

For KCC Use:

Effective Date: _____

District # _____

SGA? ☐ Yes ☐ NoKANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1363888

Form CB-1

Oct 2016

Form must be Typed

Form must be Signed

All blanks must be Filled

CATHODIC PROTECTION BOREHOLE INTENT

Must be approved by the KCC sixty (60) days prior to commencing well.

Form KSONA-1, Certification of Compliance with the Kansas Surface Owner Notification Act, MUST be submitted with this form.

Expected Spud Date: _____
month day year

OPERATOR: License# _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: _____

CONTRACTOR: License# _____

Name: _____

Type Drilling Equipment: ☐ Mud Rotary ☐ Cable☐ Air Rotary ☐ Other

Construction Features

Length of Cathodic Surface (Non-Metallic) Casing

Planned to be set: _____ feet

Length of Conductor pipe (if any): _____ feet

Surface casing borehole size: _____ inches

Cathodic surface casing size: _____ inches

Cathodic surface casing centralizers set at depths of: _____ ; _____ ;

_____ ; _____ ; _____ ; _____ ; _____ ; _____ ; _____ ;

Cathodic surface casing will terminate at:

☐ Above surface ☐ Surface Vault ☐ Below Surface VaultPitless casing adaptor will be used: ☐ Yes ☐ No Depth _____ feet

Anode installation depths are: _____ ; _____ ; _____ ; _____ ; _____ ;

_____ ; _____ ; _____ ; _____ ; _____ ; _____ ; _____ ; _____ ;

AFFIDAVIT

The undersigned hereby affirms that the drilling, completion and eventual plugging of this well will comply with K.S.A. 55-101 et. seq.

It is agreed that the following minimum requirements will be met:

1. Notify the appropriate District office prior to spudding and again before plugging the well. An agreement between the operator and the District Office on plugs and placement is necessary prior to plugging. In all cases, notify District Office prior to any grouting.
2. Notify appropriate District Office 48 hours prior to workover or re-entry.
3. A copy of the approved notice of intent to drill shall be posted on each drilling rig.
4. The minimum amount of cathodic surface casing as specified below shall be set by grouting to the top when the cathodic surface casing is set.
5. File all required forms: a. File Drill Pit Application (form CDP-1) with Intent to Drill (form CB-1). b. File Certification of Compliance with Kansas Surface Owner Notification Act (form KSONA-1) with Cathodic Protection Borehole Intent (CB-1) c. File Completion Form (ACO-1) within 60 days from spud date. d. Submit plugging report (CP-4) within 60 days after final plugging is completed.

Submitted Electronically

For KCC Use ONLY

API # 15 - _____

Conductor pipe required _____ feet

Minimum Cathodic Surface Casing Required: _____ feet

Approved by: _____

This authorization expires: _____

(This authorization void if drilling not started within 12 months of approval date.)

Spud date: _____ Agent: _____

Spot Description: _____

_____ - _____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ ☐ E ☐ W
(Q/Q/Q/Q) _____ feet from ☐ N / ☐ S Line of Section_____ feet from ☐ E / ☐ W Line of SectionIs SECTION: ☐ Regular ☐ Irregular?

(Check directions from nearest outside corner boundaries)

County: _____

Facility Name: _____

Borehole Number: _____

Ground Surface Elevation: _____ MSL

Cathodic Borehole Total Depth: _____ feet

Depth to Bedrock: _____ feet

Water Information

Aquifer Penetration: ☐ None ☐ Single ☐ Multiple

Depth to bottom of fresh water: _____

Depth to bottom of usable water: _____

Water well within one-quarter mile: ☐ Yes ☐ NoPublic water supply well within one mile: ☐ Yes ☐ No

Water Source for Drilling Operations:

☐ Well ☐ Farm Pond ☐ Stream ☐ Other

Water Well Location: _____

DWR Permit # _____

Standard Dimension Ratio (SDR) is = _____

(Cathodic surface csg. O.D. in inches / MWT in inches = SDR)

Annular space between borehole and casing will be grouted with:

☐ Concrete ☐ Neat Cement ☐ Bentonite Cement ☐ Bentonite Clay

Anode vent pipe will be set at: _____ feet above surface

Anode conductor (backfill) material TYPE: _____

Depth of BASE of Backfill installation material: _____

Depth of TOP of Backfill installation material: _____

Borehole will be Pre-Plugged? ☐ Yes ☐ No

If this permit has expired or will not be drilled, check a box below, sign, date and return to the address below.

☐ Permit Expired☐ Well Not Drilled

Date

Signature of Operator or Agent

1363888

For KCC Use ONLY

API # 15 - _____

IN ALL CASES, PLEASE FULLY COMPLETE THIS SIDE OF THE FORM.

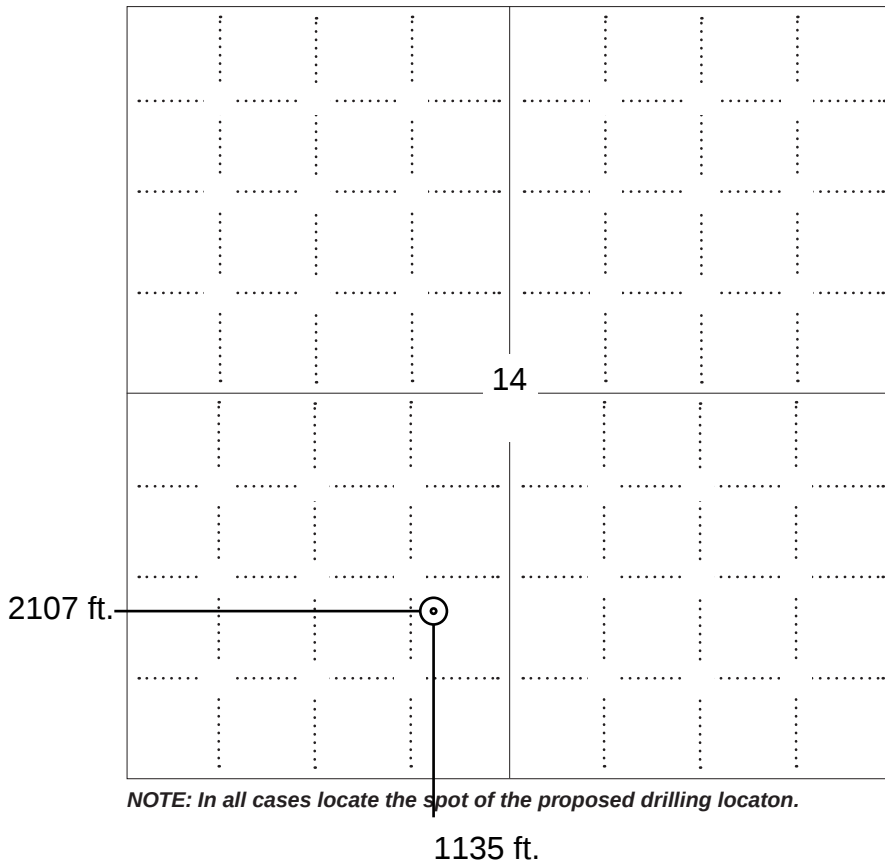
In all cases, please fully complete this side of the form. Include items 1 through 3 at the bottom of this page.

Operator: _____

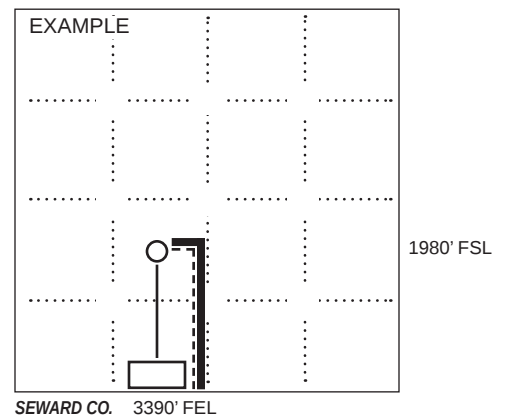
Facility Name: _____

Borehole Number: _____

Location of Well: County: _____

_____ feet from ☐ N / ☐ S Line of Section
_____ feet from ☐ E / ☐ W Line of SectionSec. _____ Twp. _____ S. R. _____ ☐ E ☐ WIs Section: ☐ Regular or ☐ Irregular**If Section is Irregular, locate well from nearest corner boundary.**Section corner used: ☐ NE ☐ NW ☐ SE ☐ SW**PLAT***Show location of the Cathodic Borehole. Show footage to the nearest lease or unit boundary line. Show the predicted locations of lease roads, tank batteries, pipelines and electrical lines, as required by the Kansas Surface Owner Notice Act (House Bill 2032).**You may attach a separate plat if desired.***NOTE: In all cases locate the spot of the proposed drilling location.****LEGEND**

- ☐ Well Location
- ☐ Tank Battery Location
- ☐ Pipeline Location
- ☐ Electric Line Location
- ☐ Lease Road Location

**In plotting the proposed location of the well, you must show:**

1. The manner in which you are using the depicted plat by identifying section lines, i.e. 1 section, 1 section with 8 surrounding sections, 4 sections, etc.;
2. The distance of the proposed drilling location from the section's south / north and east / west; line.
3. The predicted locations of lease roads, tank batteries, pipelines, and electrical lines.

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1363888

Form CDP-1
July 2014
Form must be Typed

APPLICATION FOR SURFACE PIT

Submit in Duplicate

Operator Name:		License Number:	
Operator Address:			
Contact Person:		Phone Number:	
Lease Name & Well No.:		Pit Location (QQQQ): ____ - ____ - ____ - ____ Sec. ____ Twp. ____ R. ____ ☐ East ☐ West ____ Feet from ☐ North / ☐ South Line of Section ____ Feet from ☐ East / ☐ West Line of Section ____ County	
Type of Pit: ☐ Emergency Pit ☐ Burn Pit ☐ Settling Pit ☐ Drilling Pit ☐ Workover Pit ☐ Haul-Off Pit <i>(If WP Supply API No. or Year Drilled)</i>	Pit is: ☐ Proposed ☐ Existing If Existing, date constructed: _____ Pit capacity: _____ (bbls)		
Is the pit located in a Sensitive Ground Water Area? ☐ Yes ☐ No		Chloride concentration: _____ mg/l <i>(For Emergency Pits and Settling Pits only)</i>	
Is the bottom below ground level? ☐ Yes ☐ No	Artificial Liner? ☐ Yes ☐ No	How is the pit lined if a plastic liner is not used?	
Pit dimensions (all but working pits): _____ Length (feet) _____ Width (feet) ☐ N/A: Steel Pits Depth from ground level to deepest point: _____ (feet) ☐ No Pit			
If the pit is lined give a brief description of the liner material, thickness and installation procedure.		Describe procedures for periodic maintenance and determining liner integrity, including any special monitoring.	
Distance to nearest water well within one-mile of pit: _____ feet Depth of water well _____ feet		Depth to shallowest fresh water _____ feet. Source of information: ☐ measured ☐ well owner ☐ electric log ☐ KDWR	
Emergency, Settling and Burn Pits ONLY: Producing Formation: _____ Number of producing wells on lease: _____ Barrels of fluid produced daily: _____ Does the slope from the tank battery allow all spilled fluids to flow into the pit? ☐ Yes ☐ No		Drilling, Workover and Haul-Off Pits ONLY: Type of material utilized in drilling/workover: _____ Number of working pits to be utilized: _____ Abandonment procedure: _____ Drill pits must be closed within 365 days of spud date.	
Submitted Electronically			

KCC OFFICE USE ONLY

☐ Liner ☐ Steel Pit ☐ RFAC ☐ RFAS

Date Received: _____ Permit Number: _____ Permit Date: _____ Lease Inspection: ☐ Yes ☐ No

Mail to: KCC - Conservation Division, 266 N Main St, Ste 220, Wichita, KS 67202-1513

CERTIFICATION OF COMPLIANCE WITH THE KANSAS SURFACE OWNER NOTIFICATION ACT

This form must be submitted with all Forms C-1 (Notice of Intent to Drill); CB-1 (Cathodic Protection Borehole Intent); T-1 (Request for Change of Operator Transfer of Injection or Surface Pit Permit); and CP-1 (Well Plugging Application). Any such form submitted without an accompanying Form KSONA-1 will be returned.

Select the corresponding form being filed: ☐ C-1 (Intent) ☐ CB-1 (Cathodic Protection Borehole Intent) ☐ T-1 (Transfer) ☐ CP-1 (Plugging Application)

OPERATOR: License # _____
Name: _____
Address 1: _____
Address 2: _____
City: _____ State: _____ Zip: _____ + _____
Contact Person: _____
Phone: (_____) _____ Fax: (_____) _____
Email Address: _____

Well Location:
____ - ____ - ____ Sec. ____ Twp. ____ S. R. ____ ☐ East ☐ West
County: _____
Lease Name: _____ Well #: _____
If filing a Form T-1 for multiple wells on a lease, enter the legal description of the lease below:

Surface Owner Information:

Name: _____
Address 1: _____
Address 2: _____
City: _____ State: _____ Zip: _____ + _____

When filing a Form T-1 involving multiple surface owners, attach an additional sheet listing all of the information to the left for each surface owner. Surface owner information can be found in the records of the register of deeds for the county, and in the real estate property tax records of the county treasurer.

If this form is being submitted with a Form C-1 (Intent) or CB-1 (Cathodic Protection Borehole Intent), you must supply the surface owners and the KCC with a plat showing the predicted locations of lease roads, tank batteries, pipelines, and electrical lines. The locations shown on the plat are preliminary non-binding estimates. The locations may be entered on the Form C-1 plat, Form CB-1 plat, or a separate plat may be submitted.

Select one of the following:

- ☐ I certify that, pursuant to the Kansas Surface Owner Notice Act (House Bill 2032), I have provided the following to the surface owner(s) of the land upon which the subject well is or will be located: 1) a copy of the Form C-1, Form CB-1, Form T-1, or Form CP-1 that I am filing in connection with this form; 2) if the form being filed is a Form C-1 or Form CB-1, the plat(s) required by this form; and 3) my operator name, address, phone number, fax, and email address.
- ☐ I have not provided this information to the surface owner(s). I acknowledge that, because I have not provided this information, the KCC will be required to send this information to the surface owner(s). To mitigate the additional cost of the KCC performing this task, I acknowledge that I must provide the name and address of the surface owner by filling out the top section of this form and that I am being charged a \$30.00 handling fee, payable to the KCC, which is enclosed with this form.

If choosing the second option, submit payment of the \$30.00 handling fee with this form. If the fee is not received with this form, the KSONA-1 form and the associated Form C-1, Form CB-1, Form T-1, or Form CP-1 will be returned.

I Submitted Electronically

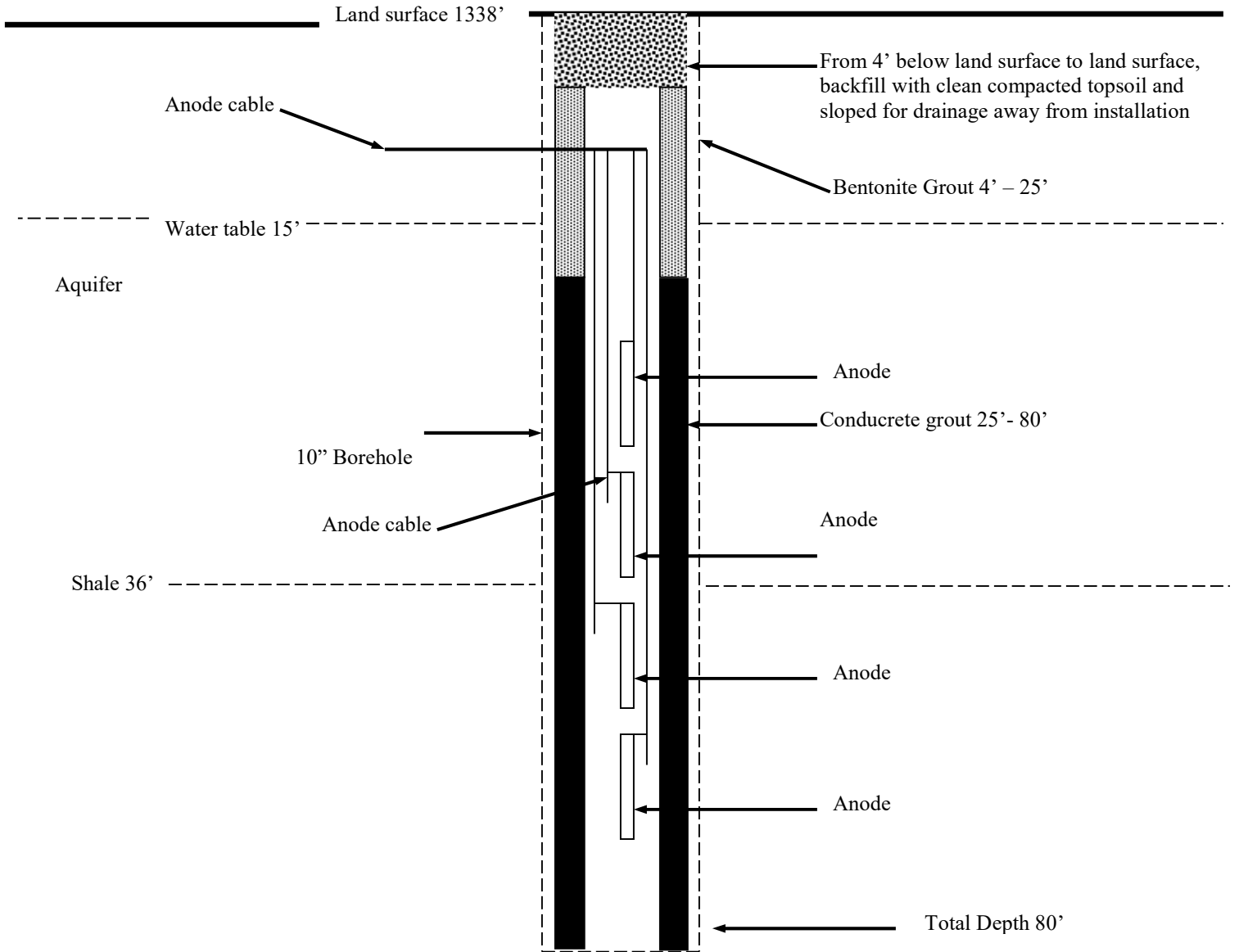
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CATHODIC PROTECTION BOREHOLE ILLUSTRATION

Uncased Borehole Construction Features

KGS

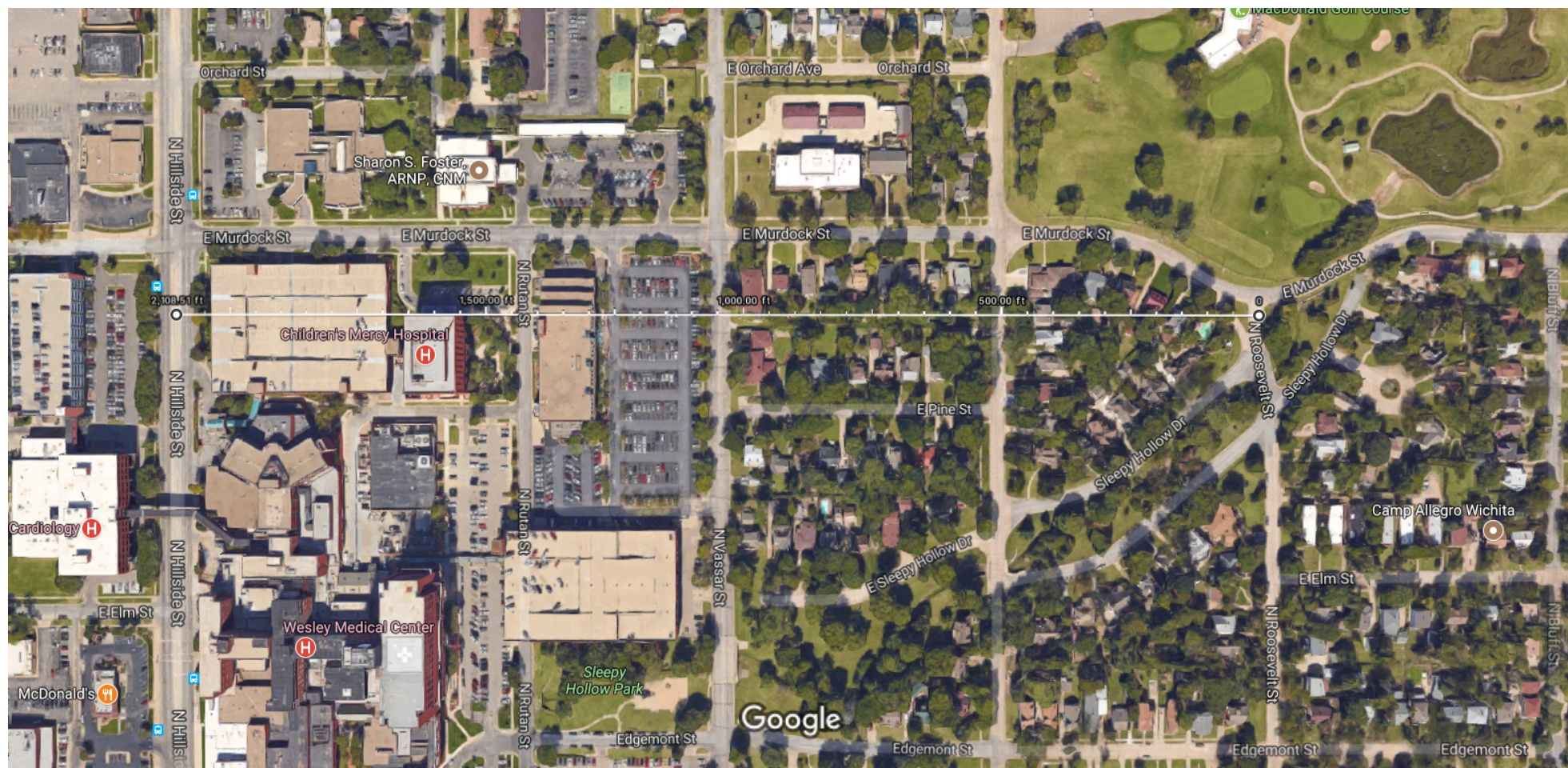
Rect. 680 – Murdock
Wichita, Sedgwick County, Kansas
September, 2017





Wichita

Rect. 680



Imagery ©2017 Google, Map data ©2017 Google United States 200 ft

Measure distance

Total distance: 2,108.51 ft (642.67 m)

DEEP WELL CATHODIC PROTECTION SYSTEM

PRODUCT OVERVIEW

The EnvirAnode® CP System* for impressed current cathodic protection (CP) is a premium product aimed at applications that demand high performance, long life and environmental compliance. The EnvirAnode® offers the following value proposition:

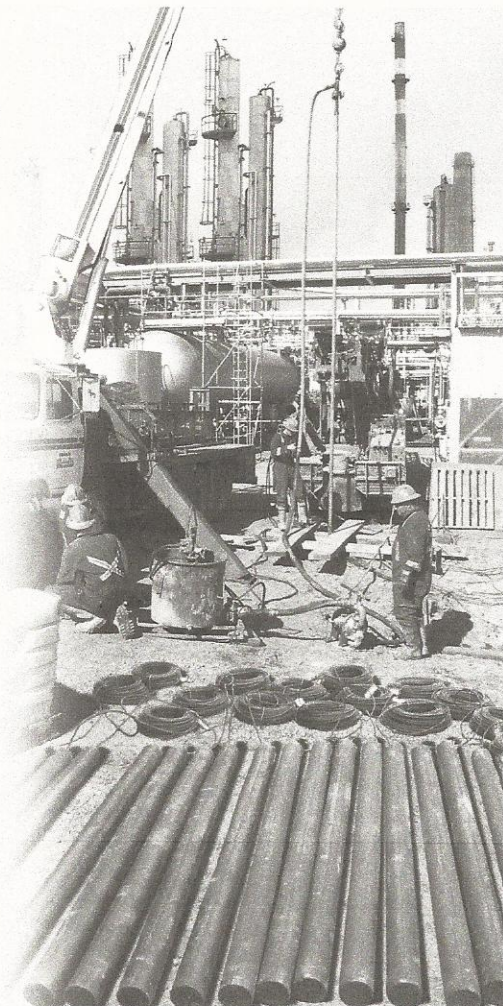
1. An Environmentally Neutral Solution
2. Longest Lasting Performance
3. Most Efficient Performance and
4. Best overall value for money
(lowest CAPEX on a NPV Basis)

PRODUCT FEATURES

The EnvirAnode® is the world's first molecular bonded tertiary energy transfer technology developed expressly for CP applications, and is behind its stunning performance as a fully operational, environmentally-neutral cathodic protection anode. Notable features include:

- The conductive Conducrete® backfill sets up to form a solid, impermeable column that stops water migration and aquifer cross-contamination, a major issue with coke breeze type anode beds;
- The combined volume of the three energy transfer materials, with their inherent protection against water penetration and corrosion give the EnvirAnode® its phenomenal operational lifespan of 2 to 3 times that of traditional CP anode beds;
- Two carbon and one mixed metal oxide (MMO) energy transfer materials, molecularly bonded together into a single CP anodic column;
- The molecular bonding process that ties the active energy materials together results in a highly efficient electronic energy transfer to the soil that provides a stable and predictable electrical performance throughout its operational life;
- The large surface area of the EnvirAnode® lowers the surface energy density, and efficiently manages the normal gas byproducts produced that out-gassing vent pipes are not required;
- The EnvirAnode® even ages differently. The "shelving off" and "end effect" phenomenon associated with traditional anode beds is effectively eliminated, as the CP process slowly depletes carbon from within the energy transfer materials, leaving the column itself intact and impermeable, thus eliminating abandonment costs and environmental pollution risks.

These features add up to unparalleled operational and environmental performance, which creates a compelling business case for EnvirAnode® CP solution even before considering the significantly lower total cost of ownership.



EnvirAnode® installation at an oil refinery



DEEP WELL CATHODIC PROTECTION SYSTEM

How EnvirANODE® Works

The EnvirANode® CPS is first and foremost an effective impressed current cathodic protection solution — familiar, but different:

- Familiar in that an EnvirANode® CP system is installed using the same tools and techniques as those used in traditional anode beds, though simpler as the vent pipe and anode centering rings are not required;
- Different in that an EnvirANode® CP system is constructed from robust SAE extended-life AEL Anodes® embedded in a conductive impermeable column made from specially formulated Conducrete® backfill material (see diagram);
- Installed, this configuration transforms into a molecularly bonded tertiary electronic energy transfer system with a very large active surface area over which the CP energy is effectively dissipated into the soil. This results in the ionic reaction boundary being shifted away from the surface of the anode core to the interface between the column and soil, where the large surface area reduces the circumferential energy density, thereby reducing carbon consumption/depletion by nearly half, and extending the life of the anode bed;
- The electronic energy transfer mechanism of the EnvirANode® gives extremely stable electrical operating behaviour in use, especially when compared to the electrolytic energy transfer utilized in traditional anode beds (see Performance section);
- The large active, low energy density surface area of the EnvirANode® column causes minute bubbles of gas to be formed over the entire surface of the column, where it is easily absorbed into the soil before it can collect into concentrated pockets. Thus, by better managing the production and dissipation of out-gassing, vent pipes are not required in EnvirANode® installations and the overall efficiency of the anode bed is increased;
- Once the EnvirANode® column has set up, it provides an impenetrable barrier to the migration of water, eliminating aquifer cross contamination to help maintain the quality of critical water resources. This impermeable characteristic continues even after the carbon has been depleted from the active areas of the column, eliminating expensive abandonment issues and costs;
- The solid EnvirANode® column also eliminates the “shelving off” phenomenon inside the bore that degrades the anode bed efficiency and shortens operational lifetimes in traditional coke breeze systems;
- In addition to being an energy transfer material, Conducrete® backfill provides excellent anti-corrosion benefits, protecting the AEL Anode® against water penetration and corrosion and further extending the operational lifetime of the anode bed. The pre-cast carbonaceous surround material used in the AEL Anode® in turn provides additional anti-corrosion protection for the anode core — typically a mixed metal oxide (MMO) tube — and offers the additional benefit of delaying the onset of the aging “end effect” at the core;
- With superior CP energy transfer efficiency, three layers of energy transfer materials (the tertiary design), corrosion, “shelving off” and “end effects” either eliminated or delayed, and out-gassing very effectively managed, it’s no surprise that the cathodic protection performance and operational life of an EnvirANode® CPS far exceeds any other solution in the market.

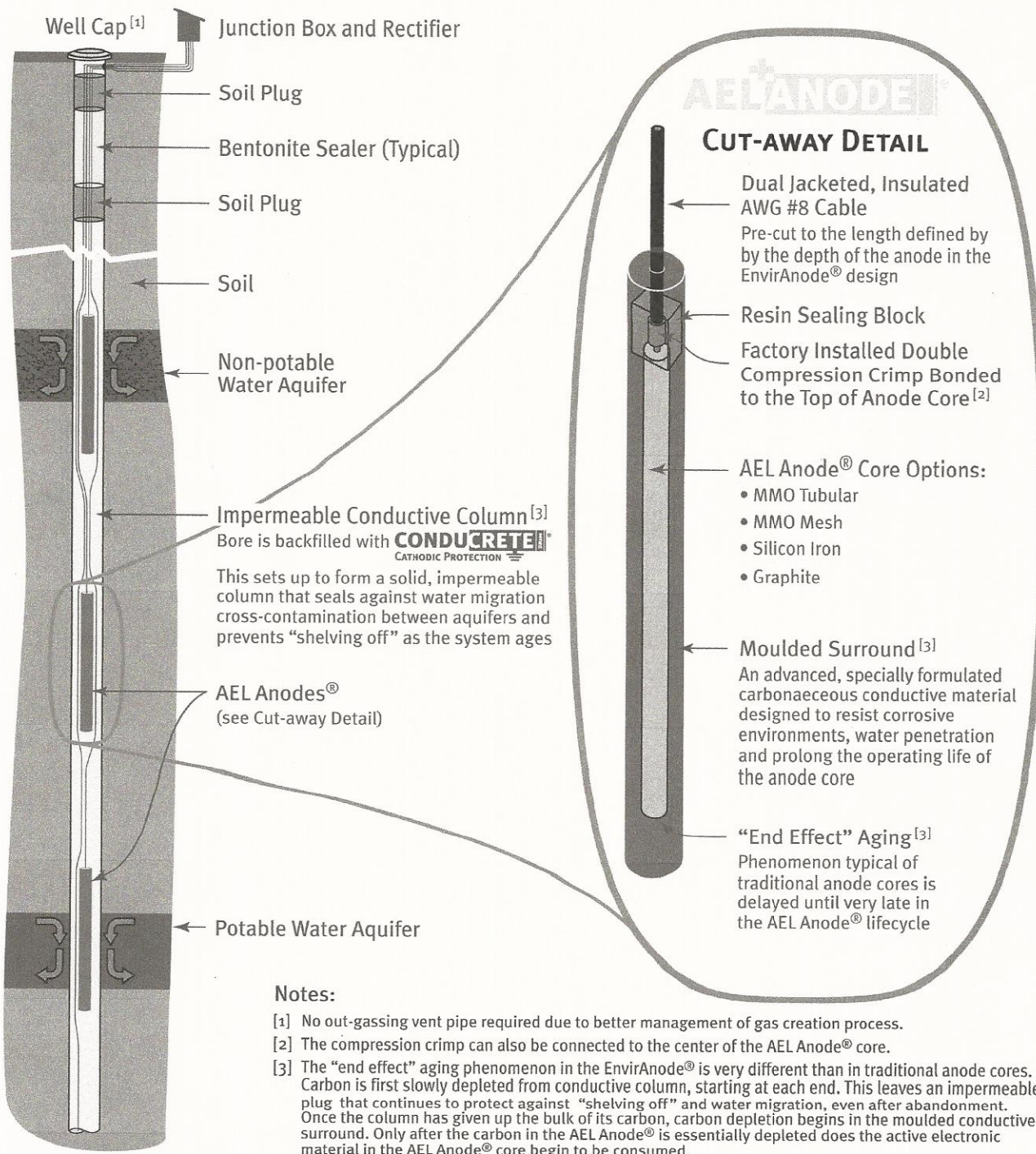


EnvirANode® installation using familiar drilling, mixing and pumping tools and techniques

DEEP WELL CATHODIC PROTECTION SYSTEM

A CP SYSTEM THAT CAN BE SAFELY INSTALLED THROUGH UNDERGROUND AQUIFERS

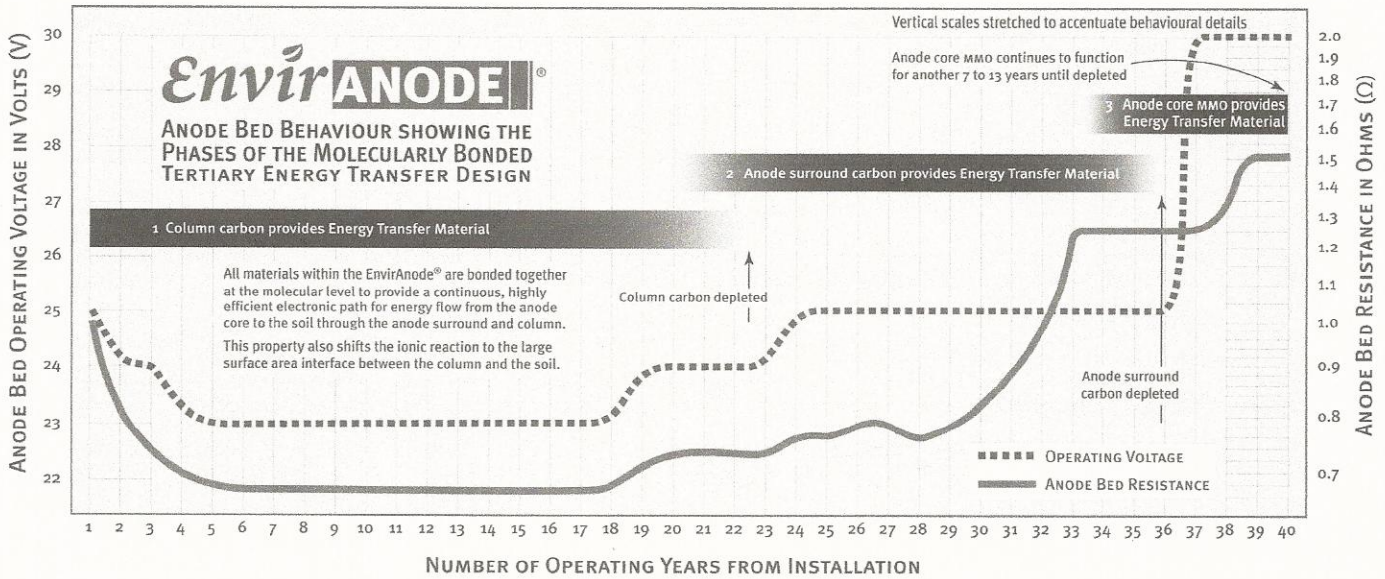
EnvirANODE® CROSS-SECTION



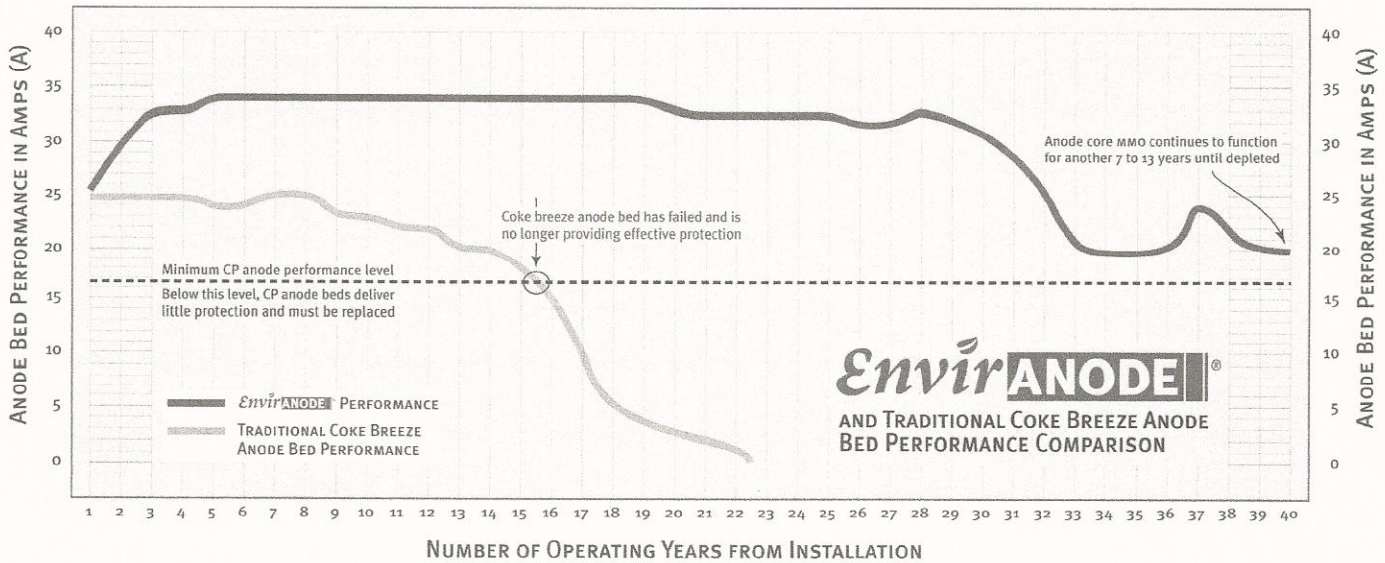
DEEP WELL CATHODIC PROTECTION SYSTEM

ENVIRANODE® OPERATIONAL PERFORMANCE

The EnvirAnode® solution offers more reliable and stable electrical performance (and cathodic protective value) over a longer operational lifetime than any other impressed current cathodic protection solutions currently available. The charts below illustrate the behaviour characteristics of a typical 25A EnvirAnode® deep well anode bed, and show its expected performance and lifecycle as compared to a traditional 25A coke breeze anode bed.



EnvirAnode® operating characteristics showing the properties of the Molecularly Bonded Tertiary Energy Transfer Design over time



Comparison of 25A anode bed performance between an EnvirAnode® CP system and a traditional coke breeze system



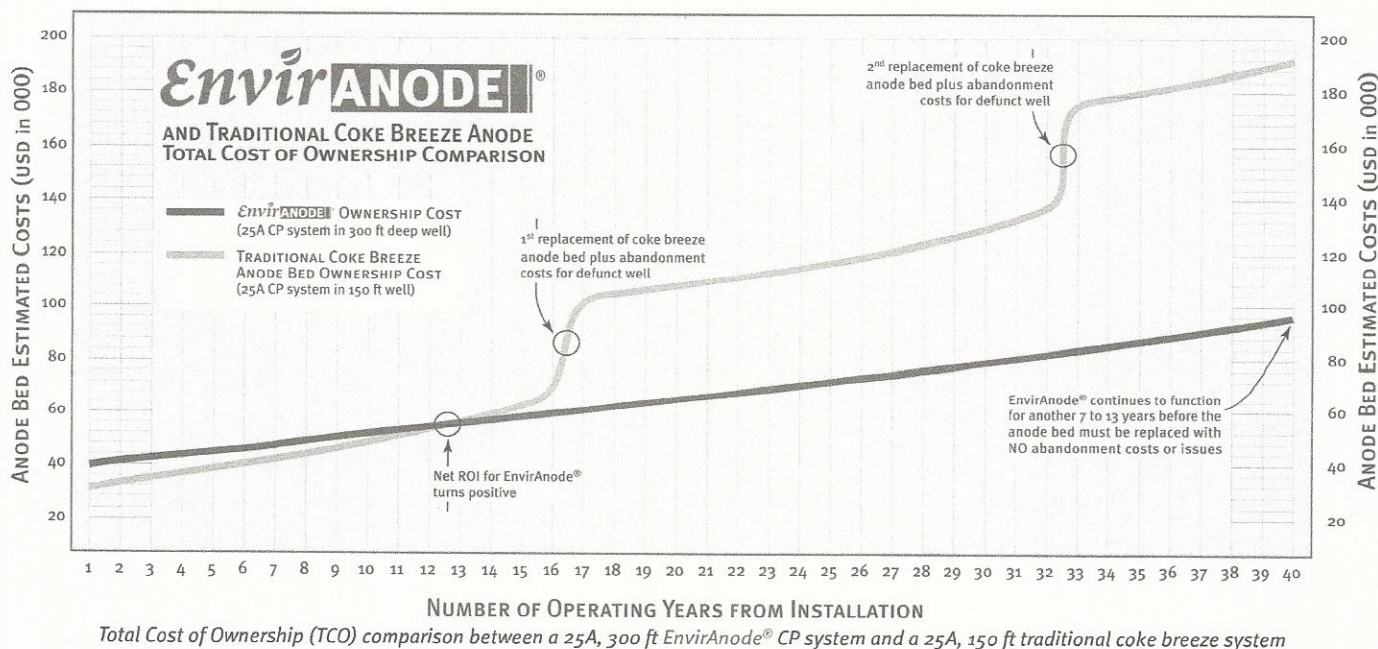
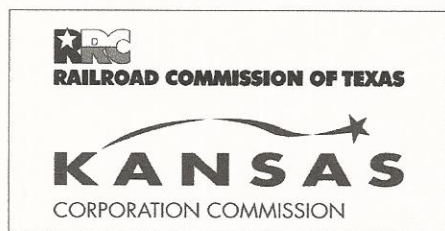
DEEP WELL CATHODIC PROTECTION SYSTEM

THE BUSINESS CASE FOR ENVIRANODE®

The EnvirAnode® solution offers a compelling business case at several distinct levels: as an individual anode bed, as a system-wide CP deployment and as a viable response to increasing stringent environmental regulations and control.

- At the level of individual anode beds, the EnvirAnode® offers a Total Cost of Ownership (TCO) that is less than half the TCO of traditional anode beds (see chart below). When abandonment bond requirements are considered in the financial model (typically USD 50,000 per anode bed), the EnvirAnode® TCO is one third of traditional anode beds, with positive ROI on day one! This financial benefit stems primarily from the longer operating life of the EnvirAnode® and its reduced maintenance costs.
- In a system-wide deployment, the unique operational characteristics and performance of the EnvirAnode® offer a significant reduction in system CAPEX, as fewer EnvirAnode® anode beds are required. For example, along a 150 mile (240 km) pipeline, CP protection can be obtained with three (3) x 300 ft EnvirAnode® anode beds producing a more stable current output, compared with the five (5) x 150 ft traditional coke breeze anode beds required to provide a similar level of CP protection. The CAPEX advantages are even more profound given the fact that virtually no abandonment costs are required with the EnvirAnode® solution.
- Where strict environmental regulations are in force, the EnvirAnode® is often the only deep well technology which can be deployed, since the EnvirAnode® technology has been approved for use in environmentally sensitive areas by regulatory agencies.

Environmental regulatory agencies that have approved the use of the EnvirAnode® in environmentally sensitive areas



DEEP WELL CATHODIC PROTECTION SYSTEM

ENVIRANODE® PRODUCT ORDERING OPTIONS

EnvirAnode® CP solutions are available in either as predefined kits built for typical cathodic protection applications, or as custom designed systems tailored to specific client requirements (see www.saeinc.com website for details).

The kits are available for a variety of impressed current capacities. Use the product ordering option codes in the tables below to specify the EKT EnvirAnode® CP kit that meets your technical requirements.

ENVIRANODE® CP KIT CODE (see Current Rating Options in Table A)		PHYSICAL GEOMETRY OPTIONS CODE (see Applications Options in Table B)
EKT	cc	ggg

TABLE A: ENVIRANODE® KIT – CURRENT RATING OPTIONS

OPTION CODE (cc)	TOTAL IMPRESSED CURRENT RATING (AMPS)
25	25
50	50

TABLE B: ENVIRANODE® KIT – PHYSICAL GEOMETRY OPTIONS

OPTION CODE (ggg)	N° OF AEL ANODES®	AEL ANODE® WIRE LENGTHS				BORE HOLE GEOMETRY				
		METRES		FEET		DIAMETER (INCHES)	DEPTH (METRES)	DEPTH (FEET)		
101	10	46.0	68.9	151	226	10	91.4	300		
		50.6	73.5	166	241					
		55.2	78.0	181	256					
102		59.7	82.6	196	271					
		64.3	87.2	211	286	12				
301	20	64.3	110.0	211	361	10	152.4	500		
		68.9	114.6	226	376					
		73.5	119.2	241	391					
		78.0	123.7	256	406					
		82.6	128.3	271	421					
		87.2	132.9	286	436					
		91.7	137.5	301	451					
302		96.3	142.0	316	466					
	100.9	146.6	331	481	12					
	105.5	151.2	346	496						

For more information about our environmentally neutral cathodic protection solutions, products and services, please contact us at:

Toll Free: 1.877.234.2502 eMail: sales@saeinc.com Website: www.saeinc.com



*Kathleen Sebelius, Governor
Thomas E. Wright, Chairman
Robert E. Krehbiel, Commissioner
Michael C. Moffet, Commissioner*

July 20, 2007

Mr. Dennis McIntaggart
SAE Inc.
19 Churchill Drive
Barrie, Ontario L4N 8Z5

Dear Mr. McIntaggart:

Per your request, commission staff has reviewed your request to utilize the EnvirAnode System to comply with cathodic protection regulations under K.A.R. 82-3-700 et seq. The EnvirAnode system is approved for use except in Groundwater Management Districts (GMD) #2 and #5. You must apply directly to the manager of that GMD for approval. The approval is granted with the following conditions:

- The EnvirAnode System may be utilized in aquifer completions as defined in 82-3-700 (d) and 82-3-702 (b) (3).
- For multiple aquifer completions as defined in 82-3-700 (m), the EnvirAnode System may be used upon submission of a written request, and approval by the director, for an exception to K.A.R. 82-3-702 (b) (4).

Sincerely,

Doug Louis, Director
Kansas Corporation Commission
Conservation Division

CONSERVATION DIVISION

Finney State Office Building, 130 S. Market, Room 2078, Wichita, KS 67202-3802
(316) 337-6200 • Fax: (316) 337-6211 • <http://kcc.ks.gov/>

Conservation Division
266 N. Main St., Ste. 220
Wichita, KS 67202-1513



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Pat Apple, Chairman
Shari Feist Albrecht, Commissioner
Jay Scott Emmer, Commissioner

Sam Brownback, Governor

August 23, 2017

Tom Briceland
Oneok, Inc. dba Kansas Gas Service
1021 E. 25th St. North
Wichita, KS 67219-4308

RE: Request for Cathodic Wellbore Surface Casing Exception
Facility 680-2017 #2
Sec. 14-T27S-R1E, Sedgwick County.

Dear Mr. Briceland:

The Kansas Corporation Commission has received your request for an exception to the minimum surface pipe requirement for a single aquifer cathodic well bore completion as set out in K.A.R. 82-3-702(b)(3). From your request, the KCC understands that you are requesting to drill the borehole to a depth of 80 feet and place the anodes at 10' intervals. The borehole will then be pre-plugged with Conducrete from TD to a depth of 25', then bentonite grout from 25' to 4' and then topsoil to surface. No surface casing will be set and no vent pipe will be needed at the surface.

After review of this matter by technical staff it was determined that the proposed construction method will adequately protect fresh and usable water in this area.

Sincerely,

Ryan A. Hoffman
Director

cc: Rene Stucky, Production Dept. Supervisor *RS 8-22-17*
Jeff Klock - Dist #2 Supervisor *via e-mail 8-22-17*