

## WHITE RIVER SHALE PROJECT

HOLE: X-2 UO61

From	To	Rock Description	14-105-24E
0	7	Overburden	Utah County, UT
7	22	Overburden	
22	30	Siltstone, brown, moderately calcareous	
30	40	Siltstone, brown, slightly calcareous	
40	50	Siltstone, light brown, slightly calcareous, pyrite, carbon flakes	
50	60	Siltstone, brown, slightly calcareous, pyrite	
60	70	Siltstone, brown, slightly calcareous, pyrite	
70	80	Siltstone, light brown to gray, argillaceous, slightly calcareous	
80	90	Siltstone, brown to dark gray, slightly calcareous, mica flakes	
90	100	Siltstone, brown, moderately calcareous, w/buff fine grained sandstone	
100	110	Sandstone, fine grained, gray	
110	120	Siltstone, brown to dark brown, moderately calcareous, mica flakes	
120	130	Siltstone, brown to dark brown, moderately calcareous	
130	140	Siltstone, dark brown, moderately calcareous, mica flakes	
140	150	Siltstone, brown to dark brown, slightly calcareous, mica flakes	
150	160	Sandstone, fine grained, buff, moderately calcareous	
160	170	Siltstone, finely laminated, light to dark brown, slightly calcareous	
170	180	Siltstone, dark brown, moderately calcareous	
180	190	Siltstone, dark brown and Sandstone light gray	
190	200	Sandstone, light to medium gray, durite	
200	210	Sandstone, light gray, fine grained and Siltstone, dark brown	
210	220	Siltstone, dark brown, with nahcolite pod and Sandstone, buff	
220	230	Siltstone, dark brown, moderately calcareous, nahcolite blebs	
230	240	Siltstone, brown to dark brown, slightly calcareous, nahcolite	
240	250	Siltstone, dark brown, nahcolite and calcite	
250	260	Siltstone, dark brown, nahcolite and calcite	
260	270	Siltstone, brown to gray, calcite and pyrite crystals	
270	280	Siltstone, dark brown, calcite oolite texture, nahcolite	
280	290	Siltstone, dark brown, nahcolite pods	
290	300	Marlstone, brown, with Sandstone, very fine grained, dark brown	
300	310	Sandy Siltstone, light brown, moderately calcareous	
310	320	Siltstone, dark brown, calcite and nahcolite blebs	
320	330	Marlstone, dark brown, thinly laminated with calcite	
330	340	Marlstone, dark brown, with calcite and hydro carbons	
340	350	Marlstone, brown with calcite and hydro carbons	
350	360	Marlstone, light to dark brown, pyrite	
360	370	Marlstone, light to dark brown, pyrite	
370	380	Marlstone, brown	
380	390	Marlstone, dark brown, with calcite and pyrite crystals	
390	400	Marlstone, dark gray to brown, thinly laminated	
400	410	Marlstone, dark gray to brown, pyrite and magnetite	
410	420	Marlstone, gray to brown, gilsonite and pyrite flakes	
420	430	Marlstone, dark brown	
430	440	Marlstone, dark brown	
440	450	Marlstone, dark brown, pyrite flakes	
450	460	Marlstone, dark brown, mica on parting plane, gilsonite flakes	
460		Refer to core log	

DEPTH PROJECT				Gal/		HULL.	72
Depth ±MM	FRX	PP	0	50 Ton	Lith	Rock Description	
511	+130						
512							
513						Lost Core Interval	
514							
515							
516				7.1		Oil Shale - low to medium grade,	
517				7.1		buff to brown, thinly laminated	
518				7.1			
519				7.1			
520				8.9			
521	+120			23.9		Oil Shale - medium grade, brown,	
522				14.7		very finely laminated	
523				10.3			
524				10.4			
525				10.7			
526				13.4			
527		.77		19.8		527.17-.77 Sandstone layer,	
528				13.4		oil saturated	
529		.09		10.6			
530		.05.55		10.4		530.70-.95 Sandstone layer,	
531	+110	.88		9.3		oil saturated	
532				9.3		Oil Shale - low to medium grade,	
533		.97		10.3		light brown	
534				11.0			
535				15.2		535.77-536.33 Sandstone layer,	
536				14.3		oil saturated	
537				10.0		537.00-.09 Sandstone layer,	
538		.97		10.5		oil saturated	
539	65°	.31.42		10.6		Oil Shale - low to medium grade,	
540				9.9		brown	
541	+100			12.5			
542		.07		11.3			
543				11.5			
544	45°	.15.20		10.8			
545				13.7		545.69-546.10 Sandstone layer,	
546				11.0		oil saturated	
547				11.2			
548				13.8			
549		.68		12.8		549.53-.60 Sandstone layers,	
550				9.7		549.78-.88 oil saturated	
551	+90			11.5		Oil Shale - low to medium grade,	
552				16.3		brown	
553				11.7			
554		.62		9.7		554.58-.65 Sandstone layer,	
555				7.9		oil saturated	
556		.00		3.9		Oil Shale - low to medium grade,	
557				9.9		brown	
558		.09		16.0			
559				13.6			
560				10.9			

Depth ±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
561	+80		.43.48	9.4		
562				9.5		
563				9.3		
564				18.2		
565		.65		6.2		565.01-566.71 Upper Wavy Bed
566		.61		8.2		Sandstone layer with interbedded
567		.84		10.9		shale, highly contorted bedding
568				11.9		
569				10.8		
570				15.9		Oil Shale - low to medium grade,
571	+70			16.0		buff to brown, thinly laminated
572		.90		14.7		
573				21.8		
574				12.8		
575				10.5		
576				9.0		
577				6.7		
578		.10		8.2		Oil Shale - low to medium grade,
579				12.3		buff to dark brown
580				14.5		
581	+60			8.2		
582				6.4		
583				8.2		
584				8.0		
585				4.1		
586				15.9		
587				12.9		
588				10.8		
589				8.3		
590				9.7		
591	+50			17.1		
592				40.0		Oil Shale - high grade, black
593				15.7		
594				10.7		
595				13.0		
596				14.8		
597				14.5		
598				14.4		
599				26.1		599.69-.75 Sandstone layer,
600				27.5		oil saturated
601	+40			14.0		
602				15.3		
603				27.8		Oil Shale - high grade,
604				24.9		dark brown
605				9.2		Oil Shale - low grade, silty,
606				5.8		buff to light brown
607		.15.39		5.2		
608				3.4		
609		.20		3.8		
610				8.6		

## WHITE RIVER SHALE PROJECT

HOLE: X-2

Depth ±MM	FRX	PP	0	Gal/ 50 Ton	Lith.	Rock Description
611	+30	.30		5.0		
612		.46		5.6		Oil Shale - low grade,
613		.18		3.5		buff to brown
614		.55.80		2.5		Marlstone - light gray, hard
615				2.2		
616		.00		3.5		
617		.42		6.8		Bottom 'A' Groove
618				18.0		Oil Shale - medium grade,
619		.37		12.8		gray to brown
620		.26		43.9		
621	+20			17.1		
622				18.6		
623		.04		15.1		
624				12.8		
625		.10		20.1		Oil Shale - medium to high grade,
626		.05		27.6		brown to black, thinly laminated
627				33.6		
628				21.7		
629				28.6		
630				42.7		
631	+10	.34		41.8		
632				26.7		
633				19.5		Oil Shale - low to medium grade,
634				19.0		brown to gray, some distorted -
635		.29		12.0		bedding
636				13.0		
637				22.8		
638		.19		14.8		
639		.80		9.8		
640		.42		12.3		640.68-641.03 Mahogany Marker
641	0	.67		11.6		sandstone layer, oil saturated
642				11.1		Oil Shale - low to medium grade,
643				9.5		brown to gray
644				12.5		
645		.69		16.3		
646				47.4		Oil Shale - medium to high grade,
647				27.7		brown to black
648				20.7		Oil Shale - medium grade, light
649				21.9		to dark brown, finely laminated
650		.13.43		16.2		
651	-10			32.6		'Mahogany Zone' Oil Shale -
652				40.9		medium to high grade, dark
653				31.9		brown to black
654		.03.80.88		53.1		
655				43.8		
656				43.8		
657				43.8		
658				43.8		
659				43.8		
660				43.8		

Depth	±MM	FRX	PP	0	Gal/ 50 Ton	Lith	Rock Description
661	-20		.20.50		42.1	***	661.65-663.50, zone of solid crystals of nahcolite & calcite, highly effervescent - only partially dissolved; some of the crystalline material is translucent brown with a vitreous to waxy luster; a very distinctive zone
662			.60.90		8.5	***	
663			.00.45		37.6	***	
664			.30		45.7		
665					42.9		665.74-.95 Sandstone layer,
666					23.7		oil saturated
667					19.7		
668			.30		33.4		Oil Shale - medium to high grade,
669			.70		50.1		brown to black, thinly laminated
670					24.1		
671	-30		.58		16.1		
672			.76		20.1		
673			.14.38.45		46.4		
674			.15.70.91		42.9		
675			.21.63		40.2		
676			.38.91		27.1		
677			.34.62.91		21.6		
678			.22.55		25.3		
679			.50.93		35.6		
680			.41.95		17.7		Oil Shale - medium grade, brown,
681	-40		.33.68		19.5		finely laminated
682			.11.47.97		14.0		
683					15.1		
684			.13.85		26.5		
685			.47		30.0		
686					9.5		
687					13.4		
688			.25		14.7		
689					21.5		
690					34.7		
691	-50				29.0		
692					24.2		
693					22.5		
694			.33		26.4		
695					34.2		
696					25.1		
697					20.8		
698			.68		15.8		
699					13.1		
700			.25.91		8.9		Oil Shale - low to medium grade,
701	-60				15.6		buff to brown
702					24.3		
703					11.3		
704			.74.92		11.8		
705					8.5		
706			.20.23.41		4.5		
707					9.3		
708			.33		15.8		
709					15.7		
710			.31		6.4		710.31-.58 Sandstone layer

## WHITE RIVER SHALE PROJECT

HOLE: X-2

Depth	±MM	FRX	PP	0	Cal/ 50 Ton	Lith	Rock Description
711	-70				11.7		
712					26.3		Oil Shale - high grade,
713					20.7		dark brown
714			.11		11.2		Oil Shale - low grade, light
715					7.9		gray to tan
716			.36		9.8		
717					31.9		Oil Shale - high grade, dark brown
718			.25		34.6		
719			.25		8.5		Top 'B' Groove
720			.60.64.84		5.6		
721	-80		.08.95		2.6	TLT	Marlstone - light gray, hard
722			.05.77		3.2		
723			.56		4.2		
724			.20		8.5		
725			.78		21.8	---	725.67-726.0 Sandstone layer,
726					37.0		oil saturated
727					15.5		
728			.79		10.6		
729					7.4		Oil Shale - low grade,
730			.25.34		7.0		buff to brown,
731	-90				5.6		thinly laminated
732					5.7		
733			.78.96		6.3		
734					5.1		
735					5.1		
736			.33		8.7		
737					3.4		
738			.84		9.1		
739					9.5		
740					5.5		
741	-100				3.9		
742					3.1		
743			.29		5.6		
744			.64		8.4	---	744.60-.71 Sandstone layer,
745					2.7	TLT	oil saturated
746					3.8		Oil Shale - low grade, light brown
747					2.8	TLT	Marlstone - light gray, hard
748					2.6	TLT	
749					2.2	TLT	
750					5.9		
751	-110				3.2		751.00-.21 Sandstone layer,
752					1.4	TLT	oil saturated
753					2.3	TLT	Marlstone - light gray, hard
754					1.8	TLT	
755					6.2		Oil Shale - low grade, light brown
756					4.1		
757					5.9		757.22-.45 Sandstone layer,
758					4.3		oil saturated
759					1.3	TLT	Marlstone - light gray, hard