

DEPTH	MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
573	*	45	20.90	11.0	↑		OIL SHALE, medium-dark brown; fine-thinly laminated; very calcareous; appears to be low grade oil
574			.45	10.1			
575				10.1			
576			05.55	5.5			
577			14.54	5.5			
578				9.9			578.05-578.19 & 578.28-578.40, SANDSTONE, tuffaceous oolitic texture H ≈ 4.5 Core eroded (spindled) in these zones
579	+240		38	9.9			very highly calcareous
580			09	10.0			
581			01	10.0			
582			27		582.64		582.21-582.53 SANDSTONE, tuffaceous; irregular upper & lower contacts; very porous & petroliferous
583							
584							
585							
586							
587							
588							
589	+230						
590							
591							
592							
593							
594							
595							
596							
597							OIL SHALE, medium-dark brown; fine-thinly laminated; very calcareous; appears to be low grade OIL SHALE
598							
599	+220						
600							
601							
602							
603							
604				11.4	604.16		
605				11.4			
606				13.3			606.30-606.37 SANDSTONE, tuffaceous; very fine grained; petroliferous; highly irregular lower contact
607			.44	13.3			
608				14.8			
609	+210			14.8			
610				13.5			
611				13.5			OIL SHALE, with TUFF, medium dark-dark brown, fine to thinly laminated; low to moderate grade; many very thin tuffaceous SANDSTONE layers
612				11.7			
613				11.7			
614				13.6			
615				13.6			
616				13.1			
617				13.1			
618				12.3			
619	+200		85	12.3			
620				14.4			
621				14.4			621.23-621.34 SANDSTONE, tuffaceous
622				12.6			

COMMENTS: *Six ft. has been deducted from all depth measurements because driller measured from the height of the rotary Table (Approximately 5.8 ft. above ground level)

** Actually drilled from 573 to 603 ft. Driller was sure the barrel was full so core from interval from 582.64 to 603.0 was left in the hole (core catcher slipped on shale zones & finally caught on SANDSTONE at 582.2). Driller does not think catcher needs to be replaced.

Driller went back in the hole & attempted to slide the barrel over the 20 ft. of core left in the hole & drilled an additional 0.5 ft. The excess length of this interval (from 573.00 to 604.16 or 31.16 ft.) the result of cumulative errors in measurement. Driller was measuring from the geograph rather than "stick-up" on Kelly bar. Error resulted even though the geograph is corrected at each "Kelly down".

HOLE NO. P-2 SHEET 2 OF 10 DATE: 10/21/74 LOGGED BY: Gentzler T.D. 1028.85

DEPTH	±MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
623				12.6	* Drilled 29.84 Ft. Recovered 30.18 Ft.		623.48-623.60 SANDSTONE, tuffaceous fine grained; petroli-
624				12.9			ferous; irregular upper & lower contacts & some SHALE
625				12.9			inclusions; bedding in SHALE only slightly distorted
626				6.4			above & below this zone; tuff is relatively soft &
627				6.4			non-calcareous
628				14.9			
629	+190			14.9			
630				25.5			
631				25.5			
632				23.0			632.8-633.0 SANDSTONE, tuffaceous, very fine-grained;
633				23.0	634.34 ↑ Drilled 30.58 Ft. Recovered 30.15 Ft.		extremely rich in oil & bleeding gas; zone actually consists
634				15.7			of several tuffaceous SANDSTONE lenses, very irregular &
635				15.7			interbedded with the SHALE
636				10.6			
637				10.6			
638				12.9			
639	+180			12.9			
640				7.9			
641				7.9			
642				8.1			642.78-642.83 SANDSTONE, tuffaceous, fine grained with
643				8.1			much dead oil
644				20.1			644-645, moderate oil yield zone
645				20.1			645.80-645.85 SANDSTONE tuffaceous lenses; petroliferous
646				8.7			
647				8.7			
648				7.7			648.0 HEMATITE blebs; 648.15-648.2, HEMATITE in very thin
649	+170			7.7			layers
650				11.7			
651				11.7			
652				5.4			
653				5.4			
654				8.8			
655				8.8			
656				8.0			
657				8.0			Many BITUMEN flecks & veinlets
658				15.6			657-658 Moderate grade oil zone
659	+160			15.6			
660				8.0			
661				8.0	664.92 ↑		
662				7.6			
663				7.6			
664				11.4			664.49-664.92 & 665.21 & 665.27 NO CORE
665				11.4			665-667 extremely high grade oil zone containing SANDSTONE
666				14.3			tuffaceous, thin, medium-coarse grained; very irregular
667				14.3			lower contacts
668	183			7.1			
669	+150			7.1			669.8 SANDSTONE, tuffaceous; varies from .01-.10' thick;
670	90		29.72	6.9			medium grained; very irregular contacts that cut bedding
671	1.09		.09	6.9			in SHALE
672				21.5			672.5-673.5 OIL SHALE, high grade zone

COMMENTS: *As the core barrel was pulled the entire length of core remained at the bottom of the hole. The barrel was returned to the bottom of the hole and the entire length of core plus some from the previous interval was recovered.

HOLE NO. P-2 SHEET 3 OF 10 DATE: 10/22/74 LOGGED BY: Gentzler T.D. 1028.8

DEPTH	±MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
673				21.5			
674				8.5			
675				8.5			
676				10.7			
677				10.7			
678				27.7			678.8-679.8 OIL SHALE, high grade zone
679	+140			27.7			
680				10.0			680.0-680.2 SANDSTONE, tuffaceous; medium grained-saturated with dead oil; extremely irregular lenses interbedded with shale
681				10.0			
682				6.9			
683				6.9			
684				10.8			
685				10.8			
686				13.5			
687				13.5			687.42-687.59 SANDSTONE, tuffaceous; medium-coarse grained with some oil; also lenses 0.01' thick at 688.7 & 689.05 - very irregular contacts
688				9.8			
689	+130		.61	9.8			
690				11.0			
691				11.5			691.6-693.0 OIL SHALE, high oil content
692				21.3			
693				34.6			
694				10.6			
695			.07	9.4	695.07		
696				5.2			
697				2.6			
698				7.3			OIL SHALE, high grade zone
699	+120			22.5			
700				16.2			
701				9.7			701.40-701.45, 701.60-701.67 & 702.17-702.24; medium grained, distorted bedding; petroliferous
702			.80	9.7			
703				9.8			
704			.96	14.5			703.80-704.56 SANDSTONE, tuffaceous; tan-light brown, oil saturated; thin, bedded, slightly distorted SHALE inclusion at 710.40 (buff)
705				18.0			
706				13.4			707.28-707.59 SANDSTONE, tuffaceous; no oil
707				10.0			
708				10.1			
709	+110			10.3			
710				8.8			710.32-710.40 SANDSTONE, tuffaceous; petroliferous; distorted sediments
711			.26	8.0			712.05-712.29, SANDSTONE, tuffaceous; very contorted bedding with shale interbedded, petroliferous
712				10.0			713.10-713.15, 713.30-713.37, SANDSTONE as above; lens at 715.3
713				15.2			
714				10.2			
715				10.7			
716				11.1			
717				9.2			
718				11.1			
719	+100			10.0			
720				10.8			720.30-720.49, SANDSTONE, tuffaceous; distorted bedding with shale interbeds slightly petroliferous
721				11.1			721.71-722.05 SANDSTONE as above
722				10.9			

Drilled 30.15 Ft.
Recovered 30.09 Ft.Drilled 30.16 Ft.
Recovered 30.10 Ft.

COMMENTS:

HOLE NO. P-2 SHEET 4 OF 10 DATE: 10/23/74 LOGGED BY: Gentzler T.D.1028.85

DEPTH	+MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
723				10.2			
724				11.3			
725				13.6	725.23		725.27-725.32 & 725.50-725.55 SANDSTONE, tuffaceous; highly irregular upper & lower contacts; petroliferous
726				10.8			
727				8.7			
728				15.9			728.20-728.27 SANDSTONE, tuffaceous; regular contacts; petroliferous
729	+90			15.9			
730			.30	10.2			730.30-730.45 SANDSTONE, tuffaceous; regular upper contact
731			.74	9.4			highly irregular lower contact; saturated with dead oil; contains much CLAY
732				6.7			
733				4.6			
734				10.7			
735				17.8			
736				12.2			
737			.24	10.2			
738				9.9			
739	+80			11.4			739.81-739.83 & 739.91-739.96 SANDSTONE, tuffaceous; irregular bedding; some CLAY; petroliferous
740				15.5			740.85-742.74, UPPER WAVY BED, SANDSTONE, tuffaceous with irregular SHALE layer (741.20-741.35) & smaller SHALE interbeds near bottom; highly contorted; CLAYEY - petroliferous; some GILSONITE & other BITUMEN
741				5.6			
742				7.9			
743				11.0			
744				11.1			
745				12.9			
746				15.9			
747				15.6			
748				16.0			
749	+70			14.0			
750				23.1			
751				11.3			751-754 Contains numerous very thin, discontinuous layers & isolated blebs of HEMATITE
752				9.0			
753				7.3			
754				7.2			
755				11.9	755.29		OIL SHALE, appears to be very low grade zone to parting plane at 761.82
756				14.3			
757				8.6			
758				6.4	*		758.45, HEMATITE layer, 0.01' thick; blebs & irregular lenses of same between 759.15 & 759.35 (0.01'-0.02' thick)
759	+60			8.1			
760				8.0			
761			.82	4.5			
762				14.2			762-767 OIL SHALE, gray-brown with a few thin dark brown bands; a few thin irregular inclusions of tuffaceous SANDSTONE, gray-dark gray
763				16.6			
764				12.3			
765				9.1			
766				10.5			
767				13.3			767-768 OIL SHALE buff-light brown, calcareous; slightly coarser grained (silty); minor petroliferous seep
768				34.1			768-769 OIL SHALE, buff-brown; throughout most of interval with thin dark brown bands
769	+50			25.9			
770				11.7			
771				14.3			
772			.41	13.7			

COMMENTS:

*Generator failed - logged at night by truck headlights

HOLE NO. P-2 SHEET 5 OF 10 DATE: 10/25/74 LOGGED BY: Gentzler T.D. 1028.85

DEPTH	±MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
773				14.8			
774				14.7			775.3 CHALCEDONY, 2 small, white vertical lenses
775				23.3			775.85-776.20 OIL SHALE, very high grade zone
776				31.7			
777				14.4			777.65-777.69 SANDSTONE, tuffaceous; irregular lenses
778				16.6			with CLAY; slightly petroliferous; very petroliferous
779	+40			20.1			lenses at 778.7 (.01'-.02' thick); very petroliferous
780				33.1			layer 779.74-779.77
781		I .40 I .90		11.3			779.6-780.7 OIL SHALE, moderate grade zone; coarser grained
782		I .55		6.4			slightly distorted bedding
783			.22	5.8			783.22-788.01 MARLSTONE, light buff, very fine to fine,
784				6.0		784.75	very to slightly calcareous & very dolomitic; very thin
785				2.6			(<0.01') vuggy zone filled with unidentified opaque white
786				8.0			786-788, highly variegated laminae & thin, tuffaceous
787				6.2			SANDSTONE layers
788			.12,33	2.7			788.01-788.33 Opaque, white, granular to saccharoidal
789	+30			5.0			mineral H>7
790				2.2			
791			.84	2.2			
792				3.5			
793			.36	5.7			
794				15.3			
795				12.1			
796				21.5			796.4-797.7 OIL SHALE, moderate grade zone, distorted
797				39.3			bedding with thin petroliferous, tuffaceous SANDSTONE
798				17.0			
799	+20		.20	13.0			799.0-799.35 SANDSTONE, tuffaceous; irregular contacts;
800			.52	14.7			very contorted bedding CLAY; somewhat petroliferous, minor
801				14.9			PYRITE; 799.35-800.52, SANDSTONE, tuffaceous; layers,
802			.96	22.2			lenses & blebs; pyritiferous
803				28.1			SANDSTONE, tuffaceous; contorted, extremely petroliferous
804			.64	30.9			(bleeding oil) CLAYEY
805				24.2			
806			.86	35.9			NO CORE (0.19')
807			.06,30	42.6			806.86-808.41 OIL SHALE, very high grade with several thin
808			.41	45.3			layers of tuffaceous SANDSTONE; oil saturated
809	+10			28.7			809-815 OIL SHALE, light-medium brown in distinct bands;
810				22.3			calcareous & dolomitic
811				19.2			
812			.71	16.3			
813				11.2			
814				19.8			
815				20.6			
816				13.0		816.38	
817				12.0			
818				11.7			
819	0		.19	11.9			819.11-819.48 MAHOGANY MARKER, SANDSTONE, tuffaceous;
820				10.3			interbedded with silt
821				9.2			
822				12.3			828.5, very thin, dark colored band of pyritiferous material

Drilled 30.63 Ft.
Recovered 30.41 Ft.

COMMENTS:

THE CLEVELAND-CLIFFS IRON CO.

PROJECT: White River Shale ProjectHOLE NO. P-2 SHEET 6 OF 10 DATE: 10/25/74 LOGGED BY: Gentzler T.D.1028.85

DEPTH	±MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
823				12.7			
824			.05	38.3			
825				42.6			
826				21.5			
827				22.8			
828			.78	18.7			
829	-10			0.6			
830				36.4			
831				34.1			
832				31.9			
833			.30	51.3			833.30-839.66 OIL SHALE, black; extremely rich
834				69.3			
835			.81	78.6			835.32-836.22 MAHOGANY BED, black, extra rich
836	<20°		.22	45.1			836.22-837.02, NAHCOLITE, massive zone which includes very
837	<20°		.02	50.4			highly distorted layers of extremely rich OIL SHALE
838			.11.54	53.7			
839	-20		.14	39.7			
840				19.7			
841				28.7			
842			.70	46.3			
843				26.9			
844				16.3			
845				18.7			
846				36.7			
847				54.6			847.75-847.80 OIL SHALE, high grade zone
848			.80	36.9			848.34-848.50 SANDSTONE, tuffaceous; wavy contacts; slightly
849	-30			33.5			pyroliferous; much NAHCOLITE interbedded with SHALE
850				23.7			848.80-851.78, OIL SHALE, high grade with a PYRITE-HEMATITE stringer
851				24.2			849.68-849.69; irregular with fine NAHCOLITE crystal
852				50.2			aggregates (oil saturated) above & below; smaller
853				19.3			stringer at 849.76 & numerous others to 852.0
854			.84	19.4			854.0-856.3 OIL SHALE & MARLSTONE, light to medium brown;
855				14.0			very calcareous
856				26.1			SILTSTONE, light to dark brown; very fine to thickly
857				41.7			laminated; variable oil content causes distinctive light
858				19.1			& dark alternating zones; bedding is slightly irregular
859	-40			10.5			throughout; beds contain minor thin zones of tuffaceous
860				10.7			SANDSTONE with HEMATITE inclusions & occasional NAHCOLITE
861				11.4			in layers
862				13.5			
863			.36	23.7			
864				36.7			
865				30.4			
866			.49	23.7			
867				23.5			
868				36.9			
869	-50			28.2			
870				21.6			
871				19.6			
872				12.9			

COMMENTS: *Remaining 3.19 ft. of core thought to be on bottom of hole - new core catcher put on.

**Logged at night by truck headlights.

HOLE NO. P-2 SHEET 7 OF 10 DATE: 10/25/74 LOGGED BY: Gentzler T.D. 1028.85

DEPTH	+MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
873				10.5			
874	-60			8.6			
875							Lost Core
876							
877				12.8			
878		.29	.29	11.9	877.76		OIL SHALE, very high grade 878.15; also at 878.25-878.32
879		.27	.27	11.9			
880		.88	.48	8.8			
881			.71	7.5			
882			.02	18.0			
883		.34	.54	11.3			
884	-70	.19	.05	8.5			SANDSTONE, tuffaceous; oil saturated
885				12.6			
886			.04	31.1			
887				10.5			
888				7.4			
889			.72	8.2			889.72-889.76 OIL SHALE, extremely high grade bed
890				33.0			
891			.30	32.4			
892				10.1			
893			.87	6.5			
894	-80			2.6			
895				3.0			895.71-895.74 CHALCEDONY (?) white, opaque, massive; very irregular layer
896				3.4			
897				6.7			
898				20.4			898.0-899.1 OIL SHALE, buff to very dark (in thin zones); minor distortion of bedding; progressive steepening of bed inclination (from about 7° to 20°) resulting from the influence of contorted beds below
899				23.4			899.1-899.9 SANDSTONE, tuffaceous, buff-tan-gray, highly contorted with irregular SHALE inclusions; irregular upper lower contacts between the SANDSTONE & SHALE
900				22.4			899.9-901.0 OIL SHALE, similar to above but with horizontal bedding; decreasing grade (best grade of both SHALE zones is immediately adjacent to the contorted SANDSTONE zone); several thin-very thin, irregular zones of tuffaceous SANDSTONE, gray.
901				22.3			901-903 OIL SHALE, similar to that above; frequency of thin, irregular, SANDSTONE zones decreases below 908.3'; oil seep at 908.1 & at 909.6'
902				12.4			907.58, SANDSTONE, tuffaceous (0.01'); bleeding much oil
903				7.1			
904	-90			5.7			
905			.20	2.3			
906			.68	4.3			
907			.58	7.7	907.46		
908			.34	5.0			
909			.38	4.7			
910			.80	5.4			
911				7.3			
912			.37	3.6			
913				6.7			913.92-914.10 SANDSTONE, tuffaceous; thin layers inter-bedded with thin layers of SHALE; petroliferous - some layers bleeding oil
914	-100			5.9			914.35-914.40 same as above
915				2.3			
916				4.0			
917				5.0			
918				3.7			918.45-918.60 SANDSTONE, tuffaceous; bleeding oil
919				4.0			
920				1.9			
921				1.4			
922			.56	2.9			SANDSTONE, tuffaceous, very thin (as above); bleeding oil

COMMENTS:

*Logged by pickup headlights - recovered only 0.52 ft. of the 3.19 ft. of core left on bottom from previous run.

HOLE NO. P-2 SHEET 8 OF 10 DATE: 10/26/74 LOGGED BY: Gentzler T.D.

DEPTH	+MM	FRX	PP	GAL/TON	CORE REC.	LITH.	DESCRIPTION
923				3.3			
924	-110		.32	3.4			924.70-924.95, SANDSTONE, tuffaceous; bleeding much oil (& gas); other than layers between 924.46 & 924.70
925				5.6			
926				2.1			
927				2.2			924.95-930.60 MARLSTONE, light to medium brown; very calcareous
928				2.7			
929				1.7			
930			.47	6.2			930.6-933.6 SILTSTONE & SANDSTONE, tuffaceous; bleeding oil & gas profusely from thin layers to some up to 0.40' thick
931		.05.12	.09.83	6.9			
932		40°		4.1			
933				3.5			
934	-120			1.1			SILTSTONE & MARLSTONE, light to medium brown
935				0.5			
936			.83	0.2			
937			.53	0.6	937.53		
938				1.5			
939				1.3			
940			.22	1.8			
941		52°	.52.78	1.0			
942		90°		1.2			
943		73°		1.0			
944	-130		.09	0.8			
945			.40	0.8			
946				1.4			
947			.98	1.4			
948			.25.45	6.1			
949				6.1			
950				2.5			
951				2.5			
952				14.3			952.00-952.17 SANDSTONE, tuffaceous; highly contorted with SHALE interbeds & GILSONITE or BITUMEN in contorted
953				14.3			lenses
954	-140			15.6			Some distortion of bedding
955				15.6			
956				10.9			
957				10.9			
958				36.8			
959				36.8			
960				12.2			960.80-960.94 SANDSTONE, tuffaceous
961				12.2			961.60-961.72, same as above with possible MARCASITE layers
962		vert. Healed		10.9			962.90-962.94 HEMATITE (?) layer
963				10.9			963.55-963.70, SANDSTONE, tuffaceous with HEMATITE (?) layer as above
964	-150			11.2			
965				11.2			
966				7.0			
967				7.0	968.29		967.50-967.66 SANDSTONE, tuffaceous; oil saturated; making gas
968							Lost Core
969							
970				5.8			970.38-970.70 OIL SHALE, low to medium grade; distorted bedding in upper part (especially 971.35-971.55);
971				5.8			containing thick, white CHALCEDONY layer & blebs at
972				10.0			972.12' & layer with vertical fractures at 973.02-973.10'

Drilled 30.76 Ft.
Recovered 30.22 Ft.

COMMENTS:

NOTE: Core from 907.46 to 931.53 was logged by pickup headlights

HOLE NO. P-2 SHEET 9 OF 10 DATE: 10/27/74 LOGGED BY: Gentzler T.D. 1028.85

DEPTH	+ -MM	FRY.	PP	GAL/ TON	CORE REC.	LITH.	DESCRIPTION
973		.02	.10	10.0			
974	-160			8.0			
975				8.0			
976				15.9			Micro-slumpage in beds at 976.7
977				15.9			977.62-977.79 SANDSTONE, tuffaceous; contorted with
978		.98		7.1			petroliferous lenses
979		.10.13		7.1			
980		.46.79		12.3			OIL SHALE, highly colored - finely banded
981		.06		12.3			
982		.67		8.0			
983				8.0			OIL SHALE as above
984	-170		.65	10.6			
985				10.6			
986		.96		16.7			986.51-986.52 GILSTONITE (?) layer
987				16.7			986.98-987.32 SANDSTONE, tuffaceous, black; highly
988		.06		7.4			petroliferous
989				7.4			987.4 Micro-slumpage in bedding
990				12.0			OIL SHALE, light tan to medium brown
991				12.0			OIL SHALE, low grade; distorted bedding
992				26.1			
993		.52		26.1			992.98-993.12 SANDSTONE, tuffaceous; contorted, petroliferous
994	-180			18.9			
995				18.9			
996				22.2			OIL SHALE, low to medium grade
997		.34.37		22.2			996.9 - 997.20 SANDSTONE, tuffaceous, as above with thin
998		.25		6.4			(0.01') buff, very fine ash (?) layer below
999		.51.94		6.4	999.99		
1000		.91		9.5			OIL SHALE, light brown, finely laminated; calcareous
1001		.62.77		9.5			
1002				9.0			
1003				9.0			OIL SHALE, moderate grade zone; distorted bedding
1004	-190			16.5			
1005		.72.79		16.5			
1006				17.7			
1007				17.7			
1008				13.2			
1009				13.2			1009.07-1009.10 BITUMEN (?)
1010		.60		12.5			
1011				12.5			
1012				18.5			
1013		.09		18.5			OIL SHALE, medium grade; highly distorted bedding
1014	-200			5.6			
1015				5.6			
1016		.20		10.2			
1017				10.2			
1018		.11		26.7			1018.05-1018.10 SANDSTONE, tuffaceous; bleeding oil;
1019				26.7			undulating lower contact; showing several sets of healed
1020				17.6			vertical fractures
1021		.62		17.6			1018.60-1019.25 } OIL SHALE, moderately high grade
1022				12.7			1021.75-1022.55 }

Drilled 31.70 Ft.
Recovered 29.85 Ft.Drilled 28.86 Ft.
Recovered 28.10 Ft.

COMMENTS: Logged in cramped, poorly-lighted doghouse because of rain (999.99 To 1028.85).

PROJECT: White River Shale Project

[illegible]

COMMENTS: