

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE	
13	1	
APPL. NO.	DATE	
503256	11/14/09	
PRCSO BY	CHCKD BY	
REL		

APPLICANT'S NAME: Northrop Grumman Space and Mission Systems Corporation

FACILITY PERMIT ID# 800409

CONTACT PERSON: ANTONIO S. LU

MAILING ADDRESS: ONE SPACE PARK DRIVE,
BLDG CS1/1800
REDONDO BEACH, CA 90278

EQUIPMENT ADDRESS: ONE SPACE PARK DRIVE,
BLDG M3/1153
REDONDO BEACH, CA 90278

Title V Permit Revision:
Application No. 503255

**PERMIT TO CONSTRUCT
Section H**

Equipment Description:

PROCESS 1: FABRICATED METALS SYSTEM #1: SURFACE PREPARATION					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
PROCESS TANK, NO. 1, ALKALINE CLEANING, HEATED, WIDTH: 19IN; LENGTH: 48IN; DEPTH: 24IN; 9- KW Reference A/N 503256	D276				A.433.1, C6.5, E193.1
PROCESS TANK, NO. 4, ALKALINE SOAK, HEATED, WIDTH: 26IN; LENGTH: 32IN; DEPTH: 95.5IN; 27-KW Reference A/N 503256	D277	C162			A.433.1, C6.6 E193.1
PROCESS TANK, NO. 6, ALKALINE ETCH, SODIUM HYDROXIDE, HEATED, WIDTH: 26IN; LENGTH: 32IN 4IN; DEPTH: 95.5IN; 27-KW Reference A/N 503256	D278	C162			A.433.1, C6.6, E193.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE
13	2
APPL. NO.	DATE
503256	11/14/09
PRCSO BY	CHCKD BY
REL	

<p>PROCESS TANK, NO. 8, CONVERSION COATING, FERRIC SULFATE, SULFAMIC ACID, SODIUM NITRATE, SODIUM FLUOSILICATE, SULFURIC ACID, INORGANIC ACID, UNHEATED, AIR SPARGED, WIDTH: 26IN; LENGTH: 32IN; DEPTH: 95.5IN;</p> <p>Reference A/N 503256</p>	D279	C162		Modified	A.443.1, E193.1
<p>PROCESS TANK, NO. 10, CHEM FILM, CHROMIC ACID, BARIUM NITRATE, SODIUM SILICOFLUORIDE, FERRICYANIDE, UNHEATED, WIDTH: 26IN; LENGTH: 32IN; DEPTH: 95.5IN;</p> <p>Reference A/N 503256</p>	D280	C162			A.433.1, E193.1
<p>PROCESS TANK, NO. 76, COVERED, UNHEATED, ACID ETCH/MILL, TRISODIUM PHOSPHATE, SODIUM FLUORIDE, HYDROCHLORIC ACID, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:</p> <p>Reference A/N 503256</p>	D317	C162			A.433.1, E193.1
<p>PROCESS TANK, NO. 77, COVERED, UNHEATED, ACID ETCH/MILL, NITRIC ACID, HYDROFLUORIC ACID, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:</p> <p>Reference A/N 503256</p>	D318	C162			A.433.1, E193.1
<p>PROCESS TANK, NO. 79, COVERED, UNHEATED, ACID CLEAN, NITRIC ACID, HYDROFLUORIC ACID, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:</p> <p>Reference A/N 503256</p>	D319	C162			A.433.1, E193.1
<p>PROCESS TANK, NO. 80, COVERED, UNHEATED, ACID CLEAN, NITRIC ACID, HYDROFLUORIC ACID, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:</p> <p>Reference A/N 503256</p>	D320	C162			A.433.1, E193.1
<p>PROCESS TANK, NO. 82, UNHEATED, PASSIVATION, NITRIC ACID, WIDTH: 20IN; LENGTH: 32IN; DEPTH: 35.5IN:</p> <p>Reference A/N 503256</p>	D321				A.433.1, E193.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE	
13	3	
APPL. NO.	DATE	
503256	11/14/09	
PRCSO BY	CHCKD BY	
REL		

PROCESS TANK, NO. 84, HEATED, PASSIVATION, SODIUM METASILICATE, SODIUM HYDROXIDE, SODIUM TRIPOLYPHOSPHATE, ROSEN SOAP, WIDTH: 20IN; LENGTH: 32IN; DEPTH: 35.5IN: 9-KW Reference A/N 503256	D322				A.433.1, C6.6, E193.1
PROCESS TANK, NO. 85, COVERED, HEATED, ALKALINE CLEAN, DETERGENT, SODIUM HYDROXIDE, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 23.5IN: 4-KW Reference A/N 503256	D323				A.433.1, C6.7, E193.1
PROCESS TANK, NO. 86, HEATED, AIR SPARGED, CLEANING, ALKALINE DETERGENT, WIDTH: 56IN; LENGTH: 20IN; DEPTH: 47.5IN: 24-KW Reference A/N 503256	D324	C162			A.433.1, C6.8, E193.1
PROCESS TANK, NO. 88, HEATED, ACID CLEAN, SULFURIC ACID, SODIUM DICHROMATE, WIDTH: 56IN; LENGTH: 20IN; DEPTH: 47.5IN: 18-KW Reference A/N 503256	D325	C162			A.433.1, C6.6, E193.1
PROCESS TANK, NO. 89, HEATED, CONVERSION COATING, SODIUM HYDROXIDE, WIDTH: 12IN; LENGTH: 18IN; DEPTH: 18IN., 3-KW Reference A/N 503256	D326				A.433.1, C6.9, E193.1
BENCH, HEATED, CHEMICAL ANALYSIS, TECHNISTIP AU/ENSTRIP AU-78, LENGTH: 25IN, WIDTH: 25IN, HEIGHT: 36IN, HEATED Reference A/N 503256	D329	C162			A433.5, C6.13, E193.1
BENCH, HEATED, ETCHING/STRIPPING, NITRIC ACID, SULFURIC ACID, SODIUM HYDROXIDE, LENGTH: 32IN, WIDTH: 32IN, HEIGHT: 36IN Reference A/N 503256	D330	C162			A433.6, C6.12, E193.1

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

Conditions:

- A433.1 THE OPERATOR SHALL NOT USE IN THIS EQUIPMENT ANY TOXIC AIR CONTAMINANTS (TAC) IDENTIFIED IN SCAQMD RULE 1401, AS AMENDED MARCH 4, 2005, ~~JUNE 5, 2009~~, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT. MATERIAL SAFETY DATA SHEETS (MSDS) SHALL BE USED TO COMPLY WITH THIS CONDITION.

POLLUTANT	TANK NO.	MAX CONTENT (WT%)
Sodium Hydroxide	6,84, 85, 89	30.0
Chrome Compounds	10	1.0
Chrome Compounds	88	5.0
Nitric Acid	77, 82	45
Nitric Acid	79, 80	28
Hydrogen Fluoride	77,79, 80	11
Sulfuric Acid	8, 88	20
Hydrochloric Acid	76	15

- A433.5 THE OPERATOR SHALL NOT USE IN THIS EQUIPMENT ANY TOXIC AIR CONTAMINANTS (TAC) IDENTIFIED IN SCAQMD RULE 1401, AS AMENDED MARCH 4, 2005, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT. MATERIAL SAFETY DATA SHEETS (MSDS) SHALL BE USED TO COMPLY WITH THIS CONDITION.

POLLUTANT	Device No.	MAX CONTENT (WT%)
Lead Compounds	D329	1.0

- A433.6 THE OPERATOR SHALL NOT USE IN THIS EQUIPMENT ANY TOXIC AIR CONTAMINANTS (TAC) IDENTIFIED IN SCAQMD RULE 1401, AS AMENDED MARCH 4, 2005, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT. MATERIAL SAFETY DATA SHEETS (MSDS) SHALL BE USED TO COMPLY WITH THIS CONDITION.

POLLUTANT	Device No.	MAX CONTENT (WT%)
Sodium Hydroxide	D330	10.0
Nitric Acid	D330	50.0
Sulfuric Acid	D330	50.0

- C6.5 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 175 DEGREE FAHRENHEIT.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

| PAGES | PAGE |

| 13 | 5 |

ENGINEERING DIVISION

| APPL. NO. | DATE |

| 503256 | 11/14/09 |

APPLICATION PROCESSING AND CALCULATIONS

| PRCSO BY | CHCKD BY |

| REL | |

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

C6.6 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 170 DEGREE FAHRENHEIT.

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

C6.7 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 185 DEGREE FAHRENHEIT.

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

C6.8 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 140 DEGREE FAHRENHEIT.

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

C6.9 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 230 DEGREE FAHRENHEIT.

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

C6.12 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 200 DEGREE FAHRENHEIT.

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

C6.13 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED,

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE
13	6
APPL. NO.	DATE
503256	11/14/09
PRCSD BY	CHCKD BY
REL	

AS INDICATED BELOW, DOES NOT EXCEED 160 DEGREE FAHRENHEIT.

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the process tank.

E193.1 THE OPERATOR SHALL RESTRICT THE OPERATION OF THIS EQUIPMENT AS FOLLOWS:

TANKS CONTAINING CHROME COMPOUNDS SHALL NOT BE AIR SPARGED OR RECTIFIED.

Background

Northrop Grumman Space and Missions Systems is engaged in the development and manufacture of advanced semiconductors including fabrication and assembly of electronic components and hard wares for integration into satellite and space vehicle. The company also performs research and development relating to chemical lasers, rocket engine thrusters and energy related programs for commercial and non-commercial applications. These operations are currently performed at three major sites within the South Coast Air Basin and they are: Capistrano Test Site(CTS), Redondo Beach and Manhattan Beach.

On August 15, 2007, the District issued a permit to construct for the surface preparation line (application number 470064) under Process 1, Fabricated Metals, System 1, Surface Preparation located at building M3/1153 at the Redondo Beach Facility ID# 800409. On December 4, 2007, the District issued a permit to construct for modification of the surface preparation line (application number 474170) by the addition of tanks D319(tk#79) and D320(tk#80).

Northrop submitted application no. 503256 on October 27, 2009 as a modification to the existing plating line by requesting a change in the chemicals used in conversion coating tank D279 and changing the permit conditions for devices D329 and D330.

This is a RECLAIM Cycle 2 and title V facility. The proposed project is considered as a “de minimis significant permit revision” to this facility title V permit.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE	
13	7	
APPL. NO.	DATE	
503256	11/14/09	
PRCSO BY	CHCKD BY	
REL		

A review of District compliance records indicate that there are no Citizen Complaints or Notices of Violation issued to this facility during the last two years. However, the facility was issued two Notices to Comply (NC) on 5/21/2009 and 5/28/2009 respectively. The applicant was requested to repair and maintain a pH meter for scrubber C162, install an amp-hr meter on tank D291, and install a temperature gauge on tank D323. The applicant corrected the above problems and is currently operating in compliance with the permit requirements.

Equipment Process Description:

Northrop operates a surface preparation line and three metal plating lines in their metal plating shop. Conversion coating tank D279 is part of the surface preparation line and uses a chemical (Actane 93) which will no longer be available and a substitute chemical is currently being tested to see if it can be used as an alternative. The applicant is requesting modify tank D279 by using the substitute chemical, Actane 368. Actane 368, has a 50-60 wt% sulfuric acid. It will be mixed 15 vol % Actane to 85 vol% water. The sulfuric acid concentration in the tank will range from 12-14 wt% but may be as high as 20wt%. The tank will continue to be vented to scrubber C162.

Further, the applicant requested that conditions C6.13 and C6.12 limiting the temperature of D239 not to exceed 160 Deg. F and 200 Deg. F for D330, be removed since the activities conducted in the above devices are limited to small beakers on as needed basis for conducting physical and chemical analysis with occasional etching and stripping of small parts that require rework. The temperature in the heated beakers is difficult to monitor, and the emission generated is small. In addition, the emissions are vented to scrubber C162.

Emissions Calculations:

The only emissions associated with tank D279 are due to air sparging. The previous sparging emissions from tank D279 are 7.8745E-05 lb/hr. At 20wt% sulfuric acid the new emissions are 5.064E-05 lb/hr. The net difference is -2.8105E-05 lb/hr. The change in chemistry will result in a net emission decrease. However, it will result in an increase hazardous emission of sulfuric acid.

Scrubber efficiency assumed to be 70%

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE
13	8
APPL. NO.	DATE
503256	11/14/09
PRCSD BY	CHCKD BY
REL	

AEIS:

R1 = 5.064E-05 lb/hr

R2 = 5.064E-05 lb/hr(1-0.7) = 1.5192E-05 lb/hr

Risk Assessment:

Toxic Emissions

The controlled emissions of 1.5192E-05 lbs/hr have been inputted into the Screening Risk Assessment spread sheet and passed Tier 1 screening with the following values:

Cancer/Chronic ASI	Acute ASI
1.71E-04	4.73E-05
Passed	Passed

Evaluation & Rule Review

Rule 212 (c)(1):This section requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school.

No public notice is required since no school is located within 1,000 ft from the above site.

Rule 212 (c)(2):This section requires a public notice for all new or modified facilities that have on-site emission increases exceeding any of the daily maximums as specified by Rule 212(g).

The proposed project will result in a small PM10 emission decrease for the entire facility. A Rule 212(c) (2) notice will not be triggered since the changes will result in an emission decrease.

Rule 212(c)(3):This section requires a public notice for all new or modified permit unit with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in MICR greater than 1E-6 per permit unit or greater than 10E-6 per facility.

The proposed project will result in an emission increase of toxic emissions associated with the surface preparation line. However, as discussed in additional detail in the evaluation, the toxic emissions from this equipment will not result in an increase in MICR of more than 1×10^{-6} nor a hazard index greater than 1.0. Public notice is not required under this section of the rule.

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

The proposed modification will result in a small emission decrease and as a result no public notice is required.

	Maximum Daily Emissions					
	<u>ROG</u>	<u>NO_x</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>CO</u>	<u>Pb</u>
Emission increase	0	0	0	0	0	0
MAX Limit (lb/day)	30	40	30	60	220	3
Compliance Status	Yes	Yes	Yes	Yes	Yes	Yes

Rule 401: With proper operation and maintenance compliance with this rule is expected.

Rule 402: With proper operation and maintenance compliance with this rule is expected.

REGULATION XIII: Though Northrop Grumman is a NO_x RECLAIM facility, compliance with Reg. XIII is still required since the proposed project will generate PM₁₀ emissions. The increase in these non-RECLAIM pollutants are as follows:

PM10 (lb/day)
0

RULE 1303(a)(1): The tanks in the surface preparation line are vented to a scrubber which will satisfy the BACT requirements.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE
13	10
APPL. NO.	DATE
503256	11/14/09
PRCSD BY	CHCKD BY
REL	

RULE 1303(b)(1): The proposed modification will result in a slight PM10 emission decrease. Therefore, no further Modeling for PM10 emissions will be required.

RULE 1303(b)(2): The proposed project will result in a slight PM10 emission decrease. Compliance.

RULE 1303(b)(4): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

RULES 1303(b)(5)(A) & 1303(b)(5)(D): The proposed project does not qualify as a major modification at a major polluting facility. Further, the proposed project is exempt from CEQA according to the responses Northrop Grumman provided on Form 400-CEQA for this project. Their responses in "Review of Impacts Which May Trigger CEQA" on Form 400-CEQA were all marked "No".

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.

The increased toxic emissions from the surface preparation operation subject to Reg 14 passed Tier 1 screening. The Risk assessment was performed using the Risk Assessment Module and is attached in the appendix:

Cancer/Chronic ASI	Acute ASI
1.71E-04	4.73E-05
Passed	Passed

Compliance with this rule is expected

REG. XX: This proposed modification to the surface preparation line will not result in any NOx emissions. Compliance with this Regulation is expected.

REGULATION XXX:

This facility is in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or hazardous air pollutants (HAPs), and a “minor permit revision” for RECLAIM pollutants to the RECLAIM/Title V permit for this facility.

Non-RECLAIM Pollutants or HAPs

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 HAPs from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NOx*	40
PM10	30
SOx*	60
CO	220

* Not applicable if this is a RECLAIM pollutant

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE	
13	12	
APPL. NO.	DATE	
503256	11/14/09	
PRCSO BY	CHCKD BY	
REL		

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 11th permit revision to the Title V renewal permit issued to this facility on May 9, 2006. 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*	PM₁₀	SO_x	CO
Previous Permit Revision Total Cumulative to date. Title V permit renewed May 9, 2006	0	0	2.0	1.0	0	1.0
11 th Permit Revision; modification to D279, and change of conditions for D329 and D330, a/n 503256	0	0	0	0	0	0
Cumulative Total	0	0	2.0	1.0	0	1.0
Maximum Daily	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

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” for non-RECLAIM pollutants or HAPs.

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” for non-RECLAIM pollutants and a “minor permit revision”, for RECLAIM pollutant, 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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE
13	13
APPL. NO.	DATE
503256	11/14/09
PRCSD BY	CHCKD BY
REL	

45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, a revised Title V permit will be issued to this facility.