

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	1
APPL. NO.	DATE
515758-761	2/1/11
PRCSD 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. 509946

**PERMIT TO CONSTRUCT  
Section H**

**Equipment Description:**

<b>PROCESS 1: FABRICATED METALS SYSTEM #1: SURFACE PREPARATION</b>					
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 503256515761	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 503256515761	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 503256515761	D278	C162			A.433.1, C6.6, E193.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	2
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

PROCESS TANK, NO. 8, CONVERSION COATING, SULFURIC ACID, INORGANIC ACID, UNHEATED, AIR SPARGED, WIDTH: 26IN; LENGTH: 32IN; DEPTH: 95.5IN;  Reference A/N <u>503256515761</u>	D279	C162			<u>A.433.1,</u> E193.1
PROCESS TANK, NO. 10, CHEM FILM, CHROMIC ACID, BARIUM NITRATE, SODIUM SILICOFLUORIDE, FERRICYANIDE, UNHEATED, WIDTH: 26IN; LENGTH: 32IN; DEPTH: 95.5IN;  Reference A/N <u>503256515761</u>	D280	C162			<u>A.433.1,</u> E193.1
PROCESS TANK, NO. 76, COVERED, UNHEATED, ACID ETCH/MILL, TRISODIUM PHOSPHATE, SODIUM FLUORIDE, HYDROCHLORIC ACID, <u>HYDROFLUORIDE</u> , WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:  Reference A/N <u>503256515761</u>	D317	C162			<u>A.433.1,</u> E193.1
PROCESS TANK, NO. 77, COVERED, UNHEATED, ACID ETCH/MILL, NITRIC ACID, HYDROFLUORIC ACID, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:  Reference A/N <u>503256515761</u>	D318	C162			<u>A.433.1,</u> E193.1
PROCESS TANK, NO. 79, COVERED, UNHEATED, ACID CLEAN, NITRIC ACID, HYDROFLUORIC ACID, WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:  Reference A/N <u>503256515761</u>	D319	C162			<u>A.433.1,</u> E193.1
PROCESS TANK, NO. 80, COVERED, UNHEATED, ACID CLEAN, NITRIC ACID, HYDROFLUORIC ACID, <u>TRISODIUM PHOSPHATE,</u> <u>SODIUM FLUORIDE</u> , WIDTH: 14IN; LENGTH: 32IN; DEPTH: 35.5IN:  Reference A/N <u>503256515761</u>	D320	C162			<u>A.433.1,</u> E193.1
PROCESS TANK, NO. 82, UNHEATED, PASSIVATION, NITRIC ACID, WIDTH: 20IN; LENGTH: 32IN; DEPTH: 35.5IN:  Reference A/N <u>503256515761</u>	D321				<u>A.433.1,</u> E193.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	3
APPL. NO.	DATE
515758-761	2/1/11
PRCSD 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 <u>503256515761</u>	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 <u>503256515761</u>	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 <u>503256515761</u>	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 <u>503256515761</u>	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 <u>503256515761</u>	D326				A.433.1, C6.9, E193.1
BENCH, HEATED, CHEMICAL ANALYSIS, TECHNISTRIP AU/ENSTRIP AU-78, LENGTH: 25IN, WIDTH: 25IN, HEIGHT: XXIN, HEATED  Reference A/N <u>503256515761</u>	D329	C162			A433.5, C6.13, E193.1
BENCH, HEATED, ETCHING/STRIPPING, NITRIC ACID, SULFURIC ACID, SODIUM HYDROXIDE, LENGTH: 32IN, WIDTH: 32IN, HEIGHT: XXIN  Reference A/N <u>503256515761</u>	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 ~~JUNE 5, 2009~~ SEPT. 10, 2010, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT.

POLLUTANT	TANK NO.	MAX CONTENT (WT%)
Sodium Hydroxide	6,84, 85, 89	30.0
Chrome Compounds	88	5
Chrome Compounds	10	2.0 (ADD)
Nitric Acid	<del>77, 82</del>	45
Nitric Acid	82	50 (ADD)
Nitric Acid	79, 80	<del>28</del> 35 (ADD)
Hydrogen Fluoride	77,79, 80	11
Hydrogen Fluoride	76	10.0 (ADD)
Sulfuric Acid	<del>88, 8</del>	20
Sulfuric Acid	88	40 (ADD)
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.

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.

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**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	5
APPL. NO.	DATE
515758-761	2/1/11
PRCSD 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

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	6
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

MONITORED, 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.

**PERMIT TO CONSTRUCT  
Section H**

**Equipment Description:**

<b>PROCESS 1: FABRICATED METALS SYSTEM #4: PRECIOUS METAL PLATING</b>					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
PROCESS TANK, NO.38, GOLD PLATE, WITH A 15V, 25 AMP RECTIFIER, HEATED, POTASSIUM CYANOaurate, THALLIUM COMPOUND, OROTEMP SOLUTION, WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH:2FT 8 IN  A/N: 481867515760	D294	C162			A433.4, C6.13, E448.1
PROCESS TANK, NO.39, GOLD PLATE, WITH A 15V, 25 AMP RECTIFIER, HEATED, POTASSIUM CYANOaurate, THALLIUM COMPOUND, OROTEMP SOLUTION, WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH:2FT 8 IN  A/N: 481867515760	D295	C162			A433.4, C6.13, E448.1
PROCESS TANK, NO.41, ALKALINE RINSE, UNHEATED, SODIUM HYDROXIDE, WIDTH: 1 FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH:2FT 8 IN  A/N: 481867515760	D327				A433.4
PROCESS TANK, NO.42, GOLD PLATE, POTASSIUM AUROCyanide, COBALt COMPLEX, NICKEL COMPLEX,	D296	C162			A433.4, C6.10, E448.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	7
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

POTASSIUM CITRATE, CITRIC ACID, MONOPOTASSIUM PHOSPHATE, WITH A 15V, 50 AMP RECT, WIDTH: 1 FT 8 IN; HEIGHT: 1FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 481867515760					
PROCESS TANK, NO.43, GOLD PLATE,POTASSIUM AUROCYANIDE, COBALT COMPLEX, NICKEL COMPLEX, POTASSIUM CITRATE, CITRIC ACID, MONOPOTASSIUM PHOSPHATE, WITH A 15V, 50 AMP RECT, WIDTH: 1 FT 8 IN; HEIGHT: 1FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 481867515760	D297	C162			A433.4, C6.10, E448.1
PROCESS TANK, NO.45, GOLD PLATE, WITH A 20V, 100 AMP RECTIFIER, HEATED, POTASSIUM CITRATE, CITRIC ACID, MONOPOTASSIUM PHOSPHATE, POTASSIUM CYANOAUATE, WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 481867515760	D298	C162			A433.4, C6.10, E448.1
PROCESS TANK, NO.73, GOLD PLATE, WITH A 10V, 25 AMP RECTIFIER, HEATED, POTASSIUM GOLD CYANIDE, AMMONIUM HYDROXIDE, WIDTH: 1 FT 2 IN; HEIGHT: 2 FT 11.5 IN; LENGTH:2FT 8 IN  A/N: 481867515760	D316	C162			A433.4, C6.1, E448.1
PROCESS TANK, NO.47, TIN/LEAD PLATE, WITH A 15V, 50 AMP RECTIFIER, UNHEATED, TIN FLUOBORATE, LEAD FLUOBORATE, BORIC ACID, FLUORBORIC ACID, PEPTON, WIDTH: 2 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 481867515760	D299	C162			A433.4, E448.1
PROCESS TANK, NO.48, TIN PLATE, WITH A 15V, 50 AMP RECTIFIER, UNHEATED, TIN FLUOBORATE,LEAD FLUOBORATE, BORIC ACID, FLUORBORIC ACID, PEPTON, WIDTH: 2 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 481867515760	D300	C162			A433.4, E448.1
PROCESS TANK, NO.59, SILVER PLATE, WITH A 20V, 100 AMP RECTIFIER, UNHEATED, POTASSIUM SILVER CYANIDE, POTASSIUM CYANIDE, POTASSIUM CARBONATE, KOH, WIDTH: 1 FT 9 IN; HEIGHT: 2 FT 6 IN; LENGTH: 2 FT 6 IN	D306	C162			A433.4, E448.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	8
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

A/N: <u>481867515760</u> PROCESS TANK, NO.60, SILVER STRIKE, WITH A 20V, 100 AMP RECTIFIER, UNHEATED, POTASSIUM SILVER CYANIDE, POTASSIUM CYANIDE, POTASSIUM CARBONATE, WIDTH: 1 FT 9 IN; HEIGHT: 2 FT 6 IN; LENGTH: 2 FT 6 IN	D307	C162			<u>A433.4</u> , E448.1
A/N: <u>481867515760</u> PROCESS TANK, NO.61, SILVER PLATE, WITH A 15V, 50 AMP RECTIFIER, UNHEATED, POTASSIUM SILVER CYANIDE, POTASSIUM CYANIDE, POTASSIUM CARBONATE, WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN	D308	C162			<u>A433.4</u> , E448.1
A/N: <u>481867515760</u> PROCESS TANK, NO.62, SILVER PLATE, WITH A 15V, 50 AMP RECTIFIER, UNHEATED, POTASSIUM SILVER CYANIDE, POTASSIUM CYANIDE, POTASSIUM ANTIMONY TRATRATE, WIDTH: 2 FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN	D309	C162			<u>A433.4</u> , E448.1

**Conditions:**

Not to use Toxic air contaminants unless listed in description

A433.4 THE OPERATOR SHALL NOT USE IN THIS EQUIPMENT ANY TOXIC AIR CONTAMINANTS (TAC) IDENTIFIED IN SCAQMD RULE 1401, AS AMENDED MARCH 4, 2005 SEPT. 10, 2010, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT.

POLLUTANT	CAS NO.	MAX CONTENT (WT%)
Lead Compounds	47,48	3.0
Sodium Hydroxide	41	30
Nickel Compounds	42,43	<del>0.110.5</del> (ADD)

C6.1 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.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	9
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

C6.10 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 145 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, 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.

E448.1 THE OPERATOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS

Rule 1426 recordkeeping  
[RULE 1426, 5-2-2003]

**PERMIT TO CONSTRUCT  
Section H**

**Equipment Description:**

<b>PROCESS 1: FABRICATED METALS SYSTEM #3: NICKEL PLATING</b>					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
PROCESS TANK, NO.12, COVERED, ETCH, UNHEATED, NITRIC ACID, HYDROFLUORIC ACID, WIDTH:1 FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 7.25 IN  A/N: 509885515759	D281	C162			<u>A433.3</u> , E448.1
PROCESS TANK, NO.14, ACID CLEAN, UNHEATED, NITRIC ACID, WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 509885515759	D282				<u>A433.3</u> , E448.1
PROCESS TANK, NO.16, ALKALINE ETCH, UNHEATED,	D283				<u>A433.3</u> , E448.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	10
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

SODIUM HYDROXIDE, ZINC OXIDE WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N:-509885515759					
PROCESS TANK, NO.19, COVERED, ELECTROLESS NICKEL, HEATED, ACETIC ACID, TETRASOD SALT, SOD HYPOPHOSPHITE, NH3, LEAD ACE, NI SULFATE, H2SO4, WIDTH: 2 FT ; HEIGHT: 2 FT 4 IN; LENGTH: 3FT  A/N:-509885515759	D284	C162			<u>A433.3</u> , C6.12, E448.1
PROCESS TANK, NO.20, COVERED, ELECTROLESS NICKEL, HEATED, ACETIC ACID, TETRASOD SALT, SOD HYPOPHOSPHITE, NH3, LEAD ACE, NI SULFATE, H2SO4, WIDTH: 2 FT ; HEIGHT: 2 FT 4 IN; LENGTH: 3 FT  A/N:-509885515759	D285	C162			<u>A433.3</u> , C6.12, E448.1
PROCESS TANK, NO.23, COVERED, STRIPPING, UNHEATED, NITRIC ACID, WIDTH: 1 FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N:-509885515759	D286	C162			<u>A433.3</u> , E448.1
PROCESS TANK, NO.25, COVERED, SOLDER STRIP, UNHEATED, AMMONIUM BIFLUORIDE, HYDROGEN PEROXIDE, WIDTH: 1FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N:-509885515759	D287	C162			<u>A433.3</u> , E448.1
PROCESS TANK, NO.26, COVERED, SOLDER STRIP, UNHEATED, AMMONIUM BIFLUORIDE, HYDROGEN PEROXIDE, WIDTH: 1FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N:-509885515759	D288	C162			<u>A433.3</u> , E448.1
PROCESS TANK, NO.27, ALKALINE CLEAN, HEATED, SODIUM HYDROXIDE, SODIUM METASILICATE, SODIUM CARBONATE, WIDTH: 1 FT 8IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N:-509885515759	D289				<u>A433.3</u> , C6.6, E448.1
PROCESS TANK, NO.29, ACID CLEAN, UNHEATED, HYDROCHLORIC ACID, WIDTH: 1FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN	D290	C162			<u>A433.3</u> , E448.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	11
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

A/N:-509885515759					
PROCESS TANK, NO.31, NICKEL STRIKE, WITH A 20V, 150 AMP RECTIFIER, UNHEATED, NICKEL CHLORIDE, HYDROCHLORIC ACID, WIDTH: 1 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN	D291	C162			<u>A433.3</u> , E448.1
A/N:-509885515759					
PROCESS TANK, NO.33, NICKEL PLATE, WITH A 15V, 25 AMP RECTIFIER, HEATED, NICKEL SULFAMATE, NICKEL BROMIDE, BORIC ACID, WIDTH: 2 FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN	D292	C162			<u>A433.3</u> , C6.14, E448.1
A/N:-509885515759					
PROCESS TANK, NO.35, ALKALINE ETCH, UNHEATED, AMMONIUM PERSULFATE, SODIUM BISULFATE, WIDTH: 1 FT 2 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN	D293				<u>A433.3</u> , E448.1
A/N:-509885515759					

**Conditions:**

Not to use Toxic air contaminants unless listed in description

A433.3 THE OPERATOR SHALL NOT USE IN THIS EQUIPMENT ANY TOXIC AIR CONTAMINANTS (TAC) IDENTIFIED IN SCAQMD RULE 1401, AS AMENDED ~~MARCH 4, 2005~~ SEPTEMBER 10, 2010, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT.

POLLUTANT	TANK NO.	MAX CONTENT (WT%)
Sodium Hydroxide	16,27	30.0
Nickel Compounds	31,33	46.0
Nitric Acid	14,23	<del>45</del> 60
Nitric Acid	12	<del>53</del> 60
Hydrogen Fluoride	12	<del>13</del> 16
Ammonia	19,20	1.0
Lead Compound	19,20	3.0
Sulfuric Acid	19,20	20
Hydrochloric Acid	31	15
Hydrochloric Acid	29	<del>19</del> 25

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.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	12
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

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.

C6.14 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 150 DEGREE FAHRENHEIT.

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

E448.1 THE OPERATOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS

Rule 1426 recordkeeping

[RULE 1426, 5-2-2003]

**PERMIT TO CONSTRUCT  
Section H**

**Equipment Description:**

<b>PROCESS 1: FABRICATED METALS SYSTEM #2: COPPER PLATING</b>					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
PROCESS TANK, NO.49, ACID CLEAN, UNHEATED, FLUORBORIC ACID, WIDTH:1FT 2 IN; HEIGHT:1FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 470065515758	D301				A433.2, E448.1
PROCESS TANK, NO.51, COPPER PLATE, WITH A 15V, 50 AMP RECTIFIER, HEATED, COPPER PYROPHOSPHATE,	D302	C162			A433.2, C6.10 E448.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	13
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

AMMONIA, LEAD METHANE SULFONATE, WIDTH: 2 FT 8 IN; HEIGHT: 2 FT; LENGTH:2FT 8IN  A/N: 470065515758					
PROCESS TANK, NO.52, COPPER PLATE, WITH A 15V, 50 AMP RECTIFIER, HEATED, COPPER PYROPHOSPHATE, AMMONIA, LEAD METHAN SULFONATE, WIDTH: 2 FT 8 IN; HEIGHT: 2 FT; LENGTH:2FT 8IN  A/N: 470065515758	D303	C162			A433.2, C6.10 E448.1
PROCESS TANK, NO.54, ACID CLEAN, UNHEATED, SULFURIC ACID, WIDTH:1FT 2IN; HEIGHT: 1FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 470065515758	D304				A433.2, E448.1
PROCESS TANK, NO.56, COPPER PLATE, WITH A 20V, 100 AMP RECTIFIER, HEATED, COPPER CYANIDE, SODIUM CYANIDE, SODIUM CARBONATE, POTASSIUM SODIUM TARTRATE, WIDTH:1FT 8 IN; HEIGHT: 1 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 470065515758	D305	C162			A433.2, C6.11 E448.1
PROCESS TANK, NO.64, COPPER PLATE, WITH A 15V, 25 AMP RECTIFIER, UNHEATED, AIR SPARGED, COPPER SULFATE, SULFURIC ACID, HYDROCHLORIC ACID, WIDTH: 3 FT 9 IN; HEIGHT: 2 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 470065515758	D310	C162			A433.2, E448.1
PROCESS TANK, NO.65, COPPER PLATE, WITH A 15V, 25 AMP RECTIFIER, UNHEATED, AIR SPARGED, COPPER SULFATE, SULFURIC ACID, SULFURIC ACID, HYDROCHLORIC ACID, WIDTH: 3FT 9 IN; HEIGHT: 2 FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 470065515758	D311	C162			A433.2, E448.1
PROCESS TANK, NO.67, COVERED, ACID CLEAN, UNHEATED, SULFURIC ACID, WIDTH: 1 FT 2 IN; HEIGHT:2FT 11.5 IN; LENGTH: 2 FT 8 IN  A/N: 470065515758	D312				A433.2, E448.1
PROCESS TANK, NO.68, COPPER CLEAN, HEATED, DETERGENT, WIDTH:1FT 2 IN; HEIGHT: 2 FT 11.5 IN; LENGTH: 2 FT 8 IN	D313				A433.2, E448.1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	14
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

A/N: 470065515758 PROCESS TANK, NO.70, COVERED, ACID CLEAN, UNHEATED, NITRIC ACID, PHOSPHORIC ACID, ACETIC ACID, WIDTH: 1 FT 2 IN; HEIGHT: 2 FT 11.5 IN; LENGTH: 2 FT 8 IN	D314				A433.2, E448.1
A/N: 470065515758 PROCESS TANK, NO.71, COVERED, ACID CLEAN, UNHEATED, NITRIC ACID, PHOSPHORIC ACID, ACETIC ACID, WIDTH: 1 FT 2 IN; HEIGHT: 2 FT 11.5 IN; LENGTH: 2 FT 8 IN	D315				A433.2, E448.1
A/N: 470065515758					

**Conditions:**

Not to use Toxic air contaminants unless listed in description

A433.2 THE OPERATOR SHALL NOT USE IN THIS EQUIPMENT ANY TOXIC AIR CONTAMINANTS (TAC) IDENTIFIED IN SCAQMD RULE 1401, AS AMENDED ~~MARCH 4, 2005~~ SEPTEMBER 10, 2010, EXCEPT AS IDENTIFIED BELOW UP TO THE FOLLOWING CONTENT LIMIT.

POLLUTANT	TANK NO.	MAX CONTENT (WT%)
Copper compounds	51, 52, 56, 64, 65	67.0
Nitric Acid	70, 71	20
Lead compounds	51, 52	3.0
Ammonia	51, 52	1.0
Sulfuric Acid	54, 64, 65, 67	20
Hydrochloric Acid	64, 65	15
Phosphoric Acid	70, 71	<del>4655</del> (ADD)

C6.10 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 145 DEGREE FAHRENHEIT.

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

C6.11 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 155 DEGREE FAHRENHEIT.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	15
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

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

E448.1 THE OPERATOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS

Rule 1426 recordkeeping

[RULE 1426, 5-2-2003]

**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.

Application no. 515761 was submitted to the District on October 26, 2010 as a change of condition to modify the chemical concentrations to D280, D317, D319, D320, D321 and D325 under condition no. A433.1. Under this application D280 (tank 10) is to have the chrome concentration raised from 1.0 wt% to 2.0 wt%, D317 (tank 76) is to have 10.0% hydrofluoric acid added, D319 (tank 79) & D320 (tank 80) are to have the nitric acid concentration raised from 28 wt% to 35 wt%, D320 will include tri-sodium phosphate 9.8% and sodium fluoride, 1.8%, D321 (tank 82) is to have the nitric acid concentration raised from 45 wt% to 50 wt%, and D325 (tank 88) is to have the sulfuric acid concentration raised from 20 wt% to 40 wt%. This line was originally issued a Permit to Construct on 01/05/10 under application no. 503256.

Application no. 515760 was submitted to the District on October 26, 2010 as a change of condition to modify the chemical concentrations to D296 and D297 under condition no. A433.4. Under this application D296 (tank 42) & D297 (tank 43) are to have the nickel compounds concentrations raised from 0.1 wt% to 0.5 wt%. This line was originally issued a Permit to Construct on 08/05/08 under application no. 481867.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	16
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

Application no. 515759 was submitted to the District on October 26, 2010 as a change of condition to modify the chemical concentrations to D281, D282, D286 and D290 under condition no. A433.3. Under this application D281 (tank 12) is to have the hydrogen fluoride concentration raised from 13 wt% to 16 wt%, the nitric acid concentration raised from 53 wt% to 60 wt%, D282 (tank 14) & D286 (tank 23) are to have the nitric acid concentration raised from 45 wt% to 60 wt% and D290 (tank 29) is to have the HCl concentration raised from 19 wt% to 25 wt%. This line was originally issued a Permit to Construct on 06/08/10 under application no. 509885.

Application no. 515758 was submitted to the District on October 26, 2010 as a change of condition to modify the chemical concentrations to D314 and D315 under condition no. A433.2. Under this application D314 (tank 70) and D315 (tank 71) are to have the phosphoric acid concentration raised from 46 wt% to 55 wt%. This line was originally issued a Permit to Construct on 08/15/07 under application no. 470065.

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.

The District records indicate that during the last five years Northrop Grumman was issued two Notices to Comply (NC). Notice NCD23904 was issued on 5/21/2009 for failure to repair and maintain the pH meter for the scrubber C162. The second notice NC D23906 was issued on 5/28/2009 for the following:

- tank 31, D291 - locate or install amp-hr meter
  - tank 85, D323 - install temperature gauge
  - D329 - comply with or apply for change of condition to C6.13
  - D330 - comply with or apply for change of condition to C6.12
- Post the Permit

These issues have been resolved and Northrop is now in full compliance. There are no other Notices of Violation, Notices to Comply or Complaints issued against this facility as of 1/31/11.

**Emissions Calculations:**

Application 515761(Process 1, System 1 Surface Preparation)

Change of condition to increase the following compound concentrations:

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	17
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

Tank #	Device #	Compound	Previous Concentration (wt%)	New Concentration (wt%)
10	D280	Chrome	1.0	2.0
76	D317	Hydrofluoric Acid	0.0	10.0
79	D319	Nitric Acid	28	35
80	D320	Nitric Acid	28	35
		Trisodium phosphate	0.0	9.8
		Sodium Fluoride	0.0	1.8
82	D321	Nitric Acid	45	50
88	D325	Sulfuric Acid	20	40

Device D280 is neither air sparged nor heated. Chromic acid, being a salt, has no vapor pressure, therefore there is no increase in emissions by the increased concentration of chrome.

Both devices D319 & D320 are neither air sparged nor heated. At ambient temperatures nitric acid's vapor pressure @ 35 wt% is approximately 0.007mmHg. At 28 wt% the vapor pressure was approximately 0.005 mmHg. A potential increase of 0.002 mmHg will occur by increasing the nitric acid concentration from 28% to 35%. In addition, D320 has tri-sodium phosphate and sodium fluoride as part of its chemistry but they are salts and have no vapor pressure. No emissions are expected from these compounds.

Device D321 is neither air sparged nor heated. It is proposed to have the nitric acid concentration increased from 45 wt% to 50 wt%. Perry's, sixth edition, has the partial pressure of nitric acid at ambient temperature of 77°F (25°C) of 0.23mmHg @ 45wt% and 0.39 mmHg @ 50wt%.

Device D325 is neither air sparged but is heated to a temperature of 170°F(76.7°C). It is proposed to increase the sulfuric acid concentration from 20 to 40 wt%. The vapor pressures for sulfuric acid given in table 3-14b in Perry's, sixth edition show that at these temperatures and concentrations the vapor pressure would be in the order of 10<sup>-11</sup> mmHg or negligible.

The increase has been calculated using the "open process tank" spread sheet with a 95% scrubber efficiency.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	18
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

Delta emission increase:

R1 = 1.24E-01lbs/hr PM10

R2 = 6.22E-03lbs/hr PM10

Application 515760(Process 1, System 4 Precious Metal Plating)

Change of condition to increase the following compound concentrations:

Tank #	Device #	Compound	Previous Concentration (wt%)	New Concentration (wt%)
42	D296	Nickel Compounds	0.10	0.5
43	D297	Nickel Compounds	0.10	0.5

By increasing the nickel content of devices D296 and D297, the net emission increase as calculated by the "Open Process Tank" spread sheet with a 95% control efficiency is as follows:

R1(Plating) = 2.1710E-06 lbs/hr PM10 (Nickel compounds)

R2 (Plating) = 1.0855E-07 lbs/hr PM10 (Nickel compounds)

Application 515759(Process 1, System 3 Nickel Plating)

Change of condition to increase the following compound concentrations:

Tank #	Device #	Compound	Previous Concentration (wt%)/mmHg	New Concentration (wt%)/mmHg
12	D281	Hydrogen Fluoride	13.0/2.499	16.0/3.085
		Nitric Acid	53/0.552	60/1.21
14	D282	Nitric Acid	45/0.23	60/1.21
23	D286	Nitric Acid	45/0.23	60/1.21
29	D290	Hydrochloric Acid	19/0.234	25/2.345

All the devices that will have an increase in the chemical concentrations are neither heated, air sparged, or rectified. The ambient temperature, 77°F(25°C) was used and the vapor pressures for Nitric and Hydrochloric acid were taken from tables 3-11 & 3-16 in Perry's, sixth edition.

Hydrofluoric Acid pressures were determined from the Honeywell Partial Vapor pressure curves and the Antoine Equation.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	19
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

By increasing the acid content of devices D281, D282, D286 & D290, the net emission increase as calculated by the “Open Process Tank” spread sheet is as follows:

$$R1(\text{Evaporative}) = 5.15\text{E-}02 \text{ lbs/hr PM10}$$

$$R2 (\text{Evaporative}) = 1.64\text{E-}02 \text{ lbs/hr PM10}$$

Application 515758(Process 1, System 2 Copper Plating)

Change of condition to increase the following compound concentrations:

Tank #	Device #	Compound	Previous Concentration (wt%)/mmHg	New Concentration (wt%)/mmHg
70	D314	Phosphoric Acid	46/0.008	55/0.011
71	D315	Phosphoric Acid	46/0.008	55/0.011

All the devices that will have an increase in the chemical concentrations are neither heated, air sparged, or rectified. The ambient temperature, 77°F(25°C) was used. Vapor pressure was approximated using the Antoine Equation. The table is attached in the appendix.

By increasing the acid content of devices D314 & D315, the net emission increase as calculated by the “Open Process Tank” spread sheet is as follows:

$$R1= R2(\text{Evaporative}) = 9.95\text{E-}05 \text{ lbs/hr PM10}$$

Emissions Summary

Application no	Hourly PM10 Emission Increase (lbs/hr)	Daily PM10 Emission Increase (lbs/day)
515761	6.22E-03	1.493E-01
515760	1.086E-07	2.606E-06
515759	1.64E-02	3.936E-01
515758	9.95E-05	2.39E-03
Total	2.272E-02	0.545

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS****Risk Assessment:**

## Toxic Emissions Summary

Application no	Compound	Emission increase
515761	Nitric Acid	1.75E-04 lbs/hr
	Hydrofluoric acid	6.043E-03 lbs/hr
515760	Nickel Compounds	1.085E-07 lbs/hr
515759	Hydrofluoric acid	1.31E-04 lbs/hr
	Nitric Acid	1.5519E-02 lbs/hr
	Hydrochloric Acid	7.74E-04 lbs/hr
515758	Phosphoric Acid	9.95E-05 lbs/hr

The combined emissions from the increase concentrations resulted in the following Tier 1 screening:

Cancer/Chronic	Acute
3.40E-02	4.17E-01
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 emission increase for the entire facility. A Rule 212(c) (2) notice will not be triggered since the changes will not result in an emission increase that exceeds the daily maximum under Rule 212(g).

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.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	21
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

The proposed project will result in an emission increase of toxic emissions associated with the plating operation. 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  $1 \times 10^{-6}$  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 emission increase due to the modification is negligible and the following summarizes the emission increase:

	Maximum Daily Emissions					
	<u>ROG</u>	<u>NO<sub>x</sub></u>	<u>PM<sub>10</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>Pb</u>
Emission increase	0	0	1.0	0	0	0
MAX Limit (lb/day)	<b>30</b>	<b>40</b>	<b>30</b>	<b>60</b>	<b>220</b>	<b>3</b>
Compliance Status	Yes	Yes	Yes	Yes	Yes	Yes

No public notice is required since the emission increase is below the thresholds.

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<sub>x</sub> RECLAIM facility, compliance with Reg. XIII is still required since the proposed project will result in an increase in PM<sub>10</sub> emissions. The increase in these non-RECLAIM pollutants are as follows:

Application no. 515761 (Assumption Scrubber Eff. 95%)

PM<sub>10</sub> emissions from the modification of surface prep line

R1 = 1.24E-01 lbs/hr

R2 = 6.22E-03 lbs/hr, 0.149 lbs/day (increase)

Previous A/N 503256

R1=R2 = 0.0 lbs/hr (-2.81E-05 lbs/hr) reduction

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	22
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

Previous A/N 474170  
 R1 = 9.6E-02 lbs/hr  
 R2 = 2.92E-02 lbs/day (increase)  
 Previous A/N 470064  
 R1 = 2.098E-01 lbs/day  
 R2 = 1.061E-01 lbs/day (original)  
**Total: R2 = 2.846E-01 lbs/day**

Application no. 515760 (Assumption Scrubber Eff. 95%)

PM10 emissions from the modification of Precious Metal line  
 R1 = 2.17E-06 lbs/hr  
 R2 = 1.086E-07 lbs/hr, 2.606E-06 lbs/day (increase)  
 Previous A/N 481867  
 R1 = 2.6E-04 lbs/hr  
 R2 = 1.3E-05, 3.12E-04 lbs/day  
 Previous A/N 470066  
 R1 = R2 = 0.0 lbs/day (original)  
**Total: R2 = 3.15E-04 lbs/day**

Application no. 515759 (Assumption Scrubber Eff. 95%)

PM10 emissions from the modification of Nickel Plating line  
 R1 = 5.15E-02 lbs/hr  
 R2 = 1.64E-02 lbs/hr, 3.94E-01 lbs/day (increase)  
 Previous A/N 509885  
 R1 = 2.3E-02 lbs/hr  
 R2 = 1.15E-03, 2.76E-02 lbs/day (increase)  
 Previous A/N 481865  
 R2 = -0.003lbs/hr, 7.2E-02 lbs/day (reduction)  
 Previous A/N 468911  
 R1 = 2.838E-02 lbs/hr  
 R2 = 1.05E-02, 2.521E-02 lbs/day (original)  
**Total: R2 = 3.748E-01 lbs/day**

Application no. 515758 (Assumption Scrubber Eff. 95%)

PM10 emissions from the modification of Copper Plating Line  
 R1 = R2 = 9.95E-05 lbs/hr, 2.39E-03 lbs/day (increase)  
 Previous A/N 470065  
 R1 = 5.6E-03 lbs/hr  
 R2 = 2.80E-04, 6.72E-03 lbs/day (original)  
**Total: R2 = 9.11E-03 lbs/day**

**Combined controlled emissions from all four lines total:****R2 = 6.69E-01 lbs PM10/day**

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	23
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

<b>PM10 (lb/day)</b>
1.0

RULE 1303(a)(1): BACT for surface preparation and plating tanks that don't exceed one in a million cancer risk is a scrubber. This line is currently vented to a scrubber which will satisfy the BACT requirements.

RULE 1303(b)(1): Modeling for PM10 is not required since the hourly emissions are less than the allowable limits.

<b>Modeling Analysis</b>	<b>PM10 (lb/hr)</b>
Total Hourly Emissions	6.69E-01/24hr = 0.0279
Allowable Limit	0.41

RULE 1303(b)(2): The total emission increase from all the changes proposed by applications 515158-761 is 0.545 lbs/day or 1.0 lbs/day. The facility's PTE is less than 4 tons per year and is exempt from offset under 1303(d)(2)(B). Offsets are not required.

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 1303(b)(5)(B): The Increase in emissions associated with the proposed modification of the plating line does not qualify as a major modification at an existing major polluting facility.

RULE 1303(b)(5)(C): A modeling analysis for plume visibility is not required since the net emission increase from the proposed project does not exceed 15 ton/yr of PM10 or 40 ton/yr of NOx.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	24
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

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 ( $1.0 \times 10^{-6}$ ) at any receptor location, if the permit unit is constructed without T-BACT;
  - (B) an increased MICR greater than ten in one million ( $1.0 \times 10^{-5}$ ) 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 combined increased toxic emissions from these plating operations under application nos. 515758 -515761 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
3.40E-02	4.17E-01
Passed	Passed

The increased nickel emissions resulted in a MICR of the following:

Residential	Commercial
7.09E-10	1.39E-10
< 1E-6	< 1E-6
Passed	Passed

The HIA/HIC for all target organs neither exceeded 1.0. Compliance with this rule is expected

REG. XX: This modification has a negligible impact on NOx. Compliance with this Regulation is expected.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	25
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

**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:

<b>Air Contaminant</b>	<b>Daily Maximum (lbs/day)</b>
HAP	30
VOC	30
NO <sub>x</sub> *	40
PM10	30
SO <sub>x</sub> *	60
CO	220

\* Not applicable if this is a RECLAIM pollutant

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 1st permit revision to the Title V renewal permit issued to this facility on June 8, 2010. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

<b>Revision</b>	<b>HAP</b>	<b>VOC</b>	<b>NO<sub>x</sub>*</b>	<b>PM10</b>	<b>SO<sub>x</sub></b>	<b>CO</b>
1 <sup>st</sup> permit revision; addition of: A/N 517347 Boiler (device no. D337)	0	0	0*	0	0	0

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	26
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

<p><u>A/N 515758</u> increase phosphoric acid content of D314 &amp; D315 from 46wt% to 55wt% in condition A433.2</p> <p><u>A/N 515759</u> increase acid concentrations of D281( HF from 13wt% to 16wt%, Nitric Acid from 53wt% to 60wt%), D282(Nitric Acid from 45wt% to 60wt%), D286(NITRIC Acid from 45wt% to 60wt%) &amp; D290(HCl from 19wt% to 25wt%).</p> <p><u>A/N 515760</u> increase nickel concentrations in D296 &amp; D297 from 0.1wt% to 0.5wt% in condition A433.4.</p> <p><u>A/N 515761</u> increase the concentrations of D280( Cr from 1 wt% to 2 wt%), D317 ( Add 10 wt% hydrofluoric acid), D319( Nitric Acid from 28wt% to 35wt%), D320 (Nitric Acid from 28wt% to 35wt% and add sodium fluoride and trisodium phosphate), D321 (Nitric Acid from 45wt% to 50wt%) &amp; D325(Sulfuric Acid from 20wt% to 40wt%)</p>	0	0	0*	1.0	0	0
Cumulative Total	0	0	0*	1.0	0	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.

RECLAIM Pollutants

Rule 3000(b)(12)(A)(v) defines a “minor permit revision” as any Title V permit revision that does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process.

Since NOx is a RECLAIM pollutant for this facility, a separate analysis shall be made to determine if the proposed permit revision is considered a “minor permit revision” for RECLAIM pollutants. The replacement of the boiler will result in a decrease in NOx emissions due to the low-NOx

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES	PAGE
27	27
APPL. NO.	DATE
515758-761	2/1/11
PRCSD BY	CHCKD BY
REL	

burner. As a result, this proposed project is considered as a “minor permit revision” for RECLAIM pollutants.

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 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.

Conclusion:

The Boiler will operate in compliance with all District Rule and Regulations. A Permit to Construct is recommended for application number 517347 subject to preceding conditions.

The plating operations will operate in compliance with all District Rule and Regulations. A Permit to Construct is recommended for application number 515758-515761 subject to preceding conditions.