pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

UST CATHODIC PROTECTION SYSTEM EVALUATION FORM

This form may be utilized to evaluate underground storage tank (UST) cathodic protection systems.

- Access to the soil directly over the cathodically protected structure that is being evaluated should be provided.
- A site drawing depicting the UST cathodic protection system and all reference electrode placements must be completed if this form is used.

The criteria that are used to determine that cathodic protection is adequate as required by the Storage Tank Act shall be in accordance with a code of practice developed by a Nationally recognized association.

I. FACILITY INFORMATION – Type or print (in ink) all items.

Facility ID #:	Facility Name:	
Facility Street Address:		
Facility Telephone:	County:	Municipality:

II. REASON SURVEY WAS CONDUCTED – Mark only one.

☐ Routine / Required
☐ Post-Installation – within 6 months of installation
☐ Re-survey after fail
☐ Re-survey after repair/modification

Cathodic Protection Survey Date: _____

Date by which next cathodic protection survey must be conducted: _____
(Required within 6 months of installation/repair and at least every 3 years thereafter).

SYSTEM TYPE – Mark one or both
☐ **Galvanic**
☐ **Impressed Current**

III. CATHODIC PROTECTION TESTER'S EVALUATION – Mark only one.

☐ **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(s) (indicate all applicable criteria in Section V).
☐ **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).
☐ **Inconclusive**	The cathodic protection tester is unable to conclusively evaluate the cathodic protection system.

Tester's Name:	Company Name:	
Address:	City/State:	Phone:
Certification Source/Type:	Certification #:	
Nationally Recognized Association Followed for Test:		
Tester's Signature:	Date Signed:	

IV. CORROSION EXPERT'S EVALUATION – Mark only one.

Section IV only needs to be completed if the cathodic protection system evaluation was conducted by a cathodic protection tester and was declared "inconclusive" in Section III above.

☐ **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(s) (indicate all applicable criteria in Section V).
☐ **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 VI).

Corrosion Expert's Name:	Company Name:	
Address:	City/State:	Phone:
NACE Int./P.E. certification:	Certification #:	
Corrosion Expert's Signature:	Date Signed:	

V. CRITERIA APPLICABLE TO EVALUATION – Mark all that apply.

☐ **850 mV On**	Structure-to-soil potential more negative than -850 mV with respect to a $Cu/CuSO_4$ reference electrode with the protective current on (galvanic systems only).
☐ **850 mV Off**	Structure-to-soil potential more negative than -850 mV with respect to a $Cu/CuSO_4$ reference electrode with the protective current temporarily interrupted (galvanic and/or impressed current systems).
☐ **100 mV Polarization**	Structure(s) exhibit at least 100 mV of cathodic polarization (galvanic and/or impressed current systems).

VI. 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 the date listed in Section II.
☐ **Retest**	Cathodic protection may not be adequate. Retest to determine if passing results can be achieved.
☐ **Repair & Retest**	Cathodic protection is not adequate. Repair or modification is necessary.

Facility ID #: _____ **Facility Name:** _____ **Survey Date:** _____

VII. DESCRIPTION OF UST SYSTEM

Complete this section for each UST system that utilizes a cathodic protection system to meet corrosion protection requirements.

1. Indicate the Tank Sequence # from the facility's Storage Tank Registration/Permit Certificate (e.g. 001, 002, etc.)
2. Indicate if the tank is Double Wall (DW) or Single Wall (SW), and its type (e.g. steel, sti-P_3®, fiberglass, composite, etc.)
3. Indicate if the piping is Double Wall (DW) or Single Wall (SW), and its type (e.g. fiberglass, flexible plastic, coated steel, galvanized, copper, etc.)
4. Indicate how metal pipe segments such as flex connectors and other pipe fittings are protected from corrosion (e.g. CP w/ anodes, booted, in containment, not in contact w/ soil, etc.)

Tank #[1]	Product	Capacity (gallons)	Tank Type[2]	Piping Type[3]	Metal Segments at Tank[4]	Metal Segments at Dispenser[4]
Ex. 001	*Diesel*	*10,000*	*SW sti-P_3®*	*DW Fiberglass*	*CP w/ anodes*	*In Containment*

VIII. IMPRESSED CURRENT RECTIFIER DATA – Complete all applicable.

Rectifier Manufacturer:	Rated DC Output: _____ volts _____ amps
Rectifier Model:	Rectifier Serial Number:

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"							
"As Left"							

60-DAY LOG OF RECTIFIER OPERATION – Document the last three amp readings (plus volts and hours where available), recorded at least once every 60 days

	Date	DC Output		Hour Meter	Comments
		Volts	Amps		
Most Recent					
60-Days Prior					
120-Days Prior					

IX. IMPRESSED CURRENT POSITIVE & NEGATIVE CIRCUIT MEASUREMENTS

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 (-)											

Facility ID #: _____ **Facility Name:** _____ **Survey Date:** _____

X. CATHODIC PROTECTION SYSTEM SURVEY

Location[1] Code	Contact Point[2]	Reference Cell Placement[3]	On[4] Voltage (mV)	Instant[5] Off Voltage (mV)	100 mV Polarization		Pass/[8] Fail
					Ending[6] Voltage (mV)	Voltage[7] Change (mV)	

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, and where the structure being tested is contacted by the test lead (e.g. plus tank bottom; diesel piping @ dispenser 7/8; etc.)
3. Describe the exact location where the reference electrode is placed for each measurement (e.g. soil @ regular tank STP manway; soil @ dispenser 2, etc.)
4. Record the structure-to-soil potential (voltage) observed with the current applied (e.g. –1070 mV.)
5. If applicable, record the structure to soil potential (voltage) observed when the current is interrupted (e.g. 680 mV.)
6. {Applies to 100 mV polarization test only} Record the voltage observed at the end of the test period (e.g. 575 mV.)
7. {Applies to 100 mV polarization test only} Subtract the final voltage from the instant off voltage (e.g. 680 mV – 575 mV = 105 mV.)
8. Indicate if the tested structure passed or failed one of the acceptable criteria.

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

Facility ID #: _____ **Facility Name:** _____ **Survey Date:** _____

XI. COMMENTS

The comments section should be used to note additional information discovered or actions taken during the cathodic protection survey that affect compliance at the facility. For example, include comments concerning any observations made by the tester that would affect the survey results.

Record phone conversations or email correspondence with DEP personnel that took place concerning this survey.

If additional comment sheets are needed, label each sheet with the report header information and attach the sheet(s) to the back of this form.

Facility ID #: _____ **Facility Name:** _____ **Survey Date:** _____

XII. UST FACILITY SITE DRAWING

Provide a detailed site drawing of the UST(s) and cathodic protection system(s) in the space below (or attach a detailed site drawing prepared on a separate sheet). At a minimum, indicate the following: all tanks, piping, and dispensers; all buildings and streets; all anodes, wires, and rectifiers; and the location of any cathodic protection test stations. In addition, clearly indicate where the reference electrode was placed for each structure-to-soil potential measurement. Label each reference electrode placement by the code (e.g. R1-IC, R2-G, R3-IC, etc.) that corresponds to the respective structure-to-soil potentials documented in Section X. Any other pertinent data should also be included.

An evaluation of the cathodic protection system should not be considered complete without an acceptable site drawing.