



INSTALLATION MANUAL FOR PROTECTED UNDERGROUND STORAGE TANK

(factory installed anodes)

INDEX

Preface	Page 2
Preparation	Page 3
Installation	Page 4
Testing.....	Page 5
Typical installation sketch no.1	Page 6
Fill and monitoring collar sketch no.2	Page 7
Potential records	Page 8
Tank installation checklist.....	Page 9



PREFACE

*Information contained herein is abstracts of standard
ULC-S-603-1M-1985 and ULC-S-603-M-1985.*

These standards are available from:

Underwriters Laboratories of Canada
7 Course Road
Scarborough, ON M1R 3A9

Telephone: (416) 757-3611
Fax: (416) 757-9540

1. Installers and owners have to comply with the requirements of the above mentioned standards and published regulations of the authorities having jurisdiction.
2. Useful information is also available from Petroleum Equipment Institute, Publication PEI/RP-100-86 *"Recommended Practices for Installation of Underground Liquid Storage Systems"*.

PREPARATION

1. Upon receipt of storage tank (s), the installer will verify the availability of the following accessories and materials :
 - ❖ outside coating patching kit;
 - ❖ monitor collar kit **;
 - ❖ special sealing compound no.3332 to be used on all steel to nylon threaded pipe joints;
 - ❖ capacity chart;
 - ❖ potential record sheet. *

** Supplied by tank manufacturer

2. The excavation will present smooth surfaces and provide the following minimum clearances :
 - 300 mm around single tank and
600 between adjacent tanks.
 - 150 mm below tank expected bottom elevation.
 - ❖ All tanks subject to high water table uplift must be held by straps and concrete slab assembly or equivalent appropriate system.
 - ❖ Anchor bolts supplied with tanks must be installed leaving only the threaded section outside of the concrete base.

INSTALLATION

1. The bottom of excavation must be provided with a layer of clean sand or gravel type "B", properly tamped or compacted at the anticipated slope.
2. The tank will have been touched up for handling scratches (if any). It will be fitted with slings attached at lifting lugs only and lowered carefully in position (strapped if required).
3. After second inspection for scratches and patching if necessary, factory attached anodes will be wetted and backfilled in about 600 mm layer, properly tamped or compacted is executed, up to top of tank leaving connections exposed.
4. The fill pipe will now be installed at the 4" connection closed to tank end and monitor collar will be mounted with wire connected to brass bolt and wire connector on tank (see sketch 2).

Note

The tank leak testing will be done during installation at the stage specified by the authority having jurisdiction and at the following air pressure (except as specified).

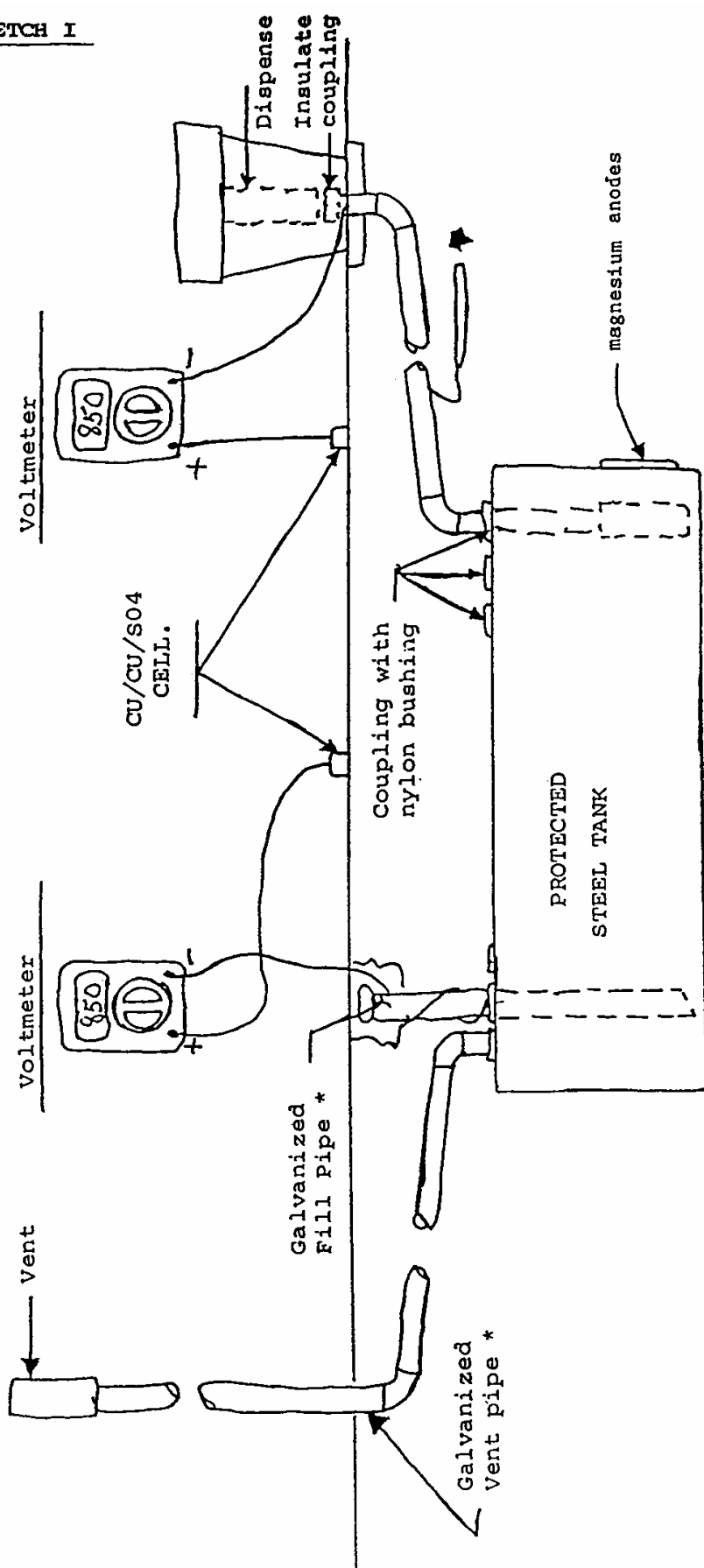
TANK DIAMETER

	1750 mm and less	1750 mm to 2990 mm	3000 mm and above
air pressure K.P.	30 min / 35 max	20 min / 30 max	10 min / 20 max

5. It is recommended that tank be ballasted in case of heavy rain, storm or high water table, except if it is anchored adequately.
6. Upon completion of piping and leak testing, backfilling is completed and top surface is applied.

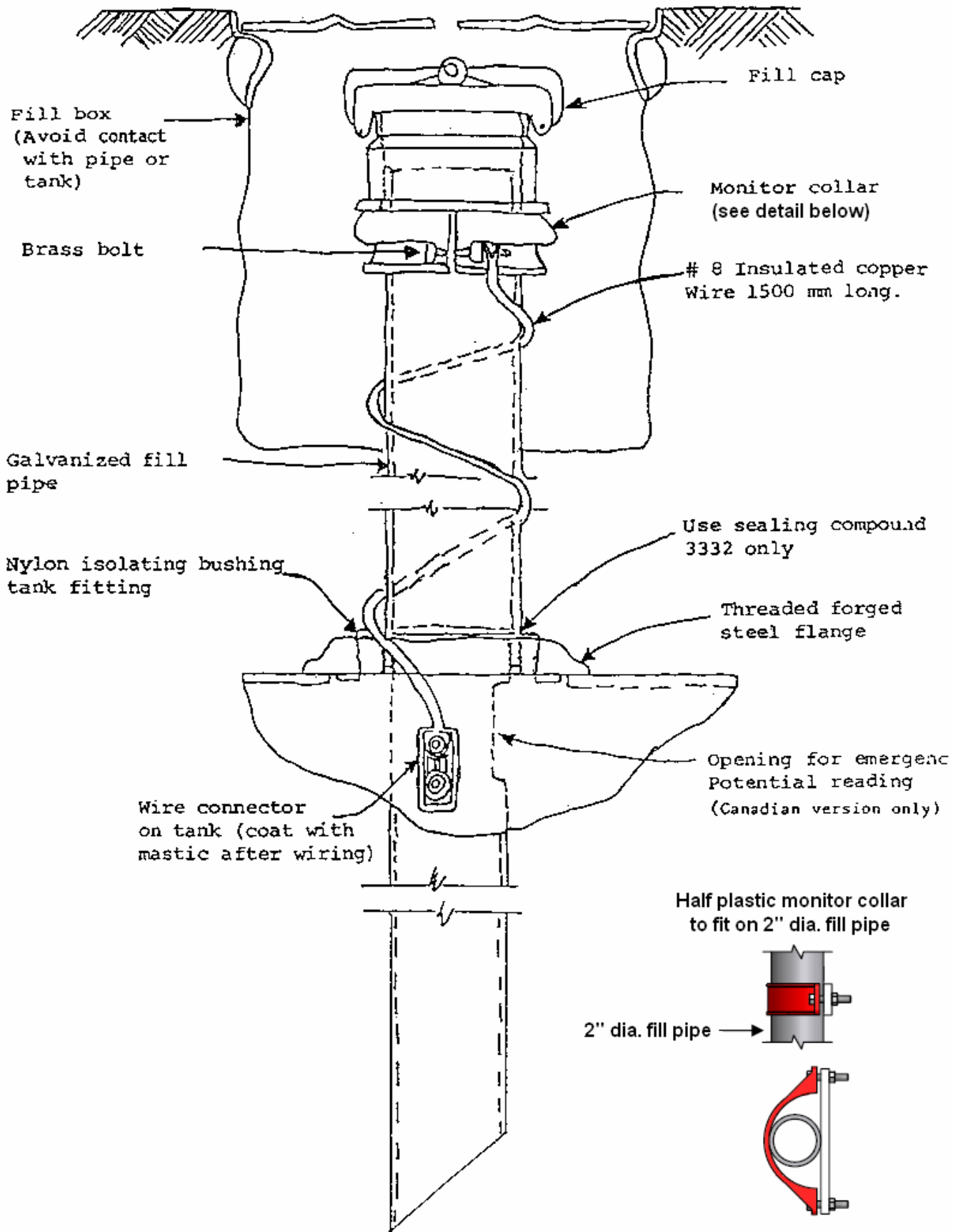
PROTECTION SYSTEM TESTING

1. The potential difference of the tank with respect to magnesium anodes will be measured with a 10 mega ohm voltmeter and copper-copper sulphate cell at the following time intervals :
 - ❖ upon installation completion;
 - ❖ six months after installation;
 - ❖ every two years thereafter.
2. All potential readings of 850 mill volts and more, measured as indicated on sketch no.1, indicates that galvanic protection is functioning satisfactorily.
3. All readings must be recorded on the Potential records sheet (page 8).



NOTE: * No anode required for galvanized piping providing threaded area is protected by mastic compound. All other protected steel piping shall be provided with magnesium anodes in accordance with recommendation outlined in ULC-S-603-IM-1985.

SKETCH II



TANK INSTALLATION CHECKLIST

Owner : _____
 Tank location : _____

Tank capacity : _____
 Single or double wall : _____
 Dimensions : _____
 Serial number UL : _____
 Serial number ULC : _____

	Yes <input type="checkbox"/>	No <input type="checkbox"/>
HANDLING :		
Is lifting equipment of adequate capacity to lift and lower the tank without damaging it?		
Have scratches been repaired with the included patching kit?		
EXCAVATION		
Is the excavation made in accordance with : manufacturer's instructions?		
authority's requirements?		
ANCHORING		
Is anchoring made in accordance with the authority's requirements?		
Type of anchoring used : anchoring not required		
concrete pad over the excavation		
concrete pad at the bottom of the excavation with hold down straps		
are straps electrically isolated from the tank		
are bolts evenly tightened		
LEAK TESTING		
Has the tank been tested in accordance with : manufacturer's instructions?		
Authority's requirements?		
ANODES		
If applicable, has the plastic wrap around the anodes been removed?		
Have anodes been fully soaked in water before back filling?		
Have final touch-up been made?		
Is electrical connector plate well coated with patching kit?		
Has the electrical wire connection to the monitor collar been performed?		
BACKFILLING		
Is backfilling in accordance with the authority's requirements?		
Clean sand without loose gravel?		
Has pea gravel been used?		
Has compaction been done?		
PIPING		
Has electrical isolation of connections been verified?		
Is tank fully isolated electrically from all surrounding equipment?		
CATHODIC PROTECTION MONITORING		
Has potential reading been taken before final backfilling?		
Is the potential reading more negative than : -0.85V for Cu/CuSO4 reference cell?		
or than +0.25 if a zinc anode reference has been used?		

COMMENTS : _____

INSTALLER SIGNATURE

Name _____
 Address _____

 Phone _____ Date _____

INSPECTOR'S SIGNATURE (IF APPLICABLE)

Name _____ Date _____

Notes: Herein, the term, "Authorities requirements" means requirements of codes, laws and regulations which are mandatory by the authorities having jurisdiction where the tank is installed.

Please, send us a copy of this form duly completed as soon as the installation is done.

