APPLICANT:	3M COMPANY
APPLICANT ADDRESS:	1601 S. Shamrock Ave, Monrovia CA 91016
FACILITY ID:	35188
EQUIPMENT LOCATION:	1601 S. Shamrock Ave, Monrovia CA 91016

Modification
PERMIT TO CONSTRUCT

Title V Permit Revision:
Application No. 559399

Application Number 559400

EQUIPMENT DESCRIPTION:

MODIFICATION TO THE NORTH COATING AND CURING SYSTEM, (PREVIOUS A/N 555545) CONSISTING OF:

1. COATING STATION NO. 1, WITH FOUR DIP TANKS, 25 GALLON CAPACITY EACH, A FEEDER, AND UNWIND.

2. OVEN NO. 1, 19'-0" L. X 5'-6" W. X 30'-0" H., NATURAL GAS FIRED, WITH A 2,500,000 BTU/HR, MAXON, OVENPAK-LE 25, LOW-NOX BURNER AND A 1,350,000 BTU/HR, MAXON, OVENPAK-LE 13, LOW-NOX BURNER

BY THE REMOVAL OF:

1. THE NATURAL GAS FIRED 2,500,000 BTU/HR, MAXON, OVENPAK-LE 25, LOW-NOX BURNER

AND THE ADDITION OF:

1. ONE NATURAL GAS FIRED 1,600,000 BTU PER HOUR, MAXON, OVENPAK-LE 15, LOW-NOX BURNER.

Application Number 559401

EQUIPMENT DESCRIPTION:

MODIFICATION TO THE SOUTH COATING AND CURING SYSTEM, (PREVIOUS A/N 555546) CONSISTING OF:

1. COATING STATION NO. 2, WITH FOUR DIP TANKS, 25 GALLON CAPACITY EACH, A FEEDER, AND UNWIND.

2. OVEN NO. 2, 19'-0" L. X 5'-6" W. X 30'-0" H., NATURAL GAS FIRED, WITH A 2,500,000 BTU/HR, MAXON, OVENPAK-LE 25, LOW-NOX BURNER AND A 1,350,000 BTU/HR, MAXON, OVENPAK-LE 13, LOW-NOX BURNER

BY THE REMOVAL OF:

1. THE NATURAL GAS FIRED 2,500,000 BTU/HR, MAXON, OVENPAK-LE 25, LOW-NOX BURNER

AND THE ADDITION OF:

1. ONE NATURAL GAS FIRED 1,600,000 BTU PER HOUR, MAXON, OVENPAK-LE 15, LOW-NOX BURNER.

Recommendation:
A PERMIT TO CONSTRUCT IS RECOMMENDED FOR APPLICATION NOS. 559400 & 559401 SUBJECT TO THE FOLLOWING CONDITIONS:

CONDITIONS:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL NOT BE OPERATED UNLESS IT IS VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS BEEN ISSUED A PERMIT BY THE DISTRICT EXCEPT WHEN THE FABRIC BEING DRIED IS COATED WITH WATERBASED COATINGS CONTAINING NO VOLATILE ORGANIC COMPOUNDS.
   [RULE 1303(a)(1)-BACT]

4. THIS OVEN SHALL EMIT NO MORE THAN 30 PPM OF OXIDES OF NITROGEN (NOx) MEASURED BY VOLUME ON A DRY BASIS AT 3% O2.
   [RULE 1147]

5. THIS OVEN SHALL EMIT NO MORE THAN 400 PPM CARBON MONOXIDE (CO) MEASURED BY VOLUME ON A DRY BASIS AT 3% O2.
   [RULE 1303(a)(1)-BACT]

6. MATERIAL SAFETY DATA SHEETS FOR ALL COATINGS AND SOLVENTS USED AT THIS FACILITY SHALL BE KEPT CURRENT AND BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
   [RULE 1303(b)(2)-OFFSET]

7. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT SOURCE TESTS UNDER THE FOLLOWING CONDITIONS:

   A. THE SOURCE TESTS SHALL BE CONDUCTED NO LATER THAN 180 DAYS AFTER THE INITIAL START-UP OF THIS EQUIPMENT UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.

B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO THE DISTRICT NO LATER THAN 60 DAYS AFTER THE INITIAL START-UP OF THIS EQUIPMENT UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT. THE TEST PROTOCOL SHALL BE APPROVED IN WRITING BY THE DISTRICT BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE COMPLETED DISTRICT FORMS ST-1 AND ST-2 SPECIFYING THE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, THE IDENTITY OF THE TESTING LABORATORY, A STATEMENT FROM THE TESTING LABORATORY CERTIFYING IT MEETS THE CRITERIA IN DISTRICT RULE 304(k), AND A DESCRIPTION OF THE SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

C. THE SOURCE TESTS SHALL CONSIST OF, BUT MAY NOT BE LIMITED TO, TESTING OF THE EXHAUST OF THE OVEN FOR:

(1)OXIDES OF NITROGEN IN PPMV AND LBS/HR
(2)CARBON MONOXIDE IN PPMV AND LBS/HR
(3)OXYGEN CONTENT
(4)MOISTURE CONTENT
(5)FLOW RATE
(6)TEMPERATURE
(7) FUEL USAGE

NOX AND CO EMISSIONS DETERMINATION SHALL BE AVERAGED OVER A PERIOD OF AT LEAST 15 AND NO MORE THAN 60 CONSECUTIVE MINUTES, AND AT LEAST 15 MINUTES AFTER UNIT START-UP.

THE TEST SHALL BE CONDUCTED USING DISTRICT APPROVED METHODS AND DISTRICT APPROVED AVERAGING TIME.

THE TEST SHALL BE CONDUCTED AT THE MAXIMUM HEAT INPUT RANGE AT WHICH THE UNIT NORMALLY OPERATES.

IF THE COMBUSTION DEVICE MAY OPERATE WITH VARIABLE HEAT INPUT THAT FALLS BELOW 50% RATED HEAT INPUT CAPACITY DURING NORMAL OPERATION, ADDITIONAL TESTING FOR NOX AND CO SHALL BE CONDUCTED USING A HEAT INPUT OF LESS THAN 35% OF THE RATED HEAT INPUT CAPACITY.
[RULE 1147, RULE 1303(a)(1)-BACT]

8. A WRITTEN NOTICE OF THE SOURCE TESTS SHALL BE SUBMITTED TO THE DISTRICT AT LEAST 14 DAYS PRIOR TO SOURCE TESTING DATE SO THAT AN OBSERVER FROM THE DISTRICT MAY BE PRESENT.
[RULE 1147, RULE 1303(a)(1)-BACT]

9. TWO COMPLETE COPIES OF THE SOURCE TEST REPORTS SHALL BE SUBMITTED TO THE DISTRICT WITHIN 45 DAYS AFTER THE SOURCE TESTING DATE. THE SOURCE TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO ALL TESTING DATA REQUIRED BY THIS PERMIT.
[RULE 1147, RULE 1303(a)(1)-BACT]

10. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD IN THE REQUIRED TEST METHODS FOR CRITERIA POLLUTANTS TO BE MEASURED, AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THE TEST.
[RULE 1147, RULE 1303(a)(1)-BACT]

EMISSIONS AND REQUIREMENTS:

11. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
    VOC: RULE 1128, SEE APPENDIX B FOR EMISSION LIMITS
    VOC: RULE 1171, SEE APPENDIX B FOR EMISSION LIMITS
    VOC: RULE 109
    PM: 0.1 gr/scf, RULE 409
    PM RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
    CO: 2000 PPMV, RULE 407
    CO: 400 PPMV, RULE 1303(a)(1)-BACT
    NOx: 30 PPMV, RULE 1147
    HAPS: 40 CFR63 SUBPART JJJJ, SEE SECTION J FOR REQUIREMENTS

PERMIT TO CONSTRUCT

Application no. 563766

Equipment Description:

(REPLACEMENT OF A/N 555547)
AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. RECUPERATIVE OXIDIZER, CATALYTIC PRODUCTS INTL., MODEL NO. QUADRANT SRS-12,000, 47'-8" W. x 18'-6" D. x 40'-0" H. (OVERALL DIMENSIONS), WITH ONE SHELL-AND-TUBE TYPE HEAT EXCHANGER, A 9,800,000 B.T.U. PER HOUR, MAXON KINEDIZER LE LOW NOX BURNER, DIRECT NATURAL GAS FIRED.

2. EXHAUST SYSTEM CONSISTING OF ONE 75- H.P. BLOWER, VENTING THE NORTH AND SOUTH COATING LINES.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THE OPERATOR SHALL OPERATE AND MAINTAIN THIS EQUIPMENT ACCORDING TO THE FOLLOWING REQUIREMENTS:

   THE COMBUSTION CHAMBER TEMPERATURE SHALL BE MAINTAINED AT A MINIMUM OF 1,400 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 1,400 DEGREES FAHRENHEIT OCCURS DURING NORMAL OPERATION OF THE EQUIPMENT IT SERVES. 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 1,400 DEGREES FAHRENHEIT, AND KEEP RECORDS OF THE DURATION AND CAUSE (INCLUDING UNKNOWN CAUSE, IF APPLICABLE) OF THE DEVIATION AND THE CORRECTIVE ACTION TAKEN.

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.
[RULE 1303(a)(1)-BACT, 3004(a)(4)-PERIODIC MONITORING, 40CFR PART 64]

4. THE TEMPERATURE INDICATING AND RECORDING SYSTEM SHALL BE IN OPERATION WHENEVER THE OXIDIZER IS IN OPERATION.
[RULE 1303(a)(1)-BACT]

5. THE OXIDIZERS SHALL BE IN OPERATION WHENEVER THE EQUIPMENT IT SERVES IS IN OPERATION.
[RULE 1303(a)(1)-BACT]

6. INTERLOCKING CONTROLS AND TEMPERATURE INDICATOR/RECORDER SHALL ALWAYS BE PROPERLY MAINTAINED.
[RULE 1303(a)(1)-BACT]

7. THIS OXIDIZER SHALL EMIT NO MORE THAN 30 PPM OF OXIDES OF NITROGEN (NOx) MEASURED BY VOLUME ON A DRY BASIS AT 3% O2.
[RULE 1303(a)(1)-BACT]

8. THIS OXIDIZER SHALL EMIT NO MORE THAN 250 PPM CARBON MONOXIDE (CO) MEASURED BY VOLUME ON A DRY BASIS AT 3% O2.
[RULE 1303(a)(1)-BACT]

9. ALL ACCESS DOORS TO THE TOTAL ENCLOSURES SHALL BE KEPT CLOSED DURING NORMAL OPERATIONS.
[RULE 1303(a)(1)-BACT]

10. THIS EQUIPMENT SHALL BE MAINTAINED AND OPERATED AT A MINIMUM DESTRUCTION EFFICIENCY OF 95% AND AN OVERALL VOC CONTROL EFFICIENCY (COLLECTION AND DESTRUCTION) OF 95% WHEN THE BASIC EQUIPMENT IT SERVES IS IN OPERATION.
[RULE 1303(a)(1)-BACT]

11. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT SOURCE TESTS UNDER THE FOLLOWING CONDITIONS:

A. THE SOURCE TESTS SHALL BE CONDUCTED NO LATER THAN 180 DAYS AFTER THE INITIAL START-UP OF THIS EQUIPMENT UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.

B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO THE DISTRICT NO LATER THAN 60 DAYS AFTER THE INITIAL START-UP OF THIS EQUIPMENT UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT. THE TEST PROTOCOL SHALL BE APPROVED IN WRITING BY THE DISTRICT BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE COMPLETED DISTRICT FORMS ST-1 AND ST-2 SPECIFYING THE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, THE IDENTITY OF THE TESTING LABORATORY, A STATEMENT FROM THE TESTING LABORATORY CERTIFYING IT MEETS THE CRITERIA IN DISTRICT RULE 304(k), AND A DESCRIPTION OF THE SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

C. THE SOURCE TESTS SHALL CONSIST OF, BUT MAY NOT BE LIMITED TO, TESTING AT THE INLET AND THE EXHAUST OF THE AFTERBURNER FOR:

(1)VOLATILE ORGANIC COMPOUND (VOC) IN PPMV AND LBS/HR
(2)OXIDES OF NITROGEN (AFTERBURNER EXHAUST) IN PPMV AND LBS/HR
(3)CARBON MONOXIDE (AFTERBURNER EXHAUST) IN PPMV AND LBS/HR
(4)VOC DESTRUCTION EFFICIENCY
(5)VOC COLLECTION EFFICIENCY
(6)USAGE OF ALL VOC-CONTAINING MATERIALS DURING THE TEST (MASS BALANCE)
(7)OXYGEN CONTENT
(8)MOISTURE CONTENT
(9)FLOW RATE
(10)TEMPERATURE
(11) FUEL USAGE

NOX AND CO EMISSIONS DETERMINATION SHALL BE AVERAGED OVER A PERIOD OF AT LEAST 15 AND NO MORE THAN 60 CONSECUTIVE MINUTES, AND AT LEAST 15 MINUTES AFTER UNIT START-UP.

THE TEST SHALL BE CONDUCTED USING DISTRICT APPROVED METHODS AND DISTRICT APPROVED AVERAGING TIME.

THE TEST SHALL BE CONDUCTED AT THE MAXIMUM HEAT INPUT RANGE AT WHICH THE UNIT NORMALLY OPERATES.

IF THE COMBUSTION DEVICE MAY OPERATE WITH VARIABLE HEAT INPUT THAT FALLS BELOW 50% RATED HEAT INPUT CAPACITY DURING NORMAL OPERATION, ADDITIONAL TESTING FOR NOX AND CO SHALL BE CONDUCTED USING A HEAT INPUT OF LESS THAN 35% OF THE RATED HEAT INPUT CAPACITY.
[RULE 1303(a)(1)-BACT]

12. THE SOURCE TEST SHALL BE CONDUCTED DURING NORMAL OPERATION WHILE THE OXIDIZER IS OPERATING AT A TEMPERATURE OF NOT LESS THAN THE MINIMUM OPERATING TEMPERATURE SPECIFIED IN THIS PERMIT. THE OPERATING TEMPERATURE IN THE COMBUSTION CHAMBER SHALL BE RECORDED DURING THE ENTIRE TESTING PERIOD AND INCLUDED IN THE SOURCE TEST REPORT. IF THE OPERATING TEMPERATURE DURING THE SOURCE TEST IS GREATER THAN THE MINIMUM OPERATING TEMPERATURE SPECIFIED IN THIS PERMIT, THE MINIMUM OPERATING TEMPERATURE MAY BE INCREASED AT THE TIME A PERMIT TO OPERATE IS ISSUED TO REFLECT THE OPERATING TEMPERATURE DURING THE SOURCE TEST. IN ADDITION, THE USAGE OF ALL VOC-CONTAINING MATERIALS (COATINGS, INKS, SOLVENTS, ETC.) SHALL BE RECORDED DURING THE TEST.

    A WRITTEN NOTICE OF THE SOURCE TESTS SHALL BE SUBMITTED TO THE DISTRICT AT LEAST 14 DAYS PRIOR TO SOURCE TESTING DATE SO THAT AN OBSERVER FROM THE DISTRICT MAY BE PRESENT.
    [RULE 1303(a)(1)-BACT]

13. TWO COMPLETE COPIES OF THE SOURCE TEST REPORTS SHALL BE SUBMITTED TO THE DISTRICT WITHIN 45 DAYS AFTER THE SOURCE TESTING DATE. THE SOURCE TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO ALL TESTING DATA REQUIRED BY THIS PERMIT.
    [RULE 1303(a)(1)-BACT]

14. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD IN THE REQUIRED TEST METHODS FOR CRITERIA POLLUTANTS TO BE MEASURED, AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THE TEST.
    [RULE 1303(a)(1)-BACT]

PERIODIC MONITORING:

15. THE OPERATOR SHALL CONDUCT SOURCE TEST(S) IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
    A. THE TEST SHALL BE CONDUCTED AT LEAST ONCE EVERY FIVE YEARS.
    B. THE TEST SHALL BE CONDUCTED NO LATER THAN JANUARY 22, 2017 UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.
    C. THE TEST SHALL BE CONDUCTED TO DETERMINE THE VOC EMISSIONS USING AN APPROVED DISTRICT METHOD TO DEMONSTRATE COMPLIANCE WITH ALL APPLICABLE PERMIT CONDITION(S), RULES AND REGULATIONS.
    D. THE SOURCE 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 THIS PERMIT, THE MINIMUM OPERATING TEMPERATURE SPECIFIED IN THIS PERMIT MAY BE INCREASED TO REFLECT THE OPERATING TEMPERATURE DURING THE SOURCE TEST.

E. THE OPERATOR SHALL COMPLY WITH ADMINISTRATIVE CONDITIONS NOs. 8, 9, AND 10 OF SECTION E OF THIS FACILITY PERMIT.

F. THE OPERATOR SHALL SUBMIT TWO COMPLETE COPIES OF THE SOURCE TEST REPORT SPECIFIED IN CONDITION NO. 9 OF SECTION E OF THIS FACILITY PERMIT TO THE DISTRICT ENGINEERING AND COMPLIANCE DIVISION. THE ENGINEERING COPY OF THE REPORT SHALL BE SENT TO: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, COATING, PRINTING AND AEROSPACE OPERATIONS, ATTN: AIR QAULITY AND COMPLIANCE SUPERVISOR, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE COMPLIANCE COPY OF THE REPORT SHALL BE SENT TO: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, P.O. BOX 4941, DIAMOND BAR, CA 91765

[RULE 3004(a)(4)]

EMISSIONS AND REQUIREMENTS:

16. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
PM: 0.1 GR/SCF, RULE 409
CO: 2000 PPM, RULE 407
NOx: 60 PPMV, RULE 1147
HAPS: 40 CFR63 SUBPART JJJJ, SEE SECTION J FOR REQUIREMENTS
NOx: 30 PPMV, RULE 1303(a)(1)-BACT
CO: 250 PPMV, RULE 1303(a)(1)-BACT

BACKGROUND:

3M Company had submitted three applications 555545, 555546 & 555547 on 8/23/2013 to comply with the requirements of Rule 1147. The two coating lines originally were permitted as the North coating system under the previous p/o G23873 and the South coating system under the previous p/o G23874. The oxidizer was permitted under P/O F87682. The ovens are over 50 years old and the recuperative oxidizer was installed in the 80's. 3M decided to reduce the oven burner's heat capacity from 12 million btu per hour total to 3.85 million btu per hour but the oxidizer they increased from 9.7 million btu per hour to a total of 19.6 million btu per hour. Because 3M increased the rating of the oxidizer, BACT was triggered and 3M was required to meet a NOx limit of 30 ppm instead of Rule 1147 60 ppm limit. Permits to Construct were issued for the above modification on October 30, 2013.

The modification of the equipment was completed in November 2013, and source testing was conducted on November 27, 2013. However, they had operation difficulties and were not able to complete the test. Applicant conducted additional tests with the latest being conducted on December 20, 2013. The test results for the afterburner demonstrated compliance with the NOx limits, but did not comply with the CO limit. The testing also indicated that the ovens did not comply with the NOx and CO limits at less than 35% heat input capacity. In order to be able to continue to operate while identifying the reason for the

non-compliance with the emission limits, 3M had a hearing for an Order for Abatement on March 5, 2014, and was required to replace the afterburner, reduce the size of the burners on the ovens, and install heat recovery system from the afterburner to provide heat to the ovens. The Order for Abatement required an application for the replacement of the afterburner and a compliance solution for the ovens to be submitted no later than May 15, 2014.

To comply with the Order for Abatement, 3M submitted A/N 563766 on 5/14/2014 to replace the existing oxidizer rated at 19.6 mmbru/hr with a new one with a single low-NOx burner rated at 9.8 mmbtu/hr, and equipped with a heat exchanger. In addition, to comply with the NOx and CO limits, they proposed to replace the ovens burners with a 1.6 mmbtu/hr and 1.35 mmbtu/hr burner in each oven and install mix boxes to promote complete combustion at the burners. The previous applications submitted for the ovens, a/n 559400 & 559401 will be used to process the modification to the ovens. Apart from the Order for Abatement, there are no Notices of Violation, Notices to Comply or Complaints issued against this facility over the past two years as of June 5, 2014.

EMISSION CALCULATION:

Existing operating Schedule: 24 hour/day, 7 days/week, 52 weeks/year
No change to the Previous VOC Emissions from the ovens:
ROG:

R1 = 5.0 lbs/hr R2 = 0.25 lbs/hr

Combustion Emissions Per oven:(a/n 559400 & 559401)
Operating Schedule:
24 hours/day, 7 days/week, 52 weeks/year
Previous Emissions:(Each Oven a/n 555545 & 555546)
3.85 mmbtu/hr, 3.67x10E-3mmcuft/hr
NOx: 30 ppm – 38.87 lbs/mmcuft
CO: 75 ppm – 59.11 lbs/mmcuft

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	Annual Emissions lbs/yr
ROG	7.0	0.026	0.62	224.22
NOX	38.87	0.143	3.42	1,245.08
SOX	0.83	0.00304	0.073	26.59
CO	59.11	0.217	5.20	1,893.4
PM10	7.6	0.0279	0.669	243.44
GHG				
CO2	3.85mmbtu/hr(116.89lbs/mmbtu) = 450.03 lbs CO2/hr, 10,800.694 lbs CO2/day			
CH4	3.85mmbtu/hr(0.002lbs/mmbtu) = 0.0077 lbs CH4/hr, 0.18 lbs CH4/day			

Modified Emissions: (Each Oven)
2.95 mmbtu/hr, 2.810x10E-3mmcuft/hr
NOx: 30 ppm – 38.87 lbs/mmcuft
CO: 400 ppm – 315.25 lbs/mmcuft

MW_{CO} = 28.0, MW_{NO2} = 46.01

$$\frac{(28.0 \text{ lbs CO})(400 \text{ppmCO})}{(46.01 \text{ lbs } NO_2)(30 \text{ ppm } NO_2)} = \frac{(X \text{ lbs CO/mmcuft})}{(38.87 \text{ lbs } NO_2/\text{mmcuft})}$$

X = 315.25 lbs CO/mmcuft

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	Annual Emissions lbs/yr
ROG	7.0	0.019	0.47	171.08
NOX	38.87	0.109	2.62	954.03
SOX	0.83	0.002	0.056	20.37
CO	315.25	0.886	21.26	7,737.50
PM10	7.6	0.021	0.512	186.53
GHG				
CO2	2.95mmbtu/hr(116.89lbs/mmbtu) = 344.83 lbs CO2/hr,		8,275.81 lbs CO2/day	
CH4	2.95mmbtu/hr(0.002lbs/mmbtu) = 0.0059 lbs CH4/hr,		0.14 lbs CH4/day	

Contaminant	**Previous Daily Emissions (lbs/day)**	**Modified Daily Emissions (lbs/day)**	**Delta emissions (lbs/day)**
ROG	0.62	0.47	-0.15
NOX	3.42	2.62	-0.80
SOX	0.073	0.056	-0.017
CO	5.20	21.26	+16.06
PM10	0.669	0.512	-0.157
GHG Contaminant			
CO2	10,800.694	8,275.8	-2,524.89
CH4	0.18	0.14	-0.04

Combustion Emissions Oxidizer:
Operating Schedule: 24 hours/day, 7 days/week, 52 weeks/year

Previous Emissions:
19.6 mmbtu/hr, 1.867x10E-2mmcuft/hr

NOx: 30 ppm – 38.87 lbs/mmcuft

CO: 100 ppm – 78.7 lbs/mmcuft

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	Annual Emissions lbs/yr
ROG	7.0	0.131	3.14	1,141.5
NOX	38.87	0.726	17.41	6,339.61
SOX	0.83	0.0155	0.372	135.35
CO	78.7	1.47	35.25	12,833.8
PM10	7.6	0.142	3.40	1,239.35

CO2 19.6mmbtu/hr(116.89lbs/mmbtu) = 2,291.10 lbs CO2/hr, 54,985.1lbs CO2/day
CH4 19.6mmbtu/hr(0.002lbs/mmbtu) = 0.0392 lbs CH4/hr, 0.94 lbs CH4/day

Replacement Emissions:
9.8 mmbtu/hr, 9.333x10E-3mmcuft/hr

NOx: 30 ppm – 38.87 lbs/mmcuft
CO: 250 ppm – xx lbs/mmcuft
MW_{CO} = 28.0, MW_{NO2} = 46.01

$$\frac{(28.0 \text{ lbs CO})(250 \text{ ppm CO})}{(46.01 \text{ lbs } NO_2)(30 \text{ ppm } NO_2)} = \frac{(X \text{ lbs CO/mmcuft})}{(38.87 \text{ lbs } NO_2/\text{mmcuft})}$$

$$X = 197.12 \text{ lbs CO/mmcuft}$$

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	Annual Emissions lbs/yr
ROG	7.0	0.065	1.57	570.75
NOX	38.87	0.363	8.71	3,169.30
SOX	0.83	0.008	0.186	67.67
CO	197.12	1.840	44.15	16,072.38
PM10	7.6	0.071	1.70	619.67

CO2 9.8mmbtu/hr(116.89lbs/mmbtu) = 1,145.52 lbs CO2/hr, 27,492.531lbs CO2/day
CH4 9.8mmbtu/hr(0.002lbs/mmbtu) = 0.0196 lbs CH4/hr, 0.47 lbs CH4/day

Contaminant	**Previous Daily Emissions (lbs/day)**	**Modified Daily Emissions (lbs/day)**	**Delta emissions (lbs/day)**
ROG	3.14	1.57	-1.57
NOX	17.41	8.71	-8.70
SOX	0.372	0.186	-0.186
CO	35.25	44.15	+8.90

Contaminant	Previous Daily Emissions (lbs/day)	Modified Daily Emissions (lbs/day)	Delta emissions (lbs/day)
PM10	3.40	1.70	-1.70
GHG Contaminant			
CO2	54,985.1	27,492.53	-27,492.57
CH4	0.94	0.47	-0.47

Total Change in Emissions for the Project:

Contaminant	Delta Emissions North Oven (lbs/day)	Delta Emissions South Oven (lbs/day)	Delta Emissions Afterburner (lbs/day)	Total Delta for all changes (lbs/day)
ROG	-0.15	-0.15	-1.57	-1.87
NOX	-0.80	-0.80	-8.70	-10.30
SOX	-0.017	-0.017	-0.186	-0.22
CO	+16.06	+16.06	+8.90	+41.02
PM10	-0.157	-0.157	-1.70	-2.01
GHG Contaminant				
CO2	-2,524.89	-2,524.89	-27,492.57	-32,542.35
CH4	-0.04	-0.04	-0.47	-0.55

Risk Assessment:

The North and South Coating System's modifications will result in a decreased maximum rating and decreased consumption of natural gas. The original rating of each oven was a combined rating of 3.85 mmbtu/hr. The modified rating will be reduced to a combined rating of 2.95 mmbtu/hr. Since there are no changes to the VOC usage, the proposed project is exempt from Rule 1401 (d) requirements per Rule 1401(g)(1)(B) – Modification with no increase in risk.

The new oxidizer is a functionally Identical replacement but it has a decrease in the maximum heat input from 19.6 mmbtu/hr to 9.8 mmbtu/hr. The new oxidizer is exempt from the requirements of subdivision (g) per 1401(g)(1)(c) – functionally identical equipment. Further, a risk has been conducted and has passed the Tier 2 screening with the following results:

MICR:

Residential	Commercial
3.46E-08	1.56E-08
Passed	Passed

The hazard index remained less than one for all targeted organs.

Afterburner Evaluation:

Inlet CFM = 12,000 ft3/min Inlet Temp. - 70F
Exhaust Temp - 800F
Combustion Temp - 1400F

% Heat Recovery:
Based on design Criteria – 67%
Inlet Air Temp: 1400F(0.67) = 938F
Enthalpy @ 1400F = 26.13 btu/scf
938F = 16.68 btu/scf

Heat required:

$$\frac{12{,}000 ft3}{min}\left(\frac{60 min}{hr}\right)(26.13 - 16.68) = 6{,}804{,}000 \frac{btu}{hr}$$

The heat supplied by the natural gas fired burner will be supplemented by the VOC in the exhaust stream. The burner capacity (9.8 mmbtu/hr) is sufficient to operate on its own. The VOC in the exhaust will provide additional available heat.
Heat input rating @ 9.8mmbtu/hr is sufficient

Retention Time:
Combustion Chamber:
1,219 ft3 volume
Natural gas required:

$$\frac{9{,}800{,}000 btu}{hr}\left(\frac{ft3}{1050 btu}\right) = 9{,}333.3 \frac{ft3}{hr}$$

Combustion Air Required:

$$9{,}333.3 \frac{ft3}{hr}\left(\frac{10.36 ft3 air}{ft3 NG}\right) = 96{,}693.33 \frac{ft3}{hr}$$

Gas Volume:

$$\frac{12{,}000 ft3}{min}\left(\frac{60 min}{hr}\right) + 96{,}693.33 \frac{ft3}{hr} + 9{,}333.3 \frac{ft3}{hr} = 826{,}027 \frac{ft3}{hr}$$

Gas Volume @ 1400F

$$826{,}027 \frac{ft3}{hr}\left(\frac{hr}{60 min}\right)\left(\frac{1860 R}{528 R}\right) = 48{,}497.8 \frac{ft3}{min}$$

$$= 808.3 \frac{ft3}{sec}$$

Residence Time:
combustion chamber volume – 1,219 ft3

$$\frac{1{,}219 ft3}{808.3 ft3/sec} = \mathbf{1.51 sec}$$

This exceeds the minimum recommended residence time of 0.5 seconds for a thermal oxidizer operating at 1400 F.

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 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 not result in a facility wide emission increase in excess of the daily maximums specified in 212(g). A Rule 212(c) (2) notice will not be triggered.

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 or any increase in health risk.

The proposed project will result in an decrease in toxic air contaminants. 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 represent an emission increase that will exceed the Maximum Daily Emissions limit as summarized below:

	Maximum Daily Emissions					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb
Emission increase	-1.87	-10.3	-2.01	-0.22	+41.02	0
MAX Limit (lb/day)	**30**	**40**	**30**	**60**	**220**	**3**
Compliance Status	Yes	Yes	Yes	Yes	Yes	Yes

A public notice is not required since the emission increase does not exceed any of the daily maximums.

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.

Rule 404: Total PM emissions = 0.113 lbs/hr(hr/60min) = 0.001883 lbsPM/min
0.001883 lbs PM/min(7000gr/lb) = 13.183 gr/min
(13.183 gr/min)/(12,000 ft3/min) = 0.0011 grain/ft3

Ft3/min	grain/ft3	grain load
12,000	0.0739	0.0011 Pass

Rule 1128: There will be no change in operations because of the ovens burner and oxidizer replacement at this facility. Compliance with this rule is expected.

Rule 1147: The proposed installations of the new burners in the ovens are being performed to comply with the requirements of this Rule. The burners are Maxon Low NOx burners which will be capable of meeting the requirements of this rule. Compliance with this rule is expected.

Rule 1171: There will be no change in operations because of the ovens burner replacement at this facility. Compliance with this rule is expected.

REG XIII: New Source Review.

1303(b) States that a new permit unit must meet each of the following requirements if there is an emission increase:

1) BACT

The oven burners are being installed to comply with Rule 1147 which have a similar requirement as BACT of 30 ppm NOx. There will be no change in the VOC emissions which will be vented to an oxidizer. The oxidizer is expected to meet a 95% destruction with at least a 100% collection. This will comply with the BACT requirements for VOC.

2) Modeling:

The NOx CO and PM are as follows:

Mmbtu/hr	Table A-1	NOx	CO	PM10
>2 <5		0.31	17.1	1.9
Oven 2.95		0.11	0.89	0.02
		Pass	Pass	Pass
>5 - <10		0.47	25.9	2.8
Oxidizer 9.8		0.36	1.84	0.07
		Pass	Pass	Pass

Modeling is not required for VOC. Compliance is expected.

3) Emission Offsets:

The proposed project will result in an overall reduction in emissions except for CO. However, since CO is an attainment air contaminant, no offsets are required.

4) Facility Compliance:

This facility is expected to comply with all District Rule and Regulations.

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 result of the project modification will be a total decrease in heat input and a decrease in risk Because of the decrease in consumption of natural gas. Since there are no changes to the VOC usage, the proposed project is exempt from Rule 1401 (d) requirements per Rule 1401(g)(1)(B) and (C).

REGULATION XXX:

This facility is not 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) to the 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

To determine if a project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 2nd permit revision to the Title V renewal permit issued to this facility on June 17, 2013. 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 June 17, 2013	0	-1	-76	-1	0	19
2nd permit revision; A/N 559400, 559401 Replace the existing burners in the North & South Coating Lines with Low NOx burners. A/N 563766 Replace the existing Recuperative oxidizer with a new one.	0	-2.0	-10.0	-2.0	-0.22	+41.0
Cumulative Total	0	0	0*	0	0	60
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, 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 ovens and oxidizer will operate in compliance with all District Rule and Regulations. A Permit to Construct is recommended for application numbers 559400, 559401 and 563766 subject to preceding conditions.