

21 February 2013

Mr. Thomas J. Armstrong  
Facilities Manager  
MAHR FEDERAL, INC.  
1139 Eddy Street  
Providence, RI 02905

Dear Mr. Armstrong:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for the installation of air pollution control equipment at your facility located at 1139 Eddy Street, Providence, RI.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval No. 2202).

Be advised that the Office of Air Resources has determined that Mahr Federal Incorporated is subject to the requirements of 40 CFR 60.1-19, Subpart A, "General Provisions" and 40 CFR 63 Subpart N, "National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks". Rhode Island has not been delegated authority for implementing and enforcing these standards as they apply to Mahr Federal Incorporated. The United States Environmental Protection Agency implements and enforces these standards. Any required notifications or reports under these standards must be sent to USEPA Region 1. Any questions concerning these standards, such as applicability determinations, compliance schedule extensions, or alternatives to testing or monitoring requirements must be directed to USEPA Region 1 as well.

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

Sincerely,

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

cc: Eric Pearson – ESS  
Providence Building Official

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

MINOR SOURCE PERMIT

*MAHR FEDERAL, INC.*

APPROVAL No. 2202

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

*Mahr Federal, Inc.*

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For the following:

*The installation of a Tri-Mer Corporation, Model C/E-XR150 Chrome Eliminator, a composite mesh-pad system, to treat emissions generated from the existing hard chromium electroplating line and the existing lead melting pot.*

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Located At: *1139 Eddy Street, Providence*

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**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 *Mahr Federal, Inc.* 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.**

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Douglas L. McVay, Chief  
Office of Air Resources

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Date of Issuance

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

Permit Conditions and Emission Limitations

**MAHR FEDERAL, INC.**

**APPROVAL NO. 2202**

A. Emission Limitations

1. Chromium Emissions from Plating Operations

- a. The owner/operator shall not allow the surface tension of the electroplating baths within the tanks to exceed 40 dynes per centimeter as measured using a stalagmometer, or 33 dynes per centimeter as measured using a tensiometer at any time during the operation of each tank.
- b. Emissions of hexavalent chromium discharged to the atmosphere from the plating operations shall not exceed 21.4 grams per year (0.047 lbs per year) based upon a 12 month rolling average.
- c. Emissions of hexavalent chromium discharged to the atmosphere from the plating operations shall not exceed 1.0 grams per day (0.0022 lbs per day).
- d. Emissions of hexavalent chromium discharged to the atmosphere from the plating operations shall not exceed 0.044 milligrams per ampere-hour ( $9.71 \times 10^{-8}$  lb/amp-hr).
- e. Emission of total chromium discharged to the atmosphere from the plating operations shall not exceed 0.015 mg/dscm.

2. Lead Melting Pot Operations

Emissions of lead discharged to the atmosphere from the lead melting pot operations shall not exceed;

- a. 207.2 grams per year (12-month rolling average); and
- b. 51.8 grams per 3-month period (3-month rolling average).

3. Visible emissions from the Tri-Mer composite mesh-pad system exhaust shall not exceed 10% opacity (six-minute average). Where the presence of uncombined water is the only reason for failure to meet the requirements of this condition, such failure shall not be a violation of this permit.

## B. Operating Requirements

1. All chromic acid emissions generated from the plating operations shall be captured, contained and treated by the Tri-Mer composite mesh-pad system before discharge to the atmosphere.
2. All lead emissions generated from the lead melting pot operations shall be captured, contained and treated by the Tri-Mer chrome composite mesh-pad system before discharge to the atmosphere.
3. The design of the ventilation system must meet the minimum requirements for exhaust volumes at each electroplating tank, as contained in the 23rd edition of the American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation Manual.
4. Total ampere-hours for the chromium electroplating tanks shall not exceed 485,000 in any consecutive 12-month period.
5. The pressure drop across the Tri-Mer composite mesh-pad system shall not exceed 4 inches water.
6. The total number of operating hours for the lead melting pot shall not exceed 400 hours per year.

## C. Monitoring/Testing

1. The owner/operator shall monitor the surface tension of the chromium electroplating bath. Operation of the chromium electroplating bath at a surface tension greater than 40 dynes per centimeter as measured using a stalagmometer, or 33 dynes per centimeter as measured using a tensiometer, shall constitute noncompliance with the emission limitations. The surface tension shall be monitored according to the following schedule:
  - a. The surface tension shall be measured once every 40 hours during operation of the tank with a stalagmometer or a tensiometer as specified in Method 306B, of 40 CFR 63, Appendix A.
  - b. If bath solution is drained from a tank and new solution is added, the surface tension shall be measured once every 4 hours of tank operation for the first 40 hours of tank operation after the change. Once there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 8 hours of tank operation. Once there are no exceedances during 40 hours of tank operation on this schedule, surface tension measurement may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs.

The minimum frequency of monitoring allowed by this Condition is once every 40 hours of tank operation.

- c. Once an exceedance occurs as indicated through surface tension monitoring, the original monitoring schedule of once every 4 hours must be resumed. A subsequent decrease in frequency shall follow the schedule laid out above. For example, if the owner/operator had been monitoring an affected source once every 40 hours and an exceedance occurs, subsequent monitoring would take place once every 4 hours of tank operation. Once an exceedance does not occur for 40 hours of tank operation, monitoring can occur once every 8 hours of tank operation. Once an exceedance does not occur for 40 hours of tank operation on this schedule, monitoring can occur once every 40 hours of tank operation.
  - d. As noted above, once a bath solution is drained from the tank and a new solution added, the original monitoring schedule of once every 4 hours must be resumed, with a decrease in monitoring frequency allowed following the procedures described previously.
2. The pressure drop across the air pollution control system shall be monitored continuously. Pressure drop shall be checked a minimum of once per day, and the date, time and measurement shall be recorded.
  3. The current (ampere-hours) supplied to the chromium electroplating tanks shall be monitored continuously.
  4. The monitoring devices used for the measurement of pressure drop and ampere-hours shall be calibrated periodically consistent with the manufacturer's recommendations.

#### D. Emissions Testing

1. Within 180 days of start up of the Tri-Mer composite mesh-pad system, emissions testing shall be conducted to demonstrate compliance with all applicable emission limitations.
2. An emissions testing protocol shall be submitted to the Office of Air Resources at least 60 days prior to the performance of any emissions test. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any emissions test.
3. All test procedures used for emissions testing shall be conducted in accordance with Appendix A of 40 CFR 63 or another method approved by the Office of Air Resources and U.S. Environmental Protection Agency (EPA) prior to the performance of any emissions tests.

4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required emissions testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.
5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitations or air quality standards.
6. A final report of the results of emission testing shall be submitted to the Office of Air Resources no later than 60 days following completion of the testing.
7. All emissions testing must be observed by the Office of Resources or its authorized representatives to be considered acceptable, unless the Office of Air Resources provides authorization to the owner/operator to conduct the testing without an observer present.

E. Recordkeeping and Reporting

1. The owner/operator shall maintain the following records:
  - a. Records of all maintenance performed on the chromium electroplating tanks, Tri-Mer composite mesh-pad system, and monitoring equipment;
  - b. Records of the occurrence, duration, and cause (if known) of each malfunction of process, add-on air pollution control and monitoring equipment;
  - c. Test reports documenting results of all performance tests;
  - d. All measurements as may be necessary to determine the conditions of performance tests;
  - e. Records of monitoring data required by Conditions C.1 through C.3 including the date and time the data are collected;
  - f. The total process operating time of the chromium electroplating tanks during the reported period;
  - g. Records of the date and time that fume suppressants are added to the chromium electroplating tanks and records of the fume suppressant manufacturer and product name;
  - h. The total ampere-hours applied to each chromium electroplating tank on a monthly basis;
  - i. The date and operating duration of the lead melting pot;

2. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total ampere-hours applied to each electroplating tank for the previous 12 months. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
3. The owner/operator shall notify the Office of Air Resources, in writing, within 30 days after the first of the month, whenever the total ampere-hours applied to the chromium plating tanks equals or exceeds 485,000 in any consecutive 12 month period.
4. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month determine the total number of operating hours of the lead melting pot for the previous twelve months.
5. The owner/operator shall notify the Office of Air Resources, in writing, within 30 days after the first of the month, whenever the total operating hours of the lead melting pot exceeds 400 for the previous twelve months.
6. The owner/operator shall notify the Office of Air Resources, in writing, of the date of initial start-up of the new air pollution control system no later than fifteen days after start-up.
7. 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 rule or regulation.
8. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
  - a. The name and location of the facility;
  - b. The subject source(s) that caused the noncompliance with the permit term;
  - c. The time and date of first observation of the incident of noncompliance;
  - d. The cause and expected duration of the incident of noncompliance;
  - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.
  - f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.

9. The owner/operator shall notify the Office of Air Resources in writing, of any planned physical or operational change to any equipment covered under this approval that would:
  - a. Change the representation of the facility in the application.
  - b. Alter the applicability of any state or federal air pollution control rule or regulation.
  - 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.

10. Unless otherwise stated in this permit, 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.

#### F. Malfunctions

1. Malfunction means a sudden and unavoidable breakdown of process or control equipment. In the case of a malfunction of any air pollution control system, all reasonable measures shall be taken to assure resumption of the designed control efficiency as soon as possible. In the event that the malfunction of an 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 source on which it is installed at any time 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 source on which it is installed;



- b. The expected period of time that the air pollution 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 equipment, lack of preventative maintenance, careless or improper operation or operator error;
  - b. The malfunction is not part of a recurring pattern indicative of inadequate design, operation or maintenance;
  - c. Repairs 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.
  - d. All possible steps were taken to minimize emissions during the period of time that repairs were performed.
  - e. Emissions during the period of time that the repairs were performed will not:
    - (1) Cause and 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 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.

- g. The owner/operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence.

This demonstration must be provided to the Office of Air Resources 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.

#### G. Other Permit Conditions

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 equipment in the permit application prepared by ESS Group, Inc.
2. There shall be no bypassing of the Tri-Mer composite mesh-pad system during times when the chromium electroplating tanks are operating.
3. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all 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 chromium and lead at the facility shall be consistent with the parameters used in the air quality modeling to demonstrate that the emissions of chromium and lead do not cause an impact, at or beyond the property line of the facility, which exceeds the Acceptable Ambient Level for that substance. 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 revised to ensure compliance with Air Pollution Control Regulation No. 22

6. The owner/operator is subject to all applicable provisions of *40 CFR Part 63, Subpart N -- National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks* and *Subpart A -- General Provisions*, as identified in Table 1 of 40 CFR 63, Subpart N. Compliance with all applicable provisions of these regulations is required.
7. The owner/operator shall not add perfluorooctane sulfonic acid (PFOS)-based fume suppressants to any open surface chromium electroplating tanks after 21 September 2015.