



**Ministry of Public Works**  
**Ministry of Public Works Headquarters**

**Request for Proposals**  
**For**  
**Bulk Fuel Supply and Infrastructure Upgrades 2022**  
**ADDENDUM 5**

Request for Proposals No.: **2022-003P-MPW**

Issued: **Wednesday September 17, 2022**

Submission Deadline: **Wednesday November 23, 2022 03:00:00 PM AST**

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## **ADDENDUM 5**

### **5.1 Response to Questions Received**

Responses to questions received by November 9, 2022 are in the next pages.

Questions	Responses
<p><b>1. RFP Table of Contents</b></p> <p><b>1.1.</b> The Table of Contents has a listed 'Annex L' known as 'Health and Safety Checklist'. There is also a listed 'Annex O', known as 'Local Benefits'. This 'Local Benefits' document has the words, 'Annex L' as its header. Which document is the real 'Annex L'?</p>	<p>The Table of Contents is correct.</p> <p>Annex L - Health and Safety Checklist</p> <p>Annex O - Local Benefits</p>
<p><b>2. RFP – Annex B – Pricing</b></p> <p><b>2.1.</b> Section 2 of Annex B – Pricing Form indicates that the RFP desires a fixed price discount structure from the Retail Posted Price (“RPP”) as approved by the Minister of Finance, which could be for the entire duration of the proposed contract term.</p> <p>This Standard of pricing in prior practices was achievable as the RPP movements were calculated in sympathy to the established International Standard of Platts. Is the RFP Evaluation Team aware that the Fuel Industry is now regulated by the recent Fuels Act 2022, which shifts pricing responsibility matters from the Minister of Finance to the Regulatory Authority?</p>	<p>Yes.</p>
<p><b>2.2.</b> Part 6 of this Fuels Act 2022 outlines that the RPP shall be in accordance with such rates as may be established from time to time by the Regulatory Authority in accordance with the conditions of the licence and the principles set forth in Section 29.</p> <p>Section 29 of this Fuels Act 2022 outlines that it will be the Regulatory Authority that shall determine the Tariff Methodology. As this is new regulations, the Regulatory Authority has yet to perform their public General Determination which will guide them in the creation of the necessary Regulations to guide the Retail Tariff, and by extension, the RPP.</p>	<p>The proponents are directed to bid the documents as they are presented. It is expected that this contract will be in place before the RA is completely set up and fully functioning. We recognize the concerns regarding changes to the manner in which the fuel price may be calculated in the future.</p>

<p>With this pending shift in how the RPP will be established, what assurances will the Proponents receive that any fixed price discount structure from RPP which they include in their RFP Submission (which was based off current Market Price Calculations) will not be affected by future &amp; unknown Regulations (pricing &amp;/or tariff-setting) by the Regulatory Authority, in order to maintain the financial viability of the Proponent's offer?</p>	
<p><b>3. RFP Annex C</b>  <b>3.1. A – Introduction</b>  3.1.1.A-4 requests that a Gap Analysis be provided for each fuelling site. Is this Gap Analysis just for the fuelling sites visited during the 07-October-2022 Mandatory Site Meeting?</p>	<p>A-4 requests that a Gap Analysis be provided for each fuelling site. This means that each fuelling site requires a gap analysis not just the larger or more complex fuelling sites.</p>
<p><b>3.2. B – Supply and Delivery of Fuel Products</b>  3.2.1. Table 1 lists a combined 2019 consumption for both the Central Fire Station and the Western Fire Station of 50,000 L of diesel &amp; 10,000 L of gasoline. What was the consumption per Fire Station?  3.2.2.How many vehicles are stationed at each Fire Station, and what is the breakdown by fuel type?</p>	<p>The current fuel reporting system does not capture that level of detail.   These vehicles change over time, we do not have this information available to share with you.</p>
<p><b>3.3. B-11 – Insurance Requirements</b>  3.3.1.Are copies of Commercial General Liability Insurance &amp; Contractor's All Risk Insurance policies required to be part of the Mandatory RFP Submission, or only required once the Proponent is successful?</p>	<p>The insurance policies will have to be submitted before a contract can be signed with the successful proponent but do not need to accompany the tender submission.</p>
<p><b>3.4. C-38 – PTB Palmetto Road</b>  3.4.1.Annex CC-38-4 states that, <i>'The successful Proponent must make good the existing paving stone driveway around the new aboveground fuel tanks as well as over the existing underground fuel tanks on completion of the project. As it is</i></p>	<p>3.4.1.1 Before the construction begins at all sites, it is advised that the proponent and the owner will document the areas to be affected by the constriction. Obviously the areas that are excavated will need to be reinstated. Other areas that are outside of the immediate construction site that are damaged by the construction efforts are expected</p>

<p><i>expected that the brick paving will get torn up by construction traffic during the new installation, the successful Proponent must repair the driveway paving and strengthen the driveway from the Palmetto Road property entrance to the area of the fuel tanks works.'</i></p> <p>3.4.1.1. Is the expectation that the Proponent to:</p> <p>3.4.1.2. repair the parts of the paving stone driveway that have been damaged during construction as per the 1<sup>st</sup> sentence above, or</p> <p>3.4.1.3. to repair the entire driveway from the Palmetto Road property entrance to the area of the fuel tanks works, as per the 2<sup>nd</sup> sentence above.</p> <p>3.4.1.4. There is a conflict in this Scope as outlined in Annex C-C-38-4 with the Scope outlined in Annex C-A-5-1. Which scope is correct?</p> <p>3.4.2. In Addendum # 1, you stated that during the period of April 2022 to September 2022, PTB purchased \$612,000 of diesel fuel. What was the amount of diesel fuel purchased during April 2019 to September 2019?</p>	<p>to be reinstated. If nothing outside of the construction site is damaged then no reinstatement is required. Good records will be required.</p> <p>3.4.1.4 The tender documents are to be read as a whole and not a pick and choose. The clause A.5.1 is in the Introduction to the Scope of Work and C.38.4 provides detailed information to elaborate on the Scope Of Work for that site.</p> <p>3.4.2 We are trying to get that data for you.</p>
<p><b>3.5. C-40 – Marine &amp; Ports</b></p> <p>3.5.1.C-40-1 refers to directing Proponents to review <i>Annex K, 'Design Documentation'</i>, for additional details. Annex K in the RFP is the National Fuels Policy. Please clarify.</p> <p>3.5.2. It was mentioned during the Mandatory Site Visit of 7<sup>th</sup> October, that the Scope of Work regarding the Corporation of Hamilton's water tank had changed from the 2020 RFP. Grateful if you could officially confirm that the following Action Items will now be undertaken by W&amp;E, and not the Proponent:</p> <p>3.5.2.1. Partial demolition and removal of existing planter and retaining walls to allow access to water tank below.</p>	<p>3.5.1 In the Scope Of Work Clause C-40.1 Please replace "Annex K Design Documentation" with "Annex E – Marine &amp; Ports Utility Drawings".</p> <p>3.5.2 The water tank will be prepared, by others, to receive the new fuel tanks such that the top of the existing water tank will be removed, the interior will be plastered and prepared to receive the new fuel tanks and associated fuel monitoring equipment. This proponent will be expected to coordinate their work with the other contractors. Any chases, openings, coring or piping for fuel related equipment or systems will be by this proponent. The closing of the tank cover and associated works will be by others.</p>

<p>3.5.2.2. Existing items to be carefully removed, protected, and returned to the City of Hamilton for future use</p> <p>3.5.2.2.1. "City of Hamilton" sign</p> <p>3.5.2.2.2. Existing statue on east side of planter</p> <p>3.5.2.3. Installation of temporary fencing to block pedestrian traffic from open water tank.</p> <p>3.5.2.4. Installation of a partition block wall to create a separate chamber to house fuel tanks</p> <p>3.5.2.5. New concrete pour over previously excavated area once fuel tank &amp; associated equipment have been installed, including new manhole access for water tank.</p> <p>3.5.2.6. Planter to be re-built and re-planted, including the provision of new soil.</p> <p>3.5.2.7. Coordination with the City of Hamilton for re-installation of signage and statue previously removed.</p>	
<p><b>3.6. C-41 – Department of Corrections: Westgate, Pender Road, Sandy’s</b></p> <p>3.6.1. In the 2020 version of this RFP, the issued Addendum # 4 listed in A-4 that there was an assumption that the pipeline for the 500 USG AST within the prison compound and beyond the security Sally Port gates and fed by the main 4,500 USG holding tank would need to be replaced. In Annex C of the 2022 version, Section C-41-2-6 now states that the pipeline does not need to be replaced. Has there been some survey &amp;/or assessment that confirmed the integrity of the pipeline which led to this change in assumption? If so, may this document be shared with the Proponents please. If not, who will assume responsibility for repairs/replacement &amp;/or environmental clean-up if this pipeline’s integrity fails during the Term of the Contract?</p>	<p>3.6.1 The pipeline for the 500 USG AST within the prison compound and beyond the security Sally Port gates and fed by the main 4,500 USG holding tank shall be replaced.</p>
<p><b>4. Asphalt Plant</b></p>	<p>4.1 Vehicles will not be refuelled from this tank going forward.</p>

<p>4.1. The current trailer-mounted aboveground tank used at the Asphalt Plant had a fuel hose &amp; nozzle on the non-burner side that appears to have been used for refuelling vehicles. Is this feature necessary as it is noted that any diesel-vehicle can be refuelled at the Quarry fuel station which is 850-ft away?</p> <p>4.2. Near this hose &amp; nozzle, there are obvious signs of spillage (either major or sustained due to footprint). What remediation steps has this facility taken to address this level of ground contamination to date?</p> <p>4.3. Grateful if we may get AutoCAD (or scalable) drawings of this location please?</p>	<p>4.2 Spillage in this area will be dealt with by the Quarry operations.</p> <p>4.3 We do not have any cad drawings available.</p>
<p><b>5. Project # W&amp;E/2022/82/01 – Financial Feasibility Study for the Department of Works and Engineering Quarry Operations</b></p> <p>5.1. As per Addendum # 1 of Project # W&amp;E/2022/82/01, answer # R-19 states that the Government’s objectives are to determine if private operation of the Quarry may be suitable or not. If the Government moves ahead with private operation of the Quarry, as all bulk fuel supply &amp; infrastructure contractual obligations will be between the Proponent and the Government, what would this mean for any infrastructure the successful Proponent has invested at this location?</p>	<p>5.1 This is a hypothetical question that requires too many assumptions to answer with any certainty. It is expected that this contract will be in place before any changes occur at the Quarry.</p>
<p><b>6. Petroleum Storage Tank Certificates of Registration</b></p> <p>6.1. Please provider a copy of the Registration Certificates for the tanks at BFRS Port Royal Fire Station &amp; Asphalt Plant.</p>	<p>6.1 We have provided all the information we have on the tanks.</p>
<p><b>7. RFP Webex Meeting of 19<sup>th</sup> October 2022</b></p> <p>7.1. During the Webex videoconference, it was mentioned that if an AST was in a location susceptible to the risk of storm surge, DENR will require that the AST be installed within a containment bund to prevent the AST from being washed away.</p> <p>7.1.1. With this requirement in mind, grateful if you could confirm whether any of the proposed locations designated for infrastructure improvements are in a storm surge zone:</p>	<p>7.1.1 We do not have any information to provide on storm surge levels or locations.</p> <p>7.1.2 We do not have any information to provide on storm surge levels or locations.</p> <p>7.1.3 Please refer to the Government Ordinance charts for those details.</p>



<p>7.1.1.1. Asphalt Plant</p> <p>7.1.1.2. BFRS Port Royal Fire Station</p> <p>7.1.1.3. BPS Impound</p> <p>7.1.1.4. PTB Palmetto Road</p> <p>7.1.1.5. RBR Coast Guard Main Base Boaz Island</p> <p>7.1.1.6. RBR Coast Guard Substation St. David's</p> <p>7.1.1.7. RBR Warwick Camp</p> <p>7.1.1.8. Westgate Refuelling Station</p> <p>7.1.2. In the event it is unknown that the locations above are in a storm surge zone, what would DENR's Risk Assessment be for each of these locations as it applies to storm surge probability?</p> <p>7.1.3. For each of the locations listed above, what is their current elevation above sea level?</p>	
<p><b>7.2. Oil/Water Separator ("OWS") Requirements - Commercial &amp; Industrial Aboveground Fuel Infrastructure</b></p> <p>7.2.1.1. Is it preferred that OWS are connected to a soakaway instead of a borehole?</p> <p>7.2.2.2. If the double-walled aboveground tank ("AST") is refilled by a direct connection to the fuel truck, and that connection occurs within a Fill Box (that doubles as a Spill Containment Box) and using a Dry Break Fuel Filling, would an OWS be required for the AST?</p> <p>7.2.3.3. If the double-walled AST is located within a Spill Containment Bund, then would an OWS be required for the AST?</p> <p>7.2.4.4. If the fuel dispensers/pumps are located within a Spill Containment Bund, then would an OWS be required for the fuel dispensers/pumps?</p> <p>7.2.5.5. Is it a requirement of DENR that any fuel dispensers/pumps located outside of a Spill Containment Bund, should have trench drains</p>	<p>7.2.1.1 Yes.</p> <p>7.2.2.2 No.</p> <p>7.2.3.3 No.</p> <p>7.2.4.4 Yes, because the filling point of the vehicle will be outside of the spill containment bund. The point where the nozzle enters the vehicle fuel fill point is the most likely location of a spill and these sills should be captured by trenched drains and an OWS.</p> <p>7.2.5.5 Yes, see above.</p> <p>7.2.6.6 No.</p> <p>7.2.7.7 There are several options available, some are,</p> <p>OPTION #1. If the bund is not covered then rainwater will collect within the bund which is not desirable for a number of corrosion-related reasons including risk of mosquitos (Public Health). As there is a risk that oil/fuel residues can be present on top of the rainwater then when the</p>

<p>surrounding the downward slope/grade to minimize the risks, and those trench drains should connect to an OWS?</p> <p>7.2.6.6. Do marine refuelling dispensers/pumps require connection to an OWS?</p> <p>7.2.7.7. Does DENR require that Spill Containment Bunds have some form of absorbent storm water filtration system such as Imbiber Beads to mitigate the risks of pollution?</p>	<p>rainwater is discharged via a discharge valve this pollution will be released. Use of a fuel filter cartridge on the discharge pipework will help to remove the oil from the rainwater to a point where the filter will block (i.e. if there is a lot of fuel leakage).</p> <p>OPTION #2: If the bund is covered so that rain cannot collect then the above mentioned fuel/oil filter is not required. Any oils in the base of the bunds can readily be collected using vacuum suction/adsorption pads etc.</p> <p>OPTION #3. If the AST is double walled with interstitial monitors and with a suitable vehicle impact protection system (i.e. bollards) and the ASW is located away from an area at risk from storm surges then a bund is not necessary providing that suitable trenched drains to an OWS and soakaway are installed.</p>
<p><b>8. W&amp;E Quarry Fuel Station</b></p> <p>8.1. When were the current fuel dispensers installed?</p>	<p>8.1 We think it was in 2010.</p>
<p><b>9. BFRS</b></p> <p><b>9.1. King Street</b></p> <p>9.1.1. It was mentioned during the Mandatory Site Visit of 7<sup>th</sup> October, that Mark Fields will arrange for copies of the installation drawings for the underground fuel tank(s), pipelines, and associated underground fuel equipment. When will that be made available to the Proponents?</p> <p>9.1.2. Is the existing pipeline double-walled, and of UPP construction? If not, please confirm the pipeline's material.</p> <p>9.1.3. Grateful if we may get AutoCAD (or scalable) drawings of this location please?</p>	<p>9.1.1 The tank drawings are attached to this Addendum.</p> <p>9.1.2 see above.</p> <p>9.1.3 We do not have any cad drawings available.</p>

<p><b>9.2. BFRS Port Royal</b></p> <p>9.2.1.What is the length &amp; width of the standard fire trucks used at this location?</p> <p>9.2.2.How far from the rear of these standard fire trucks is the fuel tank access door, and on which side of the fire truck?</p> <p>9.2.3.When the fire trucks are usually refuelled, are they positioned perpendicular to the AST, or parallel?</p> <p>9.2.4.Grateful if we may get AutoCAD (or scalable) drawings of this location please?</p>	<p>9.2.1 We do not have the people or resources to obtain that information but you are encouraged to measure them as needed.</p> <p>9.2.2 similar to above</p> <p>9.2.3 similar to above</p> <p>9.2.4 We do not have any cad drawings available.</p>
<p><b>10. W&amp;E Marsh Folly Fuel Station</b></p> <p>10.1. The existing oil/water separator unit does not satisfy the RBCA requirement of &lt;15ppm hydrocarbons in the effluent water. Will this existing unit be grandfathered in or is the expectation that it should be replaced for a code-compliant unit?</p> <p>10.2. When were the current fuel dispensers installed?</p>	<p>10.1 If the unit is sized properly then the 15 ppm should be obtainable as is. If it is undersized then it would have to be replaced as noted in your gap analysis.</p> <p>10.2 We think it was 2011/12</p>
<p><b>11. RBR Warwick Camp</b></p> <p>11.1. Grateful if we may get AutoCAD (or scalable) drawings of this location please?</p>	<p>11.1 We do not have any cad drawings available.</p>
<p><b>12. RBR Warwick Camp</b></p> <p>12.1. Grateful if we may get AutoCAD (or scalable) drawings of this location please?</p>	<p>12.1 We do not have any cad drawings available.</p>
<p><b>13. RBR Coast Guard Substation St. David's</b></p> <p>13.1. The 18<sup>th</sup> October 2022 Site Visit revealed that the roof of the proposed substation is leaking, and has obvious breaches in the roof. Who will be responsible for ensuring that the building is made water-tight and safe for the Proponent to perform electrical &amp; data connections inside?</p>	<p>13.1 It is reasonable to assume that this is outside the scope of this RPF but that repairs will be made before installation of new equipment.</p>
<p><b>14. Duty-Free Allowances</b></p>	<p>14.1 This is a general question for Customs to answer.</p>

<p>14.1. Would an oil/water separator be classified as 'pollution control' and thus be duty-free?</p>	
<p><b>RFP Annex C</b></p> <p>14.2. <b>A-6 – Remediation of Contaminated Soil</b></p> <p>14.2.1. If contaminated soil is found to extend beyond the Proponent's defined limits of necessary excavation area for the underground tanks &amp; pipelines, and said contamination has been found to have encroached onto a neighbouring property not owned by the Government, who will be responsible for engaging the other landowner to address remediation, and who shall retain liability for the remediated area?</p> <p>14.3. <b>B-7 – Fuel Measuring</b></p> <p>14.3.1. Will those sites with remote fuel inventory management systems be able to be connected to the existing Government network/internet connection, or will the Proponent have to provide a separate dedicated internet service for each console?</p>	<p>14.2.1 The extent of the soil remediation is defined in the documents. Areas outside of these limits will be dealt with as they occur.</p> <p>14.3.1 This should be part of your Gap Analysis. Some sites may have systems that can be used others may need internet services or similar.</p>
<p><b>15. RFP Annex C</b></p> <p>15.1. <b>A-6 – Remediation of Contaminated Soil</b></p> <p>15.1.1. Grateful if we can receive confirmation that the phrase, 'full reach of a suitably sized excavator', is to mean either an excavator that will reach to the depth of the original excavation that was made to situate the existing tanks or, an excavator that can reach to a depth of 12" below the existing tanks (typical of installation)?</p> <p>15.1.2. Should these same excavation depth limits be subrogated to any contamination found underlying any leaking piping?</p>	<p>15.1.1 An excavator that can reach to a depth of 12" below the existing tanks is a much better description of the limits for remediation.</p> <p>15.1.2 Yes, 12" under piping would be reasonable.</p>
<p>15.2. <b>D – Fuel Management System</b></p>	<p>15.2.1 see above.</p> <p>15.2.2 The iMaint system will provide a bridge for the equipment you supply.</p>

<p>15.2.1. D-2-1 - Will those sites with vehicle usage tracking systems be able to be connected to the existing Government network/internet connection, or will the Proponent have to provide a separate dedicated internet service for each console?</p> <p>15.2.2. D-2-8 – There is mention of the Ministry’s tracking system, ‘IMATS’. Grateful if you could provide any Product Data Sheets &amp; Technical Data Sheets for this ‘IMATS’ please to determine what the system interface requirements are.</p>	
<p><b>16. RFP Annex E</b></p> <p><b>16.1. Marine &amp; Ports – Brunel Drawings</b></p> <p>16.1.1 In the provision and installation of equipment outside of the fuel tank vaults as shown in Annex E (Marine &amp; Ports Utility Drawings by Brunel Ltd. - Detail 1: S1.3 - Proposed Tank Section), the drawings show a Monitored Fuel Vapour Sensor in the Inspection Chamber between the fuel storage tank vault wall and the water tank wall. Who will have responsibility for procurement, installation, monitoring, &amp; maintenance, and repair/replacement of this sensor during the Term of the Contract?</p>	<p>16.1.1 The successful proponent.</p>
<p><b>17. RFP Webex Meeting of 19<sup>th</sup> October 2022</b></p> <p>17.1. For those ASTs that are in a location susceptible to the risk of storm surge, is the reason that DENR requires that the AST be installed within a containment bund because:</p> <p>17.1.1. prevent damage from waterborne debris; or</p> <p>17.1.2. prevent physical displacement &amp;/or floatation of the AST?</p> <p>17.1.2.1. If to prevent damage from waterborne debris, who will be responsible for repairing any damage caused by said debris, or from vehicular crashes into containment bund during the Term of the Contract?</p>	<p>17.1.1 Yes.</p> <p>17.1.2 Yes.</p> <p>17.1.3 During the term of the contract the successful proponent shall maintain the integrity of the bunds as they form part of the overall fuelling systems.</p> <p>17.1.2.2 No, preference in areas susceptible to storm surges is for bunds around such ASTs.</p>

<p>17.1.2.2. If to prevent the AST from being washed away, would DENR accept as a suitable alternative, the common Industry Standard of using anchor bolts to secure the AST to the concrete pad, combined with the deadweight of the fuel?</p>	
<p><b>18. BFRS</b>  <b>18.1. King Street</b>  18.1.1. What is the current method used by the BFRS to measure their fuel inventory?</p>	<p>18.1 They dip the tanks.</p>
<p><b>19. Duty-Free Allowances</b>  19.1. Would the components of an oil/water separator which may be imported to retrofit an existing oil/water separator be classified as 'pollution control' and thus be duty-free?</p>	<p>19.1 answered above.</p>

**AUTHORIZATION**

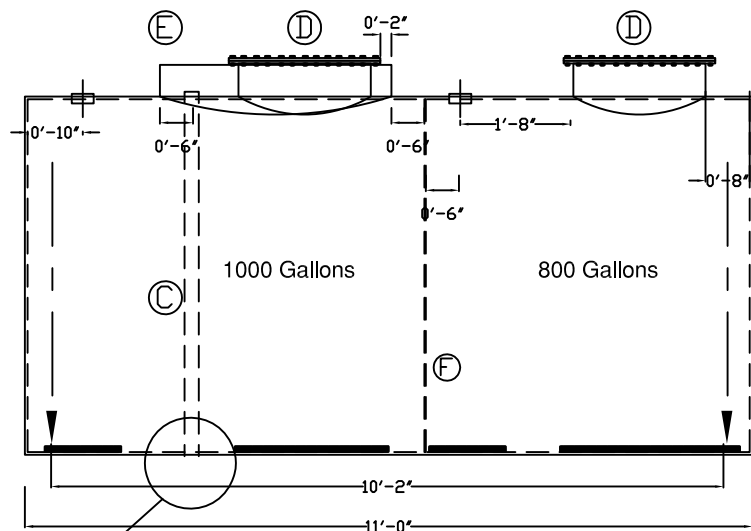
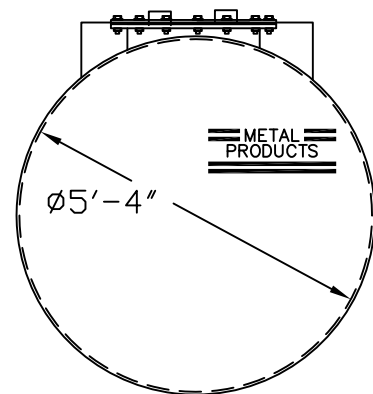
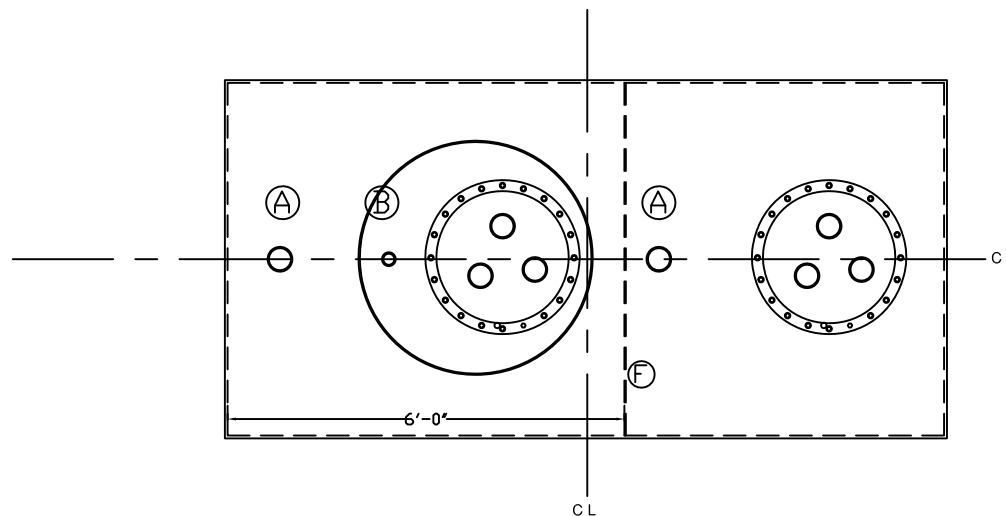
COMPANY NAME \_\_\_\_\_

APPROVED BY (PLEASE PRINT) \_\_\_\_\_

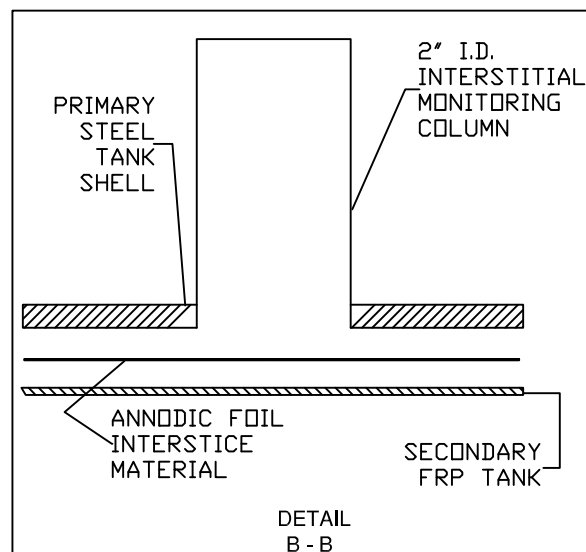
APPROVAL SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_ CONTRACT NO. \_\_\_\_\_

# ELUTRON™



[SEE DETAIL]  
B - B



▼ — STRAP LOCATION

ITEM	DESCRIPTION
(A)	4" NPT FITTING
(B)	2" INTERSTITIAL MONITORING FITTING
(C)	2" INTERSTITIAL MONITORING TUBE
(D)	24" I.D. ACCESS MANWAY WITH (3) 2" NPT FITTINGS IN COVER
(E)	42" DIA. FRP SUMP MOUNTING COLLAR
(F)	COMPARTMENT BULKHEAD

**NOTES**

- PRIMARY TANK:  
SHELL — PER UL 58 REQUIREMENTS  
SECONDARY TANK:  
100 MILS FRP
- MATERIAL — MILD CARBON STEEL
- TEST AT 5-7 PSIG.
- ENTIRE UNIT UL LISTED. UL 1746
- EXTERIOR FINISH — PLASTEEL  
UL 1746 FRP COMPOSITE 100 MILS.
- INTERIOR LINING — NONE
- ALL DIMENSIONS APPROXIMATE.
- WEIGHT: 2629 lbs.

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## METAL PRODUCTS

TITLE	1,800 GALLON ELUTRON™ 2-COMPARTMENT DOUBLE-WALL	REV #	REV DATE
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SCALE	DATE	DRAWN BY	DWG. NO.
NONE	08/25/11	JS	1800-EL-2CMPT-1-8



## SPECIFICATION

### PLASTEEL® ELUTRON® DOUBLE-WALL

#### UNDERGROUND FLAMMABLE AND COMBUSTIBLE LIQUIDS STORAGE TANK

TANK SHALL BE UNDERWRITERS LABORATORIES, INC. (UL) LISTED AND BEAR THE LISTING MARK FOR "JACKETED UNDERGROUND TANK FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS". LABEL SHALL STATE "THIS TANK PROVIDES TYPE II (360 DEGREES) SECONDARY CONTAINMENT AND CORROSION PROTECTION". THE UL ATMOSPHERIC PRIMARY STEEL TANK SHALL BE OF MILD STEEL PLATE, ALL WELDED CONSTRUCTION, MANUFACTURED TO STANDARD UL 58. THE LISTING SHALL INCLUDE THE UL EXTERNAL PRESSURE TEST PER U.L. STANDARD 58, PARAGRAPH 18.

THE UL LISTING SHALL COVER THE ENTIRE TANK ASSEMBLY AND THE ENTIRE U.L. LISTED ASSEMBLY SHALL COMPLY WITH UL STANDARD 1746, PART III, EXTERNAL CORROSION PROTECTION SYSTEMS FOR STEEL UNDERGROUND TANKS.

THE TANK SHALL BE COMPATIBLE FOR THE STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS INCLUDING MOTOR OILS, FUEL OILS AND MOTOR VEHICLE FUELS INCLUDING, BUT NOT LIMITED TO, GASOLINE, GASOLINE BLENDED WITH ETHANOL OR METHANOL, 100% ETHANOL, 100% METHANOL, 100% MTBE, 100% ETBE, AVIATION FUELS, DIESEL FUEL, AND KEROSENE.

PRIOR TO SHIPMENT FROM THE FACTORY, THE EXTERIOR SEAMLESS FRP SECONDARY CONTAINMENT STRUCTURE SHALL SHOW NO HOLIDAYS (PINHOLES) WHEN USING A TINKER & RASOR MODEL AP-W HOLIDAY DETECTOR OR EQUIVALENT SET AT 35,000 VOLTS OR WHEN TESTED WITH A VACUUM OF 10" HG ON THE INTERSTICE FOR ONE HOUR.

THE TANK MANUFACTURER SHALL PROVIDE INSTALLATION INSTRUCTIONS AND A KIT OF MATERIALS AND RESIN FOR SEALING ALL EXPOSED METAL ON TANK FITTINGS AND LIFT LUGS DURING TANK INSTALLATION. THE TANK IS TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 30 AND THE REGULATIONS OF THE AUTHORITY HAVING JURISDICTION (AHJ).

INTERSTITIAL MONITORING MUST BE WITH A DRY INTERSTICE ONLY USING A CONTINUOUS ELECTRONIC LIQUID OR VAPOR SENSOR SYSTEM. THE SYSTEM SHALL BE INSTALLED BY OTHERS PER THE SYSTEM MANUFACTURER'S INSTALLATION INSTRUCTIONS AND OPERATED IN ACCORDANCE WITH THE REGULATIONS OF THE AHJ. IF THE AHJ REQUIRES POSITIVE, CONTINUOUS, INTERSTITIAL MONITORING, THE DRY INTERSTICE MAY BE INSTALLED WITH A CONTINUOUS INTERSTITIAL VACUUM MONITORING SYSTEM. THE INTERSTICE IS U.L. LISTED TO BE SEALED (NON-VENTED) AND IS RECOMMENDED TO BE SEALED LEAK TIGHT WHEN THE TANK IS INSTALLED.

OPERATION OF THE INNER, PRIMARY STEEL TANK MUST BE AT ATMOSPHERIC PRESSURE, THE TEMPERATURE MUST NOT EXCEED 150° F (65° C) AND MUST BE OPERATED IN COMPLIANCE WITH THE AHJ.

THE TANK MANUFACTURER MAY PROVIDE, AS AN OPTION, A TANK PRECISION TIGHTNESS TEST METHOD USING A VACUUM APPLIED TO THE INTERSTICE. THIS METHOD MUST BE THIRD PARTY EVALUATED PER THE U.S.E.P.A. ALTERNATE TANK TIGHTNESS TEST METHOD, COMPLY WITH U.S. FEDERAL REGULATION 40 CFR, PART 280, PARA. 280.43(C) AND COMPLY WITH THE AHJ. THIS TEST IS APPLICABLE WHEN A TIGHTNESS TEST IS REQUIRED AFTER INSTALLATION.



# ELUTRON®

ELUTRON® delivers all the benefits and proven performance of Plasteel Composite® double-wall tanks, plus a significant increase in cost efficiency.

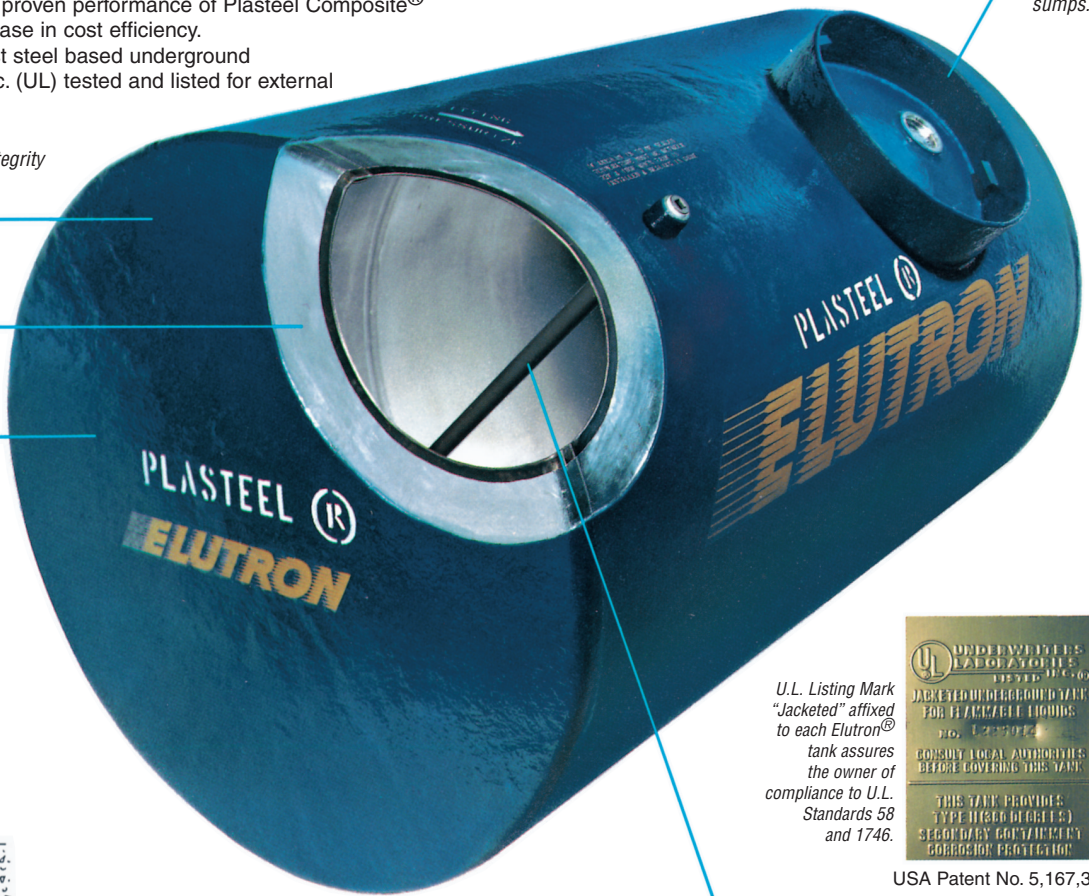
In 1980, Plasteel® tanks were the first steel based underground tanks to be Underwriters Laboratories Inc. (UL) tested and listed for external corrosion protection.

Non-corroding collar (optional) provides solid attachments for piping containment sumps.

FRP laminate maintains a hard, seamless integrity when subjected to ambient temperature extremes and does not become brittle or soft below or above ground.

Aluminum foil provides a minimum clearance, free flowing 360° interstice.

Inner primary welded steel tank is manufactured to U.L. Listing requirements. It provides long term structural safety, incorporating compatibility to a broad range of products; including all motor fuels, heating oil, methanol, ethanol, alcohol and alcohol blends (M-85).



## ANTI-BUCKLING VALIDATION ELUTRON® tank vs UL 1316 FRP tank

The ELUTRON® provides anti-buckling compliance to UL 58 and 1746 performance testing based on the ROARK equation.

### UL 58 AND 1764 PERFORMANCE TEST

Tank submerged in 100% water, no backfill for support, to validate anti-buckling.



### UL 1316 PERFORMANCE TEST

Tank buried with backfill for support to validate anti-buckling.

**CONCLUSION:** The obvious choice is the ELUTRON® tank, which provides a superior anti-buckling validation by UL through performance testing.

U.L. Listing Mark "Jacketed" affixed to each Elutron® tank assures the owner of compliance to U.L. Standards 58 and 1746.



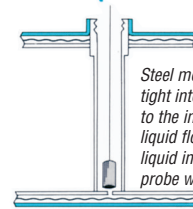
USA Patent No. 5,167,352

▶ Proven installed performance. Over 28,000 Plasteel Composite® and ELUTRON® tanks in service since 1971 with no corrosion failures.

▶ Installation procedures are simple; special backfill procedures are not required to maintain structural integrity. 25% to 35% less backfill material required compared to FRP tanks.

▶ ELUTRON® tanks are warranted for 30 years against external or internal corrosion failure when storing compatible products. Capacities from 500 to 50,000 gallons (2,000 L - 200,000 L). Special configurations and multiple compartments available.

▶ Interstitial Vacuum Test (IVT) available. The IVT has been third party evaluated to comply with the E.P.A. tank tightness test protocol.



Steel monitor access tube is welded liquid tight into steel tank. In the event of a breach to the inner or outer wall, the intruding liquid flows into the monitor access tube. Any liquid in contact with the electronic sensor probe will trigger alarm.

▶ Aluminum foil shape exaggerated and interstice enlarged for illustration detail. Actual foil shape is flat against steel tank.

Licensed PLASTEEL® ELUTRON® tank manufacturers worldwide

### K & T STEEL CORPORATION

Twin Falls, ID 83303  
208/733-2554 Fax 208/733-7239

### METAL PRODUCTS CO.

Suwanee, GA 30174  
770/945-8383 Fax 770/932-5671

### TANX, INC.

Claremont, NH 03743  
603/543-1272 Fax 603/543-1270

### HALL TANK CO.

North Little Rock, AR 72114  
501/945-3211 Fax 501/945-4477

### TALLER EL RETOÑO, C.A.

Barquisimeto, Venezuela  
58-14-950-1837 Fax 58-51-372-326

### TANQUES GUMEX S.A. DE C.V.

Torreon, Coah., 27019 Mexico  
52-17-50-6110 Fax 52-17-50-6130

### INDUSTRIA ACERO DE LOS ANDES, S.A.

Quito, Ecuador  
593-2-503-600 Fax 593-2-503-633

### TECNOECO CHILE, S.A.

Santiago, Chile  
56-2-335-0256 Fax 56-2-335-0257

### METALURGICA RIMA

Gu-ira, SP, Brazil  
55-17-331-3922 Fax 55-17-331-3574

### INDUSTRIAS CORREAGUA, S.A.

Panama, Rep. De Panama  
507-231-0455 Fax 507-231-4343

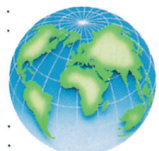
### INSTAL RZESZÓW, S.A.

35-211 Rzeszow, Poland  
48-17-8522-086 Fax 48-17-8522-091

### THE JAPAN STEEL WORKS, LTD.

SERVICE STATION EQUIPMENT GROUP  
Tokyo, Japan 100  
81-3-3501-6129 Fax 81-3-3595-4629

**PLASTEEL**  
INTERNATIONAL INC.



2541 State Street, Suite 205, Carlsbad, CA 92008 Tel 760/729-1093 Fax 760/729-1096

Web <http://www.plasteel.com> E-Mail [tanktech@plasteel.com](mailto:tanktech@plasteel.com)

# ELUTRON<sup>®</sup>

## THE NEXT GENERATION

Plasteel, Inc., the leader in innovative tank technology,  
introduces ELUTRON.  
ELUTRON, an impervious system providing a total defense  
against subterranean pollution.  
ELUTRON, a jacketed tank so advanced in functional simplicity,  
it revolutionizes secondary containment.



# ELUTRON

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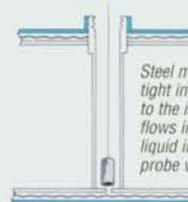
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Licensed PLASTEEL® ELUTRON® tank manufacturers worldwide

## NORTH AMERICA

### METAL PRODUCTS COMPANY

Suwanee, Georgia, USA • 770/945-8383 Fax 770/932-5671

### TANQUES GUMEX S.A. de C.V.

Torreón, Coah., Mexico • 52-87-17-50-6110 Fax 52-87-17-50-6130

### ADVANCED AG & INDUSTRIAL LTD

Biggar, SK, Canada • 306/948-5262 Fax 306/948-5263

## CENTRAL AMERICA

### INDUSTRIAS CORREAGUA, S.A.

Panama, Rep. de Panama

### INMSA ARGO International, S.A.

San Pedro Sula, Honduras

## SOUTH AMERICA

### TECNOECO CHILE, S.A.

Santiago, Chile

### TALLER EL RETOÑO METEC, C.A.

Barquisimeto, Venezuela

### METALURGICA RIMA de GUAIRA LTDA

Guaira, SP, Brasil

### PROJESA PROJETOS e SERVICOS INDUSTRIA e COMERCIO LTDA

Betim, MG, Brasil

### BERTOTTO, BOGLIONE, S.A.

Marcos Juarez, C. Argentina

## EUROPE

### INSTAL RZESZOW, S.A.

Rzeszow, Poland

## ASIA / PACIFIC

### DIVERSE TANK ENGINEERING PTY LTD

Yangbeup, WA, Australia

### DIVERSE PRODUCT ENGINEERING, SDN BHD

Klang, Selangor, Malaysia

## AFRICA

### ELDOMIRA JACKETED TANKS LTD

Lagos, Nigeria

**PLASTEEL**  
INTERNATIONAL INC.



2541 State Street, Suite 205, Carlsbad, CA 92008 Tel 760/729-1093 Fax 760/729-1096

Web <http://www.plasteel.com> E-Mail [tanktech@plasteel.com](mailto:tanktech@plasteel.com)

# PLASTEEL® ELUTRON® Double-Wall INSTALLATION INSTRUCTIONS Tank

## I. GENERAL

The **PLASTEEL® ELUTRON®** underground tank is a U.L. Listed Jacketed tank providing corrosion protection and 360° secondary containment per U.L. 1746 and 58.

**ELUTRON®** underground tanks must be installed according to these installation instructions, the latest issue of the Flammable and Combustible Liquids Code, N.F.P.A. 30 for underground tanks and the Authority Having Jurisdiction (AHJ).

The installer and/or owner must read and be familiar with the entire installation instructions and Appendix A prior to installing the **ELUTRON®** tank. To activate the **PLASTEEL® ELUTRON®** Tank Warranty, a completed and signed Certificate of Installation for the **PLASTEEL® ELUTRON®** Underground Tank must be returned to the manufacturer. For additional installation references, consult the current editions of:

- Petroleum Equipment Institute, RP-100
- American Petroleum Institute, RP-1615.

If tank will be stored above ground more than 30 days, consult the manufacturer for procedures.

Products stored in the **ELUTRON®** tank must not exceed 150° (66° C). The **ELUTRON®** tank shall be maintained per API RP 1621, Appendix D.

## II. VISUAL INSPECTION

Prior to setting tank in hole, inspect exterior for damage. If tank exterior is damaged, call factory regarding correct repair procedures. Exterior damage is indicated when the blue color of the FRP laminate has shown a white fractured pattern.

## III. HANDLING

Good construction engineering practice, common sense and safety must prevail during this phase. **ELUTRON®** tanks are not to be dropped or rolled off of the delivery vehicle onto the ground or into the hole. The lifting hook or hooks provided must be used in combination with the proper capacity unloading equipment. It is the responsibility of the owner to provide the qualified personnel and safe, proper unloading equipment, with specific consideration given to tank weight and reach distance to set tank in excavation. The preferred lifting cable included angle is 60° and must never exceed 120°. A spreader bar may be used to achieve this angle.

## IV. EXCAVATION DEPTH, BEDDING AND BACKFILL

Follow all applicable local regulations and codes. When excavating, allow a minimum clearance of 6" for backfill around the tank. For minimum burial cover, consult N.F.P.A. 30. If burial cover over top of tank exceeds five (5) feet, consult factory. Backfill materials should be clean, debris free, sand or pea gravel. Hydrocarbon exposed sand or pea gravel may be re-used if approved by the AHJ. Native sand may be used if approved by the tank manufacturer and the AHJ. Allow a minimum of 12" of backfill between traffic slab and all appurtenances that are attached to the tank. Damage to tank may occur if surface traffic loads are transmitted directly to tank.

## V. ANCHORING SYSTEMS

**CAUTION:** The decision to use an anchoring system is the responsibility of the owner. Damage to the tank may occur if the tank is subjected to movement.

Consult the factory for number, size and type of holddown assemblies required when using a concrete pad under the tank. You

may set and securely anchor the **ELUTRON®** tank on the pad with a minimum of 6" of backfill between tank bottom centerline and the pad. Upon AHJ approval, you may set and securely anchor the **ELUTRON®** tank directly on the smooth, flat pad taking care to place a 12" wide x 1" thick piece of felt between the entire tank bottom centerline and the pad to minimize damage during placement. Consult factory for other anchoring techniques.

## VI. TESTING

**PRE-INSTALLATION:** Aboveground, prior to replacement of tank in excavation, precisely follow one of the three testing options cited in Appendix A attached. Do not deviate from these procedures. If the **ELUTRON®** tank is delivered with a vacuum on the interstice, refer to Option #2 of Appendix A.

**CAUTION:** IF OPTION #3 IS USED, DO NOT APPLY ANY PRESSURE TO THE INTERSTICE BEFORE THOROUGHLY UNDERSTANDING AND FAITHFULLY FOLLOWING THE PROCEDURES CITED IN OPTION #3 OF APPENDIX A. DAMAGE TO TANK MAY OCCUR IF YOU DEVIATE FROM THE PROCEDURES AND SPECIFICATIONS.

**POST-INSTALLATION:** Complete the backfill procedures to the top of the tank. Complete all piping and connections ensuring that unused openings are secured tight with threaded steel plugs. Apply a 5 PSIG pressure test in the primary tank and check for tightness of piping connections and tank manhole covers. Gauge should be checked prior to testing for accuracy and have a maximum limit of 15 PSIG.

**CAUTION:** THE PRIMARY TANK TEST PRESSURE SHALL NOT EXCEED 5 PSIG. DAMAGE TO TANK MAY OCCUR. ISOLATE PIPING FROM TANK BEFORE TESTING THE PIPING AT HIGHER PRESSURES.

The interstice (annular space) will be tested using option #2 or #3 in Appendix A.

**OPTION:** Request Appendix B for procedures to perform the Interstitial Vacuum Test that has been third party evaluated to meet the EPA tank tightness test protocol.

## VII. VENTING

The primary tank must be vented to atmospheric pressure except for use with a vapor recovery system, provided the pressure or vacuum does not exceed 1 psi (6.9 kpa). Compliance is required for underground tank venting in N.F.P.A. 30. The interstitial space does not require venting. It is recommended that the interstice be sealed air tight.

**CAUTION:** DO NOT MANIFOLD VENT FROM PRIMARY TANK TO VENT FROM INTERSTITIAL SPACE.

## VIII. PLASTEEL® SEALING PROCEDURES

These procedures must be performed prior to completion of backfill and AFTER TESTING. To ensure complete corrosion protection, the following instructions must be followed:

### a. General instructions for working with fiberglass resin

By carefully performing the following steps, your **ELUTRON®** tank will be fully protected from corrosion. The kit includes materials

for covering and protecting the unused tank connections, tank handling hooks, and each of the pipe connections on top of the tank. The **PLASTEEL®** kit contains hazardous materials. Read the enclosed material safety data sheets before proceeding to work with **PLASTEEL®** kit materials. The standard kit includes the following materials and tools:

BOX A	
4 each 1 Qt. bottles <b>PLASTEEL®</b> resin	

BOX B	
1 each 1 Qt. bottle	Resin emulsifier or Acetone
4 each 1 Oz. bottles	Catalyst
6 each	Star Mats
10 each	Mat strips
6 each	Plug mats
1 - 3 each	4" Flat pipe plugs
2 each	Paint stirring sticks
2 each	1-1/2" Paint brushes
3 each	Mixing cups
1 each Sheet	60 grit sandpaper
4 each	Hook Mats

Additional material is supplied when tank configured with containment collars, special fittings, manholes or extension spools.

**b. Preparation**

Do not mix the catalyst with the resin until all the pieces you wish to impregnate have been fitted in place and the 1" strips of matting are laid out next to their corresponding pipe connections. Once the resin and catalyst are mixed, a chemical reaction begins that cannot be reversed. Working time for a mixed batch is about 30 minutes at 70° F. Higher temperatures make it set up more quickly, shortening working time. For example, at 100° F. you will have approximately 15 minutes of working time. The key things to remember are: (1) Be prepared and have all parts prefitted and in place before mixing the resin. (2) Mix only as much resin as you can use in 30 minutes and mix it thoroughly—stir for at least 1 minute. (3) Work quickly and efficiently. Lower temperatures increase resin set-up time and require additional catalyst.

**c. Mixing the catalyst**

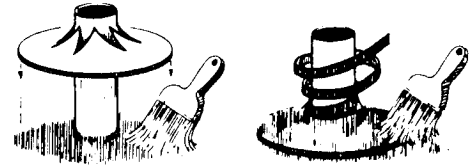
Resin and catalyst must be mixed in the proper proportions so that the resin will harden properly. Below is a list of some various size batches you could mix.

RESIN	CATALYST
1 qt. . . . .	.1/2 oz.
1 pint . . . . .	.1/4 oz.
1 cup . . . . .	.1/8 oz.

If you're not sure how fast it will set up, it is better to mix several small batches rather than one big one.

**d. Application**

Using the paint brush provided, DAB the resin mixture into the cloth rather than painting it on. You are trying to completely soak the matting with resin, not just cover it.

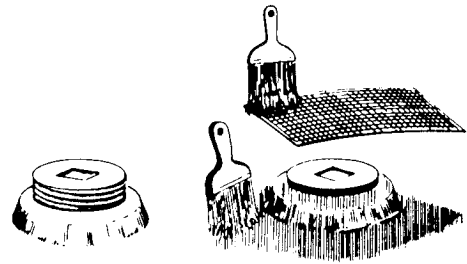


**e. Pipe and Risers**

For standard threaded fittings: Apply resin to the base of the pipe and top of tank and push down the matting circle as shown. Impregnate with resin.

Impregnate the strips of matting and wrap like tape around the joint at the base and working upward. Apply any leftover resin to the outside of the joints when done wrapping.

For special bolt-up flanges: Apply generous coating of resin to exposed metal edges of flange and wrap with resin impregnated matting strips. Apply leftover resin to nuts and bolts.



**f. Steel Plugs**

After fitting fiberglass matting, lift it up and apply mixed resin to the top of the tank surface where the matting will contact. Stick matting over plug into wet resin and totally impregnate matting with resin, dabbing in with paint brush as described above.

**g. Manhole, Extension Spool and Handling Hooks**

Apply generous coating of resin impregnated matting strips to exposed metal edges and to handling hooks (matting precut). Apply leftover resin to nuts and bolts except on access cover.

**h. Cleanup**

Hands and tools may be cleaned with resin emulsifier before the resin has hardened. No solvent will work once the resin has hardened.

**NOTE:**

The **ELUTRON®** tank installation is not complete until all exposed steel surfaces on tank are sealed with the **PLASTEEL®** fiberglass resin.

For additional assistance or information, call your **PLASTEEL® ELUTRON®** tank factory below:

**Licensed PLASTEEL® ELUTRON® tank manufacturers**

DPE Klang Selangor, Malaysia	ERMETRA INDUSTRIA Betim, Brazil	INDUSTRIAS CORREAGUA Panama, Panama	INSTALL RZESZOW Rzeszow, Poland	HALL TANK CO. N. Little Rock, AR (501) 945-3211 Fax (501) 945-4477	K & T STEEL Twin Falls, ID (208) 733-2554 Fax (208) 733-7239	METAL PRODUCTS Suwanee, GA (770) 945-8383 Fax (770) 932-5671	METALURGICA RIMA Guaira, Brazil	TANX INC. Claremont, NH (603) 543-1272 Fax (603) 543-1270	TALLER EL RETOÑO C.A. Barquisimeto, Venezuela
DTE Perth, Australia	INDUSTRIA ACERO Quito, Ecuador	INMSA ARGO San Pedro Sula, Honduras					TANQUES GUMEX Torreon, Mexico		TECNOECO CHILE Santiago, Chile

# PLASTEEL® ELUTRON® Double-Wall Tank

## APPENDIX A

### INSTALLATION SITE TESTING PROCEDURES

#### Option #1: EXTERIOR HOLIDAY TEST

Prior to arrival of the Elutron® tank at the installation site, coordinate with the Elutron® manufacturer to have a 12,500 volt holiday test performed using a Tinker-Razor, Model APW, tester. Any pinholes detected must be repaired using the Plasteel® sealing kit materials. Re-test and repair until tank is pinhole free. This test must be performed by a person qualified by the Elutron® tank manufacturer.

#### Option #2: VACUUM TEST INTERSTICE

The Elutron® tank may be delivered with an interstitial vacuum established at the factory. The delivery document will state the vacuum gauge reading required for acceptance at the delivery location. Record the vacuum gauge reading on the delivery document when the tank is delivered. If the vacuum gauge has decreased from the vacuum gauge reading listed for acceptance on the delivery document, call the factory for further instructions. If an interstitial vacuum is to be established at the installation, follow the instructions in Appendix B, Interstitial Vacuum Test. **DO NOT** apply a vacuum to the primary tank, **DAMAGE MAY OCCUR.**

#### Option #3: PRESSURE TEST INTERSTICE

If a field pressure test is required, set-up test equipment per the schematic diagram and precisely follow the test procedures listed.

### **CAUTION: DAMAGE TO TANK MAY OCCUR IF PRESSURE IN THE INTERSTICE EXCEEDS 2 PSIG ABOVEGROUND.**

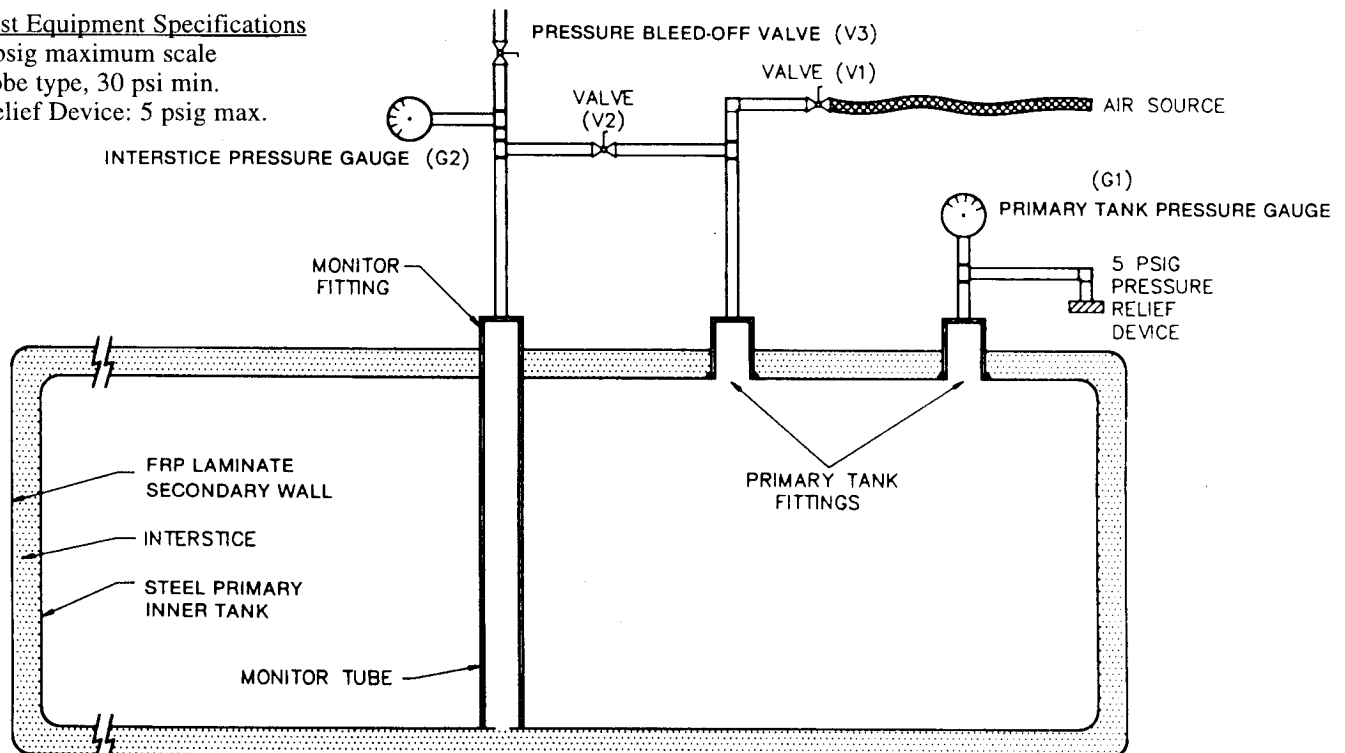
- |   |  |
|---|--|
| <p>Step 1. Ensure gauges are accurately calibrated.</p> <p>2. Ensure all connections are leak tight.</p> <p>3. Close V2, open V3, G2 should read zero.</p> <p>4. Open V1, pressurize primary tank until G1 reads 3-5 psig, close V1. Disconnect air source.</p> <p>5. Close V3, after 30 minutes, check G2. G2 should read zero. (Call factory if G2 does not read zero.)</p> <p>6. Open V1 and decrease G1 to 1 1/2 - 2 psig. Close V1.</p> <p>7. Open V2, pressurize G2 to 1 1/2 - 2 psig. Close V2. <b>DO NOT EXCEED 2 PSIG ON G2. DAMAGE TO TANK MAY OCCUR.</b></p> | <p>8. Observe G2 for 30 minutes. G2 should remain at 1 1/2 - 2 psig. (Call factory if G2 decreases to zero.)</p> <p>9. Open V3, vent interstice, G2 to read zero.</p> <p>10. Open V1, vent primary tank, G1 to read zero. Test complete.</p> <p><b>NOTE:</b> If the Elutron® tank is covered with backfill, you may test the interstice at 3-5 PSIG, following steps #1-10, and carefully increasing the pressure in step #7 to 3-5 PSIG. In step #8, G2 should remain at 3-5 PSIG.</p> <p><b>CAUTION: DAMAGE MAY OCCUR IF INTERSTICE PRESSURE EXCEEDS 5 PSIG. WHEN TANK IS COVERED WITH BACKFILL.</b></p> |
|---|--|

#### Pressure Test Equipment Specifications

Gauges: 5 psig maximum scale

Valves: Globe type, 30 psi min.

Pressure Relief Device: 5 psig max.



#### Licensed PLASTEEL® ELUTRON® tank manufacturers

DPE Klang Selangor, Malaysia	ERMETRA INDUSTRIA Betim, Brazil	INDUSTRIAS CORREAGUA Panama, Panama	INSTALL RZESZOW Rzeszow, Poland	HALL TANK CO. N. Little Rock, AR (501) 945-3211 Fax (501) 945-4477	K & T STEEL Twin Falls, ID (208) 733-2554 Fax (208) 733-7239	METAL PRODUCTS Suwanee, GA (770) 945-8383 Fax (770) 932-5671	METALURGICA RIMA Guaira, Brazil	TANX INC. Claremont, NH (603) 543-1272 Fax (603) 543-1270	TALLER EL RETOÑO C.A. Barquisimeto, Venezuela
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# PLASTEEL® UNDERGROUND TANK

## APPENDIX B

### INTERSTITIAL VACUUM TEST (IVT)

**1.0 Introduction:** This test method has been developed by PLASTEEL INC. to meet the E.P.A. Alternate (Non-Volumetric) Tank Tightness test procedures. The IVT has been verified by a third party to be capable of detecting a 0.1 gal/hr leak rate with a probability of detection of 100% when all of the testing criteria are met. The false alarm rate for a tight tank is less than 5%. It is impossible to maintain a steady vacuum if a leak is present. This test is not necessary to attain the PLASTEEL® tank warranty. This test is offered as a stand alone leak tightness test method.

**2.0 Application:** The IVT is applicable to the PLASTEEL® ELUTRON® (jacketed) Double-wall tank and the PLASTEEL® Composit Double-wall tank. For compartmented tanks, consult the factory for the test time.

**3.0 Authority:** The Jurisdiction Having Authority (JHA) will determine whether the double-wall UST must be subject to a leak tightness test before placing the UST in service.

**4.0 Pre-Delivery Procedure:**

- 4.1 Read and understand the PLASTEEL® Tank Installation instructions and Appendix B before attempting the interstitial vacuum test. Contact the PLASTEEL® tank manufacturer if you have any questions.
- 4.2 Consult the PLASTEEL® tank manufacturer before the tank is shipped to ensure that the tank is delivered with the test gauge assembly. This assembly is an optional piece of equipment supplied by the tank manufacturer.
- 4.3 Prior to shipment from the factory, you may request that the manufacturer deliver the tank with the vacuum established.
- 4.4 Upon delivery, the delivery document will indicate the correct vacuum gauge reading. Call the factory if the gauge reading does not meet the gauge reading specified on the delivery document.
- 4.5 To maintain the vacuum during the unloading and installation phases, extreme care must be taken to ensure the IVT gauge assembly is not jarred, struck or moved in any manner. Call the factory for instructions if the vacuum has decreased.

**5.0 Test Procedures:**

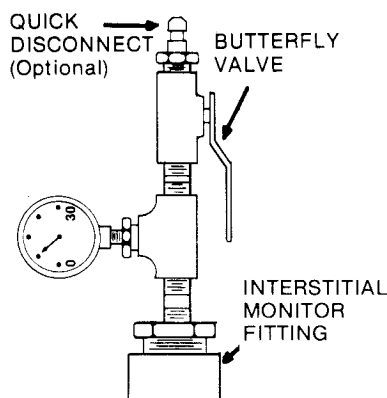


FIGURE 5.0: VACUUM GAUGE TEST ASSEMBLY (TYPICAL). ACCURACY: ASME (ANSI) GRADE B, ± 2%, 0-30" Hg, with 1" Hg GRADUATIONS.

- 5.1 If the vacuum was established at delivery and has not decreased during the unloading and installation phases, you may by-pass 5.2 and 5.3
- 5.2 Install the vacuum gauge test assembly (see Fig. 5.0) in the monitor access NPT coupling on the tank top centerline. Ensure that any additional monitor access couplings are properly sealed with threaded plugs.
- 5.3 Connect the vacuum pump to the test gauge assembly and draw down to 10" hg. Record initial gauge reading, date, and time of day in Part IV of the Certificate. The initial pump

down on the ELUTRON® jacketed tank may require reiteration due to the slow nature of air movement in the interstitial space.

- 5.4 To ensure a vacuum has been established, the gauge must read 10" hg. for three (3) hours without any decrease on the gauge before proceeding with 5.6. Contact the factory if the vacuum cannot be established per this paragraph.
- 5.5 Complete sections II and III of the Certificate of Tightness Test.
- 5.6 Refer to the Test Time Table (Figure 6.0) to determine the correct minimum time period for a valid test. Begin timing the test after completing 5.4. Record the nominal tank capacity, primary tank product and required test hours in Part IV of the Certificate.
- 5.7 After the required test time has passed, observe the gauge reading and record the reading, date and time of day in Part IV of the Certificate.
- 5.8 Test Conclusions: The tank has passed the leak tightness test when the final gauge reading has not decreased from the initial gauge reading of 10" Hg. If other observations are made, consult the tank manufacturer.

**Test Time Tables:** The table in Figure 6.0 lists the minimum test period (in hours) to perform a valid IVT with a dry (air only) primary tank. The IVT test may be performed with gasoline, diesel or water in the primary tank. Consult the PLASTEEL® tank manufacturer for the specific test time for these situations.

TEST TIME TABLE: DRY PRIMARY TANK		
CAPACITY (GALS.)	JACKETED (HOURS)	COMPOSIT (HOURS)
500	4.0	4.5
1,000	4.0	5.5
2,000	4.0	8.0
3,000	4.0	9.0
4,000	4.0	9.5
5,000	4.0	10.5
6,000	4.0	11.0
8,000	4.0	13.0
10,000	4.0	14.5
12,000	4.0	15.5
15,000	4.0	17.5
20,000	4.0	20.5
30,000	4.0	37.5
40,000	4.0	45.5
50,000	4.0	53.0

FIGURE 6.0

- |  |                                   |   |   |   |   |  |                                   |                                  |   |
|--|-----------------------------------|---|---|---|---|--|-----------------------------------|----------------------------------|---|
| INSTALL RZESZOW<br>Rzeszow, Poland     | INDUSTRIA ACERO<br>Quito, Ecuador | HALL TANK CO.<br>N. Little Rock, AR<br>(501) 945-3211 | JJOOR MFG.<br>Escondido, CA<br>(760) 745-0971 | K & T STEEL<br>Twin Falls, ID<br>(208) 733-2554 | METAL PRODUCTS<br>Suwanee, GA<br>(770) 945-8383 | TANX INC.<br>Claremont, NH<br>(603) 543-1272 | SHINWON INDUSTRY<br>Seoul, Korea  | TANQUES GUMEX<br>Torreon, Mexico | TECNOECO ARGENTINA<br>Buenos Aires, Argentina |
| INDUSTRIAS CORREAUGA<br>Panama, Panama | JAPAN STEEL WORKS<br>Tokyo, Japan | Fax (501) 945-4477                                    | Fax (760) 746-9515                            | Fax (208) 733-7239                              | Fax (770) 932-5671                              | Fax (603) 543-1270                           | TECNOECO CHILE<br>Santiago, Chile | TVG<br>Tab, Hungary              | METALURGICA RIMA<br>Guaira, Brazil            |

# CERTIFICATE OF INSTALLATION

FOR THE

## PLASTEEL® ELUTRON® UNDERGROUND TANK

In compliance with part 280 of Title 40 of the Code of Federal Regulations, this document may be implemented to meet Subpart B, paragraph 280.2 (e), CERTIFICATION OF INSTALLATION.

The tank owner or owner's installer must initial all sections below representing that the installer has read, was cognizant of and has completed, as applicable, all sections of the **PLASTEEL® ELUTRON®** Tank Installation Instructions attached hereto.

Return completed and signed certificate to the manufacturer within 60 days of the installation completion date to activate warranty.

### **INSTALLATION CHECK-OFF COMPLETION LIST**

SECTION	INITIAL	DATE
I. GENERAL	_____	_____
II. VISUAL INSPECTION	_____	_____
III. HANDLING	_____	_____
IV. EXCAVATION DEPTH, BEDDING AND BACKFILL	_____	_____
V. ANCHORING SYSTEMS	_____	_____
VI. TESTING	_____	_____
VII. VENTING: JACKETED	_____	_____
VIII. PLASTEEL® SEALING PROCEDURES	_____	_____

### **INSTALLATION DESCRIPTION**

#### **INSTALLATION SITE**

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

#### **PLASTEEL® TANK OWNER**

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

### **ELUTRON® TANK DATA**

The U.L. Label and serial number is on the top centerline of the tank and also listed on the delivery document.

SIZE IN GALLONS \_\_\_\_\_ U.L. SERIAL NUMBER \_\_\_\_\_

TANK INSTALLATION COMPLETION DATE \_\_\_\_\_

### **INSTALLATION COMPANY**

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

( ) \_\_\_\_\_

TELEPHONE \_\_\_\_\_

### **INSTALLATION COMPLETION/SUPERVISOR'S SIGNATURE**

The responsible supervisor's signature below represents that phases I through VIII were properly completed per the PLASTEEL® ELUTRON® Installation Instructions:

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

PRINT NAME \_\_\_\_\_

#### **YOUR PLASTEEL® TANK MANUFACTURER IS:**

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

( ) \_\_\_\_\_

TELEPHONE \_\_\_\_\_

RETURN COMPLETED FORM TO MANUFACTURER TO ACTIVATE WARRANTY



# CERTIFICATE OF COMPLETION

## Interstitial Vacuum Test (IVT)

### For The PLASTEEL® Double-Wall Underground Tank

**I. Third Party Evaluation:** This leak tightness test method has been third party evaluated per the Alternate EPA Test Protocols for Plasteel International. The third party environmental consulting firm that performed the evaluation was:

Ken Wilcox Associates, Inc.  
19401 E. 40 Highway, Suite 100  
Independence, MO 64055  
(816) 795-7997

A copy of the evaluation is on file at each licensed PLASTEEL® tank manufacturer and at:

Plasteel International Inc.  
2541 State Street  
Carlsbad, CA 92008  
(760) 729-1093

#### II. Tank Description:

Capacity: \_\_\_\_\_ Gallons

Jacketed: \_\_\_\_\_

Composite: \_\_\_\_\_

Compartmented: Yes \_\_\_\_\_ No \_\_\_\_\_

U.L. Number \_\_\_\_\_

Tank Manufacturer:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

#### III. Installation Information:

Tank Owner:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Installation Location:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**IV. Test Results:** The interstitial vacuum test was performed per Appendix B. The following data was recorded:

Nominal Tank Capacity: \_\_\_\_\_  
(Gallons)

Primary Tank Product: \_\_\_\_\_  
(air, gasoline, diesel, water)

Required Test Period: \_\_\_\_\_  
(Hours, per Appendix B, Figure 6.0)

Initial Gauge Reading: \_\_\_\_\_ inches Hg.  
Date \_\_\_\_\_ Time \_\_\_\_\_ am/pm

Final Gauge Reading: \_\_\_\_\_ inches Hg.  
Date \_\_\_\_\_ Time \_\_\_\_\_ am/pm

Total Elapsed Time Period: \_\_\_\_\_  
(Hours)

Pass \_\_\_\_\_ Fail \_\_\_\_\_ (Initial)

**V. Statement of Test:** I certify that the PLASTEEL® Double-Wall tank described above has been tested leak tight per Appendix B of the PLASTEEL® Tank Installation Instructions.

Testing Company:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Signature \_\_\_\_\_

Printed Name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_