

Elev 1137

#27550

SW-4 (CORE HOLE)

SAMPLE NO.	DEPTH		THICKNESS
	From	To	
9/11/85	0	14	
10 1/2	14	23	
	23	31	
	31	35	
	35	62	
	62	72	
	72	75	
	75	80	COLE
9/12/85	80	84	
	84	109	
	109	117	COLE
	117	121	ROCK BIT
	121	125	COLE
	125	130	ROCK BIT
	130	134	COLE
	134	135	
9/14/85	135	152	

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#27556

F67 R-41 SEC. 20 SE/SE/SE/SW

DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
YELLOW-BL + YELLOW-TAN SILTY CLAY (LOESS)
GRAY-TAN + YELLOW-TAN TO YELLOW-BL (LOESS)
YELLOW-BL + YELLOW-TAN SILTY CLAY (LOESS)
LIGHT BL TO BR CLAY POS. CLUMPS
YELLOW-TAN SILTY CLAY - STICKY
LIGHT-GRAY TO GRAY-TAN CLAY (TRUSK + STRAY) POS TAN AT BASE
YELLOW-GRAY + YELLOW-BL SANDY SILTY CLAY
AS ABOVE GRAPING TO V. SANDY + SWAY
AS ABOVE
FINE SANDS MED GRAYD OLIVE AT TOP
BL-GRAY TILL THIN SAND LAYERS
SAND-GRAY CEASED
BL-GRAY TILL
V. GRAYED TILL BL-GRAY
GRAY CLAY OR SHALE
SILTY CLAY OR CLAY
V. FINE SAND OR S.S. SILTY

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	152	155	core
	155	172	
	172	174	
9/17/85	174	174+	
11 1/2"	SET 5" P.E. PIPE TO 174+		
9/18/85	174	174	7.5 Acc. CORE
13 1/2"	174	189	8.5
	189	192	ACC
	192	192.5	
	192.5	196	8.5
	196	200	ACC.
	200	203	
	203	213	5.9 Acc.
	213	219	ACC.
	219	223	10
	223	226	

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DESCRIPTION OF BEDS

KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.

	Silty clay on shale + yellow-br yellow-tan
	Silty clay (sand grains) yellow-br yellow-tan
	Silty yellow-br shale
	Silty L.S.
	yellow-br silty stone to top gray shale
	gray to gray green shale
	L.S. shaly clay + gray-green
	coal
	gray + gray-green silty shale sandy at base
	S.S. clay fine py
	v.f. S.S. + silty shale some shaly gray + gray-green (py. streaks) (py.)
	Silty shale grading to gray shale thin
	bl-gray shale
	clay green shale 2 layers L.S.
	L.S. tan gray-green

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	226	230	Full Acc.
	230	232	
232	232	242.5	
9/19/85	242.5	243	
12 1/2	243	245	Full Acc.
	245	250	
	250	253	
	253	255	5' Acc.
	255	258	
	258	261	10' Acc.
	261	266	
	266	268	
	268	271	9.6 Acc.
	271	276	
	276	282	
	282	283	

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DESCRIPTION OF BEDS	
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.	
Shale L.S. Gray-Green to ^{GRAY-GREEN} ^{7' MAXIMUM} SHALE	
Silty Gray-Green Shale	
Gray Shale	
Dark Gray Shale	
L.S. Shaly at top	
Gray-Green Shales	
L.S. + Shale Layers Gray-Green at top	
As above	
Reddish Gray Gray-Green Shale	
Gray-Green + Reddish on shale	
Gray-Green ss. silty + shaly	
Gray-Green Shale	
Gray-Green + yellow-brown shale	
Dark Gray Shale	
Dark Gray Shale (Removed 20' 20')	
L.S. Some shaly	

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SAMPLE NO.	DEPTH		THICKNESS	DESCRIPTION OF BEDS
	From	To		KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
	283	286	Full RES.	GRAY TO DARK GRAY SHALE
	286	288		L.S. ^{4 FT TOP} SHALY GRAY LUMEN
	288	289.5		L.S. IN ABOVE
	289.5	293		GRAY-GREEN + REDDISH-BL & SHALE
	293	296		GRAY-GREEN SHALE
9/80/85	296	306		(CORAL TRACE) Gradual to Silty Gray + Green SHALE SANDY
9 1/2	306	308		SILTY + SANDY SHALE gray + SANDSTONE LAYERS
	308	318		FINE SS SHALE SILTY NEW TOP + BOTTOM CORAL STRIPES SHALE STRIPES
	318	328		S.S. SHALE NEW DATE
	328	338		S.S. SOME W.P. IN CORALS
9/23/85	338	340		SHALY L.S.
	340	343		L.S.
11	343	346		GRAY GREEN SHALE
	346	348		GRAY SHALE
	348	358		GRAY TO DARK GRAY SHALE
9/24/85	358	361		Thin Coral Strips Silty at base DARK GRAY SAND L.S. LAYERS
10 1/2	361	367		GRAY SHALE SILTY AT TOP

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	367	367	
	368	373	
	372	378	
	378	384	
	384	388	
	388	393	
9/25/85	393	395.5	NO CORE
12	395.5	405.7	
	405.7	415.7	
	415.7	425	
9/26/85	425	432	2' ARC
12 1/2	REMOVED	5"	
9/27/85	REMOVED	5" to 442'	
10 1/2			
9/30/85	442	452	
	452	462	
11 1/2		OVER	

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DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
DARK GRAY SHALE
GRAY-GREEN SHALE
GRAY-GREEN SHALE + L.S. TAN SILTY NEAR BASE
GRAY-GREEN SHALE + L.S. TAN SILTY
GRAY SHALE WITH SILTY STAIN LAYERS (PIY.)
DARK GRAY SHALE
SILTY AT BASE
DARK GRAY SHALE L.S. LAYER (403')
DARK GRAY SHALE
DARK GRAY SHALE
DARK GRAY SHALE L.S. NEAR BASE
FROM 174 - 300
SET NX CASING; MUCKED HOLE
3 THICK L.S. LAYERS AT TOP
DARK GRAY SHALE
DARK GRAY SHALE

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
10/1/85	462	472	
⁽³³⁾ BOX NO.	472	472.25	
	(472.25	473.50)	XXXX
10 1/2 HRS.	473.50	475	
	475	483	
	483	485	
	485	492	
	492	494	
	494	495	
10/2/85	495	502	
12 1/2	502	505	
	505	510	
	510	515	
	515	521	
	521	525	
	525	535	
	535	538	
	538	545	

DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
DARK GRAY + GRAY SHALE + L.S. SHALES
COAL SAMPLE IA-ONE
GRAY SILTY SHALE
GRAY SILTY SHALE SILENT STRATA LAYERS
L.S. SHALE, GRAY
GRAY-GREEN SHALE + L.S. TAN OR LIGHT BR.
BLACK SHALE
GRAY-GREEN SHALE + L.S.
GRAY-GREEN SHALE WITH L.S. LAYERS
GRAY GRADING TO DARK GRAY SHALE
DARK GRAY SHALE + L.S. GRAY
GRAY TO GRAY-GREEN SHALE SILENT STRATA
GRAY TO GRAY-GREEN SHALE SILENT STRATA + S.S.
LIGHT COLORED L.S. SHALES AT TOP
TRAC BL. L.S. ARG. IN LAYERS
AS A RESULT OF ...
SEE BOOK (2)

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	535	538	
	538	543	
	543	545	
	545	555	lost 25' core
10/3/85	555	557	
11/4/85	557	561	
	561	565	
	565	567	
	567	569	
	569	575	
	575	585	
	585	590	
	590	595	
10/4/85	595	599	
	599	603	
	603	605	
	OVER		

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DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
L.S. ARG + SHALEY
LAYER OF LS. + CONGLOMERATE SHALE
DARK GRAY + BLACK SHALE
L.S. SHALE AT BASE
GRAY-GREEN SHALE AT BASE
SANDSTONE FINE SILTY SAND
V. SILTY SHALE GRAY GREEN
GRAY-GREEN SHALE
L.S. TAN SHALE + SHALEY LAYERS
LS SHALE /
YELLOW-BR IN MID.
GRAY-GREEN SANDS TO DARK GRAY SHALE
DARK GRAY SHALE
DARK GRAY SHALE
AS ABOVE
GRAY SHALE LAYERS OF L.S. + CONGLOMERATE SHALE
GRAY + DARK GRAY SHALE SOME LS
GRAY-GREEN SHALE + L.S. TAN
LIGHT COLORED L.S.
OVER

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	605	614	
10/7/85	614	618	
12/1/85	618	622	
	622	623	
10/8/85	623	630	
12/1/85	630	640	CHERT 634
	640	648	
	648	650	
	650	660	
	660	670	
	670	673	
10/9/85	673	675	
	675	683	
	683		
		693.5	
10/10/85	PULLED IN CASING		
10/11/85	Reaming 541 to 601		

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DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
L.S. Gray-Green SHALE LAYERS ^{Thin gray shale} ^{Bottom 2'}
BLACK SHALE
Gray-SHALE L.S. LAYERS
L.S.
L.S. SOME SHALE LAYERS ^{AT BASE} SHALE
L.S. + SHALE LAYERS ^{ALL SHALE AT BASE}
Dark gray SHALE ^{THIN} ^{mid} LAYERS OF COAL
L.S. LIGHT colored
L.S. LIGHT colored ^{LAYERS} ^{ALL + SHALE}
L.S. AS ABOVE ^{OLIVE} SHALE AT BASE
DARK OLIVE TO BLACK SHALE
L.S. + OLIVE SHALE
Gray-Green SHALE
Gray-Green SHALE + L.S. ^{ALL} ^{SHALE AT BOTTOM}
Reaming Hole to 5' 492 TO 541

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
10/14/85	661	661	661 TO
10/15/85	661	661	661 TO
19	693	703	
	SET 4" PC CASING		TO 703
10/16/85			NEW NO BIT
11	704	709	
	709	713	
	713	723	
	723	733	
	733	743	
10/18/85	743	753	
10	753	763	
	763	773	
	773	783	
10/18/85	783	793	
9 1/2	793	799	
	799	803	

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DESCRIPTION OF BEDS	
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.	
	661
	693'
	GRAY SLATING & REDDISH-DR. SHALE L.S. AT BASE
	TOP 168'
	THIN L.S. STRATA REDDISH-DR. SHALE LAYER OF L.S. AT BASE
	GRAY-GREEN SHALE SILTY STRATA THIN L.S. STRATA
	GRAY SILTY SHALE - SILTY STRATA LAYERS
	GRAY SHALE DARK IN MIDDLE
	GRAY SHALE SILTY STRATA AT BASE + STRATA
	GRAY SHALE SILTY STRATA LAYERS
	GRAY SHALE GRADUALLY TO DARK GRAY
	DARK GRAY SHALE TRACES OF L.S. AT BASE
	DARK GRAY SHALE BOTTOM 1' MEDIOCRITY-CL.
	GRAY TO GRAY-GREEN SHALE INT. 1'
	REDDISH-DR. SHALE GRAY-GREEN
	L.S.

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817
170
637

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SAMPLE NO.	DEPTH		THICKNESS	DESCRIPTION OF BEDS
	From	To		KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
10/21/85 16 1/2	803	814		DARK GRAY SHALE L.S.
10/22/85	814	READING CASE 14000		TO 819'
10/22/85 11 1/2	SET NY CASINGS	TOP 627'		BOTTOM 817'
10/23/85	817'	823		L.S. AS ABOVE LAYERS SHALE Gray-Green STIFF
10	823	833		L.S. AS ABOVE
	833	843		L.S. AS ABOVE V. BLK + DUNGEON CLAY-GREEN SHALE AT BASE
	843	853		DARK SHALE L.S. MID + BASE
10/24/85	853	856		L.S.
10 1/2	856	863		DARK SHALE WITH L.S. LAYERS
	863	866		AS ABOVE
	866	873		DARK GRAY SHALE QUALITY TO 907' - G. + NY
10/25/85	873	878		Gray-Green SHALE common
9	878	883		L.S. SHALEY
	883	889		AS ABOVE
	889	890		SHALE OLIVE
10/28/85	890	896		OLIVE SHALE
	896	893		L.S.

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28 Hor.
30 Dr.4 Dr.
9 Dr.
12 Dr.

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	893	903	
11	903	913	
	913	923	
10/29/85	923	933	
	933	935	
11 H45	935	943	
	943	945	
	945	949	
	949	953	
	953	961	
10/30/85	961	971	
10	971	981	
	981	983	
	983	991	
10/31/85	991	994	
11	994	999	
	999	1001	

DESCRIPTION OF BEDS

KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.

LS Some SHALE LAYERS NEAR BASE

DARK GRAY LS SHALE LAYERS

AS ABOVE LAYER OF BLACK SHALE ^{AT BASE}

12 IN GRAY-GREEN SHALE

GRAY-GREEN SHALE

LS + SHALEY GRAY-GREEN

AS ABOVE

GRAY-GREEN SHALE LAYER OF BLACK ^{mid.}

LS (CRUMBL)

LS (SHALEY ^{ILL MID.})

TOP 10 IN

DARK GRAY SHALE LS LAYERS

DARK GRAY SHALE (2' LS mid.)

GRAY GREEN SHALE

LS

LS some crumby

LS + GRAY SHALE

BLK SHALE

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
1001	1001	1003	
	1003	1010	
	1010	1011	
	1011	1020	
11/4/85 10 hrs	HOLE	CASING BULKY	
	TO NX LINE	PULLED LINE	
11/5/85	FINISH	PULLING LINE	
WHICH REMAINS HOLE;	HOLE CASING BULKY		
11/6/85	MUDDED HOLE	REAMING	
10 hrs			
11/7/85	REAMING	CORE HOLE	FROM 986'
12 hrs			
11/8/85	REAMING	CORE HOLE 980' TO 1020'	
	CASING	WOULDN'T GO TO BOTTOM	
11/12/85	FLEETING	CASING; PULLED	
11/13/85	RUN IN	HOLE WITH CORE BERM	
11/14/85	1020	1030	CORE

SEE BOOK NO 3

DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
BLACK SHALE
GRAY SHALE
LS SHALEY
MOSTLY LS.
PULLED CORE BERM; RUN IN + RECOVERED 100' UP HOLE
RUN IN HOLE WITH 37" Rotary Bit (15 SACS) AT 900'; WENT TO OMAHA FOR MORE
END HOLE TO 886'
TO 930' (886')
SET 346' OF NX TOP 570' BOTTOM 910'
CORE TUBING
CLEANED OUT HOLE (PICKED UP NEW TUBING)
LS DARK SINGLE LAYERS NEAR CORE

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
10 40 11/14/85	1030	1034	
11/15/85 7 40's	TROUBLE WITH BEARING RETURNED TO AURELIA		
10 40's 11/18/85	MADE MILLING BIT / DROVE		
8 40's 11/19/85	MILLING IN HOLE; PULLED		
11/20/85	(COLD) CHANGED GREASE IN		
11/21/85	COULD NOT SOME TROUBLE		
	1034	1040	
9/29/86	MOVED RIG BACK OVER HOLE		
9/30/86	RAN IN HOLE WITH NEW HOOPER		
	FREE; PULLED CASING; RAN IN WITH		
	900'	950'	
9/1/86	MILLED TO 1040'; PULLED		
	From 1040'	TO 680'	

OVER

DESCRIPTION OF BEDS

KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.

10 40
690
#27556

BL. Gray LS + SHALE STRIPES

FROM ROCK BIT; PULLED CORE BEHIND
TOOK NEW TRUCK TO CHEAPUFFE

TO HAMBURG; RAN BIT TO 950'

TOOLS; RAN IN HOLE WITH CORE BEHIND

PUTTING TACKLE; WENT TO C.D. + DAWG

IN HOLE; V. COLD

SOME L.S.

DATA GOING TO BLACK SHAK LAYER

UP TO NW CASING; DROVE CASING

DIA. SHADE + MILLING TOOL; MILLED FROM

TUBING; RESET NW CASING

OVER

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
10/2/86	PULLED	TUBING	HOOD
	DIR. BIT	RUN TO 850	
10/6/86	RETURN	TO DRILL SITE WITH	
13	RUN CORE BEHOLD TO 1040		
	1040	1046	
10/7/86	1046	1053	
	1053	1063	
	1063	1067	
13	1067	1070	
	1070	1078	
	1078	1078	
	1078	1080	
	1080	1085	
	1085	1090	
10/8/86	1090	1093	
14	1093	1100	
	1100	1102	

OYER

DESCRIPTION OF BEDS

KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.

UP CORE BEHOLD WITH USED
TRAILOR & PUT ON NEW BATTERY TACK
CORING
DARK
LS AT TOP GRAY-GREEN SHALE
LS.
+ GRAY-GREEN
LS BLACK SHALE AT BASE
CRUMBLY
BLACK TO GRAY-GREEN SHALE
SHALEY L.S.
SHALEY L.S.
L.S. CHEST LAYERS
CRUMBLY
GRAY TO DARK GRAY-GREEN SHALE
CRUMBLY AT TOP
GRAY-GREEN SHALE L.S. No. 9
L.S. TALL
L.S. TALL
V. CRUMBLY
DARK GRAY TO GRAY SHALE
DIPLOME
OYER

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SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	1102	1104	
	1104	1110	
10/13/86 12 Hrs.	HOLE CAVED NEARLY FULL TO HOLE; HOLE STILL CAVING BADLY, TO PULL CASING		
10/14/86	PULLED NO. + 10' OF NX. RUN CORE BELOW, COVED & CORE BELOW		
10/15/86	mailed EXP. 10/21/86	LAST	
	1110	1118	
10/20/86	Run in HOLE WITH PULLED CASING	N.W. TAPER RUN IN HOLE	
10/21/86	REAMING HOLE	TO 1072	
10/22/86	TROUBLE WITH HOLE CAVING; TO 1074; PULLED TOOLS		

OVER

DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
L.S. SHALES
SOME L.S. 1109- REMARKS: BR TO GRAY GREEN SHALES
BOTTOM OF CASING; CLEARED OUT PULLED CORE BARREL; RUN IN HOLE
NX. BROKE OFF DURING DRILLING TROUBLE WITH CAVING; PULLED
mailed EXP. 10/21/86 LAST
5, 6 STONS/HOUR GRAY-GREEN SHALE GRADING TO GRAY-GREEN
TOP' HOLED UP TO NEW CASING; WITH DIA. REAMER TO 700'
CLEARED OUT HOLE; REAMING HOLE

OVER

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SAMPLE NO.	DEPTH		THICKNESS	DESCRIPTION OF BEDS	
	From	To		KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.	
10/23/86	Loaded SAMPLES + COLE			MEASURING	SU-WELLS
	RETURN TO ADPETA				
10/27/86	Run SAMPLES + COLE TO			PERMITS	Run in HALF length
	3 3/4" ROD (BIT) BEARING			Half to	10 BG
10/28/86	BEARER HOLE TO 1120'			PULLED TOOL + SET NEW CASING	
	TO 1120' TOP 690'				
10/29/86	Run in WITH COLE BEHIND			LOT OF W.D.	Blow OFF
	AT TOP OF COLE BEHIND			PULLED TOOLS	
10/30/86	Run in HALF WITH			TAP + Picked UP BEHIND	
11/4/86	TOOK DOWN RIG +			Loaded TRUCK + TRAILER	
	TOOK TO Glenwood				