

Pipeline Group Factual Report

ATTACHMENT 32

2005 Annual External Corrosion Control Survey

**Carmichael, Mississippi
DCA 08 MP 001**

Farrel

McDANIEL & ASSOCIATES, LLC

CATHODIC PROTECTION SPECIALISTS

11913 COX LANE - CLINTON, LA. 70722 - (225)683-9916

November 15, 2005

Dixie Pipeline Co.
Suite 301 West
1117 Perimeter Center West
Atlanta, GA 30338

SUBJECT: 2005 Annual Cathodic Protection Survey - Western Division

Gentlemen,

Recently we completed the 2005 annual cathodic protection inspection and pipe-to-soil potential survey of Dixie's Western Division from Mt. Belvieu, Texas to Demopolis Alabama. Based on the -850mv "On" criteria that Dixie has used for over 40 years, we found the system to be in good operating condition. We only found one reading below the -850mv criteria (see recommendations). We have studied the data, historical records, and our field observations and are including our recommendations for improvements to the system.

All survey readings are negative, in volts, and taken in reference to a copper - copper sulfate reference cell. Please give me a call if you have any questions. Thank you for this opportunity to serve Dixie Pipeline Co.

Sincerely,



Farrel Mc Daniel, Jr.
Cathodic Protection Specialist
NACE Cert. # 3922

FMD/cls
Enclosures
Copy: Mr. Tony Williams



DIXIE PIPELINE WESTERN DIVISION
 MAIN LINE
 2005 ANNUAL SURVEY

DATE	TEST PT.	LOCATION	P/S ON	C/S ON	COMMENTS
8/11/05	21555+17	Hess Pipeline	-1.406		
8/11/05	21559+07	Hunt Pipeline	-1.625		
8/11/05	21665+36	Hess Pipeline (Hess T/S)	-1.494		Hess -1.128
8/11/05	21811+72	Gulf Mobile & Ohio RR	-1.587	-0.516	
8/11/05	21827+87	Hwy 45	-1.502	-0.644	
8/11/05	21828+33	Chickasawhay Nat. gas	-1.498		
8/11/05	21835+39	Hess Pipeline	-1.493		Hess -0.506
8/11/05	21870+21	Chapperel - Hiawanee Road	-1.315		Chic. Gas -1.100
8/11/05	21964+34	Gulf South Pipeline	-1.340		Gulf South -0.896
8/11/05	22014+73	Weeks Exploration	-1.412		Weeks Exp. -0.589
8/11/05	22032+73	Chickasawhay 2" Gas	-1.531		Chic. Gas -1.221
8/11/05	22033+18	Paved Road	-1.536		
8/11/05	22063+83	Fence line off Oilfield Rd.	-1.614		East of MM 418
8/11/05	22254+25	Hwy 510	-1.833	-0.369	
8/11/05	22314+87	Paved Rd., CR 610	-1.802		
8/11/05	22315+06	Gate Valve	-1.705		
8/11/05	22413+03	Co. Road 624-Paved	-2.187		
8/11/05	22467+54	Carmichael Station	-2.091		Sta. Rect. 16.5V, 10.6A
8/11/05	22496+61	Hunt Oil 6"	-2.118		Hunt -1.975
8/11/05	22530+98	Paved Road CR 630	-2.059		
8/11/05	22648+02	Paved Road CR 511	-1.915		
8/11/05	22711+43	MP 430, Woods	-1.950		
8/11/05	22811+62	State Line Road	-1.872		
8/11/05	22869+93	Logging Road MM 433	-1.689		
8/11/05	22963+43	Logging Road	-1.454		
8/10/05	23359+43	Hunt Oil 12"	-1.886		Hunt -0.997

**DIXIE PIPELINE WESTERN DIVISION
CATHODIC PROTECTION RECOMMENDATIONS
2005 ANNUAL SURVEY**

Recently we completed the 2005 annual cathodic protection inspection and pipe-to-soil potential survey for Dixie's Western Division. We have evaluated the data collected, studied the historical data, and reviewed our field notes and observations. Overall, we found the system to be in good operating condition. The following are areas that would benefit from further testing, equipment replacement, additional work, or repairs.

1. Weak Potential Areas

Black Rd. 13027+02 - Readings at this test point have historically been lower than readings in the surrounding area. Readings this year were -0.827 on the pipeline, and -0.310 on the casing. Both these readings are considerably lower than other readings in the area.

Recommendation: Identify and correct problem.

2. Meeting Protection Criteria

A. GENERAL - Older pipelines such as Dixie have been allowed by DOT to continue using survey techniques that evaluate the "On" potentials as long as consideration is given to IR drop through the soil. The resulting potential should not be lower than -850 mv. The current recommended criteria for adequate protection is -850 mv "Polarized" potential. "Polarized" potentials are measured by taking an "instant off" reading immediately after all power supplies affecting the read site are interrupted simultaneously. This eliminates the IR drop through the soil at the read point. Obtaining accurate "instant off" readings can involve the simultaneous interruption of numerous rectifiers, sometimes involving other pipelines. The best way to find all power supplies affecting the subject area is to depolarize the pipeline. If the pipeline cannot be returned to native potentials, then all power supplies have not been found, and the resulting survey data is inaccurate. Depolarization also gives a basis to evaluate the alternate approved criteria of at least 100 mv of polarization. If the difference between the native potential and the polarized or instant off potential is at least 100 mv, then protection is considered to have been achieved even if the instant off potential is not more negative than -850 mv.

Dixie Pipeline's corrosion program has begun evaluating the polarized potentials in each division. Interrupted close interval surveys have been performed on the reroute area south of Apex N.C., and in the Lexington S.C. area in the Eastern Division. In the Central Division, interrupted close interval work has been performed in the Albany, GA. area. In the Western Division, a depolarization study and interrupted survey have been performed utilizing the existing test

stations on a 50 mile pipeline segment between the Mississippi River and the Tangipahoa Station. All areas tested had very adequate potentials using the old criteria of -850 mv "On." The results of these tests found that more current was needed in the Lexington and Albany areas, while the Apex and Louisiana areas looked OK. We found a wide variation of IR drop through the soil in each test. Soil resistance and coating condition are major factors affecting IR drop, and no fixed value can be applied in all situations.

Pipe-to-soil potentials taken on annual surveys are only a spot check that give a fairly good indicator of the overall protection in an area. The readings obtained are the potentials directly below that read point and do not evaluate the entire area between the test points. Problems caused by poor coating, interference at foreign crossings without test leads, etc. adversely affect the potentials and may go undetected during annual surveys. The only way to completely evaluate the protection is to perform close interval surveys, where a reading is typically taken every 2-1/2 feet along the pipeline. Close interval surveys can be performed with the rectifiers "On", or "Interrupted" to give polarized potential data.

It is obvious that interrupted surveys, or interrupted close interval surveys cannot be performed each year. To be performed correctly, they are costly and labor intensive. However; once the information is obtained it can be used as a general guideline for maintaining potential levels at existing test points that indicate adequate protection in that area.

B. WESTERN DIVISION - No close interval survey work has been performed in the Western Division. The area between the Mississippi River and the Tangipahoa Station have been prepared for an interrupted close interval survey. **Recommendation:** Proceed with an interrupted close interval survey in the area between the Mississippi River and the Tangipahoa Station. Pick another area to perform a depolarization study and an interrupted survey on existing test stations to evaluate polarized potentials and prepare for a future close interval interrupted survey.

3. Rectifiers and Groundbeds

A. Upgrading Rectifiers and Groundbeds -For the past several years, we have been in the process of upgrading the 40+ year old rectifiers and groundbeds. Plans are to continue upgrading several systems a year. We are attaching updated rectifier and groundbed information to use in establishing the priorities for 2006. Possible candidates for 2006 are:

2006 Rectifier Replacements

DP-5A	Maringouin Station	Old Unit
DP-9B	Carmichael Station	Old Unit

2006 Groundbed Replacements

DP-5A Maringouin Station Groundbed resistance has increased from 1.4 ohms in '04 to 2.4 ohms in '05. Rectifier is on max. setting.

DP-5 Cecilia Groundbed resistance has increased from 1.5 ohms in '04 to 6.5 ohms in '05. Rectifier is on max. setting. Tracing the groundbed cable found the header cable intact.

Note:

2005 Rectifier upgrades have been completed at the following locations:

DP-1A, Mt. Belvieu Station
DP-1B, Beaumont

2005 Groundbed Upgrades were completed at the following locations:

DP-3, Iowa DP-4A, Breaux Bridge

B. Rectifier Adjustments - Many of the rectifiers are performing at a lower level of current output than in the past.

Recommendation: Make rectifier adjustments as necessary to improve levels of protection and current distribution. Spot Check results.

C. Repairs And Modifications To Rectifiers And Groundbeds-

1. Aerial Signal Lights - The Eastern and Central Division have signal lights that allow weekly monitoring of the rectifiers by the pipeline pilot. Plans are to install the same on the Western Division.

Recommendation: Proceed with installation.

2. Review rectifier maintenance records to determine if lightning arrestors need to be changed and/or additional protection provided.

3. Hattiesburg Station - One leg of anodes in the pump area is not working, probably due to header cable damage and failure. Readings are weaker, but still OK.

Recommendation: Locate and repair if possible.

4. DP-9 at Strengthford - Groundbed resistance increased from 4.3 ohms in 2004 to 5.9 ohms in 2005, a 37% increase.

Recommendation: Evaluate groundbed and rectifier.

5. DP-9C at Yellow Creek Station - Groundbed resistance increased from 2.2 ohms in 2004 to 3.2 ohms in 2005, a 45% increase.

Recommendation: Evaluate groundbed and rectifier.

4. Bonds

A. Critical Bonds - All critical bonds were performing satisfactorily during the survey. The bond with Transco at 14075+95 was removed from the critical list during 2005. We had previously installed a new rectifier and groundbed at the Grangeville Station and increased the output of the nearby rectifier at DP-7, just east of the crossing. We performed an over the line potential profile at this crossing three times during 2005 with the bond disconnected. All three tests indicated that the bond is no longer a critical bond.

Recommendation: Continue monitoring critical bonds per DOT requirements. Closely evaluate the Transco bond during future surveys.

B. Non Critical Bonds - The following non-critical bonds had significant changes from 2004 to 2005, or need further testing and evaluation.

340+14	Dow Bond	Current dropped from .9 amp DX+ to .1 amp DX+
2635+20	Citgo Bond	We have a request from Citgo for a bond at this location. Work with Citgo on correcting their problem.

Recommendation: Review bond performance during follow-up.

5. Casings

All casings readings were within accepted DOT limits in respect to the pipeline potentials. Several casings indicated influence from the cathodic protection system but were not within 100 mv of the pipeline potentials ; therefore, do not require action at this time. They should be closely monitored during future annual surveys.

6. Test Stations

A. Repairs - A list of test stations in need of repairs or replacement is attached.

B. Test Lead Identification - Perform tests to positively identify test leads at the following locations:

13160+59 Reams Rd and Gas Utility Crossing.

7. Miscellaneous

A. Update grounded and rectifier records.

B. Sun Crossing @ 116+50 - Readings at this crossing always seem to closely parallel Dixie. Could we be connected through old test leads, etc. ??

Recommendation: Interrupt rectifiers and evaluate crossing.

C. Sun Pipeline Crossing 1774+93 - Readings at this crossing dropped approximately 300 mv to -0.977 since 2004, while the Sun readings increased 300 mv. There is a Sun rectifier at this location.

Recommendation: Locate pipelines and profile crossing. Interrupt Sun rectifier if possible to evaluate influence.

D. Compare information from the internal inspection data to see if there is any correlation between anomalies identified by the internal inspection and weak potential areas, foreign crossings, casing influence, etc.

DIXIE PIPELINE CO. - WESTERN DIVISION
RECTIFIER AND GROUNDBED INFORMATION
Annual Survey 2005

Rectifier	Rect. Size	Output	Groundbed	Age	Resistance	Remarks
DP-1A Mt. Belvieu Sta.	20V, 40A	9.8V, 30.2A	DW	R- 2005 GB-1997	0.32 ohms	New Rectifier 10/05
DP-1C Liberty, TX	20V, 40A	9.9V, 23.1A	DW	R- 2001 GB-2001	0.42 ohms	Dow Bond 6.5 A
DP-1 Devers, TX	20V, 30A	19.3V, 15.2A	Conv.	R- 1998 GB-1998	1.27 ohms	Dow Bond 5.2 A
DP-1B Beaumont	20V, 40A	13.3V, 25.3A	DW	R- 2005 GB-1972	0.53 ohms	New Rectifier 10/05 Dow Bond 2.2A
DP-2 Mauriceville	30V, 30A	25.8V, 22.5A	Conv.	R- 2004 GB-1994	1.15 ohms	Dow Bond 1.4 A
DP-2A Edgerly	20V, 20A	10.0V, 19.0A	Conv.	R- 1972 GB-1972	0.53 ohms	Old Rectifier
DP-2B Sulphur Sta.	20V, 20A	16.1V, 18.1A	Conv.	R- 1990 GB-2001	0.89 ohm	
DP-3 Iowa	40V, 20A	13.1V, 21.6A	Conv.	R- 2003 GB-2005	0.60 ohms	New groundbed 5/05
DP-3A Evangeline Sta.	20V, 20A	14.9V, 17.2A	Conv.	R- 1988 GB-2002	0.86 ohms	
DP-3B Egan Sta.	20V, 20A	10.0V, 10.5A	Conv.	R- 1988 GB-2002	0.95 ohms	
DP-4 Rayne, La.	30V, 20A	19.2V, 15.7A	Conv.	R- 2001 GB-2000	1.22 ohm	Lig Bond 4.0A

DIXIE PIPELINE CO. - WESTERN DIVISION
RECTIFIER AND GROUNDBED INFORMATION
Annual Survey 2005

Rectifier	Rect. Size	Output	Groundbed	Age	Resistance	Remarks
DP-4A Breux B. Sta.	20V, 20A	7.5V, 11.5A	Conv.	R- 1988 GB-2005	0.65 ohm	New groundbed 5/05
DP-5 Cecilia	30V, 20A	36.1V, 5.5A	Conv.	R- 2003 GB-2000	6.50 ohms	June 05- 34V, 8A per Dixie Maint.
DP-5A Maringouin Sta.	40V, 20A	24.4V, 10.1A	Conv.	R- 1972 GB-1994	2.40 ohms	Old Rectifier
DP-6 Erwinville, La.	30V, 20A	7.2V, 4.0A	Conv.	R- 2003 GB-2003	1.80 ohms	
DP-6A Baker Sta.	20V, 40A	14.2V, 26.1A	Conv.	R- 1998 GB-1998	0.54 ohm	
DP-6B Grangeville Sta	20V, 20A	17.5V, 14.5A	Conv.	R- 2000 GB-2002	1.20 ohms	
DP-7 Pine Grove	30V, 20A	22.8V, 8.9A	Conv.	R- 1998 GB-1998	2.56 ohms	
DP-7B Tangipahoa Sta.	60V, 20A	30.8V, 18.5A	DW/Conv.	R- 1999 GB-1999	1.66 ohms	
DP-7A Mt. Herman Sta.	100V, 20A	73.3V, 9.5A	Conv.	R- 2004 GB-1972	7.70 ohms	Old Groundbed
DP-8 Lake Columbia	20V,30A	18.6V, 21.7A	Conv.	R- 2002 GB-1993	0.85 ohms	
DP-8A Oltoh Sta.	60V, 20A	25.2V, 11.8A	DW/Conv.	R- 1999 GB-1999	2.13 ohms	

DIXIE PIPELINE CO. - WESTERN DIVISION
RECTIFIER AND GROUND BED INFORMATION
Annual Survey 2005

Rectifier	Rect. Size	Output	Groundbed	Age	Resistance	Remarks
DP-9A Hattiesburg Sta.	50V, 40A	38.2V, 36.0A	Conv.	R- 1998 GB-1972	1.06 ohm	Groundbed has been added on to several times.
DP-9 Strengthford	40V, 20A	39.7V, 6.7A	DW	R- 2002 GB-1987	5.91 ohms	
DP-9C Yellow Creek Sta.	60V, 20A	26.8V, 8.3A	DW/Conv.	R- 1998 GB-1998	3.23 ohms	
DP-9B Carmichael	40V, 20A	16.5V, 10.6A	Conv.	R- 1973 GB-1973	1.55 ohms	Rect. in poor condition Old groundbed
DP-9D Butler	60V, 20A	12.4V, 10.4A	Conv./DW	R- 1998 GB-1998	1.19 ohms	
DP-10 Pennington	30V, 30A	16.4, 9.9A	DW	R- 2002 GB-1987	1.65 ohms	

**Dixie Pipeline Western Division
Test Station Maintenance Items From the 2005 Annual Survey**

2337+68	Reins Rd.	Broke Cover
3084+69	Citgo X'ing	Conduit Broke
3402+33	Hwy 12	T/S torn up, wire OK
12675+64	Old Baker Rd.	Broke Cover
14784+52	Paper Co Dirt Rd.	Access Rd. gate by firetower needs DX lock.
15769+99	Archie Simmons Rd.	Post and T/S torn down, Wire OK
15849+15	Paved Rd.	Broke Cover
15872+91	Holmesville Rd.	Broke Cover
15941+11	Hwy 1055	T/S torn up, wire OK
23134+77	Transco X'ing	T/S torn up, wire OK. Transco is recoating pipeline in this area. We have a test lead at each pipeline crossing in this ROW. Insure that test leads are preserved during work.

Note: When installing new test leads, make every effort to install the new test lead at the road crossing vent pipe to facilitate monitoring the casing per DOT requirements, and casing testing if necessary. When repairing test stations, include all wires in the test station, maintaining color code (Black, White, and Red) to facilitate IR drop testing, casing testing, etc.

**DIXIE PIPELINE COMPANY
REPORT OF VISUAL INSPECTION & REPAIR**

GENERAL

Line Section/Station: BAKER TO LA./MS. STATE LINE State/Location Code: 25-569 MP: 246.72
 Land Use: PRIVATE/YARD Depth of Cover: 42" Landmark: BLACK RD.
 RW Tract: 56 Alignment Sheet #: 42 of 211 County/Parish: E. BATON Rouge State: LA.
 RW Inventory Numbers: From 13026+90 To 13027+40 Line Size: 12"
 Latitude: N Longitude: W

WORK DESCRIPTION:

Date Begun: 5-17-06 Date Completed: 5-18-06

Detailed Account: EXCAVATED M/I TO REPAIR CASING ON EAST SIDE OF BLACK RD.
FOUND SEAL (BOOT) BETWEEN CASING & PIPE HAD FAILED - REPAIRED
WITH 12" LINK SEAL. NO COATING DAMAGE WAS FOUND.
P/S READING BEFORE -0.927 - C/S READING BEFORE -0.310/AFTER P/S -1.115-45-0.120
 Contractor: L.E. BELL CONST. Inspector: B. JOHNSON

AFE Name: _____ AFE Number: _____

INSPECTION RESULTS:

Facility Inspected: Pipe Valve Fitting Coating Other

EXTERNAL CORROSION

Dimensions of Graded Pit: - Depth: _____ " Length: _____ "

(Pit dimensions used to determine MAOP)

N/A None

Overall Length of Facility Affected - _____ ft. _____ in.

MAOP Not Affected Calculated MAOP: _____ PSIG.

INTERNAL CORROSION

Dimensions of Graded Pit: - Depth: _____ " Length: _____ "

(Pit dimensions used to determine MAOP)

N/A None

Overall Length of Facility Affected - _____ ft. _____ in.

MAOP Not Affected Calculated MAOP: _____ PSIG.

MECHANICAL DAMAGE

Dimensions of Gouge/Dent: - Depth: _____ " Length: _____ "

(Dimensions used to determine MAOP)

N/A None

Gouge Dent

Overall Length of Facility Affected - _____ ft. _____ in.

MAOP Not Affected Calculated MAOP: _____ PSIG.

COATING:

Somatic TGF Paint Mastic Concrete Primer & Tape FBE

CONDITION OF COATING:

Good Fair Poor

FACILITY ENVIRONMENT:

Sand Clay Loam Rock Water Air Other:

FACILITY REPAIR RESULTS:

N/A Repaired Replaced

Repaired by: Full Wrap Clock Spring Leak Clamp Recoat LINK SEAL

Coating Type Used: #2 TRENTON WAX TAPE - TENCOAT PRIMER

Description of Repair or Replacement Item(s): 12" LINK SEAL

P.O. # of Repair or Replacement Item(s): _____

PROPERTY DAMAGE

Landowner Tenant Name: NONE

Telephone Number: _____

Address: _____ City: _____ State: _____ Zip: _____

Description of Damage: _____

Estimated Value of Damage: _____

Related Reports & Forms: 2005 & 2006 M/I SURVEY

Prepared By: _____ Date: 5-19-06

Distribution: Original Maintenance Supervisor, Copy All, Engineering (r) All, DOT Files.

Back of Form may be used for sketch or additional information