

#4 30-045-10139

#353 30-045-26904

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

Operator MERIDIAN OIL INC. Location: Unit B Sec. 33 Twp 31 Rng 8

Name of Well/Wells or Pipeline Serviced HOWELL D #4, #353

cps 2004w

Elevation 6272' Completion Date 9/29/88 Total Depth 360' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If 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. 110' NO SAMPLE

Depths gas encountered: N/A

Type & amount of coke breeze used: N/A

Depths anodes placed: 320', 310', 155', 185', 177', 169', 161', 154', ±46', 139'

Depths vent pipes placed: 356'

Vent pipe perforations: 260'

Remarks: gb #3

RECEIVED

MAY 31 1991

OIL CON. L.V.
DIST. 3

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.

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

Operator MERIDIAN OIL INC. Location: Unit NE Sec. 33 Twp 31 Rng 8

Name of Well/Wells or Pipeline Serviced HOWELL D #4, #353

cps 2004w

Elevation 6272' Completion Date 6/18/74 Total Depth 600' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If 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. 410'

Depths gas encountered: BEWTWEEN 520' & 600'

Type & amount of coke breeze used: N/A

Depths anodes placed: 555', 545', 480', 470', 460', 450', 440', 430', 420', 410'

Depths vent pipes placed: N/A

Vent pipe perforations: 490'

Remarks: gb #2

RECEIVED
MAY 31 1991
OIL CON. D:
DIST. 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.

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

Operator MERIDIAN OIL INC. Location: Unit NE Sec. 33 Twp 31 Rng 8

Name of Well/Wells or Pipeline Serviced HOWELL D #4, #353

cps 2004w

Elevation 6272' Completion Date 5/11/63 Total Depth 123' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If 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. N/A

Depths gas encountered: N/A

Type & amount of coke breeze used: 865 lbs.

Depths anodes placed: 96', 90', 84', 70', 64', 58'

Depths vent pipes placed: N/A

Vent pipe perforations: N/A

Remarks: gb #1

RECEIVED
MAY 31 1991
OIL CON. DIV
DIST. 3

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.

1457

#3 30-045-1006^F

#351 30-045-27649

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

Operator MERIDIAN OIL INC. Location: Unit P Sec. 34 Twp. 31 Rng. 8

Name of Well/Wells or Pipeline Serviced HALE #3, #351

cps 2170W

Elevation 6227' Completion Date 11/30/90 Total Depth 490' Land Type* P

Casing, Sizes, Types & Depths 20' OF 8" PVC CASING,

If Casing is cemented, show amounts & types used 5 EACH 90 LB BAGS OF

SACKRETE.

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. 70'

Depths gas encountered: N/A

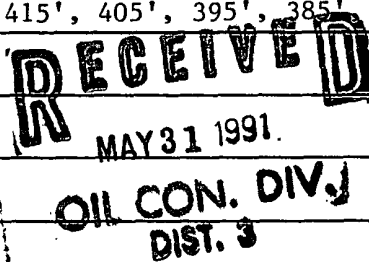
Type & amount of coke breeze used: 3900 lbs.

Depths anodes placed: 455', 445', 435', 425', 415', 405', 395', 385', 340', 330'

Depths vent pipes placed: 550'

Vent pipe perforations: 430'

Remarks: gb #1



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 11-30-90

CPS # <u>21700</u> <u>42950</u>		Well Name, Line or Plant: <u>Hale #351</u>		Work Order #		Seismic:		Ins. Union Check ☒ Good ☐ Bad	
Location: <u>R34-31-8</u>		Anode Size: <u>2" X 60"</u>		Anode Type: <u>ANOTEC</u>		Size Blk: <u>6 3/4</u>			
Depth Drilled: <u>500'</u>		Depth Logged: <u>490'</u>		Drilling Rig Time		Total Lbs. Cable Used: <u>3900</u>		Less Circulation Mat'l Used	
No. 1		No. 2		No. 3		No. 4		No. 5	
Anode Depth: <u>455'</u>		Anode Depth: <u>445'</u>		Anode Depth: <u>435'</u>		Anode Depth: <u>425'</u>		Anode Depth: <u>415'</u>	
Anode Output (Amps): <u>4.4</u>		Anode Output (Amps): <u>4.4</u>		Anode Output (Amps): <u>4.5</u>		Anode Output (Amps): <u>4.6</u>		Anode Output (Amps): <u>4.8</u>	
Anode Depth: <u>405'</u>		Anode Depth: <u>395'</u>		Anode Depth: <u>385'</u>		Anode Depth: <u>340'</u>		Anode Depth: <u>330'</u>	
Anode Output (Amps): <u>4.6</u>		Anode Output (Amps): <u>4.6</u>		Anode Output (Amps): <u>3.5</u>		Anode Output (Amps): <u>3.6</u>			
No. 11		No. 12		No. 13		No. 14		No. 15	
Anode Depth: <u>16</u>		Anode Depth: <u>17</u>		Anode Depth: <u>18</u>		Anode Depth: <u>19</u>		Anode Depth: <u>20</u>	
Anode Output (Amps): <u>13.8</u>		Anode Output (Amps): <u>16.0</u>		Anode Output (Amps): <u>86</u>		Anode Output (Amps): <u>86</u>		Anode Output (Amps): <u>86</u>	
Total Circuit Resistance: <u>13.8</u>		Total Circuit Resistance: <u>16.0</u>		Total Circuit Resistance: <u>86</u>		Total Circuit Resistance: <u>86</u>		Total Circuit Resistance: <u>86</u>	
Volts		Amps		Ohms		No. 8 C.P. Cable Used		No. 2 C.P. Cable Used	

Remarks: SET 20' of 8" PVC casing. DRILLER said wet at 70', DRILLED TO 80' NEXT AM WATER STANDING APPROXIMATELY 60', GOT WATER SAMPLE. RAN 500' of 1" PVC VENT P.P.E. PERFORATED 430' of VENT PIPE. LEFT COKE BREEZE APPROXIMATELY 300'.

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

All Construction Completed

William Knight Jr
(Signature)

GROUND BED LAYOUT SKETCH

G.B. #1
0



334

6007

Hale #351

MO-TE DRILLING, INC.

DAY Friday

DRILLER <u>Bob E.</u>	LEFT TOWN	ARRIVED FIELD
HELPER <u>Bob E.</u>	LEFT FIELD	ARRIVED TOWN
HELPER	TOTAL FOOTAGE TODAY	

RIG NO. 2001 DATE 11-30-70 CLIENT Mormon

BEGIN WORK ON HOLE NO. 4-16-35 AT FEET

BEGIN WORK ON HOLE NO. AT FEET

TIME		ACTIVITY
FROM	TO	
0	10	Sand & clay
10	50	Sandstone
50	70	Shale
70	110	Brown gray sandstone (water @ 70')
110	190	Gray shale
190	225	Brown sandstone
225	260	Gray shale
260	325	Gray sandstone
325	345	Gray shale
345	380	Gray sandstone
380	450	Red & gray hard shale
450	500	Hard gray sandstone

RECORD		
SIZE & MAKE	SERIAL NO.	FOOTAGE
CIRCULATION MATERIAL		
QUAN.	UNIT	MATERIAL

NO. OF LOADS OF WATER 1 SOURCE Bottom Pump

Meridian Oil

CPS #:

WELL NAME: Hale #351

LOCATION: K34-31-8 DATE: 11-30-90

TOTAL VOLTS: 13.8

TOTAL AMPS: 16.0

OHMS RESISTANCE: -

86

												ANODE READINGS			
DEEP	LOG ANODE	ANODE NO.	DEEP	LOG ANODE	ANODE NO.	DEEP	LOG ANODE	ANODE NO.	DEEP	LOG ANODE	ANODE NO.	NO.	DEPTH	NO COKE	WITH COKE
5			185	1.3		365	1.60		545			1	455	1.4	4.4
10			190	1.50		370	1.80		550			2	445	2.1	4.4
15			195	1.30		375	1.80		555			3	435	2.3	4.5
20			200	1.20		380	1.90		560			4	425	2.2	4.6
25			205	1.30		385	1.8	8	565			5	415	1.9	4.8
30			210	1.30		390	1.8		570			6	405	2.5	5.2
35			215	1.30		395	2.1	7	575			7	395	2.2	4.6
40			220	1.40		400	2.0		580			8	385	1.8	4.6
45			225	1.4		405	2.1	6	585			9	340	1.4	3.5
50			230	1.9		410	2.3		590			10	330	1.7	3.6
55			235	2.0		415	2.0	5	595						
60			240	1.8		420	1.8		600						
65			245	1.7		425	2.1	4	605						
70	1.0		250	1.7		430	2.2		610						
75	1.0		255	1.5		435	2.0	3	615						
80	1.20		260	1.7		440	2.4		620						
85	1.40		265	1.5		445	2.6	2	625						
90	1.60		270	1.6		450	2.0		630						
95	1.40		275	1.1		455	1.3	1	635						
100	1.20		280	1.6		460	1.6		640						
105	1.20		285	1.50		465	1.7		645						
110	1.20		290	1.40		470	1.90		650						
115	1.40		295	1.40		475	1.90		655						
120	1.20		300	1.30		480	1.90		660						
125	1.20		305	1.40		485	1.1		665						
130	1.20		310	1.40		490	1.90	TD	670						
135	1.80		315	1.50		495			675						
140	1.0		320	1.50		500			680						
145	1.60		325	1.40		505			685						
150	1.80		330	1.6	80	510			690						
155	1.80		335	1.6		515			695						
160	1.7		340	1.8	9	520			700						
165	1.2		345	1.0		525			705						
170	1.9		350	1.50		530			710						
175	1.6		355	1.70		535			715						
180	1.9		360	1.60		540			720						

REMARKS: Set 20' of 8" PRC casing. Driller said water 70'. Drilled to 80' next A.M. water stand approx. 60'. Got water sample

39 sacks coke

API WATER ANALYSIS REPORT FORM

EXHIBIT E

Laboratory No. 25-901203-1A

Company MERIDIAN OIL INC.		Sample No. 1	Date Sampled 11-30-90	
Field CEDAR HILL	Legal Description K34-31-8	County or Parish SAN JUAN	State NM	
Lease or Unit	Well HALE #351	Depth 70'	Formation	Water, B/D
Type of Water (Produced, Supply, etc.)		Sampling Point		Sampled By W. KNIGHT JR.



TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	32.7	1.42
Calcium, Ca	462	23.05
Magnesium, Mg	5.47	0.45
Barium, Ba	-	-

OTHER PROPERTIES

pH	12.05
Specific Gravity, 60/60 F.	1.0015
Resistivity (ohm-meters) 61 F.	3.8

Total Dissolved Solids (calc.)

1637

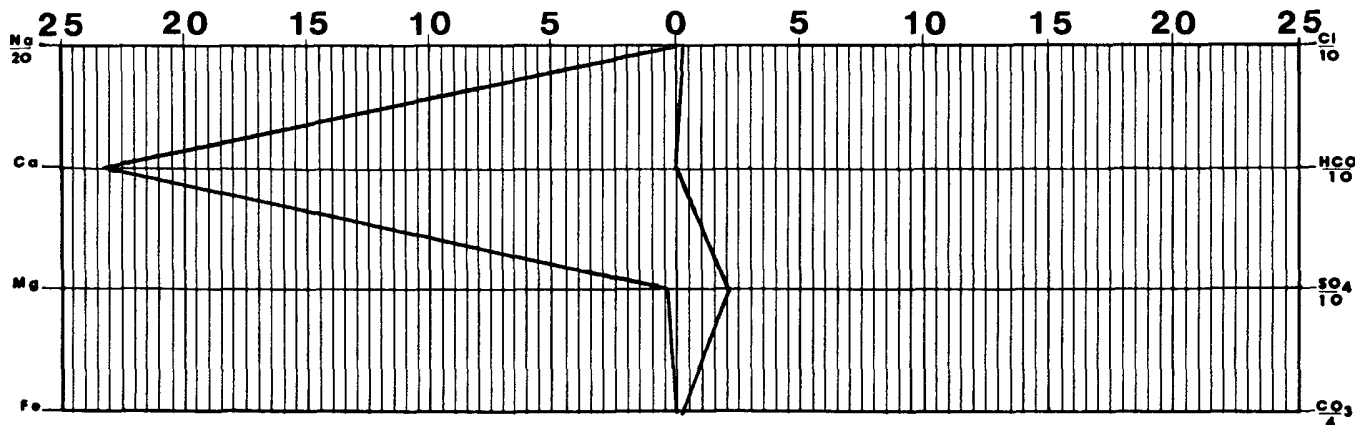
ANIONS

Chloride, Cl	121	3.42
Sulfate, SO ₄	986	20.5
Carbonate, CO ₃	30	1
Bicarbonate, HCO ₃	-	-

Iron, Fe (total)	-
Sulfide, as H ₂ S	-

REMARKS & RECOMMENDATIONS:

ATTN: WARD ARNOLD



Date Received 3rd Dec, 1990.	Preserved	Date Analyzed 4th Dec, 1990.	Analyzed By R.H.
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