyrite. <u>B.p. 64-68°/a</u>	3285	72.0	72.6	.6 m	2.01	1.05	2.01	11.0	
		<u>72.59m - 73.46m</u> Dark grey friable shale.									
		<u>73.46m - 73.7m</u> Pale grey S.g. SASN - numerous thin carbonaceous wisps along with blotches of diss pyrite.	3286	73.46	73.70	.24m	2.01	2.01	.01	11.0	
		<u>73.7m - 74.4m</u> Dark grey friable shale.									

PAGE

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	% _{Fe} Ag	AVERAGES
		<u>74.4m - 76.88m</u> Med grey uniform med grained SASN. Red indistn parting at <u>(75.95 - 76.1m)</u> - Minor carb / pyritic laminations at base of unit. <u>B.P. 65%</u>	3287	76.38	76.88	0.5m	40.01	40.01	40.01	41.0	
		<u>76.88m - 77.5m</u> Greenish grey friable shale. Several thin dk grey calc conglomeratic parting .1m thick within the shale unit. - several pyritic lenses. <u>B.P. 65%</u>	3288	77.5	77.8	0.3m	40.01	40.01	40.01	41.0	
		<u>77.5m - 78.60m</u> Med grey uniform f.g. SASN. Several thin wavy carb laminations containing pyritic lenses 4.5m in length. <u>B.P. 65%</u>									
		<u>78.60m - 79.2m</u> Grey calcareous-silty pebble conglomerate. <u>B.P. 65%</u>									
		<u>79.2m - 79.95m</u> Grey laminated f.g. SASN. - minor diss pyrite. <u>B.P. 65%</u>									
		<u>79.95 - 80.36m</u> Grey calc silty pebble cong. Elliptically shaped argil-silty pebbles set in sandy hemphitic stained matrix.									
		<u>80.36m - 83.17m</u> Greenish grey massive uniformly medium grained SASN. Dark grey argill parting between 81.0 - 81.38m & numerous large argill clasts. <u>B.P. 70%</u>									

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1657 75

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%CO	%Zn	%Pb	g/g Ag	
		83.17m - 86.91m Pale grey thinly laminated fine to medium grained SASN. Numerous carbonaceous lamina - pyritic lenses. B.P. 65-70%a	3289	83.2m	84.0m	.08m	.01	.03	.01	1.5	
		86.91m - 87.47m Dark grey friable shale. Grey argill clasts at base of unit with grey SASN's.	3290	84.42m	85.2m	.78m	.01	.02	.01	1.0	
		87.47m - 91.6m Med grey uniformly medium grained SASN. - Carb / pyritic partings throughout. - B.P. 65-70%a	3291	86.2m	86.8m	.60m	4.01	.01	.01	1.14	
		91.6m - 92.3m Pale grey calcareous silty pebble cong - Several dk grey shaly partings - minor specs - pyrite.									
		92.3m - 93.15m DK grey friable shale									
		93.15m - 95.17 Pale grey uniformly medium grained SASN. Vitrain partings - wavy thin carb lamina / diss pyrite.									
		95.17 - 95.7m Pale grey calc B.P. 70%a sandy pebble cong. - minor argill pebbles	39.92	93.67	94.23	.56m	4.01	4.01	4.01	1.1	
		95.7m - 99.54m Pale grey uniform massive fine grained SASN. Minor carb laminated zones $\pm$.1m in thickness, diss pyrite / lenses along B.P. - minor carb matter. B.P. 75%a									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		122.21m - 122.48m Grey pale-grey calc silty pebble cong. carb stringers lenses fragments - minor pyritic stringers. <u>B.p. 12°/m</u>								
		122.48 - 123.95m Pale grey thinly laminated uniformly fine grained SASN.								
		123.95 - 124.94m Grey calc silty mixed pebble conglomerate. - minor carb fragments & diss pyrite.								
		124.94m - 130.75 Pale grey uniform massive f.g. SASN - carb partings < 2mm - diss pyrite.								
		130.75 - 131.64m Pale grey-greenish grey calcareous subrounded pebbles - set in a sdly white matrix. minor argill banding.								
		131.64 - 136.64m Pale grey medium grained SASN - minor carbon laminations <u>B.p. 60°/m</u>								
		136.64m - 139.29m Dark reddish brown friable silty, laminated f.g. SASN - minor greenish grey silty partings <u>B.p. 70°/m</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	%As	
		99.54-99.81m Palegrey-dk grey calc sandy mixed pebble cong. Pebbles are flattened / elongated // to bedding. Several carb clasts surrounded with a thin film of disseminated pyrite.									
		<u>99.81-100.84m</u> Dark grey friable silt & shale - minor disseminated pyrite.									
		<u>100.84m-112.1m</u> Med grey laminated fine grained SASN - minor carb laminations & partings - minor diss pyrite stringers & carb matrix.	3293	108.80	109.2	0.4m	40.01	40.01	40.01	1.5	
		<u>112.1m-113.6m</u> Dark grey friable shale	3296	110.18	110.52	0.34m	40.01	0.07	0.01	41.0	
		<u>B.P. 70°C/a</u> <u>113.6-119.63</u> Pale grey laminated f.g. SASN. Carbonaceous partings contain nodular pyrite & <u>B.P. 70°C/a</u>	3294	114.05	115.15	1.1m	4.01	1.02	1.01	41.0	
		<u>119.63-120.72m</u> Pale grey laminated f.g. SASN. Carbonaceous fragments	3295	115.45	117.85	2.4m	4.01	1.03	1.01	1.0	
		<u>120.72m-121.16m</u> Dark grey friable silt -	3297	120.1	120.7	.6m	4.01	1.02	1.01	1.0	
		<u>121.16m-121.35</u> Grey-dk grey argill silty clasts within a calc silty SASN matrix.									
		<u>121.35-122.21m</u> Pale grey massive f.g. SASN, carb fragments, specs at base of unit. <u>B.P. 78°C/a</u>									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>122.21m - 122.48m</u> Grey → pale grey calcareous → silty pebble conglomerate. Pebbles are elongated → flattened parallel to bedding. → Carbonaceous stringers, lenses and fragments along with minor pyritic lenses. <u>B.p. 72°C/a</u> <u>122.48m - 123.95m</u> Pale grey thinly laminated uniformly fine-grained sandstone. 0.3m section of carbonaceously laminated sandstone → also stringers and fragments of vitrain → disseminated pyrite. <u>123.95m - 124.94m</u> Grey calcareous silty mixed pebble conglomerate - Minor carbonaceous fragments → disseminated pyrite. <u>124.94m - 130.75m</u> Pale grey uniform - massive fine-grained sandstone - Carbonaceous partings ≤ 0.2 cm in thickness. Also thin wavy carbonaceous lamina with spots of disseminated pyrite. <u>B.p. 72°C/a</u> <u>130.75m - 131.64m</u> Pale green - greenish grey (pebble conglomerate) calcareous subrounded pebbles - white calcareous matrix. - Minor argillaceous banding. <u>131.64m - 136.24m</u> Pale grey medium grained sandstone - Minor carbonaceous laminations greenish grey pebble conglomeritic zones 135.85m - 136.24m and 135.15m - 135.45m <u>136.24m - 139.29m</u> Dark reddish brown friable siltstones and laminated fine grained sandstones - Minor greenish grey partings. <u>B.p. 70°C/a</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. NS 45

LOCATION Balmoral Mills, Nova Scotia. Li: 6218

NTS CODE .11E.11...-35.....

HOLE NO. ..P-48... Depth: 133.2 m...

LATITUDE 45°39'15" N..... AZIMUTH —..... PURPOSE

DEPARTURE $63^{\circ}12'45''W$ DIP -90° STARTED 28 June 1981 . .

ELEVATION 1046 m. CORE Bq Wireline COMPLETED 28 June 1981

SECTION

LOGGED BY D. MacDonald

REF. GRID WTM . 5051500 N. . . .
405, 250 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	Cu	Zn	Pb	Ag	
0	11.27m	<u>Overburden</u>									
11.27m	20.0m	<u>Grey SASN / Shale.</u>									
		<u>11.27m - 13.8m</u> Medium grey uniformly laminated med grained SASN. Micaceous - minor carb specs + thin carbonaceous laminations calcareous partings B.p. 70°C/a	3275	11.27	13.8	2.53m	2.01%	2.01%	4.0%		
		<u>13.8m - 14.1m</u> Dark reddish brown shale.									
		<u>14.1m - 14.5m</u> Dark grey - black soft shale	3276	14.5	16.23	1.73m	0.1%	.02	.02	4.0	
		<u>14.5m - 16.23m</u> Dark grey uniformly laminated coarse grained SASN. Carbonaceous lamina throughout along with small pyritic lenses.	3277	16.23	16.34	.11m	.01%	.03	.02	2.9	
		<u>16.23m - 16.34m</u> Med grey silty calcareous pebble conglomerate. Carbonaceous (vitric) stringers - lenses surrounded by diss pyrite.									
		<u>16.34m - 18.9m</u> Pale grey medium grained SASN - numerous deformed - irregular carbonaceous lamina - diss pyrite.									
		<u>18.9m - 19.1m</u> Pale grey calcareous sandy pebble cong. Disseminated pyrite surrounding several pebbles + carbon partings. B.p. 65°C/a	3278	16.34	19.1	2.75m	.01%	.03	.01	2.0	

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	%Ag	
20.0	91.9	19.1m - 20.0m Greenish grey friable mdstn overlain by calc lamin v.f. grained SASN.									
91.9m	94.66m	Red Brown Sandstone and Siltstone <u>B.p. 65%a</u> <u>Grey SASN</u>									
		91.9m - 94.66m Pale grey laminated medium grained micaceous SASN. Upper section in contact with the red-brown SASN's displays a hematitic mottled zone of grey SASN. (93.84m - 94.66m) several f.g. calc lamin → SASN partings <u>B.p. 72%a</u> - minor small pyritic specs ± 5mm in dia.	3279	91.9	94.66	2.76m	.01	2.01	2.01	1.0	
94.66m	122.6m	<u>Red Brown SASN / Siltst's</u> 94.66m - 122.6m Dark brown friable siltst's → minor greenish grey mottling, also laminated pale brown f.g. SASN. <u>B.p. 68%a</u> <u>Grey Shale / SASN</u>									
		122.6m - 123.35m Dark grey black thinly laminated shale. Basal contact with grey SASN's is marked by a thin parting of disseminated pyrite.	3280	123.35	124.1	.75m	.02m	.02	2.01	2.10	
			3281	124.15	125.5	1.35m	.03m	.03	2.01	2.10	

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>123.35- 125.5m</u> Pale grey thin carbonaceous laminations within a med grained SASN. Laminations contain abundant pyritic spots & lenses, also disseminated along the bedding plane. Thin vitrain & pyritic parting $\leq 3\text{mm}$ in thickness. At 124.25-125.1m. <u>B.p. 70°/a</u> <u>125.5m- 125.64m</u> Greenish grey shale grades into a greenish grey $\rightarrow$ red brown mottled shale. <u>Red Brown SASN's</u> <u>125.64m- 133.19m</u> Greyish brown laminated f.g. SASN. $\rightarrow$ dark brown hematitic stained/ mottled throughout. <u>B.p. 75°/a</u>								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY Pugwash. . . N.S. 45.

LOCATION East Eashtown, Nova Scotia. L: 6221

NTS CODE . H.E. 11 . - 29

HOLE NO. . . P-49 . . . Depth. 130 m

LATITUDE 45° 40' 00" N ... AZIMUTH — ... PURPOSE —

DEPARTURE $63^{\circ}05'20''$ W ... DIP -90° ... STARTED 29 June 1981.

ELEVATION ... 1061 m. CORE ... BQ Wireline COMPLETED 29 June 1981

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5059,100.N . . .
414.650E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH					AVERAGES
0m	6.95m	Overburden.									
6.95m	130.2m	<u>6.95m - 130.2m</u> Pale greyish brown thinly laminated - hematitic spotted fine grained sandstones and dark friable laminated siltstones - Minor grey-white calcareous zones $\leq 1m$ in thickness. <u>B.p. 10m $\approx 65^{\circ}C/a$</u> <u>B.p. 20.0m $\approx 60^{\circ}C/a$</u> <u>B.p. 30m $\approx 65^{\circ}C/a$</u> <u>B.p. 40.0m $\approx 65^{\circ}C/a$</u> <u>B.p. 50.0m $\approx 54^{\circ}C/a$</u> <u>B.p. 60.0m $\approx 50^{\circ}C/a$</u> <u>B.p. 70.0m $\approx 70^{\circ}C/a$</u> <u>B.p. 80.0m $\approx 70^{\circ}C/a$</u> <u>B.p. 90.0m $\approx 68^{\circ}C/a$</u> <u>B.p. 100.0m $\approx 60^{\circ}C/a$</u> <u>B.p. 110.0m $\approx 60^{\circ}C/a$</u> <u>B.p. 120.0m $\approx 70^{\circ}C/a$</u>									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. N.S. 45

LOCATION Welsford, Nova Scotia. . L: 6225.

NTS CODE . . . 11E . . . 11 . . . 71

HOLE NO. . . P-50 . . . Depth: 145.3m . . .

LATITUDE 45° 41' 35" N. AZIMUTH — PURPOSE

DEPARTURE $63^{\circ}01'45''$ W. DIP -90° STARTED 30 June 1981.

ELEVATION .. 1061 m CORE .. BQ Wireline COMPLETED 30 June 1981

SECTION

LOGGED BY *D. MacDonald*

REF. GRID UTM. 5062, 500N. . .
419, 250E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH					AVERAGES
0m	11.4m	<u>Overburden</u>									
11.4m	34.87m	<u>Greyish brown → Grey hematitic silty pebble conglomerate.</u> - Conglomerate is composed of large rounded to elliptical silty pebbles - red to greenish grey in color. Pebbles are so numerous little matrix is visible, most of the matrix and some pebbles are hematitic stained. Poor recovery throughout ~ 60-70% Conglomerate is broken up → blocky. <u>B.p. very poor</u>									
34.87m	66.66m	<u>Red brown Sandstones / Siltstones</u> <u>34.87m - 43.5m</u> Pale brown laminated fine-grained sandstone - Several fractured areas filled with white soft cerussite. Also yellowish film along fracture plane. <u>41.75m - 42.15m</u> Dark brown silty pebble conglomerate. Small ≤ 0.6mm pebbles set in a sandy calcareous matrix. Slightly calcareous throughout <u>B.p. 54 °C/a</u> <u>43.5m - 44.5m</u> Greyish brown hematite stained argillaceous lithic sandstone. Minor silty pebbles randomly distributed throughout → Red brown mudstone partings ≤ 0.1m in thickness. Sandstone is calcareous throughout. <u>B.p. 50 °C/a</u> <u>44.5m - 44.8m</u> Grey - grey brown laminated fine-grained sandstone. - Matrix shows argillaceous greenish grey material → calcareous soft. <u>B.p. 60 °C/a</u> <u>44.8m - 46.65m</u> Greenish grey → red brown hematite stained calcareous pebble conglomerate - pebbles are elliptical in									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				
66.66m.	74.57m	in shape parallel to bedding. <u>Poor B.p. 60°C/a</u> Conglomerate grades into a grey medium grained sandstone at 46.4m. <u>46.65m - 66.66m</u> Dark brown friable siltstones and thinly laminated brown fine-grained sandstone. Numerous round calcareous granules and nodules throughout the soft siltstones. Dark brown siltstone becomes mottled greenish grey at the base of the unit. <u>B.p. 55°C/a</u> <u>Grey shale / sandstones.</u> <u>66.66m - 67.1m</u> Dark greenish grey shale - slightly carbonaceous and friable. No visible mineralization. <u>B.p. 55°C/a</u> <u>67.1m - 71.06m</u> Greyish brown waxy laminated fine-grained sandstone - Mottled greenish grey reduction blotches throughout. <u>B.p. 50°C/a</u> <u>71.06m - 72.33m</u> Pale grey uniformly laminated highly calcareous fine-grained sandstone <u>B.p. 50°C/a</u> <u>72.33m - 72.80m</u> Greenish grey - grey brown highly calcareous pebble conglomerate. <u>Poor Bedding plane.</u> <u>72.80m - 74.57m</u> Greenish grey - reddish brown fissile mudstone → shale. 0.2m calcareous pebble conglomerate at the base of siltstone unit. Minor carbonaceous stringers within grey shale. <u>B.p. 60°C/a</u>								

UIG 1657 75

P-50

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	% Ag tonne	AVERAGES
		<u>Dark brown siltstones/laminated fine-grained sandstone</u> <u>114.57m-111.86m</u> Dark brown friable broken up siltstone and thinly laminated fine grained sandstones. Minor greenish grey blotches.-Numerous pale brown-brownish grey calcareous clasts and pods $\leq 1\text{cm}$ in diameter <u>B.p. 50-55°C/a</u> <u>111.86m-112.3m</u> Dark grey friable carbonaceous shale. Mineralization: Chalcopryite. Minor flakes of chalcopyrite within a small piece of slickensided carbonaceous shale. $\leq 2\text{cm}$ in diameter - "very soft". <u>112.3m- 115.2m</u> Medium brown friable laminated siltstone Minor greenish grey blebs $\rightarrow$ dark grey shale parting from <u>113.7m- 113.9m</u> also greenish grey banding throughout. <u>B.p. 56°C/a</u> <u>115.2m- 116.22m</u> Greenish grey thinly laminated fine-grained sandstone with thin $\leq 1\text{cm}$ dark grey shale partings throughout. Minor carbonaceous specs and lamina. Several calcareous clasts at the base of the sandstone unit with the underlying red brown siltstones, <u>116.22m- 122.4m</u> Dark brown friable siltstones and fine-grained sandstones - Greenish grey mottling within the dark brown siltstones. Few grey partings. <u>B.p. 60°C/a</u>	3300	111.86	112.86	0.52m	0.01	0.03	40.01	<1.0	

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	% Ag	
		<u>122.4m - 124.35m</u> Pale greenish grey uniformly thinly laminated fine grained sandstone. Carbonaceous laminations throughout. 123.65m - Several small pyritic lenses and pods within the carbonaceous laminae.	3299	122.4	123.7	1.3m	0.01	0.03	0.01	1.0	
			3298	123.7	124.05	0.35m	0.01	0.02	0.04	1.4	
		<u>124.35m - 126.69m</u> Interbedded greenish grey fine-grained sandstone, red brown / dark grey mottled mudstone. Sandstone is wavy / deformed laminations. <u>B.p. 60°C/a</u>									
		<u>126.69m - 127.10m</u> Dark grey → black fissile sandy siltstone.									
		<u>127.10m - 128.66m</u> Medium grey uniform medium grained sandstone - calcareous matrix. Also several calcite filled fractures with minor chalcopyrite flakes. <u>B.p. 60°C/a</u>									
		<u>128.66m - 128.7m</u> Dark brown → greenish grey mottled fractured (broken up) siltstone.									
128.7m	130.34m	<u>128.7m - 130.34m</u> Pale grey massive medium grained sandstone.									
		<u>130.34m - 130.54m</u> Greenish grey - red brown mottled sandy siltstone. Several grey calcareous nodules.									
		<u>130.54m - 145.33m</u> Dark brown interbedded friable siltstone and fine-grained sandstone. Also thinly laminated pale brown fine-grained sandstones. <u>B.p. 58°C/a</u>									
End of Hole											

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY .. Pugwash .. N.S. 45.

LOCATION Hodson, Nova Scotia. Li: 6192.

NTS CODE . . 11E 10 . . — . 106

HOLE NO. . . P-51. . . Depth. 172.2m

LATITUDE 45° 44' 35" N AZIMUTH — PURPOSE

DEPARTURE .. 62°57'25" W DIP -90° STARTED .. 1 July 1981 ..

ELEVATION ... 1016 m CORE ... BQ. Wireline COMPLETED ... 2 July 1981

SECTION

LOGGED BY D. MacDonald.

REF. GRID . UTM . 5068 180 N. . .
191,750E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				
0 8.26	8.26m 149.5	<u>Overburden</u> RED and Brown Sst. + Mudstone <u>8.26m - 8.90m</u>: Broken up blocky greenish grey medium grained sandstone and fine grained sandstone. <u>8.90m - 15.6m</u> Interbedded pale brown laminated fine grained sandstone and dark brown siltstone. <u>B.p. 70°C/a</u> <u>15.6m - 21.5m</u> Greenish grey thin bedded coarse grained sandstone. Micaceous - minor red brown argillaceous clasts throughout, also several 0.1m thick calcareous sandstone zones. <u>B.p. 70°C/a</u> <u>21.5m - 22.9m</u> Dark brown - grey brown limonitic mottled fine-grained sandstone. Minor laminations <u>B.p. 75°C/a</u> <u>22.9m - 40.27m</u> Medium brown → reddish brown thinly laminated very fine grained sandstones → interlaminated red brown mudstone → Minor greenish grey calcareous blotches - thin partings ≤ 2mm in thickness - Minor cross laminations <u>B.p. 75°C/a</u> <u>40.27m - 44.6m</u> Dark greyish brown thinly laminated - limonitic mottling - hematite stained fine-grained sandstone. Several thin zones of calcareous sandstone. <u>B.p. 64°C/a</u> <u>44.6m - 45.32m</u> Greyish brown calcareous medium grained sandstone - Minor red brown argillaceous clasts. Dark greenish brown siltstone at base of unit. <u>B.p. 70°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>45.32m - 58.3m</u> Dark brown → reddish brown friable siltstones and thinly laminated very fine grained sandstones. Greenish grey calcareous clasts and mottling throughout. <u>B.p. 70°C/a</u>								
		<u>58.3m - 62.5m</u> Brownish grey laminated fine-grained micaceous sandstone. Thin greenish grey calcareous laminated throughout. <u>B.p. 72°C/a</u>								
		<u>62.5m - 63.01m</u> Pale brown silty pebble conglomerate - flattened silty pebbles set in a calcareous sandy matrix. <u>(Poor B.p.)</u>								
		<u>63.01m - 99.56m</u> Dark reddish brown friable siltstones slightly fissile thinly laminated fine-grained sandstones. → Greenish grey mottling throughout with the lower section having a pale greenish grey color - numerous red brown spots and mottling throughout. <u>B.p. 65°C/a</u>								
		<u>99.56m - 103.24m</u> Greyish brown laminated fine-grained micaceous sandstone. Minor ironitic staining. <u>B.p. 70°C/a</u>								
		<u>103.24m - 103.77m</u> Medium grey uniform hard very fine grained limestone - Minor specs of calcite throughout.								
		<u>103.77m - 126.55m</u> Red → brown friable - thinly laminated greenish grey mottled siltstones and very fine grained sandstones → several calcareous elastic zones 50.1m in thickness. <u>B.p. 70°C/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	% $\frac{Ag}{Tome}$	
149.5m	170.2m	126.55m - 131.95m - Medium grey uniform $\rightarrow$ poorly laminated fine-grained micaceous sandstone. Several whitish grey calcareous banding. <u>B.p. 72°C/a</u>									
		131.95m - 136.97m - Dark red brown thinly laminated $\rightarrow$ friable siltstones. 136.24m - 136.97m siltstone is a pale brown in color with numerous hematitic spots and small blotches. <u>B.p. 78°C/a</u>									
		136.97m - 149.5m Brownish grey $\rightarrow$ grey fairly uniform fine grained micaceous sandstone $\rightarrow$ Dark brown(Fe) blotches throughout. <u>B.p. 70°C/a</u>									
		136.84 - 137.0m Grey green shale parting. <u>Grey Beds.</u>									
		149.5m - 162.77m - Pale grey uniform medium to coarse grained slightly calcareous sandstone $\rightarrow$ Numerous dark grey silty calcareous lamina throughout, ≤ 0.4 cm in length. Also large ≤ 0.3 cm quartz chips throughout. <u>B.p. 76°C/a</u>									
		162.77m - 164.9m Pale grey-greenish grey laminated fine grained sandstone. Several thin zones 0.1m thick of very thinly laminated carbonaceous sandstone.	1151	162.88	163.57	0.69m	0.01	0.02	40.01	410	
		164.9m - 168.1m Pale grey - whitish grey coarse grained sandstone - Numerous quartz and potassium feldspar chips throughout. Several thin mottled shaley partings.									
		168.1m - 168.5m - Pale greenish grey shale which grades into a dark heavy black heavy calcareous mudstone $\rightarrow$ Marl with numerous calcareous white blotches throughout.									

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		168.5m - 170.2m Greenish grey → brown mottled fine-grained sandstone.								
		170.2m - 172.2m Brown → grey brown mottled fine-grained sandstone.								
<u>End of Hole</u>										

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY ... *Pugwash* ... NS.45 ...

LOCATION Meadowville, Nova Scotia. Li: 6191

NTS CODE . . 11E 10 . . - 63

HOLE NO. . . P-52 . . . Depth . 145.3 m . . .

LATITUDE ... 45° 42' 18" N. ... AZIMUTH ... — ... PURPOSE ...

DEPARTURE .. 62°56'55"W.... DIP-90°..... STARTED ..5 July, 1981

ELEVATION .. 1067m CORE .. BQ Wireline COMPLETED .. 6 July 1981 ..

SECTION LOGGED BY D. MacDonald

REF. GRID .UTM . 5064 020 N. .
192,100 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	3.5m	<u>Overburden</u>								
3.5	145.38	<u>Red Beds</u>								
		<u>3.5m - 5.18m</u> Red brown to grey mixed pebble conglomerate. broken up blocky throughout. <u>B.p.</u>								
		<u>5.18m - 6.2m</u> Yellowish brown laminated f.g. sand. <u>B.p. 80%</u>								
		<u>6.2m - 20.42m</u> Grey-red brown hematitic stained pebble cong. Poor recovery - large quartz-cherty pebbles.								
		<u>20.42m - 21.32m</u> Dark brown-grey friable silt - grey red specks throughout								
		<u>21.32m - 25.4m</u> Dark brown-grey hematitic mixed pebble conglomerate. Pebbles are $\leq 4cm$ in size subrounded to elliptical in shape.								
		<u>25.4m - 26.51m</u> Dark red brown uniform sandy silt.								
		<u>26.51m - 39.85m</u> Dark brown to grey mixed pebble conglomerate - hematitic stained pebbles. No vis B.p.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>39.85m - 42.05m</u> Beige to dark brown hematitic stained f.g. SASN.								
		<u>42.05m - 47.05m</u> Greyish green-dk brown silty pebble conglomerate. Subrounded pebbles set in a red brown sandy matrix.								
		<u>47.05m - 54.7m</u> Greyish brown wavy laminated silts & v.f.g. SASN. Cross laminations throughout, SASN grades into a coarse grained SASN at 54.2m → 54.7m. Sharp contact with underlying pebble conglomerate.								
		<u>B.P. 72°/r</u> <u>54.7m - 56.5m</u> Greenish grey silty pebble conglomerate, consists of greenish grey silty elliptically shaped pebbles set in a brown sandy matrix. Pebbles are so numerous, // to bedding - no matrix.								
		<u>B.P. 58°/a</u> <u>56.5m - 75.1m</u> Med brown - red brown thinly laminated SASN's & dark friable silts, also numerous greenish grey - black grey shale partings 1/2 cm in thickness. Minor grey white calcareous clasts throughout. Greenish mottling & banding at base of red beds. <u>B.P. 65-68°/a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>75.1m - 77.2m</u> Pale greenish thinly laminated f.g. SASN - minor dark grey shaley partings ≤ 1 cm in thickness. Finely disseminated carbonaceous matter outlining the laminations also contain small pyritic nodules / spots. <u>B.p. 70°C/a</u> <u>77.2m - 86.75m</u> Greyish brown laminated f.g. SASN's, several .1m greenish grey shaley partings. <u>B.p. 70°C/a</u> <u>86.75m - 89.75m</u> Grey-brown mottled laminated f.g. SASN / shale. <u>B.p. 70°C/a</u> <u>89.75m - 90.85m</u> Pale grey thinly laminated f.g. SASN - minor dk grey shale partings $\leq .5$ mm in thickness. Laminations are well defined by disseminated carb matter. Minor small thin pyritic lenses. <u>B.p. 74°C/a</u> <u>90.85m - 117.65m</u> Medium red brown friable silt's / mdstn's - laminated med grained SASN, mottled greenish grey at base of unit. <u>117.65m - 119.6m</u> Alternating pale grey thinly laminated f.g. SASN - / dk grey-lam shale. minor cross laminations.								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>119m-123m</u> Red brown laminated sandy siltstn - minor greenish grey reduction blotches. <u>B.P. 72%</u> <u>123m-124.65m</u> Pale grey thinly laminated fine grained SASN. minor carbonaceous laminations + pyritic lenses. / several dark grey shale partings. <u>B.P. 70%</u> <u>124.65 - 126.45m</u> Greenish grey - grey silty pebble cong consists of elliptically shaped pebbles $\leq 1\text{cm}$ in length // to bedding. <u>126.45m - 136.65</u> Dark brown hematitic stained mdstn & thinly laminated siltstn. Greenish grey mottling & banding at base of unit. <u>B.P. 70%</u> <u>136.65 - 138.9m</u> Greenish grey uniform med grained SASN - calcareous - <u>138.9m - 139.0m</u> DK grey - red brown mottled mdstn. <u>139.0m - 144.5</u> DK red brown friable siltstn, soft shale <u>144.5 - 145.38m</u> Greyish brown poorly laminated f.g. SASN. - interstitial greenish grey calcareous material								

Encl.

P-52

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY . Pugwash . N.S. 45

LOCATION . Caribou River, Nova Scotia. Li: 6196

NTS CODE . 11E. 15. - 3.

HOLE NO. . . P-53 . . . Depth: 93.6 m . . .

LATITUDE ..45°45'10" N..... AZIMUTH — PURPOSE

DEPARTURE . . 62° 48' 25" W DIP -90° STARTED . 6 ربيع الثاني 1981 . .

ELEVATION .. 1009 .. CORE .. Bq Wireline .. COMPLETED .. 7 July 1981.

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5068, 750 N. . .
203, 300 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	8.22m	<u>Overburden</u> <u>8.22m - 27.05m</u> Medium brown laminated f.g. SASN. - hematitic stained broken up. Also dark brown coarse grained micaceous SASN. <u>B.p. 75%a</u> <u>27.05m - 32.61m</u> Grey-greenish grey cherty - silty pebble conglomerate, coarse grained SASN. <u>B.p. poor. 74%a</u> <u>32.61m - 33.21m</u> Greenish grey friable shale. <u>33.21m - 37.74m</u> Grey-grey brown sandy mixed pebble cong. Broken up. fractured <u>37.74m - 84.42m</u> Dark brown → reddish brown silty - hematitic mixed pebble conglomerate. Consists of large silty elliptically shaped pebble 1/ to B.p. set in a red brown hematitic stained sandy matrix. <u>B.p. 75%a</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<u>84.42m - 85.9m</u> Red brown uniform - minor laminated f.g. ss/siltstn. <u>B.p. 70% / a</u> <u>85.9 - 93.57m</u> Dark brown sandy mixed pebble cong. → red brown hematitic stained sandy matrix. (B.p. poor)								
		End of H.R.								

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY . Pugwash . N.S. 45

LOCATION West New Annap, Nova Scotia. Li:

NTS CODE . . . 06A . . . - 61

HOLE NO. P-54... Depth. 118 m.....

LATITUDE 45°38'20" N AZIMUTH — PURPOSE

DEPARTURE 63° 21' 40" W DIP -90° STARTED 7 July 1981

ELEVATION .. 1078.m..... CORE .. BQ..... COMPLETED .. 8 July 1961..

SECTION

LOGGED BY D. MacDonald

REF. GRID .UTM .5055,100 N . . .
393,200 W

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	7.7m	Overburden								
		7.7m - 8.1m Pale grey laminated f.g. micaceous SASN. - Minor carbonaceous matter defining B.p. 75°C/a								
		8.1m - 9.75m Brownish grey thinly laminated very fine grained micaceous SASN.								
		9.75m - 12.35m Pale grey thinly laminated cross laminated f.g. mica SASN. Diss carb matter. Along B.p. = 70°C/a Calcareous grey cong at base of unit.								
		12.35m - 22.0m Pale brown thinly laminated cross laminated very fine grained SASN + dark brown fissile friable siltstones. B.p. 70°C/a								
		22.0m - 23.4m Brownish grey uniform fine grained micaceous SASN. Minor micaceous laminations defining B.p. 70°C/a								
		23.4m - 47.25m Dark brown friable siltstones shale & thinly laminated f.g. SASN. Greenish grey calcareous mottling within the siltstones - minor limonitic blebs / staining. B.p. 65°C/a								

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%CU	%Zn	%Pb	Ag 34	AVERAGES
		47.25m - 48.63m Brownish grey-greenish grey medium grained SASN - grades into a greenish grey thinly laminated SASN at base of unit. <u>B.p. 70°C/a</u>									
		<u>48.63m - 67.6m</u> Dark red brown friable siltstn - minor greenish grey calcareous blotches.									
		<u>67.6m - 72.4m</u> Pale brown uniformly laminated / cross laminated f.g. SASN. - minor greenish grey - dk brown silty partings. <u>Grey SASN.</u>									
		<u>72.4m - 74.0m</u> Brownish grey massive uniformly f.g. micaceous SASN gradational to underlying thinly laminated SASN's.									
		<u>74.0m - 76.7m</u> Pale grey carbonaceously laminated f.g. micaceous SASN. Minor small pyritic specs - granules - Green at base of unit. <u>B.D. 70°C/a</u>									
		<u>76.7m - 79.73m</u> Dark brown friable siltstn / shale - minor greenish grey calcareous silty partings / blotches.									
		<u>79.73m - 85.05m</u> Pale grey uniformly carbonaceously laminated f.g. SASN. <u>B.D. 70°C/a</u>	1156	82.23	83.2	.97m	2.01	.01	.01	41.0	
			1157	83.2	83.9	.7m	2.01	.01	.01	41.0	
			1158	83.9	84.1	.2m	2.01	.01	.01	41.0	

P54

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	%Ag	
E	H	85.05 m - 105.0 m Dark brown to pale brown alternating friable siltn's / laminated f.g. SASN's. Numerous greenish grey partings $\pm$ 1m in thickness. B.p. 65%									
		105.0 m - 111.86 Pale grey medium grey thinly laminated f.g. SASN. numerous wavy thread like carbonaceous laminations with pyritic pods $\rightarrow$ lenses. 111.76 - 111.86 greenish grey mdstr - calcite nodules & clasts. B.p. 60-65%	1153	110.1	110.33	0.23m	40.01	40.01	40.01	41.0	
			1154	110.33	110.8	0.47m	0.02	0.01	0.03	41.0	
			1155	110.8	111.0	0.2m	0.01	40.01	0.01	2.7	
		111.86 m - 117.95 m Dark brown friable siltn fissile mudstr $\rightarrow$ numerous grey white calcareous clasts in upper section 111.86 - 112.86 m - B.p. poor									

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY ... Pugwash ... NS 45 ...

LOCATION . . Conn. Mills., Nova Scotia. L: 6167

NTS CODE . . . 11E 13 . . . — 10

HOLE NO. ... P-55 ... Depth 144m ...

LATITUDE 45° 45' 33" N. AZIMUTH — PURPOSE

DEPARTURE 63°42'20"N..... DIP -90°..... STARTED 8 July 1981

ELEVATION ..1016m..... CORE ..BQ Wireline..... COMPLETED ..9 July 1981..

SECTION

LOGGED BY D. MacDonald

REF. GRID WTM 5068,750 N . . .
367,200 E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	12.65	<u>Overburden</u>								
12.65	144.0m	<u>Red Brown SASN's / Siltstones</u> <u>12.65m - 13.73m</u> Biege friable soft siltstn (no visible B.p.) <u>13.73m - 21.0m</u> Brownish grey thinly laminated fine grained micaceous SASN. Dark red brown hematitic staining throughout. - minor very thin carb/mica lamina. <u>B.p. 64°C/a</u> <u>21.0m - 21.6m</u> Dark brown → red brown hematitic; calcareous pebble conglomerate. <u>21.6m - 49.75m</u> DARK reddish brown friable siltstones + laminated fine grained SASN's. Greenish grey mottling within the siltstones / also hematitic lenses throughout. <u>B.p. 74°C/a</u> <u>49.75m - 55.2m</u> Greyish brown uniform → medium grained mica SASN. - minor red brown thin argillaceous laminations + very small fragments throughout SASN unit. <u>B.p. 74°C/a</u>								

P55

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	% Cu	% Zn	% Pb	$\frac{Z}{base}$ Ag	AVERAGES
		<u>55.2m - 66.94m</u> Dark reddish brown broken up + friable siltstone. - minor greenish grey mottling + large white silty calcareous clasts, → sandy near base of unit.									
		<u>66.94m - 69.55m</u> Dark brown - whitish brown medium grained SASN. - Thin bedded - <u>B.p. 70°C/a</u>									
		<u>69.55m - 77.2m</u> Medium brown thinly laminated fine to medium grained SASN. - minor red brown silty partings ± 1cm in thickness.									
		<u>77.2m - 77.8m</u> Beige → white arkosic SASN, gradational to a white pebble conglomerate → (brownish red pebbles set in a white sandy matrix)									
		<u>77.8m - 125.15m</u> Medium to dark brown laminated fine grained micaceous SASN's. - Minor yellowish brown staining.	1159	87.42	87.65	0.23m	LO.01	0.05	0.25	41.0	
		- Beige uniform fine grained SASN partings which have thin ≤ 1cm layers of disseminated galena at (104.5m - 105.1m.) (106.8 - 106.9m)	1160	104.46	105.06	0.60m	LO.01	0.02	0.07	41.0	
			1161	106.8	106.9	0.1m	LO.01	0.01	LO.01	41.0	
			1162	110.2	110.33	0.13m	LO.01	0.04	0.05	1.7	
		<u>B.p. 70°C/a</u>	1163	122.3	122.64	0.34m	LO.01	0.03	0.13	41.0	

P55

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		<i>125.15m - 144.00m Dark brown uniform hematitic med grained micaceous ss-s minor laminated dark brown mdstn <u>Bp 70°C/a</u></i>								
		<i>End of Hole.</i>								

P55

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY ... Pugwash ... NS.45

LOCATION Lower Wentworth, Nova Scotia. Li: 6167

NTS CODE ... 11E 12... 75...

HOLE NO. . . . P-54 Depth: 151.5 m . .

LATITUDE 45°43'05"N AZIMUTH — PURPOSE

DEPARTURE $63^{\circ}33'30''$ N. DIP -90° STARTED 9 July 1981.

ELEVATION .. 1420m..... CORE .. BQ Wireline..... COMPLETED 10 July 1981..

SECTION

LOGGED BY D. MacDonald

REF. GRID UTM. 5064214.N . . .
377,900E

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES								AVERAGES
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	%As Tons	
0	7.4m	Overburden									
		<u>Brown - Grey brown SASN</u>									
7.4m	14.72m	<u>7.4m-13.5m</u> Pale grey laminated f.g. micaceous SASN's / dark brown laminated silty SASN's. <u>B.p. 70°C/a</u>									
		<u>13.5m-14.72m</u> Greyish brown laminated f.g. micaceous SASN. thin pebble cong parting at base of unit. <u>B.p. 74°C/a</u>									
14.32	37.7m	<u>Grey SASN / shale.</u>									
		<u>14.32-19.87m</u> Pale grey fine grained SASN. with numerous carbonaceous laminations + dark grey black shaley partings, with thin lenses, pods + disseminated pyrite. - Minor cross laminations. Several flakes of chalcopyrite along B.p. fracture at 19.85m. <u>B.p. 79°C/a</u>	1164	15.2	17.37	8.17m	.06	.01	.01	1.5	
			1165	17.37	19.8	2.43m	4.01	.02	1.01	1.0	
			1173	19.84	20.54	1.7m	.03	.02	.01	11.0	
		<u>19.87m-20.72m</u> Pale grey calcareous fine grained SASN with minor grey silty clasts in upper portion. grey mdsen in lower area - contact with underlying red beds.									

FOOTAGE		DESCRIPTION	CORE SAMPLES								
FROM	TO		NO.	FROM	TO	WIDTH	%Cu	%Zn	%Pb	%Ag	AVERAGES
		<u>20.72m - 31.9m</u> Dark red brown mdstn grey brown mottled f.g. SASN.									
		<u>31.9m - 37.7m</u> Pale grey → brown mottled silty f.g. SASN. pale grey → dk brown shale. - minor carb → fossil fragments - specs. <u>B.p. 70%</u>									
37.7m	143.82m	<u>Brown SASN / Red Brown Mdstn</u> <u>137.7 - 143.82m</u> Dark grey brown - red brown siltst. - Alternating med grained micaceous SASN. <u>Avg B.p. 65-70%</u>	1166	146.13	148.23	2.10m	.01%	4.01	4.01	4.10	
		<u>Grey laminated f.g. SASN's</u> <u>143.82m - 150.52m</u> Medium grey carb laminated uniformly f.g. SASN. - Numerous pyritic lenses within the carb lamina. Dark grey → black shale between 149.25 - 149.7m. Massive pyrite on top of shale parting. <u>B.p. 65-68%</u>	1168	148.43	150.3	1.87m	.01	4.01	.02	1.1	
150.52	151.48m	Red Beds									

REG-105725

P56

IMPERIAL OIL LIMITED - DIAMOND DRILL HOLE LOG

PROPERTY PUGWASH NS. 45 LOCATION

NTS CODE HOLE NO. P. 57

LATITUDE AZIMUTH — PURPOSE

DEPARTURE DIP -90° STARTED 10 July 1981

ELEVATION ... 62.3 m above sea level CORE ... 80 ... COMPLETED ... 11 July 1981

SECTION LOGGED BY John O. Sullivan

REF. GRID UTM... 373100E 5,058,650N

DIP TESTS

[illegible]

FOOTAGE		DESCRIPTION	CORE SAMPLES <i>g. Bullen</i>							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
0	9.5	OVERBURDEN								
9.5	114.0 end	<u>Red Mudstones Siltstones and Sandstone</u>								
		9.5 - 9.7 medium grained grey <u>Sandstone</u> - boulder?								
		9.7 - 16.9 Red brown fine <u>Siltstone</u> - coarser sandy Section 13.1 - 14.0								
		16.9 - 20.0 Red brown fine grained <u>Sandstone</u> - thinly laminated bedding - 2 cycles fining upward.								
		20.0 - 27.8 Red brown <u>Mudstone</u> scattered green reduction blebs 22-23.5								
		27.8 - 28.6 fine grained Red brown <u>Sandstone</u> small scale crossbedding								
		28.6 - 29.7 Red brown <u>mudstone</u>								
		29.7 - 33.5 brown fine grained <u>Sandstone</u> cycles - fining upward - conglomeratic at base. minor areas of green reduction spots.								
		33.5 - 34.8 Red brown mudstone								
		34.8 - 36.5 brown finely laminated <u>siltstone</u> grading downward to fine crossbedded <u>Sandstone</u>								
		36.5 - 41.7 brown silty <u>mudstone</u>								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		41.7 - 43.3 brown <u>siltstone</u>								
		43.3 - 46.3 brown <u>mudstone</u> - minor green blotches								
		46.3 - 51.1 brown <u>siltstone</u> grading downward to fine grained grey-brown <u>Sandstone</u> thinly bedded parallel laminations bedding 80° to core axis								
		51.1 - 57.5 Red brown <u>mudstone</u> - minor green reduction spots - grading downward to brown silty <u>mudstone</u>								
		57.5 - 61.1 brown fine grained <u>Sandstone</u> grading down to medium grained <u>Sandstone</u> - no well defined bedding								
		61.1 - 63.4 Red brown <u>mudstone</u> - thin (10cm) interbeds of fine sandstone								
		63.4 - 63.8 Laminated Red brown <u>calcareous Sandstone</u> - slightly conglomeratic								
		63.8 - 71.2 Red brown <u>Siltstone</u> with interbedded (10cm) sections of <u>Sandstone</u> - minor green mottling and scattered calcareous concretions								

FOOTAGE		DESCRIPTION	CORE SAMPLES							
FROM	TO		NO.	FROM	TO	WIDTH				AVERAGES
		71.2 - 80.0 fine grained Red brown <u>Sandstone</u> grading downward to medium grained Sandstone. Scattered Calcareous sections upto 20cm.								
		80.0 - 84.0 Red brown <u>Mudstone</u> minor green mottling								
		84.0 - 89.6 medium grained brown <u>Sandstone</u> fining upward.								
		89.6 - 90.8 Calcareous matrix <u>conglomerate</u> mudstone clasts.								
		90.8 - 92.3 <u>Silty mudstone</u>								
		92.3 - 99.5 brown <u>Siltstone</u> - minor crossbedded fine Sandstone and mudstone.								
		99.5 - 112.5 brown <u>mudstone</u>								
		112.5 - 114.0 brown fine grained <u>Sandstone</u> wavy bedded								
114.0		end of hole								

11E/13A 13-E-33(01)

PUGWASH REPORT N.S. 45

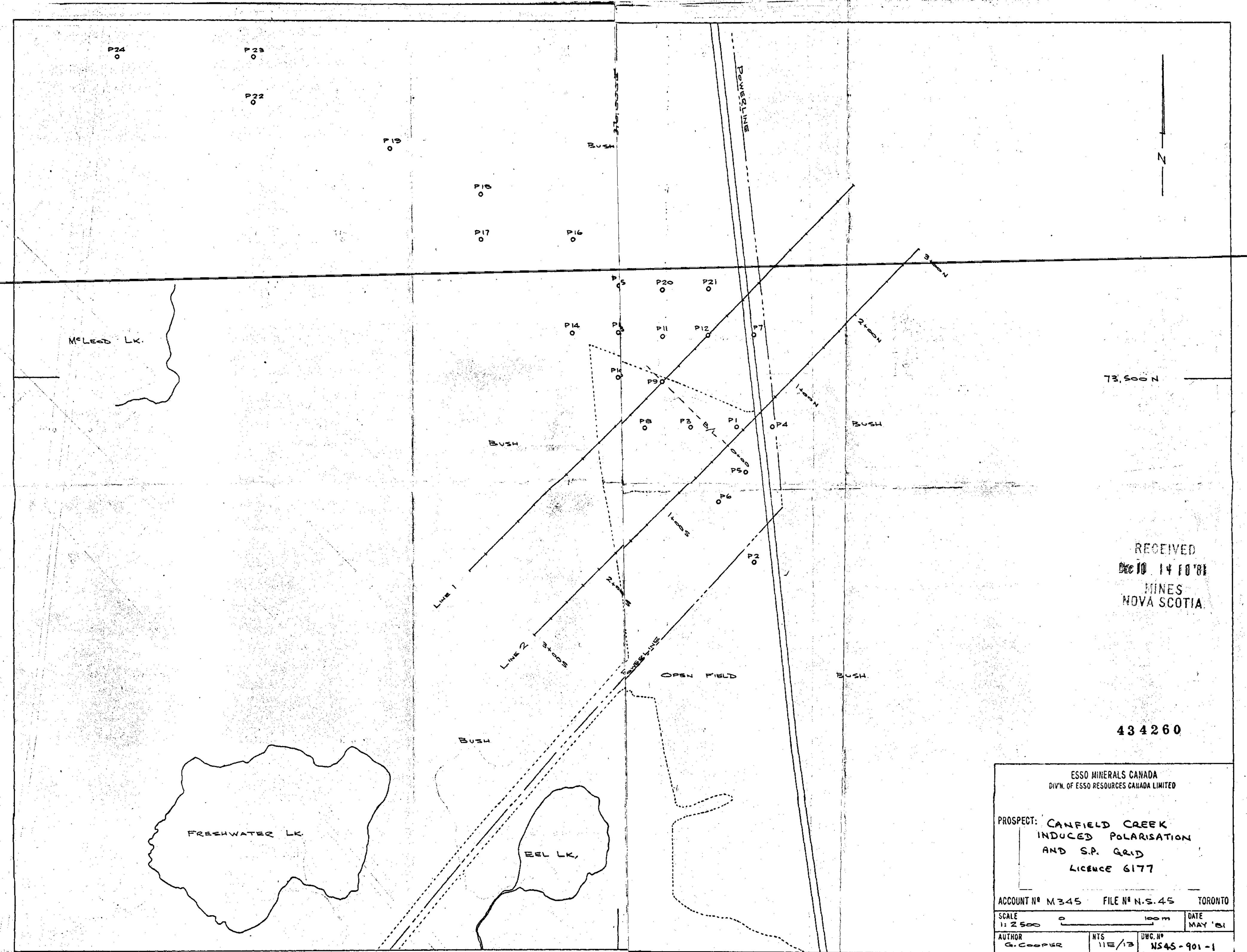
ASSESSMENT REPORT

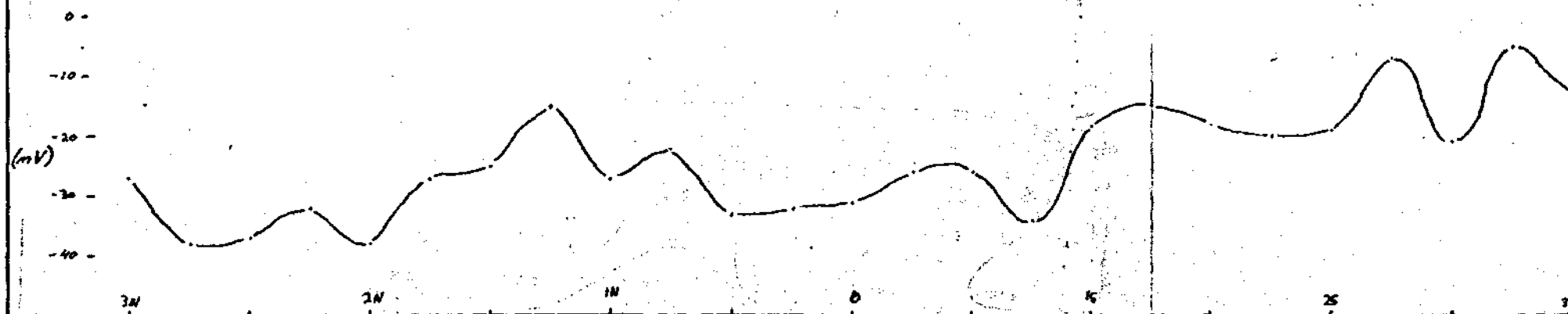
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484260

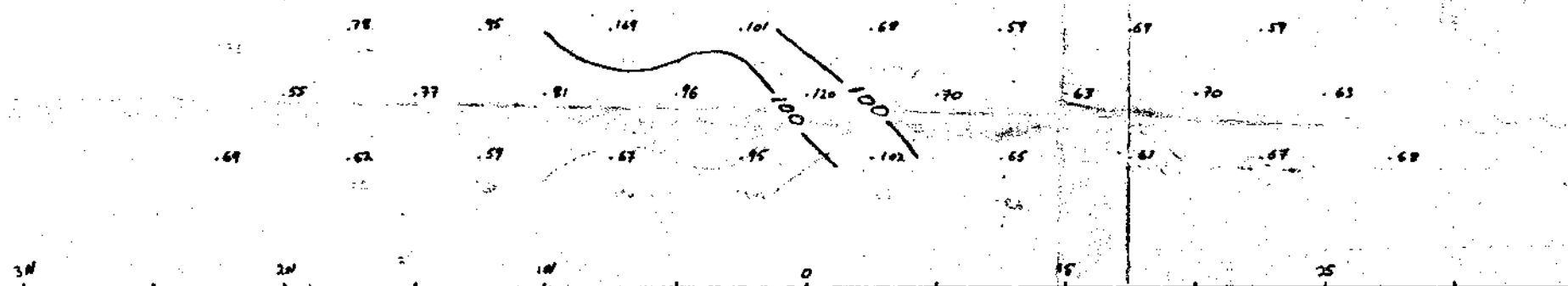
(Part 2)

John O'Sullivan
August 1981





S.P. SURVEY
INSTRUMENT: SCINTREX IPR-10

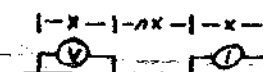


IP SURVEY
INSTRUMENT: MSPHAR P660
FREQUENCIES: 0.3 & 5.0 Hz

n-3 P_a
(ohm-m)

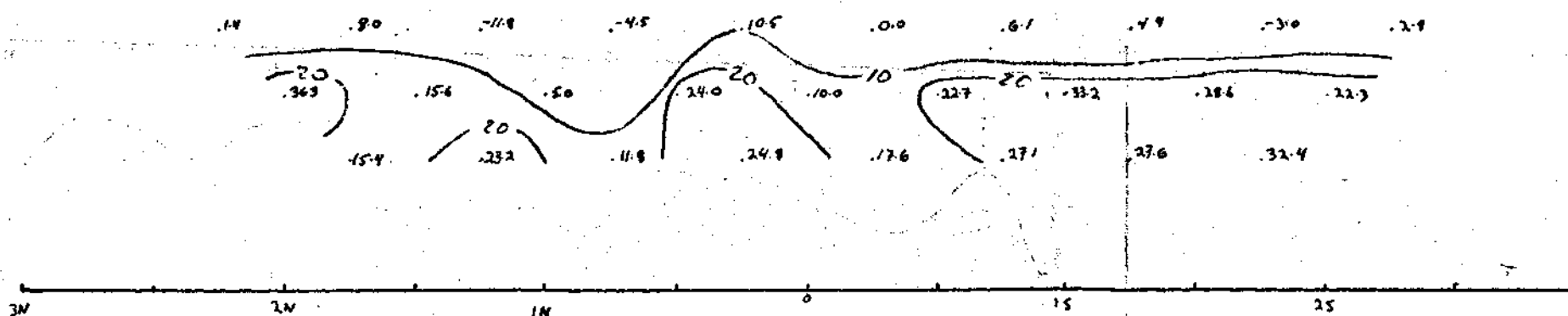
n-2

n-1



plotting point
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MINES
NOVA SCOTIA

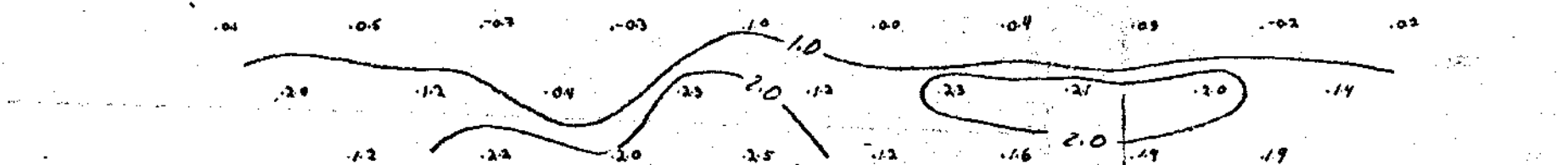
434260



n-1 M.F.
(mhos/m)

n-2

n-3



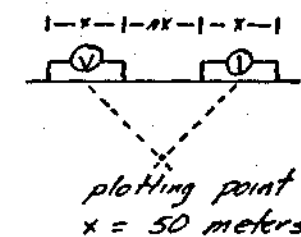
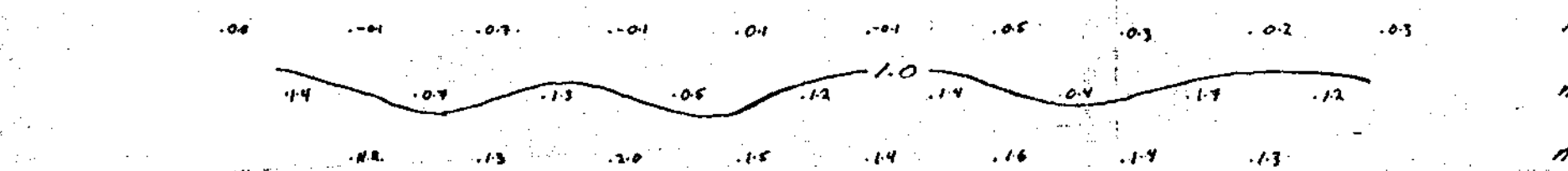
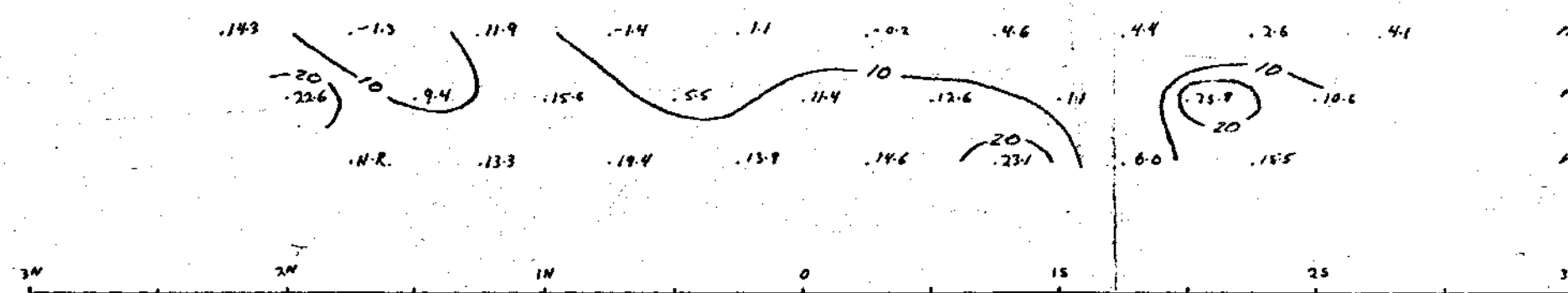
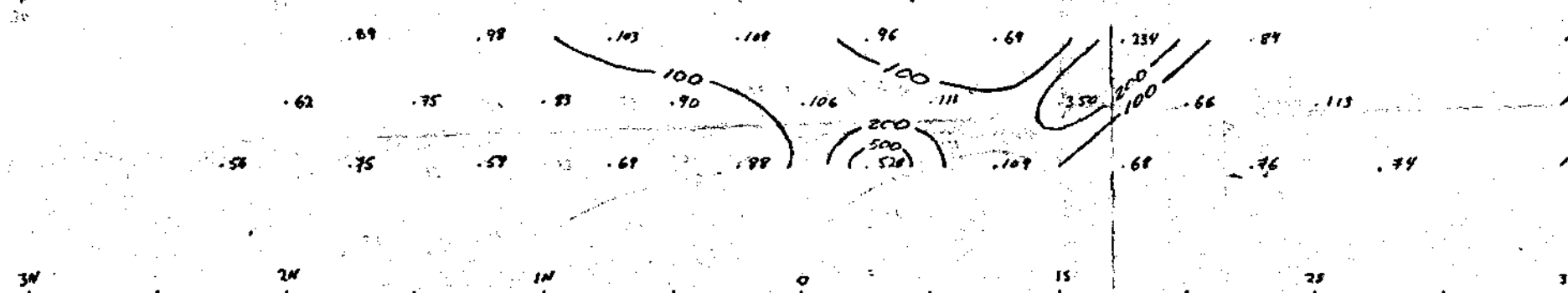
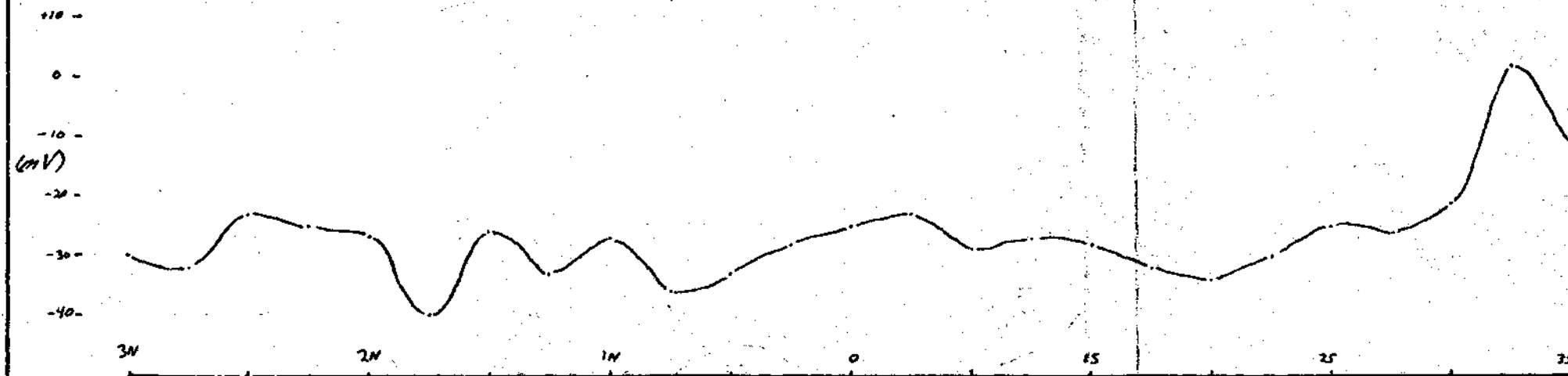
n-1 P.F.E.

n-2

n-3

FIG. 1

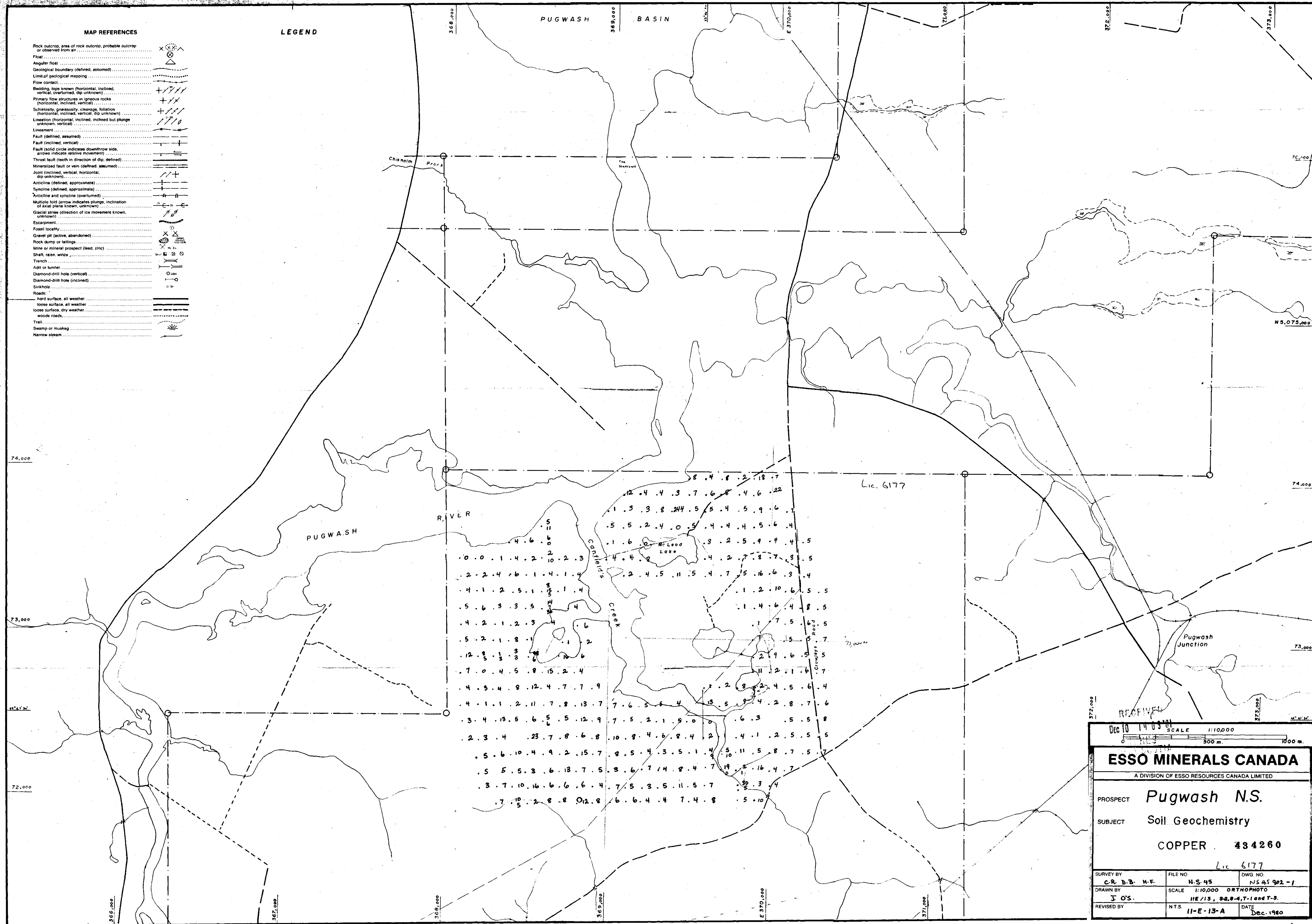
ESSO MINERALS CANADA DIV'N OF ESSO RESOURCES CANADA LIMITED		
PROSPECT: PUGWASH, Nova Scotia CANGFIELD CREEK S.P. & I.P. SURVEY		
LINE NO 1 LICENCE 6177		
ACCOUNT NO	FILE NO	N.S. 45 TORONTO
SCALE	0 50 100 m	DATE APRIL 1981
AUTHOR G. COOPER	NTS 11E/13A	DWG. NO NS45-901-2



434260

ESSO MINERALS CANADA DIVN OF ESSO RESOURCES CANADA LIMITED	
PROSPECT: PUBWASH, Nova Scotia CANFIELD CREEK	
S.P. & IP SURVEY	
LINE NO 2	
LICENCE 8177	
ACCOUNT NO	FILE NO NS45 TORONTO
SCALE 0 50 100 m	DATE APRIL 1981
AUTHOR G. COOPER	DWG. NO NS45-901-3

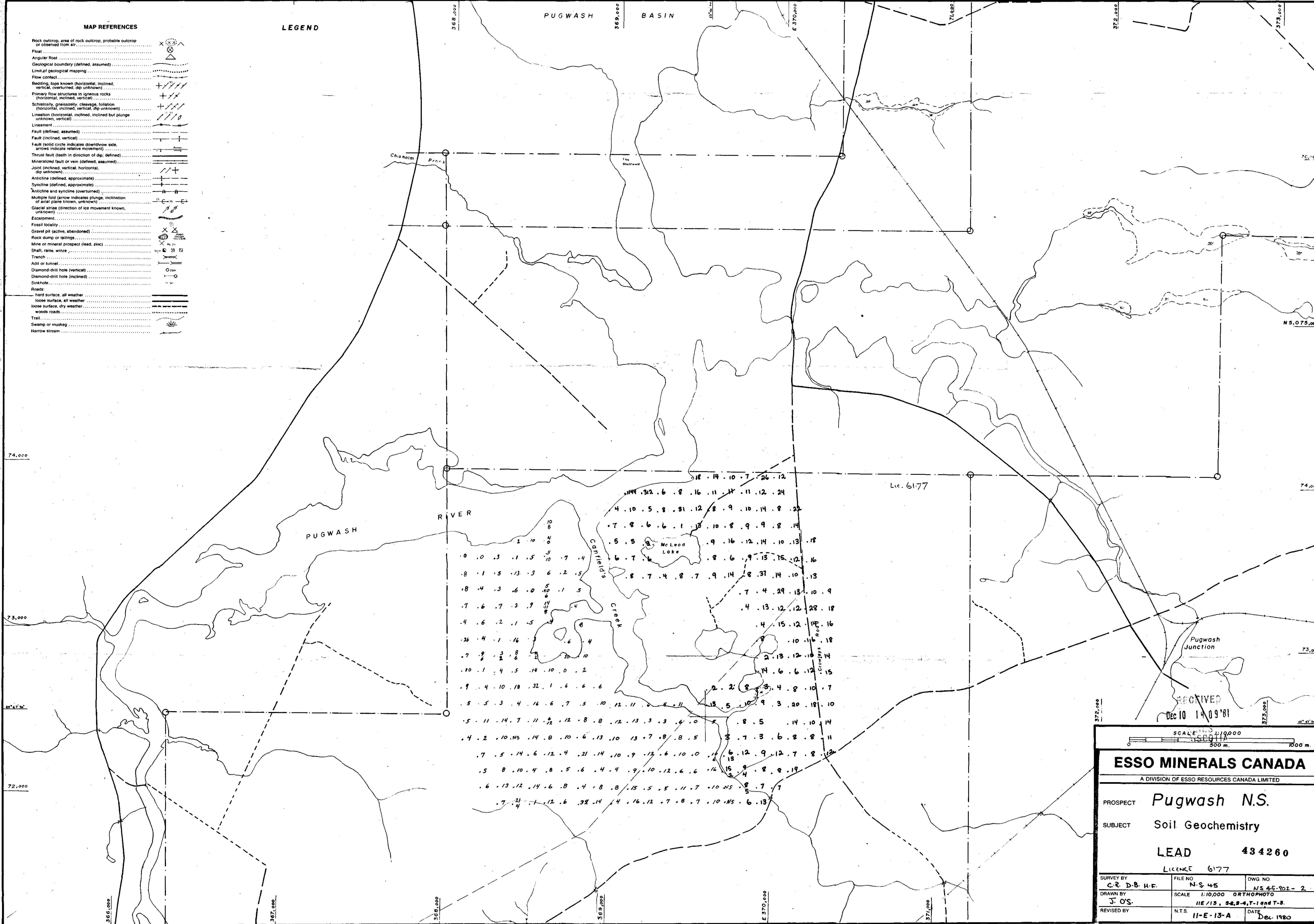
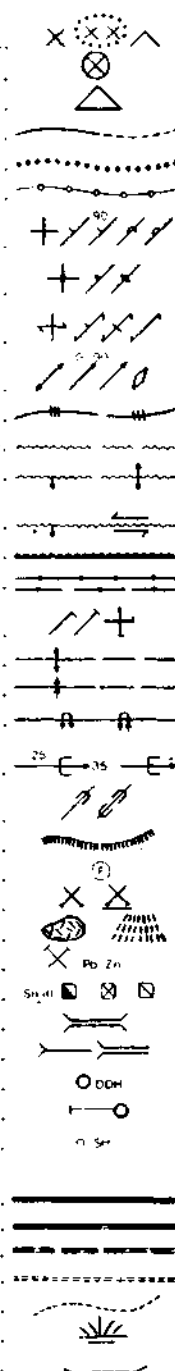
FIG 2



MAP REFERENCES

Rock outcrop, area of rock outcrop, probable outcrop or observed from air
 Fault
 Angular fault
 Geological boundary (defined, assumed)
 Limit of geological mapping
 Flow contact
 Bedding, tops known (horizontal, inclined, vertical, overturned, dip unknown)
 Primary flow structures in igneous rocks (horizontal, inclined, vertical)
 Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)
 Lamination (horizontal, inclined, inclined but plunge unknown, vertical)
 Lineament
 Fault (defined, assumed)
 Fault (inclined, vertical)
 Fault (solid circle indicates downthrow side, arrows indicate relative movement)
 Thrust fault (teeth in direction of dip, defined)
 Mineralized fault or vein (defined, assumed)
 Joint (inclined, vertical, horizontal, dip unknown)
 Anticline (defined, approximate)
 Syncline (defined, approximate)
 Anticline and syncline (overturned)
 Multiple fold (arrow indicates plunge, inclination of axial plane known, unknown)
 Glacial striae (direction of ice movement known, unknown)
 Escarpment
 Fossil locality
 Gravel pit (active, abandoned)
 Rock dump or tailings
 Mine or mineral prospect (lead, zinc)
 Shaft, raise, winze
 Trench
 Adit or tunnel
 Diamond-drill hole (vertical)
 Diamond-drill hole (inclined)
 Sinkhole
 Roads
 hard surface, all weather
 loose surface, all weather
 loose surface, dry weather
 woods roads
 Trail
 Swamp or muskeg
 Narrow stream

LEGEND



RECEIVED
 Dec 10 14 09 '81

SCALE 1:10,000
 500 m. 1000 m.

ESSO MINERALS CANADA
 A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT **Pugwash N.S.**

SUBJECT **Soil Geochemistry**

LEAD 434260

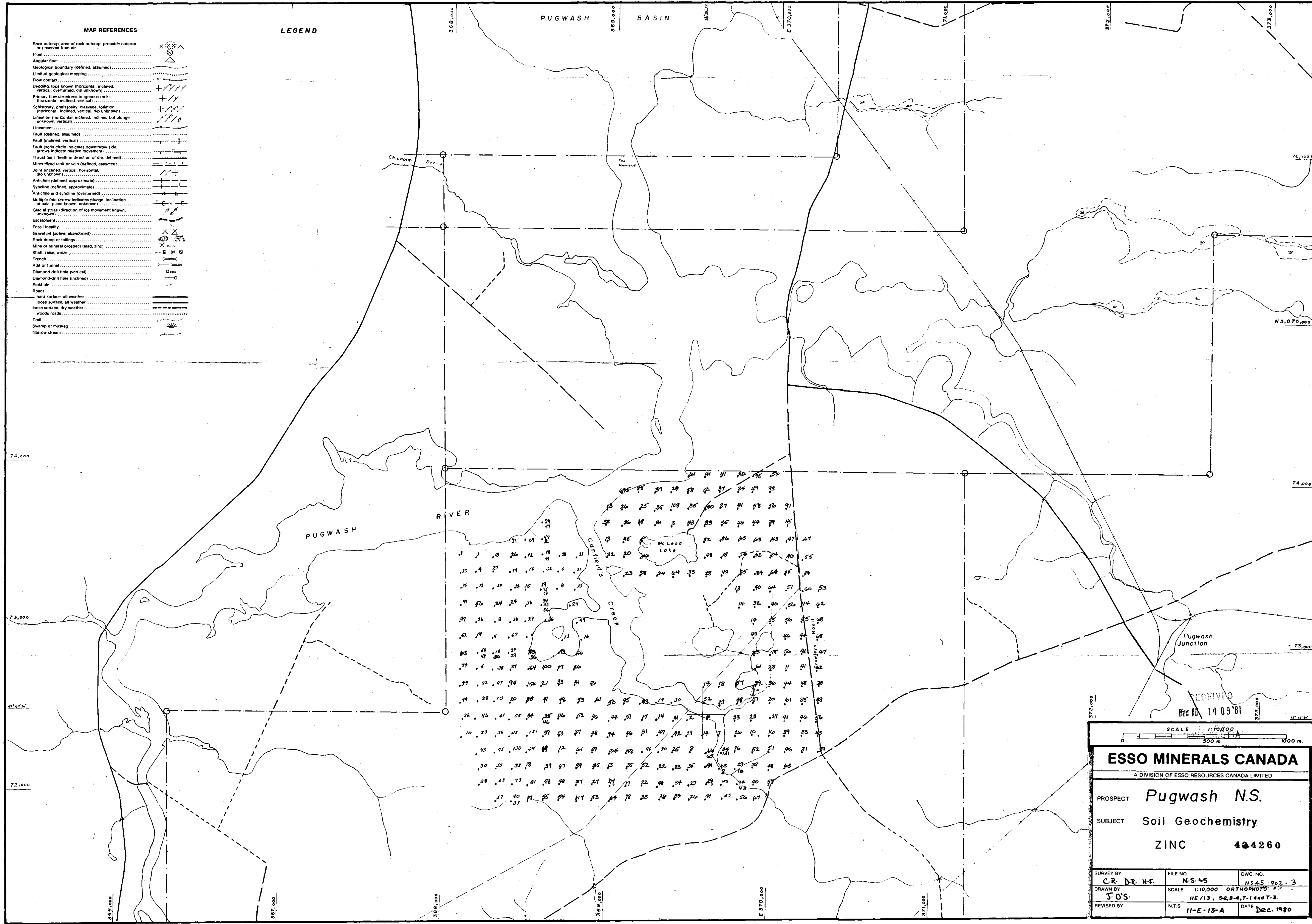
LICENCE 6177

SURVEY BY C.R. D.B. H.E.	FILE NO N.S. 45	DWG NO N.S. 45-902-2
DRAWN BY J.O.S.	SCALE 1:10,000 ORTHOPHOTO	
REVISED BY	N.T.S. 11-E-13-A	DATE Dec. 1980

MAP REFERENCES

- Rock outcrop, area of rock outcrop, probable outcrop or observed from air
- Flot
- Angular float
- Geological boundary (defined, assumed)
- Limit of geological mapping
- Flow contact
- Bedding, tops known (horizontal, inclined, vertical, overturned, dip unknown)
- Primary flow structures in igneous rocks (horizontal, inclined, vertical)
- Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)
- Lineation (horizontal, inclined, inclined but plunges unknown, vertical)
- Lineament
- Fault (defined, assumed)
- Fault (inclined, vertical)
- Fault (solid circle indicates downthrow side, arrows indicate relative movement)
- Thrust fault (teeth in direction of dip, defined)
- Mineralized fault or vein (defined, assumed)
- Joint (inclined, vertical, horizontal, dip unknown)
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Anticline and syncline (overturned)
- Multiple fold (arrow indicates plunge, inclination of axial plane known, unknown)
- Glacial striae (direction of ice movement known, unknown)
- Escarpment
- Fossil locality
- Gravel pit (active, abandoned)
- Rock dump or tailings
- Mine or mineral prospect (lead, zinc)
- Shaft, raise, winze
- Trench
- Adit or tunnel
- Diamond-drill hole (vertical)
- Diamond-drill hole (inclined)
- Sinkhole
- Roads
 - hard surface, all weather
 - loose surface, all weather
 - loose surface, dry weather
 - woods roads
- Trail
- Swamp or muskeg
- Narrow stream

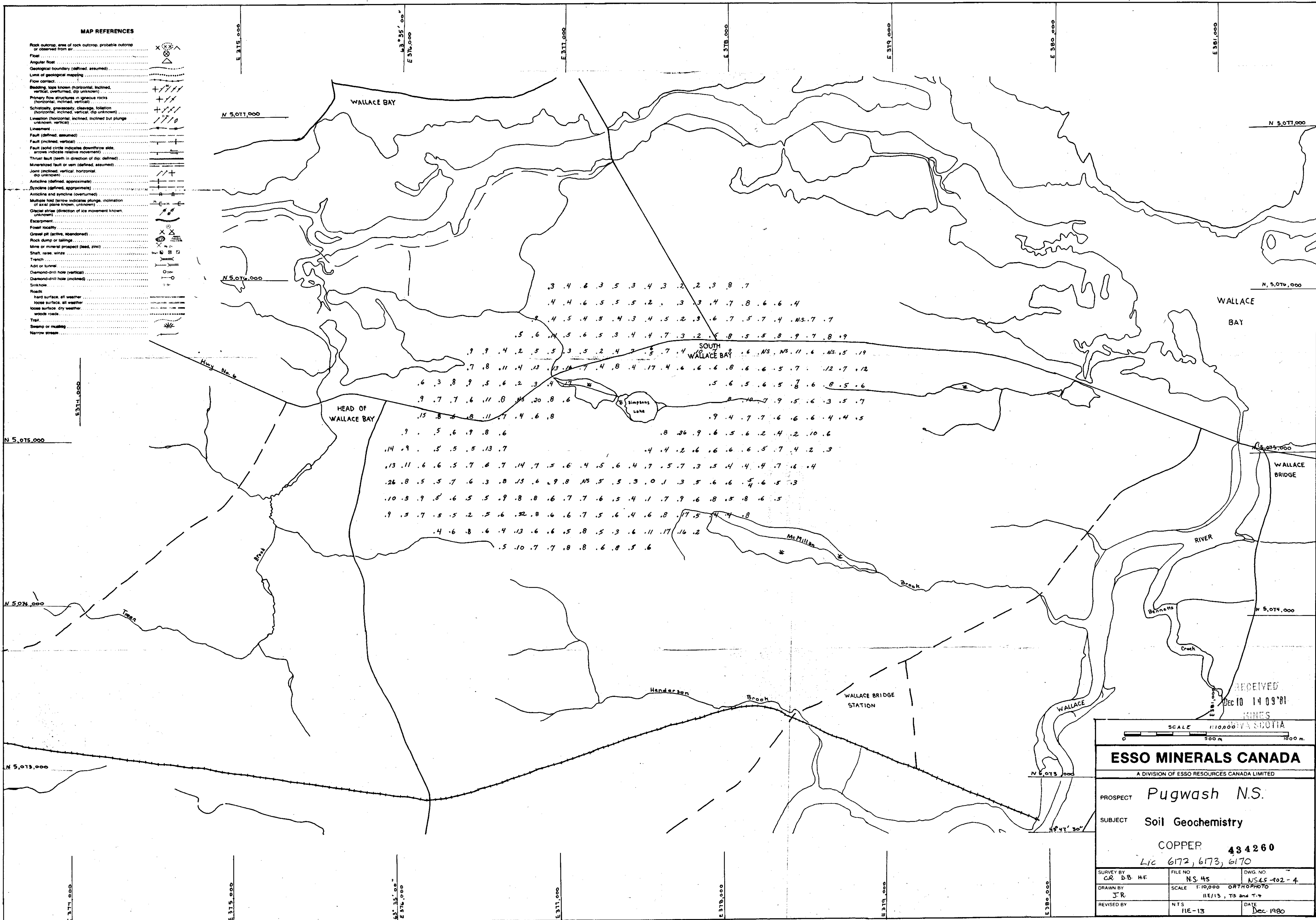
LEGEND



RECEIVED Dec 10 14 09 '81		
SCALE 1:10,000 0 500 m. 1000 m.		
ESO MINERALS CANADA A DIVISION OF ESSO RESOURCES CANADA LIMITED		
PROSPECT	Pugwash N.S.	
SUBJECT	Soil Geochemistry	
	ZINC	424260
SURVEY BY	FILE NO.	DWG. NO.
C.R. DR. H.F.	NS-45	NS-45-902-3
DRAWN BY	SCALE	ORTHOPHOTO
S.O.S.	1:10,000	11E/13, S2, S4, T-1 and T-3.
REVISED BY	N.T.S.	DATE
	11-E-13-A	Dec. 1980

MAP REFERENCES

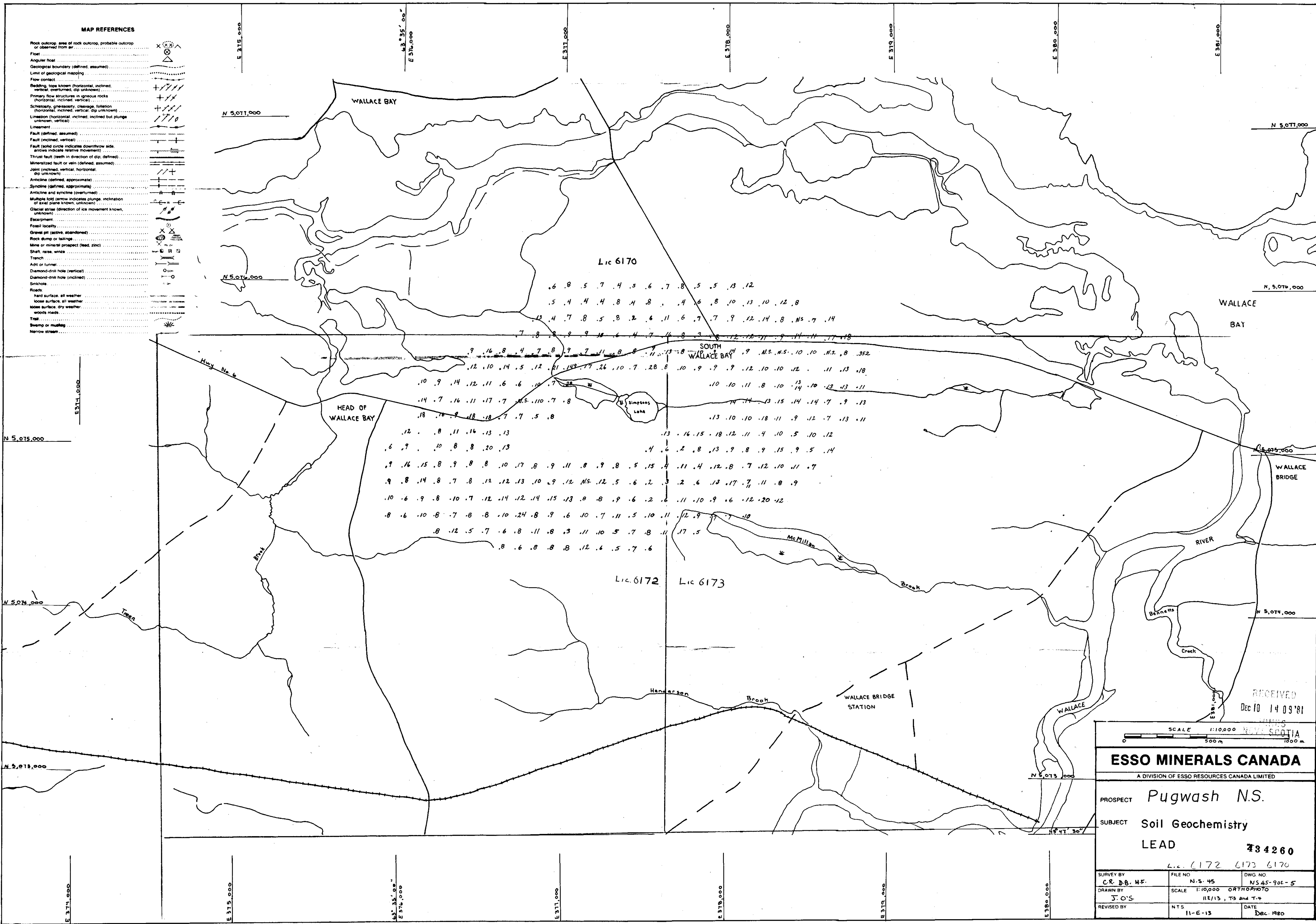
- Rock outcrop, area of rock outcrop, probable outcrop or observed from air
- Floor
- Angular floor
- Geological boundary (defined, assumed)
- Limit of geological mapping
- Flow contact
- Bedding, tops known (horizontal, inclined, vertical, overturned, dip unknown)
- Primary flow structures in igneous rocks (horizontal, inclined, vertical)
- Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)
- Lamination (horizontal, inclined, inclined but plunge unknown, vertical)
- Lineament
- Fault (defined, assumed)
- Fault (inclined, vertical)
- Fault (solid circle indicates downthrow side, arrows indicate relative movement)
- Thrust fault (teeth in direction of dip, defined)
- Mineralized fault or vein (defined, assumed)
- Joint (inclined, vertical, horizontal, dip unknown)
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Anticline and syncline (overturned)
- Multiple fold (arrow indicates plunge, inclination of axial plane known, unknown)
- Glacial striae (direction of ice movement known, unknown)
- Escarpment
- Fossil locality
- Gravel pit (active, abandoned)
- Rock dump or tailings
- Mine or mineral prospect (lead, zinc)
- Shaft, raise, winze
- Trench
- Adit or tunnel
- Diamond-drill hole (vertical)
- Sinkhole
- Roads
- hard surface, all weather
- loose surface, all weather
- loose surface, dry weather
- woods roads
- Trail
- Swamp or muskeg
- Narrow stream



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PROSPECT Pugwash N.S.		
SUBJECT Soil Geochemistry		
COPPER 434260 Lic 6172, 6173, 6170		
SURVEY BY G.R. D.B. H.F.	FILE NO NS.45	DWG. NO NS.45-402-4
DRAWN BY J.R.	SCALE 1:10,000 ORTHOPHOTO	DATE Dec. 1980
REVISED BY NTS	DATE 11E-13	

MAP REFERENCES

- Rock outcrop, area of rock outcrop, probable outcrop or observed from air
- Floor
- Angular floor
- Geological boundary (defined, assumed)
- Limit of geological mapping
- Flow contact
- Bedding, tops known (horizontal, inclined, vertical, overturned, dip unknown)
- Primary flow structures in igneous rocks (horizontal, inclined, vertical)
- Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)
- Lamination (horizontal, inclined, inclined but plunge unknown, vertical)
- Unconformity
- Fault (defined, assumed)
- Fault (inclined, vertical)
- Fault (solid circle indicates downthrow side, arrows indicate relative movement)
- Thrust fault (teeth in direction of dip, defined)
- Mineralized fault or vein (defined, assumed)
- Joint (inclined, vertical, horizontal, dip unknown)
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Anticline and syncline (overturned)
- Multiple fold (arrow indicates plunge, inclination of axial plane known, unknown)
- Glacial striae (direction of ice movement known, unknown)
- Escarpment
- Fossil locality
- Gravel pit (active, abandoned)
- Rock dump or tailings
- Mine or mineral prospect (lead, zinc)
- Shaft, raise, winze
- Trench
- Adit or tunnel
- Diamond-drill hole (vertical)
- Diamond-drill hole (inclined)
- Sinkhole
- Roads
- hard surface, all weather
- loose surface, all weather
- loose surface, dry weather
- woods roads
- Trail
- Swamp or marsh
- Narrow stream



RECEIVED
Dec 10 14 09 '81

SCALE 1:10,000
500 m

ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT **Pugwash N.S.**

SUBJECT **Soil Geochemistry**

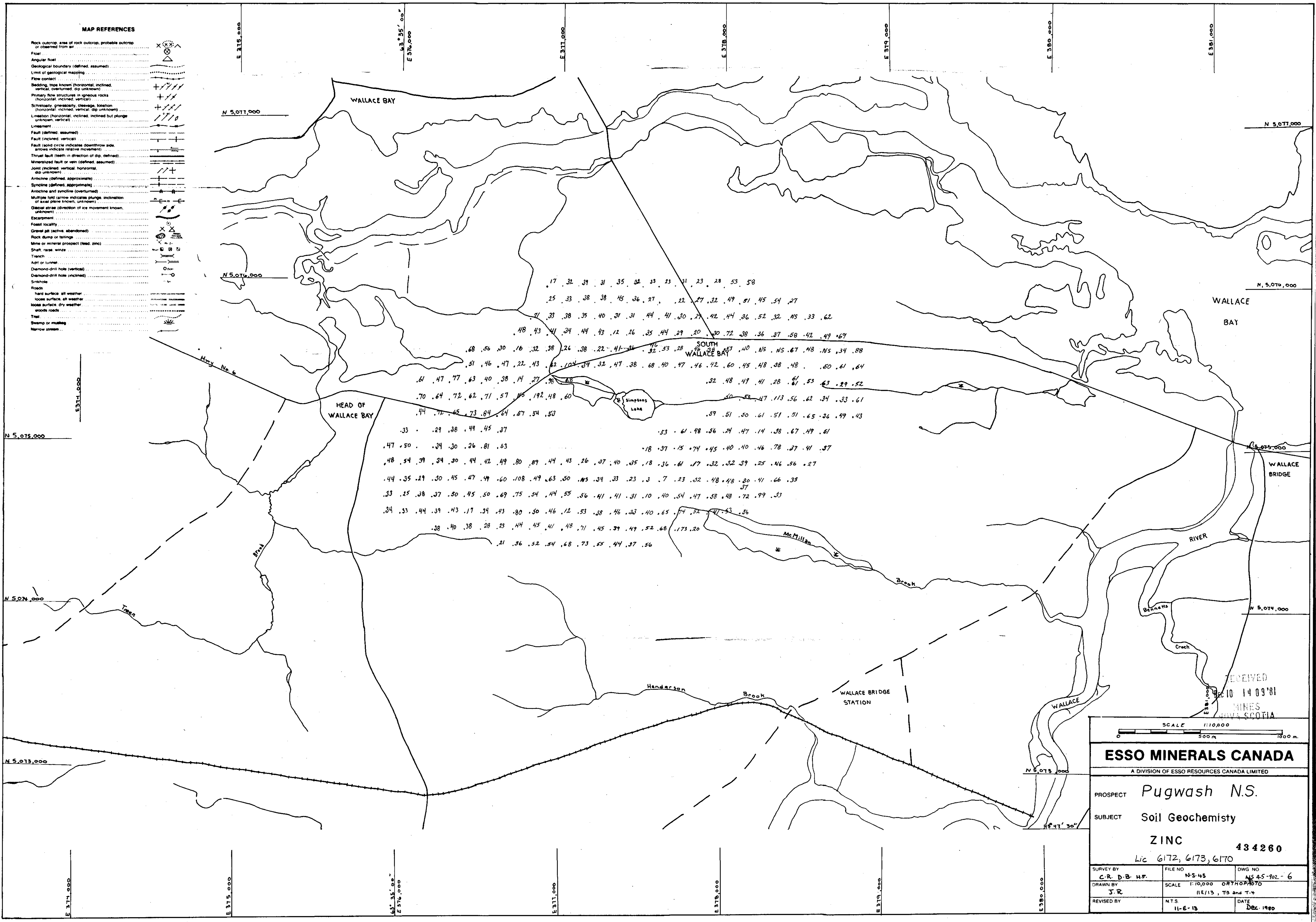
LEAD **734260**

L.C. 6172 6173 6170

SURVEY BY C.R. D.B. H.F.	FILE NO. N.S. 45	DWG NO. N.S. 45-902-5
DRAWN BY J.O.S.	SCALE 1:10,000 ORTHOPHOTO	DATE 11/13, T3 and T-4
REVISED BY NTS	DATE 11-E-13	DATE Dec. 1980

MAP REFERENCES

- Rock outcrop, area of rock outcrop, probable outcrop or observed from air
- Floor
- Angular floor
- Geological boundary (defined, assumed)
- Limit of geological mapping
- Flow contact
- Bedding, top known (horizontal, inclined, vertical, overturned, dip unknown)
- Primary flow structures in igneous rocks (horizontal, inclined, vertical)
- Schistosity, gneissosity, cleavage, lineation (horizontal, inclined, vertical, dip unknown)
- Lineation (horizontal, inclined, vertical, but plunge unknown, vertical)
- Lineament
- Fault (defined, assumed)
- Fault (inclined, vertical)
- Fault (solid circle indicates downthrow side, arrows indicate relative movement)
- Thrust fault (seen in direction of dip, defined)
- Mineralized fault or vein (defined, assumed)
- Joint (inclined, vertical, horizontal, dip unknown)
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Anticline and syncline (overturned)
- Multiple fold (arrow indicates plunge, inclination of axial plane known, unknown)
- Glacial striae (direction of ice movement known, unknown)
- Escarpment
- Fossil locality
- Gravel pit (active, abandoned)
- Rock dump or tailings
- Mine or mineral prospect (lead, zinc)
- Shaft, raise, winze
- Trench
- Adit or tunnel
- Diamond-drill hole (vertical)
- Diamond-drill hole (inclined)
- Sinkhole
- Roads
- hard surface, all weather
- loose surface, all weather
- loose surface, dry weather
- wood road
- Trail
- Swamp or muskeg
- Narrow stream



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NEW SCOTIA

SCALE 1:10,000
0 500 m 1000 m

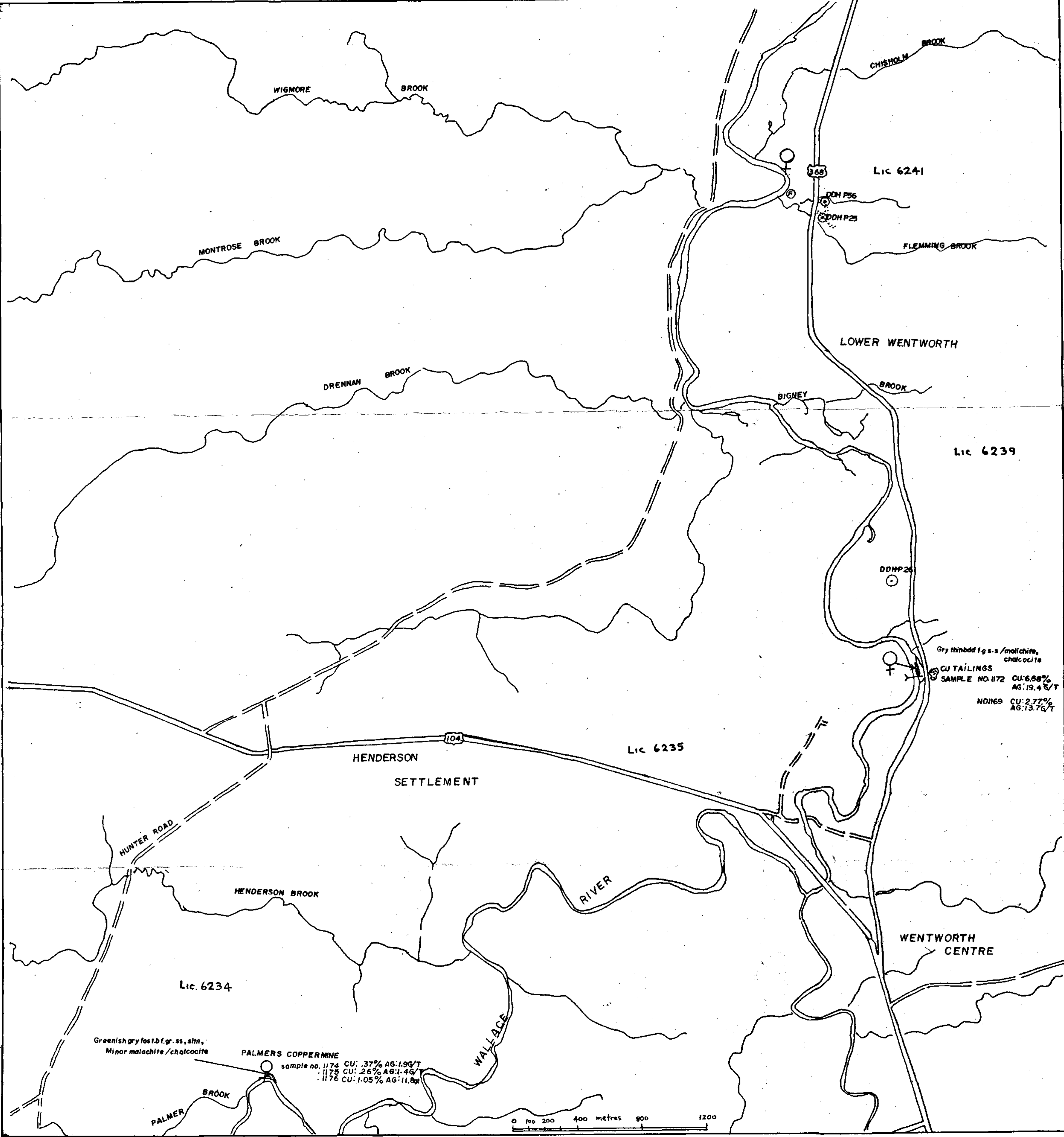
ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT **Pugwash N.S.**

SUBJECT **Soil Geochemistry**

ZINC
434260
Lic 6172, 6173, 6170

SURVEY BY C.R. D.B. H.F.	FILE NO NS-45	DWG NO NS-45-902-6
DRAWN BY J.R.	SCALE 1:10,000	ORTHOPHOTO 11/13, T3 and T-4
REVISED BY	NTS 11-2-13	DATE Dec. 1980



Gry thinbed f.g.s.s./malachite, chalcocite
CU TAILINGS
SAMPLE NO. 1172 CU: 6.58% AG: 19.45/T
NO. 1169 CU: 2.77% AG: 13.76/T

PALMERS COPPERMINE
sample no. 1174 CU: .37% AG: 1.96/T
1175 CU: .26% AG: 1.46/T
1176 CU: 1.05% AG: 11.8/T

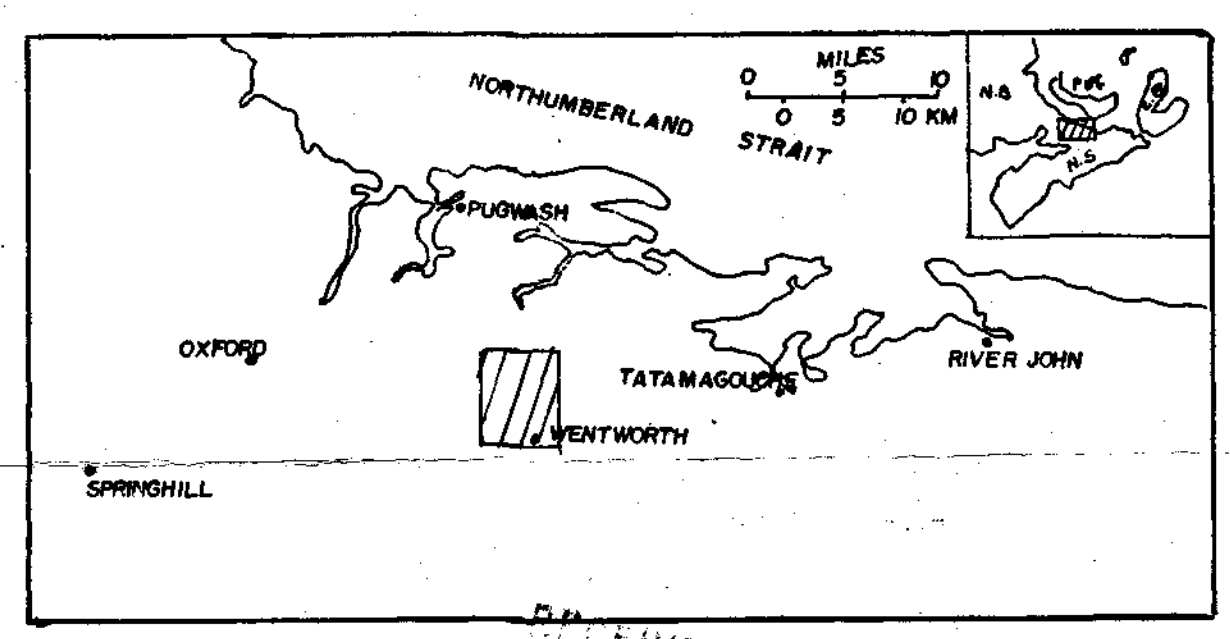
Greenish grey f.g.s.s./sltn.
Minor malachite/chalcocite

PALMER BROOK

0 100 200 400 metres 800 1200

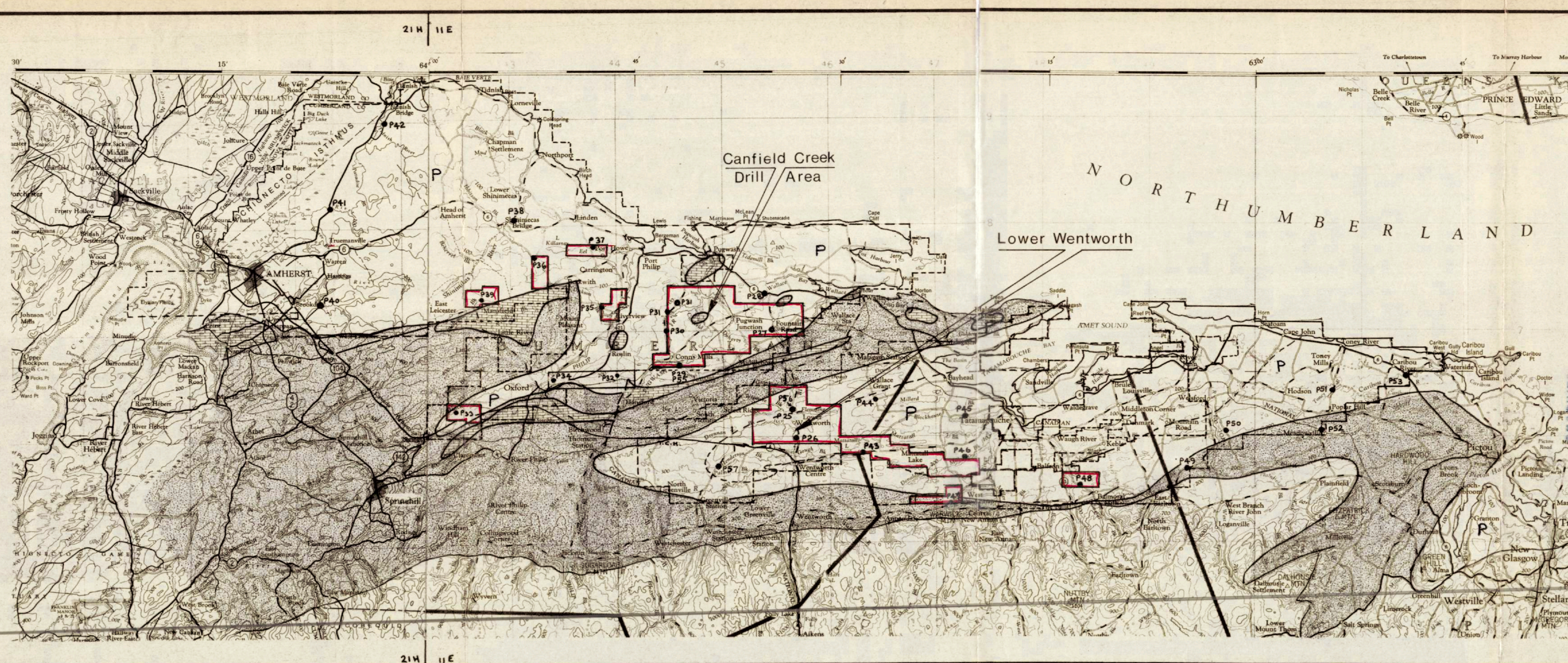
MAP REFERENCES

- Rock outcrop, area of rock outcrop, probable outcrop or observed from air
- Floet
- Angular floet
- Geological boundary (defined, assumed)
- Limit of geological mapping
- Flow contact
- Bedding, tops known (horizontal, inclined, vertical, overturned, dip unknown)
- Primary flow structures in igneous rocks (horizontal, inclined, vertical)
- Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)
- Lineation (horizontal, inclined, inclined but plunge unknown, vertical)
- Lineament
- Fault (defined, assumed)
- Fault (inclined, vertical)
- Fault (solid circle indicates downthrow side, arrows indicate relative movement)
- Thrust fault (teeth in direction of dip; defined)
- Mineralized fault or vein (defined, assumed)
- Joint (inclined, vertical, horizontal, dip unknown)
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Anticline and syncline (overturned)
- Multiple fold (arrow indicates plunge, inclination of axial plane known, unknown)
- Glacial striae (direction of ice movement known, unknown)
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- Fossil locality
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- Mine or mineral prospect (lead, zinc)
- Shaft, raise, winze
- Trench
- Adit or tunnel
- Diamond-drill hole (vertical)
- Diamond-drill hole (inclined)
- Sinkhole
- Roads:
 - hard surface, all weather
 - loose surface, all weather
 - loose surface, dry weather
 - woods roads
- Trail
- Swamp or muskeg
- Narrow stream



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NOVA SCOTIA

ESSO MINERALS CANADA		
A DIVISION OF ESSO RESOURCES CANADA LIMITED		
PROSPECT NS45		
SUBJECT FLEMING BROOK, LOWER WENTWORTH, PALMER BROOK		
COPPER OCCURRENCES		
PROSPECTING 434260		
LICENCE 6234 6235 6239 6241		
SURVEY BY D. W. Mac Donald	FILE NO NS. 45	DWG. NO. NS 45-904-2
DRAWN BY D. W. Mac Donald	SCALE 1" = 400M	
REVISED BY	N.T.S.	DATE AUG 7, 1981



LEGEND

1980 CLAIM BLOCK OUTLINE
1981

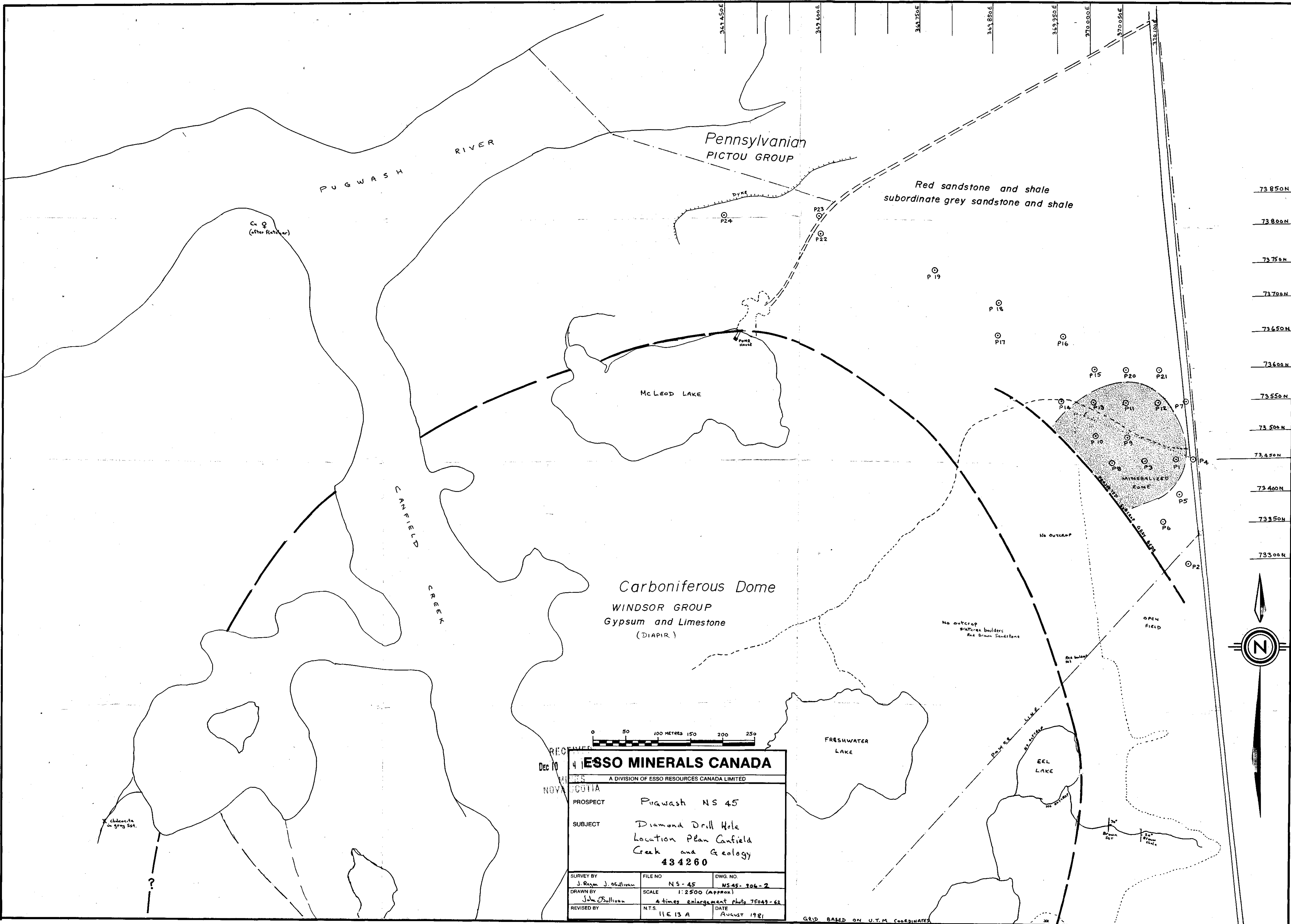
- PENNSYLVANIAN
- PICTOU GROUP
 - CUMBERLAND GROUP
 - RIEPPSDALE GROUP
- MISSISSIPPIAN
- WINDSOR GROUP
- PRE-CARBONIFEROUS

ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA LIMITED

N.S. 45 Pugwash
SUBJECT CLAIM BLOCK OUTLINE
And DIAMOND DRILL HOLE
LOCATION PLAN

434260

SURVEY BY	FILE NO	DWG NO
	N.S. 45	NS45-906-1
DRAWN BY	SCALE	
J. O'Sullivan	1:250,000	
REVISED BY	NTS	DATE
	11E (NORTHWEST) 21H (NORTHEAST)	17 August 1981



Dec 10 1981
NOVA SCOTIA

4 ESSO MINERALS CANADA		
A DIVISION OF ESSO RESOURCES CANADA LIMITED		
PROSPECT	Pugwash NS 45	
SUBJECT	Diamond Drill Hole Location Plan Canfield Creek and Geology 434260	
SURVEY BY	FILE NO.	DWG. NO.
J. Ryan J. Sullivan	NS-45	NS-45-106-2
DRAWN BY	SCALE	
John Sullivan	1:2500 (Approx)	
REVISED BY	N.T.S.	DATE
	11E 13 A	AUGUST 1981

GRID BASED ON U.T.M. COORDINATES

P-8
370 030 E

P-3
370080E

P-1
370130E

P4
370170E

SURFACE

73450N

OVERBURDEN

OVERBURDEN

chalcocite veinlet
chalcocite blebs
1.12% cu / 6.1m
4.2 ppm AG

12.2m
14.3m
16.8m
21.0m
23.2m
25.8m
28.8m
30.6m
31.7m
35.4m
43.0m
43.9m

Gry shale
lam ss b.p 50°C/a
grey shale
med grained uniform
med gr. grey ss. mg staining
grey finely lam ss.
uniform med gr. ss
nod cong
rolled mdstn cong
rd. ss. shale

pyrite

1.0m/46%cu
1.4m/1.85%cu
1.5m/42%cu
1.1m/45%cu
1.0m/4.7cu

10.5m rd. br. clay mdstn
12.3m rd br. f.gss b.p 65°C/a
13.6m rd br. med gr. ss b.p 60°C/a
16.4m Rd br. mdstn — cong —
17.0m br. med gr. ss — limonitic blebs
19.2m rd. br. med gr. ss. — feldspar gr commorl
23.2m rd br. med gr. mica ss b.p. 55°C/a
28.6m rd. br. shale
30.7m gry shale b.p 65°C/a
34.8m gry shale
38.2m gry med gr ss. blk carb lam
40.0m crs arkosic ss — minor pyrite
40.0m grey med gr ss. — carb mat along b.p. 70°C/a
42.3m pale gry shale — b.p 65°C/a
44.0m grey med grained rd Kotic ss
48.5m gry lam med gr ss.
49.8m gry siltstn
49.8m gry thinly lam f.gss
52.2m gry med grained ss — minor chalcocite
54.8m pale grey lam med grained ss
56.3m
Pale br. siltstones — br ss.

1.5m/04cu
0.8m/09cu
1.3m/12%cu
2.4m/25%cu
7m/93%cu
1.2m/22%cu
1.5m/90%cu
1.0m/37%cu

12.7m Br. med gr. ss
16.0m
17.6m
19.1m Rd br mdstn — siltst b.p 60°C/a
23.0m
25.2m Br. ss
26.2m
37.0m Rd br siltst, ss, mdstn
Br. mica ceous f.g ss — pebble congat base
b.p. 70°
52.0m Rd br. mdstn — limonitic staining
54.2m
57.5 med gry lam shale
med gry f.g ss — xbedded
62.5 med gry f.g ss. — carb pyritic mat
63.2
65.0
66.0 pale gry siltstn
67.5

73.1m Gry med gr ss — py
Gry lam f.g ss minor chalcocite
gry med gr ss
82.4m
RD. BR Mudstone siltstn
99.9m

pyritic

21.5m
26.2m
36.8m
38.4m
39.7m
51.1m Br gry mica ss — rd br. siltstn, mdstn
55.4m
57.1m
59.7m
63.1m
66.0m
72.0m Gry carb shale — greenish grymdstn
Gry f.g. — med gr. lam xlam ss.
78.8m gr. uniform f.g mica ss. b.p 60°C/a
81.0m grey coarse gr. ss — calcar matrk
85.0m dk. grayfoss mdstn.
86.0m
88.2m coarse gr. grey ss
92.9m grey thinly lam silt
96.5m pale gry ss — b.p 70°C/a
96.7m greenish grey mdstn.
99.1m
99.7m RD. br. mdstn, siltstn — greenish gry red blotches
ss b.p 70°C/a
105.8m

DATUM(SL)

LICENCE 6177 TRACT: 41 CLAIMS: M,

FACING NORTH

ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT **NS 45**

SUBJECT SECTION **73450N**

DDH P8, P3, P1, P4

LICENCE 6177

434260

SURVEY BY J O'Sullivan	FILE NO NS 45	DWG. NO. NS-45-106-3
DRAWN BY Dum MacDonald	SCALE 1:300	
REVISED BY	N.T.S. 11E13A	DATE JAN, 1981

P14

369 950E

P13

370 000E

P11

370 050E

P12

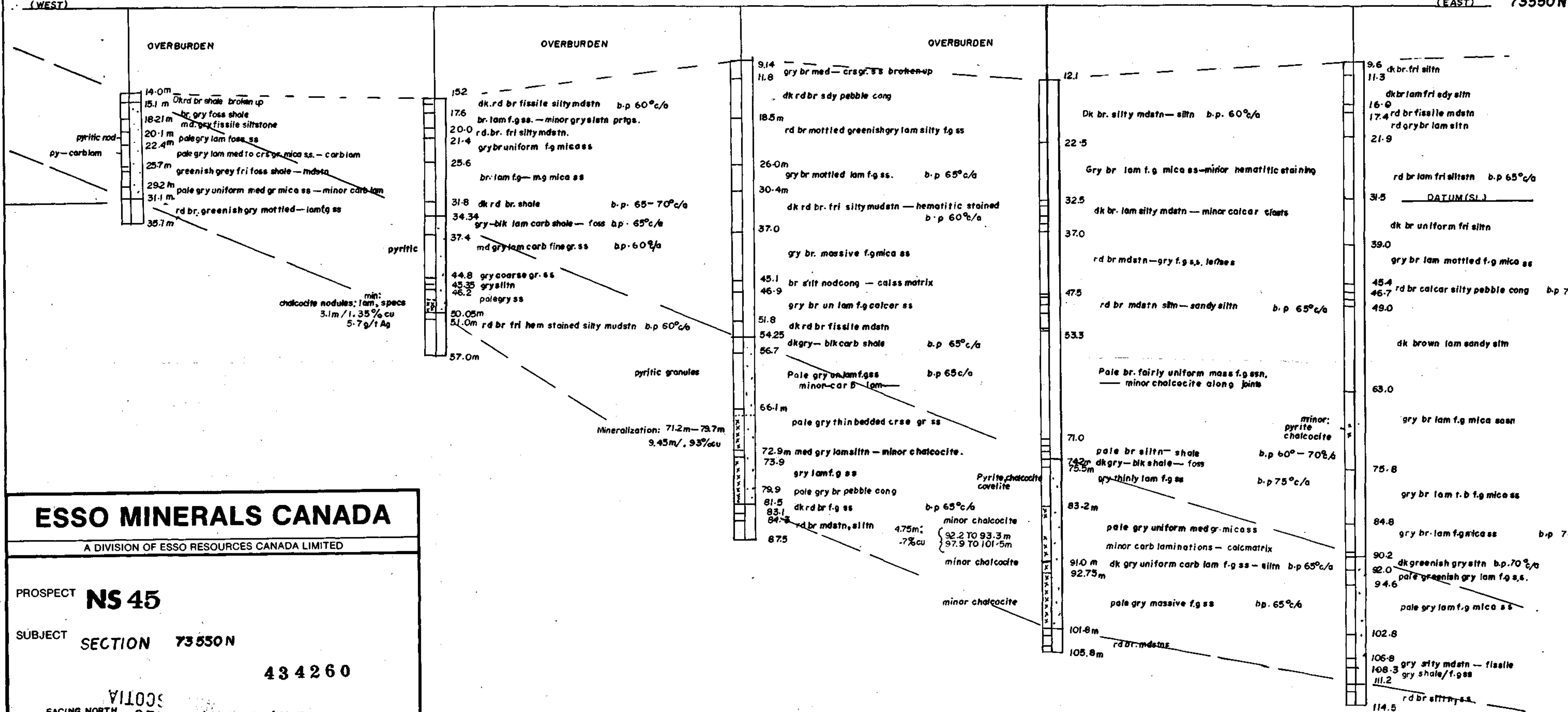
370 100E

P7

370 150E

(EAST) 73550N

(WEST)



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PROSPECT **NS 45**SUBJECT **SECTION 73 550N**

43 42 60

FACING NORTH
SCOTIA

Licence 6177

SURVEY BY JOS. J. J. J.	FILE NO 18.01	DWG. NO. NS 45-906-4
DRAWN BY D. J. J.	SCALE 1:500	
REVISED BY	N.T.S.	DATE FEB 1981

P-6

P-5

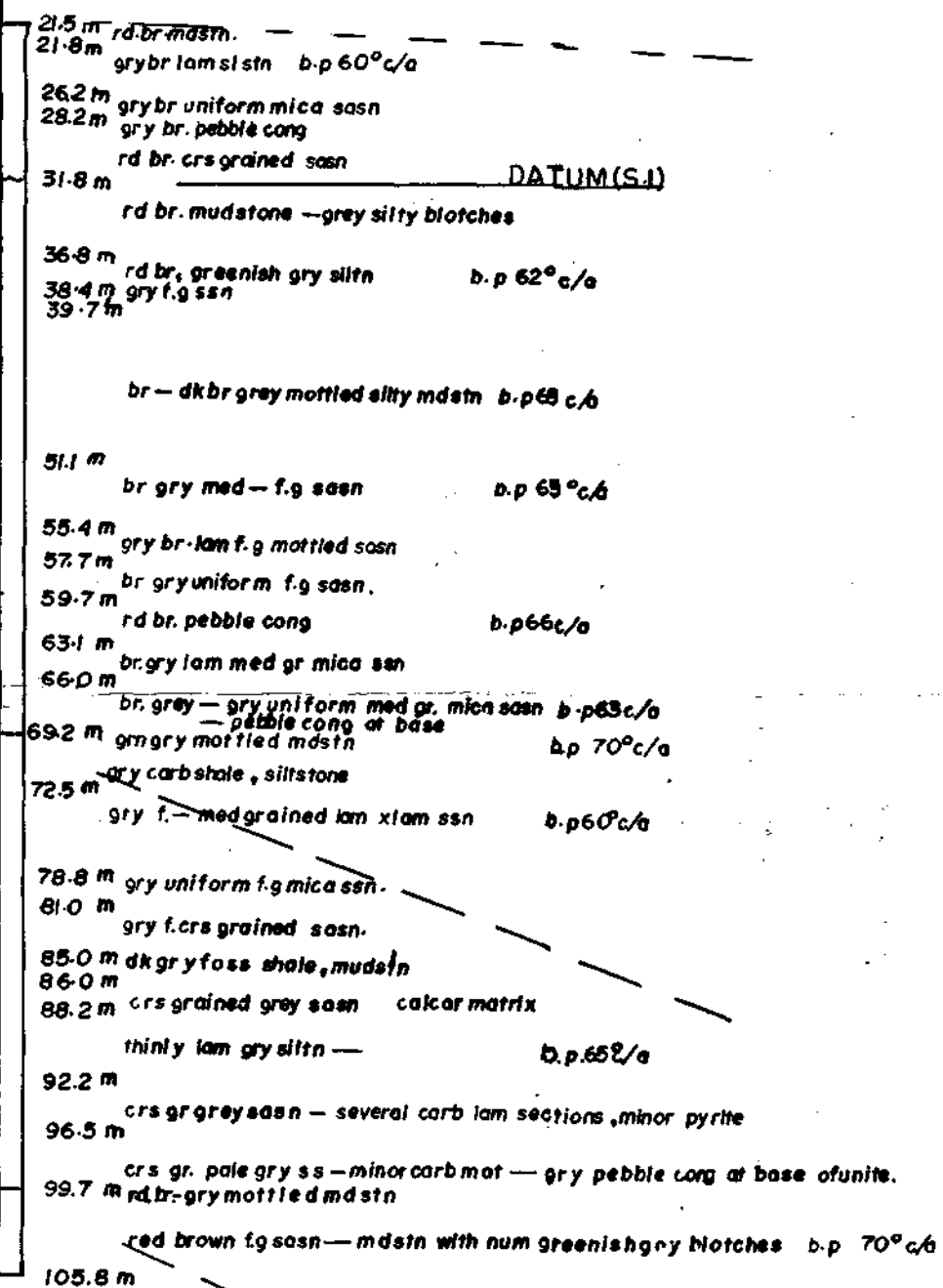
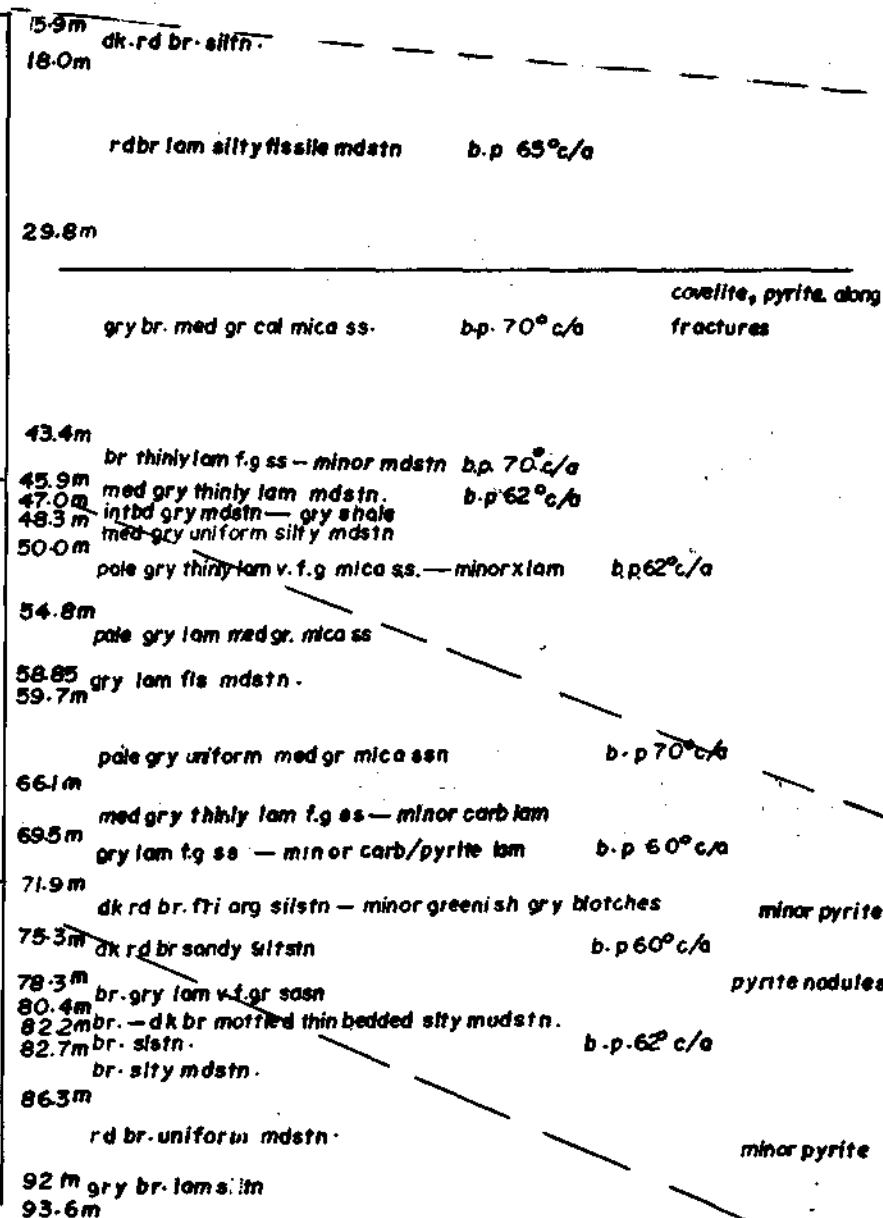
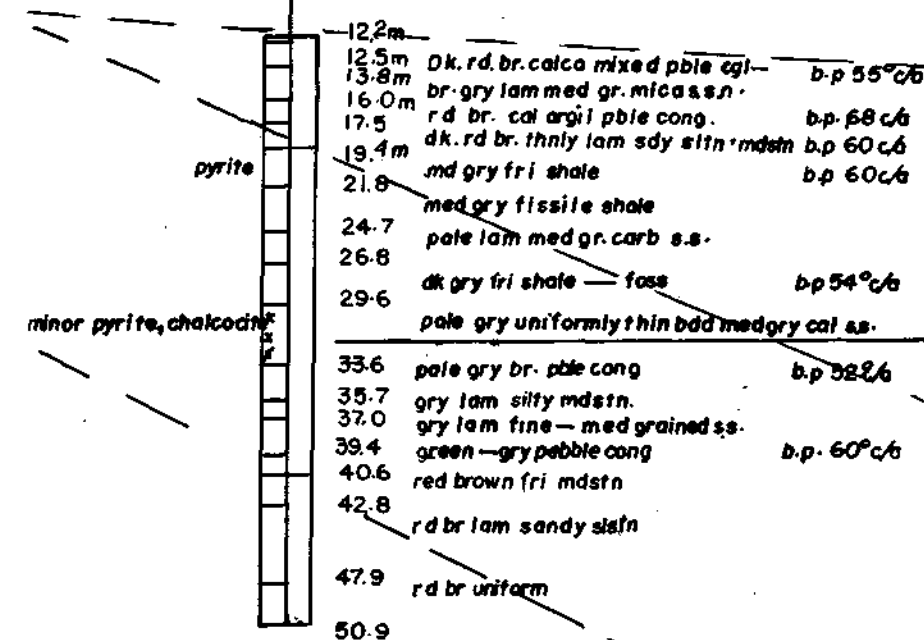
P-4

S.W

N.E

OVERBURDEN

OVERBURDEN



ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

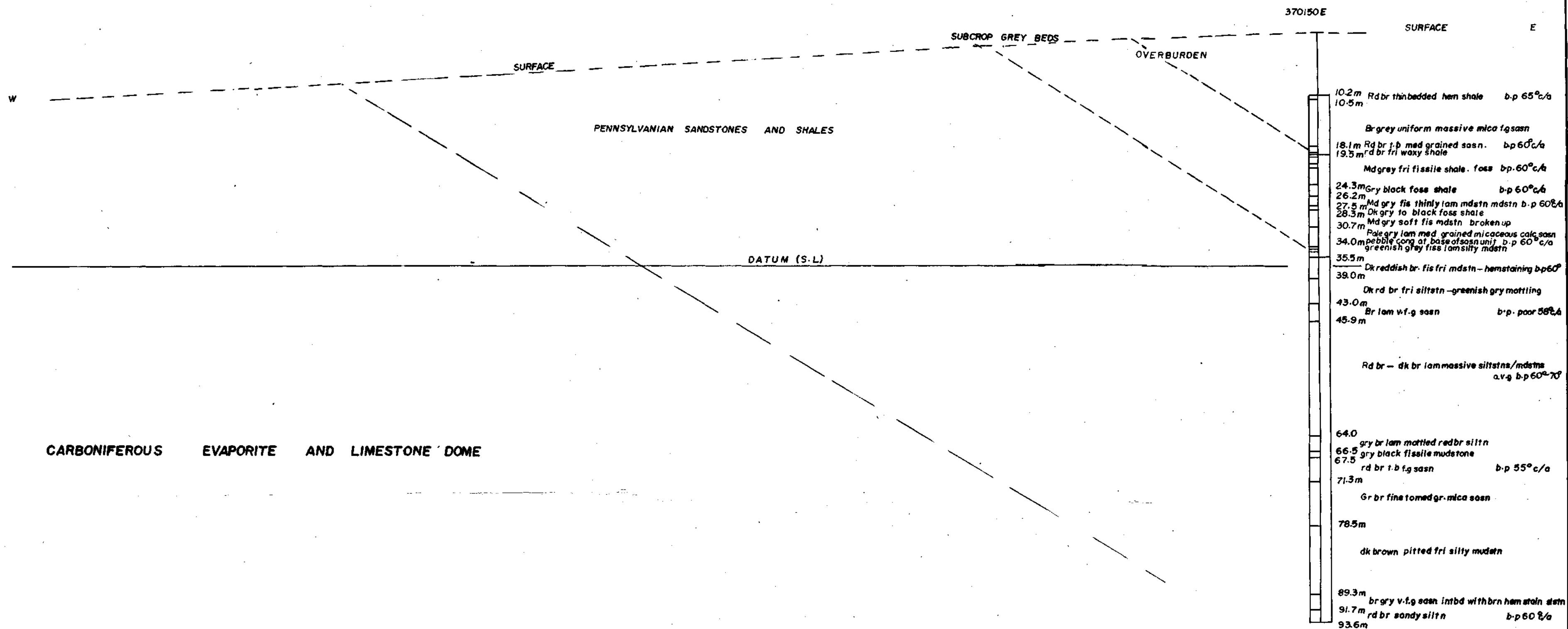
PROSPECT NS-45 PUGWASH

SUBJECT P4, P5, P6 SECTION LOOKING N.W.

434260

SURVEY BY J. O'Sullivan	FILE NO 01230	DWG. NO. NS 45-906-S
DRAWN BY DMD	SCALE 1:500	
REVISED BY N.T.S.	DATE JAN 1981	

P-2



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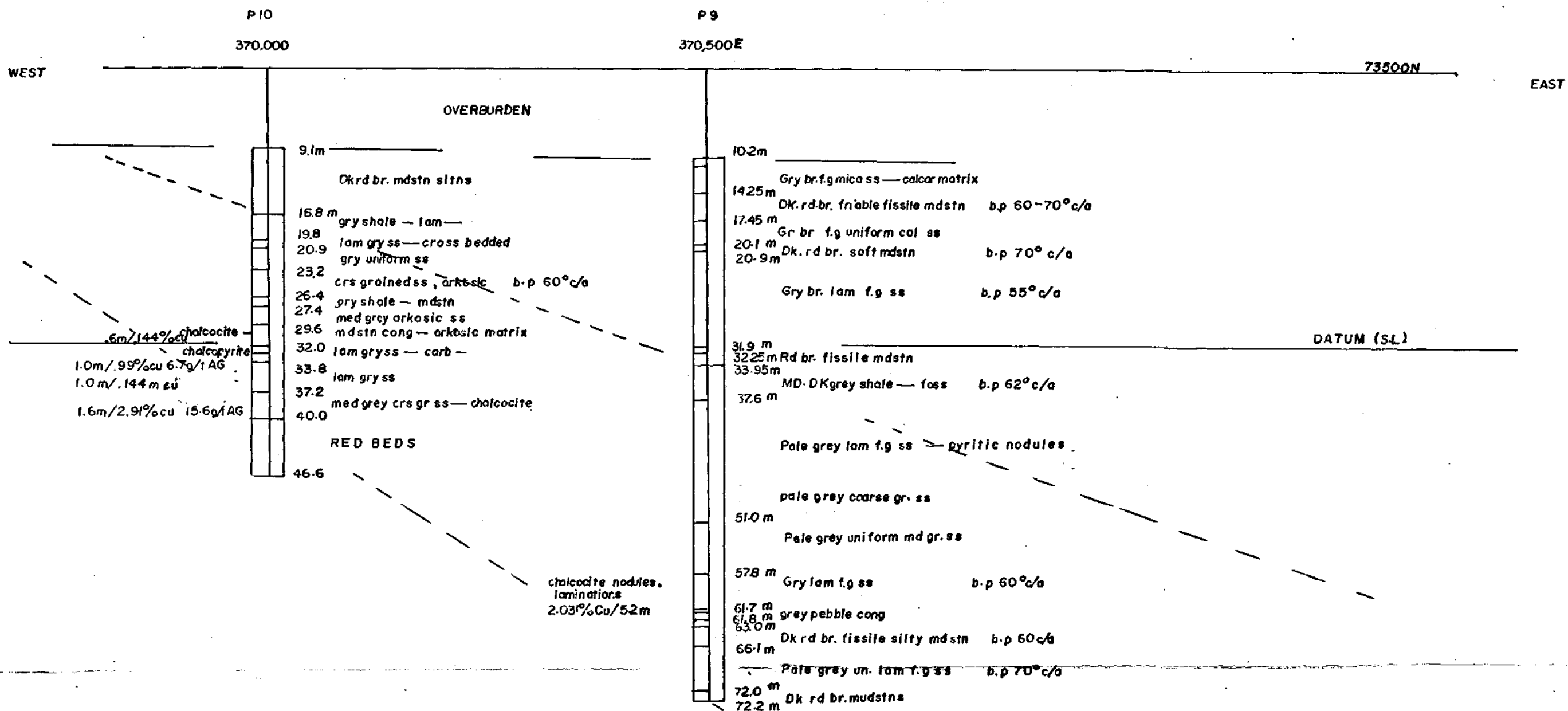
PROSPECT NS-45

SUBJECT DDH P-2

434260

LICENCE 6177

SURVEY BY JOSullivan	FILE NO	DWG. NO. NS 45 906-7
DRAWN BY D.M.Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E/13A	DATE DEC 18, 1981



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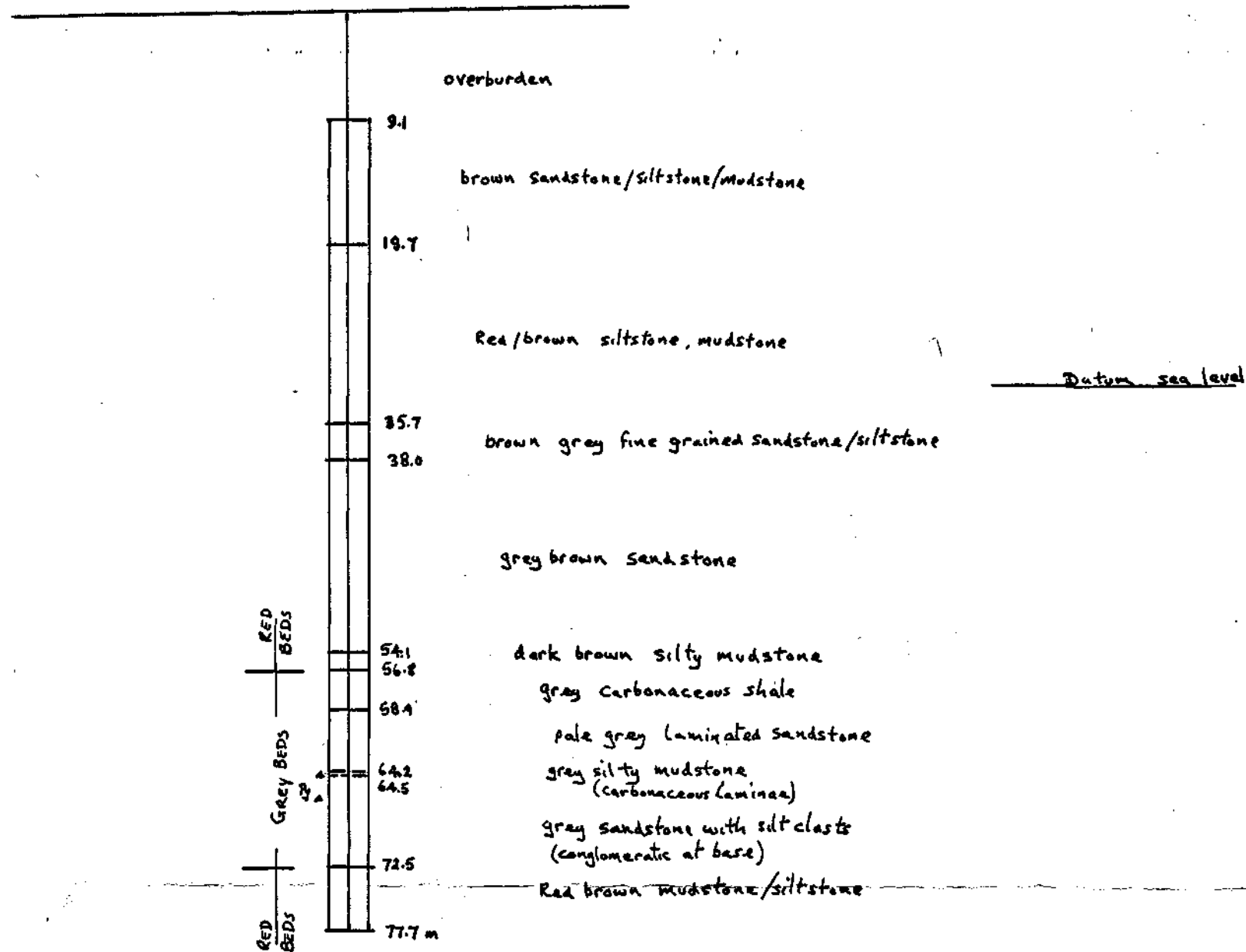
PROSPECT **NS 45**

SUBJECT **SECTION 73500N**

LICENSE: 6177

SURVEY BY <i>JOS. Sullivan</i>	FILE NO	DWG. NO. NS-45 906-B
DRAWN BY <i>Donna MacDonnell</i>	SCALE 1:500	
REVISED BY	N.T.S. <i>11E-13A 41</i>	DATE FEB 5, 1981

P-16



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PROSPECT

NS 45 PUGWASH

SUBJECT

DDH P-16

434260

Licence 6177

Section 369950E

SURVEY BY John O'Sullivan	FILE NO	DWG. NO. NS-45-906-9
DRAWN BY John O'Sullivan	SCALE 1:500	
REVISED BY	N.T.S. 11E13	DATE

SOUTH

McLEOD LAKE

SURFACE

P24
369,450E

73850N

NORTH

CARBONIFEROUS EVAPORITE AND LIMESTONE DOME

PENNSYLVANIAN SANDSTONES AND SHALES

RECEIVED
DEC 10 11 11 '81
MINES
NOVA SCOTIA

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PROSPECT NS-45 PUGWASH

SUBJECT DIAMOND DRILL SECTION 369450E

434260

LICENCE 6177

SURVEY BY J O'Sullivan	FILE NO.	DWG. NO. NS 45-906-10
DRAWN BY D W Mc Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E/13A	DATE Feb 26, 1981

SECTION FACING WEST

91m	DATUM
13.6 m	rd br lam - f.g. mica ss b.p 52° - 60°c/a
14.2 m	rd br arg cong - limonitic concretions
15.5 m	rd br f.g. mica ss b.p 70°c/a
17.2 m	br fri mdsn
	rd br silty mdsn - minor greenish grey red zones b.p 65°c/a
20.4 m	silty mdsn
23.6 m	
25.5 m	br rd lam f.g. ss - minor x bdd, minor greenish grey calc clasts b.p 71°c/a
26.5 m	
	rd br silty mdsn
31.4 m	rd br lam slt
32.5 m	
	pale br f.g. lam mica ss b.p 53°c/a
37.4 m	gry f.g. lam ss - no min b.p poor 50° - 60°c/a
38.9 m	
	br. rd fri mdsn b.p 55° - 60°c/a
44.5 m	
47.1 m	dk gy br lam f.g. ss, x bdd
	br gy f.g. lam ss
49.8 m	rd br silty pbl cong
50.6 m	rd br mica lam slt b.p 55° - 60°c/a
51.4 m	rd br thinly lam mdy slt
55.5 m	
	br rd soft fri mdsn, several shaly ptgs b.p 55° - 60°c/a
66.1 m	br rd silty mdsn - minor calc gry blotches
68.4 m	
	rd br lam silty mdsn - x bdd at base of unit b.p 62°c/a
75.9 m	gy br lam slt b.p 62°c/a
76.9 m	rd br lam slt, minor gy silty clasts
79.2 m	rd br lam slt, gymot b.p 65°c/a
82.7 m	br rd mdsn, minor gy silty ptgs b.p 60°c/a
84.3 m	br rd broken up mdsn b.p 60°c/a
84.8 m	rd br lam f.g. ss - num gy calc clasts b.p 60°c/a
87.8 m	rd br soft mdsn, minor gymot b.p 60°c/a
92.2 m	rd br lam slt, hem stained
95.7 m	gy br f.g. lam ss, numerous dk br limonitic bldgs
98.5	gy br f.g. lam mica ss, minor arg lenses and stringers, carb lamina
100.8	gy br lam ss
103.1 m	br - br rd pbl cong b.p 62°c/a
103.4 m	uniform rd br silty mdsn
106.4 m	
108.8 m	gy br silty mdsn, slt

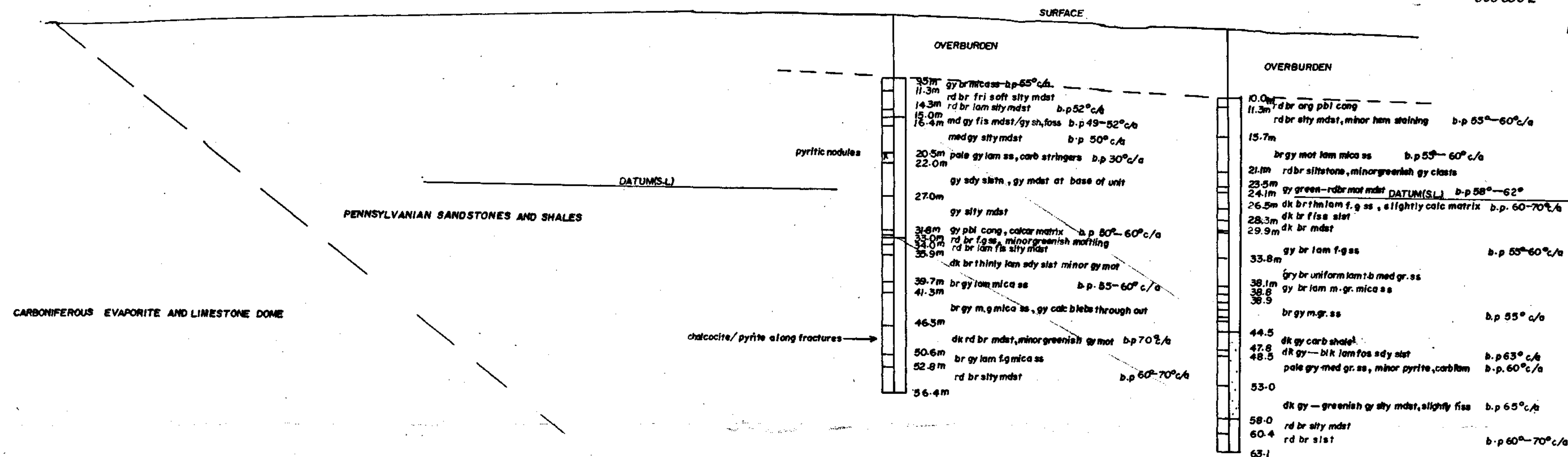
SOUTH

P17

P18

369 850 E

NORTH



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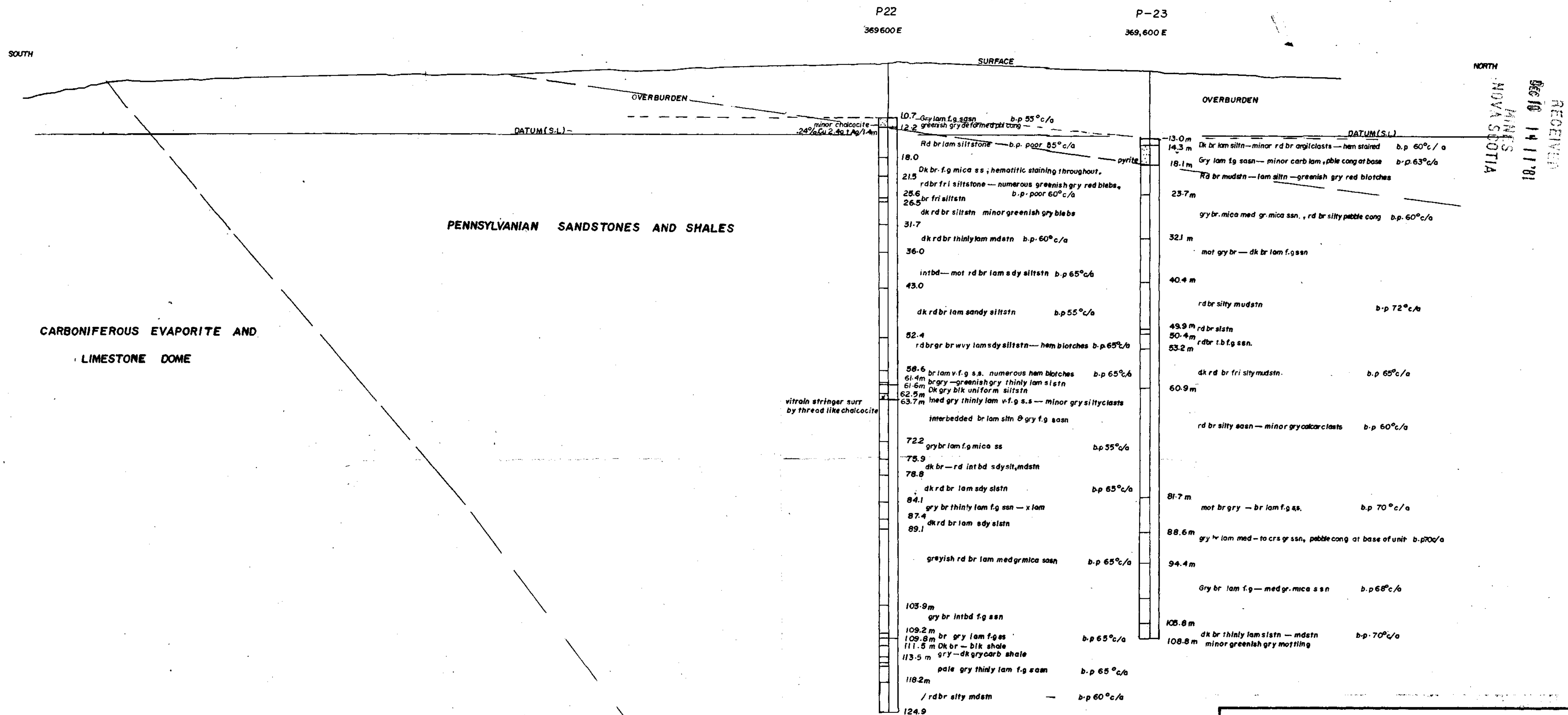
PROSPECT PUGWASH NS-45

SUBJECT DDH P-17 - P-18

SECTION 369850 E

434260

SURVEY BY J O Sullivan	FILE NO NS-45	DWG. NO. NS-45 906-11
DRAWN BY O. W. MacDonnell	SCALE 1:500	
REVISED BY	N.T.S. IIE 13A-41	DATE FEB 1981



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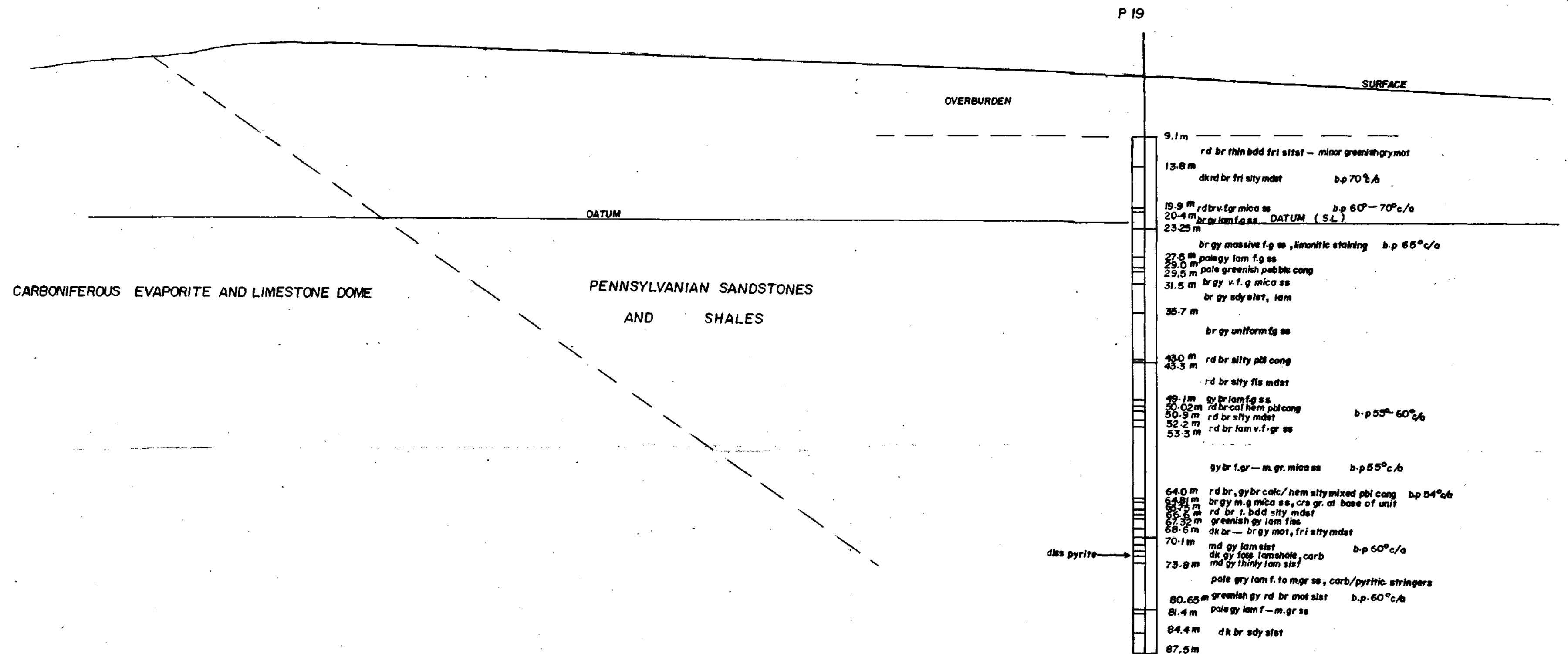
PROSPECT **PUGWASH NS-45**

SUBJECT **DIAMOND DRILL SECTION 369600E**

434260

LICENCE 6177

SURVEY BY <i>J. G. Sullivan</i>	FILE NO.	DWG. NO. NS 45 906-12
DRAWN BY D.M.D.	SCALE 1:500	
REVISED BY	N.T.S. 11E/13A	DATE Feb, 1981



ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT PUGWASH NS-45

SUBJECT DDH P-19 Section

434260

SECTION 369750E

LICENCE 6177

SURVEY BY J.O. Sullivan	FILE NO.	DWG. NO. NS 45 906-13
DRAWN BY D. MacDonald	SCALE 1:500	
REVISED BY	N.T.S. 11E/13A	DATE FEB 20 1981

RECEIVED
DEC 14 1980
NS 45 906-13

5064214N

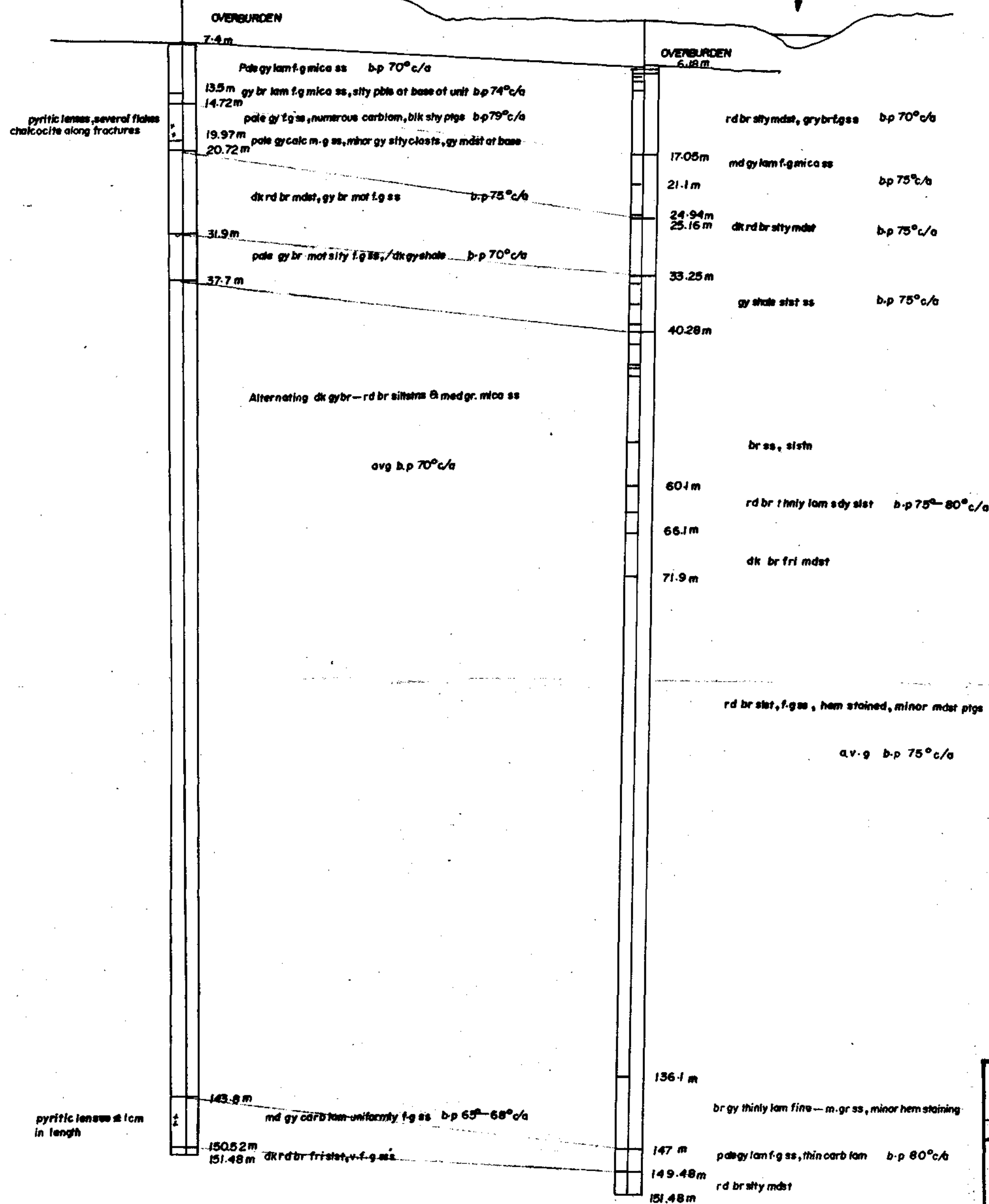
5064130N

P56

P25

FLENNING BROOK

377900 E



LICENSE 6241
TRACT 75
CLAIMS E, M

ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT PUGWASH NS-45

SUBJECT SECTION 377900E/DDH P-56, P-25

434260

LICENSE 6241

SURVEY BY J.O'Sullivan	FILE NO	DWG. NO. NS-45 906 - 14
DRAWN BY D.MacDonald	SCALE 1:500	
REVISED BY	N.T.S. NE 12 -- 75	DATE SEPT 1, 1981

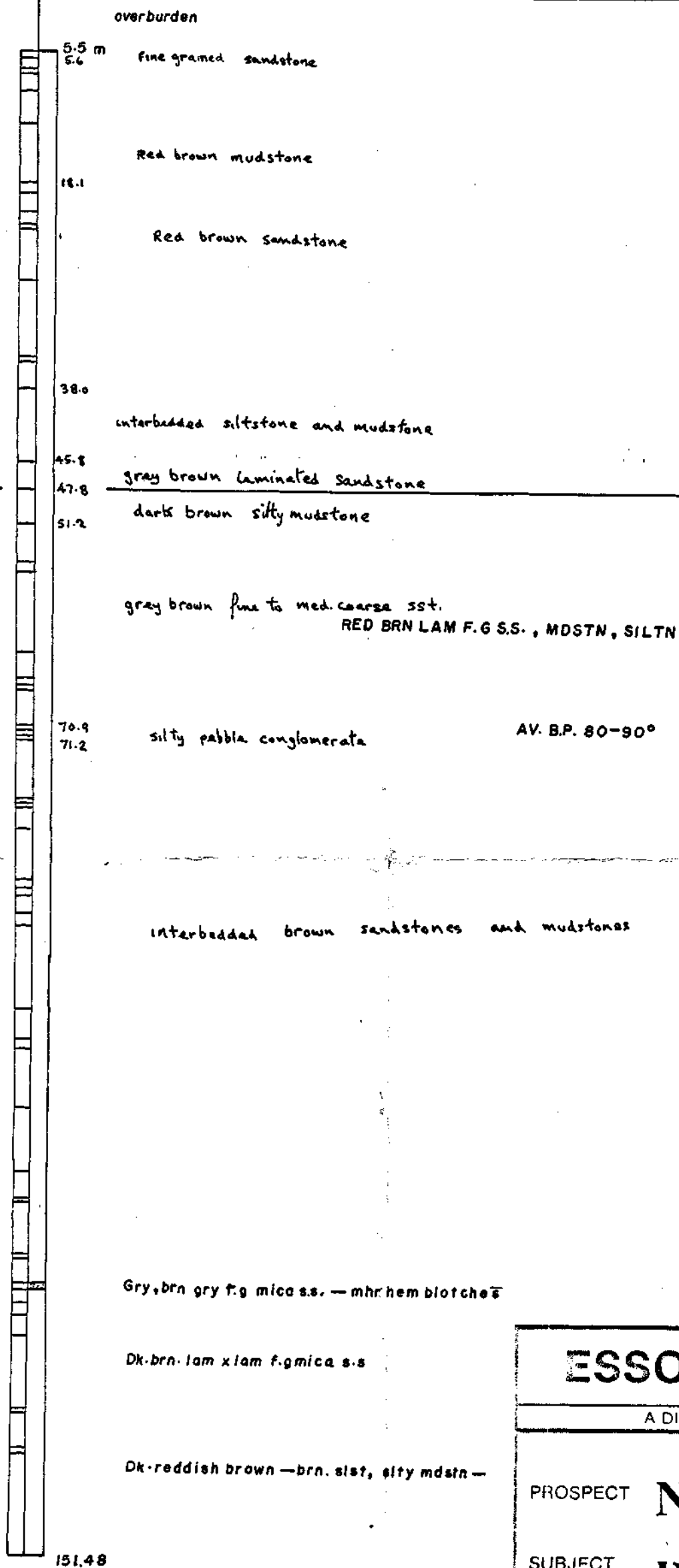
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DEC 10 14 11 '81
MINES
NOVA SCOTIA

P26

5061650 N

surface

378600 E



ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT **NS 45**

SUBJECT **DDH P26**

434260

LICENSE: 3235

SURVLY BY
J O'Sullivan

FILE NO

DWG. NO

NS-45-906

DRAWN BY
DW Mac Donald

SCALE

1 : 500

REVISED BY

N.T.S.

11E12-51

DATE

JUNE 4, 1981

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DEC 10 14 11 81
MINES
NOVA SCOTIA

P27

376,050E

5071750N

OVERBURDEN

90

DATUM(S.I.)

interbedded Red brown siltstone and laminated sandstone

45.97M

micaceous sandstone

53.2

54.0

sandy siltstone

BR. GR. LAM FGS.S & RED BR. SLTN, MDSTN'S

AV. BP. 60°C/A

58.64

dark brown massive micaceous sandstone

75.28

thinly bedded fine grained sandstone

88.63

dark brown silty mudstone

92.65

brown medium grained sandstone

95.63

brown fine grained sandstone and siltstone

111.76

gray brown coarse grained sandstone

117.7

dark brown siltstone

121.0

medium grained sandstone
with pebble congl. at base

127.1

silty mudstone

134.56

medium grained sandstone

142.12

chert pebble conglomerate

144.7

ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT NS45

SUBJECT DDH P 27

434260

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MINES
NOVA SCOTIA

SURVEY BY
J O'Sullivan

FILE NO
NS-45

DWG. NO.
NS-45-906-16

DRAWN BY
J W Mac Donald

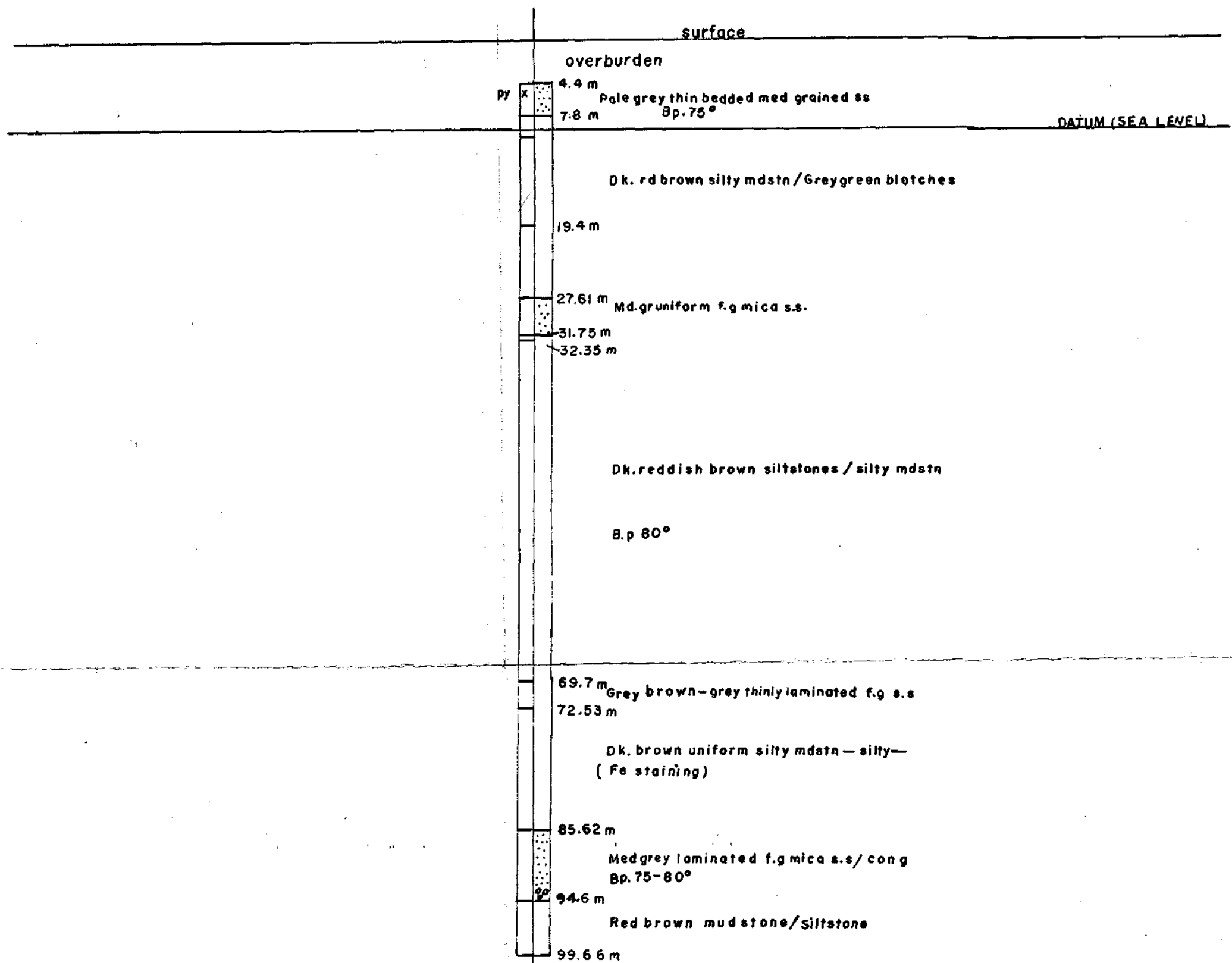
SCALE
1:500

REVISED BY

N.T.S.
11E13-29/28

DATE
JUNE 6, 1981

P28



ESSO MINERALS CANADA

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PROSPECT **NS45**

SUBJECT **DDH P28**

434260

LICENCE 6127

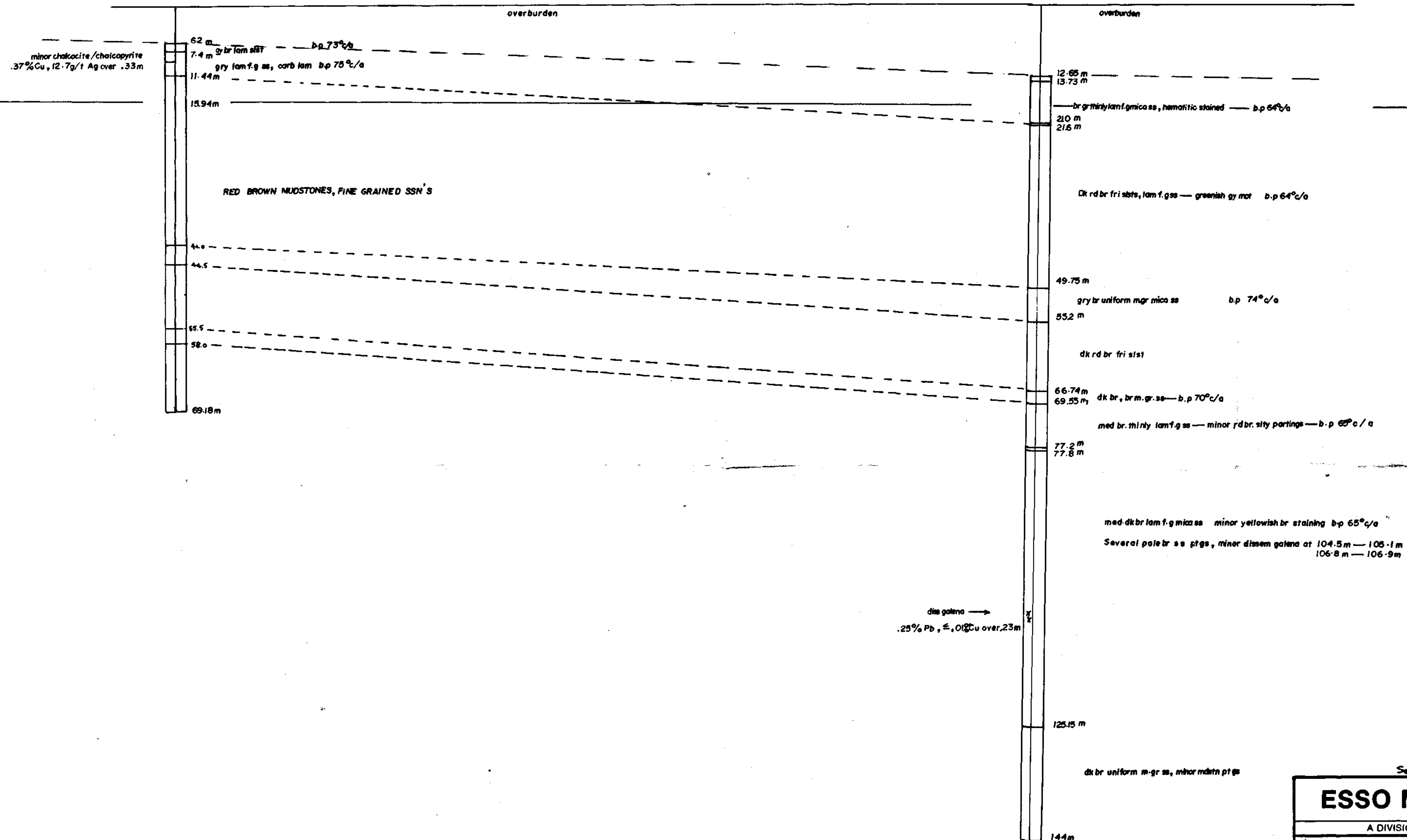
Licence 6127

SURVEY BY J. O'Sullivan	FILE NO 1	DWG. NO. NS.45-906-17
DRAWN BY DMD	SCALE 1:500	
REVISED BY J. O'Sullivan	N.T.S. 11E13A-53	DATE JUNE 5, 1981

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NOVA SCOTIA

P 29

P 55



LICENCE 6167
TRACT 10
CLAIM F.L.

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ESSO MINERALS CANADA

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PROSPECT PUGWASH NS-45

SUBJECT SECTION DDH P29—P55

434260

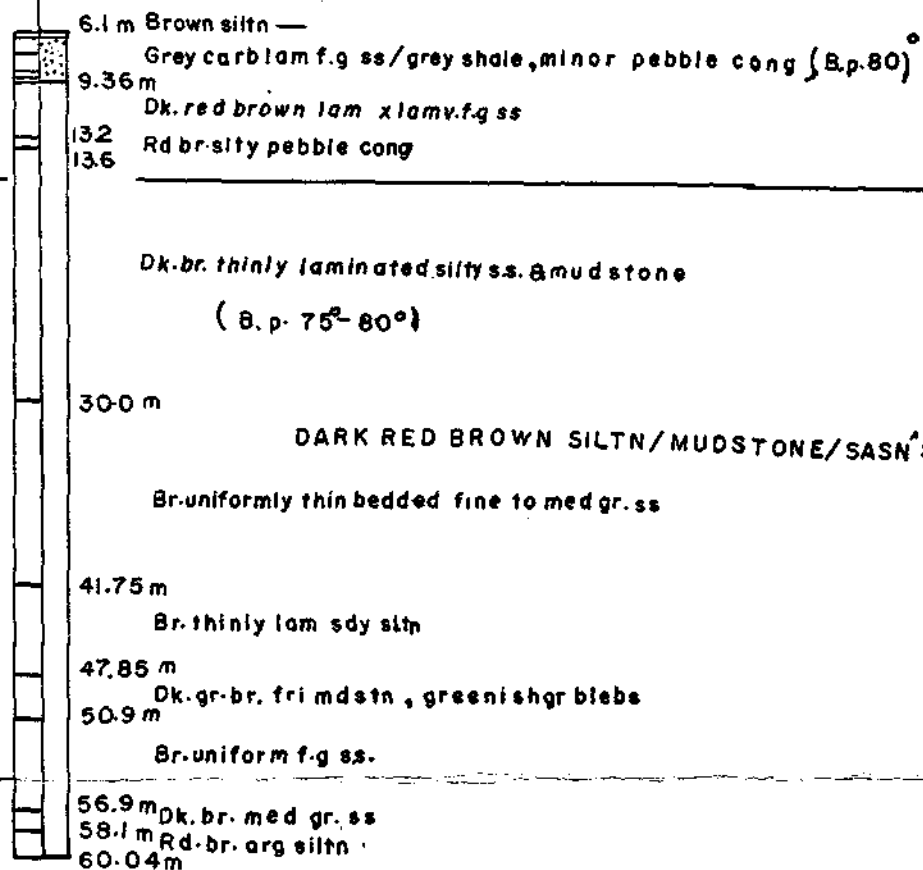
LICENCE 6167

SURVEY BY	FILE NO.	DWG. NO.
		NS 45-906-12
DRAWN BY D. W. M. D. M. D.	SCALE 1:500	
REVISED BY	N.T.S.	DATE JULY 1981
	RE/SA	

P30

SURFACE

45-46-40 N



DATUM

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 MINES
 NOVA SCOTIA

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PROSPECT NS45

SUBJECT DDHP-30

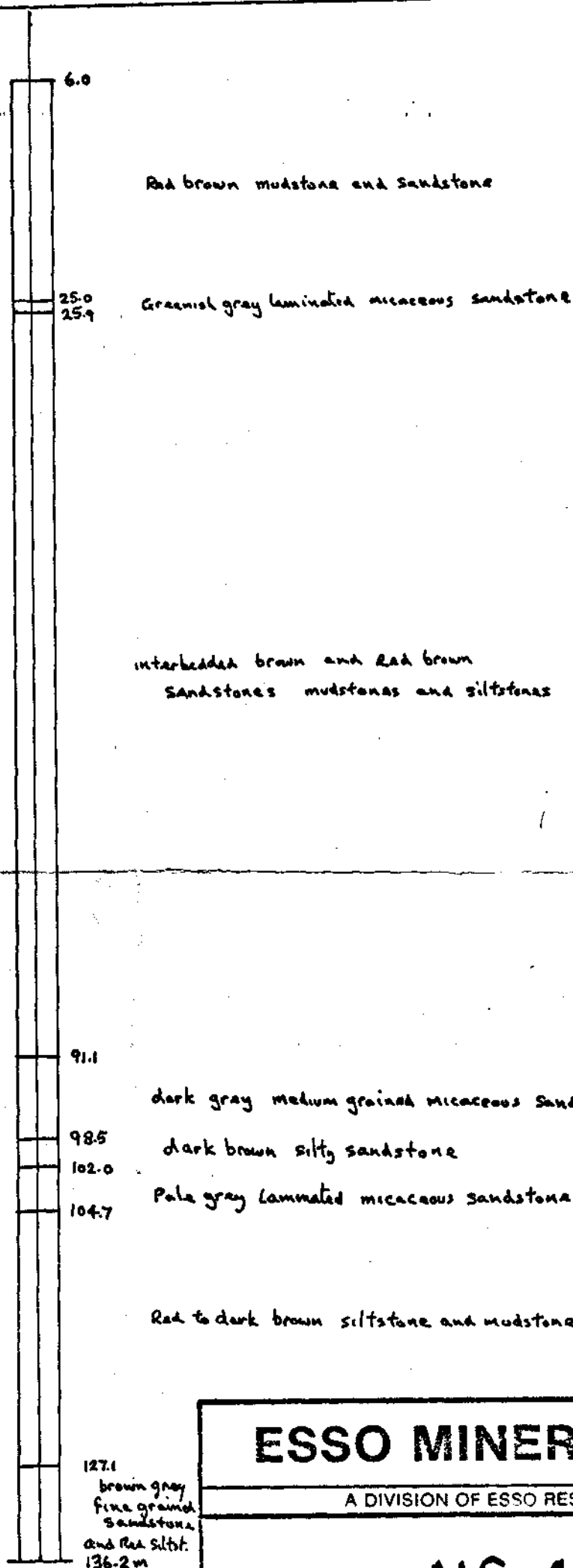
434260

SURVEYED BY <i>J. O'Sullivan</i>	FILE NO.	DWG. NO. NS-45-906-19
DRAWN BY DMD	SCALE 1: 500	
REVISED BY	N.T.S. 11E 13A-14	DATE JUNE 10, 1981

P-31

366,800E

5,073,850N



Sea level

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NOVA SCOTIA

ESSO MINERALS CANADA

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PROSPECT

NS 45 PUGWASH

SUBJECT

DDH P31

434260

Licence 6178

SURVEY BY D Mac Donald	FILE NO NS. 45	DWG. NO. NS 45-906-20
DRAWN BY John Sullivan	SCALE 1:500	
REVISED BY	N.T.S. 11E 13A -38	DATE August 1980

P32

5069880 N

362 400E

OVERBURDEN

4.9 Gry arkose
5.18 Rd brn fri silty mdstn
6.16 Pale grey pebble cong
11.24 Dk reddish brown silty mdstn b.p. 75-80°C/A
15.8 RD BRN SL ST
18.7 Br. thinly lam f.g ss b.p. 70°C/A
22.9 Br. yellowish br. fri sltn
25.6
25.75

RDBr. sltn's & BR. lg ssn's

46.2 DATUM (S.L.)
Pale gry arkose — f.g ss b.p. 60°C/A

Reddish br. fri sltn's a.v.g b.p. 65°C/A

99.56 Gry br. medgr. ss—minor hematitic clasts
101.5

Dk. br rd brn lam sandy sltn, silty mdstn's

140.0 pale gry massive med gr ss

gry pble cong
gry lam—thin bedded f.g ss. minor
carb lam

154.33

Dk. rd. br. mdstn, sltn
b.p. 70°C/a

163.67

RECEIVED
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MINES
NOVA SCOTIA

ESSO MINERALS CANADA

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PROSPECT NS45

SUBJECT DDH-P32

LICENSE: 6328

434260

SURVEY BY J.D. Sullivan	FILE NO	DWG. NO. NS-45 906-24
DRAWN BY D. MacDonald	SCALE 1:500	
REVISED BY	N.T.S. HE-13-2	DATE JUNE 1981

P33

348,080E

SURFACE

5064 480N

2.3 m

OVERBURDEN

Rd br lam thn bdd f.g ss & slty ss's b.p. 75°C/a

15.24 m

DATUM (S.L.)

22.0 m

Gy br thn bdd m.tocrs gr ss — minor slty hem stained clasts b.p. 67°C/a

30.9 m

Rd br lam sdy slst, shly 38m—39.5m b.p. 70°C/a

41.65 m

m br lam m.g mica ss b.p. 70°C/a

49.2 m rd br pore m.g ss — num rd br hem stained clasts
50.8 m

rd br lam f.g ss/slst avg b.p. 68°C/a

gy-white pbl cong at base of unit

67.3 m

greenish gry arg pbl cong — br sdy matrix

72.5 m rd br p lam f.g ss — minor xlams

73.7 m rd br lam sdy slst, mdat b.p. 75°C/a

76.4 m

dk br p thn bdd m.gr. ss b.p. 75°C/a

80.35 m

dk br rd br trislets — greenish gy mat b.p. 70°C/a

95.5 m

dk br thn bdd m.g p ss

104.6 m

rd br slty mdat

109.1 m

pale gry uniform m.g ss

b.p. 72°C/a

112.3 m

Dkrd br f.g — m.g ss

several thn beds of pbl cong composed
of large gy, white sil pbls set in a dk
br m.g sdy matrix

151.4 m

DEC 10 14 12 '81

MINES
NOVA SCOTIA

ESSO MINERALS CANADA

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PROSPECT NS-45 PUGWASH

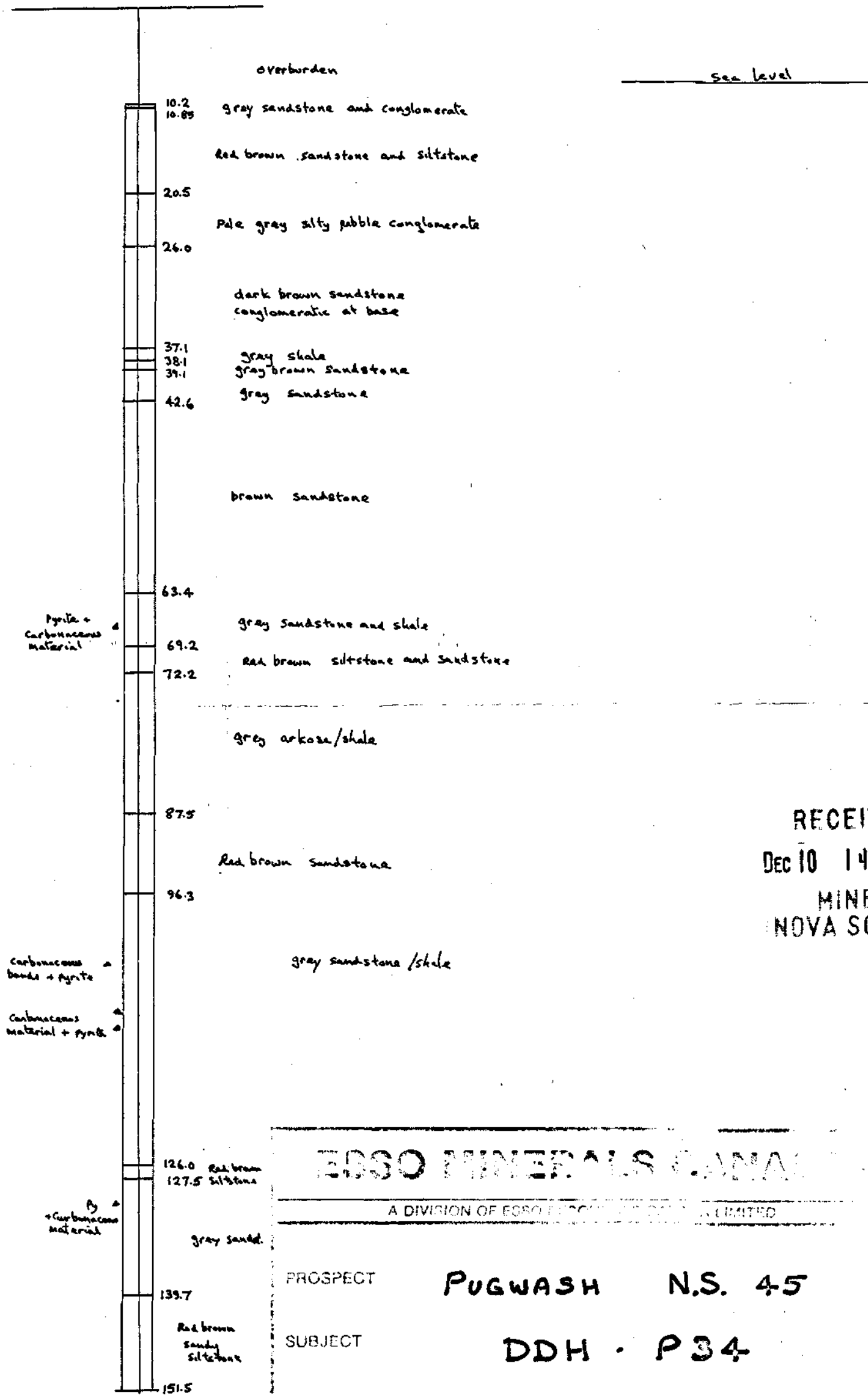
SUBJECT DDH- P33

43 4260

LICENSE 6335

SURVEY BY J O'Sullivan	FILE NO	DWG. NO. NS-45-906-22
DRAWN BY D.W. MacDonald	SCALE 1:500	
REVISED BY	N.T.S. 11E12-87	DATE JUNE 11, 1981

P 34



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MINES
NOVA SCOTIA

ERGON MINERALS CANADA

A DIVISION OF ESSO PETROLEUM COMPANY LIMITED

PROSPECT

PUGWASH N.S. 45

SUBJECT

DDH - P34

434260

LICENCE 6332

SURVEY BY

D. MacDonald

FILE NO

NS-45

NS 45-906-23

DRAWN BY

SCALE

1:500

REVISID BY

N.T.S.

11 E 12 - 101

August 1981

P35

5073850N

SURFACE 359800E

OVERBURDEN

DATUM (S.L.)

15.0

15.1

17.37

18.3

Dk. rd. br. siltstn — mdstn.

22.8

24.3

Dk. reddish brown friable broken up siltstn.

29.76

Med grey thin bedded f.g. mica s.s.

36.65

Red brown thin bedded lg ss. lam siltstns — minor — mdstn Avg b.p 70-80°C/g

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ESSO MINERALS CANADA

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PROSPECT **NS45**

SUBJECT **DDH P35**

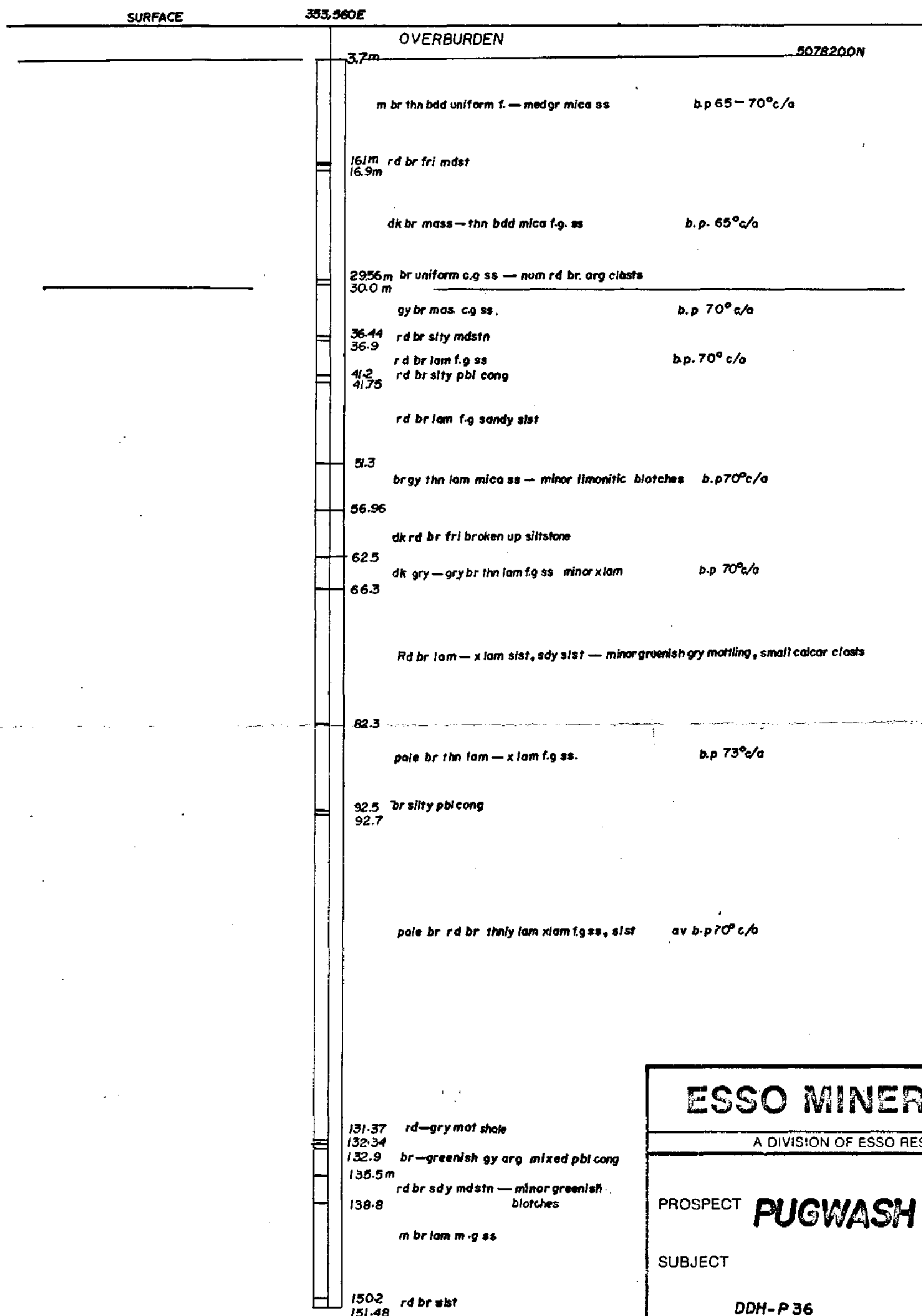
434260

LICENSE 6330

SURVEY BY <i>J.O. Sullivan</i>	FILE NO	DWG. NO. NS-45-906-24
DRAWN BY <i>D.W. Mac Donnell</i>	SCALE 1:500	
REVISED BY	N.T.S. 11E-138-51	DATE JUNE 13, 1981

151.48

P36



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ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT **PUGWASH NS-45**

SUBJECT

DDH-P36

434260

LICENSE

SURVEY BY J O'Sullivan	FILE NO	DWG. NO. NS-45-906-25
DRAWN BY D.W Mac Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E13-78	DATE 14/6/81

NS45-906-25

P37

358800E

SURFACE 5079400N

OVERBURDEN

7.8 m

R.d. br. lam sltst

10.6 m

Pale grey br. lam, xlam fgmica ss. b.p 70°C/A

DATUM

18.2 m

Br. thinly lam ady sltst b.p 70°C/A

23.66 m

Rd. br. greenish grey mot mdstn -

32.11 m

Dk. red br. thin bedded med gr. ss

49.3 Gr. br. uniform f.g mica ss

51.45 m

Green grey lam mot f.g mica ss

54.04 m

Dk. rd. br. mdstn green grey blotches

58.7 m

Pale green grey lam, xlam shale, ss

61.5 m

Grey br. thin bedded f.g ss

73.4 m

Med grey lam, f.g ss b.p 78°C/A

80.42 m

RECEIVED
 Dec 10 14 12 '81
 MINES
 NOVA SCOTIA

ESSO MINERALS CANADA

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PROSPECT NS45

SUBJECT DDH P37

434260

LICENSE: 6271

SURVEY BY <i>J. O'Sullivan</i>	FILE NO	DWG NO NS-45-906-26
DRAWN BY <i>Donald W Mac Donald</i>	SCALE 1: 500	
REVISED BY	N.T.S. 11E 13-94	DATE JUNE 15 1981

P39

394,300 E

SURFACE

6063600N

OVERBURDEN

53 m	Pale br calc pbl congl	
6.14 m	pale gy br lam f.g mica ss, hem blotches throughout	b.p. 70° c/a
11.5 m	m gry thnly lam shale	
12.3 m	m gry br thnly lam f.g ss	b.p. 70° c/a
13.9 m	br m bdd finetomed gr ss	b.p. 65° c/a
19.2 m	rd br sdy arg pbl congl	
21.42 m		
alt pale br lam ss — rd br fri slst — num greenish gry calc clasts < 1cm		
50.5 m	br gr thnly lam f.g mica ss	ax. b.p. 55-60° c/a
51.55 m		
	Intbd/rd br mdstn/lam f.g ss, slst	b.p. 60° c/a
		datum (s.l.)
65.6 m	pale br. uniformly lam f.g ss.	b.p. 70° c/a
67.04 m		
	dk br lam sdy slst —	b.p. 70° c/a
75.5 m	pale br lam f.g ss — mica banding	
79.36 m	pale br calc slty pbl congl	
79.7 m	dk br pale br thnly lam x lam f.g ss	b.p. 60° c/a
83.0 m	dk br fri slst — broken up	
84.82 m	rd br gy br lam, x lam f.g s.s., gy br mdst at base	b.p. 73° c/a
91.8 m		
	pale gy — m gy uniform f.g ss	
97.72 m	rd br lam sh — yellow oxid throughout	b.p. 75-80° c/a
100.6 m	blk wxy fri slst mdst	
101.05 m		
	Rd br lam slty f.g ss — num greenish gry calcar blebs, clasts	b.p. 70° c/a
	pale yellowish brown slty/arg pbl congl b.p. 70° c/a	
133.94 m		
	br — rd lam f.g ss —	
139.0 m		
	Br rd — white calc, thn bdd m.g s.s.	
145.05 m		
	rd br lam slty ss	
151.48 m		

46m/22% Cu
4.1g/t Ag

45m/.04% Cu

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MINES
NOVA SCOTIA

ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

PROSPECT PUGWASH NS-45

SUBJECT DDH — P 39

434260

LICENSE 6209

SURVEY BY J O'Sullivan	FILE NO	DWG. NO. NS 45-906-27
DRAWN BY D. W. Mac Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E 11-77	DATE 19/6/81

P-43

SURFACE

OVERBURDEN

5.8 m m br poorly lam f.g mica ss
 9.6 m br arg sh—minor greenish gry mot b.p 80°c/a
 10.4 m rd br arg pbl. cong
 10.5 m
 rd br shale & fis mdsts—minor greenish gry red blotches
 22.51 m
 gry br uniformly lam f.g ss—hem banding throughout b.p 77°c/a
 32.14 m
 br rd fri silty mdstn
 37.04 m dk br lam argil sh b.p 75°c/a
 37.7 m
 m br uniform f.g mica ss
 44.9 m rd br—pale br calc silty pbl cong
 46.54 m rd br silty mdst
 48.7 m gry br mot v.f.g ss
 49.3 m m br lam f.g mica ss b.p 73°c/a
 54.3 m dk rd br soft arg sh b.p. 75°c/a
 57.9 m br uniform f.g mica ss
 61.7 m rd br uniform fiss slst
 63.1 m br lam sh, gy mot at base of sh b.p 75°c/a
 64.4 m m gy br lam sh & gy br f.g mica ss
 67.35 m dk br gy br mixed pbl cong
 67.9 m br fis slst
 69.78 m rd br soft fri mdst
 69.8 m pale br lam f.g ss—greenish gry at base of unit
 72.23 m dk rd br fri slst—rd br mdst at base of unit
 75.98 m
 gy br minor lam f. to m.g ss b.p 68°c/a
 82.2 m pale gy br, greenish gy crs gr. ss
 83.0 m
 dk br-gy br lam, x lam f.g ss, uniform rd br slst ptgs b.p 70°c/a
 96.82 m
 dk br lam uniformly f.g ss—several thin shale ptgs
 gry f.g ss
 123.58 m rd br gy mot fri/shale
 127.6 m gy br uniform/few lam, carb lam, pyritic lenses
 137.7 m greenish gry uniform m-g ss
 140.05 m greenish gy—rd br mot
 140.15 m mdst
 rd br—dk br thinly lam silty ss
 b.p 80°c/a
 151.48 m

.28% Cu / .2 m →

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ESSO MINERALS CANADA

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PROSPECT PUGWASH NS-45

SUBJECT DDH P-43

434260

SURVEY BY J O'Sullivan	FILE NO.	DWG NO. NS. 45-906-28
DRAWN BY D L Mac Donald	SCALE 1:500	
REVISED BY	N.T.S. 385190E 5060540N	DATE JUNE 23, 1981

P46

394350E

SURFACE 5099900N

OVERBURDEN

7.9
Med br. thinly lam x lam sandy silt
12.24
Pale greyish brown laminated fine to medium grained mica s.s.
17.00

30.48 DATUM(S-L)

Reddish br. thinly lam x lam silt, v.f.g s.s.

50.16
br. shale — greenish grey mottling

Brownish gr. massive med to coarse grained calcareous s.s.

65.9

Red brown friable silt s., lam v.f.g ss., minor x lam

92.65
96.62
98.2
99.76
Dk. gry lam mica banded med gr. s.s.
Pale grey uniform med gr. fidas. minor carb lam
Pale grey carb lam f.g ss. minor pyritic lenses

Red br. friable silt s., lam s.s. — minor greenish grey mottling B.P. 70-75 c/a

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PROSPECT NS45

SUBJECT DDH P46

434260

LICENSE 6434

SURVEY BY J O'Sullivan	FILE NO	DWG. NO. NS-45-906-29
DRAWN BY J W Mac Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E11-44	DATE JUNE 26, 1981

393 520E

P-47

SURFACE

5055.750N

OVERBURDEN

722m

Dk br — rd br fri lam slst, br lam f.g ss — greenish gry mot
— several edy ptgs

50.8 m m gy thnly lam, x lam f.g ss — dism carb along b.p. 70°C/a

53.25 m dk gy thnly lam fri shale b.p. 65°C/a

54.3 m m gy thnly lam, x lam f.g ss

55.7 m pale gy uniform — mas f.g ss

57.7 m pale gy lam f.g ss

58.37 m dk greenish gy fri shale

59.44 m pale greenish gy m to crs gr. ss — minor carb lam, pyritic lenses b.p. 65°C/a

67.9 m dk gry soft fri slst, several shale ptgs b.p. 70°C/a

69.9 m m. gy carb lam f.g ss. b.p. 65°C/a

72.59 m

m. gy uniform f.g ss, greenish gry fri shale

DATUM (S.L.)

gry calc slty pble cong b.p. 65°C/a

80.36 m greenish gry massive m.gr. ss

83.17 m pale gy thnly lam f. — m.gr. ss, carb & pyritic lenses b.p. 65—70°C/a

86.91 m dk gy fri shale

87.47 m m. gy uniformly m.gr ss carb/pyritic ptgs throughout b.p. 65—70°C/a

91.6 m pale gy calc slty pbl cong — several dk gry shy ptgs

92.3 m dk gy fri shale

93.15 m pale gy uniformly med gr ss, pyrite/carb ptgs b.p. 70°C/a

95.17 m gy calc pbl cong

95.7 m pale gry uniform f.g ss — minor pyrite b.p. 75°C/a

99.54 m dk gy fri slst, shale — minor diss pyrite

100.84 m

med gry lam f.g ss — carb lam, diss pyrite

112.1 m dk gry fri shale b.p. 70°C/a

113.6 m

pale gy lam f.g ss, carbmat, nod pyrite

119.68 m

pale gy f.g ss/dk gy fri shale / carbmat, foss, pyritic b.p. 70°C/a

123.95 m gry calc slty pbl cong

124.94 m

pale gy uniform f.g ss carb/pyritic lam

130.75 m pale gy calc pbl cong

131.64 m

pale gymed gr. ss, thn cong ptgs.

136.24 m

dk rd br fri slst / br

139.0 m

lam f.g ss — minor

greenish gry ptgs

all analysis show $\leq .01\% \text{Cu} / \leq 1.59 \text{TA9}$
with an average sample interval .76m
in length from 69.8m — 120.7m

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NOVA SCOTIA

ESSO MINERALS CANADA

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PROSPECT PUGWASH NS-45

SUBJECT DDH P-47

434260

LICENSE: 6206

SURVEY BY J O'Sullivan	FILE NO	DWG. NO. NS 45-906-30
DRAWN BY D.W. Mac Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E 11-19	DATE JUNE 27, 1981

LICENSE: 6206
TRACT: 19
CLAIM: B

P-48

405,250E

SURFACE

5057500N

OVERBURDEN

11.27 m mgy uniformly lam m, g ss
 13.9 m dk rd br shale
 14.7 m dk gry - blk soft shale
 14.5 m dk gry uniformly bed crs g-ss.
 16.23 m mgy slty calc pble cong
 16.34 m pale gry m, g ss
 18.9 m pale gry calc pble cong, minor mdst
 20.0 m

b.p. 70°C/a

b.p. 70°C/a

DATUM(S.I.)

Pale brown - lam lg mica ss, rd br fri slstn

av b-p 70°C/a

.01%Cu / 2.76m

91.9 m pale gry lam m, g mica ss.
 94.66 m

b.p. 72°C/a

dk br fri slst - minor greenish gry mot - lam pale br f.g ss pfgs
 b.p 68°C/a

.025%Cu / 2.15m

pyrite
 pyrite, carb mat

122.6 m dk gry blk thly lam shale
 123.35 m pale gry carb lam m, g ss
 125.5 m greenish gry shale
 125.64 m

gry br lam f.g ss -
 hem stained throughout
 133.19 m
 b.p 75°C/a

RECEIVED
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 MINES
 NOVA SCOTIA

ESSO MINERALS CANADA

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PROSPECT PUGWASH NS-45

SUBJECT DDH P48

434260

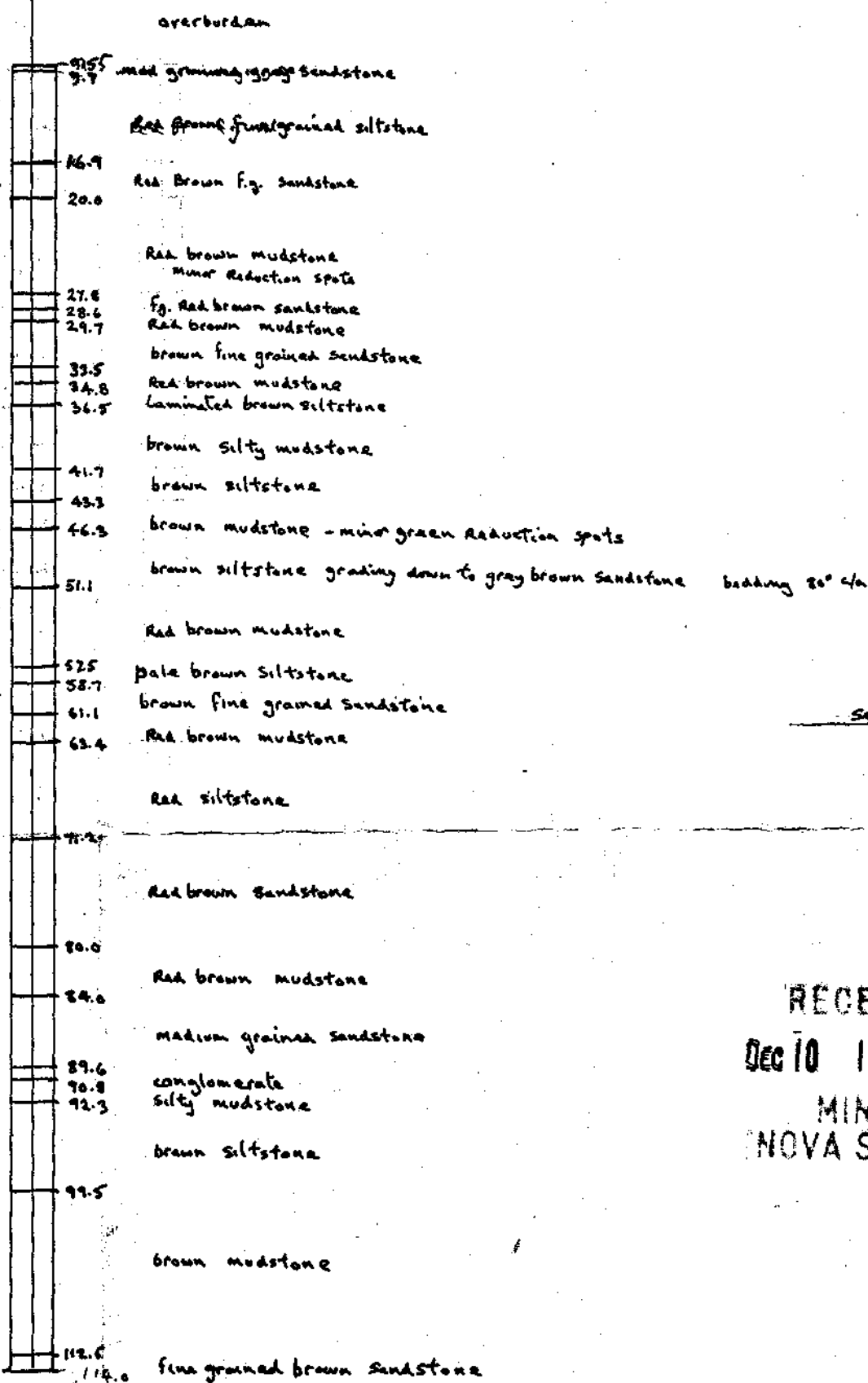
LICENSE: 6218

SURVEY BY J. Sullivan	FILE NO	DWG. NO. NS 45-906-31
DRAWN BY O. W. M. Donald	SCALE 1:500	
REVISED BY	N.T.S. 11E II - 35	DATE 28/6/81

P.57

373,170 E

5058 650 N



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Dec 10 14 12 '81
MINES
NOVA SCOTIA

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PROSPECT

PUGWASH NS 45

SUBJECT

DDH P 57

434260

SURVEY BY

D. Mac Donald

FILE NO

NS. 45

DWG. NO.

NS 45-906-32

DRAWN BY

J. M. Sullivan

SCALE

1:500

REVISED BY

N.T.S.

11E

DATE

Sept 81