

#2A 30-045-22524

E

860

#5 30-045-20894

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL Location: Unit SE Sec. 10 Twp 30 Rng 10Name of Well/Wells or Pipeline Serviced SUNRAY A #2A, #5

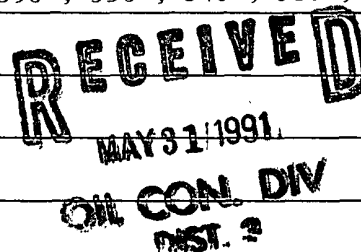
cps 1264w

Elevation 6844' Completion Date 6/30/78 Total Depth 697' Land Type* N/ACasing, Sizes, Types & Depths N/AIf Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. NO WATERDepths gas encountered: N/AType & amount of coke breeze used: N/ADepths anodes placed: 640', 630', 620', 610', 600', 590', 550', 540', 530', 400'Depths vent pipes placed: 670'Vent pipe perforations: 460'Remarks: gb #1 NO COKE AROUND ANODE #3 & #10.

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

WELL CASING
CATHODIC PROTECTION CONSTRUCTION REPORT
DAILY LOG

Drilling Log (Attach Hereto). ☐ ☒ 5

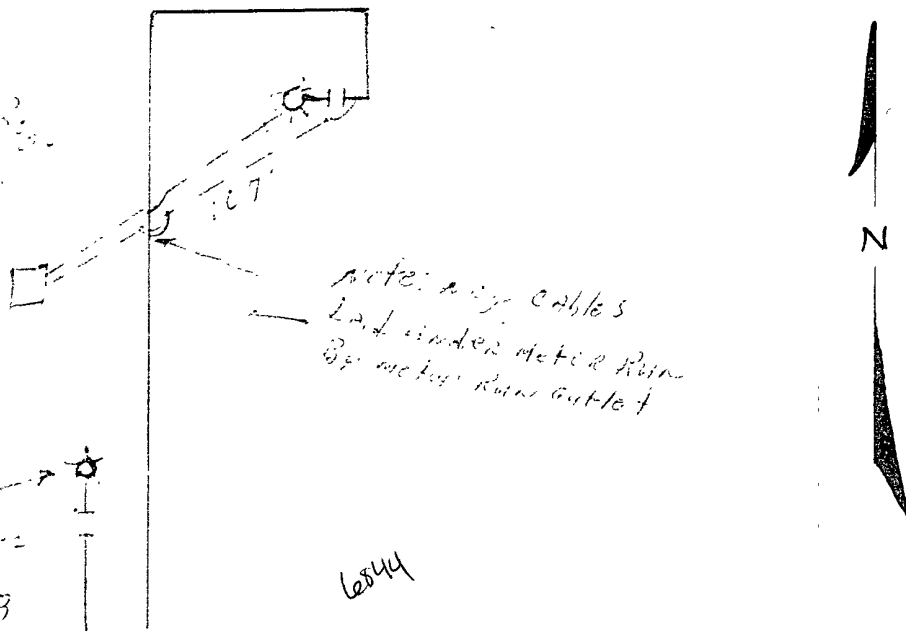
Completion Date 6/30/78

Well Name SUNRAY A #2-A		Location SE10-30-10		CPS No. 1264W	
Type & Size Bit Used 6 3/4"				Work Order No. 57204-21	
Anode Hole Depth - 697' - 670' TD	Total Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used	
Anode Depth	# 1	# 2	# 3	# 4	# 5
	640'	630'	620'	610'	600'
Anode Output (Amps)	# 1	# 2	# 3	# 4	# 5
	3.6	2.8	1.7	3.2	3.2
Anode Depth	# 6	# 7	# 8	# 9	# 10
	590'	550'	540'	530'	400'
Anode Output (Amps)	# 6	# 7	# 8	# 9	# 10
	3.1	1.5	2.2	1.5	1.6
Total Circuit Resistance	Volts 10.0V		Amps 7.5A		Ohms 1.33Ω
No. 8 C.P. Cable Used		No. 2 C.P. Cable Used			

Remarks: STATIC 600' N = 0.84. Installed 10-2" x 48" Graphite Anodes.
Drilled to 240' waited 30 min. Damp, NO WATER. Drilled To 580', NO WATER NEXT
A.M. Drilled To 697', NO WATER, Logging Anode & Topped AT 670'. INSTALLED 67
OF 1" P.V.C. VENT PIPE, PERFORATED 460'. HOLE BRIDGED AT 615' & 500'.
PULLED #9 ANODE UP 10' TO PUMP BRIDGE OUT. PUMPED BRIDGE OUT, COUL
NOT GET #9 ANODE BACK DOWN. PUMPING HOSE BROKE AT CONNECTION
WHEN WE TRIED TO PULL IT OUT OF HOLE. LEFT APPROX. 400' OF 1 1/2" HOSE IN
HOLE. COULD NOT GET #10 ANODE DOWN TO 460'. TRIED TO PULL IT OUT. IT
STUCK IN HOLE AT 400'. HOLE BRIDGED SOMEWHERE
ABOVE 400'. DID NOT GET COKE AROUND #3 & #10 ANODES.

GROUND BED LAYOUT SKETCH

DITCH + 1 CABLE = 357'
 EXTRA CABLE = 107'
 HOLE DEPTH = + 170'
 STUB POLE + 40/16 ROCT.



DISTRIBUTION

WHITE - Division Corrosion Office
 YELLOW - Area Corrosion Office
 PINK - Originator File

SUNRAY A #2-A
 P.C.
 BOND BOX #43

6844

El Paso Natural Gas Company
ENGINEERING CALCULATION

Sheet _____ of _____

Date: _____

By: _____

File: _____

6/30/78
W.F.L. & J.L.

SUNRAY A #2-A SE10-33-10 1264W 57304-21

MW	gals/mol
16.04	C1 6.4
30.07	C2 10.12
44.10	C3 10.42
58.12	IC4 12.38
58.12	nC4 11.93
72.15	IC5 13.85
72.15	nC5 13.71
86.18	IC6 15.50
86.18	C6 15.57
100.21	IC7 17.2
100.21	C7 17.46
114.23	C8 19.39
28.05	C2 9.84
42.08	C3 9.67

MW	MISC.	gals/mol
32.00	O2	3.37
28.01	CO	4.19
44.01	CO2	6.38
64.06	SO2	5.50
34.08	H2S	5.17
28.01	N2	4.16
2.02	H2	3.38

240 -		50 - .6	1st Hole. Drilled To 580', Next A.M. NO WATER
50 -		60 - 1.2	Logging Anode Stopped, AT
60 -		70 - 1.2	670' INSTALLED 6.20 OF 1"
70 -		80 - .8	P.V.C. VENT PIPE, PERFORATED 46
80 -		90 - .8	Hole Bridged Around 500'
90 -		100 - .6	Pulled #9 Anode up 10'
100 -		110 - .6	Anode stuck, Tried To Pump
110 -		120 - .6	Bridge out, Hose
120 -		130 - .6	Broke Dropped 400' of 1 1/2" Hose in
130 -		140 - .6	Hole 10' Anode would NOT go
140 -		150 - .6	470' STUCK IN HOLE
150 -		160 - .6	AT 400' COULD
160 -		170 - .6	T.D. GET COKE
170 -		180 - .6	Around it.
180 -		190 - .6	
190 -		200 - .6	
200 -		210 - .6	
210 -		220 - .6	
220 -		230 - .6	
230 -		240 - .6	
240 -		250 - .6	
250 -		260 - .6	
260 -		270 - .6	
270 -		280 - .6	
280 -		290 - .6	
290 -		300 - .6	
300 -		310 - .6	
310 -		320 - .6	
320 -		330 - .6	
330 -		340 - .6	
340 -		350 - .6	
350 -		360 - .6	
360 -		370 - .6	
370 -		380 - .6	
380 -		390 - .6	
390 -		400 - .6	
400 -		410 - .6	
410 -		420 - .6	
420 -		430 - .6	
430 -		440 - .6	
440 -		450 - .6	
450 -		460 - .6	
460 -		470 - .6	
470 -		480 - .6	
480 -		490 - .6	
490 -		500 - .6	
500 -		510 - .6	
510 -		520 - .6	
520 -		530 - .6	
530 -		540 - .6	
540 -		550 - .6	
550 -		560 - .6	
560 -		570 - .6	
570 -		580 - .6	
580 -		590 - .6	
590 -		600 - .6	
600 -		610 - .6	
610 -		620 - .6	
620 -		630 - .6	
630 -		640 - .6	
640 -		650 - .6	
650 -		660 - .6	
660 -		670 - .6	
670 -		680 - .6	
680 -		690 - .6	
690 -		700 - .6	
700 -		710 - .6	
710 -		720 - .6	
720 -		730 - .6	
730 -		740 - .6	
740 -		750 - .6	
750 -		760 - .6	
760 -		770 - .6	
770 -		780 - .6	
780 -		790 - .6	
790 -		800 - .6	
800 -		810 - .6	
810 -		820 - .6	
820 -		830 - .6	
830 -		840 - .6	
840 -		850 - .6	
850 -		860 - .6	
860 -		870 - .6	
870 -		880 - .6	
880 -		890 - .6	
890 -		900 - .6	
900 -		910 - .6	
910 -		920 - .6	
920 -		930 - .6	
930 -		940 - .6	
940 -		950 - .6	
950 -		960 - .6	
960 -		970 - .6	
970 -		980 - .6	
980 -		990 - .6	
990 -		1000 - .6	

1-640-2.4-3.6

2-630-2.0-3.8 ✓

3-620-1.7-1.7

4-610-1.9-3.2

5-600-2.5-1.2

6-590-1.4-3.1

7-580-1.0-1.5 ✓

8-570-1.6-2.2 ✓

9-560-1.7-1.5 ✓

10-400-1.0-1.0 ✓

12V 7.5A = 1.37 ✓

LEASE

WELL NO.

CONTRACTOR

RIG NO.

REPORT NO.

DATE

19

MORNING

DAYLIGHT

EVENING

MORNING					DAYLIGHT					EVENING				
Driller					Driller					Driller				
FROM	TO	FORMATION	WT-BIT	R.P.M.	FROM	TO	FORMATION	WT-BIT	R.P.M.	FROM	TO	FORMATION	WT-BIT	R.P.M.

BIT NO.		NO. DC	SIZE	LENG.	BIT NO.		NO. DC	SIZE	LENG.	BIT NO.		NO. DC	SIZE	LENG.
SERIAL NO.		STANDS			SERIAL NO.		STANDS			SERIAL NO.		STANDS		
SIZE		SINGLES			SIZE		SINGLES			SIZE		SINGLES		
TYPE		DOWN ON KELLY			TYPE		DOWN ON KELLY			TYPE		DOWN ON KELLY		
MAKE		TOTAL DEPTH			MAKE		TOTAL DEPTH			MAKE		TOTAL DEPTH		

MUD RECORD			MUD, ADDITIVES USED AND RECEIVED			MUD RECORD			MUD, ADDITIVES USED AND RECEIVED			MUD RECORD			MUD, ADDITIVES USED AND RECEIVED		
Time	Wt.	Vis.				Time	Wt.	Vis.				Time	Wt.	Vis.			

FROM	TO	TIME BREAKDOWN	FROM	TO	TIME BREAKDOWN	FROM	TO	TIME BREAKDOWN
0	70	Sandstone	150	160	Shale	370	380	Shale
70	75	Shale	160	200	Dry	380	420	Sand Dry
75	105	Sandstone	200	210	Shale	420	460	Sandy Shale
105	115	Shale	210	240	Sand damp	460	670	Sand + Shale streaks
115	120	Sand damp	240	245	Shale	670	700	Shale
120	150	Sand dry	245	260	Sand damp			

REMARKS -			REMARKS -			REMARKS -		
			260 - 270	Shale		670 To 700		
			270 - 295	Sand damp.		Logged to 670		
			295 - 305	Shale				
			305 - 315	Sandy Shale				
			315 - 320	Sand - damp				
			320 - 330	Sand dry				
			330 - 370	Sandy Shale				

SIGNED: Toolusher

Tom O'Brian

Company Supervisor

864

**DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO**

Operator MERIDIAN OIL CO. Location: Unit 0 Sec. 10 Twp. 30 Rng. 10

Name of Well/Wells or Pipeline Serviced SUNRAY A- 2A & 5A

cps 1264w

Elevation 6844' Completion Date 10-23-90 Total Depth 680' Land Type N/A

Casing Strings, Sizes, Types & Depths 20' of 7" steel casing.

If Casing Strings are cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water: Fresh, Clear,
Salty, Sulphur, Etc. Water at 280' No water sample

Depths gas encountered: N/A

Ground bed depth with type & amount of coke breeze used:

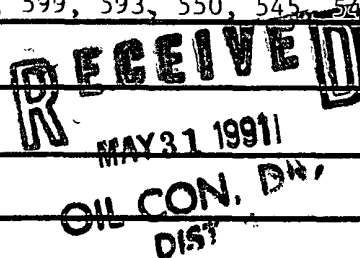
500 feet with Asbury Petroleum coke breeze.

Depths anodes placed: 629, 623, 617, 611, 605, 599, 593, 550, 545, 540, 535

Depths vent pipes placed: 680 feet

Vent pipe perforations: 400 feet

Remarks: gb #2



If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

**WELL CASING
CATHODIC PROTECTION CONSTRUCTION REPORT
DAILY LOG**

Exhibit A

Drilling Log (Attach Hereto) ☐Completion Date 10-23-90

CPS #	Well Name, Line or Plant:	Work Order #	Status:	Ina. Union Check
1264-W	SUNRAY A 2 A SUNRAY A 5			☒ Used ☐ Not
Location:	Anode Size:	Anode Type:	Size Bit:	
010-30-10	2" x 60"	ANOTEC	6 1/4	
Depth Drilled	Depth Logged	Drilling Rig Time	Total Lbs. Gels Used	Lost Circulation Mat'l Used
680"	645'		3800 #	
Anode Depth				
# 1 629	# 2 623	# 3 617	# 4 611	# 5 605
# 6 599	# 7 593	# 8 550	# 9 545	# 10 540
Anode Output (Amps)				
# 1 2.0	# 2 2.7	# 3 2.8	# 4 2.6	# 5 2.6
# 6 2.2	# 7 2.2	# 8 2.1	# 9 2.8	# 10 2.7
Anode Depth				
# 11 535	# 12	# 13	# 14	# 15
# 16	# 17	# 18	# 19	# 20
Anode Output (Amps)				
# 11 2.7	# 12	# 13	# 14	# 15
# 16	# 17	# 18	# 19	# 20
Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 12.2	Amps 8.3	Ohms 1.46		

Remarks: SET 20' of 7" STEEL CASING THRU BOULDERS. DRILLER SAID WATER AT 280' WAITED 30 MINUTES. BLEW SOME THICK MUD OUT OF HOLE. DID NOT GET WATER SAMPLE. RAN 680' OF 1" PVC VENT PIPE. PERFORATED 400' OF VENT PIPE. LEFT COKE BREEZE APPROXIMATELY 500'

Rectifier Size: _____ V _____ A
 Addn'l Depth: 100'
 Depth Credit: _____
 Extra Cable: 10'
 Ditch & 1 Cable: 105'
 25' Meter Pole: _____
 20' Meter Pole: _____
 10' Stub Pole: _____
 Junction Box: 1

All Construction Completed

Willis Knight Jr
 (Signature)

GROUND BED LAYOUT SKETCH

SUNRAY A 2 A

105'
 RECTIFIER G.B. #2

6844

SUNRAY A 5

BURGE CORROSION SYSTEMS, INC.P.O. BOX 1359 - PHONE 334-6141
AZTEC, NEW MEXICO 87410COMPANY MERIDIAN CIL DAILY DRILLING REPORT 10-23 1990

WELL NAME: <u>SUN274</u>	WELL NUMBER: <u>A-24</u> <u>A-5A</u>	SECTION: <u>10</u>	TOWNSHIP: <u>30</u>	RANGE: <u>10</u>
WATER AT: <u>380'</u>		HOLE MADE: <u>680'</u>		

DESCRIPTION OF FORMATION

FROM	TO	FORMATION IS	COLOR
0	20'	7" STEEL CASING (Through Boulders)	
20	60'	SANDSTONE	
60'	70'	CLAY-SHALE-COAL	
70	90'	SANDSTONE	
90'	110'	CLAY-SHALE	
110'	190'	SANDSTONE	
190'	200'	shale	
200'	260'	SANDSTONE	
260'	270'	shale	
270'	380'	SANDSTONE - POWDER SAND - WATER - INJECTION	
380'	450'	SANDSTONE - BENTONITE	
450'	470'	shale	
470'	490'	SAND-SHALE MIX	
490'	540'	SANDSTONE	
540'	570'	shale	
570'	610'	SANDSTONE	
610'	660'	shale	
660'	680'	shale SAND MIX	

REMARKS: WENT INJECTION AT 380' AFTER BLOWING MUD.SET 20' 7" CASING - STEEL through boulders ON SURFACE.WENT TO 680' AFTER EVALUATING hole CONDITIONS & BEST OPTIONS.Brian E. Burge

Driller

Ron Hunt

Tool Dresser

CONSTRUCTION LOGGING READINGS

Exhibit C

A¹ edition 011

CPS #: 1264-W WELL NAME: SURVEY A2A 4A5 LOCATION: OVO-30-10 DATE: 10-23-90

TOTAL VOLTS: 12.2 TOTAL AMPS: 8.3 OHMS RESISTANCE: 1.46

												ANODE READINGS			
DEEP	LOG ANODE	ANODE NO.	DEEP	LOG ANODE	ANODE NO.	DEEP	LOG ANODE	ANODE NO.	DEEP	LOG ANODE	ANODE NO.	HO.	DEPTH	HO COKE	WITH COKE
5			185			365		8	545	180		1	629	1.7	2.0
10			190			370			550	30		2	623	1.5	2.7
15			195			375			555	30		3	617	1.5	2.8
20			200			380			560	30		4	611	1.8	2.6
25			205			385			565	30		5	605	1.4	2.6
30			210			390			570	30		6	599	1.2	2.2
35			215			395			575	20		7	593	1.1	2.2
40			220			400			580	30		8	550	1.4	2.7
45			225			405			585	160		9	545	1.5	2.8
50			230			410			590	70		10	540	1.4	2.7
55			235			415	7	598	595	1.5		11	535	1.6	2.7
60			240			420	6	599	600	1.5					
65			245			425	5	603	605	1.3					
70			250			430			610	1.2					
75			255			435	4	611	615	1.3					
80			260			440	3	617	620	1.5					
85			265			445	2	623	625	1.4					
90			270			450	1	629	630	1.6					
95			275			455			635	1.6	1				
100			280			460			640	1.6					
105			285			465			645	1.6	TB				
110			290			470			650						
115			295			475			655						
120			300			480			660						
125			305			485			665						
130			310			490			670						
135			315			495			675						
140			320			500			680						
145			325			505			685						
150			330			510			690						
155			335			515			695						
160			340			520			700						
165			345			525			705						
170			350	11		530	90		710						
175			355	10	533	535	1.1		715						
180			360	9	539	540	1.1		720						

REMARKS: Set 20' of 7" steel casing thru boulders. Driller said wet at 280'. Waited 30 minutes. Drove some thick mud out of hole. Did NOT GET WATER SAMPLE

UNION OA SURVEY A2A 4A5 in wrong hole also
Flow line neg.