

23 December 2011

Mr. Bruce M. Hart
Electric Boat Corporation
165 Dillabur Avenue
North Kingstown, RI 02852

Dear Mr. Hart:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your minor source permit application for submarine construction activities at your facility located at 165 Dillabur Avenue, North Kingstown.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval No. 2140).

The permit conditions and emission limitations in this permit also incorporate and include those in Approval No. 1882 issued on 16 February 2006 and last revised on 24 November 2009. Hereinafter the design, construction, and operation of all the equipment addressed in this approval shall be subject to the permit conditions and emission limitations contained in this minor source permit.

If there are any questions concerning this permit, please contact me at 401-222-2808, extension 7110.

Sincerely,

Ruth A. Gold
Principal Air Quality Specialist
Office of Air Resources

cc: Tom Scelfo - Woodard & Curran
Donna Elks - EB
Beth Christofori Laney - EB
Paul Marsiglio - EB

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MINOR SOURCE PERMIT

ELECTRIC BOAT CORPORATION

APPROVAL NOs. 1882 & 2140

Pursuant to the provisions of Air Pollution Control Regulation No. 9, this minor source permit is issued to:

Electric Boat Corporation

For the following:

Higher production levels in existing structures and Bay 4 of Building 2003 that will result in

emission increases of listed toxic air contaminants above Minimum Quantity thresholds;

Production processes include equipment cleaning, surface preparation and surface coating, welding and other metal working operations, and lead working operations.

Located at: *165 Dillabur Avenue, North Kingstown*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Electric Boat Corporation* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.

Douglas McVay, Acting Chief
Office of Air Resources

Date of Issuance

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

Permit Conditions and Emission Limitations

ELECTRIC BOAT CORPORATION

APPROVAL NOs. 1882 & 2140

I. The following requirements are applicable to the application of adhesives and the Mold-In-Place process:

A. Emission Limitations

1. The VOC content of each coating used by the owner/operator on miscellaneous metal parts shall not exceed the following emissions limitations:

| Type of Coating | Emission Limitation (lbs. VOC/gallon of coating minus water) |
|---|--|
| Clear Coating | 4.3 |
| Air Dried Coating | 3.5 |
| Extreme Performance Coating | 3.5 |
| All other coating on miscellaneous metal parts | 3.0 |

B. Testing Requirements

1. Compliance with the coating emission limitations contained in Condition I.A.1 of this permit shall be demonstrated in accordance with 40 CFR 60, Appendix A, Methods 24, 24A as amended or any other EPA approved method which has been accepted by the Director. A one hour bake time shall be used for Methods 24 and 24A, which apply to multi-component coatings.

C. Recordkeeping Requirements

1. The owner/operator shall compile records on a monthly basis and maintain those records for a minimum of 5 years. At a minimum, these records shall include:
 - a. The name and identification number of each coating, as applied;
 - b. The mass of VOC per volume of each coating (excluding water), as applied, used each month;

- c. The type and amount of solvent used for diluents and clean up operations;

D. Reporting Requirements

- 1. The owner/operator shall notify the Director of any record showing use of any coatings that are non-compliant with the emission limitation specified in Condition I.A.1 of this permit by sending a copy of such record to the Director within 30 calendar days following that use.
- 2. The owner/operator, before changing the method of compliance from complying coatings to daily-weighted averaging or control devices, shall submit a Compliance Certification Plan to the Office of Air Resources for review and approval. Such plan shall include:
 - a. The name and location of the facility;
 - b. The name, address and telephone number of the person responsible for the facility;
 - c. The name and identification number of each coating, as applied, on each coating line or operation;
 - d. For daily-weighted averaging:
 - (1) The instrument or method by which the owner/operator will accurately measure or calculate the volume of each coating (excluding water), as applied, used each day on each emission unit;
 - (2) The method by which the owner/operator will create and maintain records each day as required by Subsection 19.5.2(c) of APC Regulation 19; and
 - (3) The time at which the facility's day begins if a time other than midnight local time is used to define a day.
 - e. For control devices
 - (1) The name and identification number of each coating, as applied, on each coating line or operation;
 - (2) The mass of VOC per volume coating solids applied and the gallons of solids of each coating applied;

- (3) Identification of each control device which will be or has been installed and date of installation;
- (4) Identification of coating lines which will be controlled by each control device and documentation of expected capture and destruction efficiency or reduction efficiency; and
- (5) Control device design information;
 - (a) For thermal incinerators – design combustion temperature (°F);
 - (b) For catalytic incinerators - design exhaust gas temperature (°F), design temperature rise across catalyst bed (°F), anticipated frequency of catalyst change, and catalyst changes;
 - (c) For condensers - design inlet temperature of cooling medium (°F), design exhaust gas temperature (°F); and
 - (d) For carbon adsorbers - design pressure drop across the adsorber, VOC concentration at breakthrough.
- f. Information describing the effect of the change on the emissions of any air contaminant.
- g. A demonstration that emissions from the stationary source will not cause an increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by APC Regulation No.22.

II. The following requirements are applicable to Shipbuilding and Ship Repair operations as defined in 40 CFR Part 63, Subpart II and the surface coating of miscellaneous metal parts as defined in Air Pollution Control Regulation No. 19. The following requirements do not apply to the application of adhesives and the Mold-In-Place process.

A. Emission Limitations

- 1. The owner/operator shall not cause or allow the application of any coating to a ship with an as-applied volatile organic hazardous air pollutants (VOHAP) content exceeding the applicable limit given in Table 1, as determined by the procedures in Conditions II.C.5 through II.C.7 of this permit. For the compliance procedures

described in II.C.5 or II.C.6 of this permit, volatile organic compounds (VOC) shall be used as a surrogate for VOHAP and the EPA Reference Method 24 shall be used as the definitive measure for determining compliance. For the compliance procedure described in II.C.7 of this permit, an alternative test method capable of measuring independent VOHAP shall be used to determine compliance. The method must be submitted to and approved by the USEPA.

2. The VOC content of each coating used by the owner/operator on miscellaneous metal parts shall not exceed the following emissions limitations:

| Type of Coating | Emission Limitation (lbs. VOC/gallon of coating minus water) |
|--|---|
| Clear Coating | 4.3 |
| Air Dried Coating | 3.5 |
| Extreme Performance Coating | 3.5 |
| All other coating on miscellaneous metal parts | 3.0 |

B. Operating Requirements

1. The owner/operator shall ensure that all handling and transfer of VOHAP-containing materials to and from containers, tanks, vats, drums, and piping systems is conducted in a manner that minimizes spills.
2. The owner/operator shall ensure that all containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and remain closed unless materials are being added to or removed from them.

C. Compliance Requirements

1. For each batch of coating that is received, the owner/operator shall:
 - a. Determine the coating category and the applicable VOHAP limit from Table 1 of this permit.
 - b. Certify the as-supplied VOC content of the batch of coating. The owner/operator may use a certification supplied by the manufacturer for the batch, although the owner/operator retains liability should subsequent testing reveal a violation. If the owner/operator performs the

certification testing, only one of the containers in which the batch of coating was received is required to be tested.

2. In lieu of testing each batch of coating, as applied, the owner/operator may determine compliance with the VOHAP limits using any combination of the procedures described in Conditions II.C.5 through II.C.7 of this permit. The procedure used for each coating shall be determined and documented prior to application.
3. The results of any compliance demonstration conducted by the owner/operator, Office of Air Resources or the USEPA using Method 24 shall take precedence over the results using the procedures in Conditions II.C.5 or II.C.6 of this permit.
4. The results of any compliance demonstration conducted by the owner/operator, the Office of Air Resources or the USEPA using an approved test method to determine VOHAP content shall take precedence over the results using the procedures in Condition II.C.7 of this permit.
5. **Coatings to which thinning solvent will not be added.**
 - a. For coatings to which thinning solvent (or any other material) will not be added under any circumstance or to which only water is added, the owner/operator of an affected source shall comply as follows:
 - (1) Certify the as-applied VOC content of each batch of coating.
 - (2) Notify the persons responsible for applying the coating that no thinning solvent may be added to the coating by affixing a label to each container of coating in the batch or through another means described in the facility's current implementation plan required by 40 CFR 63.787(b).
 - (3) If the certified as-applied VOC content of each batch of coating used during a calendar month is less than or equal to the applicable VOHAP limit in Table 1 (either in terms of g/L of coating or g/L of solids), then compliance is demonstrated for that calendar month, unless a violation is revealed using Method 24.
6. **Coatings to which thinning solvent will be added-coating-by-coating compliance.**

a. For a coating to which thinning solvent is routinely or sometimes added, the owner/operator shall comply as follows:

- (1) Prior to the first application of each batch, designate a single thinner for the coating and calculate the maximum allowable thinning ratio (or ratios, if the owner/operator complies with the cold-weather limits in addition to the other limits specified in Table 1) for each batch as follows:

$$R = \frac{(V_s)(VOHAP \text{ limit}) - M_{voc}}{D_{th}} \quad \text{Equation 1}$$

where:

R = Maximum allowable thinning ratio for a given batch (L thinner/L coating as supplied);

V_s = Volume fraction of solids in the batch as supplied (L solids/L coating as supplied);

VOHAP limit = Maximum allowable as-applied VOHAP content of the coating (g VOHAP/L solids);

M_{voc} = VOC content of the batch as supplied [g VOC (including cure volatiles and exempt compounds on the HAP list)/L coating (including water and exempt compounds) as supplied];

D_{th} = Density of the thinner (g/L).

If V_s is not supplied directly by the coating manufacturer, the owner/operator shall determine V_s as follows:

$$V_s = 1 - \frac{M_{volatiles}}{D_{avg}} \quad \text{Equation 2}$$

where:

M_{volatiles} = Total volatiles in the batch, including VOC, water, and exempt compounds (g/L coating);

D_{avg} = Average density of volatiles in the batch (g/L).

The procedures specified in Condition II.D.5 may be used to determine the values of variables defined in this paragraph. In addition, the owner/operator may choose to construct nomographs, based on Equation 1, similar or identical to the one provided in Appendix B of 40 CFR 63, Subpart II as a means of easily estimating the maximum allowable thinning ratio.

- (2) Prior to the first application of each batch, notify painters and other persons, as necessary, of the designated thinner and maximum allowable thinning ratio(s) for each batch of the coating by affixing a label to each container of coating or through another means described in the facility's current implementation plan required by 40 CFR 63.787(b).
- (3) By the 15th day of each calendar month, determine the volume of each batch of the coating used, as supplied, during the previous month.
- (4) By the 15th day of each calendar month, determine the total allowable volume of thinner for the coating used during the previous month as follows:

$$V_{th} = \sum_{i=1}^n (R \times V_b)_i + \sum_{i=1}^n (R_{cold} \times V_{b - cold})_i \quad \text{Equation 3}$$

where:

V_{th} = Total allowable volume of thinner for the previous month (L thinner):

R = Maximum allowable thinning ratio for each batch used during non-cold-weather days (L thinner/L coating as supplied);

V_b = Volume of each batch, as supplied and before being thinned, used during non-cold-weather days of the previous month (L coating as supplied);

R_{cold} = Maximum allowable thinning ratio for each batch used during cold-weather days

(L thinner/L coating as supplied);

V_{b-cold} = Volume of each batch, as supplied and before being thinned, used during cold-weather days of the previous month (L coating as supplied);

i = Each batch of coating;

n = Total number of batches of the coating

(5) By the 15th day of each calendar month, determine the volume of thinner actually used with the coating during the previous month.

(6) If the volume of thinner actually used with the coating [Condition II.C.6.a (5) of this permit] is less than or equal to the total allowable volume of thinner for the coating [Condition II.C.6.a (4) of this permit], then compliance is demonstrated for the coating for the previous month, unless a violation is revealed using Method 24.

(7) **Demonstration of compliance through an alternative (i.e., other than Method 24 of Appendix A to 40 CFR part 60) test method.**

The owner/operator shall comply as follows:

a. Certify the as-supplied VOHAP content (g VOHAP/L solids) of each batch of coating.

b. If no thinning solvent will be added to the coating, the owner/operator shall follow the procedure described in Condition II.C.5, except that VOHAP content shall be used in lieu of VOC content.

c. If thinning solvent will be added to the coating, owner/operator shall follow the procedure described in Condition II.C.6 of this permit, except that in Equation 1 the term " M_{voc} " shall be replaced by the term " M_{VOHAP} " defined as the VOHAP content of the coating as supplied (g VOHAP/L coating) and the term " D_{th} " shall be replaced by the term " $D_{th(VOHAP)}$ " defined as the average density of the VOHAP thinner(s) (g/L).

(8) A violation revealed through any approved test method shall result in a 1-day violation for enforcement purposes. A violation revealed

through the recordkeeping procedures described in Conditions II.C.5 through II.C.7 of this permit shall result in a 30-day violation for enforcement purposes, unless the owner/operator provides sufficient data to demonstrate the specific days during which noncompliant coatings were applied.

D. Testing Requirements

1. Compliance with the coating emission limitations contained in Condition II.A.2 of this permit shall be demonstrated in accordance with 40 CFR 60, Appendix A, Methods 24, 24A as amended or any other EPA approved method which has been accepted by the Director. A one hour bake time shall be used for Methods 24 and 24A, which apply to multi-component coatings.
2. For the compliance procedures described in Conditions II.C.5 or II.C.6 of this permit, Method 24 of 40 CFR part 60, appendix A, is the definitive method for determining the VOC content of coatings, as supplied or as applied. When a coating or thinner contains exempt compounds that are volatile HAP or VOHAP, the owner/operator shall ensure, when determining the VOC content of a coating, that the mass of these exempt compounds is included.
3. For the compliance procedure described in Condition II.C.7 of this permit, the USEPA must approve the test method for determining VOHAP content of coatings and thinners. The criteria for approval of the test method are specified in 40 CFR 63.786(b).
4. A coating manufacturer or the owner/operator may use batch formulation data as a test method in lieu of Method 24 to certify the as-supplied VOC content of a coating if the manufacturer or the owner/operator has determined that batch formulation data have a consistent and quantitatively known relationship to Method 24 results. This determination shall consider the role of cure volatiles, which may cause emissions to exceed an amount based solely upon coating formulation data. Notwithstanding such determination, in the event of conflicting results, Method 24 shall take precedence.
5. The owner/operator shall use or ensure that the manufacturer uses the form and procedures mentioned in 40 CFR 63 Subpart II appendix A to determine values for the thinner and coating parameters used in Equations 1 and 2 of this permit. The owner/operator shall ensure that the coating/thinner manufacturer (or supplier) provides information on the VOC and VOHAP contents of the coatings/thinners and the procedure(s) used to determine these values.

E. Recordkeeping Requirements

1. The owner/operator shall compile records on a monthly basis and maintain those records for a minimum of 5 years. At a minimum, these records shall include:
 - a. A copy of the affected source's approved implementation plan required by 40 CFR 63.787(b);
 - b. The volume of each low-usage-exempt coating applied;
 - c. Identification of the coatings used, their appropriate coating categories, and the applicable VOHAP limit;
 - d. Certification of the as-supplied VOC content of each batch of coating;
 - e. A determination of whether containers meet the standards as described in Condition II.B.2 of this permit; and
 - f. The results of any Method 24 of appendix A to 40 CFR Part 60 or approved VOHAP measurement test conducted on individual containers of coating, as applied.
 - g. The name and identification number of each coating, as applied;
 - h. The mass of VOC per volume of each coating (excluding water), as applied, used each month;
 - i. The type and amount of solvent used for diluents and clean up operations;
2. The records required by Condition II.E.1 of this permit shall include additional information, as determined by the compliance procedure(s) described in Conditions II.C.5 through II.C.7 of this permit that the owner/operator followed.
 - a. **Coatings to which thinning solvent will not be added.**

The records maintained by the owner/operator demonstrating compliance using the procedure specified in Condition II.C.5 of this permit shall contain the following information:

 - (1) Certification of the as-applied VOC content of each batch of coating; and

(2) The volume of each coating applied.

b. **Coatings to which thinning solvent will be added--coating-by-coating compliance.**

The records maintained by the owner/operator demonstrating compliance using the procedure specified in Condition II.C.6 of this permit shall contain the following information:

- (1) The density and mass fraction of water and exempt compounds of each thinner and the volume fraction of solids (nonvolatiles) in each batch, including any calculations;
- (2) The maximum allowable thinning ratio (or ratios, if the affected source complies with the cold-weather limits in addition to the other limits specified in Table 1 of this permit) for each batch of coating, including calculations;
- (3) If the owner/operator chooses to comply with the cold-weather limits, the dates and times during which the ambient temperature at the affected source was below 4.5 °C (40 °F) at the time the coating was applied and the volume used of each batch of the coating, as supplied, during these dates;
- (4) The volume used of each batch of the coating, as supplied;
- (5) The total allowable volume of thinner for each coating, including calculations; and
- (6) The actual volume of thinner used for each coating.

c. **Demonstration of compliance through an alternative (i.e., non-Method 24 in Appendix A to 40 CFR part 60) test method.**

The records maintained by the owner/operator demonstrating compliance using the procedure described in Condition II.C.7 of this permit, shall contain the following information:

- (1) Identification of the Administrator-approved VOHAP test method or certification procedure;

- (2) For coatings to which the owner/operator does not add thinning solvents, the source shall record the certification of the as-supplied and as-applied VOHAP content of each batch and the volume of each coating applied;
 - (3) For coatings to which the owner/operator adds thinning solvents on a coating-by-coating basis, the source shall record all of the information required to be recorded by Condition II.E.2.b of this permit.
3. If the owner/operator detects a violation of the emission limitations specified in Table 1 of this permit, the owner/operator shall for the remainder of the reporting period during which the violation(s) occurred, include the following information in his or her records:
 - a. A summary of the number and duration of deviations during the reporting period, classified by reason, including known causes for which a Federally-approved or promulgated exemption from an emission limitation or standard may apply.
 - b. Identification of the data availability achieved during the reporting period, including a summary of the number and total duration of incidents that the monitoring protocol failed to perform in accordance with the design of the protocol or produced data that did not meet minimum data accuracy and precision requirements, classified by reason.
 - c. Identification of the compliance status as of the last day of the reporting period and whether compliance was continuous or intermittent during the reporting period.
 - d. If, pursuant to Condition II.E.3.c of this permit, the owner/operator identifies any deviation as resulting from a known cause for which no Federally-approved or promulgated exemption from an emission limitation or standard applies, the monitoring report shall also include all records that the source is required to maintain that pertain to the periods during which such deviation occurred and:
 - (1) The magnitude of each deviation;
 - (2) The reason for each deviation;
 - (3) A description of the corrective action taken for each deviation, including action taken to minimize each deviation and action taken to prevent recurrence;

and

- (4) All quality assurance activities performed on any element of the monitoring protocol.

F. Reporting Requirements

1. Before the 60th day following completion of each 6-month period after December 16, 1997, the owner/operator shall submit a report to the Office of Air Resources and the USEPA for each of the previous 6 months. The report shall include all of the information that must be retained pursuant to Conditions II.E.1 and II.E.2 of this permit, except for that information specified in Conditions II.E.1.a, II.E.1.d, II.E.2.a (1) and II.E.2.b (1) of this permit. If a violation at the facility is detected, the owner/operator shall also report the information specified in Condition II.E.3 of this permit for the reporting period during which the violation(s) occurred. To the extent possible, the report shall be organized according to the compliance procedure(s) followed each month by the owner/operator.
2. The owner/operator shall notify the Director of any record showing use of any coatings that are non-compliant with the emission limitation specified in Condition II.A.2 of this permit by sending a copy of such record to the Director within 30 calendar days following that use.
3. The owner/operator, before changing the method of compliance from complying coatings to daily-weighted averaging or control devices, shall submit a Compliance Certification Plan to the Office of Air Resources for review and approval. Such plan shall include:
 - a. The name and location of the facility;
 - b. The name, address and telephone number of the person responsible for the facility;
 - c. The name and identification number of each coating, as applied, on each coating line or operation;
 - d. For daily-weighted averaging:
 - (1) The instrument or method by which the owner/operator will accurately measure or calculate the volume of each coating (excluding water), as applied, used each day on each emission unit;
 - (2) The method by which the owner/operator will

create and maintain records each day as required by Subsection 19.5.2(c) of APC Regulation 19; and

- (3) The time at which the facility's day begins if a time other than midnight local time is used to define a day.

e. For control devices

- (1) The name and identification number of each coating, as applied, on each coating line or operation;
- (2) The mass of VOC per volume coating solids applied and the gallons of solids of each coating applied;
- (3) Identification of each control device which will be or has been installed and date of installation;
- (4) Identification of coating lines which will be controlled by each control device and documentation of expected capture and destruction efficiency or reduction efficiency; and
- (5) Control device design information;
 - (a) For thermal incinerators - design combustion temperature (°F);
 - (b) For catalytic incinerators - design exhaust gas temperature (°F), design temperature rise across catalyst bed (°F), anticipated frequency of catalyst change, and catalyst changes;
 - (c) For condensers - design inlet temperature of cooling medium (°F), design exhaust gas temperature (°F); and
 - (d) For carbon adsorbers - design pressure drop across the adsorber, VOC concentration at breakthrough.

f. Information describing the effect of the change on the emissions of any air contaminant.

g. A demonstration that emissions from the stationary source will not cause an increase in the ground level ambient

concentration at or beyond the property line in excess of that allowed by APC Regulation No. 22.

4. The owner/operator may apply to the USEPA for permission to use an alternative means (such as an add-on control system) of limiting emissions from coating operations in Condition II.A.1 by following the provisions of 40 CFR 63.783(c).

G. Other Requirements

1. The provisions of this section, except for Conditions II.A.2, II.D.1, II.E.1.g-i, II.F.2 and II.F.3 of this permit, do not apply to coatings used in volumes less than 200 liters (52.8 gallons) per year, provided the total volume of coating exempt under this condition does not exceed 1,000 liters per year (264 gallons per year) at this facility. Coatings exempt under this condition shall be clearly labeled as "low-usage exempt" and the volume of such coating applied shall be maintained in the owner/operator's records.
2. The provisions of this section, except for Conditions II.A.2, II.D.1, II.E.1.g-i, II.F.2 and II.F.3 of this permit, do not apply to coatings applied with hand-held, non refillable, aerosol containers or to unsaturated polyester resin (i.e. fiberglass lay-up) coatings. Coatings applied to suitably prepared fiberglass surfaces for protective or decorative purposes are subject to this section.
3. NSP High Performance Epoxy coating (EB Part number 50-10-0011) shall not be used in Building 2004 and the paint spray booth in Building 60.

III. The following requirements are applicable to:

- The Blastec abrasive blasting chamber, located in Building 60 (Fast Flow), associated with a Torit dust collector
- Lead working operations conducted in Building 60 (High Bay) and Building 2003, associated with a HEPA filter
- Certain brazing operations (including brazing rods with Electric Boat MSDS Numbers 693, 4576, 4577, 6528 and 8846) conducted in Building 60 (High Bay, Pipe Shop, and Sheet Metal Shop) and Building 2003, associated with a HEPA filter
- The GXS Trumatic 6000L laser cutting machine, located in Building 60 (Sheet Metal Shop), associated with a HEPA filter
- The GX3 ESAB VIS 55 Tele Rex oxy-propane cutting machine, located in

Building 2004, associated with a HEPA filter

- The ESAB Avenger laser marking machine, located in Building 2006, associated with a HEPA filter
- The GX7 ESAB Avenger plasma cutting machine, located in Building 2006, associated with a HEPA filter
- The GX8 ESAB Alpha Rex AXC Laser 7000 cutting machine, located in Building 2006, associated with a HEPA filter
- Certain welding/cladding operations (the use of welding rod 1N12) conducted in Building 2003, associated with a HEPA filter

A. Emission limitations

1. All particulate matter generated from these processes shall be captured, contained and routed to a dust collector for treatment.
 - a. Particulate matter from the Blastec abrasive blasting chamber shall be reduced by 99.9% or greater before discharge to the atmosphere.
 - b. Particulate matter from the ESAB Avenger laser marking machine, GX7 ESAB Avenger plasma cutting machine, GX8 ESAB Alpha Rex AXC Laser 7000 cutting machine, GXS Trumatic 6000L laser cutting machine, GX3 ESAB VIS 55 Tele Rex oxy-propane cutting machine, and welding/cladding operations conducted in Building 2003 that use welding rod 1N12 shall be reduced by 99.97% or greater before discharge to the atmosphere.
 - c. Particulate matter from lead working in Building 60 (High Bay) and Building 2003 and brazing operations conducted in Building 60 (High Bay, Pipe Shop, and Sheet Metal Shop) and Building 2003 that are routed to a dust collector for treatment shall be reduced by 99.7% or greater before discharge to the atmosphere.
2. Visible emissions from abrasive blasting operations shall not exceed 10% opacity (six-minute average). Where the presence of uncombined water is the only reason for failure to meet the opacity requirement of this section, such failure shall not be a violation of this permit.

B. Operating Requirements

1. Particulate matter control devices shall be operated according to their design specifications whenever the equipment emitting air contaminants is in operation.

C. Monitoring Requirements

1. The pressure drop across the Torit dust collector associated with the Blastec abrasive blasting chamber shall be monitored continuously.

D. Recordkeeping

1. The owner/operator shall check the pressure drop across the Torit dust collector associated with the Blastec abrasive blasting chamber a minimum of once per day and the date, time and measurement shall be recorded. This daily recordkeeping is not required if the control device is equipped with an electronic interlock system that automatically shuts down the ventilation system leading to the Torit dust collector in the event the pressure drop across the Torit dust collector is outside the manufacturer's recommended operating range

E. Malfunctions

1. In the case of malfunction of any air pollution control system that would result in the exceedance of any emission limitation applicable to this facility, all reasonable measures shall be taken to assure resumption of their designed control efficiency as soon as possible. In the event that the malfunction of any air pollution control system is expected or may reasonably be expected to continue for longer than 24 hours and if the owner/operator wishes to operate the affected production equipment or process beyond that period, the Director shall be petitioned for a variance under Section 23-23-15 of the General Laws of Rhode Island, as amended. Such petition shall include, but is not limited to, the following:
 - a. Identification of the specific air pollution control system and the source on which it is installed;
 - b. The expected period of time that the control system will be malfunctioning or out of service;
 - c. The nature and quantity of air contaminants likely to be emitted during said period;

- d. Measures that will be taken to minimize the length of said period;
 - e. The reasons that it would be impossible or impractical to cease the source operation during said period.
2. The owner/operator may seek to establish that a malfunction of any air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:
- a. The malfunction was not attributable to improperly designed air pollution control equipment, lack of preventative maintenance, careless or improper operation, or operator error;
 - b. The malfunction was not part of a recurring pattern indicative of inadequate design, operation or maintenance;
 - c. Repairs necessary to bring the air pollution control system back to operating at its design control efficiency were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable. Any parts or material needed should be shipped overnight where possible or practical.
 - d. All possible steps were taken to minimize emissions during the period of time that the repairs were performed.
 - e. Emissions during the period of time that the repairs were performed will not:
 - (1) Cause an increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by Air Pollution Control Regulation No. 22 or otherwise approved by the Office of Air Resources, and any Calculated Acceptable Ambient Levels; and
 - (2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.

- f. The reasons that it would be impossible or impractical to cease the source operation during said period.

This demonstration must be provided to the Office of Air Resources, in writing, within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.

F. Other Requirements

1. Within 180 days of the issuance of this permit, the owner/operator shall provide documentation to the Office of Air Resources to support the assumption of 100% capture of the particulate matter generated from each of the processes that are routed to a dust collector. Documentation can include, but not be limited to, 40 CFR Part 51, Appendix M, Method 204 or ventilation design consistent with the recommendations in "Industrial Ventilation, A Manual of Recommended Practice for Design, 27th Edition".

IV. The following requirements are applicable to operations on a facility-wide basis:

A. Emission Limitations

1. The total quantity of VOC emissions discharged to the atmosphere from all operations conducted at the entire facility shall not exceed 98,000 pounds in any consecutive 12-month period.
2. The total quantity of Chromium VI, Cobalt, Copper, Isopropanol, Lead, Manganese, Molybdenum, Nickel, Phenol, and Vanadium discharged to the atmosphere from the entire facility shall not exceed the levels specified in Table 2 of this permit.
3. The total quantity of emissions discharged to the atmosphere from the entire facility, for any listed toxic air contaminant other than Chromium VI, Cobalt, Copper, Isopropanol, Lead, Manganese, Molybdenum, Nickel, Phenol, and Vanadium shall not exceed the minimum quantity for that contaminant as specified in Appendix A of Air Pollution Control Regulation No. 9. Emissions from activities exempted from the provisions of APC Regulation No. 22 in subsection 22.2.2 are not included in this limitation.

B. Recordkeeping Requirements

1. The owner/operator shall for the current calendar year, determine the total quantity of VOC discharged to the atmosphere from the entire facility as follows:
 - a. On a monthly basis, no later than 15 days after the first of the month, if the total quantity of VOC emissions discharged to the atmosphere from all operations conducted at the entire facility equals or exceeds 49,000 pounds in the previous calendar year.
 - b. On an annual basis, no later than 15 February each year, if the total quantity of VOC emissions discharged to the atmosphere from all operations conducted at the entire facility is less than 49,000 pounds in the previous calendar year.

The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

2. The owner/operator shall for the current calendar year, determine the total quantity of each toxic air constituent discharged to the atmosphere from the entire facility as follows:
 - a. On a monthly basis, no later than 30 days after the first of the month, if the total quantity of that toxic air constituent discharged to the atmosphere from all operations conducted at the entire facility in the previous calendar year exceeds the value listed in Table 3.
 - b. On an annual basis, no later than 15 February each year, for each toxic air constituent discharged to the atmosphere from all operations conducted at the entire facility.

The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

3. All records required in this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

C. Reporting Requirements

1. Deviations from permit conditions shall be reported, in writing, within five (5) business days of the deviation, to the Office of Air Resources. Reports shall describe the probable cause of such

deviations, and any corrective actions or preventive measures taken.

2. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual initial start-up of the equipment covered by this permit no later than fifteen days after such date.
3. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:
 - a. Change the representation of the facility in the application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of this permit.
 - d. Qualify as a modification under APC Regulation No. 9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

4. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
5. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of Chromium VI, Cobalt, Copper, Isopropanol, Lead, Manganese, Molybdenum, Nickel, Phenol, or Vanadium discharged to the atmosphere from the entire facility exceeds the hourly, daily, or annual emission limitations in Table 2.
6. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of Chromium VI, Cobalt, Copper, Isopropanol, Lead, Manganese, Molybdenum, Nickel, Phenol, or Vanadium discharged to the

atmosphere from the entire facility exceeds its Lbs/year threshold in Table 3, triggering monthly record keeping requirements.

7. The owner/operator shall notify the Office of Air Resources in writing, on or before 15 February of the following calendar year, whenever the total quantity of any listed toxic air contaminant, other than Chromium VI, Cobalt, Copper, Isopropanol, Lead, Manganese, Molybdenum, Nickel, Phenol, or Vanadium, discharged to the atmosphere during a calendar year, from the entire facility, exceeds the minimum quantity for that contaminant as specified in Table III of Air Pollution Control Regulation No. 22.
8. The owner/operator shall submit any report required to comply with Condition IV.B.3 to the Office of Air Resources by June 15.
9. The owner/operator shall notify the Office of Air Resources, in writing within 15 days, whenever the quantity of VOC discharged to the atmosphere exceeds 98,000 pounds in any consecutive 12-month period.

D. Other Requirements

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application prepared by Woodard & Curran dated August 2011 and amended October 2011.
2. The facility is subject to the requirements of 40 CFR 63.1-15, Subpart A, "General Provisions" as indicated in Table 1 of 40 CFR 63.780. Compliance with all applicable provisions therein is required.
3. Employees of the Office of Air Resources and its authorized representatives shall, upon presentation of credentials and other documents as required by law, be allowed to enter the facility at all reasonable times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
4. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance

procedures are being used will be based on information available to the Office of Air Resources, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.

5. The emission and dispersion characteristics of all sources of listed toxic air contaminants shall be consistent with the parameters used in the air quality modeling to demonstrate that the emissions of each listed toxic air contaminant do not cause an impact, at or beyond the property line of the facility, which exceeds the applicable Acceptable Ambient Level listed in Air Pollution Control Regulation No. 22, or Adjusted Acceptable Ambient Levels, as approved by the Office of Air Resources. The Office of Air Resources, in its sole discretion, may reopen this minor source permit if it determines that the emission and dispersion characteristics have changed significantly and that emission limitations must be added to this permit to ensure compliance with Air Pollution Control Regulation No. 22.

Table 1

| Coating Category ^f | VOHAP limits ^{a,b,c.} | | |
|--|--|--------------------------------|------------------------|
| | grams/liter coating (minus water and exempt compounds) | grams/liter solid ^d | |
| | | t > 4.5°C | t < 4.5°C ^e |
| General use | 340 | 571 | 728 |
| Air flask | 340 | 571 | 728 |
| Antenna | 530 | 1,439 | -- |
| Antifoulant | 400 | 765 | 971 |
| Heat resistant | 420 | 841 | 1,069 |
| High-gloss | 420 | 841 | 1,069 |
| High-temperature | 500 | 1,237 | 1,597 |
| Inorganic zinc high-build | 340 | 571 | 728 |
| Military exterior | 340 | 571 | 728 |
| Mist | 610 | 2,235 | -- |
| Navigational aids | 550 | 1,597 | -- |
| Nonskid | 340 | 571 | 728 |
| Nuclear | 420 | 841 | 1,069 |
| Organic zinc | 360 | 630 | 802 |
| Pretreatment wash primer | 780 | 11,095 | -- |
| Repair and maintenance of thermoplastics | 550 | 1,597 | -- |
| Rubber camouflage | 340 | 571 | 728 |
| Sealant for thermal spray | 610 | 2,235 | -- |
| Special marking | 490 | 1,178 | -- |
| Specialty interior | 340 | 571 | 728 |
| Tack coat | 610 | 2,235 | -- |
| Undersea weapons systems | 340 | 571 | 728 |
| Weld-through preconstruction Primer | 650 | 2,885 | -- |

^a The limits are expressed in two sets of equivalent units. Either set of limits may be used for the compliance procedure described in Conditions II.C.5 of this permit but only the limits expressed in units of g/L solids (nonvolatiles) shall be used for the compliance procedures described in

Conditions II.C.6 and II.C.7 of this permit.

- ^b VOC (including exempt compounds listed as HAP) shall be used as a surrogate for VOHAP for those compliance procedures described in Conditions II.C.5 through II.C.7 of this permit.
- ^c To convert from g/L to lb/gal, multiply by (3.785 L/gal)(1/453.6 lb/g) or 1/120. For compliance purposes, metric units define the standards.
- ^d VOHAP limits expressed in units of mass of VOHAP per volume of solids were derived from the VOHAP limits expressed in units of mass of VOHAP per volume of coating assuming the coatings contain no water or exempt compounds and that the volumes of all components within a coating are additive.
- ^e These limits apply during cold-weather time periods, as defined in 40 CFR 63,782. Cold-weather allowances are not given to coatings in categories that permit over a 40 percent VOHAP content by volume. Such coatings are subject to the same limits regardless of weather conditions.
- ^f As defined in 40 CFR 63.782

Table 2

| Listed toxic air contaminant | Allowable Emissions | | |
|------------------------------|---------------------|---------|---------------------|
| | Lbs/hr | Lbs/day | Lbs/year |
| Chromium VI | | 1.753 | 1.878 |
| Cobalt | | | 2.122 |
| Copper | 1.005 | | 100.5 ^a |
| Isopropanol | 171.8 | | 17180 ^b |
| Lead | | | 31.23 |
| Manganese | | 0.263 | 64.24 ^c |
| Molybdenum | | 39.512 | 9615 ^d |
| Nickel | 0.143 | 1.604 | 92.43 |
| Phenol | 3.555 | | 355.5 ^e |
| Vanadium | 0.001808 | | 0.1808 ^f |

^a Lbs/yr emission limit is based on 100 hrs/yr operation at maximum lbs/hr emission rate and serves as a record keeping demonstration that the lbs/hr emission rate for **Copper** (demonstrated through modeling to be below its Acceptable Ambient Level) will not be exceeded, calculated as follows:

$$1.005 \text{ lbs/hr} \times 100 \text{ hrs/yr} = 100.5 \text{ lbs/yr}$$

^b Lbs/yr emission limit is based on 100 hrs/yr operation at maximum lbs/hr emission rate and serves as a record keeping demonstration that the lbs/hr emission rate for **Isopropanol** (demonstrated through modeling to be below its Acceptable Ambient Level) will not be exceeded, calculated as follows:

$$171.8 \text{ lbs/hr} \times 100 \text{ hrs/yr} = 17180 \text{ lbs/yr}$$

^c Lbs/yr emission limit is based on eight months per year operation at maximum lbs/hr emission rate and serves as a record keeping demonstration that the lbs/day emission rate for **Manganese** (demonstrated through modeling to be below its Acceptable Ambient Level) will not be exceeded, calculated as follows:

$$0.263 \text{ lbs/day} \times \frac{8 \text{ months operation}}{12 \text{ months/year}} \times 365 \text{ days/yr} = 64.24 \text{ lbs/yr}$$

^d Lbs/yr emission limit is based on eight months per year operation at maximum lbs/hr emission rate and serves as a record keeping demonstration that the lbs/day emission rate for **Molybdenum** (demonstrated through modeling to be below its Acceptable Ambient Level) will not be exceeded, calculated as follows:

$$39.512 \text{ lbs/day} \times \frac{8 \text{ months operation}}{12 \text{ months/year}} \times 365 \text{ days/yr} = 9615 \text{ lbs/yr}$$

^e Lbs/yr emission limit is based on 100 hrs/yr operation at maximum lbs/hr emission rate and serves as a record keeping demonstration that the lbs/hr emission rate for **Phenol** (demonstrated through modeling to be below its Acceptable Ambient Level) will not be exceeded, calculated as

follows:

$$3.555 \text{ lbs/hr} \times 100 \text{ hrs/yr} = 355.5 \text{ lbs/yr}$$

^f Lbs/yr emission limit is based on 100 hrs/yr operation at maximum lbs/hr emission rate and serves as a record keeping demonstration that the lbs/hr emission rate for **Vanadium** (demonstrated through modeling to be below its Acceptable Ambient Level) will not be exceeded, calculated as follows:

$$0.001808 \text{ lbs/hr} \times 100 \text{ hrs/yr} = 0.1808 \text{ lbs/yr}$$

Table 3

| Listed toxic air contaminant | Emission Thresholds to Trigger Monthly Record Keeping ^a |
|------------------------------|--|
| | Lbs/year |
| Chromium VI | 1.690 |
| Cobalt | 1.910 |
| Copper | 90.45 |
| Isopropanol | 15462 |
| Lead | 28.11 |
| Manganese | 57.82 |
| Molybdenum | 8653 |
| Nickel | 83.19 |
| Phenol | 320 |
| Vanadium | 0.1627 |

^a Lbs/year emission rate for triggering monthly record keeping requirements is equal to 90% of the lbs/yr emission limit specified in Table 2