

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 1 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | AED |
| | Date | 12/28/2011 |

PERMIT TO CONSTRUCT EVALUATION
Spray Booths & Ovens (new construction, modification), RTO (modification)
& Abrasive Blasting (new construction)

Applicant's Name: Robinson Helicopter Co., Inc.

Company ID No.: 100806

Mailing Address: 2901-31 Airport Dr., Torrance, CA 90505

Equipment Address: 2901-31 Airport Dr., Torrance, CA 90505

EQUIPMENT DESCRIPTION:

Application 523886- NEW CONSTRUCTION, P/C

DRYING OVEN, MARATHON, BATCH TYPE, 20' W. X 17' L. X 8' H., NATURAL GAS HEATED, WITH ONE 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER., WITH A 12,000-SCFM CIRCULATING FAN, AND A 3914-SCFM EXHAUST FAN, FOR DRYING PAINTED HELICOPTER PARTS.

Application 523887-NEW CONSTRUCTION, P/C

SPRAY BOOTH NO. 6, MARATHON, MODEL NO. RAF 520820 14L IHH, FLOOR TYPE, 15' W. X 17' L. X 8' H., WITH TWENTY FOUR 20" X 20" EXHAUST FILTERS, ONE 7-1/2 H.P. EXHAUST FAN, AND A 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER.

Application 523888 (Identical with A/N 523887)- NEW CONSTRUCTION, P/C

SPRAY BOOTH NO. 7, MARATHON, MODEL NO. RAF 520820 14L IHH, FLOOR TYPE, 15' W. X 17' L. X 8' H., WITH TWENTY FOUR 20" X 20" EXHAUST FILTERS, ONE 7-1/2 H.P. EXHAUST FAN, AND A 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER.

Application 523889-MODIFICATION, P/C

MODIFICATION TO SPRAY BOOTH #2, OPERATING UNDER PERMIT NO. F99151, A/N 479021 CONSISTING OF:

SPRAY BOOTH #2, BINKS MODEL NUMBER CA-642-TLO, AUTOMOTIVE TYPE, 15'-1" W. X 49'-10" L. X 13'-6" H., WITH FIRST STAGE 20" X 20" OSM FILTERS, SECOND STAGE OSM-100 FILTERS, AND THIRTY TWO THIRD-STAGE 20" X 20" P.E. CELL FILTERS BY AIR TECHNOLOGIES INC., AND ONE 7.5 H.P. EXHAUST FAN 15,700 SCFM CAPACITY.

BY THE ADDITION OF:

A 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER, AND TO BE VENTED TO THE EXISTING RTO

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 2 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

Application 523890-MODIFICATION, P/C

**MODIFICATION TO DRYING ROOM #2, OPERATING UNDER PERMIT NO. D82794, A/N 290557
CONSISTING OF:**

DRYING ROOM #2, BINKS, INFRA RED, 14'-0" W. X 40'-0" L. X 12'-0" H., WITH TWENTY SIX LAMPS 76 KW TOTAL, ONE ½ HP EXHAUST FAN AND 3 HP CIRCULATING FAN.

BY THE ADDITION OF:

A 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER, AND TO BE VENTED TO THE EXISTING RTO

Application 523891-MODIFICATION, P/C

MODIFICATION TO AIR POLLUTION CONTROL SYSTEM, OPERATING UNDER PERMIT NO. F84117, A/N 437239 CONSISTING OF:

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. THERMAL OXIDIZER, REGENERATIVE TYPE, ADWEST TECHNOLOGIES, MODEL RETOX 12, 24'-6" L. X 15'-11" W. X 10'-5" H., 12,000 SCFM CAPACITY WITH A 3.43 MMBTU PER HOUR STARTER BURNER, A 1.8 MMBTU PER HOUR GAS INJECTION SYSTEM, 2 CERAMIC BEDS, A 7 ½ HP COMBUSTION BLOWER, AND A COIL MEDIA HEAT EXCHANGER.
2. EXHAUST SYSTEM WITH ONE 27 HP FAN VENTING TWO SPRAY BOOTHS AND TWO DRYING OVENS, ALL OPERATING AS PERMANENT TOTAL ENCLOSURES

BY THE ADDITION OF:

TO VENT ONE EXISTING SPRAY BOOTH AND ONE EXISTING OVEN (A/N 523889 & 523890)

Application 523892-MODIFICATION, P/C

**MODIFICATION TO SPRAY BOOTH #4, OPERATING UNDER PERMIT NO. F86451, A/N 461233
CONSISTING OF:**

SPRAY BOOTH #4, BINKS AUTOMOTIVE TYPE, MODEL NUMBER CA-533-TLO, 14'-0" W. X 42'-10" L. X 12'-0" H., WITH FIRST STAGE 20" X 20" OSM FILTERS, SECOND STAGE OSM-100 FILTERS, AND THIRTY TWO THIRD-STAGE 20" X 20" P.E. CELL FILTERS BY AIR TECHNOLOGIES INC., AND ONE 1,750,000 BTU PER HOUR NATURAL GAS FIRED HEATER, AND ONE 7.5 H.P. EXHAUST FAN 16,400 SCFM CAPACITY.

BY THE REPLACEMENT OF THE NATURAL GAS FIRED HEATER WITH:

TWO 1,000,000 BTU/HR EACH MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER.

Application 525091-MODIFICATION, P/C

**MODIFICATION TO DRYING OVEN #1, OPERATING UNDER PERMIT NO. F84121, A/N 437244
CONSISTING OF:**

DRYING OVEN # 1, BINKS, INFRA RED, 14'-0" W. X 40'-0" L. X 12'-0" H., WITH TWENTY-SIX INFRARED LAMPS 76 KW TOTAL, 304,000 BTU PER HOUR NATURAL GAS FIRED CIRCULATION HEATER WITH INDIRECT HEAT EXCHANGER, ONE 3 HP CIRCULATION BLOWER.

BY THE REPLACEMENT OF THE NATURAL GAS FIRED HEATER WITH:

A 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER.

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 3 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

Application 525092 -MODIFICATION, P/C

**MODIFICATION TO DRYING OVEN #5, OPERATING UNDER PERMIT NO. F84119, A/N 437241
CONSISTING OF:**

DRYING OVEN # 5, SPRAY SYSTEMS INC, INFRA RED, MODEL NUMBER DR451412-FDT, 15'-4" W. X 42'-2" L. X 13'-8" H., WITH TWENTY-EIGHT INFRARED LAMPS 600 KW TOTAL, 400,000 BTU PER HOUR NATURAL GAS FIRED CIRCULATION HEATER WITH INDIRECT HEAT EXCHANGER, AND ONE 2 HP CIRCULATION BLOWER.

BY THE REPLACEMENT OF THE NATURAL GAS FIRED HEATER WITH:

A 1,000,000 BTU/HR MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER

Application 525093-MODIFICATION, P/C

**MODIFICATION TO SPRAY BOOTH #3, OPERATING UNDER PERMIT NO. F86452, A/N 461234
CONSISTING OF:**

SPRAY BOOTH #3, BINKS MODEL NUMBER CWE-16-THL, FLOOR TYPE, 16'-0" W. X 12'-7" L. X 7'-10" H., WITH A CONVEYOR, 48-KW DRYING OVEN, 3-STAGE DRY FILTERS BY AIR TECHNOLOGIES INC., AND ONE 7.5 HP EXHAUST BLOWER, 17000 SCFM.

BY THE REPLACEMENT OF THE NATURAL GAS FIRED HEATER WITH:

Two 1,000,000 BTU/HR EACH MIDCO LNB 1000 LOW NOX NATURAL GAS-FIRED BURNER

Application 525095-NEW CONSTRUCTION, P/C

ABRASIVE BLASTING SYSTEM, CONSISTING OF:

1. BLASTING CABINET, EMPIRE, MODEL NO. CDC-12, 2'-10" L. X 2'-3" W. X 11'-8" H.,
2. ONE NOZZLE, 7/16" DIA.
3. PLANT AIR, SUPPLIED AT 100 PSI MAXIMUM, VENTED TO AIR POLLUTION CONTROL EQUIPMENT.

Application 525094-NEW CONSTRUCTION, P/C

AIR POLLUTION CONTROL SYSTEM, CONSISTING OF:

1. ONE DUST COLLECTORS, EACH WITH TWO 13" DIA X 26" L. CARTRIDGE-TYPE FILTERS, 452 SQ. FT. TOTAL FILTER AREA,
2. EXHAUST SYSTEM WITH ONE 5- H.P. BLOWER, VENTING AN ABRASIVE BLASTING SYSTEM.

Application 525090:

Title V Revision, de minimis significant

HISTORY:

The company submitted Application Nos. 523886-93 and 525091-5 on 06/15/11 & 07/01/11 for new construction of an oven, two spray booths, modification of spray booths and ovens to comply with Rule 1147, modification of thermal oxidizer by venting one existing spray booth and one existing oven, and the new construction of an abrasive blasting unit with the associated control equipment (see summary below).

The company is a Title V facility, but is not in the RECLAIM program. Title V renewal permit was issued to the facility on February 4, 2007. This project is the second permit revision since the issuance of the Title V renewal permit. The facility is located in an industrial area adjacent

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 4 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

to the Torrance Airport, with no nearby sensitive receptors. According to the AQMD database, there is no recent enforcement action or history of complaints at the facility.

The following is the summary of the submitted applications:

| Previous A/N | New A/N | Equipment Description | Action |
|--------------|---------|-------------------------------------|---|
| | 523886 | Drying Oven | P/C, new |
| | 523887 | Spray Booth | P/C, new |
| | 523888 | Spray Booth (Identical with 523887) | P/C, new |
| 479021 | 523889 | Spray Booth | P/C, Modification to add low NOx burner, will be vented to Thermal Oxidizer |
| 290557 | 523890 | Drying Room #2 | P/C, Modification to add low NOx burner, will be vented to Thermal Oxidizer |
| 437239 | 523891 | APC (Thermal Oxidizer) | P/C, Modification by venting an additional existing Spray Booth, and one existing Drying Room (523889 & 523890) |
| 461233 | 523892 | Spray Booth | P/C, Modification to replace/ add two low NOx burner |
| 437244 | 525091 | Drying Oven | P/C, Modification to replace/ add low NOx burner |
| 437241 | 525092 | Drying Oven | P/C, Modification to replace/ add low NOx burner |
| 461234 | 525093 | Spray Booth | P/C, Modification to add two low NOx burners |
| | 525094 | APC | P/C, new |
| | 525095 | Abrasive Blasting | P/C, new |
| | 525090 | TV Revision | |

PROCESS DESCRIPTION:

Robinson Helicopter is a manufacturer of helicopters and uses the subject spray booth to coat helicopter parts. The facility will be using AkzoNobel Alumigrip 4001 corrosion inhibiting chrome free primer, DuPont Imron AF 400 base coat/ top coat, and PPG Desoprime CF/CA 7502 non chromate epoxy primer for exterior applications on aircrafts in the new spray booths. The facility will modify the existing ovens and spray booths to install low NOx burners to comply with the requirements of Rule 1147, and NOx emission reductions are expected. The facility will be required to conduct source tests to verify the NOx emissions from the low NOx burners. The parts will be dried in drying room, and spray booth which will be vented to an

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 5 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

existing thermal oxidizer. Source test will be required to conduct to verify the emissions and permanent total enclosure (PTE) for thermal oxidizer. The facility currently operates under a facility VOC limit of 98 lb/day. It was confirmed with the applicant the new spray booths will be limited to less than 39 lbs VOC/day, so per Rule 212(g) public notice will be required since greater than 30 lb/day.

The new abrasive blasting equipment will be used to blast aluminum and steel parts. A nozzle will be used to spray aluminum oxide abrasive media. The abrasive blasting cabinet will be vented to a dust collector with cartridge filters which will have a control efficiency of 99%.

OPERATING HOURS:

Average: 10 hrs/day, 6 days/week, 50 weeks/year.

Maximum: 12 hrs/day, 6 days/week, 50 weeks/year.

EMISSION CALCULATIONS

Spray Booths, A/N 523887, 88

The company currently operates under a facility limit of 98 lb VOC per day. Hourly NSR and AEIS emissions for the ROG emissions will be entered as calculated below and will be based on a maximum emission of 39 lb VOC/day combined for the two new spray booths at the facility, however the 30-Day Avg NSR emission for ROG will be entered as 0 lb/day for the new permit units since the facility's ROG emissions are already allocated under A/Ns 437243, 461233, and 479021. The spray booth entries will be

ROG = TOG

$$\text{Uncontrolled (R}_1\text{)} = \text{Controlled (R}_2\text{)} = 39 \text{ lb /day} \quad (3.25 \text{ lb/hr})$$

PM:

PM10 emissions from the coatings will remain negligible with the filters installed correctly (65% eff., 90% filter eff.).

VOC content: 2.92 lbs/gal

Based on the two spray booths combined limit of 39 lb-VOC/day will be emitted from the above product, the company can use a maximum of 13.35 gallons of coatings per day (39 ÷ 2.92).

$$13.35 \text{ gallons @ } 3 \text{ lb-solid/gal}_{\text{Ave}} = 40.05 \text{ lbs}$$

$$\text{Uncontrolled (R}_1\text{)} = 40.05 \times 0.35 = 14.01 \text{ lb-PM/day (1.16 lb/hr), 7 lb-PM}_{10}\text{/day}$$

$$\text{Controlled (R}_2\text{)} = 14.01 \times (1 - 0.9) = 1.4 \text{ lb-PM/day (0.11 lb/hr), 0.7 lb-PM}_{10}\text{/day}$$

(PM₁₀ = 50% PM)

TAC:

According to the Material Safety Data Sheets (MSDS) that were submitted with these applications, Robinson Helicopter will be spraying coatings that do not contain any chromium compounds, but will contain other toxic compounds identified in Table 1 of Rule 1401 (effective date 9/10/10).

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 6 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

The coatings will contain ethyl benzene, and xylene. Since different primers and colors of the coating contain different levels of the toxic compounds, the maximum concentration of each compound was used to calculate the maximum emissions.

The risk analysis will be based on the Desoprime CF/CA 7502 Primer which has the highest density, and highest toxic concentrations.

Desoprime CF/CA 7501 primer (with activator 7501B)

Assumption:

Maximum usage: 1 gal/day

| | | | |
|------------------|-------|-----------|---------|
| | Base | Activator | Reducer |
| Mixing ratio | 50 | 50 | 0 |
| Quantity (1 Gal) | 0.5 | 0.5 | 0.0 |
| Density(lbs/gal) | 12.52 | 7.93 | 0 |
| Quantity (Lb) | 6.26 | 3.97 | 0 |

| Compound | Base | | Hardener | | Reducer | | Total (as applied) |
|---------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-----------------------|
| | Content by weight | Emissions (lb/gal) | Content by weight | Emissions (lb/gal) | Content by weight | Emissions (lb/gal) | |
| Ethyl Benzene | 0.01 | 0.0626 | 0.015 | 0.059 | - | - | 0.121 |
| Xylene | 0.05 | 0.313 | 0.07 | 0.26 | | | 0.572 |

Desoprime CF/CA 7502 primer (with activator 7501B)

Assumption:

Maximum usage: 1 gal/day

| | | | |
|------------------|--------|-----------|---------|
| | Base | Activator | Reducer |
| Mixing ratio | 0.44 | 0.44 | 0.11 |
| Quantity (1 Gal) | 0.44 | 0.44 | 0.0 |
| Density(lbs/gal) | 102.65 | 10.01 | 0 |
| Quantity (Lb) | 45.16 | 4.40 | 0 |

| Compound | Base | | Hardener | | Reducer | | Total (as applied) |
|---------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-----------------------|
| | Content by weight | Emissions (lb/gal) | Content by weight | Emissions (lb/gal) | Content by weight | Emissions (lb/gal) | |
| Ethyl Benzene | 0.01 | 0.4516 | 0.05 | 0.22 | - | - | 0.6716 |
| Xylene | 0.05 | 2.25 | 0.1 | 0.44 | | | 2.69 |

TOXIC EVALUATION:

A Tier III HRA (attached) was performed based on the maximum toxic emissions, and maximum operating hours. The permit units were modeled as a point source since the equipment will vent outside the building.

Tier III Data:

Release Type = Point Source
 Stack Height = 30 feet (Applicant data)
 Receptor Type = Off-site Worker (Plot Plan)
 Distance = 149 meters
 Receptor Type = Residential (Aerial Map, Worst Case)
 Distance = 274 meters

The resulting MICR, HIC and HIA were all below the limits of this rule and are summarized below.

| MICR | Residential | Commercial |
|--------------|-------------|------------|
| A/N 523887-8 | 7.02E-08 | 3.20E-8 |

Hazard Index

HIA = [Q(lb/hr) * (X/Q)max] * AF / Acute REL

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

| Target Organs | Acute | Chronic | Acute Pass/Fail | Chronic Pass/Fail |
|--------------------------------|----------|----------|-----------------|-------------------|
| Alimentary system (liver) - AL | | 1.39E-05 | Pass | Pass |
| Bones and teeth - BN | | 7.22E-09 | Pass | Pass |
| Cardiovascular system - CV | | | Pass | Pass |
| Developmental - DEV | | | Pass | Pass |
| Endocrine system - END | | 3.95E-07 | Pass | Pass |
| Eye | 1.54E-04 | 7.22E-09 | Pass | Pass |
| Hematopoietic system - HEM | | 7.70E-05 | Pass | Pass |
| Immune system - IMM | | 2.03E-07 | Pass | Pass |
| Kidney - KID | | | Pass | Pass |
| Nervous system - NS | | 7.22E-09 | Pass | Pass |
| Reproductive system - REP | | 4.49E-07 | Pass | Pass |
| Respiratory system - RES | 1.54E-04 | | Pass | Pass |
| Skin | | | Pass | Pass |

Tier III analysis shows that MICR from the equipment is 7.02E-08 for residential receptor. The maximum usage of coating allowed will be back calculated to less than one in a million cancer risk.

Gallons of Primer per day = 1 gal (0.99E-06 ÷ 7.02E-08)
 = 14.1 gals

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 8 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

As it was discussed earlier, the facility can use maximum of 13.35 gals per day of the primer based on maximum 39 lbs/day VOC emissions, this usage is less than maximum allowable amount (14.1 gals) to comply with 1401. Therefore the VOC cap will also limit toxic emissions to below Rule 1401 allowable levels. A permit condition will be added disallowing the use of materials that contain toxic air contaminants as identified in Rule 1401, as amended on Sept. 10, 2010, or earlier, except for ethyl benzene, and xylene, with a maximum ethyl benzene concentration in coatings of 1% by weight.

The following table summarizes the total risks from the coating operation and burner emissions for the two new spray booths.

| MICR | Residential | Commercial |
|------------------------|------------------|-----------------|
| A/N 523887-8 (Coating) | 7.02E-08 | 3.20E-08 |
| A/N 523887-8 (Burner) | 1.82E-09 | 6.04E-10 |
| Total | 0.225E-07 | 3.26E-08 |

MICR is less than one in a million; HIC and HIA are less than one. Compliance with this rule is expected.

NOx Emissions (Drying Ovens Spray booth Burners A/Ns 523886-90, -92 & 525091-93)

The proposed burners are guaranteed by MIDCO to emit less than 30 ppmv NO_x at 3% O₂, in compliance with the Rule 1147 limit. Therefore, emission reductions of all NO_x emissions are expected from the proposed burner upgrade for A/Ns 525091 & 525092.

Please see the attached Excel worksheets for detailed calculations. The following table summarizes the calculated results:

BURNER EMISSION CHANGES SUMMARY (lb/day)

| A/Ns | Equipment Description | ROG | NO _x | SO _x | CO | PM ₁₀ |
|-----------------------|------------------------|----------------|-------------------|-------------------|-----------------|-------------------|
| 523886 | New Drying Oven | 0.16 | 0.89 | 0.02 | 0.8 | 0.17 |
| 523887 | New Spray Booth | " | " | " | " | " |
| 523888 | New Spray Booth | " | " | " | " | " |
| 523889 (prev.479021) | Existing Spray Booth | " | " | " | " | " |
| 523890 (Prev. 290557) | Existing Drying Room#2 | " | 0.89 | " | " | " |
| 523892 (prev. 461233) | Existing Spray Booth | 2 x 0.16= 0.32 | 2 x 0.89= 1.78 | 2 x 0.02= 0.04 | 2 x 0.8= 1.6 | 2 x 0.17 =0.34 |
| 525091(Prev. 437244) | Existing Drying Oven | 0.16 | 1-0.89= 0.11 | 0.02 | " | " |
| 525092(Prev. 437241) | Existing Drying Oven | " | 1-0.89=-0.11 | " | " | " |
| 525093 (prev.461234) | Existing Spray Booth | 2 x 0.16= 0.32 | 2 x 0.89= 1.78 | 2 x 0.02= 0.04 | 2 x 0.8= 1.6 | 2 x 0.17 =0.34 |
| Total | | 1.76 | 7.79 | 0.22 | 8.8 | 1.87 |

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 9 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

TOXIC EVALUATION:

A Tier II HRA was performed based on the maximum rating/emissions, and maximum operating hours. The permit units were modeled as a point source since the equipment will vent outside the building.

Tier II Data:

Release Type = Point Source
 Building Height = 30 feet (Applicant data)
 Receptor Type = Off-site Worker (Plot Plan)
 Distance = 149 meters
 Receptor Type = Residential (Aerial Map, Worst Case)
 Distance = 274 meters

The resulting MICR, HIC and HIA were all below the limits of this rule and are summarized below. Compliance with this rule is expected.

| MICR | Residential | Commercial |
|-------------------------|-------------|------------|
| A/N 523886-90, 525091-2 | 1.82E-08 | 6.04E-9 |

| MICR | Residential | Commercial |
|--------|-------------|------------|
| 525093 | 3.64E-08 | 1.2084E-8 |

Hazard Index

$HIA = [Q(\text{lb/hr}) * (X/Q)_{\text{max}}] * AF / \text{Acute REL}$

$HIC = [Q(\text{ton/yr}) * (X/Q) * MET * MP] / \text{Chronic REL}$

| Target Organs | Acute | Chronic | Acute Pass/Fail | Chronic Pass/Fail |
|--------------------------------|----------|----------|-----------------|-------------------|
| Alimentary system (liver) - AL | | | Pass | Pass |
| Bones and teeth - BN | | 7.22E-08 | Pass | Pass |
| Cardiovascular system - CV | | | Pass | Pass |
| Developmental - DEV | 1.19E-06 | | Pass | Pass |
| Endocrine system - END | | 3.95E-06 | Pass | Pass |
| Eye | 2.99E-03 | 7.22E-08 | Pass | Pass |
| Hematopoietic system - HEM | 9.94E-07 | 7.70E-06 | Pass | Pass |
| Immune system - IMM | 3.62E-05 | 2.03E-06 | Pass | Pass |
| Kidney - KID | | | Pass | Pass |
| Nervous system - NS | 1.92E-07 | 7.22E-08 | Pass | Pass |
| Reproductive system - REP | 1.19E-06 | 4.49E-06 | Pass | Pass |
| Respiratory system - RES | 2.99E-03 | | Pass | Pass |
| Skin | | | Pass | Pass |

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 11 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | AED |
| | Date | 12/28/2011 |

Exhaust diameter = 12" = 1'

Minimum distance = 1' x 4 = 4'

The NDOs are located at least 12' from the exhaust point.

- The total area of all NDOs shall not exceed five percent of the surface area of the enclosure's four walls, floor, and ceiling.

Each NDO = 1 square feet

Total NDO's = 4 square feet

Dimensions of the oven: Width 14'
 Length 40'
 Height 12'

Surface Area of Drying Enclosure = 2412 square feet (less NDO)

$(4)/(2412) = 0.16\% < 5\%$

- Facial velocity (FV) of air into the enclosure through all NDOs have to be at least 200 fpm.

Volumetric flow rate at RTO inlet = 1,000 CFM

NET air flow rate into the drying tunnel = 1,000 CFM

Thus, FV = $1,000 \text{ CFM} / (4 \text{ Ft}^2) = 250 \text{ fpm}$

- All access doors and bifold doors at each end of the oven are all normally closed during drying operations. The criterion was satisfied.
- A 12" duct provides the draft on the oven and exhausts the enclosure to the oxidizer at a rate of about 1,000 CFM. The criterion is satisfied, and the enclosure meets the criteria for classification as a PTE.

Spray Booth #1, (A/N 437243, currently vented to Thermal Oxidizer):

The Spray Booth # 1 meets the criteria for a permanent total enclosure as specified in the EPA Method 204.

Dimensions of the spray booth: Width 15'-1"
 Length 49"-10"
 Height 13'-6"

The determination is based on the following findings:

- There are no natural draft opening (NDO's) and the booth is balanced negative by the difference between the supply and exhaust fan. The doors and panels are sealed closed during the spray coating operation.
- Since there are no NDO's, the criterion is satisfied.
- Since there are no NDO's, the criterion is satisfied.
- Since there are no NDO's, the criterion is satisfied.

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 13 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | AED |
| | Date | 12/28/2011 |

Diameter of Oven inlet NDO = 13.1”
 Thus, the minimum distance from NDO = 13.1” x 4 = 52.4 ”=4’ 4”

In the enclosure, the parts to be cured are placed in the center of the room and the NDOs are in the side walls.

The VOC emitting point minimum distance from any NDO = 6’

The enclosure has one door and bifold doors at each end of the oven that are all normally closed during curing operations. The criterion is satisfied.

- 2) The exhaust point has to be at a distance at least equivalent to four times of the exhaust duct or hood from each NDO.

Exhaust diameter = 12” = 1’

Minimum distance = 1’ x 4 = 4’

The NDOs are located at least 12’ from the exhaust point.

- 3) The total area of all NDOs shall not exceed five percent of the surface area of the enclosure’s four walls, floor, and ceiling.

Each NDO = 1 square feet

Total NDO’s = 4 square feet

Dimensions of the oven: Width 15’-4”
 Length 42’-2”
 Height 13’-8”

Surface Area of Drying Enclosure = 2861 square feet (less NDO)
 (4)/(2861)= 0.13% < 5%

- 4) Facial velocity (FV) of air into the enclosure through all NDOs have to be at least 200 fpm.

Volumetric flow rate at RTO inlet = 1,000 CFM

NET air flow rate into the drying tunnel = 1,000 CFM

Thus, FV = 1,000 CFM/(4 Ft²)= 250 fpm

- 5) All access doors and bifold doors at each end of the oven are all normally closed during drying operations. The criterion was satisfied.

- 6) A 12” duct provides the draft on the oven and exhausts the enclosure to the oxidizer at a rate of about 1,000 CFM. The criterion is satisfied, and the enclosure meets the criteria for classification as a PTE.

(A/N 523891: Thermal Oxidizer)

The thermal oxidizer currently is venting two spray booths, and two ovens. The facility has proposed to vent one additional existing spray booth (A/N 479021) and one existing oven (A/N 290557). Both abovementioned spray booth and oven will be modified to have a low NOx burner. Adwest guarantees a minimum of 95% destruction efficiency for the VOC emissions. The previous sources test results showed a destruction efficiency of 97.6 which was higher than the 95% efficiency. A new source test will be required to verify the efficiency of the RTO, and capture efficiency after modification.

The thermal oxidizer exhaust system currently meets the requirement of the PTE. Also the source test should verify the PTEs compliance with EPA Method 204 requirements (100% capture efficiency).

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 14 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

RTO DESIGN:

RTO Heat Requirement:

Burner Capacity: 3.43 MM BTU/hr (Start-up)

Inlet CFM: 12,000 SCFM

Inlet temp: 70 °F

Outlet temp: 275 °F

Combustion temp: 1500 °F

% Heat Recovery = $(1500-275)/(1500-70) = 85.6\%$

Inlet Air Temp = $1500 (0.856) = 1284^{\circ}\text{F}$

Enthalpy @ 1500°F = 28.24 BTU/scf

Enthalpy @ 1284°F = 23.75 BTU/scf

$Q_{\text{net}} = (12,000 \text{ SCF})(60 \text{ min})(28.24-23.75) = 3,232,800 \text{ BTU/hr}$

The size of the burner is 3.43 MM BTU/hr, it meets the heat requirement.

The heat supplied by the VOC in exhaust stream will be supplemented by the natural gas injection to maintain temperature, if necessary.

Velocity and Retention Time:

RTO Size = 12,000 cfm
 Natural gas required $(3,430,000 \text{ BTU/hr})/(1050 \text{ BTU/cu. Ft}) = 3,266.7 \text{ ft}^3/\text{hr}$

Combustion air required would be:

Air required = 10.36 ft³/ft³ natural gas
 = $(3,266.7 \text{ ft}^3) \times (10.36 \text{ ft}^3/\text{ft}^3 \text{ natural gas}) = 33,842.7 \text{ ft}^3/\text{hr}$

Volume of Gases at 70F (530°R) = $(12,000 \text{ ft}^3/\text{min} \times 60 \text{ min/hr}) + 33,842.7 \text{ ft}^3/\text{hr} + 3266.7$
 = 757,109.3.1 ft³/hr

Volume of Gases at 1500F (1960°R) =
 = $(757,109.4)(1500+460)/(70+460)(60) = 46,666.6 \text{ cf/min}$
 = 777.77 ft³/sec

Volume of Combustion Chamber = 807.5 cubic Ft

Estimated Retention time = $(807.5 \text{ ft}^3) / (777.77 \text{ ft}^3/\text{sec}) = 1.03 \text{ Sec}$

The minimum retention time of 0.5 sec is met.

RTO Size:

The RTO is sized for 12,000 scfm and will be serving three spray booths (3000 cfm each), and three ovens (1000 cfm each) according to the applicant. Therefore, the RTO is adequately designed to handle the spray booth and oven to be additionally vented to the RTO.

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 15 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

(A/N 525095 &4: Abrasive blasting & Baghouse)

Average: 12 hrs/day, 6 days/week, 50 weeks/year.
 Maximum: 12 hrs/day, 6 days/week, 50 weeks/year.
 Abrasive Material: Aluminum Oxide
 Abrasive Emission Factor: 0.02 (Aluminum Oxide)
 Filter Cleaning Method: Pulse jet
 Cartridge Efficiency: 99%
 Abrasive Blasting Nozzles 7/16" @ 100 psi
 $PM = 2 \times PM_{10}$
 Sand Flow Rate with a 7/16" nozzle @ 100 psi = 940 lb sand/hr (District data)
 Density: Aluminum Oxide – 110 lb/ft³
 Density: Sand - 99 lb/ft³
 A usage factor of 50% will be assumed (per facility information)

Abrasive Blasting System

Abrasive Material: Aluminum Oxide
 Nozzle Diameter, Inches: 7/16"
 Cabinet Dimensions (W' X L' X H'): 2'-11" x 3'-4" x 9'-8"
 Blower rating, H.P.: 5- H.P.
 CFM: 1200
 No. of Filters: 2 Cartridges (452 sq. Ft.)
 No. of Nozzles: one

Abrasive Media Flow Rate = 940 x 110/99 = 1044.4 lb abrasive/hr per nozzle
 Total Flow Rate = 1 nozzles x 1044.4 lb/hr = 1044.4 lb/hr (12,533.3 lb abrasive/day)

$R1, PM, day = 12,533 \text{ lb abrasive/day} \times (0.02 \text{ lb PM/ lb abrasive}) (0.50) = 1253.33 \text{ lb PM/day}$
 $R1, PM, hr = 10.44 \text{ lb PM/hr}$
 $R2, PM, hr = 10.44 \times (1-0.99) = 0.10 \text{ lb PM/hr}$
 $R2, PM, day = 1.2 \text{ lb/day}$

$R1, PM_{10}, hr = 5.22 \text{ lb PM}_{10}/hr$
 $R2, PM_{10}, hr = 0.05 \text{ lb PM}_{10}/hr$
 $R2, PM_{10}, day = 0.6 \text{ PM}_{10}/day$

Air Changes Per Minute

Designed Ventilation Rate = (1200 cfm) / (2'-11" x 3'-4" x 9'-8") = 11.2 Air Changes per minute (10-20 recommended)

Air-to-Cloth Ratio (A/C)

(1200 cfm) / 452 sq. ft. = 2.6:1

Exhaust Gas PM Conc. (PC): $0.1 \text{ lb PM/hr} \times 7000 \text{ gr/lb} / (12000 \text{ cfm} \times 60\text{min}) = 0.97 \times 10^{-3} \text{ gr/dscf}$

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 16 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

Dust Collector and Abrasive Blasting Cabinet Guideline Review:

| | Recommended | Actual | Compliance |
|------------------|-------------|--------|------------|
| Air changes/min | 10 Min | 11.2 | Yes |
| A/C Ratio | 8:1 Max | 2.6:1 | Yes |
| Bag Shaker | PW/MN | PJ | Yes |
| Access Door | Yes | Yes | Yes |
| Closed Container | Yes | Yes | Yes |
| Pressure Gauge | Yes | Yes | Yes |

TOXIC EVALUATION:

According to the Material Safety Data Sheets (MSDS) submitted with this application, Robinson will be using some materials that contain toxic air contaminants. Some of the materials contain nickel, lead and hexavalent chromium due to the chrome present in the material being blasted, which are classified as carcinogenic. Also, present are copper and manganese which are not classified as carcinogenic, but have acute risk values.

Since the air pollution control equipment exhaust is discharged inside the building, this source is considered as a volume source. Risk analysis was conducted for the dust collectors based on maximum possible emissions from the operation with an operating schedule of 16 hr/day, 6 day/wk, 50 wk/yr.

The following is a list of materials used on the parts that will be abrasive blasted. The analysis will be based on the material with the highest content of chrome, nickel, copper and manganese.

| Material | Cr % | Ni % | Pb % | Cu% | Mn% |
|------------|------|------|------|-----|-----|
| Steel 4130 | 12 | 10 | 0.35 | 0.7 | 2 |

Analysis of sample of collected dust from a baghouse controlling an abrasive blasting system where similar material are blasted indicates an average hexavalent chromium content of 0.000626 percent of total chrome.

| | | | |
|-------------------------|------------------------------|---|----------------|
| Ni emissions : | 0.1 lb/hr x 10% | = | 0.01 lb/hr |
| Cr +6 emissions: | 0.1 lb/hr x 12% x 0.000626 % | = | 0.75E-05 lb/hr |
| Pb emissions: | 0.1 lb/hr x 0.35% | = | 0.000035 lb/hr |
| Cu emissions: | 0.1 lb/hr x 0.7% | = | 0.00007 lb/hr |
| Mn emissions: | 0.1 lb/hr x 2% | = | 0.0002 lb/hr |

A Tier III HRA was performed based on these maximum emissions, and maximum operating hours. The permit units were modeled as a volume source since the equipment will vent inside the building.

Tier III Data:

| | | |
|-----------------|---|--------------------------------------|
| Release Type | = | Volume Source |
| Building Height | = | 30 feet (Applicant data) |
| Receptor Type | = | Off-site Worker (Plot Plan) |
| Distance | = | 149 meters |
| Receptor Type | = | Residential (Aerial Map, Worst Case) |

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 17 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

Distance = 274 meters

The resulting MICR, HIC and HIA were all below the limits of this rule and are summarized below. Compliance with this rule is expected.

| | | |
|-------------|--------------------|-------------------|
| MICR | Residential | Commercial |
| A/N 525094 | 8.44E-07 | 3.23E-07 |

6. Hazard Index

HIA = $[Q(\text{lb/hr}) * (X/Q)_{\text{max}}] * \text{AF} / \text{Acute REL}$

HIC = $[Q(\text{ton/yr}) * (X/Q) * \text{MET} * \text{MP}] / \text{Chronic REL}$

| Target Organs | Acute | Chronic | Acute Pass/Fail | Chronic Pass/Fail |
|--------------------------------|----------|----------|--------------------|----------------------|
| Alimentary system (liver) - AL | | | Pass | Pass |
| Bones and teeth - BN | | | Pass | Pass |
| Cardiovascular system - CV | | | Pass | Pass |
| Developmental - DEV | | | Pass | Pass |
| Endocrine system - END | | | Pass | Pass |
| Eye | | | Pass | Pass |
| Hematopoietic system - HEM | | 5.05E-02 | Pass | Pass |
| Immune system - IMM | 9.59E-03 | | Pass | Pass |
| Kidney - KID | | | Pass | Pass |
| Nervous system - NS | | 5.61E-03 | Pass | Pass |
| Reproductive system - REP | | | Pass | Pass |
| Respiratory system - RES | 9.63E-03 | 5.05E-02 | Pass | Pass |
| Skin | | | Pass | Pass |

RULES/REGULATION EVALUATION:

RULE 212, PUBLIC NOTIFICATION

SUBPARAGRAPH 212(c)(1):

This paragraph 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. According to the MSN Yellow Pages and Google Maps, the facility will not be within 1000 feet of any schools. Therefore, public notice distribution will not be required under this section.

PARAGRAPH 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 maximum as specified in subdivision (g).

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 18 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | AED |
| | Date | 12/28/2011 |

The proposed project will not result in an emission increase for the entire facility that will exceed the daily maximum as specified under 212(g). The total facility VOC emissions are already limited to 98 lbs/day, without any change, so there is no increase in VOC from the facility from the use of coatings in the new spray booths and oven. The net facility increase in combustion emissions from the burners and PM₁₀ from the abrasive blasting system is less than the 212(g) thresholds. A Rule 212(c)(2) notice will not be triggered.

Summary of emission changes (lb/day)

| A/N | Equipment | ROG | NO _x | PM ₁₀ | SO ₂ | CO |
|---|-----------------|------------------------------|-------------------------------|------------------------------|------------------------------|-----------------------------|
| 523886 | Oven | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523887 | Spray Booth | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523888 | Spray Booth | 0.16 | 0.89 | 0.17+0.71=0.88 | 0.02 | 0.8 |
| 523889 (prev.479021) | Spray Booth | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523890 (prev. 290557) | Oven | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523892(prev. 461233) | Spray Booth | 0.16 x 2=0.32 | 0.89 x 2=1.78 | 0.17 x2 =0.34 | 0.02x2=0.04 | 0.8x2=1.6 |
| 525091(prev. 437244) Repl 304,000 Btu/hr | Oven | 0.16 <u>-0.05</u> 0.11 | 0.89 <u>-0.90</u> -0.01 | 0.17 <u>-0.05</u> 0.12 | 0.02 <u>-0.01</u> 0.01 | 0.8 <u>-0.24</u> 0.56 |
| 525092(prev. 437241) Repl 400,000 Btu/hr | Oven | 0.16 <u>-0.06</u> 0.10 | 0.89 <u>-1.12</u> -0.23 | 0.17 <u>-0.06</u> 0.11 | 0.02 <u>-0.01</u> 0.01 | 0.8 <u>-0.32</u> 0.48 |
| 525093 (prev. 461234) | Spray Booth | 0.16 x 2=0.32 | 0.89 x 2=1.78 | 0.17 x2=0.34 | 0.02x2=0.04 | 0.8x2=1.6 |
| 523891 (no increase) | RTO | - | - | - | - | - |
| 525094 | APC | - | - | - | - | - |
| 525095 | Abrasive Blast. | - | - | 0.6 | - | - |
| Total | | 1.65 | 7.77 | 3.07 | 0.20 | 8.24 |
| Max Limit | | 30 | 40 | 30 | 60 | 220 |

PARAGRAPH 212(c)(3):

Public notice is not required - increase in toxics is negligible. MICR is less than 1 in a million, HIA/HIC less than one.

PARAGRAPH 212(g):

This section requires a public notice for all new or modified sources that result in emissions increases exceeding any of the daily maximums as specified by Rule 212(g).

The total net increase in combustion emissions from the burners and PM₁₀ from the abrasive blasting system is less than the 212(g) thresholds. The installation of the two new spray booths will result in an emission increase of 39 lbs/day from the equipment, exceeding the daily maximum of 30 lb/day VOC as specified in Rule 212(g). Therefore, a public notice will be required under this paragraph for the ROG increase from the new spray booths.

212(g) Summary of equipment emission increases

| A/N | Equipment | ROG | NO _x | PM ₁₀ | SO ₂ | CO |
|-------------------|-----------------|----------------|-----------------|------------------|-----------------|------|
| 523886 | Oven | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523887 | Spray Booth | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523888 | Spray Booth | 0.16 +39=39.16 | 0.89 | 0.88 | 0.02 | 0.8 |
| 523889 | Spray Booth | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523890 | Oven | 0.16 | 0.89 | 0.17 | 0.02 | 0.8 |
| 523892 | Spray Booth | 0.32 | 1.78 | 0.34 | 0.04 | 1.6 |
| 525091 | Oven | 0.11 | -0.01 | 0.12 | 0.01 | 0.56 |
| 525092 | Oven | 0.10 | -0.23 | 0.11 | 0.01 | 0.48 |
| 525093 | Spray Booth | 0.32 | 1.78 | 0.34 | 0.04 | 1.6 |
| 523891 | RTO | - | - | - | - | - |
| 525094 | APC | - | - | - | - | - |
| 525095 | Abrasive Blast. | - | - | 0.6 | - | - |
| Total | | 40.65 | 7.77 | 3.07 | 0.20 | 8.24 |
| Max Limit | | 30 | 40 | 30 | 60 | 220 |
| Compliance Status | | NO | Yes | Yes | Yes | Yes |

RULE 401, VISIBLE EMISSIONS

With the proper use of the equipment, no visible emissions are expected. The abrasive blasting equipment will be equipped with cartridge filters with 99% control efficiency. Collected dust will be required to be discharged into closed containers. Spray booths will all have dry filters. Compliance with this rule is expected.

RULE 402, NUISANCE

With the proper operation of the equipment, no nuisance problems are expected at this facility. The facility is located within an industrial area with no nearby sensitive receptors. The emissions from the equipment should not result in a nuisance. Compliance with this rule is expected.

RULE 404, PARTICULATE MATTER - CONCENTRATION

The abrasive blasting cabinet will be exhausted at a rate of 12000 cfm. The applicable limit of the rule for this exhaust rate is 0.107 grains per cubic foot. As previously calculated the particulate exhaust concentration of the abrasive will be 0.97×10^{-3} grains per cubic foot. Compliance with this rule is expected. Particulate emissions from the spray booths are negligible.

RULE 481, SPRAY COATING OPERATIONS

The company will comply with this rule by using an HVLP spray gun to apply coatings in the spray booths. Compliance with this rule is expected.

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 20 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

RULE 1124, AEROSPACE ASSEMBLY AND COMPONENT MANUFACTURING OPERATIONS

The facility will be using Akzo Nobel Alumigrip 4001 corrosion inhibiting chrome free primer, DuPont Imron AF 400 base coat/ top coat (VOC: 2.8 lbs/gal), and PPG Desoprime CF/CA 7502 (VOC: 2.92 lbs/gal) non chromate epoxy primer for exterior applications on aircraft in the new spray booths. The VOC limit for a topcoat in this rule is 3.5 lb VOC per gallon, and the limit for primers under this rule is 2.92 lb VOC/gal. The coatings will be applied with an HVLP spray gun which will meet the transfer efficiency requirements of this rule. For solvent cleaning purposes, the facility will be using Dupont 3949S for items processed in the spray booth. This solvent has a material VOC content of 48 g/L and will be hand applied. The facility will comply with the 200 g/L VOC limit and the application method requirements of this rule. For the existing spray booths, compliant coatings and HVLP spray guns are used. Cleaning of coating and adhesive application equipment is subject to Rule 1171. Compliance with this rule is expected.

RULE 1132, FURTHER CONTROL OF VOC EMISSIONS FROM HIGH EMITTING SPRAY BOOTH FACILITIES

The facility has a daily VOC limit of 98 lb VOC/day, which results in a facility VOC PTE less than 20 tons per year. Therefore the facility is not subject to the requirements of this rule.

RULE 1140, ABRASIVE BLASTING

The company will comply with the requirements of this rule by performing abrasive blasting operations in a confined cabinet. The cabinet will also conform to the AQMD's design guidelines.

Rule 1147, NO_x REDUCTION

The proposed installation of low-NO_x burners have been guaranteed to emit less than 30 ppmv NO_x at 3% O₂. A condition will be placed on the permit to conduct a source test. In compliance with Rule 1147 requirements. The afterburner was manufactured in 2006, and shall comply in July 1 of the year the unit is 15 years old.

RULE 1155, VISIBLE EMISSIONS

The dust collector for the abrasive blasting cabinet is subject to this rule. Visible emissions are not expected from the equipment. The dust collector is equipped with cartridge filters which meet the more stringent BACT requirements. Also the filters will be cleaned with pulse jet cleaner or reverse air. Permit conditions will be placed on the permit to comply with the visible emissions requirements, proper maintenance and operation in accordance with manufacture's requirements, and discharging the material collected in the equipment in closed container. The spray booths are exempt from this rule under (g)(9). Compliance with this rule is expected.

RULE 1171, SOLVENT CLEANING OPERATIONS

The company will be using compliant solvent for spray gun cleaning. Compliance with this rule is expected.

REG. XIII

Rule 1303(a): The new spray booths will comply with BACT for VOC by limiting VOC emissions to less than 39 lb/day and complying with the applicable AQMD Regulation XI Rules.

The dust collector is BACT for the abrasive blasting operation. The burners are guaranteed to emit less than 30 ppmv NO_x at 3% O₂ which is BACT for ovens. The afterburner manufacturer guarantees a minimum of 95% VOC destruction efficiency, and the spray booths and ovens will operate as permanent total enclosures (collection efficiency 100%). A source test will be conducted to verify the destruction efficiency and collection efficiency.

Rule 1303(b)(1) Modeling: PM₁₀ emissions from the new spray booths and abrasive blasting cabinet are less than 0.41 lb/hr (Table A-1 limit for non-combustion sources). Modeling is not required for VOC. Emissions increases from combustion of natural gas in the burners are below the Table A-1 allowable emissions for combustion sources less than or equal to 2 mm Btu/hr. Therefore further modeling analysis is not required.

| Lb/hr calculated | NO _x | CO | PM ₁₀ |
|----------------------------|-----------------|-----------|------------------|
| A/N 523886 | 0.037 | 0.033 | 0.007 |
| A/N 523887 | 0.037 | 0.033 | 0.007 |
| A/N 523888 | 0.037 | 0.033 | 0.007 |
| A/N 523889 | 0.037 | 0.033 | 0.007 |
| A/N 523890 | 0.037 | 0.033 | 0.007 |
| A/N 523892 | 0.074 | 0.066 | 0.014 |
| A/N 525091 | 0.004 | 0.023 | 0.005 |
| A/N 525092 | 0.004 | 0.020 | 0.004 |
| A/N 525093 | 0.074 | 0.066 | 0.014 |
| Rule 1303 Table A-1 | 0.2 | 11 | 1.2 |

Rule 1303(b)(2) Offset: Offsets are not required for this project per Rule 1304 (d)(2)(A). The emissions from the facility including this project (NO_x, CO and PM₁₀) are less than the amounts in Table A. Other equipment at the facility have minimal emissions; NSR database shows the following PTEs for this facility, added to the emission increases from this project, these emissions are below the Table A levels.

| Lb/day | NO _x | CO | PM ₁₀ |
|-------------------|-----------------|------------|------------------|
| Current PTE | 5 | 1 | 2 |
| Project Increases | 8 | 8 | 3 |
| Total | 13 | 9 | 5 |
| Table A | 22 | 159 | 22 |

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 22 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | AED |
| | Date | 12/28/2011 |

There is no VOC emission increase from the facility from use of coatings in the new spray booths since the facility will continue to operate under the existing facility VOC limit of 98 lbs/day.

Rule 1303(b)(4): This facility is expected to comply with all applicable rules and regulations of the District.

RULE 1401, TOXICS

Rule 1401 contains the following requirements:

- 1) **(d)(1) MICR and Cancer Burden** - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
 - (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;
 - (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
 - (C) a cancer burden greater than 0.5.

- 2) **(d)(2) Chronic Hazard Index** - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

- 3) **(d)(3) Acute Hazard Index** - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

Based on the risk assessment performed using the Risk Assessment Module, the emissions from the equipment passed Tier II & III modeling. The MICR values were determined to be less than one in a million for residential and commercial. The Acute and Chronic values for all target organs did not exceed 1.0. The values are presented in the Risk Assessment following this report. Compliance is expected.

REGULATION XXX:

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 23 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | AED |
| | Date | 12/28/2011 |

| Air Contaminant | Daily Maximum (lbs/day) |
|------------------|----------------------------|
| HAP | 30 |
| VOC | 30 |
| NO _x | 40 |
| PM ₁₀ | 30 |
| SO _x | 60 |
| CO | 220 |

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 2nd permit revision to the Title V renewal permit issued to this facility on February 4, 2007. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

| Revision | HAP | VOC | NO _x | PM ₁₀ | SO _x | CO |
|--|----------|-------------|-----------------|------------------|-----------------|-------------|
| 1 st Permit Revision; addition of Abrasive Blasting Cabinet, change of conditions for spray booth (A/Ns 479021, 479023) | 0 | 0 | 0 | 1 | 0 | 0 |
| 2 nd . Permit Revision: addition of an abrasive blasting cabinet with APC (A/Ns 525094-5), installation of a new oven and two spray booths (A/Ns 523886, 523887 &8), modification of spray booths, and ovens to comply with Rule 1147 (A/Ns 523889-90, 523892 525091-3), RTO modification venting additional exiting spray booth and oven (A/N: 523891) | 0 | 1.65 | 7.77 | 3.07 | 0.20 | 8.24 |
| Cumulative Total | 0 | 1.65 | 7.77 | 4.07 | 0.20 | 8.24 |
| Maximum Daily | 30 | 30 | 40 | 30 | 60 | 220 |

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision”.

| | | |
|--|----------------|------------------------|
| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE Coating, Printing and Aerospace Operations Team PERMIT APPLICATION EVALUATION | Page | 24 of 24 |
| | App. number(s) | 523886—91, 525090-5 |
| | Processed by | AED |
| | Reviewed by | |
| | Date | 12/28/2011 |

RECOMMENDATIONS

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimus 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). In addition, public notice pursuant to Rule 212(g) is required, which will be conducted during the EPA 45-day review period. If EPA does not raise any objections and there are no public comments within the review period, a revised Title V permit will be issued to this facility.