

1980 DRILLING ON THE  
OXIDIZED ORE STOCKPILE

005022

cc. J. Purkis  
D. Gregoire  
A. McIntyre  
J. Carrington  
R. Smith

Prepared by: F. Gay  
Mine Geologist

December 18, 1980

1.0 INTRODUCTION:

In order to better evaluate the grade, the tonnage and the base of the oxidized ore stockpile, a drilling program was initiated in November, 1980.

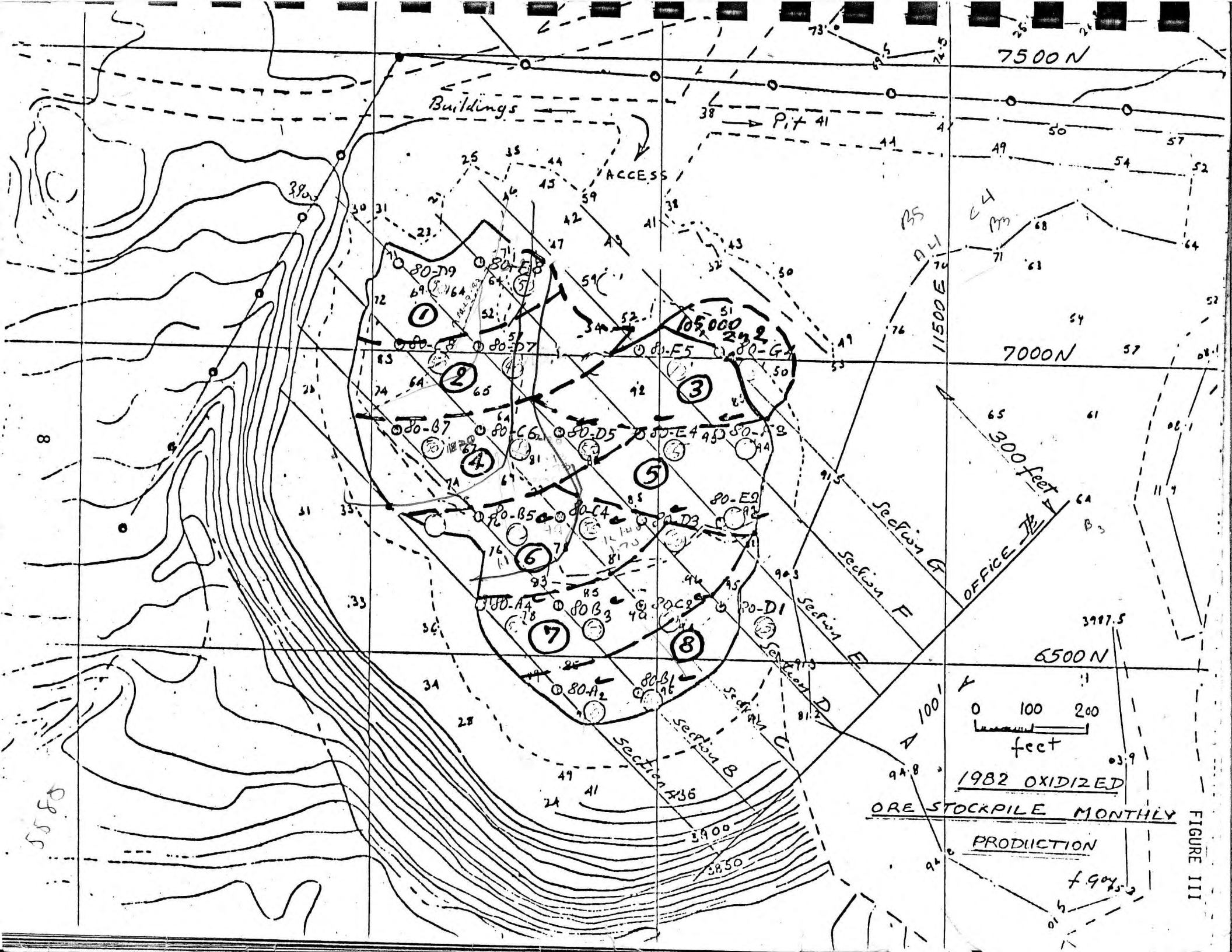
As the material is friable, the reverse circulation method with air was found to be the best solution and the work was performed by Midnight Sun Drilling Company from Whitehorse.

Hole diameter was 6 5/8 inches and only one-tenth of the samples were recovered by using a splitter.

## 2.0 WORK DONE (see Figure I):

Twenty-one (21) holes were drilled for a total of 1,328 feet. Each hole was sampled per ten foot length and the bottom was sampled per five foot length, in order to define the ore/waste contact (see Figure II). One hundred and forty-three (143) samples were collected, split, and submitted for assay.

One composite per hole was done with ore grade material and submitted to the laboratory for metallurgical studies (21 composites were sent to the laboratory, see Appendix I).



A<sub>2</sub>  
B<sub>3</sub>-1

C<sub>2</sub>  
D<sub>3-5</sub>

E<sub>4</sub>

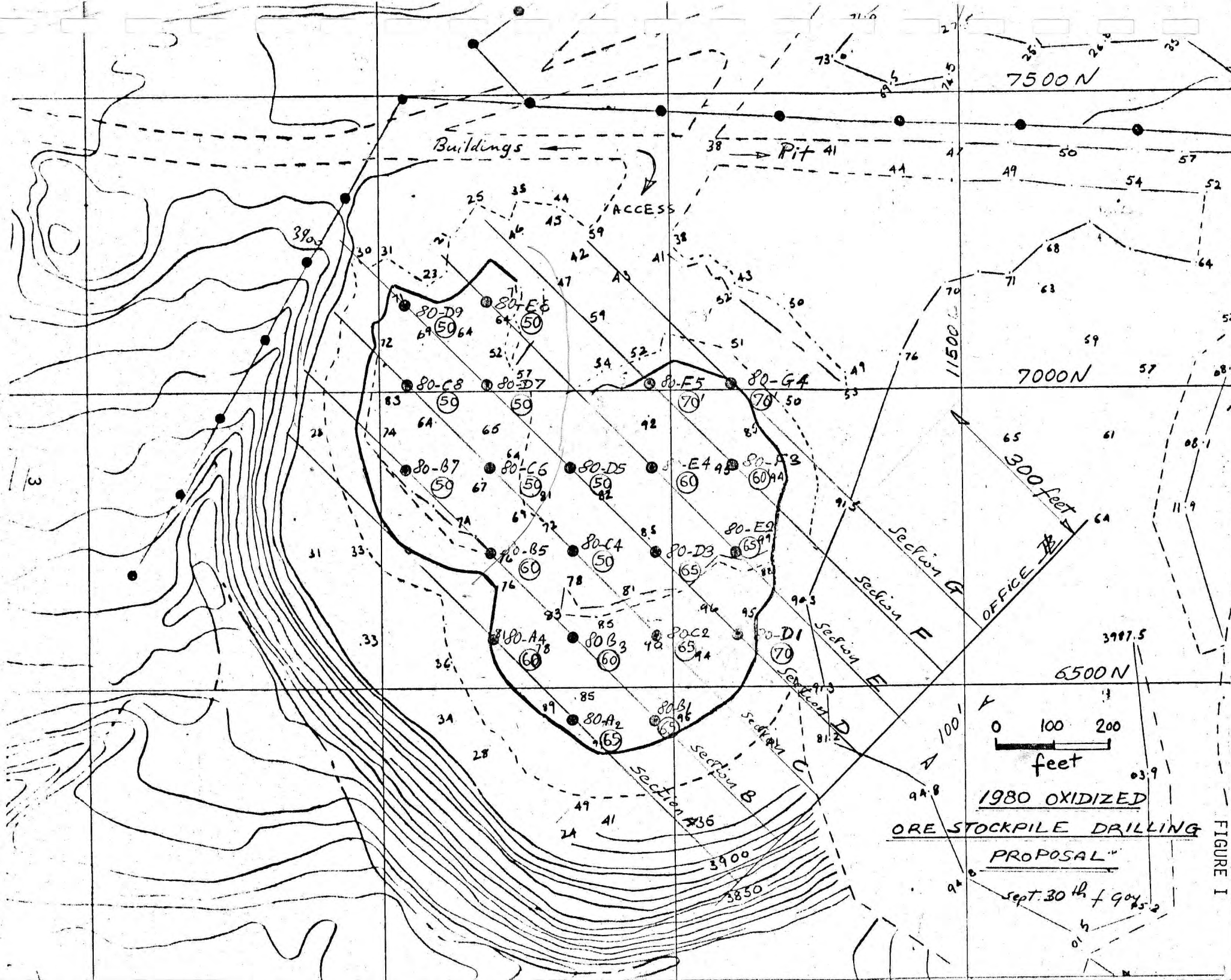
C<sub>2</sub> B<sub>3</sub>

D<sub>3</sub> E<sub>4</sub>

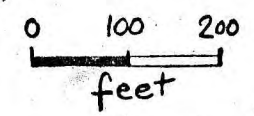
D<sub>5</sub>

2.89  
4.57  
18.92  
39.60

4531



**1980 OXIDIZED  
ORE STOCKPILE DRILLING  
PROPOSAL**



0 100 200  
feet

7500 N

7000 N

6500 N

Buildings

Pit 41

ACCESS

OFFICE

Section G

Section F

Section E

Section D

Section C

Section B

Section A

100'

300 feet

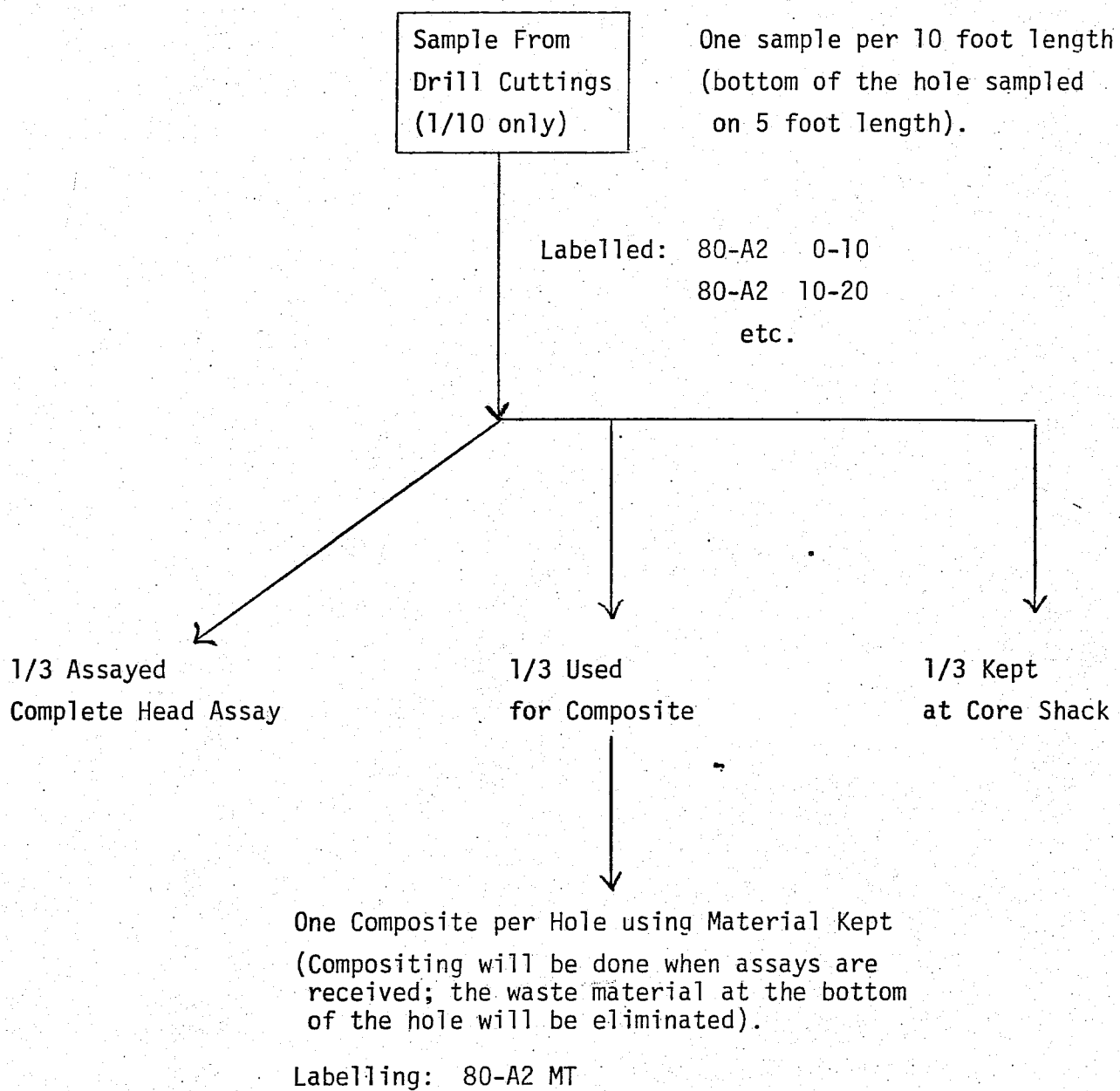
11500'

Sept. 30th 1904

FIGURE I

FIGURE II

SAMPLE HANDLING FOR THE 1980  
OXIDIZED ORE STOCKPILE DRILLING



3.0 RESULTS:

3.1 Assays and Grades:

In Appendix II assays are shown per hole with footage. The overall grade is very similar to what was forecasted in the Second Quarter Review, as shown below:

	Pb	Zn	Ag
Second Quarter Review	2.8	4.8	31.1 gr/MT
Overall Grade from Drilling	2.9	4.7	33.0 gr/MT

3.2 Composites:

Twenty-one (21) composites were made and submitted for assays and metallurgical tests. The combined grade for the 21 composites is:

Pb	Zn	Ag	
3.03	4.8	41.37	See attached memo - Appendix III

T. L. Pathman  
From J. Purkis

Re. Oxide Stockpile Revised Estimate

- This page is copied from a Report by F. Gary published on December 13, 1980. To obtain these numbers a drill program of 21 holes and a resurvey of the pile was undertaken.

3.3 Tonnage Estimation:

3.3.1

The holes were drilled on seven sections (as shown on Figure I) and after surveying, the seven sections were drawn on 1" = 50' scale in order to evaluate the volume of the stockpile. The volume obtained is 982,662.04 cubic yards. If we assume a swelling factor of 30%, the equivalent bank cubic yardage is 755,894 and as the tonnage factor is between 3.1 and 3.5, the final tonnage is between 2,343,271 and 2,645,630 SDT.

3.3.2 Summary of Results:

Volume in Cubic Yards	Volume in Equivalent BCY Swell Factor = 30%	Tonnage with 3.1 TF	Tonnage with 3.5 TF
982,662 CY	755,894 BCY	2,343,271	2,645,629

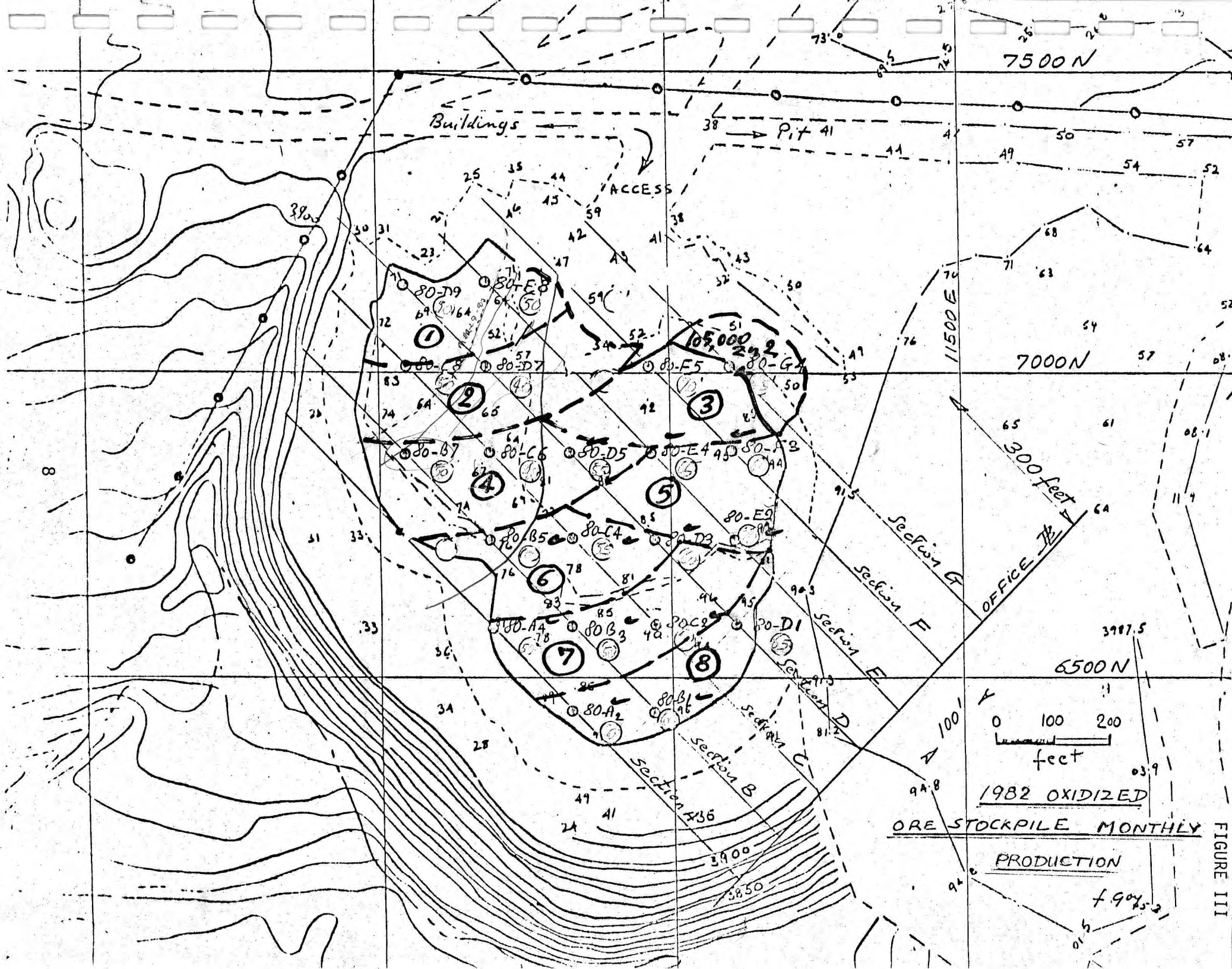
3.3.3 Numbers to be Used:

For planning and forecasting, the following numbers should be used for the future:

Tonnage in SDT	Pb	Zn	AG g/MT
2,400,000	2.9	4.7	33.0

#### 4.0

In order to help the Mill Department in their monthly forecast, a tentative volume and grade estimation was made, as shown on Figure III and in the following pages.



7500 N

Buildings

Pit 41

ACCESS

7000 N

11500 E

300 feet

Section G

Section F

Section E

Section D

Section C

Section B

Section A

6500 N

0 100 200  
feet

1982 OXIDIZED

ORE STOCKPILE MONTHLY

PRODUCTION

f 904.53

FIGURE III

OXIDIZED ORE STOCKPILE

(TENTATIVE VOLUME AND GRADE ESTIMATION PER MONTH)

Monthly Estimation = 279,000 MT (307,500 SDT)

<u>Test Holes Involved</u>		<u>Pb</u>	<u>Zn</u>	<u>Fe</u>	<u>Cu</u>	<u>Ag gr/MT</u>
Month One (279,000 MT)						
80-C8 - 50'		3.5	5.36	25.3	0.12	22.7
80-D9 - 50'		3.1	4.87	25.6	0.11	21.8
80-E8 - 50'		3.14	5.61	24.1	0.14	20.8
Estimated Average:		3.25	5.28	25.0	0.12	21.8
Month Two (279,000 MT)						
80-C8 - 50'		3.5	5.36	25.3	0.12	22.7
80-D7 - 40'		2.4	4.6	20.6	0.08	15.6
Estimated Average:		3.0	5.0	23.0	0.10	19.2
Month Three (279,000 MT) 105,000 SDT of Zone 2 Ore						
	<u>000 MT</u>					
80-F5 - 70'		2.83	4.1	19.4	0.13	39.2
80-G4 - 65'		3.65	4.94	24.4	0.16	41.1
Estimated Average:	184	3.24	4.52	21.9	0.15	40.2
Zone 2 Ore	95	3.2	3.8			33.9
Total Average	279	3.2	4.3			38.1
Month Four (279,000 MT)						
80-B7 - 50'		2.7	4.6	23.5	0.14	18.20
80-C6 - 40'		2.8	4.6	22.4	0.12	21.20
80-D5 - 55'		3.1	4.6	21.1	0.15	42.30
Estimated Tonnage		2.9	4.5	22.3	0.14	27.2

<u>Test Holes Involved</u>	<u>Pb</u>	<u>Zn</u>	<u>Fe</u>	<u>Cu</u>	<u>Ag gr/MT</u>
Month Five (279,000 MT)					
80-E2 - 70'	2.2	4.7	20.2	0.14	27.1
80-E4 - 65'	3.2	5.8	18.7	0.11	46.0
80-F3 - 60'	3.4	5.2	25.6	0.14	41.7
Estimated Average	2.9	5.2	21.5	0.13	38.3
Month Six (279,000 MT)					
80-B5 - 50'	2.5	4.2	18.9	0.09	24.9
80-C4 - 55'	3.0	4.4	18.8	0.15	48.8
80-D3 - 60'	3.1	5.4	23.0	0.12	41.7
Estimated Average	2.9	4.7	20.2	0.12	38.5
Month Seven (279,000 MT)					
80-A4 - 50'	2.5	4.5	20.2	0.21	32.3
80-B3 - 50'	2.6	3.9	18.8	0.17	42.0
80-C2 - 70'	3.2	3.9	18.2	0.14	32.0
Estimated Average	2.8	4.1	19.1	0.17	35.4
Month Eight					
80-A2 - 60'	2.2	3.7	14.8	0.14	30.2
80-B1 - 60'	2.9	4.7	17.9	0.17	35.5
80-D1 - 65'	2.6	4.4	18.1	0.15	29.2
Estimated Average	2.6	4.3	16.9	0.15	31.6
TOTAL ESTIMATION					
2,232,000 MT	2.9	4.7	21.3	0.14	31.3
(2,460,000 SDT)					

Estimated Tonnage in the Stockpile:

2,400,000 SDT	From Zone 1 (based on drill hole depth)
105,000 SDT	From Zone 2 3810 E, D, I, J, and K Blasts
<u>36,000 SDT</u>	From Zone 2 3770 E2 Blast

2,541,000 SDT (2,305,000 MT)

All tonnages mentioned above are the best estimations that one can do with the actual data.

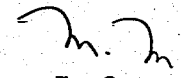

The grades are reliable and should be considered as final.

5.0 CONCLUSIONS:

In spite of the mechanical problems with the drill, the drilling program in the oxidized ore stockpile has been a success and sufficient data was collected to establish a good estimation of volumes and grades.

The volume is slightly higher than what was expected but the grades are very similar.

Metallurgical results have not been completely compiled, but are well advanced and soon we should have a better idea of the metallurgical response of this oxidized ore.

  
F. Gay  
 Mine Geologist

FG/mm

APPENDIX I

LIST OF THE COMPOSITES

To J. Purkis

cc. W. Muir

From F. Gay

A. McIntyre

Date November 28, 1980

Met Technicians

Subject OXIDIZED ORE STOCKPILE COMPOSITES

Attached is a list of composites carried in the metallurgy laboratory on November 26, 1980. All these samples are in orange bags and are labelled as shown on the list below.

Another memo will follow in order to establish the final compositing.

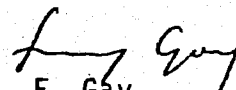
Sample List:

80 A2 MT  
80 A4 MT  
80 B1 MT  
80 B3 MT  
80 B5 MT  
80 B7 MT  
80 C2 MT  
80 C4 MT  
80 C6 MT  
80 C8 MT

80 D1 MT  
80 D3 MT  
80 D5 MT  
80 D7 MT  
80 D9 MT  
80 E2 MT  
80 E4 MT  
80 E8 MT

80 F3 MT  
80 F5 MT  
80 G4 MT

TOTAL 21 SAMPLES

  
F. Gay  
Mine Geologist

APPENDIX II

ASSAYS OF SAMPLES COLLECTED  
FROM 1980 OXIDIZED ORE DRILLING

Sample Origin-- OXIDIZED ORE STOCKPILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Po	Ag <sup>g</sup> /MT	Insol	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>	
<b>80-A2-0-10</b>	2.55	4.14	20.40	.14	.05	12.00	1.05	42.86	1.05	1.25	.16	.06	} 80-A2 MT
10-20	2.21	3.42	13.60	.15	.04	5.30	1.01	53.85	1.01	2.79	.19	.08	
20-30	1.93	2.88	14.40	.17	.12	7.90	.96	52.51	.96	3.23	.12	.11	
30-40	4.07	5.23	15.70	.16	.25	6.10	1.75	43.18	1.75	20.92	.20	.07	
40-50	0.37	0.78	5.90	.10	.03	8.20	.32	45.34	.32	2.30	.10	.04	
50-60	2.10	5.71	18.50	.12	.08	3.70	.72	76.73	.72	.38	.04	.01	
60-65	.25	.25	4.30	.03	.05	3.80	.50	78.23	.50	.15	.04	.0	
65-70	.12	.12	5.30	.01	.04	4.80	.23	77.37	.23	.22	.03	.0	
Average 0-60	2.2	3.7	14.75	.14			.97						
<b>80-A4-0-10</b>	2.27	3.65	22.1	.18	.09	6.96	.99	40.03	.67	2.55	.51	.19	} 80-A4 MT
10-20	2.69	4.13	16.2	.11	.09	5.27	1.14	54.85	.88	3.71	.51	.24	
20-30	2.72	4.22	18.4	.34	.02	4.01	1.03	52.66	.64	.36	.75	.37	
30-40	1.68	5.96	22.5	.20	.08	10.5	.63	42.12	.81	.87	.38	.24	
40-50	2.95	4.49	22.0	.22	.07	14.0	1.40	42.21	1.11	7.28	.58	.21	
50-60	.49	.75	6.2	.04	.06	5.63	.26	72.98	1.12	1.41	.11	.03	
60-65	.28	.41	5.4	.03	.05	4.45	.19	74.68	1.28	.87	.09	.31	
Average 0-50	2.46	4.49	20.24	.21			1.04						

Sample Origin— OXIDIZED OPEN STOCK PILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Po	Ag <sup>g</sup> /MT	Insol <sup>p</sup>	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>		
<b>80B1-0-10</b>	1.90	3.17	14.7	.09	.05	6.71	.85	54.87	1.74	.97	.26	.31	} 80-B MT	
10-20	2.71	2.95	19.3	.13	.05	6.64	.96	42.72	1.04	1.74	.72	.29		
20-30	2.13	4.27	15.6	.19	.05	5.45	.75	51.37	1.00	2.46	.74	.51		
30-40	2.76	5.83	13.9	.26	.08	4.87	1.13	47.42	1.58	4.95	.81	.50		
40-50	3.48	4.76	24.2	.20	.21	10.90	1.69	27.23	1.62	4.95	.44	.12		
50-60	4.14	7.20	19.8	.14	.03	4.14	1.44	33.07	1.08	3.98	.84	.29		
60-65	.42	.69	8.1	.04	.05	5.13	.18	72.14	1.00	.84	.18	.05		
65-70	.06	.08	5.5	.01	.05	5.02	.06	75.16	1.10	.21	.03	.01		
Average 0→60	2.85	4.70	17.9	.17			1.14							
<b>80B30-10</b>	2.74	4.55	18.1	.13	.09	5.71	1.19	47.98	1.06	5.67	.70	.40	} 80-I MT	
10-20	4.03	5.92	20.4	.18	.13	6.24	1.94	40.68	.76	4.76	1.10	.43		
20-30	3.09	4.86	20.4	.15	.10	6.24	1.69	41.08	.71	6.97	.91	.04		
30-40	1.86	2.26	22.5	.27	.09	9.49	1.13	44.75	.70	2.22	.40	.14		
40-50	1.39	2.13	12.4	.13	.09	6.23	.80	62.54	.92	1.60	.50	.09		
50-60	.32	.58	7.4	.09	.07	4.80	.21	74.06	1.05	.39	.24	.08		
60-65	.32	.30	5.7	.03	.05	5.23	.15	77.72	1.00	.50	.19	.03		
Average 0→50	2.62	3.94	18.75	.17			1.35							
<b>80B50-10</b>	2.40	4.73	25.0	.04	.01	1.67	.54	36.65	.64	.41	.69	.36	} 80-E MT	
10-20	2.80	3.33	16.9	.12	.05	3.94	1.14	51.39	.58	2.17	.83	.25		
20-30	2.46	4.45	18.6	.12	.09	7.75	.92	47.19	1.04	2.85	.48	.26		
30-40	3.53	6.30	22.1	.12	.06	6.69	.99	37.41	.87	1.82	.73	.42		
40-50	1.18	2.29	12.0	.06	.05	3.87	.40	60.88	.98	.85	.32	.29		
50-60	.13	.25	4.8	.02	.06	4.43	0.06	79.08	.84	.21	.05	.14		
60-65	.20	.33	4.9	.02	.06	4.56	.10	78.22	.91	.39	.10	.14		
Average 0→50	2.47	4.22	18.9	.09			.80							

Sample Origin-- OXIDIZED O.P.E. STOCKPILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Po	Ag <sup>g</sup> /MT	Insol	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>		
<b>80-B7</b> 0-10	2.56	3.81	29.9	.11	.07	3.46	.57	15.30	.70	1.75	.88	.29	} <b>80 B7</b> <b>MT</b>	
10-20	2.68	5.33	24.1	.19	.06	4.96	.56	30.17	.49	3.20	1.02	.33		
20-30	3.06	5.04	21.1	.21	.06	2.35	.58	37.07	.37	1.93	1.40	.45		
30-40	3.50	5.79	23.4	.12	.11	5.33	.73	30.51	.56	3.93	1.12	.36		
40-50	1.64	3.19	17.0	.05	.08	3.70	.48	43.38	.45	4.09	.66	.21		
50-55	.12	.16	5.8	.01	.08	5.37	.16	77.61	.58	.29	.71	.03		
<b>Average 0-50</b>	2.69	4.63	23.5	.14			.58							
<b>80-C2</b> 0-10	3.85	4.49	22.9	.17	.15	4.77	1.62	34.70	.68	6.75	.66	.24	} <b>80 C2</b> <b>MT</b>	
10-20	3.32	4.21	21.8	.13	.12	6.14	1.58	38.72	.86	7.07	.35	.30		
20-30	3.55	4.51	15.4	.17	.08	4.70	1.67	49.34	.09	3.40	.34	.09		
30-40	3.46	4.55	18.1	.18	.12	6.70	1.72	41.58	.06	4.12	.33	.06		
40-50	2.75	3.26	19.10	.16	.15	7.30	1.56	39.86	.06	6.32	.25	.06		
50-60	3.00	4.20	19.50	.13	.16	6.90	1.95	40.15	.04	7.88	.37	.04		
60-70	2.47	1.83	10.90	.07	.10	4.90	1.66	62.54	.05	3.53	.15	.05		
<b>Average 0-70</b>	3.20	3.86	18.20	.14										
<b>80-CA</b> 0-10	2.76	3.36	21.5	.15	.11	3.98	1.12	50.29	.63	6.05	.55	.17	} <b>80 CA</b> <b>MT</b>	
10-20	3.35	3.94	16.4	.14	.13	5.29	1.70	50.94	.66	9.04	.78	.26		
20-30	2.21	3.27	11.4	.11	.07	5.64	1.41	63.62	.91	2.63	.57	.27		
30-40	2.46	5.43	21.1	.18	.04	12.3	1.29	42.62	.92	.48	.39	.28		
40-50	2.78	5.07	16.5	.15	.06	9.5	1.75	52.82	.60	2.43	.35	.21		
50-55	4.41	5.37	25.6	.17	.26	7.19	2.14	26.82	.73	1.95	1.21	.62		
55-58	.36	.52	6.2	.02	.09	5.66	.21	73.90	1.15	.32	.19	.15		
<b>Average 0-55</b>	3.0	4.40	18.75	.15			1.57							



Sample Origin— OXIDIZED OIL STOCKPILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Po	Ag %/MT	Insol	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>	
<b>80-D1</b> 0-10	2.87	3.06	14.50	.12	.11	6.05	1.36	53.50	.78	5.07	.72	.48	} 80-D. MT
10-20	2.38	4.10	16.80	.22	.00 <sup>p</sup>	6.75	.84	49.30	.57	1.57	.86	.94	
20-30	2.60	5.59	18.70	.13	.08	5.98	.79	48.50	.41	4.20	.71	.72	
30-40	3.10	4.63	17.90	.09	.09	5.27	1.20	46.64	.77	7.30	.68	.29	
40-50	1.94	4.53	16.70	.22	.05	4.30	.72	48.53	.45	1.24	.70	.33	
50-60	1.98	3.84	18.50	.14	.04	3.94	.60 <sup>p</sup>	46.09	.42	1.69	.58	.15	
60-65	3.14	5.35	23.30	.13	.03	3.40	.97		.02	.86			
Average 0→65	2.57	4.44	18.05	.15			.94						
<b>80-D3</b> 0-10	2.06	3.17	31.2	.11	.02	2.82	.75	41.80	.72	.48	.91	.31	} 80-D. MT
10-20	2.99	6.00	25.9	.09	.01	2.49	.87	38.41	.29	.27	.93	.64	
20-30	2.94	5.68	20.4	.16	.06	4.32	1.19	40.80	.37	.27	.77	.56	
30-40	3.23	4.73	15.5	.11	.08	4.51	1.74	53.11	.40	2.39	.92	.51	
40-50	3.26	6.42	24.1	.12	.09	8.39	1.84	32.51	.68	3.90	.88	.44	
50-60	3.82	6.61	21.1	.10	.10	4.43	1.67	37.68	.76	3.06	1.00	.42	
60-70	1.58	2.03	16.2	.07	.05	6.55	.78 <sup>p</sup>	52.99	.66	12.75	.49	.15	
Average 0→60	3.05	5.44	23.0	.12			1.34						
<b>80-D5</b> 0-10	3.68	4.87	28.1	.12	.08	5.36	1.36	27.27	.62	2.90	.93	.24	} 80-D. MT
10-20	3.78	5.05	22.7	.17	.13	8.55	1.94	36.17	.81	2.39	.94	.27	
20-30	3.57	5.48	21.8	.21	.08	6.10	1.88 <sup>p</sup>	37.92	1.04	6.70	1.36	.30	
30-40	2.89	4.68	21.0	.16	.08	6.09	1.56	41.27	.80	8.63	.86	.22	
40-50	2.25	3.75	16.10	.14	.12	6.57	.66	32.91	.52	5.22	.60	.18	
50-55	2.57	3.76	17.10	.08	.13	6.60	.26	49.54	.78	0.59	.72	.41	
Average 0→55	3.12	4.60	21.13	.15			1.36						

Sample Assay Sheet

Production Date—

Production Date—

Sample Origin— OXIDIZED ORE STOCKPILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Pb	Ag %/MT	Insol	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>	
80-D70-10	1.77	2.66	29.40	.06	.03	1.72	.33			1.47	.99	.99	} 80 D7 MT
10-20	3.48	6.11	22.40	.09	.15	4.63	.85			11.74	1.19	.34	
20-30	2.31	5.75	16.50	.09	.06	3.66	.42			1.75	.88	.50	
30-40	1.91	3.75	14.20	.09	.07	3.58	.41			1.39	.74	.29	
40-50	.28	.54	5.30	.01	.08	4.37	.11			.74	.21	.10	
50-55	.11	.15	5.30	.01	.10	4.61	.08	78.35	1.19	.27	0.05	.23	
Average 0-40	2.36	4.56	20.60	.08			.50						
80-D90-10	2.18	4.26	28.70	.17	.09	7.80	.34	23.77	1.16	.46	.47	.27	} 80 D9 MT
10-20	2.92	4.67	29.30	.09	.07	3.46	.71	35.28	.90	3.20	.68	.33	
20-30	4.04	5.75	26.90	.13	.20	3.54	.97	19.91	.59	6.42	1.24	.43	
30-40	3.99	5.85	26.50	.10	.17	2.81	.85	20.75	.44	5.38	.87	.32	
40-50	2.83	3.52	16.60	.06	.12	3.11	.61	47.44	.53	5.75	.78	.30	
50-55	1.12	1.46	8.20	.04	.12	4.68	.26	66.25	.86	2.72	.43	.27	
Average 0-50	3.09	4.87	25.6	.11			.70						

Sample Origin: OXIDIZED ORE STOCKPILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Po	Ag <sup>g</sup> /MT	Insol	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>	
80-E2 0-10	2.67	4.57	18.2	.16	.07	4.59	1.00	48.02	.74	1.67	.79	.27	} 80 E 2 MT
10-20	1.77	3.91	21.8	.16	.05	9.46	.83	45.41	.60	.63	.32	.38	
20-30	1.36	3.19	17.3	.10	.11	7.44	.64	53.45	.73	1.40	.27	.44	
30-40	2.07	5.46	20.9	.15	.07	7.46	.78	41.52	.79	1.12	.70	.37	
40-50	1.67	4.25	18.3	.12	.06	6.56	.65	48.05	.66	.45	.66	.40	
50-60	2.66	5.44	19.5	.15	.06	6.87	1.16	43.49	.58	.95	.53	.29	
60-70	2.93	6.03	25.1	.12	.06	6.03	1.03	32.09	.52	.69	.83	.23	
Average 0-70	2.16	4.69	20.16	.14			.87						
80-E4 0-10	3.42	6.15	23.4	.11	.04	3.84	1.03	31.15	.63	.66	1.03	.31	} 80 E 4 MT
10-20	3.44	5.31	18.7	.13	.09	6.95	1.76	44.68	.88	6.64	.59	.13	
20-30	2.02	4.52	12.3	.13	.06	4.68	1.32	60.53	.99	5.34	.63	.18	
30-40	2.61	5.11	20.7	.13	.08	7.16	1.50	43.14	.82	2.89	.75	.20	
40-50	3.12	6.24	19.8	.09	.08	6.40	1.60	40.82	1.20	5.06	.56	.32	
50-60	3.74	6.16	19.0	.15	.10	7.51	1.49	43.51	.99	5.20	.85	.38	
60-65	4.20	6.82	17.0	.15	.12	6.72	1.63	44.14	.82	7.73	1.23	.61	
Average 0-65	3.22	5.76	18.7	.11			1.48						
80-E8 0-10	1.89	3.02	30.3	.20	.11	5.22	.37	19.92	.93	2.03	.25	.23	} 80 E 8 MT
10-20	3.45	5.46	26.3	.12	.12	3.15	.70	22.07	.66	5.50	1.23	.28	
20-30	2.78	5.31	23.5	.09	.13	3.04	.68	31.99	.48	8.00	.78	.39	
30-40	4.33	6.66	22.8	.14	.24	4.53	.93	28.43	.43	12.79	.89	.40	
40-50	3.26	7.60	17.8	.15	.07	2.21	.68	41.23	.56	2.11	1.29	.40	
50-55	.71	1.17	7.4	.04	.08	4.26	.21	72.79	.46	1.61	.22	.17	
Average 0-50	3.14	5.61	24.1	.14			.67						

Sample Origin— OXIDIZED ORE STOCKPILE 1980 DRILLING

Sample Number	Pb	Zn	Fe	Cu	Mn	Po	Ag <sup>g</sup> /MT	Insol	C	BaO	PbO <sub>x</sub>	ZnO <sub>x</sub>	
<b>80 F3</b> 0-10	4.16	5.93	27.3	.12	.11	3.7	1.83	22.93	.68	3.55	1.04	.44	} 80 F3 MT
10-20	3.58	5.01	25.7	.14	.06	5.41	1.06	27.86	.56	2.14	.90	.45	
20-30	4.87	7.26	28.3	.18	.16	3.99	1.54	20.85	.42	3.35	1.35	.90	
30-40	2.82	4.78	26.1	.15	.09	3.87	.97	27.52	.50	2.57	.86	.59	
40-50	2.73	3.84	27.8	.12	.08	4.54	1.23	24.64	.42	2.22	.63	.87	
50-60	2.17	4.47	18.0	.13	.07	5.54	1.33	50.52	.68	1.86	.45	.36	
60-65	.90	1.20	7.1	.08	.05	4.72	.80	75.44	.87	1.19	.20	.06	
Average 0-60	3.39	5.22	25.57	.14			1.34						
<b>80 F5</b> 0-10	2.92	3.35	13.1	.08	.17	4.91	1.63	59.11	.88	7.49	.48	.16	} 80 F5 MT
10-20	2.74	3.41	11.4	.07	.14	5.4	1.39	61.94	.66	3.58	.66	.24	
20-30	2.98	4.15	26.9	.15	.10	4.54	1.16	31.38	.71	3.60	.90	.40	
30-40	2.96	3.95	25.7	.16	.12	5.50	1.17	30.22	.60	2.97	1.97	.35	
40-50	3.13	5.06	25.8	.18	.12	6.22	1.34	24.31	.68	3.45	.83	.33	
50-60	3.29	5.47	22.7	.16	.16	8.24	1.22	37.26	.85	5.13	.43	.25	
60-70	1.81	3.49	10.5	.10	.05	4.50	.96	71.10	.96	.28	.46	.21	
70-75	.13	.12	5.4	.01	.07	5.06	.13	71.53	1.18	.20	.05	.03	
Average 0-70	2.83	4.12	19.44	.13			1.26						
<b>80 G4</b> 0-10	2.55	2.98	12.6	.07	.14	5.46	1.17	59.56	1.48	2.42	.71	.22	} 80 G4 MT
10-20	5.20	5.20	25.8	.13	.13	4.03	2.35	33.80	1.06	10.88	.91	.30	
20-30	3.90	4.64	29.0	.20	.17	4.51	1.43	22.89	.63	7.26	.65	.32	
30-40	4.17	5.36	29.9	.26	.12	3.26	1.50	20.37	.51	3.90	.99	.34	
40-50	3.34	5.67	27.6	.14	.08	2.47	.89	27.53	.41	1.60	.77	.36	
50-60	3.57	5.44	28.6	.19	.16	3.74	1.02	21.63	.50	7.28	.74	.32	
60-65	2.82	5.28	17.6	.16	.03	3.20	.86	48.87	.61	1.76	.62	.17	
65-70	.90	.44	6.7	.06	.07	3.63	.58	76.59	.76	.67	.31	.06	
Average 0-65	3.65	4.94	24.44	.16			1.32						

APPENDIX III

BLENDING AND RESULTS OF THE ASSAYS FROM THE COMPOSITES

(from Al McIntyre)

Procedure

Francis

here are the flotation composite feed assays

Al. Mc Intyre

### 1. Blending

The following table lists the samples to be blended in order to obtain a monthly representative sample:

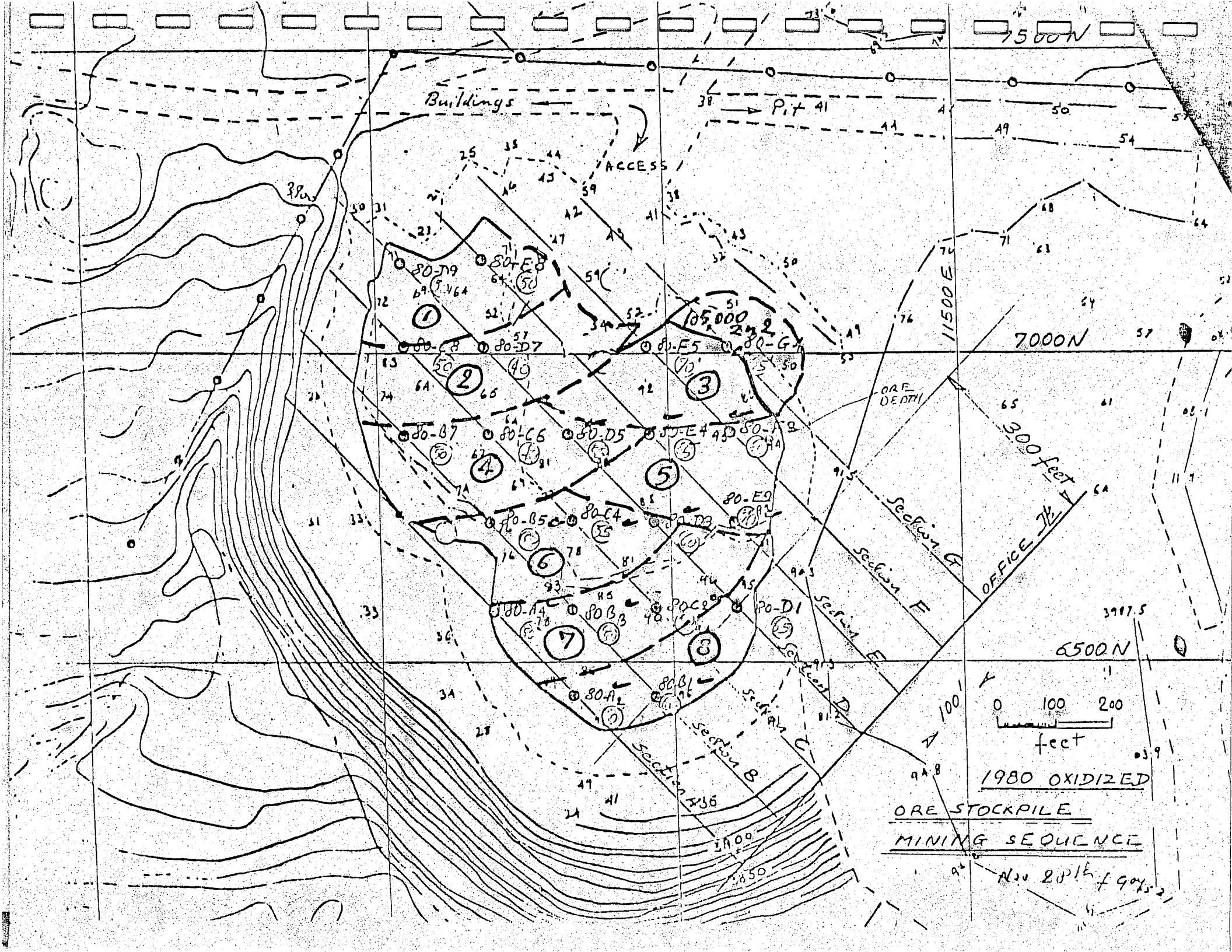
MONTH NO.	SAMPLE TO CONSIST OF:	Assay OF Flot Composite Sample			
		Pb	Zn	Fe	Ag
1	D9 E8	3.16	4.84	23.20	.95
2	D7 C8	3.74	5.65	25.09	1.55
3	F5 G4	3.84	5.44	24.98	1.63
4	B7 C6 D5	3.00	4.47	22.27	1.31
5	E4 F3 E2	2.92	5.51	20.33	1.28
6	B5 C4 D3	2.76	4.57	18.40	1.40
7	A4 B3 C2	2.83	4.22	17.80	1.49
8	A2 B1 D1	2.52	4.31	16.74	1.07
Average		3.03	4.8	20.6	1.33

A sample of the blended composite should be sent to the assay lab. for general information, the assays of individual drill hole samples are available.

The blended composite should pass 10 mesh.

### 2. Flotation

"Standard procedure" Pb and Zn recovery tests are to be performed. This work is to be processed in 1982 and the new plant installation will be available. Therefore, a size of 50 microns is the objective for the grinding period in the lab evaluation. This is not as easy as it sounds because of the altered particle size distribution caused by the



1980 OXIDIZED  
ORE STOCKPILE  
MINING SEQUENCE



Also 201k + 90% 2

APPENDIX IV

COSTS FOR 1980 DRILLING ON OXIDIZED ORE STOCKPILE

Note: Attached is the total cost for the 1980 drilling programme on the oxidized ore stockpile.

The total cost is \$36,389.50, and the footage drilled (according to sample length) is 1,328 feet. The cost per foot is \$27.40.

# Mining Corporation

P.O. Box 1000  
 Fairbairn, Yukon Territory, Canada  
 Fairbairn, Yukon Territory, Canada  
 P.O. Box 1000  
 Telephone (403) 994-2600  
 Telex: 036-8-298

Type: X  
 Material Order No.  
 R 12903  
 Page No. of  
 Date:

To: MIDNIGHT SUN DRILLING CO. LTD.

Box A391

WHITEHORSE YUKON

VIA 375

Ship to: LAPOC

Via: LAPOC

Vendor#

Confirmation of:	Order Given to:	By: <u>MD</u>	On: <u>8/15/77</u>	Phone:
Date Required:	Date Promised:	F.O.B. <u>F.O.B.</u>	Terms:	F.S.T. Licence:

Line	Quantity	U/M	Tax	Description - Part Number - Size	Unit Price	F.S.T.
				DRILLING and SAMPLING (oxidized) WASTE PILE		7
				MOBILIZATION DE-MOBILIZATION: - LEAD SUM	2102.50	
				DRILLING: - DRILLING INSTALLING AND RECOVERING 1-5/8" X 2" OD WALL CASING 1315' TOTAL FOOTAGE @ 21.30/FT	28009.50	
				UNSCHEDULED RIG TIMES: - 10 HRS @ 160/HR	2560.00	
				CREW TRAVEL: - 12.5 HRS @ 65/HR	812.50	
				SAMPLE BAGS:	N/C	
				ROOM AND BOARD - 10 MAN DAYS @ 45/MAN/DAY (Estimated Cost)	1800.00	
				SUPPLY TRIP: - 2 @ 442 MILES EACH 884 MILES @ 1.25/mile	1105.00	
<b>TOTAL \$</b>					<b>36,389.50</b>	

Delivered on Receipt: MD Allocation: 1- Fees Eng Work Order#: 35225  
 Requested By: MD Purchasing: 3/12/2007 Approved By: MD

#s 1,2&3 to Purchasing #4 Retain

**CYPRUS ANVIL**



# Midnight Sun Drilling Co. Ltd.

BOX 4391, WHITEHORSE, YUKON Y1A 3T5

Phone 667-6144 or 667-6141

No **2052**

WATER WELLS, SOIL TESTING, FOUNDATION PILES

FROM: Cyprian Anvil Mine SITE: WASTE Pile Mine Site  
 TO: Yukon Y.T.

AUTHORIZED BY	SALESMAN	RIG NO.	CASH	CHARGE	INVOICE DATE
<u>1-3A</u>	<u>Gay</u>	<u>4</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Dec 5/83</u>
<b>ENTERED DEC 22 1983</b>					
Mobilization D-Mobilization:					
- Lump Sum					
Drilling: Drilling, installing and recording 1 1/2" x 300' diam					
CASING 1315' TOTAL FOOTAGE @ 21.30/FT					
Included and Rig Time:					
- 11 hrs @ 160/hr					
TRAVEL TRAVEL:					
- 12.5 hrs @ 65/hr					
SAMPLE BAGS:					
- 40 man @ 35 @ 45/man/day (estimated cost)					
SUPPLY TRIPS:					
- 3 @ 442 man each @ 55 man @ 1.25/hr					

REC'D DEC 19 1983  
 APP. FOR PAYMENT

TERMS NET 30 DAYS  
 PER MONTH (24% PER ANNUM) CHARGED

MISCELLANEOUS

QUOTATION FROM MIDNIGHT SUN DRILLING  
UNION CLEARANCE

Cyprus Anvil Mining Corporation

DOUBLE REGISTERED

Post Office Box 1000  
Faro, Yukon Territory  
Y0B 1K0  
Telephone (403) 994-2600

Telex 036-8-208

November 13, 1980

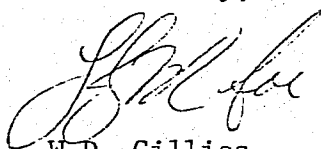
The Executive  
United Steelworkers of America  
Local 1051  
Box 280  
Faro, Y.T.

Dear Sirs:

Please be advised that due to weather conditions our request for Midnight Sun Drilling (re oxidized ore stockpile) has been increased to a maximum of 5 employees.

Thank you.

Yours truly,



W.D. Gillies  
Manager, Personnel  
and Industrial Relations

ljm

cc: F. Gay  
J. Carrington  
A. von Kursell



# United Steelworkers of America

LOCAL 1051

TEL (403) 424-  
POST OFFICE BOX 280  
FARO, YUKON TERRITORY

Date: OCT 24/50

Mr. A. H. von Kursell  
Resident Manager  
Cyprus Anvil Mining Corporation  
Box 1000  
Faro, Yukon Territory

Dear Sir:

Your request for clearance is granted for the following contractor/sub-contractor:

MIDNIGHT SUN DRILLING

The clearance will come into effect on NOV 1, 1950 and will expire

NOV 30, 1950. It is understood and agreed the contractor/sub-

contractor will only perform work for which they have been contracted or sub-

contracted, in the MINE Department as outlined:

DRILLING PROGRAM ON OXIDIZED ORE STOCKPILE

**Note:** This clearance is subject to immediate cancellation if it is found that the contractor/sub-contractor is in violation of any terms or provisions of the Collective Agreement between Locals 1051-7745 and Cyprus Anvil Mining Corporation.

Local 1051 Official Use Only

(Not valid unless signed by two (2)  
Executive Officers)

Cyprus Anvil Mining Corporation

DOUBLE REGISTERED

Post Office Box 1000  
Faro, Yukon Territory  
Y0B 1K0  
Telephone (403) 994-2600

Telex 036-8-208

October 16, 1980

The Executive  
United Steelworkers of America  
Local 1051  
Box 280  
Faro, Y.T.

Dear Sirs:

Re: Sub-Contracting, Request for Clearance

Contractor: Midnight Sun Drilling  
Box 4391  
Whitehorse, Y.T.

Job: Drilling program on oxidized ore stockpile.

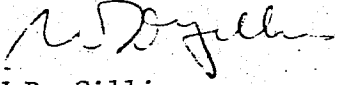
# Employees: Maximum 3

Union: Not applicable.

Start: November 1, 1980

Duration: November 30, 1980

Yours truly,

  
W.D. Gillies  
Manager, Personnel  
and Industrial Relations

/ljm

cc: F. Gay  
J. Carrington  
A. von Kursell

**CYPRUS**



# United Steelworkers of America

Call 214

LOCAL 1051

cc: F. GAY  
AVK  
J.C.

TEL. (403) 954-  
POST OFFICE BOX 280  
FARO, YUKON TERRITORY

Date: Aug 29, 1950

Mr. A. H. von Kursell  
Resident Manager  
Cyprus Anvil Mining Corporation  
Box 1000  
Faro, Yukon Territory

Dear Sir:

Your request for clearance is granted for the following contractor/sub-contractor:

Midnight - Sam Whitting Box 4391 Whitehorse

The clearance will come into effect on Sept 15, 1950 and will expire

October 15, 1950. It is understood and agreed the contractor/sub-

contractor will only perform work for which they have been contracted or sub-

contracted, in the Mine Department as outlined:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Note: This clearance is subject to immediate cancellation if it is found that the contractor/sub-contractor is in violation of any terms or provisions of the Collective Agreement between Locals 1051-7745 and Cyprus Anvil Mining Corporation.

E. J. Best  
Samuel [unclear]

Local 1051 Official Use Only

Not valid unless signed by two (2) Executive Officers)

Cyprus Anvil Mining Corporation

Post Office Box 1000  
Faro, Yukon Territory  
Y0B 1K0

Telex 036-8-208

DOUBLE REGISTERED

Telephone (403) 994-2600

August 22, 1980

The Executive  
United Steelworkers of America  
Local 1051  
Box 280  
Faro, Y.T.

Dear Sirs:

Re: Sub-contracting, Request for Clearance

Contractor: Midnight Sun Drilling  
Box 4391  
Whitehorse, Y..T

Job: Drilling program on oxidized ore stockpile.

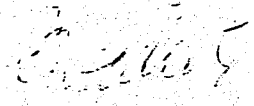
# Employees: Maximum 3

Union: Not applicable.

Start: September 15, 1980

Duration: October 15, 1980

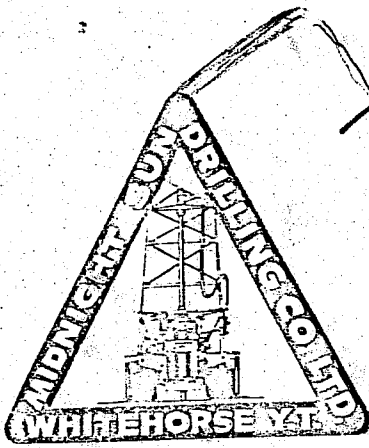
Yours truly,

  
J.B. Lidster  
Manager, Personnel  
and Industrial Relations

/ljm

cc: ✓ F. Gay  
J. Carrington  
A. von Kursell

**CYPRUS**



THIS IS A QUOTATION ONLY  
NO WORK HAS BEEN DONE YET  
~~NO PAYMENT NECESSARY~~  
MISCDRI  
Down

PH: 667-6141

P.O. BOX 4391  
WHITEHORSE, YUKON  
Y1A 3T5

Sept. 8/80

Cyprus Anvil Mining Corporation  
Box 1000  
Faro, Y.T.

Att: Francois Gay

Subject:  
Drilling and sampling waste pile

Dear Sir:

Our costs are based on 1000' of drilling and sampling.

SALARIES  
DRILLER: 14.00 \$/hr  
HELPER: 11.50 \$/hr  
MECHANIC: 14.00 \$/hr  
M.K.

Mobilization and de-mobilization:

-lump sum ----- 2,102.50

Drilling:

-drilling, installing and recovery  
6 5/8" Ø casing including all  
down-hole costs at 21.30/ft. ----- 21,300.00

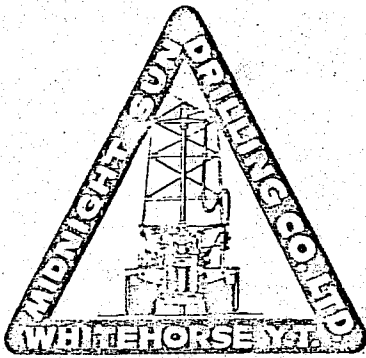
Unscheduled rig time:

-moving from guard house to site and from  
site to site and back to guard house  
estimated 8 hrs. @ 160.00/hr. ----- 1,280.00

Crew travel:

-from lodging to site and site  
to lodging estimated @ 1hr./day  
10 days @ 65.00/hr. ----- 650.00

ENTERED  
ENTERED SEP: 3 1980



PH: 667-6141

P.O. BOX 4391  
WHITEHORSE, YUKON  
Y1A 3T5

Sept. 8/80

-2-

Drilling and sampling waste pile con't:

Sample bags:

-estimated 500 bags @ 3.00/bag ----- 1,500.00

Room and Board:

-supplied or charged at cost

Supply trip:

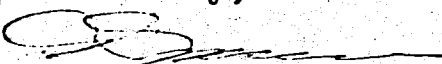
-if required @ 1.25/mile

\$26,832.50

Note:

After 1000' of drilling we will re-negotiate the price based on production.

Yours truly;

  
Dave Jamieson

DJ/rj