

Calculation

Test pits at Shepard Mine

1-5- No black sand - 4' buff colored clayey sand
Bottomed on micaceous ss. Elev. 123.4 No Sample.

2-5 Cr_2O_3 7.64

0.0 - 1.0 Brownish black sand } Sample #1 Elev. 121.8

1.0 - 1.5 Black & grey laminated } { 9.7' below hub - 16.0' N. 55° E.
direction from hub

1.5 - 2.2 - Grey sand with gravel (sm. % black)

At 2.2 - Micaceous ss.

3-5 8.76 Cr_2O_3 124.4

0.0 - 1.8 Iron stained gr. sand (sm % black) } Sample #1

1.8 - 2.6 Black sand, a few gravel at bottom

2.6 - 2.8 Gr. sand (sm % black)

2.8 - 3.2 Bl. sand. } Sample #2

3.2 - 4.8 Brown sand

4.8 - 7.5 Bl. sand - sm. amount of gravel at center

7.5 - 8.7 Black & grey sand

8.7 - 10.6 - Grey sand & gravel

At 10.6 Mic. s.s. (coarse

4-5 % Cr_2O_3 7.70 / 3 2.2

0.0 - 1.5 Brown Sand (20% black)

1.5 - 3.2 Black sand (contains fine gr layers)

3.2 - 4.5 Grey & black sand

5.8

7.5

↑

5.0 below hub - 20.0' N. 70° E.
distance and direction from hub.

Test pits Shepard Mine (cont)

4-3 (cont)

4.5 - 6.7 - Bl. sand (contains pebbles - 1 gr. parting)

6.7 - 7.4 - Gray sand + pebbles

At 7.4 - Mic. Ss. (iron stained)

Sample #1 - 0.0 to 7.4

7.6' below hub - 12.0' - N 65° E

direction + distance from hub

5-5

121.3 7. 8.69

0.0 - 1.7 - Brown sand + gray (30% bl) } Sample #1

1.7 - 2.0 - Gray sand (sm % black) }

2.0 - 2.9 - Brown sand (35% or more bl) } Sample #2

2.9 - 3.5 - Gray sand (25% or more bl) }

3.9 - 4.2 - Brown sand (35% or more bl) } 3.7 below hub - 12.0' - N 65° E

Bottomed on Mic. Ss.

direction + distance from hub.

6-5

9.18% 134.3

0.0 - 4.5 Contains 1 interbed gravel (6") also becomes gravelly

at base; bottoms on gray sand which overlies

Mic. Ss. Bottom Bl. sand 7.6' below hub

7.5' - N-60° E. distance + direction from hub.

7-5

3.94 158.7

0.0 - 1.0 - Gray sand (30% bl) } Sample #1

1.0 - 1.8 - Brown sand (35% black) }

Bottoms on Mic Ss.

0.5' below hub - 10.7' - N 50° E.

distance + direction from hub

Test Pits Shepard Mine (cont)

8-5 11.02 128.6

0.0 - 4.5 Gray sand (20 to 25% bl.) } Sample #1 11.02

4.5 - 5.4 Black sand - gravel in last 0.3' } Sample #2 1.43

5.4 - 5.8 Gray sand & gravel ← 5.7' below hub - 9.0' - E.

At 5.8 Buff sandy shale distance & direction from hub

9-5 153.7

0.0 - 2.4 Gr sand (sm % bl.) } Sample #1

2.4 - 3.2 Br sand (20 to 25% bl.) } 1.42

3.2 - 3.4 Black sand } Sample #2

3.4 - 3.7 Gray sand (20 to 25% bl.) } bottom 2.7' below hub - 14.0 - E.

3.7 - 5.2 Black sand ← distance & direction from hub.

Underlain by at least 2.5' of grey unconsolidated sand (sm % black sand)

10-3 124.2

0.0 - 1.3 Black with several thin gray laminations } Sample #1 5.12

1.3 - 2.3 Gray sand with several black laminae } 5.12

2.3 - 3.5 Bl. sand, bottom 0.5' is 1/2 gravel

3.5' below hub - 11.0' - 8.55° E dist & direct from hub.

11-3 114.3

0.0 - 2.6 Gr sand (sm % black) - Sample #1

2.6 - 5.8 Brown to black sand - Sample #2 } 2.54.

5.8 - 7.3 Upper 0.9' gravelly, lower 0.6' gray sand (sm % bl.) - Sample #3

3.3' below hub - 20.0 - N 80° E dist. & direction from hub.

Test pits at Shepard Mine (cont)

12-5 - This test pit shows marked irregularities in black sand layer. Both the bedrock & top surface are irregular.
 100.2 Sample #1^{3.24} (0.0 to 4.1) Brown & black sand (taken where layer is thickest). Sample #2^{2.81} (0.0 - 3.4) Taken over same interval, shorter due to rise in bedrock, only bottom 2.0' as rich as sample #1. Bottom Sample #1 is 4.1' below hub - 18.0' - N. 45° E. dist. & direction from hub

1066 13-5 - No record (check on this test pit) Borron

100.2 14-5 - No definite black sand layer - sample #1^{12.06} (0.0 to 1.0) taken from gravel layer just above mic. ss. (lower pit)

15-5 - No record (around point of ridge from 14-5) Borron

16-5 - Drilled with 2" pipe See log.

17-5 - partially dug - never logged or sampled

18-5.

0.0 - 1.1 Black sand

1.1 - 1.4 Gray sand parting

1.4 - 1.9 Black sand

1.9 - 3.7 Gray sand

3.7 - 4.7 Black sand

4.7 - 5.7 Gray sand

5.7 - 6.0 Black sand

Sample #1 - 6.85

Elev of sand layer not obtained

Bottomed iron stained sand & gravel

Test pits Shepard Mine (cont)

19-5

~~108.6~~ 51.0

- 0.0-4.0 - Interlaminated black + brown sand
 - 4.0-4.8 - Black sand
 - 4.8-5.4 - Gravelly material
- } Sample #1 - 72.39
(Elev. not obtained)

20-5

106.3

- 0.0-3.2 Brownish bl. sand (fair % black) - Sample #1 - 4.27
 - 3.2-5.9 Grey to brown to black (contains very sm % bl in upper 15') - Sample #2 - 3.57
 - 5.9-6.9 Brownish black gravelly material (small % black) - Sample #3 - 4.78
- Bottoms on Mic. ss.

21-5

103.9

- 0.0 - 2.5 - Brownish black sand + gravel (sm % black sand) - Sample #1
- Bottoms on Mic ss. (no elev obtained)

106.2

- 23-5 Test Pit - Hub to 2' + Coarse grey to brown ss
 2'-3' + gravel mixed with brown sand, 3'-4.8' grey
 sand. 4.8-6.3 gravel with brown sand. 6.3-8 dark
 brown sand.

Notes on Test Pits. Shepard Prop.

1.S. No black sand - 4' buff colored clayey sand.

Pit bottomed on micaceous s.s.

No sample.

Elev. of Hub 123.9'

2.S. 0.0 - 1.0 brownish black sand } Sample No. 1
1.0 - 1.5 black & grey sand laminated }

1.5 - 2.2 grey sand with gravel (small percentage of black)

Pit bottomed on micaceous s.s.

Assay 7.64% $C_{12}O_3$ Sample No. 1 1.5'

Density Estimate 110

The bottom of sample no. 1 is 4.7' below top. the location 10' N. 55° E

(Elev. 121.8)

3.S. 0.0 - 1.8 iron stained grey sand (small percentage of black) } Sample No. 2

1.8 - 2.6 black sand - a few gravel at bottom. } Sample No. 2

2.6 - 3.5 grey sand - small percentage of black }

3.5 - 3.8 black sand }

3.8 - 4.8 brown sand }

4.8 - ~~4.8~~ 5.8 black sand }

5.8 - 7.5 black sand with small amount of gravel } Sample No. 3

7.5 - 8.7 black and grey sand }

8.7 - 10.6 grey sand and gravel }

Test Pits (Contd.)

3.5. (contd.)

bottomed on coarse micaceous s.s.

the point 7.5 is 5' below ~~hub~~^{and} 20' N. 70° E from hub.

Composite assay of samples 1, 2, and 3 8.8% Cr₂O₃

density of samples 1, 2, and 3, 109 lbs ft.³.

4.5.

- 0.0 - 1.5 Brown sand (20% black)
- 1.5 - 3.2 Black sand (contains fine gray gr. layers.
- 3.2 - 4.5 gray and black sand.
- 4.5 - 6.7 Black sand (contains pebbles - 1 gr. parting)
- 6.7 - 7.4 gray sand and pebbles

} Sample No. 1

7.4 is 4.6' below and 12' N 65° E from hub.

bottom is micaceous sandstone

Assay 7.7% Cr₂O₃

Density 111 lbs per ~~foot~~ ft.³

5.5

- 0.0 - 1.7 Brown & gray sand (30% black)
- 1.7 - 2.0 gray sand ~~& pebbles~~ (small percentage black)
- 2.0 - 2.9 brown & sand (35% or more black)
- 2.9 - 3.5 gray sand (25% or more black)
- 3.5 - 4.2 brown sand (35% or more black)

} Sample No. 2

Test Pits (Contd)

55 contd.
 Bottomed in micaceous sandstone.
 The bottom of sample 2. at 4.2 is 3.7 ft below hub
 and 12' N 65E from the hub E/v. 131.3
 Assay 5. Sample 1. Nil. (?)
 Sample 2. and 2. Composite 8.7
 Density Sample No. 1² 98.9.

65. 0.0 - 4.5 Contains ~~one~~ one interbed of gravel (6") also
 becomes gravelly at the base. Bottoms on grey
 sand which immediately overlies micaceous
 ss.
 Bottom of black sand 7.6' below hub and
 7.5' N 60°E. Hub E/v. 134.3.
 1 sample. Assay ~~11.2~~ 9.2 To $C_{12}O_3$
 Density 119.2 lbs per ft.³

7.5.

0.0 - 1.0 grey sand (30% black) } Sample No. 1
 1.0 - 1.5 Brown sand (35% black)

Bottomed on micaceous sandstone

Bottom of sample 0.5 ft below hub, 10.7' N 50°E from hub.
 E/v. of Hub 108.9 ft.

Test Pits (Contd.)

85. 0.0 - 4.5 grey sand (20-25% black) Sample 1.
 4.5 - 5.4 black sand - gravel in last .3 ft. } ' 2
 5.4 - 5.8 Grey sand and gravel.
 At 5.8 Buff sandy shale

The point 5.8 is 3.7' below hub (Elev. 188.6 ft.)
 and 9' Due East.

~~Assay~~ Sample 1 - Assay 11.02
 Density 106.

Sample 2. Assay 1.43
 Density (Est.) 100. lb per ft.³

9.5 0.0 - 2.4 Grey sand (small percentage black) Sample 1.
 2.4 - 3.2 Brown sand (20-25 ~~to~~ percent black) }
 3.2 - 3.4 Black sand - - - } Sample No. 2
 3.4 - 3.7 Grey sand (20-25 percent black)
 3.7 - 5.2 Black sand.

Underlain by at least 2' feet of grey unconsolidated sand.
 having a very small percentage of black sand.

5.2 is 2.7 ft below hub (Elev. 183.8) 14' Due East.

Composite sand 2
~~Sample 1.~~ Assay 1.42
 Sample Density estimate 95 lb per ft.³

Test Pits

105

- 0.0 - 1.3 Black with several thin grey laminations
- 1.3 - 2.3 Gray sand with several black laminae
- 2.3 - 3.5 Black sand, bottom 0.5 ft is gravel

} Sample No. 1

3.5 in 3.9 ft. below hub - 11 ft N 55° E from hub

Hub Eiv. is 121.2 Ft.

Sample No. 1 Assay 5.12 % Cr₂O₃
 Density 110 lbs per ft.³

115.

- 0.0 - 3.6 Gr. sand small percentage black. - sample No. 1
- 3.6 - 5.8 Brown to black sand - Sample No. 2
- 5.8 - 7.3 Upper 0.9 ft gravelly, lower 0.6' gray sand (small percentage black) Sample No. 3

7.3 in 3+3' below hub - 20.0 - N 80° E from hub.

Hub Eiv. 114.3 Ft.

Sample 1, 2, 3, composite Assay 2.54 % Cr₂O₃
 Density 100 lbs per ft.³

125. This pit shows marked irregularities in the black sand layer. Both the bedrock and top surface are very irregular.

~~Sample No. 1 0.0 - 4.1 ft. Assay 3.2, Density 100 lbs per ft.³~~

Test Pits.

125 (contd)

0.0 - 4.1 Brown and black sand, Taken where layer is thickest. Sample No. 1

0.0 - 3.4 Taken over same sand as exposed (lateral continuation) ~~at same~~ shorter due to rise in bedrock. Only bottom 20' as rich (appearing) as in Sample No. 1.

Bottom of Sample 1, 4.1, is 4.1 Ft. below hub. 18 Ft. N 45° E from Hub.

Elv. of Hub 100.2 Ft.

~~Assay~~ Sample 1, Assay 3.2 % $C_{12}O_3$
Density 168 lbs per ft.³

Sample 2 Assay 2.3 % $C_{12}O_3$
Density Estimate 100 lbs per ft.³

135 No. Record. checked by W.P.

Barron. ~~Test pit started to lower~~ Hub elv. at top of Pit is 106.6.

145 No. definite black sand layer - Sample 1, taken from gravel layer just above micaceous sandstone.

0.0 - ~~to~~ 9.0 Sample 1, Assay 15.06 % $C_{12}O_3$
Density 161 lbs per ft.³

Elv. of Hub. 101.6 Ft. - Sample # 1 14 Ft. - Hub level

Test Pits

- 15.S. No black sand encountered. partially drilled with auger without striking black sand. May have been too low.
- 15a No black sand encountered. Pit not finished because of depth of over burden and high water table.

16S - Changed to E-16S - Drill hole. (see logs.)

17S. Partially dug, not logged or sampled.

- 18S
 - 0.0 - 1.1 Black sand
 - 1.1 - 1.4 Gray sand pebbly
 - 1.4 - 1.9 Black sand
 - 1.9 - 3.7 Gray sand
 - 3.7 - 4.7 Black sand
 - 4.7 - 5.7 Gray sand
 - 5.7 - 6.0 Black sand.
- } Sample No. 1

Bottomed in iron stained sand and gravel

Hub level ~~116.2 Ft.~~ 111.4 Ft. Top of Hub at level of top of black sand.

~~FB.~~ 19.S.

- 0.0 - 4.0 interlaminated brown and black sand Sample #1
- 4.0 - 4.8 black sand
- 4.8 - 5.4 Gravelly material

Hub Elev. 108.6. Top of Sand Hub + 5.4.

Test Pits

195 (Contd.)

Sample No. 1 Assay 12.4 % Cr₂O₃
Density 137.6 lbs per ft.³

205

0.0 - 3.2 Brownish black sand (fair percentage black) Sample No. 1
3.2 - 5.9 Grey - Brown to black (contains very small percentage black in upper 1.5) Sample No. 2.
5.9 - 6.9 Brownish black gravelly material (small percentage black) Sample No. 3

Bottoms on micaceous sandstone. Elevation 1074.5

Sample No. 1 Assay 4.3 % Cr₂O₃
Density 114.9 lbs per ft.³
No. 2. Assay 3.6 % Cr₂O₃
Density (Est.) 100 lbs per ft.³
No. 3 Assay 1.8 % Cr₂O₃
Density 80.7 lbs per ft.³

215.

0.0 - 2.5 Brownish black sand and gravel, small percentage of black sand. Sample No. 1
Sample No. 1 Assay 1.6 % Cr₂O₃
Density 101.8 lbs per ft.³
Elev. of Bottom of Sample. 103.6 Ft. Bedrock - micaceous Sandstone.

Test Pits

20 S. Hub Elev. 92.6
 3' + from hub is buff sand overkin by lighter grey sand. Bottom of pit is in gravel. All material in pit loosely consolidated. Grey sand contains some small muscovite flakes.
 Several pieces of what may have been black sand flake were found. No samples.

23 S. Hub ^(Elev. 99.6) to + 5 Ft. is light grey unconsolidated sand
 No samples taken.

24 S. Hub Level 100.3
 This pit on the side of the old Shepard mine pit, which exposes sand ~~contin~~ discontinuously for ~~to~~ 300± ft to East. Gravel bed at Hub level, coarse grey sand above. 8' 5.6 106

25 S. Hub ~~to~~ Elev. 105 Ft.
~~Hub to + 2 Ft. brown sandstone~~
 Hub = 0
 0 - + 2 ~~ft~~ Micaceous coarse grey f Brown Sandstone
 2 - + 3 Gravel mixed with brown sand
 3 - 4.8 Gray sand
 4.8 - 6.3 Gravel with brown sand.

Test Pits

25 S (Contd.)

G. 3 - 8 dark brown sand.

Sample 1. from 2 - 8 Ft. Assay 3.9

Density ~~98.4~~ lbs per ft.³

26 S. Hub Elev. 108 Ft.

To top of sand. 1 Ft. Sand not bottomed.

27 S. Hub Elev. 110 Ft.

Plus 3 Ft. to top of Black sand, Pit not bottomed but sand at least 3' thick

No. Sample.

28 S location not definitely established - Is ^{on line} between

27 S and D.H. 30a No Sample.

29 S As above.

30 S Drilled and renumbered H.R. 30a (See drill sheets)

31 S ~~At~~ Hub level 112.4 Ft.

Hub + 3 Ft to ~~the~~ top of sand.

4' of Black sand.

No. Sample.

Test Pits

T.P. 32

Hub level 118 Ft.

3 Ft of sand from hub + - 3 Ft. o



THE END