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VIA E-MAIL: robert.koster@ecy.wa.gov

December 23, 2013

Mr. Robert Koster
Regional Air Quality Section
Washington Department of Ecology - Eastern Regional Office
4601 North Monroe Street
Suite 100
Spokane, WA 99205-1295

RE: Nutrilite – Notice of Construction Application for RWD and Boiler Project at Quincy Facility

Dear Mr. Koster:

The attached document and its appendices serve as the Notice of Construction (NOC) Application for Nutrilite's RWD and Boiler Project. Nutrilite is currently in the process of constructing a greenfield extraction concentration operation in Quincy, WA. The construction is currently permitted under Approval Order No. 13AQ-E524. Nutrilite is planning to expand the variety of products output at the facility. This expansion will require an additional boiler and dryer. The application was developed pursuant to the requirements found in Washington Administrative Code (WAC) 173-400-110. Nutrilite has demonstrated that emissions from the Quincy facility for CO, PM_{10}, $PM_{2.5}$, and NO_2 will not cause or contribute to an exceedance of the National Ambient Air Quality Standards as shown by the modeling completed in Section 7 of the report.

The required filing fee of $1500 has been sent to the Fiscal Office.

If you have any questions or comments about the information presented in this letter, please do not hesitate to call me at (714) 562-4120 or Beth Beaudry at (253) 867-5600.

Sincerely,

AMWAY NUTRILITE PRODUCTS DIVISION

Ashish Jain
Environmental, Health & Safety

Attachments

cc: Aaron Day, Trinity Consultants (Seattle, WA)
Beth Beaudry, Trinity Consultants (Seattle, WA)
Julien Ollivierre, Amway Nutrilite Products Division (Buena Park, CA)
Steve Schappe, Amway Nutrilite Products Division (Buena Park, CA)

PROJECT REPORT
Nutrilite > RWD and Boiler Project

Notice of Construction Application

Prepared By:

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December 2013

Project 134801.0050

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TABLE OF CONTENTS

LIST OF TABLES

1. INTRODUCTION

Nutrilite is currently in the process of constructing a greenfield extraction concentration operation in Quincy, WA. The construction is currently permitted under Approval Order No. 13AQ-E524. Nutrilite is planning to expand the variety of products output at the facility. This expansion will require an additional boiler and dryer.

This report and the included appendices serve as the NOC Application for the expansion project. The emission calculations and modeling in this application consider the facility as a whole (i.e., both the original greenfield facility and the expansion) due to the close time frame between these projects. The application is developed pursuant to the NOC requirements found in Washington Administrative Code (WAC) 173-400-110.

This NOC application includes the following elements:

- Section 2. Project Description
- Section 3. Emission calculations for criteria pollutants
- Section 4. Review of potentially applicable federal and state air quality regulations
- Section 5. Best Available Control Technology (BACT) review
- Section 6. Toxic air pollution emissions analysis
- Section 7. Air dispersion modeling
- Appendix A: Ecology NOC application form and SEPA checklist
- Appendix B: Site plan and process flow diagram
- Appendix C: Supporting emission calculations
- Appendix D: RACT/BACT/ LAER clearinghouse (RBLC) search results
- Appendix E: Boiler Stack Tests and Specifications
- Appendix F: Equivalency Demonstration
- Appendix G: NO_2 PVMRM Source Data
- Appendix H: Modeling Plots
- Appendix I: Tabulated Modeling Results
- Appendix J: Modeling Files

2. PROJECT DESCRIPTION

Nutrilite's greenfield facility will extract natural herbal concentrates for use in health and fitness products. Dried milled botanical herbs and an ethanol mixture are the raw material inputs to the extraction process. These in-process raw materials are mixed in a warm solution for up to two hours. After the full extraction time, the product is cooled and the extract is filtered out of the unit, separating the liquid extract from the wet cake. The wet cake is dried inside the extraction unit. The majority of the ethanol used in the process is recycled.

This application is focused on new equipment that has not been previously permitted. Nutrilite is expanding the product variety at the facility. This project, hereafter referred to as RWD and boiler project, will allow three new product types at the facility.

The RWD and boiler project will add a refractance window dryer (RWD) to dry the materials from the extraction concentration intermediate products. The dryer will be semi-enclosed and will operate under negative air pressure. A process flow diagram and site map with emission locations is provided in Appendix B. Appendix E includes the technical brochure provided by MCD Technologies.

The RWD will require steam, which will be supplied by an additional 8.37 million British thermal units per hour (MMBtu/hr) natural gas boiler. The boiler is a seller's Ygnis, Model No. SY-200HP-150, with a Low NOx Burner Model No. NVC-6-G-30. The boiler is currently located in Nutrilite's Lakeview, CA facility, and will be moved to Nutrilite's Quincy, WA facility as part of the project. Appendix E includes the specification sheet for the boiler.

The project is expected to begin construction on April 1, 2014 and complete May 31, 2014.

This section briefly describes the methodology used to calculate emissions of criteria pollutants, hazardous air pollutants (HAP), toxic air pollutants (TAPs), and greenhouse gases (GHG) from the proposed project. Calculations from the previous greenfield facility and emergency fire pump NOC application have been previously reviewed. The discussion in this report is specific to the additional units being added to the facility. However, the emission summaries include the originally permitted sources as well as these additional units. Emissions from all units are calculated based on an operating schedule of 24 hours per day and 7 days per week, assuming operation 8760 hours/year. Table 3-1 shows the potential to emit from all sources at the Quincy facility. Detailed calculations may be found in Appendix C.

Fugitive emission calculations for the original greenfield project used a fugitive equipment count that conservatively included an additional 50% of components beyond those estimated in the facility design. Emissions estimates for this project assume that all fugitive losses are captured within the previous calculations.

3.1. GAS FIRED BOILER

Nutrilite will install an additional natural gas-fired boiler with a maximum capacity of 8.37 million British thermal units per hour (MMBtu/hr). The boiler is currently located at another Nutrilite's Lakeview, CA facility, and will be moved to Nutrilite's Quincy facility as part of the project. There are two boilers, both the same models, at the Lakeview facility; only one boiler will be moved. See Appendix B for a process flow diagram for the new product lines at the Quincy facility. Refer to Appendix C for detailed calculations. Appendix E includes the most recent stack test for the boiler. See Table 3-1 for a summary of emissions from all equipment. The TAP emissions are compared to Washington TAP compliance standards under WAC 173-460, as outlined in Section 6.

- Emissions of nitrous oxide (NO_x) and carbon monoxide (CO) are calculated based on BACT limitations as described in Section 5.1. The proposed NOx limit in this application is 9 ppm @3% O_2 and the proposed CO limit is 30 ppm @ 3% O_2. Attached in Appendix E is the most recent stack test to show that the boiler can meet these specifications in practice. There are two boilers included in the stack test; one of them will be the boiler moved to the Quincy facility. Both boilers meet the proposed limits.
- The emission factors for particulate matter less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$) are obtained from the National Emission Inventory (NEI).[1] The PM_{10} and $PM_{2.5}$ emission rates for the 2 boilers permitted under Approval Order No. 13AQ-E524 have been updated to this emission factor for consistency.
- Potential GHG emissions are estimated using the Tier 1 Calculation Methodology established by the code of federal regulations (CFR), Title 40, Part 98 (40 CFR 98) Subpart C, effective January 1, 2014. This methodology relies on default emission factors and Higher Heating Values (HHVs) for each fuel type to calculate GHG emissions. For natural gas-fired sources, the maximum annual fuel consumption rate for each source is based on continuous annual operation at the source's rated capacity.
- All other criteria pollutants are calculated based on emission factors from the tables in Section 1.4 of AP-42 for natural gas combustion (07/1997).
- Emission factors for HAP and TAP from natural gas fired boilers (<10 MMBtu/hr) are provided in AB2588 Combustion Emission Factors as obtained from Ventura County Air Pollution Control District.[2] Emission factors are shown in Appendix C.

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[1] ftp://ftp.epa.gov/EmisInventory/2011/doc/natgas_procgas_lpg_pm_efs_not_ap42_032012_revisions.xls
[2] These emission factors were used in Nutrilite's original greenfield application as suggested by Washington Ecology.

3.2. REFRACTANCE WINDOW DRYER

The extracted and concentrated botanical solids are sent to the RWD to remove the residual liquids from the product. Therefore, all residual ethanol in the product is assumed to be emitted. In these emission calculations, Nutrilite assumes a conservative estimate of 500 ppm ethanol in solution. The feed rate of the liquid product will maximally be 1.0 gallons per minute, which gives 150,000 kg/year of extract. At 500 ppm residual ethanol, 1.10 tpy of ethanol, a VOC, is lost as fugitive emissions. Table 3-1 summarizes the emissions from all equipment. Refer to Appendix C for detailed calculations.

3.3. POTENTIAL TO EMIT SUMMARY

The following tables summarize the Quincy facility's potential to emit. Table 3-1 summarizes the potential to emit for criteria pollutants. Notably in Table 3-1, SO_2 and CO is below the de minimis levels as defined in WAC 173-400-110 Table 110(5) Exemption levels.[3]

[3] 173-400-110(5)(a)(i) Construction of a new emissions unit that has a potential to emit below each of the levels listed in Table 110(5) Exemption levels is exempt from new source review.

Table 3-1. Nutrilite's Facility Wide Potential to Emit

ID	Source Name	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	CO (tpy)	VOC (tpy)	GHG (tpy)	HAP (tpy)
1-2	Greenfield Facility Boilers [a]	1.24	0.04	0.03	0.03	3.03	0.33	7,223	6.73E-03
3-9	Greenfield Facility (without boilers) [b]	0.29	1.75E-03	1.49	1.49	0.28	12.55	524	2.75E-04
10	Semi Works Process [c]	--	--	--	--	--	0.07	--	--
11	Emergency Fire Pump [c]	9.84E-03	--	3.16E-04	3.16E-04	3.51E-03	3.51E-04	3.81E-01	--
12	New NG Boiler [d]	0.62	0.02	0.02	0.02	1.27	0.20	4,318	4.03E-03
13	New RWD [d]	--	--	--	--	--	1.10	--	--
Totals		**2.17**	**0.06**	**1.54**	**1.53**	**4.57**	**14.24**	**12,065**	**1.10E-02**
Exemption Levels		*2.0*	*2.0*	*0.75*	*0.5*	*5.0*	*2.0*		

[a] The emission factors for the greenfield facility boilers, ID 1 and 2, have been updated since the previous project. The emission factor for PM_{10}, $PM_{2.5}$ has been updated based on the National Emission Inventory. The emission factor for CO has been updated to the BACT determination from Approval Order No. 13AQ-E524; this order resulted from the greenfield facility NOC application. 40 CFR 98 has updates effective January 1, 2014 including the tables C-1, C-2, and A-1. The emissions for greenhouse gases reflect the updated regulation.

[b] These emission rates were submitted to Ecology for Nutrilite's greenfield project resulting in Approval Order No. 13AQ-E524. These emissions included fugitive VOC emissions from connectors, valves, and pumps. It is assumed the additional equipment for this project will not increase the fugitive emissions beyond the levels previously estimated for the greenfield facility, as the fugitive counts for the original facility included an additional 50% of components to provide a conservative emissions estimate. The GHG emissions have been updated for the process heater to reflect the updated regulations effective January 1, 2014.

[c] These emission rates were submitted to Ecology for Nutrilite's projects including the Semi-Works process, emergency fire pump engine, and Rototherm Feed Tank 3 on August 30, 2013.

[d] These emission rates are for the new equipment associated with this project only. Emission factors are described in Section 3. Fugitives from previously submitted projects are included within the other sources.

4. REGULATORY APPLICABILITY

The following section analyzes potential federal and state regulatory requirements that may be applicable to the concentration extraction operation in Quincy, Washington.

4.1. NOC PERMITTING APPLICABILITY

A new source requires an NOC application under Washington Administrative Code (WAC) 173-400-110. This report and the attached forms satisfy the requirement to submit a NOC application to Washington State Department of Ecology (Ecology) for the proposed project.

4.2. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REVIEW

An emission source is subject to the PSD permitting program under WAC 173-400-700 if the new installation either is a “major modification” to an existing “major source,” or is a new major source unto itself. The Nutrilite Greenfield facility will have potential emissions less than 250 tpy of criteria pollutants. Greenhouse gas emissions at the site will also be less than 100,000 tpy CO_2e threshold. Therefore, the Quincy facility will not be a major source under the PSD program. For the facility’s potential to emit calculations for all pollutants, see Section 3.

4.3. BEST AVAILABLE CONTROL TECHNOLOGY

Any new or modified stationary source must evaluate compliance with the provisions of Best Available Control Technology (BACT), per WAC 173-400-030(12). The new source must employ BACT for all pollutants not previously emitted, or any pollutants for which emissions will increase as a result of the new stationary source or modification. A BACT review for the facility is included in Section 5 of this report.

4.4. NSPS SUBPART Dc

New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units is outlined in Subpart Dc. Subpart Dc applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. All of Nutrilite’s boilers are natural gas with a maximum heat capacity of <10 MMBtu/hr. Therefore, this subpart does not apply to the units at the proposed Nutrilite site.

4.5. NSPS SUBPART Kb

Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels are outlined in Subpart Kb. Subpart Kb applies to each storage vessel with a capacity greater than or equal to 75 meters cubed (m^3) that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. All storage vessels to be used at the proposed Nutrilite site will have a capacity of less than 75 m^3; therefore, this subpart does not apply to Nutrilite.

4.6. NESHAP SUBPART GGG

The provisions of 40 CFR 63 Subpart GGG (National Emission Standards for Pharmaceuticals Production) apply to pharmaceutical manufacturing operations that meet the following criteria: (1) Manufacture a pharmaceutical product; (2) Are located at a plant site that is a major source; and (3) Process, use, or produce HAP. Nutrilite is not a major source of HAP based on the emission levels presented in section 3 of this report; therefore, subpart GGG does not apply.

4.7. NESHAP SUBPART FFFF

The provisions of 40 CFR 63 Subpart FFFF (National Emission Standards for Hazardous Air Pollutants (NESHAP): Miscellaneous Organic Chemical Manufacturing) apply to facilities that own or operate miscellaneous organic chemical manufacturing process units that are located at, or are part of, a major source of HAP emissions. Nutrilite is not a major source of HAP based on the emission levels presented in section 3 of this report; therefore, subpart FFFF does not apply.

4.8. NESHAP SUBPART DDDDD

40 CFR 63 Subpart DDDDD (NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters) applies to industrial, commercial, or institutional boilers or process heaters that are located at, or are part of, a major source of HAP. Nutrilite is not a major source of HAP based on the emission levels presented in section 3 of this report; therefore, subpart DDDDD does not apply.

4.9. NESHAP SUBPART JJJJJJ

Subpart JJJJJJ (NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources) applies to new and existing commercial and institutional boilers located at area sources of HAP, unless exempted. Gas fired boilers are exempted from subpart JJJJJJ. Since Nutrilite will be using natural gas to fuel the boilers, subpart JJJJJJ does not apply based on the exemption in 40 CFR 63.11195(e).

4.10. STATE REGULATORY APPLICABILITY

4.10.1. Washington Toxic Air Pollutants Regulations

In Washington, all new sources emitting TAPs are required to show compliance with the Washington TAP program pursuant to WAC 173-460. Ecology has established a *de minimis* level, a Small Quantity Emission Rate (SQER) and an Acceptable Source Impact Level (ASIL) for each listed TAP.[4] An *acceptable source impact analysis* must be conducted for each TAP with an emission increase greater than the respective *de minimis* level.[5] If the TAP emissions rate from a source is above its respective SQER, further determination of compliance with the ASIL is required. A complete TAP analysis is included in Section 6 of this Report.

[4] De minimis levels, SQERs, and ASILs are provided for each TAP in WAC 173-460-150.

[5] The acceptable source impact analysis methodology is outlined in WAC 173-460-080. The definitions related to acceptable source impact analysis can be found in WAC 173-460-020(1).

4.10.2. General Emissions Standards and Practices

Washington regulations contain general emission standards that are applicable to all emission sources at the facility. As such, the extraction concentration operation facility will continue to comply with the following general standards under WAC 173-400-040, 173-400-050 and 173-400-060.

- WAC 173-400-040(2) states that no air contaminant source shall exceed opacity of 20% for more than 3 minutes in a given hour, with noted exceptions.
- WAC 173-400-040 (5) states that Nutrilite shall take reasonable measures to reduce general nuisance and emissions of odor-bearing gases into the atmosphere.
- WAC 173-400-040 (9) states that the facility shall prevent airborne particulate matter from being air-borne and shall not conceal emissions that would otherwise violate emission standards.
- WAC 173-400-050 states that no person shall cause or allow the emission of particulate material from any combustion and incineration units in excess of 0.23 g/dscf or 0.1 gr/dscf of exhaust gas.
- WAC 173-400-060 states that no person shall cause or allow the emission of particulate material from any general process operation in excess of 0.23 g/dscf or 0.1 gr/dscf of exhaust gas.

4.10.3. Greenhouse Gas Emissions Reporting

WAC 173-441-030 states that reporting is mandatory for any facilities in Washington State with total GHG emissions that exceed the reporting threshold of 10,000 metric tons of CO_2e per calendar year. Nutrilite's PTE for the facility exceeds this threshold value. Nutrilite will need to evaluate on an annual basis required reporting and are therefore subject to the recordkeeping requirements as defined under 173-441-050(6).

5. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

5.1. GAS FIRED BOILER

This section addresses BACT requirements for the additional boiler, rated at 8.37 MMBtu/hr. The boiler is currently being used at Nutrilite's Lakeview, CA facility, and will be moved to Nutrilite's Quincy facility upon approval. The boiler burns natural gas and is a source of combustion-related emissions, namely PM_{10}, $PM_{2.5}$, NO_2, VOC, and CO. A BACT analysis for each of the criteria pollutants triggering NOC requirements from the boilers is provided below. Each pollutant's BACT assessment is supplemented with a RBLC search. A natural gas fired boiler <100 MMBtu/hr is classified as process type 13.31 in EPA's RACT/BACT/LAER Clearinghouse (RBLC). Appendix D details the results of this search.

5.1.1. PM_{10} and $PM_{2.5}$

PM_{10} and $PM_{2.5}$ from natural gas boilers is low in comparison to other fuel combustion sources of similar size. As such, good operation and combustion practices are proposed for the BACT determination for these pollutants from the natural gas boiler. See appendix D for the results of an RBLC search.

5.1.2. NO_2

Table 5-1 contains the list of controls that are considered in the BACT analysis for NO_x, including SCR, SNCR, flue gas recirculation, low excess air firing, ultra low NO_x burners, and low NO_x burners. The boilers proposed to be installed at the Quincy facility will be equipped with low NO_x burners. The burner manufacturer guarantees an emission level of 9 ppm, and the burners have demonstrated compliance with this limit in practice. A RBLC search confirms this conclusion. Refer to Table 5-1 for the detailed BACT analysis and Appendix D for the RBLC search results.

5.1.3. CO

Typically, CO emissions from natural gas combustion is controlled through combustion design and control, as confirmed by a RBLC search. See Appendix D for the results of this search. Nutrilite is proposing 30 ppm CO as BACT. The most recent source test shown in Appendix E shows either of the boilers can meet this limit.

5.1.4. VOC

Typically, VOC emissions from natural gas combustion is controlled through combustion design and control, as confirmed by a RBLC search. See Appendix D for the results of this search. Combustion design and control is proposed as BACT for the boiler for VOCs. Benzene, formaldehyde, and acrolein are VOCs; therefore, this BACT analysis is proposed as being sufficient for these toxic pollutants.

5.2. RWD

This section addresses BACT requirements for the RWD. The emissions associated with this unit are due to residual ethanol, a VOC, emitted during the evaporation of excess fluid. A BACT analysis for VOC is given below.

5.2.1. VOC

The RWD emits VOC from residual ethanol contained in the process stream, conservatively estimated to be 500 ppm. The VOC emissions of the RWD are 1.10 tpy as fugitives. It is technically infeasible to route fugitive emissions from the RWD to the oxidizer due to the semi enclosed design and high water content of emissions.

The high water content will cause catalyst fouling in the oxidizer. Due to the relatively low VOC emissions, good combustion and operation practice is proposed as BACT for the RWD.

Table 5-1. BACT Analysis of NO_x for Natural Gas Fired Boiler

PROCESS		STEP 1. IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES		STEP 2. ELIMINATE TECHNICALLY INFEASIBLE OPTIONS		STEP 3. RANK REMAINING CONTROL TECHNOLOGIES	STEP 4. EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	STEP 5. SELECT BACT
Equipment	**Pollutant**	**Control Technology**	**Control Technology Description**	**RBLC Search Results**	**Technical Feasibility**	**Typical Overall Control Efficiency**	**Cost Effectiveness, $/ton**	
Natural Gas Fired Boiler	NOx	Selective Catalytic Reduction (SCR)	The SCR technique involves injecting ammonia into a flue gas with a temperature of about 500 to 750°F, then passing the gas through a catalyst bed where NO_x is converted to N_2 and H_2O. SCR systems use catalysts to achieve this conversion. The exhaust temperature should be maintained within an optimal range of 480-800°F. The exhaust temperature of boiler is 400° F.	Not listed for comparable emissions source.	Technically infeasible based on exhaust temperature of the boiler.	N/A	N/A	
		Non-Selective Catalytic Reduction (NSCR)	NSCR is a catalytic method similar to SCR, except that it reduces carbon monoxide and hydrocarbons as well as NO_x and operates at higher temperatures (about 800 to 1,200°F). The Exhaust temperature of the boiler is 400 ° F. In order for this technology to be effective, the ammonia must be adequately mixed with the exhaust gas prior to reaching the catalyst bed.	Not listed for comparable emissions source.	Technically infeasible based on exhaust temperature of the boiler.	N/A	N/A	
		Selective Non-Catalytic Reduction (SNCR)	SNCR involves injecting ammonia or urea into the combustion chamber to convert NO_x into molecular nitrogen and water. The optimum temperature range for SNR technologies is 1,600 to 1,900°F. Each of these post-combustion methods typically results in the emission of some unreacted ammonia that would not otherwise be present. The exhaust temperature of the boiler is 400° F.	Not listed for comparable emissions source.	Technically infeasible based on exhaust temperature of the boiler.	40%	N/A	
		Ultra Low NO_x Burners (ULNB)	Often, fuel and air are pre-mixed prior to combustion. This results in a lower and more uniform flame temperature. Some premix burners also use staged combustion with a fuel rich zone to start combustion and stabilize the flame and a fuel lean zone to complete combustion and reduce the peak flame temperature.	Not listed for comparable emissions source.	Technically feasible.	Ultra Low NO_x burners can achieve > 50% reduction in NO_x emissions	Economically feasible	
		Flue Gas Recirculation (FGR)	Flue gas recirculation (FGR) involves recycling a portion of the flue gas back into the combustion zone where inert combustion products in the recycled gas stream adsorb some of the heat generated by the combustion process, thus lowering peak flame temperature.	Listed for comparable emissions source.	FGR is sometimes installed in conjunction with low-NO_x burners. Low-NO_x burners without FGR have shown to achieve as low, or lower emission limits, while the FGR concepts are incorporated into the integral burner design. Technically feasible.	A typical NO_x reduction potential is 20% to 30%.	Economically feasible	
		Low NO_x Burners (LNB)	Combustion staging, which is typically used in low-NO_x burners, reduces NO_x emissions by breaking the combustion event into smaller sequential combustion events and by staging either air or fuel introduction to minimize fuel and thermal NO_x formation, respectively.	Listed for comparable emissions source.	Low-NOx burners are an inexpensive and effective means of providing NO_x control. These burners represent the current state of the art in NO_x control. Technically feasible.	Low-NO_x burners can achieve 50% reduction in NO_x emissions.	Economically feasible	Selected

6. TOXIC AIR POLLUTANT EMISSIONS ANALYSIS

In the state of Washington, all new and modified sources of TAP emissions are required to be reviewed under the state toxics program in WAC 173-460. Each listed TAP has an established de minimis level, Small Quantity Emission Rate (SQER), and Acceptable Source Impact Level (ASIL). An acceptable source impact analysis is required to be conducted for each TAP with an emission increase greater than the de minimis level.[6] If the TAP emissions rate from a source is above its respective SQER, further determination of compliance with the ASIL is required.

The emission sources of TAPs at the Quincy facility are the two boilers and the spray dryer process heater from the greenfield project, and the new boiler for this project. Emission factors for HAP and TAP from natural gas fired boilers (<10 MMBtu/hr) are provided in AB2588 Combustion Emission Factors as obtained from Ventura County Air Pollution Control District. Table 6-1 summarizes the TAP emissions from these combustion sources. Refer to Appendix C for detailed calculations.

As seen in Table 6-1, emissions from a majority of the TAPs are below their respective de minimis levels; emissions of the remaining TAPs are below their respective SQERs. As such, the TAPs released at the Quincy facility are in compliance with the Washington TAPs program under WAC 173-460, and no further demonstration is necessary.

Benzene, formaldehyde, acrolein, NO_2, and CO require a tBACT analysis, as emissions of these TAPs are above their respective de minimis levels. Refer to Section 5 of the report for the t-BACT analysis.

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[6] The acceptable source impact analysis methodology is outlined in WAC 173-460-080. The definition of acceptable source impact analysis can be found in WAC 173-460-020(1).

Table 6-1. Potential To Emit Toxic Air Pollutants Analysis Summary

Pollutant	Total Emission Rate (lbs/avg period)	Averaging Period	SQER [a] (lbs/avg period)	De Minimis [a] (lbs/avg period)	Modeling Required?[b] (Yes/No)	tBACT Required? [c] (Yes/No)
Benzene	1.58	year	6.62	0.33	No	yes
Formaldehyde	3.37	year	32	1.60	No	yes
Naphthalene	0.06	year	5.64	0.282	de minimis	no
Acetaldehyde	0.85	year	71	3.55	de minimis	no
Acrolein	1.46E-03	24-hr	7.89E-03	3.94E-04	No	yes
Propylene	0.40	24-hr	394	19.7	de minimis	no
Toluene	0.02	24-hr	657	32.90	de minimis	no
Xylenes	1.45E-02	24-hr	29	1.45	de minimis	no
Ethylbenzene	1.88	year	76.8	3.84	de minimis	no
Hexane	3.42E-03	24-hr	92	4.6	de minimis	no
Nitrogen Dioxide	0.49	1-hr	1.03	0.46	No	yes
Carbon Monoxide	1.50	1-hr	50.4	1.14	No	yes
Sulfur Dioxide	0.01	1-hr	1.45	0.46	de minimis	no

[a] TAPs and their corresponding acceptable source impact level (ASIL), averaging period, small quantity emission rate (SQER), and de minimis emission rate are taken from Washington's revised TAPs rule (WAC 173-460).

[b] Modeling is required if the project-related emissions increase of the TAP is greater than the SQER for the TAP. If the emissions increase is less than the de minimis threshold, a notice of construction application for that particular pollutant is not required per WAC 173-460-040(1).

[c] According to 173-460-060 states: A notice of construction application for a new or modified toxic air pollutant source must demonstrate that the new or modified emission units will employ tBACT for all TAPs for which the increase in emissions will exceed de minimis emission values as found in WAC 173-460-150.

This section describes the air quality dispersion modeling analysis performed to estimate ambient air impacts due to the proposed Nutrilite facility. If emission increases associated with the proposed project have demonstrated ambient impacts less than the Modeling Significance Levels (MSLs), no further evaluation is required. The modeled emission rates compared to the MSL correspond to the maximum continuous operation of each source at its design capacity. For this project's air quality demonstration, significance modeling is sufficient for CO.

In cases where the maximum-modeled concentration due to the project exceeds the corresponding MSL, other sources at the facility and nearby facilities are included in the dispersion model, along with an appropriate background concentration. The result of this dispersion modeling analysis is compared to the National Ambient Air Quality Standard (NAAQS) for each pollutant and averaging period. For this project, a full NAAQS analysis is required for NO_2, PM_{10}, and $PM_{2.5}$. The primary NAAQS are the maximum concentration ceilings, measured in terms of total concentration of a pollutant in the atmosphere, which define the "level of air quality which the U.S. EPA judges are necessary, with an adequate margin of safety, to protect the public health."[7] Secondary NAAQS define the levels that "protect the public welfare from any known or anticipated adverse effects of a pollutant." The secondary NAAQS for NO_2, PM_{10}, and $PM_{2.5}$ are equivalent to the primary.

7.1. MODELING METHODOLOGY

7.1.1. Model Selection

The American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) modeling system, the AERMOD dispersion model, version 12345, with Plume Rise Model Enhancements (PRIME) advanced downwash algorithms is used as the dispersion model for this air quality analysis.

Most model runs in this analysis use the BREEZE-developed parallel processing executable. This executable retains all of the U.S. EPA AERMOD code, but adds code to allow AERMOD to run on multiple processor cores simultaneously, producing faster results. In extensive testing by BREEZE Software/Trinity Consultants, we have found that this executable produces identical results to the original U.S. EPA single-processor version in every tested case. Appendix F includes a letter detailing the different model executables options and their respective outcomes (identical results). Appendix I also includes a modeling file for CO for the year 2004 run using the US EPA single processor executable and using the parallel processor executable to show there is no difference in the final results for this facility.

7.1.2. Meteorological Data

The modeling analysis is performed using five years of meteorological data collected at the Moses Lake, WA. The meteorological data is processed using AERMET version 12345. The upper air station identification 4106 and surface air station identification 24110 for calendar years 2004 through 2008 are used for this analysis.[8] The base elevation for the surface station data is 357 meters.

[7] 40 CFR 50.2(b).

[8] The data for 2004 is slightly less than 90% complete for the year, with Quarters 1, 3, and 4 being less than 90% on a quarterly basis. The data received from Ecology in the previous greenfield facility project using the previous version of AERMET also included the missing data. Nutrilite has chosen to remain consistent with the data supplied by Ecology.

7.1.3. Terrain Elevations

Terrain elevations for receptors, buildings, and sources are determined using the national elevation datasets (NEDs) supplied by the United States Geologic Survey (USGS). The NEDs used in this analysis provide approximately a 10 meter resolution. Elevations are converted from the NED grid spacing to the air dispersion model spacing using the AERMOD preprocessor, AERMAP version 11103. All data obtained from the NED files are checked for completeness and spot-checked for accuracy.

7.1.4. Coordinate System

The location of emission sources, structures, and receptors are represented in the Universal Transverse Mercator (UTM) coordinate system using the World Geodetic System 1984 (WGS84) projection. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central meridian of a particular zone, which is set at 500 km). UTM coordinates for this analysis are based on UTM Zone 11. The location of the Nutrilite facility is approximately 282,300 m Easting, and 5,235,800 m Northing.

7.1.5. AERMOD Urban versus Rural

In order to define the urban versus rural land-use in the particular area surrounding the facility, a 3 km radius circle is drawn about the center of the source. The land use procedure involves classifying areas within the 3 km radius. For modeling purposes, areas having land use that total more than 50 percent of the total area for "developed, medium intensity" and "developed, higher intensity" are considered urban. Otherwise, the area is considered rural. If a source is located in an area that is considered urban, the urban option is applied in the AERMOD control pathway. Based on a review of the USGS landuse data surrounding the facility, 50% of the area is not considered developed medium and high intensity; therefore, the Nutrilite facility is considered a rural area. This is consistent with previously submitted modeling data for Nutrilite.

7.1.6. Receptor Grids

Two square Cartesian receptor grids are set for the dispersion modeling analysis. The fine grid has 50-meter spacing extending 2,000 meters, and the coarse grid has 500-meter spacing extending 10,000 meters. Finally, boundary receptors are placed along the security fence located around the west end of the building and to include the building in its entirety, at 50 meter spacing. The modeled results from the project show the significant impact area falls within the fine grid receptor area.

For the NO_2 NAAQS modeling analysis, receptors are removed from within the fenceline of the following nearby sources: Dell data center, Microsoft data center, and Con Agra facility.[9]

7.1.7. Building Downwash

Emissions from the Nutrilite facility are evaluated in terms of their proximity to nearby structures.[10] The purpose of this evaluation is to determine if stack discharges might become caught in the turbulent wakes of these structures. Wind blowing around a building creates zones of turbulence that are greater than if the

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9 This methodology was verbally approved by Clint Bowman on 12/17/13 and is consistent with the Dell and Microsoft modeling files received from Ecology. The Dell and Microsoft models did not include receptors at the facility locations for Dell data center, Microsoft data center, and Con Agra.

10 Downwash is included for nearby sources. Information on downwash was provided by Ecology for Microsoft data center, Dell data center, Con Agra, and Celite. Building information was not provided, therefore Nutrilite's sources have determined downwash based on Nutrilite's buildings. It is assumed with the distance between facilities that another facilities buildings will not affect Nutrilite's downwash parameters.

buildings were absent. Direction-specific building dimensions and the dominant downwash structure parameters used as input to the dispersion models are determined using the *BREEZE-WAKE/BPIP* software, developed by Trinity. This software incorporates the algorithms of the U.S. EPA-sanctioned Building Profile Input Program with PRIME enhancement (BPIP-PRIME), version 04274. BPIP is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents.

The Nutrilite facility has one main building divided into seven sections. Each of the seven sections is labeled in the site map as buildings #1-#7. The site map may be found in Appendix B. Each of the buildings roofs is lined with a parapet edging. This edging varies in height depending on the location. The buildings also have varying heights. Each building is comprised of rectangular shaped building objects. The highest point on each building, including the parapet, is designated as the height of the building in the model.

Finally, Building #8 is the alcohol storage and containment area with containment walls surrounding the tanks. The height of this building is modeled to be at the top of the safety relief valve. Table 7-1 details each building as it is represented in the model. The buildings have not been updated since the previous submission of modeling data from Nutrilite for the greenfield project.

Table 7-1. Buildings

Building ID [a]	X Coordinate	Y Coordinate	Elevation [b] (m)	Height (m)	Length (m)	Width (m)	Angle (degrees)
BLDG1	282249.3	5235813.6	405.53	11.20	33.12	20.00	2.56
BLDG2.1	282266.0	5235783.9	405.41	9.91	14.80	29.00	2.56
BLDG2.2	282281.2	5235793.5	405.41	5.49	5.20	17.60	2.56
BLDG3.1	282259.8	5235743.5	405.21	9.91	19.20	40.54	2.56
BLDG3.2	282261.4	5235784.1	405.42	11.20	4.50	29.00	2.56
BLDG4.1	282245.4	5235724.6	405.14	9.91	13.60	30.00	2.56
BLDG4.2	282258.9	5235724.1	405.11	9.91	19.20	19.51	2.56
BLDG5	282246.6	5235754.7	405.24	14.48	13.50	33.50	2.56
BLDG6	282248.0	5235788.1	405.43	11.20	13.60	25.50	2.56
BLDG7	282219.4	5235784.9	405.44	7.93	7.70	28.50	92.56
BLDG8	282242.9	5235810.7	405.53	4.57	6.40	15.80	-87.44

a All data obtained from Nutrilite site map provided on 8/11/2012.
b Elevation information determined by AERMAP processing using United States Geological Survey map.

7.1.8. Nutrilite Modeled Source Parameters

The emission sources modeled for Nutrilite include three boilers (BOIL1, BOIL2, BOIL3), the spray dryer process heater and controls system (SD), fire pump (FP), and fabric filter (FF). The spray dryer, process heater, two cyclones, and wet scrubber all exhaust through one location, at the wet scrubber. Therefore, the PM_{10}, $PM_{2.5}$, NO_2, and CO emissions associated with the combustion of the process heater are emitted at the same location as the particulate accumulated from processing in the spray dryer, cyclones, wet scrubber, and process heater combustion. Each stack is represented as a point source in the AERMOD dispersion model, because each source emits through an unobstructed vertical stack. The location and stack parameters for the units' not previously modeled (additional boiler and fire pump) are based on design data. Emission units that have been previously modeled, have a few parameters updated to show the as-built parameters.
Table 7-2 provides the location and modeling parameters of each source.

Table 7-3 provides the emission rates for each unit. The fire pump has a different emission rate for the long term and short term rates. The fire pump is permitted to run 29 hours per year as determined by Approval Order No. 13AQ-E524. Therefore, the emission rate for the short term averaging period modeling results (i.e., 1 hour, 8 hour, and 24 hour) assumes the fire pump is running at full capacity for all hours of the year. However, modeling results for annual averaging periods assume that the fire pump is emitting consistent with full capacity for 29 hours/year averaged evenly over 8760 hours per year.

Table 7-2. Nutrilite Modeling Parameters

Unit ID	UTM East (m)	UTM North (m)	Elevation (m)	Height (m)	Temperature (K)	Velocity (m/sec)	Stack Diameter (m)
SD	282,249	5,235,756	405.3	16.76	363.00	13.00	0.36
BOIL1	282,277	5,235,775	405.3	10.88	488.56	8.54	0.51
BOIL2	282,278	5,235,772	405.3	10.88	488.56	8.54	0.51
BOIL3	282,278	5,235,768	405.3	10.67	583.81	12.56	0.51
FP	282,281	5,235,780	405.3	3.35	822.04	34.05	0.10
FF	282,248	5,235,785	405.4	5.18	298.00	20.70	0.46

Table 7-3. Nutrilite Emission Rates

	Short Term Emission Rate [a]				Annual Emission Rate [a]	
Unit ID	g CO/s	g NO_x/s	g PM_{10}/s	g $PM_{2.5}$/s	g NO_x/s	g $PM_{2.5}$/s
SD	2.50E-02	8.48E-03	4.08E-03	4.08E-03	8.48E-03	4.08E-03
BOIL1	4.39E-02	1.80E-02	4.50E-04	3.72E-04	1.80E-02	3.72E-04
BOIL2	4.39E-02	1.80E-02	4.50E-04	3.72E-04	1.80E-02	3.72E-04
BOIL3	3.64E-02	1.79E-02	5.38E-04	4.45E-04	1.79E-02	4.45E-04
FP	3.05E-02	8.55E-02	2.75E-03	2.75E-03	2.83E-04	9.10E-06
FF	--	--	3.89E-02	3.89E-02	--	3.89E-02

7.1.9. PM_{10} and $PM_{2.5}$ Surrounding Sources

Nutrilite has performed a full NAAQS analysis for PM_{10}, and $PM_{2.5}$, meaning surrounding sources and background concentrations are included in addition to the Nutrilite sources. Modeled concentrations greater than the MSL due to Nutrilite's sources extends to Microsoft data center, Dell data center, and ConAgra, when the fire pump emissions are included, an intermittent source. Without the fire pump emissions, the modeled concentrations above the MSL do not reach the fenceline of any surrounding sources. A contour plot reflecting the 1st high from Nutrilite for each averaging period for PM_{10} and $PM_{2.5}$ is shown in Appendix G. For conservatism, Nutrilite has elected to include the Microsoft data center, Dell data center, and ConAgra as nearby sources in the PM_{10} and $PM_{2.5}$ models.

Data for particulate emissions, source parameters, and BPIP output for each data center were provided by Ecology.[11] Emissions in these files are for diesel engine exhaust particulate (DEEP). All DEEP emissions are assumed to be less than 2.5 microns and are therefore included as the modelled emission rate in both the $PM_{2.5}$

[11] Clint Bowman provided AERMOD ready modeling input files with source parameters and locations for Microsoft data center, Dell data center, and ConAgra on 8/22/12.

and PM_{10} models. Backup emergency generators at each data center cause the particulate emissions. Due to the restricted nature of these engines, several different scenarios for particulate emissions are applicable. Nutrilite's modeling analysis uses data from the full power outage scenario for each nearby source engine without any run time constraints (i.e., assuming continuous operation). This assumption is conservative, as the data center engines will only run during a power outage and for a limited period of time.[12] There is no change in emission rates between modelled long term and short term averaging periods.

Ecology also provided source parameters and BPIP output modeling data for NO_x emissions at ConAgra.[13] Particulate emissions from ConAgra are calculated using the natural gas fuel limitation of 1,449.4 MMcf/year as specified in Order No. 96AQ-E109, multiplied by the total PM emission factor from AP-42, section 1.3. All other information was copied directly into the Nutrilite PM NAAQS model. This model shows a single emission point for ConAgra; however, three boilers are noted in the permit. The emission rate used in the model is the summation of all boiler emissions. This co-location assumption produces a more conservative result.[14] There is no change in modelled emission rates between long term and short term averaging periods.

12 Clint Bowman approved this method via phone on August 27, 2012.

13 Previous modeling was not available for particulate matter from Ecology. Nutrilite assumes that the source of particulate matter at Con Agra will have the same stack parameters as NOx modeling and no other particulate matter sources require modeling.

14 Clint Bowman approved this method via phone on August 27, 2012.

Table 7-4. PM_{10} and $PM_{2.5}$ Point Source Parameters

Unit ID	UTM East [a] (m)	UTM North [a] (m)	Elevation (m)	Emission Rate [b] (g/s)	Height (m)	Temperature (K)	Velocity (m/sec)	Stack Diameter (m)
CON_AGRA	282,668	5,235,210	401.8	1.58E-01	14.70	450.00	10.16	1.32
P1_1P	283,020	5,236,251	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1_2P	283,020	5,236,245	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1_3P	283,020	5,236,239	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1_4P	283,020	5,236,233	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1_5P	283,020	5,236,226	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1_6P	283,020	5,236,220	406.6	3.53E-05	17.68	621.00	17.50	0.51
P1C_1P	283,020	5,236,214	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1C_2P	283,019	5,236,208	406.6	1.20E-04	17.68	705.00	43.70	0.51
P1ABC_1P	283,019	5,236,140	406.6	3.53E-05	17.68	621.00	17.50	0.51
P1ABC_2P	283,019	5,236,132	406.6	3.53E-05	17.68	621.00	17.50	0.51
P1ABC_3P	283,018	5,236,124	406.6	3.53E-05	17.68	621.00	17.50	0.51
P1ABC_4P	283,018	5,236,116	406.6	3.53E-05	17.68	621.00	17.50	0.51
P1ABC_5P	283,017	5,236,108	406.6	3.53E-05	17.68	621.00	17.50	0.51
P1ABC_6P	283,017	5,236,100	406.6	3.53E-05	17.68	621.00	17.50	0.51
P2_1P	283,026	5,236,348	406.6	1.20E-04	17.68	705.00	43.70	0.51
P2_2P	283,026	5,236,343	406.6	1.20E-04	17.68	705.00	43.70	0.51
P2_3P	283,025	5,236,337	406.6	1.20E-04	17.68	705.00	43.70	0.51
P2_4P	283,025	5,236,331	406.6	1.20E-04	17.68	705.00	43.70	0.51
P2_5P	283,025	5,236,314	406.6	1.20E-04	17.68	705.00	43.70	0.51
P2_6P	283,024	5,236,306	406.6	1.20E-04	17.68	705.00	43.70	0.51
P2_7P	283,024	5,236,297	406.6	3.53E-05	17.68	621.00	17.50	0.51
P3_1P	283,030	5,236,464	406.6	1.20E-04	17.68	705.00	43.70	0.51
P3_2P	283,030	5,236,459	406.6	1.20E-04	17.68	705.00	43.70	0.51
P3_3P	283,029	5,236,454	406.6	1.20E-04	17.68	705.00	43.70	0.51
P3_4P	283,028	5,236,449	406.6	1.20E-04	17.68	705.00	43.70	0.51
P3_5P	283,028	5,236,427	406.6	1.20E-04	17.68	705.00	43.70	0.51
P3_6P	283,027	5,236,420	406.6	1.20E-04	17.68	705.00	43.70	0.51

Table 7-5. PM_{10} and $PM_{2.5}$ Point Source Parameters (Continued)

Unit ID [a]	UTM East [b] (m)	UTM North [b] (m)	Elevation (m)	Emission Rate [c] (g/s)	Height (m)	Temperature (K)	Velocity (m/sec)	Stack Diameter (m)
P3_7P	283,027	5,236,414	406.6	3.53E-05	17.68	621.00	17.50	0.51
CO3_1_O	283,521	5,235,703	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO3_2_O	283,521	5,235,695	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO3_3_O	283,520	5,235,687	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO3_4_O	283,520	5,235,679	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO3_5_O	283,520	5,235,670	402.0	8.34E-05	9.45	613.00	13.50	0.46
CO4_1_O	283,529	5,235,770	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO4_2_O	283,529	5,235,762	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO4_3_O	283,528	5,235,753	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO4_4_O	283,528	5,235,745	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO5_1_O	283,523	5,235,614	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO5_2_O	283,523	5,235,606	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO5_3_O	283,523	5,235,598	402.0	7.09E-04	9.45	744.00	48.50	0.46
CO5_4_O	283,522	5,235,589	402.0	7.09E-04	9.45	744.00	48.50	0.46

[a] All sources beginning with P are associated with Dell Data Center, all sources beginning with CO# are associated with Microsoft Data Center.

[b] The location of each source is reported in WGS 1984 coordinates.

[c] The emission rates for PM_{10} and $PM_{2.5}$, short and long term models are the same. The emission rates provided assume a full power outage scenario for Dell and Microsoft data centers.

7.1.10. NO_2 Surrounding Sources

Nutrilite has performed a full NAAQS analysis for NO_2. Modeled concentrations greater than the NO_2 MSL due to Nutrilite's sources extends to Microsoft data center, Dell data center, and ConAgra when the fire pump emissions are included, an intermittent source. Without the fire pump emissions, the modeled concentrations above the MSL do not reach the fenceline of any surrounding source. A contour plot reflecting the 1st high for each averaging period for NO_2 is shown in Appendix G. For conservatism, Nutrilite has elected to include the Microsoft data center, Dell data center, Con Agra, and Celite as nearby sources in the NO_2 models.

Data for NO_2 emissions, source parameters, and BPIP output for each data center were provided by Ecology.[15] Backup emergency generators at each data center cause the NO_2 emissions. Due to the restricted nature of these engines, several different scenarios for NO_2 emissions are applicable. Nutrilite's modeling analysis uses data from the monthly and annual testing scenarios for each nearby source engine.[16] The monthly and annual testing only occurs during daytime hours as reflected in this model and those supplied by Ecology. There is no change in emission rates between long term and short term averaging periods.

The information supplied for Dell data center includes four scenarios. The model runs include source groups that identify results for a single scenario from Dell and all other surrounding sources. Ecology also provided source parameters and BPIP output modeling data for NO_x emissions at ConAgra and Celite.

Additional input data required to use the Plume Volume Molar Ratio Method (PVMRM) were also included in the information provided by Ecology for each surrounding source. The methodology for PVMRM is discussed in Section 7.1.12.

15 Clint Bowman provided AERMOD ready modeling input files with source parameters and locations for Microsoft data center (12/13/13), Dell data center (12/16/13), and ConAgra (8/22/12).

16 Emission rates for a full power outage scenario are also available. In the event of a power outage, Nutrilite will be shut down; Nutrilite has no backup power. Clint Bowman approved the use of annual emissions testing modeling for Microsoft and Dell data center via phone on December 13, 2013. Via email on December 16, 2013, Clint Bowman confirmed that the dell data center has 4 separate scenarios and only one scenario will be running at any given time.

Table 7-6. NO_2 Point Source Parameters

Unit ID [a]	UTM East [b] (m)	UTM North [b] (m)	Elevation (m)	Emission Rate (g NO_2/s)	Height (m)	Temperature (K)	Velocity (m/sec)	Stack Diameter (m)
Con_Agra	282,668	5,235,210	401.8	1.52E+00	14.70	450.00	10.16	1.32
DE_DRYER	285,184	5,235,808	396.6	9.93E-01	22.90	339.00	10.30	1.83
KILN	285,101	5,235,742	396.7	9.90E-02	29.00	698.00	11.50	0.60
P1_1P	283,020	5,236,251	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1_2P	283,020	5,236,245	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1_3P	283,020	5,236,239	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1_4P	283,020	5,236,233	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1_5P	283,020	5,236,226	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1_6P	283,020	5,236,220	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1C_1P	283,020	5,236,214	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1C_2P	283,019	5,236,208	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1ABC_1P	283,019	5,236,140	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1ABC_2P	283,019	5,236,132	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1ABC_3P	283,018	5,236,124	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1ABC_4P	283,018	5,236,116	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1ABC_5P	283,017	5,236,108	406.6	3.51E+00	17.68	705.00	43.70	0.51
P1ABC_6P	283,017	5,236,100	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_1P	283,026	5,236,348	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_2P	283,026	5,236,343	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_3P	283,025	5,236,337	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_4P	283,025	5,236,331	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_5P	283,025	5,236,314	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_6P	283,024	5,236,306	406.6	3.51E+00	17.68	705.00	43.70	0.51
P2_7P	283,024	5,236,297	406.6	3.51E+00	17.68	705.00	43.70	0.51
P3_1P	283,030	5,236,464	406.6	3.51E+00	17.68	705.00	43.70	0.51
P3_2P	283,030	5,236,459	406.6	3.51E+00	17.68	705.00	43.70	0.51
P3_3P	283,029	5,236,454	406.6	3.51E+00	17.68	705.00	43.70	0.51
P3_4P	283,028	5,236,449	406.6	3.51E+00	17.68	705.00	43.70	0.51

Table 7-7. NO_2 Point Source Parameters (Continued)

Unit ID [a]	UTM East [b] (m)	UTM North [b] (m)	Elevation (m)	Emission Rate (g NO_2/s)	Height (m)	Temperature (K)	Velocity (m/sec)	Stack Diameter (m)
P3_5P	283,028	5,236,427	406.6	3.51E+00	17.68	705.00	43.70	0.51
P3_6P	283,027	5,236,420	406.6	3.51E+00	17.68	705.00	43.70	0.51
P3_7P	283,027	5,236,414	406.6	3.51E+00	17.68	705.00	43.70	0.51
CO1_4	283,441	5,235,892	403.0	6.29E-02	10.06	613.00	13.50	0.46
CO1_5	283,441	5,235,886	403.0	6.29E-02	10.06	613.00	13.50	0.46
CO1_6	283,442	5,235,870	403.0	6.29E-02	10.06	613.00	13.50	0.46
CO1_7	283,443	5,235,864	403.0	6.29E-02	10.06	613.00	13.50	0.46
CO1_8	283,443	5,235,858	403.0	6.29E-02	10.06	613.00	13.50	0.46

[a] Dell has four different testing scenarios. (1) P1ABC_#P, (2) P1_#P and P1C_#P, (3) P2_#P, and (4) P3_#P. The modeled concentrations assume only one scenario is occurring at any given time.

[b] The location of each source is reported in WGS 1984 coordinates.

7.1.11. Background Concentration

The background concentration for each pollutant was determined using NW Airquest on December 2, 2013 for UTM location 5,235,800 m N, 282,300 m E, zone 11.[17] Table 7-8 outlines the background concentrations for all pollutants modeled against the NAAQS.

Table 7-8. Pollutant Background Concentration

Pollutant	Averaging Period	Background Concentration(μg/m^3)
NO_2	Annual	2.8
NO_2	1 hour	15.6
PM_{10}	24 hour	62.0
$PM_{2.5}$	Annual	6.5
$PM_{2.5}$	24 hour	21

7.1.12. NO_2 Tier 3 Modeling Procedure

Modeling of NO_x emissions in AERMOD can follow one of several application methods (Tier 1, Tier 2, and Tier 3), each outlined in Section 5.2.4 of the Guideline on Air Quality Models (GAQM).[18] Tier 3 utilizes source-specific refinement techniques, either based on local ambient monitor ratios or by implementing modeling techniques such as the Ozone Limiting Method (OLM) or PVMRM. PVMRM has been included by the U.S. EPA in the AERMOD dispersion model as a non-regulatory default method and has been presented in a model evaluation study on the SCRAM website.[19]

PVMRM considers the conversion of NO_x emissions to NO_2 in the atmosphere on an hour by hour basis. For each hour, the volume of the source specific plume is calculated for that individual hour's meteorological conditions. Emissions of NO_x at the stack are predominantly in the form of NO. NO will oxidize into NO_2 with the limiting factor being an equilibrium state that is usually established among NO, NO_2, and ozone concentrations in the atmosphere. An ozone-limited atmosphere will limit the amount of conversion of NO to NO_2.[20] The amount of available NO and ozone and eventual conversion to NO_2 is determined by the ratio of these pollutants within the plume volume.

This NO_2 NAAQS demonstration employs PVMRM. The proposed use of PVMRM for modeling emissions will result in more realistic, yet still conservative, maximum predicted NO_2 concentrations.

7.1.12.1. In-Stack NO_2/NO_X Ratios

The modelled NO_2 emission rates shown in Table 7-9 for Nutrilite and Table 7-6 and Table 7-7 for surrounding sources, is quantified as NO_x. The PVMRM model also requires the ratio of NO_2/NO_x at the point of emission (in-stack). The ratios for sources from Microsoft, Dell, and ConAgra were obtained from the files received from

[17] http://lar.wsu.edu/nw-airquest/lookup.html

[18] Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule, 40 CFR Part 51, Appendix W, November 9, 2005.

[19] Evaluation of Bias in AERMOD-PVMRM, Alaska DEC Contract No. 18-9010-12, June 2005,

[20] Addendum – User's Guide for the AMS/EPA Regulatory Model – AERMOD (EPA-454/B-03-001, September 2004), U.S. EPA Office of Air Quality Planning and Standards, February 2012.

Ecology. Nutrilite's NO_2/NO_x ratio was determined from a review of the sources collected through EPA's NO_2/NO_x In Stack Ratio Database. The 90th percentile of NO_2/NO_x ratio for a natural gas boiler, without flue gas recirculation as control, at any load percentage, was used for Nutrilie's external combustion sources (boilers and process heater).[21] A table is provided in Appendix G that presents the sources from the database used for this calculation. The diesel emergency fire pump applies the NO_2/NO_x ratio used in the Microsoft and Dell models for consistency as all the Microsoft and Dell sources are considered diesel engines, as is Nutrilite's fire pump.[22]

Table 7-9. NO_2/NO_x In Stack Ratios

Emission Source	NO_2/NO_x In Stack Ratio
SD, BOIL1, BOIL2, BOIL3	0.0334
FP	0.1
Microsoft Engines	0.1
Dell Engines	0.1
Con Agra sources	0.05

7.1.12.2. Equilibrium NO_2/NO_x Ratios

This modeling analysis relies on the U.S. EPA default NO_2/NO_x ambient equilibrium ratio of 0.9, which U. S. EPA suggests for PVMRM analysis. The use of the default parameter is anticipated to result in a conservative demonstration.

7.1.12.3. Background Ozone Data

PVMRM requires the inclusion of background ozone concentration data to establish the amount of ozone available for conversion of NO to NO_2, i.e., as the level of ozone available for conversion increases, the rate of conversion of NO to NO_2 increases.[23] The background ozone concentration for the Quincy area is 49 ppb. The background ozone concentration was determined using NW Airquest on December 16, 2013 for UTM location 5,235,800 m N, 282,300 m E, zone 11.

7.2. MODELING RESULTS

Nutrilite has demonstrated that emissions from the facility for all modeled pollutants are in compliance with relevant standards. Compliance is demonstrated for CO using a significance model. PM_{10}, $PM_{2.5}$, and NO_2 annual averaging period compliance is demonstrated using a full NAAQS model. Compliance with the NO_2 1 hour averaging period is demonstrated through using a "cause and contribute analysis" discussed in Section 7.2.3.

7.2.1. Significance Modeling

Table 7-10 shows each pollutant's maximum significance modeling results. Pollutants modeled in comparison to the MSL use the highest modeled concentration from all modeled years.[24] Table 7-10 demonstrates that CO

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[21] Clint Bowman verbally approved the use of the 90th percentile of data available on this database for Nutrilite natural gas modeled sources on 12/18/13.

[22] Clint Bowman approved the use of the same parameters for the emergency diesel engine as the data centers in an email 12/16/13.

[23] U.S. EPA, *Use of the Ambient Ratio Method (ARM) for Estimating Ambient Nitrogen Dioxide Concentrations*, Draft, May 27, 1998.

[24] Modeling for most pollutants and averaging periods uses the 1st high from any individual modeled year. Models for the annual and 24 hour averaging period for $PM_{2.5}$ and 1 hour averaging period for NO_2 show the 1st high for all modeled years averaged together.

emissions associated with Nutrilite are below the modeling significance levels for each averaging periods. The results associated with the highest year are displayed in Table 7-10. Contour plots indicating the extent of Nutrilite's impact compared to the MSL are attached in Appendix H. Tabulated modeling results for each year are attached in Appendix I. Modeling data files may be found in Appendix J.

The significance models were also run without Nutrilite's intermittent source, the 50 hp emergency fire pump. Appendix H tabulates modeling results for the short term averaging period with and without Nutrilite's intermittent source. The change in modeled concentration is most notable for the 1-hour averaging period for CO and NO_2. Annual modeling results are not included in Appendix I, because annualized emission rates were used for the emergency fire pump for the annual averaging period.

Table 7-10. Modeling Significance Summary

Pollutant	Averaging Period [a]	Highest Year	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [c] μg/m³	MSL μg/m³	Below MSL?
CO	8 hr	2008	282,281	5,235,768	66.9	500	Yes
CO	1-hr	2008	282,300	5,235,850	93.9	2,000	Yes
PM_{10}	24 hr	2007	282,245	5,235,723	20.6	5	No
$PM_{2.5}$	Annual	2004-2008	282,267	5,235,722	3.9	0.3	No
$PM_{2.5}$	24 hr	2004-2008	282,281	5,235,768	17.1	1.2	No
NO_2	Annual	2007	282,284	5,235,833	1.8	1	No
NO_2	1-hr	2004-2008	282,400	5,235,800	140.9	7.52	No

[a] The fire pump is allowed to run 29 hours per year as specified by Approval Order No. 13AQ-E524. The short term modeled concentrations (1 hour, 8 hour, and 24 hour averaging periods) assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore, the emission rates for the annual averaging period and short term averaging periods are different for the fire pump only.

[b] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[c] The modeled result to which the MSL is compared is the highest 1st-high concentration.

7.2.2. NAAQS Modeling

Table 7-11 shows each pollutant's maximum NAAQS modeling result. CO is not included in this table, as compliance with the CO standards has been demonstrated through significance modeling. Nutrilite has included all surrounding source at a location where Nutrilite's significance model shows a concentration greater than the MSL, and some sources slightly outside the MSL extents. Table 7-11 demonstrates that ambient concentrations of PM_{10}, $PM_{2.5}$, and NO_2 annual averaging period are below their respective primary standard for each averaging period.

For the NAAQS comparison, the modeled NO_2 concentration for the annual averaging period is the annual arithmetic mean from the highest modeled year. The modeled NO_2 concentration for the 1-hour averaging period and $PM_{2.5}$ concentration for the 24-hour averaging period is the 8^{th} highest result averaged over 5 years. The modeled $PM_{2.5}$ concentration for the annual averaging period is the annual arithmetic mean, averaged over the five years modeled. The modeled PM_{10} concentration for the 24-hour averaging period is the 2^{nd} highest concentration for the highest modeled year.

Table 7-11. Overall NAAQS Modeling Results

Pollutant/ Scenario [a]	Averaging Period [b]	Highest Year	UTM Location [c] East (m)	UTM Location [c] North (m)	NAAQS Form [d]	Modeled Results [e] µg/m³	Background Conc [f] µg/m³	Total Conc [g] µg/m³	NAAQS µg/m³	Below NAAQS?
PM_{10}	24 hr	2007	282,245	5,235,723	2nd High	19.6	62.0	81.6	150	Yes
$PM_{2.5}$	Annual	2004-2008	282,267	5,235,722	Averaged Mean	3.9	6.5	10.4	12	Yes
$PM_{2.5}$	24 hr	2004-2008	282,267	5,235,722	Averaged 8th High	12.6	21	33.6	35	Yes
NO_2/A-ABC	Annual	2007	282,997	5,236,333	Mean	4.7	2.8	7.5	100	Yes
NO_2/A-T4	Annual	2005	282,750	5,234,950	Mean	3.8	2.8	6.6	100	Yes
NO_2/A-P2	Annual	2005	282,750	5,234,950	Mean	3.8	2.8	6.6	100	Yes
NO_2/A-P3	Annual	2005	282,750	5,234,950	Mean	3.7	2.8	6.6	100	Yes
NO_2/A-ABC	1-hr	2004-2008	282,994	5,236,261	Averaged 8th High	312.9	15.6	328.5	188	No
NO_2/A-T4	1-hr	2004-2008	282,991	5,236,152	Averaged 8th High	246.1	15.6	261.7	188	No
NO_2/A-P2	1-hr	2004-2008	282,300	5,235,850	Averaged 8th High	128.0	15.6	143.6	188	Yes
NO_2/A-P3	1-hr	2004-2008	282,300	5,235,850	Averaged 8th High	128.0	15.6	143.6	188	Yes

[a] The Dell facility has 4 different scenarios for annual testing requirements. The source groups are specified as follows,: (1) A-ABC includes all Dell sources designated as P1ABC_#P; (2) A-T4 includes all Dell sources designated as P1_#P and P1C_#P; (3) A-P2 includes all Dell sources designated as P2_#P; and (4) A-P3 includes all Dell sources designated as P3_#P. [Each modeled source group includes the dell sources specified as well as all sources from Nutrilite Microsoft, Con Agra and Celite.]

[b] The fire pump is allowed to run 29 hours per year as specified by Approval Order No. 13AQ-E524. The short term modeled concentrations (1 hour, 8 hour, and 24 hour averaging periods) assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore, the emission rates for the annual averaging period and short term averaging periods are different for the fire pump only.

[c] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[d] Any averaged NAAQS form (e.g., "*Averaged* 8th High") means that it is averaged over all meteorological years. Other results are based on a single meteorological year's data. For example, for PM_{10}, the maximum of all the 2nd highest concentrations from each of the five individual meteorological year's results is compared against the standard.

[e] The modeled result to which the NAAQS is compared is the form of the respective NAAQS.

[f] Background concentrations for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

[g] The total concentrations include Nutrilite's sources, surrounding sources, and the background concentration for the area.

7.2.3. NO_2 1-hour Cause and Contribute Analysis

For the NO_2 1 hour averaging period NAAQS analysis, a cause and contribute study has been completed.[25] Modeling results for each year and each Dell scenario are attached in Appendix H. The NAAQS results presented in Table 7-11 indicates that two of the four Dell annual testing emission scenarios exceed the NAAQS (source group A-ABC and A-T4).

To assess whether the Nutrilite facility causes or contributes to any modeled NAAQS exceedance, the following step-by-step "cause or contribute" analysis was conducted:

- *Step 1:* Extract the receptor locations from the full NAAQS receptor grid with a five-year average 8^{th} high impact above NAAQS minus background (i.e., 188 $\mu g/m^3$ 1-hr NO_2 NAAQS – 15.6 $\mu g/m^3$ 1-hr NO_2 background concentration = 172.4 $\mu g/m^3$). This process identified a small set of receptors on the west side of the Dell data center at which modeled impacts exceeded the NAAQS on a five-year average 8^{th} high basis, these receptors and the Dell data center facility fenceline were included in the cause and contribute model.
- *Step 2:* Rerun AERMOD for the full five-year meteorological dataset including only these receptors with the internal post-processing routine MAXDCONT enabled. The 8^{th} to 100^{th}-highest 1-hr five-year average concentrations for the source group A-ABC and A-T4 is output for each of these receptors using five years of meteorology combined into a single meteorological data file.
- *Step 3:* Import the MAXDCONT output file into Microsoft Excel® and sort/filter following the steps below:
  - *Step A:* Select all data and apply a filter. Use the column headers (X, Y, Average, etc) for the first row to select data and include all values in subsequent rows.
  - *Step B:* Sort column A or the X location and delete all rows that do not contain numbers, i.e. header and footer rows.
  - *Step C:* Click the down arrow for the column that contains the overall average for the A-ABC modeled concentration and select number filters → greater than or equal to. Input the value of 172. While NAAQS-background is 172.4, Nutrilite rounded down for conservatism. The only values remaining in the spreadsheet are those modeled concentrations greater than the NAAQS-Background.
  - *Step D:* Click the down arrow for the column that identifies the rank of the values, sort from highest to lowest. Since the highest value (44^{th} Rank) is less than 100, Nutrilite has captured all NAAQS exceedances within this analysis.[26]
  - *Step E:* Click the down arrow for the column that contains the contribution from Nutrilite (CONT NUT). Sort this column from highest to lowest. The first value in this column is now the highest contribution Nutrilite has to a NAAQS exceedance as modeled.
- *Step 4*: Repeat Step 3 for the MAXDCONT output file associated with source group A-T4.

As summarized in Table 7-12, for all modeled exceedances of the 1 hour NO_2 NAAQS, Nutrilite does not contribute concentration increases greater than the MSL for the location and times corresponding to each exceedance. Table 7-12 presents the highest contribution from Nutrilite has to any modeled value that exceeds the NAAQS-background. A table of all NAAQS-background exceedances is provided in Appendix I for each source group's MAXDCONT file output.

[25] Clint Bowman approved the use of a cause and contribute methodology via phone conversation 12/13/13.
[26] If the data was imported with the number extensions (st, nd, rd, etc.) in the same column follow these steps to be able to sort high to low: (1) select the column, (2) hit ctrl+F, (3) click the replace tab, (4) identify one of the extensions, (5) hit replace all with nothing in the "replace with" section, (6) repeat steps 4 and 5 with all number extensions.

Table 7-12. NO_2 1 hour Cause and Contribute Modeling Results Summary

Scenario [a]	Pollutant	Averaging Period	UTM Location [c] East (m)	UTM Location [c] North (m)	Modeled Results [d] µg/m³	Background Concentration [e] µg/m³	Total Concentration µg/m³	Nutrilite's Contribution [b] µg/m³	MSL µg/m³	Below MSL?
A-ABC	NO_2	1-hr	282,994	5,236,261	194	15.6	209.7	1.25E-03	7.52	Yes
A-T4	NO_2	1-hr	282,991	5,236,162	223	15.6	238.3	1.29E-03	7.52	Yes

[a] The Dell facility has 4 different scenarios for annual testing requirements. The source groups that showed a NAAQS exceedance are A-ABC and A-T4. A-ABC includes all Dell sources designated as P1ABC_#P, Nutrilite's sources, Microsoft annual testing sources, Con Agra sources, and Celite sources. A-T4 includes all Dell sources designated as P1_#P and P1C_#P, Nutrilite's sources, Microsoft annual testing sources, Con Agra sources, and Celite sources.

[b] "Nutrilite's Contribution" value is the portion of the overall modeled result that was caused by sources from Nutrilite's facility. The results shown in this table are for Nutrilite's maximum contribution to any NAAQS exceedance.

[c] The UTM location is the location of the receptor at which the modeled concentration occurs.

[d] The overall modeled result corresponds to Nutrilite's maximum contribution to a NAAQS exceedance. There are results for the overall model that are greater than this value.

[e] Background concentrations for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

APPENDIX A: APPLICATION FORM AND SEPA CHECKLIST

Application No.

CITY OF QUINCY

104 B St. SW – PO Box 338 Quincy, WA 98848

Phone (509) 787-3523 Fax (509) 787-1284

DEVELOPMENT APPLICATION

Date Completed ______ By ______ Fee ______ Receipt No. ______

TYPE OF LAND ACTION YOU ARE APPLYING FOR

- [ ] Short Plat 001.000.000.345.80.00
- [ ] Boundary Line Adjustment 001.000.000.345.80.00
- [ ] Variance 001.000.000.345.80.01
- [ ] Major Subdivision 001.000.000.345.80.00
- [ ] Planned Unit Development 001.000.000.345.80.00
- [ ] Conditional Use/Home Business 001.000.000.345.80.02 Home Business Type ______
- [ ] Final Plat 001.000.000.345.80.00
- [ ] Rezone 001.000.000.345.80.00
- [x] SEPA Review 001.000.000.345.80.00

SECTION A

1. APPLICANT
Jeff Swanson

MAILING ADDRESS
7575 Fulton Street East, M/S 26-2F, Ada, MI 49355

DAYTIME PHONE NUMBER	FAX NUMBER
616-787-7655	616-787-4885

Compete Part 2 if an agent is acting on behalf of applicant during the permit process
NOTE : The Agent will receive all correspondence and notices regarding this application

2. AUTHORIZED AGENT
William Langley

MAILING ADDRESS
625 Fisher Lane

DAYTIME PHONE NUMBER	FAX NUMBER
360-757-5681	360-757-4005

3. RELATIONSHIP OF APPLICANT TO PROPERTY:
[ ] OWNER [ ] PURCHASER [ ] LESSEE [x] OTHER Owner's Employee

PROPERTY OWNER (IF OTHER THAN APPLICANT)
Access Business Group LLC, a Michigan limited liability company c/o Jeff Swanson

MAILING ADDRESS
7575 Fulton Street East, M/S 26-2f, Ada, MI 49355

DAYTIME PHONE NUMBER	FAX NUMBER
616-787-7655	616-787-4885

4. PROPERTY LOCATION (ADDRESS IF APPLICABLE)
10448 NW RD R; Quincy, WA 98848

PRIMARY TAX PARCEL NUMBER	LEGAL DESCRIPTION
042009300	Lot 1 of Port Dist. Indust. Park No. 6 BSP

SECTION	TOWNSHIP	RANGE	GOV'T LOT	¼ SECTION	TOTAL SITE SIZE
12	20N	23E		SE	12+/- Ac

ZONING CLASSIFICATION	COMPREHENSIVE PLAN DESIGNATION
General Industrial	General Industrial

SECTION A (continued)	
5. SURVEYOR NAME Erik Gahringer	WA REGISTRATION NUMBER 37543
MAILING ADDRESS 250 Simon Street; East Wenatchee, WA 98802	
DAYTIME PHONE NUMBER 509-884-2562	FAX NUMBER 509-884-2814
2. ENGINEER NAME Eric Smith	WA REGISTRATION NUMBER 36214
MAILING ADDRESS 250 Simon Street; East Wenatchee, WA 98802	
DAYTIME PHONE NUMBER 509-884-2562	FAX NUMBER 509-884-2814

SECTION B

I (We) acknowledge that:

1. The information, plans, maps and other materials submitted on and with this application are, to the best of my/our knowledge, a true and accurate representation of this proposal;
2. This application shall be subject to all additions to and changes in the laws, regulations and ordinances applicable to the proposed development until a determination of completeness has been made pursuant to QMC 17.05.030;
3. The City of Quincy does not guarantee success of this permit application, and/or the issuance of an affirmative notice of action. The City's assistance to the applicant(s)/owner(s) does not preclude the need to address impacts raised by the public or by other federal, state or local agencies;
4. In the event of any legal proceeding to challenge this application, any environmental determination or any other aspect of the proposed development, the Applicant(s)/Owner(s) shall be solely responsible to defend such challenge and pay all court costs and attorney's fees necessary for such defense;
5. If the Applicant is not the owner of the real property which is the subject of the permit application, this application and acknowledgment shall also be executed by each owner;
6. Only that person identified in Section A as the "Authorized Agent" will receive correspondence and notices regarding this application;
7. All persons executing this acknowledgment in a representative capacity shall be personally liable and hereby personally guarantee payment of all fees, expenses and costs required by this application
8. If the applicant(s), representative(s) and/or owner(s) fail to respond to a request by the City to submit additional information, or the applicant(s), representative(s) and/or owner(s) request, orally or in writing, that further processing be suspended or postponed, and if such failure to respond or requested suspension/postponement exceeds 90 days, the application shall be considered abandoned and all proposed development, uses and activities shall only be further considered in the submission of a new application and fees; and
9. This application does not constitute approval of the proposed development activity and it is acknowledged that additional permit applications and approvals may be necessary to conduct specific activities

APPLICANT Jeff Swanson DATED May 4th, 2012

APPLICANT Jeffrey E Swanson DATED May 4th, 2012

OWNER ______________________ DATED ______________

OWNER ______________________ DATED ______________

FOR DEPARTMENT USE ONLY

HEARING DATE ____________ P. C. ACTION: APPROVED / DENIED APPROVED BY ______________

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

   Nutrilite, Quincy, WA extraction concentration facility

2. Name of applicant: *Nutrilite. Contact: Jim Jaderholm 509 237-8936*

3. Address and phone number of applicant and contact person:

   c/o Jim Jaderholm
   180 Airport Street NE
   Ephrata, WA 98823
   (509)- 237-8936
   Jim.jaderholm@amway.com

4. Date checklist prepared:

   May 3, 2012

5. Agency requesting checklist:

   City of Quincy Building Department

6. Proposed timing or schedule (including phasing, if applicable):

   Construction is to commence in later third quarter of 2012 with project start-up occurring in the later third quarter of 2013.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   An expansion to accommodate additional dryer capacity may needed in the future. However, the timing of this need is not known. Any expansion would occur as a separate project and permitting process.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

   - *Final Geotechnical Report will be prepared for the project*
   - *Preliminary Geotechnical Report prepared HWA GeoScience, Inc in October 2011.*
   - *Notice of Construction (air) permit will be applied for the project*
   - *Phase I Environmental Assessment by ERM in October 2011*
   - *A Stormwater Pollution Prevention Plan will be prepared for the project as part of civil plan development.*
   - *A Stormwater Site Plan meeting the City of Quincy standards will be prepared.*
   - *An Engineering Report addressing site wastewater controls and discharges per WAC 173-240*
   - *An Application for Industrial Waste Discharge to a Publicly Owned Treatment Works will be prepared and approved prior to waste discharge.*

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

   None

10. List any government approvals or permits that will be needed for your proposal, if known.

    - *City of Quincy: Building Permit*
    - *Washington State Department of Ecology: Construction Stormwater*
    - *Washington State Department of Ecology: Industrial Stormwater Permit*
    - *Washington State Department of Ecology: Industrial Waste Permit*
    - *Washington State Department of Ecology: Notice of Construction Air Quality Permit*

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

    The project proposal consists of associated improvements for the development of a new Amway-Nutrilite (Access Business Group, LLC) facility on an existing 12-acre parcel.

    Work will include construction of a new 43,000 square foot building, associated parking, fuel (ethanol), storage, and utility/ infrastructure improvements/extensions as needed for operations.

    Earthwork will be performed per the recommendations contained within the project Geotechnical Report. Based on preliminary work it is anticipated that some soil improvement will be required to support the anticipated building loads.

    It is anticipated that normal construction methods will be used for the proposed work. This would consist of various earthwork, grading, paving, and trenching machinery and hand labor.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

    The property is Assessor's parcel no. 042009300 at 10448 NW RD R. This parcel is located on the northwest corner of the intersection of Port Industrial Way and 13th Ave NW (RD R) in the City of Quincy Washington.

B. ENVIRONMENTAL ELEMENTS

1. Earth

    a. General description of the site (circle one): (Flat) rolling, hilly, steep slopes, mountainous, other. . . .

    The site very gradually falls, less than 1%, to the southeast.

    b. What is the steepest slope on the site (approximate percent slope)?

    1%+/-

    c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

    The property is currently used as agricultural farmland. The NRCS classifies the site soils as Warden silt loam, which is classified as prime farmland if irrigated.

    d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

    None

    e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

    Due to the existing project site soil, soil improvements will be required to provide adequate bearing capacity for the proposed facility and concrete loading area. This will require replacement of 30,000 cubic yards of material below the building and concrete pad area with approved gravel fill material. Site grading activities will generate approximately 40,000 cubic yards of strippings and topsoil in addition to the approximate 4,500 cubic yards of material generated by site grading. Site grading will require the import of approximately 50,000 cubic yards of material. Excavated material will be reused on site for grading activities as needed. Excess material will be removed and deposed of in accordance with local requirements. Imported materials will be from an approved source.

    f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

    Yes the site soil to susceptible to erosion. Per the preliminary geotechnical evaluation by HWA GeoScience, Inc, the site is overlaid by windblown slit below an 18" to 24" layer of topsoil. As part of the site grading it is anticipated that the topsoil will be removed. As part of the site/civil plan development a stormwater pollution prevention plan will be developed. This plan will show recommend best management practices to control erosion.

    g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

    40%+/-

    h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Prior to the initiating construction activities, appropriate soil erosion and sediment control measures will be installed. The specific measures will be shown within detailed erosion and sedimentation control plans, including detailed construction practices and specifications as outline with the Stormwater Pollution Prevention Plan that will be prepared as part of the NPDES permit application and coverage.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

The use of construction equipment will be necessary to perform construction activities. The operation of the heavy equipment will result in short-term vehicular exhaust emissions lasting for the duration of construction. All heavy equipment will be required to operate with appropriate vehicle emission control devices that comply with current air quality standards for construction equipment. Efforts will be made to limit use of construction equipment and to reduce the idle times of engines. Some dust may be produced from equipment operating within the staging sites; however, appropriate dust control measures will be employed at these locations. No burning of construction debris or removed vegetation will occur.

Upon completion of the project, emissions will be from:

- *The handling and processing of feed stock.*
- *Emission from 2 natural gas fired boilers: NO_x and CO*
- *Volatiles from uses of ethanol in extraction process*

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The proposed project will utilize fill material and topsoil from local sources which may produce dust during loading and unloading at the staging areas. Emissions will be generated from trucks transporting construction materials to the staging areas. Emissions will be generated from trucks transporting agricultural product to the project site for processing and from the site for distribution of processed materials.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
As previously stated, all heavy equipment will be required to operate with appropriate vehicle emission control devices that are in compliance with current air quality standards. Efforts will be made to limit construction equipment movement and to reduce the idle times of engines. Appropriate dust control measures will be employed during construction.

Following completion:

- *All trucks hauling processed and pre-processed materials will be operated with vehicle emission control devices that are in compliance with current air quality standards. Efforts will be made to limit truck and equipment movement and to reduce the idle times of engines.*
- *The boilers will be fitted with vertical stacks extending above the boilers' building roof top to promote optimal dispersion. The boilers will be equipped with burners that meet or exceed current Washington State Department of Ecology standards for air emissions.*
- *The spray dryer will be fitted with a dust collection system that meets or exceeds current Washington State Department of Ecology standards for air emissions.*
- *Emission sources associated with the use of ethanol (extractor, day tanks, etc.) will be connected to a thermal oxidizer that meets or exceeds current Washington State Department of Ecology standards for air emissions.*
- *Construction for all equipment associated with the industrial emission sources will not start until the Washington Department of Ecology has approved the documentation in the permit application and has issued its final air quality permit.*

3. Water
   a. Surface:
      1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

         An existing irrigation canal is located approximately 0.3 miles to the north of the property. This is operated by the Quincy Irrigation District. No other water bodies are in the immediate vicinity.

      2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

         No

      3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

         None.

      4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

         No

      5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

         No

      6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

         No

   b. Ground:
      1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

         No groundwater will be withdrawn. Nor will water be discharged into groundwater sources because of the proposed project.

      2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

         All sanitary wastes will be discharged to the City of Quincy facilities. Stormwater runoff from the proposed site will be infiltrated into the ground in accordance with the Standards of the Washington Department of Ecology.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Stormwater will originate from the existing and proposed surfaces and will flow along existing and proposed contours. Runoff will be collected via catch basins as needed and conveyed to open stormwater retention ponds, localized dry wells and underground infiltration trenches, where runoff will infiltrate into the ground. Following construction all bare soils will be seeded and mulched to prevent long term erosion from surface runoff. No other site runoff is proposed or anticipated.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Yes, a spill response plan and industrial stormwater permit will be prepared for the project. These will outline site operational and structural measures to protect ground and surface waters.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

During construction activities, a site-specific Erosion and Sediment Control Plan will be implemented to control movement of sediment along slopes and within areas of minor slope contouring and grading. Erosion control measures will include, among others, installation of sediment fencing, check dams, and mulch application to bare soils. Project soil erosion control measures will remain in place until construction is completed and disturbed areas are stabilized. Additional stormwater control facilities will be designed and constructed in accordance to the DOE Stormwater Management Manual for Eastern Washington.

Additional operational and structural measures will be used to reduce and control impacts to stormwater runoff will be outlined with the Industrial Stormwater Permit and Spill Response Plan for the project.

4. Plants

a. Check or circle types of vegetation found on the site:

_____ deciduous tree: alder, maple, aspen, other
_____ evergreen tree: fir, cedar, pine, other
_____ shrubs
_____ grass
__X__ pasture
__X__ crop or grain
_____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
_____ water plants: water lily, eelgrass, milfoil, other
__X__ other types of vegetation

(The project site is currently a fallow field used for cultivating corn.)

b. What kind and amount of vegetation will be removed or altered?

The project will remove all existing vegetation as part of the mass grading activities.

c. List threatened or endangered species known to be on or near the site.

Due to the ongoing agriculture actives, corn production, on the site and on the adjacent properties the presence of any threatened or endangered species is unlikely, however, based on information from County Documents, the project area may contain the following species prior to cultivation activities:

- *Threatened: Ute Ladies'-tresses (Spiranthes diluvialis)*
- *Endangered: Showy stickseed (Hackelia venusta)*

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

No specific measures are proposed to retain existing vegetation. A landscape plan will be prepared for the project meeting City of Quincy standards as part of the building permit approval. Specific plants and species will be developed and shown on this plan. It is anticipated that native planting will be used to minimize the extent of watering and maintenance.

4. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

X birds: hawk, heron, eagle, songbirds, other:
(hawk, heron, eagle, songbird)
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

Due to the limited natural habitat provided on the project site, within the adjacent cultivated fields and industrial facilities activities these species are not anticipated to be displaced or adversely impacted by the proposed project, however, based on County Documents the project area may contain the following species:

- *Threatened: Marbled murrelet (Brachyramphus marmoratus), Northern spotted owl (Strix occidentalis), Canada lynx (Lynx canadensis), Grizzly Bear (Ursus arcto horribilis)*
- *Endangered: Pygmy Rabbit (Brachylagus idhoensis)*

c. Is the site part of a migration route? If so, explain.

No

d. Proposed measures to preserve or enhance wildlife, if any:

No specific measures are proposed.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Energy needs will be meet by the following:

- *Electric power for site operations by Grant County PUD*
- *Natural gas to power two (2) steam generating boilers which will supply steam for heating and process operations.*
- *Natural gas to power a burner for process drying*

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

The following energy conservation features will be used:

- *Energy efficient lighting with optimal use of natural lighting*
- *Low flow plumbing fixtures*
- *Energy efficient appliances*
- *Operational processes will use variable frequency drives, and PLC on fans, pumps and air handling units.*

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

Construction Activities: (Short Term)
Minor spills related to the operation of construction equipment, such as gasoline and oil, have the potential of occurring during construction. The majority of the materials used for the construction actions will involve natural quarry spalls, clean fill, plant materials obtained from local sources, piping, and building materials.

Operational Activities (Long Term)

Fire and explosion: Ethanol, a flammable liquid and dry organic herb feedstock, a combustible material are fire and explosion hazards associated with the operation of the facility.

Spill or hazardous waste: An ethanol spill would meet the definition of hazardous waste due its flammability but containment protection is planned.

1) Describe special emergency services that might be required.

The project is not anticipated to require special emergency service.

2) Proposed measures to reduce or control environmental health hazards, if any:

As part of the project development, a Phase I Environmental Assessment was completed. Based on this assessment no adverse environmental problems should affect the proposed project.

Construction Activities: (Short Term)
During construction activities, spill containment kits and clean-up supplies will be available at all times to respond to small spills of oil or fuel. All hazardous construction materials, including fuel and oil, will be properly stored in approved containers away from sensitive natural areas. Fueling of vehicles and construction equipment will occur in designated areas a minimum of 50 feet away from surface waters.

Operational Activities: (Long Term)
Structural: Fire protection/suppression system
Tank leak detection/containment
Tank overflow protection

Operational: Employee training
Scheduled preventative maintenance and inspection program for processing and storage container and equipment
Required use of Personal Protection Equipment (PPE)

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Typical traffic noise from urban streets, industrial operations, rail activities should have no effect on the proposed project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

<u>Construction Activities: (Short Term)</u>
Short term noise levels will increase commensurate with construction of roads and utilities, mostly from heavy equipment. It is expected that noise generation during this phase would be limited to daylight hours.

<u>Operational Activities: (Long Term)</u>
Truck traffic – variable hours
HVAC Operation – variable hours
Process Equipment Operation –variable hours

3) Proposed measures to reduce or control noise impacts, if any:

<u>Construction Activities: (Short Term)</u>
Equipment will meet DOE noise level standards and construction will be confined to daylight hours.

<u>Operational Activities: (Long Term)</u>
No specific measures are proposed. Operational noise will be consistent with those expected from industrial operations intended and permitted by the current zoning and from the current operations in the vicinity.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The current use of the site is undeveloped agricultural use. No crops are expected to be further cultivated.

North: A maintenance road and an irrigation ditch lie to the immediate north of the property. Beyond lays a corn field, the main irrigation district delivery ditch and agricultural fields and rural housing (1300 feet to the north of the property).

South: Contiguous agricultural field consisting of planned Lots 4, 5 and 6 within the Grant County Port District Industrial Park No. 6. Lot 6 is owned by Baseline/Double Diamond Fruit. Further south lays the Burlington Northern Railroad and its right of way.

East: the road, 13th Ave NW (Road R NW). Across the road is Morgan Storage Facilities, Port Industrial Parkway. Dell and Microsoft data centers are approximately ¾ miles to the east.

West: Planned lots 2 and 3 consisting of contiguous agricultural field,

b. Has the site been used for agriculture? If so, describe.

Yes. Per information from the Phase 1 ESA, the land has been used for agriculture since about 1902. With the delivery of the irrigation water to the area by the Quincy-Columbia River Basin Irrigation District in 1952 agricultural use became the dominant use of the site. Within recent years the property has been used for the cultivation of corn.

c. Describe any structures on the site.

There are some concrete lined irrigation channels associated with the past use for cultivated crops and a cap for a water well.

d. Will any structures be demolished? If so, what?

The above mentioned channels will be demolished.

e. What is the current zoning classification of the site?

General Industrial, which per the City code manufacturing is an approved use.

f. What is the current comprehensive plan designation of the site?

General Industrial, which per the City code manufacturing is an approved use.

g. If applicable, what is the current shoreline master program designation of the site?

N/A

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No

i. Approximately how many people would reside or work in the completed project?

The completed project would employee approximately thirty (30) full-time manufacturing/quality control positions.

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any:

N/A

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposal is consistent with adopted plans and adjacent properties.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None

c. Proposed measures to reduce or control housing impacts, if any:

N/A

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The dryer stack will extend approximately 10' above the 40' roof line. The building is proposed to be a concrete structure, similar in nature the surrounding buildings.

b. What views in the immediate vicinity would be altered or obstructed?

Views of the cultivated crops would be replaced with an industrial facility consistent with other facilities in the general vicinity.

c. Proposed measures to reduce or control aesthetic impacts, if any:

No specific measures are proposed beyond what is required per the City of Quincy Municipal Code for the General Industrial zoning which would consist of site landscaping and fencing as need to obscure the transfer and processing of materials from the adjacent roadway and parcels.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

To provide for safety and security the parking area and egress point of building will be lighted during non-daylight hours.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No

c. What existing off-site sources of light or glare may affect your proposal?

None

d. Proposed measures to reduce or control light and glare impacts, if any:

Outdoor lighting will be design to minimize light encroachment onto the adjacent properties or night sky.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

There are no designated or informal recreational opportunities in the immediate vicinity

b. Would the proposed project displace any existing recreational uses? If so, describe.

No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No specific measures are proposed.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

None known to applicant

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

None known to applicant

c. Proposed measures to reduce or control impacts, if any:

No specific measures are proposed

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Access to the project will be from a new commercial access from 13th and a new commercial access from a yet to be completed (separate project) extension to Port Industrial Way by the Port District.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The site is not served by public transit. The nearest stop is approximately ½ mile away near the Con-Agra facility to the South

c. How many parking spaces would the completed project have? How many would the project eliminate?

40 parking spaces will be provided in accordance with City of Quincy Standards – none would be eliminated

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

The project will require a new roadway and utility extension. The Port of Quincy (as a separate project) will extend Port Industrial Way, a public road, south of the project.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Per the 1990 Trip Generation Manual, the project should produce 172 trips per day during peak operations co-insiding with the growing season. During non-peak times, trips will be limited to general employee use with about 45 trips per day.

g. Proposed measures to reduce or control transportation impacts, if any:

The access will be designed using Auto-Turn Software to ensure required turning ingress and egress movements for the truck movements.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

Yes. Normal public services associated with manufacturing operations which would generally affect fire and police protection

b. Proposed measures to reduce or control direct impacts on public services, if any.

The facility will provide onsite fire protection systems and non-daylight lighting.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Electricity, Water, Refuse Service, Telephone, Sanitary Sewer, Fiber, Gas

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Domestic Water/Municipal Sewer – City of Quincy

Electricity and fiber – Grant PUD

Telephone – Frontier

Refuse Service – Consolidated Disposal Service, Inc.

Irrigation – Quincy Columbia Irrigation District

c. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature E. Smith PE ERIC SMITH, PE , ERLANDSEN

Date Submitted 5.4.2012

Notice of Construction Application

This application applies statewide for facilities under the Department of Ecology's jurisdiction. Submit this form for review of your project to construct a new or modified source of air emissions. Please refer to Ecology Forms ECY 070-410a-g, "Instructions for NOC Application," for general information about completing the application.

Ecology offers up to two hours of free pre-application assistance. We encourage you to schedule a pre-application meeting with the contact person specified for the location of your proposal, below. If you use up your two hours of free pre-application assistance, we will continue to assist you after you submit Part 1 of the application and the application fee. You may schedule a meeting with us at any point in the process.

Upon completion of the application, please enclose a check for the initial fee and mail to:

Department of Ecology
Cashiering Unit
P.O. Box 47611
Olympia, WA 98504-7611

For Fiscal Office Use Only:
001-NSR-216-0299-000404

Check the box for the location of your proposal. For assistance, call the contact listed below:		
	Ecology Permitting Office	**Contact**
☐ **CRO**	**Chelan, Douglas, Kittitas, Klickitat, or Okanogan County** Ecology Central Regional Office – Air Quality Program	Lynnette Haller (509) 457-7126 lynnette.haller@ecy.wa.gov
☒ **ERO**	**Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla or Whitman County** Ecology Eastern Regional Office – Air Quality Program	Greg Flibbert (509) 329-3452 gregory.flibbert@ecy.wa.gov
☐ **NWRO**	**San Juan County** Ecology Northwest Regional Office – Air Quality Program	David Adler (425) 649-7082 david.adler@ecy.wa.gov
☐ **IND**	**For actions taken at** **Kraft and Sulfite Paper Mills and Aluminum Smelters** Ecology Industrial Section – Waste 2 Resources Program Permit manager: ______________________	Garin Schrieve (360) 407-6916 garin.schrieve@ecy.wa.gov
☐ **NWP**	**For actions taken on the** **US Department of Energy Hanford Reservation** Ecology Nuclear Waste Program	Philip Gent (509) 372-7983 philip.gent@ecy.wa.gov

If you need this document in a format for the visually impaired, call the Air Quality Program at 360-407-6800. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Notice of Construction Application

Check the box below for the fee that applies to your application.

New project or equipment:

☒	**$1,500: Basic project** initial fee covers up to 16 hours of review.
☐	**$10,000: Complex project** initial fee covers up to 106 hours of review.

Change to an existing permit or equipment:

☐	**$200: Administrative or simple change** initial fee covers up to 3 hours of review Ecology may determine your change is complex during completeness review of your application. If your project is complex, you must pay the additional $675 before we will continue working on your application.
☐	**$875: Complex change** initial fee covers up to 10 hours of review
☐	**$350** flat fee: **Replace or alter control technology equipment under WAC 173-400-114** Ecology will contact you if we determine your change belongs in another fee category. You must pay the fee associated with that category before we will continue working on your application.

Read each statement, then check the box next to it to acknowledge that you agree.	
☒	The initial fee you submitted may not cover the cost of processing your application. Ecology will track the number of hours spent on your project. If the number of hours Ecology spends exceeds the hours included in your initial fee, Ecology will bill you $95 per hour for the extra time.
☒	You must include all information requested by this application. Ecology may not process your application if it does not include all the information requested.
☒	Submittal of this application allows Ecology staff to visit and inspect your facility.

Notice of Construction Application

Part 1: General Information

I. Project, Facility, and Company Information

1. Project Name RWD Addition Project
2. Facility Name Nutrilite
3. Facility Street Address 1333 Port Industrial Parkway, Quincy, WA 98848
4. Facility Legal Description Lot 1 of Port District Industrial Park No. 6 BSP
5. Company Legal Name (if different from Facility Name) Access Business Group LLC
6. Company Mailing Address (street, city, state, zip) 5600 Beach Boulevard, Buena Park, CA 90622

II. Contact Information and Certification

1. Facility Contact Name (who will be onsite) Ashish Jain	
2. Facility Contact Mailing Address (if different than Company Mailing Address)	
3. Facility Contact Phone Number (714) 562-4120	4. Facility Contact E-mail ashish.jain1@amway.com
5. Billing Contact Name (who should receive billing information) Ashish Jain	
6. Billing Contact Mailing Address (if different than Company Mailing Address)	
7. Billing Contact Phone Number (714) 562-4120	8. Billing Contact E-mail Ashish.Jain1@amway.com
9. Consultant Name (optional – if 3rd party hired to complete application elements) Beth Beaudry	
10. Consultant Organization/Company Trinity Consultants	
11. Consultant Mailing Address (street, city, state, zip) 20819 72nd Avenue S, Suite 610, Kent, WA 98032	
12. Consultant Phone Number (253) 867-5600	13.Consultant E-mail bbeaudry@trinityconsultants.com
14. Responsible Official Name and Title (who is responsible for project policy or decision-making) Julien Ollivierre, Supervisor, Environmental Health & Safety	
16. Responsible Official Phone (714) 562-1830	17. Responsible Official E-mail Julien.Ollivierre@amway.com
18. Responsible Official Certification and Signature I certify, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate and complete. Signature ____ Date_____________________	

Notice of Construction Application

Part 2: Technical Information

The Technical Information may be sent with this application form to the Cashiering Unit, or may be sent directly to the Ecology regional office with jurisdiction along with a copy of this application form.

For all sections, check the box next to each item as you complete it.

III. Project Description

Please attach the following to your application.

☒ Written narrative describing your proposed project.
☒ Projected construction start and completion dates.
☒ Operating schedule and production rates.
☒ List of all major process equipment with manufacturer and maximum rated capacity.
☒ Process flow diagram with all emission points identified.
☒ Plan view site map.

☒ Manufacturer specification sheets for major process equipment components.
☐ Manufacturer specification sheets for pollution control equipment.
☒ Fuel specifications, including type, consumption (per hour & per year) and percent sulfur.

IV. State Environmental Policy Act (SEPA) Compliance

Check the appropriate box below.

☒ SEPA review is complete:
Include a copy of the final SEPA checklist and SEPA determination (e.g., DNS, MDNS, EIS) with your application.

☐ SEPA review has not been conducted:

☐ If review will be conducted by another agency, list the agency. You must provide a copy of the final SEPA checklist and SEPA determination before Ecology will issue your permit.
Agency Reviewing SEPA: ___________________________

☐ If the review will be conducted by Ecology, fill out a SEPA checklist and submit it with your application. You can find a SEPA checklist online at www.ecy.wa.gov/programs/sea/sepa/docs/echecklist.doc

V. Emissions Estimations of Criteria Pollutants

Does your project generate criteria air pollutant emissions? ☒ Yes ☐ No

If yes, please provide the following information regarding your criteria emissions in your application.

☒ The names of the criteria air pollutants emitted (i.e., NO_x, SO_2, CO, $PM_{2.5}$, PM_{10}, TSP, VOC, and Pb)

☒ Potential emissions of criteria air pollutants in tons per hour, tons per day, and tons per year (include calculations)

☒ If there will be any fugitive criteria pollutant emissions, clearly identify the pollutant and quantity

VI. Emissions Estimations of Toxic Air Pollutants

Does your project generate toxic air pollutant emissions? ☒ Yes ☐ No

If yes, please provide the following information regarding your toxic air pollutant emissions in your application.

☒ The names of the toxic air pollutants emitted (specified in WAC 173-460-150[1])

☒ Potential emissions of toxic air pollutants in pounds per hour, pounds per day, and pounds per year (include calculations)

☐ If there will be any fugitive toxic air pollutant emissions, clearly identify the pollutant and quantity

VII. Emission Standard Compliance

☒ Provide a list of all applicable new source performance standards, national emission standards for hazardous air pollutants, national emission standards for hazardous air pollutants for source categories, and emission standards adopted under Chapter 70.94 RCW.

Does your project comply with all applicable standards identified? ☒ Yes ☐ No

VIII. Best Available Control Technology

☒ Provide a complete evaluation of Best Available Control Technology (BACT) for your proposal.

IX. Ambient Air Impacts Analyses

Please provide the following:

☒ Ambient air impacts analyses for Criteria Air Pollutants (including fugitive emissions)

☒ Ambient air impacts analyses for Toxic Air Pollutants (including fugitive emissions)

[1] http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460-150

Notice of Construction Application

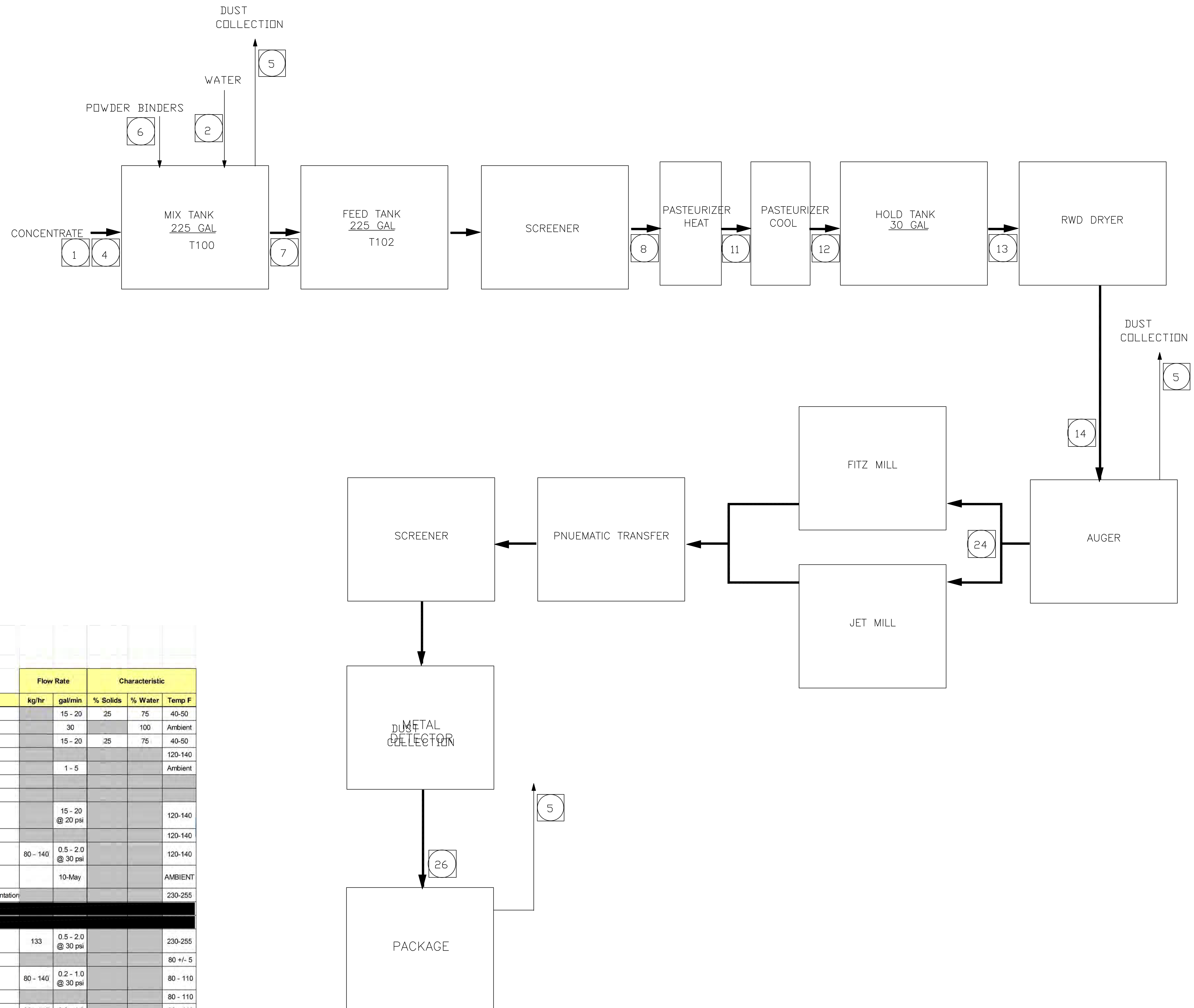
☒ Discharge point data for each point included in air impacts analyses (include only if modeling is required)

- ☒ Exhaust height
- ☒ Exhaust inside dimensions (ex. diameter or length and width)
- ☒ Exhaust gas velocity or volumetric flow rate
- ☒ Exhaust gas exit temperature
- ☐ The volumetric flow rate
- ☒ Description of the discharges (i.e., vertically or horizontally) and whether there are any obstructions (ex., raincap)
- ☒ Identification of the emission unit(s) discharging from the point
- ☒ The distance from the stack to the nearest property line **AERMOD is used which includes fenceline and stack locations**
- ☒ Emission unit building height, width, and length **AERMOD is used which includes buildings and BPIP**
- ☒ Height of tallest building on-site or in the vicinity and the nearest distance of that building to the exhaust **AERMOD is used which includes buildings and BPIP**
- ☒ Whether the facility is in an urban or rural location

Does your project cause or contribute to a violation of any ambient air quality standard or acceptable source impact level? ☐ Yes ☒ No

If you need this document in a format for the visually impaired, call the Air Quality Program at 360-407-6800. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

APPENDIX B: PROCESS FLOW DIAGRAM AND SITE MAP



RWD Process Flow Balance

Stream & Tank	Material	Flow Rate kg/hr	Flow Rate gal/min	Characteristic % Solids	Characteristic % Water	Characteristic Temp F
1	Concentrate from Rototherm		15 - 20	25	75	40-50
2	Water to Mix Tank		30		100	Ambient
4	Concentrate transfer from Tote to T110		15 - 20	25	75	40-50
T100	Mix Tank, 225 gal, Working Cap = 180 gal					120-140
2	Water to Mix Tank		1 - 5			Ambient
5	Dust Collection					
6	Dry Material Charging					
7	Transfer from Mix to Feed Tank		15 - 20 @ 20 psi			120-140
T102	Feed Tank, 225 gal, Working Cap = 180 gal					120-140
8	Feed to Votator, Heating Chamber	80 - 140	0.5 - 2.0 @ 30 psi			120-140
3	WATER, FLUSH FOR VOTATORS		10-May			AMBIENT
Votator #1	Feed Pasteurizer, Size 6" Dia x 48" L, Vertical Orientation					230-255
[redacted]						
11	Feed to Votator, Cooling Chamber	133	0.5 - 2.0 @ 30 psi			230-255
Votator #2	Cooling Pasteurizer, Size TBD, Vertical Orientation					80 +/- 5
12	Feed transfer to MCD feed tank	80 - 140	0.2 - 1.0 @ 30 psi			80 - 110
T104	MCD Feed Tank, 30 gallons					80 - 110
13	Feed transfer to MCD Belt	80 - 140	0.2 - 1.0			80 - 110
14	Dried Product at Belt Disharge	25 - 75			1 - 3	Ambient
[redacted]						
24	MILLING	25 - 75				
26	PACKAGING	25 - 75			1 - 3	80 +/- 5

NUTRILITE

Amway
7575 East Fulton St. Ada, Michigan 49355
616-787-6000

REV. | DESCRIPTION | REV.

ORIGINATING DEPARTMENT: Project Engineering
TITLE: Nutrilite Botanical Concentrates RWD Dryer Processing System Process Flow Diagram
FILE NO.:
ENGINEERING PROJECT NO.:
DRAWN: JOE D
CHECKED:

DRAWING NO. NBC-500-P1
SHEET NO. 1 of 1
DATE 12/13/13

FINISH FLOOR ELEVATION: 1,328 +/- 1'-0"

Site Plan
1" = 40'-0"

REVISION	DATE
REV A	2012-06-20
REV B	2012-07-10
REV C	2012-08-06
REV D	

FSI ARCHITECTS
A DIVISION OF FISHER & SONS, INC.
Phone: 360-757-4094 Fax: 360-757-4005 www.fishersons.com
625 Fisher Lane, Burlington, WA 98233

A New Project For:

Extraction-Concentration Facility

1333 Port Industrial Parkway Quincy, Washington 98848

Enlarged Site - ENVIRONMENTAL EQUIPMENT

Drawing Number
QCY-01

SHEET
AE-1.1

REVISION	DATE
REV A	2012-06-20
REV B	2012-07-10
REV C	2012-08-06
REV D	

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A New Project For:

Extraction-Concentration Facility

1333 Port Industrial Parkway Quincy, Washington 98848

Enlarged Site - ENVIRONMENTAL BUILDING

Site Plan 1
1" = 40'-0"

Drawing Number
QCY-01

SHEET
AE-1.0

APPENDIX C: EMISSION CALCULATIONS

Appendix Table C-1. Summary of Potential Emissions from the Quincy Facility (tpy)

ID	Source Name	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	CO (tpy)	VOC (tpy)	GHG (tpy)	HAP (tpy)
1-2	Greenfield Facility Boilers [a]	1.24	0.04	0.03	0.03	3.03	0.33	7,223	6.73E-03
3-9	Greenfield Facility (without boilers) [b]	0.29	1.75E-03	1.49	1.49	0.28	12.55	524	2.75E-04
10	Semi Works Process [c]	--	--	--	--	--	0.07	--	--
11	Emergency Fire Pump [c]	9.84E-03	--	3.16E-04	3.16E-04	3.51E-03	3.51E-04	3.81E-01	--
12	New NG Boiler [d]	0.62	0.02	0.02	0.02	1.27	0.20	4,318	4.03E-03
13	New RWD [d]						1.10		
Totals		**2.17**	**0.06**	**1.54**	**1.53**	**4.57**	**14.24**	**12,065**	**1.10E-02**
Exemption Levels		*2.0*	*2.0*	*0.75*	*0.5*	*5.0*	*2.0*		

[a] The emission factors for the greenfield facility boilers, ID 1 and 2, have been updated since the previous project. The emission factor for PM_{10}, $PM_{2.5}$ has been updated based on the National Emission Inventory. The emission factor for CO has been updated to the BACT determination from Approval Order No. 12AQ-E463; this order resulted from the greenfield facility NOC application. 40 CFR 98 has updates effective January 1, 2014 including the tables C-1, C-2, and A-1. The emissions for greenhouse gases reflect the updated regulation.

[b] These emission rates were submitted to Ecology for Nutrilite's greenfield project resulting in Approval Order No. 12AQ-E463. These emissions included fugitive VOC emissions from connectors, valves, and pumps. It is assumed the additional equipment for this project will not increase the fugitive emissions beyond the levels previously estimated for the greenfield facility, as the fugitive counts for the original facility included and additional 50% of components to provide a conservative emissions estimate. The GHG emissions have been updated for the process heater to reflect the updated regulations effective January 1, 2014.

[c] These emission rates were submitted to Ecology for Nutrilite's projects including the Semi-Works process, emergency fire pump engine, and Rototherm Feed Tank 3 on August 30, 2013.

[d] These emission rates are for the new equipment associated with this project only. Emission factors are described in Section 3. Fugitives from previously submittted projects are included within the other sources.

Appendix Table C-2. Summary of Potential Emissions from the Quincy Facility (t/hr) [a]

ID	Source Name	NO_x (t/hr)	SO_2 (t/hr)	PM_{10} (t/hr)	$PM_{2.5}$ (t/hr)	CO (t/hr)	VOC (t/hr)	GHG (t/hr)	HAP (t/hr)
1-2	Greenfield Facility Boilers	1.42E-04	4.12E-06	3.57E-06	2.95E-06	3.45E-04	3.77E-05	0.82	7.69E-07
3-9	Greenfield Facility (without boilers)	3.37E-05	2.00E-07	1.70E-04	1.70E-04	3.15E-05	1.43E-03	5.99E-02	3.14E-08
10	Semi Works Process						7.53E-06		
11	Emergency Fire Pump	3.39E-04		1.09E-05	1.09E-05	1.21E-04	1.21E-05	1.31E-02	
12	New NG Boiler	7.12E-05	2.46E-06	2.13E-06	1.76E-06	1.44E-04	2.26E-05	0.49	4.60E-07
13	New RWD						1.25E-04		
Totals		**5.86E-04**	**6.78E-06**	**1.87E-04**	**1.86E-04**	**6.42E-04**	**1.64E-03**	**1.39**	**1.26E-06**

[a] All sources assume 8760 hours/year operation except the fire pump. The fire pump is expected to be permitted to run 29 hours/year.

Appendix Table C-3. Summary of Potential Emissions from the Quincy Facility (t/day)

ID	Source Name	NO_x (t/day)	SO_2 (t/day)	PM_{10} (t/day)	$PM_{2.5}$ (t/day)	CO (t/day)	VOC (t/day)	GHG (t/day)	HAP (t/day)
1-2	Greenfield Facility Boilers	3.40E-03	9.88E-05	8.56E-05	7.08E-05	8.29E-03	9.06E-04	19.79	1.84E-05
3-9	Greenfield Facility (without boilers)	8.08E-04	4.80E-06	4.09E-03	4.09E-03	7.57E-04	3.44E-02	1.44	7.54E-07
10	Semi Works Process						1.81E-04		
11	Emergency Fire Pump	8.14E-03		2.62E-04	2.62E-04	2.91E-03	2.91E-04	3.15E-01	
12	New NG Boiler	1.71E-03	5.91E-05	5.12E-05	4.23E-05	3.47E-03	5.42E-04	11.83	1.10E-05
13	New RWD						3.00E-03		
Totals		**1.41E-02**	**1.63E-04**	**4.49E-03**	**4.47E-03**	**1.54E-02**	**3.93E-02**	**33.37**	**3.02E-05**

Appendix Table C-4. Potential Emissions from New Boiler

Plant	**Nutrilite**				
Combustion Units	Boilers (ID: 11)				
Operating Hours	8,760	hrs/yr			
Natural Gas Heating Value[a]	1020	Btu/scf			
Maximum Heat Input Capacity[b]	8.37	MMBtu/hr			
Pollutant	**Emission Factors [c] (lb/MMBtu)**	**Emission Concentration[d] (ppm)**	**Exhaust Flow [e] (scfm)**	**Total Emission Rate[f] (lbs/hr)**	**Total Emission Rate (tpy)**
Nitrogen Oxides (NO_x)	--	9	2208	1.42E-01	0.62
Sulfur Dioxide (SO_2) [g]	5.9E-04	--	--	4.92E-03	0.02
Particulate Matter (PM_{10}) [h]	5.10E-04	--	--	4.27E-03	0.02
Particulate Matter ($PM_{2.5}$) [h]	4.22E-04	--	--	3.53E-03	0.02
Cabon Monoxide (CO)		30	2208	2.89E-01	1.27
Volatile Organic Compound (VOC) [g]	5.39E-03	--	--	4.51E-02	0.20
Benzene	7.84E-06	--	--	6.56E-05	2.88E-04
Formaldehyde	1.67E-05	--	--	1.40E-04	6.11E-04
PAHs (excluding Naphthalene)	9.80E-08	--	--	8.21E-07	3.59E-06
Naphthalene	2.94E-07			2.46E-06	1.08E-05
Acetaldehyde	4.22E-06	--	--	3.53E-05	1.55E-04
Acrolein	2.65E-06	--	--	2.22E-05	9.70E-05
Propylene	7.17E-04	--	--	6.00E-03	2.63E-02
Toluene	3.59E-05	--	--	3.00E-04	1.32E-03
Xylenes	2.67E-05	--	--	2.23E-04	9.78E-04
Ethylbenzene	9.31E-06	--	--	7.80E-05	3.41E-04
Hexane	6.18E-06	--	--	5.17E-05	2.26E-04

[a] Heating value of natural gas based on AP-42, Section 1.4 for Natural Gas Combustion, Table 1.4-1, footnote a.

[b] Heat input rating shown in Appendix E, the compliance stack test data shows the fuel meter data sheet.

[c] Emission factors for toxic air pollutants from natural gas fired boilers (<10 MMBtu/hr) are provided in AB2588 Combustion Emission Factors as obtained from Ventura County Air Pollution Control District. (http://www.aqmd.gov/prdas/pdf/combem2001.pdf)

[d] BACT for the new boiler as suggested by Robert Koster at Ecology. These values are represented in the vendor guarantees for the boiler.

[e] Previous Stack Test from March 2013 indicates a dscfm flowrate of 2208.2889.

[f] Emission rate calculated using the following equation:

Emission Concentration ppm/10^6*(Molecular weight lbs/lbmol)*(exhaust flow ft^3/sec)*standard pressure atm/(0.73 ft^3 atm/(lbmol R))/(460+standard temperature(F))R

[g] Emission factors for criteria pollutants are obtained from AP-42 Section 1.4, natural gas fired boilers <100 MMBtu/hr.

[h] Emission factors for particulate matter are obtained from the National Emission Inventory for natural gas boilers.

Appendix Table C-5. Updated Potential Emissions from Boiler #1 and #2

Plant	**Nutrilite**				
Combustion Units	Boilers (ID: 1-2)				
Operating Hours	8,760	hrs/yr			
Natural Gas Heating Value[a]	1020	Btu/scf			
Maximum Heat Input Capacity[b]	14.00	MMBtu/hr			
Pollutant	**Emission Factors [c] (lb/MMBtu)**	**Emission Concentration[b] (ppm)**	**Exhaust Flow [b] (scfm)**	**Total Emission Rate[d] (lbs/hr)**	**Total Emission Rate (tpy)**
Nitrogen Oxides (NO_x)	--	9	4400	2.84E-01	1.24
Sulfur Dioxide (SO_2) [e]	5.9E-04	--	--	8.24E-03	0.04
Particulate Matter (PM_{10}) [f]	5.10E-04	--	--	7.14E-03	0.03
Particulate Matter ($PM_{2.5}$) [f]	4.22E-04	--	--	5.90E-03	0.03
Cabon Monoxide (CO)		36	4400	6.91E-01	3.03
Volatile Organic Compound (VOC) [e]	5.39E-03	--	--	7.55E-02	0.33
Benzene	7.84E-06	--	--	1.10E-04	4.81E-04
Formaldehyde	1.67E-05	--	--	2.33E-04	1.02E-03
PAHs (excluding Naphthalene)	9.80E-08	--	--	1.37E-06	6.01E-06
Naphthalene	2.94E-07			4.12E-06	1.80E-05
Acetaldehyde	4.22E-06	--	--	5.90E-05	2.59E-04
Acrolein	2.65E-06	--	--	3.71E-05	1.62E-04
Propylene	7.17E-04	--	--	1.00E-02	4.39E-02
Toluene	3.59E-05	--	--	5.02E-04	2.20E-03
Xylenes	2.67E-05	--	--	3.73E-04	1.64E-03
Ethylbenzene	9.31E-06	--	--	1.30E-04	5.71E-04
Hexane	6.18E-06	--	--	8.65E-05	3.79E-04

[a] Heating value of natural gas based on AP-42, Section 1.4 for Natural Gas Combustion, Table 1.4-1, footnote a.

[b] Approval Order No. 12AQ-E463

[c] Emission factors for toxic air pollutants from natural gas fired boilers (<10 MMBtu/hr) are provided in AB2588 Combustion Emission Factors as obtained from Ventura County Air Pollution Control District. (http://www.aqmd.gov/prdas/pdf/combem2001.pdf)

[d] Emission rate calculated using the following equation:

Emission Concentration ppm/10^6*(Molecular weight lbs/lbmol)*(exhaust flow ft^3/sec)*standard pressure atm/(0.73 ft^3 atm/(lbmol R))/(460+standard temperature(F))R

[e] Emission factors for criteria pollutants are obtained from AP-42 Section 1.4, natural gas fired boilers <100 MMBtu/hr.

[f] Emission factors for particulate matter are obtained from the National Emission Inventory for natural gas boilers.

Appendix Table C-6. Potential HAP/TAP Emissions

Pollutant	New Boiler (lbs/hr)	Greenfield Project (lbs/hr)	Total Emission Rate (lbs/hr)	HAP? (Yes/No)	TAP? (Yes/No)
Benzene	6.56E-05	1.15E-04	1.81E-04	Yes	Yes
Formaldehyde	1.40E-04	2.45E-04	3.84E-04	Yes	Yes
PAHs (excluding Naphthalene)	8.21E-07	1.44E-06	2.26E-06	Yes	No
Naphthalene	2.46E-06	4.32E-06	6.78E-06	Yes	Yes
Acetaldehyde	3.53E-05	6.19E-05	9.72E-05	Yes	Yes
Acrolein	2.22E-05	3.89E-05	6.10E-05	Yes	Yes
Propylene	6.00E-03	1.05E-02	1.65E-02	No	Yes
Toluene	3.00E-04	5.27E-04	8.27E-04	Yes	Yes
Xylenes	2.23E-04	3.80E-04	6.03E-04	Yes	Yes
Ethylbenzene	7.80E-05	1.37E-04	2.15E-04	Yes	Yes
Hexane	5.17E-05	9.07E-05	1.42E-04	Yes	Yes
Nitrogen Dioxide	0.14	3.51E-01	4.93E-01	No	Yes
Carbon Monoxide	0.29	1.22E+00	1.50E+00	No	Yes
Sulfur Dioxide	4.92E-03	8.64E-03	1.36E-02	No	Yes
Total HAP (tpy)				**4.03E-03**	

Appendix Table C-7. HAP/TAP Emissions versus Limits

Pollutant	Total Emission Rate (lbs/avg period)	Averaging Period	SQER [a] (lbs/avg period)	De Minimis [a] (lbs/avg period)	Modeling Required?[b] (Yes/No)	tBACT Required? [c] (Yes/No)
Benzene	1.58	year	6.62	0.33	No	yes
Formaldehyde	3.37	year	32	1.60	No	yes
Naphthalene	0.06	year	5.64	0.282	de minimis	no
Acetaldehyde	0.85	year	71	3.55	de minimis	no
Acrolein	1.46E-03	24-hr	7.89E-03	3.94E-04	No	yes
Propylene	0.40	24-hr	394	19.7	de minimis	no
Toluene	0.02	24-hr	657	32.90	de minimis	no
Xylenes	1.45E-02	24-hr	29	1.45	de minimis	no
Ethylbenzene	1.88	year	76.8	3.84	de minimis	no
Hexane	3.42E-03	24-hr	92	4.6	de minimis	no
Nitrogen Dioxide	0.49	1-hr	1.03	0.46	No	yes
Carbon Monoxide	1.50	1-hr	50.4	1.14	No	yes
Sulfur Dioxide	0.01	1-hr	1.45	0.46	de minimis	no

[a] TAPs and their corresponding averaging period, small quantity emission rate (SQER), and de minimis emission rate are taken from Washington's revised TAPs rule (WAC 173-460), which became effective on June 20, 2009.

[b] Modeling is required if the project-related emissions increase of the TAP is greater than the SQER for the TAP. If the emissions increase is less than the de minimis threshold, a notice of construction application for that particular pollutant is not required per WAC 173-460-040(1).

[c] According to 173-460-060, a notice of construction application for a new or modified toxic air pollutant source must demonstrate that the new or modified emission units will employ tBACT for all TAPs for which the increase in emissions will exceed de minimis emission values as found in WAC 173-460-150. TAP emission increases from nonprocess fugitive emissions activities such as construction or demolition sites, unpaved and paved roads, coal piles, waste piles and fuel and ash handling operations are exempt from the requirement to apply tBACT.

Appendix Table C-8. Emissions from Process Units

Source Name	Flowrate	Units	VOC (tpy)
New RWD [a]	2.50E-01	lbs/hr ethanol	1.10

[a] The residual ethanol is expected to be minimal, for a conservative estimate, assume 500 ppm ethanol in solution is emitted. The feed rate of the liquid product will maximally be 1.0 gpm. The density of water is used for estaimation at 8.34 lb/gal.

Appendix Table C-9. Greenhouse Gas Emissions

ID	Source Name	Fuel Use [a]		CO_2 EF [b]	CH_4 EF [b]	N_2O EF [b]		CO_2 (tpy)	CH_4 (tpy)	N_2O (tpy)	CO_2e [c] (tpy)
1-2	Greenfield Boilers	120,235,294	ft^3/yr	0.12	2.26E-06	2.26E-07	lb/ft^3	7,215	0.136	0.014	7,223
3	Process Heater	5,840,000	ft^3/yr	0.12	2.26E-06	2.26E-07	lb/ft^3	350	0.007	0.001	351
11	Emergency Fire Pump	33.7	gal/yr	22.50	9.13E-04	1.83E-04	lb/gal	3.79E-01	1.54E-05	3.08E-06	0.38
12	New Boiler	71,883,529	ft^3/yr	0.12	2.26E-06	2.26E-07	lb/ft^3	4,314	0.08	0.01	4,318
						Totals		**4,314**	**0.081**	**0.0081**	**4,318**

[a] Fuel Use is calculated from the maximum capacity of each unit. Conversion from Btu to scf for natural gas taken from AP-42 (07/1997). The emergency fire pump has a fuel consumption rate of 8.7 gal/hr. The fire pump is permitted to run 29 hours/year.

[b] Emission factors for Greenhouse Gases are obtained from 40 CFR 98, Tables C-1 and C-2; which identifies default high heat values and default pollutant emission factors for various fuel types. These values reflect the updated regulation effective January 1, 2014.

[c] CO_2e is calculated using the methodology in 40 CFR 98.2(b)(4) and Table A-1: CO2e=Σ(GHG*GWP), where GHG is mass emssions of each greenhouse gas and GWP is the Global Warming Potential both listed in Table A-1. These values reflect the updated regulation effective January 1, 2014.

APPENDIX D: RBLC SEARCH RESULTS

RBLCID	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 2	EMISSION LIMIT 2 UNIT	STANDARD EMISSION LIMIT	STANDARD EMISSION LIMIT UNIT
OK-0128	09/08/2008	Ladle pre-heater and refractory drying	13.31	NG	0		NOx	natural gas fuel	0.1	LB/MMBTU	0		0	
MD-0040	11/12/2008	HEATER	13.31	NG	1.7	MMBTU/H	NOx		0.1	LB/MMBTU	0		0	
NV-0050	11/30/2009	WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NG	2	MMBTU/H	NOx	LOW-NOX BURNERS AND GOOD COMBUSTION PRACTICES	0.025	LB/MMBTU	20	PPMVD	0.025	LB/MMBTU
NV-0046	05/16/2006	COMMERCIAL/INSTITUTIONAL BOILER	13.31	NG	3.85	MMBTU/H	NOx	GOOD COMBUSTION PRACTICE	0.101	LB/MMBTU	1.69	T/YR	0.101	LB/MMBTU
NV-0048	05/16/2006	COMMERCIAL/INSTITUTIONAL-SIZE BOILER (<100 MMBTU/H)	13.31	NG	3.85	MMBTU/H	NOx	GOOD COMBUSTION PRACTICE	0.1	LB/MMBTU	0.39	LB/H	0.1	LB/H
WA-0316	06/14/2006	BOILER, NATURAL GAS	13.31	NG	4.19	MMBTU/H	NOx	p	34	PPMDV @ 3% O2	4	LB/D	0.04	LB/MMBTU
*SC-0113	02/08/2012	BOILERS	13.31	NG	5	MMBTU/H	NOx	GOOD DESIGN AND COMBUSTION PRACTICES, LOW NOX BURNERS, COMBUSTION OF NATURAL GAS/PROPANE.	0		0		0	
NC-0115	01/06/2007	DRYER OR OVEN, DIRECT OR INDIRECT	13.31	NG	5.4	MMBTU/H	NOx	LOW NOX - BURNER	18	PPMVD@3%O2	0		0	
AK-0071	12/20/2010	Sigma Thermal Auxiliary Heater (1)	13.31	NG	12.5	MMBTU/H	NOx	Low NOx Burners and Flue Gas Recirculation	32	LB/MMSCF	0		0	
AR-0090	04/03/2006	PICKLE LINE BOILERS, SN-52	13.31	NG	12.6	MMBTU EACH	NOx	LOW NOX BURNERS	2.9	LB/H	12.4	T/YR	0.075	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT FL01	13.31	NG	14.34	MMBTU/H	NOx	LOW NOX BURNER AND FLUE GAS RECIRCULATION	0.0353	LB/MMBTU	29	PPMVD	0.0353	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT BA01	13.31	NG	16.8	MMBTU/H	NOx	LOW-NOX BURNER AND BLUE GAS RECIRCULATION	0.03	LB/MMBTU	25	PPMVD	0.03	LB/MMBTU
OK-0129	01/23/2009	FUEL GAS HEATER (H2O BATH)	13.31	NG	18.8	MMBTU/H	NOx		2.7	LB/H	0		0	
OK-0134	02/23/2009	Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	NG	20	MMBTUH	NOx	Low NOx burners/good combustion practices	0.98	LB/H	0		0	

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OK-0135	02/23/2009	NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NG	20	MMBTU/H	NOx	LOW-NOX BURNERS AND GOOD COMBUSTION PRACTICES.	0.98	LB/H	0		0	
OH-0309	05/03/2007	BOILER (2), NATURAL GAS	13.31	NG	20.4	MMBTU/H	NOx	LOW NOX BURNERS AND FLUE GAS RECIRCULATION	0.72	LB/H	3.5	T/YR	0.035	LB/MMBTU
LA-0244	11/29/2010	EQT0028 - PACOL STARTUP HEATER H-202	13.31	NG	21	MMBTU/H	NOx	low nox burners	2.71	LB/H	0	% OPACITY	0	
WY-0066	03/04/2009	GASIFICATION PREHEATER 2	13.31	NG	21	MMBTU/H	NOx	LOW NOX BURNERS	0.05	LB/MMBTU	1	LB/H	0.3	T/YR
WY-0066	03/04/2009	GASIFICATION PREHEATER 3	13.31	NG	21	MMBTU/H	NOx	LOW NOX BURNERS	0.05	LB/MMBTU	1	LB/H	0.3	T/YR
WY-0066	03/04/2009	GASIFICATION PREHEATER 4	13.31	NG	21	MMBTU/H	NOx	LOW NOX BURNERS	0.05	LB/MMBTU	1	LB/H	0.3	T/YR
WY-0066	03/04/2009	GASIFICATION PREHEATER 5	13.31	NG	21	MMBTU/H	NOx	LOW NOX BURNERS	0.05	LB/MMBTU	1	LB/H	0.3	T/YR
WY-0066	03/04/2009	GASIFICATION PREHEATER 1	13.31	NG	21	MMBTU/H	NOx	LOW NOX BURNERS	0.05	LB/MMBTU	1	LB/H	0.3	T/YR
CA-1163	12/08/2006	STEAM GENERATOR: OIL FIELD 5 TO < 33.5 MMBTU/HR	13.31	NG	23	23.00 MMBTU/H	NOx	LOW-NOX BURNER AND FGR	9	PPMVD @ 3% O2	0		0	
NV-0049	08/20/2009	BOILER - UNIT CP26	13.31	NG	24	MMBTU/H	NOx	LOW NOX BURNER	0.0108	LB/MMBTU	9	PPMVD	0.0108	LB/MMBTU
CA-1128	05/16/2006	BOILER: 5 TO < 33.5 MMBTU/H	13.31	NG	25	MMBTU/H (75 MMBTU/H	NOx	ULTRA-LOW NOX BURNER	9	PPMV AT 3% O2	0		0	
LA-0240	06/14/2010	Boilers	13.31	NG	25.1	MMBTU/H	NOx	Ultra Low NOx Burners	0.38	LB/H	9	PPMV	0.015	LB/MMBTU
AL-0230	08/17/2007	NATURAL GAS-FIRED PASSIVE ANNEALING FURNACE (LO41)	13.31	NG	27.2	MMBTU/H	NOx	ULTRA LOW NOX BURNERS (ULNB) WITH EXHAUST GAS RECIRCULATION (EGR)	0.11	LB/MMBTU	2.99	LB/H	0	
AL-0230	08/17/2007	NATURAL GAS-FIRED PASSIVE ANNEALING FURNACE (LO41)	13.31	NG	27.2	MMBTU/H	NOx	ULTRA LOW NOX BURNERS (ULNB) WITH EXHAUST GAS RECIRCULATION	0.11	LB/MMBTU	2.99	LB/H	0	
MD-0037	01/28/2008	FOUR (4) NATURAL GAS BOILERS EACH RATED AT 29.4 MILLION BTU PER HOUR	13.31	NG	29.4	MMBTU/H	NOx	ULTRA LOW NOX BURNERS ON EACH OF THE FOUR IDENTICAL BOILERS	9	PPM	0		0.011	LB/MMBTU
NY-0095	05/10/2006	AUXILIARY BOILER	13.31	NG	29.4	MMBTU/H	NOx	LOW NOX BURNERS & FLUE GAS RECIRCULATION	0.011	LB/MMBTU	0		0	
NV-0049	08/20/2009	BOILER - UNIT BA03	13.31	NG	31.38	MMBTU/H	NOx	LOW-NOX BURNER	0.0306	LB/MMBTU	25	PPMVD	0.0306	LB/MMBTU

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AL-0230	08/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	13.31	NG	33.4	MMBTU each	NOx	UNLB WITH EGR	0.11	LB/MMBTU	3.68	LB/H	0	
NV-0049	08/20/2009	BOILER - UNIT CP03	13.31	NG	33.48	MMBTU/H	NOx	LOW NOX BURNER	0.0367	LB/MMBTU	30	PPMVD	0.0367	LB/MMBTU
OK-0129	01/23/2009	AUXILIARY BOILER	13.31	NG	33.5	MMBTU/H	NOx	LOW-NOX BURNERS	0.07	LB/MMBTU	2.36	LB/H	0	
LA-0231	06/22/2009	SHIFT REACTOR STARTUP HEATER	13.31	NG	34.2	MMBTU/H	NOx	GOOD DESIGN AND PROPER OPERATION	3.35	LB/H	0		0	
LA-0231	06/22/2009	GASIFIER STARTUP PREHEATER BURNERS (5)	13.31	NG	35	MMBTU/H	NOx	GOOD DESIGN AND PROPER OPERATION	3.85	LB/H	0		0	
NV-0044	01/04/2007	COMMERCIAL/INSTITUTIONAL-SIZE BOILERS	13.31	NG	35.4	MMBTU/H	NOx	LOW-NOX BURNER AND FLUE GAS RECIRCULATION	0.035	LB/MMBTU	29	PPMVD	0.035	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT CP01	13.31	NG	35.4	MMBTU/H	NOx	LOW NOX BURNER	0.035	LB/MMBTU	29	PPMVD	0.035	LB/MMBTU

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OK-0128	09/08/2008	Ladle pre-heater and refractory drying	13.31	NG	0		VOC	Natural gas fuel	0.77	LB/H	0.19	T/YR	0	
OK-0128	09/08/2008	Ladle pre-heater and refractory drying	13.31	NG	0		CO	natural gas fuel	2.4	LB/H	10.5	T/YR	0.083	LB/MMBTU
MD-0040	11/12/2008	HEATER	13.31	NG	1.7	MMBTU/H	VOC		0		0		0	
MD-0040	11/12/2008	HEATER	13.31	NG	1.7	MMBTU/H	CO		143	PPMVD	0		0	
NV-0050	11/30/2009	WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NG	2	MMBTU/H	VOC	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0025	LB/HP-H	0.86	LB/H	0.0025	LB/HP-H
NV-0050	11/30/2009	WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NG	2	MMBTU/H	CO	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0021	LB/HP-H	1.1	LB/H	0.0021	LB/HP-H
NV-0046	05/16/2006	COMMERCIAL/INSTITUTIONAL BOILER	13.31	NG	3.85	MMBTU/H	VOC	GOOD COMBUSTION PROCESS	0.049	LB/MMBTU	0		0	
NV-0048	05/16/2006	COMMERCIAL/INSTITUTIONAL-SIZE BOILER (<100 MMBTU/H)	13.31	NG	3.85	MMBTU/H	VOC	GOOD COMBUSTION PRACTICE	0.055	LB/T PRODUCT	6.88	LB/H	0	
NV-0046	05/16/2006	COMMERCIAL/INSTITUTIONAL BOILER	13.31	NG	3.85	MMBTU/H	CO	GOOD COMBUSTION PRACTICE	90	% CONTROL	13.35	LB/H	0	
NV-0048	05/16/2006	COMMERCIAL/INSTITUTIONAL-SIZE BOILER (<100 MMBTU/H)	13.31	NG	3.85	MMBTU/H	CO	p	1.28	LB/MO	0.02	T/YR	1.28	LB/MO
*SC-0113	02/08/2012	BOILERS	13.31	NG	5	MMBTU/H	CO	GOOD COMBUSTION PRACTICES. CONSUMPTION OF NATURAL GAS AND PROPANE.	0.001	GRAIN/DSCF	0		0	
*SC-0113	02/08/2012	BOILERS	13.31	NG	5	MMBTU/H	VOC	GOOD COMBUSTION PRACTICES. CONSUMPTION OF NATURAL GAS AND PROPANE AS FUEL.	3.5	GR/KW-H	0		0	

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*IA-0102	02/01/2012	Annealing Furnace	13.31	NG	12	MMBTU/h	VOC	The company is required to limit the amount of oils & coolants used in earlier processes and apply good combustion practices to the furnace. There are no numerical limits for VOCs.	0		0		0	
AR-0090	04/03/2006	PICKLE LINE BOILERS, SN-52	13.31	NG	12.6	MMBTU EACH	CO	GOOD COMBUSTION PRACTICE	0.0006	LB/MMBTU	0.057	LB/H	0	
AR-0090	04/03/2006	PICKLE LINE BOILERS, SN-52	13.31	NG	12.6	MMBTU EACH	VOC	GOOD COMBUSTION PRACTICE	0.5	LB/H	1.9	T/YR	0.0006	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT FL01	13.31	NG	14.34	MMBTU/H	VOC	FLUE GAS RECIRCULATION	0.0006	LB/MMBTU	0.0091	LB/H	0.0006	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT FL01	13.31	NG	14.34	MMBTU/H	CO	FLUE GAS RECIRCULATION	0.13	LB/T PRODUCT	16.25	LB/H	0	
NV-0049	08/20/2009	BOILER - UNIT BA01	13.31	NG	16.8	MMBTU/H	VOC	FLUE GAS RECIRCULATION	0.0042	LB/MMBTU	0.01	LB/H	0.0042	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT BA01	13.31	NG	16.8	MMBTU/H	CO	FLUE GAS RECIRCULATION	16	PPMVD	0.0388	LB/MMBTU	16	PPMVD
OK-0129	01/23/2009	FUEL GAS HEATER (H2O BATH)	13.31	NG	18.8	MMBTU/H	VOC		0.4	LB/H/CELL	0		0	
OK-0129	01/23/2009	FUEL GAS HEATER (H2O BATH)	13.31	NG	18.8	MMBTU/H	CO		0.1	LB/MMBTU	0		0	
OK-0134	02/23/2009	Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	NG	20	MMBTUH	VOC	good combustion	18.53	LB/H	0		0	
OK-0135	02/23/2009	NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NG	20	MMBTU/H	VOC		2.5	LB/T	3	LB/T	0	
OK-0134	02/23/2009	Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	NG	20	MMBTUH	CO	good combustion practices	0.39	LB/H	0		0	
OK-0134	02/23/2009	Nitric Acid Preheater No3 (EU 402, EUG 4)	13.31	NG	20	mmbtu/h	CO	good combustion	2.7	LB/H	0		0	
OK-0135	02/23/2009	NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NG	20	MMBTU/H	CO	GOOD COMBUSTION PRACTICES.	11.93	LB/H	0.2	LB/MMBTU	0	
*IA-0102	02/01/2012	88" Continuous Heat Treat Line	13.31	NG	20.4	MMBTU/h	VOC	The company is required to limit the amount of oils & coolants used in earlier processes and apply good combustion practices to the furnace. There are no numerical limits for VOCs.	20	TONS/YR	0		0	

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OH-0309	05/03/2007	BOILER (2), NATURAL GAS	13.31	NG	20.4	MMBTU/H	VOC		0.02	LB/H	0.09	T/YR	0.0006	LB/MMBTU
OH-0309	05/03/2007	BOILER (2), NATURAL GAS	13.31	NG	20.4	MMBTU/H	CO		0.015	LB/MMBTU	0		0	
WY-0066	03/04/2009	GASIFICATION PREHEATER 2	13.31	NG	21	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	2	PPMVD	17.9	LB/H	2	PPMVD
WY-0066	03/04/2009	GASIFICATION PREHEATER 3	13.31	NG	21	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	12.5	LB/H	17.56	LB/H	12.5	LB/H
WY-0066	03/04/2009	GASIFICATION PREHEATER 4	13.31	NG	21	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	1.2	PPMVD	1.3	PPMVD	1.2	PPMVD
WY-0066	03/04/2009	GASIFICATION PREHEATER 5	13.31	NG	21	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	0.0002	LB/MMBTU	0.0002	LB/MMBTU	0	
WY-0066	03/04/2009	GASIFICATION PREHEATER 1	13.31	NG	21	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	0.0002	LB/MMBTU	0.0002	LB/MMBTU	0	
CA-1163	12/08/2006	STEAM GENERATOR: OIL FIELD 5 TO < 33.5 MMBTU/HR	13.31	NG	23	23.00 MMBTU/H	CO	LOW-NOX BURNER AND FGR	0.003	GR/DSCF	0		0	
CA-1163	12/08/2006	STEAM GENERATOR: OIL FIELD 5 TO < 33.5 MMBTU/HR	13.31	NG	23	23.00 MMBTU/H	VOC	LOW-NOX BURNER AND FGR (VOC AS ROC)	0.062	LB/MMBTU	0		0	
NV-0049	08/20/2009	BOILER - UNIT CP26	13.31	NG	24	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	25	PPMVD	0.0995	LB/MMBTU	25	PPMVD
NV-0049	08/20/2009	BOILER - UNIT CP26	13.31	NG	24	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0006	LB/MMBTU	0.01	LB/H	0.0006	LB/MMBTU
CA-1128	05/16/2006	BOILER: 5 TO < 33.5 MMBTU/H	13.31	NG	25	MMBTU/H (75 MMB	CO	ULTRA-LOW NOX BURNER	0.6	LB/H	2.6	T/YR	0.0076	LB/MMBTU
LA-0240	06/14/2010	Boilers	13.31	NG	25.1	MMBTU/H	CO	Good equipment design and proper combustion practices	0.62	LB/H	0		0	
LA-0240	06/14/2010	Boilers	13.31	NG	25.1	MMBTU/H	VOC	Good equipment design and proper combustion techniques	0.25	LB/H	0		0	
AL-0230	08/17/2007	NATURAL GAS-FIRED PASSIVE ANNEALING FURNACE (LO41)	13.31	NG	27.2	MMBTU/H	CO		32	LB/MMSCF	0		0	

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AL-0230	08/17/2007	NATURAL GAS-FIRED PASSIVE ANNEALING FURNACE (LO41)	13.31	NG	27.2	MMBTU/H	VOC		0.005	GR/DSCF	0.46	LB/H	0	
NY-0095	05/10/2006	AUXILIARY BOILER	13.31	NG	29.4	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	0.0005	LB/HP-H	0.16	LB/H	0.0005	LB/HP-H
NV-0049	08/20/2009	BOILER - UNIT BA03	13.31	NG	31.38	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.	0.0066	LB/MMBTU	0.81	LB/H	0.0066	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT BA03	13.31	NG	31.38	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0006	LB/MMBTU	0.02	LB/H	0.0006	LB/MMBTU
AL-0230	08/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	13.31	NG	33.4	MMBTU each	CO		0.03	G/HP-H	0		0	
AL-0230	08/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	13.31	NG	33.4	MMBTU each	VOC		0.005	GR/DSCF	0.27	LB/H	0	
NV-0049	08/20/2009	BOILER - UNIT CP03	13.31	NG	33.48	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0034	LB/MMBTU	0.42	LB/H	0.0034	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT CP03	13.31	NG	33.48	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0006	LB/MMBTU	0.02	LB/H	0.0006	LB/MMBTU
OK-0129	01/23/2009	AUXILIARY BOILER	13.31	NG	33.5	MMBTU/H	CO	GOOD COMBUSTION	0.084	LB/MMBTU	0		0	
MS-0085	01/31/2007	NATURAL GAS FIRED BOILER	13.31	NG	33.5	MMBTU/h	VOC		5	%	0		0	
OK-0129	01/23/2009	AUXILIARY BOILER	13.31	NG	33.5	MMBTU/H	VOC	GOOD COMBUSTION	5.02	LB/H	0		0	
LA-0231	06/22/2009	SHIFT REACTOR STARTUP HEATER	13.31	NG	34.2	MMBTU/H	CO	GOOD DESIGN AND PROPER OPERATION	0.01	LB/MMBTU	0.2	LB/MMBTU	0	
LA-0231	06/22/2009	GASIFIER STARTUP PREHEATER BURNERS (5)	13.31	NG	35	MMBTU/H	CO	GOOD DESIGN AND PROPER OPERATION	0.005	LB/MMBTU	0		0	
NV-0044	01/04/2007	COMMERCIAL/INSTITUTIONAL-SIZE BOILERS	13.31	NG	35.4	MMBTU/H	CO	GOOD COMBUSTION DESIGN	20	MG/KG	0		0	

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NV-0049	08/20/2009	BOILER - UNIT CP01	13.31	NG	35.4	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0069	LB/MMBTU	0.84	LB/H	0.0069	LB/MMBTU
NV-0044	01/04/2007	COMMERCIAL/INSTITUTIONAL-SIZE BOILERS	13.31	NG	35.4	MMBTU/H	VOC	GOOD COMBUSTION DESIGN	18	PPMVD@3%O	0		0	
NV-0049	08/20/2009	BOILER - UNIT CP01	13.31	NG	35.4	MMBTU/H	VOC	FLUE GAS RECIRCULATION AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0006	LB/MMBTU	0.02	LB/H	0.0006	LB/MMBTU

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MD-0040	11/12/2008	HEATER	13.31	NG	1.7	MMBTU/H	PM		0.007	LB/MMBTU	0		0	
MD-0040	11/12/2008	HEATER	13.31	NG	1.7	MMBTU/H	PM		0.007	LB/MMBTU	0		0	
MD-0040	11/12/2008	HEATER	13.31	NG	1.7	MMBTU/H	PM		0.007	LB/MMBTU	0		0	
NV-0050	11/30/2009	WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NG	2	MMBTU/H	PM	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	0.015	LB/H	0.0075	LB/MMBTU
NV-0046	05/16/2006	COMMERCIAL/INSTITUTIONAL BOILER	13.31	NG	3.85	MMBTU/H	PM	GOOD COMBUSTION PRACTICE	0.0078	LB/MMBTU	0.13	T/YR	0.0078	LB/MMBTU
NV-0048	05/16/2006	COMMERCIAL/INSTITUTIONAL-SIZE BOILER (<100 MMBTU/H)	13.31	NG	3.85	MMBTU/H	PM	NATURAL GAS IS THE ONLY FUEL USED BY THE UNIT.	0.0078	LB/MMBTU	0.03	LB/H	0	
AK-0071	12/20/2010	Sigma Thermal Auxiliary Heater (1)	13.31	NG	12.5	MMBTU/H	PM	Good Combustion Practices	7.6	LB/MMSCF	0		0	
AK-0071	12/20/2010	Sigma Thermal Auxiliary Heater (1)	13.31	NG	12.5	MMBTU/H	PM	Good Combustion Practices	7.6	LB/MMSCF	0		0	
AK-0071	12/20/2010	Sigma Thermal Auxiliary Heater (1)	13.31	NG	12.5	MMBTU/H	PM	Good Combustion Practices	7.6	LB/MMSCF	0		0	
AR-0090	04/03/2006	PICKLE LINE BOILERS, SN-52	13.31	NG	12.6	MMBTU EACH	PM	GOOD COMBUSTION PRACTICE	0.3	LB/H	1.3	T/YR	0.0076	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT FL01	13.31	NG	14.34	MMBTU/H	PM	FLUE GAS RECIRCULATION AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	0.11	LB/H	0.0075	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT BA01	13.31	NG	16.8	MMBTU/H	PM	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0077	LB/MMBTU	0.13	LB/H	0.0077	LB/MMBTU
OK-0129	01/23/2009	FUEL GAS HEATER (H2O BATH)	13.31	NG	18.8	MMBTU/H	PM		0.1	LB/H	0		0	
OK-0134	02/23/2009	Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	NG	20	MMBTUH	PM	Natural gas combustion	0.15	LB/H	0		0	
OK-0134	02/23/2009	Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	NG	20	MMBTUH	PM	Natural gas combustion	0.15	LB/H	0		0	
OK-0135	02/23/2009	NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NG	20	MMBTU/H	PM		0.15	LB/H	0		0	

RBLCID	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 2	EMISSION LIMIT 2 UNIT	STANDARD EMISSION LIMIT	STANDARD EMISSION LIMIT UNIT
OK-0135	02/23/2009	NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NG	20	MMBTU/H	PM		0.15	LB/H	0		0	
OH-0309	05/03/2007	BOILER (2), NATURAL GAS	13.31	NG	20.4	MMBTU/H	PM		0.04	LB/H	0.27	LB/YR	0.0019	LB/MMBTU
OH-0309	05/03/2007	BOILER (2), NATURAL GAS	13.31	NG	20.4	MMBTU/H	PM		0.15	LB/H	0.78	T/YR	0.0075	LB/MMBTU
LA-0244	11/29/2010	EQT0028 - PACOL STARTUP HEATER H-202	13.31	NG	21	MMBTU/H	PM	No additional Control	0.21	LB/H	0	% OPACITY	0	
NV-0049	08/20/2009	BOILER - UNIT CP26	13.31	NG	24	MMBTU/H	PM	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	0.18	LB/H	0.0075	LB/MMBTU
LA-0240	06/14/2010	Boilers	13.31	NG	25.1	MMBTU/H	atter, total < 1	Good equipment design and proper combustion practices, fueled by natural gas/alcohol	0.1	LB/H	0.005	LB/MMBTU	0	
LA-0240	06/14/2010	Boilers	13.31	NG	25.1	MMBTU/H	late matter, total	Good equipment design and proper combustion practices, fueled by natural gas/alcohol	0.13	LB/H	0.005	LB/MMBTU	0	
AL-0230	08/17/2007	NATURAL GAS-FIRED PASSIVE ANNEALING FURNACE (LO41)	13.31	NG	27.2	MMBTU/H	tter, filterable < 10 µ (FPM10)		0.0076	LB/MMBTU	0.21	LB/H	0	
NY-0095	05/10/2006	AUXILIARY BOILER	13.31	NG	29.4	MMBTU/H	tter, filterable &lt	LOW SULFUR FUEL	0.0033	LB/MMBTU	0		0	
NV-0049	08/20/2009	BOILER - UNIT BA03	13.31	NG	31.38	MMBTU/H	tter, filterable &lt	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0076	LB/MMBTU	0.24	LB/H	0.0076	LB/MMBTU
AL-0230	08/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	13.31	NG	33.4	MMBTU each	tter, filterable < 10 µ (FPM10)		0.0076	LB/MMBTU	6.25	LB/H	0	
NV-0049	08/20/2009	BOILER - UNIT CP03	13.31	NG	33.48	MMBTU/H	tter, filterable &lt	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	0.25	LB/H	0.0075	LB/MMBTU
LA-0231	06/22/2009	SHIFT REACTOR STARTUP HEATER	13.31	NG	34.2	MMBTU/H	atter, total < 1	GOOD DESIGN AND PROPER OPERATION	0.25	LB/H	0		0	
LA-0231	06/22/2009	GASIFIER STARTUP PREHEATER BURNERS (5)	13.31	NG	35	MMBTU/H	atter, total < 1	GOOD DESIGN AND PROPER OPERATION	0.03	LB/H	0		0	

RBLCID	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 2	EMISSION LIMIT 2 UNIT	STANDARD EMISSION LIMIT	STANDARD EMISSION LIMIT UNIT
NV-0044	01/04/2007	COMMERCIAL/INSTITUTIONAL-SIZE BOILERS	13.31	NG	35.4	MMBTU/H	ter, filterable &lt	USE OF NATURAL GAS AS THE ONLY FUEL	0.0075	LB/MMBTU	0.26	LB/H	0.0075	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT CP01	13.31	NG	35.4	MMBTU/H	ter, filterable &lt	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0076	LB/MMBTU	0.27	LB/H	0.0076	LB/MMBTU

RBLCID	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 2	EMISSION LIMIT 2 UNIT	STANDARD EMISSION LIMIT	STANDARD EMISSION LIMIT UNIT
OK-0128	09/08/2008	Ladle pre-heater and refractory drying	13.31	natural gas	0		SO2	natural gas fuel	0.0006	LB/MMBTU	0		0	
MD-0040	11/12/2008	HEATER	13.31	NATURAL GAS	1.7	MMBTU/H	SO2		0		0		0	
NV-0050	11/30/2009	WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NATURAL GAS	2	MMBTU/H	SOx	LIMITING FUEL TO NATURAL GAS ONLY.	0.0006	LB/MMBTU	0.0012	LB/H	0.0006	LB/MMBTU
NV-0046	05/16/2006	COMMERCIAL/INSTITUTIONAL BOILER	13.31	NATURAL GAS	3.85	MMBTU/H	SO2	LOW-SULFUR NATURAL GAS IS THE ONLY FUEL FOR THE PROCESS.	0.0026	LB/MMBTU	0.01	T/YR	0.0026	LB/MMBTU
NV-0048	05/16/2006	COMMERCIAL/INSTITUTIONAL-SIZE BOILER (<100 MMBTU/H)	13.31	NATURAL GAS	3.85	MMBTU/H	SO2	LOW-SULFUR NATURAL GAS IS THE ONLY FUEL USED BY THE UNIT.	0.0015	LB/MMBTU	0.0058	LB/H	0.0015	LB/MMBTU
*SC-0113	02/08/2012	BOILERS	13.31	NATURAL GAS	5	MMBTU/H	SO2	COMBUSTION OF NATURAL GAS AND PROPANE.	0		0		0	
AR-0090	04/03/2006	PICKLE LINE BOILERS, SN-52	13.31	NATURAL GAS	12.6	MMBTU EACH	SO2		0.1	LB/H	0.1	T/YR	0.0006	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT FL01	13.31	NATURAL GAS	14.34	MMBTU/H	SOx	FUEL IS LIMITED TO NATURAL GAS.	0.0006	LB/MMBTU	0.0091	LB/H	0.0006	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT BA01	13.31	NATURAL GAS	16.8	MMBTU/H	SOx	FUEL IS LIMITED TO NATURAL GAS.	0.0042	LB/MMBTU	0.01	LB/H	0.0042	LB/MMBTU
OK-0129	01/23/2009	FUEL GAS HEATER (H2O BATH)	13.31		18.8	MMBTU/H	SO2	LOW SULFUR FUEL	0.01	LB/H	0		0	
OK-0134	02/23/2009	Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	Natural Gas	20	MMBTUH	SO2	natural gas combustion	0.03	LB/H	0		0	
OK-0135	02/23/2009	NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NATURAL GAS	20	MMBTU/H	SO2		0.03	LB/H	0		0	
OH-0309	05/03/2007	BOILER (2), NATURAL GAS	13.31	NATURAL GAS	20.4	MMBTU/H	SO2		0.01	LB/H	3.64	T/YR	0.0006	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT CP26	13.31	NATURAL GAS	24	MMBTU/H	SOx	FUEL IS LIMITED TO NATURAL GAS.	0.0006	LB/MMBTU	0.01	LB/H	0.0006	LB/MMBTU
AL-0230	08/17/2007	NATURAL GAS-FIRED PASSIVE ANNEALING FURNACE (LO41)	13.31	NATURAL GAS	27.2	MMBTU/H	SO2		0.0006	LB/MMBTU	0.016	LB/H	0	
NY-0095	05/10/2006	AUXILIARY BOILER	13.31	NATURAL GAS	29.4	MMBTU/H	SO2	LOW SULFUR FUEL	0.0005	LB/MMBTU	0		0	
NV-0049	08/20/2009	BOILER - UNIT BA03	13.31	NATURAL GAS	31.38	MMBTU/H	SOx	FUEL IS LIMITED TO NATURAL GAS.	0.0006	LB/MMBTU	0.02	LB/H	0.0006	LB/MMBTU

RBLCID	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 2	EMISSION LIMIT 2 UNIT	STANDARD EMISSION LIMIT	STANDARD EMISSION LIMIT UNIT
AL-0230	08/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	13.31	NATURAL GAS	33.4	MMBTU each	SO2		0.0006	LB/MMBTU	0.02	LB/H	0	
NV-0049	08/20/2009	BOILER - UNIT CP03	13.31	NATURAL GAS	33.48	MMBTU/H	SOx	FUEL IS LIMITED TO NATURAL GAS.	0.0006	LB/MMBTU	0.02	LB/H	0.0006	LB/MMBTU
OK-0129	01/23/2009	AUXILIARY BOILER	13.31	NATURAL GAS	33.5	MMBTU/H	SO2	LOW SULFUR FUEL	0.03	LB/H	0		0	
LA-0231	06/22/2009	SHIFT REACTOR STARTUP HEATER	13.31	NATURAL GAS	34.2	MMBTU/H	SO2	FUELED BY NATURAL GAS OR SUBSTITUTE NATURAL GAS (SNG)	0.02	LB/H	0		0	
LA-0231	06/22/2009	GASIFIER STARTUP PREHEATER BURNERS (5)	13.31	NATURAL GAS	35	MMBTU/H	SO2	FUELED BY NATURAL GAS OR SUBSTITUTE NATURAL GAS (SNG)	0.02	LB/H	0		0	
NV-0044	01/04/2007	COMMERCIAL/INSTITUTIONAL-SIZE BOILERS	13.31	NATURAL GAS	35.4	MMBTU/H	SOx	USE OF NATURAL GAS AS THE ONLY FUEL	0.001	LB/MMBTU	0.04	LB/H	0.001	LB/MMBTU
NV-0049	08/20/2009	BOILER - UNIT CP01	13.31	NATURAL GAS	35.4	MMBTU/H	SOx	FUEL IS LIMITED TO NATURAL GAS.	0.0006	LB/MMBTU	0.02	LB/H	0.0006	LB/MMBTU

APPENDIX E: EQUIPMENT SPECIFICATIONS

Dryer

REFRACTANCE WINDOW®

MCD TECHNOLOGIES, INC.

...drying at the speed of light...

Our patented technology utilizes water as the heat transfer medium to transmit energy at the speed of light in order to dry a wide variety of products. Even delicate materials ranging from bio-active lactobacillus to scrambled egg mix to nutraceuticals, for example, dry efficiently and with superior outcomes.

How It Works

A slurry of liquid product is evenly applied to the top surface of a continuous sheet of transparent plastic. This impervious conveyor belt floats on a surface of hot water (210° F / 99° C or less).

Our proprietary process allows infrared energy (inherent in the circulating water beneath the belt) to pass at the speed of light directly into the liquid slurry. The "window" allowing the rapid transfer of infrared energy closes as the product loses moisture. Heat is also conducted through the belt, which aids to evaporate moisture in the product, especially when the product is nearly dry. Infrared energy and conducted heat permit rapid drying at atmospheric pressure rather than under a vacuum.

This rapid, yet gentle process provides superior retention of a product's beneficial properties, including its nutrition, flavor, color and aroma.

Retains 94% of Vitamin C* & Natural Color, Flavor, Aroma, Actives

*Results of Washington State University study sponsored by Washington Technology Center

Environmentally Responsible

Energy efficient and with low water use, Refractance Window® drying preserves air quality in and around the drying facility because little product essence is lost. In addition, the process does not generate exhaust dust, a significant pollution problem.

Drying Rate

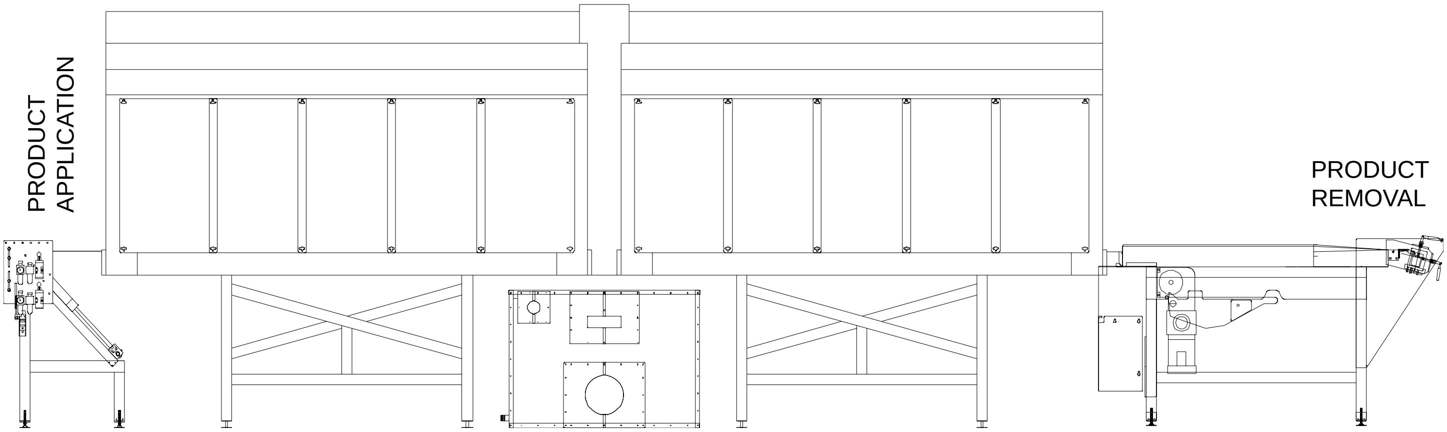
Many factors affect drying characteristics and rates. It is important to test-dry a product utilizing our Test and Contract Processing services. Contact MCD to learn how we can assist you to best maintain your products' qualities.

Refractance Window® Concentration & Dehydration Technology

ISO 9001:2000 Certified

MCD Technologies, Inc.
2515 So Tacoma Way, Tacoma, WA 98409
Tel: 1.253.476.0968 Fax: 1.253.476.0974
info@mcdtechnologiesinc.com
www.mcdtechnologiesinc.com

MODEL 1 REFRACTANCE WINDOW® DRYER (one drying module)



PRODUCT APPLICATION - LWH - ft (m) 1.9 x 6.7 x 3.8 (0.6 x 2 x 1.1)	DRYING MODULE - EACH INCLUDES AIR HANDLING COVER AND CIRCULATING WATER TANK LWH - ft (m) 20.1 x 8 x 8.5 6.1 x 2.4 x 2.6)	PRODUCT REMOVAL LWH - ft (m) 6.7 x 7.7 x 3.8 (2.0 x 2.3 x 1.1)

REFRACTANCE WINDOW® DRYER SIZES AND SERVICES					
DRYER	*L x W x H*	*ELECTRICAL* (w/ air handling)	*COMPRESSED AIR*	*CIRCULATING WATER*	*STEAM (M = 1 million)*
Model 1 (1 module)	28.8 x 8 x 8.5 ft. 8.78 x 2.44 x 2.59 m	18.5 hp (13.8kW)	4 cfm, 100 psi (0.15 m3 / min. at 7.0 kg / cm2)	200 gal.; 220 (100) deg. F (C) max.	0.5M Btu / hr (126,000 kcal) / hr
Model 2 (2 modules)	49.0 x 8 x 8.5 ft. 14.94 x 2.44 x 2.60 m	20.5 hp (15.3 kW)	same as above	400 gal.; 220 (100) deg. F (C) max.	1.0M Btu / hr (252,000 kcal) / hr
Model 3 (3 modules)	69.1 x 8 x 8.5 ft. 21.06 x 2.44 x 2.61 m	40 hp (29.8 kW)	same as above	600 gal.; 220 (100) deg. F (C) max.	1.5M Btu / hr (378,000 kcal) / hr
Model 4 (4 modules)	89.3 x 8 x 8.5ft 27.22 x 2.44 x 2.62 m	44 hp (32.8 kW)	same as above	800 gal.; 220 (100) deg. F (C) max.	2M Btu / hr (504,000 kcal) / hr
Model 5 (5 modules)	109.5 x 8 x 8.5 33.38 x 2.44 x 2.63	61 hp (45.5 kW)	same as above	1,000 gal.; 220 (100) deg. F (C) max.	2.5M Btu / hr (630,000 kcal) / hr
Pilot	14.56 x 5.0 x 4.28.5 ft 4.42 x 1.52 x 1.28 m	4 hp (3 kW)	same as above	60 gal.; 220 (100) deg. F (C) max.	0.1M Btu / hr (25,200 kcal) / hr

U.S. Patent No. 4,631,837 and foreign patents apply.
MCD reserves the right to alter the specifications of all equipment without prior notice.

Distributed by

Evaporator

REFRACTANCE WINDOW®

MCD TECHNOLOGIES INC.
...drying at the speed of light...

ESSENCE RETAINED

Refractance Window® (RW™) Evaporators operate at low temperatures, without vacuums, to rapidly and gently concentrate sensitive, delicate and valuable products.

Advantages

- Retains complex, subtle flavors and aromas, as well as colors and nutrients
- Low temperatures
- No vacuum

Efficient

Energy-Efficient – Washington State University research, supported by a grant from Washington Technology Center demonstrated that the Refractance Window® Evaporator is 99% efficient in its heat transfer. Refractance Window® heat transfer technology combined with simplicity of operation and maintenance, make our patented Evaporators ideal for removing moisture from high moisture, flowable products.

Rapid evaporation occurs when infrared energy from circulating hot water (210° F. / 99° C or less) is transmitted at the speed of light directly into the product. Assisted also by conducted heat, product moisture rapidly evaporates and is carried away by mechanically boosted airflow. This greatly speeds this gentle concentration process, where product temperatures remain far lower (140° F /60° C or less) than circulating water (198° F / 92° C).

Labor Costs are reduced thanks to this simple, automated operation, quick clean-up and minimal maintenance.

Industries

Food • Fruit & vegetable • Meat, fish, poultry • Dairy

Pharmaceutical • Vitamins • Antibiotics

Nutraceutical • Antioxidants • Extracts

Chemical • Pigments • Cosmetics

By-Product • Whey • Fish Oil

Refractance Window
Concentration & Dehydration Technology

ISO 9001:2000 Certified

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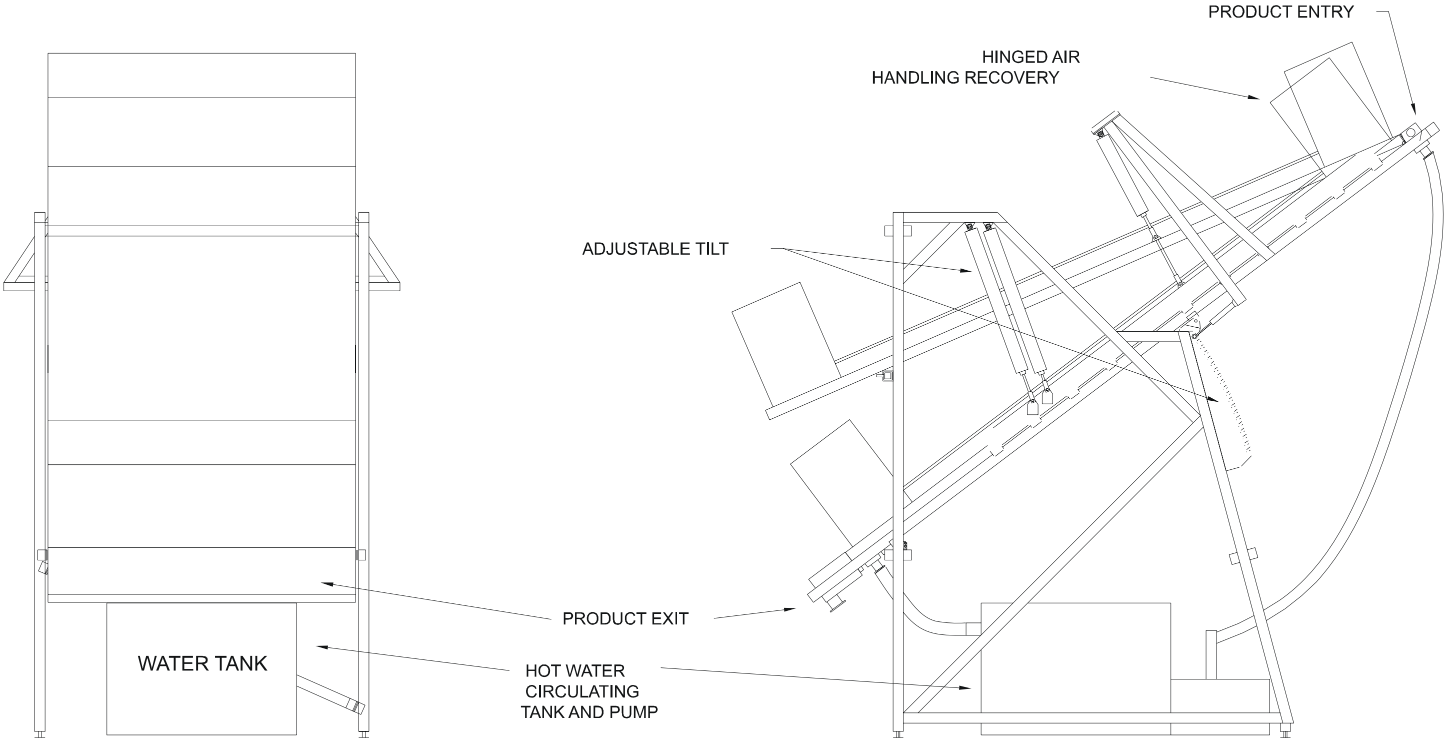
MODEL 1 REFRACTANCE WINDOW® EVAPORATOR



REFRACTANCE WINDOW® EVAPORATOR SPECIFICATIONS	
Effective surface area	76.5 ft.^{2} (7.1 m^2)
L x W x H	15.9 x 8.0 x 14.3 ft (4.8 x 2.4 x 4.3m)
Electrical	22.5 hp, 240 v, 3-phase (including product circulation)
Compressed air	4 cfm, 120 psi (0.15 m3 / min., 8.436 kg / cm2)
Circulating water	198 gal. (0.752 m3); 220 degrees F (104 deg. C) maximum
Steam (M = 1 million)	750,000 Btu / hr (189,000 kcal / hr)
Other requirements	Product holding tank(s); product delivery and return pump(s)

U.S. Patent No. 6,047,484
MCD reserves the right to alter the specifications of all equipment without prior notice.

Distributed by

Testing & Contract Processing

REFRACTANCE WINDOW®

MCD TECHNOLOGIES INC.

...drying at the speed of light...

Using our state-of-the-art Refractance Window® Dryers and Evaporators, we provide testing and contract processing services tailored to our customers' requirements. These services are available on a large or small scale basis at our certified Organic and Kosher Processing facility.

RW™ Dryers and Evaporators gently process even delicate, high value products using low temperatures and short dwell times. Low or no additives or carriers are required to dry products. Recovery rates are excellent and turn around times short. These "green" processes are environmentally responsible, energy efficient, require very low water usage, and preserve air quality.

Find out if Refractance Window® drying and/or evaporating are right for your products with a complimentary drying or evaporating test of a sample of your product. Larger samples to support your product development efforts can also be test dried.

Please complete the Test Order Form, available by request or on our website at www.mcdtechnologies-inc.com. Then contact us directly to make arrangements for product handling and scheduling.

With Superior Retention Of ***Natural***

ESSENCE RETAINED™

Color
Flavor
Aroma
Actives

Refractance Window®
Concentration & Dehydration Technology

ISO 9001:2000 Certified

USDA ORGANIC

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www.mcdtechnologiesinc.com

A Few Tested Products

REFRACTANCE WINDOW®

MCD TECHNOLOGIES, INC.
...drying at the speed of light...

Food (liquids, purees, extracts, slurries, chunky purees, including those with small seeds)

Beverage
coffee
tea
cocoa mix
chai

Color
annato
grape juice concentrate
natural & artificial colors

Dairy
bioactive cultures - kefir, lactobacillus
colostrom
kefir
milk (whole, skim)
milk, sweetened cond.
yogurt
whey

Egg
whole, white, yolk
scrambled egg mix
bakery wash

Flavor
beef
chicken
pet food
clam juice
peppermint
spearmint
vanilla
coffee
wine
yeast-based dough flavoring

Fruit & Vegetable
Fruit
apricot
aronia berry
avocado
banana
blackberry
blueberry
borojo
cantaloupe
cherry
coconut
cranberry
curuba
fig
grape
grapefruit
guava
huckleberry
kiwi
lemon
mango
melon
nectarine
orange
palmberry
papaya
passion fruit
pineapple
plum
prune
raspberry
soursop
strawberry

Vegetable
tree tomato
artichoke
asparagus
beets
bell pepper
broccoli
celery
corn
mushroom
onion
peas, green
plantain
potato, sweet
potato, white
pumpkin
spinach
sprouts
squash
tomato
yam

Herb & Spice
basil
parsley
peppercorns
jalapeno pepper

Meat, Fish, Poultry
beef
pork
shrimp
cod
salmon
tuna
chicken
turkey

Starch & Cereal
barley
oats
rice
specialty starches & mixes

Other
gelatin - fish, beef
gelatin/sugar mix
miso - red, yellow
yeast-based dough conditioner

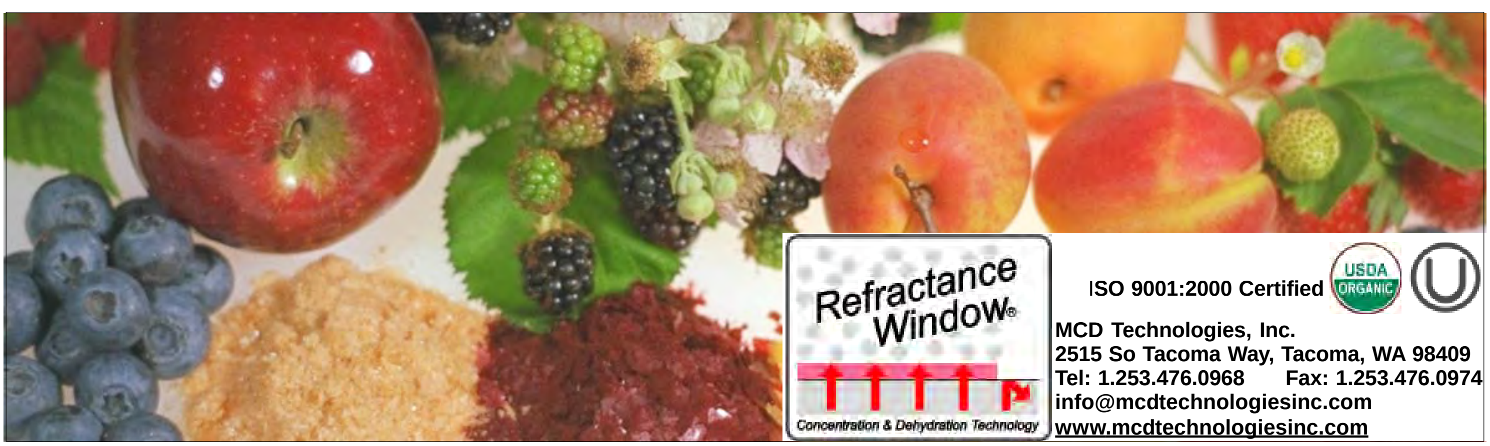
Nutraceutical
acerola cherry, algaes, aloe vera, barley grass juice,fungi, extracts (broccoli, dandelion, echinacea, ginger, grape seed, hops, kava kava, saw palmetto, suma, tang kuei and others), noni, papaya-green

Pharma
calcium ascorbate
cephalosporin
Ester-C
magnesium ascorbate
potassium ascorbate

Chemical
cosmetics
salt
reagent
neon dye
laser toner

By-Product
cheese plant
fish processing
milk processing
potato processing
yeast production

And Many Others . . . Call Us!



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Concentration & Dehydration Technology

ISO 9001:2000 Certified

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The Company

REFRACTANCE WINDOW®

MCD TECHNOLOGIES, INC.

...drying at the speed of light...

Company Profile

MCD Technologies, at the forefront of food processing technology since 1989, develops state-of-the art dryers and evaporators utilizing proprietary and patented Refractance Window® (RW™) heat transfer technology. In addition, MCD offers Contract Processing Services for market samples, scale-up needs and to demonstrate the superior qualities of Refractance Window® dried and evaporated products.

Objective

MCD provides customers with technical consulting and customized equipment to facilitate production of superior quality dried and evaporated products, helping them maximize profits while reducing energy use and costs.

Innovative, Patented Technology

Our revolutionary, patented Refractance Window® technology utilizes water as the heat transfer medium to dry or concentrate a wide variety of **foods, functional foods, nutraceuticals, pharmaceuticals, chemicals, and by-products.**

Refractance Window® drying and evaporating offer excellent results with a wide variety of products, particularly those requiring accurate, precise, low temperature processing.

Washington State University (WSU) studies funded by Washington Technology Center (WTC) have documented qualitative and energy use aspects of Refractance Window® drying and evaporating:

- Refractance Window® dried strawberry and carrot retain similar amounts of Vitamins C and A when compared to freeze-dried specimens.
- Refractance Window® Dryer energy efficiency is equal to the highest efficiency ever commercially documented.
- The Refractance Window® Evaporator is 99% efficient in heat energy transfer.

Washington State University, under an SBIR grant awarded in May 2006, is further studying Refractance Window® drying's superior retention of antioxidants and other heat sensitive components during gentle processing of nutraceuticals and functional foods.

State-of-the-Art Manufacturing

MCD employs advanced engineering capabilities to insure superior quality design and manufacture of Refractance Window® dehydration and evaporation equipment and accessories.

Testing and Contract Processing

MCD conducts test drying and evaporating, as well as sample production, in its pilot facility. MCD's production model dryer and evaporator are employed in contract processing for clients with special processing requirements, seasonal production, or limited drying needs that do not warrant purchase of Refractance Window® equipment. Contract processing, sample production, and testing offer customers maximum flexibility. We match our customers' specific requirements and specifications to our equipment in order to achieve the highest quality product outcome. Our facilities are Certified Organic through WSDA and Kosher through Orthodox Union.

Company History

Founded in 1989 as M.C.D. Company by Richard E. Magoon, the inventor and patent holder of Refractance Window® technology, the company incorporated as MCD Technologies Inc. in 1998. Its equipment manufacturing and food processing operations are located in Tacoma, Washington, in the beautiful Northwest.

Refractance Window® Concentration & Dehydration Technology

ISO 9001:2000 Certified

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www.mcdtechnologiesinc.com

Demonstrating the RW™

REFRACTANCE WINDOW®

MCD TECHNOLOGIES, INC.

...drying at the speed of light...

Background

Heat is transmitted by three methods: conduction, convection and radiation. Because all three heat transfer methods function within water, this makes water one of the most effective heat transfer media in nature. Yet, unlike most other media, water transmits very little infrared energy to its surroundings.

Water returns its energy to its surroundings by a combination of conduction and evaporation. Therefore, once a surface of water is covered by a transparent medium, such as plastic, only conduction can take place since the plastic prevents evaporation and associated heat loss. However, if a moisture-laden product (in this case, the product to be dried) is put in direct contact with the plastic surface, there is a "window" to the passage of infrared energy that is created at the point of contact of the liquid product with the plastic, where it bears on the water. At that time, all three forms of heat transmission methods are operating. This permits exceedingly effective heat transfer to take place.

As the product dries, the infrared "window" closes, as less and less moisture remains in contact with the plastic. The only heat transfer taking place at that time is by means of conduction. Since plastic is a very poor conductor, little heat is lost in this manner.

Example one: Consider any body of water. A reflective surface is formed at the interface between the air and the water. If one dives beneath the surface of water in a lake or pond and looks up at the surface of the water, the surface appears mirror-like and reflective. This reflective surface at the water/air interface tends to "trap" infrared rays within the body of water. The major means of heat loss from the body of water is: 1) through evaporation of the water at the surface; and 2) through the transfer of energy by conduction directly from the water to an object that is in direct contact with the water.

Example two: Fill a smooth, transparent, straight-sided water glass with tepid water. Hold the glass in one hand approximately six inches above eye level. Now look through the side of the glass at the undersurface of the water. You will observe that it appears mirrored. Again, this is an example of the air/water interface, which is reflective.

Keeping the glass in this position, use the index finger of your other hand to reach up and touch the water. You are able to see your finger when it is in contact with the water; however, if you raise your finger slightly, so that it breaks contact with the water surface, the finger "disappears". You are able to see the finger only when it contacts the surface of water.

Example three: Place the glass of water on a table in front of you, so that you are able to look through the surface of the water to the far side of the glass. Notice that the far surface of the glass appears as if it were mirrored. This is the glass/air interface. In this instance, the air/water interface has been transferred from the water to the outside surface of the glass.

Keep looking through the surface of the water and run your dry finger down the far side of the glass. Watch it disappear as it moves below the surface of the water. Still looking through the surface of the water, wet your finger and again run it down the far side of the glass until it is below the level of the surface of the water. This time, you are able to keep your finger in view. The moist finger has provided a "window" to vision and also to the passage of infrared energy at that point of contact. At this time, heat is transmitted from the water in the glass to your moist finger by three methods: conduction, convection, and radiation.

MCD Applications Our MCD Refractance Window® Dryers and Evaporators utilize this refractive principle demonstrated in the examples above. The patented technology used in our Dryers and Evaporators creates a "window" or passage to infrared energy at the speed of light into the product to be dried. A key feature of the MCD Refractance Window® Dryer lies in the proprietary use of an infrared-transparent plastic film. The product to be dried is placed on the film which "floats" on top of a heated (210° F / 99° C or less) body of water. Due to evaporative cooling, product reaches only 160° F / 71° C on the dryer and 140° F / 60° C on the evaporator.

Our Dryers harness infrared energy by creating a "window" to the passage of this energy to dry the product. This drying takes place in the most efficient manner. The heat loss in the circulating water beneath the plastic film from evaporation is minimal (dryer) or none (evaporator), since the body of water is essentially covered or entirely encapsulated by the plastic film. The heat transfer that takes place is in locations where the product to be dried is resting on the film, so that heat transfer is directly into the product to be dried and exists almost nowhere else on the plastic film.

Refractance Window
Concentration & Dehydration Technology

ISO 9001:2000 Certified

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SELLERS

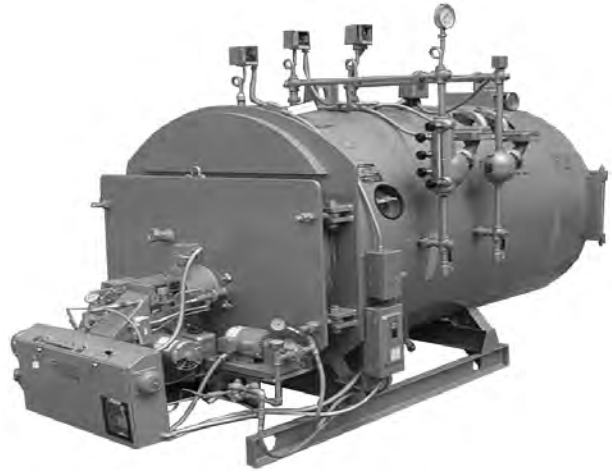
SPECIFICATION SHEET NO.

6100

January 1, 2008

SELLER-YGNIS STEAM BOILER

GENERAL DESCRIPTION



The Sellers-Ygnis boiler is a unique design developed and perfected in Switzerland. It is a three pass, horizontal fire tube, water backed boiler. The first two passes take place in a large diameter closed end furnace. Combustion is produced by a burner, factory mounted at the open end of the furnace. Its flame travels full length to the rear. The closed rear water backed end forces the hot products of combustion to reverse direction. The second pass is made back through the furnace around the radiant flame. This re-exposure of the hot gases to the flame insures complete combustion. Finally, the hot gases are reversed again by the front door refractory where they enter the third pass convection tubes.

The Sellers-Ygnis Boiler shell design over-comes thermal shock problems common to other multi-pass boilers. Thermal stress is greatly reduced because of two unique features of the furnace.

1. The larger diameter, shorter furnace produces less thermal expansion than a furnace of an ordinary boiler.
2. The furnace end is supported by stays which are attached to the rear tube sheet.

The unique design offers several benefits:

Shear stress between the furnace and the rear tube sheet is greatly reduced.

Tube sheet fatigue failures are eliminated.

Unequal thermal expansion between the hot furnace and the cooler tubes is decreased.

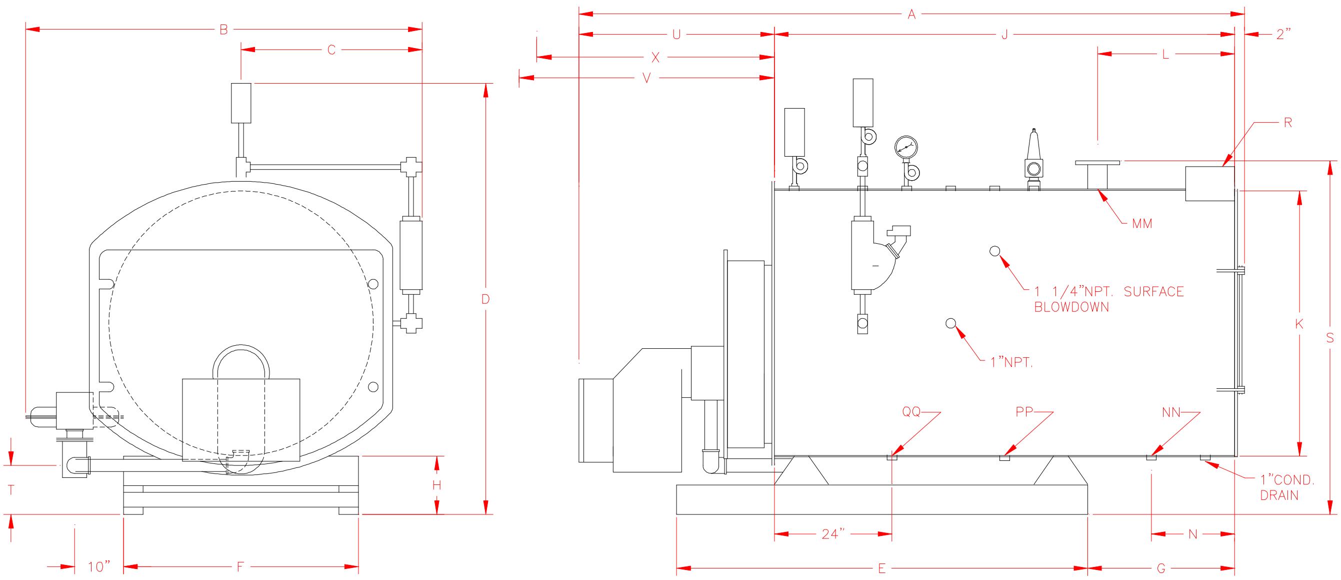
The key design features of the Sellers-Ygnis boiler are:

1. Water backed design with no rear refractory.
2. Assurance of complete combustion due to double burning of the fuel.
3. Elimination of tube sheet failures due to thermal expansion stresses.
4. Saves valuable floor space.

RATINGS AND FUEL CONSUMPTION

BOILER HORSE POWER	OUTPUT 1000 BTU PER HOUR	POUNDS STEAM PER HOUR[1]	EDR STEAM GROSS	FUEL CONSUMPTION GAS CFH[2]	FUEL CONSUMPTION LIGHT OIL GPH[3]	APPROXIMATE SHIPPING WEIGHT[4]
20	670	690	2,790	837	6.0	3,550
30	1,004	1,035	4,185	1,255	9.0	3,750
40	1,339	1,380	5,580	1,674	12.0	4,000
50	1,674	1,725	6,975	2,092	15.0	5,000
60	2,009	2,070	8,370	2,511	17.9	5,400
80	2,678	2,760	11,160	3,348	23.9	7,000
100	3,348	3,450	13,950	4,185	29.9	7,800
125	4,185	4,312	17,438	5,231	37.4	9,900
150	5,022	5,175	20,925	6,277	44.8	11,300
175	5,859	6,038	24,414	7,323	52.7	13,700
200	6,696	6,900	27,900	8,370	59.8	14,800
250	8,370	8,625	34,875	10,462	74.7	18,200
300	10,044	10,350	41,850	12,555	89.7	19,000
350	11,718	12,075	48,825	14,647	104.6	21,700
400	13,392	13,800	55,800	16,739	119.6	26,100
500	16,739	17,250	69,750	20,924	149.5	31,200
600	20,087	20,700	83,700	25,109	179.4	36,000

1. From 212° F. feed water to steam at atmoshperic pressure. 2. Natural gas at 1000 BTU per cubic foot. 3. Based on 140,000 BTU/gal. 4. Based on 150 PSI.

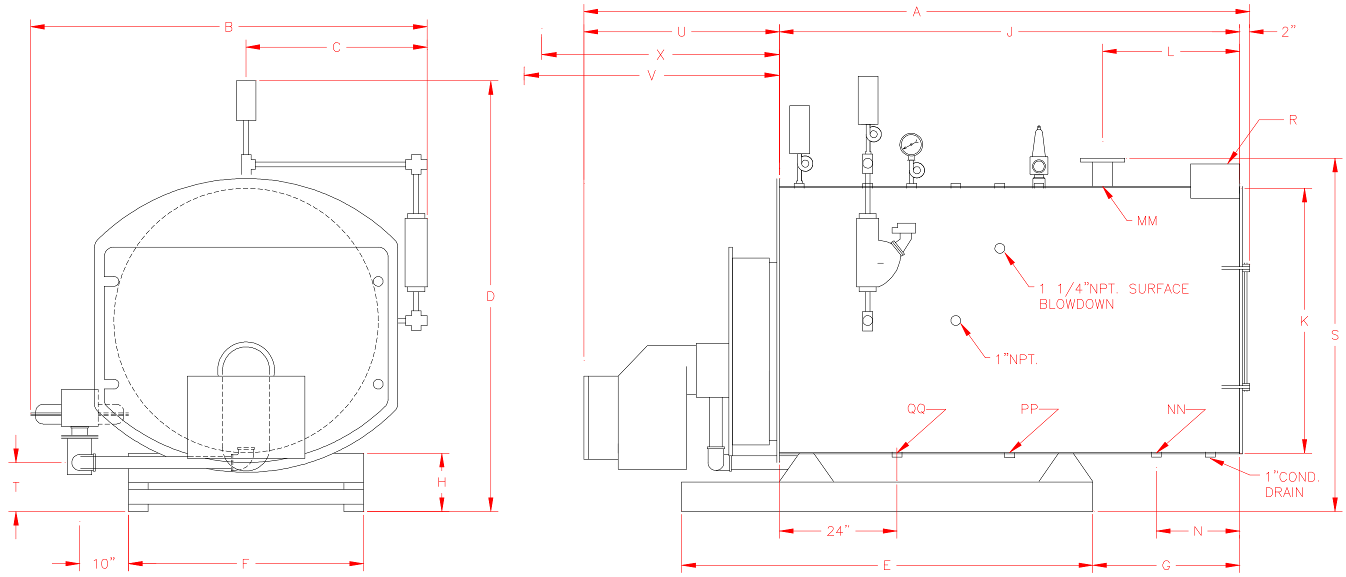


STEAM BOILER DIMENSIONS

HORSEPOWER **OVERALL DIMENSIONS:**		**20**	**30**	**40**	**50**	**60**	**80**	**100**	**125**
LENGTH	A	104	107	111	114	117	130	136	144
WIDTH	B	69	69	69	75	75	81	81	87
CENTERLINE TO RIGHT	C	31	31	31	34	34	37	37	40
HEIGHT	D	76	76	76	82	82	88	88	94
BASE:									
LENGTH	E	53	56	62	65	70	78	84	92
WIDTH	F	36	36	36	42	42	48	48	54
LOCATION	G	30	30	30	30	30	30	30	30
HEIGHT	H	12	12	12	12	12	12	12	12
SHELL:									
LENGTH	J	67	70	74	77	80	88	94	101
DIAMETER INSIDE	K	42	42	42	48	48	54	54	60
SHELL CONNECTIONS:									
STEAM OUTLET LOCATION	L	23	23	24	25	25	27	28	28
STEAM OUTLET — IPS — HIGH PRESSURE	MM	1.5	2	3	3	3	3	4F	4F
STEAM OUTLET — IPS — LOW PRESSURE	MM	4f	4f	6f	6f	6f	8f	8f	8f
FEED WATER INLET LOCATION	N	15	15	16	16	16	17	17	18
FEED WATER INLET — IPS	NN	1	1.25	1.5	1.5	1.5	1.5	1.5	1.5
MANUAL FILL LOCATION	P	—	—	—	—	—	—	—	25
MANUAL FILL — IPS	PP	—	—	—	—	—	—	—	1.5
BOTTOM BLOWDOWN — IPS	QQ	1	1	1.25	1.25	1.25	1.5	1.5	1.5
FLUE CONNECTION:									
OUTSIDE DIAMETER	R	8	8	10	10	10 x 10	10 x 15	10 x 18	10 x 20
HEIGHT	S	60	60	60	66	66	72	72	78
GAS TRAIN LOCATION (if specified)									
VERTICAL FROM FLOOR	T	9	9	9	9	9	10	10	10
INSTALLATION CLEARANCES:									
COMBUSTION ASSEMBLY EXTENSION	U	35	35	35	35	35	40	40	41
COMBUSTION ASSEMBLY SWING (NOTE 5)	V	54	54	54	60	61	67	67	73
REAR DOOR SWING	W	48	48	48	54	54	60	60	66
TUBE REMOVAL, FRONT (NOTE 3)	X	53	56	59	62	64	69	75	80
TUBE REMOVAL, REAR (NOTE 3)	Y	43	46	48	51	55	59	66	72
NORMAL WATER CAPACITY (US GALLONS)		192	191	188	286	273	397	380	527

All dimensions are in inches except as noted.

Notes: 1. Dimensions are sufficiently accurate for layout purposes.
2. Lifting eyes and manholes are not shown on drawing,
3. Full 90° rear door swing not required if tube removal to the rear is not required.
4. Openings are threaded unless indicated: f = 150 PSI ASA Flange. F = 300 PSI ASA Flange
5. For 90° combustion assembly opening, provide (C + U) - 3 from centerline to wall.



STEAM BOILER DIMENSIONS

HORSEPOWER **OVERALL DIMENSIONS:**		**150**	**175**	**200**	**250**	**300**	**350**	**400**	**500**	**600**
LENGTH	A	158	169	170	186	199	199	207	221	230
WIDTH	B	87	92	92	96	96	102	108	114	120
CENTERLINE TO RIGHT	C	40	43	43	46	46	49	52	55	58
HEIGHT	D	98	104	104	110	110	116	123	129	135
BASE:										
LENGTH	E	96	108	108	120	134	134	146	154	162
WIDTH	F	54	57	57	60	60	66	72	78	84
LOCATION	G	33	33	33	36	36	36	36	36	36
HEIGHT	H	16	16	16	16	16	16	16	16	16
SHELL:										
LENGTH	J	108	117	120	136	149	149	157	165	174
DIAMETER INSIDE	K	60	66	66	72	72	78	84	90	96
SHELL CONNECTIONS:										
STEAM OUTLET LOCATION	L	32	31	32	36	36	36	36	36	36
STEAM OUTLET — IPS — HIGH PRESSURE	MM	4F	4F	6F	6F	6F	8F	8F	8F	8F
STEAM OUTLET — IPS — LOW PRESSURE	MM	8f	10f	10f	10f	12f	12f	12f	12f	12f
FEED WATER INLET LOCATION	N	18	20	18	22	22	22	22	22	22
FEED WATER INLET — IPS	NN	2	2	2	2.5	2.5	2.5	2.5	2.5	2.5
MANUAL FILL LOCATION	P	32	28	32	32	32	32	33	31	34
MANUAL FILL — IPS	PP	2	2	2	2.5	2.5	2.5	2.5	2.5	2.5
BOTTOM BLOWDOWN — IPS	QQ	1.5	2	2	2	2	2	2	2	2
FLUE CONNECTION:										
OUTSIDE DIAMETER	R	10 x 22	10 x 22	10 x 28	14 x 26	14 x 30	14 x 36	14 x 40	14 x 50	14 x 60
HEIGHT	S	82	88	88	94	94	100	106	112	118
GAS TRAIN LOCATION (if specified)										
VERTICAL FROM FLOOR	T	12	12	12	12	12	12	12	12	12
INSTALLATION CLEARANCES:										
COMBUSTION ASSEMBLY EXTENSION	U	48	48	48	48	48	48	48	54	54
COMBUSTION ASSEMBLY SWING (NOTE 5)	V	73	78	78	82	82	88	94	100	106
REAR DOOR SWING	W	66	72	72	78	78	84	90	96	102
TUBE REMOVAL, FRONT (NOTE 3)	X	86	98	98	109	122	122	128	136	143
TUBE REMOVAL, REAR (NOTE 3)	Y	82	88	88	94	94	100	106	112	118
NORMAL WATER CAPACITY (US GALLONS)		511	672	672	927	926	1098	1418	1631	1873

All dimensions are in inches except as noted.

Notes: 1. Dimensions are sufficiently accurate for layout purposes.
2. Lifting eyes and manholes are not shown on drawing,
3. Full 90° rear door swing not required if tube removal to the rear is not required.
4. Openings are threaded unless indicated: f = 150 PSI ASA Flange. F = 300 PSI ASA Flange
5. For 90° combustion assembly opening, provide (C + U) - 3 from centerline to wall.

Advantages of Sellers Ygnis Boilers

Sample Installations:

- *Ball Aerospace Systems*
- *Bryan Memorial Hospital*
- *Emma Willard School*
- *Flagstaff Medical Center*
- *Freemont County Justice Center*
- *Garrett Turbine Engine*
- *Hughes Aircraft*
- *Louden Hospital Center*
- *Maple Heights BOE*
- *McConnell AFB – B1B SupFac*
- *O K Tool*
- *Praxair*
- *Russell Research Center*
- *Shriners Hospital*
- *Soil & Water Conserva-tion District*
- *Stillwater HS*
- *Sunland Training Center*
- *Troy Water District*

Advantages vs. Fire tube Boilers

- No hard cast refractory = less weight and lower maintenance costs
- 3-year non-prorated warranty on pressure vessel (labor & materials)
- Large diameter, short furnace reduces thermal stress
- Unique furnace design assures complete combustion
- Smaller footprint
- No proprietary parts
- Factory fire test included in base price

Advantages vs Cast Iron Boilers

- No hard cast refractory = less weight and lower maintenance costs
- 3-year non-prorated warranty on pressure vessel (labor & materials)
- No field erection required – factory PRE-ASSEMBLED is standard
- Smaller footprint
- Induced draft fans NOT required
- Factory fire test included in base price

Advantages vs. Copperfin Boilers

- Ample thermal storage with rapid response to load changes
- Inexpensive to Maintain
- No proprietary parts
- Heavy duty industrial control systems
- No potential for flame rollout

Advantages vs. Copperfin Boilers

- Ample thermal storage with rapid response to load changes
- Inexpensive to Maintain
- No proprietary parts
- Heavy duty industrial control systems
- No potential for flame rollout
- Factory fire test included in base price

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COMPLIANCE TEST REPORT
FOR TWO (2) NATURAL GAS-FIRED BOILERS
AT ACCESS BUSINESS GROUP LLC, NUTRILITE
(FACILITY ID 012362; A/N 542366, 542369)

Compliance Test Report for Two (2) Natural Gas-Fired Boilers at Access Business Group LLC, Nutrilite

Facility I.D. No. 012362
Facility Location: 19600 6th Street
Lakeview, CA 92567

Equipment Description: Sellers Boilers
Test Date(S): February 27, 2013
Issue Date: March 2, 2013

Prepared for:

Access Business Group LLC, Nutrilite
19600 6th Street
Lakeview, CA 92567

For Submittal to:

South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765-4182

EES No.: 03022013-ABGN

Prepared By & Title: Batuk Sharma, Project Engineer — Ken Kumar 3/2/2012
Reviewed By & Title: Ken Kumar, CEO/QA Manager — Ken Kumar 3/2/2012

Energy Environmental Solutions, Inc.
Air Quality & Energy Environmental Research/Management Group
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kenkumar@sourcetester.com

TABLE OF CONTENTS

Appendices

List of Tables

RECLAIM COMPLIANCE TEST SUMMARY

HOURLY AVERAGE POLLUTANT CONCENTRATIONS
FOR SELLERS BOILERS
ACCESS BUSINESS GROUP LLC, NUTRILITE

FEBRUARY 27, 2013

B4-005 (#5)

Parameter	Units	As-Found Load	Permit Limit ppm @ 3% O_2
NO_x Concentration	ppm @ 3% O_2	4.30	9
CO Concentration	ppm @ 3% O_2	0.72	50

RELATIVE ACCURACY AUDIT

Loads	Flow Rate by SCAQMD Methods 1.1 & 2.1 (dscfm)	Flow Rate by F Factor (dscfm)	Percentage Relative Accuracy
As-found Load	2,208.29	2,086.87	-5.50%<15%

B4-006 (#6)

Parameter	Units	As-Found Load	Permit Limit ppm @ 3% O_2
NO_x Concentration	ppm @ 3% O_2	6.62	9
CO Concentration	ppm @ 3% O_2	0.072	50

RELATIVE ACCURACY AUDIT

Loads	Flow Rate by SCAQMD Methods 1.1 & 2.1 (dscfm)	Flow Rate by F Factor (dscfm)	Percentage Relative Accuracy
As-found Load	2,110.84	2,012.22	-4.67%<15%

1.0

INTRODUCTION

Energy Environmental Solutions, Inc. (EES) was contracted by Automatic Boiler Company on behalf of Access Business Group LLC, Nutrilite to conduct compliance testing on two (2) natural gas-fired boilers (Boilers: B4-005 and B4-006) at their facility in Lakeview, California. All testing were performed while the boilers were operating at as-found load conditions. The purposes of this source test were:

1. To comply with the source test provisions of Facility Permit to Construct/Operate; and
2. To demonstrate compliance with the oxides of nitrogen (NO_x) and Carbon Monoxide (CO) concentrations limit stated in the permit.

Copies of the Facility Permit to Construct/Operate are attached in Appendix C of this report.

The source test was conducted on February 27, 2013. Jaysun Tosch and Batuk Sharma of EES performed testing. Automatic Boiler Company coordinated the test.

The results of the February 27, 2013 source test are discussed briefly in Section 4. The test descriptions are described briefly in Section 3. All raw data, calculations and quality assurance documents are attached in the Appendices.

2.0

EQUIPMENT DESCRIPTION

2.1 EQUIPMENT DESCRIPTION

Boiler No.5, Seller's Ygnis, Model No. SY-200HP-150, Fire Tube, Natural Gas, 8.37 MMBtu/hr, with a Low Nox Burner, Power Flame, Model No. NVC-6-G-30.

Boiler No.6, Seller's Ygnis, Model No. SY-200HP-150, Fire Tube, Natural Gas, 8.37 MMBtu/hr, with a Low Nox Burner, Power Flame, Model No. NVC-6-G-30.

3.0

TEST DESCRIPTION

3.1 TEST CONDITIONS

The testing at Access Business Group LLC, Nutrilite was conducted at as-found load condition. There was no shutdown and equipment failure during the test.

3.2 PHYSICAL MEASUREMENT OF THE SOURCE

Table 3-1 reports the physical dimensions of the exhaust sampling ports. The stack configuration and traverse points are shown in Appendix B.1. These dimensions were measured during the test. During traverses, cyclic flow check was performed.

Table 3-1

DIMENSION OF THE STACK AND SAMPLING PORTS
STACK CONFIGURATION FOR DEVICE D23 AND D24
(All values are in inches)

Boiler # 5	
Stack Equivalent diameter	20
Sampling port distance downstream from the last flow disturbance	45
Sampling port distance upstream from the flow disturbances	107
Sampling port diameter	3
Boiler # 6	
Stack Equivalent diameter	18
Sampling port distance downstream from the last flow disturbance	60
Sampling port distance upstream from the flow disturbances	15
Sampling port diameter	3

3.3 SAMPLING AND ANALYTICAL PROCEDURES

All tests were performed by the methods specified in Table 3-2 and detailed in Appendix G. Runs for continuous emissions monitoring of gaseous emissions were conducted for 60 consecutive minutes at one load. Test schedules are mentioned in Table 3-3.

3.3.1 Continuous Emissions Monitoring

Exhaust concentrations of NO_x, CO, carbon dioxide (CO_2) and oxygen (O_2) were determined by SCAQMD Method 100.1. A representative exhaust gas sample was conveyed through a heated line (to prevent condensation) to a chiller unit, which dried the sample. The sample was then pumped to a distribution manifold, from which the analytical instruments drew the samples. All analyzers were connected to multi-pen strip chart recorder and Darwin Yokogawa Data Acquisition System (DAS).

3.3.2 Relative Accuracy Audit (RAA)

Three run RAA were conducted as three full velocity traverses performed in conjunction with moisture to determine the dry standard volumetric flow rate of the stack gas. The measured dry standard volumetric flow rate was then compared to that from the F-factor calculation to verify the relative accuracy of the fuel meter.

The equation that will be used for F-factor calculation as presented in EPA Method 19 in this method is as follows:

$Q_{sd} = F \times Q_{fuel} \times HHV_{fuel} \times 20.9/(20.9 - \%O_2) \times 10^{-6}$

Where:
- Q_{sd} = exhaust flow, dry standard cubic feet per minute (dscfm)
- F = F-factor, (dscf of exhaust gas / 10^6 Btu fuel input)
- HHV_{fuel} = Higher heating value of fuel (Btu /scf)
- Q_{fuel} = fuel flow, (scfm)

According to the Southern California Gas Company, the natural gas supplied to customers in Lakeview, CA has a higher heating value (HHV) of 1050 Btu/ft^3. From 40 CFR Part 60, Appendix A, Method 19, the F factor for natural gas is 8710 dscf/MMBtu at 1 atm and 68^{0}F.

3.3.3 Flow Rate

The exhaust gas velocity and volumetric flow rate was determined according to the guidelines specified in SCAQMD Methods 1.1 and 2.1.

3.3.4 Moisture Content

The moisture content at the exhaust was determined using combustion chart.

Table 3-2

TEST PROCEDURES AT ACCESS BUSINESS GROUP LLC, NUTRILITE
FEBRUARY 27, 2013

Parameter	Reference Measurement Technique	Method
NO_x	Chemiluminescence	SCAQMD Method 100.1
CO	Non-dispersive Infra Red Absorption (NDIR)	SCAQMD Method 100.1
O_2	Electro-chemical Cell	SCAQMD Method 100.1
CO_2	NDIR	SCAQMD Method 100.1
Exhaust Gas Flow Rate	Pitot tube Velocity Traverse	SCAQMD Method 1.1 and 2.1
Moisture	Combustion chart	----------

Table 3-3

ACCESS BUSINESS GROUP LLC, NUTRILITE TEST SCHEDULE
FEBRUARY 27, 2013

Date	Time	Test Type
February 27, 2013	0800/1330	CEMS, Moisture, Flow Rate

4.0

TEST RESULTS AND DISCUSSIONS

4.1 SUMMARY OF POLLUTANT CONCENTRATIONS

Table 4-1 summarizes the “raw” and corrected hourly average NO_x and CO concentrations at the as-found operating load. The value reported is an average of 60 consecutive 1-minute averages. Concentrations at 3% O_2 on a dry basis are compared with corresponding permit limits.

Table 4-1

RECLAIM COMPLIANCE TEST SUMMARY

HOURLY AVERAGE POLLUTANT CONCENTRATIONS
FOR SELLERS BOILERS, B4-005 AND B4-006
ACCESS BUSINESS GROUP LLC, NUTRILITE

FEBRUARY 27, 2013

B4-005 (#5)

Parameter	Units	As-Found Load	Permit Limit ppm @ 3% O_2
NO_x Concentration	ppm @ 3% O_2	4.30	9
CO Concentration	ppm @ 3% O_2	0.72	50

B4-006 (#6)

Parameter	Units	As-Found Load	Permit Limit ppm @ 3% O_2
NO_x Concentration	ppm @ 3% O_2	6.62	9
CO Concentration	ppm @ 3% O_2	0.072	50

4.2 RELATIVE ACCURACY AUDIT

EES conducted velocity traverses and moisture measurement at the as-found operating load. For relative accuracy audit (RAA), EES took fuel usage reading, which is included in Appendix B.6 of this report. The fuel flow rate to the main burner was determined by EES during the sixty-(60) minutes compliance measurement run. EES calculated the exhaust flow rate using 40CFR Part 69, Appendix A, Method 19. Table 4-2 summarizes the RAA results.

Table 4-2

RELATIVE ACCURACY AUDIT

B4-005
RELATIVE ACCURACY AUDIT

Loads	Flow Rate by SCAQMD Methods 1.1 & 2.1 (dscfm)	Flow Rate by F Factor (dscfm)	Percentage Relative Accuracy
As-found Load	2,208.29	2,086.87	-5.50%<15%

B4-006
RELATIVE ACCURACY AUDIT

Loads	Flow Rate by SCAQMD Methods 1.1 & 2.1 (dscfm)	Flow Rate by F Factor (dscfm)	Percentage Relative Accuracy
As-found Load	2,110.84	2,012.22	-4.67%<15%

APPENDIX B.2.5

FUEL METER DATA SHEET

Fuel Meter Data Sheet

BOILER
Heater Input Rate 8.37 MMBtu/hr

Boiler	scf/h
# 5	129.7
# 6	134

APPENDIX F: EQUIVALENCY DEMONSTRATION

12770 Merit Drive | Suite 900 | Dallas, TX 75251 | P (972) 661-8100 | F (972) 385-9203
trinityconsultants.com

Trinity Consultants

VIA E-MAIL: bholland@trinityconsultants.com

13 December, 2013

RE: Equivalence of BREEZE AERMOD Results and U.S. EPA AERMOD Results

To Whom It May Concern:

The purpose of this letter is to clarify and certify the relationship between modeling results produced by the BREEZE AERMOD software package and the stand-alone AERMOD model executable produced by the U.S. Environmental Protection Agency (U.S. EPA).

The purpose of the BREEZE AERMOD interface is to simplify the process of creating an input file for the AERMOD model executable. As a user creates sources, receptors, buildings, etc. in the BREEZE AERMOD interface, the BREEZE program is, in the background, creating an input file incorporating the user-specified data. When a user executes a model run in BREEZE AERMOD, the program internally passes the input file it has created to a version of the AERMOD executable.

There are four versions of the AERMOD executable included in the BREEZE AERMOD program:

- **U.S. EPA single-processor version:** This is the original, unmodified AERMOD executable provided by the U.S. EPA. It is exactly the same as the version available from U.S. EPA, and thus will produce exactly the same results under all circumstances. In our experience, all regulatory agencies, in the U.S. and around the world that accept the U.S. EPA AERMOD model will accept these results. <u>This is the default executable in BREEZE AERMOD, and will be used unless the user manually selects the "Use Parallel" or "BREEZE" executable options in the Incident Tab → Control Options window.</u>

- **U.S. EPA multi-processor (parallel) version:** This executable retains all of the U.S. EPA AERMOD code, but adds code to allow AERMOD to run on multiple processor cores simultaneously, producing faster results. In extensive testing by BREEZE Software/Trinity Consultants, we have found that this executable produces <u>identical</u> results to the original U.S. EPA single-processor version in <u>every</u> tested case. However, because modifications have been made from the original EPA executable, some regulatory agencies (especially in the U.S.) prefer that final modeling submitted to them be re-run using the U.S. EPA single-processor version described above.

- **BREEZE single-processor version:** This executable retains all of the U.S. EPA AERMOD code, but adds additional features such as the ability to output the plume shape and size calculated by AERMOD's building downwash algorithms. In extensive testing by BREEZE Software/Trinity Consultants, we have found that this executable produces <u>identical</u> results to the original U.S. EPA single-processor version in <u>every</u> tested case. However, because modifications have been made from the original EPA executable, some regulatory agencies (especially in the U.S.) prefer that final modeling submitted to them be re-run using the U.S. EPA single-processor version described above.

- **BREEZE multi-processor (parallel) version:** This executable retains all of the U.S. EPA AERMOD code, but adds the capability to run faster by using multiple processor cores, and has additional features such as the ability to output the plume shape and size calculated by AERMOD's building downwash algorithms. In extensive testing by BREEZE Software/Trinity Consultants, we have found that this executable produces identical results to the original U.S. EPA single-processor version in every tested case. However, because modifications have been made from the original EPA executable, some regulatory agencies (especially in the U.S.) prefer that final modeling submitted to them be re-run using the U.S. EPA single-processor version described above.

In summary, model runs in BREEZE AERMOD using the default setting (U.S. EPA single-processor executable) will produce identical results to the stand-alone AERMOD executable provided by the U.S. EPA. BREEZE AERMOD runs using this executable should be accepted by any regulatory agency that accepts the U.S. EPA's AERMOD model. Model runs in BREEZE AERMOD that use one of the three non-default executables have produced identical results to the stand-alone AERMOD executable in all of the numerous test cases examined by BREEZE staff. However, some regulatory agencies still prefer that the users submit results run using the default executable in BREEZE AERMOD.

Any questions about this information can be addressed to BREEZE technical support, which can be reached by phone (+1 972-897-4871) or email (support@trinityconsultants.com).

Sincerely,

TRINITY CONSULTANTS

Brian Holland

Brian Holland
Senior Scientific Software Specialist/Meteorologist

APPENDIX G: NO_2 PVMRM SOURCE DATA

Appendix Table G-1: NO2 Database Results

Site Name	Facility ID	Equipment class	Equipment description	Fuel Type	Equipment manufacturer & model	Equipment capacity	Analyzer make/model	Test date	Load (% of capacity)	Operating temp (F)	Output units	Avg. NO2	Avg NO	Avg Nox	% O2	Ratio	Reporting entity	Contact name	Completeness check
John Bean Tech Corp	497	Bioler	Force Draft	NG	KEWANEE BOILER KF15-1562-6	MMBTU/Hr	Bacharach ECA450	13-Feb-08	25	335	PPM	1	49	50	3	0.0200	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF
John Bean Tech Corp	497	Bioler	Force Draft	NG	KEWANEE BOILER KF15-1562-6	MMBTU/Hr	Bacharach ECA450	13-Feb-08	50	370	PPM	1	54	55	3	0.0182	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF
John Bean Tech Corp	497	Bioler	Force Draft	NG	KEWANEE BOILER KF15-1562-6	MMBTU/Hr	Bacharach ECA450	13-Feb-08	75	390	PPM	2	55	57	5.8	0.0351	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF
John Bean Tech Corp	497	Bioler	Force Draft	NG	KEWANEE BOILER KF15-1562-6	MMBTU/Hr	Bacharach ECA450	13-Feb-08	100	392	PPM	2	57	59	3	0.0339	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	0	250	PPM	1	63	64	3	0.0156	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF Back To Start
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	0	246	PPM	1	62	63	3	0.0159	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF Rich Burn
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	0	256	PPM	1	61	62	3	0.0161	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PDF New Adj.
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	75	315	PPM	2	73	75	3	0.0267	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PD
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	50	281	PPM	1	69	70	3	0.0143	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PD
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	25	280	PPM	1	66	67	3	0.0149	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PD
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	100	317	PPM	2	75	77	3	0.0260	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PD
John Bean Tech Corp	497	Bioler	Force Draft	NG	CLAYTON BOILER EO-200-3FM	MMBTU/Hr	Bacharach ECA450	22-Jan-09	100	292	PPM	2	67	69	3	0.0290	San Joaquin Valley APCD (CA)	Leland Villalvazo	C497 1887666.PD

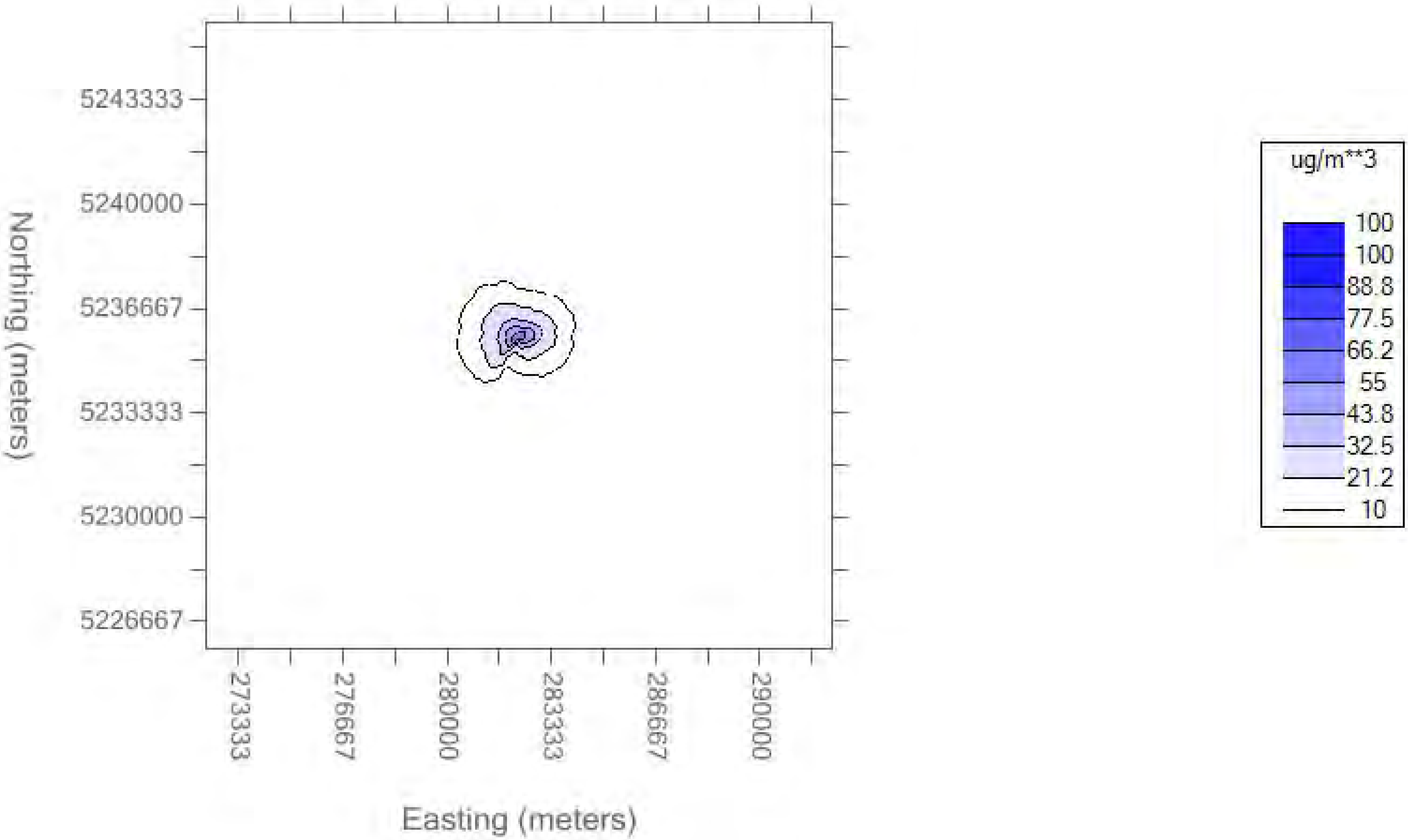
Max **0.0351**
90th Percentile **0.0334**

APPENDIX H: MODELING PLOTS

Carbon Monoxide 1st Modeled Concentration for the 8-hour Averaging Period

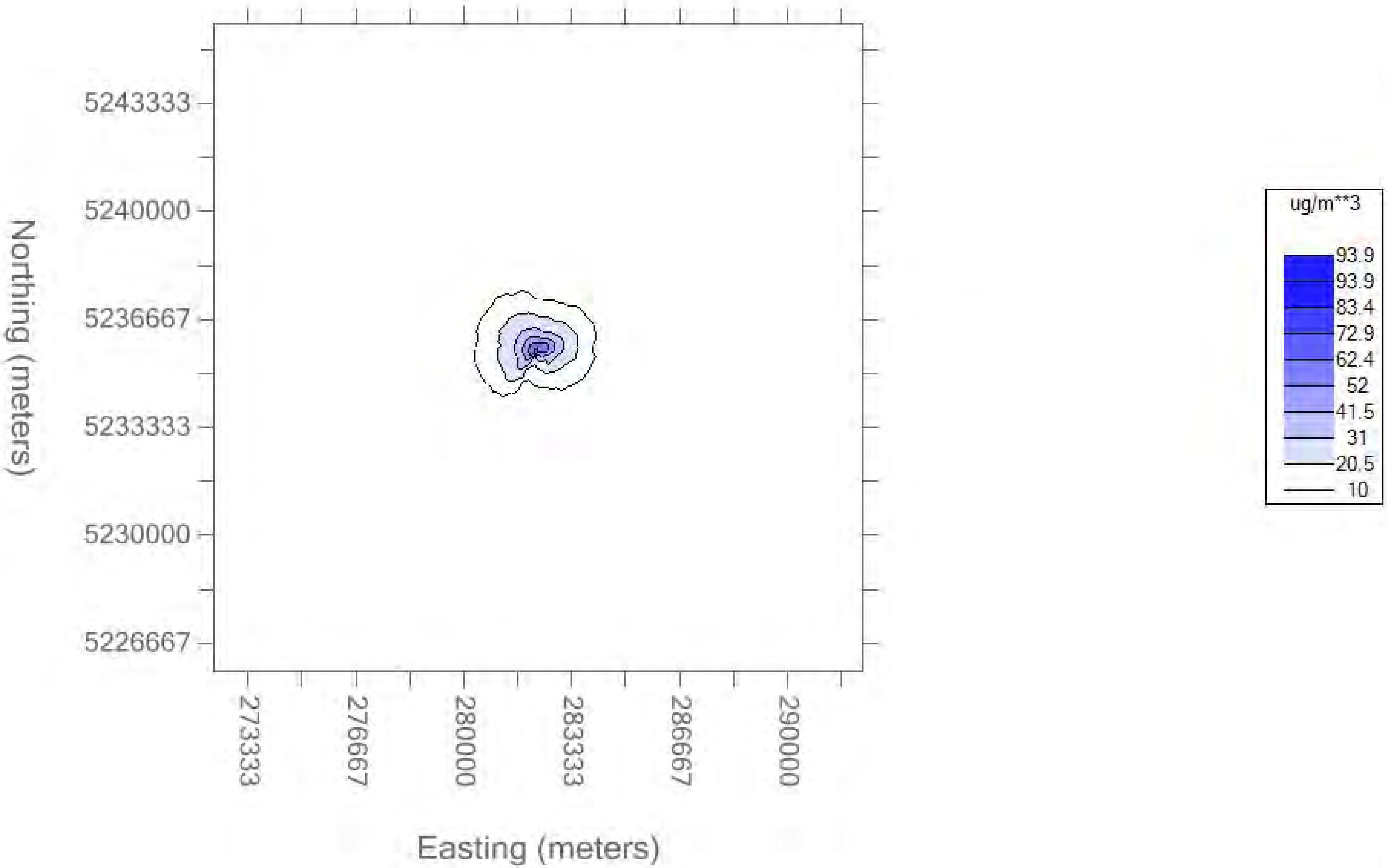
2008 Meteorological Data

Significance Model



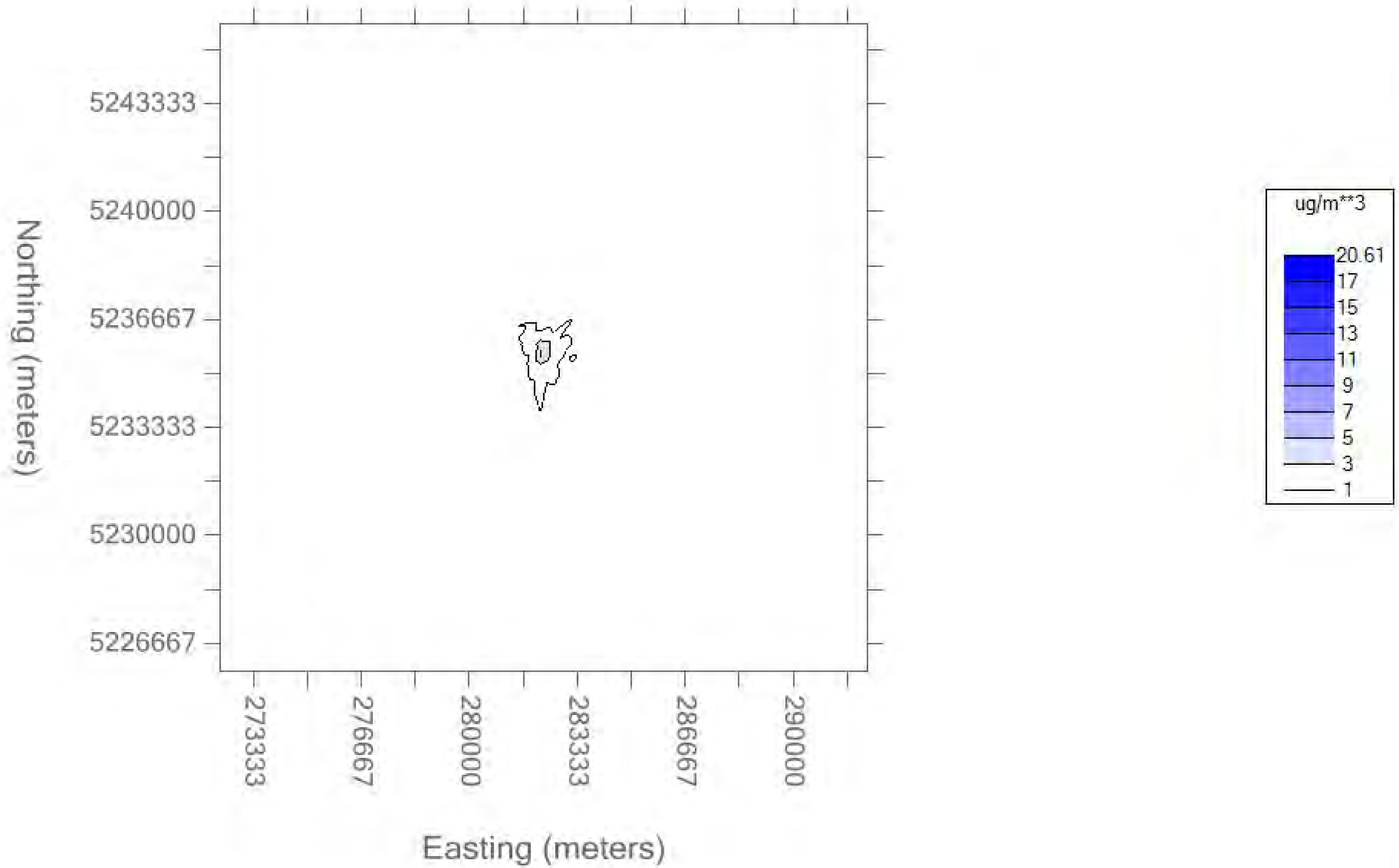
Carbon Monoxide 1st Modeled Concentration for the 1-hour Averaging Period

2008 Meteorological Data
Significance Model



PM10 1st Modeled Concentration for the 24-Hour Averaging Period

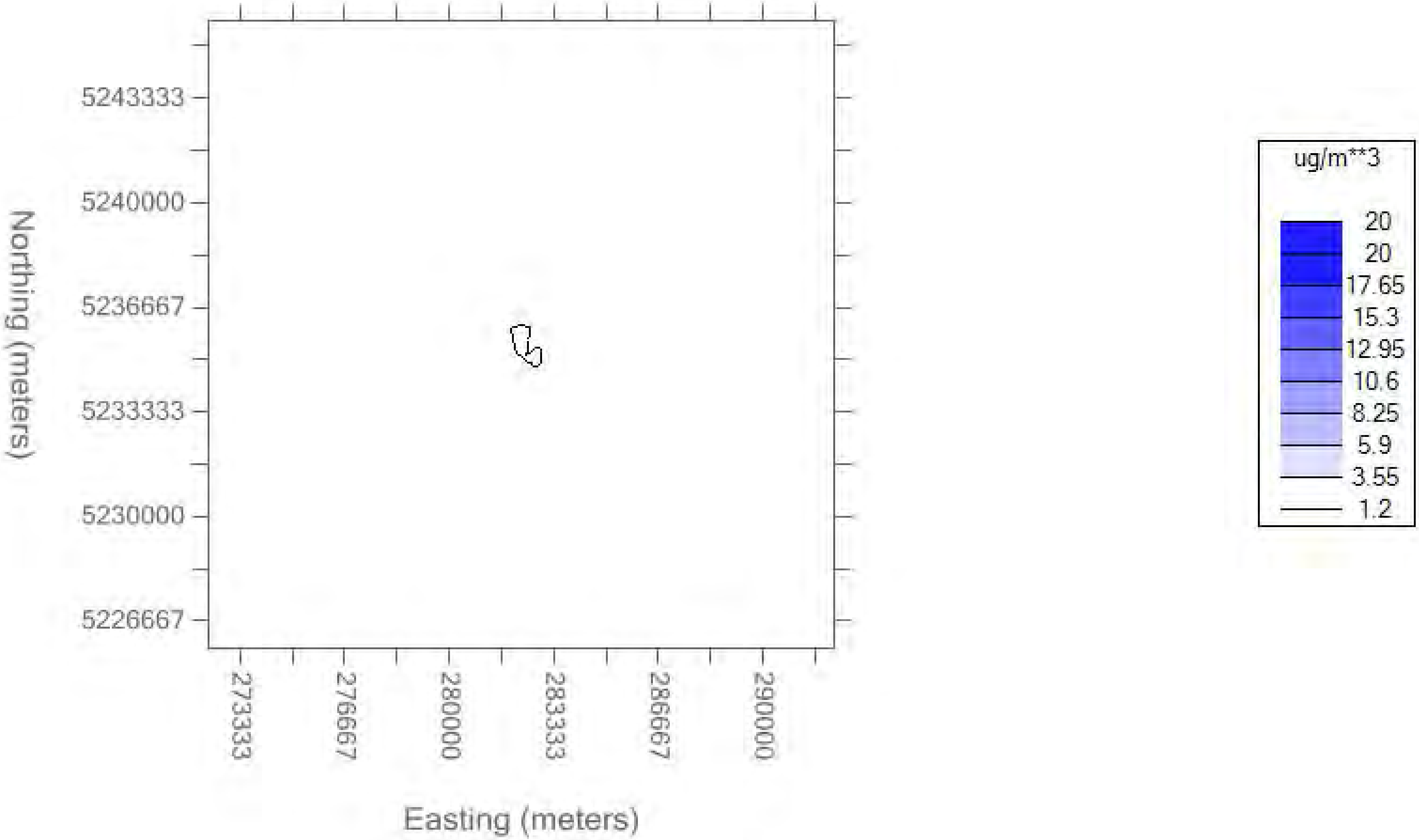
2007 Meteorological Data
Significance Modeling



PM2.5 1st Modeled Concentration for the 24-hour Averaging Period

2004-2008 Meteorological Data

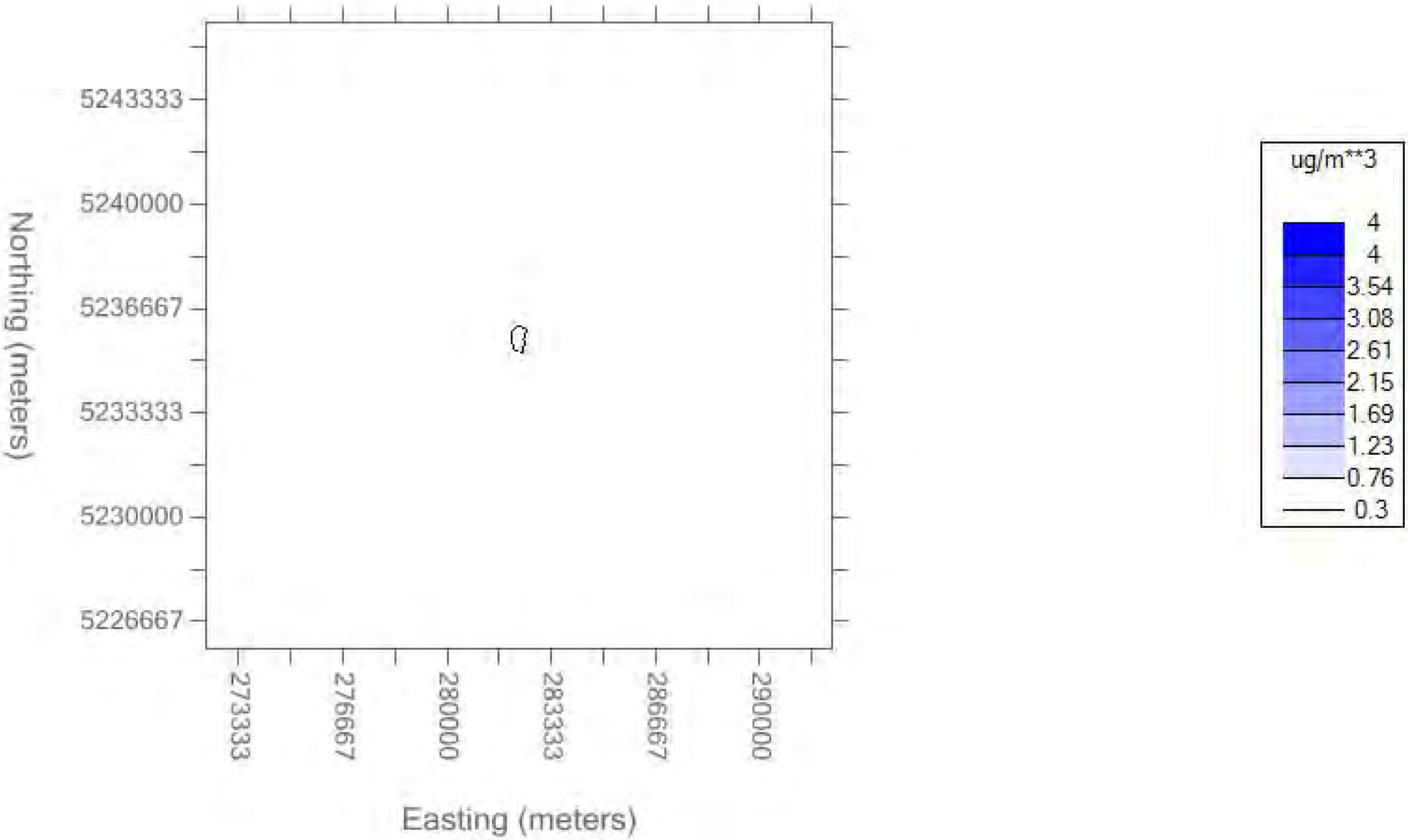
Significance Modeling



PM2.5 1st Modeled Concentration for the Annual Averaging Period

2004-2008 Meteorological Data

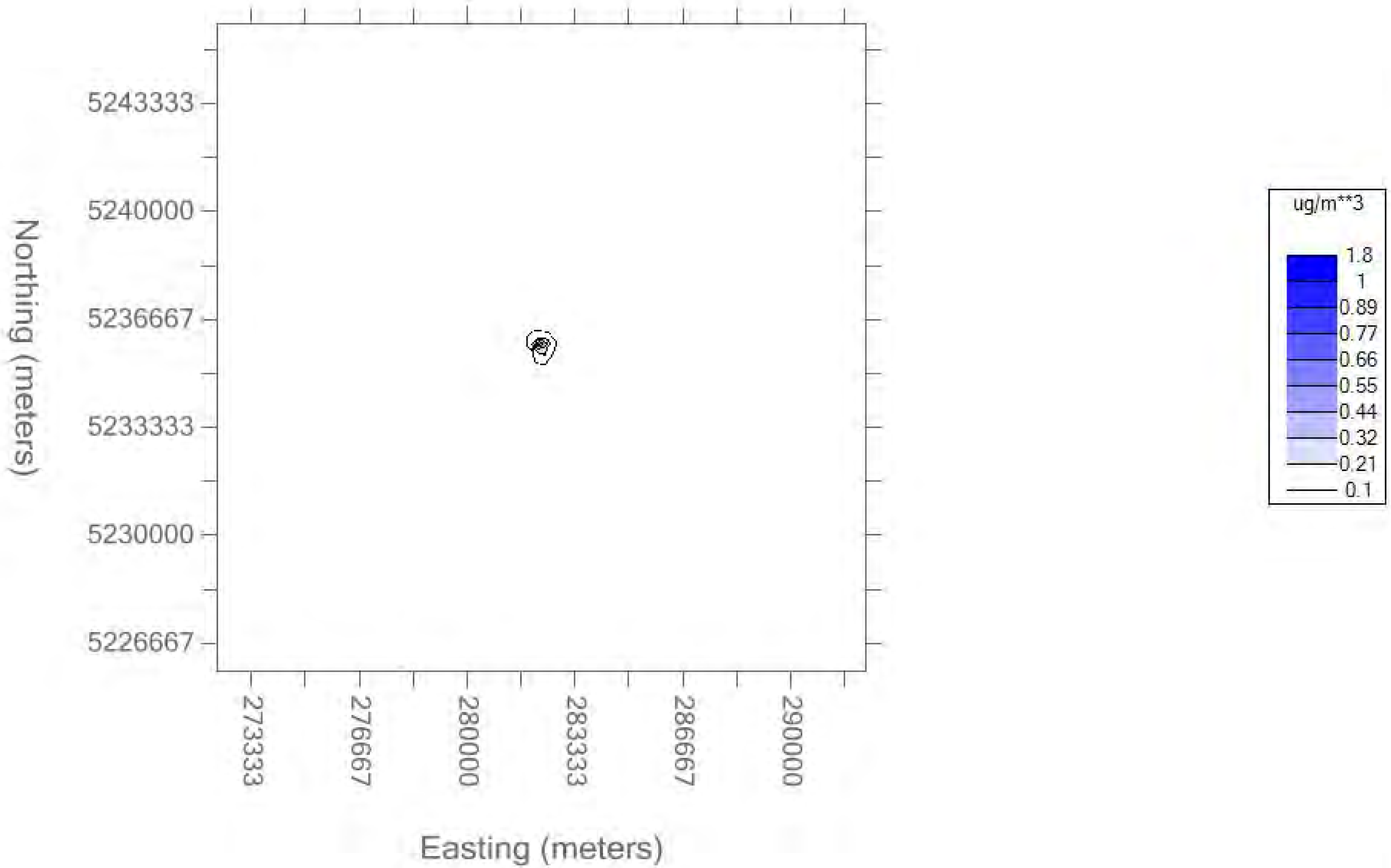
Significance Modeling



Nitrogen Dioxide 1st Modeled Concentration for the Annual Averaging Period

2007 Meteorological Data

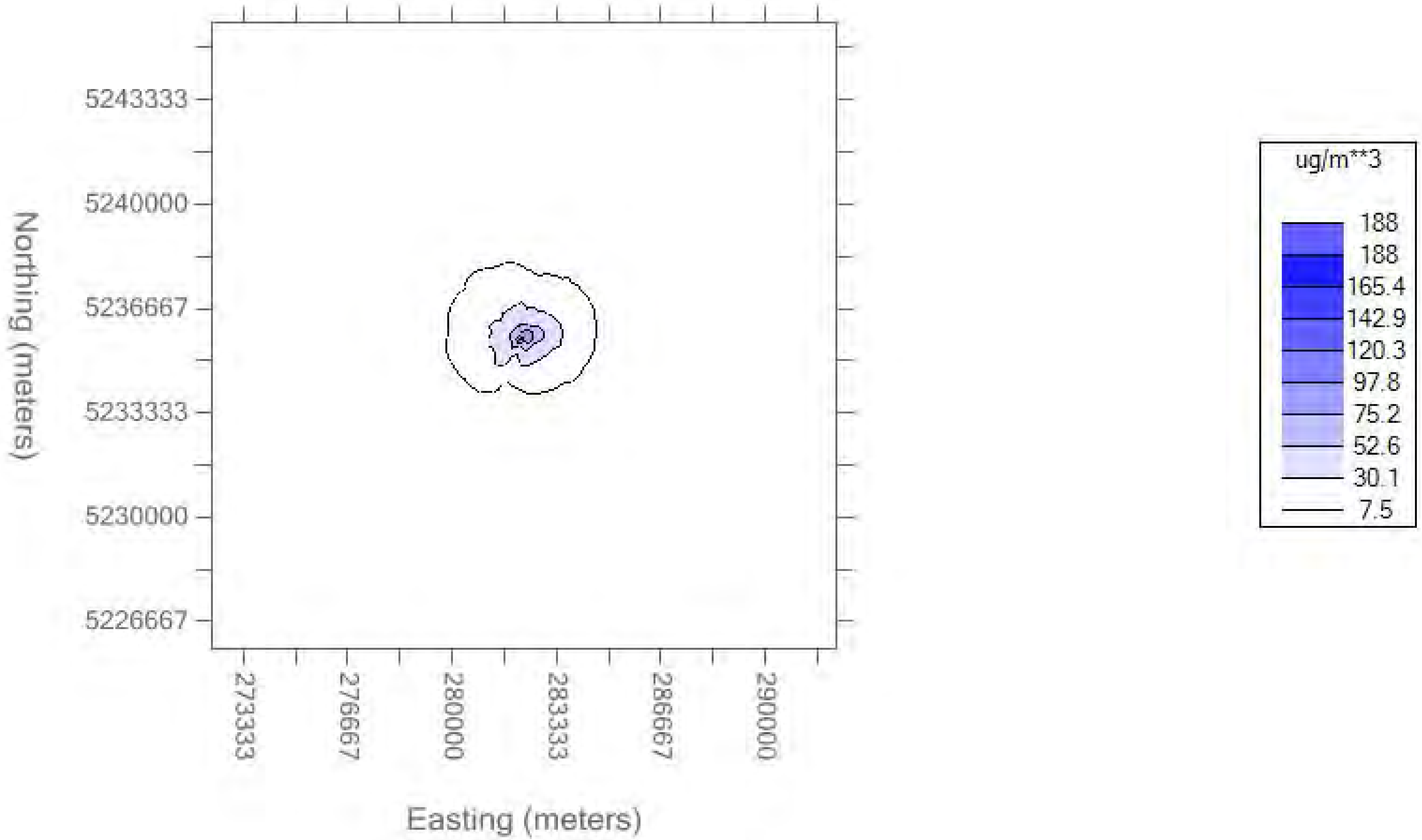
Significance Model



Nitrogen Dioxide 1st Modeled Concentration for the 1-hour Averaging Period

2004-2008 Meteorological Data

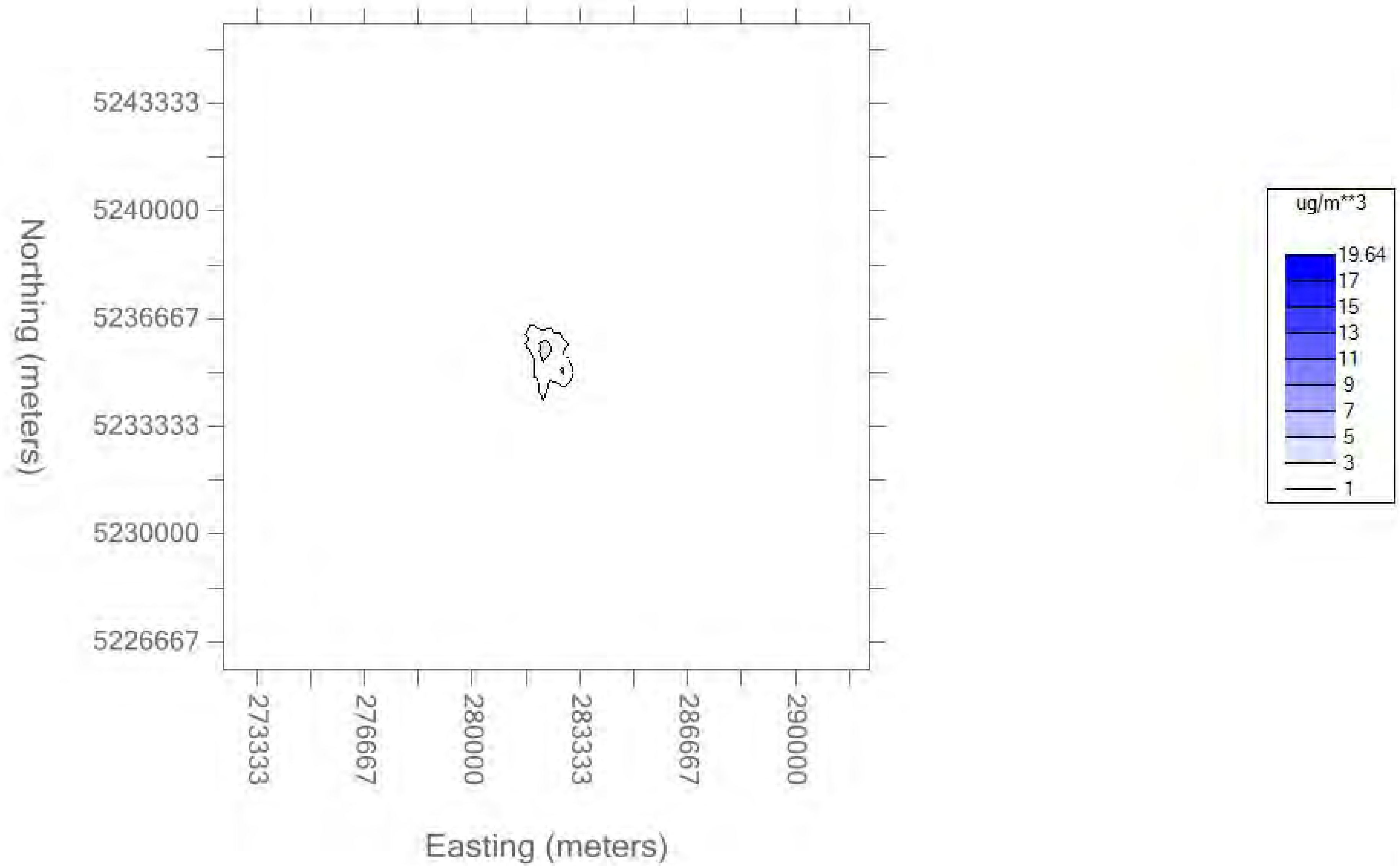
Significance Modeling



PM10 2nd Modeled Concentration for the 24-hour Averaging Period

2007 Meteorological Data

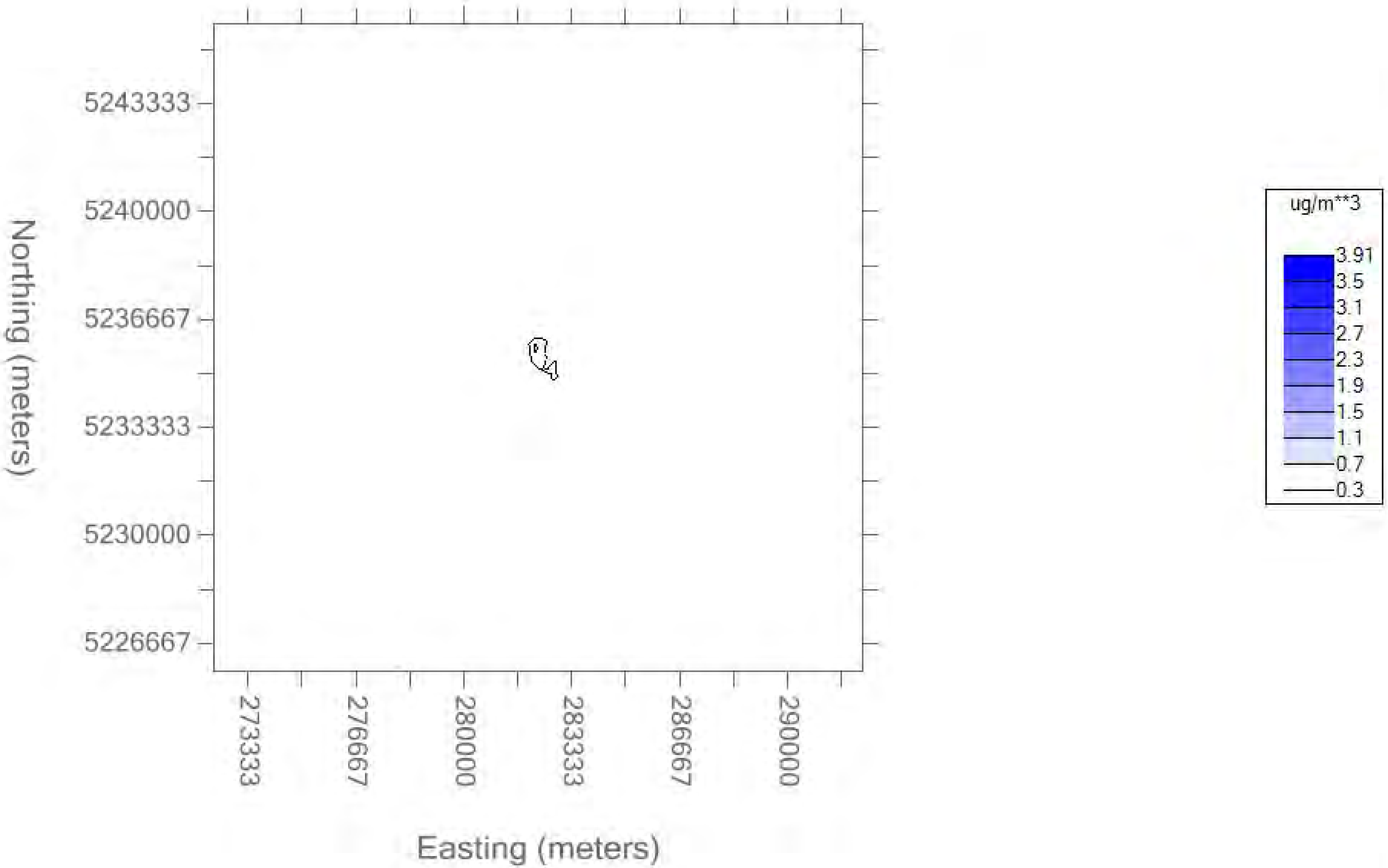
Nutrilite and Surrounding Sources Included



PM2.5 1st Modeled Concentration for the Annual Averaging Period

2004-2008 Meteorological Data

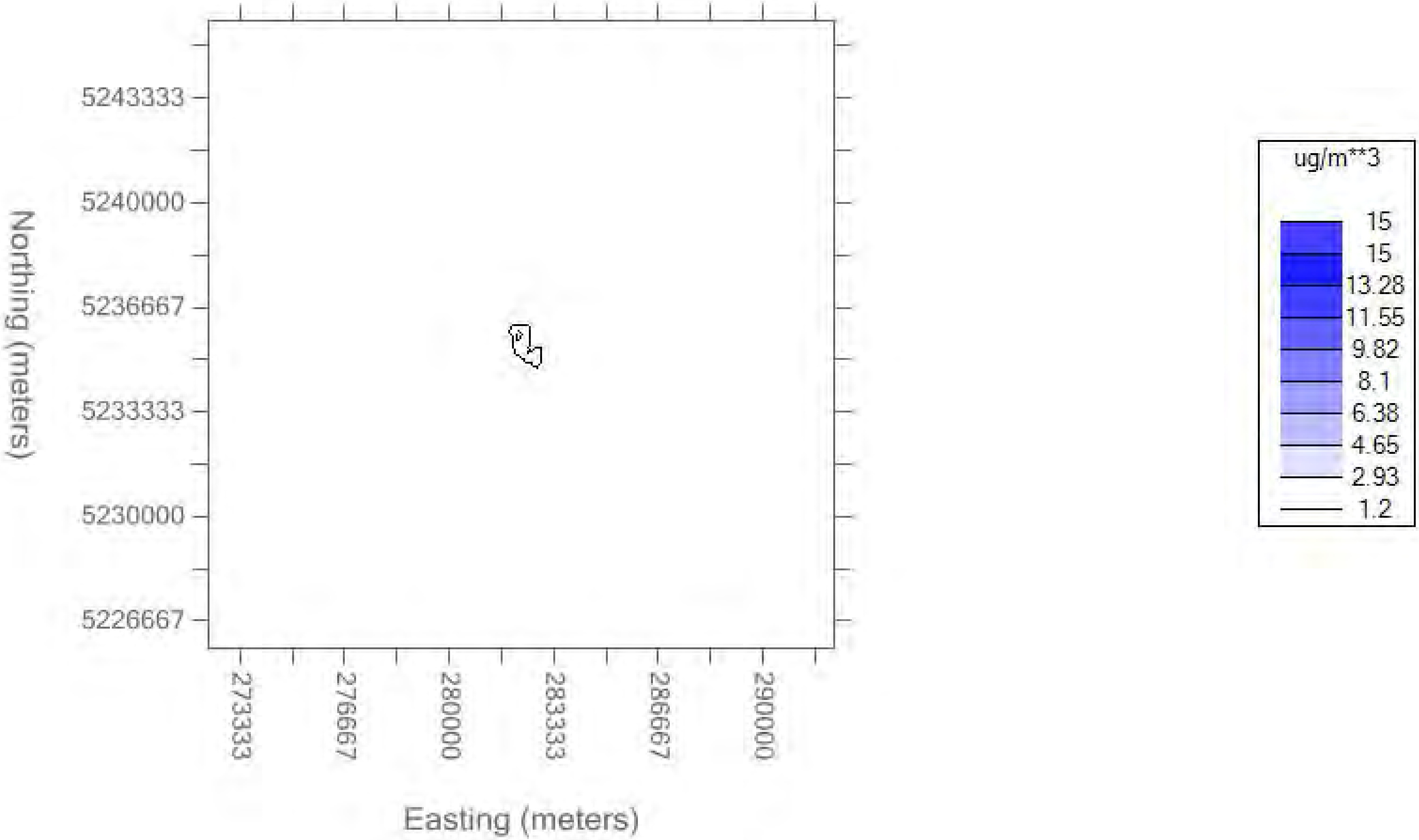
Nutrilite and Surrounding Sources Included



PM2.5 8th Modeled Concentration for the 24-hour Averaging Period

2004-2008 Meteorological Data

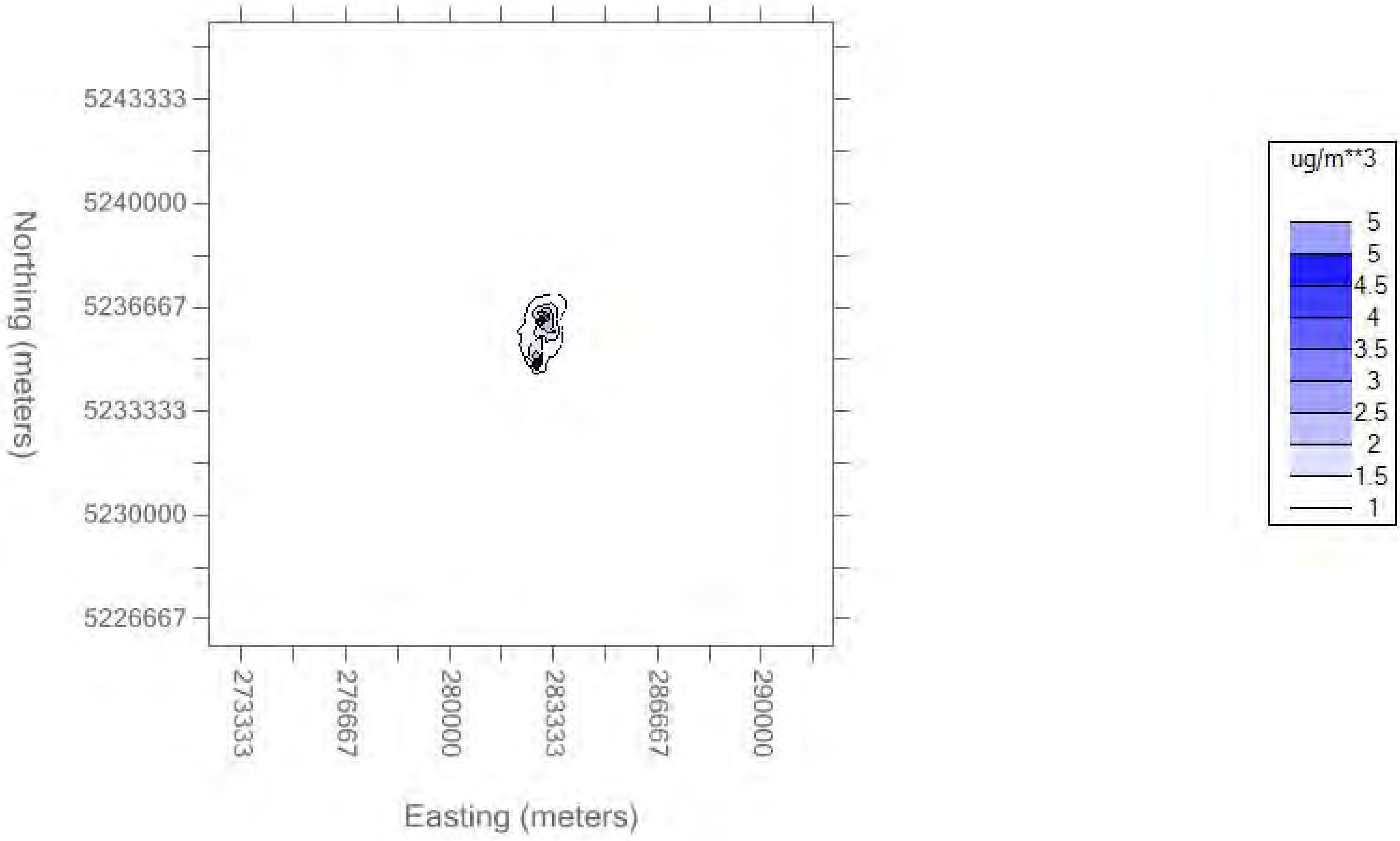
Nutrilite and Surrounding Sources Included



NOx 1st Modeled Concentration for A-ABC Source Group for the Annual Averaging Period

2005 Meteorological Data

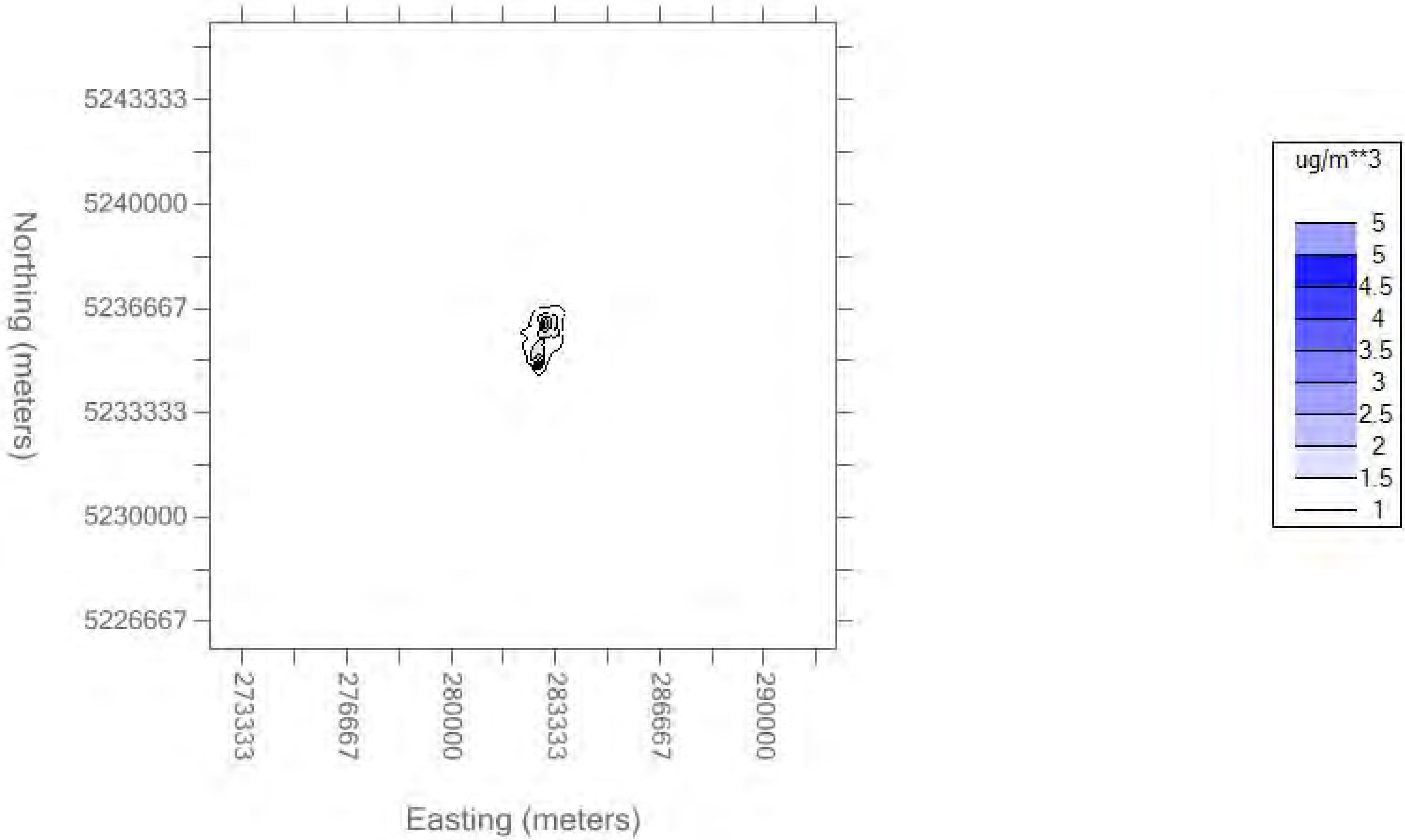
Nutrilite and Surrounding Sources Included



NOx 1st Modeled Concentration for A-T4 Source Group for the Annual Averaging Period

2005 Meteorological Data

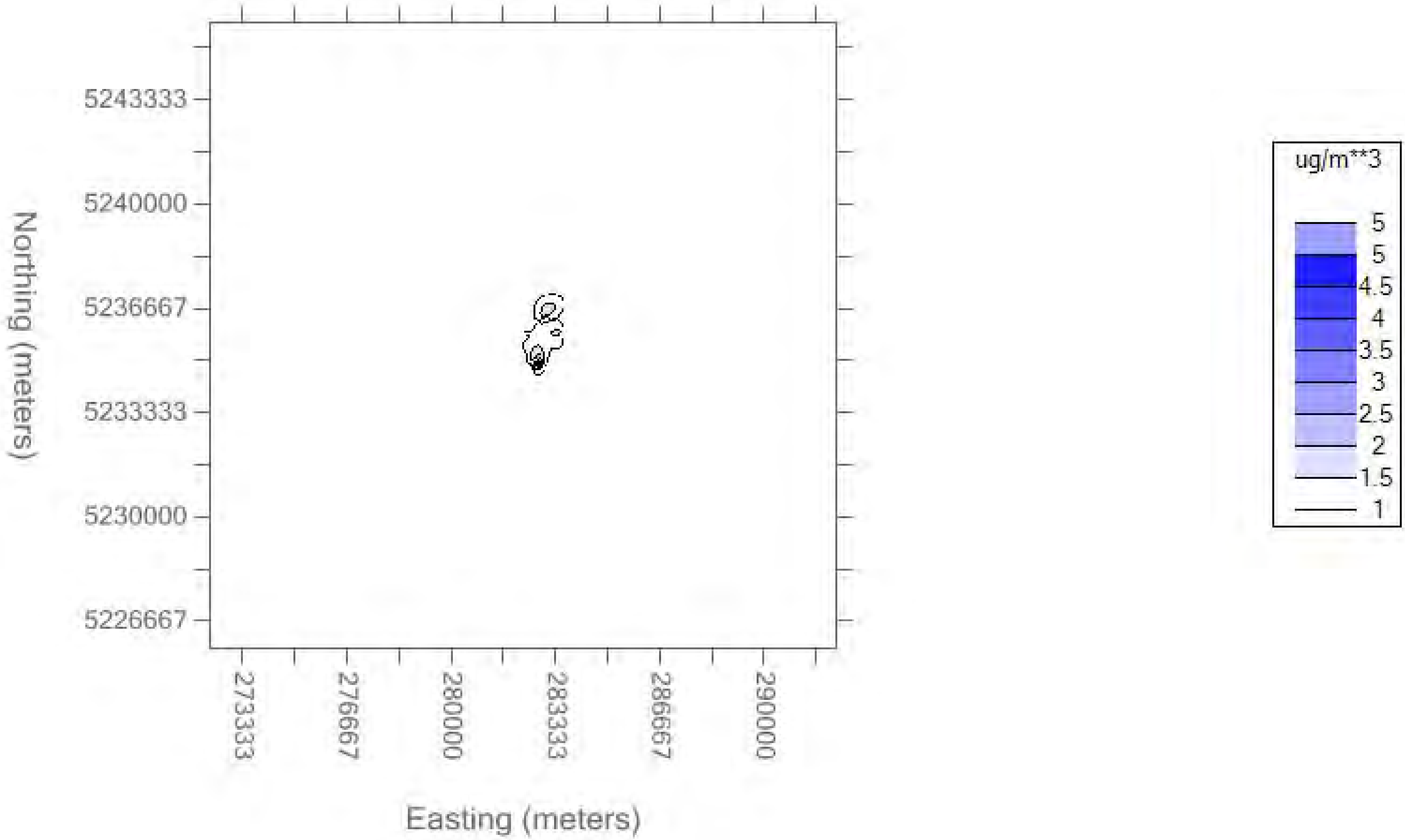
Nutrilite and Surrounding Sources Included



NOx 1st Modeled Concentration for A-P2 Source Group for the Annual Averaging Period

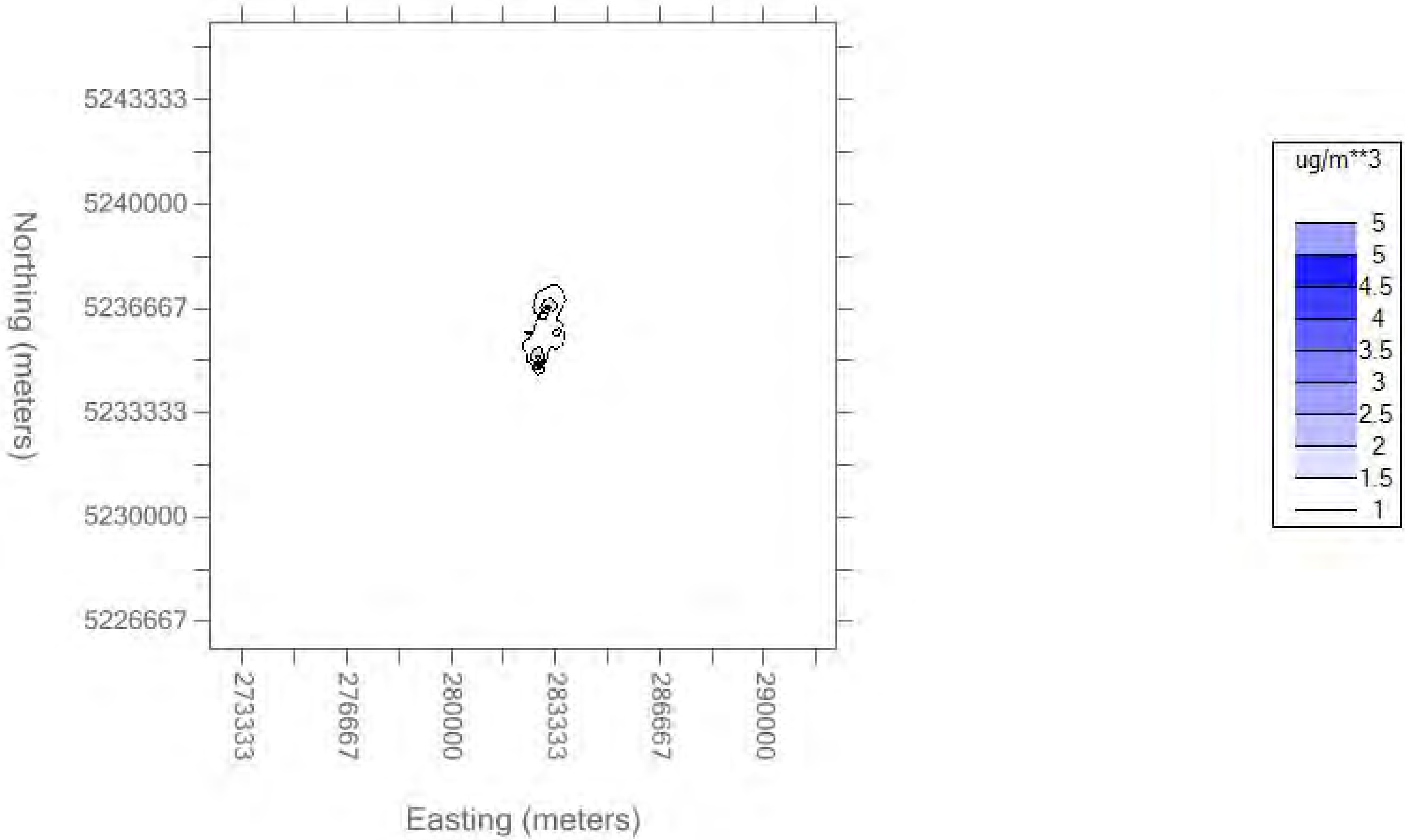
2005 Meteorological Data

Nutrilite and Surrounding Sources Included



NOx 1st Modeled Concentration for A-P3 Source Group for the Annual Averaging Period

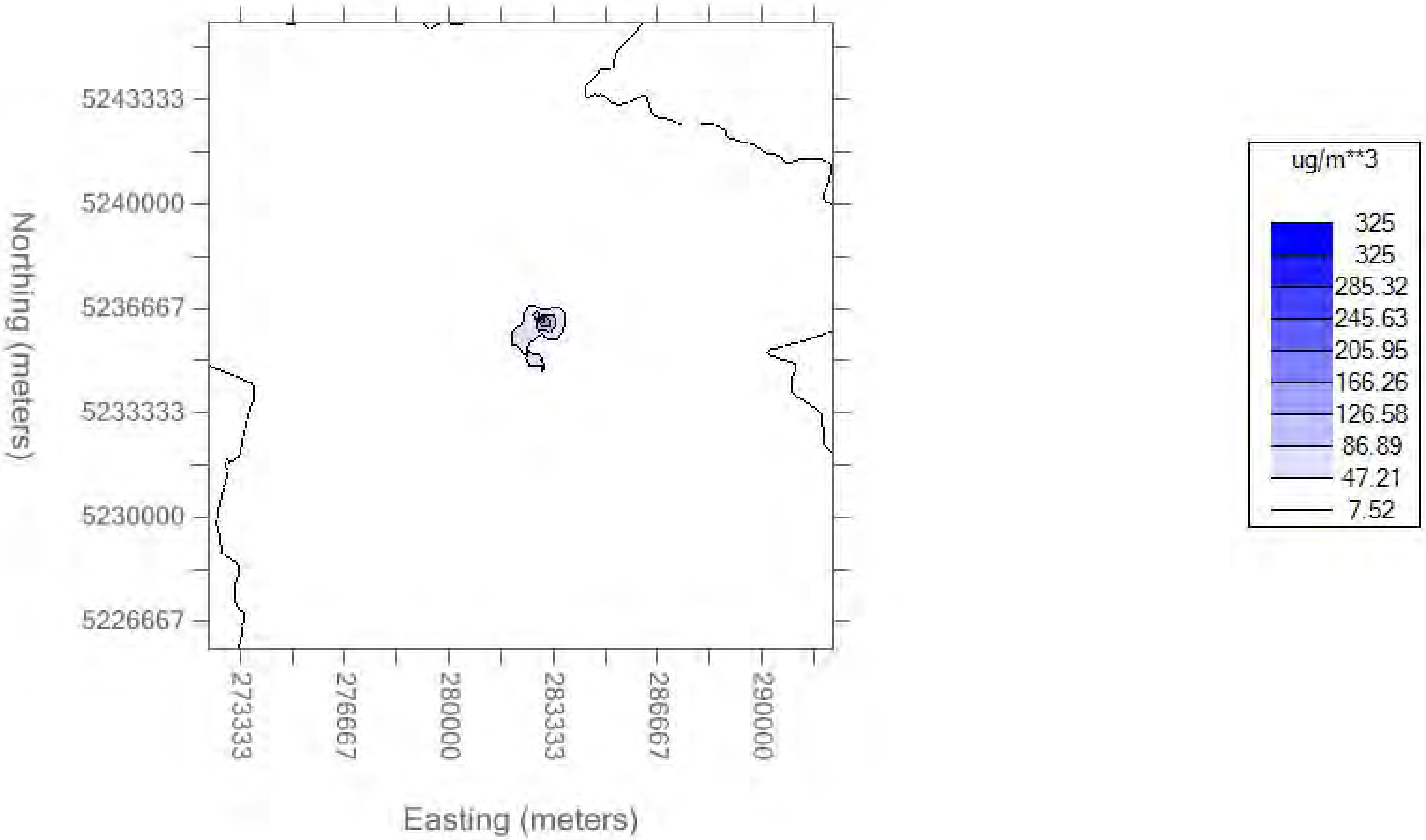
2005 Meteorological Data
Nutrilite and Surrounding Sources Included



NOx 8th Modeled Concentration for A-ABC Source Group for the 1-hour Averaging Period

2004-2008 Meteorological Data

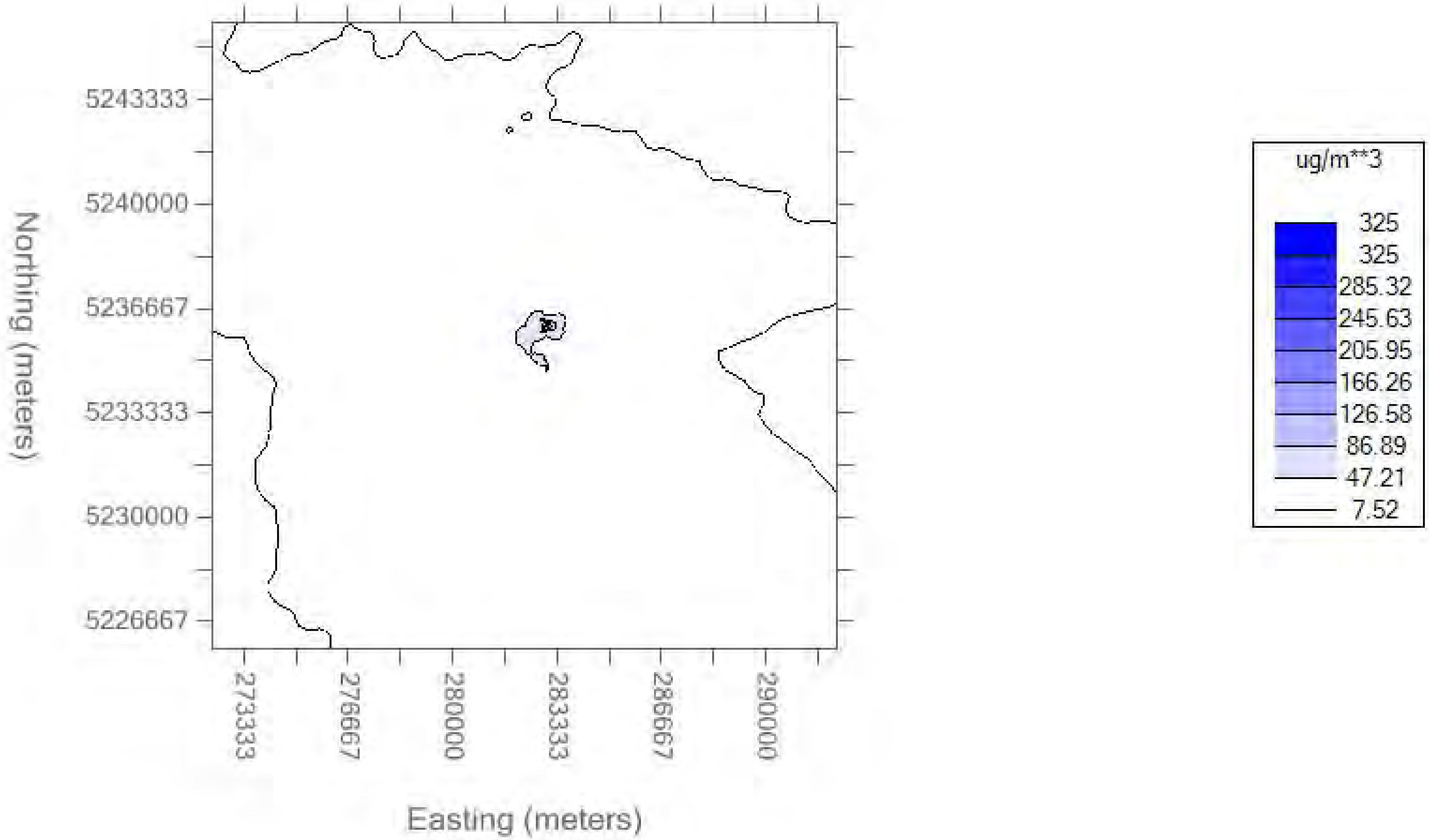
Nutrilite and Surrounding Sources Included



NOx 8th Modeled Concentration for A-T4 Source Group for the 1-hour Averaging Period

2004-2008 Meteorological Data

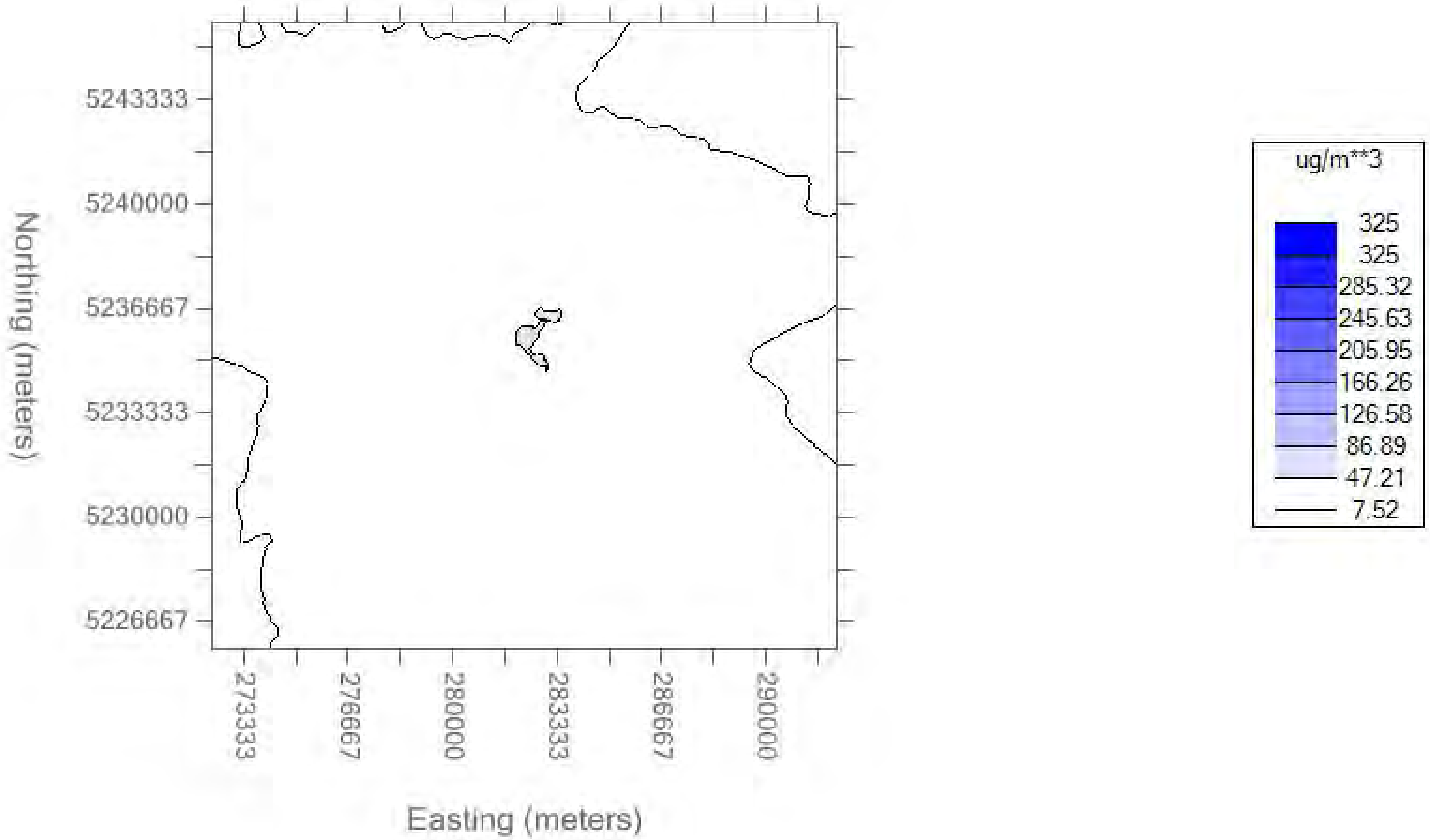
Nutrilite and Surrounding Sources Included



NOx 8th Modeled Concentration for A-P2 Source Group for the 1-hour Averaging Period

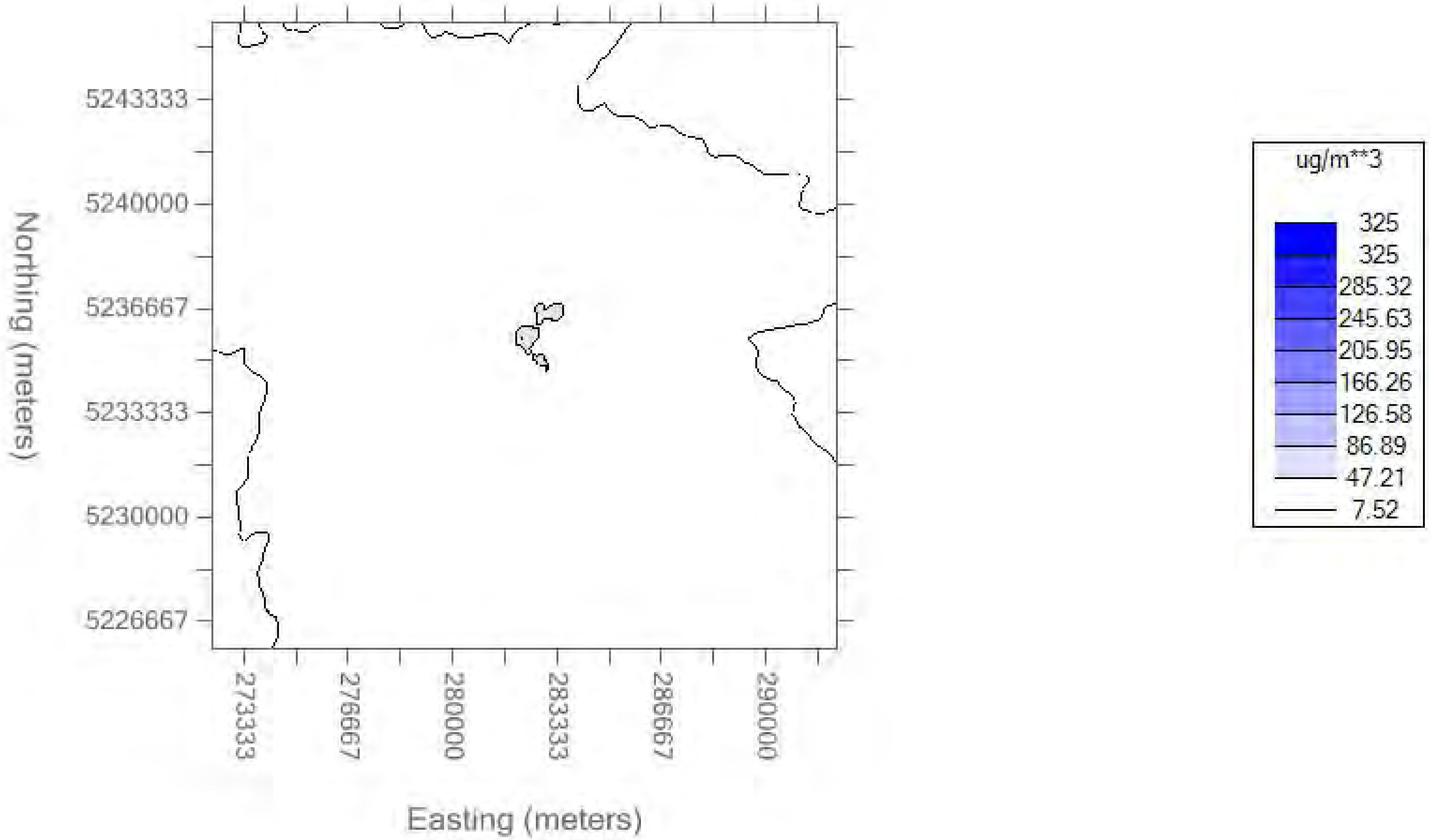
2004-2008 Meteorological Data

Nutrilite and Surrounding Sources Included



NOx 8th Modeled Concentration for A-P3 Source Group for the 1-hour Averaging Period

2004-2008 Meteorological Data
Nutrilite and Surrounding Sources Included



APPENDIX I: TABULATED MODELING RESULTS

Appendix Table I-1. Overall Significance Modeling Results Summary

Pollutant	Averaging Period [a]	Highest Year	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [c] µg/m^3	MSL µg/m^3	Below MSL?
CO	8 hr	2008	282,281	5,235,768	66.9	500	Yes
CO	1-hr	2008	282,300	5,235,850	93.9	2,000	Yes
PM_{10}	24 hr	2007	282,245	5,235,723	20.6	5	No
$PM_{2.5}$	Annual	2004-2008	282,267	5,235,722	3.9	0.3	No
$PM_{2.5}$	24 hr	2004-2008	282,281	5,235,768	17.1	1.2	No
NO_2	Annual	2007	282,284	5,235,833	1.8	1	No
NO_2	1-hr	2004-2008	282,400	5,235,800	140.9	7.52	No

[a] The fire pump is allowed to run 29 hours per year as specified by Approval Order No. 13AQ-E524. The short term modeled concentrations (1 hour, 8 hour, and 24 hour averaging periods) assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore, the emission rates for the annual averaging period and short term averaging periods are different for the fire pump only.

[b] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[c] The modeled result to which the MSL is compared is the highest 1st-high concentration.

Appendix Table I-2. Overall NAAQS Modeling Results Summary

Pollutant/ Scenario [a]	Averaging Period [b]	Highest Year	UTM Location [c] East (m)	UTM Location [c] North (m)	NAAQS Form [d]	Modeled Results [e] µg/m^3	Background Concentration [f] µg/m^3	Total Concentration [g] µg/m^3	NAAQS µg/m^3	Below NAAQS?
PM_{10}	24 hr	2007	282,245	5,235,723	2nd High	19.6	62.0	81.6	150	Yes
$PM_{2.5}$	Annual	2004-2008	282,267	5,235,722	Averaged Mean	3.9	6.5	10.4	12	Yes
$PM_{2.5}$	24 hr	2004-2008	282,267	5,235,722	Averaged 8th High	12.6	21	33.6	35	Yes
NO_2/A-ABC	Annual	2007	282,997	5,236,333	Mean	4.7	2.8	7.5	100	Yes
NO_2/A-T4	Annual	2005	282,750	5,234,950	Mean	3.8	2.8	6.6	100	Yes
NO_2/A-P2	Annual	2005	282,750	5,234,950	Mean	3.8	2.8	6.6	100	Yes
NO_2/A-P3	Annual	2005	282,750	5,234,950	Mean	3.7	2.8	6.6	100	Yes
NO_2/A-ABC	1-hr	2004-2008	282,994	5,236,261	Averaged 8th High	312.9	15.6	328.5	188	No
NO_2/A-T4	1-hr	2004-2008	282,991	5,236,152	Averaged 8th High	246.1	15.6	261.7	188	No
NO_2/A-P2	1-hr	2004-2008	282,300	5,235,850	Averaged 8th High	128.0	15.6	143.6	188	Yes
NO_2/A-P3	1-hr	2004-2008	282,300	5,235,850	Averaged 8th High	128.0	15.6	143.6	188	Yes

[a] The Dell facility has 4 different scenarios for annual testing requirements. The source groups are specified as follows,: (1) A-ABC includes all Dell sources designated as P1ABC_#P; (2) A-T4 includes all Dell sources desingated as P1_#P and P1C_#P; (3) A-P2 includes all Dell sources designated as P2_#P; and (4) A-P3 includes all Dell sources designated as P3_#P. [Each modeled source group includes the dell sources specified as well as all sources from Nutrilite Microsoft, Con Agra and Celite.]

[b] The fire pump is allowed to run 29 hours per year as specified by Approval Order No. 13AQ-E524. The short term modeled concentrations (1 hour, 8 hour, and 24 hour averaging periods) assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore, the emission rates for the annual averaging period and short term averaging periods are different for the fire pump only.

[c] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[d] Any averaged NAAQS form (e.g., "*Averaged* 8th High") means that it is averaged over all meteorological years. Other results are based on a single meteorological year's data. For example, for PM_{10}, the maximum of all the 2nd highest concentrations from each of the five individual meteorological year's results is compared against the standard.

[e] The modeled result to which the NAAQS is compared is the form of the respective NAAQS.

[f] Background concentrations for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

[g] The total concentrations include Nutrilite's sources, surrounding sources, and the background concentration for the area.

Appendix Table I-3. NO_2 1 hour Cause and Contribute Modeling Results Summary

Scenario [a]	Pollutant	Averaging Period	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [e] µg/m^3	Background Concentration [d] µg/m^3	Total Concentration µg/m^3	Nutrilite's Contribution [e] µg/m^3	MSL µg/m^3	Below MSL?
A-ABC	NO_2	1-hr	282,994	5,236,261	194	15.6	209.7	1.25E-03	7.52	Yes
A-T4	NO_2	1-hr	282,991	5,236,162	223	15.6	238.3	1.29E-03	7.52	Yes

[a] The Dell facility has 4 different scenarios for annual testing requirements. The source groups that showed a NAAQS exceedance are A-ABC and A-T4. A-ABC includes all Dell sources designated as P1ABC_#P, Nutrilite's sources, Microsoft annual testing sources, Con Agra sources, and Celite sources. A-T4 includes all Dell sources designated as P1_#P and P1C_#P, Nutrilite's sources, Microsoft annual testing sources, Con Agra sources, and Celite sources.

[b] The UTM location is the location of the receptor at which the modeled concentration occurs.

[c] The overall modeled result corresponds to Nutrilite's maximum contribution to a NAAQS exceedance. There are results for the overall model that are greater than this value.

[d] Background concentrations for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

[e] "Nutrilite's Contribution" value is the portion of the overall modeled result that was caused by sources from Nutrilite's facility. The results shown in this table are for Nutrilite's maximum contribution to any NAAQS exceedance.

Appendix Table I-4. AERMOD Maximum 2004-2008 Significance Modeling Results for CO

Scenario [a]	Pollutant	Averaging Period	Highest Year	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [c] $\mu g/m^3$	MSL $\mu g/m^3$	Below MSL?
ALL	CO	8-Hour	2004	282,250	5,235,850	56.2	500	Yes
ALL	CO	8-Hour	2005	282,250	5,235,850	53.4	500	Yes
ALL	CO	8-Hour	2006	282,281	5,235,768	64.7	500	Yes
ALL	CO	8-Hour	2007	282,281	5,235,768	63.6	500	Yes
ALL	**CO**	**8-Hour**	**2008**	**282,281**	**5,235,768**	**66.9**	**500**	**Yes**
ALL-FP	CO	8-Hour	2004	282,281	5,235,768	38.2	500	Yes
ALL-FP	CO	8-Hour	2005	282,281	5,235,768	32.1	500	Yes
ALL-FP	CO	8-Hour	2006	282,281	5,235,768	39.8	500	Yes
ALL-FP	CO	8-Hour	2007	282,281	5,235,768	46.4	500	Yes
ALL-FP	**CO**	**8-Hour**	**2008**	**282,281**	**5,235,768**	**50.8**	**500**	**Yes**
ALL	**CO**	**1-Hour**	**2004**	**282,300**	**5,235,850**	**93.2**	**2000**	**Yes**
ALL	CO	1-Hour	2005	282,300	5,235,850	93.0	2000	Yes
ALL	CO	1-Hour	2006	282,300	5,235,850	93.1	2000	Yes
ALL	CO	1-Hour	2007	282,300	5,235,850	93.7	2000	Yes
ALL	CO	1-Hour	2008	282,300	5,235,850	93.9	2000	Yes
ALL-FP	CO	1-Hour	2004	282,281	5,235,768	58.9	2000	Yes
ALL-FP	CO	1-Hour	2005	282,281	5,235,768	59.3	2000	Yes
ALL-FP	CO	1-Hour	2006	282,281	5,235,768	56.0	2000	Yes
ALL-FP	**CO**	**1-Hour**	**2007**	**282,281**	**5,235,768**	**60.5**	**2000**	**Yes**
ALL-FP	CO	1-Hour	2008	282,281	5,235,768	60.3	2000	Yes

[a] The ALL scenario models all sources emitting CO from Nutrilite's facility. The ALL-FP scenario models all continuous sources emitting CO from Nutrilite's facility; therefore, the firepump, an intermittent source, is not included in these results.

[b] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[c] The modeled result to which the MSL is compared is the highest 1st-high maximum concentration for the specified meteorological data year.

Appendix Table I-5. AERMOD Maximum 2004-2008 Significance Modeling Results for PM_{10}

Scenario [a]	Pollutant	Averaging Period	Highest Year	UTM Location [b]		Modeled Results [c] μg/m³	MSL μg/m³	Below MSL?
				East (m)	North (m)			
NUT	PM_{10}	24-Hour	2004	282,281	5,235,768	16.4	5	No
NUT	PM_{10}	24-Hour	2005	282,267	5,235,722	17.0	5	No
NUT	PM_{10}	24-Hour	2006	282,267	5,235,722	17.3	5	No
NUT	**PM_{10}**	**24-Hour**	**2007**	**282,245**	**5,235,723**	**20.6**	**5**	**No**
NUT	PM_{10}	24-Hour	2008	282,245	5,235,723	17.7	5	No
NUT-FP	PM_{10}	24-Hour	2004	282,281	5,235,768	14.9	5	No
NUT-FP	PM_{10}	24-Hour	2005	282,267	5,235,722	16.9	5	No
NUT-FP	PM_{10}	24-Hour	2006	282,267	5,235,722	17.2	5	No
NUT-FP	**PM_{10}**	**24-Hour**	**2007**	**282,245**	**5,235,723**	**20.5**	**5**	**No**
NUT-FP	PM_{10}	24-Hour	2008	282,245	5,235,723	17.6	5	No

[a] The NUT scenario models all sources emitting PM_{10} from Nutrilite's facility. The NUT-FP scenario models all continuous sources emitting PM_{10} from Nutrilite's facility; therefore, the firepump, an intermittent source, is not included in these results.

[b] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[c] The modeled result to which the MSL is compared is the highest 1st-high maximum concentration for the specified meteorological data year.

Appendix Table I-6. AERMOD Maximum 2004-2008 Modeling Results for PM_{10}

Scenario [a]	Pollutant	Averaging Period	Highest Year	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [c] µg/m³	Background Concentration [d] µg/m³	Total Concentration µg/m³	NAAQS Form	NAAQS µg/m³	Below NAAQS?
ALL	PM_{10}	24-Hour	2004	282,281	5,235,768	14.6	62.0	76.6	2nd High	100	Yes
ALL	PM_{10}	24-Hour	2005	282,700	5,235,150	17.0	62.0	79.0		100	Yes
ALL	PM_{10}	24-Hour	2006	282,700	5,235,150	16.5	62.0	78.5		100	Yes
ALL	**PM_{10}**	**24-Hour**	**2007**	**282,245**	**5,235,723**	**19.6**	**62.0**	**81.6**		**100**	**Yes**
ALL	PM_{10}	24-Hour	2008	282,281	5,235,768	17.2	62.0	79.2		100	Yes
ALL-FP	PM_{10}	24-Hour	2004	282,267	5,235,722	13.6	62.0	75.6	2nd High	100	Yes
ALL-FP	PM_{10}	24-Hour	2005	282,700	5,235,150	16.9	62.0	78.9		100	Yes
ALL-FP	PM_{10}	24-Hour	2006	282,700	5,235,150	16.4	62.0	78.4		100	Yes
ALL-FP	**PM_{10}**	**24-Hour**	**2007**	**282,245**	**5,235,723**	**19.6**	**62.0**	**81.6**		**100**	**Yes**
ALL-FP	PM_{10}	24-Hour	2008	282,245	5,235,723	15.8	62.0	77.8		100	Yes

[a] The ALL scenario models all sources emitting PM_{10} from Nutrilite's facility and those facilities touching a location where Nutrilite's contribution is above the MSL. Surrounding Sources for PM_{10} modeling include Dell Data center, Microsoft Data Center, and Con Agra. Surrounding sources for Dell and Microsoft assume the full power outage scenario. The ALL-FP scenario excludes intermittent sources at Nutrilite; therefore, the firepump, an intermittent source, is not included in these results.
[b] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.
[c] The modeled result to which the NAAQS is compared is the NAAQS form concentration for the specified meteorological data year.
[d] Background Concentration for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

Appendix Table I-7. AERMOD Maximum 2004-2008 Significance Modeling Results for $PM_{2.5}$

Scenario [a]	Pollutant	Averaging Period	Highest Year	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [c] µg/m³	MSL µg/m³	Below MSL?
NUT	$PM_{2.5}$	Annual	04-08	282,267	5,235,722	3.9	0.3	No
NUT	$PM_{2.5}$	24-hr	04-08	282,281	5,235,768	17.1	1.2	No
NUT-FP	$PM_{2.5}$	24-hr	04-08	282,267	5,235,722	15.7	1.2	No

[a] The NUT scenario models all sources emitting $PM_{2.5}$ from Nutrilite's facility. The NUT-FP scenario models all continuous sources emitting $PM_{2.5}$ from Nutrilite's facility; therefore, the firepump, an intermittent source, is not included in these results.

[b] The firepump is allowed to run 29 hours per year as specified by Washington State Ecology. The 24 hour modeled concentrations assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore the emission rates for the annual averaging period and 24 hour averaging period are different for the fire pump only.

[c] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[d] The modeled result to which the MSL is compared is the highest 1st-high maximum concentration averaged over meteorological data for 2004-2008.

Appendix Table I-8. AERMOD Maximum 2004-2008 Modeling Results for $PM_{2.5}$

Scenario [a]	Pollutant	Averaging Period [b]	Highest Year	UTM Location [c] East (m)	UTM Location [c] North (m)	Modeled Results [d] µg/m^3	Background Concentration [e] µg/m^3	Total Concentration µg/m^3	NAAQS Form	NAAQS µg/m^3	Below NAAQS?
ALL	$PM_{2.5}$	Annual	04-08	282,267	5,235,722	3.9	6.5	10.4	Averaged Mean	12	Yes
ALL	$PM_{2.5}$	24-hr	04-08	282,267	5,235,722	12.6	21.0	33.6	Averaged 8th High	35	Yes
ALL-FP	$PM_{2.5}$	24-hr	04-08	282,267	5,235,722	12.4	21.0	33.4		35	Yes

[a] The ALL scenario models all sources emitting $PM_{2.5}$ from Nutrilite's facility. The ALL-FP scenario models all continuous sources emitting $PM_{2.5}$ from Nutrilite's facility; therefore, the firepump, an intermittent source, is not included in these results.

[b] The firepump is allowed to run 29 hours per year as specified by Washington State Ecology. The 24 hour modeled concentrations assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore the emission rates for the annual averaging period and 24 hour averaging period are different for the fire pump only.

[c] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[d] The modeled result to which the NAAQS is compared is the NAAQS form concentration averaged over meteorological data for 2004-2008.

[e] Background Concentration for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

Appendix Table I-9. AERMOD Maximum 2004-2008 Significance Modeling Results for NO_2

Scenario [a]	Pollutant	Averaging Period	Highest Year	UTM Location [b] East (m)	UTM Location [b] North (m)	Modeled Results [c] µg/m³	MSL µg/m³	Below MSL?
NUT	NO_2	Annual	2004	282,250	5,235,850	1.6	1	No
NUT	NO_2	Annual	2005	282,284	5,235,833	1.5	1	No
NUT	NO_2	Annual	2006	282,250	5,235,850	1.7	1	No
NUT	NO_2	Annual	2007	**282,284**	**5,235,833**	**1.8**	1	No
NUT	NO_2	Annual	2008	282,282	5,235,792	1.4	1	No
NUT	NO_2	1-hr	04-08	282,400	5,235,800	141	7.52	No
NUT-FP	NO_2	1-hr	04-08	282,281	5,235,768	23	7.52	No

[a] The NUT scenario models all sources emitting NO_2 from Nutrilite's facility. The NUT-FP scenario models all continuous sources emitting NO_2 from Nutrilite's facility; therefore, the firepump, an intermittent source, is not included in these results.

[b] The firepump is allowed to run 29 hours per year as specified by Washington State Ecology. The 1 hour modeled concentrations assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore the emission rates for the annual averaging period and 1 hour averaging period are different for the fire pump only.

[c] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

Appendix Table I-10. AERMOD Maximum 2004-2008 Modeling Results for NO_2

Scenario [a]	Pollutant	Averaging Period [b]	Highest Year	UTM Location [c] East (m)	UTM Location [c] North (m)	Modeled Results [d] µg/m³	Background Concentration [e] µg/m³	Total Concentration µg/m³	NAAQS Form	NAAQS µg/m³	Below NAAQS?
A-ABC	NO_2	Annual	2004	282,993	5,236,233	3.7	2.8	6.5	Mean	100	Yes
A-ABC	NO_2	Annual	2005	282,997	5,236,333	4.0	2.8	6.8		100	Yes
A-ABC	NO_2	Annual	2006	282,997	5,236,333	4.7	2.8	7.5		100	Yes
A-ABC	**NO_2**	**Annual**	**2007**	**282,997**	**5,236,333**	**4.7**	**2.8**	**7.5**		**100**	**Yes**
A-ABC	NO_2	Annual	2008	282,950	5,236,100	2.9	2.8	5.7		100	Yes
A-T4	NO_2	Annual	2004	282,750	5,234,950	3.6	2.8	6.4		100	Yes
A-T4	**NO_2**	**Annual**	**2005**	**282,750**	**5,234,950**	**3.8**	**2.8**	6.6		**100**	Yes
A-T4	NO_2	Annual	2006	282,993	5,236,233	3.7	2.8	6.5		100	Yes
A-T4	NO_2	Annual	2007	282,993	5,236,233	3.7	2.8	6.6		100	Yes
A-T4	NO_2	Annual	2008	283,450	5,235,953	2.6	2.8	5.5		100	Yes
A-P2	NO_2	Annual	2004	282,750	5,234,950	3.6	2.8	6.4		100	Yes
A-P2	**NO_2**	**Annual**	**2005**	**282,750**	**5,234,950**	**3.8**	**2.8**	6.6		**100**	Yes
A-P2	NO_2	Annual	2006	282,750	5,234,950	3.2	2.8	6.1		100	Yes
A-P2	NO_2	Annual	2007	283,050	5,236,550	2.9	2.8	5.7		100	Yes
A-P2	NO_2	Annual	2008	283,110	5,236,588	2.5	2.8	5.3		100	Yes
A-P3	NO_2	Annual	2004	282,750	5,234,950	3.5	2.8	6.4		100	Yes
A-P3	**NO_2**	**Annual**	**2005**	**282,750**	**5,234,950**	**3.7**	**2.8**	**6.6**		**100**	**Yes**
A-P3	NO_2	Annual	2006	282,750	5,234,950	3.2	2.8	6.0		100	Yes
A-P3	NO_2	Annual	2007	283,127	5,236,615	3.1	2.8	5.9		100	Yes
A-P3	NO_2	Annual	2008	283,127	5,236,615	3.0	2.8	5.9		100	Yes
A-ABC	NO_2	1-hr	04-08	282,994	5,236,261	313	15.6	328.5	Averaged 8th High	188	No
A-T4	NO_2	1-hr	04-08	282,991	5,236,152	246	15.6	261.7		188	No
A-P2	NO_2	1-hr	04-08	282,300	5,235,850	128	15.6	143.6		188	Yes
A-P3	NO_2	1-hr	04-08	282,300	5,235,850	128	15.6	143.6		188	Yes

[a] The Dell facility has 4 different scenarios for annual testing requirements. The source groups are specified as follows, each includes the dell sources specified as well as all sources from Nutrilite Microsoft, Con Agra and Celite: (1) A-ABC includes all Dell sources designated as P1ABC_#P; (2) A-T4 includes all Dell sources desingated as P1_#P and P1C_#P; (3) A-P2 includes all Dell sources designated as P2_#P; and (4) A-P3 includes all Dell sources designated as P3_#P.

[b] The firepump is allowed to run 29 hours per year as specified by Washington State Ecology. The 1 hour modeled concentrations assumes the fire pump is running at full capacity for all hours of the year. The annual averaging period assumes that the emissions accumulated at maximum capacity for 29 hours in the year are evenly emitted for all hours of the year. Therefore the emission rates for the annual averaging period and 1 hour averaging period are different for the fire pump only.

[c] The UTM location is the location of the receptor at which the maximum ambient concentration occurs.

[d] The modeled result for A-ABC for the 1-hr standard is greater than the NAAQS. A cause and contribute analysis has been completed. Nutrilite's maximum contribution to any NAAQS exceedance is 0.00125 µg/m³.

[e] Background Concentration for all pollutants obtained from NW Airquest on December 2, 2013 for UTM Location 5,235,800 m N, 282,300 m E, zone 11.

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.2	5236260.7	194.05874	1-HR	A-ABC	0.00125
282994.2	5236260.7	194.05874	1-HR	A-ABC	0.00125
282992	5236262.5	202.3749	1-HR	A-ABC	0.00112
282992	5236262.5	202.3749	1-HR	A-ABC	0.00112
282992	5236262.5	187.79267	1-HR	A-ABC	0.00112
282992	5236262.5	187.79267	1-HR	A-ABC	0.00112
282992	5236262.5	186.37668	1-HR	A-ABC	0.00108
282992	5236262.5	186.37668	1-HR	A-ABC	0.00108
282992	5236262.5	173.19721	1-HR	A-ABC	0.00107
282992	5236262.5	173.19721	1-HR	A-ABC	0.00107
282993.9	5236250.7	195.41735	1-HR	A-ABC	0.00104
282993.9	5236250.7	195.41735	1-HR	A-ABC	0.00104
282994.5	5236270.6	234.6341	1-HR	A-ABC	0.00103
282994.5	5236270.6	234.6341	1-HR	A-ABC	0.00103
282994.2	5236260.7	188.47071	1-HR	A-ABC	0.00103
282994.2	5236260.7	188.47071	1-HR	A-ABC	0.00103
282994.2	5236260.7	200.46376	1-HR	A-ABC	0.00101
282994.2	5236260.7	200.46376	1-HR	A-ABC	0.00101
282994.2	5236260.7	183.71194	1-HR	A-ABC	0.001
282994.2	5236260.7	183.71194	1-HR	A-ABC	0.001
282992	5236262.5	183.63889	1-HR	A-ABC	0.00098
282992	5236262.5	183.63889	1-HR	A-ABC	0.00098
282992	5236275	184.2952	1-HR	A-ABC	0.00096
282992	5236275	184.2952	1-HR	A-ABC	0.00096
282991.9	5236191.2	176.05172	1-HR	A-ABC	0.00096
282991.9	5236191.2	176.05172	1-HR	A-ABC	0.00096
282994.5	5236270.6	174.30223	1-HR	A-ABC	0.00096
282994.5	5236270.6	174.30223	1-HR	A-ABC	0.00096
282994.2	5236260.7	248.76683	1-HR	A-ABC	0.00095
282994.2	5236260.7	248.76683	1-HR	A-ABC	0.00095
282992	5236262.5	192.66788	1-HR	A-ABC	0.00094
282992	5236262.5	192.66788	1-HR	A-ABC	0.00094
282994.2	5236260.7	182.53068	1-HR	A-ABC	0.00094
282994.2	5236260.7	182.53068	1-HR	A-ABC	0.00094
282993.9	5236250.7	173.96371	1-HR	A-ABC	0.00094
282993.9	5236250.7	173.96371	1-HR	A-ABC	0.00094

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.2	5236260.7	191.12311	1-HR	A-ABC	0.00093
282994.2	5236260.7	191.12311	1-HR	A-ABC	0.00093
282994.2	5236260.7	242.27334	1-HR	A-ABC	0.00092
282994.2	5236260.7	242.27334	1-HR	A-ABC	0.00092
282994.5	5236270.6	189.21415	1-HR	A-ABC	0.00092
282994.5	5236270.6	189.21415	1-HR	A-ABC	0.00092
282993.5	5236240.8	189.35902	1-HR	A-ABC	0.00089
282993.5	5236240.8	189.35902	1-HR	A-ABC	0.00089
282993.5	5236240.8	182.04156	1-HR	A-ABC	0.00089
282993.5	5236240.8	182.04156	1-HR	A-ABC	0.00089
282992	5236262.5	235.2783	1-HR	A-ABC	0.00088
282992	5236262.5	235.2783	1-HR	A-ABC	0.00088
282992	5236200	208.75887	1-HR	A-ABC	0.00088
282992	5236200	208.75887	1-HR	A-ABC	0.00088
282994.2	5236260.7	180.54798	1-HR	A-ABC	0.00088
282994.2	5236260.7	180.54798	1-HR	A-ABC	0.00088
282994.5	5236270.6	202.33521	1-HR	A-ABC	0.00087
282994.5	5236270.6	202.33521	1-HR	A-ABC	0.00087
282993.9	5236250.7	182.11372	1-HR	A-ABC	0.00087
282993.9	5236250.7	182.11372	1-HR	A-ABC	0.00087
282992	5236275	180.49081	1-HR	A-ABC	0.00087
282992	5236275	180.49081	1-HR	A-ABC	0.00087
282994.5	5236270.6	212.63725	1-HR	A-ABC	0.00086
282994.5	5236270.6	212.63725	1-HR	A-ABC	0.00086
282992.2	5236201.1	183.25964	1-HR	A-ABC	0.00086
282992.2	5236201.1	183.25964	1-HR	A-ABC	0.00086
282992	5236200	178.36532	1-HR	A-ABC	0.00086
282992	5236200	178.36532	1-HR	A-ABC	0.00086
282994.5	5236270.6	176.83408	1-HR	A-ABC	0.00086
282994.5	5236270.6	176.83408	1-HR	A-ABC	0.00086
282994.5	5236270.6	229.71062	1-HR	A-ABC	0.00085
282994.5	5236270.6	229.71062	1-HR	A-ABC	0.00085
282992	5236250	180.42992	1-HR	A-ABC	0.00085
282992	5236250	180.42992	1-HR	A-ABC	0.00085
282994.2	5236260.7	173.1586	1-HR	A-ABC	0.00085
282994.2	5236260.7	173.1586	1-HR	A-ABC	0.00085

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282991.9	5236191.2	211.13936	1-HR	A-ABC	0.00084
282991.9	5236191.2	211.13936	1-HR	A-ABC	0.00084
282994.2	5236260.7	210.9031	1-HR	A-ABC	0.00084
282994.2	5236260.7	210.9031	1-HR	A-ABC	0.00084
282994.5	5236270.6	209.36126	1-HR	A-ABC	0.00084
282994.5	5236270.6	209.36126	1-HR	A-ABC	0.00084
282992	5236262.5	206.63722	1-HR	A-ABC	0.00084
282992	5236262.5	206.63722	1-HR	A-ABC	0.00084
282992	5236250	172.16486	1-HR	A-ABC	0.00084
282992	5236250	172.16486	1-HR	A-ABC	0.00084
282992	5236262.5	238.34683	1-HR	A-ABC	0.00083
282992	5236262.5	238.34683	1-HR	A-ABC	0.00083
282994.5	5236270.6	232.9379	1-HR	A-ABC	0.00083
282994.5	5236270.6	232.9379	1-HR	A-ABC	0.00083
282992	5236250	196.35523	1-HR	A-ABC	0.00083
282992	5236250	196.35523	1-HR	A-ABC	0.00083
282992	5236275	179.92894	1-HR	A-ABC	0.00083
282992	5236275	179.92894	1-HR	A-ABC	0.00083
282992	5236262.5	308.29053	1-HR	A-ABC	0.00082
282992	5236262.5	308.29053	1-HR	A-ABC	0.00082
282994.5	5236270.6	199.95852	1-HR	A-ABC	0.00082
282994.5	5236270.6	199.95852	1-HR	A-ABC	0.00082
282994.2	5236260.7	231.66886	1-HR	A-ABC	0.00081
282994.2	5236260.7	231.66886	1-HR	A-ABC	0.00081
282992	5236212.5	224.33269	1-HR	A-ABC	0.00081
282992	5236212.5	224.33269	1-HR	A-ABC	0.00081
282992	5236250	216.57509	1-HR	A-ABC	0.0008
282992	5236250	216.57509	1-HR	A-ABC	0.0008
282992	5236262.5	231.87736	1-HR	A-ABC	0.00079
282992	5236262.5	231.87736	1-HR	A-ABC	0.00079
282993.9	5236250.7	222.42123	1-HR	A-ABC	0.00079
282993.9	5236250.7	222.42123	1-HR	A-ABC	0.00079
282992	5236250	220.55775	1-HR	A-ABC	0.00079
282992	5236250	220.55775	1-HR	A-ABC	0.00079
282994.2	5236260.7	261.85318	1-HR	A-ABC	0.00078
282994.2	5236260.7	261.85318	1-HR	A-ABC	0.00078

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282992	5236262.5	242.23678	1-HR	A-ABC	0.00078
282992	5236262.5	242.23678	1-HR	A-ABC	0.00078
282992.2	5236201.1	174.25386	1-HR	A-ABC	0.00078
282992.2	5236201.1	174.25386	1-HR	A-ABC	0.00078
282994.2	5236260.7	253.5133	1-HR	A-ABC	0.00077
282994.2	5236260.7	253.5133	1-HR	A-ABC	0.00077
282992	5236200	233.65791	1-HR	A-ABC	0.00077
282992	5236200	233.65791	1-HR	A-ABC	0.00077
282992.2	5236201.1	230.5321	1-HR	A-ABC	0.00077
282992.2	5236201.1	230.5321	1-HR	A-ABC	0.00077
282993.9	5236250.7	212.1083	1-HR	A-ABC	0.00076
282993.9	5236250.7	212.1083	1-HR	A-ABC	0.00076
282992.2	5236201.1	208.17933	1-HR	A-ABC	0.00076
282992.2	5236201.1	208.17933	1-HR	A-ABC	0.00076
282994.2	5236260.7	196.16327	1-HR	A-ABC	0.00076
282994.2	5236260.7	196.16327	1-HR	A-ABC	0.00076
282994.5	5236270.6	195.45939	1-HR	A-ABC	0.00076
282994.5	5236270.6	195.45939	1-HR	A-ABC	0.00076
282991.9	5236191.2	190.5495	1-HR	A-ABC	0.00076
282991.9	5236191.2	190.5495	1-HR	A-ABC	0.00076
282993.9	5236250.7	185.94541	1-HR	A-ABC	0.00076
282993.9	5236250.7	185.94541	1-HR	A-ABC	0.00076
282994.5	5236270.6	276.19835	1-HR	A-ABC	0.00075
282994.5	5236270.6	276.19835	1-HR	A-ABC	0.00075
282992	5236262.5	247.44602	1-HR	A-ABC	0.00075
282992	5236262.5	247.44602	1-HR	A-ABC	0.00075
282992	5236250	190.24063	1-HR	A-ABC	0.00075
282992	5236250	190.24063	1-HR	A-ABC	0.00075
282992	5236250	176.85431	1-HR	A-ABC	0.00075
282992	5236250	176.85431	1-HR	A-ABC	0.00075
282991.9	5236191.2	288.64201	1-HR	A-ABC	0.00074
282991.9	5236191.2	288.64201	1-HR	A-ABC	0.00074
282993.9	5236250.7	252.55201	1-HR	A-ABC	0.00074
282993.9	5236250.7	252.55201	1-HR	A-ABC	0.00074
282992	5236200	243.86244	1-HR	A-ABC	0.00074
282992	5236200	243.86244	1-HR	A-ABC	0.00074

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.5	5236270.6	240.36949	1-HR	A-ABC	0.00074
282994.5	5236270.6	240.36949	1-HR	A-ABC	0.00074
282992	5236262.5	196.07316	1-HR	A-ABC	0.00074
282992	5236262.5	196.07316	1-HR	A-ABC	0.00074
282993.5	5236240.8	187.34538	1-HR	A-ABC	0.00074
282993.5	5236240.8	187.34538	1-HR	A-ABC	0.00074
282992	5236250	184.93578	1-HR	A-ABC	0.00074
282992	5236250	184.93578	1-HR	A-ABC	0.00074
282994.5	5236270.6	267.87352	1-HR	A-ABC	0.00073
282994.5	5236270.6	267.87352	1-HR	A-ABC	0.00073
282994.2	5236260.7	263.97931	1-HR	A-ABC	0.00073
282994.2	5236260.7	263.97931	1-HR	A-ABC	0.00073
282992	5236250	237.06975	1-HR	A-ABC	0.00073
282992	5236250	237.06975	1-HR	A-ABC	0.00073
282992	5236212.5	189.81147	1-HR	A-ABC	0.00073
282992	5236212.5	189.81147	1-HR	A-ABC	0.00073
282994.5	5236270.6	223.21654	1-HR	A-ABC	0.00072
282994.5	5236270.6	223.21654	1-HR	A-ABC	0.00072
282993.9	5236250.7	205.50061	1-HR	A-ABC	0.00072
282993.9	5236250.7	205.50061	1-HR	A-ABC	0.00072
282992.5	5236211.1	202.05764	1-HR	A-ABC	0.00072
282992.5	5236211.1	202.05764	1-HR	A-ABC	0.00072
282992	5236200	197.4419	1-HR	A-ABC	0.00072
282992	5236200	197.4419	1-HR	A-ABC	0.00072
282992	5236212.5	192.85808	1-HR	A-ABC	0.00072
282992	5236212.5	192.85808	1-HR	A-ABC	0.00072
282994.5	5236270.6	186.55028	1-HR	A-ABC	0.00072
282994.5	5236270.6	186.55028	1-HR	A-ABC	0.00072
282991.9	5236191.2	179.75102	1-HR	A-ABC	0.00072
282991.9	5236191.2	179.75102	1-HR	A-ABC	0.00072
282992	5236262.5	177.63297	1-HR	A-ABC	0.00072
282992	5236262.5	177.63297	1-HR	A-ABC	0.00072
282992.5	5236211.1	196.65988	1-HR	A-ABC	0.00071
282992.5	5236211.1	196.65988	1-HR	A-ABC	0.00071
282992	5236287.5	173.21385	1-HR	A-ABC	0.00071
282992	5236287.5	173.21385	1-HR	A-ABC	0.00071

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282992	5236262.5	251.24671	1-HR	A-ABC	0.0007
282992	5236262.5	251.24671	1-HR	A-ABC	0.0007
282992	5236250	175.04308	1-HR	A-ABC	0.0007
282992	5236250	175.04308	1-HR	A-ABC	0.0007
282992	5236262.5	225.98958	1-HR	A-ABC	0.00069
282992	5236262.5	225.98958	1-HR	A-ABC	0.00069
282992.2	5236201.1	223.82078	1-HR	A-ABC	0.00069
282992.2	5236201.1	223.82078	1-HR	A-ABC	0.00069
282992.2	5236201.1	203.59676	1-HR	A-ABC	0.00069
282992.2	5236201.1	203.59676	1-HR	A-ABC	0.00069
282993.9	5236250.7	176.67434	1-HR	A-ABC	0.00069
282993.9	5236250.7	176.67434	1-HR	A-ABC	0.00069
282992	5236262.5	245.21183	1-HR	A-ABC	0.00068
282992	5236262.5	245.21183	1-HR	A-ABC	0.00068
282992.2	5236201.1	243.9293	1-HR	A-ABC	0.00068
282992.2	5236201.1	243.9293	1-HR	A-ABC	0.00068
282993.9	5236250.7	233.48412	1-HR	A-ABC	0.00068
282993.9	5236250.7	233.48412	1-HR	A-ABC	0.00068
282992	5236237.5	205.89671	1-HR	A-ABC	0.00068
282992	5236237.5	205.89671	1-HR	A-ABC	0.00068
282992.2	5236201.1	196.87409	1-HR	A-ABC	0.00068
282992.2	5236201.1	196.87409	1-HR	A-ABC	0.00068
282992	5236200	229.45934	1-HR	A-ABC	0.00067
282992	5236200	229.45934	1-HR	A-ABC	0.00067
282994.2	5236260.7	229.35862	1-HR	A-ABC	0.00067
282994.2	5236260.7	229.35862	1-HR	A-ABC	0.00067
282994.5	5236270.6	225.93457	1-HR	A-ABC	0.00067
282994.5	5236270.6	225.93457	1-HR	A-ABC	0.00067
282994.5	5236270.6	191.71326	1-HR	A-ABC	0.00067
282994.5	5236270.6	191.71326	1-HR	A-ABC	0.00067
282992	5236262.5	256.7699	1-HR	A-ABC	0.00066
282992	5236262.5	256.7699	1-HR	A-ABC	0.00066
282993.9	5236250.7	247.2903	1-HR	A-ABC	0.00066
282993.9	5236250.7	247.2903	1-HR	A-ABC	0.00066
282994.5	5236270.6	246.72786	1-HR	A-ABC	0.00066
282994.5	5236270.6	246.72786	1-HR	A-ABC	0.00066

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282992	5236250	209.59164	1-HR	A-ABC	0.00066
282992	5236250	209.59164	1-HR	A-ABC	0.00066
282993.5	5236240.8	201.24887	1-HR	A-ABC	0.00066
282993.5	5236240.8	201.24887	1-HR	A-ABC	0.00066
282992	5236275	186.47378	1-HR	A-ABC	0.00066
282992	5236275	186.47378	1-HR	A-ABC	0.00066
282992	5236237.5	179.76554	1-HR	A-ABC	0.00066
282992	5236237.5	179.76554	1-HR	A-ABC	0.00066
282992	5236262.5	261.15972	1-HR	A-ABC	0.00065
282992	5236262.5	261.15972	1-HR	A-ABC	0.00065
282993.9	5236250.7	227.92325	1-HR	A-ABC	0.00065
282993.9	5236250.7	227.92325	1-HR	A-ABC	0.00065
282992	5236262.5	212.01131	1-HR	A-ABC	0.00065
282992	5236262.5	212.01131	1-HR	A-ABC	0.00065
282992.5	5236211.1	185.1036	1-HR	A-ABC	0.00065
282992.5	5236211.1	185.1036	1-HR	A-ABC	0.00065
282991.9	5236191.2	184.94805	1-HR	A-ABC	0.00065
282991.9	5236191.2	184.94805	1-HR	A-ABC	0.00065
282992	5236275	178.64599	1-HR	A-ABC	0.00065
282992	5236275	178.64599	1-HR	A-ABC	0.00065
282991.9	5236191.2	279.87188	1-HR	A-ABC	0.00064
282991.9	5236191.2	279.87188	1-HR	A-ABC	0.00064
282992	5236250	235.26585	1-HR	A-ABC	0.00064
282992	5236250	235.26585	1-HR	A-ABC	0.00064
282992	5236250	193.11559	1-HR	A-ABC	0.00064
282992	5236250	193.11559	1-HR	A-ABC	0.00064
282994.2	5236260.7	239.95035	1-HR	A-ABC	0.00063
282994.2	5236260.7	239.95035	1-HR	A-ABC	0.00063
282994.2	5236260.7	245.63076	1-HR	A-ABC	0.00062
282994.2	5236260.7	245.63076	1-HR	A-ABC	0.00062
282994.2	5236260.7	215.71281	1-HR	A-ABC	0.00062
282994.2	5236260.7	215.71281	1-HR	A-ABC	0.00062
282992	5236200	201.86728	1-HR	A-ABC	0.00062
282992	5236200	201.86728	1-HR	A-ABC	0.00062
282992	5236212.5	198.80515	1-HR	A-ABC	0.00062
282992	5236212.5	198.80515	1-HR	A-ABC	0.00062

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282992	5236262.5	180.26414	1-HR	A-ABC	0.00062
282992	5236262.5	180.26414	1-HR	A-ABC	0.00062
282994.2	5236260.7	269.47424	1-HR	A-ABC	0.00061
282994.2	5236260.7	269.47424	1-HR	A-ABC	0.00061
282992	5236250	225.05759	1-HR	A-ABC	0.00061
282992	5236250	225.05759	1-HR	A-ABC	0.00061
282991.9	5236191.2	206.64414	1-HR	A-ABC	0.00061
282991.9	5236191.2	206.64414	1-HR	A-ABC	0.00061
282992.5	5236211.1	206.10772	1-HR	A-ABC	0.00061
282992.5	5236211.1	206.10772	1-HR	A-ABC	0.00061
282992	5236275	202.55197	1-HR	A-ABC	0.00061
282992	5236275	202.55197	1-HR	A-ABC	0.00061
282994.2	5236260.7	185.74099	1-HR	A-ABC	0.00061
282994.2	5236260.7	185.74099	1-HR	A-ABC	0.00061
282992	5236200	185.4132	1-HR	A-ABC	0.00061
282992	5236200	185.4132	1-HR	A-ABC	0.00061
282992.2	5236201.1	280.56556	1-HR	A-ABC	0.0006
282992.2	5236201.1	280.56556	1-HR	A-ABC	0.0006
282994.5	5236270.6	249.36041	1-HR	A-ABC	0.0006
282994.5	5236270.6	249.36041	1-HR	A-ABC	0.0006
282994.5	5236270.6	228.03376	1-HR	A-ABC	0.0006
282994.5	5236270.6	228.03376	1-HR	A-ABC	0.0006
282993.9	5236250.7	218.75798	1-HR	A-ABC	0.0006
282993.9	5236250.7	218.75798	1-HR	A-ABC	0.0006
282992	5236250	212.19929	1-HR	A-ABC	0.0006
282992	5236250	212.19929	1-HR	A-ABC	0.0006
282992	5236250	206.62311	1-HR	A-ABC	0.0006
282992	5236250	206.62311	1-HR	A-ABC	0.0006
282994.5	5236270.6	205.93363	1-HR	A-ABC	0.0006
282994.5	5236270.6	205.93363	1-HR	A-ABC	0.0006
282992	5236275	199.15441	1-HR	A-ABC	0.0006
282992	5236275	199.15441	1-HR	A-ABC	0.0006
282993.9	5236250.7	176.06875	1-HR	A-ABC	0.0006
282993.9	5236250.7	176.06875	1-HR	A-ABC	0.0006
282994.8	5236280.5	173.11646	1-HR	A-ABC	0.0006
282994.8	5236280.5	173.11646	1-HR	A-ABC	0.0006

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.2	5236260.7	255.1248	1-HR	A-ABC	0.00059
282994.2	5236260.7	255.1248	1-HR	A-ABC	0.00059
282994.2	5236260.7	249.68171	1-HR	A-ABC	0.00059
282994.2	5236260.7	249.68171	1-HR	A-ABC	0.00059
282992.5	5236211.1	238.78628	1-HR	A-ABC	0.00059
282992.5	5236211.1	238.78628	1-HR	A-ABC	0.00059
282993.5	5236240.8	212.94127	1-HR	A-ABC	0.00059
282993.5	5236240.8	212.94127	1-HR	A-ABC	0.00059
282994.8	5236280.5	208.98343	1-HR	A-ABC	0.00059
282994.8	5236280.5	208.98343	1-HR	A-ABC	0.00059
282992	5236237.5	173.6797	1-HR	A-ABC	0.00059
282992	5236237.5	173.6797	1-HR	A-ABC	0.00059
282992.2	5236201.1	265.9109	1-HR	A-ABC	0.00058
282992.2	5236201.1	265.9109	1-HR	A-ABC	0.00058
282994.2	5236260.7	237.95696	1-HR	A-ABC	0.00058
282994.2	5236260.7	237.95696	1-HR	A-ABC	0.00058
282994.2	5236260.7	312.94098	1-HR	A-ABC	0.00057
282994.2	5236260.7	312.94098	1-HR	A-ABC	0.00057
282991.9	5236191.2	308.2823	1-HR	A-ABC	0.00057
282991.9	5236191.2	308.2823	1-HR	A-ABC	0.00057
282992.2	5236201.1	236.23621	1-HR	A-ABC	0.00057
282992.2	5236201.1	236.23621	1-HR	A-ABC	0.00057
282991.9	5236191.2	235.19988	1-HR	A-ABC	0.00057
282991.9	5236191.2	235.19988	1-HR	A-ABC	0.00057
282991.9	5236191.2	223.45294	1-HR	A-ABC	0.00057
282991.9	5236191.2	223.45294	1-HR	A-ABC	0.00057
282991.9	5236191.2	218.66238	1-HR	A-ABC	0.00057
282991.9	5236191.2	218.66238	1-HR	A-ABC	0.00057
282993.5	5236240.8	192.39649	1-HR	A-ABC	0.00057
282993.5	5236240.8	192.39649	1-HR	A-ABC	0.00057
282992	5236225	184.30344	1-HR	A-ABC	0.00057
282992	5236225	184.30344	1-HR	A-ABC	0.00057
282994.8	5236280.5	178.56635	1-HR	A-ABC	0.00057
282994.8	5236280.5	178.56635	1-HR	A-ABC	0.00057
282992	5236225	177.06877	1-HR	A-ABC	0.00057
282992	5236225	177.06877	1-HR	A-ABC	0.00057

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282995.2	5236290.4	176.42171	1-HR	A-ABC	0.00057
282995.2	5236290.4	176.42171	1-HR	A-ABC	0.00057
282991.9	5236191.2	248.10136	1-HR	A-ABC	0.00056
282991.9	5236191.2	248.10136	1-HR	A-ABC	0.00056
282993.9	5236250.7	215.27603	1-HR	A-ABC	0.00056
282993.9	5236250.7	215.27603	1-HR	A-ABC	0.00056
282993.9	5236250.7	208.86715	1-HR	A-ABC	0.00056
282993.9	5236250.7	208.86715	1-HR	A-ABC	0.00056
282993.9	5236250.7	200.35376	1-HR	A-ABC	0.00056
282993.9	5236250.7	200.35376	1-HR	A-ABC	0.00056
282994.8	5236280.5	198.04503	1-HR	A-ABC	0.00056
282994.8	5236280.5	198.04503	1-HR	A-ABC	0.00056
282993.9	5236250.7	194.23303	1-HR	A-ABC	0.00056
282993.9	5236250.7	194.23303	1-HR	A-ABC	0.00056
282993.2	5236230.9	176.06563	1-HR	A-ABC	0.00056
282993.2	5236230.9	176.06563	1-HR	A-ABC	0.00056
282992	5236275	176.03673	1-HR	A-ABC	0.00056
282992	5236275	176.03673	1-HR	A-ABC	0.00056
282994.5	5236270.6	262.58474	1-HR	A-ABC	0.00055
282994.5	5236270.6	262.58474	1-HR	A-ABC	0.00055
282994.5	5236270.6	258.00034	1-HR	A-ABC	0.00055
282994.5	5236270.6	258.00034	1-HR	A-ABC	0.00055
282992	5236200	212.12375	1-HR	A-ABC	0.00055
282992	5236200	212.12375	1-HR	A-ABC	0.00055
282993.9	5236250.7	187.94567	1-HR	A-ABC	0.00055
282993.9	5236250.7	187.94567	1-HR	A-ABC	0.00055
282994.2	5236260.7	279.82509	1-HR	A-ABC	0.00054
282994.2	5236260.7	279.82509	1-HR	A-ABC	0.00054
282993.9	5236250.7	236.15592	1-HR	A-ABC	0.00054
282993.9	5236250.7	236.15592	1-HR	A-ABC	0.00054
282994.2	5236260.7	207.619	1-HR	A-ABC	0.00054
282994.2	5236260.7	207.619	1-HR	A-ABC	0.00054
282992	5236250	203.07378	1-HR	A-ABC	0.00054
282992	5236250	203.07378	1-HR	A-ABC	0.00054
282992	5236275	184.95008	1-HR	A-ABC	0.00054
282992	5236275	184.95008	1-HR	A-ABC	0.00054

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.5	5236270.6	179.37459	1-HR	A-ABC	0.00054
282994.5	5236270.6	179.37459	1-HR	A-ABC	0.00054
282991.9	5236191.2	300.64382	1-HR	A-ABC	0.00053
282991.9	5236191.2	300.64382	1-HR	A-ABC	0.00053
282992	5236262.5	296.76314	1-HR	A-ABC	0.00053
282992	5236262.5	296.76314	1-HR	A-ABC	0.00053
282992	5236212.5	213.35097	1-HR	A-ABC	0.00053
282992	5236212.5	213.35097	1-HR	A-ABC	0.00053
282993.5	5236240.8	208.60855	1-HR	A-ABC	0.00053
282993.5	5236240.8	208.60855	1-HR	A-ABC	0.00053
282992	5236287.5	185.22519	1-HR	A-ABC	0.00053
282992	5236287.5	185.22519	1-HR	A-ABC	0.00053
282991.6	5236181.3	176.77611	1-HR	A-ABC	0.00053
282991.6	5236181.3	176.77611	1-HR	A-ABC	0.00053
282992.5	5236211.1	176.7031	1-HR	A-ABC	0.00053
282992.5	5236211.1	176.7031	1-HR	A-ABC	0.00053
282993.5	5236240.8	172.66513	1-HR	A-ABC	0.00053
282993.5	5236240.8	172.66513	1-HR	A-ABC	0.00053
282992	5236262.5	275.65103	1-HR	A-ABC	0.00052
282992	5236262.5	275.65103	1-HR	A-ABC	0.00052
282995.5	5236300.3	195.5285	1-HR	A-ABC	0.00052
282995.5	5236300.3	195.5285	1-HR	A-ABC	0.00052
282992.9	5236221	192.30485	1-HR	A-ABC	0.00052
282992.9	5236221	192.30485	1-HR	A-ABC	0.00052
282992	5236237.5	184.60573	1-HR	A-ABC	0.00052
282992	5236237.5	184.60573	1-HR	A-ABC	0.00052
282992.9	5236221	182.89405	1-HR	A-ABC	0.00052
282992.9	5236221	182.89405	1-HR	A-ABC	0.00052
282991.9	5236191.2	172.03134	1-HR	A-ABC	0.00052
282991.9	5236191.2	172.03134	1-HR	A-ABC	0.00052
282994.2	5236260.7	303.38923	1-HR	A-ABC	0.00051
282994.2	5236260.7	303.38923	1-HR	A-ABC	0.00051
282991.9	5236191.2	252.82519	1-HR	A-ABC	0.00051
282991.9	5236191.2	252.82519	1-HR	A-ABC	0.00051
282994.2	5236260.7	235.41369	1-HR	A-ABC	0.00051
282994.2	5236260.7	235.41369	1-HR	A-ABC	0.00051

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282991.9	5236191.2	229.81791	1-HR	A-ABC	0.00051
282991.9	5236191.2	229.81791	1-HR	A-ABC	0.00051
282992	5236200	220.90295	1-HR	A-ABC	0.00051
282992	5236200	220.90295	1-HR	A-ABC	0.00051
282992.9	5236221	204.26816	1-HR	A-ABC	0.00051
282992.9	5236221	204.26816	1-HR	A-ABC	0.00051
282993.5	5236240.8	198.26624	1-HR	A-ABC	0.00051
282993.5	5236240.8	198.26624	1-HR	A-ABC	0.00051
282992	5236287.5	193.16116	1-HR	A-ABC	0.00051
282992	5236287.5	193.16116	1-HR	A-ABC	0.00051
282993.5	5236240.8	178.03009	1-HR	A-ABC	0.00051
282993.5	5236240.8	178.03009	1-HR	A-ABC	0.00051
282995.5	5236300.3	177.34145	1-HR	A-ABC	0.00051
282995.5	5236300.3	177.34145	1-HR	A-ABC	0.00051
282994.2	5236260.7	286.52114	1-HR	A-ABC	0.0005
282994.2	5236260.7	286.52114	1-HR	A-ABC	0.0005
282992.2	5236201.1	272.2013	1-HR	A-ABC	0.0005
282992.2	5236201.1	272.2013	1-HR	A-ABC	0.0005
282992	5236200	247.85686	1-HR	A-ABC	0.0005
282992	5236200	247.85686	1-HR	A-ABC	0.0005
282994.2	5236260.7	203.08227	1-HR	A-ABC	0.0005
282994.2	5236260.7	203.08227	1-HR	A-ABC	0.0005
282992.2	5236201.1	192.09749	1-HR	A-ABC	0.0005
282992.2	5236201.1	192.09749	1-HR	A-ABC	0.0005
282995.8	5236310.3	190.78396	1-HR	A-ABC	0.0005
282995.8	5236310.3	190.78396	1-HR	A-ABC	0.0005
282994.8	5236280.5	176.33813	1-HR	A-ABC	0.0005
282994.8	5236280.5	176.33813	1-HR	A-ABC	0.0005
282992	5236275	173.69752	1-HR	A-ABC	0.0005
282992	5236275	173.69752	1-HR	A-ABC	0.0005
282991.9	5236191.2	270.61538	1-HR	A-ABC	0.00049
282991.9	5236191.2	270.61538	1-HR	A-ABC	0.00049
282992	5236262.5	269.26896	1-HR	A-ABC	0.00049
282992	5236262.5	269.26896	1-HR	A-ABC	0.00049
282992.2	5236201.1	255.1306	1-HR	A-ABC	0.00049
282992.2	5236201.1	255.1306	1-HR	A-ABC	0.00049

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282992	5236200	253.9359	1-HR	A-ABC	0.00049
282992	5236200	253.9359	1-HR	A-ABC	0.00049
282992	5236200	241.35372	1-HR	A-ABC	0.00049
282992	5236200	241.35372	1-HR	A-ABC	0.00049
282992	5236262.5	223.72814	1-HR	A-ABC	0.00049
282992	5236262.5	223.72814	1-HR	A-ABC	0.00049
282992	5236262.5	217.12254	1-HR	A-ABC	0.00049
282992	5236262.5	217.12254	1-HR	A-ABC	0.00049
282992	5236262.5	203.87505	1-HR	A-ABC	0.00049
282992	5236262.5	203.87505	1-HR	A-ABC	0.00049
282993.2	5236230.9	179.08569	1-HR	A-ABC	0.00049
282993.2	5236230.9	179.08569	1-HR	A-ABC	0.00049
282992	5236200	301.30807	1-HR	A-ABC	0.00048
282992	5236200	301.30807	1-HR	A-ABC	0.00048
282992	5236262.5	278.41013	1-HR	A-ABC	0.00048
282992	5236262.5	278.41013	1-HR	A-ABC	0.00048
282992	5236200	269.13492	1-HR	A-ABC	0.00048
282992	5236200	269.13492	1-HR	A-ABC	0.00048
282993.9	5236250.7	257.97748	1-HR	A-ABC	0.00048
282993.9	5236250.7	257.97748	1-HR	A-ABC	0.00048
282992.2	5236201.1	249.9363	1-HR	A-ABC	0.00048
282992.2	5236201.1	249.9363	1-HR	A-ABC	0.00048
282992.5	5236211.1	246.58329	1-HR	A-ABC	0.00048
282992.5	5236211.1	246.58329	1-HR	A-ABC	0.00048
282993.9	5236250.7	246.00373	1-HR	A-ABC	0.00048
282993.9	5236250.7	246.00373	1-HR	A-ABC	0.00048
282992.9	5236221	221.70604	1-HR	A-ABC	0.00048
282992.9	5236221	221.70604	1-HR	A-ABC	0.00048
282992	5236275	221.1485	1-HR	A-ABC	0.00048
282992	5236275	221.1485	1-HR	A-ABC	0.00048
282992	5236275	191.19279	1-HR	A-ABC	0.00048
282992	5236275	191.19279	1-HR	A-ABC	0.00048
282992.5	5236211.1	189.93307	1-HR	A-ABC	0.00048
282992.5	5236211.1	189.93307	1-HR	A-ABC	0.00048
282993.2	5236230.9	186.67253	1-HR	A-ABC	0.00048
282993.2	5236230.9	186.67253	1-HR	A-ABC	0.00048

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.2	5236260.7	295.60242	1-HR	A-ABC	0.00047
282994.2	5236260.7	295.60242	1-HR	A-ABC	0.00047
282994.5	5236270.6	289.93159	1-HR	A-ABC	0.00047
282994.5	5236270.6	289.93159	1-HR	A-ABC	0.00047
282992	5236262.5	283.13682	1-HR	A-ABC	0.00047
282992	5236262.5	283.13682	1-HR	A-ABC	0.00047
282994.5	5236270.6	273.52225	1-HR	A-ABC	0.00047
282994.5	5236270.6	273.52225	1-HR	A-ABC	0.00047
282992.5	5236211.1	224.78626	1-HR	A-ABC	0.00047
282992.5	5236211.1	224.78626	1-HR	A-ABC	0.00047
282994.8	5236280.5	201.80952	1-HR	A-ABC	0.00047
282994.8	5236280.5	201.80952	1-HR	A-ABC	0.00047
282995.2	5236290.4	194.9324	1-HR	A-ABC	0.00047
282995.2	5236290.4	194.9324	1-HR	A-ABC	0.00047
282992	5236237.5	194.08899	1-HR	A-ABC	0.00047
282992	5236237.5	194.08899	1-HR	A-ABC	0.00047
282995.8	5236310.3	172.10604	1-HR	A-ABC	0.00047
282995.8	5236310.3	172.10604	1-HR	A-ABC	0.00047
282994.5	5236270.6	299.65421	1-HR	A-ABC	0.00046
282994.5	5236270.6	299.65421	1-HR	A-ABC	0.00046
282992	5236262.5	291.70568	1-HR	A-ABC	0.00046
282992	5236262.5	291.70568	1-HR	A-ABC	0.00046
282992	5236200	281.5237	1-HR	A-ABC	0.00046
282992	5236200	281.5237	1-HR	A-ABC	0.00046
282992	5236250	230.94996	1-HR	A-ABC	0.00046
282992	5236250	230.94996	1-HR	A-ABC	0.00046
282993.5	5236240.8	220.47054	1-HR	A-ABC	0.00046
282993.5	5236240.8	220.47054	1-HR	A-ABC	0.00046
282992.2	5236201.1	216.27782	1-HR	A-ABC	0.00046
282992.2	5236201.1	216.27782	1-HR	A-ABC	0.00046
282992	5236237.5	188.03888	1-HR	A-ABC	0.00046
282992	5236237.5	188.03888	1-HR	A-ABC	0.00046
282992	5236212.5	181.35942	1-HR	A-ABC	0.00046
282992	5236212.5	181.35942	1-HR	A-ABC	0.00046
282992.2	5236201.1	293.94109	1-HR	A-ABC	0.00045
282992.2	5236201.1	293.94109	1-HR	A-ABC	0.00045

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.5	5236270.6	285.22548	1-HR	A-ABC	0.00045
282994.5	5236270.6	285.22548	1-HR	A-ABC	0.00045
282992.5	5236211.1	257.69736	1-HR	A-ABC	0.00045
282992.5	5236211.1	257.69736	1-HR	A-ABC	0.00045
282992.5	5236211.1	215.3006	1-HR	A-ABC	0.00045
282992.5	5236211.1	215.3006	1-HR	A-ABC	0.00045
282992	5236275	207.28942	1-HR	A-ABC	0.00045
282992	5236275	207.28942	1-HR	A-ABC	0.00045
282993.5	5236240.8	196.64277	1-HR	A-ABC	0.00045
282993.5	5236240.8	196.64277	1-HR	A-ABC	0.00045
282994.5	5236270.6	184.35356	1-HR	A-ABC	0.00045
282994.5	5236270.6	184.35356	1-HR	A-ABC	0.00045
282992	5236287.5	179.33348	1-HR	A-ABC	0.00045
282992	5236287.5	179.33348	1-HR	A-ABC	0.00045
282995.8	5236310.3	176.09968	1-HR	A-ABC	0.00045
282995.8	5236310.3	176.09968	1-HR	A-ABC	0.00045
282992	5236212.5	249.83769	1-HR	A-ABC	0.00044
282992	5236212.5	249.83769	1-HR	A-ABC	0.00044
282994.5	5236270.6	216.88548	1-HR	A-ABC	0.00044
282994.5	5236270.6	216.88548	1-HR	A-ABC	0.00044
282992	5236225	190.00496	1-HR	A-ABC	0.00044
282992	5236225	190.00496	1-HR	A-ABC	0.00044
282994.8	5236280.5	184.64004	1-HR	A-ABC	0.00044
282994.8	5236280.5	184.64004	1-HR	A-ABC	0.00044
282995.2	5236290.4	183.0612	1-HR	A-ABC	0.00044
282995.2	5236290.4	183.0612	1-HR	A-ABC	0.00044
282994.5	5236270.6	295.78709	1-HR	A-ABC	0.00043
282994.5	5236270.6	295.78709	1-HR	A-ABC	0.00043
282992	5236200	274.99363	1-HR	A-ABC	0.00043
282992	5236200	274.99363	1-HR	A-ABC	0.00043
282992	5236262.5	262.87149	1-HR	A-ABC	0.00043
282992	5236262.5	262.87149	1-HR	A-ABC	0.00043
282992	5236262.5	253.14519	1-HR	A-ABC	0.00043
282992	5236262.5	253.14519	1-HR	A-ABC	0.00043
282992	5236275	223.99344	1-HR	A-ABC	0.00043
282992	5236275	223.99344	1-HR	A-ABC	0.00043

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282992	5236275	218.34539	1-HR	A-ABC	0.00043
282992	5236275	218.34539	1-HR	A-ABC	0.00043
282992	5236275	216.44159	1-HR	A-ABC	0.00043
282992	5236275	216.44159	1-HR	A-ABC	0.00043
282992	5236287.5	182.07751	1-HR	A-ABC	0.00043
282992	5236287.5	182.07751	1-HR	A-ABC	0.00043
282995.5	5236300.3	173.19318	1-HR	A-ABC	0.00043
282995.5	5236300.3	173.19318	1-HR	A-ABC	0.00043
282992	5236250	242.56899	1-HR	A-ABC	0.00042
282992	5236250	242.56899	1-HR	A-ABC	0.00042
282992	5236212.5	232.0895	1-HR	A-ABC	0.00042
282992	5236212.5	232.0895	1-HR	A-ABC	0.00042
282994.8	5236280.5	207.37814	1-HR	A-ABC	0.00042
282994.8	5236280.5	207.37814	1-HR	A-ABC	0.00042
282992	5236287.5	195.2081	1-HR	A-ABC	0.00042
282992	5236287.5	195.2081	1-HR	A-ABC	0.00042
282995.2	5236290.4	192.78054	1-HR	A-ABC	0.00042
282995.2	5236290.4	192.78054	1-HR	A-ABC	0.00042
282992	5236287.5	187.5667	1-HR	A-ABC	0.00042
282992	5236287.5	187.5667	1-HR	A-ABC	0.00042
282992	5236212.5	176.16156	1-HR	A-ABC	0.00042
282992	5236212.5	176.16156	1-HR	A-ABC	0.00042
282995.2	5236290.4	175.2131	1-HR	A-ABC	0.00042
282995.2	5236290.4	175.2131	1-HR	A-ABC	0.00042
282991.2	5236171.4	173.06016	1-HR	A-ABC	0.00042
282991.2	5236171.4	173.06016	1-HR	A-ABC	0.00042
282994.2	5236260.7	219.68285	1-HR	A-ABC	0.00041
282994.2	5236260.7	219.68285	1-HR	A-ABC	0.00041
282992	5236287.5	201.74551	1-HR	A-ABC	0.00041
282992	5236287.5	201.74551	1-HR	A-ABC	0.00041
282995.2	5236290.4	185.11798	1-HR	A-ABC	0.00041
282995.2	5236290.4	185.11798	1-HR	A-ABC	0.00041
282991.2	5236171.4	176.61402	1-HR	A-ABC	0.00041
282991.2	5236171.4	176.61402	1-HR	A-ABC	0.00041
282994.5	5236270.6	280.63742	1-HR	A-ABC	0.0004
282994.5	5236270.6	280.63742	1-HR	A-ABC	0.0004

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.5	5236270.6	241.50993	1-HR	A-ABC	0.0004
282994.5	5236270.6	241.50993	1-HR	A-ABC	0.0004
282992	5236212.5	209.54722	1-HR	A-ABC	0.0004
282992	5236212.5	209.54722	1-HR	A-ABC	0.0004
282994.8	5236280.5	196.27655	1-HR	A-ABC	0.0004
282994.8	5236280.5	196.27655	1-HR	A-ABC	0.0004
282995.5	5236300.3	172.0366	1-HR	A-ABC	0.0004
282995.5	5236300.3	172.0366	1-HR	A-ABC	0.0004
282994.2	5236260.7	257.45712	1-HR	A-ABC	0.00039
282994.2	5236260.7	257.45712	1-HR	A-ABC	0.00039
282993.9	5236250.7	240.54058	1-HR	A-ABC	0.00039
282993.9	5236250.7	240.54058	1-HR	A-ABC	0.00039
282994.5	5236270.6	236.73552	1-HR	A-ABC	0.00039
282994.5	5236270.6	236.73552	1-HR	A-ABC	0.00039
282992	5236262.5	219.01475	1-HR	A-ABC	0.00039
282992	5236262.5	219.01475	1-HR	A-ABC	0.00039
282995.2	5236290.4	188.69301	1-HR	A-ABC	0.00039
282995.2	5236290.4	188.69301	1-HR	A-ABC	0.00039
282991.6	5236181.3	185.09989	1-HR	A-ABC	0.00039
282991.6	5236181.3	185.09989	1-HR	A-ABC	0.00039
282994.8	5236280.5	182.82709	1-HR	A-ABC	0.00039
282994.8	5236280.5	182.82709	1-HR	A-ABC	0.00039
282992.9	5236221	178.12954	1-HR	A-ABC	0.00039
282992.9	5236221	178.12954	1-HR	A-ABC	0.00039
282990.9	5236161.5	175.71053	1-HR	A-ABC	0.00039
282990.9	5236161.5	175.71053	1-HR	A-ABC	0.00039
282992	5236275	197.15437	1-HR	A-ABC	0.00038
282992	5236275	197.15437	1-HR	A-ABC	0.00038
282994.8	5236280.5	192.4333	1-HR	A-ABC	0.00038
282994.8	5236280.5	192.4333	1-HR	A-ABC	0.00038
282995.5	5236300.3	192.04535	1-HR	A-ABC	0.00038
282995.5	5236300.3	192.04535	1-HR	A-ABC	0.00038
282994.8	5236280.5	188.02819	1-HR	A-ABC	0.00038
282994.8	5236280.5	188.02819	1-HR	A-ABC	0.00038
282996.1	5236320.2	173.94676	1-HR	A-ABC	0.00038
282996.1	5236320.2	173.94676	1-HR	A-ABC	0.00038

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282994.5	5236270.6	306.15298	1-HR	A-ABC	0.00037
282994.5	5236270.6	306.15298	1-HR	A-ABC	0.00037
282994.5	5236270.6	252.72878	1-HR	A-ABC	0.00037
282994.5	5236270.6	252.72878	1-HR	A-ABC	0.00037
282995.2	5236290.4	206.71374	1-HR	A-ABC	0.00037
282995.2	5236290.4	206.71374	1-HR	A-ABC	0.00037
282995.5	5236300.3	180.52186	1-HR	A-ABC	0.00037
282995.5	5236300.3	180.52186	1-HR	A-ABC	0.00037
282992	5236287.5	175.38218	1-HR	A-ABC	0.00037
282992	5236287.5	175.38218	1-HR	A-ABC	0.00037
282994.2	5236260.7	282.82503	1-HR	A-ABC	0.00036
282994.2	5236260.7	282.82503	1-HR	A-ABC	0.00036
282994.2	5236260.7	276.39584	1-HR	A-ABC	0.00036
282994.2	5236260.7	276.39584	1-HR	A-ABC	0.00036
282992	5236287.5	206.34895	1-HR	A-ABC	0.00036
282992	5236287.5	206.34895	1-HR	A-ABC	0.00036
282995.2	5236290.4	199.23279	1-HR	A-ABC	0.00036
282995.2	5236290.4	199.23279	1-HR	A-ABC	0.00036
282995.2	5236290.4	197.71694	1-HR	A-ABC	0.00036
282995.2	5236290.4	197.71694	1-HR	A-ABC	0.00036
282991.2	5236171.4	182.0188	1-HR	A-ABC	0.00036
282991.2	5236171.4	182.0188	1-HR	A-ABC	0.00036
282995.2	5236290.4	179.68245	1-HR	A-ABC	0.00036
282995.2	5236290.4	179.68245	1-HR	A-ABC	0.00036
282995.5	5236300.3	186.79479	1-HR	A-ABC	0.00035
282995.5	5236300.3	186.79479	1-HR	A-ABC	0.00035
282994.8	5236280.5	210.78349	1-HR	A-ABC	0.00034
282994.8	5236280.5	210.78349	1-HR	A-ABC	0.00034
282995.2	5236290.4	186.78611	1-HR	A-ABC	0.00034
282995.2	5236290.4	186.78611	1-HR	A-ABC	0.00034
282995.5	5236300.3	175.46561	1-HR	A-ABC	0.00034
282995.5	5236300.3	175.46561	1-HR	A-ABC	0.00034
282994.8	5236280.5	180.42567	1-HR	A-ABC	0.00033
282994.8	5236280.5	180.42567	1-HR	A-ABC	0.00033
282992	5236287.5	197.74236	1-HR	A-ABC	0.00032
282992	5236287.5	197.74236	1-HR	A-ABC	0.00032

Appendix Table I-11. Nutrilite's Contribution to Source Group A-ABC's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282995.5	5236300.3	184.47483	1-HR	A-ABC	0.00032
282995.5	5236300.3	184.47483	1-HR	A-ABC	0.00032
282995.8	5236310.3	179.70962	1-HR	A-ABC	0.00032
282995.8	5236310.3	179.70962	1-HR	A-ABC	0.00032
282992	5236275	211.63653	1-HR	A-ABC	0.00031
282992	5236275	211.63653	1-HR	A-ABC	0.00031
282996.1	5236320.2	178.74394	1-HR	A-ABC	0.00031
282996.1	5236320.2	178.74394	1-HR	A-ABC	0.00031
282995.2	5236290.4	200.96755	1-HR	A-ABC	0.0003
282995.2	5236290.4	200.96755	1-HR	A-ABC	0.0003
282995.5	5236300.3	189.40392	1-HR	A-ABC	0.0003
282995.5	5236300.3	189.40392	1-HR	A-ABC	0.0003
282992	5236287.5	204.6085	1-HR	A-ABC	0.00029
282992	5236287.5	204.6085	1-HR	A-ABC	0.00029
282995.5	5236300.3	201.01858	1-HR	A-ABC	0.00029
282995.5	5236300.3	201.01858	1-HR	A-ABC	0.00029
282995.8	5236310.3	185.56036	1-HR	A-ABC	0.00029
282995.8	5236310.3	185.56036	1-HR	A-ABC	0.00029

Appendix Table I-12. Nutrilite's Contribution to Source Group A-T4's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282990.9	5236161.5	222.67254	1-HR	A-T4	0.00129
282990.9	5236161.5	222.67254	1-HR	A-T4	0.00129
282990.6	5236151.6	175.17846	1-HR	A-T4	0.00129
282990.6	5236151.6	175.17846	1-HR	A-T4	0.00129
282988.6	5236092	193.94157	1-HR	A-T4	0.00121
282988.6	5236092	193.94157	1-HR	A-T4	0.00121
282990.6	5236151.6	185.62855	1-HR	A-T4	0.00121
282990.6	5236151.6	185.62855	1-HR	A-T4	0.00121
282990.6	5236151.6	198.06252	1-HR	A-T4	0.00111
282990.6	5236151.6	198.06252	1-HR	A-T4	0.00111
282990.6	5236151.6	201.44506	1-HR	A-T4	0.00108
282990.6	5236151.6	201.44506	1-HR	A-T4	0.00108
282990.9	5236161.5	175.41362	1-HR	A-T4	0.00108
282990.9	5236161.5	175.41362	1-HR	A-T4	0.00108
282990.3	5236141.6	193.60142	1-HR	A-T4	0.00107
282990.3	5236141.6	193.60142	1-HR	A-T4	0.00107
282990.9	5236161.5	173.884	1-HR	A-T4	0.00107
282990.9	5236161.5	173.884	1-HR	A-T4	0.00107
282990.6	5236151.6	178.30101	1-HR	A-T4	0.00106
282990.6	5236151.6	178.30101	1-HR	A-T4	0.00106
282989	5236102	180.22359	1-HR	A-T4	0.00105
282989	5236102	180.22359	1-HR	A-T4	0.00105
282990.6	5236151.6	179.46915	1-HR	A-T4	0.00102
282990.6	5236151.6	179.46915	1-HR	A-T4	0.00102
282990.9	5236161.5	208.02123	1-HR	A-T4	0.001
282990.9	5236161.5	208.02123	1-HR	A-T4	0.001
282990.9	5236161.5	239.63699	1-HR	A-T4	0.00093
282990.9	5236161.5	239.63699	1-HR	A-T4	0.00093
282990.3	5236141.6	202.10998	1-HR	A-T4	0.00093
282990.3	5236141.6	202.10998	1-HR	A-T4	0.00093
282990.9	5236161.5	192.14292	1-HR	A-T4	0.00092
282990.9	5236161.5	192.14292	1-HR	A-T4	0.00092
282990.9	5236161.5	183.00719	1-HR	A-T4	0.00091
282990.9	5236161.5	183.00719	1-HR	A-T4	0.00091
282988.6	5236092	175.70625	1-HR	A-T4	0.00089
282988.6	5236092	175.70625	1-HR	A-T4	0.00089

Appendix Table I-12. Nutrilite's Contribution to Source Group A-T4's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282990.9	5236161.5	214.56334	1-HR	A-T4	0.00088
282990.9	5236161.5	214.56334	1-HR	A-T4	0.00088
282990.9	5236161.5	201.63227	1-HR	A-T4	0.00088
282990.9	5236161.5	201.63227	1-HR	A-T4	0.00088
282988.3	5236082.1	200.94021	1-HR	A-T4	0.00088
282988.3	5236082.1	200.94021	1-HR	A-T4	0.00088
282988.6	5236092	188.61117	1-HR	A-T4	0.00088
282988.6	5236092	188.61117	1-HR	A-T4	0.00088
282990.6	5236151.6	199.31079	1-HR	A-T4	0.00086
282990.6	5236151.6	199.31079	1-HR	A-T4	0.00086
282990.6	5236151.6	184.01037	1-HR	A-T4	0.00084
282990.6	5236151.6	184.01037	1-HR	A-T4	0.00084
282990.3	5236141.6	184.75661	1-HR	A-T4	0.00083
282990.3	5236141.6	184.75661	1-HR	A-T4	0.00083
282988.3	5236082.1	180.94188	1-HR	A-T4	0.00083
282988.3	5236082.1	180.94188	1-HR	A-T4	0.00083
282990.6	5236151.6	238.45367	1-HR	A-T4	0.00082
282990.6	5236151.6	238.45367	1-HR	A-T4	0.00082
282990.3	5236141.6	172.87465	1-HR	A-T4	0.00082
282990.3	5236141.6	172.87465	1-HR	A-T4	0.00082
282990.6	5236151.6	207.33258	1-HR	A-T4	0.00081
282990.6	5236151.6	207.33258	1-HR	A-T4	0.00081
282990.9	5236161.5	191.07975	1-HR	A-T4	0.00081
282990.9	5236161.5	191.07975	1-HR	A-T4	0.00081
282990.9	5236161.5	188.6578	1-HR	A-T4	0.00081
282990.9	5236161.5	188.6578	1-HR	A-T4	0.00081
282990.6	5236151.6	187.77695	1-HR	A-T4	0.00081
282990.6	5236151.6	187.77695	1-HR	A-T4	0.00081
282990.6	5236151.6	172.88525	1-HR	A-T4	0.00081
282990.6	5236151.6	172.88525	1-HR	A-T4	0.00081
282990.3	5236141.6	197.05518	1-HR	A-T4	0.0008
282990.3	5236141.6	197.05518	1-HR	A-T4	0.0008
282990.3	5236141.6	178.43533	1-HR	A-T4	0.00078
282990.3	5236141.6	178.43533	1-HR	A-T4	0.00078
282990.9	5236161.5	186.96975	1-HR	A-T4	0.00077
282990.9	5236161.5	186.96975	1-HR	A-T4	0.00077

Appendix Table I-12. Nutrilite's Contribution to Source Group A-T4's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282988.3	5236082.1	175.80687	1-HR	A-T4	0.00076
282988.3	5236082.1	175.80687	1-HR	A-T4	0.00076
282988.3	5236082.1	230.51859	1-HR	A-T4	0.00075
282988.3	5236082.1	230.51859	1-HR	A-T4	0.00075
282990.9	5236161.5	221.30231	1-HR	A-T4	0.00075
282990.9	5236161.5	221.30231	1-HR	A-T4	0.00075
282988.3	5236082.1	211.86037	1-HR	A-T4	0.00075
282988.3	5236082.1	211.86037	1-HR	A-T4	0.00075
282990.6	5236151.6	215.87671	1-HR	A-T4	0.00073
282990.6	5236151.6	215.87671	1-HR	A-T4	0.00073
282990.6	5236151.6	211.62718	1-HR	A-T4	0.00073
282990.6	5236151.6	211.62718	1-HR	A-T4	0.00073
282990.9	5236161.5	172.75292	1-HR	A-T4	0.00073
282990.9	5236161.5	172.75292	1-HR	A-T4	0.00073
282988.3	5236082.1	233.4204	1-HR	A-T4	0.00072
282988.3	5236082.1	233.4204	1-HR	A-T4	0.00072
282988.3	5236082.1	206.71129	1-HR	A-T4	0.00072
282988.3	5236082.1	206.71129	1-HR	A-T4	0.00072
282988.6	5236092	198.50228	1-HR	A-T4	0.00072
282988.6	5236092	198.50228	1-HR	A-T4	0.00072
282990.6	5236151.6	193.53477	1-HR	A-T4	0.00072
282990.6	5236151.6	193.53477	1-HR	A-T4	0.00072
282989	5236102	172.27775	1-HR	A-T4	0.00072
282989	5236102	172.27775	1-HR	A-T4	0.00072
282988.6	5236092	210.45465	1-HR	A-T4	0.0007
282988.6	5236092	210.45465	1-HR	A-T4	0.0007
282990.3	5236141.6	198.78554	1-HR	A-T4	0.00068
282990.3	5236141.6	198.78554	1-HR	A-T4	0.00068
282990.9	5236161.5	228.93045	1-HR	A-T4	0.00067
282990.9	5236161.5	228.93045	1-HR	A-T4	0.00067
282990.6	5236151.6	209.75909	1-HR	A-T4	0.00067
282990.6	5236151.6	209.75909	1-HR	A-T4	0.00067
282990.6	5236151.6	181.1274	1-HR	A-T4	0.00067
282990.6	5236151.6	181.1274	1-HR	A-T4	0.00067
282990.3	5236141.6	189.16943	1-HR	A-T4	0.00066
282990.3	5236141.6	189.16943	1-HR	A-T4	0.00066

Appendix Table I-12. Nutrilite's Contribution to Source Group A-T4's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282990.3	5236141.6	181.65643	1-HR	A-T4	0.00066
282990.3	5236141.6	181.65643	1-HR	A-T4	0.00066
282990.6	5236151.6	219.22535	1-HR	A-T4	0.00065
282990.6	5236151.6	219.22535	1-HR	A-T4	0.00065
282990.6	5236151.6	204.22069	1-HR	A-T4	0.00065
282990.6	5236151.6	204.22069	1-HR	A-T4	0.00065
282990.9	5236161.5	198.88549	1-HR	A-T4	0.00065
282990.9	5236161.5	198.88549	1-HR	A-T4	0.00065
282990.6	5236151.6	246.13322	1-HR	A-T4	0.00064
282990.6	5236151.6	246.13322	1-HR	A-T4	0.00064
282988.6	5236092	226.82864	1-HR	A-T4	0.00064
282988.6	5236092	226.82864	1-HR	A-T4	0.00064
282988.6	5236092	232.71332	1-HR	A-T4	0.00063
282988.6	5236092	232.71332	1-HR	A-T4	0.00063
282990.9	5236161.5	211.66227	1-HR	A-T4	0.00063
282990.9	5236161.5	211.66227	1-HR	A-T4	0.00063
282990.9	5236161.5	197.03827	1-HR	A-T4	0.00063
282990.9	5236161.5	197.03827	1-HR	A-T4	0.00063
282990.9	5236161.5	180.06739	1-HR	A-T4	0.00062
282990.9	5236161.5	180.06739	1-HR	A-T4	0.00062
282988.6	5236092	218.75945	1-HR	A-T4	0.00061
282988.6	5236092	218.75945	1-HR	A-T4	0.00061
282991.6	5236181.3	173.73598	1-HR	A-T4	0.00061
282991.6	5236181.3	173.73598	1-HR	A-T4	0.00061
282988.6	5236092	239.82195	1-HR	A-T4	0.0006
282988.6	5236092	239.82195	1-HR	A-T4	0.0006
282990.9	5236161.5	219.42559	1-HR	A-T4	0.00059
282990.9	5236161.5	219.42559	1-HR	A-T4	0.00059
282990.9	5236161.5	205.54901	1-HR	A-T4	0.00058
282990.9	5236161.5	205.54901	1-HR	A-T4	0.00058
282988.3	5236082.1	189.98989	1-HR	A-T4	0.00058
282988.3	5236082.1	189.98989	1-HR	A-T4	0.00058
282989	5236102	187.72208	1-HR	A-T4	0.00058
282989	5236102	187.72208	1-HR	A-T4	0.00058
282988.6	5236092	182.9336	1-HR	A-T4	0.00057
282988.6	5236092	182.9336	1-HR	A-T4	0.00057

Appendix Table I-12. Nutrilite's Contribution to Source Group A-T4's NO_2 1 hour NAAQS Exceedances

Receptor X	Receptor Y	Modeled Result	Averaging Period	Overall Source Group	Nutrilite's Contribution
282991.2	5236171.4	172.09335	1-HR	A-T4	0.00057
282991.2	5236171.4	172.09335	1-HR	A-T4	0.00057
282990.6	5236151.6	223.00539	1-HR	A-T4	0.00055
282990.6	5236151.6	223.00539	1-HR	A-T4	0.00055
282990.6	5236151.6	228.68809	1-HR	A-T4	0.00054
282990.6	5236151.6	228.68809	1-HR	A-T4	0.00054
282988.3	5236082.1	226.04583	1-HR	A-T4	0.00054
282988.3	5236082.1	226.04583	1-HR	A-T4	0.00054
282989	5236102	204.11362	1-HR	A-T4	0.00052
282989	5236102	204.11362	1-HR	A-T4	0.00052
282990.6	5236151.6	233.11512	1-HR	A-T4	0.0005
282990.6	5236151.6	233.11512	1-HR	A-T4	0.0005

APPENDIX J: MODELING FILES

Appendix Table J-1. Modeling Files

File Name	File Type	Description
Aermap input file	INP	AERMAP Terrain Input File
Aermap output file	OUT	AERMAP Terrain Output File
P10NByy	AMI	PM_{10} Modeling Input Files, Met Year 'yy
P2.5NB_ST04-08	AMI	$PM_{2.5}$ Short Term Modeling Input File
P2.5NB_LT04-08	AMI	$PM_{2.5}$ Long Term Modeling Input File
CSByy	AMI	CO Modeling Input Files, Met Year 'yy
CSB04-2	AMI	CO Modeling Input File for 2004, mpi executable
NNE_ST04-08	AMI	NO_2 Short Term Modeling Input File
NND_LTyy	AMI	NO_2 Long Term Modeling Input Files, Met Year 'yy
NND_ST04-08 mdc	AMI	1-hr NO_2 Contribution Input File
P10NByy	AML	PM_{10} Modeling Output Files, Met Year 'yy
P2.5NB_ST04-08	AML	$PM_{2.5}$ Short Term Modeling Output File
P2.5NB_LT04-08	AML	$PM_{2.5}$ Long Term Modeling Output File
CSByy	AML	CO Modeling Output Files, Met Year 'yy
CSB04-2	AML	CO Modeling Ouput File for 2004, mpi executable
NNE_ST04-08	AML	NO_2 Short Term Modeling Output File
NND_LTyy	AML	NO_2 Long Term Modeling Output Files, Met Year 'yy
NND_ST04-08 mdc	AML	1-hr NO_2 Contribution Input File
PM Bpip input file	AMZ	BPIP input for CO and NO_2 Models
CO Bpip input file	AMZ	BPIP input for PM_{10} and $PM_{2.5}$ Models
PM Bpip output file	AMZ	BPIP output for CO and NO_2 Models
CO Bpip output file	AMZ	BPIP output for PM_{10} and $PM_{2.5}$ Models