MAR 19610002: SWIFT CREEK

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19610002

PEACE RIVER MINING & SMELTING LTD.

P.O. Box 0000
EDMONTON, ALBERTA

304 Imperial Bank Bldg.,
Edmonton, Alberta,
August 13, 1962.

Director of Mineral Rights,
Department of Mines and Minerals,
Natural Resources Building,
Edmonton, Alberta.

Dear Sir:

P-29

Re: Iron Prospecting Permit No. 16

Reference is made to our request for the issuance of a lease on certain lands contained in the above named permit. Enclosed herewith are the following documents:

1. Statutory Declaration respecting expenditures made in the exploration of the permit area and in metallurgical investigations of the iron ore.

2. A report on Iron Prospecting Permit No. 16, (The Swift Creek Iron Deposit), dated June 1st, 1961 by N. S. Edgar, which deals with the permit area.

3. Plan showing lands contained in Iron Prospecting Permit No. 16, and location of drill holes thereon.

These reports present the details of the drilling exploration work in the permit area and outlined ore reserves proven and probable, together with the logs of the holes drilled, and the analyses of the ore sections.

In brief, the iron ore deposit consists of a flat lying oolitic sandstone bed of cretaceous age. The ore is principally composed of the minerals Goethite and limonite which are both hydrated oxides of iron.

The drilling of 120 cored holes has established ore reserves as follows:

Positive ore 200,994,295 tons

Director of Mineral Rights August 13, 1962.

grading 33.91%, with the average thickness of ore being 21.86 feet. Additional drilling in 1962 outside the permit area together with other drilling information indicates that additional reserves may be developed by further detailed drilling. The additional reserves may be expected to be of the order of 200,000,000 tons.

The ore body outcrops along the banks of Swift Creek in Section 1, Township 91, Range 5, West of the 6th Meridian, and the overburden increases both east and west of the creek with the general rise of topography. The ore reserves have been arbitrarily limited to the area with a maximum overburden cover of 130 feet.

If there is any further information that you require, I will be pleased to provide it.

Yours very truly,

[redacted]

G. R. Heffernan,
President

GRH:RS
Encls.

File No. 102509 16

19610002

DESCRIPTION

IN TOWNSHIP NINETY (90), RANGE FOUR (4), WEST OF THE SIXTH (6) MERIDIAN:

Sections Thirty-one (31) and Thirty-two (32);

AND

IN TOWNSHIP NINETY-ONE (91), RANGE FOUR (4), WEST OF THE SIXTH (6) MERIDIAN:

Sections Five (5) to Eight (8) inclusive and Sections Seventeen (17) to Twenty (20) inclusive;

AND

IN TOWNSHIP NINETY (90), RANGE FIVE (5), WEST OF THE SIXTH (6) MERIDIAN:

Sections Thirty-three (33) to Thirty-six (36) inclusive;

AND

IN TOWNSHIP NINETY-ONE (91), RANGE FIVE (5), WEST OF THE SIXTH (6) MERIDIAN:

Sections One (1) to Four (4) inclusive, Sections Nine (9) to Sixteen (16) inclusive and Sections Twenty-one (21) to Twenty-four (24) inclusive;

AND

What would be statutory road allowances if the lands were surveyed pursuant to The Alberta Surveys Act, lying within the outer limits of the above described lands;

containing an area of Nineteen Thousand, Four Hundred and Ninety-seven (19,497) acres, more or less.

[redacted]

ECONOMIC MINERALS
FILE REPORT No.
FE-AF-016(01)

IRON PROSPECTING PERMIT

NO. 16 19610002

INDEXING DOCUMENT NO. 700382

19

THE SWIFT CREEK

IRON DEPOSIT

June 1st, 1961.
Edmonton, Alberta.

N.S. Edgar, P. Eng.
Mining Engineer

TABLE OF CONTENTS

SUMMARY AND CONCLUSIONS

The drilling results of 115 holes on the Swift Creek Iron Ore deposit, 84 of which were in ore, has established ore reserves as follows:

Positive Ore - 200,994,295 tons grading 33.91% Fe, taking the ore bed at an average thickness of 21,86 Feet.

or,

158,991,777 tons grading 35.44% Fe, taking the ore bed at an average thickness of 17.53 Feet.

Average Analysis of the ore is: -

Iron	35.44%
Phos.	0.673%
Mang.	0.16%
Silica	26.49%
Alum.	4.95%
Sulph.	0.074%
CaO	1.90%
MgO	1.02%
Ignition Loss	13.78%

Probable Additional Ore

Previous drilling by the McDougall interests in 1954 showed the iron ore bed to be present throughout a distance of approximately 7 miles to the south of the most southerly holes drilled in 1960-1961 by Premier Steel Mills Ltd. as described in this report. Preliminary Report 59 - 3, "Iron Occurrences in the Peace River Region", by Donald J. Kidd, published by the Research Council of Alberta, describes McDougall's work and estimates total ore reserves in the Swift Creek deposit at 1,511,000,000 tons.

The most recent work described in this report limits the economic ore reserves somewhat arbitrarily to that area with a maximum overburden cover of approximately 130 feet. This provides for a strip/ore ratio of slightly under 3 yards of overburden per ton of ore at an ore thickness of 21 feet. When very large scale mining operations are considered, stripping costs may be such that it will be economic to remove greater overburden depths, thus providing further large reserves.

Further drilling will, in the writer's opinion, disclose additional large areas with overburden of less than 130 feet, which will provide additional large reserves, of the order of several hundreds of millions of tons.

INTRODUCTION

As a result of drilling exploration in Townships 87 and 88, Ranges 6 and 7, West of the 6th meridian during 1959 and 1960, exploration to locate additional ore under suitable conditions of overburden cover was started in 1960. The Swift Creek Area, in Townships 90 and 91, Ranges 4 and 5, West of the 6th Meridian was selected for the first detailed drilling program. The results are described in this report.

LOCATION AND ACCESSIBILITY

The area lies approximately 43 miles north of Hines Creek Alberta, the terminus of the Northern Alberta Railway. It may be reached by a Forestry road travelling north from Eureka River, a distance of about 38 miles. An airstrip of the Alberta Government Forestry Service is located in the southwest corner of Twp. 91, Rge 4, W6M, which is within about 2-1/2 miles of ore outcrops along Swift Creek.

TOPOGRAPHY

The Swift Creek area lies in the Clear Hills upland. Adjacent to the ore deposit, the terrain has a relief of about 400 feet. The outcrop area along the creek is at an elevation of 2,550 feet above sea level.

Most of the country is covered by a fairly dense tree growth of spruce and poplar. There are relatively small areas of muskeg. Appendix "D" shows topography and access trails of the deposit area.

DESCRIPTION OF DEPOSIT

The ore deposit is essentially an oolitic iron sandstone that was deposited under shallow marine conditions in Upper Cretaceous time. It is thought that during this period of time, changes in the level of the Cretaceous sea resulted in a washing and concentration of the iron rich minerals, in somewhat the same manner that large beach sands are developed.

Under these depositional conditions, the limits of the deposit would be those imposed by shoreline conditions. The deposit would be expected to thin out both on the land side and the deep water side, with a maximum thickness somewhere between these two limits. The directional trend should be expected to be reasonably uniform, but would have local variations due to bays, points of high level, and stream channels. Appendix "F" presents an isopach map of the ore zone thickness.

Erosion, up to the time of the last glacial period, had removed all the sediments overlying the ore bed in the area under study. The old land surface probably resembled "bad lands" topography, with the erosion resistant ore bed forming the surface, with an abrupt scarp like boundary, dropping into erosional valleys. The top of the bed has been found to be remarkably flat, with only a few feet variation in elevation over distances of a mile or more. Glacial till has filled the old valleys and has covered the ore bed and nowhere in the drilling to date has there been found bed rock overlying the ore. These glacial clays are unconsolidated and can be easily removed by conventional stripping machines such as draglines or wheel type excavators. Appendix "G" presents an isopach map of overburden thickness. Also Appendix "H" shows a number of sections through the ore zone which are marked on the maps, as A - A, B - B, etc.

The ore is dark green to black in color and consists of oolites averaging 0.5 mm in diameter in a matrix of amorphous gel like material together with sand and clay. The density of the oolite content is highest at the top of the ore bed and diminishes toward the base, where clays become the predominant constituent. This has been found to be quite a consistent characteristic throughout the deposit. Iron content varies from slightly over 40% at the top of the bed to 20 to 25% at the base, the variation being gradual and not abrupt.

The mineralogical composition appears to be chiefly goethite and chamosite with small amounts of limonite and siderite. A mineralogical description of the ore by F.A. Campbell is included with this report as Appendix "I".

Specific Gravity determinations of the ore indicate it to be about 2.5

SAMPLING PROCEDURE

Drill cores are first split in half, one half being retained for future study and the other half being cut into samples for analysis. Samples are restricted to maximum lengths of 5 feet, and are selected on the basis of oolite density. These are analyzed for Iron and insoluble silicates, following which a composite sample is prepared, weighted as to sample lengths. The composites are then given a full analysis and are reported on the log sheets shown in Appendix "C".

TONNAGE AND GRADE STIMATES

Reference is made to maps in Appendix "E" showing drill hole locations and iron analyses, and to the tables in appendices "A" and "B", which list the estimates in detail. The following pages, tables 1 and 2, Pages 7 and 8 summarize the figures in the appendices.

It will be noted that two estimates are given for both tonnage and grade. The higher average iron grade is obtained by eliminating some of the lower grade sections near the base of the ore, while the lower average iron grade includes these.

Referring to the average iron grade shown in the Composite sample summary, Table 2, it should be mentioned that not all drill holes were given a full analysis, with the consequence that some variation must be expected in the calculations.

The total positive reserves are estimated to be:

200,994,295 tons grading 33.91% Fe, taking the ore bed at an average thickness of 21.86 feet

or,

158,991,777 tons grading 35.44% Fe, taking the ore bed at an average thickness of 17.53 feet.

Probable additional ore is dealt with in the summary and conclusions to this report. Additional exploration work is now in progress and will be reported upon at a later date.

Respectfully submitted,

[redacted]

N.S. Edgar, P. Eng.
Mining Engineer

June 1st, 1961.
Edmonton, Alberta

SWIFT CREEK IRON DEPOSIT

TABLE I

SUMMARY OF TONNAGE AND GRADE ESTIMATES

Section	Twp.	Range W6M	Grade/thickness	Tons	Grade/thickness	Tons
31	90	4	33.853/14.5	138,161	31.544/20.40	231,200
36	90	5	35.88/20.075	10,050,156	33.94/25.90	12,918,625
6	91	4	32.854/13.4	1,760,031	32.854/13.40	1,760,031
1	91	5	35.09/18.45	27,192,763	33.80/22.07	34,216,716
2	91	5	36.35/22.10	38,572,752	34.72/26.98	46,114,683
3	91	5	36.50/20.0	737,238	35.419/23.65	844,307
10	91	5	36.41/21.725	2,466,713	34.65/26.35	3,120,509
11	91	5	35.937/17.925	19,829,994	34.16/23.29	25,362,215
12	91	5	33.755/12.66	2,811,899	31.32/21.3	4,369,554
14	91	5	34.78/12.6	7,834,249	32.72/16.57	11,076,831
15	91	5	35.539/16.93	22,768,297	34.259/21.60	29,295,556
16	91	5	34.24/10.66	5,211,403	32.40/15.66	7,322,301
21	91	5	34.29/10.55	15,597,921	33.12/13.14	19,833,976
22	91	5	34.12/10.82	4,020,200	33.89/11.92	4,527,791
	Total Tonnage			158,991,777 Tons		200,994,295 Tons
	Average Grade Fe			35.44%		33.91%
	Average Thickness			17.53 feet		21.86 feet

NOTE: Averages are weighted with tonnage figures.

SWIFT CREEK IRON DEPOSIT

TABLE 2

SUMMARY OF ANALYSIS OF COMPOSITE SAMPLES

Section	Twp.	Rge W6M	Iron	Phos.	Mang	Silica	Alum.	Sulph.	Ig. Loss	CaO	MgO
31	90	4	31.57	.673	.13	28.65	5.41	.055	15.83	1.88	.97
36	90	4	34.119	.690	.19	27.40	4.86	.086	12.98	1.99	1.13
1	91	4	34.639	.696	.175	26.28	4.84	.067	13.70	2.06	1.07
2	91	5	36.301	.638	.171	25.50	4.88	.074	13.83	1.63	.949
10	91	5	34.245	.616	.10	27.23	4.46	.065	13.70	1.90	.85
11	91	5	35.066	.685	.14	25.91	4.71	.076	13.84	1.91	1.05
12	91	5	33.51	.666	.15	28.09	4.60	.062	14.77	1.96	1.01
14	91	5	33.754	.672	.17	27.68	5.12	.088	13.76	2.08	1.03
15	91	5	34.760	.681	.145	26.90	5.086	.066	13.38	1.992	1.039
16	91	5	32.15	.678	.15	28.82	4.98	.093	13.83	2.025	1.145
21	91	5	34.129	.677	.16	26.97	5.31	.081	14.51	1.94	.98
22	91	5	35.03	.720	.20	25.23	6.03	.061	14.28	1.90	.98
Averages			34.84	.673	.16	26.49	4.95	.074	13.78	1.90	1.02

NOTE: Averages are weighted with tonnage figures.

APPENDIX "A"

Ore Tonnage and Grade Estimates

SECTION 31 - 90 - 4W6 App. A - 1

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
12*	0.4*	35 /19'*	25,862	34 /23'*	31,307. *
13	3.3	33.59 /10'	112,299	31.16 /17.8'	199,893.
		Total Tons	138,161	Total Tons	231,200
	(Average)	Average grade	33.853%	Average Grade	31.544%
		Average thickness	14.5 feet	Average thickness	20.4 feet

* Estimates

SECTION 36 TWP 90 RANGE 5 W 6 M App. A - 2

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
5	3.297	36/20' *	224,393 *	34/25' *	280,492 *
9	2.58 *	35.84/19.9' *	164,716 *	34.43/23.9' *	209,835
11	4.20	36/20' *	285,852 *	34/27' *	385,900 *
12	32.00 *	36/20' *	2,177,920 *	34/26' *	2,831,296 *
13	33.7 *	35/21' *	2,408,303 *	33/26' *	2,981,708 *
14	21.10	36.85/21.8'	1,565,311	34.74/28.6'	2,053,574
15	17.25	36.24/18.0'	1,056,631	33.74/26.8'	1,573,206
16	32.00	35.84/19.9'	2,167,030	34.43/23.9'	2,602,614
		Total Tons	10,050,156	Total Tons	12,918,625
		Average Grade	35.88 %	Average Grade	33.94 %
		Average thickness	20.075'	Average thickness	25.9'

* Estimates

SECTION 6-91-4W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
3	3.0	30/10'*	102,090 *	30/10' *	102,090 *
4	29.0	33.03/16.8'	1,657,941	33.03/16.8'	1,657,941
		Total tons	1,760,031	Total tons	1,760,031
		Average Grade	32.854 %	Average Grade	32.854 %
		Average thickness	13.4'	Average thickness	13.4'

* Estimates

SECTION 1-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
1	44	36.21/20'	3,994,640	34.16/27'	4,042,764
2	42	36.16/22'	3,144,372	34.87/26.5'	3,787,539
3	34	34/22' *	545,444 *	33/25.3' *	2,928,260 *
4	37.4	32.00/21.9'	2,787,262	31.21/24.1'	3,067,260
5	30.45	37.44/23.6'	2,445,463	36.46/26.3'	2,725,241
6	38	36.10/20'	2,586,628	34.37/25.6'	3,310,438
7	40	36.63/17.8'	2,422,936	35.10/23.7'	3,226.044
8	29.40	33.5/16' *	1,600,771 *	32.5/20' *	2,000,964 *
9	30.80	28.89/10'	1,048,124	28.89/10'	1,048,124
10	10.15	28/10' *	345,404 *	28/10' *	345,404 *
11	32.5	35.88/20'	2,211,950	34.16/24.6'	2,720,698
12	25	36/25' *	2,126,875 *	34/28' *	2,382,100 *
13	26	35.16/20'	1,769,560	32.28/27.9'	2,468,536
14	4.8	28/10' *	163,344 *	28/10' *	163,344 *
		Total Tons	27,192,763	Total Tons	34,216,716
		Average Grade	35.09%	Average Grade	33.80%
		Average thickness	18.45'	Average thickness	22.07'

* Estimates

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
1	8.24	34.7/25' *	701,018	34/27 *	757,099 *
2	30.75	39.58/17.7	1,852,167	36.68/26.7'	2,793,948
3	37.60	37.32/19.1'	2,443,898	35.74/22.2'	2,840,552
4	26.10	36.76/14.5'	1,287,865	33.50/20.9'	1,856,302
5	37.90	36.59/19.9'	2,566,576	35.98/21.0'	2,708,448
6	40.0	36.10/27.1'	3,688,852	35.48/29.0'	3,947,480
7	40.0	36.15/29.0'	3,947,480	35.75/30.0'	4,083,600
8	39.4	36.63/23.6'	3,164,245	34.92/27.7'	3,713,966
9	42.0	36.01/28.8'	4,116,269	33.81/32.2'	4,602,217
10	38.65	34.28/21.1'	2,775,197	31.35/32.6'	4,287,746
11	19.15	34.7/20' *	1,303,349 *	33.0/26' *	1,694,353 *
12	38.80	36.60/22.5'	2,970,819	35.51/26.5'	3,498,964
13	31.10	36.66/22.4'	2,370,666	34.28/29.9'	3,164,415
14	14.93	35.5/15' *	763,452 *	32/25' *	1,272,420 *
15	11.43	34.8/19' *	739,029 *	33.0/26' *	1,011,303 *
16	39.20	36.92/29.1	3,881,870	36.92/29.1	3,881,870
		Total Tons	38,572,752	Total Tons	46,114,683
		Average Grade	36.35%	Average Grade	34.72%
		Average thickness	22.10'	Average thickness	26.98 '

* Estimates

SECTION 3-91-5W6 App. A - 6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
1	0.36	36.6/17.2' *	21,071 *	35.2/21' *	25,726 *
8	3.28	36.5 /19.2 *	214,307 *	35.0/22.9' *	255,606 *
9	6.65	36.5/21.2' *	479,755 *	35.7/23.7' *	536,330 *
16	0.29	36.6/22.4' *	22,105 *	34/27' *	26,645 *
		Total Tons	737,238	Total Tons	844,307
		Average Grade	36.50%	Average Grade	35.419%
		Average thickness	20.0'	Average thickness	23.65'

*Estimates

SECTION 10-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
9	5.44	35.95/18.3	338,775	34.42/22.7'	420,229
16	28.75	36.53/21.75	2,127,938	34.65/27.60	2,700,280
		Total Tons	2,466,713		3,120,509
		Average Grade	36.41%		34.65%
		Average thickness	21.725'		26.35'

SECTION 11-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
1	7.82 *	35.5/22 *	585,452 *	32.5/25 *	665,286 *
3	33.20	35.52/15.0'	1,694.694	31.75/29.0'	3,276,408
4	23.04	36.75/25.3	2,881,388	36.75/25.3'	2,881,388
5	21.5	36.32/22.0'	1,609,619	34.38'27.0'	1,975,441
6	38.0	36.28/28.0'	3,620,792	36.28/28.0'	3,620,792
7	3.0	36/15' *	153,135 *	34/20' *	204,180 *
10	17.7	35/10' *	602,331 *	32/18' *	1,084,195 *
11	38.3	35.22/10'	1,303,349	32.68/17.1'	2,228,727
12	35.25	35.87/19.8'	2,375,123	33.45/26.2'	3,142,840
13	40.0	36.0/23.5'	3,198,820	35.23/26.9'	3,661,628
14	26.0	34.93/14.5'	1,282,931	33.86/19.0'	1,681,082
15	15.35	35/10' *	522,360 *	32/18' *	940,248 *
		Total Tons	19,829,994		25,362,215
		Average Grade	35.937%		34.16%
		Average thickness	17.925'		23.29'

* Estimates

SECTION 12-91-5-W6M

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
3	11.2	33/10' *	381,136 *	28/20' *	762,272 *
4	35.7	34.08/19.0'	2,308,255	32.28/27.9'	3,389,490
5	4.0	30/9' *	122,508 *	28/16' *	217,792 *
		Total Tons	2,811,899		4,369,554
		Average Grade	33.755%		31.32%
		Average thickness	12.66'		21.3'

* Estimates

SECTION 14-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
2	4.18	30/10' *	142,245 *	30.0/10.0 *	142,245 *
3	37.4	34.31/14.5	1,845,446	32.1/21.0	2,672,716
4	42.0	36.32/18.0	2,572,668	34.51/26.1	3,730,368
5	39.8	34.96/13.7	1,855,520	33.67/19.9	2,695,244
6	19.9	33/12 *	812,636 *	30/14 *	948,075 *
7	1.2	28/10 *	40,836 *	28.0/10 *	40,836 *
12	16.6	33/10 *	564,898 *	30/15 *	847,347 *
		Total Tons	7,834,249		11,076,831
		Average Grade	34.78%		32.72%
		Average thickness	12.6'		16.57'

*Estimates

SECTION 15-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
1	42	36.5/19.0	2,715,594	34.8/25.8	3,687,490
6	11.8	35.39/14.6	586,268	32.9/23.5	943,651
7	29.8	36.05/22.9	2,322,275	35.37/24.6	2,494,671
8	42	37.13/19.0	2,715,594	36.32/22.0	3,144,372
9	42	34.61/15.7	2,243,938	33.10/25.4	3,630,320
10	40	35.04/12.5	1,701,500	33.60/19.0	2,586,280
11	36.7	35.33/21.7	2,710,115	34.22/25.5	3,184,697
12	9.25	35.05/19.3	607,520	34.45/20.7	651,589
13	40	34.97/19.5	2,654,340	33.68/24.7	3,362,164
14	40	35.48/20.0	2,722,400	33.95/24.1	3,280,492
15	31.8	35.06/15.0	1,623,231	34.47/20.0	2,164,308
16	12.16	25.0/4 *	165,522 *	25.0/4 *	165,522 *
		Total Tons	22,768,297		29,295,556
		Average Grade	35.539%		34.259%
		Average thickness	16.93'		21.60'

* Estimates

SECTION 21-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
1	42	36.01/15.3	2,186,767	33.75/23.2	3,315,883
2	40	35.85/15.6	2,123,472	34.93/18.1	2,463,772
3	40	32.63/8.4	1,143,408	32.63/8.4	1,143,408
4	30.7	28.0/4 *	417,888 *	28.0/4 *	417,888 *
5	17.4	28.0/10 *	592,122 *	28.0/10 *	592,122 *
6	40	32.7/7.5 *	1,020,900 *	32.7/7.5 *	1,020,900 *
7	40	34.27/16.0	2,177,920	32.17/24.0	3,266,880
8	36.4	35.99/21.2	2,626,027	35.99/21.2	2,626,027
9	7.5	35.0/12 *	306,270 *	32/20 *	816,720 *
10	35.0	34.72/16.3	1,941,411	32.30/26.1	3,108,640
11	38	32.85/6.5	840,541	32.85/6.5	840,541
12	6	28.0/5 *	102,090 *	28.0/5 *	102,090 *
14	6	28.0/5 *	102,090 *	28.0/5 *	102,090 *
15	1	28.0/5 *	17,015 *	28.0/5 *	17,015 *
		Total Tons	15,597,921		19,833,976
		Average Grade	34.29%		33.12%
		Average thickness	10.55'		13.14'

* Estimates

SECTION 22-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
2	1.6	33.0/9' *	179,678 *	33.0/9' *	179,678 *
3	16.2	33.0/12' *	1,819.243 *	33.0/12' *	1,819,243 *
4	33.9	35.44/17.3	1,995,757	34.67/21.7	2,503,348
5	1.5	28.0/5 *	25,522 *	28.0/5 *	25,522 *
		Total Tons	4,020,200		4,527,791
		Average Grade	34.12%		33.89%
		Average thickness	10.82'		11.92'

* Estimates

SECTION 16-91-5W6

LSD	Area (acres)	Grade/thickness	Tons	Grade/thickness	Tons
9	15.75	35.78/10.3	552,051	32.63/19.6	1,050,506
10	1.3	35.07/11.5	50,874	32.09/18.8	83,169
13	26.8	31.18/8.2	747,843	30.42/9.3	848,163
14	28.2	30.8/6.5	623,770	30.52/7.5	719,734
15	26.2	34.81/12.9	1,150,146	33.04/17.2	1,533,528
16	42.0	35.63/14.6	2,086,719	32.99/21.6	3,087,201
		Total Tons	5,211,403		7,322,301
		Average Grade	34.24%		32.40%
		Average thickness	10.66'		15.66'

APPENDIX "B"

Tabulation of Analyses of Composite Samples

APPENDIX "B"

Tabulation of Analyses of Composite Samples

Section 31-90-4W6

LSD	Thick-ness	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ig. Loss	CaO	MgO	Total Tons Estimated for section
13	17.8	31.57	.673	.13	28.65	5.41	.055	15.83	1.88	.97	231,200

Section 36-90-5W6

14	28.6'	34.54	.695	.21	27.44	5.02	.071	13.09	2.20	1.01	
15	27.8'	33.67	.674	.17	27.50	4.48	.115	12.93	1.97	1.24	
16	23.9'	34.14	.701	.19	27.27	5.10	.074	12.92	1.79	1.15	
Avs.	26.76'	34.119	.690	.19	27.40	4.86	.086	12.98	1.99	1.13	12,918,625

Section 6-91-4W6

4	16.8'	33.03			26.45						2,174,517

Section 1-91-5 W6

1	27.0'	33.76	.708	.13	26.36	4.80	.064	13.75	2.15	1.04	
2	26.5'	34.96	.713	.19	25.02	4.83	.121	14.25	2.11	1.15	
4	21.9'	32.98	.681	.14	28.47	5.04	.033	13.65	1.87	0.91	
5	26.3'	36.06	.691	.19	24.44	4.59	.060	13.70	1.94	1.01	
6	25.6'	24.60	.697	.16	26.90	5.23	.058	13.52	2.01	1.12	
7	23.7'	34.75	.720	.20	26.59	4.96	.050	13.70	2.25	1.29	
11	23.0'	34.83	.658	.19	26.24	4.74	.107	14.05	2.16	1.17	
13	22.3'	35.01	.701	.18	26.46	4.74	.048	13.20	2.03	0.94	
Avs.	24.53'	34.639	.696	.175	26.28	4.84	.067	13.70	2.06	1.07	34,213,706

Tabulation of Analyses of Composite Samples - (Cont'd.)

Section 2-91-5W6

LSD	Thick-ness	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ig.Loss	CaO	MgO	Total Tons Estimated for Section
2	27.2'	37.11	.570	.17	22.09	4.94	.058	13.88	1.34	1.00	
3	22.2'	36.01	.709	.20	25.63	5.58	.066	13.83	1.98	1.09	
4	18.0'	35.23	.673	.16	26.42	4.83	.061	13.74	1.83	.96	
5	21.0'	36.35	.696	.17	30.16	4.51	.099	13.20	1.97	1.01	
6	29.0'	36.65	.670	.14	21.93	4.93	.081	14.71	2.29	1.21	
7	29.0'	36.73	.567	.16	22.35	5.02	.072	13.60	1.64	.72	
8	23.6'	37.09	.714	.15	26.48	4.22	.042	14.33	1.44	.61	
9	28.8'	36.73	.570	.16	23.27	4.72	.064	14.13	1.16	.97	
10	23.1'	33.61	.702	.16	24.91	4.14	.137	14.15	1.16	.69	
12	22.5'	37.24	.709	.24	23.17	5.58	.046	13.10	1.37	.90	
13	27.42'	35.17	.623	.14	29.28	4.90	.066	12.72	2.10	1.21	
16	29.1'	37.03	.549	.13	23.98	5.04	.076	14.65	1.36	1.02	
Avs	25.07'	36.301	.638	.171	25.50	4.88	.074	13.83	1.63	.949	46,114,683

Section 10-91-5W6

9	22.7'	34.42	.641	.11	27.02	4.56	.058	13.90	1.96	.95	
16	27.15'	34.10	.591	.09	27.44	4.37	.072	13.51	1.84	.76	
Avs	24.92'	34.245	.616	.10	27.23	4.46	.065	13.70	1.90	.85	3,120,509

Section 11-91-5W6

3	20.0'	34.89	.609	.13	23.95	4.98	.035	13.90	1.60	1.09	
4	25.3'	35.80	.699	.16	28.87	4.36	.091	12.50	2.02	1.03	
5	24.5'	34.58	.667	.16	26.77	4.76	.061	13.56	2.25	1.09	
6	28.0'	36.37	.645	.16	21.72	4.52	.082	14.64	2.08	1.25	
11	17.1'	32.53	.723	.09	29.20	4.29	.116	13.91	1.91	1.12	
12	21.6'	36.20	.720	.18	24.38	4.91	.057	14.21	1.73	0.88	
13	26.9'	35.60	.706	.16	25.01	5.13	.068	14.22	1.61	0.83	
14	20.0'	33.31	.712	.13	27.36	4.73	.101	13.76	2.08	1.09	
Avs	22.9'	35.066	.685	.14	25.91	4.71	.076	13.84	1.91	1.05	25,362,215

Tabulation of Analyses of Composite Samples - (Cont'd.)

Section 12-91-5W6

LSD	Thick-ness	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ig. Loss	CaO	MgO	Total Tons Estimated for Section
4	24.7'	33.51	.666	.15	28.09	4.60	.062	14.77	1.96	1.01	4,369,554

Section 14-91-5W6

3	21.0'	31.89	.683	.11	30.68	4.51	.128	12.96	2.14	0.98	
4	27.1'	34.67	.684	.23	25.66	6.20	.067	14.85	1.84	1.05	
5	19.0'	34.51	.650	.18	26.63	4.65	.080	13.49	2.25	1.05	
Avs	22.36'	33.754	.672	.17	27.68	5.12	.088	13.76	2.08	1.03	11,076,831

Section 15-91-5W6

2	25.4'	35.31	.672	.16	25.71	4.91	.054	13.58	1.79	0.88	
6	22.4'	33.46	.627	.10	28.29	4.28	.084	13.69	1.76	0.87	
7	22.9'	36.07	.693	.15	25.58	4.96	.051	13.13	1.90	0.97	
8	22.0'	36.13	.651	.13	26.41	4.48	.043	12.70	1.97	1.15	
9	24.4'	35.33	.663	.15	29.30	5.01	.086	13.49	2.06	1.11	
10	18.0'	34.05	.720	.17	26.40	4.83	.103	13.88	2.11	1.03	
11	25.0'	34.08	.704	.15	26.97	4.61	.049	12.46	2.23	1.09	
12	20.7'	33.98	.701	.09	27.69	4.57	.055	12.68	2.08	0.99	
13	24.7'	34.46	.701	.15	26.89	5.97	.080	13.66	2.17	1.11	
14	23.1'	34.29	.656	.18	27.17	6.08	.067	12.96	2.09	1.06	
15..	20.0'	34.83	.704	.17	25.54	6.25	.054	15.00	1.76	1.17	
Avs	22.6'	34.760	.681	.145	26.90	5.086	.066	13.38	1.992	1.039	29,295,556

Tabulation of Analyses of Composite Samples - (Cont'd.)

Section 16-91-5W6

LSD	Thickness	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ig.Loss	CaO	MgO	Total Tons Estimated For Section
9	19.6'	32.77	.707	.18	28.46	4.44	.072	12.39	2.13	1.21	
10	18.8'	31.92	.697	.10	29.79	4.39	.099	12.76	2.04	1.30	
13	8.2'	30.91	.666	.15	29.76	5.47	.129	15.14	1.89	0.93	
14	7.4'	30.87	.689	.15	29.16	5.09	.089	15.06	1.96	1.09	
15	17.2'	33.45	.657	.18	26.91	4.70	.093	14.20	2.15	1.20	
16	21.6'	32.98	.695	.14	28.84	5.80	.076	13.45	1.98	1.14	
Avs	15.466'	32.15	.678	.15	28.82	4.98	.093	13.83	2.025	1.145	7,322,301

Section 21-91-5W6

1	24.0'	34.51	.714	.15	26.95	4.98	.057	13.98	1.59	.78	
2	18.1'	34.90	.701	.12	25.55	5.29	.056	14.61	2.03	.97	
3	8.4'	32.91	.693	.13	27.07	5.09	.087	14.27	1.87	.91	
7	24.0'	32.42	.637	.14	28.77	4.57	.099	14.78	1.98	1.01	
8	21.2'	35.99	.671	.19	24.87	5.90	.063	14.80	2.10	1.21	
10	20.5'	34.90	.650	.17	25.34	5.01	.064	14.45	2.07	1.04	
11	10.0'	31.43	.704	.17	29.20	5.54	.063	16.46	1.86	.89	
Avs	18.03'	34.129	.677	.16	26.97	5.31	.081	14.51	1.94	.98	19,833,976

Section 22-91-5W6

4	21.7'	35.03	.720	.20	25.23	6.03	.061	14.28	1.90	.98	4,527,791

APPENDIX "C"

DRILL HOLE LOGS AND CORE ANALYSIS

HOLE No. 13-31-90-4W6

DRILL LOG

LOCATION 13-31-90-4W6

HOLE No. 13-31-90-4W6 PAGE No. 1

ELEVATION 2705.2 DEPTH 187.5' ELEV. TOP ORE 2537.7

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12'	Brown clay. }													completed 9 March 1961
12'	25'	Sticky blue clay. } Glacial till.													
25'	35'	Water sand. }													
35'	65'	Hard grey clay shale.													
65'	66'	Sandstone.													
66'	166.5	Hard grey clay shale.													
166.5	167.7	Blue grey hard shale.													
167.7	170.25	Blue & brown, fine to medium grained, medium to densely and partly oxidized oolitic ore interbedded with lenses of fine blue shale. Shale lenses with lenses of 1/2" to 1" thick and constitute 30% of core length. 50% core recovery.	167.7	172.25	33.36			26.87							
170.25	173.0	Blue black. Fine grained. Densely oolitic. Matrix 30%: black cement, blue silt, clay-ironstone pebbles. Irregular fracture. H-3 1/2. Not oxidized. 100% core recovery.	172.25	177.0	33.82			26.66						33.59% / 10.00'	
														OR	
173.0	176.0	Brownish black. Fine grained. Medium oolite content. Matrix 50%: black cement, blue silt, clay ironstone pebbles. Irregular fracture, wafers 1/2" to 3/4" thick. H-3. Some oxidation. 60% core recovery.												31.16% / 17.80'	✓
176.0	180.2	Blue grey. Medium grain. Medium oolite content. Matrix 50%: blue silt in large masses, some black cement, some clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 100% core recovery.	177.7	181.5	30.12			29.94							
180.2	184.0	Blue. Medium grain. Sparsely oolitic. Matrix 90%. blue silt in large masses, some black cement, some clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 100% core recovery.	181.5	185.5	26.09			34.25							
184.0	185.7	Blue. Coarse grained, gritty silt or silty sandstone with rare oolites.													
185.7	187.5	Blue-grey, silty sandstone with some marcasite.													
		COMPOSITE SAMPLE			31.57	.673	.13	28.65	5.41	.055	15.83	1.88	.97		

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App. C-1

HOLE No. 14-36-90-5-W6

DRILL LOG

HOLE No. 14-36-90-5-W6 PAGE No. 1

LOCATION

ELEVATION 2752 DEPTH 241.6 ELEV. TOP ORE 2546.4

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	25	Brown glacial clay till													Completed 25 January 1961
25	205.6	Dark grey grit-free clay till													
205.6	210.6	Brownish black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, chamosite (?) and some silt. Irregular fracture some wafering of core and some sections have leached appearance. H-3. Slight oxidation. 100% core recovery.	205.6	210.6	38.63			20.75							
210.6	215.6	Black. Fine grained. Densely oolitic. Matrix 20% glassy cement, clay ironstone pebbles and pale grey green material. Irregular fracture, some wafering. H-4. No oxidation. 100% core recovery.	210.6	215.6	38.14			24.62							
215.6	220.6	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, some silt. Irregular fracture. H-4. No oxidation. 100% core recovery.	215.6	220.6	36.76			26.67							
220.6	224.4	Black. Fine grained. Densely oolitic. Matrix 25%, glassy cement, clay ironstone pebbles and silt. Irregular fracture. H-3.5. No oxidation. 100% core recovery.	220.6	224.4	35.79			27.24							
224.4	226.2	Blue black. Medium grained. Medium oolite content. Matrix 45%. Blue silt, glassy cement, clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 100% core recovery.	224.4	226.2	33.92			29.92							
226.2	227.4	Blue black. Medium grained. Moderately oolitic. Matrix 70% blue silt, glassy cement, clay ironstone pebbles. Irregular to earthy fracture. H-3. No oxidation. 100% core recovery.	226.2	227.4	32.14			31.12							
227.4	230.6	Blue grey. Medium grained. Moderately to sparsely oolitic. Matrix 75% blue silt, clay ironstone pebbles, glassy cement. Irregular to earthy fracture. H-2.5. No oxidation. 100% core recovery.	227.4	230.6	29.54			32.10							
230.6	233.0	Dark blue. Medium grained. Sparsely oolitic. Matrix 85% blue silt, bituminous appearing cement, clay ironstone pebbles, rare sand grain. Irregular to earthy fracture, some wafering. H-2.5. No oxidation. 100% core recovery.	230.6	233.0	27.27			35.68							
233.0	234.2	Grey. Medium grained. Sparsely oolitic. Matrix 90-95% blue silt, bituminous cement, clay ironstone pebbles, some sand including qtz. grains. Irregular fracture, core is crushed. H-2. No oxidation. 100% core recovery.	233.0	234.2	25.42			36.51						36.85% / 21.8' OR 34.74% / 28.6'	
234.2	241.6	Soft blue shale with some thin silt-stone lenses.													
		COMPOSITE SAMPLE			34.54	.695	.21	27.44	5.02	.071	13.09	2.20	1.01		

App. C-2

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HOLE No. 15-36-90-5-W6

DRILL LOG

HOLE No. 15-36-90-5-W6 PAGE No. 1

LOCATION _____

ELEVATION 2665 DEPTH 149 ELEV. TOP ORE 2546

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	119.0	Glacial till - brown and grey clays.													Completed 25 January 1962
119.0		Top ore zone.													
119.0	124.0	Black. Fine grained. Densely oolitic. Matrix 25%, black glassy cement, clay ironstone pebbles, lrregular fracture. H-4, No oxidation. 95% core recovery.	119.0	124.0	38.47			22.49							
124.0	129.0	Black. Fine grained. Densely oolitic. Matrix 25%, black glassy cement, clay ironstone pebbles and blue silt. lrregular fracture. H-4. No oxidation. 90% core recovery.	124.0	129.0	36.03			25.86							
NOTE:		At 132.3' fossil wood in part turned to coal and wood fibres in part have been replaced by marcasite. Growth rings, radial structure and longitudinal fibers all easily discernible.													
129.0	134.0	Black. Fine grained. Densely oolitic. Matrix 25%, blue silt, black glassy cement and clay ironstone pebbles. Irregular fracture. No oxidation, 100% core recovery.	129.0	134.0	35.38			27.13							
134.0	137.0	Blue black. Fine grained. Medium to densely oolitic. Matrix 30%, blue silt, glassy cement and clay ironstone pebbles. Irregular fracture, but much parting, core is in disks averaging 3/4" thick. H-3.5. No oxidation. 95% core recovery.	134.0	137.0	34.33			28.59							
137.0	139.0	Blue black. Medium grained. Medium oolite content. Matrix 50% blue silt, glassy cement, clay ironstone pebbles. Irregular fractures with parting as in above section. H-3. No oxidation. 90% core recovery.	137.0	139.0	31.16			32.72							
139.0	144.0	Blue black. Medium grained. Moderately oolitic. Matrix 70%, blue silt, glassy cement, clay ironstone pebbles, some pale grey green material. Earthy fracture with parting still evident. H-2.5. No oxidation. 60% core recovery.	139.0	144.0	28.24			33.68							
144.0	146.2	Blue black. Medium grained, Moderately oolitic. Matrix 70% blue silt, glassy cement, clay ironstone pebbles, some very fine silica grains. Irregular fracture. H-2.5. No oxidation. 90% core recovery.	144.0	146.2	27.92			34.90						36.24% / 18' OR 33.74% / 26.8'	
146.2	146.8	Blue grey. Fine grained. Moderate to sparsely oolitic. Matrix 80%, white silica cement, some glassy cement, much silt. Irregular fracture. H-4, with high tensile strength. No oxidation. 90% core recovery.	146.2	146.8	24.83			22.40							
146.8	149.0	Blue shale, sand grains, extremely rare oolites and black glassy cement, some very fine marcasite.													
		COMPOSITE SAMPLE			33.67	.674	.17	27.50	4.48	.115	12.93	1.97	1.24		

App. C-3

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HOLE No. 16-36-90-5W6

DRILL LOG

LOCATION 16-36-90-5W6

ELEVATION 2653.1 DEPTH 138' ELEV. TOP ORE 2540.1

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	113.0	Brown glacial clay till													Completed 26 January 1961
113.0		Top ore zone.													
113.0	114.1	Lost core, thoroughly oxidized and very soft and sandy traces of ore only.													
114.1	119.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, some silt. Irregular fracture, H-4. No oxidation. 100% core recovery.	114.1	119.0	37.93			24.13							
119.0	124.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, some silt. Irregular fracture, H-4. No oxidation. 100% core recovery.	119.0	124.0	36.32			26.68							
124.0	129.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, silt and clay ironstone pebbles. Irregular fracture. H-4. No oxidation 80% core recovery.	124.0	129.0	35.51			26.23						35.84% / 19.9' OR 34.43% / 23.9'	
129.0	134.0	Blue black. Medium grained. Matrix 40-50% blue silt, glassy cement and clay ironstone pebbles. Irregular fracture. H-3.5. No oxidation. 90% core recovery.	129.0	134.0	33.65			28.32							
134.0	136.0	Blue black. Medium grained. Medium oolite content. Matrix 50% blue silt, glassy cement, clay ironstone pebbles, some grains of sand, mostly qtz. Irregular fracture. H-3. No oxidation. 90% core recovery.	134.0	136.0	28.17			35.18							
136.0	138.0	Blue black. Fine grained. Moderately oolitic. Matrix 60% blue silt, bituminous like cement, some clay ironstone pebbles, some sand grains (qtz.). Irregular fracture - crumbles readily. H-1.5. No oxidation. 70% core recovery.	136.0	138.0	26.63			36.68							
		This hole did not reach bottom of ore zone.													
		COMPOSITE SAMPLE			34.14	.701	.19	27.27	5.10	0.74	12.92	1.79	1.15		

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App. C-4

HOLE No. 3-6-91-4-W6

DRILL LOG

LOCATION 3-6-91-4-W6

HOLE No. 3-6-91-4-W6 PAGE No.

ELEVATION 2690 DEPTH 170' ELEV. TOP ORE nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	5'	Brown Clay	0	5'											This hole drilled into erosion channel.
5'	25'	Pea gravel with sand	5'	25'											Completed 4 January 1961
25'	135'	Silty clay, some sand	25'	135'											
135'	170'	Hard silty shale	135'	170'											

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App. C-5

HOLE No. 4-6-91-4W6

DRILL LOG

HOLE No 4-6-91-4W6 PAGE No. 1

LOCATION 4-6-91-4W6, 325' W of centre of LSD 4 ELEVATION 2635.5 DEPTH 119.6 ELEV. TOP ORE 2541.0

completed 11 March 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	12'	Brown sandy clay some boulders													
12'	94.1	Sticky blue glacial clay													
94.1	94.7	Blue sandstone with silt													
94.7	96.5	Dark brown, medium grained. Medium oolite content. Matrix 40%: blue silt, rust, clay ironstone pebbles. Irregular fracture. H 1 1/2 Well oxidized. 90% core recovery	94.7	96.5	31.34			25.83							
96.5	101.5	Dark brown to black. Fine grained. Densely oolitic. Matrix 25%: rust, clay-ironstone pebbles, same black cement. Irregular fracture. H-3. Slightly oxidized. 90% core recovery.	96.5	101.5	34.56			24.56							
101.5	106.5	Black. Fine grained. Densely oolitic. Matrix 25%: black glassy cement, clay-ironstone pebbles, rare sand grains, small blebs blue silt, rare thin lense of blue silt. Irregular fracture, but some thick wafering of core (3/4" to 2"). H-3 1/2. No oxidation. 90% core recovery	101.5	106.5	34.40			25.25						34.00% / 11.8' OR 33.62% / 16.8'	
106.5	110.5	Blue black. Fine grained. Medium oolite content. Matrix 40%. blue silt in many thin seams and lenses and also in blebs, clay-ironstone pebbles, black cement. Irregular fracture H-3 Slight oxidation. 95% core recovery	106.5	110.5	30.62			29.74							
110.5	115.5	Blue-black, medium grain. Moderately oolitic Matrix 70%: blue silt in thin seams, clay ironstone pebbles, some black cement, some sand grains. Irregular fracture. H-3 1/2. No oxidation. 100% core recovery.	110.5	111.5	31.26			29.97							
115.5	118.0	Blue black. Medium grain. Sparsely oolitic. Matrix 90%: Blue silt, sand grains, clay ironstone pebbles, some black cement. Irregular fracture H-3 1/2. No oxidation - 100% core recovery													
118.0	119.6	Soft blue sandstone very rare oolites.													

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App. C-6

DRILL LOG

HOLE No. 5-6-91-4-W6

HOLE No. 5-6-91-4-W6 PAGE No. 1

LOCATION 5-6-91-4-W6

ELEVATION 2607.12 DEPTH 100' ELEV. TOP ORE Nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12'	Brown sandy clay, some boulders													Completed 10 March 1961
12'	70'	Sticky blue clay													
70'	100'	Grey silty clay													
		No intersection.													

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App. C-7

HOLE No. 6-6-91-4-W6

DRILL LOG

LOCATION 6-6-91-4-W6
150' E of center of LSD

HOLE No. 6-6-91-4-W6 PAGE No.

ELEVATION 2649 DEPTH 122' ELEV. TOP ORE 2537

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	112	Glacial Till - Brown and grey clays													This hole considered to be near eastern edge of ore deposition.
112.0'		Top ore zone													completed 3 January 1961
112.0'	112.4'	Dark brown. Medium texture. Moderate to sparsely oolitic. About 80% sand and blue silt. Irregular fracture. H 2.5. Slightly oxidized. 100% core recovery.													
112.4'	114.0'	Blue grey. Coarse texture. Very sparsely oolitic. 95% blue silt with some sand. Earthy fracture. H-2. Not oxidized. 95% core recovery.													
114.0'	122'	Blue shale - 90% core recovery													

App. C-8

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HOLE No. 7-6-91-4-W6

DRILL LOG

HOLE No. 7-6-91-4-W6 PAGE No.

LOCATION 7-6-91-4-W6

ELEVATION 2711 DEPTH 200' ELEV. TOP ORE nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	76'	Soft sticky blue clay													This hole considered to be east of ore deposition limit.
76'	200'	Hard grey shale. Some minor rust @ 174'													completed 3 January 1961

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App. C-9

HOLE No. 11-6-91-4W6

DRILL LOG

LOCATION 11-6-91-4W6

HOLE No. 11-6-91-4W6 PAGE No. ✓

ELEVATION 2628 DEPTH 130' ELEV. TOP ORE nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	89'	Sticky clay.													This hole drilled into erosion channel.
89'	94'	Cement gravel (young conglomerate)													Completed 4 January 1961
94'	130'	Hard silty shale.													

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App. C-10

HOLE No. 1-1-91-5-W6

DRILL LOG

HOLE No. 1-1-91-5-W6 PAGE No. 1

LOCATION

ELEVATION 2639.5 DEPTH 118.5 ELEV. TOP ORE 2551.0

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	88.5'	Glacial Till - brown and grey clays													completed 26 January 1961
88.5'		Top ore zone													
88.5'	93.5'	Black, fine grained. Densely oolitic. Matrix 25% blue silt, glassy cement, clay ironstone pebbles, irregular fracture, much thin wafering of core. H-3. No oxidation. 35% core recovery.	88.5'	93.5'	36.08			22.75							
93.5'	98.5'	Black. Fine grained. Densely oolitic. Matrix 20% glassy cement some clay, ironstone pebbles. Irregular fracture with some wafering of core. H - 4. No oxidation. 100% core recovery.	93.5'	98.5'	36.85			25.20							
98.5'	103.5	Black. Fine grained. Densely oolitic. Matrix 25% blue silt, glassy cement some clay ironstone pebbles. Irregular fracture, core is intensely wafered. H-4. No oxidation. 100% core recovery.	98.5'	103.5	36.68			26.45							
103.5	108.5	Black. Fine grained. Densely oolitic. Matrix 25% blue silt, glassy cement some clay ironstone pebbles. Irregular fracture very heavily wafered. H - 3.5. No oxidation. 100% core recovery.	103.5	108.5	35.22			27.38							
108.5	111.0	Black. Fine grained. Dense to medium oolite content. Matrix 35% blue silt, glassy cement, clay ironstone pebbles, Irregular fracture, slight wafering. H-3.5. No oxidation. 100% core recovery.	108.5	111.0	30.11			29.11							
111.0	113.5	Blue black. Medium grained. Medium oolite content. Matrix 50% blue silt, glassy cement, clay ironstone pebbles. Irregular to earthy fracture. H - 2.5. No oxidation. 100% core recovery.	111.0	113.5	28.00			31.27							
113.5	115.5	Blue black. Mediume grained. Moderate to sparsely oolitic. Matrix 80-90%, blue silt, some glassy cement, some clay ironstone pebbles. Irregular to earthy fracture. H-2.5. No oxidation. 100% core recovery.	113.5	115.5	26.46			33.09							
115.5	116.5	Blue gray, Medium grained. Very rare oolites. Matrix 80-90%. Blue silt, some glassy cement, some clay ironstone pebbles. Irregular to earthy fracture. H-2.5. No oxidation. 100% core recovery.												36.21% / 20' OR 34.16% / 27.0'	
116.5	118.5	Blue Shale													
		COMPOSITE SAMPLE			33.76	.708	.13	26.36	4.80	.064	13.75	2.15	1.04		

App. C-11

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HOLE No. 2-1-91-5W6

DRILL LOG

HOLE No. 2-1-91-5W6 PAGE No. 1

LOCATION 2-1-9-15W6

ELEVATION 2645.3 DEPTH 122.8' ELEV. TOP ORE 2552.3

Completed 7 March 1961

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15'	Sandy clay and boulders													
15	85'	Sticky grey clays with sand and sticky blue clay													
85	92.8	Hard grey clay shale													
92.8	93.0	Hard grey sandstone, silica cement, H-4 1/2													
93.0	98.0	Black to greenish black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles, some blue green minerals. Irregular fracturing much wafering with wafers 1/8" to 1" thick. H-4. Some oxidation. 100% core recovery.	93.0	98.0	37.35			22.19							
98.0	103.0	Dark grey to deep black. Fine grained. Densely oolitic. Matrix 25% black glassy cement clay ironstone pebbles, some silt pebbles with rare oolites contained in them. Irregular fracture, in wafers generally 1/8" thick. some are 1/2" thick. H-4. Very slight oxidation. 95% core recovery.	98.0	103.0	37.54			22.53							
103.0	108.0	Black. Fine grained. Very densely oolitic. Matrix 20%. black glassy cement, clay ironstone pebbles, waxey greenish-yellow to peacock blue minerals. Irregular fracture and generally in very thin wafers. H-4. No oxidation. 95% core recovery.	103.0	108.0	37.65			22.37							
108.0	113.0	Blue black. Fine to medium grain. Medium to densely oolitic. Matrix 35 - 40% black cement. Dark blue silt in small masses and lenses, clay ironstone pebbles. Irregular fracture . No wafers. H-3 1/2. No oxidation. 100% core recovery	108.0	113.0	33.53			28.25							
113.0	115.0	Blue black. Medium grain. Medium oolite content. Matrix 50% blue silt, black cement, clay ironstone pebbles. Irregular fracture some wafers to 3/4" thick. H-3. No oxidation. 100% core recovery.	113.0	115.0	32.57			27.95							
115.0	117.0	Blue black. Medium grain. Moderate oolite content. Matrix 65% blue silt, black cement, bronze marcasite or pyrrhotite replacing cement and making halo around oolites. clay ironstone pebbles, yellow ochre fragments	115.0	117.0	30.01			31.22							
115.8	117.0	(Cont'd.) Irregular fracture, thin wafers 1/8" to 1/2" thick. H-3. No oxidation. 100% core recovery												36.16% / 22.0'	
117.0	119.5	Dark blue, medium grain. Sparsely oolitic. Matrix 90% blue silt, some black cement, clay ironstone pebbles and quartz grains - a very little marcasite. Irregular fracture, wafers 5/8" thick. H-3. No oxidation. 100% core recovery.	117.0	119.5	27.46			33.16						OR 34.87% / 26.5'	
119.5	121.4	Dark blue, very silty sandstone with rare oolites and traces of black cement. H- 2 1/2.													
121.4	122.8	Grey blue silty sandstone with oolite-like sized and shaped ovate globules of a soft dove grey to tan grey color - these spheroids are not covered with concentric layering however, there is a certain amount of black cement with these globules. H-2 1/2. No oxidation. 100% core recovery													
		COMPOSITE SAMPLE			34.96	.713	.19	2502	4.83	.121	14.25	2.11	1.15		

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HOLE No. 4-1-91-5W6

DRILL LOG

HOLE No. 4-1-91-5W6 PAGE No. 1

LOCATION 4-1-91-5W6

ELEVATION 2682 DEPTH 157' ELEV. TOP ORE 2555.0

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	30	Brown clay													Completed 6 February 1961
30	127'	Sticky blue clay with boulders, especially from 50'-55' boulders are very tbickly distributed.													
127.0	132.0	Black. Fine grained. Densely oolitic. Matrix 30% clay ironstone pebbles, glassy cement, small masses of grey blue silt. Irregular fracture with some wafering of core where not wafered core is friable and broken. H-4. No oxidation. 50% core recovery	127.0	132.0	36.72			21.93							
132.0	137.0	Black. Fine grained. Densely oolitic. Matrix 30% clay ironstone pebbles, glassy cement, some silt. Irregular fracture core is friable and broken with a suggestion of wafers 1" thick, H-4. No oxidation. 55% core recovery	132.0	137.0	34.32			25.51							
137.0	142.0	Black. Fine grained. Densely oolitic. Matrix 30% Black glassy cement, clay ironstone pebbles, blue grey silt, some pale blue green mineral. Irregular fracture. H-4. No oxidation. 95% core recovery	137.0	142.0	31.13			28.06							
142.0	146.0	Blue black. Medium grained. Medium to densely oolitic. Matrix 40% clay ironstone pebbles blue silt, glassy cement and pale blue green mineral. Irregular fracture. H-3.5 No oxidation. 90% core recovery	142.0	146.0	28.58			29.16						34.05% / 15' OR 32.00% / 21.9'	
146.0	147.0	Blue black. Medium grained. Medium oolite content. Matrix 50% blue silt in fairly large masses, clay ironstone pebbles, some glassy cement. Irregular fracture. H-3.5. No oxidation. 100% core recovery	146.0	147.0	27.30			34.86							
147.0	148.9	Blue black. Medium grained. Moderately oolitic. Matrix 70%. blue silt, clay ironstone pebbles, bituminous-like cement, rare sand grain (qtz) Irregular fracture. H-3. No oxidation. 100% core recovery	147.0	148.9	25.54			35.32							
148.9	151.1	Blue black. Medium grained. Sparsely oolitic. Matrix 85% blue silt, black bituminous-like cement, clay ironstone pebbles and sand grains with much silica. Irregular fracture with wafering of core 1/8" to 3/4" thick. H-2.5. No oxidation 100% core recovery	148.9	151.1	23.31			37.09							
151.1	152.4	Blue black. Fine grained. Sparsely oolitic. Matrix 90% blue silt, black bituminous-like cement, sand grains and clay ironstone pebbles. Irregular fracture with some wafering. H-2 No oxidation. 100% core recovery.	151.1	152.4	21.87			42.89							
152.4	153.0	Grey blue. Medium grained. Rare oolites. Silty shale with small pebbles and many sand grains largely qtz. Rare speck of marcasite, Irregular fracture. H-2.5. No oxidation. 100% core recovery													
153.0	157.0	Blue shale													
		COMPOSITE SAMPLE			32.98	.681	.14	28.47	5.04	.033	13.65	1.87	.91		

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HOLE No. 5-1-91-5W6

DRILL LOG

HOLE No. 5-1-91-5W6 PAGE No.

LOCATION 5-1-91-5W6 ELEVATION 2635 DEPTH 111 ELEV. TOP ORE 2554.0

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos	Mang.	Silica	Alum	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown clay													completed 8 February 1961
15'	81'	Sticky blue clay													
81.0	83.0	Black, fine grained, densely oolitic. Matrix 25% black glassy cement and clay ironstone pebbles. Irregular fracture. H-4. Very slight oxidiation 90% core recovery	81.0	83.0	38.63			22.59							
83.0	85.4	Black and fine grained or rusty and mud-like, densely oolitic. Matrix 20% black glassy cement and clay ironstone pebbles where not oxidized. Irregular fracture. H-4, 50% of sample length is composed of three sections of thoroughly oxidized ore. 90% core recovery	83.0	85.4	38.71			22.48							
85.4	90.4	Black. Fine grained. Densely oolitic, Matrix 25% opalescent very shiney cement, black glassy cement, clay ironstone pebbles and some silt-stone pebbles (very soft). Irregular fracture. H-4. No oxidation. 95% core recovery	85.4	90.4	38.55			22.94							
90.4	95.4	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles, some silt. Irregular fracture. H-4 No oxidation. 90% core recovery	90.4	95.4	39.01			22.86						37.44% / 23.6' OR 36.46% / 26.3'	
95.4	100.4	Black. Fine grained. Densely oolitic, Matrix 30% blue silt, black glassy cement, clay ironstone pebbles. Irregular fracture. H-4 No oxidation. 90% core recovery	95.4	100.4	37.12			23.52							
100.4	104.6	Black. Fine grained. Medium to densely oolitic. Matrix 35%, blue silt in small masses, glassy cement, clay ironstone pebbles. Irregular fracture. H-3.5, No oxidation. 100% core recovery	100.4	104.6	33.37			27.19							
104.6	105.1	Blue black, fine grained. Medium oolite content Matrix 55% blue silt in small masses, glassy cement, clay ironstone pebbles and qtz. sand grains. Irregular fracture. H-3. No oxidation 100% core recovery	104.6	105.1	28.42			32.68							
105.1	106.2	Blue black. Medium grained. Moderately oolitic Matrix 75% blue silt, bituminous-like cement, clay ironstone pebbles, qtz. sand grains. Irregular fracture. H-3. No oxidation 100% core recovery	105.1	106.2	28.82			33.69							
106.2	107.3	Blue black. Medium grained. Sparsely oolitic, Matrix 90% blue silt some bituminous-like cement, clay ironstone pebbles, sand grains with qtz. Irregular fracture. H-2.5 No oxidation. 100% core recovery	106.2	107.3	26.58			36.28							
107.3	108.5	Blue black, medium grained. rare oolites. Matrix blue shale. Irregular fracture. H-2.5 No oxidation - 100% core recovery													
108.5	111.0	Blue shale													
		COMPOSITE SAMPLE			36.06	.691	.19	24.44	4.59	.060	13.70	1.94	1.01		

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HOLE No. 6-1-91-5W6

DRILL LOG

LOCATION 6-1-91-5W6

HOLE No. 6-1-91-5W6 PAGE No. 1

ELEVATION 2629.3 DEPTH 109.4 ELEV. TOP ORE 2549.9

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12	Brownish sand, gravel and clay													completed 8 March 1961
12	79.4	Sticky blue clay													
79.4	84.4	Brown to black. Fine grained. Densely oolitic Matrix 40% black cement, rust, some clay ironstone pebbles. Irregular fracture mud-like consistency. H-1 oxidized 100% core recovery.	79.4	84.4	37.52			23.50							
84.4	89.4	Brownish black. Fine grained. Densely oolitic Matrix 25% black cement clay ironstone pebbles and rust. Irregular fracture H-1 1/2 - 2. Oxidized, 100% core recovery.	84.4	89.4	36.54			24.58							
89.4	94.4	Black. Fine grained. Very densely oolitic. Matrix 20% black cement, clay ironstone pebbles rare very small nodules of blue black silt. Irregular fracture but core is in part broken and crushed. H-2 1/2 - 4 slight oxidation. 90% core recovery	89.4	94.4	35.60			26.47							
94.4	99.4	Brownish black. Fine grain. Densely oolitic. Matrix 30%. black cement, blue silt in small masses, clay ironstone pebbles. Irregular fracture and in very thin wafers, 1/16" to 3/8" thick. H-1 1/2, some oxidation. 95% core recovery.	94.4	99.4	34.76			27.45							
99.4	102.9	Blue black. Medium grain. Medium oolite content, matrix 50% blue silt in fairly large masses, black cement, clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 100% core recovery.	99.4	102.9	29.03			32.62							
102.9	105.0	Blue black medium to coarse grain. Moderate oolite content. Matrix 70% blue silt in large masses and lenses, clay ironstone pebbles, qtz. grains. Irregular fracture. H-3. No oxidation. 100% core recovery.	102.9	105.0	26.78			37.06							
105.0	107.0	Blue black. Fine to medium grain, silty sandstone, with sparse oolites and some black bituminous-like cement. In wafers 1/4 - 3/4" thick H-2 no oxidation - 100% core recovery.													
107.0	109.0	Dark blue. Silty sandstone with rare oolites. traces of black cement.													
109.0	109.4	Blue silty sandstone												36.10% / 20.0'	
		COMPOSITE SAMPLE			34.60	.697	.16	26.90	5.23	.058	13.52	2.01	1.12	OR 34.37% / 25.6'	

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HOLE No. 7-1-91-5W6

DRILL LOG

HOLE No. 7-1-91-5W6 PAGE No. 1

LOCATION 7-1-91-5W6 ELEVATION 2629.3 DEPTH 110.6 ELEV. TOP ORE 2548.7

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	12'	Brown sandy clay some boulders													Completed 8 March 1961
12'	80.6	Sticky blue clay													
80.6'	85.6	Brownish black. Fine grained. Densely oolitic. Matrix 25%. Black glassy cement clay ironstone pebbles, rust, some pale waxey yellow minerals Irregular fracture, ore broken and crushed. H-3 Oxidized 100% core recovery.	80.6	85.6	37.20			22.96							
85.6	90.6	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles blue silt in small masses. Irregular fracture ore is crushed and broken. H-4. No oxidation 85% core recovery.	85.6	90.6	37.06			23.95							
90.6	95.6	Blue black. fine grained. Dense to mode rately oolitic. Matrix 40%. blue silt, some black glassy cement, some clay ironstone pebbles, some bright green minerals. Irregular fracture with some wafers 3/4" thick. H-3 1/2. No oxidation 90% core recovery.	90.6	95.6	35.78			26.26						36.63% / 17.8'	
95.6	98.4	Blue black. Fine Grained. Medium oolite content. Matrix 50%, blue silt , black cement, clay ironstone pebbles. Irregular fracture. H-3 1/2. No oxidation. 100% core recovery.	95.6	98.4	36.36			25.37						OR 35.10% / 23.7'	
98.4	101.5	Blue black, fine grain. Moderately oolitic, Matrix 70% blue silt, black cement, clay ironstone pebbles, sand grains and some waxey yellow minerals. Irregular fracture. H-3. No oxidation. 95% core recovery.	98.4	101.5	31.37			30.92							
101.5	104.3	Black. Medium grain. Silty sandstone with sparse oolitic content. Matrix 90% some black cement some clay ironstone pebbles. Irregular fracture with wafers 1/2" thick. H-3. No oxidation 100% core recovery.	101.5	104.3	29.53			32.07							
104.3	106.2	Silty sandstone with rare oolites some black cement. 100% core recovery													
106.2	110.6	Grey shale with grit or very silty sandstone H-2													
		COMPOSITE SAMPLE			34.75	.720	.20	26.59	4.96	.050	13.70	2.25	1.29		

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App. C-16

HOLE No. 8-1-91-5W6

DRILL LOG

LOCATION 8-1-91-5W6

HOLE No. 8-1-91-5W6 PAGE No. 1

ELEVATION 2609.7 DEPTH 102.5 ELEV. TOP ORE 2524.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12'	Brown sandy clay - some boulders.													NOTE:- This hole near Eastern erosional edge of orebody. completed 10 March 1961
12	55'	Sticky blue clay - more boulders.													
55	85.2	Sticky grey clay.													
85.2	90.2	Blue and dark brown. Medium grain. Medium oolite content. Matrix 50% blue silt in large masses, clay ironstone pebbles, rust. Irregular fracture. H-3. Oxidized. 80% core recovery.													
90.2	93.2	Blue black. Medium grain. Moderate to sparsely oolitic. Matrix blue silt in large masses, some black cement, rare sand grains. Irregular fracture. H-3. Not oxidized. 100% core recovery.													
93.2	94.1	Dark blue. Medium grain, silty sandstone with rare oolites. H 1/2 no oxidation. 100% core recovery.													
94.1	102.5	Dark blue shale with grit or very silty soft-sandstone. 100% core recovery.													

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App. C-17

HOLE No. 9-1-91-5-W6

DRILL LOG

LOCATION 9-1-91-5-W6
290' N of Center of LSD

HOLE No. 9-1-91-5-W6 PAGE No.

ELEVATION 2591 DEPTH 79' ELEV. TOP ORE 2527

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	64'	Glacial Till - Brown and grey silty clays													completed 2 January 1961
64'		Top ore zone													
64'	69'	Blue black with rust. Irregular texture. Medium to moderately oolitic, Contains up to 45% blue silty shale, some pebbles, some sand grains. Shattered and crumbled H-2. Well oxidized. 55% core recovery	64'	69'	28.89			35.30							
69'	74'	Blue Black. Medium oolitic content. 40% blue silty shale. Shattered, crumbled and in part honeycombed. H-2, oxidized. 40% core recovery	69'	74'	28.90			28.31						28.89% / 10'	
74'	76.5'	No core recovery, presumably ore zone that is weathered and will not core.													
76.5'	79.0'	Blue shale													

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HOLE No. 10-1-91-5W6

DRILL LOG

LOCATION 10-1-91-5W6

HOLE No. 10-1-91-5W6 PAGE No. 1

ELEVATION 2580 DEPTH 75' ELEV. TOP ORE Nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	10'	Peaty muskeg soil													completed 9 March 1961
10'	14'	Sandy brown clay and boulders.													
14'	75'	Sticky blue clay.													
		Glacial till to bottom of hole at elevation 2505.													

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HOLE No. 11-1-91-5-W6

DRILL LOG

HOLE No. 11-1-91-5-W6 PAGE No. ✓

LOCATION 11-1-91-5-W6

ELEVATION 2611.4 DEPTH 95' ELEV. TOP ORE 2546.4

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	65'	Glacial Till consisting of brown and grey silty clays.													completed 1 January 1961
65'		Top ore zone													
65.0'	70.0'	Black with some rust coating. Fine texture Densely oolitic. Very little matrix material. Irregular fracture, core is broken and crumbled. Some slip planes are coated with rust others with a white limey deposit. H-4. Some oxidation. 75% core recovery	65.0'	70.0'	38.47			24.36							
70'	75.0'	Brownish black. Fine texture. Densely oolitic. Contains 5% blue silt, some light tan coloured material. Irregular fracture, core is fractured in part, some slip planes are rust coated. H-4. Some oxidation. 90% core recovery	70'	75.0'	37.25			25.06						35.88% / 20' OR 34.16% / 24.6'	✓
75.0'	80.0'	Black. Fine grained. Densely oolitic. 15% blue silt. Irregular fracture. Some slip planes rust coated. H-4. Slight oxidation. 85% core recovery	75.0'	80.0'	34.57			28.37							
80.0'	85.0'	Brownish black. Fine to coarse texture Densely oolitic. 20-25% blue silt and small pebbles. Irregular fracture, with some rusted slips @ 90° core axis. H-3.5. Some oxidation. 100% core recovery	80.0'	85.0'	33.24			24.35							
85.0'	88.0	Bluish black, coarse grained, medium oolitic content. 50% blue silt in small masses. Earthy fracture. H-2.5. somewhat oxidized along slip planes at 90° and parallel to core axis. 50% core recovery	85.0'	88.0'	27.88			32.40							
88.0'	89.6'	Greyish blue. Coarse grained. Sparsely oolitic. 80-90% blue silty shale. Earthy fracture. H-1.5 -2. Some oxidation. 100% core recovery	88.0'	89.6'	24.54			37.56							
89.6'	93.0	Greyish blue. Coarse grained. Very sparsely oolitic. More than 95% blue silty shale and sand grains. Earthy fracture.. H 1.5. No oxidation. 100% core recovery													
93.0'	95'	Blue shale fine grained and massive 100% core recovery													
		COMPOSITE SAMPLE			34.83	.658	.19	26.24	4.74	.107	14.05	2.16	1.17		

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App. C-20

DRILL LOG

HOLE No. 13-1-91-5W6 LOCATION 50' W of centre

HOLE No. 13-1-91-5W6 PAGE No. 1

ELEVATION 2601 DEPTH 80' ELEV. TOP ORE 2551.0

completed 3 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	20	Brown clay													
20'	50	Sticky blue clay some boulders													
50.0'	55.0	Rusty brown, fine grained. Densely oolitic. Matrix 25% rusty clay-like material, clay ironstone pebbles, some traces of black shiney cement. Very soft and crumbling. Thoroughly oxidized. 65% core recovery	50.0	55.0	37.29			22.65							
55.0	60.0	Black (but in part rusted). Fine grained. Densely oolitic. Matrix 25% glassy cement, some clay ironstone pebbles. Irregular fracture but some soft rusty clay-like material in short sections. H-3.5 where unoxidized. Much rust. 40% core recovery	55.0	60.0	34.08			25.64							
60.0	65.0	Black. Fine grained. Densely oolitic. Matrix 25% black cement and blue silt in small masses some clay ironstone pebbles. Irregular fracture H-3.5. Slightly oxidized along slip planes. 60% core recovery	60.0	65.0	36.01			26.27							
65.0	70.0	Blue black. Fine grained. Medium to densely oolitic. Matrix 40% blue silt and black cement with some clay ironstone pebbles. Irregular fracture. H-3.5. No oxidiation. 70% core recovery	65.0	70.0	33.27			29.41						35.16% / 20' OR 33.60% / 25.2'	
70.0	72.3	Blue black. Medium grained. Moderately oolitic. Matrix 70% blue silt, black glassy cement, clay ironstone pebbles, rare sand grain (qtz) earthy fracture. H-3 No oxidation. 95% core covery	70.0	72.3	30.22			33.83							
72.3	74.5	Blue black, Medium grained. Sparsely oolitic Matrix 85% blue silt, black bituminous-like cement, clay ironstone pebbles, sparse number of sand grains mostly qtz. Earthy fracture. H-2.5. No oxidation 95% core recovery	72.3	74.5	25.72			39.28							
74.5	75.5	Blue black. Medium grained. Sparsely oolitic. Matrix 90% blue silt, black bituminous-like cement, clay ironstone pebbles, sand grains (mostly qtz.) Earthy fracture. H-2.5. No oxidation. 100% core recovery	74.5	75.5	27.49			34.90							
75.5	75.7	Blue black. Medium grain, rare oolites. Matrix blue sandstone shale well crumbled. No oxidation.													
75.7	80.0	Blue sandstone, 55% core recovery.													
		COMPOSITE SAMPLE			35.01	.701	.18	26.46	4.74	.048	13.20	2.03	.94		

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App. C-21

HOLE No. 2-2-91-5W6

DRILL LOG

LOCATION 40'S & 100'W of Centre of LSD

HOLE No. 2-2-91-5W6 PAGE No.

ELEVATION 2695 DEPTH 178' ELEV. TOP ORE 2550.7 ✓

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	144	Glacial Till - Brown and grey silty and sand clays.													completed 8 january 1961
144.0		Top ore zone													
144.0	144.3	Blue silty clay.													
144.3	147.0	Brownish black. Fine to medium grained, densely oolitic 15-20% fine sand grains and ironstone pebbles, some blue silt. Irregular fracture. H-3.5 very little oxidation 100% core recovery	144.3	147.0	40.50			17.22							
147.0	152.0	Black. Fine grained. Very densely oolitic. 10% glassy cement and pale green chamosite, very occasional ironstone pebbles. Irregular fracture but some jointing planes and bedding shows strongly in this section. H-4. No oxidation. 100% core recovery	147.0	152.0	41.23			20.89							
152.0	157.0	Black. Fine grained. Densely oolitic. 20% glassy cement and pale green chamosite. Fracture irregular but bedding planes still strongly evident. These planes are slightly distorted and are concave. H.4 No oxidation 100% core recovery	152.0	157.0	39.04			23.79							
157.0	162.0	Black. Fine grained. Densely oolitic. 25% blue silt, pale green grey chamosite and glassy cement. Conchoidal fracture and no bedding. H-4. No oxidation. 100% core recovery	157.0	162.0	37.98			24.67							
162.0	166.0	Brown black. Medium grained. Medium to densely oolitic. 40% blue silt and ironstone pebbles some chamosite. Irregular fracture. H-4. Very slight oxidation. 100% core recovery	162.0	166.0	29.70			32.40						39.58% / 17.7'	
166.0	171.0	Blue black. Medium to coarse grained. Moderate to medium oolite content. 55-60% blue silt, ironstone pebbles and sand grains. Earthy fracture. H-3. No oxidation. 100% core recovery.	166.0	171.0	31.98			31.49						OR 36.68% / 26.7' ✓	
171.0	174.0	Blue black. Coarse grained. 90-95% blue silt, light sand grains including some qtz. grains, some chamosite particles. Earthy fracture, some bedding evident. H-2.5. No oxidation but some erosion from water action apparent. 45% core recovery.													
174'	175'	Grey blue shale. Coarse grained. Rare oolite seen. Blue silt, sand grains and water rounded pebbles. Earthy fracture. H-2.5. No oxidation 100% core recovery													
175'	178'	Silty blue grey shale with occasional pebble.													
		Composite Sample			37.11	.570	.17	22.09	4.94	.058	13.88	1.34	1.00		

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App. C-22

HOLE No. 3-2-91-5-W6

DRILL LOG

HOLE No. 3-2-91-5W6 PAGE No. 1

LOCATION 3 - 2 - 91 - 5 W 6
35' N. & 20' E. of centre of LSD

ELEVATION 2685.1 DEPTH 156.4 ELEV. TOP ORE 2560.0

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	125.1'	Glacial Till - brown and grey silty clays.													completed in December 1960
125.1'		Top ORE Zone													
125.1'	130.1'	Black. Fine grained. Densely oolitic. Few specks of silt and grains of sand. Irregular fracture. H. 3.5. No oxidation. 90% core recovery.	125.1'	130.1'	38.36			20.56							
130.1'	135.1'	Black. Fine grained. Densely oolitic. Few specks light grains of sand a little silt. Irregular fracture but bedding planes at very slight angle off 90° to core axis. Some jointing fracture aligned with core. H. 3.5. No oxidation. 95% core recovery.	130.1'	135.1'	38.47			24.34							
135.1'	140.1'	Black, fine grained, densely oolitic. Few grains of sand, smooth fracture. H. 4. No oxidation. 100% core recovery.	135.1'	140.1'	37.66			25.49							
140.1'	144.2'	Dark brown, medium texture. Densely oolitic, contains 20% blue silt in small patches and also occasional grain of sand. Irregular fracture H. 3. Slightly oxidized, 100% core recovery.	140.1'	144.2'	34.25			27.81							
144.2'	147.3'	Greenish black. Coarse texture. Moderate to medium oolitic content. Up to 50% blue silt with also some small pebbles or coarse rounded sand. Earthy fracture. H. 2.5. Not oxidized. 100% core recovery.	144.2'	147.3'	28.57			33.45							
147.3'	149.0'	Dark grey. Coarse texture sparse to moderate oolite content. 70% to 90% blue grey silt with brownish sand particles. Earthy fracture. H.2. Not oxidized. 95% core recovery.	147.3'	149.0'	24.43			35.43							
149.0'	150.0'	Blue grey, coarse texture, sparsely oolitic. 90 - 95% blue silt with added sand particles. Earthy fracture. H. 2. Not oxidized. 95% core recovery.	149.0'	150.0'	22.07			44.07						36.10% / 22.2' OR 34.11% / 25.9'	
150.0'	151.0'	Greyish blue green. Coarse grained. Almost wholely blue green shale. Earthy fracture H. 1.5 - 2. Not oxidized. 100% core recovery.	150.0'	151.0'	18.50			49.53							
151.0'	End	Grey blue silty shale about 80% sandy shale with some brown grains - 20% blue silt in small masses.													
		COMPOSITE SAMPLE			36.01	.709	.20	25.63	5.58	.066	13.83	1.98	1.09		

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App. C-23

HOLE No. L.S. 4-2-91-5-W6

DRILL LOG

HOLE No. L.S.4-2-91-5W6 PAGE No. _____

LOCATION L.S. 4-2-91-5W6

ELEVATION 2694.4 DEPTH 160' ELEV. TOP ORE 2559.4

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	10	Muskeg													completed 16 january 1961
10	20	Brownish glacial clay till													
20	30	Grey clay till- little grit													
30	100	Grey clay till, some grit													
100	135	Gritty grey clay till													
135		Top ore zone													
135.0	140.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, ironstone pebbles and a little silt. Irregular fracture. H-4. No oxidation. 95% core recovery	135.0	140.0	40.42			20.49							
140.0	145.0	Black. Fine grained. Densely oolitic. Matrix 20% glassy cement, some silt, some ironstone pebbles. Irregular fracture. H-4. No oxidation 100% core recovery	140.0	145.0	35.22			24.21							
145.0'	149.5	Blue black. Fine grained. Medium to densely oolitic. Matrix 30-40% blue silt, glassy cement, some pebbles. Irregular fracture. H-3.5. No oxidation. 100% core recovery	145.0	149.5	34.41			28.92							
149.5'	153.0	Blue black. Medium grained. Moderately to medium oolite content. Matrix 60% blue silt, glassy cement and pebbles. Earthy fracture. H-3. Very little oxidation. 85% core recovery	149.5'	153.0	27.59			35.63							
153.0	155.9	Blue black. Medium grained sparsely oolitic. Matrix 85% blue silt, sand grains and pebbles, some cement. Earthy fracture. H 2.5. No oxidation. 45% core recovery	153.0	155.9	24.35			40.60						36.76% / 14.5'	
155.9	160	Hard grey shale, some sand grains, occas. rare specks marcasite.												OR	
														33.50% / 20.9'	✓
		COMPOSITE SAMPLE			35.23	.673	.16	26.42	4.83	.061	13.74	1.83	.96		

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HOLE No. 5-2-91-5W6

DRILL LOG

HOLE No. 5-2-91-5W6 PAGE No. 1

LOCATION 5 - 2 - 91 - 5 W 6

ELEVATION 2674.5' DEPTH 145' ELEV. TOP ORE 2559.5'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	9	Muskeg													complete 14 january 1961
9	37	Brown to grey glacial till clay.													
37	50	Grey clay glacial till.													
55	81	Sticky grey clay glacial till. At 81 - 6 inches gravel?													
81	115	Grey clay glacial till, sticky.													
115	119	Broken OOlitic iron formation and clay.													
119'		Top of ORE Zone													
119.0'	124.0'	Black. Fine grained. Very densely oolitic. Matrix 20% glassy cement, ironstone pebbles, silt nodules. Irregular fracture, some undulating partings at 90° to core axis. H. 4. No oxidation. 100% core recovery.	119.0'	124.0'	40.82			22.50							
124.0'	129.0'	Black. Fine grained. Very densely oolitic. Matrix 15 - 20% glassy cement with occasional silt nodule. Irregular fracture. H. 4. No oxidation. 100% core recovery.	124.0'	129.0'	38.47			24,58						36.59% / 19.9' OR 35.98% / 21.0'	
129.0'	134.0'	Black. Fine grained. Very densely oolitic. Matrix 20% glassy cement some silt. Irregular fracture. H. 4. No oxidation. 60% core recovery.	129.0'	134.0'	36.03			27.76							
134.0'	137.0'	Blue black, medium to coarse grained. Moderately colitic. Matrix 70% blue silt, some pebbles and sand grains, some glassy cement. Earthy fracture. H. 2.5. No oxidation. 95% core recovery.	134.0'	137.0'	32.63			34.18							
137.0'	138.9'	Blue black. Coarse grained. Sparsely oolitic. Matrix 80 - 85%, blue silt, some cement, some pebbles and sand grains. Earthy fracture. H. 2. Some oxidation. 100% core recovery.	137.0'	138.9'	28.32			36.66							
138.9'	140.0'	Blue black. Coarse grained. Very sparsely oolitic. Matrix 90- 95% blue silt, sand grains and pebbles. H. 2. 100% core recovery.	138.9'	140.0'	24.92			39.47							
140.0'	145.0'	Grey blue. Medium grained. Impure sandstone or sandy shale.													

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HOLE No. 5-2-91-5W6

DRILL LOG

HOLE No. 5-2-91-5W6 PAGE No. 2

LOCATION 5-2-91-5W6

ELEVATION 2674.5' DEPTH 145' ELEV. TOP ORE 2559.5'

SAMPLES			ANALYSIS										
From	To	DESCRIPTION	From	To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
		COMPOSITE SAMPLE			36.35	.696	.17	30.16	4.51	.099	13.20	1.97	1.01		

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HOLE No. 6-2-91-5-W6

DRILL LOG

HOLE No. 6-2-91-5-W6 PAGE No. 1

LOCATION 6 - 2 - 91 - 5 - W 6
10' N. & 5' W of centre of LSD

ELEVATION 2662.4 DEPTH 131.9' ELEV. TOP ORE 2560.5

completed 31 December 1960

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	101.9'	Glacial Till - Brown and grey silty clays.													
101.9'		Top of ORE zone.													
101.9'	102.9'	Very soft, no core recovered.													
102.9'	107.9'	Black. Fine texture. Densely oolitic. (95%) Contains a few grains sand and some pale grey green crystals (chamosite?). Fracture smoothly conchoidal, some jointing planes. H. 4. No oxidation. 100% core recovery.	102.9'	107.9'	41.71			18.69							
107.9'	112.9'	Brownish black. Fine texture. Densely oolitic. Contains occasional sand grains, and also a few pale grey green crystals. Irregular fracture, some jointing slips. H. 4. A little oxidation. 95% core recovery.	107.9'	112.9'	40.82			22.66							
112.9'	117.9'	Brownish black. Fine texture. Densely oolitic. Some very fine sand grains, some occasional patches of blue silt. Irregular fracture. H. 4. Very slight oxidation. 95% core recovery.	112.9'	117.9'	36.83			25.64							
117.9'	122.9'	Brownish black. Fine texture. Densely oolitic. Some fine sand and perhaps 10% fine silt in occasional small blebs and also an occasional pebble. Irregular fracture. H. 4. Slight oxidation. 100% core recovery.	117.9'	122.9'	36.28			27.84							
122.9'	125.0'	Blue black. Medium texture. Medium oolitic. Contains 35% blue silt in irregular blebs and seams. Earthy fracture. H. 3. Not oxidized. 100% core recovery.	122.9'	125.0'	31.25			32.36						36.10% / 27.1' OR 35.48% / 29.0'	
125.0'	128.0'	Blue black. Coarse grained. Moderately oolitic. Blue silt with sand grains. Earthly fracture. H. 2.5. No oxidation. 95% core recovery.	125.0'	128.0'	27.27			36.54							
128.0'	130.0'	Blue black. Coarse texture. Sparsely oolitic (15%). 65% blue silt, 10% sand grains. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.	128.0'	130.0'	26.46			37.23							
130.0'	131.0'	Grey blue. Coarse grained. Sparsely oolitic (10%). 80% blue silt. 10% sand and ironstone particles. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.	130.0'	131.0'	26.62			37.85							
131.0'	131.9'	Grey blue silty shale with some sand and occasional oolite.													
		COMPOSITE SAMPLE			36.65	.670	.14	21.93	4.93	.081	14.71	2.29	1.21		

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HOLE No. 7-2-91-5-W6

DRILL LOG

HOLE No. 7-2-91-5-W6 PAGE No. 1

LOCATION 7 - 2 - 91 - 5 - W 6
10' S. & 5' E. of centre of LSD

ELEVATION 2669' DEPTH 159' ELEV. TOP ORE 2551.0'

completed 7 January 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	118'	Glacial Till - brown and grey clays.													
118'		Top Ore Zone.													
118.0 5	123.0' 0	Black. Fine grained. Medium oolite content. Matrix 45 - 50% round ironstone pebbles from light rusty brown to dark chocolate brown. Black glassy cement between oolites and other particles. Irregular fracture. H. 3.5. No oxidation. 100% core recovery.	118.0'	123.0'	39.82		0	20.68							
123.0 5	128' 0	Dark grey. Fine grained. Medium to densely oolitic - split surface are black. 20 - 40% Matrix material as in above sample 32. Irregular fracture but parts readily on bedding planes at 90° to core axis. These surfaces undulate slightly. H. 3.5. No oxidation but some erosion due to water action. 100% core recovery.	123.0'	128.0'	39.25			22.76							
128.0 3	131.5' 5	Dark grey to black, black where split. Fine grained. Very densely oolitic. 5 - 10% glassy cement and a further 5 - 10% larger pale green particles. Fracture quite smooth with some vertical jointing slips noted. H. 4. No oxidation. 100% core recovery.	128.0'	131.5'	39.30			23.28						36.15% 29.0'	
131.5 5	136.5' 0	Black. Fine grained. Densely oolitic. 20% small ironstone pebbles, chamosite (?) fragments and dark blue silt. Fracture conchoidal. Some vertical slips. H. 4. No oxidation. 100% core recovery.	131.5'	136.5'	36.73			25.06						OR 35.75% 30.0'	
136.5 5	142.0' 5	Black. Medium grained. Moderate to medium oolite content. Matrix (60% made up of blue black silt in irregular masses and seams, fine to coarse brown sand grains and an occasional very small ironstone pebble. Fracture becoming earthy. H. 3. No oxidation. 100% core recovery.	136.5'	142.0'	34.95			26.55							

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App. C-28

HOLE No. 7-2-91-5-W6

DRILL LOG

HOLE No. 7-2-91-5-W6 PAGE No. 2

LOCATION 7 - 2 - 91 - 5 - W 6
10' S. & 5' E. of centre of LSD

ELEVATION 2669' DEPTH 159' ELEV. TOP ORE 2551.0'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
142.0'	142.5'	Black. Fine grained. Very densely oolitic. 20% translucent green grey cement and sand particles. Conchoidal fracture. H. 4. No oxidation. 100% core recovery.	142.0'	142.5'	34.57			27.87							
142.5'	144.5'	Dark grey to blue black. Coarse grained. Moderate to sparsely oolitic (20 - 25%). Remainder is blue silt in irregular small masses glassy cement, some sand grains and some small ironstone pebbles. Irregular fracture. H. 3. No oxidation. 100% core recovery.	142.5'	144.5'	29.70			32.51							
144.5'	146.0'	Blue grey with light specks. Coarse grained. Sparsely oolitic. 90% made up of blue silty shale and some coarse sand grains and some ironstone pebbles. Earthy fracture. H. 3. No oxidation. 95% core recovery.	144.5'	146.0'	25.32			40.86							
146.0'	147.0'	Speckled grey. Coarse grained. Sparsely oolitic. 90% blue silty shale and sand some ironstone pebbles. Earthy fracture. H. 3. No oxidation. 95% core recovery.	146.0'	147.0'	24.92			41.02							
147.0'	148.0'	Dark blue black. Medium grained. Sparsely oolitic. 90 - 95% blue silty shale. Irregular fracture with faint bedding apparent. H. 2.5. No oxidation. 95% core recovery.	147.0'	148.0'	24.18			41.38							
148.0'	153.0'	Dark blue grey. Coarse grained. Very sparsely oolitic - number of oolites diminishes with depth. Matrix is largely blue silty shale with sand and small pebbles. Irregular to earthy fracture. H. 2. No oxidation. 100% core recovery.													
153.0'	156.5'	Dark blue grey, fine grained, soft sticky silt.													
156.5'	159.0'	Grey. Fine grained. Hard silty shale.													
		Composite Sample			36.73	.576	.16	22.35	5.02	.072	13.60	1.64	.72		

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App. C-29

HOLE No. 8-2-91-5-W6

DRILL LOG

LOCATION 8 - 2 - 91 - 5 - W 6

HOLE No. 8-2-91-5-W6 PAGE No. 1

ELEVATION 2664.3' DEPTH 135.6' ELEV. TOP ORE 2556.4'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	107.5'	Glacial Till - Brown and grey clays.													Completed 21 December 1960
107.5'		Top ore zone.													
107.5'	107.9'	Hard grey shale.													
107.9'	109.3'	Dark brown, fine to medium texture. Moderately oolitic. Matrix: brownish sand grains, varicoloured pebbles to 1/8" diam., and small patches of dark grey silt. Fracture is irregular but gives faint effect of bedding at 90° to core axis. H. 2.5. Some oxidation. 100% core recovery.	107.9'	109.3'	35.35			19.72							
109.3'	110.5'	Brownish black to black. Fine texture. Densely oolitic. Contains some very small brown pebbles, well rounded. Irregular fracture. H. 1.5-2. No oxidation apparent. 100% core recover is presumed. Circulation lost here.	109.3'	110.5'	39.90			18.62							
110.5'	115.5'	Black, fine texture. Densely oolitic. 10 - 15% pebbles and silty material. Irregular fracture with suggestion of bedding. H. 4. No oxidation. 100% core recovery.	110.5'	115.5'	39.09			22.50							
115.5'	120.5'	Black. Fine texture. Densely oolitic. 5 - 10% silty material - tan to dark grey in color. Irregular fracture. H. 4. No oxidation. 100% core recovery.	115.5'	120.5'	38.44			24.16							
120.5'	125.5'	Black. Fine texture. Densely oolitic. Contains 10% small crystals or particles of material varying in colour from brown through white to olive. Irregular fracture. H. 4. Little oxidation. 100% core recovery.	120.5'	125.5'	36.33			27.52						36.63% / 23.6% OR 34.92% / 27.7'	
125.5'	129.5'	Brownish black. Fine texture. Densely oolitic. 10 - 15% brown sand grains and blue silt. Irregular fracture. H. 3. Some oxidation. 95% core recovery.	125.5'	129.5'	33.73			29.29							
129.5'	131.5'	Dark blue grey to black. Medium to coarse texture. Medium oolitic. Contains 40% blue grey silt. Earthy fracture. H. 2.5. Slight oxidation. 100% core recovery.	129.5'	131.5'	31.45			31.65							
		NOTE: Due to mechanical difficulties this hole did not penetrate to bottom of ore zone.													
131.5'	135.6'	Dark blue grey to black. Medium to coarse texture. Moderate to sparsely oolitic. Contains 70 to 80% blue grey silt with light grains of sand. Fracture earthy. H. 2. 100% core recovery.	131.5'	135.6'	25.11			39.24							
		Composite Sample			37.09	.714	.15	26.48	4.22	.042	14.33	1.44	.61		

App. C-30

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HOLE No. 9-2-91-5-W6

DRILL LOG

HOLE No. 9-2-91-5-W6 PAGE No. 1

LOCATION 9 - 2 - 91 - 5 - W 6

ELEVATION 2628 DEPTH 117' ELEV. TOP ORE 2552.7'

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	75'	Glacial Till - Grown and grey clay.													completed 12 January 1961
75.0	75.3	Hard grey shale													
75.3'	80.3'	Black. Fine grained. Densely oolitic. 25% glassy cement, ironstone pebbles, some blue silt. Irregular fracture, core badly broken. H. 4. No oxidation. 65% core recovery.	75.3'	80.3'	37.49			21.33							
80.3'	85.3'	Black. Fine grained. Densely oolitic. 25% glassy matrix with clay ironstone pebbles and some grey silt or shale. Irregular fracture. H. 4. No oxidation. 95% core recovery.	80.3'	85.3'	38.55			22.21							
85.3'	90.3'	Black. Fine grained. Densely oolitic. 25% glassy cement material, some ironstone pebbles, some silt. Irregular fracture. H. 4. No oxidation. 95% core recovery.	85.3'	90.3'	38.96			23.97							
90.3'	95.3'	Black. Fine to medium grained. Medium to densely oolitic. 35% glassy cement ironstone pebbles, etc. Irregular fracture, some jointing, core badly broken. H. 4. No oxidation. 85% core recovery.	90.3'	95.3'	34.25			22.04						36.01% 28.8'	
95.3'	100.3	Grey black. Medium grained. Medium to moderately oolitic. 60% glassy matrix with grey silty shale, some ironstone pebbles. Irregular fracture. H. 3.5. No oxidation. 45% core recovery.	953'	100.3'	34.41			23.55						OR 33.81% 32.2'	
100.3'	103.1	Grey to blue black. Medium grained. Medium to moderately oolitic. 60% glassy cement and blue silty shale some ironstone pebbles. Irregular fracture. H. 3. No oxidation. 40% core recovery.	100.3'	103.1'	31.49			24.08							
103.1'	104.1	Blue grey. Medium grained. Sparse to moderate oolitic. 75% to 80% blue silty shale, some ironstone pebbles, some sand grains. Irregular to earthy fracture. H. 2.5. No oxidation. 100% core recovery.	103.1'	104.1'	30.68			24.20							
104.1'	106.4	Blue grey. Medium grained. Sparsely oolitic 80 - 85% grey silt, some ironstone, occasional sand grain. Irregular to earthy fracture. H. 2.5. No oxidation. 100% core recovery.	104.1'	106.4'	25.89			32.78							
106.4'	107.4	Blue black. Medium grained. Sparsely oolitic 90% grey blue silt, pebbles and sand grains. Earthy fracture. H. 2. No oxidation. 100% core recovery.	106.4'	107.4'	22.72			36.77							
107.4'	117'	Grey blue silty shale occasional spot of pyrite or marcasite.													
		Composite Sample			36.73	.570	.16	23.27	4.72	.064	14.13	1.16	.97		

App. C-31

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AUX. 1
HOLE No. 9-2-91-5W6

DRILL LOG

LOCATION 9-2-91-5W6

HOLE No. 9-2-91-5W6 PAGE No. 1

ELEVATION 2626.7 DEPTH 111' ELEV. TOP ORE 2552.7

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSES Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
75.0	76.2	Grey sandstone, hard													) Boxed for shipment.
76.2	106'	Good grade of ore - 96% ore recovery													) To be used for metallurgical test work.
106'	109.4.	Sparse to rare oolites - Not shipped													completed 25 February 1961
[illegible]	108.3'	Fossil shells.													

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App. C-32

AUX. 2

HOLE No. 9-2-91-5W6

DRILL LOG

LOCATION 9-2-91-5W6

HOLE No. 9-2-91-5W6 PAGE No. 1

ELEVATION 2630 DEPTH 112' ELEV. TOP ORE 2552.6

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Manc.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
77.0	77.2	Hard grey sandstone, silica cement, traces of rare oolites towards bottom of section													Boxed for shipment. To be used for metallurgical test work.
77.2	109.0	Good grade of ore													95% ore recovery.
109.2	112	Spares to rare oolites													completed 26 February 1961

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App. C-33

DRILL LOG

HOLE No. 10-2-91-5-W6

HOLE No. 10-2-91-5-W6 PAGE No. 1

LOCATION 10 - 2 - 91 - 5 - W 6
20' W. & 10' S. of Centre of LSD

ELEVATION 2629' DEPTH 109.5' ELEV. TOP ORE 2555.1'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	73.7'	Glacial Till - Brown and grey clays.													completed 6 January 1961
73.7'	73.9'	Hard silty shale.													
73.9'	75.0'	Dark grey. Fine to medium texture. Moderate to densely oolitic. Varies from 65% clay, silt, sand and pebbles to less than 10%. Irregular fracture. H. 1 to H. 3.5. No oxidation. 60% core recovery.	73.9'	75.0'	31.86			23.87							
75.0'	80.0'	Black. Fine texture. Densely oolitic. Contains 25%. Ironstone and other pebbles with some pale green particles. Matrix appears to be a black glassy cement. Irregular fracture. H. 4. No oxidation. 100% core recovery.	75.0'	80.0'	37.22			19.40							
80.0'	85.0'	Black. Fine to medium texture. Densely oolitic. 25% Ironstone particles with a glassy cement between oolites having conchoidal fracture. H. 4. No oxidation. 100% core recovery.	80.0'	85.0'	35.76			22.94							
85.0'	90.0'	Black. Fine texture. Densely oolitic 25% pale grey green to rusty particles. Conchoidal fracture. H. 4. No oxidation except in ironstone pebbles. 100% core recovery.	85.0'	90.0'	32.02			26.60						34.28% / 21.1' OR	
90.0'	95.0'	Black. Fine to medium texture. Medium oolite content. Contains 50% light rusty ironstone particles, brown sand grains, pale green fragments and irregular masses of silt. Irregular fracture. H. 3.5. Very slight oxidation. 100% core recovery.	90.0'	95.0'	32.67			25.70						31.35% / 32.6'	/
95.0'	97.0'	Black. Medium grained. Moderately oolitic. Contains 65% black silt, brown sand grains, pale green chamosite particles and ironstone pebbles. Irregular fracture. H. 3. Very slight oxidation. 100% core recovery.	95.0'	97.0'	29.83			30.48							
97.0'	101.0'	Black. Medium to coarse grained. Sparsely oolitic (15% ±) Contains 80% black silt, brown sand grains, small chamosite and ironstone pebbles irregular to earthy fracture. H. 3. No oxidation. 100% core recovery.	97.0'	101.0'	27.14			29.65							
101.0'	102.0'	Blue black. Coarse grained. Sparsely oolitic. Contains 90% blue black silt and small ironstone pebbles and brown sand. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.	101.0'	102.0'	26.33			33.53							
102.0'	103.0'	Blue black. Coarse grained. Sparsely oolitic. Contains 90% blue silt some sand grains. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.	102.0'	103.0'	25.28			35.92							
103.0'	106.5'	Blue black. Coarse grained. Very sparsely oolitic. 95% black silty material with scattered light sand grains, some small ironstone pebbles. H. 2. Earthy fracture. No oxidation. 100% core recovery.	103.0'	106.5'	22.51			42.80							
106.5'	109.5'	Dark blue silty shale. 100% core recovery.													
		Composite Sample			33.61	.702	.16	24.91	4.14	.137	14.15	1.16	.69		

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App. C-34

HOLE No. 10A - 2 - 91 - 5 - W 6

DRILL LOG

HOLE No. 10A -2-91-5-W6 PAGE No. 1

LOCATION 10A - 2 - 91 - 5 W 6
660' N. of centre of LSD

ELEVATION 2620' DEPTH 96' ELEV. TOP ORE 2559'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	61	Glacial Till - Brown and grey sandy clays.													
61'		Top ore zone.													
61.0'	66.0'	Black. Medium grained. Medium oolite content. Matrix glassy with particles and crystals of chamosite, some ironstone pebbles, some rust spots. Irregular fracture. H. 4. Very slight oxidation. 95% core recovery.													NOTE:- This hole was not sampled - Cores used for metallurgical test work. completed 9 January 1961
66.0'	71.0	Black. Fine grained. Densely oolitic. 20% glassy cement with some larger pieces of pale grey blue slightly translucent, other particles are a pale waxely tan brown. Irregular fracture. H. 4. Very slight oxidation. 100% core recovery.													
71.0'	74.0'	Same as section above 66' to 71'													
74.0'	77.3'	Black. Medium grained. Medium to densely oolitic. 40% made up of blue silt, pale grey blue particles, waxey tan brown material. Irregular fracture. H. 4. Slight oxidation. 100% core recovery.													
77.3'	81.0'	Blue black, medium to coarse grained. Moderately oolitic. 60% made up of blue silt, occasional ironstone pebble. Glassy cement and some rusty grains of sand. Earthy fracture. H. 3. No oxidation. 100% core recovery.													
81.0'	84.5'	Dark blue black. Coarse grained. Sparse to moderately oolitic. 70-80% dark blue silt, some chamosite, some rusty sand, very occasional pebble. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.													
84.5'	88.0'	Dark blue. Coarse grained. Sparsely oolitic. 90% dark blue silt with assorted pebbles and sand grains. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.													
88.0'	91.5'	Grey blue. Coarse grained. Rare oolite. Almost wholly grey blue silty shale some pebbles some sand. Earthy fracture. H. 2.5. No oxidation. 100% core recovery.													
91.5'	96.0'	Grey shale. Some pebbles some sand grains. Occasional spots of iron pyrite. 100% core recovery.													

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App. C-35

HOLE No. 11-2-91-5-W6

DRILL LOG

HOLE No. 11-2-91-5-W6 PAGE No. 1

LOCATION 11 - 2 - 91 - 5 - W 6
15' N. & 30' W. of centre of LSD

ELEVATION 2631.24 DEPTH 170' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	145'	Glacial Till - Soft silty clay, quite similar to 14 - 2 - 91 - 5 - W 6.													completed 29 December 1960
145'	170'	Hard grey shale.													NOTE:- This hard shale seems to indicate this location is higher up the side of the "erosion channel" than was 14-2-91-5-W6.

DRILL LOG

HOLE No. 12-2-91-5-W 6 PAGE No. 1

LOCATION 12 - 2 - 91 - 5 - W 6 M

ELEVATION 2674.23' DEPTH 141.5' ELEV. TOP ORE 2559.23'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O.	Average Iron	REMARKS
0	115'	Glacial Till - brown and grey clays, occasional sand and grit.													completed 14 December 1960
115'		Top ore zone.													
115'	117.5	Brown oolites evenly distributed in black matrix of glassy text. Core becomes progressively dark green to black color - no sign of oxidation at 117.5'.	115'	117.5	40.57			14.90							
117.5	120'	Densely packed oolites in black matrix. Oolites show clearly their concentric structure. Occasional chips of brownish sandy texture materials mixed with oolites. Also occasional light greenish chips of opaque mineral.	117.5'	120'	39.59			19.56							
120'	125'	As above - occasional patches irregular sandy texture material, plus some greyish smooth patches. Possibly clay material. Proportion of brownish sandy texture chips is somewhat higher. Centres of some oolites appear to be composed of same material.	120'	125'	39.18			20.82						36.60% / 22.50	
125'	130'	As above - black oolites with black vitreous matrix plus some brownish sandy texture material. Also black sandy texture material surrounding black vitreous sub-angular fragments cut in very small proportions. Section identical to 120 - 125'.	125'	130'	36.41			24.46							
130'	135'	As above - oolite concentration diminishing in local areas, more sandy texture material and more brownish fragments, sandy texture, most fragments are angular but some sub-angular to rounded vitreous matrix replaced by larger proportion black sandy texture material. Oolites have greenish brown color.	130'	135'	34.05			27.37							
135'	137.5	Oolite conc. diminishing and more of the black mud appears, still looks like "ore".	135'	137.5	29.98			30.34							
137.5'	141.5	2' of core missing, this section - much as above with oolite conc. diminishing in mud and sandy texture fragments.	137.5'	141.5	27.94			32.30							
141.5		Grey shale. Composite sample			37.24	0.709	0.24	23.17	5.58	0.046	13.10	1.37	0.90		

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HOLE No. L.S. 13-2-91-5W6

DRILL LOG

LOCATION L.S. 13-2-91-5W6

HOLE No. L.S. 13-2-91-5W6 PAGE No. 1

ELEVATION 2690.4 DEPTH 168' ELEV. TOP ORE 2559.1

completed 17 January 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	10'	Glacial Till - brown & grey clays													
10'	131'	Glacial clay fill - not sampled													
131.0	131.3	Hard grey shale, some marcasite													
131.3'	131.58	Hard grey shale with oolites. Oolite density increases with depth													
131.58	134.0	Black. Fine grained. Medium oolite content. Matrix 50% glassy black cement. occas. iron-stone pebble, some silt. Irregular fracture. H-3.5. Slight oxidation. 100% core recovery	131.58	134.0	38.23			20.69							
134.0	139.0	Black. Fine grained. Densely oolitic Matrix 25% black cement, some silt, occas. clay ironstone pebble, some particles of pale grey green material. Irregular fracture but partly the core is separated into thin discs. H-4 No oxidation 85% core recovery	134.0	139.0	38.20			22.94						36.66% / 22.42'	
139.0'	144.0	Black. Fine grained. Densely oolitic. Matrix 20% black cement, some clay ironstone pebbles. Irregular fracture. H-4. No oxidation. 95% core recovery	139.0'	144.0	36.60			26.84						OR 34.28% / 29.92'	
144.0	149.0	Black. Fine grained Densely oolitic. Matrix 25% black glassy cement, silt. occas. clay iron-stone fragment. Irregular fracture. H-4. No oxidation. 95% core recovery	144.0'	149.0	36.03			26.69							
149.0'	154.0'	Black. Medium grained. Medium to densely oolitic. Matrix 35-50% blue silt, black cement and clay ironstone pebbles. Irregular to earthy fracture. H-3.5. No oxidation. 100% core recovery	149.0'	154.0	35.06			25.57							
154.0'	159.0	Black. Medium grained. Medium oolite content 50% Matrix, blue silt, black glassy cement, some clay ironstone pebbles. Some grains silica. Irregular to earthy fracture. H-3. No oxidation 100% core recovery	154.0	159.0	27.59			35.75							
159.0'	161.5'	Blue black. Medium grained. Sparsely oolitic. 85-90% Matrix is blue clay, black cement, clay ironstone pebbles and silica grains Earthy fracture. H 2.5 No oxidation 100% core recovery	159.0	161.5	26.30			37.08							
161.5'	163.7	Silty sandstone with occas. rare oolite or false oolite.													
163.7'	168.0'	Grey silty sandstone 55% core recovery													
		COMPOSITE SAMPLES			35.17	.623	.14	29.28	4.90	.066	12.72	2.10	1.21		

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App. C-37

HOLE No. L/S 14-2-91-5- W 6

DRILL LOG

HOLE No. L/S 14-2-91-5- W 6 PAGE No. 1

LOCATION L/S 14 - 2 - 91 - 5 W 6

ELEVATION 2658' DEPTH 223' ELEV. TOP ORE

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	118.5	Glacial Till - silty clay, dark grey, very little grit.													Hole drilled in erosion channel.
118.5	120'	Hard sandstone and shale													completed 16 December 1960
120'		Silty clay, dark grey, very little grit.													

HOLE No. 15-2-91-5 W 6

DRILL LOG

HOLE No. 15-2-91-5- W6 PAGE No. 1

LOCATION 15 - 2 - 91 - 5 W 6

ELEVATION 2605.6' DEPTH 110' ELEV. TOP ORE

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	110'	Glacial Till - soft silty clay.													This hole drilled into erosion channel.
		Bottom of hole elevation 2495.6'													completed 31 December 1960

HOLE No. 15A-2-91-5-W6

DRILL LOG

HOLE No. 15A-2-91-5-W6 PAGE No. 1

LOCATION 15A - 2 - 91 - 5 W 6
350' S. of centre of ISD

ELEVATION 2607' DEPTH 70' ELEV. TOP ORE 2552'

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'.	55'	Glacial Till - Brown and grey silty clays.													completed 9 January 1961
55'		Top ore zone.													
55.0'	55.6'	Black. Fine grained. Densely oolitic. 5 - 10% blue silt some chamosite. Irregular fracture. H. 4. No oxidation. 100% core recovery.													NOTE:- From character of ore encountered and recovered it is presumed that this hole is located on the south edge of the erosion channel. Elevation of top ore indicates probability of erosion of 7 to 8 feet of ore Hole not sampled - core used for metallurgical tests.
55.6'	60.0'	Blue black. Coarse grained. Moderately oolitic. 70% blue silt, pebbles and sand grains. Earthy fracture. H. 3. Slight oxidation. 100% core recovery.													
60.0'	65.0'	Nil core recovery.													
65.0'	70.0'	Grey. Coarse grained. Sparsely oolitic. 90% grey silt, pebbles, sand grains and some rust. Earthy fracture. H. 3. Slight oxidation. 50% core recovery.													

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App. C-38

HOLE No. 16-2-91-5-W6

DRILL LOG

HOLE No. 16-2-91-5-W6 PAGE No. 1

LOCATION 16 - 2 - 91 - 5 - W 6

ELEVATION 2604' DEPTH 88' ELEV. TOP ORE 2550'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	54'	Glacial Till - grey and brown sandy clays.													completed 10 January 1961
54'		Top ore zone.													
54.0'	57.5'	Rusty brown. Medium to coarse grained. Medium to densely oolitic. 20 - 30% grey blue silt some pebbles. Crumbles like sand. Thoroughly oxidized. 35 - 40% core recovery.	54.0'	57.5'	38.87			20.08							
57.5'	62.5'	Black. Fine to medium grained. Medium to densely oolitic. 25 - 35% blue silt chamosite particles, ironstone pebbles and glassy cement. Irregular fracture (core badly broken up). H. 4. Very little oxidation. 90% core recovery.	57.5'	62.5'	39.12			22.67							
62.5'	67.5'	Black. Fine grained. Densely oolitic. 25% blue silt, pale grey green, chamosite and ironstone pebbles. Irregular fracture but bedding evident. H. 4. No oxidation. 100% core recovery.	62.5'	67.5'	37.17			23.42							
67.5'	72.5'	Black. Fine grained. Densely oolitic. 25% blue silt, fine sand grains and glassy cement. Irregular fracture. H. 4. No oxidation. 100% core recovery.	67.5'	72.5'	36.20			25.73							
72.5'	77.5'	Blue black. Medium to coarse grained. Moderately oolitic. 60% dark blue silt, some pale green material, some sand grains, some ironstone pebbles. Irregular fracture, some bedding evident. H. 3.5. No oxidation. 100% core recovery.	72.5'	77.5'	37.98			22.13							
77.5'	78.0'	Blue black. Coarse grained. Moderately oolitic. 70% dark blue silt, some pebbles, some sand grains. Irregular to earthy fracture. H. 3. No oxidation. 100% core recovery.	77.5'	78.0'	36.12			23.77						36.92% / 29.1'	
78.0'	81.9'	Blue black. Coarse grained. Moderate to sparsely oolitic. 70 - 80% blue silt, some pebbles, some sand grains. Earthy fracture. H. 3. No oxidation. 80% core recovery.	78.0'	81.9'	32.95			26.54							
81.9'	83.1'	Blue black. Coarse grained. Sparsely oolitic. 80 - 90% blue silt, some sand grains, some pebbles. Earthy fracture. H. 2.5 - 3. No oxidation but water erroded to some degree. 95% core recovery.	81.9'	83.1'	32.95			27.10							
83.1'	84.5'	Blue black. Coarse grained. Rare to sparsely oolitic. 90 - 98% blue silt, sand grains and pebbles. Earthy fracture. H. 2. No oxidation.													
84.5'	88.0'	Blue shale with sand and pebbles.													
		Composite Sample			37.03	.549	.13	23.98	5.04	.076	14.65	1.36	1.02		

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App. C-39

HOLE No. 9-10-91-5W6

DRILL LOG

HOLE No. 9-10-91-5W6 PAGE No. 1

LOCATION 9-10-91-5W6 (60'SE of center of LSD) ELEVATION 2694 DEPTH 175.3 ELEV. TOP ORE 2546

completed 18 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15'	Sandy, brown clay and boulders.													
15	96.0	Grey and blue sticky clay.													
96.0	147.8	Hard grey clay (shale).													
147.8	148.0	Grey sandstone with very rare oolites.													
148.0	152.8	Dark brown, fine grained. Densely oolitic. Matrix 25% black cement, clay ironstone pebbles some pale green and pale blue minerals, irregular fracture, core very brittle and in part crushed. Remainder intensively wafered in thin wafers 1/8" thick. H- 3 1/2. Slightly oxidized. 90% core recovery.	148.0	152.8	38.47			21.62							
152.8	157.8	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, some clay ironstone pebbles, some pale grey or green blue mineral, a very little dark grey silt. Irregular fracture; no wafering . H-4. No oxidation. 100% core recovery.	152.8	157.8	37.82			22.70							
157.8	162.8	Black. Fine grained, densely oolitic. Matrix 25%. black glassy cement, clay ironstone pebbles, some dark grey silt. Irregular fracture. H-4. No oxidation - 90% core recovery.	157.8	162.8	35.71			26.50							
162.8	166.3	Black. Fine grained. Densely oolitic. Matrix 30% black glassy cement, clay ironstone pebbles some silt. Irregular fracture with vertical jointing planes. H- 3 1/2. No oxidation. 90% core recovery.	162.8	166.3	30.19			32.97							
166.3	169.8	Unreliable. Core tube was filled with soft grey clay shale and a hard grey shale rock in bit probably ground and lost core through this section.													
169.8	171.4	Blue black. Fine grain. Densely oolitic. Matrix 35% black cement, blue silt, clay ironstone pebbles, rare sand grain (qtz.) Irregular fracture but some wafering of core with wafers 1/2" to 1" thick. Wafers are saucer shaped with concave face up. H-3. No oxidation. 90% core recovery.	169.8	171.4	31.49			30.32							
171.4	174.2	Blue black. Fine grain, medium oolite content. Matrix 50% blue silt, black bituminous-like cement, clay ironstone pebbles, some sand grains. Irregular fracture H-3. No Oxidation 100% core recovery.	171.4	174.2	28.41			32.93						35.95% 18.3' OR 34.42% 23.3'	
174.2	174.8	Blue black. Fine to medium grain. Sparse oolite content. Matrix 90% mostly a silty sandstone with some black bituminous-like cement. Irregular fracture. H-2. No oxidation. 100% core recovery.	174.2	174.8	23.62			39.17							
174.8	175.3	Grey, impure sandstone with much silt, very poorly cemented.													
		COMPOSITE SAMPLE			34.42	.641	.11	27.02	4.56	.058	13.90	1.96	.95		

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HOLE No. 16-10-91-5W6

DRILL LOG

HOLE No. 16-10-91-5W6 PAGE No. 1

LOCATION 16-10-91-5W6 ELEVATION 2665 DEPTH 143.5 ELEV. TOP ORE 2554.25

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Manp.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
110.5	110.75	Grey sandstone with some rust spots. No clear cut contact with ore, weathered appearing oolites are present in the bottom 1/2" and gradually increase in number with depth.													completed 17 February 1961
110.75	115.5	Black, fine grained. Densely oolitic. Matrix 25% black cement, clay ironstone pebbles, some silt, some khakhi coloured mud between wafers. Irregular fracture where core not broken. Core is in wafers from 1/8" to 3/4" thick, narrow fillings between wafers are filled with khakhi coloured mud. H-3. Some oxidation. 90% core recovery.	110.75	115.5	36.20			20.40							
115.5	120.5	Black, fine grained. Very densely oolitic. Matrix 20% black glassy cement, clay ironstone pebbles, some pale green and pale blue minerals, a very little blue silt, some mud between wafers. Irregular fracture, friable and in part crushed or broken, remainder in wafers that vary from 1/8" to 1" in thickness. H-4. some oxidation 90% core recovery.	115.5	120.5	38.79			22.63							
120.5	125.5	Black. Fine grain. Densely oolitic. Matrix 25%. black glassy cement, clay ironstone pebbles, some pale green and pale blue minerals a little khakhi coloured mud between wafers. Irregular fracture, core broken and crushed in part, remainder in wafers mostly very thin 1/8" thick or less. H-4 and very brittle. Slight oxidation. 90% core recovery.	120.5	125.5	37.98			25.63							
125.5	128.9	Blue-black. Fine grained. Densely oolitic. Matrix 25% black cement, blue silt in small masses, clay ironstone pebbles. Irregular fracture, no wafering. H-3 1/2. No oxidation. 100% core recovery.	125.5	128.9	35.38			25.67							
128.9	132.0	Blue black. Fine grain, Medium oolite content Matrix 40% blue silt, black cement and clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 100% core recovery.	128.9	132.0	32.54			30.56							
132.0	134.9	Blue black. Fine to medium grain. Medium oolite content. Matrix 55% blue silt, black cement, clay ironstones, pebbles. Irregular fracture H-3. No oxidation. 100% core recovery.	132.0	134.9	29.05			34.87							
134.9	137.9	Black. Fine grained. Moderately oolitic. Matrix 70% black bituminous-like cement, dark grey silt, clay ironstone pebbles. Irregular fracture, core in thin wafers 1/8" thick. H-3. Fillings between wafers very soft and crumbly. No oxidation. 90% core recovery.	134.9	137.9	26.46			36.90						36.56% / 21.2' OR 34.64% / 27.1'	
137.9	141.0	Dark grey. Medium grained. Sparse to rare oolites. Matrix is a muddy or silty sandstone with some black bituminous-like cement. No oxidation, some wafering, mostly 1" thick. 95% core recovery.													
141.0	143.5	Dark grey. Medium grain, muddy sandstone.													
		COMPOSITE SAMPLE			34.10	.591	.09	27.44	4.37	.072	13.51	1.84	.76		

App. C-41

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HOLE No. 1-11-91-5-W6

DRILL LOG

HOLE No. 1-11-91-5-W6 PAGE No. 1

LOCATION _____ ELEVATION 2556 DEPTH 90 ELEV. TOP ORE _____

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	90	Glacial Till - brown and grey clays	0	90											Note: Encounter very loose, water laden carbonaceous (vegetable) material a "muskeg peat" from 18' to 21'

Completed 9 January 1961

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App. C-42.

HOLE No. 2-11-91-5-W6

DRILL LOG

HOLE No. 2-11-91-5-W6 PAGE No.

LOCATION 2-11-91-5-W6

ELEVATION 2583' DEPTH 80' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Manc.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	80'	Drilled to 80' in Glacial Till - sticky brown and grey clay with some thin boulders (4") Fragment of coal cut @ 27'. No ore encountered Elevation bottom of hole 2503	0'	80'											Note: Hole drilled in erosion channel. completed 10 January 1961

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App. C-43

HOLE No. 2C-11-91-5-W6

DRILL LOG

LOCATION 415' W. of center of L.S. 2

HOLE No. 2C-11-91-5-W6 PAGE No. 1

ELEVATION 2605 DEPTH 90 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	90	Glacial Clay Till	0	90											completed 23 January 1961

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APP. C-44

DRILL LOG

HOLE No. 3-11-91-5-W6 — HOLE No. 3-11-91-5-W6 — PAGE No. ____

LOCATION 3-11-91-5W6 — ELEVATION 2632 — DEPTH 103 — ELEV. TOP ORE 2564'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	68'	Glacial Till consisting of brown and grey sandy clays.													Completed 12 January 1961
68'		Top ore zone													
68.0'	73.0'	Black. Fine grained. Very densely oolitic. 20% black glassy cement, some clay ironstone particles, some quartz grains.. Irregular fracture, core is generally well fractured throughout section H-4. No oxidation. 95% core recovery	68.0'	73.0'	36.76			18.02							
73.0'	78.0'	Black. Fine grained. Very densely oolitic. 15-20% black glassy cement, some silt, some clay ironstone fragments. Irregular fracture. H-4. No oxidation. 90% core recovery	73.0'	78.0'	36.20			19.69							
78.0'	83.0'	Black. Fine grained. Densely oolitic. 20-25% black glassy or grey glassy cement and assorted small pebbles. Irregular fracture. H-4. No oxidation. 100% core recovery	78.0	83.0	33.60			23.10						35.52% / 15' OR 31.75% / 29'	
83.0'	88.0'	Black. Fine grained. Medium to densely oolitic. 30-40% glassy cement, clay-ironstone pebbles, pale blue-green material. Irregular fracture. H-4. No oxidation. 85% core recovery	83.0'	88.0'	30.52			26.97							
88.0'	91.9	Blue black. Medium grained. Medium oolite content. 50% blue grey silt, glassy cement and clay ironstone pebbles. Irregular fracture. H-3.5. No oxidation 100% core recovery	88.0'	91.9	28.24			27.28							
91.9'	94.8'	Blue black. Coarse grained. Sparsely oolitic. 85% blue silt, some chamosite and glassy cement. Earthy fracture. H-3 No oxidation. 100% core recovery	91.9'	94.8'	25.65			30.99							
94.8'	97.0'	Oily black. Medium grain. Sparsely oolitic - oolites are loosely cemented by a bituminous appearing oily substance. 90% blue shale, ironstone pebbles and sand grains.. Irregular fracture. H 1.5. No oxidation. 100% core recovery	94.8'	97.0'	23.21			42.70							
97.0'	103.0'	Blue grey shale, contains occasional pebble up to 1". Rare specks of pyrite or marcasite.													
		COMPOSITE SAMPLE			34.89	.609	.13	23.95	4.98	.035	13.90	1.60	1.09		

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App. C-45

HOLE No. 3A-11-91-5-W6

DRILL LOG

HOLE No. 3A-11-91-5-W6 PAGE No. 1

LOCATION 330' E of centre of 3

ELEVATION 2610 DEPTH 76 ELEV. TOP ORE 2554.0'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	56.0	Glacial till - brown and grey clays.													completed 24 January 1961
56.0		Top ore zone.													
56.0	58.6	Reddish black. Fine grained. Densely oolitic. Matrix 25%, black bituminous appearing cement, clay ironstone pebbles and rust. Crumbles in fingers. Slight oxidation. 80% core recovery.													
58.6	61.0	Black. Fine grained. Medium oolite content. Matrix 40%, blue silt, black glassy cement, some clay ironstone pebbles and specks of rust. Irregular fracture - much of core shattered. H-4, where silt in greater proportion. Minor oxidation. 80% core recovery.													
61.0	63.0	Dark grey to black. Fine grained. Medium oolite content. Matrix 40% black glassy cement, a little blue silt, some clay ironstone pebbles, rare specks of rust. Irregular fracture. H.3.5. 90% core recovery.													
63.0	66.7	Dark grey to black. Fine grained. Moderately oolitic. Matrix 65% blue silt, glassy cement, clay ironstone pebbles, some sand grains. Core is broken and crumbled. Slight oxidation. 80% core recovery.													
66.7	68.4	Blue black. Fine grained. Sparsely oolitic. Matrix 90% blue silt, some cement, clay ironstone, pebbles, many sand grains. Crumbles readily in fingers. No oxidation. 95% core recovery.													
68.4	71.0	Rusty brown, fine grained. Sandy plastic, clay with sand grains. Much rust, no oolites.													
71.0	74.6	As above. Less than 20% core recovery.													
74.6	75.2	Rusty sand with small amount of clay.													
75.2	76.0	Glacial clay till.													
NOTE:		Sequence intersected suggests that glacial till back-filled a cave area beneath an ore overhang?													

App. C-46

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HOLE No. 3B-11-91-5-W6

DRILL LOG

HOLE No. 3B-11-91-5-W6 PAGE No. 1

LOCATION 660' E. of center of 3

ELEVATION 2614.7 DEPTH 100 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	100	Glacial Till - carbonaceous material between 66' and 69'.													Completed 23 January 1961

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App. C-47

HOLE No. 4-11-91-5W6

DRILL LOG

HOLE No. 4-11-91-5W6 PAGE No. 1

LOCATION 4-11-91-5W6

ELEVATION 2678.27 DEPTH 157.5' ELEV. TOP ORE 2551.67 ✓

completed 20 January 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	25	Brown glacial clay till													
25	126	Grey clay till with little grit, grit free below 80													
126.0'	126.6	Grey hard shale													
126.6		Top ore zone													
126.6	131.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles and silt. Irregular fracture H3 1/2. Very slight oxidation. 100% core recovery.	126.6	131.0	44.56			23.83							
131.0	136.0	Black. Fine grained. Densely oolitic. Matrix 20% glassy cement, some silt. Irregular fracture. H-4. No oxidation 95% core recovery	131.0	136.0	44.64			26.00							
136.0	141.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles and some silt. Irregular fracture. H-4 - No oxidation. 90% core recovery.	136.0	141.0	37.09			27.05						36.75% / 25.30'	✓
141.0	146.0	Black. Fine grained. Medium oolite content. Matrix 50%, glassy cement, clay ironstone pebbles and silt. Irregular fracture. H-3. No oxidation. 100% core recovery.	141.0	146.0	31.98			32.10							
146.0	150.5	Blue black. Medium grained, moderately oolitic. Matrix 60% blue silt, glassy cement and clay. ironstone pebbles. Irregular fracture. H-2 1/2. No oxidation. 100% core recovery.	146.0	150.5	29.22			32.82							
150.5	151.9	Blue black. Medium grained, sparsely oolitic. Matrix 80-85% black bituminous cement (soft and oily), clay ironstone pebbles, silt, sand grains. Irregular fracture-100% core recovery	150.5	151.9	24.18			39.42							
151.9	157.5	Soft grey shale													
		COMPOSITE SAMPLE			35.80	.699	.16	28.87	4.36	.091	12.50	2.02	1.03		

App. C-48

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HOLE No. 5-11-91-5W6

DRILL LOG

LOCATION 5-11-91-5W6

HOLE No. 5-11-91-5W6 PAGE No. 1

ELEVATION 2676 DEPTH 151 ELEV. TOP ORE 2555.0

Completed 9 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown Clay.													
15	35	Sticky Blue Clay.													
35	121	Hard blue Clay.													
121	126.0	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement with some clay ironstone pebbles. Irregular fracture. H-4. No oxidation. 100% core recovery.	121.0	126.0	40.42			19.19							
126.0	131.0	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, some clay ironstone pebbles, some white lime-like staining on slip planes. Irregular fracture. H-4. No oxidation. 35% core recovery.	126.0	131.0	39.12			23.68							
131.0	135.3	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles. Irregular fracture. H-4. No oxidation. 90% core recovery.	131.0	135.3	36.36			26.00							
135.3	140.3	Black. Fine grained. Densely oolitic. Matrix 25%, black glassy cement, grey silt, clay ironstone pebbles some pale grey green mineral. Irregular fracture. H-3 1/2. No oxidation. 100% core recovery.	135.3	140.3	32.87			28.58							
140.3	143.0	Blue black. Fine grained. Medium to densely oolitic. Matrix 35% blue silt, black glassy cement, clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 100% core recovery.	140.3	143.0	29.87			33.11							
143.0	144.5	Blue black. Medium grained. Medium oolite content. Matrix 50% blue silt in small masses, clay ironstone pebbles, some black glassy cement. H-3. No oxidation. 100% core recovery.	143.0	144.5	25.16			38.40							
144.5	145.5	Black. Fine grained. Moderately oolitic. Matrix 70%, black bituminous-like cement, blue silt, clay ironstone pebbles and sand grains. Irregular fracture but wafered, wafers are 1/3" to 3/4" thick. H-2 1/2. No oxidation. 100% core recovery.	144.5	145.5	24.18			39.30							
145.5	147.0	Blue black. Fine grained. Sparse to moderately oolitic. Matrix 80% black bituminous-like cement and blue silt, sand grains, mostly quartz. Irregular fracture with wafering 1" thick. H-2 1/2. No oxidation. 100% core recovery.	145.5	147.0	25.65			37.41							
147.0	148.0	Black. Fine grained. Sparsely oolitic. Matrix 90-95% muddy sand stone, some bituminous-like cement.	147.0	148.0	28.89			30.80						36.32% / 22 OR 34.38% / 27	
148.0	151.0	Blue shale													
		COMPOSITE SAMPLE			34.58	.667	.16	26.77	4.76	.061	13.56	2.25	1.09		

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HOLE No. L/S 6-11-91-5-W6

DRILL LOG

HOLE No. L/S 6-11-91-5-W6 PAGE No. 1

LOCATION L/S6-11-91-5-W6 - Located 60' S. of center of LSD

ELEVATION 2616.5 DEPTH 84.5' ELEV. TOP ORE 2560.5

completed 17 December 1960

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	55'	Glacial Till - silty clay, grey, occasional small pebbles, soft													
55'	56'	Pebbly shale, with hard rust													
56'		Top ore zone													
56.0'	58.0'	Rusty dark brown, medium textured, moderately oolitic, some blue grey clay, some pebbles to 1/8" diameter, earthy fracture, H-2, oxidized, fractured and friable. 65% core recovery	56.0'	58.0'	39.60			20.72							
58.0'	61.0'	Brownisb black, fine grained, densely oolitic, some varicoloured pebbles of extremely small size, some shale particles tan in colour. Irregular fracture. H-3. Slightly oxidized and friable. 70% core recovery	58.0'	61.0'	39.77			20.99							
61.0'	65.5'	Brownish black, fine grained, densely oolitic, with varicoloured tiny pebbles and sand grains, occasional spot of rust, very small, irregular fracture. H-3 - 3.5. Slight oxidation along fractures. Friable. 90% core recovery	61.0'	65.5'	39.44			23.28							
65.5'	69.5'	Brownish black, fine grained, densely oolitic, containing minute grains of shale and pebbles mostly tan in colour, irregular fracture but much jointing aligned with core axis jointing planes generally coated with a thin limey deposit but occassionaly are coated with a layer of rusty mud. H 3-3.5, not oxidized but fractured and friable. 90% core recover	65.5'	69.5'	39.09			23.83							
69.5'	74.5'	Brownish to greyish black, fine grained. medium oolitic, more silt appearing in small blebs, occasional very small pebble or sand grains.. Irregular fracture with jointing as in previous section - jointing plane surfaces mostly coated with thin layer of rust. H-3 except where oxidized (H-2). Fractured and friable. 95% core recovery	69.5'	74.5'	36.90			25.07							
74.5'	78.0'	Greyish black, coarser grained, moderate to medium oolitic content, contains much silty shale in blebs up to .5" occasional small pebble or sand grains,. silt is grey blue in colour, Irregular fracture. Jointing plans or slips mostly at 40° to core axis and lightly coated with a limey deposit. H-2 no oxidation. 90% core recovery	74.5'	78.0'	36.41			24.56							
78.0'	81.6'	Bluish black, medium grained, moderately oolitic, 60% silty blue shale & some sand grains, Irregular fracture, but showing some lamination @ right angles to core axis. H 2.2-3 No oxidation	78.0'	81.6'	31.53			28.98							
81.6'	84.0'	Blue black, irregular fine to medium texture, sparsely oolitic, about 90% bluish silt with some sand grains. Earthy fracture, H-2, no oxidation but after two days exposure to the atmosphere will crumble readily in the fingers	81.6'	84.0'	24.24			39.35						36.27% / 28.0'	
84.0'	84.5'	Bottom blue gray shale													
		COMPOSITE SAMPLE			36.37	.645	.16	21.72	4.52	.082	14.64	2.08	1.25		

App. C-50

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HOLE No. 6B-11-91-5-W6

DRILL LOG

LOCATION 660' E of center of LSD

HOLE No. 6B-11-91-5-W6 PAGE No. 1

ELEVATION 2600 DEPTH 72 ELEV. TOP ORE 2556

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	44.0	Glacial Clay till.													completed 23 January 1961
44.0	48.8	Rusty brown. Fine grained. Moderately oolitic. Matrix 60% rusty clay with sand. Crumbles readily in fingers. Thoroughly oxidized. 50% core recovery.													
48.8	49.0	Dark brown. Fine grained. Densely oolitic. Matrix 25%, glassy cement and clay ironstone pebbles. Irregular. Fracture. H-3.5. Well oxidized.													
49.0	54.0	Brownish black. Fine grained. Densely oolitic. Matrix 25%, glassy cement, clay ironstone pebbles and some rust. Irregular fracture. H-4. Oxidized. 10% core recovery.													
54.0	59.0	Black. Fine grained. Densely oolitic. Matrix. 20% black glassy cement with some clay ironstone pebbles. Irregular fracture. H-4. Very slight oxidation. 65% core recovery.													
59.0	61.3	Blue black. Fine grained. Medium oolite content. Matrix 50% blue silt, glassy cement and clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 95% core recovery.													
61.3	63.0	Blue black. Medium grained. Moderate oolite content. Matrix 65% blue grey silt, glassy cement, clay ironstone pebbles, occasional grain of sand. Irregular fracture. H-3. No oxidation. 95% core recovery.													
63.0	65.2	Black. Fine grained. Moderately oolitic. Matrix 65% bituminous like cement, some very small clay ironstone particles, numerous sand grains (some are qtz.). Crumbles readily in fingers. H-1. No oxidation. 95% core recovery.													
65.2	67.1	Dark grey. Fine grained. Sparsely oolitic. Matrix 90-95%, grey silt, sand, some clay ironstone pebbles. Crumbles readily in fingers. H-1. No oxidation. 100% core recovery.													
67.1	72.0	Dark grey shale.													

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App. C-51

HOLE No. 7A-11-91-5-W6

DRILL LOG

HOLE No. 7A-11-91-5-W6 PAGE No. 1

LOCATION 420' W. of center of L. S. 7

ELEVATION 2579 DEPTH 75' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	75	Glacial Clay till													completed 23 January 1961

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App. C-52

HOLE No. 10A-11-91-5-W6

DRILL LOG

HOLE No. 10A-11-91-5-W6 PAGE No. 1

LOCATION 660' N. of center of 10

ELEVATION 2589-14 DEPTH 59.5' ELEV. TOP ORE 2554.6

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	20	Brown Clay till													completed 22 January 1961
20	34.5	Grey clay till													
34.5	38.0	Lost core, ore in cuttings.													
38.0	40.6	Black. Fine grained. Medium to densely oolitic. Matrix 35%, black glassy cement, some grey silt, some clay ironstone particles. Irregular fracture. H-3.5. Slight oxidation. 95% core recovery.													
40.6	44.5	Black. Fine grained. Densely oolitic. 25% matrix, glassy cement, grey silt, clay ironstone pebbles, some grey green particles. Irregular fracture. H-4. Very slight oxidation. 95% core recovery.													
44.5	49.5	Black. Fine grained. Medium to densely oolitic. Matrix 40% blue silt, black glassy cement. Ironstone pebbles, a few pale green particles. Irregular fracture. H-3.5. No oxidation. 55% core recovery.													
49.5	51.0	Brownish black. Fine grained. Moderately oolitic. Matrix 65% blue silt, glassy cement, rust and sand grains. Crumbles readily in fingers. Well oxidized. 80% core recovery.													
51.0	54.0	Blue black. Medium grained. Moderately oolitic. Matrix 60% blue silt, glassy cement, clay ironstone pebbles, some glassy purple grey particles. Irregular fracture. H-3. Slight oxidation along slip planes. 80% core recovery.													
54.0	55.1	Reddish black. Fine grained. Sparse to rare oolites. Matrix 90-95% rusty sandy clay, some silt, some clay ironstone pebbles, some sand grains (inc. silica). Crumbles readily in fingers. Oxidized. 90% core recovery.													
55.1	55.9	Rusty brown. Fine grained. Rare oolites. Matrix 95% ±, rust and blue silt, sand grains and pebbles. Crumbles readily. Oxidized. 100% core recovery.													
55.9	59.5	Blue shale - silt, sand and pebbles.													

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App. C-53

HOLE No. 10B-11-91-5-W6

DRILL LOG

LOCATION 425' W. of center of 10

HOLE No. 10B-11-91-5 W6 PAGE No. 1

ELEVATION 2565.6 DEPTH 70 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	20	Brown clay till													completed 22 January 1961
20	70	Grey clay till													

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App. C-54

HOLE No. 11-11-91-5-W6

DRILL LOG

HOLE No. 11-11-91-5-W6 PAGE No. 1

LOCATION

ELEVATION 2601 DEPTH 74 ELEV. TOP ORE 2547

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Lost	Ca O	Mg O	Average Iron	REMARKS
0	54.0	Glacial till- brown and grey clays.													completed 21 January 1961
54.0	59.0	Brownish black. Fine grained. Densely oolitic. Matrix black glassy cement and rust. Crumbles readily. Oxidized. 5 - 10% core recovery.	54.0	59.0	35.95			27.23							
59.0	64.0	Blue black. Fine grained. Densely oolitic. Matrix 25% glassy cement, blue silt and clay ironstone pebbles. Irregular fracture. H-3. Slight oxidation. 95% core recovery.	59.0	64.0	34.49			27.80							
64.0	69.0	Blue black. Medium grained. Medium oolite content. Matrix 45-50% blue silt, glassy cement, clay ironstone pebbles. Earthy fracture H-2.5. Sli. oxidation. 95% core recovery.	64.0	69.0	30.27			31.94						35.22% / 10' OR 32.68% / 17.1'	
69.0	71.1	Blue black. Medium grained. Moderately oolitic. Matrix 70 - 75% blue silt, sand grains (silica), clay ironstone pebbles and glassy cement. Earthy fracture. H-2. Slight oxidation. 95% core recovery.	69.0	71.1	26.13			35.63							
71.1	74.0	Dark blue shale													
		COMPOSITE SAMPLE			32.53	.723	.09	29.20	4.29	.116	13.91	1.91	1.12		

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HOLE No. 11A-11-91-5-W6

DRILL LOG

HOLE No. 11A-11-91-5-W6 PAGE No. 1

LOCATION 330' E. of center of 11

ELEVATION 2600 DEPTH 70 ELEV. TOP ORE 2540

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	60	Glacial Till													completed 23 January 1961
60.0		Top ore zone.													
60.0	60.3	Dark grey, fine texture, sparsely oolitic. Matrix 95%, soft grey shale with sand grains and small clay ironstone particles. Crumbles in fingers. 50% core recovery.													
60.3	61.5	Blue grey. Fine texture. Sparsely oolitic. Matrix 95% mixed green and grey, very soft clay shale containing occasional coarse pebble, sand grains, some small areas of black glassy cement. Semi-plastic, can be easily broken by fingers. Some rust patches. 100% core recovery.													
61.5	65.0	Blue grey. Fine texture. Very sparsely oolitic. Matrix 95 + %, mixed grey blue soft clay shale with sand grains. Crumbles readily in fingers. 20% core recovery.													
65.0	66.0	Soft blue shale. Fine texture. Very sparsely oolitic. Matrix 98% dark blue shale with fine sand grains. Crumbles readily in fingers. No oxidation. 100% core recovery.													
66.0	70.0	Blue shale. No oolites, no rust.													

App. C-56

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HOLE No. 11B-11-91-5-W6

DRILL LOG

HOLE No. 11B-11-91-5-W6 PAGE No. 1

LOCATION 660'E of center of 11

ELEVATION 2574.6 DEPTH 70 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	20	Brown clay till													completed 22 January 1961
20	70	Grey clay till													

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App. C-57

HOLE No. 12-11-91-5W6

DRILL LOG

LOCATION 12-11-91-5W6

HOLE No. 12-11-91-5W6 PAGE No. 1

ELEVATION 2645 DEPTH 117.3 ELEV. TOP ORE 2557.5

completed 20 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	13'	Brown sandy clay - some boulders													
13'	60'	Blue sticky clay													
60'	87.5	Hard grey clay													
87.5	87.7	Dark grey, fine grained. Densely oolitic. Matrix 25% black dull cement, some very small clay ironstone pebbles. Irregular fracture H-4 No oxidation - 100% core recovery. NOTE:- Contact, or top surface, of oolitic zone is very irregular & varies from 87.4 to 87.5. across the core diameter (2 1/8").	87.4	87.7	32.26			21.18							
87.7	93.0	Black. Fine grained. Densely oolitic. Matrix 25%, black glassy cement, clay ironstone pebbles, some blue silt. Irregular fracture, core is brittle and crushed except for a short section which is wafered, wafers are 1/4" to 3/4" thick. H-3 1/2. Slight oxidation. 90% core recovery.	87.7	93.0	36.73			20.36							
93.0	98.0	Black, fine grained. very densely oolitic. Matrix 20% black glassy cement, clay ironstone pebbles. Irregular fracture, some wafering generally 1" thick. H-3. No oxidation. 85% core recovery.	93.0	98.0	37.22			22.39							
98.0	103.0	Black, fine grained. Very densely oolitic. Matrix 20% black glassy cement, clay ironstone pebbles, occasional trace of pale blue mineral Irregular fracture. H-4. No oxidation. 100% core recovery.	98.0	103.0	36.25			23.15							
103.0	107.2	Black, fine grained. Densely oolitic. Matrix 25%. black glassy cement, clay ironstone pebbles, blue silt and some pale green mineral. Irregular fracture. H-4. No oxidation. 95% core recovery.	103.0	107.2	33.00			26.57							
107.2	109.1	Black, fine grained. Medium to densely oolitic. Matrix 30% black glassy cement, blue silt, clay ironstone pebbles. Irregular fracture with complete wafering of core, wafers are 1/8" to 5/8" thick with khakhi coloured liquid between wafers. H-3 1/2. Slight oxidation. 100% core recovery.	107.2	109.1	30.72			31.60							
109.1	112.3	Blue black, fine to medium grain. Medium to moderately oolitic. Matrix 65%: blue silt in small masses, black cement, clay ironstone pebbles, some pale blue and pale green mineral some chocolate brown material, rare quartz grain. Irregular fracture. H-3. No oxidation. 100% core recovery.	109.1	112.3	24.73			35.79						35.87% / 19.8' OR 33.45% / 26.20'	
112.3	113.6	Blue black. Medium grain. Sparse to moderately oolite content. Matrix 80% blue silt, black bituminous-like cement, clay ironstone pebbles, sand grains. Irregular fracture. H-2 1/2. No oxidation. 100% core recovery.	112.3	113.6	22.11			39.15							
113.6	116.0	Blue grey. Medium grain. Sparse to rare oolites. Matrix is silty sandstone. Very soft. H-2. No oxidation. 100% core recovery.													
116.0	117.3	Blue grey sand stone.													
		COMPOSITE SAMPLE			36.20	.720	.18	24.38	4.91	.057	14.21	1.73	.88		

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DRILL LOG

HOLE No. 13-11-91-5W6 | LOCATION 13-11-91-5W6 | HOLE No. 13-11-91-5W6 PAGE No. 1

ELEVATION 2633 DEPTH 108.4 ELEV. TOP ORE 2539.6

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	13'	Brown sandy clay with boulders.													Completed 21 February 1961
13'	71'	Sticky blue clay.													
71.0	78.4	Hard grey clay shale.													
78.4	78.6	Dark grey, medium grain, silty sandstone with rust and rare oolites.													
78.6	82.1	Brown. Fine grained, densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles Irregular fracture, core is oxidized and wafered wafers are 1/8" to 1" thick. H-1 1/2 and crumbling. Well oxidized. 100% core recovery.	78.6	82.1	36.76			21.46							
82.1	87.1	Black. Fine grained. Densely oolitic. Matrix 20%. black glassy cement, clay ironstone pebbles. Irregular fracture. H-4. No oxidation. 100% core recovery.	82.1	87.1	36.85			21.40							
87.1	92.1	Black. fine grained. Very densely oolitic. Matrix 20% black glassy cement, clay ironstone pebbles. Irregular fracture. H-4. No oxidation. 90% core recovery.	87.1	92.1	36.20			22.80							
92.1	97.1	Black, fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles. Some blue silt. Irregular fracture. H-4. No oxidation. 90% core recovery.	92.1	97.1	36.68			26.13							
97.1	102.1	Blue black. Fine to medium grain. Medium colite content. Matrix 40% black cement, blue silt, clay ironstone pebbles. Irregular fracture. H-3 1/2. No oxidation 95% core recovery.	97.1	102.1	33.76			28.49							
102.1	103.9	Blue black. fine to medium grain. Medium oolite content. Matrix 50%. blue silt in small masses, black cement, clay ironstone pebbles, Irregular fracture. H-3. No oxidation. 100% core recovery.	102.1	103.9	31.33			29.42							
103.9	105.5	Blue black. Fine grained. Moderately oolitic Matrix 70% blue silt in small masses, black bituminous-like cement, clay ironstone pebbles some qtz. grains. Irregular fracture core wafered in wafers 1/8" thick. H- 2 1/2. No oxidation. 100% core recovery.	103.9	105.5	28.24			34.84							
105.5	106.5	Grey blue. Fine to medium grain. Sparsely oolitic. Matrix 90% silty sandstone, blue silt and sandstone, black cement, some clay ironstone pebbles. Irregular fracture. H-2. No oxidation. 100% core recovery.												36.00% / 23.5' OR 35.23% / 26.9'	
106.5	107.4	Blue grey sandstone with rare oolites. Very soft													
107.4	108.4	Dark grey silty sandstone with some "false" oolites. H-2 1/2.													
		COMPOSITE SAMPLE			35.60	.706	.16	25.01	5.13	,068	14.22	1.61	.83		

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App. C-59

HOLE No. 14-11-91-5-W6

DRILL LOG

HOLE No. 14-11-91-5-W6 PAGE No. 1

LOCATION

ELEVATION 2598.3 DEPTH 76 ELEV. TOP ORE 2547.3

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Meng.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	51.0	Glacial till - brown and grey clay													Completed 21 January 1961
51.0	56.0	Black. Fine grained. Medium to densely oolitic. Matrix 30-35% blue silt, glassy cement and clay ironstone pebbles. Irregular fracture. H-3. No oxidation. 45% core recovery.	51.0	56.0	35.79			24.20							
56.0	60.5	Black. Fine grained. Densely oolitic. Matrix 20%, glassy cement, some silt. Irregular fracture. H-4. No oxidation. 90% core recovery.	56.0	60.5	35.47			24.60							
60.5	65.5	Blue black. Fine grained. Medium oolite content. Matrix 40% glassy cement, blue silt, clay ironstone pebbles. Irregular fracture H-3.5. No oxidation. 95% core recovery.	60.5	65.5	33.60			29.04						34.93% 14 OR 33.86% 19	
65.5	69.4	Blue black. Medium grained. Moderately oolitic. Matrix 60% blue silt, glassy cement, clay ironstone pebbles. Irregular to earthy fracture. H-3. No oxidation. 95% core recovery.	65.5	69.4	30.92			32.69							
69.4	71.0	Blue black. Medium grained. Sparsely oolitic. Matrix 90% blue silt, glassy cement and occasional clay ironstone pebble. Earthy fracture. H-2.5. No oxidation. 100% core recovery.	69.4	71.0	27.19			34.37							
71.0	74.0	Blue black. Medium grained. Rare oolites. Matrix 95% blue silt, sand grains. Earthy fracture. H-2. No oxidation. 60% core recovery.													
74.0	76.0	Blue Black shale.													
		COMPOSITE SAMPLE			33.31	.712	.13	27.36	4.73	.101	13.76	2.08	1.09		

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App. C-60

HOLE No. 14A-11-91-5-W6

DRILL LOG

HOLE No. 14A-11-91-5-W6 PAGE No. 1

LOCATION 500' N. of center of 14

ELEVATION 2572.65 DEPTH 60 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
															completed 22 January 1961
0	20	Brown clay till													
20	60	Grey clay till													

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App. C-61

HOLE No. 14B-11-91-5-W6

DRILL LOG

HOLE No. 14B-11-91-5-W6 PAGE No. 1

LOCATION 660' E. of center of 14

ELEVATION 2575.9 DEPTH 75 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ce O	Mg O	Average Iron	REMARKS
0	20	Brown clay till													completed 22 January 1961
20	57	Grey clay till													
57	75	Gritty grey clay till													

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App. C-62

HOLE No. 14C-11-91-5-W6

DRILL LOG

LOCATION 330' E. of Center of 14

HOLE No. 14C-11-91-5-W6 PAGE No. 1

ELEVATION 2582.3 DEPTH 75 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	75	Glacial Clay Till													completed 23 January 1961

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App. C-63

HOLE No. 15A-11-91-5-W6

DRILL LOG

HOLE No. 15A-11-91-5-W6 PAGE No. 1

LOCATION 430' W. of center of 15

ELEVATION 2561.6 DEPTH 75 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	20	Brown clay till													completed 22 January 1961
20	75	Gritty grey clay till													

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App. C-64

HOLE No. 4-12-91-5-W6

DRILL LOG

HOLE No. 4-12-91-5-W6 PAGE No.

LOCATION 4-12-91-5-W6
40'S & 10' W of center of LSD

ELEVATION 2594 DEPTH 66.2' ELEV. TOP ORE 2555.5

completed 20 December 1960

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	38.5'	Glacial Till - brown and grey clays	0	38.5											
38.5'		Top ore zone													
38.5'	40.6'	Mixed grey shale and rust. Irregular texture - very sparsely oolitic, if any. Shale is blue in colour and makes up about 65% of core remainder is rusty red sand and small pebbles. After freezing and thawing material crumbles - no fracture. Ditto hardness. Highly weathered 100% core recovery.	38 5'	40.6'	32.79			24.37							
40.6'	42.6'	Black, fine to medium texture, medium to densely oolitic, contains some isolated pebble sections and some blue grey silt. Irregular fracture H-3 Very little oxidation 100% core recovery	40.6'	42.6'	36.85			24.12						34.08% / 19.0' OR 32.28% / 27.9'	✓
42.6'	47.6'	Black to rusty black, fractured and oxidized and(probably from freezing and thawing) in fragments, densely oolitic, occas. small pebble and some blue grey silt. No fracture discernible. H- Well oxidized. 100% core recovery	42.6'	47.6'	34.09			25.85							
47.6'	52.6'	Black but occas. rust black. Fine even texture Densely oolitic. Some light olive crystals. Irregular fracture - some bedding apparent @ 90° to core axis. H-3. Slightly oxidixed, in part. 90% core recovery	47.6'	52.6'	36.99			26.88							
52.6'	57.5'	Black with light brown sand. Fine even texture Densely oolitic. Contains 5 to 10% fine light brown sand in scattered grains. Irregular fracture. H-3. Very occas. light oxidation along small slips. 100% core recovery	52.6'	57.5'	30.52			31.19							
57.5'	63.2'	Black with occas. trace of sand. Densely oolitic. Fine even texture. Some sand grains occas. very small pebble, very little silt. Irregular fracture. H-3. Slight oxidation along jointing slips. 85% core recovery	57.5'	63.2	30.84			29.51							
63.2'	66.4'	Greyish black. Irregular texture. Extremely sparse oolites. 97% silty shale and sand grains - blue grey in colour. Irregular fracture. H 1.5 -2. Some rusting along slip planes. 75% core recovery	63.2'	66.4	28.54			32.84							
66.4'	68.2	Blue Grey Shale													
		COMPOSITE SAMPLE			33.51	.666	.15	28.09	4.60	.062	14.77	1.96	1.01		

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App. C-63

HOLE No. 5-12-91-5-W6

DRILL LOG

HOLE No. 5-12-91-5-W6 PAGE No.

LOCATION 5-12-91-5-W6M
130' W & 75' S of centre of LSD

ELEVATION 2538.7 DEPTH 60' ELEV. TOP ORE nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	60	Glacial Till - silty brown and grey clays with occasional pebble of limestone or granite	0	60'											Note: Hole located in erosion channel below probable ore horizon.

Completed 18 December 1960

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App. C-66

HOLE No. 3-14-91-5W6

DRILL LOG

LOCATION 3-14-91-5W6

HOLE No. 3-14-91-5W6 PAGE No.

ELEVATION 2602 DEPTH 90' ELEV. TOP ORE 2542

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	60	Glacial Till - brown and grey clays													completed 20 January 1961
60		Top ore zone													
60.0	64.5	Rusty brown. Fine grained. Densely oolitic Matrix rusty sand and clay. Crumbles readily. H-1. Very well oxidized. 20% Core recovery	60.0	64.5	35.71			26.18							
64.5	69.5	Black. Fine grained. Densely oolitic. Matrix 25%. silt, glassy cement and clay ironstone pebbles. Irregular fracture. H-3.5 Slight oxidation. 80% core recovery	64.5	69.5	35.22			26.63							
69.5	74.5	Blue Black. Fine to Medium grained. Medium to densely oolitic. Matrix 35-40% blue silt, glassy cement, some clay ironstone pebbles. H-3 Slight oxidation 80% core recovery	69.5	74.5	32.14			30.57						34.31% / 14.5 OR 32.10% / 21	✓
74.5	80.0	Blue black. Medium grained. Medium oolite content. Matrix 50% blue silt, glassy cement, small pebbles and sand grains. Earthy fracture H-2 No oxidation. 30% core recovery	74.5	80.0	27.43			35.16							
80.0	81.0	Blue black. Medium grained. Sparsely oolitic Matrix 90-95% silt, sand grains and pebbles Earthy fracture. H-1.5 100% core recovery	80.0	81.0	25.89			36.75							
81'	90'	Blue grey shale													
		COMPOSITE SAMPLE			31.89	.683	.11	30.68	4.51	.128	12.96	2.14	.98		

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APP. C-67

HOLE No. 3B-14-91-5-W6

DRILL LOG

HOLE No. 3B-14-91-5-W6 PAGE No. 1

LOCATION 776' E. of center of 3

ELEVATION 2580.75 DEPTH 67.6 ELEV. TOP ORE 2528.15

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	18	Brown glacial clay till													completed 22 January 1961
18.0	52.6	Grey glacial clay till with rare pebbles.													
52.6	54.0	Dark grey, fine grained. Medium oolite content. Matrix 50%, dark glassy cement, grey silt, very small clay ironstone pebbles. Irregular fracture. Crumbles in fingers. Slight oxidation. 80% core recovery.													
54.0	56.5	Brownish black. Fine grained. Densley oolitic. Matrix 25% glassy cement, some clay ironstone pebbles, some pale grey green particles. Core broken. H-3. Very slight oxidation. 75% core recovery.													
56.5	57.4	Rusty brown. Fine texture. Sparsely oolitic. Matrix 90% sandy clay with much rust. Crumbles readily in fingers. Strongly oxidized. 100% core recovery.													
57.4	61.0	Dark blue. Fine grained. Oolites, rare to sparse. Matrix 90-95% blue grey silt, some soft cement, sand grains include silica (glassy qtz.). Crumbles readily in fingers. Some oxidation. 100% core recovery.													
61.0	62.5	Rusty brown. Fine texture. Has appearance of limonite, fine grained and streaked in vari-coloured bands varying from vermilion to yellow ochre in colour, some areas are pure fine grained grey silt. No oolites seen. Crumbles readily in fingers. Thoroughly oxidized. 100% core recovery.													
62.5	67.6	Blue shale.													

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App. C-68

HOLE No. 4-14-91-5W6

DRILL LOG

LOCATION 4-14-91-5W6

HOLE No. 4-14-91-5W6 PAGE No. 1

ELEVATION 2636 DEPTH 123.5 ELEV. TOP ORE 2543

Completed 24 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown sandy clay													
15'	40	Sticky grey blue clay													
40	95'	Hard grey clay shale													
93.0	96.0	Dark brown. Fine grained. Densely oolitic. Matrix 25% black bituminous-like cement, clay ironstone pebbles, some rust. Irregular fracture. H-1 1/2. Oxidized. 80% core recovery.	93.0	96.0	34.72			22.66							
96.0	101.0	Black. Fine grained. Densely oolitic. Matrix 20% black glassy cement, clay ironstone pebbles, some of which appear to have been replaced by chamosite(?). Irregular fracture and partly in wafers 1/2" to 1" thick. H4. No oxidation. 100% core recovery.	96.0	101.0	37.32			22.74							
101.0	106.0	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles, some silt, some light blue mineral. Irregular fracture & mostly wafered, 1/4" to 3/4" thick. H-4. No oxidation. 90% core recovery.	101.0	106.0	36.88			22.57							
106.0	111.0	Blue black. Fine grained. Medium oolite content Matrix 40% black cement, blue silt, clay ironstone pebbles. Irregular fracture, core is in part crushed. H-3 1/2. Some oxidation along jointing fracture. 85% core recovery.	106.0	111.0	35.72			26.06							
111.0	116.0	Blue black. Fine grained. Medium oolite content Matrix 50% black cement, blue silt in small masses, clay ironstone pebbles. Irregular fracture H-3. Some oxidation along jointing fractures. 80% core recovery.	111.0	116.0	31.97			26.96							
116.0	118.0	Blue black. Fine grained. Medium oolite content Matrix 50% black, dull, cement, blue silt in small masses, clay ironstone pebbles, some qtz sand grains. Irregular fracture H-2 1/2 - 3. Slightly oxidized throughout. 100% core recovery.	116.0	118.0	29.85			31.29							
118.0	119.1	Black. Fine grained. Moderate to sparsely oolitic. Matrix black bituminous-like cement, blue silt, clay ironstone, pebbles, qtz. milky and glassy grains. Very soft H-1 No oxidation. 100% core recovery.	118.0	119.1	25.02			37.60							
119.1	122.0	Dark blue, fine grained silty sandstone with rare oolites.												36.32% / 18'	
122.0	123.5	Grey shale or grit stone. H-3. Has scattered marcasite particles throughout.												OR	
		COMPOSITE SAMPLE			34.67	.684	.23	25.66	6.20	.067	14.85	1.84	1.05	34.51% / 26.1'	

App. C-69

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HOLE No. L.S. 5-14-91-5W6

DRILL LOG

HOLE No. L.S. 5-14-91-5W6 PAGE No. _____

LOCATION L.S. 5-14-91-5W6

ELEVATION 2603.13 DEPTH 83.8' ELEV. TOP ORE 2544.5

Completed 16 January 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown clay till													
15	45	Grey clay till, little grit													
45	58.8	Grey clay till, some grit													
58.8		Top of ore zone													
58.8'	60.4'	Dark grey. Medium grained. Sparsely oolitic. Matrix 90% impure shale with pebbles and rust. Irregular fracture. H-3.5 Well oxidized. 80% core recovery.	58.8'	60.4'	28.41			26.64							
60.4'	63.5'	Black. Fine grainned. Densely oolitic. Matrix 25% silt. bituminous appearing soft cement very rare ironstone pebble. Soft and crumbly. H-1 No oxidation. 100% core recovery.	60.4'	63.5'	35.38			23.79						34.96% / 13.7'	
63.5'	67.5'	Black. Fine grained. Densely oolitic. Matrix 25% hard black cement, some silt, occas. pebble, some grey green material. Irregular fracture. H-4. No oxidation. 95% core recovery	63.5'	67.5'	36.52			24.66						OR 33.67% / 19.9'	
67.5'	72.6'	Blue black. Fine grained. Densely oolitic Matrix 25% glassy cement, blue silt, occas. pebble. Irregular fracture. H-3. No oxidation 90% core recovery	67.5'	72.6'	35.55			26.87							
72.6'	77.8'	Blue black. Medium grained. Moderate to medium oolite content. Matrix 60% black cement, blue silt, ironstone pebbles and occas. qtz grain. Irregular fracture. H-3.5. No oxidation. 100% core recovery	72.6'	77.8'	31.89			28.47							
77.8'	78.8'	Blue grey. Medium grained. Sparsely oolitic. Matrix 85-90% blue silt, some pebbles, some sand grains. Irregular fracture. H-2. No oxidation. 100% core recovery.	77.8'	78.8'	25.24			37.62							
78.8'	83.8'	Soft blue silty shale. 70% core recovery													
		COMPOSITE SAMPLE			34.51	.650	.18	26.63	4.65	.080	13.49	2.25	1.05		

App. C-70

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HOLE No. L.S. 6-14-91-5-W6

DRILL LOG

LOCATION L.S. 6-14-91-5-W6

HOLE No. L.S.6-14-91-5W6 PAGE No.

ELEVATION 2578.2 DEPTH 75' ELEV. TOP ORE nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	30'	Brownish glacial clay till													completed 16 January 1961
30	75'	Grey clay till - little or no grit.													

App. C-71

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HOLE No. 6A-14-91-5-W6

DRILL LOG

HOLE No. 6A-14-91-5-W6 PAGE No. 1

LOCATION 330' W. of center L.S. 6.

ELEVATION 2588.6 DEPTH 67.9 ELEV. TOP ORE 2536.3

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	52.3	Glacial till - brown and grey clay													completed 21 January 1961
52.3	57.3	Black to brown. Fine grained. Medium to densely oolitic. Matrix 40% glassycement and clay ironstone boulders. Irregular fracture. H-3. In part well oxidized. 60% core recovery.													
57.3	62.3	No core recovered but ore in cuttings.													
62.3	67.9	Bottom 3' blue grey shale Remainder of core not recovered.													

App. C-72

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HOLE No. 12-14-91-5W6

DRILL LOG

LOCATION 12-14-91-5W6

HOLE No. 12-14-91-5W6 PAGE No. 1

ELEVATION 2578.8 DEPTH 60' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	37.5	Glacial clay till													completed 19 January 1961
37.5	42.0	Fine gravel													
42.0	50.0	Powdery iron oxide-gravel?													
50.0	60.0	Clay shale green when wet, dark grey when dry.													

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App. C-73

HOLE No. 12A-14-91-5W6

DRILL LOG

LOCATION 340W of Centre L/S 12

HOLE No. 12A-14-91-5W6 PAGE No. _____

ELEVATION 2588.8 DEPTH 69.4 ELEV. TOP ORE 2537.0'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	51.6'	Glacial Till - brown and grey clays													completed 20 January 1961
51.6.	51.8'	Quartzite boulder													
51.8'	56.6'	Brownish black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, silt. Hardness varies. Somewhat oxidized. 30% core recovery													
56.6'	59.6'	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement and clay ironstone pebbles. Irregular fracture. H-3. Slight oxidation. 85% core recovery													
59.6'	61.6'	Blue black. Medium grained. Moderately oolitic. Matrix 60-65%, blue silt, glassy cement, clay ironstone pebbles. H 2.5, Earthy fracture 50% core recovery													
61.6'	63.6	Blue black. fine grained. Medium oolite content. Matrix 45-50% glassy cement, blue silt, some clay ironstone pebbles. Irregular fracture. H-2.5. No oxidation. 90% core recovery													
63.6'	67.5	Blue black. Medium grained. Sparsely oolitic. Matrix 90-95% blue silt, clay ironstone pebbles and some glassy cement. Earthy fracture. H-2. No oxidation. 95% core recovery													
67.5'	69.4	Grey blue soft shale													

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HOLE No. 1-15-91-5W6

DRILL LOG

HOLE No. _____ PAGE No. 1

LOCATION 1-15-91-5W6

ELEVATION 2648 DEPTH 113.5 ELEV. TOP ORE 2543.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	33	Brownish clay with sand and gravel some boulders Cased hole to 33'													Note: Adjacent holes support 26' thickness estimate. 35.44% / 5.0'
33'	45'	Brown clay													
45'	103	Blue sticky glacial clay													
103'	104.5	Void. Sound of water flowing													
104.5	108.5	Broken ground, reported as sand and gravel but probably top of ore zone. Reamed hole several times and finally managed to insert core barrel.													
108.5	113.5	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, some silt, some pale grey green mineral. Irregular fracture. Ore is friable and very badly broken. H-4. No oxidation. 85% core recovery Hole abandoned as being too expensive to complete.	108.5	113.5	35.44			21.65							completed 6 Feb 1961

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HOLE No. 2-15-91-5W6

DRILL LOG

HOLE No. 2-15-91-5W6 PAGE No. 1

LOCATION 420'E of Centre of LSD

ELEVATION 2692 DEPTH 177.2' ELEV. TOP ORE 2544.8'

completed 7 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	43	Blue clay (glacial)													
43	147.2	Grey clay (probably not glacial)													
147.2	147.4	Grey. Medium grained. Medium oolite content. Matrix 50% siliceous cement (muddy sandstone) some qtz. pebbles, clay ironstone pebbles, some silt. Irregular fracture. H-4.5. No oxidation except to oolites @ top of zone. 100% core recovery													
147.4	152.4	Black. Fine grained. Very densely oolitic. Matrix 20% black glassy cement and clay ironstone pebbles. Irregular fracture, with suggestion of wafering. H-4. No oxidation 80% core recovery	147.4	152.4	36.96			24.95							
152.4	157.4	Black. Fine grained. Very densely oolitic. Matrix 20% black glassy cement, clay ironstone pebbles, some pale grey green mineral a very little dark grey silt. Irregular fracture core is in wafers from 1/4" to 3/4" thick, these wafers are irregularly formed sides are only roughly parallel and are slightly folded with the convex side up. H-4. No oxidation. 100% core recovery	152.4	157.4	38.95			20.44							
157.4	162.4	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles dark grey silt and pale blue green mineral. Irregular fracture wafered as in above section but wafers are somewhat thinner, 1/8" to 3/4" in thickness. H-4. No oxidation. 100% core recovery	157.4	162.4	37.36			22.87							
162.4	163.8	Black. Fine grained. Densely oolitic. Matrix 30% black glassy cement, blue silt, clay ironstone pebbles, pale grey green mineral and rare qtz. grains. Irregular fracture. wafers 1/8" to 5/8" thick. H-3.5. No oxidation. 100% core recovery	162.4	163.8	34.90			27.00							
163.8	166.9	Blue black, fine to medium grained. Medium oolite content. Matrix 50% black glassy cement, blue silt in small masses, clay ironstone pebbles, pale blue mineral, some qtz. grains. Irregular fracture. No. wafering. H-3 No oxidation. 100% core recovery	163.8	166.9	33.60			29.15							
166.9	168.5	Blue black, medium grained. Moderately oolitic. Matrix 70% blue silt, black cement, clay ironstone pebbles and qtz. grains. Irregular fracture . H-3. No oxidation. 100% core recovery	166.9	168.5	31.05			30.97							
168.5	172.8	Blue black. Medium grained. Sparsely oolitic. Matrix 90% blue silt, black cement, clay ironstone pebbles, sand grains inc. qtz. and some plate green mineral. Irregular fracture generally in wafers 3/4" to 1" thick. H-2.5. No oxidation. 100% core recovery	168.5	172.8	28.66			33.46							
172.8	174.2	Blue black. Medium grained. Rare oolites. A muddy sandstone with blue silt and some black cement. H-2.5 No oxidation. 100% core recovery												36.85% / 19.90' OR 35.12% / 25.80'	
174.2	177.2	Blue shale (sandstone)													
		COMPOSITE SAMPLE			35.31	.672	.16	25.71	4.91	.054	13.58	1.79	.88		

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HOLE No. 6 - 15-91-5W6

DRILL LOG

HOLE No. 6-15-91-5W6 PAGE No. 1

LOCATION 153' E. of centre 6--15-91-5W6

ELEVATION 2709 DEPTH 187' ELEV. TOP ORE 2551.9

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	13'	Sandy clay and boulders.													completed 15 February 1961
13'	48'	Blue sticky clay - some boulders.													
48'	157'	Grey clay shale.													
157'	157.1	Hard grey silty sandstone.													
157.1	157.2	Hard grey sandstone with sparse to rare weathered oolites.													
157.2	157.4	Hard grey sandstone with moderate oolite content some black cement shot through with fine hair lines of silica (?) occas. small pebbles. Oolites are rusted and weathered but structure and nuclei remain evident.													
157.4	162.4	Dark brown. Fine grained. Densely oolitic. Matrix 25% black cement, clay ironstone pebbles and a very little silt. Core is of the consistency of loosely cemented sand with some hard wafers (up to 3/4" thick). H-1 to 2. Khakhi coloured mud between wafers due to oxidation. 95% core recovery.	157.4	162.4	34.90			23.10							
162.4	167.5	Black. Fine grained. Densely oolitic. Matrix 25% black glassy content. Clay ironstone pebbles, some silt and very rare qtz. grain. Core is shattered and crumbling and in very thin wafers. 1/16" to 1/4" - mostly 1/8" thick. @ 164' there is a 3" section of solid core with H-4. A very slight degree of oxidation between wafers. 95% core recovery.	162.4	167.5	36.03			25.21							
167.5	172.0	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement. Some silt, clay ironstone pebbles, some of which have been replaced by material closely resembling the cement, altho' keeping the form and colour of the original pebbles, and are irridescent and soft. Some pale green and blue minerals, soft muddy material between wafers. Irregular fracture but core in wafers generally 1/8" thick or less. H-4 (wafers) No oxidation. 90% core recovery.	167.5	172.0	35.22			27.77							

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HOLE No. 6 - 15-91-5W6

DRILL LOG

LOCATION 153' E of-centre 6-15-91-5W6

HOLE No. 6 - 15-91-5W6 PAGE No. 2

ELEVATION 2709 DEPTH 187' ELEV. TOP ORE 2551.9

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
172.0	177.0	Blue black. Fine grained. Medium oolite content. Matrix 40% black bituminous, like cement. Blue silt in small masses, clay ironstone pebbles. Irregular fracture with some wafering - wafers are 1/4" to 1" thick. H-3 1/2. No oxidation. 85% core recovery.	172.0	177.0	31.16			30.95						35.39% / 14.6 OR 32.90% / 23.5	completed 15 February 1961
177.0	178.0	Blue black. Fine grained Medium oolite content. Matrix 55% black bituminous-like cement, clay ironstone pebbles and some silt. Irregular fracture. H- 3 1/2. No oxidation. 100% core recovery.	177.0	178.0	27.76			35.12							✓
178.0	179.8	Blue black. Fine grained. Moderately oolitic. Matrix 70% black bituminous-like cement, blue silt, clay ironstone pebbles, some sand grains mostly quartz. Irregular fracture. H-3. No oxidation. 100% core recovery.	178.0	179.8	25.40			35.97							
179.8	180.9	Blue black. Fine grained. Sparsely oolitic. Matrix 85% blue silt, black bituminous-like cement, clay ironstone, pebbles and sand grains. Irregular fracture. H-2. No oxidation . 100% core recovery.	179.8	180.9	24.75			37.89							
180.9	181.4	Blue black. Fine grained. Sparse to rare oolites. Matrix muddy sandstone. Soft.													
181.4	187.0	Grey-blue silty sandstone with some silica cement appearing near bottom of hole.													
		COMPOSITE SAMPLE			33.46	.627	.10	28.29	4.28	.084	13.69	1.76	.87		

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App. C-78

HOLE No. 7-15-91-5W6

DRILL LOG

HOLE No. 7-15-91-5W6 PAGE No. 1

LOCATION 7-15-91-5W6

ELEVATION 2678 DEPTH 154 ELEV. TOP ORE 2551.1

completed 6 February 1961

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	25	Brown clay													
25	70	Blue sticky clay													
70	126.8	Grey clay, quite hard, slightly plastic													
126.8	126.9	Hard grey blue sandstone													
126.9	128.7	Black. Fine grained. Densely oolitic. Matrix 30% black cement, clay ironstone pebbles and some pale blue green material. Irregular fracture core well crumbled. No oxidation 85% core recovery	126.9	128.7	33.23			23.31							
128.7	133.7	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles and some pale grey green material. Irregular fracture. H-3 1/2 No oxidation. 90% core recovery	128.7	133.7	39.28			21.29							
133.7	138.7	Black. Fine grained. Densely oolitic. Matrix 25%, black glassy cement, clay ironstone pebbles, a very little silt. Irregular fracture with much wafering of core, wafers vary from 1/4" to 1 1/2" thick. H-3. No oxidation 90% core recovery	133.7	138.7	38.15			23.90							
138.7	141.8	Black. Fine grained. Densely oolitic. Matrix 30% glassy cement, quite a lot of pale blue green mineral, clay ironstone pebbles. Irregular fracture very friable and broken H. 3.5 No oxidation. 90% core recovery	138.7	141.8	36.93			26.50							
141.8	146.8	Black. Fine grained. Densely oolitic. Matrix 30% glassy cement clay ironstone pebbles and pale green material. Irregular fracture and extremely friable core is broken and probably has been ground somewhat. H 3.5. No oxidation. 40% core recovery.	141.8	146.8	34.88			28.50							
146.8	148.1	Khaki green. Fine grained. Dense to medium oolite content. Matrix 40% rusty cement clay ironstone pebbles. some silt. Irregular fracture. H-2. Well oxidized. 20% core recovery	146.8	148.1	30.87			34.59							
148.1	149.8	Blue black. Fine grained. Medium to moderately oolitic. Matrix 60% blue silt, black bituminous like cement, clay ironstone pebbles, some pale grey green material, some sand with qtz. grains. Irregular to earthy fracture. H-2.5. No oxidation. 95% core recovery	148.1	149.8	29.18			33.83							
149.8	151.5	Blue black. Medium grained. Sparsely oolitic. Matrix 90% blue silt, some black bituminous-like cement, clay ironstone pebbles and sand grains. Earthy fracture. H-2 No oxidation 90% core recovery	149.8	151.5	26.19			36.48							
151.5	153.0	Blue grey. Medium grain. Rare oolites. Matrix blue shale, mostly silt, some clay ironstone pebbles and sand grains. Earthy fracture. H-2. No oxidation. 90% core recovery												36.05% / 22.90' OR 35.37% / 24.60'	
153.0	154.0	Blue shale													
		COMPOSITE SAMPLE			36.07	.693	.15	25.58	4.96	.051	13.13	1.90	.97		

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HOLE No. 8-15-91-5W6

DRILL LOG

HOLE No. 8-15-91-5W6 PAGE No. 1

LOCATION

ELEVATION 2634 DEPTH 124' ELEV. TOP ORE 2537 ✓

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	97'	Glacial Till - brown and grey clays													completed 17 February 1961
97'		Top ore zone													
97.0'	100.9	Chocolate brown. Fine grain. Moderate oolite content. Matrix 85% rusty brown clay. Crumbles readily. H-1. Well oxidized. 20% core recovery	97.0	100.9	39.28			21.74							
100.9	106.0	Brownish black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, some rust, occas. clay, ironstone pebble. H-3.5. Irregular fracture. Some oxidation 95% core recovery	100.9	106.0	36.68			24.92						37.13% 19.00' OR 36.32% 22.00'	✓
106.0	111.0	Black. Fine grained. Densely oolitic. Matrix 20% black glassy cement, some clay ironstone pebbles, some silt. Irregular fracture. H-4 No oxidation. 100% core recovery	106.0	111.0	36.85			25.74							
111.0	116.0	Blue black. Medium grained. Medium to densely oolitic. Matrix 40% glassy cement and clay ironstone pebbles and blue silt. Irregular fracture. H-3.5. No oxidation. 95% core recovery	111.0	116.0	36.20			26.05							
116.0	119.0	Blue black, Medium grained. Medium oolite content. Matrix 50% glassy cement. Some clay ironstone pebbles, some silt. Irregular fracture. H-3. No oxidation. 60% core recovery Fossil Wood @ 116.8'	116.0	119'	31.16			30.68							
119'	124'	Last 6" recovered, silty sandstone													
		COMPOSITE SAMPLE			36.13	.651	.13	26.41	4.48	.043	12.70	1.97	1.15		

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HOLE No. 9-15-91-5W6

DRILL LOG

HOLE No. 9-15-91-5W6 PAGE No. 1

LOCATION 9-15-91-5W6

ELEVATION 2604 DEPTH 87.6 ELEV. TOP ORE 2546.4

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	57.6	Glacial Till - brown and grey clays													completed 18 January 1961
57.6		Top ore zone													
57.6'	58.8	Rusty brown. Fine grained. Medium to densely oolitic. Matrix rusty material. Crumbles readily. H-1. Well oxidized. 100% core recovery	57.6'	58.8	33.44			24.52							
58.8'	63.8'	Dark brown. Fine grained. Densely oolitic, Matrix 25% glassy cement rust and some silt. Irregular fracture. H-2. Well oxidized. 100% core recovery	58.8'	63.8'	36.20			23.89						34.61% 14.7' OR 33.10% 25.4'	
63.8'	67.6'	Dark brown. Fine grained. Densely oolitic. Matrix 20% glassy content and rusty material Crumbles readily. H-2. Well oxidized. 100% core recovery	63.8'	67.6'	35.22			26.30							
67.6'	72.3	Brownish black. Fine grained. Densely oolitic Matrix 20% glassy cement, some silt, occas. clay ironstone pebble. Irregular fracture. H-3. Some oxidation. 80% core recovery	67.6'	72.3	34.41			27.27							
72.3'	77.6'	Blue black. Medium grain. Medium oolite content. Matrix 40-45% blue silt, glassy cement and occas. pebble. Irregular to earthy fracture. H-2.5. Oxidized 95% Core recovery	72.3'	77.6	32.46			28.79							
77.6'	82.0	Blue black. Medium grained. Moderately oolitic. Matrix 70% blue silt, sand grains. small pebbles and some glassy cement. Earthy fracture. H-2.5 little oxidation 55% core recovery	77.6'	82.0	28.49			31.95							
82.0	87.6	Grey Shale													
		COMPOSITE SAMPLE			35.33	.663	.15	29.30	5.01	.086	13.49	2.06	1.11		

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HOLE No. 10-15-91-5W6

DRILL LOG

HOLE No. 10-15-91-5W6 PAGE No.

LOCATION 10-15-91-5W6

ELEVATION 2629.8 DEPTH 111.2' ELEV. TOP ORE 2539.6

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	90.2	Glacial Till -brownand grey clays													Completed 1 February 1961
90.2		Top ore zone													
90.2	92.7	Dark grey fine to medium grained. Medium oolite content. Matrix 50% consistency of soft mud with some shale particles. 60% core recovery	90.2	92.7	29.30			28.51							
92.7'	97.7	Black. Fine grained. Medium to densely oolitic. Matrix 35% grey silt, black cement, pale green mineral and clay ironstone pebbles. Irregular fracture. H-3 1/2. No oxidation. 75% core recovery.	92.7	97.7	36.68			24.97							
97.7'	102.7	Black. Fine grained. Densely oolitic. Matrix 25% black cement clay ironstone pebbles, light green mineral and some silt. Irregular fracture H-4. No oxidation. 90% core recovery	97.7'	102.7	36.28			25.24							
102.7'	106.2	Blue black. Fine to medium grained. Medium oolite content. Matrix 50% blue silt, black cement some clay ironstone pebbles. Irregular fracture with some wafering of core. H-3. In part oxidized. 90% core recovery	102.7	106.2	34.35			26.42						35.04% / 12.50' OR 33.60% / 19.00'	
106.2	108.2	Black. Fine grained. Moderately oolitic. Matrix 70% black bituminous-like cement, blue silt, clay ironstone pebbles and sand grains including much qtz. Irregular fracture much wafering of core - wafers - 1/8" to 3/4" thick. H-2 No oxidation. 100% core recovery	106.2	108.2	27.49			32.41							✓
108.2	109.2	Black. Fine grained. Sparsely oolitic. Matrix 90% black bituminous-like cement, grey silt, clay ironstone pebbles and sand including much qtz. Core is crushed and crumbled 100% core recovery	108.2	109.2	25.20			37.56							
109.2	111.2	Bottom Blue shale with very rare oolites.													
		COMPOSITE SAMPLE			34.05	.720	.17	26.40	4.83	.103	13.88	2.11	1.03		

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App. C-82

HOLE No. 11-15-91-5W6

DRILL LOG

HOLE No. 11-15-91-5W6 PAGE No. 1

LOCATION 11-15-91-5W6

ELEVATION 2653.5 DEPTH 140.6' ELEV. TOP ORE 2542.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	110.6	Glacial Till - brown and grey clays													
110.6		Top ore zone													
110.6	111.0	Hard shale													Completed 31 January 1961
111.0	115.6	Black. Fine grained. Densely oolitic. Matrix 25% black cement with some clay ironstone pebbles. Irregular fracture, much wafering of core. H-3. No oxidation. 80% core recovery	111.0	115.0	37.01			22.75							
115.6	120.6	Black. Fine grained. Densely oolitic. Matrix 25% Black cement, clay ironstone pebbles and some rusty clay. Irregular fracture but core is also badly broken with only occas. section 1" to 2" in length of solid core. H-3 where not broken. In part oxidized. 75% core recovery	115.6	120.6	37.49			24.44							
120.6	125.6	Black. Fine grained. Densely oolitic. Matrix 25% black cement some clay ironstone pebbles and mud coating on wafers. Irregular fracture. Core is intensely wafered, wafers are 1/8" to 1/2" thick. H-3 No oxidation. 85% core recovery	120.6	125.6	35.55			27.78							
125.6	130.6	Black. Fine grained. Densely oolitic. Matrix 25% black cement, blue silt and clay ironstone pebbles. Irregular fracture, some wafering of core especially 125.6' to 126.8' wafers vary from - 1/8" to 1/2" H-3. No oxidation 95% core recovery	125.6	130.6	32.95			29.87							
130.6	132.7	Black. Fine grained. Medium to densely oolitic Matrix 35% blue silt, black cement, clay ironstone pebbles. Irregular fracture some wafering of core. H-3. No oxidation. 95% core recovery.	130.6	132.7	31.65			31.82							
132.7	134.3	Blue black. Fine grained. Medium oolite content. Matrix 50% blue silt, black cement, clay ironstone pebbles - very rare grain of sand (qtz.). Irregular fracture with intensive wafering of core, wafers, vary from 1/8" to 3/4" in thickness. H-3 No oxidation. 90% core recovery	132.7	134.7	29.54			33.05							
134.3	135.4	Blue black. Fine grained. Moderately oolitic. Matrix 70% blue silt, black cement, clay ironstone pebbles, black mud and rare sand grains. Irregular fracture but intensively wafered with black mud between wafers. Wafers are thin mostly 1/8" thick. H-2 1/2 No oxidation 90% core recovery	134.3	135.4	27.27			35.61							
135.4	136.5	Black. Fine grained. Sparsely oolitic. Matrix 90% black bituminous-like cement, blue silt, clay ironstone pebbles, sand grains. No fracture core has consistency of sandy mud. H-1. No oxidation. 100% core recovery	135.4	136.5	26.13			37.59						35.33% / 21.70' OR 34.22% / 25.50'	
136.5'	137.5	Black. Fine grained. Rare oolites. Matrix blue silt, grey silt, a little black cement, rust spots and sand grains including much qtz. of mud like consistency. 100% core recovery													
137.5	140.6	Blue shale													
		COMPOSITE SAMPLE			34.08	.704	.15	26.97	4.61	.049	12.46	2.23	1.09		

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HOLE No. 12-15-91-5W6

DRILL LOG

HOLE No. 12-15-91-5W6 PAGE No. 1

LOCATION 12-15-91-5W6

ELEVATION 2696 DEPTH 177' ELEV. TOP ORE 2542.4

completed 30 January 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	144	Glacial Till													
144.0	153.4	Light grey fine grained silt with some clay very slightly plastic (hardpan)													
153.4	153.6	Light grey. Fine grained sandstone with marcasite. H-3 1/2													
153.6		Top ore zone Contact between ore and sandstone @ 153.6' is sharply defined but irregular as though surface of ore had been eroded somewhat. At contact ore is fresh, no sign of oxidation.													
153.6	158.6	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, some silt in isolated small blebs, occas. clay ironstone pebble. Irregular fracture. H-3 1/2. No oxidation. 100% core recovery	153.6	158.6	36.48			23.76						36.07% 15.00'	
158.6	163.6	Black. Fine grained. Densely oolitic. Matrix 20% black glassy cement, clay ironstone particles and larger pale grey green pieces. Irregular fracture. H-4. No oxidation 100% core recovery	158.6	163.6	37.37			25.34						OR 34.45% 20.70'	
163.6	168.6	Black. Fine grained. Densely oolitic. Matrix 25% blue silt, black glassy cement, clay ironstone pebbles. Irregular fracture. H-3 No oxidation. 100% core recovery	163.6	168.6	34.38			28.14							
168.6	172.9	Blue black. Fine grained. Medium to densely oolitic. Matrix 40% blue silt, clay ironstone pebbles and black cement with rare qtz. grain. Irregular fracture H-3. No oxidation. 100% core recovery	168.6	172.9	31.48			31.61							
172.9	174.3	Black. Fine grained. Moderately oolitic. Matrix 70% black bituminous-like cement, blue silt, clay ironstone pebbles occas. qtz. grain. Irregular fracture H-2 1/2. No oxidation. 100% core recovery	172.9	174.3	26.15			37.57							
174.3	177.0	Black, fine grained, core is thoroughly broken up. Oolitic density grades from sparse (10%) down to rare oolites @ 177'. Matrix is blue silt, black bituminous-like cement, much sand including both glass-like and milky qtz. felspars and some very small gypsum particles - some rare clay ironstone pebbles. No oxidation. 90% core recovery													
		COMPOSITE SAMPLE			33.98	.701	.09	27.69	4.57	.055	12.68	2.08	.99		

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HOLE No. 13-15-91-5W6

DRILL LOG

HOLE No. 13-15-91-5W6 PAGE No. 1

LOCATION 13-15-91-5W6 ELEVATION 2636 DEPTH 121.3 ELEV. TOP ORE 2514.2

completed 2 March 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	13	Sandy brown clay, some boulders.													
13	55'	Sticky blue clay occasional boulders.													
55.0	91.3	Hard grey clay shales.													
91.3	91.8	Hard grey sandstone with silica cement H-4 1/2 Top part has scattered marcasite crystals, bottom section sparse oolites silica cemented.													
91.8	96.3	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, silt in small masses & lenses, clay ironstone pebbles. Irregular fracture core is mostly in wafers 3/4" thick but is partly crushed. H-4. Not oxidized. 80% core recovery.	91.8	96.3	36.22			21.98							
96.3	101.3	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, minor amounts silt & clay ironstone, pebbles, Irregular fracture, core mostly in wafers 1/4" to 3/4" thick. H-4. No oxidation. 85% core recovery.	96.3	101.3	36.40			26.07							
101.3	106.3	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, clay ironstone pebbles, some silt. Irregular fracture. H-4. No oxidation. 10% core recovery.	101.3	106.3	35.16			27.42							
106.3	111.3	Blue black. Fine grained. Medium oolite content. Matrix 50% black glassy, blue silt in small masses & long lenses, clay ironstone pebbles, rare quartz grain. Irregular fracture. H-3 1/2. Not oxidized. 90% core recovery.	106.3	111.3	33.23			29.28							
111.3	114.6	Blue black. Fine grained. moderately oolitic. Matrix 60 - 70% black bituminous-like cement blue silt, clay ironstone pebbles, some pale green mineral, rare qtz. grain. Irregular fracture. H-3 1/2. No oxidation. 90% core recovery.	111.3	114.6	30.15			29.98							
114.6	116.5	Dark blue. Medium grain. Sparsely oolitic. Matrix 90% blue silty sandstone with some black bituminous-like cement. No fracture - very soft. H-1 1/2. No oxidation. 90% core recovery.	114.6	116.5	26.58			36.26							
116.5	119.1	Dark blue. Medium grain, silty sandstone. with rare oolites. H-1 1/2. 100% core recovery.												34.97% / 19.50'	
119.1	121.3	Dark grey blue. Medium grain sandstone, with much grey silt. H-1 1/2. 100% core recovery.												OR 33.68% / 24.70'	
		COMPOSITE SAMPLE			34.46	.701	.15	26.89	5.97	.080	13.66	2.17	1.11		

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DRILL LOG

HOLE No. 14A-15-91-5W6

HOLE No. 14A-15-91-5W6 PAGE No. 1

LOCATION 14A-15-91-5W6 -330' N of Center of LSD ELEVATION 2598 DEPTH 79' ELEV. TOP ORE 2549 ✓

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	14'	Brown, sandy clay and boulders.													completed 1 March 1961
14'	49'	Sticky, blue clay and boulders													
49.0	54.0	Rusty brown, fine grain, densely oolitic, Matrix 30% clay ironstone pebbles, traces of black cement, rust. No fracture, mud-like consistency H-1. thoroughly oxidized. 45% core recovery.	49.0	54.0	38.43			22.50							
54.0	59.0	Black, fine grained. Very densely oolitic. Matrix 20% black, glassy cement, clay ironstone pebbles, some blue and green minerals. Irregular fracture with some wafers 1/2" to 3/4". H-4. No oxidation. 95% core recovery.	54.0	59.0	37.20			23.29							
59.0	64.0	Black. Fine grained. Densely oolitic. Matrix 30% black cement, clay ironstone pebbles and dark silt in small masses. Irregular fracture large sections in wafers 1/8" to 1" thick and edges of wafers show leaching as with water action. H-3. No oxidation. 95% core recovery.	59.0	64.0	35.24			26.71						35.48% / 20.00'	
64.0	67.2	Blue black, fine grained, dense to medium oolite content. Matrix 40% black cement, blue silt, clay ironstone pebbles, irregular fracture, core is partly crushed. H-3. Not oxidized. 100% core recovery.	64.0	67.2	32.57			29.39						OR 33.95% / 24.10' ✓	
67.2	69.0	Blue black. Fine to medium grain. Mediumoolite content. Matrix 50% black cement, blue silt in large & small masses, clay ironstone pebbles, irregular fracture. H-3. Not oxidized. 100% core recovery.	67.2	69.0	28.40			34.84							
69.0	72.1	Blue black. Medium grain, moderately oolitic. Matrix 70% black cement, blue silt, clay ironstone, pebbles, rare sand grains, Irregular fracture. H-2 1/2. Not oxidized. 100% core recovery.	69.0	72.1	27.26			35.75							
72.1	73.1	Dark blue, medium grain. Sparsely oolitic. Matrix 90%, silty blue sandstone with traces of black cement. Irregular fracture, some wafering 1/2" thick. H-2. No oxidation. 100% core recovery.	72.1	73.1	24.03			39.62							
73.1	77.0	Dark blue silty sandstone with rare oolites. H-2													
77.0	79.0	Blue silty shale with grit. H- 1/ 1/2.													
		COMPOSITE SAMPLE			34.29	.656	.18	27.17	6.08	.067	12.96	2.09	1.06		

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HOLE No. 14E-15-91-5W6

DRILL LOG

HOLE No. 14E-15-91-5W6 PAGE No. 1

LOCATION 14E-15-91-5W6-660N of center of LSD ELEVATION 2591 DEPTH 67 ELEV. TOP ORE 2547.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	14'	Sandy brown clay													completed 28 February 1961
14	40'	Blue clay slightly sticky with sand.													
40	44.5	Sand and gravel in clay.													
44.5	49.5	Black, fine grained, densely oolitic. Matrix 25% black cement, rust, clay ironstone pebbles, Irregular fracture with some wafering - wafers 1/4" thick. Oxidized H-2 1/2. 70% core recovery.													
49.5	54.5	Brownish black, fine grained, densely oolitic. Matrix 25% black cement, clay ironstone pebbles, rust, Irregular fracture. H-2 1/2. Oxidized 20% core recovery.													
54.5	59.5	Blue black. Fine grained. Medium oolite content. Matrix 50% black cement, blue silt in small masses - clay ironstone pebbles some rust. Irregular fracture - H-2 1/2. Some oxidation. 60% core recovery.													
59.5	64.5	Blue black, fine grained, Medium to moderate oolite content. Very poor core recovery. 15%.													
64.5	65.5	Black. fine grained, rare oolites in a very dark silty sand stone. 50% core recovery.													
65.5	67.0	Greyish brown silty shale.													

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HOLE No. 15-15-91-5W6

DRILL LOG

HOLE No. 15-15-91-5W6 PAGE No. 1

LOCATION 15-15-91-5W6

ELEVATION 2591 DEPTH 63.5 ELEV. TOP ORE 2553

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15'	Sandy brown clay.													completed 27 February 1961
15'	38.0	Sticky blue clay.													
38.0	43.0	Brown to black. Fine grained. densely oolitic Matrix 30% black cement, blue silt in small masses in part having the appearance and texture of fossil wood, clay ironstone pebbles, Irregular fracture unoxidized section in wafers 1/8" to 3/4" thick with H-4 oxidized section very soft. 90% core recovery.	38.0	43.0	34.30			24.76							
43.0	48.0	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles, Some khakhi coloured liquid between wafers. Irregular fracture wafered in 1/2" thick wafers. H-4 slight oxidation - 80% core recovery.	43.0	48.0	35.28			25.32						35.06% / 15.00' OR	
48.0	53.0	Brown to black. Fine grain. Densely oolitic. Matrix 30% black shiney cement , clay ironstone pebbles, some silt, some rust. Irregular fracture, wafers 1/2" thick. H-4. Some rust. 80% core recovery.	48.0	53.0	35.60			25.78						34.47% / 20.00'	✓
53.0	58.0	Brown to black. Fine grained, Medium oolite content. Matrix 50% black cement, blue silt, rust, clay ironstone pebbles. Irregular fracture with occas. wafer 1/4". Wafers H-3 1/2. Remainder very soft H-1 oxidized. 70% core recovery.	53.0	58.0	32.73			27.63							
58.0	61.9	Black to brown. Fine grained. Medium to rare oolites. Thoroughly oxidized with core recovery only 35%.													
61.9	63.5	Blue silty sandstone, very soft.													
		COMPOSITE SAMPLE			34.83	.704	.17	25.54	6.25	.054	15.00	1.76	1.17		

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HOLE No. 15B-15-91-5W6

DRILL LOG

HOLE No. 15B-15-91-5W6 PAGE No. 1

LOCATION 15B-15-91-5W6-660E of center of LSD ELEVATION 2573.5 DEPTH 60' ELEV. TOP ORE 2524.0

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12'	Sandy brown clay and boulders.													completed 27 February 1961
12'	42.2	Sticky grey blue clay.													
42.4	47.2	Lost core.													
47.2	62.2	50% core recovery. Top 6" is thoroughly oxidized sandstone with occasional oolite. Remainder silty dark grey sandstone.													

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HOLE No. 16A-15-91-5W6

DRILL LOG

LOCATION 427' S of Centre L/S 16

HOLE No. 16A-15-91-5W6 PAGE No. 1

ELEVATION 2587.6 DEPTH 65.6' ELEV. TOP ORE 2537

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	50.6	Glacial till - brown and grey clays													completed 20 January 1961
50.6		Top ore zone													
50.6	54.3	Brownish black. Fine grained. Densely oolitic. Matrix 25%, soft black cement clay ironstone pebbles somesilt. Crumbled. Oxidized. 100% core recovery													
54.3'	55.6'	Blue black. Medium grained. Moderately oolitic. Matrix 60% soft cement, silt, clay ironstone pebbles, occas. sand grained. Crumbles readily in fingers. Slight oxidized. 100% core recovery													
55.6'	57.2	Blue black. Medium grained. Sparsely oolitic. Matrix 90-95% silt, pebbles and sand grains. Slight oxidation. Crumbles readily in fingers. Slightly oxidized. 100% core recovery													
57.2'	65.6'	Soft grey shale													

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App. C-90

HOLE No. 16B-15-91-5W6

DRILL LOG

HOLE No. 16B-15-91-5W6 PAGE No. 1

LOCATION 16B-15-91-5W6- 330W of center of LSD ELEVATION 2569 DEPTH 60' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	12'	Sandy brown clay and boulders.													completed 27 February 1961
12'	60'	Sticky blue clay.													

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App. C-91

HOLE No. 9-16-91-5W6

DRILL LOG

HOLE No. 9-16-91-5W6 PAGE No. 1 ✓

LOCATION 9-16-91-5W6

ELEVATION 2689.7 DEPTH 172' ELEV. TOP ORE 2541

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	145.5	Glacial Till - brown and grey clays													Completed 29 January 1961
145.5	148.4	Soft grey silt and clay shale, light grey in color.													
148.4	148.7	Hard, grey shale. Last 1/2" is sparsely oolitic and has some marcasite in blebs.													
148.7		Top Ore Zone													
148.7	149.1	Dark grey. Fine grained. Densely oolitic. Matrix 30% mostly a silica cement, oolites are very black and fresh looking. Irregular fracture. H-4. No oxidation 100% core recovery	148.7	149.1	29.30			27.35							
149.1	154.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, blue silt and clay ironstone pebbles. Irregular fracture. H-3 1/2 No oxidation. 100% core recovery	149.1	154.0	37.02			24.00						35.78% / 10.30' OR 32.63% / 19.60'	✓
154.0	159.0	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, some silt, clay ironstone pebbles occas. sand grain. Irregular fracture. H- 3 1/2. No oxidation. 100% core recovery	154.0	159.0	35.09			26.70							
159.0	162.0	Blue black. Fine grained. Densely oolitic. Matrix 25% blue silt, glassy cement, clay ironstone, pebbles some pale grey green material. Irregular fracture. H-3 1/2 No oxidation. 100% core recovery	159.0	162.0	31.71			30.15							
162.0	165.6	Blue black. Fine grained. Medium oolitic. Matrix 50% blue silt, glassy cement, clay i ronstone, pebbles some pale grey green material. Irregular fracture, in part wafered. No oxidation. H-3. 100% core recovery	162.0	165.6	29.05			33.75							
165.6	167.3	Blue black. Medium grain. Moderately oolitic. Matrix 70% blue silt black cement, clay ironstone pebbles some sand grains. Irregular to earthy fracture. some wafering. H 2.5 No oxidation. 100% core recovery	165.6	167.3	27.60			35.47							
167.3	168.3	Blue grey. Medium grain. Sparsely oolitic. Matrix 90% blue silt, clay ironstone pebbles some sand grains. Earthy fracture. H-2 No oxidation. 100% core recovery.	167.3	168.3	24.45			39.37							
168.3	169.1	Blue grey fine grained. Rare oolites. Matrix blue grey silt, much sand some clay ironstone pebbles. Very soft and crumbly. No oxidation. 100% core recovery													
169.1	172.0	Blue shale													
		COMPOSITE SAMPLE			32.77	.707	.18	28.46	4.44	.072	12.39	2.13	1.21		

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App. C-92

HOLE No. 10-16-91-5W6

DRILL LOG

LOCATION 465' E of Centre of 10

HOLE No. 10-16-91-5W6 PAGE No. 1

ELEVATION 2726.7 DEPTH 212.2 ELEV. TOP ORE 2540.1

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	186.2	Glacial Till - brown and grey clays													Completed 28 January 1961
186.2	186.6	Hard grey shale													
186.6		Top ore zone													
186.6	191.2	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement and some soft pale grey cement. Core is very soft and crumbling, shows strong leaching. No oxidation but mud between wafers. 100% core recovery	186.6	191.2	35.30			25.30							
191.2	196.2	Black. Fine grained. Densely oolitic. Matrix 20% glassy cement, some clay ironstone pebbles Irregular fracture. H-4. No oxidation. 95% core recovery	191.2	196.2	35.38			26.21							
196.2	198.1	Blue black. Fine grained. Densely oolitic. Matrix. 25% black cement, blue silt, clay ironstone pebbles, rare grain qtz. Irregular fracture. H 3.5 No oxidation. 100% core recovery	196.2	198.1	33.72			28.93						35.07% / 11.50' OR 32.09% / 18.80'	
198.1	201.4	Blue black. Medium grained. Medium oolite content. Matrix 40% blue silt and glassy cement with clay ironstone pebbles and rare qtz. grain. Irregular to earthy fracture. H-3 No oxidation. 100% core recovery	198.1	201.4	30.26			34.24							
201.4	202.8	Blue black. Medium grained. Moderately oolitic. Matrix 70% blue silt, glassy cement, clay ironstone pebbles and sand grains incl. qtz. grains in silty sections. Earthy fracture H-2.5 No oxidation 100% core recovery	201.4	202.8	26.40			38.09							
202.8	205.4	Black. Fine grained Sparsely oolitic. Matrix 90% dark silk, dark cement, some clay ironstone pebbles, some sand grains. Very soft and crumbling with intensive wafering. No oxidation. 100% core recovery	202.8	205.4	24.31			39.61							
205.4	208.6	Grey blue. Fine grained. Rare oolites in a bluish sandstone shale.													
208.6	212.2	Blue shale													
		COMPOSITE SAMPLE			31.92	.697	.10	20.79	4.39	.099	12.76	2.04	1.30		

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App. C-93

HOLE No. 13-16-91-5W6

DRILL LOG

HOLE No. 13-16-91-5W6 PAGE No. 1

LOCATION 13-16-91-5W6

ELEVATION 2666.2 DEPTH 137ft. ELEV. TOP ORE 2541 ✓

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	20'	Brown sandy clay with boulders													completed 13 February 1961
20'	85'	Blue sticky clay													
85'	120'	Grey clay shale													
120'	124.6	Grey silty clay shale, very fine grained. H-2.													
124.6	125.2	Bluish muddy sandstone, having roughly similar characteristics to ore with minute rounded pebbles Similar in size and shape to oolites but blue-grey in colour, many sand graine, mostly qtz. H-2.													
125.2	130.0	Black. Fine grained. Densely oolitic. Matrix 30% black bituminous-like cement, blue-grey silt, clay ironstone pebbles, pale grey-green and pale blue minerals. Irregular fractures but core is wafered, wafers are generally 1/2" to 1" thick. H-2 1/2. Some oxidation. 100% core recovery.	125.2	130.0	33.70			25.46						31.18% / 8.20' OR 30.42% / 9.30'	✓
130.0	133.4	Blue black. Fine grain. Medium oolite content. Matrix 55% black bituminous -like cement, blue silt, clay ironstone pebbles, sand grains (qtz.) Wafers generally 1" in thickness soft. H-2. No oxidation. 100% core recovery.	130.0	133.4	27.64			36.10							
133.4	134.5	Black. Fine grained. Moderately oolitic. Matrix 75% black bituminous-like cement, blue silt, sand grains, clay ironstone pebbles. Irregular fracture. Very soft. H-1 1/2. No oxidation. 100% core recovery.	133.4	134.5	24.73			37.64							
134.5	135.5	Blue black. Fine grained. Sparsely oolitic. Matrix 90% blue silt, black bituminous-like cement. sand grains, some clay ironstone pebbles. Very soft. H 1 1/2. No oxidation. 100% core recovery.	134.5	135.5	23.68			39.50							
135.5	136.8	Blue black. Fine grained. Very rare oolites. Matrix muddy sandstone some black bituminous, like cement. Very soft - H 1 1/2. No oxidation. 100% core recovery.													
136.8	137.0	Light grey, muddy sandstone some rust spots, perhaps rusted out oolites.													
		COMPOSITE SAMPLE			30.91	.666	.15	29.76	5.47	.129	15.14	1.89	.93		

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DRILL LOG

HOLE No. 14-16-91-5W6

LOCATION 14-16-91-5W6

HOLE No. 14-16-91-5W6 PAGE No. 1

ELEVATION 2688.7 DEPTH 158.9 ELEV. TOP ORE 2547.1

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	14'	Brown sandy clay some boulders & Gravel													completed 6 March 1961
14'	70'	Sticky grey blue clay.													
70'	141.4	Hard grey clay shale.													
141.4	141.6	Blue grey hard silty sandstone with rare oolites.													
141.6	146.3	Dark green. Fine grained. Densely oolitic. Matrix 30% black bituminous-like cement, clay ironstone pebbles, some blue silt. Irregular fracture. H 1 1/2. Slightly oxidized. 100% core recovery.	141.6	146.3	31.45			27.51							
146.3	148.1	Blue black. Fine grain. Medium oolitic content. Matrix 50% black cement, blue silt in small masses, clay ironstone pebbles, rare qtz. grains. Irregular fracture. H-2. No oxidation. 100% core recovery.	146.3	148.1	29.10			31.03						30.80% / 6.50' OR 30.52% / 7.50'	
148.1	149.0	Blue black. Medium grain. Moderately oolitic. Matrix 70% silty sandstone with black cement and some clay ironstone pebbles. Irregular fracture H-2. No oxidation. 100% core recovery.	148.1	149.0	28.72			30.68							
149.0	150.8	Dark blue. Medium grain. Sparsely oolitic. Matrix 90% blue silty sandstone with some black cement. H-2. No oxidation. 100% core recovery.													
150.8	152.0	Grey blue silty sandstone with rare oolites.													
152.0	158.9	Grey silty sandstone or shale with grit. 40% core recovery.													
		COMPOSITE SAMPLE			30.87	.689	.15	29.16	5.09	.089	15.06	1.96	1.09		

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DRILL LOG

HOLE No. 15-16-91-5W6.

HOLE No. 15-16-91-5W6. PAGE No. 1

LOCATION 15-16-91-5W6

ELEVATION 2704.5 DEPTH 187.4 ELEV. TOP ORE 2541

completed 4 March 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	13	Sandy brown clay and boulders.													
13'	40'	Sticky blue clay.													
40'	163.4	Hard grey clay shale.													
163.4	163.5	Hard grey sandstone with silica cement. sparse oolites in lower section some marcasite crystals above oolites. H-4.													
163.5	168.5	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles, some lsight deposits of oxidized mud-like material. Irregular fracture wafers 1/8" to 3/4" thick, wafers are separated by khaki coloured mud. H-3 1/2. slight oxidation. 95% core recovery.	163.5	168.5	35.16			24.40							
168.5	173.2	Black, fine grained, densely oolitic, Matrix 25% black glassy cement, clay ironstone pebbles, blue silt in small masses some khakhi coloured mud. Irregular fracture with wafers 1/2" to 1" thick. Wafers separated by thin section of oxidized mud. H-4. Slight oxidation. 95% core recovery.	168.5	173.2	35.32			25.53							
173.2	176.4	Blue black. fine to medium grain. Medium oolite content. Matrix 50% black cement, blue silt in fair sized masses and lenses, clay ironstone pebbles. Irregular fracture with some wafering 1/8" to 1/2" thick. H-3 1/2. No oxidation. 100% core recovery.	173.2	176.4	33.53			27.17							
176.4	179.0	Blue black. Fine grained. Moderately oolitic. Matrix 70% blue silt in large masses, black cement, clay ironstone pebbles, rare qtz. grains. Irregular fracture, wafers 1/8" to 1/2" thick. H-3. No oxidation. 90% core recovery.	176.4	179.0	29.37			31.38							
179.0	180.7	Dark blue. Medium grain. Silty sandstone with sparse oolites & some black cement. H-2. No oxidation - 70% core recovery.	179.0	180.7	25.26			34.97							
180.7	183.4	Grey blue silty sandstone with rare oolites & slight traces of black cement. 50% core recovery.													
183.4	187.4	Grey blue becoming grey. Silty sandstone to silty shale with grit.												34.81% / 12.90'	
														OR	
		COMPOSITE SAMPLE			33.45	.657	.18	26.91	4.70	.093	14.20	2.15	1.20	33.04% / 17.20'	

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HOLE No. 16-16-91-5W6

DRILL LOG

HOLE No. 16-16-91-5W6 PAGE No. 1

LOCATION 16-16-91-5W6

ELEVATION 2657.3 DEPTH 142.2 ELEV. TOP ORE 2543.7

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	12'	Sandy brown clay, occasional boulder.													completed 3 March 1961
12'	70'	Sticky blue clay.													
70.0	113.2	Hard grey clay shale.													
113.2	113.6	Hard grey silt sandstone @ 113.5 becoming sparsely oolitic, silica cement and silica coating on oolites. H-4 1/2.													
113.6	118.6	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, some small masses of this cement, clay ironstone pebbles, Irregular fracture with half the samples length wafered with wafers 1/8" to 3/4" thick - remainder of core is crushed and broken very fine. H-4. No oxidation. 85% oore recovery.	113.6	118.6	36.04			24.69							
118.6	123.6	Black. Fine grained, very densely oolitic. Matrix 20% black glassy cement, blue silt in small masses, clay ironstone pebbles. Some pale green mineral. Irregular fracture. H-4. 90% core recovery (No oxidation).	118.6	123.6	35.72			26.59							
123.6	128.2	Black. Fine grained. Densely oolitic. Matrix 30% black glassy cement, blue silt in small masses clay ironstone pebbles. Some pale green mineral. Irregular fracture. H-4. 90% core recovery (No oxidation).	123.6	128.2	35.08			27.80							
128.2	133.2	Blue black. Medium grained. Medium to moderately oolitic. Matrix 60% black cement, blue silt in fairly large masses, clay ironstone pebbles, rare qtz. grains. Irregular fracture. H-3 1/2. No oxidation. 50% core recovery.	128.2	133.2	29.38			33.91							
133.2	135.2	Black. Fine to medium grain, silty sandstone with sparse oolites (10%), some black bituminous-like cement. H-2 1/2. No oxidation. 95% core recovery.	133.2	135.2	25.36			37.92							
135.2	140.0	Dark blue. Medium grain, silty sandstone containing from 5% oolites at top of section and decreasing to rare oolites near bottom, very little black cement. H-2. No oxidation. 95% core recovery.			35.										
140.0	142.2	Blue grey silty sandstone grading into a grey silty shale with grit.												35.63% / 14.60' OR 32.99% / 21.60'	
		COMPOSITE SAMPLE			32.98	.695	.14	28.84	5.80	.076	13.45	1.98	1.14		

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HOLE No. 1-20-91-5W6

DRILL LOG

HOLE No. 1-20-91-5W6 PAGE No. 1

LOCATION 1-20-91-5W6

ELEVATION 2625 DEPTH 110' ELEV. TOP ORE 2535

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	15'	Brown sandy clay													completed 19 February 1961
15	65'	Sticky blue and grey clays													
65	90'	Hard blue clay													
90	95'	Rusty brown. Medium grain. Very sparse oolites. Matrix 95% / silty sandstone with rust Very soft H- 1 1/2. Oxidized. 20% core recovery.													
95'	97'	Blue green. Medium grain, rare oolites, some rust. Matrix silty sandstone. Very soft. H- 1 1/2. Very slightly oxidized. 50% core recovery.													
97'	100'	Dark blue. Medium grain. Sandstone (grit) very soft.													
100'	100.2	Hard shale, grey, well min. with marcasite. H-4.													
100.2	110.0	Grey silty shale, gritty with fine sand, occasional small rounded pebbles. Soft - H-2.													

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HOLE No. 1-21-91-5W6

DRILL LOG

HOLE No. 1-21-91-5W6 PAGE No. 1

LOCATION 1-21-91-5W6 ELEVATION 2611 DEPTH 96' ELEV. TOP ORE 2545

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown clay.													completed 22 February 1961
15	57	Sticky grey-blue clay.													
57	66	Hard grey clay shale.													
66.0	66.3	Grey. Fine to medium grain, sparse to densely oolitic. Matrix is sandstone with black cement shot through with hair-lines of silica top most oolites are silica coated. Irregular fracture. H-4. No oxidation. 100% core recovery.	66.0	66.3	31.05			31.08						36.01% 15.30'	
66.3	71.3	Dark brown. Fine grained. Densely oolitic. Matric 25% black cement, clay ironstone pebbles some rust. Irregular fracture, wafered, wafers are 1/8" to 3/4" thick, core is generally quite soft and crumbly. H-2. Oxidized. 100% core recovery.	66.3	71.3	36.73			24.61						OR 33.75% 23.20'	✓
71.3	76.3	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles. Irregular fracture, friable, core is shattered. H-4. Some oxidation along jointing planes. 95% core recovery.	71.3	76.3	36.25			25.58							
76.3	81.3	Blue black. Fine grained. Densely oolitic. Matrix 30% black cement, blue silt clay ironstone pebbles, Irregular fracture. H-4. No oxidation. 90% core recovery.	76.3	81.3	35.35			26.69							
81.3	85.1	Blue black. Fine grained. Moderately oolitic. Matrix 40% black glassy to bituminous-like cement. Blue silt in small masses, clay ironstone pebbles and sand grains. Irregular fracture. H-3. No oxidation. 85% core recovery.	81.3	85.1	32.30			28.59							
85.1	87.3	Blue black. Fine grained. Moderately to sparsely oolitic. Matrix 75-80% blue silt, black cement, clay ironstone pebbles and sand grains. Irregular fracture core is broken and crushed. H-2. No oxidation. 90% core recovery.	85.1	87.3	27.79			36.91							
87.3	89.2	Blue grey. Medium grained. Sparsely oolitic. Matrix 90 - 95% silty sand stone with some black cement. Irregular fracture - H-1 1/2-2.	87.3	89.2	25.44			32.92							
89.2	96.0	Blue grey, very soft sandstone containing blue silt. COMPOSITE SAMPLE			34.51	.714	.15	26.95	4.98	.057	13.98	1.59	.78		

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DRILL LOG

HOLE No. 2-21-91-5W6 | HOLE No. 2-21-91-5W6 PAGE No. 1

LOCATION 2-21-91-5W6 | ELEVATION 2653 DEPTH 149' ELEV. TOP ORE 2540'

Completed 12 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15'	Sandy brown clay with boulders													
15'	27'	Blueclay													
27'	112'	Grey clay shale													
112'	113'	Hard grey sandstone shale from 112.5 - 113' very rare oolites some black cement.													
113.0	118.0	Black. Fine grained. Densely oolitic. Matrix 25%, black glassy cement, clay ironstone pebbles, some grey blue silt and very rare quartz grains. Irregular fracture H-3 1/2-4. No oxidation. 100% core recovery.	113.0	118.0	37.49			23.96							
118.0	123.0	Black. Fine grained. Densely oolitic. Matrix 20%, black glassy cement, clay ironstone pebbles, a very little grey blue silt, some pale grey-green mineral. Irregular fracture, core friable and shattered. H-4. No oxidation. 85% core recovery.	118.0	123.0	35.70			24.81							
123.0	126.5	Black. Fine grained. Densely oolitic. Matrix 25% glassy cement, blue silt, clay ironstone pebbles. Irregular fracture. H-3 1/2. No oxidation. 95% core recovery.	123.0	126.5	35.55			26.46							
126.5	128.6	Blue black, Fine grained. Medium oolite content. Matrix 40% blue silt in small masses, black glassy cement clay ironstone, pebbles. Irregular fracture. H-3 1/2. No oxidation. 100% oore recovery.	126.5	128.6	32.79			28.18							
128.6	129.6	Blue black. Fine grained. Moderate to medium oolite content. Matrix 60% blue silt in massive seams and blobs, black glassy cement, clay ironstone pebbles. Irregular fracture, some wafering of core - wafers are 1/2" to 1" thick. H-3. No oxidation - 100% core recovery.	128.6	129.6	30.11			31.56							
129.6	131.1	Black. Fine grained. Sparse to moderately oolitic. Matrix 85% black bituminous-like cement, silt, clay ironstone pebbles, some sand grains. Very soft, some H-1 to H-1 1/2. No oxidation. 100% core recovery.	129.6	131.1	28.57			34/49							
131.1	133.0	Blue black, fine grained, rare oolites becoming very rare from 132'-133'. Matrix muddy sandstone. Very soft. H-1 to 1 1/2.												36.32% / 13.50' OR 34.93% / 18.10'	
133.0	147'	Grey silty shale.													
		COMPOSITE SAMPLE			34.90	.701	.12	25.55	5.29	.056	14.61	2.03	.97		

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HOLE No. 3-21-91-5W6

DRILL LOG

HOLE No. 3-21-91-5W6 PAGE No. 1

LOCATION 3-21-91-5W6

ELEVATION 2643 DEPTH 127 ELEV. TOP ORE 2541

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	15.0	Brown clay.													Completed 21 February 1961
15.0	57.0	Sticky blue grey clay.													
57.0'	102.0	Hard grey clay shale.													
102.0	102.6	Light grey sandstone, with some grey silt and with oolites coated and cemented with silica.													
102.6	107.6	Brownish black. Fine grained. Densely oolitic. Matrix 25% black cement, clay ironstone pebbles, blue silt in very small masses. Irregular fracture H-3. Somewhat oxidized throughout. 95% core recovery.	102.6	107.6	33.84			26.57							
107.6	111.0	Black. Fine grained. Medium oolite content. Matrix 50% black bituminous-like cement, clay ironstone pebbles, rare quartz grain and a very little silt. Irregular fracture, in wafers 1/4" to 1" thick. H-2. No oxidation. 95% core recovery.	107.6	111.0	30.85			28.78						32.63% 8.40'	
111.0	112.0	Blue grey, medium grain, sparsely oolitic. Matrix 90%: silty sandstone, some black cement. Irregular fracture. H-2. No osidation 90% core recovery.													
112	117	Blue grey sandstone with rare oolites and some black cement H-2-1/2. 35% core recovery.													
117	122	Lost core.													
122	127	Light grey very fine sandy silt with practically no clay at all present. Small blebs and crystals of marcosite are present throughout section. H-1-1/2. No oxication. 80% core recovery.													
		COMPOSITE SAMPLE			32.91	.693	.13	27.07	5.09	.087	14.27	1.87	.91		

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App. C-101

HOLE No. 4-21-91-5W6

DRILL LOG

LOCATION 4-21-91-5W6

HOLE No. 4-21-91-5W6 PAGE No. 1

ELEVATION 2631 DEPTH 111 ELEV. TOP ORE 2540

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	15'	Brown clay.													Completed 18 February 1961
15'	80'	Sticky bluish grey clay.													
80'	91'	Hard grey clay shale.													
91.0'	95.9'	Blue grey. Medium grain. Medium to sparse oolite content - probably "false" oolites of the proper size and shape but mostly from a light grey to a dark blue-black colour with only a few exhibiting typical onion or pearl-like structure and in these cases the nuclei are very large, in proportion, peces of clay ironstone. Matrix is a silty sandstone with some dull black cement and wavy quartz grains. Irregular fracture. H varies from 2 to 4. No oxidation. 40% core recovery.													
95.9'	111.0	Dark grey. Fine grained. Silty shale with a sprinkling of marcosite to be seen throughout. H-1-1/2 to 2. 40% core recovery.													

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App. C-102

HOLE No. 7-21-91-5W6

DRILL LOG

HOLE No. 7-21-91-5W6 PAGE No. 1

LOCATION 7-21-91-5W6

ELEVATION 2617 DEPTH 97' ELEV. TOP ORE 2547'

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	18'	Brown clay.													Completed 11 February 1961
18'	45'	Blue clay.													
45'	69'	Grey clay shale.													
69.0	70.0'	Grey sandstone shale with rare oolites. Contains clay ironstone pebbles and faint light coloured horizontal lines which are probably replacement silica cement in stress fractures.													
70.0'	75.0'	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, clay ironstone pebbles. Irregular fracture with some wafering. Wafers are 1/2" to 3/4" thick. H-4. No oxidation. 100% core recovery.	70.0'	75.0'	36.12			22.44							
75.0	79.0'	Black. Fine grained. Densely oolitic Matrix 25%. Black glassy cement, clay ironstone pebbles and some grey blue silt. Irregular fracture with much wafering of core, wafers are 1/4" to 1" thick. H-4. No oxidation. 80% core recovery.	75.0	79.0	35.55			23.23							
79.0	84.0	Blue black. Fine grain. Densely oolitic. Matrix 30% blue silt, black cement, clay ironstone pebbles. Irregular fracture. H-3-1/2. No oxidation. 60% core recovery.	79.0	84.0	32.79			26.80							
84.0	86.0	Blue black. Fine to medium grain. Medium oolitic content. Matrix 40% blue silt. Clay ironstone pebbles, black cement. Irregular to earthly fracture. H-3. No oxidation. 75% core recovery.	84.0	86.0	30.84			29.28							
86.0	89.0	Blue black. Fine grained. Medium oolite content. Matrix 50% blue grey silt, black bituminous-like cement, clay ironstone pebbles, rare quartz sand grain. Irregular fracture. H-3. No oxidation. 60% core recovery.	86.0	89.0	27.76			34.34							
89.0	94.0	Blue black. Fine grain. Moderate to medium oolite content. Matrix 60% blue silt, black bituminous-like cement, clay ironstone pebbles and sand grains. Irregular fracture. H-2-1/2. No oxidation. 30% core recovery.	89.0	94.0	28.08			30.76							
94.0	96.5	Blue black. Fine grained. Sparsely oolitic. Matrix 90% blue silt, black bituminous-like cement, clay ironstone pebbles and numerous sand grains, mostly quartz. Irregular fracture. H-2. No oxidation. 30% core recovery.	94.0	96.5	26.46			35.95						34.27% / 16.00 OR 32.17% / 24.00	
96.5	97.0	Blue shale.													
		COMPOSITE SAMPLE			32.42	.637	.14	28.77	4.57	.099	14.78	1.98	1.01		

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App. C-103

HOLE No. 8-21-91-5W6

DRILL LOG

LOCATION 8-21-91-5W6

HOLE No. 8-21-91-5W6 PAGE No. 1

ELEVATION 2595 DEPTH 73' ELEV. TOP ORE 2547.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	10'	Brown sandy clay with boulders.) glacial.													Completed 26 February 1961
10'	38'	Sticky blue clay. some boulders.													
38'	47.5	Hard grey clay shale.													
47.5	48.0	Hard grey sandstone. Medium grain. Sparsely oolitic. Oolites cemented with silica. 100% core recovery.													
48.0	52.5	Blue black. Medium grain. Medium oolite content. Matrix 40%. black cement, blue silt, clay ironstone pebbles, some sand grains. Irregular fracture. H-3. 10% core recovery.													
52.5	57.5	Black. Fine grained. Densely oolitic. Matrix 25%. black glassy cement, clay ironstone pebbles some of which do contain oolites showing reworking of the deposit-some pale green ruin. Some silt. Irregular fracture-core is mostly crushed and broken. H-4. Some oxidation. 60% core recovery.													
57.5	62.5	Black. Fine grained. Very densely oolitic. Matrix 20%, black glassy cement, clay ironstone pebbles, pale green unusual. Irregular fracture-core crushed and broken H-4. Very little oxidation. 40% core recovery.													
62.5	67.5	Blue black. Fine grained. Dense to moderate oolite content. Matrix 35-40% black cement, blue silt, clay ironstone pebbles, Irregular fracture. H-3. Some oxidation. 30% core recovery.													
67.5	72.5	Blue black. Fine grained. Medium to moderate oolitic content. Matrix 60% black cement, blue silt, clay ironstone pebbles. Some sand grains. Irregular fracture. H-3. Some oxidation. 25% core recovery.													
72.5	73.0	Blue silty sandstone with rare oolites. 50% core recovery.													
		This hole not sampled because of very poor core recovery.													

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DRILL LOG

HOLE No. 8A-21-91-5W6

HOLE No. 8A-21-91-5W6 PAGE No. 1

LOCATION 330' E of centre of 8

ELEVATION 2588 DEPTH 71.2' ELEV. TOP ORE 2546.8

completed 27 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	10	Sandy brown clay.													
10	38	Sticky blue clay, some boulders.													
38	41.2	Hard grey clay shale.													
41.2	41.5	Hard grey sandstone. Medium grain. Moderately oolitic. Some silica cement. Irregular fracture. H-3. Some oxidation. 100% core recovery.													
41.5	46.2	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, in part laced with hair lines of silica, clay ironstone pebbles, some pale green and pale blue mineral. Irregular fracture. H-4. except for a short oxidized section which is very soft. 70% core recovery.	41.5	46.2	35.48			24.96							
46.2	51.2	Black. Fine grained. Densely oolitic. Matrix 25% black glassy cement, many clay ironstone pebbles some blue and green mineral. Irregular fracture - core is broken and crushed. H-4. No apparent oxidation. 40% core recovery.	46.2	51.2	36.88			24.74							
51.2	56.2	Blue black. Fine grained. Densely oolitic. Matrix 30%, black cement, blue silt in small masses, clay ironstone pebbles. Irregular fracture. H-3-1/2. No oxidation. 95% core recovery.	51.2	56.2	36.56			24.83							
56.2	61.2	Blue black. Fine grained. Medium oolite content. Matrix 50% black cement, blue silt in small masses, clay ironstone masses. Irregular fracture. H-3. No oxidation. 90% core recovery.	56.2	61.2	35.96			23.26							
61.2	62.7	Blue black. Medium grain. Moderately oolitic. Matrix 75% blue silt in fairly large masses, black cement, clay ironstone pebbles and some quartz. Sand grains. Irregular fracture. H-3. No oxidation. 95% core recovery.	61.2	62.7	32.93			27.34							
62.7	64.2	Black. fine grained. Sparsely oolitic. Matrix 90% black bituminous-like cement in a silty sandstone. Irregular fracture. H-2. No oxidation. 100% core recovery.													
64.2	66.9	Rare oolites in silty sandstone.													
66.9	70.5	Silty sandstone with marcasite.													
70.5	71.2	Grey silty shale.												35.99% / 21.20'	
		COMPOSITE SAMPLE			35.99	.671	.19	24.87	5.90	.063	14.80	2.10	1.21		

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App. C-105

HOLE No. 8B-21-91-5W6

DRILL LOG

HOLE No. 8B-21-91-5W6 PAGE No. 1

LOCATION 680' E of centre

ELEVATION 2574 DEPTH 70' ELEV. TOP ORE

completed 27 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown clay													
15	48	Sticky blue clay.													
48	50	Gravel.													
50	70	Hard grey clay shale.													

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App. C-106

HOLE No. 10-21-91-5W6

DRILL LOG

LOCATION 10-21-91-5W6

HOLE No. 10-21-91-5W6 PAGE No. 1

ELEVATION 2606.2 DEPTH 82.2 ELEV. TOP ORE 2554

completed 10 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	20	Brown Clay -- Glacial													
20	52.2	Blue Clay -- Glacial													
52.2	54.7	Rusty Brown, fine to medium grained. Medium to moderately oolitic. Matrix 60%: rusty mud, some grey silt, some vestiges of black cement, some clay ironstone pebbles. No fracture. H-1. Thoroughly oxidized. 50% core recovery.	52.2	54.7	36.85			21.57							
54.7	58.6	Dark brown, fine grained. Generally medium oolite content. Matrix 50%: rusty mud, some black cement, some clay ironstone pebbles, some sand grains. No fracture. H-1 1/2. Well oxidized. 60% core recovery.	54.7	58.6	36.03			21.74							
58.6	63.5	Black. Fine grained. Densely oolitic. Matrix 25%: black cement and grey silt, clay ironstone pebbles. Irregular fracture. H-3 1/2. Very slight oxidation. 85% core recovery.	58.6	63.5	34.57			25.93						34.72% / 16.30' OR 32.30% / 26.10'	
63.5 -	68.5	Black. Fine grained. Densely oolitic. Matrix 30%: black cement grey blue silt and clay ironstone pebbles. Irregular fracture. H-3 1/2. Slight oxidation 90% core recovery.	63.5	68.5	32.79			27.02							
68.5	72.7	Blue black. Fine to medium grained. Medium to densely oolitic. Matrix 40%: blue silt, black glassy cement, clay ironstone pebbles rare sand grains. Irregular fracture but wafered in wafers 1/2" to 3/4" thick. H-3. Slight oxidation along fracture planes only. 95% core recovery.	68.5	72.7	28.92			26.65							
72.7	76.8	Blue black. Fine to medium grained. Medium oolite content. Matrix 55% blue silt, black bituminous-like cement, clay ironstone pebbles, sand grains mostly quartz. Irregular fracture. H-3. No oxidation. 100% core recovery.	72.7	76.8	28.41			27.97							
76.8	78.3	Blue black. Fine grained. Sparsely oolitic. Matrix 90% blue silt black cement, clay ironstone pebbles and sand grains. Irregular fracture. H-2 1/2. No oxidation. 100% core recovery.	76.8	78.3	26.13			35.41							
78.3	82.2	Blue shale.													
		COMPOSITE SAMPLE			34.90	.650	.17	25.34	5.01	.064	14.45	2.07	1.04		

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App. C-107

DRILL LOG

HOLE No. 11-21-91-5W6 HOLE No. 11-21-91-5W6 PAGE No. 1

LOCATION 11-21-91-5W6 ELEVATION 2604 DEPTH 86.5 ELEV. TOP ORE 2537.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	17'	Brown sandy clay, some boulders.													completed 1 March 1961
17'	54'	Sticky, blue clay.													
54.0'	66.5'	Hard, grey clay shale.													
66.5	71.5	Dark grey to reddish black. Fine grained. Densely oolitic. Matrix 30% black cement, some rust, clay ironstone pebbles, some silt. Irregular fracture with some wafers 1/2" thick, H-3 oxidized. 50% core recovery.	66.5	71.5	32.41			28.87							
71.5	73.0	As above section.	71.5	73.0	34.32			24.78						32.85% / 6.50'	
73.0	76.5	Dark blue grey, fine grained, medium to moderately oolitic. Matrix 60% blue silt in small masses, black cement clay ironstone pebbles. Irregular fracture. H-3. Slightly oxidized. 55% core recovery.	73.0	76.5	27.62			33.87							
76.5	79.0	Blue black, fine grain, sparsely oolitic. Matrix 90% blue silt, clay ironstone pebbles, some black cement, some qtz. grains. Irregular fracture H-2. No oxidation. 60% core recovery.	76.5	79.0	24.86			37.18							
79.0	82.5	Rare oolites in blue silty sandstone. H-1 1/2.													
82.5	86.5	Gray, fine grained silty shale with some grit. H-1													
		COMPOSITE SAMPLE			31.03	.678	.21	30.25	6.37	1.42	14.70	1.95	.93		

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App. C-108

HOLE No. 11A-21-91-5W6

DRILL LOG

HOLE No. 11A-21-91-5W6 PAGE No. 1

LOCATION 11A-21-91-5W6 - 390'W of center LSD ELEVATION 2604 DEPTH 87' ELEV. TOP ORE 2542

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Sandy brown clay } glacial till.													Completed 28 February 1961
15	45'	Sticky blue clay }													
45'	62'	Hard grey clay shale.													
62.0	67.0	Rusty brown to dark brown. Fine grained. Densely oolitic. Matrix 30% rust in small masses, some blue silt, some black cement, clay ironstone pabbles (oolites are a greenish khakhi color). Irregular fracture H-1 thoroughly oxidized - 80 % core recovery.	62'	67'	35.02			25.63							
67.0	72.0	Brownish black. Fine grained. Densely oolitic. Matrix 25% black cement, some silt in small masses, clay ironstone pebbles, rust & @ 70' some dull black coal-like bits (hydro-carbon) or possibly fossilized charcoal - light in weight & woody. Irregular fracture. H-3. somewhat oxidized. 40% core recovery.	67.0	72.0	32.57			28.57						33.89% / 10.00 OR 31.76% / 17.30'	
72.0	77.0	Blue black. Fine to medium grain. Medium to densely oolitic. Matrix 40% black cement, blue silt in larger masses. clay-ironstone pebbles, Irregular fracture H-2. Slightly oxidized. 50% core recovery.	72.0	77.0	29.53			31.87							
77.0	79.3	Black, fine grained. Medium tomoderately oolitic. Matrix 60% black bituminous-like cement, blue silt in large masses, clay ironstone pebbles. Irregular fracture. H-3. Very slight oxidation. 90% core recovery.	77.0	79.3	27.34			33.84							
79.3	82.0	Dark blue, fine grained, sparsely oolitic. Matrix 90% dark blue silt, black bituminous-like cement clay ironstone pebbles occas. sand grain. Irregular fracture. H-2. No oxidation. 90% core recovey.													
82.0	82.3	Soft brownish & silt rich sandstone with rare oolites. 10% core recovery.													
82.3	87.0	Soft blue-grey silty shale - 10% recovery.													
		COMPOSITE SAMPLE			31.43	.704	.17	29.20	5.54	.063	16.46	1.86	.89		

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App. C-109

HOLE No. 12-21-91-5W6

DRILL LOG

HOLE No. 12-21-91-5W6 PAGE No. 1

LOCATION 12-21-91-5W6

ELEVATION 2578 DEPTH 80' / 0 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	15'	Sandy brown clay)													Completed 1 March 1961
		) Glacial till.													
15'	80'	Sticky blue clay)													

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App. C-110

HOLE No. 14-21-91-5W6

DRILL LOG

LOCATION 14-21-91-5W6

HOLE No. 14-21-91-5W6 PAGE No. 1

ELEVATION 2580 DEPTH 60'/0' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15'	Sandy brown clay.													completed 27 February 1961
15'	30'	Sticky blue clay.													
30'	60'	Hard grey clay shale.													

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HOLE No. 14A-21-91-5W6

DRILL LOG

HOLE No. 14A-21-91-5W6 PAGE No. 1

LOCATION 14A-21-91-5W6 - 580'W of center of LSD ELEVATION 2572 DEPTH 60 1/0 ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	17'	Sandy brown clay.													Completed 27 Feb 1961
17'	60'	Stickly blue clay .													
		Glacial till.													

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App. C-112

HOLE No. 15-21-91-5W6

DRILL LOG

HOLE No. 15-21-91-5W6 PAGE No. 1

LOCATION 15-21-91-5W6

ELEVATION 2596 DEPTH 75' ELEV. TOP ORE 2534.2

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown clay													Completed 8 February 1961
15	43	Sticky blue clay (glacial)													
43'	51.7	Grey clay													
51.7	55.0	Rusty brown, medium grained, no oolites noted. Matrix is thoroughly oxidized mud with some qtz. grains. 50% core recovery	51.7	55.0											
55.0	61.6	Dark brown, fine grained. 3%-4% oolites. Matrix grey silt. Qtz. grains and rust. No fracture. H-2.5 Oxidized 70% core recovery	55.0	61.6											
61.6	61.9	Black. Fine grained. Moderately oolitic. Matrix 70% glassy cement and clay ironstone pebbles. Irregular fracture. H-2.5 No oxidation 100% core recovery	61.6	61.9											
61.9	65.0	Dark brown, medium grained. 1- 2% oolites (false oolites) Matrix is blue shale with some rust and sand grains, mostly qtz. H-1.5 Some oxidation. 90% core recovery	61.9	65.0											
65.0	66.7	Mixed rusty brown and blue grey having the appearance of being roughly mixed oxidized mud from iron deposit and shale.	65.0	66.7											
66.7	75.0	Only 25% core recovered. Not reliable. Bit in blue shale at bottom of hole.													

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App. C-113

HOLE No. 15A-21-91-5W6

DRILL LOG

HOLE No. 15A-21-91-5W6 PAGE No. 1

LOCATION 15A-21-91-5W6 - 764'W of Center of LSD ELEVATION 2591 DEPTH 67.5 ELEV. TOP ORE 2533.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15'	Sandy brown clay)													NOTE:- Two foot runs used in this hole but recovery so scanty that hole abandoned after establishing presence of ore.
		) Glacial till.													
15'	57.5	Sticky blue clay)													
57.5	58.5	Brownish-black. Fine grained. Sparsely oolitic. Matrix 90%: black cement, blue silt, clay ironstone pebbles, some rust, some sand grains. Irrigation fracture, very soft H- 1 1/2. Oxidized 70% core recovery.													
58.5	62.5	Brown. Fine grained. Moderate to medium oolite content. Matrix 60%: rusty mud black cement, some blue silt, clay ironstone pebbles & an occas. small qtz. pebble. Mud-like consistency H-1. Thoroughly oxidized. 70% core recovery.													
62.5	67.5	Black to brown. Fine grained. Densely oolitic. Matrix 30%: black cement, clay ironstone pebbles, some silt, some rust. Irregular fracture. H-2. Oxidized. 20% core recovery.													

Completed 28 February 1961

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DRILL LOG

HOLE No. 3-22-91-5W6

HOLE No. 3-22-91-5W6 PAGE No. 1

LOCATION 3-22-91-5W6

ELEVATION 2561 DEPTH 70'/0' ELEV. TOP ORE Nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	10'	Sandy brown clay with some boulders.													completed 24 February 1961
10'	42'	Sticky grey blue clay.													
42'	45'	Much gravel and small boulders in sticky clay.													
45'	50'	Sticky blue clay.													
50'	70'	Hard grey clay shale.													
		No Intersection.													

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App. C-115

HOLE No. 3A-22-91-5W6

DRILL LOG

HOLE No. 3A-22-91-5W6 PAGE No. 1

LOCATION 3A-22-91-5W6 - 330'W of Center of LSD ELEVATION 2581 DEPTH 100'/0' ELEV. TOP ORE

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12'	Brown clay, some boulders.													completed 24 February 1961
12'	60'	Sticky blue and grey clays.													
60'	100'	Hard grey clay shale.													
		No Intersection.													

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App. C-116

HOLE No. 3B-22-91-5W6

DRILL LOG

HOLE No. 3B-22-91-5W6 PAGE No. 1

LOCATION 3B-22-91-5W6-600'W of center of LSD ELEVATION 2581 DEPTH 80'/0' ELEV. TOP ORE

			SAMPLES		ANALYSIS										
From	To	DESCRIPTION	From	To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	12'	Brown clay with boulders.													Completed 24 February 1961
12'	62'	Sticky blue clay with occasional boulder.													
62'	80'	Hard grey clay shale.													

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App. C-117

HOLE No. 3C-22-91-5W6

DRILL LOG

HOLE No. 3c-22-91-5W6 PAGE No. 1

LOCATION 3C-22-91-5W6-330'S of Center of LSD ELEVATION 2574 DEPTH 48.5' ELEV. TOP ORE 2533.5

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0'	14'	Sandy brown clay with some boulders.													completed 28 February 1961
14'	40.5'	Sticky grey blue clay.													
40.5	45.5	Brownich black to dark brown. Fine grained. Medium to moderately oolitic. Matrix 60%; Black cement, clay ironstone pebbles, small masses of blue silt, rust. Irregular fracture, very soft. H 1 1/2 - 1. Oxidized. 25% core recovery.													
45.5	48.0	Black to blue-black. Fine to medium grain. Moderate to rare oolites. Matrix: blue silt, black cement, clay ironstone pebbles, occas. sand grain. Very soft. H-1. Oxidized. 20% core recovery.													
48.0	48.5	Greyish-brown, silty, sandstone. H-2.													

N. S. EDGAR. P. ENG.
MINING ENGINEER

App. C-118

HOLE No. 4-22-91-5W6

DRILL LOG

HOLE No. 4-22-91-5W6 PAGE No. 1

LOCATION 4-22-91-5W6 ELEVATION 2593 DEPTH 72.5' ELEV. TOP ORE 2550.4

Completed 23 February 1961

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12	Brown clay													
12	42.5	Grey and blue sticky clay													
42.5	42.6	Grey sandstone													
42.6	47.5	Black. Fine grained. Densely oolitic. Matrix 25%: black glassy cement clay ironstone pebbles. Irregular fracture, core is broken and crushed. H-3. Some oxidation along vertical jointing fractures. 95% core recovery.	42.6	47.5	37.12			21.22							
47.5	52.5	Black. Fine grained. Very densely oolitic. Matrix 20%: black glassy cement, clay ironstone pebbles a very little pale green mineral, a thin pale blue lime-like deposit on jointing faces. Irregular fracture. H-3-1/2. No oxidation. 50% core recovery.	47.5	52.5	36.46			23.56							
52.5	57.5	Black. Fine grained. Densely oolitic. Matrix 25%: black glassy cement, clay ironstone pebbles, some pale green mineral, some blue silt in small masses. Irregular fracture. H-3-1/2. No oxidation. 90% core recovery.	52.5	57.5	34.06			27.01							
57.5	59.9	Blue black. Fine grain. Medium oolite content. Matrix 50%: blue silt, black glassy cement, clay ironstone pebbles, pale grey-green mineral, hair-line fractures filled with silica (?) Irregular fracture. H-3. Some oxidation along jointing fractures. 100% core recovery.	57.5	59.9	32.78			28.31							
59.9	62.1	Blue black. Fine to medium grain. Medium to moderately oolitic. Matrix 60-65%: blue silt, black cement, clay ironstone pebbles and the occas, sand grain. Irregular fracture. H-3. Slight oxidation along fractures. 100% core recovery.	59.9	62.1	32.38			26.86							
62.1	64.3	Blue black. Medium grain. Moderately oolitic. Matrix 75%: blue silt in fairly large masses, black bituminous-like cement, clay ironstone pebbles, some very pale blue mineral, some sand grains. Irregular fracture. H-3. No oxidation. 100% core recovery.	62.1	64.3	30.94			29.23							
64.5	67.5	Black. Fine grain. Sparsely oolitic. Matrix 90%: grit or sandstone with much silt, some black cement. Very soft. H-1-1/2. No oxidation. 50% core recovery.													
67.5	68.5	Black. Medium grain. Rare oolites. Matrix: silty sandstone very soft H-1-1/2. No oxidation. 70% core recovery.												35.44% / 17.30' OR 34.67% / 21.70'	
68.5	72.5	Grey silty sandstone. H-2. 70% core recovery.													
		COMPOSITE SAMPLE			35.03	.720	.20	25.23	6.03	.061	14.28	1.90	.98		

App. C-119

N. S. EDGAR. P. ENG.
MINING ENGINEER

HOLE No. 4A-22-91-5W6

DRILL LOG

LOCATION 4A-22-91-5W6
360' E of centre of 4

HOLE No. 4A-22-91-5W6 PAGE No. 1

ELEVATION 2591 DEPTH 731 ELEV. TOP ORE 2546

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	12	Sandy brown clay, some boulders.													completed 25 February 1961
12	45	Sticky grey blue clay.													
45.0	50	Black. Fine grained. Densely oolitic. Matrix 25%: black glassy cement, clay ironstone pebbles, rust spots, a thin silica coating on fracture faces. Irregular fracture, core is broken and crushed. H-4. Thick oxidation in seams. 40% core recovery.													
50.0	55.0	Black. Fine grained. Densely oolitic. Matrix 25%: black glassy cement, clay ironstone pebbles, blue silt, some blue green mineral. Irregular fracture core shows wafering for a short length another short length is crushed. H-3-1/2 - 4. Slight oxidation in fractures. 90% core recovery.													
55.0	58.7	Blue black. Fine grained. Dense to medium oolite content. Matrix 40%: black glassy cement, blue silt in small masses, clay ironstone pebbles, some blue green mineral. Irregular fracture. H-3-1/2. No oxidation. 95% core recovery.													
58.7	61.0	Blue black. Fine to medium grain. Moderately oolitic. Matrix 70%: blue silt, black cement, clay ironstone pebbles some pale green mineral. Irregular fracture. H-3. No oxidation. 90% core recovery.													
61.0	63.9	Black. Fine grain. Sparsely oolitic. Matrix 90%: black bituminous-like cement, silt, clay ironstone pebbles, sand grains. Very soft and wafered in wafers 1/8" to 3/4" thick. H-1-1/2. No oxidation. 90% core recovery.													
63.9	66.8	Blue black. Fine to medium grain. Rare oolites. Silty sand stone. H-2-1/2. No oxidation. 90% core recovery.													
66.8	73.0	Blue grey. Medium grain. Much silt - sandstone or grit rock. H-2.													

App. C-120

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5-22-91-5-W6

HOLE No. 5-22-91-5W6

DRILL LOG

HOLE No. 5-22-9p05W6 PAGE No. 1

LOCATION 5-22-91-5W6

ELEVATION 2556 DEPTH 50' ELEV. TOP ORE

SAMPLES From	SAMPLES To	DESCRIPTION	ANALYSIS From	ANALYSIS To	Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	13'	Brown sandy clay with some boulders.)													completed 25 February 1961
13'	42'	) Glacial till. Sandy grey and blue clay with occas. boulder.)													
42'	42.3	Sandstone.													
42.3	50.0	Hard grey clay shale.													

App. C-121

N. S. EDGAR. P. ENG.
MINING ENGINEER

HOLE No. 5A-22-91-5W6

DRILL LOG

HOLE No. 5A-22-91-5W6 PAGE No. 1

LOCATION 5A-22-91-5W6-330W of center of LSD ELEVATION 2565 DEPTH 70'/0' ELEV. TOP ORE

From	To	DESCRIPTION
0'	13'	Sandy brown clay.)
		) Glacial till.
13'	62'	Sticky grey-blue clay.)
62'	66'	Mostly gravel.
66'	70'	Hard grey shale.

SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
												Completed 25 February 1961

App. C-122

N. S. EDGAR, P. ENG.
MINING ENGINEER

HOLE No. 2-28-91-5W6

DRILL LOG

LOCATION 2-28-91-5W6

HOLE No. 2-28-91-5W6 PAGE No. 1

ELEVATION 2567 DEPTH 75' ELEV. TOP ORE nil

From	To	DESCRIPTION	SAMPLES From	SAMPLES To	ANALYSIS Iron	Phos.	Mang.	Silica	Alum.	Sulph.	Ignition Loss	Ca O	Mg O	Average Iron	REMARKS
0	15	Brown clay													Completed 8 February 1961
15	43	Blue sticky clay													
43	75	Grey clay													
		No intersection													

N. S. EDGAR, P. ENG.
MINING ENGINEER

App. C-123

Mineralogy

APPENDIX "I"

Mineralogy of Clear Hills Oolitic Iron Deposit

APPENDIX "I"

MINERALOGY OF CLEAR HILLS OOLITIC IRON DEPOSIT

February 20, 1961

Specimens of oolitic Iron ore from 121.5' in hole 12-2-91-5W6 were submitted for examination by N. Edgar. The material was examined megascopically, microscopically and by X-ray diffraction.

MEGASCOPIC FEATURES

The specimens consisted of oolites of iron oxide as well as rock and mineral fragments set in a shiny black matrix of chamositic material. An estimation with hand lens indicates 60 volume per cent of the material is oolitic iron oxide. The specimens were fractured on curved surfaces suggestion a sub-conchoidal fracture.

X-RAY DIFFRACTION

X-ray diffraction patterns of the material indicate goethite, siderite, and quartz are present. No indication of the chamosite shows that it is poorly crystallized and may be considered as a solidified gel. The diffraction was done with copper radiation and as a result considerable fluorescence of the iron in the samples occurred making the patterns difficult to interpret in detail. Possibly a pattern for chamosite could be obtained by sedimenting the clay fraction and using iron or cobalt radiation. The latter can be done at a later date if it is considered advisable.

MICROSCOPIC FEATURES

Thin and polished sections were prepared and studied. The minerals present along with their volume per cent as measured from thin section, and specific gravity and percent iron as given in the literature, are tabulated below:

Mineral	Vol. %	Sp. Gr.	Wt. %	Wt. % Fe in Mineral	Wt. % Fe in Sample
Goethite	56.5	4.00	62	60	37
Chamosite	30.0	3.0	25	31	7
Siderite	8.5	3.8	9.1	48	4
Quartz	5.0	2.65	3.9	nil	---
Microcline	Trace	2.55	trace	nil	---
				Total Fe =	48

The weight percentages were calculated and these were used to estimate the iron contribution of each mineral present. The total Fe appears too high and this may be due to employing the wrong specific gravities or the incorrect Fe contents for the individual minerals. Of course the possibility exists that the sample studied is richer in oolites than the average intersection.

The oolites of goethite average .6 x .3 mm. but some are 1 mm. x 1 mm. Where the section cut the nucleus of an oolite there is generally a mineral, rock fragment, or area of chamositic material about which the oolite appears to have developed. Some oolites are broken and in places the fragments have formed nuclei for further oolitic growth. These features are consistent with the concept of agitation being an important factor in the development of oolites.

The matrix is mostly chamosite with carbonate filling openings left after most of the former was solidified. In places there is some indication of replacement of chamosite and goethite by siderite but this is on a minor scale. The oolites appear to have been suspended in a chamositic gel as there is no evidence of accommodation of one oolite by another as is seen in similar ores where the density of oolites is greater.

In general this ore has many similarities with other oolitic ores I have seen in thin section but has some marked differences also. It is typical of post Precambrian ores that it has relatively high aluminum (due to chamosite), and a high phosphorus content (due to fossil materials). The ore has less carbonate material in the matrix than most oolitic iron ores and in this regard is most like the Cretaceous ores of Aswan, Egypt, where the matrix is mainly chloritic material, possibly chamosite.

Signed,

F.A. Campbell
Department of Geology
University of Alberta

enlarge to this 125%

Appendix "D"

R5 R4=W6

LEGEND

2604 57.0 ELEVATION SURFACE (FEET) ; OVERBURDEN DEPTH (FEET)
2598.4 24.4 ELEVATION TOP OF ORE (FEET) ; ZONE THICKNESS (FEET)

DRILL HOLE, ORE ZONE PRESENT.
DRILL HOLE, ORE ZONE ABSENT.
EROSIONAL EDGE OF ORE ZONE.
ACCESS TRAILS

SHEET 2.
SHEET 1.

N. S. EDGAR B.Sc. P.Eng. EDMONTON — ALBERTA

TOPOGRAPHIC MAP OF SWIFT CREEK AREA
DRILL HOLE LOCATIONS AND ACCESS TRAILS.

DESIGNED BY
DETAILED BY
CHECKED BY
DATE: APRIL 23-1981
SCALE: 1" = 400'
SHEET 1

0' 400' 800' 1200' 1600' 2000'
SCALE

APPENDIX "D"

19610002 #1

SEC. 21

SEC. 22

SEC. 23

SEC. 16

SEC. 15

SEC. 14

H

G

D

SCALE 0' 400' 800' 1200' 1800' 2000'

SHEET 2

SHEET 1

enlarge to this

DRILL HOLE LOCATIONS AND ACCESS TRAILS
SHEET 2
APPENDIX "D"

1961002 #2

4 enlarge
10870

enlarge to this

12590

Appendix "E"

R5

R4=W6M

T91

T91

SEC. 10

SEC. 12

SEC. 7

SEC. 3

SEC. 2

SEC. 35

SEC. 36

LEGEND

88.5 / 29.5 ◆ 36.21% / 20 = OVERBURDEN DEPTH FEET / THICKNESS OF ZONE FEET ◆ % IRON / ORE THICKNESS FEET

= PROPOSED DRILL HOLE LOCATION.

= DRILL HOLE — ORE ZONE ABSENT.

= ORE / GLACIAL TILL — SHOWS EROSIONAL EDGE OF ORE ZONE. DOTTED LINE SHOWS ASSUMED POSITION

= PROPOSED LIMIT OF STRIPPING.

SCALE 0 400' 800' 1200' 1600' 2000'

SHEET 2.

SHEET 1.

N.S. EDGAR B.Sc. P.Eng. EDMONTON — ALBERTA

TOPOGRAPHIC MAP OF SWIFT CREEK AREA SHOWING DRILL HOLE LOCATIONS AND IRON ANALYSES

DESIGNED BY

DETAILED BY

CHECKED BY

DATE: FEB. 23 — 1961

SCALE: 1" = 400'

SHEET 1.

APPENDIX "E" 196/0002 #3

SEC. 21

SEC. 22

SEC. 23

SEC. 16

SEC. 15

SEC. 14

61.8 / 0.3

62 / 20.3 — 66.5 / 16.0 — 32.85% / 6.5

52 / 26.1 — 34.72% / 16.3 — 32.30% / 26.1

70 / 26.5 — 34.27% / 16.0 — 32.17% / 24.0

475 / 22.5 — 41.2 / 25.7 — 35.99% / 21.2 — 35.99% / 21.2

4.9

102 / 15 — 32.63% / 8.4

113 / 19.0 — 35.85% / 15.6 — 34.93% / 18.1

66.0 / 23.2 — 36.01% / 15.3 — 33.75% / 23.2

35.44% / 17.3

426 / 25.9 — 45.0 / 21.8 — 34.67% / 21.7

405 / 7.5

43.5 / 21.0

49.0 / 28.0 — 35.48% / 20.0 — 33.95% / 24.1

38.0 / 23.9 — 35.06% / 15.0 — 34.47% / 20.0

50 / 6.6

135 / 19.0

125 / 11.6 — 31.18% / 8.2 — 30.42% / 9.3

141.6 / 10.4 — 30.80% / 6.5 — 30.52% / 7.5

163.5 / 19.5 — 34.81% / 12.9 — 33.04% / 17.2

113.6 / 26.4 — 35.63% / 14.6 — 32.99% / 21.6

91.8 / 27.3 — 34.97% / 19.5 — 33.68% / 24.7

186.8 / 22.0 — 35.07% / 11.5 — 32.09% / 18.8

148 / 20.4 — 35.76% / 10.3 — 32.63% / 19.6

153 / 23.5 — 35.05% / 19.3 — 34.45% / 20.7

111 / 26.5 — 35.33% / 21.70 — 34.22% / 25.5

90.2 / 21.0 — 35.04% / 12.50 — 33.60% / 19.00

57 / 24.4 — 34.61% / 15.7 — 33.10% / 25.4

21.6 / 15.7

157 / 24.3 — 35.39% / 14.60 — 32.90% / 23.50

126.9 / 26.1 — 35.05% / 22.90 — 35.37% / 24.60

97 / 22.0 — 37.13% / 19.0 — 36.32% / 22.0

59 / 20.0 — 34.96% / 13.7 — 33.67% / 19.9

523 / 10

147.2 / 27.0 — 36.85% / 19.90 — 35.12% / 25.60

104.5 / 26 — 36.50% E. / 19.0 — 34.80% E. / 25.8

93.00 / 26.2 — 36.32% / 18.00 — 34.51% / 26.10

60 / 21.0 — 34.31% / 14.5 — 32.10% / 21.0

52.6 / 10.0

SHEET 2.

SHEET 1.

TOPOGRAPHIC MAP

DRILL HOLE LOCATIONS AND IRON ANALYSES

SHEET 2.

SCALE 0 400' 800' 1200' 1600' 2000'

reduce to this

Reduce 96½%

APPENDIX "E"

196/0002 #4

Enlarge to this 12"

Appendix "F"

A A

B B

C C

D D

E E

F F

SEC. 11

SEC. 12

SEC. 1

SEC. 2

SEC. 35

SEC. 36

SEC. 6

29.5

SHEET 2.

SHEET 1.

N.S. EDGAR B.Sc. P.ENG. EDMONTON – ALBERTA

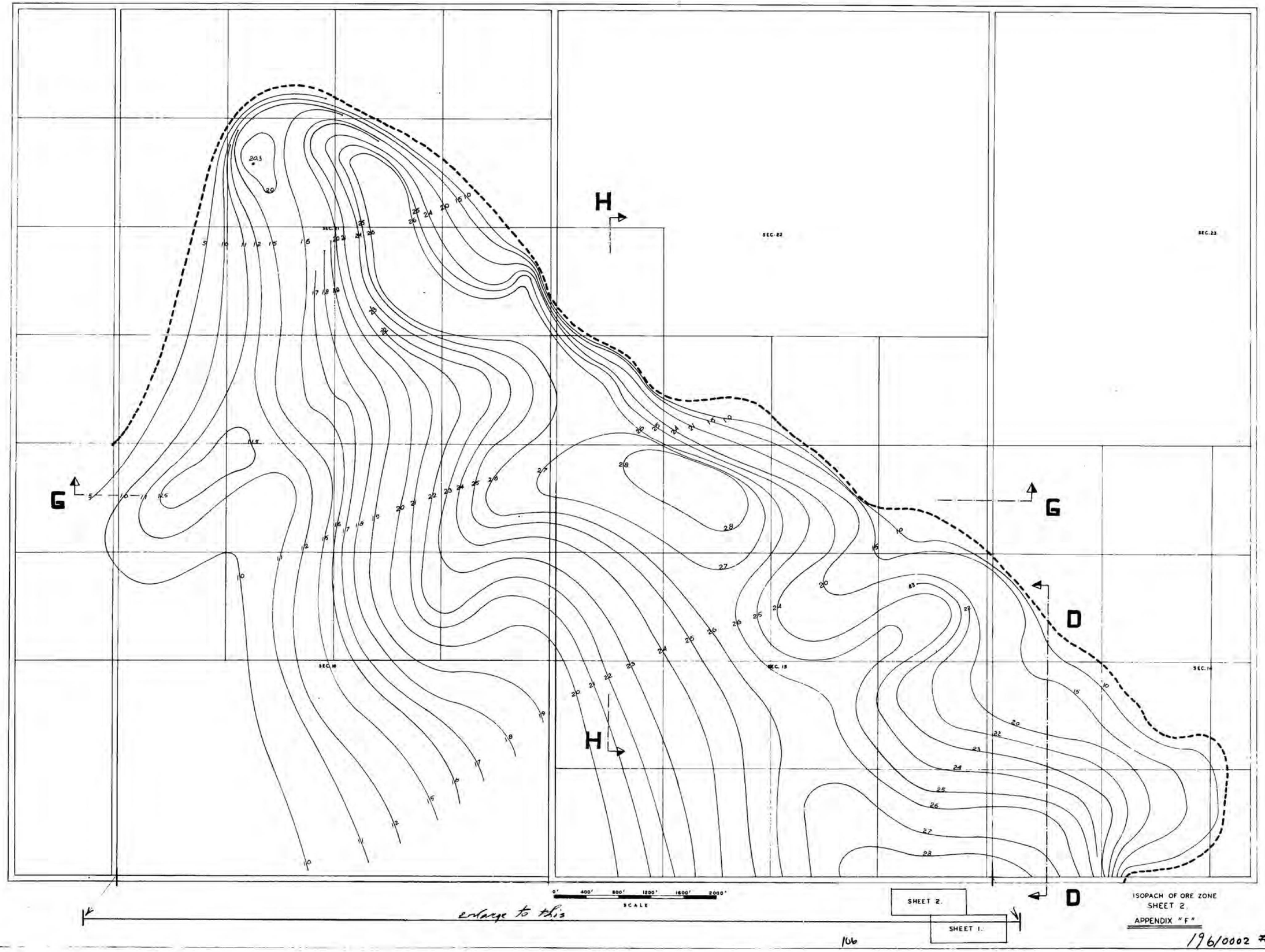
ISOPACH OF ORE ZONE
THICKNESS IN FEET

DESIGNED BY	DATE: MAY 22-1981	SHEET 1
DETAILED BY		
CHECKED BY	SCALE: 1" = 400'	

0' 400' 800' 1200' 1600' 2000'
SCALE

12"

APPENDIX "F" 196/0002 #5



enlarge to this

Enlist
10/29.

106

196/0002 #6

enlarge to this

R4, W6th M

T 91

Appendix "G"

N. S. EDGAR B.Sc P.Eng. EDMONTON — ALBERTA

ISOPACH OF OVERBURDEN
THICKNESS IN FEET

DESIGNED BY
DETAILED BY
CHECKED BY
DATE: MAY 22-1981
SCALE: 1" = 400'

SHEET 1.

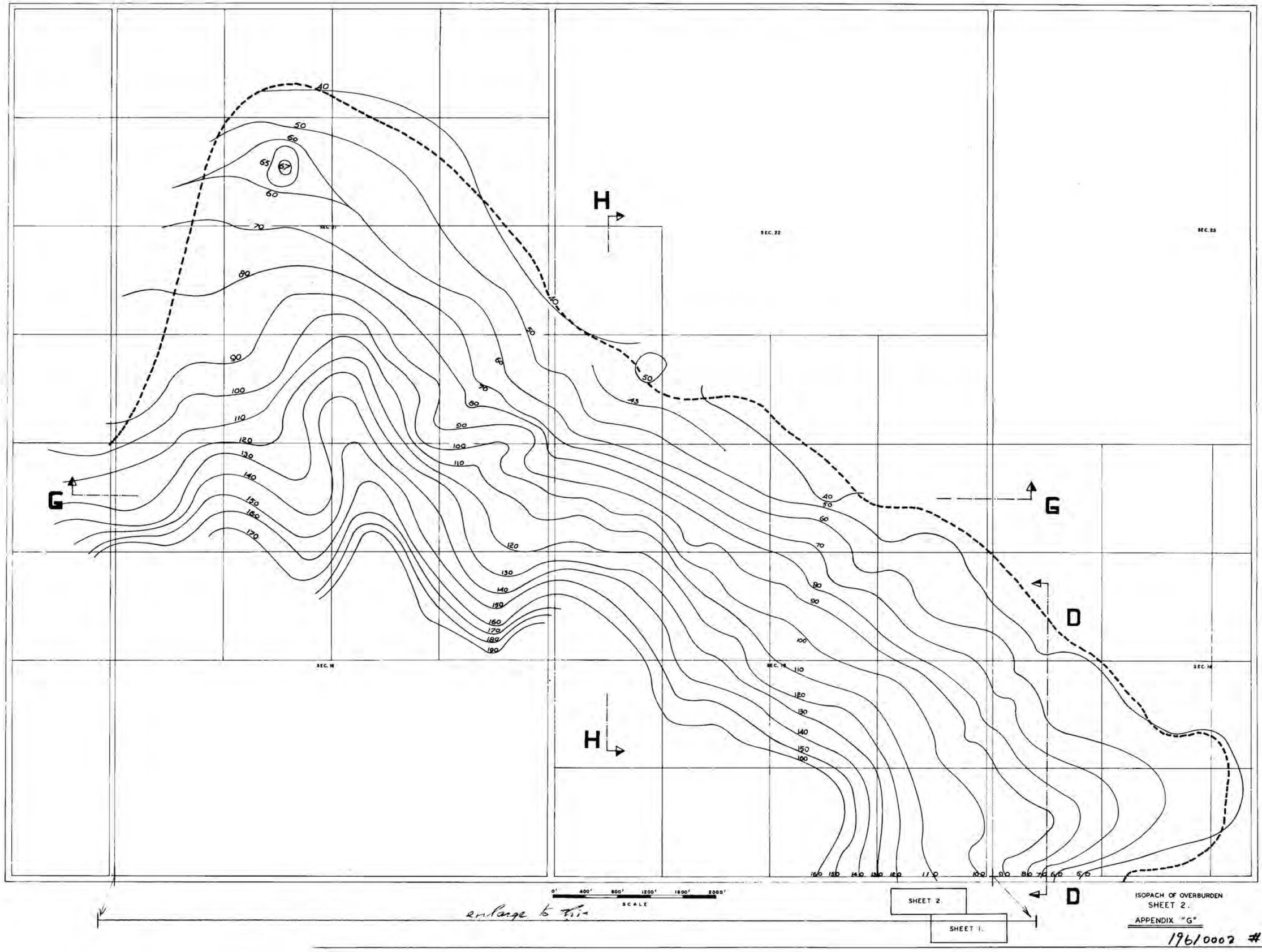
SHEET 2

SHEET 1

SCALE 0 400' 800' 1200' 1600' 2000'

APPENDIX "G"

19610002 #7

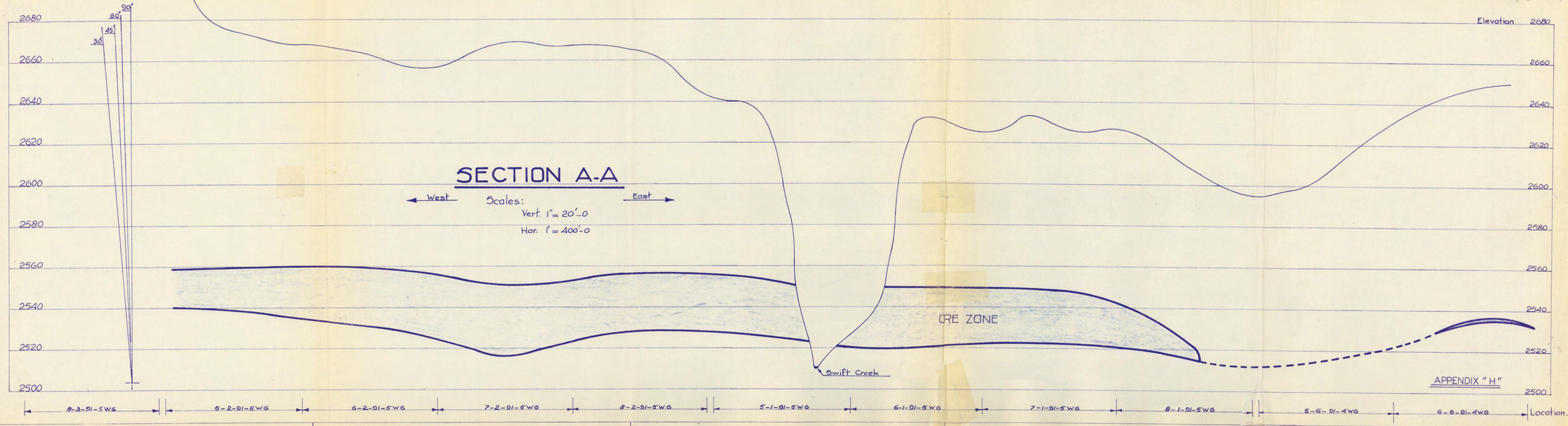


enlarge to fit

ISOPACH OF OVERBURDEN
SHEET 2.
APPENDIX "G"

1961/0002 #8

196/0052 #1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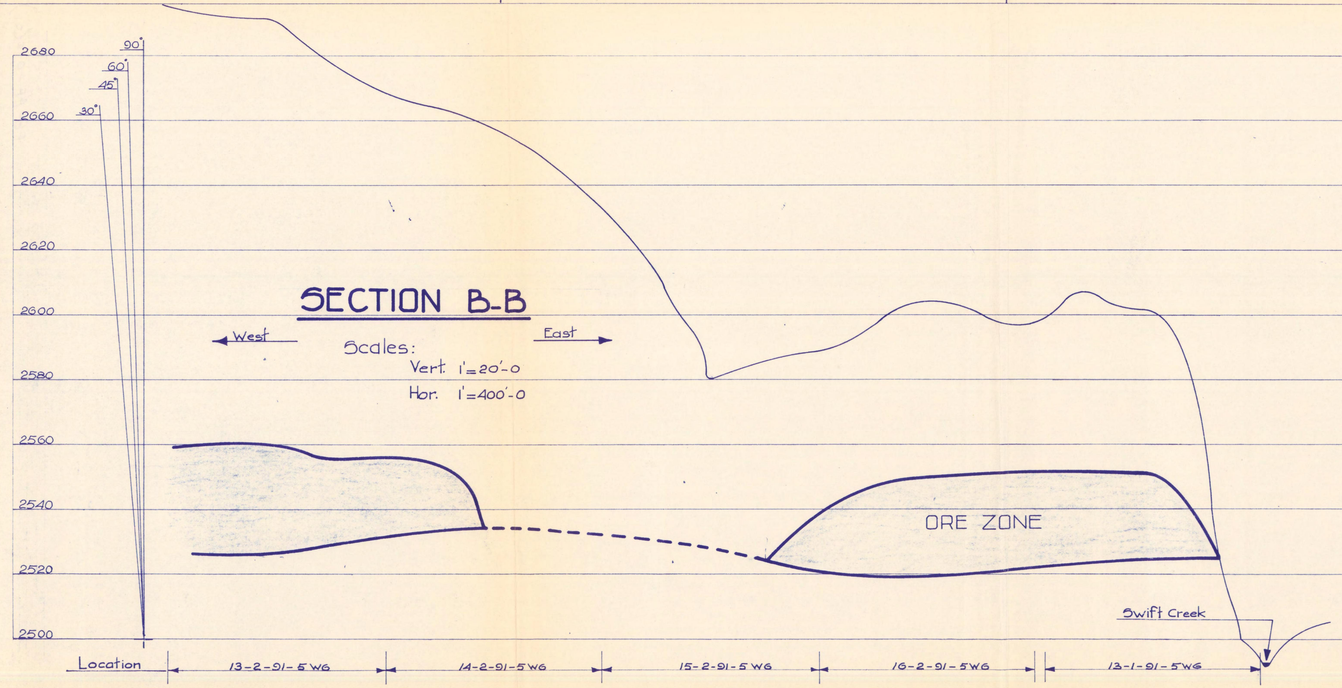
2660
2640
2620
2600
2580
2560
2540
2520
2500
90°
60°
45°
30°
Elevation
SECTION A-A
West
East
Scales:
Vert. 1"= 20'-0
Hor. 1"= 400'-0
ORE ZONE
Swift Creek
APPENDIX "H"
8-3-91-5WG
5-2-91-5WG
6-2-91-5WG
7-2-91-5WG
8-2-91-5WG
5-1-91-5WG
6-1-91-5WG
7-1-91-5WG
8-1-91-5WG
5-6-91-4WG
6-6-91-4WG
Location


2680
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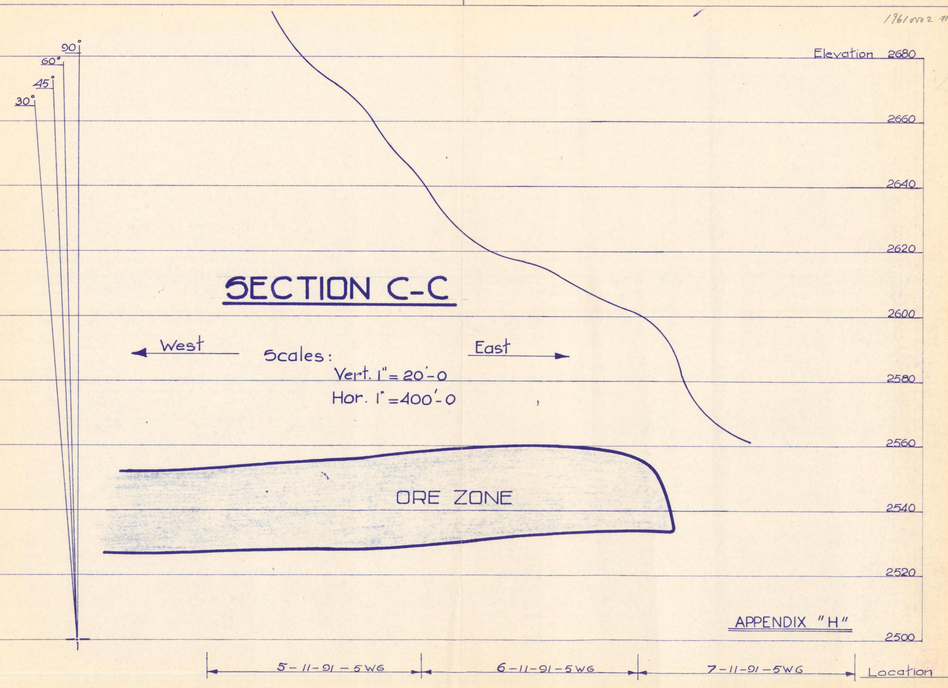
2540
2520
2500
90°
60°
45°
30°
SECTION B-B
West
East
Scales:
Vert. 1"=20'-0
Hor. 1"=400'-0
ORE ZONE
Swift Creek
Location
13-2-91-5W6
14-2-91-5W6
15-2-91-5W6
16-2-91-5W6
12-1-91-5W6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60°
45°
30°
Elevation
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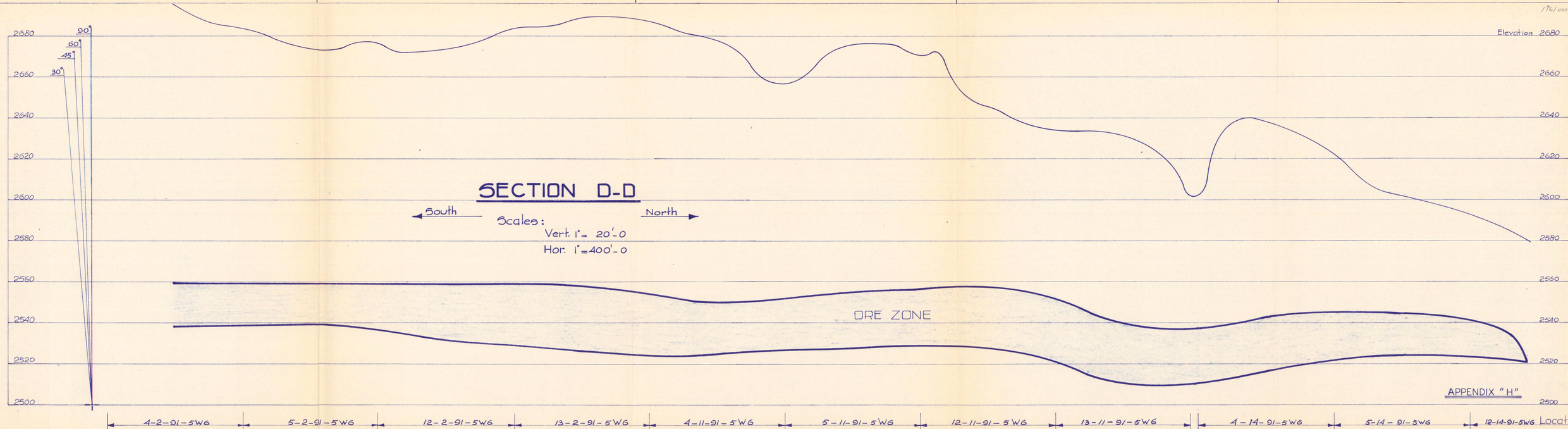
2660
2640
2620
2600
2580
2560
2540
2520
2500
SECTION C-C
West
East
Scales:
Vert. 1"=20'-0
Hor. 1"=400'-0
ORE ZONE
APPENDIX "H"
5-11-91-5W6
6-11-91-5W6
7-11-91-5W6
Location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2680
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2560
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2500
Elevation 2680
2660
2640
2620
2600
2580
2560
2540
2520
2500
SECTION D-D
South
North
Scales:
Vert. 1"= 20'-0
Hor. 1"=400'-0
ORE ZONE
APPENDIX "H"
4-2-91-5W6
5-2-91-5W6
12-2-91-5W6
13-2-91-5W6
4-11-91-5W6
5-11-91-5W6
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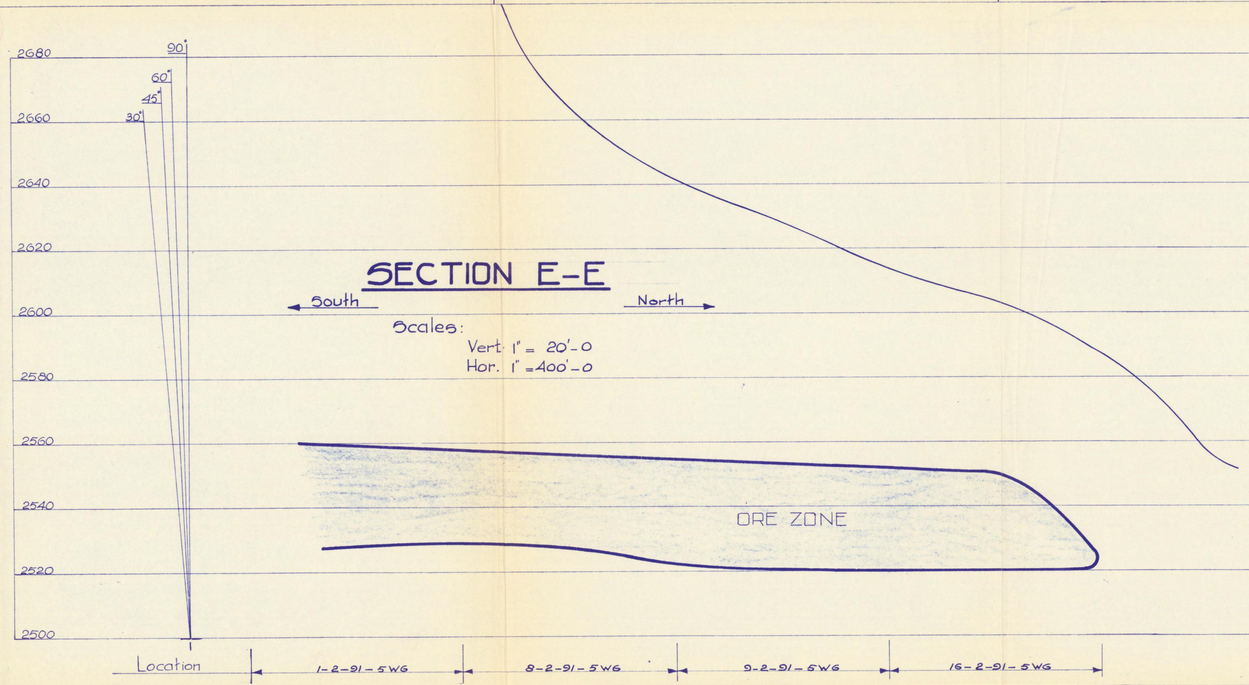
5-14-91-5W6
12-14-91-5W6
Location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2660
2640
2620
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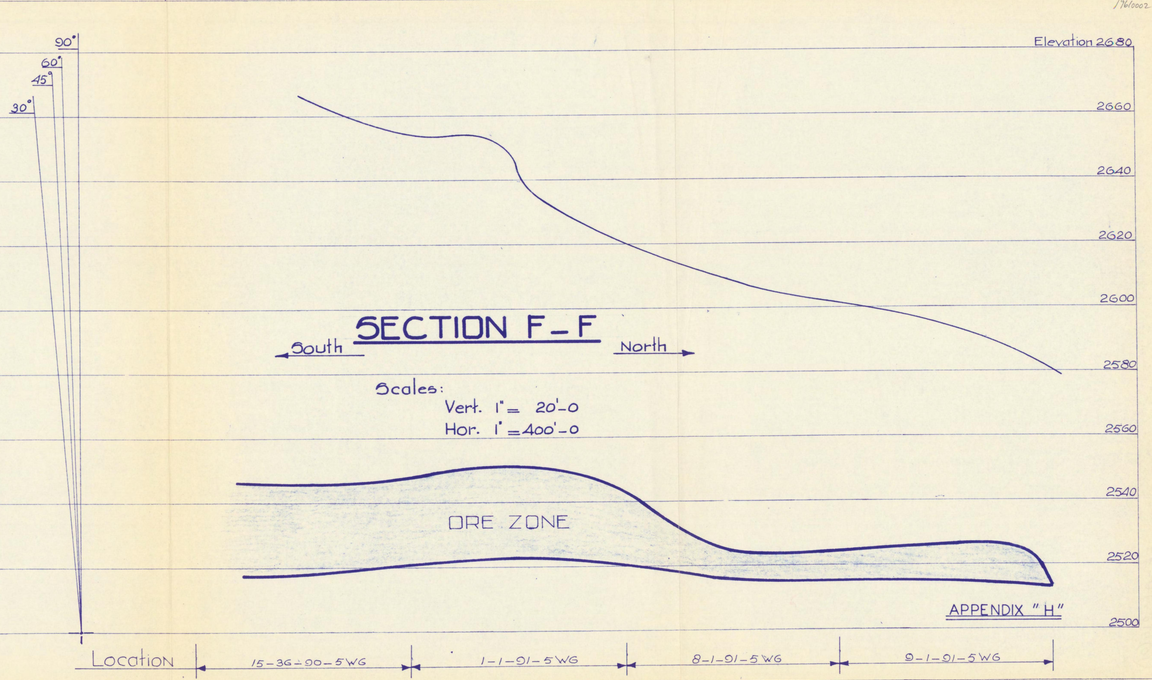
2580
2560
2540
2520
2500
90°
60°
45°
30°
SECTION E-E
South
North
Scales:
Vert. 1" = 20'-0
Hor. 1" = 400'-0
ORE ZONE
Location
1-2-91-5WG
8-2-91-5WG
9-2-91-5WG
16-2-91-5WG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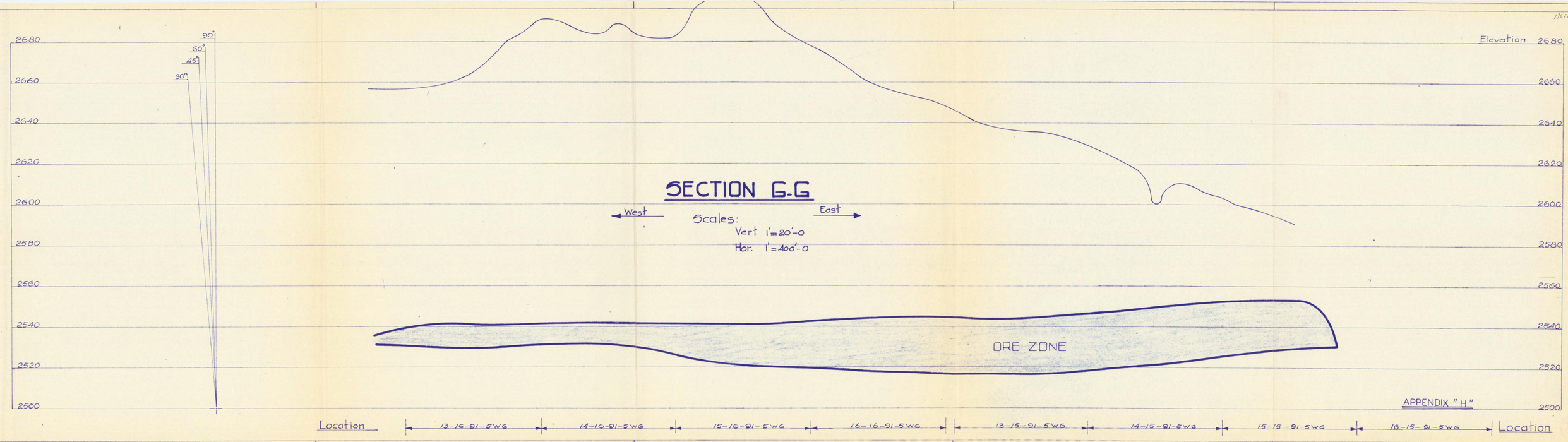
60°
45°
30°
Elevation 2680
2660
2640
2620
2600
2580
2560
2540
2520
2500
SECTION F-F
South
North
Scales:
Vert. 1" = 20'-0
Hor. 1" = 400'-0
ORE ZONE
APPENDIX "H"
Location
15-36-90-5WG
1-1-91-5WG
8-1-91-5WG
9-1-91-5WG

1761 no 2 #13



SECTION G-G

Scales:
Vert. 1"=20'-0
Hor. 1"=400'-0

APPENDIX "H"

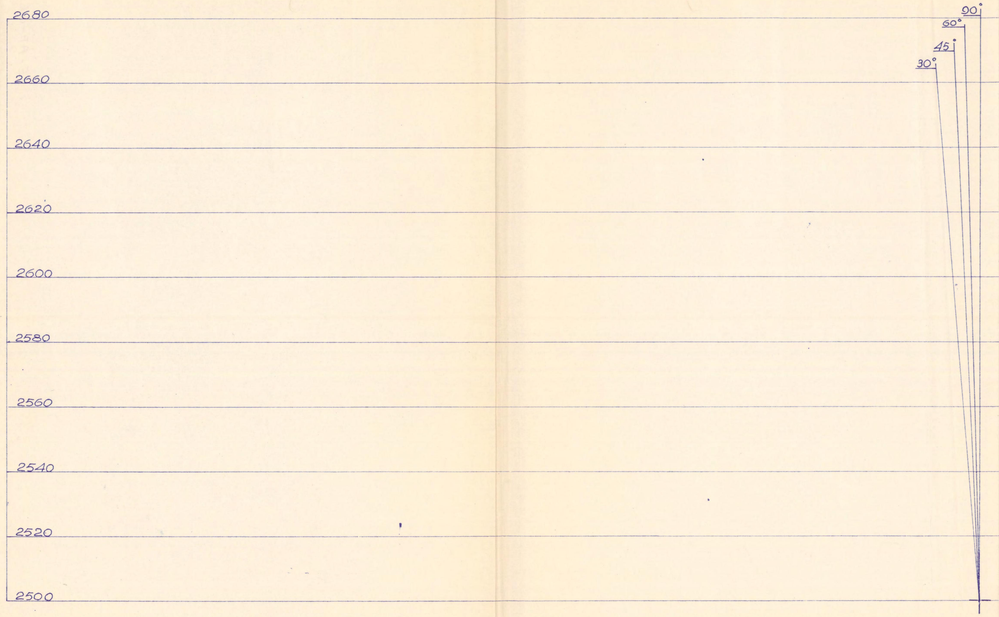
1/16/2002
#14

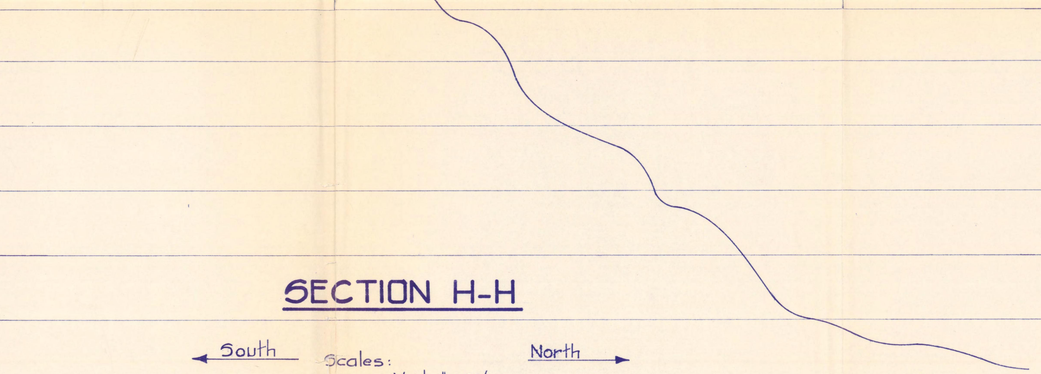
SECTION H-H

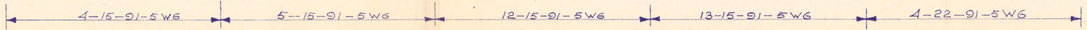
South ← Scales: → North

Vert. 1" = 20'-0

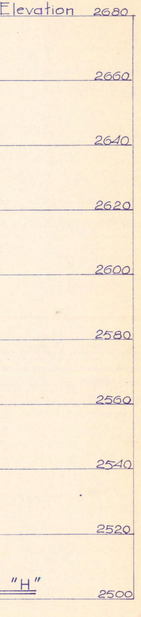
Hor. 1" = 400'-0







Location



APPENDIX "H"