

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

ENGINEERING DIVISION

**APPLICATION PROCESSING AND CALCULATIONS**

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**APPLICANT'S NAME:** NORTHROP GRUMMAN SPACE AND MISSION SYSTEMS CORP.

**FACILITY PERMIT ID#** 800408

**CONTACT PERSON:** Ron Frazer

**MAILING ADDRESS:** ONE SPACE PARK  
BUILDING R11/2000  
REDONDO BEACH, CA 90278

**EQUIPMENT ADDRESS:** 1700 Rosecrans Ave., BLDG D1  
Manhattan Beach, CA 90266

**Title V/RECLAIM Permit Revision:**  
Application No. 474049

**PERMIT TO CONSTRUCT****Equipment Description:**

PROCESS 1: CONTROL EQUIPMENT					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
OXIDIZER, THERMAL, NO. 4, ALLIANCE SYSTEMS, MODEL NO. 306-RTO, 3-BEDS, HOT ROCK TYPE, NATURAL GAS, WITH A 30-HP EXHAUST FAN, 10-HP BYPASS FAN AND A 3.0-HP COMBUSTION BLOWER, 1.5 MMBTU/HR  Reference A/N 455306 474064	C-364	D346,D347, D350, D352, D353, D354, D355, D357, D358, D359, D360, D361, D589, <b>D482 ADD</b>	NOX: PROCESS UNIT	CO: 2000 PPMV (5);[RULE 407, 4-2-1982]; NOX: 130 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM: 0.1 GRAINS/SCF (5)[RULE 409, 8-7-1981] PM:(9) [RULE 404, 2-7-1986]	A72.1, D29.2, E193.1, K40.1

**Conditions:**

A72.1 THE OPERATOR SHALL MAINTAIN THIS EQUIPMENT TO ACHIEVE A MINIMUM DESTRUCTION EFFICIENCY OF 95% FOR ROG DURING THE NORMAL OPERATION OF THE EQUIPMENT IT VENTS.

D29.2 THE OPERATOR SHALL CONDUCT SOURCE TEST(S) FOR THE POLLUTANT(S) IDENTIFIED BELOW:

Pollutant(s) to be tested	Required test method(s)	Averaging Time	Test Location
VOC	Approved District Method	District Approved averaging time	Simultaneous inlet and outlet

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The test shall be conducted at least once during the life of the permit but no later than July 9, 2010 unless otherwise approved in writing by the District.

The test shall be conducted to determine the VOC emissions using an approved District method to determine compliance with all applicable permit condition(s), Rules and Regulations.

The test shall be conducted while the oxidizer is operating at a temperature of not less than the minimum operating temperature specified in this permit. If the operating temperature during the source test is greater than the minimum operating temperature specified in the permit, the minimum operating temperature specified in this permit may be increased to reflect the operating temperature during the source test.

The operator shall comply with administrative conditions NOs. 8, 9, and 10 of Section E of this facility permit.

**E193.1 THE OPERATOR SHALL OPERATE AND MAINTAIN THIS EQUIPMENT ACCORDING TO THE FOLLOWING REQUIREMENTS:**

The combustion chamber temperature shall be maintained at a minimum of 1,500 degrees Fahrenheit whenever the equipment it serves is in operation

The operator shall operate and maintain a temperature measuring and recording system to continuously measure and record the combustion chamber temperature pursuant to the operation and maintenance requirements specified in 40 CFR Part 64.7. Such a system shall have an accuracy of within 1% of the temperature being monitored and shall be inspected, maintained, and calibrated on an annual basis in accordance with the manufacturer's specifications

For the purpose of this condition, a deviation shall be defined as when a combustion chamber temperature of less than 1,500 degrees Fahrenheit occurs whenever the equipment it serves is in operation. The operator shall review the records of the combustion chamber temperature on a daily basis to determine if a deviation occurs or shall install an alarm system to alert the operator when a deviation occurs

Whenever a deviation occurs, the operator shall inspect this equipment to identify the cause of such a deviation, take immediate corrective action to maintain the combustion chamber temperature at or above 1,500 degrees Fahrenheit, and keep records of the duration and cause (including unknown cause, if applicable) of the deviation and the corrective action taken

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All deviations shall be reported to the AQMD pursuant to the requirements specified in 40 CFR Part 64.9 and Condition Nos. 22 and 23 in Section K of this permit. The report shall include the total operating time of this equipment and the total accumulated duration of all deviations for each semi-annual reporting period specified in Condition No. 23 in Section K of this permit

The operator shall submit an application with a Quality Improvement Plan (QIP) in accordance with 40 CFR Part 64.8 to the AQMD if an accumulation of deviations exceeds 5 percent duration of this equipment's total operating time for any semi-annual reporting period specified in Condition No. 23 in Section K of this permit. The required QIP shall be submitted to the AQMD within 90 calendar days after the due date for the semi-annual monitoring report

The operator shall inspect and maintain all components of this equipment on an annual basis in accordance with the manufacturer's specifications.

The operator shall keep adequate records in a format that is acceptable to the AQMD to demonstrate compliance with all applicable requirements specified in this condition and 40 CFR Part 64.9 for a minimum of five years

**K40.1 THE OPERATOR SHALL PROVIDE TO THE DISTRICT A SOURCE TEST REPORT IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:**

Source test results shall be submitted to the District no later than 30 days after the source test was conducted.

**PERMIT TO CONSTRUCT**

**Equipment Description:**

<b>PROCESS 11: D1 WEST LAB SYSTEM #4 SOLVENT CLEANING</b>					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
BENCH, SOLVENT CLEANING STATION, DEXON, 2 KVA, ELECTRICALLY HEATED, 2 FT 6 IN W. X 6 FT L. X 3 FT H.  Reference A/N 445594-474053	D157	C460			B59.16, E54.1, K48.5

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BENCH, SOLVENT CLEANING STATION NO. I, ONE SINK, 3FT W. X 4FT L. X 6FT 8IN H. Reference A/N <del>445591</del> 474053	D357	C364			B59.19 C1.41
BENCH, SOLVENT CLEANING STATION NO. A, THREE SINKS, 3 FT W. X 5 FT L. X 6 FT 8 IN H. Reference A/N <del>445591</del> 474053	D358	C364			B59.47, C1.41
BENCH, SOLVENT CLEANING STATION NO. B, SIX SINKS, 3 FT W. X 4 FT L. X 6 FT 8 IN H. Reference A/N <del>445591</del> 474053	D359	C364			B59.19, C1.41
<del>BENCH, SOLVENT CLEANING STATION, 3 FT W. X 6 FT L. X 6 FT 8 IN H. Reference A/N <del>445591</del></del>	<del>D360</del>	<del>C364</del>			<del>B59.47, C1.41</del>
BENCH, SOLVENT CLEANING STATION NO. D, THREE SINKS, 3 FT W. X 6 FT L. X 6 FT 8 IN H. Reference A/N <del>445591</del> 474053	D361	C364			B59.47, C1.41
BENCH, SOLVENT STRIP/LIFTOFF, WAFER PROCESS SYSTEMS, 2-KVA, ELECTRICALLY HEATED Reference A/N 455303 474053	D482	<del>C305</del> C364	<b>ADD</b>		<del>B59.61, C1.54</del> B59.47, C1.41

**Conditions:**

B59.16 THE OPERATOR SHALL NOT USE THE FOLLOWING MATERIAL(S) IN THIS DEVICE:

MATERIALS CONTAINING ANY CARCINOGENIC AIR CONTAMINANTS (TACS) IDENTIFIED IN RULE 1401, TABLE 1 WITH AN EFFECTIVE DATE OF DECEMBER 7, 1990 OR EARLIER

B59.19 THE OPERATOR SHALL NOT USE THE FOLLOWING MATERIAL(S) IN THIS DEVICE:

TOXIC AIR CONTAMINANTS IN TABLE 1 OF RULE 1401 WITH A LISTING DATE OF 8/13/99 OR EARLIER EXCEPT ISOPROPYL ALCOHOL, PHENOL, METHANOL AND NAPHTHALENE.

B59.47 THE OPERATOR SHALL NOT USE THE FOLLOWING MATERIAL(S) IN THIS DEVICE:

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TOXIC AIR CONTAMINANTS IN TABLE 1 OF RULE 1401 WITH A LISTING DATE OF 5/02/03 OR EARLIER EXCEPT ISOPROPYL ALCOHOL, PHENOL, METHANOL AND NAPHTHALENE.

C1.41 THE OPERATOR SHALL LIMIT THE MATERIAL PROCESSED TO NO MORE THAN 1836 GALLON(S) PER MONTH.

FOR THE PURPOSE OF THIS CONDITION, MATERIAL PROCESS SHALL BE DEFINED AS MATERIALS CONTAINING VOC.

THIS LIMIT SHALL BE BASED ON THE TOTAL COMBINED LIMIT FOR EQUIPMENT D357, D358, D359, D361 & D482

E54.1 THE OPERATOR IS NOT REQUIRED TO VENT THIS EQUIPMENT TO THE FOLLOWING EQUIPMENT IF ANY OF THE REQUIREMENTS LISTED BELOW ARE MET:

Device ID: C460 [OXIDIZER, RTO, 1.5 MMBTU/HR]

Requirement number 1: On days where the total VOC emissions from semiconductor manufacturing and related operations subject to District Rule 1164 at this facility are less than 5 pounds.

K48.5 THE OPERATOR SHALL MAINTAIN RECORDS IN A MANNER APPROVED BY THE DISTRICT, TO DEMONSTRATE COMPLIANCE WITH THE FOLLOWING CONDITION NUMBER(S):

Condition Number E54.1

**Background:**

Northrop filed application no. 474064 to modify an existing afterburner, C364 (Prev a/n 455306) to vent an additional solvent bench. Application 474053 was submitted to move solvent bench, D482 (prev. a/n 455303) from Process 10, system 4 to Process 11, system 4. This device was originally suppose to move to Process 13, system 4 but has been slated to be moved instead to process 11, system 4. A/N 455303 will be cancelled.

This is a RECLAIM Cycle 1 title V facility. The proposed project is considered as a "deminimus" significant permit revision to this facilities title V permit.

The facility has had no citizen complaints filed or Notices to Comply issued in the last two years. However, the facility was issued a Notice of Violation on 11/8/2006 for

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failure to submit 3<sup>rd</sup> quarter, cycle 1 RECLAIM emission report in a timely manner. The facility is currently operating in compliance with all applicable rules and regulations.

**Thermal Oxidizer Capacity Evaluation:**

C364 has an exhaust capacity of 5,000cfm. The existing equipment has an exhaust flow of 4,050cfm. To accommodate adding D482 which has a ventilation requirement of 1,800 cfm, D360 will be removed. D360's ventilation rate is 900cfm so the increased load to the exhaust will be 900 cfm. The total cfm required to exhaust all equipment ventilated by this afterburner is 4,950 cfm. This afterburner is operating maximum ventilation capacity.

**Emissions Calculations:**

The equipment D357, D358, D360 & D361 are subject to a usage cap of 1,836 gallons per month. With the replacement of D360 by D482, there will be no change in the emissions. The emissions will be taken from the previous application 445591.

ROG(Hourly)

$$R1 = 0.203 \text{ lb/hr}$$

$$= 4.87 \text{ lb/day}$$

$$R2 = 0.0203 \text{ lb/hr}$$

$$= 0.49 \text{ lb/day}$$

**Risk Assessment:**

The replacement of D360 by D482 will not result in an emission increase. D482 had its own usage cap of 16 gallons per month that will not be carried over which would result in a facility wide net emission decrease. D482 will be subject to the existing usage cap of 1836 gallons per month with no change in the operation or additional toxics emitted. This modification will not cause an increase in Risk and is exempt from the requirements of subdivision (d) under 1401(g)(1)(B). Compliance with this rule is expected.

**RULE EVALUATION**

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).

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The proposed project will not result in an emission increase from the facility. A Rule 212(c) (2) notice will not be triggered since the emission increase is below the daily maximum specified in 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.

The proposed project will not result in an emission increase of toxic emissions associated with the operation. Therefore 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 project will not result in an emission increase from the equipment 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	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 the proper maintenance and operation of this equipment, compliance with this rule is expected.

Rule 402: With proper maintenance and operation, this equipment is not expected to create a nuisance.

Rule 1303(a): The emissions from this solvent bench are vented to an oxidizer which is BACT for this type of operation. Compliance with BACT is achieved.

Rules 1303(b)(1) modeling:

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Modeling is not required for VOC. Compliance is expected.

Rule 1303(b)(2) Offsets:

No offsets are required for this operation. There is no emission increase.

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

Rule 1401: The replacement of D360 by D482 and not carrying over D482's usage will result a facility wide emission decrease and is exempt from the requirements of subdivision (d) under 1401(g)(1)(b). Compliance with this rule is expected.

RULE 2005: Northrop Grumman is a NOx RECLAIM facility. The proposed project will not result in an increase in NOx emissions. Compliance with rule 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 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
PM <sub>10</sub>	30
SOx*	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 5th permit revision to the Title V renewal permit issued to this

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facility on July 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 <sub>x</sub> *	PM <sub>10</sub>	SO <sub>x</sub>	CO
Previous Permit Revision Total Cumulative to date. Title V permit renewed July 9, 2006	0	0	1	5	0	1
5th Permit Revision: Replacement of D360 by D482, venting D482 to C364, a/n 474053 & 474064	0	0	0	0	0	0
Replacement of D38 by D546 and venting D546 to C4, a/n 474041 & 474044	0	0	0	0	0	0
Cumulative Total	0	0	1*	5	0	1
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 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:**

This equipment will operate in compliance with all District Rule and Regulations. A Permit to Construct is recommended for application number 474053 and 474064 subject to preceding conditions.