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

FACILITY PERMIT ID# 800408

CONTACT PERSON: Ron Frazer

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

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

TITLE V PERMIT REVISION
Application No. XXXXXX

PERMIT TO OPERATE
Modification

Equipment Description:(Previous A/N 412465)

PROCESS 7: STORAGE TANKS					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
STORGAE TANK, TANK NO. P-165, WASTE SOLVENT (IPA, METHANOL AND ACETONE), 2000 GALS, WITH A PRESSURE RELIEF VALVE, 2.0 PSI Reference A/N 475713	D150	~~C332~~			C1.28, ~~E71.2~~

Conditions:

C1.~~28~~ 54 The operator shall limit the material processed to no more than ~~132,000~~ 12,000 gallon(s) per year.

For the purpose of this condition, material processed shall be defined as waste solvent transferred into this tank.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition.

~~E71.2 The operator shall only operate this equipment if the sink drain vents are exhausted to air pollution control.~~

PERMIT TO OPERATE
(ADMIN CHANGE Delete all connected devices)

Equipment Description: (Previous Application 445593)

PROCESS 1: CONTROL EQUIPMENT

Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
OXIDIZER, HOT BED, NATURAL GAS, 1.5 MMBTU/HR Reference A/N 476326	C-332	~~D315, D319, D320, D327, D328, D329, D330, D464, D482, D483, D484, D485, D486, D487~~	NOx: PROCESS UNIT	CO: 2000 PPMV (5); NOX: 130 LBS/MMSCF NATURAL GAS (1); PM: (9); pm: 0.1 GRAINS/SCF	D29.2, E193.1, K40.1

Equipment Description:(Previous A/N 433683)

PROCESS 13: 3D LAB
SYSTEM #1: Photolithographic Process

Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
~~BENCH, PHOTORESIST COATER, NO.1, AIO, WITH TWO WAFER CONVEYORS, TWO SPINNERS, AND FOUR HOT PLATES~~ ~~Reference A/N 476325~~	~~D315~~	~~C332~~		**DELETE**	~~B59.46, C1.40~~
~~BENCH, PHOTORESIST COATER, HEADWAY RESEARCH, MODEL NO. 1-EC1CI-R485. ONE SPINNER, WITH SEVEN BAKE TRACKS, ELECTRICALLY HEATED, 3 KVA~~ ~~Reference A/N 476325~~	~~D464~~	~~C332~~		**DELETE**	~~B59.46, C1.40~~
~~MANUAL PHOTORESIST COATER, WITH ONE SPINNER~~ ~~Reference A/N 476325~~	~~D484~~	~~C332~~		**DELETE**	~~B59.46, C1.40~~
~~BENCH, PHOTORESIST COATER, No.2, AIO, WITH TWO WAFER CONVEYORS, TWO SPINNERS, AND FOUR HOT PLATES~~ ~~Reference A/N 476325~~	~~D487~~	~~C332~~		**DELETE**	~~B59.46, C1.40~~

~~BENCH, DEVELOPER, TRACK, C&D~~ ~~Reference A/N 455551~~	~~D537~~	~~C529~~		**DELETE**	~~B59.4, B59.45~~
~~OVEN, NO.1, PHOTORESIST BAKE, LABLINE, MODEL NO. 349CM, 2-KW, ELECTRICALLY HEATED.~~ ~~Reference A/N 476325~~	~~D327~~	~~C332~~		**DELETE**	~~B59.42, C1.40~~
~~OVEN, NO.2, PHOTORESIST BAKE, LABLINE, MODEL NO. 3490M, 2-KW, ELECTRICALLY HEATED.~~ ~~Reference A/N 476325~~	~~D328~~	~~C332~~		**DELETE**	~~B59.42, C1.40~~
~~OVEN, NO.3, PHOTORESIST BAKE, LABLINE, MODEL NO. 349CM, 2-KW, ELECTRICALLY HEATED.~~ ~~Reference A/N 476325~~	~~D329~~	~~C332~~		**DELETE**	~~B59.42, C1.40~~
~~OVEN, NO.4, PHOTORESIST BAKE, LABLINE, MODEL NO. 349CM, 2-KW, ELECTRICALLY HEATED.~~ ~~Reference A/N 476325~~	~~D330~~	~~C332~~		**DELETE**	~~B59.42, C1.40~~
~~OVEN, YES,~~ ~~Reference A/N 476325~~	~~D485~~	~~C332~~		**DELETE**	~~B59.42, C1.40~~
~~OVEN, WATLOW~~ ~~Reference A/N 476325~~	~~D486~~	~~C332~~		**DELETE**	~~B59.42, C1.40~~

Equipment Description:(Previous A/N 432969)

PROCESS 13: 3D LAB
SYSTEM #4: Solvent Cleaning

Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
~~BENCH, SOLVENT, WAFER PROCESS SYSTEMS, 2-KVA ELECTRICALLY HEATED~~ ~~Reference NN 476319~~	~~D318~~			**DELETE**	~~B59.4, B59.30~~
~~BENCH, SOLVENT, STRIP LIFTOFF STATION, WAFER PROCESS SYSTEMS, 2-KVA ELECTRICALLY HEATED~~ ~~Reference NN 476319~~	~~D319~~	~~C332~~		**DELETE**	~~B59.51, C1.43~~
~~BENCH, SOLVENT, STRIP LIFTOFF STATION, WAFER PROCESS SYSTEMS, 2-KVA ELECTRICALLY HEATED~~	~~D320~~	~~C332~~		**DELETE**	~~B59.51, C1.43~~

~~Reference NN 476319~~					
~~BENCH, SOLVENT WET, WAFER PROCESS SYSTEMS,~~ ~~Reference NW 476319~~	~~D483~~	~~C332~~		**DELETE**	~~B59.30, C1.43~~

Background:
Northrop filed application 475713(D150) as a change of condition to change the throughput into the waste storage tank from 132,000 gallons per year to 12,000 gallons and to modify the exhaust to disconnect it from the afterburner C332. Northrop is requesting these changes because they have shut down the 3D Lab. With this shut down, the waste solvent tank will see a significant reduction in throughput. They have requested to change the allowable usage from 132,000 gallons per year to 12,000 gallons per year. They also have requested that the control requirement of condition E71.2 be removed. The disconnection from the air pollution control device will actually cause a small emission increase which is further elaborated upon in the calculation section.

Northorp subsequently submitted applications 476319, 476325 & 476326 as administrative changes to delete all devices connected to control device C332 and inactivate all devices in Process 13, system 1 & system 4.

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

Administrative Changes

Application Number	Process System	Device #	Previous Application	Change
476319	13/4	D318,D319D 320,D483	432969	Removed from C332 and inactivate devices
476325	13/1	D315, D464, D484, D487, D487, D537, D327, D328, D329, D330, D485, D486	433683	Removed from C332 and inactivate devices
476326	1	C332	445593	Delete all connected devices

Emissions Calculations:

Liquid waste drained to Tank D150 includes methanol, isopropyl alcohol, acetone, and rinse water. USEPA Tanks 4.09 was used to calculate the emissions and it was assumed that all the waste solvent drained to the tank to be methanol. The attached "Tank 4.09" emission spreadsheet shows the following:

	Throughput	Working loss	Breathing loss	total loss	Controlled emissions
Current Emissions	132,000	126.51	76.18	202.69	20.27
Proposed	12,000	18.51	76.18	94.7	94.7

The previous emissions from the controlled tank were approximately 20.27 lbs/yr. With the removal of the control and the reduced throughput, the emissions actually increased to 94.7 lbs/yr

Average daily:
Net increase (94.7 - 20.27)/(365days/yr) = 0.204 lbs/day

Hourly:
0.204 lbs/day/(24hrs/day) = 0.0085 lbs/hr

Refer to the "Tank 4.09" spread sheets submitted by the applicant in the appendix.

Risk Assessment:
The emissions used in the screen module are the maximum methanol emissions calculated in "tank 4.0". The IPA emissions are the same for methanol;
94.7 - 20.27 = 74.43 lbs/yr Methanol, 0.0085 lbs/hr
IPA 0.0085 lbs/hr

This emission increase will pass the Tier 1 Screening with the following Tier 1 results:

Cancer/Chronic	Acute
ASI	ASI
8.82E-04	5.92E-03
Passed	Passed

Evaluation & Rule Review
Specific compliance with the following rules is expected.

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 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 in excess of a Acute Hazard index of 1.0 nor will there be an increase MICR in excess of one in a million. 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 emission increase due to the operation of this equipment is negligible and the following summarizes the emission increase:

	Maximum Daily Emissions					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb
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

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 463: Since the tank capacity is less than 19,815 gallons, this rule is not applicable to this equipment.

Rule 1178: Since the tank capacity is less than 19,815 gallons, this rule is not applicable to this equipment.

REG XIII: New Source Review.

Rule 1303(a):The disconnection of the vent from the tank to the thermal oxidizer and the reduction in the tank throughput limit will result in a negligible increase in VOC emissions (0.2 pound per day). As a result, the BACT requirements are not triggered.

Rules 1303(b)(1) modeling:
Currently there are no modeling requirements for VOC emissions.

Rule 1303(b)(2) Offsets:
No offsets are required for this modification. The VOC emission increase is negligible.

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 change in the equipment operation will cause an emission increase in toxic emissions but will not exceed the Tier 1 screening emission levels. Compliance with this rule is expected.

Reg XX: Northrop Grumman is a NOx RECLAIM facility. The proposed project will not result in an increase in NOx emissions. Compliance with this 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_{10}	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 7th permit revision to the Title V renewal permit issued to this 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	NOx*	PM10	SOx	CO
Previous Permit Revision Total Cummulative to date. Title V permit renewed July 9,	0	0	1	5	0	1

2006						
7th Permit Revision: Application nos. 475713 Change of condition to reduce the waste solvent throughput and disconnect control device C332. Admin changes application nos. 476319, 476325 & 476326. Removal of all equipment under Process 13 systems 1 and 4 and the disconnection of all devices connected to C332	0 0	0 0	0 0	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.

TIER 1 SCREENING RISK ASSESSMENT

Receptor Distance (actual)	25
Receptor Distance (for X/Q lookup)	25

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
8.82E-04	5.92E-03
PASSED	PASSED

APPLICATION SCREENING INDEX CALCULATION

Compound	Average Annual Emission Rate (lbs/yr)	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index (PSI)	Acute Pollutant Screening Index (PSI)
Methanol (methyl alcohol)	7.43E+01	8.50E-03	1.32E+05	1.40E+01	5.61E-04	6.07E-04
Isopropyl alcohol	7.43E+01	8.50E-03	2.31E+05	1.60E+00	3.21E-04	5.31E-03
TOTAL (APPLICATION SCREENING INDEX)					**8.82E-04**	**5.92E-03**

TIER 2 SCREENING RISK ASSESSMENT

Application deemed complete date:	12/27/07
A/N:	475713
Fac:	135555

Stack Data

		Units
Hour/Day	24	hr/day
Day/Week	7	day/wk
Week/Year	52	wk/yr
Emission Units	lb/hr	
		0
Control Efficiency	0.00	fraction range 0-1
Does source have TBACT?	NO	
Point or Volume Source ?	P	P or V
Stack Height or Building Height	30	feet
Area (For Volume Source Only)	12	ft^2
Distance-Residential	25	meters
Distance-Commercial	25	meters
Meteorological Station	King Harbor	

Source Type:	O - Other
Screening Mode	NO

Emission Units	lb/hr	
Source output capacity	n/a	n/a

FOR USER-DEFINED CHEMICALS AND EMISSIONS, FILL IN THE TABLE BELOW

USER DEFINED CHEMICALS AND EMISSIONS				R1 - Uncontrolled	Efficiency Factor	R2 - Controlled
Code	Compound	lb/hr	Molecular Weight	lbs/hr	Fraction range 0-1	lbs/hr
m6	Methanol (methyl alcohol)	8.50E-03	32.04	0.0085		0.0085
i2	Isopropyl alcohol	8.50E-03	60.09	0.0085		0.0085
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TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	D150
City:	Los Angeles C.O.
State:	California
Company:	NGST
Type of Tank:	Horizontal Tank
Description:	R6

Tank Dimensions

Shell Length (ft):	9.30
Diameter (ft):	6.00
Volume (gallons):	2,000.00
Turnovers:	66.00
Net Throughput (gal/yr):	132,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Los Angeles AP, California (Avg Atmospheric Pressure = 14.67 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyl alcohol	All	71.00	62.31	79.70	65.19	2.0223	1.5502	2.6119	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	126.51	76.18	202.69

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	D150
City:	Los Angeles C.O.
State:	California
Company:	NGST
Type of Tank:	Horizontal Tank
Description:	R6

Tank Dimensions

Shell Length (ft):	9.30
Diameter (ft):	6.00
Volume (gallons):	2,000.00
Turnovers:	6.00
Net Throughput (gal/yr):	12,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Los Angeles AP, California (Avg Atmospheric Pressure = 14.67 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyl alcohol	All	71.00	62.31	79.70	65.19	2.0223	1.5502	2.6119	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	18.51	76.18	94.70