PERMIT TO OPERATE EVALUATION
ANODIZING (CHROMIC & SULFURIC) AND PASSIVATION LINES

Applicant's Name	**E.M.E., INC.**
Company I.D.	**45938**
Mailing Address	**431 E. OAKS STREET, COMPTON, CA 90221**
Equipment Address	**P.O. BOX 4998, COMPTON, CA 90224**

EQUIPMENT DESCRIPTION

Application No. 551731 (C/C, Previous P/N G6864, A/N 480192))

MODIFICATION OF CHROMIC ACID ANODIZING PROCESS LINE UNDER P/O G6861 BY INCREASING BRULIN 815GD CONTENT IN TANK 2, CHANGE CHEMICALS IN TANK NO. 2C, REDUCE NITIRC ACID CONCENTRATION IN TANKS 55A, 51B2 & 51-2, ADDING EMERGENCY SPARGING SYSTEMS IN ALL THE TANKS, REPLACING HYDROGEN FLUORIDE WITH AMMONIUM BUFLUORIDE IN TANK 55A & 16C, CHANGING CHEMICAL CONTENTS OF TANK NOS. 16C, 4 & 16A, WITH FOLLOWING EQUIPMENT DESCRIPTION:

CHROMIC ACID ANODIZING (TY I) LINE CONSISTING OF:

1. TANK NO. 2, AQUEOUS DEGREASING TANK, ALKALINE SOLUTION (BRULIN 815GD), AIR SPARGED AND STEAM HEATED.

2. TANK NO. 2C, ALKALINE CLEANER TANK, TURCO 4215 (BORAX, PENTASODIUM TRIPHOSPHATE, NONYLPHENOL ETHOXYLANE, SODIUM NITRATE, FATTY ALCOHOL, DIETHYLENE, GLYCOL MONO ETHER, DISODIUM HEXAFLUOROSILICANE), AIR SPARGED AND STEAM HEATED.

3. TANK NO. 55A, ETCH TANK, NITRIC AND AMMONIUM BIFLUORIDE, AIR SPARGED AND STEAM HEATED.

4. TANK NO. 16C, TRI-ACID ETCH TANK, SULFURIC ACID, CHROMIC ACID, AMMONIUM BIFLUORIDE, AIR SPARGED AND STEAM HEATED.

5. TANK NO. 51B2, PASSIVATE TYPE VI TANK, NITRIC ACID, AIR SPARGED AND STEAM HEATED.

6. TANK NO. 51-2, PASSIVATE TYPE VIII, NITRIC ACID, AIR SPARGED AND STEAM HEATED.

7. TANK NO. 16A, ALKALINE ETCH TANK, OAKITE 160 (SODIUM HYDROXIDE), AIR SPARGED AND STEAM HEATED.

8. TANK NO. 4, DEOXIDIZING TANK, OAKITE LNC (NITRIC ACID), AIR SPARGED AND STEAM HEATED.

9. TANK NO. 6, CHROMIC ACID ANODIZING TANK, CHROMIC ACID, AIR SPARGED, STEAM HEATED AND RECTIFIED (WITH A MAXIMUM 1500 AMP RECTIFIER).

10. TANK NO. 11D, DILUTE CHROMATE SEALER TANK, SODIUM DICHROMATE, CHROMIC ACID, AIR SPARGED AND STEAM HEATED.

11. ASSOCIATED RINSE TANKS.

Application No. 551732 (C/C, Previous P/N G6865, A/N 480196))

MODIFICATION OF PASSIVATION LINE UNDER P/O G6865 BY ADDING TANKS 36A & 44, BY DESCRIBING TANK 55B IN THE EQUIPMENT DESCRIPTION, INCREASNG BRULIN 815GD CONTENT IN TANK 1, ADDING EMERGENCY SPARGING IN TANKS, REPLACING HYDROGEN FLUORIDE WITH AMMONIUM BUFLUORIDE IN TANK 55A & 16C, CHANGING CHEMICAL CONTENTS OF TANK NOS. 16C, 4 & 16A, WITH FOLLOWING EQUIPMENT DESCRIPTION:

PASSIVATION LINE CONSISTING OF:

1. TANK NO. 36A, ALKALINE CLEANER, OAKITE 61B (TRISODIUM PHOSPHATE, TETRASODIUM PYROPHOSPHATE, SODIUM SILICATE, DISODIUM PHOSPHATE, COCOAMIDO SULFONATE), AIR SPARGED AND STEAM HEATED.

2. TANK NO. 1, AQUEOUS DEGREASER, BRULIN 815GD, AIR SPARGED AND STEAM HEATED.

3. TANK NO. 36, ALKALINE CLEANER, D909 (TRISODIUM PHOSPHATE, SODIUM TRIPOLYPHOSPHATE, SODIUM METASILICATE), STEAM HEATED.

4. TANK NO. 38, HCl DESMUT TANK, RODINE 213 (ISOPROPYL ALCOHOL, PROPARGYL ALCOHOL), HYDROCHLORC ACID, AIR SPARGED AND UNHEATED.

5. TANK NO. 51C, TYPE 7 PASSIVATE TANK, NITRIC ACID, AIR SPARGED AND STEAM HEATED.

6. TANK NO. 51, TYPE 8 PASSIVATE VIII TANK, NITRIC ACID, AIR SPARGED AND STEAM HEATED.

7. TANK NO. 51A, TYPE II PASSIVATE TANK, NITRIC ACID AND SODIUM DICHROMATE, AIR SPARGED AND STEAM HEATED.

8. TANK NO. 51B, TYPE VI PASSIVATE TANK, NITRIC ACID, AIR SPARGED AND STEAM HEATED.

9. TANK NO. 55, TITANIUM ETCH, NITRIC ACID, AMMONIUM BIFLUORIDE, AIR SPARGED AND STEAM HEATED.

10. TANK NO. 56, CHROMATE RINSE, SODIUM DICHROMATE, AIR SPARGED AND STEAM HEATED.

11 TANK NO. 51D, TYPE HP4-8 PASSIVATE TANK, NITRIC ACID, SODIUM DICHROMATE, AIR SPARGED AND STEAM HEATED.

12 TANK NO. 55B, ETCH TANK, NITRIC ACID, AMMONIUM BIFLUORIDE, AIR SPARGED AND STEAM HEATED.

13. TANK NO. 53, ELECTROPOLISH TANK, PHOSPHORIC ACID, SULFURIC ACID, STEAM HEATED AND RECTIFIED.

14 TANK NO. 44, NICKEL ETCH TANK, FERRIC CHLORIDE, HYDROCHLORIC ACID, NITRIC ACID AND STEAM HEATED.

15. ASSOCIATED RINSE TANKS.

Application No. 551733 (C/C, Previous P/N G6861, A/N 480175))

MODIFICATION OF SULFURIC ACID ANODIZING PROCESS LINE UNDER P/O G6861 BY REPLACING HYDROGEN FLUORIDE WITH AMMONIUM BUFLUORIDE IN TANK C5, INCREASE OPERATING TEMPERATURE OF TANK 16B, REMOVE AIR SPARGING IN TANK 17, INCREASE SODIUM BICARBONATE CONTENT IN TANK NO. 17 AND REDUCE NITRIC ACID CONTENT OF TANK NO. 4A & C5, WITH FOLLOWING EQUIPMENT DESCRIPTION:

SULFURIC ACID ANODIZING (TY II) LINE CONSISTING OF:

1. TANK NO. 2A, ALKALINE CLEANING, OAKITE 61B (TETRASODIUM PYROPHOSPHATE, TRISODIUM PHOSPHATE, SODIUM SILICATE, PHOSPHATES), AIR SPARGED AND STEAM HEATED.

2. TANK NO. 16B, ALKALINE ETCHING, OAKITE 160 (SODIUM HYDROXIDE, SODIUM CARBONATE), AIR SPARGED AND STEAM HEATED.

3. TANK NO. 4A, DEOXIDIZING, OAKITE LNC (NITRIC ACID), AIR SPARGED AND STEAM HEATED.

4. TANK NO. 4, RINSING, SODIUM BICARBONATE, AIR SPARGED AND STEAM HEATED.

5. TANK NO. 7A, ANODIZING, SULFURIC ACID, BORIC ACID, RECTIFIED, AIR SPARGED AND STEAM HEATED.

6. TANK NO. 7, ANODIZING, SULFURIC ACID, RECTIFIED, AIR SPARGED AND STEAM HEATED.

7. TANK NO. 15A, CHEM FILM, ALODINE 1500 (CHROMIC ACID, AMMONIUM HEXAFLUOROZIRCONATE), AIR SPARGED AND STEAM HEATED.

8. TANK NO. 15, CHEM FILM, IRRIDITE 14-2 (CHROMIUM TRIOXIDE, SODIUM SILICOFLUORIDE, FERRICYANIDE, BARIUM NITRATE), AIR SPARGED AND STEAM HEATED.

9. TANK NO. 11C, SEALING, SODIUM DICHROMATE, AIR SPARGED AND STEAM HEATED.

10. TANK NO. 11A, SEALING, DILUTE SODIUM CHROMATE, CHROMIC ACID, AIR SPARGED AND STEAM HEATED.

11. TANK NO. C5, ETCHING, AMMONIUM BIFLUORIDE, NITRIC ACID AND STEAM HEATED.

12. TANK NO. C3, DESMUT, NITRIC ACID AND STEAM HEATED.

13 ASSOCIATED RINSE TANKS.

Application No. 480194

TITLE V PERMIT REVISION

HISTORY

EME, Inc. is a job shop aerospace subcontractor specializing in the processing of various aircraft component parts used in both military and commercial aircrafts. The company has operated at this site for over 30 years and is part of the Title V Federal Permit Program (ID # 45938).

Aircraft component parts are not manufactured on site, but received from customers who request the parts to be chemically processed for desired properties including cleanliness, sizing, corrosion resistance, hardness, and general surface protection. Parts are primarily composed of aluminum, titanium and stainless steel and less frequently, magnesium. Processes include anodizing (chromic and sulfuric/boric acid processes), chem-film, chromate and nickel seal, passivation, de-oxidation, etching, cleaning, abrasive blasting, and surface coating (painting).

The company holds permits for numerous equipment including tanks lines, spray booths, bake ovens, & blasting cabinets; control equipment including baghouses serving the blasting cabinets and a HEPA filtration system serving the chromic acid anodizing tank.

EME has filed above applications for modification to their sulfuric acid & chromic acid anodizing lines and passivation line, currently operating under existing permits. The modification involves change of chemical compositions and contents of some solutions and change in operating temperatures. During the last modification evaluation for the passivation line, some tank's heating was removed as the applicant was looking for air pollution control systems. However, the applicant has requested to include heating of these tanks back in the permits. The company has requested to reduce the concentration of volatile acids in these tanks to reduce some potential emissions.

The applicant has requested to add air sparging systems to some of the tanks to comply with the defense contract specifications. All these tanks are mechanically mixed under the surface. However, the specification requires to have emergency air sparging available for use in the possible agitation pump breakdown situations. The air sparging in these events will only be used before the commencement of the chemical process for not more than 2 minutes. A permit condition will be added for the usage limit and no emissions will be added from the air sparging.

The PM10 emission increases from this modification project are expected to be <0.5 lb/day. Thus, no offsets are required for this project. Also, it does not trigger BACT requirements.

The District database shows no notices of violations issued to this company in the last two years. One notice to comply was issued during the last two years to provide some records. The facility was operating in compliance on the follow-up inspection. Also, the database did not show any complaint against this facility for nuisance odors or visible emissions in the last two years.

This facility is located in an industrial area and no schools are located within 1000 feet from the property-line. There is no carcinogenic air toxic emission increases from the above applications, thus there will not be any increase in the equipment MICR. Also, emissions of the criteria pollutants from this project are expected to be below the threshold limits and within the facility cap. Thus, Rule 212 public notice is not required for this project.

A Title V renewal permit for this facility is under review currently. The previous renewal was issued on July 28, 2008. The proposed project is considered a "de minimis significant permit revision" to the renewed Title V permit, as described in Regulation XXX evaluation.

PROCESS DESCRIPTION

This is an aerospace surface treatment job shop at this location for over 35 years. They have performed these operations for various aerospace manufacturers. The sulfuric acid or chromic acid anodizing lines consist of a number of main tanks and other associated water rinse tanks. The main tanks include various cleaning tanks, an alkaline etch tank, bicarbonate rinse, chromate and nickel seal tanks, chem.-film tanks (including the patented Alodine® and Irridite® processes typically used in aerospace applications), and chromic acid and sulfuric acid anodizing tanks. The tanks contain a variety of chemicals at varying concentrations and temperatures; some of the tanks are rectified and some tanks employ agitation equipment. Various parts are processed in various tanks depending on the desired result for that component.

Aluminum has a great affinity with oxygen and forms aluminum oxide. The anodizing process provides the oxygen to the surface in various ways using chromic and sulfuric acids. The thickness of the anodic film desired decides the type of acid and rectification times. A fine even film coverage is provided by the chromic acid anodizing. The thickness control is better controlled in the sulfuric acid anodizing. Thus, when a deep film thickness is desired (like in hard anodizing) then sulfuric acid is used for anodizing.

The passivation line also consists of a number of tanks and other associated rinse tanks. Most of these tanks are used to clean or etch the different metal parts. The main function of the passivation tank is to create a protective film of oxide on the surface of the components. Most of the time the parts are immersed in the passivation tanks for a minute or so, to achieve this film formation. The surface formed is inert enough to prevent galling due to galvanic corrosion.

During the handling and processing, such as rolling, forming, machining, pressing, tumbling, and lapping, particles of iron, tool steel or abrasive get deposited on the surfaces of stainless steel components. If allowed to remain, these particles may cause corrosion of a stainless steel surface thereby adversely affecting the mechanical operation of a part, component or system. Passivation/cleaning consists of immersing stainless steel components in a solution of nitric acid which will dissolve the imbedded iron particles and restore the original corrosion-resistant surface by forming a thin, transparent oxide film.

OPERATING HOURS

Average : 16 hour/day, 7 day/week, 52 weeks/year
Maximum: 24 hour/day, 7 day/week, 52 weeks/year

EMISSION CALCULATIONS

Air contaminants are emitted from the open process tanks by three mechanisms.

1. Evaporation: Evaporation is significant for certain chemicals with significant vapor pressure. Nitric acid (HNO3) and Hydrochloric acid (HCl) have sufficient vapor pressure to produce evaporative emissions. However, in the dilute forms these acids have lower emissions, but heating increases this type of emissions.

2. Rectification: Rectification generates bubbles at the surface and emissions occur with the mist formation. The emissions depend on the amount of current through the solution. The formula for the emissions is provided by the Toxic unit on a excel worksheet.

3. Air Sparging: Air sparging of the tanks increases some emissions due to agitation and bubble formation. The emissions depends on the rate of air applied to the solution. However, as discussed above there will not be any sparging emissions from these tanks as sparging will be used only in emergency when mechanical mixing is not available.

4. NOx emissions from the chemical treatment: NOx emissions are expected from the metal removal activities in a strong nitric acid tanks. The NOx generation is proportional to weight of the metal removed.

NOx Emissions From The Process Lines:

Titanium and stainless steel parts are treated in various process tanks at this facility, where some tanks contain nitric acid. These parts are cleaned, passivated or neutralized in these nitric acid containing tanks. These metals have strong affinity for oxygen and hydrogen gases, which form an undesired discoloration on the surface. The cleaning process removes this discoloration to improve the surface appearance. All the parts treated in these tanks are precision parts and therefore no metal removal is allowed during the chemical processes. The NOx generation is proportional to weight of the metal removed. As negligible to none metal removal is expected from the process lines, no NOx emissions are associated with these processes. A permit condition will be imposed for no visible emissions, such as brown emissions for NOx, at the surface of the nitric acid containing solution.

Application No. 551731 (Chromic Acid Anodizing Line)

District Toxic unit excel worksheets were used to calculate the emissions from the proposed and previous anodizing line (see attached copies). The calculations show proposed PM10 emissions are to be 0.297 lbs/hr (7.13 lbs/day). The previous anodizing line had PM10 emissions 0.717 lbs/hr (17.21 lbs/day).

Thus, there is decrease in PM10 emissions by 0.42 lb/hr under this project. There are nitric acid and hydrofluoric acid emission decreases of 0.4 lb/hr and 0.016 lb.hr respectively under this project. Thus, compliance is expected with Rule 1401 and BACT.

Application No. 551732 (Passivation Line)

District Toxic unit excel worksheets were used to calculate the emissions from the proposed and previous aluminum etching line (see attached copies). During the last modification application evaluation, the company decided to reduce the emissions by reducing the operating temperatures and/or install air pollution control systems. The defense contract specifications did not allow reduction in the temperature of the tanks and installation of air pollution control device was not feasible due to location of the equipment.

Hence, the applicant requested to change the permit to allow previous higher temperatures of tank operations. The calculations show proposed PM10 emissions are to be 0.16 lbs/hr (3.84 lbs/day). The previous passivation line had PM10 emissions 0.151 lbs/hr (3.62 lbs/day). Even if emissions of the previous application for the passivation line (A/N 480196) are considered here than there will be an increase in the PM10 emissions by 0.01 lb/hr (0.24 lb/day). Also, there will be reduction in HCl and HF acid emissions.

However, there will be increase in the HNO3 emissions by 0.03 lb/hr. This is below the Tier 1 screening level of 0.043 lb/hr for a 25 meter reception. Hence this will comply with the Rule 1401 requirements. The PM10 emission increases are <0.5 lb/day. Thus PM10 offsets will not be required for this modification. Actually, from the whole modification project there will be reduction in the PM10 emissions, as summarized below.

Application No.	PM10 Emission Changes Lbs/day
551731	-10.08
551732	+0.22
551733	-1.26
Total	**- 11.12**

Application No. 551733 (Sulfuric Acid Anodizing Line)

District Toxic unit excel worksheets were used to calculate the emissions from the proposed and previous sulfuric acid anodizing line (see attached copies). The 8,000,000 amp-hr annual usage limit is equivalent to 915 amp rectifier (915 x 24 x365 = 8015400). The calculations show proposed PM10 emissions are to be 0.0.0327 lbs/hr (0.79 lbs/day). The previous anodizing line had PM10 emissions 0.0852 lbs/hr (2.05 lbs/day). Thus, there is reduction of PM10 emissions under this project. Also, there are no toxic emission increases under this project. Compliance is expected with Rule 1401 and BACT requirements.

RULES/REGULATION EVALUATION

¤*RULE 212, PUBLIC NOTIFICATION*
v*SECTION 212(c)(1):*
This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice is not required by this section.

v *SECTION 212(c)(2):*
This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). As shown in the following table, the emission increases are below the daily maximum limits specified by Rule 219(g). Therefore, this application will not be subject to this section.

LB/DAY	CO	NOX	PM_{10}	ROG	SOX	Pb
MAX. LIMIT	220	40	30	30	60	3
INCREASES	0	0	0	0	0	0

v *SECTION 212(c)(3):*
There are no carcinogenic air toxic emissions expected from this equipment. Therefore, this application will not be subject to this section.

v *SECTION 212(g):*
This section requires a public notice for all new or modified sources which undergo construction or modifications which have emissions increases exceeding any of the daily maximum limits specified in the table below. As shown in the following table, the emission increases are below the daily maximum limits. Therefore, this application will not be subject to this section.

LB/DAY	CO	NOX	PM_{10}	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0	0	0	0	0

¤*RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE*
No visible emissions are expected with the proper operation and maintenance of the equipment.

REGULATION XIII
¤ *RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)*

(a) PM10 EMISSIONS
With <0.5 lb/day increase in the PM10 emissions, BACT is not triggered.

¤ ***RULE 1303(b)(1), MODELING***
With no increase in the PM10 emissions, modeling is not triggered.

¤ ***RULE 1303 (b)(2), EMISSION OFFSETS***
With no overall increase in the PM10 emissions from this project, offsets are not required.

¤ ***RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS***
With no increase in the toxic emissions, compliance with these requirements is expected.

REGULATION XXX

PLEASE REFER TO SEPARATE REG XXX EVALUATION

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "de minimis significant permit revision", it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility.