3.5	RGINIA DEQ	4	CATHO	OIC F	ROTECTION	SYST	EM E	/ALU	ATION	FOR	M 🚉	7531-CP	(05/06)
*	This for	m should be	utilized to eva	aluate (	underground storage	tank (US	T) cathodi	c protect	ion systems	s in the	Commonwe	ealth of Virgin	ia.
<ul> <li>Access to the soil directly over the cathodically protected structure that is being evaluated must be provided.</li> <li>A site drawing depicting the UST cathodic protection system and all reference electrode placements must be completed.</li> </ul>													
		I. US	T OWNE	1					II. UST				
NAME:									Gener			ID#	
ADDRE	<b>SS:</b>					-			wesvil	le Ro	1		
СПҮ:			PHO	NE:	<u> </u>	спу: Д	mher	st			COUNTY:		
STATE:			ZIP:			STATE:	VA	ZIP:			PHONE:		
III. REASON SURVEY WAS CONDUCTED (mark only one)  Routine - 3 year Routine - within 6 months of installation 90-day re-survey after fail Re-survey after repair/modification											adification		
200			rvey must be	CONTRACTOR OF				1000		ar Company	100 W 5-2-1	arter repair/ir every 3 years	See son Ar
- Outo no	A GARIOGIO				PROTECTION	TESTE				The state of the s		svery 3 years	u lerealter).
X	PASS	All protecte provided to	d structures a	at this f	acility pass the catho	dic protecticable by	tion surve	y and it i	s judged that	at adequ	uate cathod	ic protection	has been
	FAIL One or more protected structures at this facility fail the cathodic protection survey and it is judged that adequate cathodic protection has											otection has	
TESTER	not been provided to the UST system(s) (complete Section VII).  TESTER'S NAME: Rick Umbel source of CERTIFICATION ST												
COMPA	NY NAME:	Precis	ion Tan	k Se	ervice	TYPE (	OF CERTIF	CATION:	Cp to	ester			
ADDRE	ss: PC	Box 2	040			CERTI	CATION I	UMBER:	71311				
спу:С	Cornel	us	STATE: N	Ç	28031 روي <u>ت</u>	PHONE	:	704-	892-86	600			
CP TES	TER'S SIGI	LATURE:	Kechak	50	full	DATE	SIGNED:	5/14/2	020 DAT	TE CPSI	JRVEY PERI	FORMED:	5/14/2020
			V. C	ORR	OSION EXPER				10V41/112 2/52/41				37.17255
system	are made;	<ul><li>b) stray curre</li></ul>	nt may be affe	ecting b	a <u>corrosion expert</u> when puried metallic structure ental Anodes to sti-P <sub>3</sub>	s or c) an	emental ar inconclusiv	odes or o	other change was written in	es in the n Section	construction VI. (except	of the cathod for under ST	ic protection I-R972 –
	PASS	All protecte	d structures	at this	facility pass the catho	dic protec	tion surve	y and it i	s judged thation VI).	at adequ	ate cathod	ic protection	has been
	FAIL	One or mor not been p	re protected s rovided to the	structur UST	res at this facility fail t system (indicate what	he cathod t action is	ic protecti necessar	on survey y by com	y and it is ju pletion of S	udged the ection V	at adequate	e cathodic pr	otection has
CORR	OSION EX	PERT'S NA	ME:			SOUF	CE OF C	ERTIFIC	ATION:				
COMP	ANY NAM	E:				TYPE	OF CERT	IFICATION	ON:			=00 = <del>00</del>	
ADDRI	ESS:				65 50865	CERT	IFICATIO	N NUMB	ER:				
CITY:			STATE:		ZIP:	PHONE:							A 25
CORR	OSION EX	PERT'S SIG	NATURE:								ATE:		
			VI. CRIT	ERI/	A APPLICABLE	E TO E	VALUA	TION	(mark all	that ap	ply)		
<b>IX</b>		ON / (ns			ture-to-soil potential r								
100 mV POLARIZATION Structure(s) exhibit at least							t 100 mV of cathodic polarization. Inconclusive?						
VII. ACTION REQUIRED AS A RESULT OF THIS EVALUATION (mark only one)													
X		No furthe	r action is	necessa	ry at this tir	me. Tes	t again by r	no later than	(see Section				
	F	RETEST  Cathodic protection may not be adequate. Retest during the next 90 days to determine if passing result achieved.									assing result	s can be	
	REPA	Cathodic protection is not adequate. Repair/modification is necessary as soon as practical but within the next 90 days.										e next 90	
<b>外水</b> 病 生之 <sup>3</sup> 6	egi PO	PRO BOX 10009, F	ODUCED BY RICHMOND.	THE \ VA <b>23</b> :	VIRGINIA DEPARTM 230-0009 ₹PHONE	ENT OF (804) 698	ENVIRON 3-4010	MENTAI FACSIMI	QUA <b>L订</b> Y LE (804) 69	. UST P 98-4266	ROGRAM . www.dec	virginia gov	

TANK   PRODUCT   CAPACITY   TANK MATERIAL   PIPING MATERIAL   FLEX CONNECTORS							39	VIII. E	DESCRIP	O NOIT	F UST S	YST	EM				
2 Diesel Unknown Steel Steel N 3 OR Diesel Unknown Steel Steel N 4   Steel N 5   Steel N 6   N 7   Steel N 8   Steel N 8   Steel N 9   Steel N 8   Steel N 9   Steel N 8   Steel N 9   Ste	TANK	PR								A CONTRACTOR OF THE PARTY OF TH				FL	FLEX CONNECTORS		
2 Diesel Unknown Steel Steel N  3 OR Diesel Unknown Steel Steel N  4 4 5 6 6 7 8 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 rediffer operation is necessary.  RECTIFIER MANUFACTURER:  Brance Krachy 40 VOLTS 5 AMPS  RECTIFIER MODEL:  ES-2 RECTIFIER MANUFACTURER STALLY DESIGNED OR LASTLY RECOMMENDED (if available):  VOLTS 5 AMPS  RECTIFIER WOLTS STALLY DESIGNED OR LASTLY RECOMMENDED (if available):  VOLTS 6062378  RECTIFIER STALL NUMBER: 062378  RECTIFIER OUTPUT AS INITIALLY DESIGNED OR LASTLY RECOMMENDED (if available):  VOLTS 6062378  RECTIFIER STALL NUMBER: 062378  RECTIFIER MODIL: 062378  RECTIFIER MODIL: 062378  RECTIFIER STALL NUMBER: 062378  RECTIFIER STALL NUMBER: 062378  RECTIFIER NODE: 062378  RECTIFIER NODE: 062378  RECTIFIER NODE: 062378  RECTIFIER NODE: 062378  RECTIFIER NO	1	Rec	1	Unk	Unknown Steel						Steel			N			
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A S S S S S S S S S S S S S S S S S S S	3	OR	Diesel	Un							Steel				N N		
Recomplete if the system is designed to allow such measurements (i.e. individual lead wires for each anode are installed and measurement shurts are present).    Name	4	CIT DIGGGI CHRIGWII											-				
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Name	6																
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PRODUCED BY THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, UST PROGRAM
PO BOX 10009, RICHMOND, VA 23230-0009 PHONE (804) 698-4010 FACSIMILE (804) 698-4266 www deq virginia.gov

## 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.

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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.

FACIL	JTY.	NAME: Riverview		~.
		Riverview	General	Stor

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:

STRUCTURE "A" 1	STRUCTURE "B" <sup>2</sup>	STRUCTURE"A" <sup>3</sup> FDIED VOLTAGE (mV)	STRUCTURE "B-4 FEXED VOLTAGE (mV)	PORIT-TO-PORIT <sup>5</sup> VOLTAGE DIFFERENCE	ISOLATED/ 6 CONTINUOUS
(example) PLUS TANK BOTTOM	(example) PLUS STEEL PRODUCT LINE @ STP	(example) -915 mV	(example) -908 mV		(example) INCONCLUSIVE
(example) PLUS TANK BOTTOM	(example)  PLUS STEEL PRODUCT LINE @ STP	-913 1110	-900 IIIV	(example) 1 mV	(example) CONTINUOUS
Rec neg	Reg tank bottom			O mv	Cont
**************************************	Reg fill			O mv	Cont
	Reg atg			O mv	Cont
	Reg line @Disp			O mv	Cont
	Diesel tank bottom			O mv	Cont
	Diesel fill	V. CO. 100 THE CO.		O mv	Cont
	Diesel atg			O mv	Cont
	Diesel line@ disp			O mv	Cont
	OR Diesel tank bottom			O mv	Cont
	Or diesel fill			O mv	Cont
	Or diesel atg			O mv	Cont
	Or line @ disp			O mv	Cont
	10 10 10 10 10 10 10 10 10 10 10 10 10 1				

- 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.

- 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).
- Both 'on' and Instant off' potentials must be measured for each structure that is intended to be under cathodic protection.
- 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.
- For Gatvanic (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.
- Both the local and remote voltage must be -850 mV DC or more negative, in order for the structure to pass.
- Inconclusive is indicated when both the local and remote structure-tosoil potentials do not result in the same outcome (both must "pass" or both must "fair").
- 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.

#### **FACILITY NAME:**

Riverview General Store

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

	29	CONTACT POINT <sup>®</sup>	~	ON <sup>8</sup> VOLTAGE	INSTANT S OFF VOLTAGE	100 mv po	PASS/	
CODE	STRUCTURE 2		REFERENCE CELL PLACEMENT			ENDING <sup>7</sup> VOLTAGE	VOLTAGE CHANGE	FAIL
(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) -680 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 <sup>e</sup>	(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 stj-P3 <sup>e</sup>	(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	(example) TANK BOTTOM	(example for supplemental anode cases) SOIL @ FREM. 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	- ((i a à		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	Ü		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	Notes		Pass

COMMENTS:

No access to pipng at tank tops

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

- 1. Designate numerically or by code on the site drawing each local reference electrode placement (e.g. R1-IC, R2-G, R3-IC...etc.)
- 2. Describe the structure that is being tested (e.g. plus tank; diesel piping; flex connector, etc.)
- 3. Describe where the structure being tested is contacted by the test leed (e.g. plus tank bottom; diesel piping @ dispenser 7/8; etc.)
- 4. Describe the exact location where the reference electrode is placed for each measurement (e.g. soil @ regular tank STP manway; soil @ dispenser 2, etc.)
- 5. (Applies to all tests) Record the structure-to-soil potential (voltage) observed with the current applied (e.g. -1070 mV.)
- 6. (Applies to all tests) Record the structure to soil potential (voltage) observed when the current is interrupted (e.g. 650 mV.)
- 7. (Applies to 100 mV polarization test only) Record the voltage observed at the end of the test period (e.g. 575 mV.)
- s. (Applies to 100 mV polarization test only) Subtract the final voltage from the instant off voltage (e.g. 680 mV 575 mV = 105 mV.)
- 9. 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.

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