THE CLEVELAND-CLIFFS IRON CO. PROJECT: Plaster C767

HOLE NO: 6 SHEET 1 OF ___ DATE: 10-19-80 LOGGED BY: DGL-FT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
1 630 to 649.85	630 631					19.59 / 19.59 = 1	WAVY BEDS 630 to 630.7 Clastic material and wavey slump structures Buff marlstone
	631 632						WAVY BEDS 631.1 to 631.6 Clastic material and wavey beds
	632	632.11					LOW GRADE Buff colored oil shale
	633						LOW GRADE Buff colored oil shale
	634						LOW-MED GRADE Buff colored oil shale
	635						LOW-MED GRADE Buff colored oil shale with ~~a~~ ~~two~~ darker seam at 635.2 to 6
	636						LOW-MED GRADE Buff colored oil shale
	637						LOW-MED GRADE Buff colored oil shale a few narrow darker bands 637.4 to 6
	638						LOW-MED GRADE Buff colored oil shale
	639						LOW GRADE Buff colored oil shale

THE CLEVELAND-CLIFFS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 2 OF ___ DATE: 10-19-80 LOGGED BY: DAL - BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	639 640						LOW GRADE Buff colored oil shale
	640						LOW GRADE " " " "
	641						LOW GRADE " " " "
	642						LOW GRADE " " " "
	643						LOW GRADE " " " "
	644	644.18					LOW GRADE " " " "
	645						LOW GRADE " " " " Irregular blebs of chloritic? material 645.25
	646						LOW GRADE " " " "
	647						LOW GRADE " " " "
	648						LOW GRADE " " " " .01 foot to .02 foot darker bands at 648.3 648.45 648.92

THE CLEVELAND-CL TS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 3 OF ___ DATE: 10-19-80 LOGGED BY: DRL-BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	649					↓	Buff colored oil shale
	649.59					1	End of first run
nd un	649.59					17.91 / 19.98 =	Lo to Med Grade Buff to Brown Oil Shale
	650					.8965	
	650						Low to Medium Grade " " " " "
	651						
	652						Low to Med Grade Buff to Brown Oil Shale with darker bands at 651.9
	653						Medium Grade Buff colored oil Shale with numerous narrow bands of richer material
	654						Low Grade Buff colored oil Shale
	655						Low Grade " " " "
	656						Low Grade " " " "
	657						Low Grade Numerous narrow bands of richer material
	658						Medium Grade

THE CLEVELAND-CLIFF IRON CO. PROJECT: Pacific

HOLE NO: L SHEET 5 OF ___ DATE: 10-14-80 LOGGED BY: DRL-BT COLLAR: ___ TD: ___

N	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	668	668.60 668.84	Axis				Low Grade Grey Brown Oil Shale
	669						
	669	669.20					Low Grade Grey Brown Oil Shale
	669.57						End of Run 2
6 n 20-80	669.57					19.47 / 20.12	Low Grade Grey to Buff Oil Shale
	670						
	671						Low Grade " " " " "
	672						Low Grade " " " " " 671.6 To 672.9 clastic? seams Irregular bedding
	673						Low to Med Grade " " " " "
	674						Medium Grade Buff to Grey Oil Shale Thin irregular bedding
	675	674.75					Medium to Low Grade Buff color Oil Shale Tuffaceous bed at 674.7
	676	675.98					Low Grade Buff color oil shale Boudinage clastics at 676.2 to 676.75
	677	676.70					Low to Med Grade Buff to Grey Oil Shale 676.4 to 677 Wavey bedding

THE CLEVELAND-CLIFFS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 4 OF ___ DATE: 10-19-80 LOGGED BY: DRL · BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	658 659						Low to Medium Grade Buff colored oil shale
	660						Low to Medium Grade Buff colored oil shale with narrow bands of richer material at 659.75
	661		Joint crossing core angle at small angle				Medium to Low Grade Buff colored oil shale with narrow bands of richer material to 660.6
	662						Low Grade Buff colored oil shale
	663	662.75 662.95					Low to Medium Grade Buff colored oil shale to 662.75. Slightly more brown and fissile from 662.75
	664	663.20 663.50 663.70					Low to Medium Grade Buff Brown oil shale Small Irregular bleb of white mineral
	665	664.14 664.22 664.88					Low to Medium Grade Buff Brown Oil Shale Small irregular bleb of white material at 664.80
	666	665.75					Low to Medium Grade Buff Brown Oil Shale Irregular seam of white material at 665 Bedding distorted
	667	666.03 666.30 666.50	666.4 Joint Crossing out				Low Grade 666.03 to 666.4 Seam of white material Grey Brown Oil Shale
	[illegible]	667.0 667.4 667.7	Small angle to [illegible]				Low Grade Grey Brown Oil shale

THE CLEVELAND-CLIFFS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 6 OF ___ DATE: 10-20-80 LOGGED BY: BT & DRL COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	677	677.80					Medium Grade Buff to Grey Oil Shale wavey bedding
	678						
	679						Medium to Low Grade Buff to Grey Oil Shale 678.1 to 678.47 Lighter color clastic? zone
	680	679.30					Low Grade Buff to Grey Oil Shale Thin regular bands
	681						Low Grade to Medium Buff to Grey Oil Shale
	682	681.98					Low to Medium Grade Buff to Grey Oil Shale 681.5 to 681.65 wavey beds
	683						Low Grade Buff color Oil Shale
	684						" " " " " "
	685						" " " " " "
	686						" " " " " "
	687						" " " " " "

THE CLEVELAND-CLIFFS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 7 OF ___ DATE: 10-20-80 LOGGED BY: DAL + BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	687 688						Low Grade Buff colored Oil Shale
	689						" " " " " " (88.7-89.1 MM) At 688.65 to 689.30 Sandy clastic seam Mahogany Marker
	689.79						Low Grade Buff colored oil Shale Last .5' was solid but broken when released from core lifter. End of 3rd Run
4	689.79 690				20.0 / 18.17		Low Grade Pale greenish brown oil Shale * Dropped some core at bottom
	69.1						" " " " " " "
	692						" " " " " " "
	693	692.97					Low to Medium Grade - Pale green to grey oil Shale "
	694						Medium Grade Grey to Green Oil Shale
	695						Low Grade Pale green Oil Shale
	696						" " " " " "

THE CLEVELAND-CLIFFS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 8 OF ___ DATE: 10-20-80 LOGGED BY: DRL + BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
(4)	696						Low to Medium Grade Pale green to grey Oil shale Concretion at 696.9
	697						
	698						Medium to Rich Grade Dark grey oil shale
	699						Medium to low grade Grey to buff oil shale
	700	699.42					Medium grade Dark grey to green oil Shale
	701	700.14 700.20 * Good parting plane					Medium to rich Grade Dark grey oil shale
	702						Medium grade Dark grey to green oil shale
	703						" " " " " " "
	704						Medium to low-medium Grade Grey to light green oil shale
	705						Medium to Rich Grade Dark grey oil shale
							Medium to low grade Light green oil shale Clastic seam at 705.05 to 705.13

THE CLEVELAND-CL TS IRON CO. PR. JECT: Pacific

HOLE NO: L SHEET 9 OF ___ DATE: 10-20-80 LOGGED BY: DRL & BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
(4)	706						Low to medium Grade Light green to grey oil shale
	707						
	708		Joint Crossing Core Axis at Small Angle				Medium Grade Green to grey oil shale 707.96 Left some core in hole 709.85 Drillers report 707.96 1.89 Measured
	709						
(4)	709.85	(Dri	llers	foota	ge)		End of 4th Run
(5)	709.85						
	710						
	711						
	712						
	713						
	714						

THE CLEVELAND-CL. IS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 10 OF ___ DATE: 10-20-90 LOGGED BY: DRL - BT COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
5	707.94		Drillers meas.			18.17	Picked up stub of core
			Core measure			19.08	Medium to Low grade Olive green to grey oil shale
	708						(Core ends match. Looks like core left from run 4 is recovered, First 1.5' show double core lifter scratches
	709						Medium [illegible] Olive black to grey oil shale
	710	709.44					Medium to rich olive green to grey oil shale
	711						Medium grade " " " " " "
	712						" " " " " " " "
	712						Medium to low grade Light green oil shale
	713						
	714						" " " " " " " "
	715						Medium to low grade Light green oil shale
	716	715.88					Low grade Light green oil shale
							" " " " " "

THE CLEVELAND-CL)S IRON CO. PR.)ECT: Pacific

HOLE NO: 6 SHEET 11 OF ___ DATE: 10-20-80 LOGGED BY: DRL-137 COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	717						Medium to rich Light green to olive black oil shale
	718						
	719						Rich to Low Light green oil shale
	720						Low grade Light green to buff oil shale
	721						" " " " " " " "
	722						" " " " " " " "
	723						Low to medium Light green to dark grey oil shale.
	724						Low grade Light green to grey oil shale
	725						" " " " " " " "
	726						" " " " " " " "
	[illegible]						Low to medium " " " " " "
							End of 5th Run. Drillers report 728.02 Measures 726.95

THE CLEVELAND-CLIFFS IRON CO. PROJECT: Pacific

HOLE NO: 6 SHEET 12 OF ___ DATE: 10-21-80 LOGGED BY: A.C.&H.W. COLLAR: ___ TD: ___

(COLOURS FROM G.S.A. CHART 1979)

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
6	726.95						LOW-MEDIUM MOD-DARK YELLOWISH BROWN w/ 1/8" LAMINATIONS OF DUSKY YELLOWISH BROWN
	727						
							" "
					·72		
	728						
							LOW MOD-DARK YELLOWISH BROWN
	729						
							" " " " "
					·54		·54
							LOW PALE-MOD. YELLOWISH BROWN
	730						
							LOW
							" " " "
	731						
							" " " " "
							·20
							MED-HIGH DARK-DUSKY " "
					·42		
	732						
							" " ·120 " " " "
							LOW PALE-MOD " "
	733	·99					
		·12					" " " " "
		·17			·24		·65
					·32		MED DARK " "
		·86					·86
							LOW (733.4 TO 733.45 MEDIUM GREY BED) PALE YELLOWISH BROWN
	734						
					·11		
					·39		" " " "
	735						
							" ·15 " " "
							LOW-MED MOD. w/ DARK " " LA
							·20 1/4" BED MED LIGHT GREY

THE CLEVELAND-CLIFFS IRON CO. PROJECT: PACIFIC

HOLE NO: DH-6 SHEET 13 OF ___ DATE: 10-21-80 LOGGED BY: AC & HW COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PR	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
6							LOW-MED MOD W/DARK YELLOWISH BROWN LA
	737						.85 ~~TUFF~~ DARK GREY Tuff?
					.07		.12 LOW PALE YELLOWISH BROWN.
	738						
							" .35 " " "
	739						MED-HIGH MOD, DARK & DUSKY YELL BROW LAMINATIONS
							" " .50 " " " " "
	740						LOW & MED PALE, MOD, DARK YELL BR LA W/ 1/8" LAMINATIONS, MED LIGHT & MED DARK } GR
	741						LOW & MED " "
		.66					" " .66 ~~1/4" DARK GREY BED~~ 1/4" MED
	742						" " PALE, MOD, DARK YELL BR LAMS.
							" " .70
	743						MED - HIGH DARK & DUSKY YELLOWISH BROW
					.08		" " .50 " " " "
	744						LOW PALE & PALE " "
					.51		" " " " "
	745				.92		1/4" QTZ BEDS @ 745.15 & 745.35
					.12 .43 .51		" " " " "

THE CLEVELAND-CLIFFS IRON CO. PROJECT: PACIFIC

HOLE NO: 6 SHEET 14 OF ___ DATE: 10-21-80 LOGGED BY: AC & HW COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
6	746				.10		MED PALE & DARK YELLOWISH BROWN WITH 50% DUSKY
END	746.66						.66
7	747						" PALE, DARK, DUSKY YELLOWISH BROW
							" .05 " " " " "
							LIGHT GREY QUARTZ .20
							MED .32 DARK & DUSKY YELLOWISH BROW
	748						LIGHT GREY QUARTZ W/ SULPHIDES.
							" " .17 "
							MED DARK & DUSKY YELLOWISH BROW
	749						.90
							LOW-MED MOD & DARK " "
	750						750.05 - 750.11 QTZ W/ SULPHIDES.
							" " " " " "
					.60		.40
					.80		LOW V.P. ORANGE & PALE YELL. BROWN
	751						(.28 1/4" QTZ NO MINERALS)
					.38		
					.59		" " " " "
	752						
			.00				
					.17		
					.62		" " " " "
					.88		
	753						(.05 1/4" QTZ NO MINERALS)
			.23		.23		
					.41		" " " " "
					.53		
					.80		
	754						
					.10		
							" " " " "
	755						
							" .10 " " " "
							V.P.O. & PALE Y.B. & MOD Y. BROWN
							LOW w/ fine med grey laminations

THE CLEVELAND-CLIFFS IRON CO. PROJECT: PACIFIC

HOLE NO: 6 SHEET 15 OF ___ DATE: 10-21-80 LOGGED BY: AC & HW COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	756						LOW (.33 1/8" GREEN W/ SULPHIDES.)
	757						
	758						" " " " " "
	759						" " .3 " " " " LOW V.P. ORANGE W/ SEVERAL THIN MED GREY LAMINATIONS
	760				.05 .87		.05 .18 .23 } MED GREY MASSIVE SULPHIDES " " .87 1/4" SULPHIDES AT CI
	761						" "
	762						" "
	763				.86		" " .81 .98 } MED GREY W/ SULP. NODULE
	764				.48		" "
	765				.89		" "
							" "

THE CLEVELAND-CLIFFS IRON CO. PROJECT: PACIFIC

HOLE NO: 6 SHEET 16 OF ___ DATE: 10-21-80 LOGGED BY: A.C. & H.W. COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
(7)	766						LOW U.P. ORANGE
END	766.67				.67		.67
(8)	767						" " "
	768				.40		" V. LIGHT - LIGHT GREY INTERBEDDED SHALE & FINE SANDSTONE
	769				.17		" " " " " "
	770	.65 .68					" " " " " "
	771				.16		" " " " " "
	772				.42		" (.42 ¼" QTZ W/SULP) " " " " "
	773						" (.13 " " ") " " " " "
	774				.52		" " " " " "
	775	.95					" " " " " "
					.68		" (ZONE OF SULPHIDE LENZES 775-776)

THE CLEVELAND-CLIFFS IRON CO. PROJECT: PACIFIC

HOLE NO: 6 SHEET 17 OF ___ DATE: 10-21-80 LOGGED BY: A.C. & H.W. COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
(8)	776						LOW Y LIGHT - LIGHT GREY
					.62		INTERBEDD SHALE & FINE SANDSTONE
	787						(776.72 - 777.45 APPEARS POROUS W/SMALL VUGS)
		.35					" " " " " (.47 1/4" SULPHIDES)
	778						
		.28					" " " " " (.28 1/4" SULPHIDES)
	779						
		.28					" " " " "
	780						
					.22		(.22 3/8" SULPHIDES)
							" " " " "
	781						
		.48					" " " " " (.48 1/2" SULPHIDE LENZ)
	782						LOW-MED PALE-MOD YELLOWISH BROWN
					.20		" " .20 " " " "
					.40		V. LIGHT & LIGHT GREY
					.83		" INTERBEDDED SHALE & FINE SANDSTONE
	783						
							.10
		.28					HIGH DUSKY YELLOWISH BROWN
							.23
		.70					MED DARK " "
	784				.92		.93
					.40		HIGH DUSKY " "
	785						
					.52		LOW PALE YELLOWISH BROWN
					.71		W/ DISSEMINATED SULPHIDES

THE CLEVELAND-CLIFFS IRON CO. PROJECT: PALIFIL

HOLE NO: 6 SHEET 18 OF ___ DATE: 10-21-80 LOGGED BY: A.C. & H.W. COLLAR: ___ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
(8)	786						LOW- " " "
END	786.51				.51		·51
(9)	787		·7 ·3				" " " "
							" " " "
							·35
	788						" " W/O SULPHIDES " ·90
	789						MED DARK & DUSKY W/MINOR PALE Y. BR (@ 788 IRREGULAR NODULE 1" W/CALCITE) ·85
	790						MED PALE & MODERATE YELLOWISH BROW
	791	·04			·99		(·04 - ·16 MED DARK GREY SAND ST W/C " " " " " ·77 ·85 LIGHT GREY SAND ST. NO CALCITE
	792	·00					LOW - MED V.P.O, PALE & DARK YELLOWISH BROW (792.0 ¼" LAM DUSKY YELL BROWN.)
	793	·85			·85		" " " " " " (·64 - ·87 MED & MED DK GREY ·85 - ·87 W/PYRITE)
	794						" " " " " "
	795						" " " " " " ·50 LOW V.P.O. WITH MINOR PALE Y. BRN. (·90 SLUMPED STRUCTURE ·10 DUSKY Y BRN & DK GREY)
					·35 ·55		" " " " " "

THE CLEVELAND-CLIFFS IRON CO. PROJECT: _____

HOLE NO: _____ SHEET ___ OF ___ DATE: _____ LOGGED BY: _____ COLLAR: _____ TD: ___

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	796				·14		" " " " " "
							(·60 - ·70 WAVY BEDDING)
					·82 ·98		
	797						
							" " " " " "
	798						
							(·47 1/4" DK GREY SAND ST W/CALCITE)
							" " " " " "
	799						
							" " " " " "
							(·70 1/4" GREYISH BLACK W/CALCITE)
	800				·75		
							" " " " " "
	801						
							·30
							MED + DARK, DUSKY & MOD YEL BRN.
	802						
							" " " " " "
							(·60 & ·68 SMALL NODULES)
	803						(·72 - ·88 SLUMP STRUCTURES)
							LOW V.P.O & PALE YEL BRN.
							W/MINOR DARK " "
	804						
							" " " " "
	805				·82 ·87		
							LOW-MED. GREYISH ORANGE, PALE YELLOW BRN
							MOD & DARK YELLOWISH BRN.

THE CLEVELAND-CLIFFS IRON CO. PROJECT: _____

HOLE NO: _____ SHEET ___ OF ___ DATE: _____ LOGGED BY: _____ COLLAR: _____ TD: _____

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
(9)	806				·20		SAME AS 805 - 806
END	806.58				·58 ·65 ·70		·58
(10)	807				·92		
					·34		" " " "
	808						·40 LOW-MED V.P.O. / P.Y.Brn. / Dk Y.Brn.
					·15		" (·86 1/4" MED DK GREY Ss.)
	809				·86		
					·76		" (·50-·80 DK GREY SILTY Ss.) (·80-·83 ANHEDRAL QTZITE)
	810						
					·43		" ·32 " " "
	811						LOW V.P.O. / P.Y.Brn / LIGHT GREY
					·77		" (·77 1/4" DK GREY W/ V FINE SULPHIDES
	812						
							" " " "
	813						·88 MED-HIGH DK & DUSKY YELLOWISH BROWN
							(·32 - ·39 QTZ. Ss. LIGHT GREY)
							" " (NODULES @ ·48 & ·69) " "
	814						·85 LOW V.P.O. & P.Y.B.
							" ·15 " "
							MED ·44 MOD & DK YELL BRN.
	815						LOW V.P.O. / P.Y.B. / MINOR DK. Y.B.
							" ·45 " " " " "
							MED-HIGH MOD / DK / DUSKY YELL BRN.

THE CLEVELAND-CLIFFS IRON CO. PROJECT: _____

HOLE NO: _____ SHEET ___ OF ___ DATE: _____ LOGGED BY: _____ COLLAR: _____ TD: _____

RUN	DEPTH	FRACTURES PP	JOINT	SLICK	CI	RQD	LITHOLOGIC DESCRIPTION
	816						" " .10 " " " "
		.15					(.10 - .15 MED GREY SS. WELL ROUNDE GRAINS (.45 SULPHIDES)
	817	.78			.78	LOW	LIGHT GREY / Y.P.O. / P.Y.B. (.75 - .78 QTZ SAND)
						LOW-MED	" " .11 " " / " / " PALE & DK Y. BRN.
	818						.80
						HIGH	DK & DUSKY Y. BRN. w/ MINOR MOD Y.B.
	819						.83
						LOW-MED	DK & PALE Y. BRN.
	820	.72					.92
						MED-HIGH	DK & DUSKY Y. BRN.
	821				.66		.72
						LOW	GR. ORANGE / P.Y.B. / D.Y.B. MINOR LT. GREY
							.55
						HIGH	.73 DUSKY & DK Y.B.
	822					LOW	P.Y.B & DK Y.B.
							.07 (CROSS BEDDING IN P.Y.B.)
						MED-HIGH	DUSKY TO DK.
	823						.90
							P.Y.B. / DK.Y.B. w/ MINOR MOD & DU
							.62 (IRREGULAR BEDDING.)
	824						Y.P.O. / P.O. / LT GREY - MED LT GREY
							INTERBEDDED - VARIGATED
	825						TO E.O.H.
	826						

BEDDING