

New Mexico Environment Department
Air Quality Bureau
Analysis of Application File No. 0325-M11
Significant Permit Revision to Air Quality Permit No. 0325-M10-R1
Intel Corp.
Rio Rancho Facility

March 28, 2011

This analysis has been made available for public review in accordance with 20.2.72.206.B.(2) NMAC. Members of the public may submit written comment related to this analysis within 30 days to:

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Statement of Basis - Narrative
NSR Permits

Company: Intel Corporation
Facility: Rio Rancho Facility
Permit No(s): 0325-M11
Tempo/IDEA ID No.: 1103 - PRN20110002
Permit Writer: Coleman Smith

Fee Tracking

Tracking	NSR tracking entries completed: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	NSR tracking page attached to front cover of permit folder: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Paid Invoice Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Balance Due Invoice Attached: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Invoice Comments: Filing fee \$500 paid 2/3/11. Balance due \$10,420.

Permit Review	Date to Enforcement: TBD	Inspector Reviewing: Robert Samaneigo
	Date Enf. Review Completed: N/A	Date of Reply: TBD
	Date to Applicant: TBD	Date of Reply: TBD
	Date of Comments from EPA: NR	Date to EPA: NR
	Date to Supervisor: 3/28/11 version for Department Analysis.	

1.0 **Plant Process Description:**

The function of the facility is to use silicon wafers to manufacture semi-conductor chips for use in the computer industry. The facility consists of buildings in which chips are manufactured (fabrication facilities, or fabs), buildings containing the facility's natural gas fired boilers, control equipment, laboratories, and offices. The facility control equipment includes regenerative thermal oxidizers (RTOs) for control of VOC and VHAP solvent exhaust; acid gas and ammonia scrubbers for control of HCl and HF HAP and NH₃ TAP emissions; cooling tower/scrubber drift eliminators, limitation of total dissolved solids (TDS), and limitation of cooling tower/scrubber water recirculation rate for control of particulate emissions; ammonia treatment systems (ATS); and a bulk specialty solvent waste (BSSW) treatment system. The ATS and BSSW use catalytic oxidation to accomplish destruction of HAP and TAP compounds. Both system types combust natural gas during the oxidation process.

Prior to this modification, the facility was permitted to operate the following emissions sources and/or stacks: twenty-three (23) cooling towers, twelve (12) 54 MMBtu/hr boilers; forty-three (43) acid gas/ammonia scrubbers, one (1) ammonia treatment system, and twenty (20) emergency diesel gensets. As of December 2009, the facility had 18 operational acid gas scrubbers and 7 operational ammonia scrubbers. The only federal regulation that was previously recognized as applicable to this facility was NSPS Subpart Dc, for industrial boilers ≥ 10 MMBtu/hr but ≤ 100 MMBtu/hr.

2.0 **Description of this Modification:**

0325M11 – This Significant Revision adds the following new equipment to the facility:

- Seven (7) RTOs;
- Ten (10) cooling towers;
- One (1) 52.5 MMBtu/hr boiler;
- Three (3) ammonia treatment systems; and
- One (1) bulk specialty solvent waste treatment system.

In addition to new equipment, the facility is adding to the permit the following existing equipment/emissions to the permit:

- TSP, PM10, and PM2.5 emissions from 23 existing cooling towers;
- TSP, PM10, and PM2.5 emissions from 43 existing scrubbers;
- New Plant Site Emission Limits (PSELs) of 95/95/95/95 tpy for TSP/PM10/PM2.5/SO₂;
- Identification of 20 diesel gensets as exempt equipment per 20.2.72.202.B(3) NMAC. Note that federal regulations apply for exempt equipment; NSPS Subpart III applies to gensets manufactured in 2006 and later, and MACT Subpart ZZZZ will become applicable to all other diesel gensets by 2013.

The new PSELs apply to both the existing sources and new sources added as part of this permitting action. The current PSELs remain unchanged and are: 95.7 tpy NO_x, 94.7 tpy CO, 96.5 tpy VOC, 9.0 tpy for Individual HAPs (some lower limits for certain HAPs, see permit Table 2), and 24.0 tpy for Total HAPs.

The particulate matter PSELs include the existing PSEL (TSP/PM10) of 14.2 tpy for the RTOs (combustion PM and amorphous and/or crystalline silica (SiO₂) from the oxidation of hexamethyldisilazane, HMDS).

The PSEL for SO₂ includes all combustion sources: boilers (natural gas and fuel oil), RTOs, ammonia treatment system catalytic oxidizers, bulk specialty solvent system catalytic oxidizer, testing of the boilers using fuel oil, and testing of the exempt emergency generators.

3.0 **Source Determination:**

1. The emission sources evaluated include: Intel – Rio Rancho Facility.

2. Single Source Analysis:

- A. SIC Code: Do the facilities belong to the same industrial grouping (i.e., same two-digit SIC code grouping, or support activity)? Yes (no details)
- B. Common Ownership or Control: Are the facilities under common ownership or control? Yes (no details)
- C. Contiguous or Adjacent: Are the facilities located on one or more contiguous or adjacent properties? Yes (no details)

3. Is the source, as described in the application, the entire source for 20.2.70, 20.2.72, or 20.2.74 NMAC applicability purposes? Yes (no details)

4.0 **PSD Applicability:**

- A. The source, as determined in 3.0 above, is a minor source before and after this modification.
- B. The project emissions for this modification are not significant.
- C. Netting is not required (project is not significant).
- D. BACT is not required for this modification (minor Mod).

5.0 **History (In descending chronological order, showing NSR and TV):** *The asterisk denotes the current active NSR and Title V permits that have not been superseded.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
325-M11	TBD	Significant Permit Revision	Addition of seven (7) RTOs, ten (10) cooling towers, one (1) boiler, three (3) ammonia treatment systems, and one (1) bulk specialty solvent waste treatment system. Inclusion into the permit particulate emissions from a total of 33 cooling towers and 43 scrubbers. New PSELs for TSP, PM10, PM2.5, and SO2.
325-M10-R1*	2-24-11	Technical Permit Revision	Reduction of TSP/PM10 emission limits for RTOs; relocation of three (3) RTOs, fifteen (15) scrubbers, five (5) cooling towers, and four (4) boilers to the new Fab 11Xe area. Removal of all references to Bead Activated Carbon (BAC) systems.
325-M10	12-17-10	Significant Permit Revision	Addition of five (5) Munters RTOs, increasing stack heights on all 10 RTOs from 30 to 40 m.
325-M9-R24	5-14-10	Technical Permit Revision	<p>HAP & VOC emission factors - Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions.</p> <p>Changes were made to existing HAPs and VOCs emission factors and also HAPs and VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added. Pursuant to Condition 1.G of Intel's Air Quality Permit No. 325-M9, these revisions to Tables Z and 3 are allowed.</p> <p>Revise the thermal oxidizer (RTO) emission factor (EF) that is used to calculate the facility's NOx emissions from the combustion of natural gas.</p> <p>Evaluation of the NOx and CO emission factors for the 1250 HP boilers pursuant to Condition 2.C.ii.f. No changes to emission factors.</p> <p>Provide emission factors for miscellaneous combustion sources.</p> <p>Make minor revisions to the language in the permit for emergency generators, emission calculations, thermal oxidizers, testing, recordkeeping and reporting.</p>

Permit Number	Issue Date	Action Type	Description of Action (Changes)
			<p>Fix two typos: 1. Correct R23 chemical name 1. Correct CO EF for Ammonia Treatment System</p> <p>Change three scrubber source and stack designations.</p> <p>Add three exempt natural gas fired commercial water heaters.</p>
325-M9-R23	1/14/10	Technical Permit Revision	<p>HAP & VOC emission factors - Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added.</p> <p>Permit 0325M9 will be revised to include permit revisions R21-R22.</p>
325-M9-R22	8/13/09	Administrative Revision	<p>Administrative permit revision to rename scrubber and VOC stacks. Old scrubber numbers: SC-12-fb1-7, SC-12-fd1-1, SC-12-fb1-8, New scrubber numbers: RRFB-SC142-1, RRFB-SC142-3, RRFB-SC142-2. Old RTO stack numbers: VOC138-1-121-1s/VOC138-1-121-2s, VOC138-2-121-1s/VOC138-2-121-2s/VOC138-2-121-3s, New RTO numbers: VOC138-1-120-1s/VOC138-1-120-2s, VOC138-2-120-1s/VOC138-2-120-2s. Old RTO numbers: voc south (voc south primary, voc south bypass), New RTO number: VOC138-3-120 (VOC138-3-120-1s/VOC138-3-120-2s) Installation of 2 emergency generators for F11X. Correction in Tables 3 and Z of diethylene glycol monomethyl ether to diethylene glycol monoethyl ether.</p>
325-M9-R21	6/23/09	Administrative Revision	<p>Administrative permit revision to rename scrubber stacks. Old numbers: sc-12-cb1-1/ sc-12-cb1-1s, New numbers: sc-40-np2-3/ sc-40-np2-3s.</p>
325-M9-R20	4/16/09	Technical Permit Revision	<p>RTO Emission Factors-A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas.</p> <p>Natural Gas Fired Boilers emission factors - As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support a change to the emission factor for CO.</p> <p>HAP & VOC emission factors - Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and VOCs emission factors and also VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added.</p> <p>Table 1 will be revised to add the emission factors for the Ammonia Treatment System.</p>

Permit Number	Issue Date	Action Type	Description of Action (Changes)
			<p>Permit language will be changed to modify the submission date listed in Condition 2.C.ii.f for boiler emission factors. The submission date will be changed from February 15 to March 15.</p> <p>Permit 0325M9 will be revised to include permit revisions R1-R20.</p>
325-M9-R19	2/6/09	Technical Permit Revision	Installation and operation of an ammonia treatment system.
325-M9-R18	11/21/08	Administrative Revision	Administrative permit revision to retire the North Energy Center 500 HP boilers (Units ecs-boi-91, ecs-boi-92, ecs-boi-93, ecs-boi-94) and making revisions to pertinent sections of the permit to reflect the removal of the boilers. Condition 2.C.i will be deleted. Conditions 7.B.ii and 7.B.iv will be revised and condition 7.B.iii will be deleted. All references to the North Energy Center 500 HP boilers in Table 1, Attachment A and Table CS will be deleted.
325-M9-R17	9/12/08	Administrative Revision	Administrative permit revision to correct a typographical error that left out the emission factor of 0.0017 for Methanol (gensolve) for process H in Table 3, Emission Factors for HAPs.
325-M9-R16	4/18/08	Technical Permit Revision	<p>RTO Emission Factors-A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas.</p> <p>Natural Gas Fired Boilers emission factors - As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support a change to the emission factor for CO.</p> <p>HAP & VOC emission factors - Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and VOCs emission factors and also VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added.</p> <p>Attachment A <i>Air Emission Sources</i> was modified to incorporate new designations for sources and stacks.</p> <p>Table CS <i>Hourly Emission Limits for Combustion Sources</i> was revised to reflect the new designations for sources and stacks in Attachment A.</p> <p>Permit language was revised to accurately reflect the information that needs to be reported and clarify that the information is not being reported under 20.2.7 NMAC.</p>
325-M9-R15	1/8/08	Technical Permit Revision	Replace all five thermal oxidizer units and relocate the new units to a central location west of the Central Utilities Building. The existing Durr thermal oxidizers will be replaced with similar equipment manufactured by the Munters Corporation-Zeol Division.
325-M9-R14	4/17/07	Technical Permit Revision	<p>A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas.</p> <p>As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support no change to the emission factors. The required boiler test data is from the preceding three (3) calendar</p>

Permit Number	Issue Date	Action Type	Description of Action (Changes)
			<p>years (2004-2006).</p> <p>Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and VOCs emission factors and also VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added. Pursuant to Condition 1.G of Intel's Air Quality Permit No. 325-M9, these revisions to Tables Z and 3 are allowed.</p>
325-M9-R13	4/13/06	Technical Permit Revision	<p>A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas.</p> <p>As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support no change to the emission factors. The required boiler test data is from the preceding three (3) calendar years (2003-2005).</p> <p>Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and RTOs and an additional process (Process F) was added with this revision that uses existing chemicals previously identified in Table 3 of Intel's Air Quality Permit No. 325-M9. In addition, a new HAP (Bromoform) was added to Table 3 of Intel's Air Quality Permit No. 325-M9 this HAP was identified in the the CUB\NEC cooling tower test results and is formed by the use of sodium bromide used as a sterilization chemical for the cooling tower water. The addition of this HAP will trigger Conditions 5.D., 5.E.iii and 5.E.iv. and is subject to the PSEL for HAPs.</p>
325-M9-R12	5/6/05	Technical Permit Revision	<p>Revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas and to identify separate emission factors for the two sizes (4 MMBtu/hr and 2.5 MMBtu/hr) of RTOs at the facility (Table 1).</p> <p>Submitted data to support no change in the emission factors for the twelve (12) 1250 BHP natural gas fired boilers.</p> <p>Revision of the emission factors (EFs) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions (Tables Z and 3). Changed the process used to derive those factors (by process EF's).</p> <p>Changed the thermal oxidizer removal efficiencies for VOC (non-methanol) and Methanol and changed the scrubbers' removal efficiency for HF.</p>
325-M9-R11	4/13/04	Technical Permit Revision	Changed the NOx emission factor for the 1250 BHP Boilers in Table 1 from 0.05 lb/MMbtu to 0.04 lb/MMbtu.
325-M9-R10	4/25/03	Administrative Revision	Corrected two typographical errors related to 1,2-dichloroethylene in Table 3 of the permit.
325-M9-R9	3/12/03	Technical Permit Revision	Changed the NOx and CO emission factors for the 1250 BHP Boilers in Table 1 as follows:

Permit Number	Issue Date	Action Type	Description of Action (Changes)
			CO: From 0.07 lb/MMbtu to 0.01 lb/MMbtu; NOx: From 0.06 lb/MMbtu to 0.05 lb/MMbtu.
325-M9-R8	9/6/02	Technical Permit Revision	The revision updated Table 3 of the permit (Emission Factors for HAPs) and Table Z of the permit (Emission Factors for VOCs). The update consisted of modification of some factors and addition of new factors for some chemicals not previously listed.
325-M9-R7	3/12/02	Technical Permit Revision	The revision changed the CO emission factor for the 1250 BHP Boilers in Table 1 as follows: CO: From 0.10 lb/MMbtu to 0.07 lb/MMbtu.
325-M9-R6	10/11/01	Administrative Permit Revision	The revision consisted of the following: Relocating and installing eight previously approved scrubbers to service the Fab11X area. Relocating and installing two previously approved thermal oxidizers to service the Fab11X area. Increasing the maximum flow of the Fab9 thermal oxidizer from 50,000 cfm to 54,000 cfm. Increasing the stack height of the Fab11N scrubber by seven feet to meet EPA Method 1 sampling requirements.
325-M9-R5	5/16/01	Administrative Permit Revision	The revision consisted of adding 4 additional emergency generators (exempt) to Fab11.
325-M9-R4	3/6/01	Technical Permit Revision	Change the following: Emission factors for the 1250 BHP Boilers in Table 1 were changed: NOx: From 0.0567 lb/MMbtu to 0.06 lb/MMbtu; From 0.0908 lb/MMbtu to 0.10 lb/MMbtu. Condition 1.G of the permit was modified to read, "Intel shall make any increase or decrease in an emission factor listed in Tables 1, 3, Y, or Z of Permit No. 325M9 through the technical permit revision process in 20 NMAC 2.72.219."
325-M9-R2 325-M9-R3	12/14/00	Administrative Permit Revisions	The revisions consisted of re-designating 2 acid gas scrubbers and relocating 2 other acid gas scrubbers.
325-M9-R1	9/25/00	Administrative Permit Revision	The revision consisted of adding 1 additional emergency generator (exempt) to Fab9.
325-M9	3/3/00	NSR Permit	The permit allows for flexibility in the operation of the facility under Plantwide Site Emission Limits (PSELs). Certain conditions of the permit allow or require technical or administrative permit revisions as part of the flexible permit

6.0 **Public Response/Concerns:** As of the date that the Department Analysis was made available, the Department has received three written letters of public comment and eleven e-mailed written letters of comment. All comments expressed opposition to expansion at the Intel facility. All 11 of the e-mailed letters specifically requested a Department hearing prior to permit issuance. The 3 hardcopy letters did not request a public hearing.

7.0 **Compliance Testing:**

Unit No.	Compliance Test	Test Dates
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Munters 1 through Munters 17	EPA Methods Testing applies to any newly installed and all existing RTOs (see permit Specific Condition 8.C.)	Initial Testing: Unit Installation date + 180 days Existing Units: quarterly
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8.0 **Startup and Shutdown:**

- A. If applicable, did the applicant indicate that a startup, shutdown, and emergency operational plan was developed in accordance with 20.2.70.300.D(5)(g) NMAC? NR
- B. If applicable, did the applicant indicate that a malfunction, startup, or shutdown operational plan was developed in accordance with 20.2.72.203.A.5 NMAC? Yes.
- C. Did the applicant indicate that a startup, shutdown, and scheduled maintenance plan was developed and implemented in accordance with 20.2.7.14.A and B NMAC? Yes.
- D. Were emissions from startup, shutdown, and scheduled maintenance operations calculated and included in the emission tables? No. Steady-state + SSM emissions will not exceed the permitted PSELs.

9.0 **Compliance and Enforcement Status [Title V only]:** NR

10.0 **Modeling:** Modeling was submitted and has been reviewed by Eric Peters of the Modeling Section. The Department Modeling Report was issued on 3/24/11. According to the report, “This modeling analysis demonstrates that operation of the facility described in this report neither causes nor contributes to any exceedances of applicable air quality standards. The standards relevant at this facility are NAAQS for CO, NO₂, PM10, PM2.5, and SO₂; NMAAQs for CO, NO₂, SO₂, and TSP; and Class I and Class II PSD increments for NO₂, PM10, and SO₂.” The modeling report also suggests the following permit condition: “No more than 7 boilers may operate using fuel oil during any hour. Boilers may not operate using fuel oil for more than 30 minutes per hour.” This provision is included to ensure compliance with the NAAQS and NMAAQs for SO₂. The closest modeled approach to any standard is 91.3% of the PM2.5 annual NAAQS.

11.0 **State Regulatory Analysis(NMAC/AOCR):**

20 NMAC	Title	Applies (Y/N)	Comments
2.1	General Provisions	Y	Applicable with no permitting requirements.
2.3	Ambient Air Quality Standards	Y	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
2.7	Excess Emissions	Y	Applies to all facilities' sources
2.61	Smoke and Visible Emissions	Y	Stationary Combustion Equipment.

20 NMAC	Title	Applies (Y/N)	Comments
2.70	Operating Permits	N	PTE is not > 100 TPY, Source is not major for NOx, CO, VOCs, SO ₂ , TSP, PM10, PM2.5, Individual HAPs, or Total HAPs as defined at 20.2.70.200 NMAC.
2.71	Operating Permit Fees	N	Source is not subject to 20.2.70 NMAC as cited at 20.2.71.109 NMAC.
2.72	Construction Permits	Y	20.2.72.219.D NMAC
2.73	NOI & Emissions Inventory Requirements	Y	Applicable to all facilities that require a permit.
2.74	Permits-Prevention of Significant Deterioration	N	Source is not one of the 28 listed – PTE < 250 tpy
2.75	Construction Permit Fees	Y	This facility is subject to 20.2.72 NMAC
2.77	New Source Performance	Y	Applies to any stationary source constructing or modifying and which is subject to the requirements of 40 CFR Part 60. 40 CFR 60, Subparts Dc and IIII are applicable for this facility.
2.78	Emissions Standards for HAPs	N	This regulation applies to all sources emitting hazardous air pollutants which are subject to the requirements of 40 CFR Part 61. There are no applicable subparts for operations at Intel-Rio Rancho facility.
2.79	Permits – Nonattainment Areas	N	This facility is not located in a non-attainment area.
2.82	MACT Standards for Source Categories of HAPs	Y	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. All CI-RICE emergency gensets are subject to the RICE MACT as amended effective Oct. 19, 2010. However, there are no operational or emissions limitations required until 5/3/2013. The area source boiler NESHAP, Subpart JJJJJ, will be applicable for this facility on 5/20/11.

12.0 **Federal Regulatory Analysis:**

Air Programs Subchapter C (40 CFR 50)	National Primary and Secondary Ambient Air Quality Standards	Applies (Y/N)	Comments
C	Federal Ambient Air Quality Standards	Y	Independent of permit applicability; applies to all sources of emissions for which there is a Federal Ambient Air Quality Standard.

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
A	General Provisions	Y	Applies due to applicability of Subpart Dc.
40 CFR60.40a, Subpart	Standards of Performance	Y	This regulation applies because the 12-

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
Dc	for Small Industrial-Commercial-Institutional Steam Generating Units		54 MMBtu/hr boilers and the 1 new 52.5 MMBtu/hr boiler, are all between 10 MMBtu/hr and 100 MM Btu/hr as specified at 40 CFR 60.40c(a). Per 40 CFR 60.42c(d), the fuel oil burned in subject units may not contain more than 0.5% sulfur by weight.
40 CFR 60, Subpart III	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Y	Units GEN-95-GF1-05-01 and GEN-95-GF1-09-01 were manufactured in 2009, which is after the applicability date of 4/6/06.

NESHAP Subpart (40 CFR 61)	Title	Applies (Y/N)	Comments
A	General Provisions	N	Applies only if any other subpart applies.

MACT Subpart (40 CFR 63)	Title	Applies (Y/N)	Comments
A	General Provisions	Y	Applies only if any other subpart applies.
ZZZZ	National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE)	Y	All emergency gensets are existing Compression Ignition (CI) -RICE. This Subpart, as amended effective 10/19/2010, is applicable to existing CI-RICE at an area source for HAPs. Per §63.6595(a)(1), there are no operational or emissions limitations requirements until 5/3/2013.
JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	Y	This NESHAP was promulgated on 3/21/11 and will become effective on 5/20/11. At the Intel facility, this Subpart will apply to the 12 – 54 MMBtu/hr boilers as existing sources and the 1 new 52.5 MMBtu/hr boiler as a new source.

Miscellaneous	Title	Applies (Y/N)	Comments
40 CFR 68	Chemical Accident Prevention	N	Not applicable for minor sources that are not subject to Title V.

13.0 **Exempt and/or Insignificant Equipment that do not require monitoring:**

Title V - INSIGNIFICANT ACTIVITIES (Dated March 24, 2005) as defined by 20.2.70.7.P NMAC: NR

NSR Exempt Equipment (not entered into Tempo database):

Unit ID	Description	Manufacturer/ Model	Serial Number	Capacity	Date of Manufacture/ Construction/ Modification/ Reconstruction	Exemption
GEN-95-AJ1-01-01	Emergency Genset	Cummins/ KTA50GSGC2	33112628	1100 kW	6/1/80	20.2.72.202.B(3)
GEN-95-AH1-01-01	Emergency Genset	Cummins/ 1250 DFLC	H950583557	1250 kW	6/1/80	20.2.72.202.B(3)
GEN-95-AH1-02-01	Emergency Genset	Cummins/ NTTA855GS2	30307942	350 kW	6/1/80	20.2.72.202.B(3)
GEN-95-AH1-03-01	Emergency Genset	Cummins/ KTA2300GS	33103711	750 kW	6/1/80	20.2.72.202.B(3)
GEN-95-BW1-02-01	Emergency Genset	Cummins/ KTA50GSGC2	33113747	1100 kW	1985	20.2.72.202.B(3)
GEN-95-BW1-03-01	Emergency Genset	Caterpillar/ 3516	04XF00474	1100 kW	1998	20.2.72.202.B(3)
GEN-95-BW1-01-01	Emergency Genset	Cummins/ KTA50GSGC2	33112628	1100 kW	1985	20.2.72.202.B(3)
GEN-95-HE1-01-01	Emergency Genset	Detroit/ 16V149TA	16E0010589	1400 kW	1985	20.2.72.202.B(3)
GEN-95-HE1-03-01	Emergency Genset	Caterpillar/ 3516	04XF00473	2000 kW	1990	20.2.72.202.B(3)
GEN-95-HE1-02-01	Emergency Genset	Caterpillar/ 3516	04XF00474	2000 kW	1990	20.2.72.202.B(3)
GEN-95-GF1-01-01	Emergency Genset	Caterpillar/ 3516	025Z03766	1700 kW	1993	20.2.72.202.B(3)
GEN-95-GF1-02-01	Emergency Genset	Caterpillar/ 3516	025Z03763	1700 kW	1993	20.2.72.202.B(3)
GEN-95-GF1-03-01	Emergency Genset	Caterpillar/ 3516	025Z03768	1700 kW	1993	20.2.72.202.B(3)

Unit ID	Description	Manufacturer/ Model	Serial Number	Capacity	Date of Manufacture/ Construction/ Modification/ Reconstruction	Exemption
	Genset	3516				
GEN-95-GF1-04-01	Emergency Genset	Caterpillar/ 3516	06HN00105	1900 kW	1993	20.2.72.202.B(3)
GEN-95-GF1-05-01	Emergency Genset	Caterpillar/ C-175	WYB00177	3000 kW	2009	20.2.72.202.B(3)
GEN-95-GF1-06-01	Emergency Genset	Caterpillar/ C-175	WYB00176	3000 kW	2009	20.2.72.202.B(3)
GEN-95-GG1-01-01	Emergency Genset	Caterpillar/ 3516b	07RN01862	2133 kW	2001	20.2.72.202.B(3)
GEN-95-GG1-02-01	Emergency Genset	Caterpillar/ 3516b	07RN01868	2133 kW	2001	20.2.72.202.B(3)
GEN-95-GG1-03-01	Emergency Genset	Caterpillar/ 3516b	07RN01869	2133 kW	2001	20.2.72.202.B(3)
GEN-95-GG1-04-01	Emergency Genset	Caterpillar/ 3516b	07RN01864	2133 kW	2001	20.2.72.202.B(3)

14.0 **New/Modified/Unique Conditions** (Format: Condition#: Explanation):

Changes to the permit as compared with Permit 0325-M10-R1 are yet to be determined, but are expected to include (but not limited to) the following:

- Added monitoring, recordkeeping, and reporting for scrubbers and cooling towers;
- Added periodic testing for scrubber/RTO PM and initial compliance testing for cooling tower and scrubber recirculating water;
- New PSEs for TSP, PM10, PM2.5, and SO₂;
- Modifications to Attachment A and Table CS to add new equipment/stacks and some new hourly emission rates for new and existing equipment that was not previously permitted..

MONITORING SPECIFICATIONS: complex; see draft permit.

15.0 **For Title V action: Cross Reference Table between NSR Permit 0325-M10-R1 and TV Permit:** NR

16.0 **Permit specialist's notes to other NSR or Title V permitting staff concerning changes and updates to permit conditions:** None.

Air Dispersion Modeling Summary for Permit No. 0325M11

Report Date: 3/24/2011

NMED/AQB Modeler: Eric Peters

Project: Intel 0325M11

Company: Intel

Permit number: 0325M11

TEMPO ID: 1103

Location: Rio Rancho, NM in Sandoval County.

Section 31, Township 12 N, Range 3 E

UTM Coordinates: 349,437 m East, 3,898,832 m North, zone 13

Elevation = 5240 feet

Air Quality Control Region (AQCR): 152

Brief: Intel has applied to the New Mexico Air Quality Bureau for a New Source Review air quality permit for the modification of the Intel Rio Rancho facility (the facility). The facility is a microprocessor manufacturer.

Intel is applying to the New Mexico Environment Department for a significant permit revision to its Rio Rancho semiconductor processing facility. Intel would like to reposition its Rio Rancho site to gain flexibility for future growth and maintain redundant emission abatement control. As part of repositioning, Intel will be making several changes at the plant. The proposed modification, to be referred to as Fab 11Xe, consists of the installation of seven (7) thermal oxidizers, ten (10) cooling towers, one (1) boiler, three (3) ammonia treatment systems and one (1) bulk specialty solvent waste treatment system (BSSW).

The following types of emission sources are included in the project: Ammonia Treatment Unit, Boiler, Cooling Tower, Scrubber, F11Xe ATS 1, F11Xe BSSW, and Muntzer unit. The emission units are described in Table 1: Table of Emissions and Stack Parameters, below. For this permit, modeling was required for the following pollutants: Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), Sulfur Dioxide (SO₂), and Total Suspended Particulate Matter (TSP).

Modeling Assumptions:

The facility operates continuously. Boilers operate using fuel oil no more than 30 minutes per hour. Boilers can operate using natural gas continuously.

Permit conditions:

No more than 7 boilers may operate using fuel oil during any hour. Boilers may not operate using fuel oil for more than 30 minutes per hour.

Conclusion: This modeling analysis demonstrates that operation of the facility described in this report neither causes nor contributes to any exceedances of applicable air quality standards. The standards relevant at this facility are NAAQS for CO, NO₂, PM10, PM2.5, and SO₂; NMAAQs for CO, NO₂, SO₂, and TSP; and Class I and Class II PSD increments for NO₂, PM10, and SO₂.

Air Dispersion Modeling Summary for Permit No. 0325M11

Action: The permit can be issued based on this modeling analysis.

Modeling report submitted by Class I Technical Services (dated 2/3/2011)

The air quality analysis demonstrates compliance with applicable regulatory requirements.

Model(s) Used: AERMOD was used to run the modeling analysis.

Note: complete modeling input and output files can be made available and are located on the server *Magneto* in the directory *AQB/ModelingArchives/0325M11_Intel*.

Number of Model Runs: AERMOD - 25 modeling runs were reviewed by NMED.

Modeling Parameters: The AERMOD regulatory default parameters were included in assumptions made by the model.

Building downwash produced by buildings at the facility was considered.

Complex Terrain Data: Both simple and complex types of terrain were used to model the facility. Elevations of receptors, facility sources, and surrounding sources were obtained from digitized USGS 7.5-minute maps and one degree maps.

Receptor Grid: The following grids were used to determine the impact for each pollutant.

Grid Type	Description	Shape	Spacing	Radius or Length
Cartesian	Intermediate	Square	250 meters	4 kilometers
Cartesian	Fine	Square	50 meters	3 kilometers
Cartesian	Very fine	Square	50 meters	2 kilometers

Meteorological Data: AERMOD – One (1) year, Intel Rio Rancho 1993-4

Adjacent Sources:

The Division's Modeling Guidance was used to select 112 sources within 65 km of the facility. The entire lists of sources can be made available and can be found on the server *Magneto* in the directory *AQB/ModelingArchives/0325M11_Intel*.

Modeling Procedures:

SO₂ emissions from the boilers are normally minimal when the boilers are fueled with natural gas. In an emergency, the boilers may need to be fueled with fuel oil. To prepare for this contingency, boilers may operate 30 minutes per month on fuel oil for testing purposes. Boilers are predicted to emit 13.75 lb/half hour period. All boilers were modeled at 13.75 lb/hr and compared to the air quality standards to determine how many boilers could be tested per hour.

Air Dispersion Modeling Summary for Permit No. 0325M11

Table 1: Table of Emissions and Stack Parameters¹:

Stack Number	Description	Stack Height (ft)	Stack Height (m)	Diameter (ft)	Diameter (m)	Velocity (ft/s)	Velocity (m/s)	Temperature (°F)	Temperature (K)	NO ₂ Rate (g/s)	NO ₂ Rate (lbs/hr)	CO Rate (g/s)	CO Rate (lbs/hr)	SO ₂ Rate (g/s)	SO ₂ Rate (lbs/hr)	PM10 Rate (g/s)	PM10 Rate (lbs/hr)	TSP Rate (g/s)	TSP Rate (lbs/hr)	PM2.5 Rate (g/s)	PM2.5 Rate (lbs/hr)
1	FAB 11XB Scrubber	76.1	23.2	4.0	1.2	66.2	20.19	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
4	FAB 11XF Scrubber	76.1	23.2	4.0	1.2	66.2	20.19	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
7	C4 Scrubber	42.0	12.8	1.7	0.5	38.2	11.642	71	295	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
14	Boiler 7 - 1250 BHP	60.0	18.3	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
15	Boiler 8 - 1250 BHP	60.0	18.3	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
16	Boiler 6 - 1250 BHP	57.0	17.4	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
17	Boiler 5 - 1250 BHP	57.0	17.4	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
18	Boiler 2 - 1250 BHP	57.0	17.4	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
19	Boiler 1 - 1250 BHP	57.0	17.4	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
20	Boiler 3 - 1250 BHP	57.0	17.4	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
21	Boiler 4 - 1250 BHP	57.0	17.4	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
22	Boiler 9 - 1250 BHP	60.0	18.3	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
23	Boiler 10 - 1250 BHP	60.0	18.3	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
28	Boiler 9.7 - 1250 BHP	50.9	15.5	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
29	Boiler 9.8 - 1250 BHP	50.9	15.5	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
37	CUB Scrubber	42.0	12.8	2.5	0.8	17.1	5.20	72	295	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
40	FAB 11W Scrubber	113.0	34.4	2.9	0.9	49.8	15.17	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
41	FAB 11W Scrubber	113.0	34.4	2.9	0.9	49.8	15.17	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
42	FAB 11W Scrubber	113.0	34.4	2.9	0.9	49.8	15.17	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
43	FAB 11W Scrubber	130.0	39.6	3.2	1.0	50.2	15.31	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
44	FAB 11W Scrubber	130.0	39.6	3.2	1.0	50.2	15.31	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
45	FAB 11XF Scrubber	98.4	30.0	1.5	0.5	46.6	14.20	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
46	FAB 11XF Scrubber	130.0	39.6	4.2	1.3	48.8	14.88	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
47	FAB 11W Scrubber	55.0	16.8	1.7	0.5	38.2	11.64	71	295	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
52	C4 Scrubber	44.0	13.4	3.0	0.9	52.4	15.96	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20

Air Dispersion Modeling Summary for Permit No. 0325M11

Stack Number	Description	Stack Height (ft)	Stack Height (m)	Diameter (ft)	Diameter (m)	Velocity (ft/s)	Velocity (m/s)	Temperature (°F)	Temperature (K)	NO ₂ Rate (g/s)	NO ₂ Rate (lbs/hr)	CO Rate (g/s)	CO Rate (lbs/hr)	SO ₂ Rate (g/s)	SO ₂ Rate (lbs/hr)	PM10 Rate (g/s)	PM10 Rate (lbs/hr)	TSP Rate (g/s)	TSP Rate (lbs/hr)	PM2.5 Rate (g/s)	PM2.5 Rate (lbs/hr)
53	FAB 11XF Scrubber	76.1	23.2	4.0	1.2	66.2	20.19	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
66	FAB 11N Scrubber	130.0	39.6	3.2	1.0	50.2	15.31	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
67	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
68	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
69	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
70	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
71	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
72	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
73	FAB 11N Scrubber	113.0	34.4	2.9	0.9	49.8	15.17	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
75	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
76	FAB 11N Scrubber	130.0	39.6	4.6	1.4	50.5	15.40	68	293	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
84	FAB 11S Scrubber	98.4	30.0	4.9	1.5	48.2	14.69	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
85	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
86	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
87	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
88	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
89	FAB 11XB Scrubber	76.1	23.2	4.0	1.2	66.2	20.19	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
90	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
91	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
92	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
93	FAB 11XB Scrubber	76.1	23.2	4.0	1.2	66.2	20.19	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
94	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
95	FAB 11XB Scrubber	76.1	23.2	4.0	1.2	66.2	20.19	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
96	FAB 11XB Scrubber	70.9	21.6	1.5	0.5	46.6	14.20	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
97	FAB 11S Scrubber	98.4	30.0	4.9	1.5	46.9	14.30	70	294	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
122	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
123	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00

Air Dispersion Modeling Summary for Permit No. 0325M11

Stack Number	Description	Stack Height (ft)	Stack Height (m)	Diameter (ft)	Diameter (m)	Velocity (ft/s)	Velocity (m/s)	Temperature (°F)	Temperature (K)	NO ₂ Rate (g/s)	NO ₂ Rate (lbs/hr)	CO Rate (g/s)	CO Rate (lbs/hr)	SO ₂ Rate (g/s)	SO ₂ Rate (lbs/hr)	PM10 Rate (g/s)	PM10 Rate (lbs/hr)	TSP Rate (g/s)	TSP Rate (lbs/hr)	PM2.5 Rate (g/s)	PM2.5 Rate (lbs/hr)
124	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
125	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
126	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
127	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
128	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
129	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
130	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
131	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
132	CUB Cooling Tower	32.8	10.0	23.0	7.0	20.6	6.27	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.16	0.00	0.00
133	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
134	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
135	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
136	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.45	0.08	0.66	0.00	0.00
137	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
138	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
139	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
140	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
141	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
142	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
143	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
144	NEC Cooling Tower	32.8	10.0	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.17	1.32	0.00	0.01
151	CUB Scrubber	42.0	12.8	1.4	0.4	99.8	30.41	71	295	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
152	CUB Scrubber	42.0	12.8	1.7	0.5	38.2	11.64	71	295	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
153	CUB Scrubber	42.0	12.8	1.4	0.4	99.8	30.41	71	295	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
159	Ammonia Treatment Unit	49.2	15.0	1.3	0.4	27.7	8.44	210	372	0.13	1.00	0.13	1.00	0.00	0.00	0.01	0.05	0.01	0.05	0.01	0.05
160	FAB 11XB Scrubber	70.9	21.6	1.5	0.5	46.6	14.20	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20

Air Dispersion Modeling Summary for Permit No. 0325M11

Stack Number	Description	Stack Height (ft)	Stack Height (m)	Diameter (ft)	Diameter (m)	Velocity (ft/s)	Velocity (m/s)	Temperature (°F)	Temperature (K)	NO ₂ Rate (g/s)	NO ₂ Rate (lbs/hr)	CO Rate (g/s)	CO Rate (lbs/hr)	SO ₂ Rate (g/s)	SO ₂ Rate (lbs/hr)	PM10 Rate (g/s)	PM10 Rate (lbs/hr)	TSP Rate (g/s)	TSP Rate (lbs/hr)	PM2.5 Rate (g/s)	PM2.5 Rate (lbs/hr)
161	FAB 11XB Scrubber	70.9	21.6	1.5	0.5	46.6	14.20	53	285	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.03	0.20	0.03	0.20
162	Munter 1	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
163	Munter 2	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
164	Munter 3	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
165	Munter 4	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
166	Munter 6	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
167	Munter 7	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
168	Munter 8	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
169	Munter 5	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
170	Munter 9	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
171	Munter 10	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
172	Munter 11	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
173	Munter 12	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
174	Munter 13	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
175	Munter 14	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
176	Munter 15	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
177	Munter 16	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
178	Munter 17	131.2	40.0	1.5	0.5	13.8	4.20	555	564	0.13	1.00	0.08	0.60	0.00	0.00	0.13	1.00	0.13	1.00	0.06	0.50
179	F11Xe BSSW 1	113.0	34.4	0.3	0.1	58.5	17.82	1400	1033	0.13	1.00	0.13	1.00	0.00	0.00	0.01	0.05	0.01	0.05	0.01	0.05
180	F11Xe ATS 1	130.0	39.6	1.3	0.4	26.9	8.20	210	372	0.13	1.00	0.13	1.00	0.00	0.00	0.01	0.05	0.01	0.05	0.01	0.05
181	F11Xe ATS 2	130.0	39.6	1.3	0.4	26.9	8.20	210	372	0.13	1.00	0.13	1.00	0.00	0.00	0.01	0.05	0.01	0.05	0.01	0.05
182	F11Xe ATS 3	130.0	39.6	1.3	0.4	26.9	8.20	210	372	0.13	1.00	0.13	1.00	0.00	0.00	0.01	0.05	0.01	0.05	0.01	0.05
183	BCP Boiler 11	60.0	18.3	3.7	1.1	23.3	7.09	300	422	0.37	2.92	0.71	5.60	0.00	0.03	0.03	0.24	0.03	0.24	0.03	0.24
184	BCP Cooling Tower 1	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
185	BCP Cooling Tower 2	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
186	BCP Cooling Tower 3	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
187	BCP Cooling Tower 4	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00

Air Dispersion Modeling Summary for Permit No. 0325M11

Stack Number	Description	Stack Height (ft)	Stack Height (m)	Diameter (ft)	Diameter (m)	Velocity (ft/s)	Velocity (m/s)	Temperature (°F)	Temperature (K)	NO ₂ Rate (g/s)	NO ₂ Rate (lbs/hr)	CO Rate (g/s)	CO Rate (lbs/hr)	SO ₂ Rate (g/s)	SO ₂ Rate (lbs/hr)	PM10 Rate (g/s)	PM10 Rate (lbs/hr)	TSP Rate (g/s)	TSP Rate (lbs/hr)	PM2.5 Rate (g/s)	PM2.5 Rate (lbs/hr)
188	BCP Cooling Tower 5	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
189	BCP Cooling Tower 6	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
190	BCP Cooling Tower 7	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
191	BCP Cooling Tower 8	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
192	BCP Cooling Tower 9	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00
193	BCP Cooling Tower 10	50.0	15.2	23.0	7.0	16.1	4.91	78	299	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.03	0.22	0.00	0.00

¹ All values copied or converted from *Intel 0325M11 Permit Application*.

Air Dispersion Modeling Summary for Permit No. 0325M11

Results Discussion: Results are detailed in Table 2.

CO, NO₂, PM₁₀, SO₂, PM_{2.5}, and TSP Standards...

CO Analysis:

The CO concentrations produced by the facility were demonstrated to be below CO significance levels, as detailed in Table 2. Therefore, no further modeling is required.

NO₂ Analysis:

Compliance with the annual NO₂ NAAQS and with 24-hour and annual NO₂ NMAAQs has been demonstrated, as detailed in Table 2.

Compliance with annual PSD Class II increments has been demonstrated, as detailed in Table 2.

PM₁₀ Analysis:

Compliance with the 24-hour, and annual PM₁₀ NAAQS has been demonstrated, as detailed in Table 2.

Compliance with 24-hour, annual PSD Class II increments has been demonstrated, as detailed in Table 2.

PM_{2.5} Analysis:

Compliance with the 24-hour, and annual PM_{2.5} NAAQS has been demonstrated, as detailed in Table 2.

SO₂ Analysis:

Compliance with the 1-hour, 3-hour, 24-hour, and annual SO₂ NAAQS and with 24-hour, and annual SO₂ NMAAQs has been demonstrated, as detailed in Table 2.

Regular operation is below significance levels, and does not require a PSD increment analysis.

TSP Analysis:

Compliance with the 24-hour and annual TSP NMAAQs has been demonstrated, as detailed in Table 2.

PSD Class I increment...

The nearest PSD Class I area is Bandelier Wilderness Area, which is located 59.4 km from the facility. The facility has negligible impact at this distance.

Air Dispersion Modeling Summary for Permit No. 0325M11

Table 2: Ambient Impact from Emissions

Pollutant	Contributing Sources	Averaging Period	Concentration ($\mu\text{g}/\text{m}^3$)	Concentration (ppm)	Receptor Elevation (ft)	UTMH (m)	UTMV (m)	Distance from Site (m)	Radius of Impact (m)	Applicable Standard	Value of Standard	Units of Standard	Percent of Standard or Significance Level	Background Concentration Added ($\mu\text{g}/\text{m}^3$)
CO	Alone	1-hour	576.15	0.6011	5196	349558	3899108	301	0	Significance	2000	$\mu\text{g}/\text{m}^3$	28.8	0
CO	Alone	8-hour	204.98	0.2139	5196	349558	3899108	301	0	Significance	500	$\mu\text{g}/\text{m}^3$	41.0	0
NO ₂	All	24-hour	24.75 ^δ	0.0157 ^δ	5189	349540	3899063	253	1957	NMAAQS	0.1	ppm	15.7	0
NO ₂	Alone	24-hour	24.72 ^δ	0.0157 ^δ	5189	349540	3899063	253	1957	NMAAQS	0.1	ppm	15.7	0
NO ₂	All	annual	15.89 ^φ	0.0101 ^φ	5219	349274	3898638	253	1957	NMAAQS	0.05	ppm	20.2	0
NO ₂	Alone	annual	14.47 ^φ	0.0092 ^φ	5219	349274	3898638	253	1957	NMAAQS	0.05	ppm	18.4	0
NO ₂	Alone PSD	annual	10.57 ^φ	0.0067 ^φ	5219	349274	3898638	253	1387	NAAQS	0.053	ppm	12.7	0
NO ₂	PSD	annual	11.32 ^φ	0.0072 ^φ	5219	349274	3898638	253	1387	NAAQS	0.053	ppm	13.6	0
PM10	All	24-hour	46.41		5206	349075	3898480	505	1918	NAAQS	150	$\mu\text{g}/\text{m}^3$	30.9	20
PM10	Alone	24-hour	25.43		5261	349150	3899950	1154	1918	NAAQS	150	$\mu\text{g}/\text{m}^3$	17.0	0
PM10	Alone PSD	24-hour	18.44		5219	349274	3898638	253	1299	PSD Class II	30	$\mu\text{g}/\text{m}^3$	61.5	0
PM10	PSD	24-hour	19.97		5203	349026	3898481	540	1299	PSD Class II	30	$\mu\text{g}/\text{m}^3$	66.6	0
PM10	Alone PSD	annual	5.72		5219	349274	3898638	253	1299	PSD Class II	17	$\mu\text{g}/\text{m}^3$	33.7	0
PM10	PSD	annual	6.94		5219	349274	3898638	253	1299	PSD Class II	17	$\mu\text{g}/\text{m}^3$	40.8	0
PM2.5	All	24-hour	24.26		5203	349026	3898481	540	4467	NAAQS	35	$\mu\text{g}/\text{m}^3$	69.3	7.3
PM2.5	Alone	24-hour	13.70		5203	349026	3898481	540	4467	NAAQS	35	$\mu\text{g}/\text{m}^3$	39.2	0
PM2.5	All	annual	13.70		5219	349274	3898638	253	4467	NAAQS	15	$\mu\text{g}/\text{m}^3$	91.3	7.3
PM2.5	Alone	annual	5.36		5219	349274	3898638	253	4467	NAAQS	15	$\mu\text{g}/\text{m}^3$	35.7	0
SO ₂	Alone	1-hour	3.06	0.0014	5196	349558	3899108	301	0	Significance	6.6	$\mu\text{g}/\text{m}^3$	46.4	0
SO ₂	Alone	24-hour	0.59	0.0003	5189	349540	3899063	253	0	Significance	5	$\mu\text{g}/\text{m}^3$	11.8	0
SO ₂	Alone	3-hour	1.85	0.0008	5196	349558	3899108	301	0	Significance	25	$\mu\text{g}/\text{m}^3$	7.4	0
SO ₂	Alone	annual	0.16	0.0001	5211	349457	3898916	86	0	Significance	1	$\mu\text{g}/\text{m}^3$	15.5	0
SO ₂	oil test	24-hour	142.58	0.0651	5189	349540	3899063	253	2778	NMAAQS	0.1	ppm	65.1	0
SO ₂	oil test	3-hour	451.21	0.2060	5196	349558	3899108	301	2778	NAAQS	0.5	ppm	41.2	0
SO ₂	oil test	annual	36.93	0.0169	5211	349457	3898916	86	2778	NMAAQS	0.02	ppm	84.3	0
TSP	All	24-hour	61.56		5256	349046	3899759	1006	2212	NMAAQS	150	$\mu\text{g}/\text{m}^3$	41.0	26.6
TSP	Alone	24-hour	34.44		5256	349046	3899759	1006	2212	NMAAQS	150	$\mu\text{g}/\text{m}^3$	23.0	0
TSP	All	annual	37.22		5219	349274	3898638	253	2212	NMAAQS	60	$\mu\text{g}/\text{m}^3$	62.0	26.6
TSP	Alone	annual	8.73		5219	349274	3898638	253	2212	NMAAQS	60	$\mu\text{g}/\text{m}^3$	14.6	0

φ 75% annual conversion of NO_x to NO₂ from EPA's Ambient Ratio Method (ARM) applied to calculate concentration.

δ NMED's 40% 24-hour conversion of NO_x to NO₂ applied to calculate concentration.