

SYNTANA Drill Hole

SYN-3

SYN 3A Location

Collar Elevation

5366

Page

1

of

12

Location

Sec 15, T1S, R24E

SYN 3A Location

Total Depth

1587'

430' FSL, 820' FWL

414' FSL, 807' FWL

Drilled

0 - 402'

Logged By

CRB

Depth

Description

Uintah Co., UT

Started 1000 hrs 16 NOV, 1980

0	12'	Pale olive, marlstone, silt
	22	greenish gray, marlstone, ss
	32	greenish gray marlstone
	42	greenish gray marlstone
	52	light olive gray marlstone
	62	greenish gray marlstone
	72	greenish gray marlstone
	82	greenish gray marlstone
	92	greenish gray marlstone, ss
	102	light olive gray marlstone, ss
	112	greenish gray marlstone
	122	greenish gray marlstone
	132	greenish gray marlstone
	142	light olive gray marlstone
	152	greenish gray marlstone, ss
	162	greenish gray marlstone, ss
	172	greenish gray marlstone
	182	greenish gray marlstone
	192	greenish gray marlstone
	202	greenish gray marlstone
	212	greenish gray marlstone
	222	greenish gray marlstone
	232	light olive gray marlstone
	242	light olive gray marlstone
	252	light olive gray marlstone, ss
	262	light olive gray marlstone, ss
	272	light olive gray marlstone, ss
	282	light olive gray ss, marlstone
	292	light olive gray ss, marlstone
	302	light olive gray ss, marlstone
	312	light olive gray ss
	322	light olive gray marlstone, ss
	332	dark yellowish brown ss
	342	dark yellowish brown ss
	352	dark yellowish brown ss
	362	light olive gray ss, marlstone
	372	dark yellowish brown marlstone, ss
	382	light olive gray marlstone
	392	light olive gray ss
	402	light olive gray ss

SYNTANA Drill Hole

SYN-3

Collar Elevation 5566

Page 2 of 12

Location 430' FSL, 820' FWL, Sec 15, T9S, R24E

Total Depth 1587'

UINTAH CO, UTAH

Drilled 402-803

Logged By CRB

Depth	Description
412	dark yellowish brown ss
422	light olive gray ss
432	light olive gray ss
442	light olive gray ss
452	light olive gray marlstone
462	light olive gray marlstone
472	light olive gray marlstone
482	light olive gray marlstone
492	greenish gray marlstone
502	light olive gray marlstone
512	light olive gray ss
522	light olive gray ss, marlstone
532	pale yellowish brown ss, marlstone
542	light olive gray marlstone
552	lt. olive gray marlstone
562	lt. olive gray marlstone
572	lt. olive gray marlstone, ss
582	dk yellowish brown ss
593	lt. olive gray ss
603	lt. olive gray ss & marlstone
613	lt. olive gray ss & marlstone
623	lt. olive gray ss
633	lt. olive gray marlstone & ss
643	lt. olive gray marlstone & ss
653	lt. olive gray marlstone
663	lt. olive gray marlstone
673	lt. olive gray marlstone
683	lt. olive gray marlstone
693	lt. olive gray marlstone
703	lt. olive gray marlstone
713	lt. olive gray ss and marlstone
723	lt. olive gray ss
733	lt. olive gray ss and marlstone
743	lt. olive gray ss
753	lt. olive gray ss
763	lt. olive gray ss & marlstone
773	lt. olive gray ss & marlstone
783	lt. olive gray ss
793	lt. olive gray ss
803	lt. olive gray ss

Water hit @ ~580' switched to foam
 stopped 11/16/80, 1700 hrs (Rig broke down)
 Start 11/29/80 0900 hrs

SYNTANA Drill Hole

SYN-3

Collar Elevation

5766

Page 3

of 12

Location

430' RSL, 820' FNL, sec 15, T9S, R24E

Total Depth

1587'

Drilled

803 - 1203

Logged By

CRB

MINTAM CO. UTAH

Depth	Description
803	14 olive gray ss
823	14 olive gray ss
833	pale yellowish brown ss
843	14 olive gray ss
853	14 olive gray ss
863	14 olive gray ss
873	14 olive gray ss
883	14 olive gray ss
893	14 olive gray ss
903	14 olive gray ss & marlstone
913	14 olive gray marlstone
923	14 olive gray ss & marlstone
933	14 olive gray ss
943	14 olive gray ss
953	14 olive gray ss
963	14 olive gray ss
973	14 olive gray ss
983	14 olive gray ss
993	pale yellowish brown ss
1003	14 olive gray ss
1013	14 olive gray ss
1023	14 olive gray ss
1033	14 olive gray ss
1043	14 olive gray ss
1053	pale yellowish brown ss
1063	14 olive gray marlstone & ss
1073	14 olive gray ss
1083	pale yellowish brown ss plus viscous black oil
1093	14 olive gray marlstone
1103	pale yellowish brown marlstone
1113	pale yellowish brown marlstone
1123	pale yellowish brown ss & marlstone
1133	pale yellowish brown ss
1143	pale yellowish brown ss
1153	pale yellowish brown ss
1163	pale yellowish brown ss
1173	pale yellowish brown ss
1183	pale yellowish brown ss
1193	pale yellowish brown ss
1203	pale yellowish brown ss

Stop 20 NOV 1700 hrs
Start 21 NOV 0700 hrs

SANTANA Drill Hole SYN-3A
 Location 414 FSL, 807 FNL, SEC 15, T9S, R24E,
UINTAH CO, UTAH

Gollar Elevation 5366 Page 5 of 12
 Total Depth 2121
 Drilled 1404-1795 Logged By CRB

	Depth	CHIP DENSITY	Description
404	1414		pale yellowish brown ss
	1424		"
	1434		"
	1444		"
	1454		"
	1464		" yellowish brown "
	1474		" yellowish brown oil shale
	1484		" yellowish brown oil shale & ss
	1494		" "
	1504		" pale yellowish brown oil shale
	1514		" "
	1524		" "
	1534		" "
	1544		" "
	1554		" "
	1564		" "
	1574	2.57	" "
	1584	2.47	" "
	1594	2.47	" "
	1604	2.52	" "
	1614	2.43	" dark yellowish brown oil shale
	1625	2.47	" dark "
	1635	2.52	" "
	1645	2.52	" "
	1655	2.40	" "
	1665	2.47	" "
	1675	2.38	" "
	1685	2.43	" "
	1695	2.38	" "
	1705	2.38	" "
	1715	2.42	" "
	1725	2.34	" "
	1735	2.57	" "
	1745	2.42	" "
	1755	2.38	" "
	1765	2.29	" dusky yellowish brown oil shale
	1775	2.47	" "
	1785	2.42	" "
	1795	2.52	" "

1560 ft TDS = 1800 ppm, 1700 hrs 6 Dec 80 22°C
 100 g/liter / oil measured 280 psi H₂S

6 inch void @ 1685

drill progress slowed fr 35 ft/hr to 20 ft/hr
 TDS = 1600 ppm, 25°C, 460 psi, 500 gpm 1700 hrs 7 Dec 80

TDS = 1530 ppm, 25.5°C, 470 psi, 300 (60-400) gpm, H₂S
 1500 hrs 7 Dec 80

SYNTANA Drill Hole SYN-3A
 Location A14 FSL, 807 FWL, SEC 15, T9S, R24E
UINTAH CO, UTAH

Collar Elevation 5366

Page 6 of 12

Total Depth 2121

Drilled 7795-2040

Logged By VDD

	Depth	DEN	Description	
1795	1805	2.34	29.0 Dusky brown oil shale	Cemented 1800 - total depth
1805	1815	2.61	32.0 "	
1815	1825	2.58	— 18.5 "	
1825	1835	2.43	30 "	
1835	1845	2.52	31. "	
1845	1855	2.58	27.6 "	
1855	1865	2.34	29.0 "	
1865	1875	2.47	30.5 "	
1875	1885	2.41	29.5 "	
1885	1895	2.29	28.5 "	
1895	1905	2.34	29.0 "	
1905	1915	2.29	28.5 "	
1915	1925	2.56	" "	
1925	1935	2.56	23.1 "	
1935	1945	2.24	" includes wavy " marker	
1945	1955	2.29	" "	
1955	1965	2.24	28.0 } "	
1965	1975	2.15	22.0 } and "	
1975	1985		27.0 } "	
1985	1995		Dark Yellow Brn oil shale	17.5
1995	2005		Dusky yellow Brn oil shale	27.0 wet
2005	2015		" 1575 TDS, 25°C, 350 psi, 400 gpm, HeS	19.0
2015	2025		" incl Mahogany marker @ 2019 1400 hrs 8 Dec 80	18.5
2025	2035		" "	16.0
2035	2040		" Rich Red @ 2034	16.0