

U057

White River Shale Proj.

Corehole P-2

17-10S-24E

Uintah County, UT

P-2 CORE LOG

Depth	MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
567					5.9		Oil Shale - low to medium grade,
568					5.4		buff to brown, thinly laminated
569	-250				5.4		
570					7.2		
571					7.2		
572					11.0		
573			.90		11.0		
574			.45		10.1		
575					10.1		
576			.08.55		5.5		
577			.14.54		5.5		
578					9.9		578.05-.19 Sandstone layer
579	-240		.38		9.9		'oolitic texture'
580			.09		10.0		
581			.01		10.0		
582							
583							
584							
585							
586							
587							
588							
589	-230						582.60-604.50
590							Lost Core Zone
591							
592							
593							
594							
595							
596							
597							
598							
599	-220						
600							
601							
602							
603							
604					11.4		
605					11.4		
606					13.3		606.30-.37 Sandstone layer,
607			.44		13.3		oil saturated
608					14.8		Oil Shale - medium grade,
609	-210				14.8		brown to dark brown,
610					13.5		thinly laminated
611					13.5		
612					11.7		
613					11.7		
614					13.6		
615					13.6		
616					13.1		

Depth ±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
617				13.1		Oil Shale - medium grade, brown
618				12.3		brown, thinly laminated
619	-200	.85		12.3		
620				14.4		
621				14.4		621.23-.34 Sandstone layer
622				12.6		oil saturated
623				12.6		623.48-.60 Sandstone layer
624				12.9		oil saturated
625				12.9		
626				6.4		Oil Shale - low to medium grade,
627				6.4		buff to brown
628				14.9		
629	+190			14.9		
630				25.5		Oil Shale - high grade, dark brown
631				25.5		
632				23.0		632.80-633 Sandstone layer,
633				23.0		oil saturated
634				15.7		
635				15.7		Oil Shale - low to medium grade,
636				10.6		buff to brown
637				10.6		
638				12.9		
639	+180			12.9		
640				7.9		
641				7.9		
642				8.1		642.78-.83 Sandstone layer,
643				8.1		oil saturated
644				20.1		
645				20.1		
646				8.7		Oil Shale - low to medium grade,
647				8.7		buff to brown, thinly laminated
648				7.7		
649	+170			7.7		
650				11.7		Oil Shale - low to medium grade,
651				11.7		buff to brown
652				5.4		
653				5.4		
654				8.8		
655				8.8		
656				8.0		
657				8.0		
658				15.6		
659	+160			15.6		
660				8.0		
661				8.0		
662				7.6		
663				7.6		
664				11.4		
665				11.4		
666				14.3		

Depth	±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
667					14.3		
668					7.1		Oil Shale - low to medium grade,
669	+150				7.1		buff to brown, thinly laminated
670		90°	.29.72		6.9		
671			.09		6.9		
672					21.5		
673					21.5		
674					8.5		
675					8.5		
676					10.7		
677					10.7		
678					27.7		Oil Shale - high grade, dark brown
679	+140				27.7		
680					10.0		680.0-.20 Sandstone layer,
681					10.0		oil saturated
682					6.9		
683					6.9		Oil Shale - low to medium grade,
684					10.8		buff to brown
685					10.8		
686					13.5		
687					13.5		
688					9.8		
689	+130		.61		9.8		Oil Shale - predominantly medium
690					11.0		grade, brown to dark brown,
691					11.5		thinly laminated
692					21.3		
693					34.6		Oil Shale - high grade, dark brown
694					10.6		
695			.07		9.4		
696					5.2		
697					2.6	TIT	Marlstone - light gray, hard
698					7.3		
699	+120				22.5		Oil Shale - medium grade, brown
700					16.2		
701					9.7		701.40-.45 Sandstone layers,
702			.80		9.7		702.17-.24 oil saturated
703					9.8		703.80-704.56
704			.96		14.5		Oil Shale - medium grade, brown
705					18.0		
706					13.4		
707					10.0		707.28-.59 Sandstone layer
708					10.1		
709	+130				10.3		
710					8.8		710.32-.40 Sandstone layer
711			.26		8.0		
712					10.0		712.05-.29 Sandstone layers
713					15.2		713.30-.39 oil saturated
714					10.2		Oil Shale - low to medium grade,
715					10.7		light brown
716					11.1		

Depth	±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
717					9.2		Oil Shale - low to medium grade,
718					11.1		buff to brown
719	+100				10.0		
720					10.8		720.30-.49 Sandstone layers,
721					11.1		721.71-722.05 oil saturated
722					10.9		Oil Shale - low to medium grade,
723					10.2		light brown
724					11.3		
725					13.6		
726					10.8		
727					8.7		
728					15.9		728.20-.27 Sandstone layer,
729	+90				15.9		oil saturated
730		.30			10.2		730.30-.45 Sandstone layer,
731		.74			9.4		oil saturated
732					6.7		Oil Shale - low to medium grade,
733					4.6		buff to light brown
734					10.7		
735					17.8		
736					12.2		
737		.24			10.2		
738					9.9		
739	+80				11.4		
740					15.5		740.85-742.74 Upper Wavy Bed
741					5.6		Sandstone layer, redish to
742					7.9		brownish gray, contorted bedding
743					11.0		
744					11.1		
745					12.9		Oil Shale - predominantly medium
746					15.9		grade, brown to dark brown,
747					15.6		thinly laminated
748					16.0		
749	+70				14.0		
750					23.1		
751					11.3		
752					9.0		Oil Shale - low to medium grade,
753					7.3		buff to brown
754					7.2		
755					11.9		
756					14.3		
757					8.6		
758					6.4		
759	+60				8.1		
760					8.0		
761		.82			4.5		
762					14.2		
763					16.6		
764					12.3		
765					9.1		
766					10.5		

Depth	MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
767					13.3		
768					34.1		Oil Shale - high grade, black
769	+50				25.9		
770					11.7		
771					14.3		Oil Shale - medium grade, brown
772			.42		13.7		
773					14.8		
774					14.7		
775					23.3		
776					31.7		Oil Shale - high grade, dark brown
777					14.4		
778					16.6		
779	+40				20.1		
780					33.1		
781		90°			11.3		
782					6.4		Oil Shale - low grade, light brown
783			.22		5.8		
784					6.0		
785					2.6	T T	Marlstone - light gray, hard
786					8.0		
787					6.2		
788			.12,34		2.7	T T	Marlstone - light gray, hard
789	+30				5.0		Oil Shale - low grade,
790					2.2		light to buff brown
791			.84		2.2		
792					3.5		
793			.36		5.7		Bottom 'A' Groove
794					15.3		
795					12.1		Oil Shale - medium to high grade
796					21.5		
797					39.3		
798					17.0		
799	+20		.20		13.0		799.00-.35 Sandstone layer
800			.52		14.7		oil saturated
801					14.9		
802			.96		22.2		Oil Shale - medium to high grade,
803					28.1		dark brown to black
804			.64		30.9		
805					24.2		
806			.86		35.9		Oil Shale - high grade, black
807			.06,30		42.6		
808			.41		45.3		
809	+10				28.7		
810					22.3		Oil Shale - medium grade, brown,
811					19.2		thinly laminated
812			.71		16.3		
813					11.2		
814					19.8		
815					20.6		
816					13.0		

Depth ±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
817				12.0		
818				11.7		
819	0	.19		11.9		819.11-.48 Mahogany Marker
820				10.3		Sandstone layer with interbedded
821				9.2		shale-sandy zones, oil saturated
822				12.3		
823				12.7		
824		.05		38.3		Oil Shale - predominantly high
825				42.6		grade
826				21.5		'Mahogany Zone'
827				22.8		
828		.73		18.7		
829	-10			0.6	T-T	Marlstone - light gray, hard
830				36.4		Oil Shale - high grade, black
831				34.1		
832				31.9		
833		.30		51.3		
834				69.3		
835		.81		78.6		
836	20°	.22		45.1	****	836.22-837.02 Nahcolite Zone
837	20°	.02		50.4		
838		.11.54		53.7		
839	-20	.14		39.7		
840				19.7		
841				28.7		Oil Shale - medium to high grade,
842		.70		46.3		dark brown to black,
843				26.9		thinly laminated
844				16.3		
845				18.7		
846				36.7		
847				54.6		
848		.80		36.9		848.34-.50 Sandstone layer,
849	-30			33.5		oil saturated
850				23.7		
851				24.2		Oil Shale - medium to high grade
852				50.2		
853				19.3		
854		.84		19.4		
855				14.0		
856				26.1		Oil Shale - high grade, dark brown
857				41.7		
858				19.1		
859	-40			10.5		Oil Shale - medium grade, light to
860				10.7		dark in alternating layers
861				11.4		
862				13.5		
863		.36		23.7		
864				36.7		Oil Shale - high grade, black
865				30.4		
866		.49		23.7		

## WHITE RIVER SHALE PROJECT

HOLE: P-2

Depth ±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
867				23.5		
868				36.9		Oil Shale - high grade, dark brown
869	-50			28.2		
870				21.6		
871				19.6		
872				12.9		
873				10.5		
874				8.6		874.57-877.24 Lost Core Interval
875						
876						
877				12.8		Oil Shale - medium grade, light
878		.29.49.76		11.9		to medium brown
879	-60	90° .27.45.86		11.9		
880		.48.55.88		8.8		
881		.71		7.5		
882		.02.21		18.0		
883		.54.77.84		11.3		
884		90° .05.13.17		8.5		
885				12.6		
886		.04		31.1		Oil Shale - high grade, black
887				10.5		
888				7.4		
889	-70	.72		8.2		
890				33.0		Oil Shale - high grade, black
891		.30.47.58		32.4		
892				10.1		
893		.87		6.5		
894				2.6		Marlstone - light gray, hard
895				3.0		
896				3.4		Oil Shale - predominantly low
897				6.7		grade with interbedded medium
898				20.4		grade, light to dark brown,
899	-80			23.4		thinly laminated
900				22.4		
901				22.3		
902				12.4		
903				7.1		Top 'B' Groove
904				5.7		
905		.20		2.3		Marlstone - light gray, hard
906		.68		4.3		
907		.58.92		7.7		Oil Shale - low grade, buff to
908		.34.70		5.0		light brown
909	-90	.38.77		4.7		
910		.80		5.4		
911				7.3		
912		.37.88		3.6		
913				6.7		913.92-914.10 Sandstone layer,
914				5.9		oil saturated
915				2.3		Marlstone - light gray, hard
916				4.0		Oil Shale - low grade,



Depth ±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
917				5.0		buff to light brown
918				3.7		918.45-.60 Sandstone layer
919	-100			4.0		oil saturated
920				1.9		Marlstone - light gray, hard
921				1.4		
922		.56		2.9		
923				3.3		Oil Shale - low grade, buff
924		.32		3.4		924.70-.95 Sandstone layer,
925				5.6		oil saturated
926				2.1		Marlstone - light gray, hard
927				2.2		
928				2.7		
929	-110			1.7		
930		.47		6.2		Oil Shale - low grade,
931	/40°	.09, .83, .92		6.9		buff to light brown
932				4.1		
933				3.5		
934				1.1		Marlstone - light gray, hard
935				0.5		
936		.83		0.2		
937		.53		0.6		
938				1.5		
939	-120			1.3		
940		.22		1.8		Marlstone - light gray, hard
941		.52, .78, .85		1.0		
942	90°			1.2		
943				1.0		
944		.09		0.8		
945		.40		0.8		
946				1.4		
947		.98		1.4		
948		.25, .45, .73		6.1		Oil Shale - low grade, buff
949	-130			6.1		
950				2.5		Marlstone - light gray, hard
951				2.5		
952				14.3		952.99-.17 Sandstone layer
953				14.3		
954				15.6		Oil Shale - medium grade, brown
955				15.6		
956				10.9		
957				10.9		
958				36.8		Oil Shale - high grade, black
959	-140			36.8		
960				12.2		
961				12.2		961.80-.98 Sandstone layer
962				10.9		
963				10.9		963.55-.70 Sandstone layer,
964				11.2		Oil Shale - medium grade, brown
965				11.2		
966				7.0		966.50-.66 Sandstone layer

## WHITE RIVER SHALE PROJECT

MULC. P-2

Depth	±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
967					7.0		
968							Lost Core Zone
969	-150						967.7-969.29
970					5.8		Oil Shale - low to medium grade,
971					5.8		buff to brown
972					10.0		
973		90°			10.0		
974					8.0		
975					8.0		
976					15.9		976.62-.79 Sandstone layer
977					15.9		oil saturated
978			.98		7.1		
979	-130		.10.13.46		7.1		Oil Shale - low to medium grade,
980					12.3		buff to brown
981			.06		12.3		
982			.67		8.0		
983					8.0		
984			.65		10.6		
985					10.6		
986			.96		16.7		986.98-997.32 Sandstone layer,
987					16.7		oil saturated
988			.06		7.4		
989	-170				7.4		Oil Shale - low to medium grade,
990					12.0		buff to brown
991					12.0		
992					26.1		992.98-993.12 Sandstone layer
993			.52		26.1		Oil Shale - high grade, dark brown
994					18.9		
995					18.9		
996					22.2		Oil Shale - low to medium grade,
997			.34.37.38		22.2		buff to brown, thinly laminated
998			.25		6.4		
999	-180		.51.94		6.4		
1000			.91		9.5		
1001			.62.77		9.5		Oil Shale - low to medium grade,
1002					9.0		buff to brown
1003					9.0		
1004					16.5		
1005			.72.79		16.5		
1006					17.7		
1007					17.7		
1008					13.2		
1009	-190				13.2		
1010			.60		12.5		
1011					12.5		
1012					18.5		
1013			.09		18.5		
1014					5.6		
1015					5.6		
1016			.20		10.2		

Depth	±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
1017					10.2		
1018			.11		26.7		1018.05-.10 Sandstone layer,
1019	-200				26.7		oil saturated
1020					17.6		
1021			.62		17.6		Oil Shale - low to medium grade,
1022					12.7		buff to brown
1023			.10		12.7		
1024					3.3		
1025					3.3		
1026			.67		1.1	T T T	Marlstone - light gray, hard
1027			.35.42		1.1	T T T	
1028					1.3	T T T	
1029	-210				1.3	T T T	
1030					1.2	T T T	
1031					1.2	T T T	
1032					1.0	T T T	
1033					1.0	T T T	
1034							
1035							
1036							
1037							1034.5-1057.9
1038							Lost Core Zone
1039	-220						
1040							
1041							
1042							
1043							
1044							
1045							
1046							
1047							
1048							
1049	-230						
1050							
1051							
1052							
1053							
1054							
1055							
1056					4.3		Oil Shale - low grade,
1057					4.3		buff to brown, thinly laminated
1058					6.9		
1059	-240				6.9		
1060					10.7		1060.50-.70 Sandstone layer
1061			.15		10.7		
1062			.55		24.5		Oil Shale - low to medium grade,
1063			.62		24.5		buff to brown, thinly laminated
1064			.84.89		13.7		
1065					13.7		
1066			.75		5.2		

## WHITE RIVER SHALE PROJECT

HOLE: P-2

Depth	±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
1067			.85		5.2		Oil Shale - low grade, buff
1068					5.3		
1069	-250		.25.70		5.3		
1070					3.9		
1071			.71		3.9		
1072					3.1		
1073					3.1		
1074					3.9		
1075					3.9		
1076					4.6		
1077					4.6		
1078					3.8		
1079	-260				3.8		
1080			.25.33		2.4	T T T	Marlstone - light gray, hard
1081					2.4	T T T	
1082					4.7		
1083					4.7		Oil Shale - low grade, buff, hard
1084			.65		3.9		
1085			.17		3.9		
1086		T 90°	.16.80		3.2		
1087					3.2		
1088					3.0		
1089	-270				3.0		Oil Shale - low grade, buff,
1090			.70		3.0		thinly laminated, hard
1091					3.0		
1092			.01.25.98		3.5		
1093			.40.68		3.5		
1094			.16.49.98		2.0	T T T	Marlstone - light gray, hard
1095			.38.73		2.0	T T T	
1096			.09.33.58		3.6		Oil Shale - low grade, buff to
1097			.12.62		3.6		brown, thinly laminated
1098			.32		6.2		
1099	-280				6.2		
1100					2.1	T T T	Marlstone - light gray, hard
1101					2.1	T T T	
1102					1.3	T T T	
1103			.06.18		1.3	T T T	
1104					17.6		
1105					17.6		Oil Shale - low to medium grade,
1106			.48		11.0		buff to brown
1107			.07		11.0		
1108					12.7		
1109	-290		.00		12.7		
1110					6.7		
1111					6.7		
1112			.27.40		5.7		
1113			.43		5.7		
1114			.37		4.0		
1115					4.0		
1116					5.3		

## WHITE RIVER SHALE PROJECT

HOLE. P-2

Depth	MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
1117					5.3		
1118					1.7	T T T	Marlstone - light gray, hard
1119	-300	.01			1.7	T T T	
1120					4.5		
1121					4.5		Oil Shale - low to medium grade,
1122		.00.28			3.1		buff to brown, thinly laminated
1123					3.1		
1124					7.2		
1125					7.2		
1126		.91			17.3		
1127					17.3		
1128		.92			12.4		
1129	-310				12.4		
1130		.14			12.1		
1131					12.1		
1132					12.1		
1133					12.1		
1134					11.3		
1135					11.3		
1136					17.3		
1137					17.3		
1138					8.4		
1139	-320				8.4		
1140					5.8		1140.6-.7 Sandstone layer,
1141					5.8		oil saturated
1142					1.4	T T T	Marlstone - light gray, hard
1143		.05.90			1.4	T T T	
1144		.77			5.1		Oil Shale - low grade, light brown,
1145		.19.97			5.1		thinly laminated
1146		.89			5.4		
1147		.29			5.4		
1148		.58			6.5		
1149	-330	T 90 .62.68			6.5		
1150		.04.13.68			2.0	T T T	Marlstone - light gray, hard
1151		.08			2.0	T T T	
1152		.20			2.7	T T T	
1153		.42			2.7	T T T	
1154					8.1		
1155					8.1		Oil Shale - low grade, light brown
1156					6.8		
1157					6.8		
1158		.63			6.4		
1159	-340	.10			6.4		
1160					1.1	T T T	Marlstone - light gray, hard
1161					1.1	T T T	
1162					4.3		
1163					4.3		Oil Shale - low grade,
1164					6.2		buff to light brown
1165		.10.40			6.2		
1166					3.2		

Depth	MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
1167			.60		3.2		
1168					0.4	TIT	Marlstone - light gray, hard
1169	-350				0.4	TIT	
1170					0.8	TIT	
1171					0.8	TIT	
1172					6.0		
1173					6.0		Oil Shale - low grade,
1174					3.8		buff to light brown
1175					3.8		
1176					6.2		
1177					6.2		
1178					1.4	TIT	Marlstone - light gray, hard
1179	-360				1.4	TIT	
1180					3.3		Oil Shale - low grade, buff
1181					3.3		
1182					3.3		
1183					3.3		
1184					2.3	TIT	Marlstone - light gray, hard
1185					2.3	TIT	
1186					0.4	TIT	
1187					0.4	TIT	
1188					1.7	TIT	
1189	-370				1.7	TIT	
1190			.38.78		5.2		
1191			.40.87		5.2		Oil Shale - low grade, buff
1192			.34.40		4.3		
1193					4.3		
1194			.00		3.7		
1195			.42		3.7		
1196					1.3	TIT	Marlstone - light gray, hard
1197			.30.48		1.3	TIT	
1198			.00		2.5	TIT	
1199	-380				2.5	TIT	
1200			.12.54		2.9	TIT	
1201			.85		2.9	TIT	
1202					4.2		Oil Shale - low grade, buff
1203					4.2		
1204					4.5		
1205			.78.90		4.5		Oil 1205.78-.90 Sandstone layer, saturated
1206			.05.35		1.8	TIT	Marlstone - light gray, hard
1207					1.8	TIT	
1208					7.4		
1209	-390		.20.62		7.4		Oil Shale - low grade, buff to brown
1210			.12.22		7.8		
1211					7.8		
1212			.68		3.4		
1213			.85		3.4		
1214					2.8	TIT	Marlstone - light gray, hard
1215					2.8	TIT	
1216			.17.87		6.7		Oil Shale - low grade, brown

DEPTH IN SHALE PROJECT				Gal/	HOLE. P-2		
Depth	±MM	FRX	PP	0	50 Ton	Lith	Rock Description
1217					6.7		
1218					2.5	TIT	Marlstone - light gray, hard
1219	-400				2.5	TIT	
1220					3.0		
1221					3.0		Oil Shale - low grade,
1222					3.7		buff to brown
1223					3.7		
1224					4.3		
1225					4.3		
1226					11.9		Oil Shale - medium grade, brown
1227					11.9		thinly laminated
1228		.15			5.3		
1229	-410	.10			5.3		
1230					5.7		
1231					5.7		
1232		.40.80			22.0		Oil Shale - medium grade, brown
1233		.50			22.0		
1234		.30			4.1		
1235					4.1		
1236					1.6	TIT	Marlstone - light gray, hard
1237					1.6	TIT	
1238					3.2		
1239	-420	.10.60			3.2		Oil Shale - low to medium grade,
1240		.03			12.2		buff to brown, thinly laminated
1241		.46			12.2		
1242					7.8		1242.00.15 Sandstone layer
1243		90°			7.8		oil saturated
1244		.55			16.8		Oil Shale - medium grade, brown
1245					16.8		
1246		.30			17.2		1246.2-.3 Sandstone layer,
1247					17.2		oil saturated
1248					11.6		Oil Shale - low to medium grade,
1249	-430				11.6		buff to brown, thinly laminated
1250					9.9		
1251					9.9		
1252					3.7		
1253		.39			3.7		
1254					11.0		
1255		.75			11.0		
1256					9.3		
1257		.10			9.3		
1258					14.2		Oil Shale - low to medium grade,
1259	-440	.29			14.2		buff to brown
1260		.62			8.1		
1261					8.1		
1262					9.3		
1263					9.3		
1264					7.4		
1265		.57.83			7.4		
1266		.66			10.1		

HOLE: F-2				Gal/		Rock Description	
Depth	MM	FRX	PP	0	50 Ton	Lith	
1267					10.1		Oil Shale - low to medium grade,
1268			.70		18.5		buff to brown
1269	-450		.68		18.5		
1270					8.4		
1271			.21.49.55		8.4		
1272					17.2		
1273					17.2		
1274					12.4		
1275					12.4		
1276			.25.68.95		11.9		
1277					11.9		
1278			.15.75		11.4		
1279	-460		.33.54.60		11.4		
1280					7.5		
1281			.50		7.5		
1282			.95		11.6		
1283			.10.35.65		11.6		
1284					24.4		
1285					24.4		
1286			.00.10		11.4		
1287					11.4		
1288					8.6		
1289			.00.91		8.6		Oil Shale - low grade, brown
1290			.15.60.88		2.3		Marlstone - light gray, hard
1291					2.3		