

COLONY - MINE FLOOR #1A

Drilled on floor of mine about a foot away from the #1.

Spud: September 25, 1972

Completed: September 29, 1972

Water level measurements inside of drill rod after core pulled.

Water level @ 31'	at depth of 58'
" 32'	" 63'
" 31'	" 65'
" 31'	" 70'
" 59'	" 73'
" 66'	" 80'
" 66'	" 84'
" 50'	" 90'
" Surface	" 96' for awhile.
" 70'	" 105'
" 81'	" 115'
" 91	" 125'
" 101'	" 135'
" 130'	" 145'
" 146'	" 156'
" 160'	" 166'
" 164'	" 176'
" 174'	" 186'
" 180'	" 194'
" 180'	" 196'
" 196'	" 216'
" 186'	" 246'
" 256	" 266'

No measurements below 266'.

Tried to measure water level on October 2, 1972, but too much water cascading into hole to get successful measurement. Water audibly cascading into hole. Visible flow into hole at a depth of about five feet from a horizontal bedding plane.

Several puddles on the mine floor have dried up and others have visibly reduced water levels as a result of this core hole.

Suggest drilling to about 30 feet in other areas of the mine and completely draining mine in this way.

Contractor: Boyles Brothers Drilling Company, Golden, Colorado

Tools: BX Wireline

Color photos taken of core.

0 - 7.0'	Marlstone, tan brown - brown - dark brown, thin laminated and banded. Fractured and broken with vertical fracture from 3.6 to 5.5'. 1" gray ash bed at 0.7'.
7.0 - 7.6'	Marlstone, dark brown, thin laminated and banded, moderately rich.
7.6 - 10.4'	Marlstone, buff - tan - brown to dark brown at base. Slightly ashy (porous) in spots. 2" gray ash bed 9.1 - 9.3'.

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- 10.4 - 12.0' Marlstone, dark brown, thin laminated and banded, rich. 70° fracture 10.4 - 10.6'.
- 12.0 - 23.9' Marlstone, buff - tan - brown, dark brown, thin laminated and banded. 80° to vertical fracture 16.4 - 16.9'. Tan ash bed at 15.3'. Many 1/4" - 2" tan ash beds 21.4 - 22.6'. Scattered nahcolite crystal casts at 21.8'. Ash zones fractured and weathered.
- 23.9 - 26.6' Interbedded marlstone and ash. Marlstone, brown, dark brown, moderately rich. Irregular bedded and some contorted. Ash is tan - buff, broken and fractured. Irregular lenticular bedded. Ash about 50%.
- 26.6 - 29.7' Marlstone, tan - brown - dark brown, thin laminated and banded. Streaked bedding, moderately rich. Some irregular and local dips to 20°.
- 29.7 - 33.7' Marlstone, brown - dark brown, thin laminated and banded. Dips from flat at top to about 30° at 31.0'. Flat below. 30° fracture at 31.0'. Weathered open tension fracture at 31.2'.
- 33.7 - 38.5' Marlstone, tan - brown with some gray brown, thin laminated and banded. Nahcolite crystal casts at 35.1'. 2" white ash bed at 35.3'. Nahcolite crystal casts 35.7'. Irregular 80° to vertical fracture 35.8 - 36.3'. Biscuity 37.2 - 38.0'. Weathered and broken at 38.1'.
- 38.5 - 40.5' Lost.
- 40.5 - 41.8' Marlstone, brown - dark brown, thin laminated and banded. Steep dip and nahcolite crystal casts 40.5 - 40.6'. Some of loss above may be nahcolite cavity.
- 41.8 - 52.7' "B Groove". Marlstone, brown, buff - tan, thin laminated and banded, strongly banded, porous. Core fractured and broken from 45.5 to 52.7'. Mostly vertical fractures.
- 52.7 - 58.0' Lost.
- 58.0 - 59.2' Marlstone, brown - dark brown, thin laminated and banded. 1" tan ash at top. Last .4' broken and fractured.

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- 59.2 - 60.0' Lost.
- 60.0 - 60.7' Marlstone, brown - dark brown. Badly broken. Scattered nahcolite crystal casts.
- 60.7 - 62.2' Lost.
- 62.2 - 63.1' Marlstone, as above, broken.
- 63.1 - 64.0' Lost.
- 64.0 - 65.0' Marlstone, buff - tan, thin laminated and banded. Scattered nahcolite crystal casts. Scattered leached bedding planes. Scattered 70° fractures. Broken at base.
- 65.0 - 68.7' Marlstone, brown - dark brown, thin laminated and banded. Rich. Irregular streaked bedding. Dip variable from flat at top to about 50° at 67.6'. Nahcolite cavity (?) at 67.6' - 3" (?). Irregular open leached fracture 65.7 - 65.8'. 60° fracture at 66.7 and 66.1'. Irregular 10 - 70° fractures 67.2 - 67.5'. 70° fracture at 68.6'.
- 68.7 - 69.5' Marlstone, tan brown, thin laminated and banded. Core biscuity. Scattered 60° fracture.
- 69.5 - 70.7' Lost.
- 70.7 - 71.5' Marlstone, tan brown, thin laminated and banded. Biscuity and very badly broken. Scattered vertical fractures.
- 71.5 - 73.0' Lost.
- 73.0 - 76.0' Marlstone, buff tan to gray brown, thin laminated and banded. Nahcolite crystal casts at top and 1/2 to 1-1/2" nahcolite cavities at 73.7 - 74.0'. Irregular 80° fracture at 75.6 - 75.8'.
- 76.0 - 77.9' Lost.
- 77.9 - 80.0' Marlstone, brown - dark brown, thin laminated and banded. Broken throughout. Many nahcolite crystal casts and cavities to 1/2 inch throughout.
- 80.0 - 90.2' Marlstone, buff - tan - gray tan and gray, thin laminated and banded. 2" white ash at top. 2" white ash at 80.8'. Irregular

- open 80° to vertical fracture 82.8 - 83.3', core badly broken 86.6 - 87.6'. Vertical fractures from 85.8 to 86.0'. Irregular fractures through broken interval and at 87.8 - 88.0'. 30° dip in last .2'.
- 90.2 - 92.0' Lost - possible nahcolite cavity.
- 92.0 - 95.0' Marlstone, buff - tan - gray tan and gray, thin laminated and banded. Nahcolite casts at top.
- 95.0 - 98.6' Marlstone, brown - dark brown, thin laminated and banded, irregular banded in part. Moderately rich. Nahcolite crystal casts at 96.0'.
- 98.6 - 107.0' Marlstone, buff - tan - brown, gray and gray brown, thin laminated and banded. Irregular open weathered fracture 102.2 - 102.6', fracture distorts bedding planes.
- 107.0 - 115.4' Marlstone, brown, gray brown, gray with some light buff gray, thin laminated and banded. Last .2' broken, top 4" is tan, massive. Porous gray ashy zone from 111.4 - 111.7'.
- 115.4 - 124.0' Marlstone, buff - tan - brown - dark brown, thin laminated and banded with some irregular lenticular bedding. Moderately rich.
- 124.0 - 128.0' Marlstone, buff - brown - gray brown - gray, thin laminated and banded with .1 - .2' dark brown rich streaks. Strongly banded. Irregular vertical fracture 124.6 - 124.9'.
- 128.0 - 131.2' Marlstone, brown - dark brown, some gray brown, thin laminated and banded, rich. Broken at 128.9 - 129.0'.
- 131.2 - 137.9' Marlstone, gray brown - dark brown, brown, thin laminated and banded. Two 80° fractures from 135.0 - 135.3', parallel fractures.
- 137.9 - 138.7' Marlstone, dark brown, thin laminated and banded, moderately rich. 80° fracture 138.3 - 138.5'.
- 138.7 - 144.0' Marlstone, tan, brown - dark brown with dark brown dominant, some gray bands, thin laminated and banded, 1/2" 70° fracture at 139.8', 80° fracture at 140.6 and 140.8', moderately rich in last two feet. Scattered nahcolite crystal casts in broken zone at 143.5' and 144.0'.

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- 144.0 - 144.6' Lost - possibly nahcolite cavity.
- 144.6 - 146.5' Marlstone, dark brown, thin laminated and banded, rich. Nahcolite crystal casts at top.
- 146.5 - 148.0' Marlstone, buff, gray, tan, thin laminated and banded. Last 6" broken, scattered nahcolite crystal casts in last 6" also. 60° fracture at 147.1 and 147.4'.
- 148.0 - 150.0' Lost.
- 150.0 - 151.3' Marlstone, brown - gray brown, thin laminated and banded, fractured and broken throughout, 60 - 80° fractures.
- 151.3 - 152.0' Lost.
- 152.0 - 152.4' Marlstone, as above, with nahcolite cavity to 1" in last inch.
- 152.4 - 153.0' Lost.
- 153.0 - 153.5' Marlstone, dark brown, thin laminated and banded, fractured and broken.
- 153.5 - 154.9' Lost.
- 154.9 - 156.0' Marlstone, brown - dark brown, thin laminated and banded. Irregular streaked bedding. Many 1/16" to 1/4" crystal cavities. Core looks wormy! Moderately rich.
- 156.0 - 157.0' Lost.
- 157.0 - 159.0' Marlstone, dark brown, thin laminated and banded, rich, irregular streaked bedding. Scattered nahcolite crystal casts 158.1 - 158.4'.
- 159.0 - 161.6' Marlstone, buff tan, thin laminated and banded. Dips irregular - 0 to 30°. Irregular 60° fracture at 161.5'. 2" nahcolite cavity at 161.2'.
- 161.6 - 162.7' Lost. Nahcolite cavity?
- 162.7 - 164.7' Marlstone, buff to dark brown, thin laminated and banded, moderately rich 162.7 - 163.3'. Many 1/4 - 2" nahcolite cavities. 60° dip at 163.2', decreasing to 10° at 164.7'.

- 164.7 - 168.0' Marlstone, tan - brown - dark brown, gray, thin laminated and banded with many short black (Pyrrhotite) streaks from 166.3 - 167.0'.
- 168.0 - 176.4' Marlstone, buff - tan, thin laminated and banded, slightly ashy and porous throughout. 60° fracture at 172.6'. Two parallel 70° fractures at 175.1' and 70° fracture at 175.7'. Scattered 1/2" nahcolite crystal casts at 175.6' and 176.4'.
- 176.4 - 182.2' Marlstone, brown - dark brown, thin laminated and banded with some irregular streaked bedding. Moderately rich. Biscuity from 178.0 - 178.2'. Fine nahcolite crystal casts on bedding surfaces cause biscuity texture. Two parallel 60° fractures at 178.3', 80° fracture 178.3 - 179.0', 1" nahcolite cavity at 179.1'. Several 1/2" nahcolite cavities at 180.2', 45° fracture at 181.1, 181.4, 181.9, and 182.0'.
- 182.2 - 186.0' Marlstone, buff - tan - brown, thin laminated and banded, streaked. Many 1/8 - 1/4" tan ash laminae from 184 to 186', causing broken core in this interval. Scattered nahcolite crystal cavities 1/4" - 1" 185.5 - 186.0'. Two parallel 60° fractures at 182.7'.
- 186.0 - 189.5' Marlstone, brown to brown black, thin laminated and banded, rich. Scattered 1/2 - 1" nahcolite crystal cavities 186.0 - 186.8'.
- 189.5 - 196.0' Marlstone, tan brown, thin laminated and banded, streaked bedding. 60° fracture at 190.6, 191.0, 191.8'. Vertical fracture 192.8 - 194.6', more or less continuous - core very badly broken 194.9 - 196.0'. Core fractured and recemented in part (breccia). Scattered nahcolite crystal casts in zone, core in part broken.
- 196.0 - 200.0' Marlstone, brown - dark brown, thin laminated and banded. Irregular streaked bedding. Top 6" biscuity, scattered nahcolite crystal casts 196.9 - 197.0' and 197.3 - 197.7'. 60° fracture 198.3'. Moderately rich. This interval contains abundant "flat pebble conglomerate."
- 200.0 - 209.5' Marlstone, buff - tan - gray, thin laminated and banded, grading into gray brown and brown gray at base.

- 209.5 - 216.5' Marlstone, buff - tan - gray - brown - dark gray - dark brown, thin laminated, strongly banded.
- 216.5 - 220.7' Marlstone, gray, tan - brown - buff, thin laminated, strongly banded. 60' fracture at 217.8'.
- 220.7 - 222.0' Marlstone, buff - tan - brown, thin laminated, banded.
- 222.0 - 229.0' Marlstone, buff - tan, thin laminated and banded, slightly porous, slightly ashy. 60° fracture at 222.2', multiple 60° fractures 222.6 - 223.0'. Coarse ash zone 228.0' - 228.1' with nahcolite crystal casts. 80° fracture 228.2 - 228.5'. Scattered 1/8" ashy zones in last 6".
- 229.0 - 230.0' Marlstone, as above with interbeds of ash, tan. Core dull, ash 30%.
- 230.0 - 232.0' Lost.
- 232.0 - 232.6' Marlstone and ash as above. Dull and badly leached. Badly broken.
- 232.6 - 236.5' Marlstone, brown - dark brown, thin laminated and banded, moderately rich. 1/4" nahcolite crystal cast at 233.0', 1" nahcolite cavity at 233.7'. Nahcolite crystal casts at 233.9', 234.2', 234.5'. Zone from 234.3 - 234.5' and from 235.1 - 235.4' appears to be gilsonite or black tar filled nahcolite crystalline cavities. Each section appears to be about 50% tar? (No flowage). Dips to 30° from 235.4 to 236.5'.
- 236.5 - 253.2' Marlstone, buff - brown - gray, thin laminated and banded. Irregular 70 - 90° fracture at 243.9'. 1" gray ash at 248.5'. Scattered nahcolite crystal cavities at 242.2'. 1" nahcolite crystal cavity at 253.2'.
- 253.2 - 266.1' Marlstone, tan - brown, dark brown, thin laminated and banded with scattered zones of irregular streaked bedding. Looks like algal material at 254.3 - 254.6'. Abundant zones of nahcolite crystal casts from 255.0 - 256.0'. Abundant 1/2 to 2" nahcolite cavities from 256.0 - 256.8' (core broken). 3" nahcolite cavity at 257.6', 1" at 257.9'.

- 253.2 - 266.1' (Cont.) 1" at 259.6'. Scattered nahcolite crystal cast zone 258.0 - 259.2'. 1/2" nahcolite crystal cast at 259.31'. 3" nahcolite cavity 260.1' and in missing zone from 260.2 - 260.6' (nahcolite cavity!). Nahcolite cavity above has coarse pyrite crystals in it. 60° fracture 261.1 and 261.2'. 70° fracture 262.1', dip increases from flat at 265.0' to 20° at 266.1'.
- 266.1 - 273.3' Marlstone, buff tan - thin laminated, poorly banded. Contains many leached ashy zones 1/4 - 1/2" thick with nahcolite crystal casts from 268.3' - 269.4'. 1/4" nahcolite crystal casts 269.5'. Dip 20° at top - flat at 268.0'. Nahcolite crystal casts at 270.4', 271.1', 271.6'.
- 273.3 - 276.0' Marlstone, tan - brown - gray, thin laminated and banded.
- 276.0 - 280.1' Marlstone, buff - tan - gray tan - brown, thin laminated and banded. 60° fracture at 277.3'. Some broken and weathered bedding planes 278.8 - 280.1'.
- 280.1 - 280.7' Lost.
- 280.7 - 321.0' Marlstone, buff, tan - brown - gray, thin laminated and banded. Leached and porous 281.0 - 281.6'. Irregular vertical fracture 290.6 - 291.2', 295.7 - 296.0', 298.2 - 298.9'. 60° fracture 296.8'. Cemented breccia zone from 295.1 - 295.4' with some tar (?). 1" weathered ash at 302.0'. Vertical fracture 304.6 - 304.8', 1" tan ash at 369.2' with vertical fracture. Vertical fracture 314.6 - 315.0'.
- 321.0 - 326.0' Marlstone, ashy, gray tan and light gray, slightly porous, thin laminated and banded. Irregular vertical fracture 322.1 - 323.9'.
- Total Depth: 326'.