ORIGINAL

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1
June 2009
Form Must Be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM

WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 34209
Name: OVERLAND PASS PIPELINE CO LLC
Address 1: 2001 S HWY 81
Address 2: PO BOX 29
City: MEDFORD State: OK Zip: 73759 + ____
Contact Person: JAMES PHELPS
Phone: (307) 399 8260
CONTRACTOR: License # 48 - 1107651
Name: WOOFTER PUMP AND WELL
Wellsite Geologist: NONE
Purchaser: N/A

Designate Type of Completion:

☐ New Well ☐ Re-Entry ☐ Workover

☐ Oil ☐ WSW ☐ SWD ☐ SIOW
☐ Gas ☐ D&A ☐ ENHR ☐ SIGW
☐ OG ☐ GSW ☐ Temp. Abd.
☐ CM *(Coal Bed Methane)*
☑ Cathodic ☐ Other *(Core, Expl., etc.)*: ____

If Workover/Re-entry: Old Well Info as follows:

Operator: ____
Well Name: ____
Original Comp. Date: ____ Original Total Depth: ____

☐ Deepening ☐ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD
☐ Conv. to GSW
☐ Plug Back: ____ Plug Back Total Depth
☐ Commingled Permit #: ____
☐ Dual Completion Permit #: ____
☐ SWD Permit #: ____
☐ ENHR Permit #: ____
☐ GSW Permit #: ____

3/3/2009	3/3/2009	3/4/2009
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 195-22596-00-00
Spot Description: OGALLA SITE
NE - NW - NE - ___ Sec. 24 Twp. 13 S. R. 22 ☐ East ☑ West
18 Feet from ☑ North / ☐ South Line of Section
1,895 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW
County: TREGO
Lease Name: ~~N/A~~ Ogalla Site Well #: NA
ANB KCC
Field Name: NA
Producing Formation: NA
Elevation: Ground: 2993 Kelly Bushing: N/A
Total Depth: 300 Plug Back Total Depth: 300
Amount of Surface Pipe Set and Cemented at: 1 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: ____ Feet
If Alternate II completion, cement circulated from: ____
feet depth to: ____ w/ ____ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: N/A ppm Fluid volume: N/A bbls
Dewatering method used: AIR DRY
Location of fluid disposal if hauled offsite:
Operator Name: ____
Lease Name: ____ License #: ____
Quarter ____ Sec. ____ Twp. ____ S. R. ____ ☐ East ☐ West
County: ____ Permit #: ____

RECEIVED
JUL 26 2010
KCC WICHITA

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information of side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature: [signature]
Title: SR CP TECHNITION - OPPL Date: 7/22/2010

KCC Office Use ONLY

N Letter of Confidentiality Received
Date: ____
☐ Confidential Release Date: ____
☐ Wireline Log Received
☐ Geologist Report Received
☐ UIC Distribution
ALT ☐ I ☐ II ☒ III Approved by: DLG Date: 7/29/10

Side Two

Operator Name: OVERLAND PASS PIPELINE CO LLC Lease Name: N/A Well #: NA

Sec. 24 Twp. 13 S. R. 22 ☐ East ☑ West County: TREGO

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken ☐ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☐ No

Electric Log Run ☐ Yes ☐ No

Electric Log Submitted Electronically ☐ Yes ☐ No
(If no, Submit Copy)

List All E. Logs Run:

☐ Log Formation (Top), Depth and Datum ☑ Sample

Name	Top	Datum
CLAY	10	
CLAY	50	
CLAY	100	
CLAY	150	
CLAY	200	
CLAY	250	
CLAY	300	

CASING RECORD ☑ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
CASING	14.625	8.625	5.39 Lbs. /Ft	60	BENTONITE	48	NONE

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose: ___ Perforate ___ Protect Casing ___ Plug Back TD ___ Plug Off Zone	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
	NA			

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth

TUBING RECORD: Size: Set At: Packer At: Liner Run: ☐ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)* ______

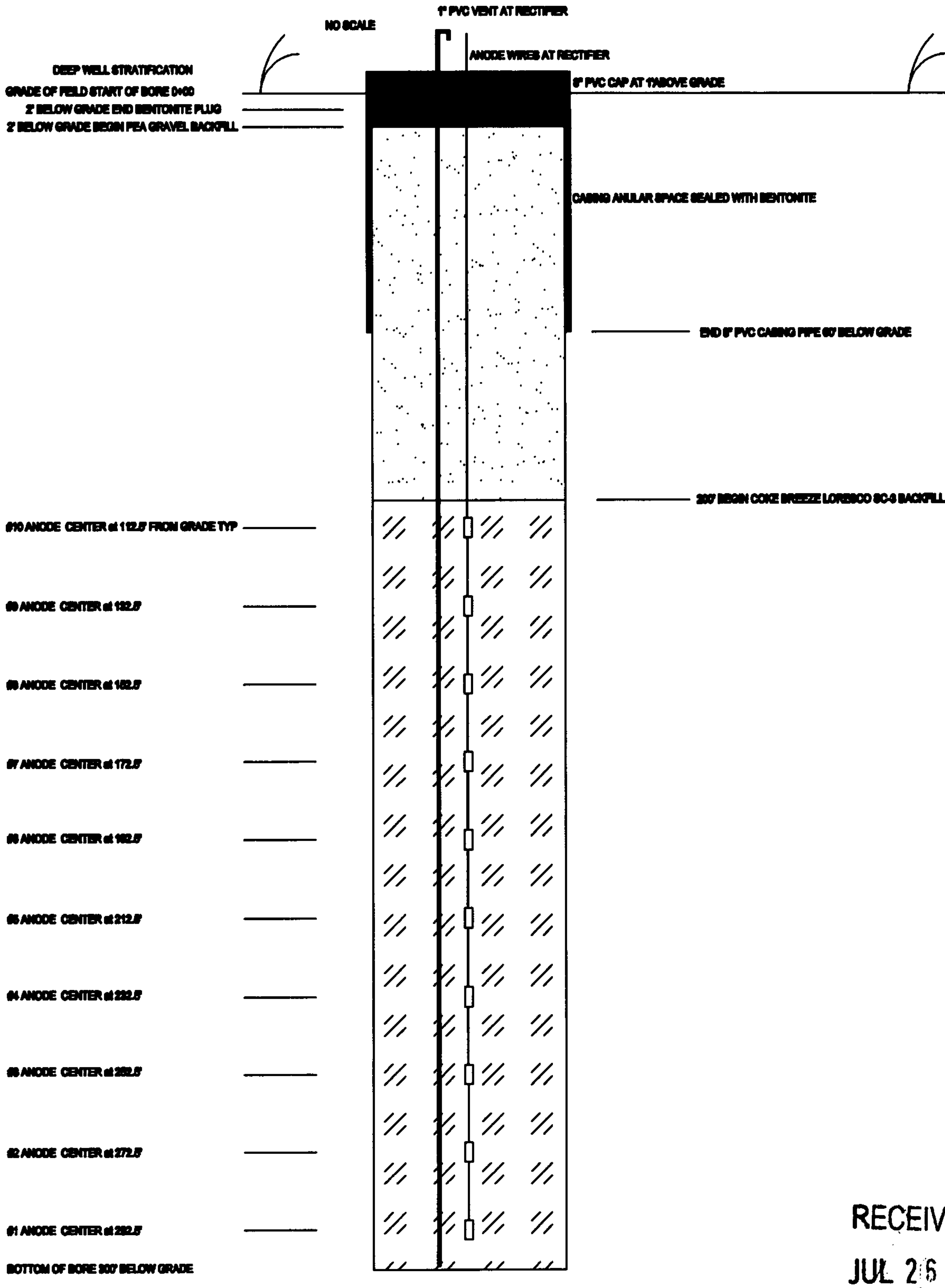
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: ☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION: ☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)* ☐ Other *(Specify)* ______

PRODUCTION INTERVAL: ______

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202



REV:	DATE:	DESCRIPTION:	BY:	REV:	DATE:	DESCRIPTION:	BY:
1	07.22.10	ORIGINAL DRAWING	JWP	7			
2				8			
3				9			
4				10			
5				11			
6				12			
7				13			

ONEOK NGL PIPELINE, L.P.

OGALLA DEEP WELL ASBUILT
NE-NW-NE-24-13S-22W-TREGO-KS

DRAWING #: **KS ASBUILT 2** REV: 1

Effect of Microstructure on the Corrosion Resistance and Mechanical Properties of High Silicon Cast Iron

R.S. Charlton, P.Eng., B.H. Levelton & Associates,
Richmond, BC Canada

Introduction

As for most, if not all alloys, the corrosion resistance and mechanical properties of high silicon cast iron is affected by a number of metallurgical and micro structural factors. For high silicon cast iron these factors include:

- Shape or form of graphite
- Segregation
- Presence of secondary phases such as brittle silicides and inter-dendritic carbides
- Grain size

The following sections discuss these factors as they relate to the corrosion resistance and mechanical properties of chill cast and sand cast high silicon cast iron anodes.

Corrosion Resistance

The corrosion resistance of high silicon cast iron is attributed to the development of a thin passive barrier film of hydrated oxides of silicon on the metal surface. This film develops with time due to the dissolution of iron from the metal matrix leaving behind silicon which hydrates due to the presence of moisture. Any flaws in the barrier film will reduce its effectiveness.

The passive hydrated silicon film will bridge over and form an impervious barrier layer on a fine grained high silicon cast iron with spheroidal graphite areas much more readily than on a high silicon cast iron with coarse graphite flakes. Thus, a coarse grained high silicon cast iron that contains graphite flakes is much more likely to have structural defects/flaws in the passive film than a fine grained material with spheroidal graphite.

It is well documented that a uniform metallurgical structure normally has better corrosion resistance than a non- uniform structure. Segregation (non-uniform composition) will produce a non-uniform passive film due to varying silicon content (segregation) and the presence of second phases. In addition these can also result in localized anodic and cathodic areas on the metal surface which will result in increased localized corrosion due to the galvanic action.

Flaws in the passive film are sites for film breakdown. Penetration of the corrosive medium below the film results in localized areas of corrosion and preferential current flow due to lower resistance at graphite flakes etc. than on the hydrated silicon film.

Thus, due to the fine grain size with spheroidal graphite and more uniform composition, chill cast high silicon cast iron would be expected to have better corrosion resistance than a sand cast high silicon cast iron.

Mechanical Properties

The shape of the graphite present in an alloy affects the mechanical properties of the material. Flake graphite acts as a severe stress raiser while the spheroidal graphite does not. A classic example of this effect is the difference between grey cast iron and ductile iron.

Fine grained materials normally have higher strength and are more ductile than similar coarse grained materials. In addition, the lack of segregation and/or second phases also contributes to higher strength and ductility of materials since there are fewer areas for localized yielding and stress raisers.

Thus, a fine grained silicon cast iron with spheroidal graphite should have better mechanical properties than a high silicon cast iron with flake graphite. There are numerous references that show that this is in fact the case, although it is still a brittle material.

Relative Rate of Consumption

In order to compare the performance of "Chill Cast" High Silicon Iron anodes to the "Sand Cast" variety, Anotec ran a series of accelerated corrosion tests in accordance with Jakobs & Hewes procedure published in Materials Performance. In the first (January 1988) tests, results indicated a significant improvement in performance for Chill Cast compared to Sand Cast, especially in sulphate environments. To confirm reproducibility and to add technical and statistical credence a second series of tests were run and reported in October 1989. Results of the tests are summarized as follows:

Test: 2" diameter Specimens of each of Chill Cast and Sand Cast anodes of 0.11 sqM (1.2 sqft) surface area, tested at either 2.5Amps/sqft or 8.3Amps/sqft.

Results: With a statistical confidence of 99% (ASTM GI 6-17) taken from Test Report October 1989:

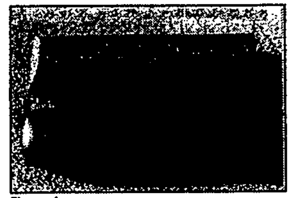


Figure 1.

	Consumption in grams		DIFFERENCE
	SAND CAST	CHILL CAST	
Chloride solution	403	345	17%
Sulphate Solution	458	385	19%

Typical as-found surfaces of Chill cast (smooth) and Sand Cast (severe pitting) are clearly contrasted in Figure 1. The complete report is available from Anotec.

Relative Impact Strength

In order to compare the impact strength of "Chill Cast" High Silicon Cast Iron anodes to the "Sand Cast" variety, B.H. Levelton & Associates proposed a straightforward test which has been used by Anotec since 1988 to test hundreds of chill cast anodes, and some sand cast anodes from other manufacturers. The test anode is centered in a steel frame, and the end is raised as shown in Figure 2. The anode is then dropped to impact against a fixed steel anvil. Sand Cast anodes break at 2" to 4" drop. All Chill Cast anodes exceed 6"; the majority exceed 10"; and many remain unbroken at successive drops up to 13". Chill Cast strength is supported by field "survival" anecdotes.

A typical comparative test result for 2" stick anodes is:

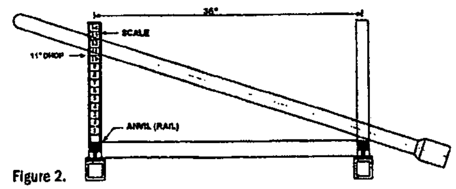


Figure 2.

SUCCESIVE DROP HEIGHTS	SAND CAST	CHILL CAST
2"/25mm	OK	OK
4"/50mm	FAILURE	OK
6" 150mm 7" 175mm 8" 200mm 9" 225mm		OK
10"/250mm		FAILURE

Anode Consumption

The consumption rate of High Silicon Cast Iron anodes has been found to be between 0.2 and 1.2 pounds per ampere year. For anodes of the same chemistry and microstructure, variance in consumption is primarily due to the chemical and physical characteristics of the anode environment. The consumption rate does not appear to be significantly affected by current density (amperes per unit area of anode surface). The use of coke breeze around the anode in soil ground beds will tend to lower the consumption rate. A generally accepted design guideline for anodes buried in coke breeze is 0.7 pounds per amp year.

Current Density Limitations

The maximum stable current density of discharge may be limited by the environment regardless of the anode type. In free flowing water or in very wet soil ground beds, there is very little restriction on current density. However, anodes buried in clay soils tend to suffer "electro osmotic drying", a phenomenon of magnitude directly proportional to current density. For any particular soil with electro osmotic characteristics there will tend to be a critical maximum current density at the anode soil (or coke breeze to soil) interface, above which progressive drying occurs, with corresponding increases in anode-soil resistance. Drying is usually reversible by increasing soil moisture and/or lowering current density.

As a guideline to minimization of electro osmotic drying in groundbeds installed in clay soils, use of the following design maxima has resulted in stability of 90 to 95 percent of beds in areas of high osmotic drying potential.

Average Soil Resistivity Along Ground Bed Ohm-Cm	Maximum Amps Per Anode in a Coke Breeze Column 12" OD by 60" Long	Equivalent Current Density on Surface of Coke Breeze Column Milli Amps/Sq. Foot
Less than 1000	2.00	127 (See Note)
1000 – 1500	1.75	111 (See Note)
1500 – 2000	1.50	96
2000 – 3000	1.25	80
Over 3000	1.00	34
Note: For greater success, limit current density to less than 100mA/sq ft for soils of less than 1500 ohm cm resistivity		

ANOTEC Industries Ltd.
5701 Production Way,
Langley, B.C. Canada V3A 4N5
Telephone 604 / 514-1544
Fax 604 / 514-1546
web site: www.anotec.com • e-mail: info@anotec.com

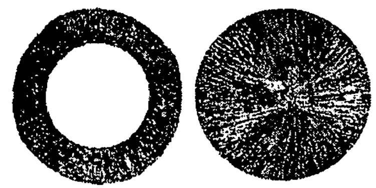
Distributed by:

Physical Properties for Anotec Anodes

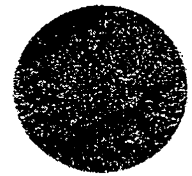
Anotec Anode Type	Nominal Weight		Nominal Diameter		Nominal Length		Surface	
STICK	lbs	kgs	inch	mm	inch	mm	sq ft	sq m
SHA	43	20	2	50	60	1520	2.6	0.24
EHA	44	20	2	50	60	1520	2.7	0.25
EHM	60	27	2	50	60	1520	2.7	0.25
EHK	26	12	1.5	38	60	1520	2.0	0.19
EMK	27	13	1.5	38	60	1520	2.1	0.20
EHR	110	50	3	76	60	1520	4.0	0.37
TUBULAR	lbs	kgs	inch	mm	inch	mm	sq ft.	sq m
2260 Z	36	16	2.2	56	60	1520	2.9	0.27
2284 Z	50	23	2.2	56	84	2130	4.0	0.37
2660 Z	50	23	2.7	69	60	1520	3.5	0.33
2684 Z	70	32	2.7	69	84	2130	4.8	0.46
3860 Z	62	28	2.9	74	60	1520	3.8	0.35
3884 Z	90	41	2.9	74	84	2130	5.3	0.49
4884L Z	123	56	3.2	82	84	2130	5.9	0.54
4884H Z	175	80	3.7	94	84	2130	6.8	0.63
4884X Z	237	108	4.2	107	84	2130	7.7	0.72
4884S Z	315	143	4.8	122	84	2130	8.8	0.82

Chill Cast Makes A Difference

The difference between Chill Cast and Sand Cast can be clearly seen. Pages 2 and 3 of this Bulletin explain why Chill Cast is better.



A typical ANOTEC Anode Cross Sections



A typical Cross Section of a Sand Cast Anode

Steve Bond

From: Phelps, James W. [James.Phelps@oneok.com]
Sent: Thursday, July 29, 2010 8:49 AM
To: Steve Bond
Cc: Prose, Troy M.
Subject: Dates

Steve,

Rexford was drilled 3/2/09
Ogalla was drilled 3/3/09

Rexford reached depth 300' on 3/2/09
Ogalla reached depth 300' on 3/3/09

Rexford was completed 3/2/09 as far as the well is concerned it was not put into service on this date.
Ogalla was completed 3/4/09 as far as the well is concerned it was not put into service on this date.

Please let me know if you need any further information.

Jim Phelps