90 - 2397

Page 1

PICEANCE CREEK
CORE HOLE # 4

CORE # 1 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION
Core #	1	90 - 101 Cut: 11' Rec. 11' Boxes: 4
90	93	Siltstone & v.f.gr. ss, hard glauc., carbon flecks & carbon on fractures; lmy.
93	101	Marlstone; gray, v.hd., laminated, v. silty in some zones; carbonate filled fractures; lmy
TS	→	
	→	
Core	#2	101 - 108 Cut 7 Rec 7 Boxes: 3
101	108	Marlstone, v.hd.; lt.tan, laminated, highly frac.
Core	#3	108 - 122 Cut: 14 Rec: 14 Boxes: 5
108	110	Marlstone, v.hd, lt.tan, laminated, 45° fracture massive (unlaminated marlstone in bot 4")
110	111	Marlstone, dark brn., laminated, no odor on break.
111	112	Marlstone & f.gr. ss interbedded; grey ss & dk brn mark.
112	120	Sandstone, v.f. to fine, grey; laminated siltstone in up. ft. grades to thinly banded grey ss at 116'; sli. lmy.
120	122	Sandstone, f.gr., grey, massive; highly broken in bot. foot.; not lmy.
Core	#4	122 - 139 Cut: 17' Rec: 17' Boxes: 6
122	133½	Sandstone, v.f.gr., brown, med.hd, mass. to 127; vert. & 45° fractures to 133½; sli. lmy. to not lmy.; green on frac. at 131'; green in zones at 132'; green band at 133'
133½	139	Marlstone, hd, lt. brn., laminated, little or no frac.; sli. lmy.

PICEANCE CREEK
CORE HOLE # 4

Page 2

CORE # 5 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

ROM	TO	DESCRIPTION
Core	# 5	139 - 161 Cut: 22' Rec: 12' Boxes: 4
139	143½	Marlstone, hd, tan, laminations v. highly contorted in top 6"; lmy
143½	151	Sandstone, m. to c. gr., grey, firm; generally mass., occassional banding; lmy, pyrite, glauconite.
151	161	No Rec.; cut like firm to soft sand 3 to 4 min/foot.
Core	# 6	161 - 175 Cut: 14 Rec: 10 Boxes: 4
161	171	Sandstone, f.-m. gr., grey, firm to hd; siltstone banding; abund. carbonaceous stks., several concentrations of green sand (glauconite).
171	175	No Rec; cut like sandstone
Core	# 7	175 - 196 Cut: 21 Rec: 20 Boxes: 7
175	195	Sandstone, f.-m. gr., grey, firm to hd, several zones of contorted carbonaceous stks.; glauconite.
195	196	No Rec.
Core	# 8	196 - 213 Cut: 17 Rec: 16 Boxes: 6
196	208	Sandstone, f.-c. gr., grey, hd, silty lenses & layers thru out, 2 fractures, carbonaceous stks; sli. lmy, coarse zones are not lmy.; glauc. in cr. zones.
208	212	Sandstone, cr. gr., grn.-gry.; firm, carbonaceous stks.; glauconite
212	213	No Rec.

	Cut:	Rec	Boxes
sum This page	74	58	21
prev. total	49	49	19
new total	123'	107'	39'

PICEANCE CREEK
CORE HOLE # 4

Page 3

CORE # 9 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION (Previous totals: 123' ↓ 107' ↓ 39' ↓)
Core	#9	213-224 Cut: 11 Rec: 10 Boxes: 4
213	215	Sandstone, cr. gr., grn-gry; firm, abund. carbonaceous flecks; brn. siltstone breccia in lower foot; abundant glauconite; some pyrite not lmy.
215	223	Sandstone, f-cr. gr., grn-gry, hd.; abundant lenses, layers, stks of brn. siltstone; lmy. 1 fracture.
223	224	No Rec.
Core	#10	224-239 Cut: 15 Rec 15 Boxes: 5
224	230	Sandstone, f-cr. gr., grn-gry, hd., tan siltstone stks, lenses, lmy only in silty hd zones; [illegible] abund. on fractures
230	232	Sandstone, cr. gr., grn., hd., abund. carbon flecks, glauconite; not lmy.
232	239	Sandstone interbedded w/ siltstone as in up. part of core.
Core	#11	239-256 Cut: 17 Rec: 10 Boxes: 4
239	243	Sandstone as above; f-m. gr., gry. hd. few thin tan silty layers & lenses in top foot; not lmy.; 60° fractures w/ pyrite
243	249	Sandstone & siltstone thinly interbedded, sli lmy.; 60° fractures w/ pyrite
249	256	No Rec.

	Cut	Rec	Boxes
This page:	43'	35'	13
Previous total:	123	107	39
New total:	166'	142'	52

PICEANCE CREEK
CORE HOLE #___

CORE # 12 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 166 142 52
Core	#12	256-277 Cut: 21 Rec: 13 Boxes 5
256	264	Sandstone, m.gr., grn-gry interbedded w/ gry-brn, abund. 45° frac. w/ pyrite; carbon. stks
264	269	Sandstone, cr.gr., grn-gry, abund. carbon stks, abund. 45° frac.; hd to friable & soft at bot. pyrite on frac.;
269	277	No Rec. Not long.
Core	#13	277-295 Cut: 13' Rec: 16' Boxes: 6
277	293	Sandstone, m-cr.gr., grn-gry, firm to hd highly fractured & broken, pyrite on frac. thin dk gray banding 293'-298'; sli. lmy. in finer gr. hd. zones.
293	295	No Rec.
Core	#14	295-315 Cut: 20 Rec: 18 Boxes. 6
295	313	Sandstone, f-cr.gr., grn-gry, hd., brn. silty [illegible] laminae and med. bands & lenses [illegible] on fracture, occassional sli. lmy zones
313	315	No Rec.
Core	#15	315-331 Cut: 16 Rec: 8 Boxes: 3
315	323	Sandstone, f-m.gr., grn-gry, hd., brown silty laminae & med. bands & lenses; pyrite on frac. carbonaceous stks & leaf fossils; note cross sections of ripple marks at 319½; not lmy. except [illegible] at base.
323	331	No Rec.

This [illegible]	75	55	20
[illegible]	166	142	[illegible]
[illegible]	241	197	72

PICEANCE CREEK
CORE HOLE #___

CORE # 16 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 241 197 72
Core	# 16	331-352 Cut: 21 Rec: 21 Boxes: 7
331	341	Sandstone w/brn. silty layers as above
341	346	Mudstone, v. silty, brn, few thin sdy stks
		& carbonaceous stks.; lmy; little or no frac.
346	352	Sandstone, cr. gr. grn-gry, hd to friable,
		chunks carbonized wood @ 346½-348;
		bot. lmy.; pyrite & glauconite in all sds
Core	# 17	352-366 Cut: 14 Rec: 14 Boxes: 5
352	366	Sandstone, cr. gr. & massive in top half;
		f-m. gr. w/brown silty lenses & layers &
		carbonaceous stks. in bot. half; carbonized
		wood frags. at 358'; lmy only @ 354;
		pyrite & glauc. in all sds.
Core	# 18	366-383 Cut: 17' Rec: 15 Boxes: 5
366	381	Sandstone, f-cr. gr. grn-gry, hd.
		brn silty lenses; carbonaceous stks; some
		hi angle frac; pyrite & glauconite; sli
		lmy only in bot. 3'; ripple mark cross section
		at 377'.
		381-83 NR
Core	# 19	383-393 Cut: 10 Rec: 10 Boxes: 4
383	393	Sandstone & siltstone; f-cr sl grn-gry,
		brn. silt; sli lmy; contorted lenses & layers;
		pyrite & glauconite; some vert. & near vert. fracs.

	cut	Rec	Bx
This page	62	60	21
Previous	241	197	72
New total	303	257	93

PICEANCE CREEK
CORE HOLE #___

CORE # 20 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 303 257 93
Core	#20	393-411 Cut: 18 Rec: 18 Boxes 6
393	411	Sandstone; consists of interbeds of cr, med f. & siltstone; grey, hd., lmy, abund. carbonaceous material 405-406; gr. size is gradational.
Core	#21	411-422 Cut: 11 Rec: 11 Boxes: 4
411	422	Sandstone, f.gr., gry., hd, highly fractured, abund. pyrite on fracs., abundantly interbedded laminae, lenses & contorted layers of brn. siltstone; ripple marks; sli. lmy. in some zones.
Core	#22	422-435 Cut: 13 Rec: 13 Boxes: 5
422	435	Sandstone, f.-m.-cr. gr. intergradational, grn-gry, hd., fractured, pyrite, Nahcolite on one fracture at 427'; numerous brn. silt laminae, lenses, bands; sli. lmy.
Core	#23	435-452 Cut: 17 Rec: 17 Boxes: 6
435	452	Sandstone, f-m. gr. w/some cr. gr. lenses; gry, hd., abundant silt zones as laminations, lenses & contorted layers; lmy & non-lmy. zones; several 45° fractures (one w/ carbonate filling at 451'; carbonized wood at 445'.

	Cut	Rec	Box
This page	59	59	21
[illegible]	303	257	93
[illegible]	362	316	114

87% Rec.

PICEANCE CREEK
CORE HOLE #___

CORE # 24 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 362 316 114
Core	#24	452 - 474 Cut: 22 Rec: 20½ Boxes: 7
452	453	Sandstone, f.gr., gry, hd., lmy, w/irreg. bds of siltstone & marlstone breccia in bat.
453	472½	Marlstone, brown, v.hd., lmy, laminar; thin sdy. fenses, mostly in top 5'; siltstones at 463 & 472; 6" v. lk. brown oil shale at 469.
* →		
472½	474	No Rec.
		Carbonate-filled frac. at 466; fractures uncommon
Core	#25	474 - 499 Cut: 25 Rec: 24½ Boxes: 8
474	[illegible]	Marlstone, silty, lt. brn., v.hd., lmy, [illegible]
10:30PM		[illegible]
491	498½	Marlstone, dk. brn. & brn., v.hd., lmy, even laminar [illegible]
498½	499	No Rec.
Core	#26	499 - 517 Cut: 19 Rec: 19 Boxes: [illegible]
499	517	[illegible]
2:00AM		[illegible]
Core	#27	517 - 537 Cut: 20' Rec: 19' Boxes: 7
517	[illegible]	Marlstone, lt. brn., hd., lmy, even [illegible]
5:00 AM		contorted laminar; dk. brn. @ 520; [illegible]
		in some zones.
531½	536	*Sandstone, cr. gr., gry, hd., dk. gry. [illegible] note ripple marks(?) at 532; carbonaceous stks
Wtr. →		wood frags; not lmy; major wtr. sd.

* This sd & its continuation in next core produced marked increase in wtr. prod.

	[illegible]	[illegible]	[illegible]
[illegible]	85	82	[illegible]
[illegible]	362	316	114
[illegible]	[illegible]	39[illegible]	1[illegible]

536-37 NR

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 447 398 142
[illegible]	[illegible]	537-554 Cut: 17 Rec: 17 Boxes: 6
537	543	Sandstone, cr. gr., gry, hd to friable, brn silt bands, carbonized fossil wood frags;
543	547	Siltstone, f. gr. gry., banded, sd. stks,
547	552	Sandstone, v.f. gr. gry, banded silty zones,
552	554	Sandstone, cr. gr. gry silt bands, occassional thin lmy stks; cr. sds are very porous; wtr. prod. is up to 200± GPM
Core	#29	554-577 Cut: 23 Rec: 23 Boxes: 8
554	577	Sandstone, cr. gr. interbedded w/ f. gr., gry, hd, few carbonaceous stks; occassional thin lmy stks; cr. sd concentrated at top & at bot; f. sd in mid. of core; carbonat filled fracture;
Core	#30	577-603 Cut: 26 Rec: 26 Boxes: 9
577	579½	Sandstone, m-cr. gr., gry., hd. wide silt bands, steep(?) bed dip
579½	583	Marlstone, silty, lt tan, v.hd, lmy, steep bed dip ends at 582½
583	603	Sandstone, m-cr gr, gry hd & friable; highly broken; silt bands, carbonaceous stks; note faults @ 592, 593, 594, 597; note siltstone breccia @ 598, 602
Core	#31	603-610 Cut: 7 Rec: 7 Boxes: 3
603	606	Sandstone, f-cr. gr., gry, hd & friable, highly fractured,
606	610	Marlstone, brn., laminated; 4" breccia at 607½;
Wtr.	Prod:	200 GPM during core #31 (Flume meas.)

This page	73	73	26
previous	447	398	142
New Total	510	471	168

PICEANCE CREEK
CORE HOLE #___

CORE # 32 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 510 471 168
Core	#32	610-629 Cut: 19 Rec: 19 Boxes: 7
610	626	Marlstone, gry. brn., hd, even laminations occassionally distorted; 2" v.f.gr. gry. ss. lens at 620'; vert & hi angle frac.; some pyrite on fracs.
626	629	Siltstone thinly interbedded w/ marlstone at top grading to v.f.gr. ss. at bot.
		490 175
Core #	33	629-639 Cut: 10' Rec: 10 Boxes: 4
629	-639	SANDSTONE, GRY BRN., HD., f.gr. WELL CEMENTED, SLT. calcareous CALC., NUMEROUS GUT & FILL STRUCTURES; BD. SOMEWHAT DISTORTED; INT. BD. SHALE PRESENT. (NOTE - BECOMING FINER UPWARD) ABUND. ORGANIC MATERIAL IN ~~THE~~ SAND & SH.
		500 177
Core #	34	639 — 654 Cut: 15' Rec: 15' Boxes: 5
639	654	MARLSTONE, GRY. BRN., HD., THIN LAMINATIONS THICKENING TOWARD THE BOTTOM, OCCASIONALLY DISTORTED; UPPER PORTION (642-639) GRADES INTO V.F. SAND, ~~[illegible]~~ HIGH ANGLE FRACTURES ~~[illegible]~~; LITTLE ORGANIC MATERIAL THROUGHOUT.
		183
Core #	35	654 — 665 Cut: 11, Rec: 11, Boxes: 4
654	665	MARLSTONE, BRW, HD, POORLY LAMINATED (~~[illegible]~~ LAMINATIONS ~~[illegible]~~ ARE VERY THICK); ~~[illegible]~~ at 662'-663' ABUNDANT ORGANIC MATTER; SILTSTONES VARYING FROM 1"-4" IN THICKNESS ARE INT BD. WITH THE MARL.
		187
Core	#36	665- 685 Cut: 20, Rec: 19', Boxes 7
665	-670	MARLSTONE - LT. BRW., VERY HD., THINLY LAMINATED,
670	-684	SANDSTONE, LT. GRY., H.D., VERY FINE GR., THINLY LAMINATED WITH SOME SILTSTONE PARTINGS; NONCALC., SOME FINELY DISEM. ORGANIC MATTER ARE PRESENT IN THE SS.
684	695	No Rec

PICEANCE CREEK
CORE HOLE #___

CORE # 37 CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

545 195

FROM	TO	DESCRIPTION
Core	#37	685-696 Cut: 11, Rec: 11, Boxes: 4
685-	689	Sandstone, gry, hd., poorly laminated, fine [illegible], some siltstone [illegible], numerous clasts of [illegible] organic material.
689-	696	[illegible], brn (⟹), well indurated, finely laminated, little contortion; [illegible], no fracturing.
Core	#38	696-[illegible] Cut: [illegible] Rec: [illegible] Boxes: [illegible]
696	699	[illegible]
[illegible]	[illegible]	[illegible]
701½	722	[illegible]
722	723	[illegible] light gray, fine grained hard, much fracturing.
723	726 (3')	Marlstone, med-dark brown, hard, finely laminated, little distortion
Core	#39	726-756 Cut: 30' Rec: [illegible] Boxes: 10
726-	727 (1')	Marlstone, med-dk. brown, hard, finely laminated
727-	728½	Sandstone, lt. brown, fine-grained, some small organic matter, few high angle fract.
728½-	729½ (1')	Marlstone, dk-brown, fine-med laminae, hard
729½	737	Sandstone, lt brown, hard, some organic and pyrite, 731-733 has some distorted marl and siltstone layers

cont'd next page

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION
Core #39 cont.		
737	754	Marlstone, lt. brown, hard, finely laminated,
Core	#40	756 - 774 Cut: 18 Rec: 18 Bxes: 6
756 - 774		MARLSTONE, BRN, H.D., THIN LAMINATIONS, (SOME THICK SILTSTONE BANDING IS PRESENT)
Core	#41	774 - 800 CUT: 26 REC: 26 BXES: 9
774 - 800		MARLSTONE - BRN TO DK BRN, HD, FINELY LAMINATED; CONTACTING 774 - 778; CALC. FILLING IN THESE CONTORTED BDS.; HIGH L. FRACT. LOWER 5'.
Core	#42	800 - 817 CUT: 17, REC: 17, BXES: 6,
800	817	Marlstone, laminated, light gray-brown, hd, finely laminated, low organic content silty & very slightly sandy, thin loop structure & large 2' recumbent fold's due to a depositional slump. Bottom 6' highly fractured, top 1' diagonal vertical fractures
Core	#43	817 - 835 Cut: 18 Rec: 18 Bxes: 6
817	818½	Marlstone, lt. brn, hd, few ¼" layers of cr. gr., gry. sand.
818½	828	Sandstone, brn, v.f. to med gr., hd, fractured, several gry. bands of med gr. sand; banding is highly contorted in few zones (826'); not bxy.
828	835	Sandstone, gry., cr. gr., well hd, v. bxy. at top grading v. sli bxy at bot; abund. even carbon layers in bot. ft. over lin w/ ½" of distorted carbon layers.
Note:		

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION
Core	#44	836 (corrected from 835) - 856 Cut: 20 Rec: 20 Boxes: 7
836	856	Sandstone, gry, cr-gr, hd, fractured; not lmy; 2" mudstone stringer @ ± 850½'; 6" of mudstone breccia @ 836; 2" ± mudstone breccia @ 843'.
Core	#45	856 - 879 Cut: 23 Rec: 14 Boxes: 5
856	870	Sandstone, brn & gry, f-cr gr, hd occasional mudstone stringer grades into brn & gry sandstone, mdy gry, hard w/ bands of mdy hard banding in gray sst.
870	879	No Rec
Core	#46	879 - 897 Cut: 18 Rec: 12 Boxes: 4
879	891	Sandstone, brn w/ gry lenses; f-gr; hd, lgs; upto 4" silt or frac @ 890; lenses & banding of the highly contorted; ore bleeds yel wtr;
891	897	No Rec
Core	#47	897 - 919 Cut: 22 Rec: 22 Boxes: 8
897	919	Sandstone, gry, f-md. gr, hd., dk gry & brn banding, well-fractured; bands often distorted.
Core	#48	919 - 945 Cut: 26 Rec: 26 Boxes: 9
919	928	SANDSTONE (LT GRY, TO LT BRN,) WITH SOME INTERBD. MARLSTONE SS BD. DISTORTED, IN PLACES MED. BD; f-cr. C/LC. & carbonbanaccess even banding
928	945	MARLSTONE GRY TO BRN, LAMINATED, NO CONVERTING OF BDS. (*Note: ONLY ONE thin sand LENSE IN THIS UNIT), lam at ch. @ top BECOMING RICHER @ bot., 4" Tuff at (930-93)
Core	#49	945 - 966 Cut: 21 Rec: 21 Boxes: 7
945	966	Marlstone, brn to dk brn, hd, even laminae; fractured "4" lmy sd lenses conc. @ 952 - 954; carbonate filled frac @ 945 - 951; pyrite filled frac @ 959½'; Sphalerite(?) filled frac @ 962 - 966.

Logged, reamed hole, set pipe. Rec 812 - Boxes 29

PICEANCE CREEK
CORE HOLE #___

Page 1

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION
Core	# 50	966 - 992 Cut: 26 Rec: 26 Boxes:
966	970½	Tuff, lt. brn, hard, fine gr., calc., massive with horiz. organ. flakes & stringers
970½	973	Marlstone, lt. brn, part finely lamin. with little organ., part silty with sparse organ, c
973	977	Marlstone, lt. brn, silty, little organ., non-calc
977	982	Marlstone, lt. brn, silty, calc., several fine sand lenses also calc.
982	984	Marlstone, dk. brn, organ rich, non-calc. "poker-chip" fractures along bedding, hard brit
984	991	Marlstone, lt. brn, finely lamin., calc. lean at top, more organic at bottom, hard
991	992½	Marlstone, dk. brn, much organic, hard, lamin., rich kerogen odor
		838 30
Core	# 51	992' - 1022' Cut: 30' Rec: 30' Boxes: 10
992	1007	Marlstone, dk gry to brn, finely laminated, some vugs (in and around zones of high L. freq (994' & 997'), Rich, high Kerogen smell.
1007'	1022'	Marlstone, lt. gry, lt. brn, to dk. brn, laminat some "loop structures" in the bdng are present at 1010' to 1020'. At 1016' organic material is desim. random. in bd.
		868 31
Core	# 52	1022' - 1052' Cut: 30' Rec: 30 Boxes: 10
1022	1052	Marlstone, lt. brn, to gry, finely laminated, good loop structure at 1026, upper portion — poker chip breaks, pyrite in fracture at 1027, med. to rich, very hard —

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION (898) (325)
Core #4	53	1052-1082 Cut: 30 Rec.: 29 Boxes: 9
1052	1081	Marlstone, dk. br, evenly lamin, hard calc, cleavage along bedding, slight kerogen 1052-1069, strong kerogen 1069-1081, hard oil shale
1081	1082	MISSING
		903 334
CORE	54	1082-1089 Cut: 7 Rec 5 Boxes: 3
1082	1084	Marlstone, dk br, hard, lamin, slight kerogen odor
1084	1086	Marlstone, lt-dk br, highly fractured, calc bladed xls (nacholite?)
1086	1088	Missing core
1088	1089	Marlstone, dk. br hard fine lamin, contorted at t
		908 337
CORE #5	55	1089 - 1115 CUT: 26 REC: 21 BOXES: 8
1089	1100	MARLSTONE, LT. BRN to BRN, HD., LAMINATED, NO CONTORTING, 1090-1093' HIGH C FRACTURES, SOME VUGS but poor filling, medium
1100'	1105'	MARLSTONE, BRN, laminated, in places poorly 1101.5', * NUMEROUS VUGS, possibly filled with Kerogen. and bladed NAH. xls., HIGHLY CALC. excellent from 1103 to 1104' Some organic material, RICH in dk. BRNS.
1105	1107	Marlstone - brn-to-grey, laminated - no vugs, some pyrite
107	1110	MISSING - old drillers log
110	1112	Marlstone, brn, laminated, at 1111' high organic content, fractured, Rich.
112	1114	MISSING old driller's log,
1114	1115	Marlstone, dk brn, thinly laminated, fractured & broken; Rich -

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION
		929 345
ore	# 56	1115 – 1139 Cut: 24 Rec: 23 Boxes: 8
15 –	1118	Marlstone, dk br., hard, lamin, non-calc, some kerogen
18 –	1122	Marlstone, med br, hard, lamin, calc, strong kerogen, vert. fract. at top
22 –	1124	Marlstone, v. dk br-blk, hard, lamin, non-calc. "poker-chip" top ft., few high x fract filled
24 –	1130	Marlstone, lean, lt. br., silty, some vugs + contortions, calc
30 –	1138	Marlstone, lt. br., v. silty, high x bedding at top, much contortion top 3 ft., hard, calc, many sm. silty lenses with fine sand lenses bottom foot (dark sand)
		1138-39 Missing NR 952 353
ore	# 57	1139-1148 Cut: 9 Rec: 8 Boxes: 3
39	1143	Marlstone, dk br, even lamin, several med silty lenses more dark fine gr. sand at top, sm. vugs at bottom
143	1147	Marlstone, dk br highly fract, all small pieces, no kerogen odor
147	1148	Missing
		960 356
ore	# 58	1148'-1175' Cut: 27 Rec: 7 (LOST) Boxes: 3
1148 –	1152	MARLSTONE, brn to gry, hd, finely laminated, slt. calc., little organic material, at 1151' bladed xls. of kerogen. Rich.
1152 –	1172	MISSING
1172	1175	Marlstone, gry, laminated, very badly broken, somewhat higher silt content, Lean to med.
		967 359
Core	# 59	1175-1187 Cut: 12 Rec: 12 Boxes: 4
1175	1178	Clay Shale, brn, very thinly bdd., poker chip fractures, contains some small vugs with little mineralization (pyrite), Kerogen smell strong.
1178	1186	Siltstone, brn to gry, very thinly bd, somewhat distorted at 1184. Vugs present filled with evaporite crystal. 1179'.

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION
Core	59 Cont'd	
1186	1187	Marlstone, brn, hd, laminated, some organic material present; silt content is high; Lean to med.
		1107 979 363
Core #	60	1187 - 1199 Cut: 12 Rec. 10 Bores: 3
1187	1189½	Marlstone, dk. br., hard, lamin., "loops", calc. fine sand at 1189 and marcasite
1189½	1192	Marlstone, lt. br., hard, long high fractures filled "loops", lean, bottom ft. broken
1192	1199	missing
		1119 989 366
Core #	61	1199 - 1218 Cut: 19 Rec: 13 Bores: 5
1199	1206	Marlstone, brn, hd, thickly laminated (laminations color are variable depending on organic content) 1199-1200 loop structure; 1200-1204 - small vugs, calcite filling. Lean to med.
1206	1212	missing
1212	1218	Marlstone, lt. brn to brn, hd, slt, calc, thickly laminated color of laminations dependent on organic content; some contorting 1212 - 1214. Seems to have a higher silt content. * Nah. at 1216, badly broken 1216.8 to 1218. Lean to med.
		(1138) (1002) (371)
Core	# 62	1218 - 1245 Cut: 27' Rec: 25' Bores - 6
1218	1220	missing
1220	1232	Siltstone, med brn, hd, calc, poorly laminated; some organics material, increasing with depth 1226 - 1229 - useful with clear amber resinous material (wax??) faint kerogen odor
1232	1243	Marlstone, med brn, hd, calc, fine laminations, very fine organics laminae, thicker silt laminae, strong kerogen smell.

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

ROM	TO	DESCRIPTION
ore 62	Cont	
243	1245	Siltstone, lt brn to brn, hd, slt. calc, fine organic lamina, thin silt bds (there are lt. in color) weak kerogen odor.
		1165 1027 379
ore #	63	1245 – 1268 Cut: 23 Rec. 23 Boxes 8
45 –	1247	siltstone, lt br. hd, slt. calc, thin organ. lamin.
47 –	1255	Marlstone, lt-dk. br, hard, calc, many vugs (calc) strong kerogen odor
55 –	1268	Marlstone, lt. br, hd, slt. calc, much silt, some distortion of lamin. few vugs 1262-1267. slight to no kerogen odor.
		1188 1050 387
ore #	64	1268 – 1320 Cut: 52 Rec: 51 Boxes 17
–	1269	Marlstone, some silt, light brown, c
	1270	Brown, bladed material (maybe nahcolite) calc
270 –	1284	Marlstone, with fine grained sandstone lenses
284 –	1290	Marlstone, brn, ht., fine lamin, slt. kerogen
290 –	1299	Marlstone, brn, fine lamin, w. med. silt lenses
299 –	1320	Marlstone, med br., hard, finely lamin vugs in lower 8', cavity 1317 – 1318½, lean oil shale
		1240 1101 404
ore #	65	1320 – 1353 Cut: 33 Rec: 33 Boxes 11
320 –	1353	Marlstone, lt-med br., hard, calc. contorted bding (1322-1323, 1337-1340) v. silty, vert fract 1334 – 1337, slt. kerogen, stronger 1347-1349, scattered vugs 1338 – 1349
		1273 1134 415
ore #	66	1353 – 1386 Cut: 33 Rec: 33 Boxes 11
353 –	1363	Siltstone, br, hd, highly leached, calc, vuggy porous, little bding remains, some kerogen
363 –	1386	Marlstone, lt-med br., hard, slt. calc., highly fract., "poker chips" in 1376-1386, all is very silty, marcasite & nahcolite in sm. vugs at 1373, 1377

PICEANCE CREEK
CORE HOLE #___

CORE #_____ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION
		1306 1167 426
ore #	67	1386-1435 Cut: 50 Rec: 50 Boxes: 17
386-	1416	Marlstone, lt-med br., hard, non-calc. v. silty,
		little organ., much fract. along bding
		silty vugs 1401, 1403. no kerogen odor
1416-	1435	Marlstone, br., hard, slt. calc., well leached
		v. silty numerous vugs & dist. bding, slt. kerog.
		1356 1217 443
Core #	68	1435-1444 Cut: 9' Rec: 9' Boxes:
1435-	1438	Marlstone, lt brn., hd., non-calc., v. silty,
1438-	1444	Marlstone, lt-med brn., non-calc., v. silty,
		some organic, well fractured, some vugs
		1365 1225 446
Core #	69	1444-1456 Cut: 12' Rec: 12' Boxes: 4
1444	1450	Marlstone, lt-med brn., silty, hard, some vugs
1450-	1456	Marlstone, lt-med brn., hd., calc., vugs
	1453½-	Probably [illegible]
		Whole core well-fractured - vertical
		high angled bedding fract.
		Organic finely lam. silt - fine - medium
		1377 1237 450
Core	70	1456-1479 Cut: 23 Rec: 23 Boxes: 8
1456-	1479	Marlstone, lt. br., hard, slt. calc., v. silty,
		little organ., slt kerogen 1468-1472, highly
		fract. along bding., few vugs 1466, 1472-1478,
		lean oil shale, well leached in vug areas
		1400 1260 458
Core	71	1479-1517 Cut: 38 Rec: 38 Boxes: 13
1479-	1483	Marlstone, dk br. hard, non-calc, well lamin.
1483-	1484	Siltstone, gr-br., slt. calc., vugy w/ mareas
		well leached
1484-	1495	Marlstone, ltgr.-lt. br., slt. calc., well fract.
		v silty.
1495-	1502	Marlstone, med. br., hd., slt. calc., little organ
		some kerogen., some bding fract.

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION
1502	1517	Marlstone silty, lt. br.-gr., hd., slt. calc., vugs w/ marcasite & nahcolite (? 2nd), much silt, little organ., highly fract., partially leached
		1438 1298 471
Core #	72	1517-1554 Cut: 37 Rec: 30 Boxes: 10
1517	1523½	Marlstone, lt. br., v. silty, hd., vugs, little organ., highly fract., base - siltstone
1523½	1526	Marlstone, black, massive highly fract. strong kerogen
1526	1531	Marlstone, lt. gr-br., hd., silty, much horiz. & vert fract.
1531	1538	MISSING
1538	1546	Marlstone lt. br., hd., highly fract. (bding clay) 1544-1546 v. silty
1546	1554	Marlstone, br-lt. gr., hd., slt. calc., less fract but still broken, med silt. lens 1551½, 1554.
		1475 1328 481
Core #	73	1554-1561 Cut: 7 Rec: 7 Boxes: 2
1554	1561	Siltstone lt. gr., med. hd., little organ. highly broken & fract.
		1482 1335 483
Core #	74	1561-1575 Cut: 14 Rec: 14 Boxes: 5
1561	1575	Siltstone, lt. brn to brn, hd., calc, generally thinly bdd, no distortions; vugs at 1564-1566, (leached zones); some organic material present throughout core AND IN VARIABLE thickness; silt content increases with depth; Leaw Kerogen - (some bleeding at 1569').
		1496 1349 488
Core #	75	1575-1590 Cut: 15 Rec: 15 Boxes: 5
1575	1583	Siltstone lt. brn. to gry., very hd., calc, bd. faint in upper portion becoming thinly bd at lower; 1575-1579 may be a calcarenite; little organic material; highly leached zone at 1578'.

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION
CORE	75	Con't.
1583	1590	SILTSTONE, gry., very hd., calc, bd. more distinct than 1575-1583, still thinly bd.; very dense and fine gr.; badly broken at 1589-90; little to no kerogen smell.
		1511 1364 493
CORE	#76	1590-1606 CUT: 16 Rec.: 12 Boxes: 4
1590	1602	Marlstone, v. silty, dk. br., hd., non calc, blk., hd. spongy mat. at 1592½ (?), highly fract. 1592-1600, vugy at 1599½-1601, vugs calc.
1602	-1606	Missing
		1527 1376 497
ore #	77	1606-1619 Cut: 13 Rec: 11 Boxes 4
1606-	1617	Marlstone, gray-dk br., slt. calc., med. lamin. highly fract., slt. kerogen odor
1617	1619	MISSING
		1540 1387 501
CORE	# 78	1619-1649 CUT: 30 Rec: 29 Boxes: 10
1619	-1628	Marlstone, lt. brn, to gry., hd; thinly laminated, sometimes indistinct; 1620-1622, 1626-1628 have vugs with some amt of nah. present; silt content higher due to leaching; lean — Base of leached zone 1628?? (end of vugs) No
70A. 1628	L. Oilshale 1649'	Marlstone, brn, hd., calc., laminated, good oil shale to 1640'; 1640 to 1649' higher silt content; badly broken 1640.5' to 1642', small vugs are in the lower portion; med. to rich kerogen smell
		1570 1416 511
CORE	#79	1649-1661 CUT: 12 Rec: 12 Boxes: 4
1649	-1661	Marlstone, dk brn, hd, noncalc, poorly laminated up to 1657; 1657-1661 — well leached, calc., nah. present. lean —

PICEANCE CREEK
CORE HOLE #___

CORE #____ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION
		1582 1428 515
Core #80		1661 — 1709 Cut: 47 Rec: 47 Boxes: 9
1661	1671	Marlstone, lt-dk brown, hd. slty calc, poorly laminated, well leached - vugs, some nah present
1671	1700	Marlstone, darker brown, hd, non-calc, poor lam., well-leached, fewer vugs than 1661-1671, little nah. present
1693	1694	well-fract.
1700	1709	Marlstone, lt-dark br, hd, calc, poorly lamin., well-leached, numerous vugs
		1630 1476 531
Core #81		1709-1739 Cut: 30 Rec: 27 Boxes: 9
1709	1718	Marlstone, lt-dk br., hard, poorly lamin. slt. kerogen few vugs, 1716-1717 amber calc. bladed mat. solid for entire ft+
1718	1736	Siltstone, lt-br., hard, lean marlstone with little organ., many calc. vugs, slt. kerogen.
1736	1739	Missing 1660 1503 540
Core #82		1739 — 1797 Cut: 58 Rec: 58 Boxes: 20
1739	1797	Marlstone, brn, to dk brn, very hard, thinly laminated, badly broken at 1739 - 1741, 1788-1791; vugs with Nah. at 1750'-51' (50%), rest leached very badly. Med to Rich Kerogen smell
		1718 1561 560
Core #83		1797 — 1824 Cut: 27 Rec: 27 Boxes: 9
1797	1824	Marlstone, lt brn to brn, hd. noncalc, poorly laminated 1797-1805; 1820-1822 - laminations distorted; badly broken 1799-1802, 1810-1816, 1822-24; Somewhat more silty 1809-1819 - vugs with gas or air bleeding 1815-1819; lean to med. Kerogen no nah. in vugs, these being badly leached.
		1745 1588 569
Core #84		1824 — 1861 Cut: 37 Rec: 37 Boxes: 13
1824	1861	Marlstone, lt brn to brn, hd., noncalc, poorly

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

OM	TO	DESCRIPTION
Core 84		
824	1861	laminated 1824 – 1845, good distinguish. laminae 1845 – 1861 due to higher organic content, esp 1856–58; badly broken 1837–40, 1859–61; No prominent vugs or filling except at 1833 – small % nah present – leantoned.
		1782 1625 582
Core #85		1861 – 1868 Cut: 7 Rec: 7 Boxes: 2
61 –	1868	Marlstone, dk. br., hard, non-calc, little organ, poorly lamin., highly fract 1861 – 1867, no vugs
		1789 1632 584
Core #86		1868 – 1879 Cut: 11 Rec 7.3 Boxes: 2
1868	1872.5	Marlstone, lt. brn, to gry, poorly laminated, high L fractures 1869 – 1871; somewhat silty; lean badly broken 1871 – 1872.5.
872.5	1877	Missing
877	1879	Marlstone, gry to dk. gry, poorly laminated; silty; vugs leached badly in this zone, only 5% nah.; leans
		1800 1639 586
Core 87		1879 – 1906 Cut: 27 Rec: 25 Boxes: 9
1879 –	1904	Marlstone, lt-dk br., hd., non-calc., poorly lamin. bding fract., bleeding liquid + more fract., 1903 exploded, solid 1880 – 1885, 1896 – 1900 rest very vugy, with ash like material at 1896, vugs calc., no kerogen odor.
1904 – 1906		Missing 1827 1664 595
Core 88:		1906 – 1966 Cut: 60 Rec 60 Boxes: 20
1906 – 1966		Marlstone, lt-dk brn, hd, non-calc, poorly lam, bedding fract, (1919–1922, – amber bladed mat.) (1916–1918 – ss lenses with nah)

Correct TD 1972 instead of 1966

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL ___ TO ___ LENGTH ___ RCV'D ___

FROM	TO	DESCRIPTION
		1887 1724 615
Core	#89	1972 - 2030 Cut: 58 Rec: 58 Boxes: 20
1972	2030	Marlstone, brn (to blk), 2004 very lt brn; very hd, (dense); thinly laminated, few distortions; NO vugs; finely desem. nah - small %, no bds or layers present; marcasite 2003, 2009; upper portion darker - high Kerogen smell; lower lt brn but with high kerogen smell also.
		1945 1782 635
Core	#90	2030 — 2075 Cut: 45 Rec: 45 Boxes: 15
2030	2075	Marlstone, brn to blk, very hd., dense; finely laminated; no leached vugs (only a few very small vugs are found - these contain nah), Nah. seems to be finely desm. in the more organic portion of this core; % difficult to determine; Nah, High fracture filling 2068 to 2071. Rich Kerogen odor.
		1990 1827 650
Core	#91	2075 - 2135 Cut: 60 Rec: 60 Boxes: 20
2075 -	2135	Marlstone, lt brn to brn, very hd, finely laminated - some contortion at 2075 - 2080; core very dense; *2079 - 2119 large vugs are present with nah. - 2075 - 2079 nah seems to be filled; ≈40% of this portion of the core is nah. 2119 - 2135 - lt brn color, no vugs & contains a higher silt content: Core is lean to med. in Kerogen odor.
		2050 1887 670
Core	#92	2135 - 2140 Cut: 5 Rec: 5 Boxes: 2
2135 +	2140	Marlstone (Good oil shale), brn to blk, very hard, dense, evenly laminations; high organic material, no vugs or fractures, Rich Kerogen odor; (pulled core to start dip meter logging)
		2055 1892 672
Core	#93	2140 - 2200 Cut: 60 Rec: 60 Boxes: 20
2140 -	2200	Marlstone, med - lt brn, hd, very fine parallel laminations, almost massive, very little conc.

PICEANCE CREEK
CORE HOLE #___

CORE #_____ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION
		organ. matter (some in scattered pockets 2165-2175) no visible pelco., some small discem. flashy xls (?) but are non-calc., moderate to strong kerogen odor in all 60'
		2115 1952 692
Core # 94		2200-2260 Cut: 60' Rec: 60' Boxes 20
2200-	2203	Marlstone, dk br. hd., noncalc, few bding fract. moderate kerogen
2203-	2216	Shale, dk br-blk, non-calc., easily broken along bding, chononcoidal fract., 1st. such shale unit. Top of Garden Gulch
2216-	2240½	Marlstone, dk br-blk, hard non-calc, poorly bedded, more shaley fract along bding plane
2240½-	2247	Shale, dk. br-gr. blk., v. fissle & fractured, non-calc.
247-	2260	Marlstone, dk. br., hd, slt. calc. especially along bding plane, poorly lamin., almost massive in places, breaks more easily along bding
		2175 2012 (?) 712
Core # 95		2260-2267 Cut: 7 Rec: 7 Boxes: 3
2260-	2267	Shale, dk-br.-dk. gr., hd, slt. calc. along bding. more marly 2260-2263, much bding fract. 2263-2267
		2182 2019 715
Core # 96		2267-2298 Cut: 31 Rec: 30½ Boxes: 10
2267-	2280	Shale, dk. gr-blk., highly fissile, non-calc. poorly bedded, slt. kerogen odor
2280-	2297	Shale, dk. gr-blk., hard, fissile, silty in places non-calc., poorly lamin., no kerogen
2297-	2298	Siltstone, buff-blk., v. silty, no kerogen, much pore space, slt. calc.

PICEANCE CREEK
CORE HOLE #___

CORE #___ CORE INTERVAL _____ TO _____ LENGTH _____ RCV'D _____

FROM	TO	DESCRIPTION 2213 2049½ 725'
Core #97		2298 - 2343 Cut: 45 Rec. 45 : Boxes 15
2298	2343	Shale, dk brn to blk, noncalc, evenly laminated with some med. bded. siltstone layers; broken at 2307 - 2310'; gypsum present in small fracture at 2338' & along numerous bdding throughout core. Kerogen odor high throughout core esp in the siltstone layers.
		2258 2095' 740
Core #98		2343 - 2373 Cut 30 Rec 30 Boxes 10
2343	2373	Shale, dk. brn to blk, noncalc., poorly laminated with some finely layered siltstone; broken at 2343, 2361, 2367 - 2371; aragonite 2342 - 2350 along bedding; kerogen odor high esp in siltstone.
Core #99		2373 - 2397 Cut: 24 Rec: 24 Boxes: 8
2373	2397	Shale, dk. br - blk, hard, highly fissile, non-calc., vugs 2373 - 2373½, little fract other than bedding, aragonite seams
		2393
		TD 2397