



SC UST MANAGEMENT DIVISION

UST INSPECTION RECORDS

John E. Morgan III

South Carolina Department of Health and Environmental Control

Promoting and Protecting the Health of the Public and the Environment

UST Facility Inspections



Records? What records???



RECORDS REVIEW

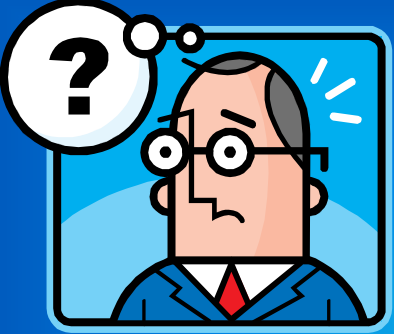
INVENTORY CONTROL

**SIR=STATISTICAL INVENTORY
RECONCILIATION**

ATG=AUTOMATIC TANK GAUGE

TANK/LINE/LEAK DETECTOR TESTS

CATHODIC PROTECTION TESTS



WHAT..... Is Inventory Control????

Inventory control is a running tally spreadsheet of the amount of fuel an operator THINKS they have and what the math says they SHOULD have.....

TEMPORARY!!!

Only for 10 years!

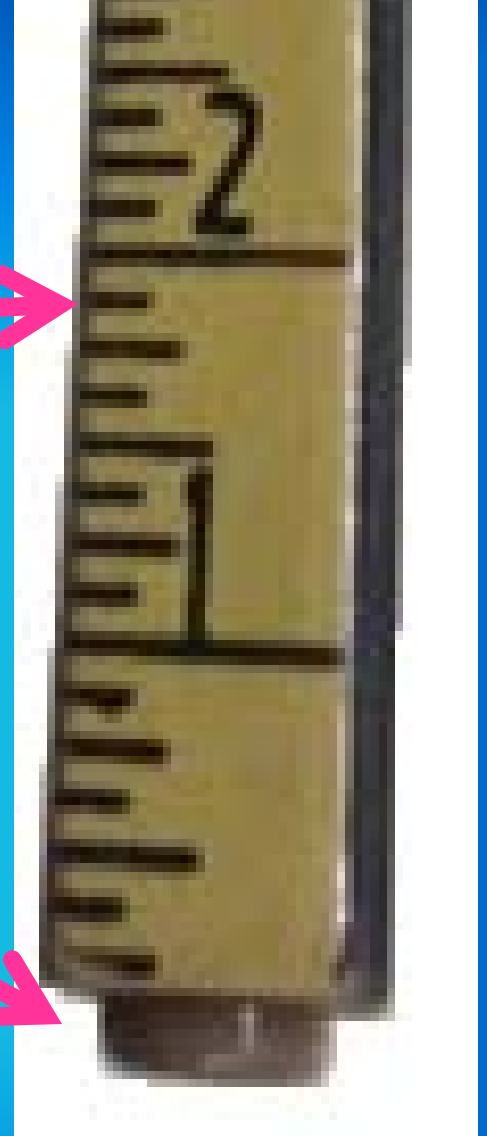
TTT required @ 5yr + 10yr mark
new method required

<http://www.epa.gov/oust/ustsystem/inventor.htm>

**Stick to nearest
 $\frac{1}{8}$ Inch**

Button = $\frac{1}{4}$ Inch

**Replace stick if
button missing!**



Things to look for

ENSURE STICK
READINGS ARE TO
1/8 INCH

END STICK TO
NEXT DAY START
STICK

Proper Tank chart??

STICK FOR WATER
MONTHLY

BAD MATH

WATER CHECK DATE _____ INCHES _____

FACILITY I. D. NUMBER _____

Check one:

0.2 Gal Per Hour Tank Test, GALL, SUMP, VIA ATC (100)
Submit for SIR Quantitative Analysis at end of month

WATER CHECK DATE _____ INCHES _____

Inventory _____

(7)

Date	(1) Start Stick Inventory (Gallons)	(2) Gallons Delivered	(3) Gallons Pumped (Add percent sold through blend pump if applicable.)	(4) Book Inventory (Gallons)	Ending Stick Inventory	
					(5) (Inches)	(6) (Gallons)
NOTE: Column numbers (1) + (2) - (3) = (4)						
1	4810.08		372	4138.08	34.5	3890.69
2	3840.69		538	3352.69	33	3661.82
3	3661.82		739	2922.82	28	2919.55
4	2919.55		1017	1902.55	20	1815.94
5	1815.94		291	1599.94	20	2632.79

13	1318.79	401	31	975.59	-57.8	
14	975.59	3050	364	3661.15	-744	
15	3661.15		510	2652.15	-719	
16	2652.15		493	2352.19	213	
17	2352.19		464	2019.18	190.51	
18	2019.18		538	1815.79	301.6	
19	1815.79		532	1624.66	340.87	
20	1624.66	3017	518	3242.50	-897	
21	3242.50		518	2491.77	224	
22	2491.77	4279	22	2491.77	-	
23	2491.77		581	2679.16	119	
24	2679.16		750	1687.48	358	
25	1687.48		535	1218.47	162	
26	1218.47		391	478.45	-449	
27	478.45	3519	190	8510.93	-29745	
28	8510.93		435	3212.54	13759	
29	3212.54		196	2632.54	-583	
30	2632.54		363	2215.30	268	
31	2215.30		485.00		-1891.66	

(8) TOTAL GALLONS PUMPED → 13866

Drop last 2 whole numbers from TOTAL GALLONS PUMPED
and enter number on the line below
LEAK CHECK: 133

IF TOTAL GALLONS OVER/SHORT
MONTHS REPORT TO

Revised June 2012

Compare these numbers (8 & 10)

263 gallons (10)

130 (#10) FOR 2 CONSECUTIVE
N WITHIN 24 HOURS

PORATION COMMISSION - PETROLEUM STORAGE TANK DIVISION 2000

12,000 TANK (8' dia.)

MONTHLY INVENTORY RECONCILIATION RELEASE DETECTION

MONTH Dec YEAR 13

FACILITY I. D. NUMBER

FACILITY NAME

TANK #

FUEL TYPE

Check one:

0.2 Gal Per Hour Tank Test, CSLD, SCALD, via ATG Monthly

Submit for SIR Quantitative Analysis at end of month

WATER CHECK DATE _____ INCHES _____

Date	(1) Start Stick Inventory (Gallons)	(2) Gallons Delivered	(3) Gallons Pumped (Add percent sold through blend pump if applicable)	(4) Book Inventory (Gallons)	Ending Stick Inventory	(7) Daily Over (+) Or Short (-) (End - Book)	Initials
					(5) (Inches)	(6) (Gallons)	
NOTE:	Column numbers (1) + (2) - (3) = (4)				Column numbers (6) - (5) = (7)		
1	4810.08		372	4138.08	34.5	3890.69	-247.99
2	3840.69		538	3302.69	33	3261.82	-309.13
3	3061.82		239	2822.82	28	2999.55	+3.27
4	2919.55		1017	1902.85	20	1815.94	+86.61
5	1815.94		296	1519.94	26	2633	
6	2632.79		166	2466.79	25.5	2544	
7	2544.83		302	2242.13	23	2515	
8	2515.30		302	2213.30	23	2515	
9	2515.30		338	2177.30	21	1946	
10	1946.88		217	1729.88	20	1815	
11	1815.94		409	1406.94	19	1687	
12	1687.69		567	1118.69	16	1316	
13	1318.79		401	917.79	13	975	
14	975.59	3050	364	3651.59	31	361	
15	3661.15		510	3351.15	26	263	
16	2632.15		493	2139.15	24	2352	
17	2352.19		464	1888.19	22	2019	
18			626	1531.19	20	1815	

GALLONS PUMPED →

485.08
13866

(5) TOT

from TOTAL GALLONS PUMPED

below

CHECK:

133

+130 gallons =

Complete these numbers (9 & 10)

263

gallons (10)

GALLONS OVER/SHORT

THIS REPORT TO

LESS THAN LEAK CHECK + 130 (#10) FOR 2 CONSECUTIVE
PURATION COMMISSION WITHIN 24 HOURS

$$138 + 130 = 268$$

BAD MATH

SIR-WHAT IS IT????

**SIR=STATISTICAL INVENTORY
RECONCILIATION= monthly method**

**SIR takes typical Inventory Control
daily/monthly information and adds statistical
algorithms to achieve pass/fail/inconclusive
results within the 95%/5%- confidence/false
alarm parameters.**

<http://www.epa.gov/oust/ustsystem/sir.htm>

SIR

NOTE: 3 MONTHS PER PAGE

Tank Contents	Tank Capacity (gallons)	This Month							Last Month			Two Months Ago		
		Leak Threshold	Minimum Detectable Leak Rate(6c)	Calculated Leak Rate(6b)	Pass, Fail, Inconclusive			Pass, Fail, Inconclusive			Pass, Fail, Inconclusive			
					(Oct 13)			(Sep 13)			(Aug 13)			
		gph	gph	gph	P	F	I	P	F	I	P	F	I	
UNLEADED	20,154	0.10	0.07	-0.05	*			*			*			
PREMIUM	10,027	0.10	0.00	0.07	*			*			*			
E-85	10,027	0.10	5	-0.34			*	*			*			
BIODIESEL	10,027	0.10	5	0.1			*	*				*		
KEROSENE	6,015	0.10	0.07	0.00	*			*			*			

NBOEAA1 m	00149001	UNLEADED	20,154	0.10	0.07
NBOEAA2	00149002	PREMIUM	10,027	0.10	0.00
NBOEAA3	00149003	E-85	10,027	0.10	5
NBOEAA4	00149004	BIODIESEL	10,027	0.10	5
NBOEAA5	00149005	KEROSENE	6,015	0.10	0.07

NOTE: N/A Indicates No Analysis Performed Negative Calculated Leak Rates in m Indicates Manifoldd Tank
G Indicates Gaining trend

- The tank owner is required to have a SIR report for each month.
- Monthly reports must be submitted to the local agency upon request.
- The tank owner is required to have the report by the 20th day of the following month.
- If for any reason, the test is neither "pass" nor "fail", the "inconclusive" column will be marked.
- The local agency may need to be notified of the tank that does not pass the SIR test within 24 hours of receipt of the report submitted to the local agency within 10 days of the report.
- Quantitative and Qualitative Methods:
 - A leak threshold, minimum detectable leak rate, and calculated leak rate must be provided for each tank. If not, then the test is inconclusive.
 - If the absolute value of the calculated leak rate for the tank is greater than or equal to the leak threshold and the minimum detectable leak rate is greater than or equal to the certified performance standard, OR the absolute value of the calculated leak rate is greater than or equal to the leak threshold and the minimum detectable leak rate is greater than the certified performance standard, the tank failed the test.
 - If the minimum detectable leak rate for the tank is greater than the certified performance standard (i.e., 0.1 or 0.2 gph), the calculated leak rate is less than the minimum detectable leak rate, the test is inconclusive for that month.
 - Two consecutive failures and/or inconclusives may require a tank and/or piping integrity test within 15 days from the date of the last test. The local agency should be contacted.
- A conclusive result of "pass" or "fail" is required to meet monthly leak detection requirements.

Person Conducting Evaluation	Simmons Technician
For Information Call	Customer Service

3. The tank owner is required to have the report by the 20th day of the following month.

6d. Two consecutive failures and/or inconclusives may require a tank and/or piping integrity test....

If your system has received a Fail or Inconclusive on Statistical Inventory Reconciliation (SIR) ...

1. Notify the Underground Storage Tank (UST) Program at (803) 896-7957 or UST_help@dhec.sc.gov.
2. If it is the **first** month failing, check all delivery receipts, sales, stick readings, and calculations and then report your findings to the UST Program.
3. If it is the **second** month in a row with failing results, contact a tank tester to have a **precision** test run on the tank and the line. If the test passes, send a copy of the result to the UST Program and continue operation.
4. If the precision test fails, notify the UST Program and take the system out of service. You may be asked to remove the fuel from the system.
5. **Do not return the system to service until the Program gives the okay.**

SIR MONTHLY EVALUATION REPORT

Facility Name: 144 Fairfield Road
 Tank Location: 144 Fairfield Road
 Tank Owner: 144 Fairfield Road
 Tank Capacity: 10,000 Gallons
 Tank ID: 144 Fairfield Road

SIR Result	SIR Score	SIR Status	SIR Date

Signature of owner/operator: _____ Date: _____

ATG-WHAT IS THAT??

YOU
KNOW....THAT
BOX ON THE
WALL THAT
TELLS YOU HOW
MUCH GAS YOU
HAVE.

ATG=IS KIND OF
LIKE SIR IN A BOX!

MEASURES PRODUCT OVER TIME+TAKES
INTO ACCOUNT DELIVERIES-FUELING
EVENTS+/-THERMAL EXPANSION &
CONTRACTION=RESULT (PASS/FAIL/LOW
VOLUME..etc.)



ATG SLIPS

SEP 15, 2014 1:59 AM

LEAK TEST REPORT

T 1:DIESEL

PROBE SERIAL NUM 691534

TEST STARTING TIME:

SEP 14, 2014 11:59 PM

TEST LENGTH = 2.0 HRS

STRT VOLUME = 833.8 GAL

LEAK TEST RESULTS

0.20 GAL/HR TEST PASS

* * * * * END * * * * *

STOP IN-TANK LEAK TEST
T 1:UNLEAD
AUG 27, 2012 5:00 AM

MR.EXPRESS
2120 NATION FORD RD
ROCKHILL,SC
29732

AUG 27, 2012 5:00 AM

LEAK TEST REPORT

T 1:UNLEAD
PROBE SERIAL NUM 844628

TEST STARTING TIME:
AUG 27, 2012 1:00 AM

TEST LENGTH = 4.0 HRS
STRT VOLUME = 7300.2 GAL

LEAK TEST RESULTS
0.20 GAL/HR TEST INVL

0.20 GAL/HR FLAGS:
RECENT DELIVERY
CHANGE IN TANK TEMP ZONE
TEMP CHANGE TOO LARGE
PRODUCT LEVEL INCREASE

***** END *****

843 333 3333
DEC 19, 2012 12:19 PM

CSLD TEST RESULTS

DEC 19, 2012 12:19 PM

T 1:REG UNL
PROBE SERIAL NUM 424918

0.2 GAL/HR TEST
PER: DEC 19, 2012 PASS

T 2:PLUS
PROBE SERIAL NUM 101181

0.2 GAL/HR TEST
PER: APR 23, 2012 PASS

T 3:PREM
PROBE SERIAL NUM 021145

0.2 GAL/HR TEST
PER: OCT 24, 2012 PASS

T 4:KERO
PROBE SERIAL NUM 157584

0.2 GAL/HR TEST
PER: DEC 2, 2012 PASS

***** END *****

OPW
EFCO
2000

If your tank gauge shows that a tank or line has failed a test . . .

1. Notify the Underground Storage Tank Program (UST) at (803) 896-7957 or UST_help@dhec.sc.gov. Re-run the test. For tanks, the test should be at the same or higher inventory level. Investigate the cause of the original fail. If the second test passes, continue operation. If the new test fails . . .
2. Contact a tank tester and have a **precision** test run. If the test passes, send a copy of the result to the UST Program and continue operation. If the precision test fails . . .
3. **Notify** the UST Program and take the system out of service. The Program will help you determine whether or not to remove the fuel from the system.
4. **Do not return the system to service until the UST Program gives the okay.**



ELD

ELECTRIC LINE DETECTOR

JAN 15. 2010 11:17 AM

WPLLD LINE LEAK
TEST RESULTS

W 1:REG. UNLEADED LINE

3.0 GAL/HR RESULTS:

LAST TEST:

JAN 12.2010 12:31PM PASS

NUMBER OF TESTS PASSED

PREV 24 HOURS : 0

SINCE MIDNIGHT : 0

SEP 16. 2014 10:50

PRESSURE LINE LEAK
HISTORY

Q 1:REGULAR LINE

LAST 3.0 GAL/HR P
SEP 16. 2014 10:49

FIRST 0.20 GAL/HR I
EACH MONTH:

SEP	1.	2014	21:26
AUG	1.	2014	0:33
JUL	2.	2014	0:10
JUN	1.	2014	22:26
MAY	1.	2014	0:37
APR	1.	2014	0:18
MAR	3.	2014	3:17
FEB	2.	2014	3:39
JAN	2.	2014	2:22
DEC	1.	2013	23:15
NOV	1.	2013	23:52
OCT	1.	2013	0:25

FIRST 0.10 GAL/HR P
EACH MONTH:

MAY	3.	2014	0:09
JUN	26.	2013	0:45
DEC	24.	2012	22:58
JUN	24.	2012	13:02
DEC	24.	2011	23:16

* * * * * END * * *

0.20 GAL/HR RESULTS:

JUL	13.	2009	12:09AM	PASS
JAN	8.	2009	1:27AM	PASS
JUL	6.	2008	12:31AM	PASS
DEC	29.	2007	12:53AM	PASS
JUN	25.	2007	10:57PM	PASS
DEC	22.	2006	12:10AM	PASS
JUN	19.	2006	12:59AM	PASS
DEC	15.	2005	1:46AM	PASS
JUN	12.	2005	12:22AM	PASS
NOV	11.	2004	10:55PM	PASS

0.10 GAL/HR RESULTS:

JUL	13.	2009	12:25AM	PASS
JAN	8.	2009	1:58AM	PASS
JUL	6.	2008	1:03AM	PASS
DEC	29.	2007	1:41AM	PASS
JUN	26.	2007	12:16AM	PASS
DEC	22.	2006	12:42AM	PASS
JUN	19.	2006	1:30AM	PASS
DEC	15.	2005	2:02AM	PASS
JUN	12.	2005	1:26AM	PASS
NOV	11.	2004	11:27PM	PASS

CORNER PANTRY 149
7527 GARNERS FERRY
COLUMBIA, SC 29209

SEP 16. 2014 10:50

PRESSURE LINE LEAK
TEST RESULTS

Q 1:REGULAR LINE

3.0 GAL/HR RESULTS:

LAST TEST:

SEP 16. 2014 10:49 PASS

NUMBER OF TESTS PASSED

PREV 24 HOURS : 163

SINCE MIDNIGHT : 41

1.20 GAL/HR RESULTS:

SEP	15.	2014	22:57	PASS
SEP	14.	2014	23:00	PASS
SEP	13.	2014	23:40	PASS
SEP	12.	2014	23:40	PASS
SEP	12.	2014	0:10	PASS
SEP	10.	2014	23:53	PASS
SEP	9.	2014	23:49	PASS
SEP	8.	2014	22:59	PASS
SEP	7.	2014	22:26	PASS
SEP	6.	2014	23:32	PASS

.10 GAL/HR RESULTS:

AY	3.	2014	0:09	PASS
AY	2.	2014	1:58	FAIL
AY	1.	2014	1:45	FAIL
PR	30.	2014	3:34	FAIL
PR	30.	2014	1:31	FAIL
PR	29.	2014	1:54	FAIL
PR	28.	2014	2:19	FAIL
PR	27.	2014	7:19	FAIL
PR	27.	2014	4:28	FAIL
PR	27.	2014	1:12	FAIL

LINE/LLD TESTING

140605A-73

6/5/2014

Randy Powell

2602.LTN



LINE TEST

Product	Regular	Premium	Diesel
STP Pressure	27	27	20
Isolation	B-Valve	B-Valve	B-Valve
Test Pressure	45	45	45
Initial Level	.0825	.0825	.1000
Final Level	.0810	.0810	.1000
Leak Rate	-.0015	-.0015	.0000
Start Time	9:10	9:10	9:45
End Time	9:40	9:40	10:15
Test Time	30	30	30
Result	Pass	Pass	Pass

LD TEST

	FX1	FE-PETRO	FX1DV
Check Valve PSI	18	18	17
Resiliency	750 mil	1000 mil	50 mil
Test Leak Rate	3 gph	3 gph	3 gph
Opening Time	2 sec	3 sec	3 sec
Result	Pass	Pass	Pass

comments

TANK TESTING

Tank Information

Tank Number

Description

Fuel Type	Gasoline-Low	Gasoline-Hi
Diameter (in)	120	120
Capacity (gal)	10,000	5,000
Fuel Level (in)	85.90	40.38
Percent Full (%)	77	30

Precision Test Results

Start Date	10/10/11	10/10/11
Start Time	16:19:57	16:19:54
Duration	1:02:16	1:02:19
Temp Rate (F/hr)	0.001	-0.003
Threshold (gal/hr)	+/- 0.05	+/- 0.05
Leak Rate (gal/hr)	-0.016	-0.029
Pass/Fail	Passed	Passed

Ullage Test Results

Test Date	10/10/11	10/10/11
Test Time	17:30:36	17:40:33
Pass/Fail	Passed	Passed

INCHES OF WATER OUTSIDE TANK

Total Head Pressure Minus Outside Water Pressure = -1.372 +/- PSI (5)

Always add .5 PSI + $-.872$ PSI (6)

NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI

TEST PRESSURE = $.5$ +/- PSI (7)

Blower Started: 1:30 TIME PRESSURE

Test Pressure Reached: 1:31 .5

Blower Turned Off: 1:39 .58

Test Began: 1:40 .56

Test Ended: 1:42 .53

Depth of Groundwater Determined:
By: G. Hager

Where: monitor well

WATER SENSOR CALIBRATION

Added: 60 50 50

Cal #1 Cal #2 Cal #3

Average: 53.3

Water Intrusion Test Period: Began: 1:50

Ended: 2:07

Calculation for Test Period:
 $53.3 \div 3780 = .0141 + .05 = .1281$

Ave. Cal. "A" Factor Time of Test

EZY 3 LOCATOR PLUS

MANUFACTURED BY: ESTABROOKS INC. 1-877-368-7215

FINAL REPORT

DATE 11/24/10 PBS # (NEW YORK) _____

TOTAL TANK VOL. 10,000 GALS TANK # _____

PRODUCT VOL. 22" LOCATION CORNER STOP 45

ULLAGE VOL. _____ 1006 OLD HWY 52 MANCKS CORNER

PRODUCT TYPE Prem 29481 SC.

THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS: (CHECK ONLY ONE)

☒ TIGHT TANK

THIS UNDERGROUND STORAGE TANK **PASSES** THE CRITERIA SET FORTH BY THE U.S. EPA.

☐ ULLAGE (DRY) PORTION LEAK

THIS UNDERGROUND STORAGE TANK **FAILS** THE CRITERIA SET FORTH BY THE U.S. EPA.

☐ BELOW PRODUCT LEVEL (WET) PORTION LEAK

THIS UNDERGROUND STORAGE TANK **FAILS** THE CRITERIA SET FORTH BY THE U.S. EPA.

WATER SENSOR INDICATES: (CHECK ONLY ONE)

NO WATER INTRUSION ☒ WATER INTRUSION ☐ NOT APPLICABLE ☐

If your tank or line has failed a precision test ...

1. Take the system out of service. **Notify** the Underground Storage Tank Program (UST) at (803) 896-7957 or UST_help@dhec.sc.gov. Contact a tank tester to have a second **precision** test run.
2. When you receive the second precision test result, call the UST Program. If the second precision test failed, you may be asked to remove the fuel from the system.
3. **Do not return the system to service until the UST Program gives the okay.**

TANK TEST RESULTS

Tank	Type of Test	Product	Tank Capacity	Tank Diameter	Tank Test Result	Volume Change	Leakage Result
1	System 5000	Regular Unleaded	10000	95	PASS	N/A	PASS
2	System 5000	Premium Unleaded	10000	95	PASS	N/A	PASS
3	System 6000	Diesel	8000	95	PASS	N/A	PASS

LINE AND LEAK DETECTOR TEST RESULTS

Tank	Line Type	Product	Volume Change	Line Test Results	Leak Detector	Leak Detector Results	Leak Detector Serial #
1	Pressure	Regular Unleaded	-0.004	FAIL	Yes	PASS	060402-0251
2	Pressure	Premium Unleaded	-0.004	PASS	Yes	FAIL	40300-0819
3	Pressure	Diesel	-0.004	PASS	Yes	FAIL	03063120
4	Pressure	Kerosene	-0.004	FAIL	Yes	PASS	121326-0737

Comments: Test conducted by: Scotty Knight
Technician Certification Number: 05A01021231091

Technician's Signature: *S-A-Z*
SIR FAILURE

CORROSION PROTECTION

1-Isolation

- a) booted/wrapped**
- b) Non-corrodible materials**

2-Cathodic Protection

- a) Galvanic (sac anodes)**
- b) Impressed Current
(anodes with applied power)**

Galvanic

Pg 1

Impressed Current

D H E C
STATE OF SOUTH CAROLINA
GALVANIC (SACRIFICIAL ANODE) CATHODIC PROTECTION SYSTEM EVALUATION

This form must be utilized to evaluate underground storage tank (UST) cathodic protection systems in the State of South Carolina.
 > Access to the soil directly over the cathodically protected structure that is being evaluated must be provided.
 > A site drawing depicting the UST cathodic protection system and all reference electrode placements must be completed.

1. UST

NAME

ADDR

CITY

TEST

COMP

ADDR

CITY

Ro

Date

CP TESTER'S SIGNATURE:

DATE CP SURVEY PERFORMED: 9/17/14

VII. CORROSION EXPERT'S EVALUATION (mark only one)

The survey must be conducted and/or evaluated by a corrosion expert when: a) an inconclusive is indicated for any protected structure since both the local and the remote structure-to-soil potentials do not result in the same outcome (both pass or both fail); b) repairs to galvanized or uncoated steel piping are conducted or c) supplemental anodes are added to the tanks and/or piping without following an accepted industry code.

- ☒ **PASS** All protected structures at this facility pass the cathodic protection survey and it is judged that adequate cathodic protection has been provided to the UST system. (Indicate all criteria applicable by completion of Section VIII).
- ☐ **FAIL** One or more protected structures at this facility fail the cathodic protection survey and it is judged that adequate cathodic protection has not been provided to the UST system. (Indicate what action is necessary by completion of Section IX).

CORROSION EXPERT'S NAME: COMPANY NAME:
 NACE INTERNATIONAL CERTIFICATION: NACE INTERNATIONAL CERTIFICATION NUMBER:

CORROSION EXPERT'S SIGNATURE: DATE:

VIII. CRITERIA APPLICABLE TO EVALUATION (mark all that apply)

- ☒ **850 ON** Structure-to-soil potential more negative than -850 mV with respect to a Cu/CuSO₄ reference electrode with the protective current applied. (This criterion is applicable to any galvanically protected structure).
- ☐ **850 OFF** Structure-to-soil potential more negative than -850 mV with respect to a Cu/CuSO₄ reference electrode with the protective current applied. (This criterion is applicable to any galvanically protected structure).
- ☐ **100 mV POLARIZATION** Structure tested exhibits at least 100 mV of cathodic polarization. (This criterion is applicable to galvanic systems where the anodes can be temporarily disconnected.)

IX. ACTION REQUIRED AS A RESULT OF THIS EVALUATION (mark only one)

- ☒ **NONE** Cathodic protection is adequate. No further action is necessary at this time. Test again by no later than (see Section V).
- ☐ **RETEST** Cathodic protection may not be adequate. Retest during the next 60 days to determine if passing results can be achieved.
- ☐ **REPAIR & RETEST** Cathodic protection is not adequate. Repair/modification is necessary as soon as practical but within the next 60 days.

D H E C
STATE OF SOUTH CAROLINA
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM EVALUATION

This form must be utilized to evaluate underground storage tank (UST) cathodic protection systems in Georgia.
 > Access to the soil directly over the cathodically protected structure that is being evaluated must be provided.
 > A site drawing depicting the UST cathodic protection system and all reference electrode placements must be completed.

UST OWNER: UST FACILITY:

NAME: ADDR: CITY: TEST: COMP: ADDR: CITY: Ro: Date:

CP TESTER'S SIGNATURE:

DATE CP SURVEY PERFORMED: 8/28/14

VII. CORROSION EXPERT'S EVALUATION (mark only one)

The survey must be conducted and/or evaluated by a corrosion expert when: a) supplemental anodes or other changes in the construction of the impressed current system are made; b) stray current may be affecting buried metallic structures or c) an inconclusive result was indicated in Section VI.

- ☒ **PASS** All protected structures at this facility pass the cathodic protection survey and it is judged that adequate cathodic protection has been provided to the UST system. (Indicate all criteria applicable by completion of Section VIII).
- ☐ **FAIL** One or more protected structures at this facility fail the cathodic protection survey and it is judged that adequate cathodic protection has not been provided to the UST system. (Indicate what action is necessary by completion of Section IX).

CORROSION EXPERT'S NAME: COMPANY NAME:
 NACE INTERNATIONAL CERTIFICATION: NACE INTERNATIONAL CERTIFICATION NUMBER:

CORROSION EXPERT'S SIGNATURE: DATE:

VIII. CRITERIA APPLICABLE TO EVALUATION (mark all that apply)

- ☒ **850 OFF** Structure-to-soil potential more negative than -850 mV with respect to a Cu/CuSO₄ reference electrode with protective current temporarily interrupted (instant-off).
- ☐ **100 mV POLARIZATION** Structure(s) exhibit at least 100 mV of cathodic polarization.

IX. ACTION REQUIRED AS A RESULT OF THIS EVALUATION (mark only one)

- ☒ **NONE** Cathodic protection is adequate. No further action is necessary at this time. Test again by no later than (see Section V).
- ☐ **RETEST** Cathodic protection may not be adequate. Retest during the next 60 days to determine if passing results can be achieved.
- ☐ **REPAIR & RETEST** Cathodic protection is not adequate. Repair/modification is necessary as soon as practical but within the next 60 days.

Galvanic

Pg 2

Impressed
Current

X. DESCRIPTION OF UST SYSTEM									
TANK #	PRODUCT	CAPACITY	TANKS		PIPING		FLEX CONNECTORS		
1	MP	20K	STEEL		FBGL		Na		
2									
7									
8									
9									
10									

XI. DESCRIPTION OF CATHODIC PROTECTION SYSTEM REPAIRS AND/OR MODIFICATION

In order to conduct an effective evaluation of the cathodic protection system, a complete evaluation of rectifier operation is necessary.

RECTIFIER MANUFACTURER: Universal

RATED DC OUTPUT: 88 VOLTS 8 AMPS

RECTIFIER MODEL: SSP

RECTIFIER SERIAL NUMBER: 524715

RECTIFIER OUTPUT AS INITIALLY DESIGNED OR LATEST RECOMMENDED (if available): VOLTS AMPS

EVENT	DATE	TAP SETTINGS		DC OUTPUT		HOUR METER	COMMENTS
		COARSE	FINE	VOLTS	AMPS		
FOUND	8/28/14	3	5	70	3		
LEFT	8/28/14	3	5	70	3		

Remarks/Other:

Attach detailed drawing of the UST and cathodic protection systems. Sufficient detail must be given in order to clearly indicate where the reference electrode was placed for each structure-to-soil potential that is recorded on the survey forms. Any pertinent data must also be included. At a minimum you should indicate the following: All tanks, piping and dispensers; All buildings and streets; All anodes and wires; Location of CP test stations; Each reference electrode placement must be indicated by a code (1, 2, 3, R-1, R-2, R-3, etc.) corresponding with the appropriate line number in Section XVI of this form.

AN EVALUATION OF THE CATHODIC PROTECTION SYSTEM IS NOT COMPLETE WITHOUT AN ACCEPTABLE SITE DRAWING.

Galvanic

Pg 3

Impressed Current

[illegible][illegible]

Galvanic

Pg 4

Impressed Current

REG FP		REG ATG		REG STP	
1	-1.039	-0.989	PASS		
2	-1.045	-0.954	PASS		
3	-1.068	-0.920	PASS		
4	-1.026	-0.946	PASS		
5	-1.094	-0.912	PASS		
6	-1.114	-0.923	PASS		

COMMENTS:

1. Designate numerically or by code on the site drawing each "local" reference electrode placement (e.g., T-1, T-2, P-1, P-2, etc.).
2. Designate numerically or by code on the site drawing each "remote" reference electrode placement (e.g., T-1, T-2, P-1, P-2, etc.).
3. Describe where contact with the structure that is being tested is made (e.g., plus tank @ test lead; diesel piping @ dispenser 5/6; tank test lead; pp4, etc.).
4. Describe the exact location where reference electrode is placed for each "local" measurement (e.g., soil @ plus tank STP; soil @ dispenser 5/6, etc.).
5. Record the structure-to-soil potential measured with the reference electrode placed "local" in millivolts (e.g., -885 mV, -920 mV, etc.).
6. Record the structure-to-soil potential measured with the reference electrode placed "remote" (copy voltage that was obtained using continuity survey).
7. Indicate whether the tested structure passed or failed the -850 mV "on" criterion based on your interpretation of the test data.

SCDHEC, BUREAU OF LAND AND WASTE MANAGEMENT, UST PROGRAM
2600 BULL STREET, COLUMBIA, SC 29201 PHONE (803) 896-6240 FACSIMILE (803) 896-6245 www.scdhec.net

UST 1		UST 1	
-1.405	NA	NA	PASS
-1.396	NA	NA	PASS
-1.308	NA	NA	PASS
-1.417	NA	NA	PASS
-1.229	NA	NA	PASS
-1.264	NA	NA	PASS
-1.231	NA	NA	PASS
-1.207	NA	NA	PASS
-1.329	NA	NA	PASS

ANTHROPOMETRIC PROTECTION SYSTEM SURVEY

Assess current cathodic protection system by obtaining structure-to-soil potential measurements, and by ensuring that the structure is being tested and as far away from any active anode as practical to ensure that the structure is intended to be under cathodic protection.

NOTE: This survey is not complete unless all applicable parts of sections I - XIV are also completed.

**DATE=60
DAYS OR LESS**

VOLTS

AMPS

HOURS

IMPRESSED CURRENT LOG



SOUTH CAROLINA CATHODIC PROTECTION SYSTEM RECTIFIER OPERATION

on system rectifier is checked for operation at least once every 60 days. The rectifier was receiving power and is "turned-on".

Any significant variance should be reported.

NAME: **WEST AMERICAN PETROLEUM** ADDRESS: **307 W. Canal Hwy** CITY: **ST. MATTHEWS** STATE: **SC**

Rectifier Manufacturer: **UNIVERSAL** Rated DC Output: **1.5** VOLTS **6** AMPS

Rectifier Model: **CS4T** Rectifier Serial Number: **97028**

When is the last designed or factory recommended rectifier output? **N/A** VOLTS **4.18** AMPS

DATE INSPECTED	RECTIFIER TURNED ON?	TAP SETTINGS		DC OUTPUT		HOUR METER	INSPECTOR INITIALS	COMMENTS
		COARSE	FINE	VOLTS	AMPS			
5-1-14	YES	3	4	6.61	1.12			
2-6-14	✓	3	4	6.6	1.1	43440.70	ML	
3-12-14	✓	✓	✓	6.6	1.0	44154.61	ML	
4-2-14	✓	✓	✓	6.6	1.0	44700.70	ML	
5-15-14	✓	✓	✓	6.6	1.0	45931.12	ML	
6-10-14	✓	✓	✓	6.6	1.0	46357.50	ML	
7-9-14	✓	✓	✓	6.6	1.0	47050.81	ML	
8-5-14	✓	✓	✓	6.6	1.0	47694.94	ML	
9-10-14	✓	✓	✓	6.6	1.0	48561.44	ML	

For more info-NEIWPCC Cathodic Protection webinar from 2/2011



South Carolina Department of Health and Environmental Control

Promoting and Protecting the Health of the Public and the Environment

CONTACT US

www.scdhec.gov

(803) 898-DHEC (3432)



Follow us on Twitter.
[@scdhec](https://twitter.com/scdhec)



Like us on Facebook.
www.fb.com/scdhec



Check us out on YouTube.
www.youtube.com/scdhec

John Morgan

morganje@dhec.sc.gov

(803)898-0602