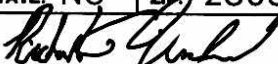


VIRGINIA DEQ	CATHODIC PROTECTION SYSTEM EVALUATION FORM		7531-CP (05/06)
<p>➤ This form should be utilized to evaluate underground storage tank (UST) cathodic protection systems in the Commonwealth of Virginia.</p> <p>➤ Access to the soil directly over the cathodically protected structure that is being evaluated must be provided.</p> <p>➤ A site drawing depicting the UST cathodic protection system and all reference electrode placements must be completed.</p>			
I. UST OWNER		II. UST FACILITY	
NAME:		NAME: Riverview General Store ID #	
ADDRESS:		ADDRESS: 2823 Lowesville Rd	
CITY:	PHONE:	CITY: Amherst	COUNTY:
STATE:	ZIP:	STATE: VA	PHONE:
III. REASON SURVEY WAS CONDUCTED (mark only one)			
<input checked="" type="checkbox"/> Routine - 3 year <input type="checkbox"/> Routine - within 6 months of installation <input type="checkbox"/> 90-day re-survey after fail <input type="checkbox"/> Re-survey after repair/modification			
Date next cathodic protection survey must be conducted _____ (required within 6 months of installation/repair & every 3 years thereafter).			
IV. CATHODIC PROTECTION TESTER'S EVALUATION (mark only one)			
<input checked="" type="checkbox"/>	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 VI).	
<input type="checkbox"/>	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(s) (complete Section VII).	
TESTER'S NAME: Rick Umbel		SOURCE OF CERTIFICATION: STI	
COMPANY NAME: Precision Tank Service		TYPE OF CERTIFICATION: Cp tester	
ADDRESS: PO Box 2040		CERTIFICATION NUMBER: 71311	
CITY: Cornelius	STATE: NC	ZIP: 28031	PHONE: 704-892-8600
CP TESTER'S SIGNATURE: 		DATE SIGNED: 5/14/2020 DATE CP SURVEY PERFORMED: 5/14/2020	
V. CORROSION EXPERT'S EVALUATION (mark only one)			
<p>The survey must be conducted and/or evaluated by a <u>corrosion expert</u> when: a) supplemental anodes or other changes in the construction of the cathodic protection system are made; b) stray current may be affecting buried metallic structures or c) an inconclusive result was written in Section VI. (except for under STI-R972 - "Recommended Practice for the Addition of Supplemental Anodes to sll-P₃ UST's")</p>			
<input type="checkbox"/>	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 VI).	
<input type="checkbox"/>	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 VII).	
CORROSION EXPERT'S NAME:		SOURCE OF CERTIFICATION:	
COMPANY NAME:		TYPE OF CERTIFICATION:	
ADDRESS:		CERTIFICATION NUMBER:	
CITY:	STATE:	ZIP:	PHONE:
CORROSION EXPERT'S SIGNATURE:			DATE:
VI. CRITERIA APPLICABLE TO EVALUATION (mark all that apply)			
<input checked="" type="checkbox"/>	- 850mV ON / (instant) OFF (circle "ON" or "OFF" to specify)	Structure-to-soil potential more negative than -850 mV with respect to a Cu/CuSO ₄ reference electrode with protective current ON (galvanic) or temporarily interrupted (instant-OFF (impressed)). Inconclusive? <input type="checkbox"/>	
<input type="checkbox"/>	100 mV POLARIZATION	Structure(s) exhibit at least 100 mV of cathodic polarization. Inconclusive? <input type="checkbox"/>	
VII. ACTION REQUIRED AS A RESULT OF THIS EVALUATION (mark only one)			
<input checked="" type="checkbox"/>	NONE	Cathodic protection is adequate. No further action is necessary at this time. Test again by no later than (see Section V).	
<input type="checkbox"/>	RETEST	Cathodic protection may not be adequate. Retest during the next 90 days to determine if passing results can be achieved.	
<input type="checkbox"/>	REPAIR & RETEST	Cathodic protection is not adequate. Repair/modification is necessary as soon as practical but within the next 90 days.	
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VIII. DESCRIPTION OF UST SYSTEM

TANK	PRODUCT	CAPACITY	TANK MATERIAL	PIPING MATERIAL	FLEX CONNECTORS
1	Reg	Unknown	Steel	Steel	N
2	Diesel	Unknown	Steel	Steel	N
3	OR Diesel	Unknown	Steel	Steel	N
4					
5					
6					
7					
8					
9					
10					

IX. IMPRESSED CURRENT RECTIFIER DATA (complete all applicable)

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

RECTIFIER MANUFACTURER: <div style="text-align: center;">Brance Krachy</div>	RATED DC OUTPUT: <div style="text-align: center;">40 VOLTS 5 AMPS</div>
RECTIFIER MODEL: ES-2	RECTIFIER SERIAL NUMBER: 062378
RECTIFIER OUTPUT AS INITIALLY DESIGNED OR LASTLY RECOMMENDED (If available): VOLTS AMPS	

EVENT	DATE	TAP SETTINGS		DC OUTPUT		HOUR METER	COMMENTS
		COARSE	FINE	VOLTS	AMPS		
"AS FOUND"	5/14/2020	1	5	16	.8	Na	
"AS LEFT"	5/14/2020	1	5	16	.8	Na	

X. IMPRESSED CURRENT POSITIVE & NEGATIVE CIRCUIT MEASUREMENTS (output amperage)

Complete if the system is designed to allow such measurements (i.e. individual lead wires for each anode are installed and measurement shunts are present).

CIRCUIT	1	2	3	4	5	6	7	8	9	10	TOTAL AMPS
ANODE (+)											
TANK (-)											

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

Complete if any repairs or modifications to the cathodic protection system are made OR are necessary. Certain repairs/modifications as explained in the text of the VADEQ cathodic protection guidance document are required to be designed and/or evaluated by a corrosion expert (completion of Section V required).

<input type="checkbox"/>	Additional anodes for an impressed current system (attach corrosion expert's design).
<input type="checkbox"/>	Supplemental anodes for a STI-P3 tank or metallic pipe (attach corrosion expert's design or documentation industry standard was followed).
<input type="checkbox"/>	Repairs or replacement of rectifier (explain in "Remarks/Other" below).
<input type="checkbox"/>	plain in "Remarks/Other" below).
<input type="checkbox"/>	plain in "Remarks/Other" below).
<input type="checkbox"/>	plain in "Remarks/Other" below).

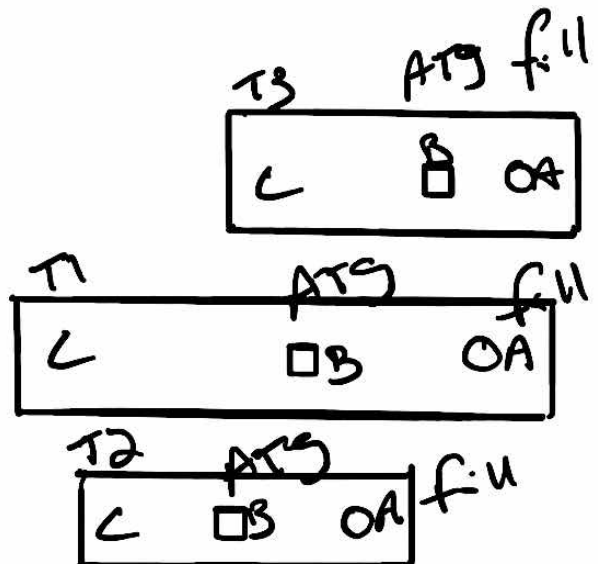
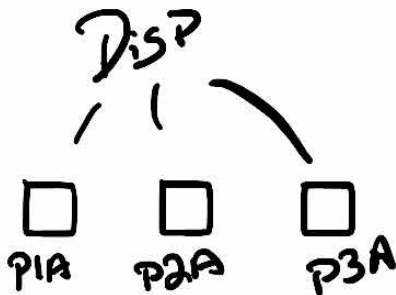
Remarks/Other:

XII. UST FACILITY SITE DRAWING

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 indicate the following: all tanks, piping and dispensers; all buildings and streets; all anodes and wires; location of CP test stations; and, each reference electrode placement must be indicated by a code followed by a "IC" or "G" to indicate the type of CP system (e.g., R1-IC, R2-G, etc.) corresponding with the appropriate line number in Section XIV of this form. (Note, CP test stations (PP4) may be questionable for use as described in Section 6.1.2)

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

see
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XIII. CATHODIC PROTECTION SYSTEM CONTINUITY SURVEY

- This section may be utilized to conduct measurements of continuity on UST systems that are protected by cathodic protection systems.
- When conducting a fixed cell - moving ground survey, the reference electrode must be placed in the soil at a remote location and left undisturbed.
- Conduct point-to-point test between any two structures for which the fixed cell - moving ground survey is inconclusive or indicates possible isolation.
- For impressed current systems, the protected structure must be continuous with all other protected structures in order to pass the continuity survey.
- For galvanic systems, the structure that is to be protected must be isolated from any other metallic structure in order to pass the continuity survey.

FACILITY NAME: Riverview General Store

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

DESCRIBE LOCATION OF "FIXED REMOTE" REFERENCE ELECTRODE PLACEMENT:

[illegible]

1. Describe the protected structure "A" that you are attempting to demonstrate is continuous (e.g. plus tank bottom).
2. Describe the "other" protected structure "B" that you are attempting to demonstrate is continuous (e.g. plus steel product line @ STP).
3. Record the fixed remote instant off structure-to-soil potential of the protected structure "A" in millivolts (e.g. -915 mV).
4. Record the fixed remote instant off structure-to-soil potential of the "other" protected structure "B" in millivolts (e.g. -908 mV).
5. Record the voltage difference observed between structure "A" and structure "B" when conducting "point-to-point" testing (e.g. 1mV).
6. Document whether the test (fixed cell and/or point-to-point) indicated the protected structure was isolated, continuous or inconclusive.

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XIV. CATHODIC PROTECTION SYSTEM SURVEY

This section may be utilized to conduct a survey of the cathodic protection system by obtaining structure-to-soil potential measurements.

- | | |
|---|--|
| <p>➤ For Impressed Current (IC) systems: the reference electrode must be placed (minimum of three locations) in the soil directly above the structure that is being tested and as far away from any active anode as practical to obtain a valid structure-to-soil potential (refer to the VADEQ cathodic protection evaluation guidance document for detailed discussion of electrode placement).</p> <p>➤ Both "on" and "instant off" potentials must be measured for each structure that is intended to be under cathodic protection.</p> <p>➤ The "instant off" potential must be -850 mV DC or more negative or the 100 mV DC polarization criterion must be satisfied in order to pass.</p> | <p>➤ For Galvanic (G) systems: the reference electrode must be placed (minimum of three locations) with at least one local and at least one placed remotely 25-100 feet away from the structure.</p> <p>➤ Both the local and remote voltage must be -850 mV DC or more negative, in order for the structure to pass.</p> <p>➤ Inconclusive is indicated when both the local and remote structure-to-soil potentials do not result in the same outcome (both must "pass" or both must "fail").</p> <p>➤ As a place to record the "galvanic CP system voltage", use the "On Voltage" fifth column below; and, in cases with supplemental anodes use the "Instant Off" column six.</p> |
|---|--|

FACILITY NAME:

Riverview General Store

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

LOCATION ¹ CODE	STRUCTURE ²	CONTACT POINT ³	REFERENCE CELL PLACEMENT ⁴	ON ⁵ VOLTAGE	INSTANT ⁶ OFF VOLTAGE	100 mV polarization		PASS/ FAIL
						ENDING ⁷ VOLTAGE	VOLTAGE CHANGE ⁸	
(example) R1-IC	(example) PLUS STEEL UST	(example) TANK BOTTOM	(example) SOIL @ PLUS TANK STP MANWAY	(example) -1070mV	(example) -875 mV			(example) PASS
(example) R2A-IC	(example) DIESEL PIPE	(example) DISPENSER 7/8	(example) SOIL @ DIESEL TANK STP MANWAY	(example) -810 mV	(example) -880 mV	(example) -575 mV	(example) 105 mV	(example) PASS
(example) R2B-IC	(example) DIESEL PIPE	(example) DISPENSER 7/8	(example) SOIL @ DIESEL TANK STP MANWAY	(example) -810 mV	(example) -720 mV	(example) -630 mV	(example) 90 mV	(example) FAIL
(example) R3A-G	(example) PREMIUM sti-P3 ⁹	(example) TANK BOTTOM	(example) SOIL @ PREM. TANK STP MANWAY	(example) -960 mV	(example) NA	(example) NA	(example) NA	(example) PASS
(example) R3B-G	(example) PREMIUM sti-P3 ⁹	(example) TANK BOTTOM	(example) SOIL @ PREM. TANK STP MANWAY	(example) -580 mV	(example) NA	(example) NA	(example) NA	(example) FAIL
(example) R3C-G	(example) PREMIUM sti-P3 ⁹	(example) TANK BOTTOM	(example for supplemental anode cases) SOIL @ PREM. TANK STP MANWAY	(example) -1070mV	(example) -855mV	(example) NA	(example) NA	(example) PASS
R1A-IC	Reg tank	Tank bottom	Soil @ Front	-1070	-876			Pass
R1B-IC			Soil @ middle	-1264	-912			Pass
R1C-IC			Soil @ End	-1143	-878			Pass
P1A-IC	Reg pipe	Pipe @disp	Soil @ disp	-1330	-1009			Pass
R2A-IC	Diesel tank	Tank bottom	Soil @ Front	-1289	-996			Pass
R2B-IC			Soil @ middle	-1146	-887			Pass
R2C-IC			Soil @ End	-1243	-912			Pass
P2A-IC	Diesel pipe	Pipe@disp	Soil @ disp	-1342	-1007			Pass
R3A-IC	OR Diesel	Tank bottom	Soil @ Front	-1424	-1006			Pass
R3B-IC			Soil @ middle	-2050	-1123			Pass
R3C-IC			Soil @ End	-1623	-1053			Pass
P3A-IC	Or pipe	Pipe@disp	Soil @ disp	-1287	-1064			Pass

COMMENTS: No access to piping at tank tops

Use copies of this page as needed for additional reference cell readings.

- Designate numerically or by code on the site drawing each local reference electrode placement (e.g. R1-IC, R2-G, R3-IC... etc.)
- Describe the structure that is being tested (e.g. plus tank; diesel piping; flex connector, etc.)
- Describe where the structure being tested is contacted by the test lead (e.g. plus tank bottom; diesel piping @ dispenser 7/8; etc.)
- Describe the exact location where the reference electrode is placed for each measurement (e.g. soil @ regular tank STP manway; soil @ dispenser 2, etc.)
- (Applies to all tests) Record the structure-to-soil potential (voltage) observed with the current applied (e.g. -1070 mV.)
- (Applies to all tests) Record the structure to soil potential (voltage) observed when the current is interrupted (e.g. 880 mV.)
- (Applies to 100 mV polarization test only) Record the voltage observed at the end of the test period (e.g. 575 mV.)
- (Applies to 100 mV polarization test only) Subtract the final voltage from the instant off voltage (e.g. 880 mV - 575 mV = 105 mV.)
- Indicate if the tested structure passed or failed one of the two acceptable criteria (850 instant off or 100 mV polarization) based on your interpretation of data.