

**CATHODIC PROTECTION
GROUNDBED INSTALLATION
AT**

**DEVON ENERGY
N.E.B.U # 41A WELL MV/DK
LOCATION: SEC. 25, T31N, R8W
SAN JUAN COUNTY, NEW MEXICO
30-045-31198**



**Advanced Corrosion & Environmental Services
P.O. Box 2767
Farmington, New Mexico 87499**

July 1, 2003

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

Operator DEVON ENERGY PRODUCTION, LP Location: Unit Sec. 25 Twp 31N Rng EW
Name of Well/Wells or Pipeline Serviced N.E.B.U. #41A WELL MV/DK

Elevation 6472' Completion Date 7/2/03 Total Depth 400' Land Type*
Casing, Sizes, Types & Depths 8" PVC SURFACE CASING TO 35'

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. GROUNDWATER WAS NOT ENCOUNTERED
TO THE DEPTH OF 400'. ONLY A SLIGHT MOISTURE NOTED IN THE CUTTING

Depths gas encountered: N/A

Type & amount of coke breeze used: 55-50LB BAGS (2750LB) SW - LORESCO

Depths anodes placed: 318', 324', 330', 336', 342', 348', 354', 360', 366', 372', 378', 384'

Depths vent pipes placed: FROM SURFACE TO 400'

Vent pipe perforations: APPROXIMATELY EVERY TWO FEET.

Remarks: NO GROUNDWATER

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.

Soil Boring/Well Log

Client: Devon Energy Production, LP

Well Location/No: N.E.B.U. #41A - Well MV/DK

TNSP: T - 31 - N

RNGE: R - 8 - W

SEC: 25

County: San Juan

State: New Mexico

Contractor: Advanced Corrosion & Env. Svs.

Drilling Co: Baily Drilling Co.

Spud Date: 7/1/2003

Date Completed: 7/1/2003

Elevation (if available): 6472'

Type of well: Cathodic Protection

Drilling method: Air Drilling

Logged by: Al Chaharlang

Remarks: Lithology was described visually from the cuttings.

Depth (ft)	Sample Type	Lithology	Lithology Description
0	excavation pit	silt/clay	Light brown silty clay and dry to 4'.
10			From 0 to 35', 8" PVC surface casing was installed.
20	cuttings	silt/clay	From 0 to 40' reddish brown silty clay to sandy clay, dry.
30			
40			
50	cuttings	sand/shale	From 40' to 50' lt. gray to brown sand and shale, dry.
60	cuttings	sand/clay/shale	From 60' to 100' Lt. gray to greenish sand, clay to shale, dry.
70			
80			
90			
100			
110	cuttings	shale/sandstone	From 100' to 140' Lt. blue to greenish gray shale (clay)/ sandstone interchanging, dry.
120			
130			
140			
150			
160	cuttings	shale	From 150' to 190' lt. blue to green shale (clay), dry.
170			
180			
190			
200	cuttings	shale	Dark gray clay to shale thin layer, slightly moist.
210	cuttings	sandstone/shale	From 210' to 230' gray sandstone to shale (clay), dry.
220			
230	cuttings	sandstone/shale	From 230' to 260' gray sandstone/shale (clay), dry.
240			
250			
260	cuttings	sandstone/shale	From 260' to 300' lt. gray to blue sandstone/shale (clay), dry.
270			
280			

Soil Boring/Well Log

Client: Devon Energy Production, LP

Well Location/No: N.E.B.U. #41A - Well MV/DK

TNSP: T - 31 - N

RNGE: R-8-W

SEC: 25

County: San Juan

State: New Mexico

Contractor: Advanced Corrosion & Env. Svs.

Drilling Co: Bail Drilling Co.

Spud Date: 7/1/2003

Date Completed: 7/1/2003

Elevation (if available): 6472'

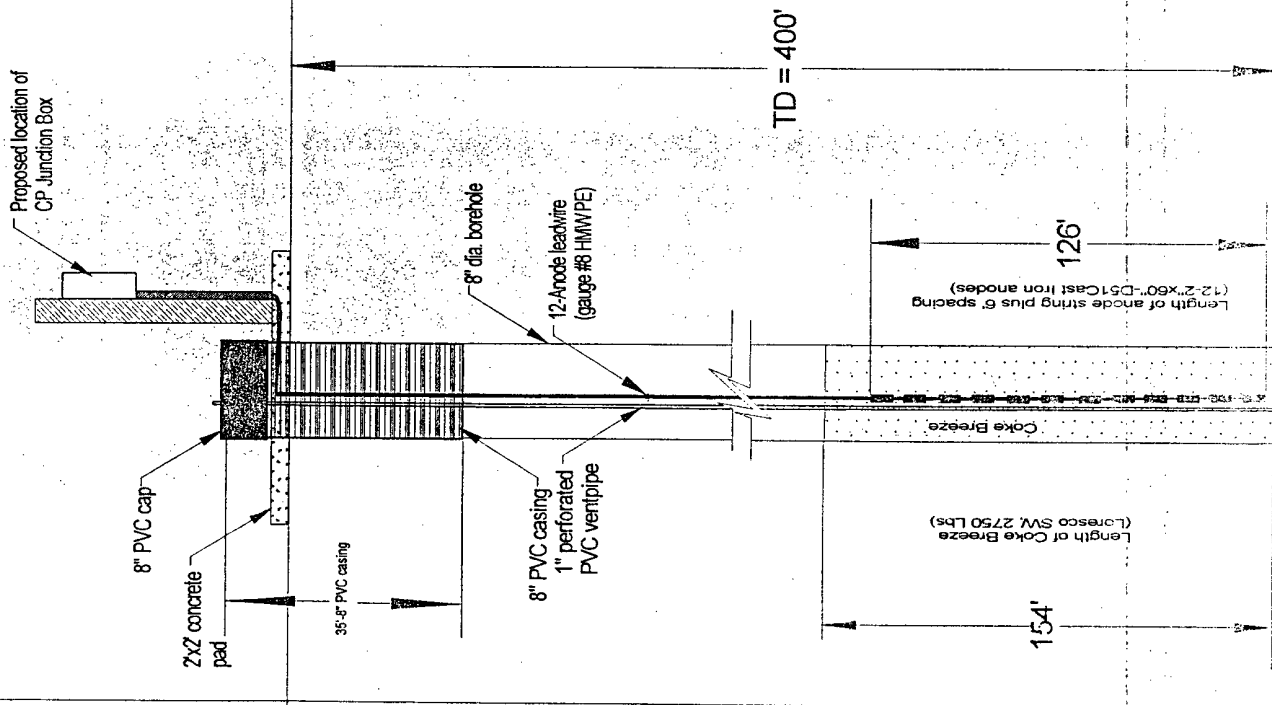
Type of well: Cathodic Protection

Drilling method: Air Drilling

Logged by: Al Chaharlang

Remarks: Lithology was described visually from the cuttings.

[illegible]



Devon
N.E.B.U. #41A
Well MV/DK



Advanced Corrosion & Environmental Services P.O. Box 2767 Farmingington, New Mexico 87499	
Tel: (505) 327-9461	
Site: Devon N.E.B.U. #41A	
Address: Sec. 11, T31N, R7W	
San Juan County, NM	
Fig. 1: Schematic diagram of groundbed installation	
Drn by: Al Chaharlang	
Prj Mgr: Al Chaharlang	
e:\devonenergy\cp-41	Date: 7/8/2003

Not to Scale

Advanced Corrosion & Environmental Services
CATHODIC PROTECTION (CP) GROUND BED
INITIAL INSTALLATION RECORD

CLIENT: Devon Energy Production Company WELL NO: N.E.B.U. #41A NO. OF ANODES & TYPE: 12-D51 Cast Iron w/#8 HMW PE
CONTACT PERSON: Dwane Oliver WELL LOCATION: T31N, R6W, S24 T55 COKE BRIDGE AREA
JOB TYPE: Cathodic Protection CP WELL DIAMETER: 8" CASING DIAM. & LENGTH: 35 ft. 8" PVC surface casing
DATE: 7/11/2003 TOTAL DEPTH: 400 FT.

Remarks: Groundwater was not encountered throughout the total depth. Slight moisture was noted in a thin layer of shale at a depth approx. 260 ft.

Well Depth (ft)	Anode Log (+/-mv reading)	Well Depth (ft)	Anode Log (+/-mv reading)	Well Depth (ft)	Anode Log (+/-mv reading)	Well Depth (ft)	Anode Log (+/-mv reading)	Well Depth (ft)	Anode Log (+/-mv reading)	Well Depth (ft)	Anode Log (+/-mv reading)	Anode No.	Anode Design Depth (ft)	Before Coke Brze (+/-mv reading)	After Coke Brze (+/-mv reading)
0	PVC casing	105	0.22	205	0.36	305	0.06	405				1	384	0.43	2.27
5	PVC casing	110	0.14	210	0.03	310	0.11	410				2	378	1.31	2.78
10	PVC casing	115	0.15	215	0.04	315	0.16	415				3	372	1.30	3.12
15	PVC casing	120	0.08	220	0	320	0.19	420				4	366	0.99	3.13
20	PVC casing	125	0.13	225	0.26	325	0.21	425				5	360	0.59	2.93
25	PVC casing	130	0.21	230	0.33	330	0.21	430				6	354	0.82	3.09
30	PVC casing	135	0.18	235	0.4	335	0.15	435				7	348	1.33	3.22
35	PVC casing	140	0.22	240	0.28	340	0.13	440				8	342	0.31	2.00
40	0.04	145	0.31	245	0.15	345	0.28	445				9	336	0.16	1.56
45	0.07	150	0.36	250	0.16	350	0.93	450				10	330	0.26	1.44
50	0.16	155	0.33	255	0.01	355	0.68	455				11	330	0.20	1.34
55	0.13	160	0.08	260	0.02	360	0.48	460				12	324	0.04	1.22
60	0.21	165	0.04	265	0	365	0.65	465				13			
65	0	170	0	270	0.04	370	0.86	470				14			
70	0.11	175	0.03	275	0.11	375	0.92	475				15			
75	0.23	180	0.15	280	0.23	380	0.8	480				16			
80	0.25	185	0.21	285	0.25	385	0.47	485				17			
85	0.25	190	0.39	290	0.28	390	0.29	490				18			
90	0.33	195	0.23	295	0.14	395	0.36 @TD	495				19			
95	0.24	200	0.35	300	0.01	400		500				20			
100															

c:\cp-dgnlog

Useful Equations:

External Shunt reading conversion:

$$V = I \times R \quad \text{or} \quad R = V / I$$

$$V = \text{Voltage Applied} = 13.9 \quad \text{Volts}$$

$$\text{Current} = I = 50 \text{ A} / 50 \text{ mv} \times (+/- \text{ mv meter reading})$$

$$\text{Total Current, } I = 5.42 \quad \text{Ampere (note: meter reading)}$$

$$R = \text{Total Resistance} = \frac{V}{I} = 2.56 \text{ Ohm}$$

$$\text{Anode Spacing} = 6.0 \text{ ft.}$$