Statement of Basis

Permit to Construct No. P-2016.0027
Project ID 61717

NASHUA Homes of Idaho, Inc.
Boise, Idaho

Facility ID 001-00327

Proposed for Public Comment

DRAFT XX, 2017
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The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AACC	acceptable ambient concentrations for carcinogens
Btu	British thermal units
CAA	Clean Air Act
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
HAP	hazardous air pollutants
hp	horsepower
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PAH	polyaromatic hydrocarbons
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

This is the initial permit to construct (PTC) for a manufacturer of mobile homes and smaller dwellings called "man camps". Emission units at the facility include wood saws, plainer operations, sanding operations, gluing/caulking, cleaning operations, painting, welding, small natural gas heaters and a 36 horsepower diesel generator.

Permitting History

This is the initial PTC for a new facility thus there is no permitting history.

Application Scope

This permit is the initial PTC for this facility.

The applicant has proposed to manufacturer mobile homes and smaller "man camps". Air pollution emitting activities include wood and sheet rock working activities, painting, gluing, caulking, and welding. Manufacturing operations are conducted within a building.

Application Chronology

May 6, 2016	DEQ received an application.
May 9, 2016	DEQ received an application fee.
May 16 - 31, 2016	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
June 2, 2016	DEQ determined that the application was incomplete.
June 13, 2016	DEQ received supplemental information from the applicant.
Month Day, Year	DEQ determined that the application was complete.
December 29, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
January 4, 2017	DEQ made available the draft permit and statement of basis for applicant review.
Month Day – Month Day, Year	DEQ provided a public comment period on the proposed action.
Month Day, Year	DEQ received the permit processing fee.
Month Day, Year	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Emissions Source	Controls
Wood & Sheet Rock Cutting/Working Operations (e.g. stationary saws, various hand saws, sanding, plaining)	Cyclone, filter, or limit operations to occur in an enclosure
TAP (Toxic Air Pollutant) Emission Sources-Painting, Adhesives, Caulk, Foam Insulation, welding etc.	Activities conducted in an enclosed building
Various Space Heaters – Natural Gas 12 units rated at 0.3 MMBtu 9 units rated at 0..25 MMBtu	None

2 units rated at 0..2 MMBtu 6 units rated at 0..13 MMBtu	
Electrical Generator – Diesel fuel 36 Hp	None
Welding	None

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. The detailed calculations may be seen in the spreadsheet submitted by the applicant.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Process	PM_{10} T/yr	$PM_{2.5}$ T/yr	NO_x T/yr	SO_2 T/yr	CO T/yr	VOC T/yr	HAPs T/yr
Adhesives and Glues	0.09	0.09	--	--	--	0.09	5.14
Caulkings	1.85E-05	1.85E-05	--	--	--	1.40	0.34
Paints_Cleaners	1.49	1.49	--	--	--	88.50	27.67
Lacquers_Thinners	0.12	0.12	--	--	--	47.09	0.66
Welding Gases	--	--	--	--	--	9.21	--
Generator	0.019	0.019	0.454	0.169	0.081	0.097	4.18E-03
NG Heaters	0.229	0.229	3.019	2.536	0.018	0.166	5.71E-02
Dust Collection	0.45	0.37	--	--	--	--	--
Welding	0.123	0.123	--	--	--	--	0.049
Miscellaneous	0.01	0.01	--	--	--	1.26E-02	--
Total	**2.54**	**2.46**	**3.47**	**2.70**	**0.10**	**146.57**	**33.92**

Potential to Emit Under Permit Limits

The following table presents the post project Potential to Emit for criteria pollutants and hazardous air pollutants from all emissions units at the facility as determined by the applicant. See Appendix A for a detailed presentation of the calculations for each emissions unit. Emissions are limited by hours of operation and welding rod usage.

The detailed calculations may be seen in the spreadsheet submitted by the applicant.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Process	PM_{10} T/yr	$PM_{2.5}$ T/yr	NO_x T/yr	SO_2 T/yr	CO T/yr	VOC T/yr	HAP T/yr
Adhesives and Glues	0.01	0.01	--	--	--	2.30	0.53
Caulkings	5.27E-06	5.27E-06	--	--	--	0.40	0.10
Paints_Cleaners	0.43	0.43	--	--	--	25.27	7.90
Lacquers_Thinners	0.03	0.03	--	--	--	13.44	0.19
Welding Gases	--	--	--	--	--	2.63	--
Generator	0.001	0.001	0.026	0.010	0.005	0.006	2.39E-04
NG Heaters	0.115	0.115	1.509	1.268	0.009	0.083	2.85E-02
Dust Collection	0.45	0.37	--	--	--	--	--
Welding	0.035	0.035	--	--	--	--	0.014
Miscellaneous	0.00	4.12E-03	--	--	--	3.61E-03	--
Total	**1.08**	**0.995**	**1.54**	**1.28**	**0.01**	**44.13**	**8.88**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project. Since this is the initial permit for this facility, the pre-project potential to emit is zero.

TAP Emissions

The permit limits daily TAP emissions to less than or equal to the screening emissions level (EL) times 24, or below the acceptable ambient concentrations listed in Section 585 & 586 of the Rules. Daily emissions of equal to or less than the EL times 24 assures that maximum 24-hour average emissions rates are below the EL. If emissions exceed the EL times 24 then the facility shall model emission rates to determine ambient impacts. This is consistent with the toxic air pollutant exemption criteria at Section 223.02.b of the Rules which allows the facility to conduct the analysis and maintain documentation on-site without a need to obtain prior DEQ approval of the analysis; an annual report is required by the exemption criteria at Section 223.05 and the permit also requires an annual report when modeling is conducted.

Toxic air pollutants that are also hazardous air pollutants which are emitted from the generator are not required to be included in the analysis as specified at IDAPA 58.01.01.210.20 because they are regulated by 40 CFR 63 Subpart ZZZZ.

Project HAP Emissions

The applicant has estimated that less than 9 ton per year of HAPs will be emitted at the requested annual production rate. Therefore, HAPs will not be emitted at major source thresholds (10 or more tons/yr of any HAP or 25 tons/yr in aggregate). The permit limits facility-wide total HAP emissions to less 10 tons per year for any individual HAP and less than 25 tons per year in aggregate. Monitoring and recordkeeping requirements are included in the permit.

Ambient Air Quality Impact Analyses

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix A.

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix A).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Ada County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions $\geq$ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions $\geq$ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits $\geq$ 8 T/yr of a single HAP or $\geq$ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are $\geq$ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are $\geq$ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

Table 3 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	2.65	1.08	**100**	B
$PM_{10}/PM_{2.5}$	2.65/2.56	1.08/0.99	**100**	B
SO_2	1.28	1.28	**100**	B
NO_X	3.47	1.54	**100**	B
CO	0.1	0.01	**100**	B
VOC	146.68	44.13	**100**	SM
HAP (single)	>10	9	**10**	SM80
HAP (Total)	37.58	<25	**25**	SM80

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the building manufacturing facility. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. Standards for New Sources (IDAPA 58.01.01.676).

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM_{10}, $PM_{2.5}$, SO_2, NO_x, VOC or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

40 CFR 60, Subpart IIII..... Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The facility is affected by this subpart. A detailed regulatory breakdown of the subpart is provided in Appendix B.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

40 CFR 63, Subpart ZZZZ ..... National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The source is an affected facility by 40 CFR 63, Subpart ZZZZ. However, in accordance with §63.6590(c) the facility must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII for compression ignition engines. No further requirements apply for such engines under this part.

40 CFR 63, Subpart HHHHHH..... National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

The facility is not subject to the Paint Stripping and Miscellaneous Surface Coating Operations – Area Source MACT. Since it is a potentially applicable regulation a regulatory break down is provided below showing why it is not applicable.

§63.11170 Am I subject to this subpart?

(a) You are subject to this subpart if you operate an area source of HAP as defined in paragraph (b) of this section, including sources that are part of a tribal, local, State, or Federal facility and you perform one or more of the activities in paragraphs (a)(1) through (3) of this section:

(1) Perform paint stripping using MeCl for the removal of dried paint (including, but not limited to, paint, enamel, varnish, shellac, and lacquer) from wood, metal, plastic, and other substrates.

> *The facility did not describe that paint stripping using methylene chloride (MeCl) occurs at the facility. Additionally, the permit specifies that MeCl shall not be used for the removal of dried paint. Therefore the facility is not affected due to this section.*

(2) Perform spray application of coatings, as defined in §63.11180, to motor vehicles and mobile equipment including operations that are located in stationary structures at fixed locations, and mobile repair and refinishing operations that travel to the customer's location, except spray coating applications that meet the definition of facility maintenance in §63.11180. However, if you are the owner or operator of a motor vehicle or mobile equipment surface coating operation, you may petition the Administrator for an exemption from this subpart if you can demonstrate, to the satisfaction of the Administrator, that you spray apply no coatings that contain the target HAP, as defined in §63.11180. Petitions must include a description of the coatings that you spray apply and your certification that you do not spray apply any coatings containing the target HAP. If circumstances change such that you intend to spray apply coatings containing the target HAP, you must submit the initial notification required by 63.11175 and comply with the requirements of this subpart.

> *The facility does not perform spray application of coatings to motor vehicles and mobile equipment. Therefore the facility is not affected due to this section.*

(3) Perform spray application of coatings that contain the target HAP, as defined in §63.11180, to a plastic and/or metal substrate on a part or product, except spray coating applications that meet the definition of facility maintenance or space vehicle in §63.11180.

The application did not include a description of spray application of coatings that contain target HAPs to plastic and/or metal substrates. The permit also restricts this from occurring. Therefore the facility is not affected due to this section.

Permit Conditions Review

This section describes the permit conditions for this initial permit.

Permit Condition 2.1

Includes the process description and control device descriptions for the wood and sheet rock cutting and working operations. The facility's design is to produce buildings using conventional tools used in building homes. Tools include saws, planers, and spray paint tools. The permit does not limit the number or type of hand tools that may be used. If the facility changes its operational design to something other than manufacturing buildings then it must be subjected to the modification test.

Permit Condition 2.2

Includes the Rules opacity standard.

Permit Condition 2.3 through 2.4

Limits the sources operations consistent with the limitations used to estimate annual emissions in the application. Any increase of production due solely to a relaxation of a permit condition may require a new permit analysis, including a determination of whether criteria air pollution dispersion modeling would be required. Modeling would be required if facility-wide particulate matter emissions equal or exceed 10% of what is defined as significant. These limitations along with the limitation on engine hours of operation assure emissions will remain below this modeling threshold.

Permit Condition 2.5

Emissions from cutting, sanding or otherwise shaping wood or sheet rock shall be controlled any one of the following: limiting operations to an enclosed building; venting emissions through a fabric filter, or venting emissions through a cyclone. This is consistent with the emissions inventory provided in the application.

Permit Condition 2.6 through 2.7

Requires monitoring of source operations to assure compliance the annual limits listed in this permit. The permit requires monitoring of the number hours during which manufacturing operations occurred, welding rod usage and engine hours of operation.

Permit Condition 2.8

This permit condition includes DEQ standard permit language for monitoring to assure fugitive emissions are reasonably controlled.

Permit Condition 3.1

Includes a process description for TAP and HAP emitting sources.

Permit Condition 3.2

The particulate matter emissions inventory that was provided in the application provides that spray painting operations are controlled by limiting operations to within an enclosure.

Permit Condition 3.3

As requested by the applicant this permit condition limits TAP emissions rates to below the screening emission level multiplied by 24, for TAPs listed in Section 585 and for the TAPs listed in Section586 of the rules, or below the emission rate that would cause an ambient impact to exceed the acceptable ambient concentration for that TAP. Daily emissions of equal to or less than the EL times 24 assures that maximum 24-hour average emissions rates are below the EL for TAPs listed in Section 585 and 586 of the Rules. If emissions exceed the EL times 24 then the facility shall model emission rates to determine ambient impacts. Requiring modeling to assure compliance with acceptable ambient concentrations is consistent with the toxic air pollutant exemption criteria

listed in Section 223.02.b[1] of the Rules and consistent with the precedent set by the Charmac Permit to Construct (P-2009.0095) that was issued on January 6, 2010. The application included modeling for some TAPs, additional modeling will not be required unless new substances are used and the screening emissions level is exceeded.

In the application for this permit the facility presented an emission inventory that demonstrated that formaldehyde, cadmium, 4,4-methylenediphenyl Diisocyanate, Kaolin, Quartz, Ethylene Glycol, and Tetrachloroethylene emissions exceeded the screening emissions levels (ELs). The applicant modeled the proposed emission rates and showed the ambient impacts were below the corresponding acceptable ambient concentrations for each pollutant listed in Section 585 & 586 of the rules thereby demonstrating preconstruction compliance in accordance with IDAPA 58.01.01.210.08. The permit requires maintaining documentation of all calculations and modeling analyses on-site in accordance with General Provisions. This documentation is also included as part of the application for this permit.

Permit Condition 3.4

The emission inventory provided in the application shows that the facility has an uncontrolled potential to emit HAPs greater than major facility thresholds. This permit condition limits the potential to emit below major facility thresholds for HAPs.

Permit Condition 3.5

This permit condition includes the odor regulation of IDAPA 58.01.01.776.01.

Permit Condition 3.6

The particulate matter emissions inventory that was provided in the application provides that spray painting operations are controlled by limiting operations to within an enclosure. This permit condition assures that the source will operate in a manner consistent with the emission inventory provided in the application.

Permit Condition 3.7

This permit condition specifies that the permittee shall not use methylene chloride (MeCl) to remove dried paint. If the source did this the provisions of 40 CFR 63 Subpart HHHHHH would become applicable. This permit condition serves to assure that it does not become applicable.

Permit Condition 3.8

This permit condition specifies that the permittee shall not spray apply coatings that contain chromium, lead, manganese, nickel, or cadmium, to a plastic and/or metal substrate on a part or product as those terms are defined at 40 CFR 63 Subpart HHHHHH. If the source did this the provisions of 40 CFR 63 Subpart HHHHHH would become applicable. The applicant did not specify that the facility was subject to this Subpart and this permit condition serves to assure that it does not become applicable.

Permit Condition 3.9

Requires monitoring the use of all TAP and HAP containing materials used in the building manufacturing process that emit air pollution. This is necessary so that emissions rates can be determined. HAP emissions occur from the generator as well as the rest of the process, therefore monitoring hours of operation of the generator is required so that HAP emissions from that source can be determined.

Permit Condition 3.10

Using the material usage records the Permittee is required to calculate individual TAP emission rates. If emissions exceed the screening emissions level (EL) times 24 then a modeling analysis shall be conducted to demonstrate compliance with the applicable acceptable ambient concentration. Documentation of all calculations and modeling analysis shall be maintained on-site in accordance with General Provisions.

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1 The toxic air pollutant exemption criteria are not applicable to this permit condition but it is relevant in the sense that this permit condition requires similar recordkeeping and reporting requirements when air pollution dispersion modeling is conducted.

Permit Condition 3.11

Using the material usage records, each month the permittee shall monitor and record the individual and total HAP emissions from the entire facility during the most recent consecutive 12-month period in order to demonstrate compliance with the HAP emissions limits in this permit. All emissions calculations shall be maintained on-site in accordance with the General Provisions.

Permit Condition 3.12

This permit condition includes DEQ's standard language regarding responding to any odor complaints that may be received.

Permit Condition 3.13

This condition includes the excess emissions reporting requirements specified in IDAPA 58.01.01.131.

Permit Condition 3.14

This permit condition requires the permittee to submit reports on any modeling analysis that is conducted to show compliance with toxic air pollutant acceptable ambient concentrations. The report is required by May 1 of each year and is consistent with the reporting requirements for exemptions at Section 223.05 of the Rules. The comparison, provided above, of these reporting requirements to the reporting requirements of the exemption criteria is provided solely to show the similarity of the reporting requirements of this permit condition and that of the exemption criteria. The application included modeling for some TAPs, additional modeling and reporting will not be required unless new substances are used and the screening emissions level is exceeded.

Section 4 of the Permit

The purpose of Permit Conditions 4.3 – 4.8 of the permit is to include the requirements of 40 CFR 60 Subpart IIII. Should there be a conflict between the permit and the CFR, the CFR shall govern. A detailed breakdown of this subpart is provided in Appendix B.

Permit Condition 4.9

This condition limits the engines hours of operation used in the emission inventory provided in the application. This coupled with the hours of operation limits in Section 2 of the permit limit emissions rates below BRC modeling thresholds.

Permit Condition 4.10

This condition requires monitoring of the engines hours of operation each month and each consecutive 12 month period.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

A public comment period will be made available in accordance with IDAPA 58.01.01.209.01.c.

APPENDIX A – AMBIENT AIR QUALITY IMPACT ANALYSES

APPENDIX B – 40 CFR 60 SUBPART IIII

APPENDIX C – PROCESSING FEE

40 CFR 60, Subpart IIII

§60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

The 36 hp engine was manufactured in April 2006. It is assumed that was after the first of the month. Therefore, the subpart is applicable to Nashua Builders.

§60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

This section is not applicable to Nashua Builders as they are not a manufacturer of the engine.

§60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

This section is not applicable to Nashua Builders as they are not a manufacturer of the engine.

§60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?

This section is not applicable to Nashua Builders as they are not a manufacturer of the engine.

§60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

Table 1 identifies the NMHC + NOx, CO and PM. It should also be noted that the engine meets Tier 2 EPA standards. All manufacturer standards are either equivalent or an improvement to those outlined in Table 1.

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

This portion of the rule is not applicable to Nashua Builders because the model year of the engine is prior to 2007.

(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:

This portion of the rule is not applicable to Nashua Builders because the displacement of the engine is less than 30 liters per cylinder.

(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in §60.4212.

This portion of the rule does not apply to Nashua Builders as performance tests are not required.

(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.

This portion of the rule does not apply to Nashua Builders because the engine is not modified or reconstructed.

§60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

This section is not applicable to Nashua Builders as they do not operate an emergency engine.

§60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine.

Nashua Builders will comply will all standards during the life of the engine.

§60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

Technically this portion does apply but is superseded by subsection b outlined below.

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

Nashua Builders already comply with 40 CFR 80.510(b) and uses ultra-low sulfur diesel fuel (15 ppm).

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of

paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

This portion of the rule does not apply to Nashua Builders because the engine is not greater than or equal to 30 liters per cylinder.

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

This portion of the rule does not apply to Nashua Builders because the engine does not have a national security exemption.

§60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.

(h) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

The engine utilized by Nashua Builders meets all applicable requirements.

§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

This section does not apply to Nashua Builders because they do not operate an emergency engine nor is it equipped with a diesel particulate filter.

§60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

This section is not applicable to Nashua Builders as they are not a manufacturer of the engine.

§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

Nashua Builders will meet all required specified above.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

Nashua Builders operates an EPA tier 2 certified engine.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

Performance tests are not required for Nashua Builders

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

Nashua will maintain manufacturer documentation on site.

(4) Keeping records of control device vendor data indicating compliance with the standards.

A control device is not necessary to ensure compliance with the applicable standards. Thus, one is not installed.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.

Performance tests are not required for Nashua Builders

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

This portion is not applicable to Nahua Builders because the engine is older than a 2007 model.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

This portion is not applicable to Nashua Builders because part 4204(c) and 4205(d) do not apply.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

This portion is not applicable to Nashua Builders because the engine is not modified or reconstructed.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this

section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

This portion is not applicable to Nashua Builders because the engine is not an emergency unit.

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

Nashua will maintain the engine according to manufacturer specifications. Therefore, this portion does not apply.

§60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

This section does not apply because testing is not required; only Table 1 emission standards are applicable.

§60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

This section does not apply because testing is not required and the displacement is not greater than 30 liters per cylinder.

§60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

The engine is not greater than 3,000 HP, greater than 10 liters per cylinder nor a pre-2007 engine with a HP greater than 130. Therefore, this portion does not apply to Nashua Builders.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

The engine is not an emergency unit and this portion of the rues does not apply.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

The engine does not contain a filter. Thus, this portion of the rues does not apply.

(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

The engine is not an emergency unit and this portion of the rues does not apply.

§60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

Nashua Builders is not located in Guam, American Somoa or the Northern Mariana Islands. This section does not apply.

§60.4216 What requirements must I meet for engines used in Alaska?

Nashua Builders is not located in Alaska. This section does not apply.

§60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

Nashua Builders use diesel fuel and not any “special” fuel. This section does not apply.

M E M O R A N D U M

DATE: December 23, 2016

TO: Dan Pitman, Permit Writer, Air Program

FROM: Darrin Mehr, Analyst, Air Program

PROJECT: P-2016.0027 PROJ 61717 - Initial PTC for the Existing Nashua Homes Facility Located in Boise, Idaho

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs)

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Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a Non-Carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
ACFM	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
ARM	Ambient Ratio Method
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
Btu/hr	British Thermal Units per hour
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
fps	Feet per second
FTP	File Transfer Protocol
GEP	Good Engineering Practice
hr	Hour(s)
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
m	Meters
m/s	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
Nashua	Nashua Homes of Idaho, LLC (dba Nashua Builders) – the Permittee
NAD83	North American Datum 1983
NED	National Elevation Dataset
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NEI	National Emissions Inventory
NWS	National Weather Service
O_3	Ozone
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	Parts Per Billion

PRIME	Plume Rise Model Enhancement
PTC	Permit to Construct
PTE	Potential to Emit
PVMRM	Plume Volume Molar Ratio Method
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
Stantec	Stantec Consulting Services – the Permittee's consultant
TAP	Toxic Air Pollutant
tons/year	Ton(s) per year
T/yr	Tons per year
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VCU	Vapor Control Unit
VOCs	Volatile Organic Compounds
$\mu g/m^3$	Micrograms pr cubic meter of air

1.0 Summary

On May 6, 2016, Nashua Homes of Idaho, Inc. (Nashua) submitted a Permit to Construct (PTC) application for their existing facility in Boise, Idaho, where the facility manufactures mobile homes and smaller homes referred to as "man camps." The facility's emissions of regulated air pollutants have been evaluated and determined to require a PTC at the requested levels of emissions.

The emissions units and process sources emitting regulated air pollutants include application of glues, adhesives, caulking materials, paints, lacquers and thinner products, cleaners/solvents which are primarily sources of VOCs and TAPs emissions. Lumber cutting shavings and particles and gypsum particulate matter emissions consisting of PM, PM_{10}, and $PM_{2.5}$ are transported by pneumatic systems with emission control devices consisting of a cyclone and a baghouse. A 36 horsepower diesel generator is used to load test electrical wiring in the housing units for limited duration. This generator does not qualify for treatment as an "emergency electrical generator." Twenty-nine natural gas-fired heaters ranging from 0.13 MMBtu/hr to 0.3 MMBtu/hr in heat input capacity are used to provide space heating for the facility's two process areas which are housed in two separate buildings. The buildings are designated as Plant 1 and Plant 2. Exhaust fans are located on the rooftops of Plant 1 and Plant 2, and each fan vent emits process-related TAPs and VOCs that are specific to the materials used in either Plant 1 or Plant 2.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the identified project were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 and 203.03 [Idaho Air Rules Section 203.02 and 203.03]).

Stantec Consulting Services (Stantec), Nashua's permitting and modeling consultant, submitted analyses and applicable information and data to enable DEQ to evaluate potential impacts to ambient air. Stantec performed project-specific air quality impact analyses to demonstrate compliance for allowable emissions with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the pollutant dispersion modeling analyses used to demonstrate that the estimated emissions associated with operation of the facility as modified will not cause or significantly contribute to a violation of the applicable air quality standards. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. This modeling review also did not evaluate the accuracy of emissions estimates. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the DEQ Statement of Basis.

The submitted air quality impact analyses: 1) utilized appropriate methods and models according to established DEQ/EPA rules, policies, guidance, and procedures; 2) were conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the facility as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from applicable emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the

project do not result in ambient air impacts exceeding allowable TAPs increments. Table 1 presents key assumptions and results to be considered in the development of the permit.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	**Explanation/Consideration**
Criteria Pollutant Modeling Was Not Required A NAAQS compliance demonstration was not required for any criteria pollutant. The project satisfied BRC exemption criteria for all pollutants except volatile organic compounds (VOCs), as specified in DEQ's *Policy on NAAQS Compliance Demonstration Requirements of IDAPA 58.01.01.203.02 and 01.403.02.* [2] The submitted emissions inventory identified certain emission rates as "actual emissions" rather than unrestricted potential emissions. The assumptions used in calculating these actual emissions are critical to creating a level of annual emissions that exempt criteria pollutants from NAAQS compliance demonstrations; most notably the PM_{10} and $PM_{2.5}$ emissions rates, which were extremely close to the BRC thresholds. VOCs were requested to be limited to 44 tons per year (T/yr). This level of emissions exceeds the BRC threshold of 4 T/yr, but is not large enough to warrant any consideration for ozone modeling. Lead emissions were not included in this project's emission calculation spreadsheet, nor were they discussed in the project's modeling report. Based on discussion with the project's permit writer, the facility's potential to emit of lead (Pb) is below the BRC threshold of 0.06 T/yr (or 120 pounds per year). DEQ modeling staff did not require modeling based on this assumption. Based on the project's stated/requested limitations, the facility-wide PTE for following pollutants are below the BRC thresholds, and air impact modeling was not required: PM_{10}, $PM_{2.5}$, CO, SO_2, NOx, and Lead (Pb).	PM_{10} and $PM_{2.5}$ emissions, used to exempt the project from the requirement to perform air impact modeling, were calculated using assumptions of: • 2,500 hours per year of process cyclone operations (at 10 hours per day, 5 days per week, and 50 weeks per year); • 2,500 hours per year for painting operations; • 4,380 hours per year for all natural gas-fired heating units (6 months out of the year at rated capacity); • 500 hours per year for the small load test generator; • 250 days per year of welding using 11 lb/day of welding rod. These assumptions/restrictions were critical in assuring that maximum potential annual emission rates (either limited by design capacity or an enforceable permit limit) are less than the BRC thresholds. An ambient air impact analysis would have been required for any pollutant with potential annual emissions, as allowed by this project's PTC, exceeding BRC levels. Annual estimated $PM_{2.5}$ PTE was 99.9 percent of the BRC level. Therefore, it is very important that calculated emissions represent emissions at design capacity or maximum emissions as limited by an enforceable permit restriction. Section 2.3.1 of this memorandum provides more details of pollutant-specific air impact analysis requirements.
Carcinogenic TAP - Formaldehyde emissions from Plant 2 building Evaluation of the two capped stacks resulted in a change in modeling method for the TAP emissions, such that the manufacturing process will not use materials that emit formaldehyde in the Plant 2 building. Only Plant 1 will use formaldehyde-containing and emitting process production materials. Plant 1 was represented in the ambient impact analyses as emitting the entire facility's process-related formaldehyde emissions. Plant 2's process emission points were modeled with no formaldehyde emissions.	The Plant 2 building is equipped with two exhaust fans that provide air exchanges to the manufacturing area within this building. The exhaust fans (PL2_FAN1 and PL2_FAN2) are equipped with rain caps which may cause higher ambient impacts. Nearly the entire ambient impact for formaldehyde was attributed to the formaldehyde process emissions and release points, with only a very small impact attributed to the facility's natural gas-fired space heating emissions units. TAPs compliance has not been demonstrated for any formaldehyde emissions occurring from Building 2. Formaldehyde impacts were 99% of the annual TAP increment. Therefore, it is very important that calculated formaldehyde

	emissions represent emissions at design capacity or maximum emissions as limited by an enforceable permit restriction.
Non-Carcinogenic TAP Plant 1 was modeled with 0.050 lb/hr of MDI, on a 24-hour basis, split equally between eight exhaust fans. Plant 2 was modeled with 0.010 lb/hr of MDI, on a 24-hour basis, split equally between two exhaust fans.	The ambient impact analyses accounted for 1.44 pounds of MDI emissions within a 24-hour period on a facility-wide basis. The ambient impact analyses reflected the following: • Plant 1 was assumed to emit 83.3% of the MDI emissions - or 1.2 pounds MDI per day. • Plant 2 was assumed to emit 16.7% of the MDI emissions - or 0.24 pounds MDI per day. MDI impacts were 98% of the 24-hour TAP increment. Therefore, it is very important that calculated MDI emissions represent emissions at daily design capacity or maximum daily emissions as limited by an enforceable permit restriction.
Ambient Air Boundary Posting of no trespassing signage will be added in undeveloped property areas as indicated in the modeling report.	The ambient air boundary used in the ambient impact analyses does not currently have all methods in place to preclude public access to the areas exempted the analyses as ambient air. Ambient impact hot spots could be predicted to occur along the privately held roadway providing access from Federal Way on the northern boundary and the other undeveloped parcel west of the Plant 2 building if not exempted from treatment as ambient air.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department, using DEQ/EPA established guidance, policies, and procedures, that operation of the proposed facility or modification will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

Summary of Submittals and Actions

This summary is limited to permit project number 61717.

March 28, 2016: DEQ received a modeling protocol via email from Stantec. A modeling protocol approval letter was not issued by DEQ.

May 6, 2016: DEQ received a PTC application from Stantec on behalf of Nashua Homes of Idaho, Inc.

June 2, 2016: DEQ declared the application incomplete.

July 14, 2016: DEQ received a response submittal from Stantec, on behalf of Nashua, regarding the incompleteness determination.

October 21, 2016: DEQ declared the application incomplete.

October 28, 2016: DEQ received an email notification that application incompleteness response items were available for DEQ to download from Stantec's FTP site.

November 22, 2016: DEQ declared the application complete.

2.0 Background Information

2.1 Permit Requirements for Permits to Construct

PTCs are issued to authorize the construction of a new source or modification of an existing source or permit. Idaho Air Rules Section 203.02 requires that emissions from the new source or modification not cause or significantly contribute to a violation of an air quality standard, and Idaho Air Rules Section 203.03 requires that emissions from a new source or modification comply with applicable TAP increments of Idaho Air Rules Sections 585 and 586.

2.2 Project Location and Area Classification

The facility is located within Boise, Idaho, in Ada County. The area is designated as attainment or unclassifiable for all pollutants. The area operates under limited maintenance plans for CO and PM_{10}.

2.3 Modeling Applicability for Criteria Pollutants

Idaho Air Rules Section 203.02 state that a PTC cannot be issued unless the application demonstrates to the satisfaction of DEQ that the new source or modification will not cause or significantly contribute to a NAAQS violation. Atmospheric dispersion modeling is used to evaluate the potential impact of a proposed project to ambient air and demonstrate NAAQS compliance.

2.3.1 Below Regulatory Concern and DEQ Modeling Guideline Level I and II Thresholds

If the emissions increases associated with a project are below modeling applicability thresholds established in the *Idaho Air Modeling Guideline*[1] ("State of Idaho Guideline for Performing Air Quality Impact Analyses," available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf, then a project-specific analysis is not required. Modeling applicability emissions thresholds were developed by DEQ based on modeling of a hypothetical source and were designed to reasonably ensure that impacts are below the applicable SIL. DEQ has established two threshold levels: Level 1 thresholds are unconditional thresholds, requiring no approval for use by DEQ; Level 2 thresholds are conditional upon DEQ approval, which depends on evaluation of the project and the site, including emissions quantities, stack parameters, number of sources emissions are distributed amongst, distance between the sources and the ambient air boundary, and the presence of sensitive receptors near the ambient air boundary.

Certain pollutants may be exempted from the requirement to demonstrate compliance with NAAQS for this project per a DEQ regulatory interpretation policy.[2] If project-wide annual potential to emit (PTE) values for criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more criteria pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then

an air impact analysis may not be required for those pollutants. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules Section 221 is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant[2]." The interpretation policy also states that the exemption criteria of uncontrolled PTE not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year. Table 2 presents the BRC modeling applicability for this project.

Table 2. CRITERIA POLLUTANT NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY

Criteria Pollutant	Below Regulatory Concern Level (ton/year)	Applicable Facility-Wide Potential Emissions (ton/year)	Ambient Impact Analyses Exempted per BRC Policy?
PM_{10}[a]	1.5	1.08	Yes
$PM_{2.5}$[b]	1.0	0.999	Yes
Carbon Monoxide (CO)	10.0	0.01	Yes
Sulfur Dioxide (SO_2)	4.0	1.28	Yes
Nitrogen Oxides (NOx)	4.0	1.54	Yes
Lead (Pb)	0.06	Assumed negligible	Yes

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

The facility-wide requested PTE values attributed to this project of CO, SO_2, NOx, $PM_{2.5}$, and PM_{10} qualified for exemption from modeling requirements with emission rates below the BRC modeling thresholds.

Lead emissions rates were not provided in the facility's emission inventory spreadsheet. Modeling staff in consultation with the permit writer concluded this project will not result in any appreciable quantity of lead emissions and that emissions would be less than the Level I/II modeling threshold of 14 lb/month and the BRC threshold of 0.06 T/yr (120 pounds per year), so modeling of any lead emissions was not required.

2.3.2 Ozone Modeling Applicability

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NO_x, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses (see Section 3.3.3) cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of O_3 has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club

(letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

Allowable facility-wide emissions of VOCs were estimated to be 44 T/yr. Allowable NOx emissions were estimated at 1.5 T/yr. The project emissions increase of VOCs and the facility-wide NOx potential emissions are well below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis.

2.3.3 Secondary Particulate Formation Modeling Applicability

The impact from secondary particulate formation resulting from emissions of NOx, SO_2, and/or VOCs was assumed by DEQ to be negligible on the basis of the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum PM_{10} and $PM_{2.5}$ impacts would be anticipated.

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

If maximum modeled pollutant impacts to ambient air from emissions sources associated with a new facility or the emissions increase associated with a modification exceed the SILs of Idaho Air Rules Section 006 (referred to as a significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis may also be required for permit revisions driven by compliance/enforcement actions, any correction of emissions limits or other operational parameters that may affect pollutant impacts to ambient air, or other cases where DEQ believes NAAQS may be threatened by the emissions associated with the facility or proposed project.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts, according to established DEQ/EPA guidance, policies, and procedures, from applicable facility-wide emissions and emissions from any nearby co-contributing sources. A DEQ-approved background concentration value is then added to the modeled result that is appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 3. Table 3 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis.

Table 3. APPLICABLE REGULATORY LIMITS				
Pollutant	**Averaging Period**	**Significant Impact Levels[a] (µg/m^3)[b]**	**Regulatory Limit [c] (µg/m^3)**	**Modeled Design Value Used[d]**
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 µg/m^3)	75 ppb[p] (196 µg/m^3)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 µg/m^3)	100 ppb[s] (188 µg/m^3)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	75 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years. The O_3 standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

If the cumulative NAAQS impact analysis shows a violation of the standard, the permit cannot be issued if the proposed project or facility has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. The facility or project does not have a significant contribution to a violation if impacts are below the SIL at all specific receptors showing violations during the time periods when modeled violations occurred.

Compliance with Idaho Air Rules Section 203.02 is demonstrated if: a) all modeled impacts of the SIL

analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) modeled design values of the cumulative NAAQS impact analysis (modeling applicable emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or c) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP.

3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements.

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant's consultant, Stantec, to demonstrate

compliance with applicable air quality standards.

3.1.1 Overview of Analyses

Stantec performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the facility, using established DEQ policies, guidance, and procedures. Results of the submitted analyses, in combination with DEQ's analyses, demonstrated compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 4 provides a brief description of parameters used in the modeling analyses.

Table 4. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Boise	The area is an attainment or unclassified area for all criteria pollutants. This area operates under limited maintenance plans for both CO and PM_{10}.
Model	AERMOD Beta Algorithms	AERMOD with the PRIME downwash algorithm, version 15181. Beta algorithms for capped and horizontal point source stacks were used for the TAPs analyses.
Meteorological Data	Boise	2008-2012 - See Section 3.3 of this memorandum. Surface and upper air data from Boise, Idaho.
Terrain	Considered	Receptor, building, and emissions source stack base elevations were determined using USGS 1/3 arc second National Elevation Dataset (NED) files based on the NAD83 datum. The facility is located within Zone 11.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility.
Receptor Grid	**Toxic Air Pollutants**	
	Grid 1	10-meter spacing along the ambient air boundary.
	Grid 2	10-meter spacing in a 680-meter (x) by 610-meter (y) grid centered on the facility.
	Grid 3	25-meter spacing in a single line of receptors north of the facility extending 675 meters adjacent to Grid 2.
	Grid 4	50-meter spacing in a rectangular grid with dimensions of 900 (x) meters by 850 meters (y) somewhat centered on Grid 2. This grid provides coverage a minimum of 2 rows of receptors deep and a maximum of 3 rows of receptors deep.
	Grid 5	100-meter spacing in a square grid with dimensions of 1,500 meters (x) by 1,500 meters (y) centered on the facility.
	Grid 6	250-meter spacing in a square grid with dimensions of 2,750 meters (x) by 2,750 meters (y) centered on the facility.
	Grid 7	500-meter spacing in a square grid with dimensions of 5,000 meters (x) by 5,000 meters (y) centered on the facility.

3.1.2 Modeling Protocol and Methodology

A formal modeling protocol was submitted to DEQ prior to submittal of the application by Stantec via an email dated March 28, 2016, on behalf of Nashua. DEQ did not issue a protocol approval letter prior to receipt of the permit application on May 6, 2016.

Changes to the facility's potential to emit inventory reduced PM_{10} and $PM_{2.5}$ emissions that were listed in

the modeling protocol to levels meeting the BRC exemption criteria for a NAAQS compliance demonstration. The May 6, 2016 application excluded ambient air impact analyses for these pollutants.

Project-specific modeling was conducted using data and methods described in this project's modeling protocol and the *Idaho Air Modeling Guideline*[1].

3.1.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple-source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 15181 was used by Stantec for the modeling analyses to evaluate impacts of the facility. This is the current version of AERMOD. The Beta algorithms for modeling capped and horizontal point sources were used for this project.

3.2 Background Concentrations

No background concentrations were required for this project. Post-project potential emissions of all criteria pollutants were below the BRC thresholds.

3.3 Meteorological Data

DEQ provided Stantec with a model-ready meteorological dataset processed from Boise surface data and Boise upper air meteorological data covering the years 2008-2012. This met dataset was not provided in response to the project's modeling protocol. This dataset was provided by DEQ for a previously-submitted Boise area PTC project ambient air impact analysis.

The dataset for this project was based on Boise airport surface and Automated Surface Observing System (ASOS) data and upper air data from the Boise National Weather Service (NWS) Station site. Surface characteristics were processed by DEQ staff using AERSURFACE version 13016. AERMINUTE version 11325 was used to process ASOS wind data for use in AERMET. The threshold wind velocity was set at 0.5 meters per second. AERMET version 12345 was used to process surface and upper air data. The meteorological dataset wind rose and cumulative frequency diagrams from DEQ's meteorological dataset preparation memorandum are included as Figures 1 and 2, respectively.

Figure 1. BOISE MET DATA WIND ROSE

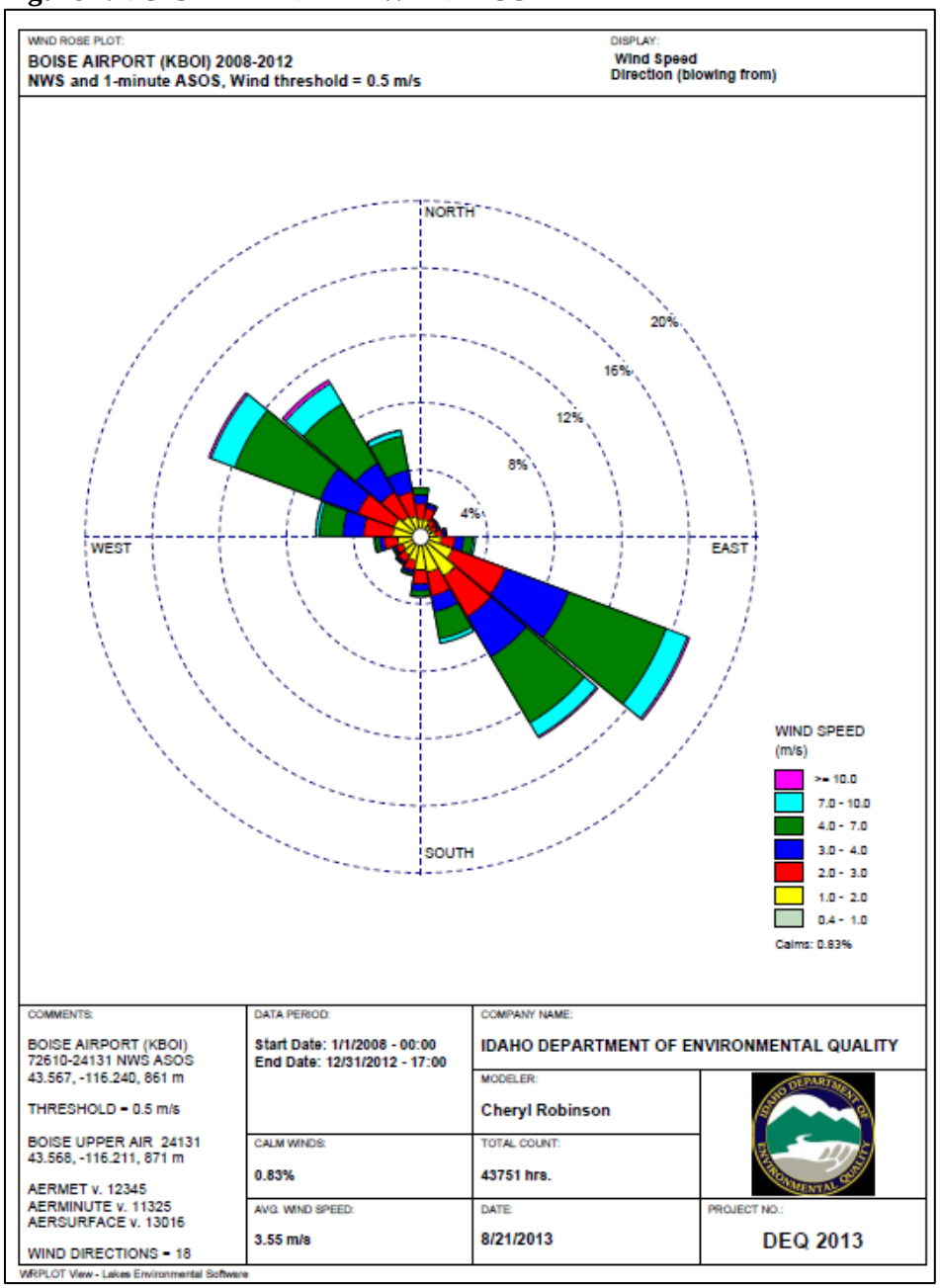
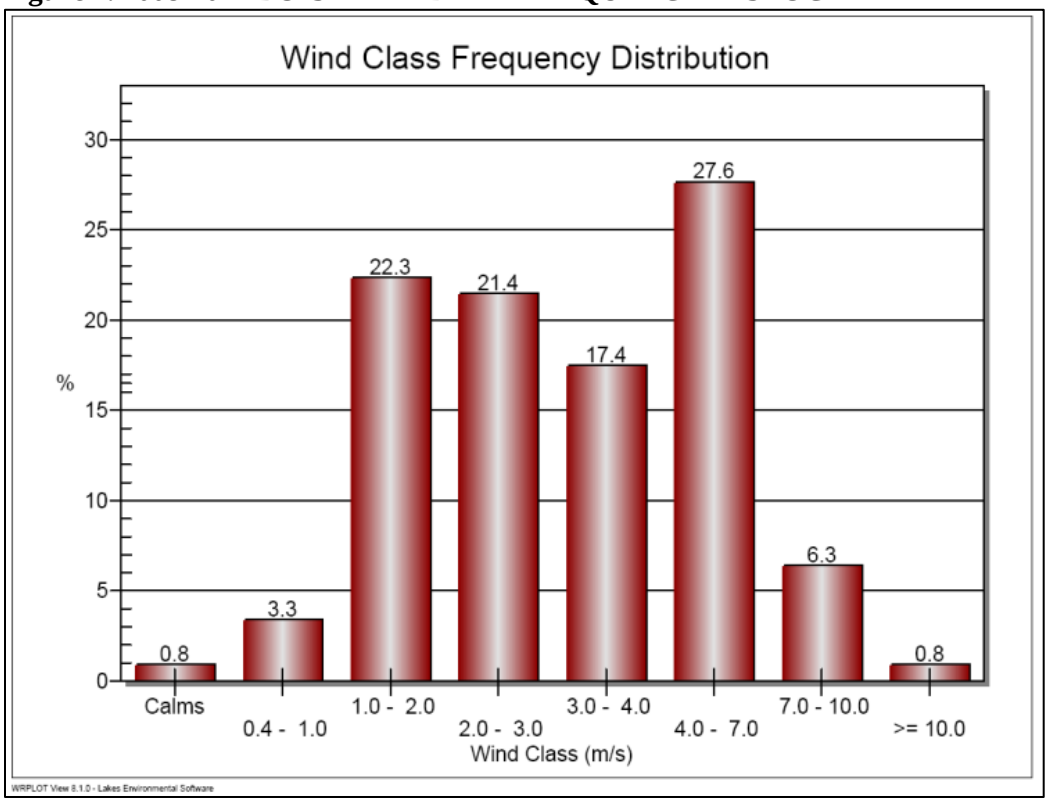


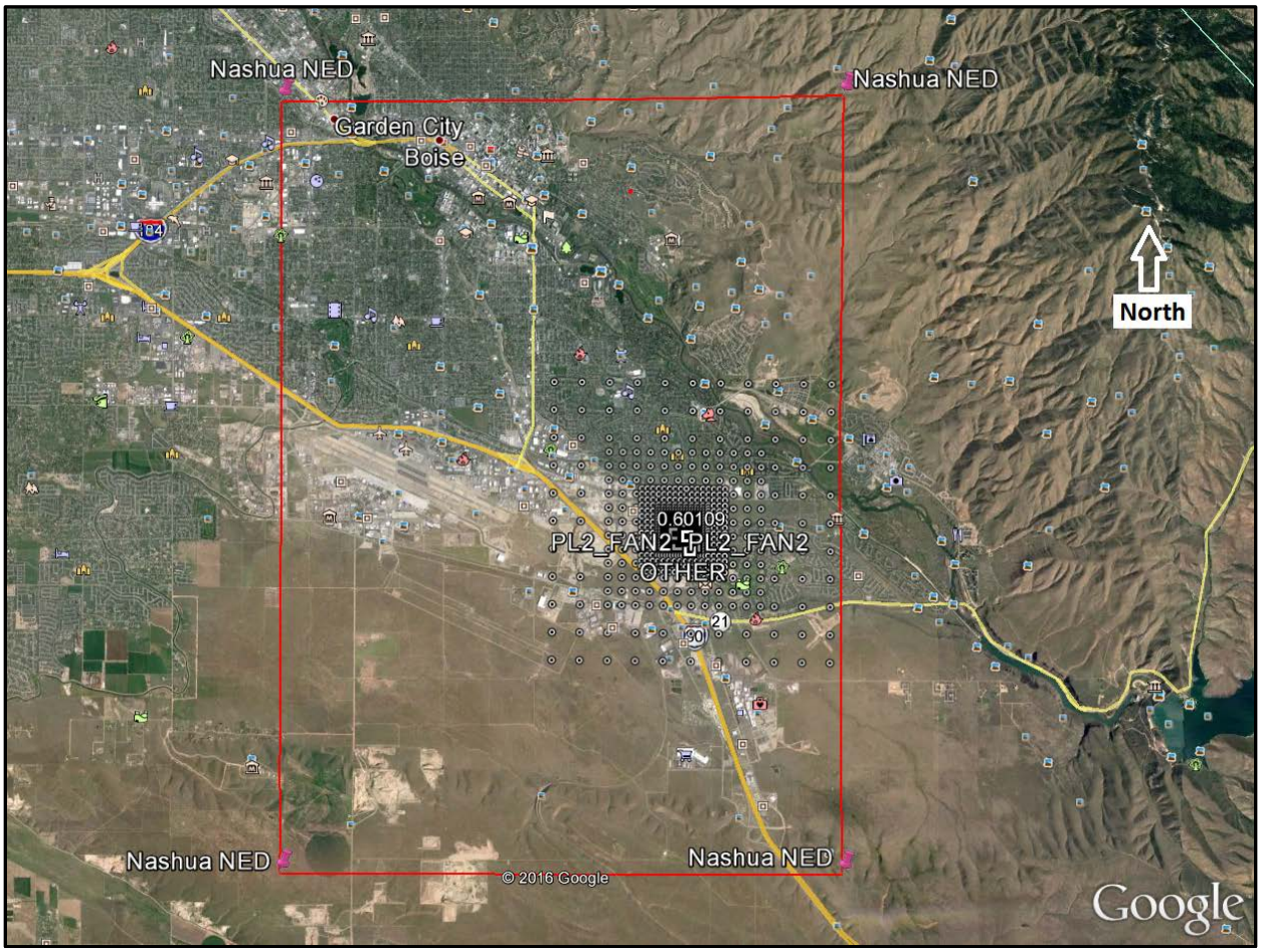
Figure 2. 2008-2012 BOISE MET DATA FREQUENCY HISTOGRAM



3.4 Terrain Effects on Modeled Impacts

Stantec used a 1/3 arc second National Elevation Dataset (NED) file, in the North American Datum 1983 (NAD83), to calculate elevations of receptors, emission sources, and buildings. The terrain preprocessor AERMAP version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain. Figure 3 shows the NED file coverage used for the AERMAP run.

Figure 3. EXENT OF TERRAIN DATA FOR RECEPTOR ELEVATIONS and HILL HEIGHT SCALES



3.5 Building Downwash Effects on Modeled Impacts

Potential downwash effects on the emissions plume were accounted for in the model by using building parameters developed by Stantec. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and release parameters for input to AERMOD. Stack and structure base elevations were extracted using AERMAP.

Stantec included off-site structures that had the potential to influence building-induced exhaust plume downwash. Stantec revised Nashua's Plant 2 building roofline heights and accounted for two tier heights for this building, using an average height of 32.5 feet for sloped roofline in the taller of the two tiers and a tier height of 24.5 feet for a flat roof section for the lower tier section. Stantec noted in the Nashua June 13, 2016 incompleteness response submittal that additional attention was afforded to maintaining stack release heights above roofline in relation to the building tier heights and stack base elevations. This approach addressed DEQ's concerns and DEQ concludes that building-induced downwash effects on the emission source exhaust plumes were appropriately evaluated.

3.6 Facility Layout

The Nashua facility's modeled emission points, structures, and ambient air boundary as represented in the model setup are shown in Figures 4, 5, and 6. The model setup was exported to the Google earth imagery program based on the facility's setup in the NAD83 coordinate system. The facility's structure locations and horizontal dimensions closely matched those presented in Google earth photographic imagery. Model setup emission point locations matched the imagery locations well, verifying that the distances between modeled emission sources and ambient air discrete receptors was accurately represented. This is an important consideration for building-induced downwash effects on ambient air impacts.

Figure 4. NASHUA HOMES FACILITY LAYOUT

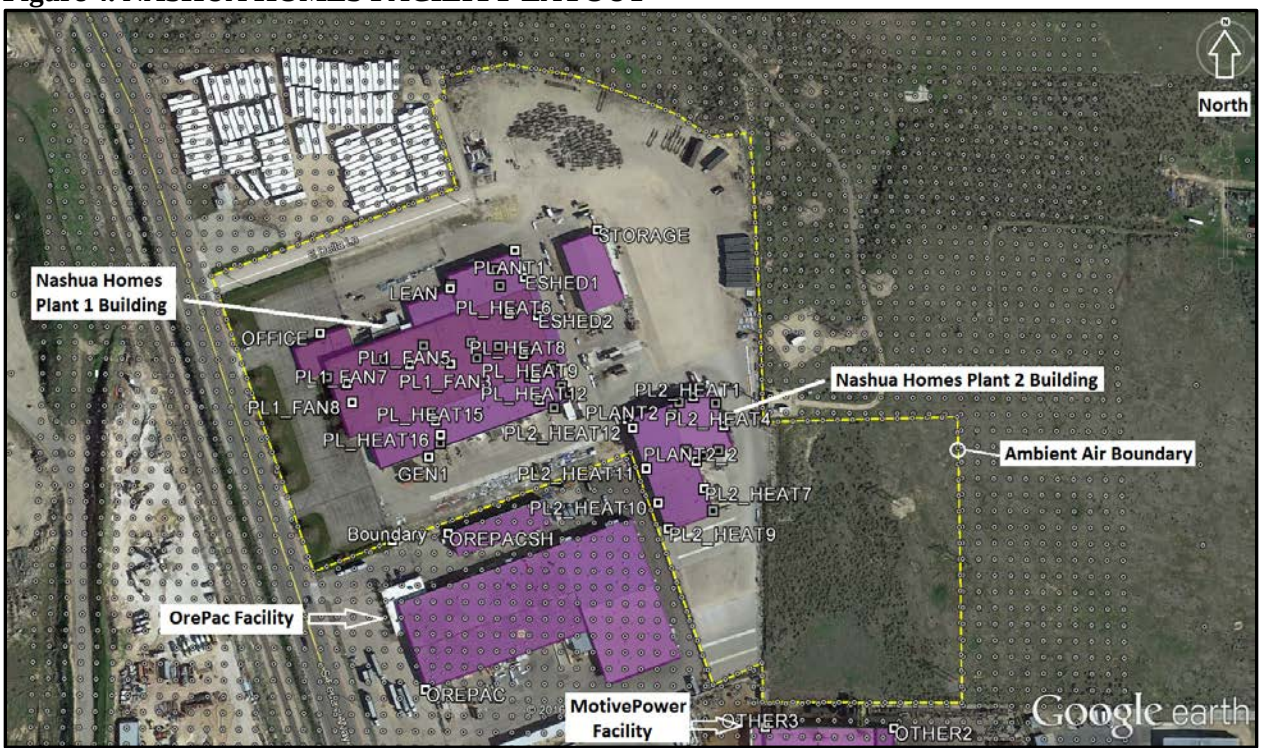


Figure 5. NASHUA PLANT 1 BUILDING EMISSION POINT LAYOUT

Figure 6. NASHUA PLANT 2 BUILDING EMISSION POINT LAYOUT

3.7 Ambient Air Boundary

The ambient air boundary for this project is represented in Figure 4 by the initial line of receptor points (represented by dots in the figure) and the yellow line. The ambient air boundary was established along the property boundary of land leased by Nashua. Stantec provided additional documentation substantiating the ambient air boundary. The roadway labeled "East Delta Lane" in Figure 5, which provides access from Federal Way on the facility's northern property boundary, was appropriately excluded from ambient air, as the land is private property and there are no plans by Ada County to develop a public roadway. The submitted modeling report states that Nashua has fenced the property boundary, has posted no trespassing signs, or will post no trespassing signs along the boundary following permit issuance in order to justify the area excluded from ambient air.

DEQ determined the ambient air boundary described in the application uses appropriate methods to control access as described in DEQ's *Modeling Guideline*, provided the additional posting is installed following permit issuance.

3.8 Receptor Network

Table 4 describes the receptor network used in the submitted modeling analyses. DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations. The receptor grids used for the air impact modeling analyses provided good resolution of the maximum design concentrations for the project. Figures 7 and 8 present the modeled receptor network for the project.

Figure 7. NASHUA FULL RECEPTOR GRID

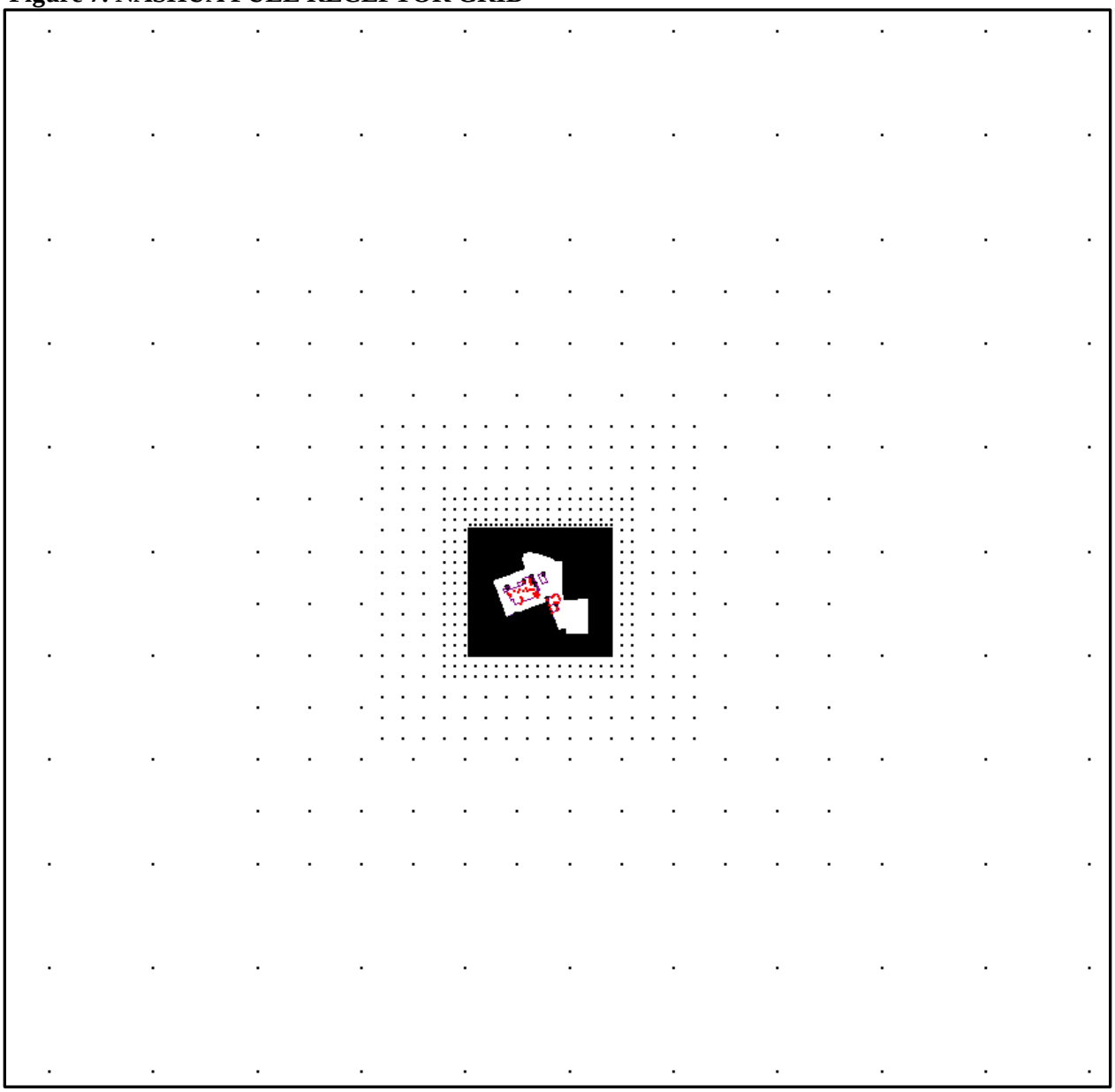
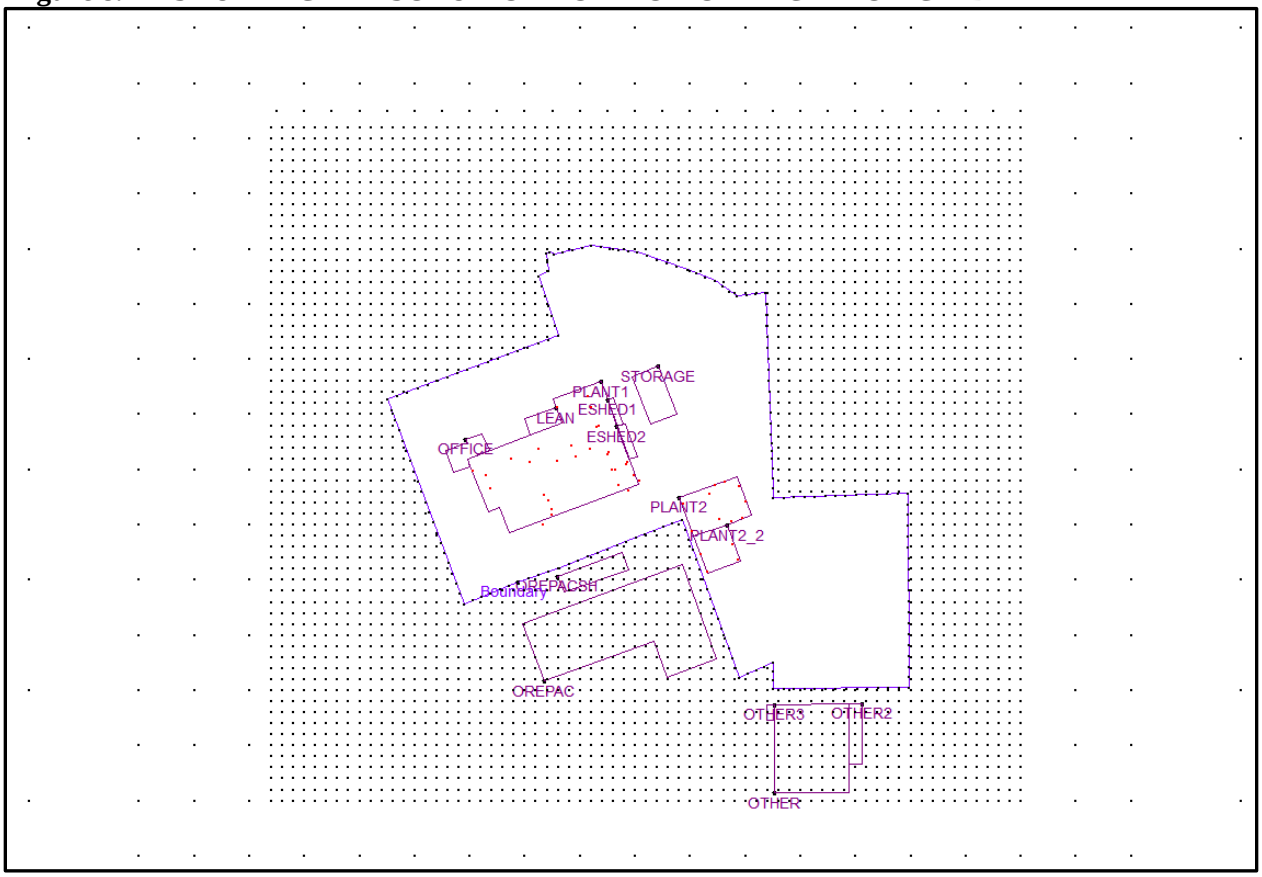


Figure 8. NASHUA HIGH RESOLUTION PORTION OF RECEPTOR GRID



3.9 Emission Rates

Emissions rates of criteria air pollutants and toxic air pollutants were provided by the applicant. DEQ modeling review, described in this memorandum, did not include review of emissions rates for accuracy. Review and approval of estimated emissions was the responsibility of the DEQ permit writer.

DEQ modeling staff provided the model inputs for the permit writer to review and determine whether facility-wide potential emissions had been modeled correctly. Annual average emission rates were modeled with the hourly emission rates continuously for 8,760 hours per year and 24-hour average emission rates were modeled continuously with hourly emissions for 24 hours per day. Therefore, any operating restrictions on emissions consisting of material throughputs, usage rates, hours per day, days per week, or other control measures are inherently accounted for in the project's emissions inventory, and are averaged over the entire period for the allowable increment. This approach follows the guidance contained in DEQ's TAPs checklist.

3.9.1 Criteria Pollutant Emissions Rates

All criteria air pollutant emissions on a facility-wide basis, reflecting PTE, were below BRC permitting exemption thresholds; therefore, criteria air pollutants were not modeled for this project, as explained in Section 2.3.1 of this memorandum.

3.9.2 TAP Emissions Rates

This project is an initial facility-wide PTC. The increases in TAPs emissions from this project were equal to the requested permit-allowable potential emissions rates. Air impact modeling was required to demonstrate compliance with the TAP increments for any TAP having a requested potential emission rate that exceeds the screening emissions level (EL) specified by Idaho Air Rules Section 585 or 586. Review and/or finalization of the TAPs emissions inventory is the responsibility of the permit writer/project manager.

Three TAPs have potential emission rates that exceeded the carcinogenic ELs specified in Section 586 of the Idaho Air Rules and four TAPs have emission rates that exceeded the non-carcinogenic ELs specified in Section 585 of the Idaho Air Rules.

Stantec modeled the non-carcinogenic hourly TAPs emission rates listed in Table 7 for 24 hours per day and the carcinogenic hourly TAPs emission rates listed in Table 8 for 8,760 hours per year.

Table 7. NON-CARCINOGENIC TOXIC AIR POLLUTANT EMISSIONS RATES

Source	Description	Pollutants			
		Ethylene Glycol (lb/hr)	Kaolin (lb/hr)	MDI (lb/hr)	Quartz -Silica (lb/hr)
PL1_FAN1	Plant 1 – Exhaust Fan 1	0.194	0.036	0.0063	0.0011
PL1_FAN2	Plant 1 – Exhaust Fan 2	0.194	0.036	0.0063	0.0011
PL1_FAN3	Plant 1 – Exhaust Fan 3	0.194	0.036	0.0063	0.0011
PL1_FAN4	Plant 1 – Exhaust Fan 4	0.194	0.036	0.0063	0.0011
PL1_FAN5	Plant 1 – Exhaust Fan 5	0.194	0.036	0.0063	0.0011
PL1_FAN6	Plant 1 – Exhaust Fan 6	0.194	0.036	0.0063	0.0011
PL1_FAN7	Plant 1 – Exhaust Fan 7	0.194	0.036	0.0063	0.0011
PL1_FAN8	Plant 1 – Exhaust Fan 8	0.194	0.036	0.0063	0.0011
PL2_FAN1	Plant 2 – Exhaust Fan 1	0.155	0.029	0.0050	8.84E-04
PL2_FAN2	Plant 2 – Exhaust Fan 2	0.155	0.029	0.0050	8.84E-04

a. Pounds per hour. Modeled for 24 hours per day for non-carcinogens regulated under Section 585 of the Idaho Air Rules.
b. Methylene diphenyl diisocyanate (MDI), simply referred to as "diisocyanate" in Nashua's ambient impact analyses documentation.

Table 8. CARCINOGENIC TOXIC AIR POLLUTANT EMISSIONS RATES				
Source	**Description**	**Formaldehyde[a] (lb/hr)[b]**	**Cadmium[c] (lb/hr)**	**Tetrachloroethylene[d] (lb/hr)**
PL1_FAN1	Plant 1 – Exhaust Fan 1	9.84E-04	0	0.018
PL1_FAN2	Plant 1 – Exhaust Fan 2	9.84E-04	0	0.018
PL1_FAN3	Plant 1 – Exhaust Fan 3	9.84E-04	0	0.018
PL1_FAN4	Plant 1 – Exhaust Fan 4	9.84E-04	0	0.018
PL1_FAN5	Plant 1 – Exhaust Fan 5	9.84E-04	0	0.018
PL1_FAN6	Plant 1 – Exhaust Fan 6	9.84E-04	0	0.018
PL1_FAN7	Plant 1 – Exhaust Fan 7	9.84E-04	0	0.018
PL1_FAN8	Plant 1 – Exhaust Fan 8	9.84E-04	0	0.018
PL_HEAT1	Plant 1 – Heater 1	1.10E-05	1.62E-07	0
PL_HEAT2	Plant 1 – Heater 2	1.10E-05	1.62E-07	0
PL_HEAT3	Plant 1 – Heater 3	1.10E-05	1.62E-07	0
PL_HEAT4	Plant 1 – Heater 4	1.10E-05	1.62E-07	0
PL_HEAT5	Plant 1 – Heater 5	1.10E-05	1.62E-07	0
PL_HEAT6	Plant 1 – Heater 6	1.10E-05	1.62E-07	0
PL_HEAT7	Plant 1 – Heater 7	1.10E-05	1.62E-07	0
PL_HEAT8	Plant 1 – Heater 8	1.10E-05	1.62E-07	0
PL_HEAT9	Plant 1 – Heater 9	1.10E-05	1.62E-07	0
PL_HEAT10	Plant 1 – Heater 10	1.10E-05	1.62E-07	0
PL_HEAT11	Plant 1 – Heater 11	7.35E-06	1.08E-07	0
PL_HEAT12	Plant 1 – Heater 12	7.35E-06	1.08E-07	0
PL_HEAT13	Plant 1 – Heater 13	9.19E-06	1.35E-07	0
PL_HEAT14	Plant 1 – Heater 14	9.19E-06	1.35E-07	0
PL_HEAT15	Plant 1 – Heater 15	9.19E-06	1.35E-07	0
PL_HEAT16	Plant 1 – Heater 16	1.10E-05	1.62E-07	0
PL_HEAT17	Plant 1 – Heater 17	1.10E-05	1.62E-07	0
PL2_HEAT1	Plant 2 – Heater 1	9.19E-06	1.35E-07	0
PL2_HEAT2	Plant 2 – Heater 2	9.19E-06	1.35E-07	0
PL2_HEAT3	Plant 2 – Heater 3	9.19E-06	1.35E-07	0
PL2_HEAT4	Plant 2 – Heater 4	9.19E-06	1.35E-07	0
PL2_HEAT5	Plant 2 – Heater 5	9.19E-06	1.35E-07	0
PL2_HEAT6	Plant 2 – Heater 6	9.19E-06	1.35E-07	0
PL2_HEAT7	Plant 2 – Heater 7	4.78E-06	7.01E-08	0
PL2_HEAT8	Plant 2 – Heater 8	4.78E-06	7.01E-08	0
PL2_HEAT9	Plant 2 – Heater 9	4.78E-06	7.01E-08	0
PL2_HEAT10	Plant 2 – Heater 10	4.78E-06	7.01E-08	0
PL2_HEAT11	Plant 2 – Heater 11	4.78E-06	7.01E-08	0
PL2_HEAT12	Plant 2 – Heater 12	4.78E-06	7.01E-08	0
PL2_FAN1	Plant 2 – Exhaust Fan 1	0	0	0.0144
PL2_FAN2	Plant 2 – Exhaust Fan 2	0	0	0.0144

a. Chemical Abstract Service number 50-00-0.
b. Pounds per hour.
c. Chemical Abstract Service number 7440-43-9.
d. Chemical Abstract Service number 127-18-4.

3.10 Emission Release Parameters

Tables 9 and 10 list emissions release parameters for modeled sources. The modeling report provided justification and documentation of assumptions of key parameters used to model point sources. All sources modeled were point sources. Stack locations were consistent with physical locations as shown in Google earth imagery.

DEQ requested that Stantec verify stack base elevations used for the point sources, and Stantec revised stack base elevation and stack heights to maintain appropriate release heights above the roofline of each of the Plant 1 and Plant 2 buildings.

The facility has 29 building space heaters that were modeled as rooftop point sources. Eight of the 29 space heaters were modeled as horizontal releases. Stantec provided support documentation for the release parameters for these heater units in the form of a summary sheet of exhaust volumetric flow rate and exit temperature values at the point of release to atmosphere. The summary sheet was included in the project's July 19, 2016 submittal. A single value was established for all heater combustion exhaust vent volumetric flow rates, set at 17.6 actual cubic feet per minute (ACFM), and a single exit temperature of 68.3 degrees Fahrenheit (°F) was applied to each vent. These values were described by Stantec as the worst-case (lowest) values obtained by Nashua's staff during the on-site examination of release parameters. The hard copy record of the values obtained was unavailable at the time of submittal. All natural gas-fired space heater vents were modeled using a 10-inch diameter, regardless of heat input capacity of the unit. These assumptions resulted in an exit velocity of 0.016 meters per second (m/s) for each stack, regardless of heat input capacity, which ranged from 0.13 MMBtu/hr to 0.3 MMBtu/hr. For comparison, the wet-basis exhaust flow rate based on EPA's F-Factor for natural gas combustion for heat input of 0.13 MMBtu/hr is 23.0 wet standard cubic feet per minute (wscf/min) and at 0.30 MMBtu/hr is 53.1 wscf/min. The modeled values are either accurate or they are conservative for these sources.

The other modeled sources were eight rooftop exhaust fan vents for Plant 1 and two rooftop exhaust fan units for Plant 2. Stantec supplied an on-site monitored flow rate of 138.3 ACFM for each of the eight Plant 1 rooftop exhaust fan vents. The stack diameters and release heights were described as verified by on-site measurement by Nashua staff. Stack diameters were identical at 2.67 feet for all ten exhaust fan vents. The 138.3 ACFM flow rate and 2.67 feet diameter results in a relatively low exit velocity of 0.41 fps (0.126 m/s). The final October 28, 2016 ambient impact analyses used an exit temperature of 65 °F for each exhaust fan stack, based on the assumption that the exhaust temperature should reflect the temperature within the heated production floor areas in Plants 1 and 2. This approach is reasonable and replaces the previous analyses where the exhaust fan exit temperature matched the release temperature to the hourly ambient air temperature in the meteorological surface data file. This provided a more reasonable approach for these vents during winter months, especially during night hours.

Plant 2 Exhaust fans 1 and 2 are capped point sources. Each fan was conservatively modeled with a 0.001 meter per second exit velocity in combination with the use of the AERMOD Beta algorithms for capped sources. Substantiation of an actual flow rate is not necessary for these capped stacks.

DEQ agrees the exhaust parameters used in the modeling analyses were adequately supported and appropriate for this project.

Table 9. POINT SOURCE EMISSIONS RELEASE PARAMETERS – METRIC UNITS									
Release Point	**Description**	**Release Type**	**UTM[a] Coordinates, NAD83[b], Zone 11**		**Source Base Elevation (m)**	**Stack Release Height (m)**	**Stack Gas Temp (K)[d]**	**Stack Flow Velocity (m/s)[e]**	**Modeled Diameter (m)**
			Easting (x) (m)[c]	**Northing (y), (m)**					
PL1_FAN1	Plant 1-exhaust fan 1	Default	567,796.00	4,822,811.52	893.73	9.77	291.5	0.126	0.813
PL1_FAN2	Plant 1-exhaust fan 2	Default	567,792.39	4,822,821.32	893.54	9.96	291.5	0.126	0.813
PL1_FAN3	Plant 1-exhaust fan 3	Default	567,779.87	4,822,807.59	893.72	9.78	291.5	0.126	0.813
PL1_FAN4	Plant 1-exhaust fan 4	Default	567,762.73	4,822,818.88	893.32	10.18	291.5	0.126	0.813
PL1_FAN5	Plant 1-exhaust fan 5	Default	567,754.17	4,822,807.09	893.44	10.06	291.5	0.126	0.813
PL1_FAN6	Plant 1-exhaust fan 6	Default	567,737.98	4,822,809.96	893.11	10.39	291.5	0.126	0.813
PL1_FAN7	Plant 1-exhaust fan 7	Default	567,715.21	4,822,794.87	892.42	11.08	291.5	0.126	0.813
PL1_FAN8	Plant 1-exhaust fan 8	Default	567,718.91	4,822,783.13	892.5	11.00	291.5	0.126	0.813
PL_HEAT1	Plant 1-heater 1	Default	567,703.30	4,822,798.60	892.11	12.07	293.3	0.016	0.254
PL_HEAT2	Plant 1-heater 2	Default	567,779.15	4,822,856.57	893.18	11.00	293.3	0.016	0.254
PL_HEAT3	Plant 1-heater 3	Default	567,807.38	4,822,866.80	893.79	10.39	293.3	0.016	0.254
PL_HEAT4	Plant 1-heater 4	Default	567,809.88	4,822,856.59	893.8	10.38	293.3	0.016	0.254
PL_HEAT5	Plant 1-heater 5	Default	567,817.35	4,822,839.77	893.9	10.28	293.3	0.016	0.254
PL_HEAT6	Plant 1-heater 6	Default	567,815.66	4,822,838.97	893.87	10.31	293.3	0.016	0.254
PL_HEAT7	Plant 1-heater 7	Default	567,826.36	4,822,815.71	894	10.18	293.3	0.016	0.254
PL_HEAT8	Plant 1-heater 8	Default	567,824.91	4,822,813.99	893.97	10.21	293.3	0.016	0.254
PL_HEAT9	Plant 1-heater 9	Default	567,832.51	4,822,799.79	894.08	10.10	293.3	0.016	0.254
PL_HEAT10	Plant 1-heater 10	Default	567,829.18	4,822,800.13	894.05	10.13	293.3	0.016	0.254
PL_HEAT11	Plant 1-heater 11	Default	567,848.93	4,822,794.45	894.24	9.94	293.3	0.016	0.254
PL_HEAT12	Plant 1-heater 12	Default	567,835.35	4,822,785.63	894.17	10.01	293.3	0.016	0.254
PL_HEAT13	Plant 1-heater 13	Default	567,809.46	4,822,818.89	893.69	10.49	293.3	0.016	0.254
PL_HEAT14	Plant 1-heater 14	Default	567,767.13	4,822,777.25	893.82	10.36	293.3	0.016	0.254
PL_HEAT15	Plant 1-heater 15	Default	567,771.00	4,822,772.11	893.84	10.34	293.3	0.016	0.254
PL_HEAT16	Plant 1-heater 16	Default	567,774.26	4,822,763.68	893.74	10.44	293.3	0.016	0.254
PL_HEAT17	Plant 1-heater 17	Default	567,774.11	4,822,758.59	893.64	10.54	293.3	0.016	0.254
PL2_HEAT1	Plant 2-heater 1	Horizontal	567,931.02	4,822,788.90	894.37	8.39	293.3	0.016	0.254
PL2_HEAT2	Plant 2-heater 2	Horizontal	567,922.11	4,822,785.46	894.33	8.43	293.3	0.016	0.254
PL2_HEAT3	Plant 2-heater 3	Horizontal	567,944.87	4,822,784.97	894.41	8.35	293.3	0.016	0.254
PL2_HEAT4	Plant 2-heater 4	Horizontal	567,950.04	4,822,771.12	894.3	8.46	293.3	0.016	0.254
PL2_HEAT5	Plant 2-heater 5	Horizontal	567,946.92	4,822,755.74	894.17	8.59	293.3	0.016	0.254
PL2_HEAT6	Plant 2-heater 6	Horizontal	567,937.63	4,822,752.68	894.15	8.61	293.3	0.016	0.254
PL2_HEAT7	Plant 2-heater 7	Default	567,938.07	4,822,732.07	894.01	8.56	293.3	0.016	0.254
PL2_HEAT8	Plant 2-heater 8	Default	567,943.54	4,822,718.54	893.92	8.65	293.3	0.016	0.254
PL2_HEAT9	Plant 2-heater 9	Default	567,915.92	4,822,707.32	893.63	8.94	293.3	0.016	0.254
PL2_HEAT10	Plant 2-heater 10	Default	567,909.54	4,822,723.15	893.72	8.85	293.3	0.016	0.254
PL2_HEAT11	Plant 2-heater 11	Horizontal	567,901.78	4,822,744.20	893.93	11.20	293.3	0.016	0.254
PL2_HEAT12	Plant 2-heater 12	Horizontal	567,893.33	4,822,769.10	894.18	10.95	293.3	0.016	0.254
PL2_FAN1	Plant 2–exhaust fan 1	Capped	567,917.69	4,822,777.99	894.27	11.19	291.5	0.001	0.81
PL2_FAN2	Plant 2–exhaust fan 2	Capped	567,926.15	4,822,755.49	894.11	11.35	291.5	0.001	0.81

a. Universal Transverse Mercator.
b. North American Datum 1983.
c. Meters.
d. Temperature in units of Kelvin.
e. Meters per second.

Table 10. POINT SOURCE EMISSIONS RELEASE PARAMETERS – ENGLISH UNITS									
Release Point	Description	Release Type	UTM[a] Coordinates, NAD83[b], Zone 11		Source Base Elevation (ft)[d]	Stack Release Height (ft)	Stack Gas Temp (°F)[e]	Stack Flow Velocity (fps)[f]	Modeled Diameter (ft)
			Easting (x) (m)[c]	Northing (y) (m)					
PL1_FAN1	Plant 1-exhaust fan 1	Default	567,796.00	4,822,811.52	2,932.2	32.0	65	0.41	2.67
PL1_FAN2	Plant 1-exhaust fan 2	Default	567,792.39	4,822,821.32	2,931.6	32.7	65	0.41	2.67
PL1_FAN3	Plant 1-exhaust fan 3	Default	567,779.87	4,822,807.59	2,932.2	32.1	65	0.41	2.67
PL1_FAN4	Plant 1-exhaust fan 4	Default	567,762.73	4,822,818.88	2,930.8	33.4	65	0.41	2.67
PL1_FAN5	Plant 1-exhaust fan 5	Default	567,754.17	4,822,807.09	2,931.2	33.0	65	0.41	2.67
PL1_FAN6	Plant 1-exhaust fan 6	Default	567,737.98	4,822,809.96	2,930.2	34.1	65	0.41	2.67
PL1_FAN7	Plant 1-exhaust fan 7	Default	567,715.21	4,822,794.87	2,927.9	36.3	65	0.41	2.67
PL1_FAN8	Plant 1-exhaust fan 8	Default	567,718.91	4,822,783.13	2,928.1	36.1	65	0.41	2.67
PL_HEAT1	Plant 1-heater 1	Default	567,703.30	4,822,798.60	2,926.9	39.6	68.3	0.052	0.83
PL_HEAT2	Plant 1-heater 2	Default	567,779.15	4,822,856.57	2,930.4	36.1	68.3	0.052	0.83
PL_HEAT3	Plant 1-heater 3	Default	567,807.38	4,822,866.80	2,932.4	34.1	68.3	0.052	0.83
PL_HEAT4	Plant 1-heater 4	Default	567,809.88	4,822,856.59	2,932.4	34.1	68.3	0.052	0.83
PL_HEAT5	Plant 1-heater 5	Default	567,817.35	4,822,839.77	2,932.7	33.7	68.3	0.052	0.83
PL_HEAT6	Plant 1-heater 6	Default	567,815.66	4,822,838.97	2,932.6	33.8	68.3	0.052	0.83
PL_HEAT7	Plant 1-heater 7	Default	567,826.36	4,822,815.71	2,933.1	33.4	68.3	0.052	0.83
PL_HEAT8	Plant 1-heater 8	Default	567,824.91	4,822,813.99	2,933.0	33.5	68.3	0.052	0.83
PL_HEAT9	Plant 1-heater 9	Default	567,832.51	4,822,799.79	2,933.3	33.2	68.3	0.052	0.83
PL_HEAT10	Plant 1-heater 10	Default	567,829.18	4,822,800.13	2,933.2	33.2	68.3	0.052	0.83
PL_HEAT11	Plant 1-heater 11	Default	567,848.93	4,822,794.45	2,933.9	32.6	68.3	0.052	0.83
PL_HEAT12	Plant 1-heater 12	Default	567,835.35	4,822,785.63	2,933.6	32.9	68.3	0.052	0.83
PL_HEAT13	Plant 1-heater 13	Default	567,809.46	4,822,818.89	2,932.1	34.4	68.3	0.052	0.83
PL_HEAT14	Plant 1-heater 14	Default	567,767.13	4,822,777.25	2,932.5	34.0	68.3	0.052	0.83
PL_HEAT15	Plant 1-heater 15	Default	567,771.00	4,822,772.11	2,932.5	33.9	68.3	0.052	0.83
PL_HEAT16	Plant 1-heater 16	Default	567,774.26	4,822,763.68	2,932.2	34.3	68.3	0.052	0.83
PL_HEAT17	Plant 1-heater 17	Default	567,774.11	4,822,758.59	2,931.9	34.6	68.3	0.052	0.83
PL2_HEAT1	Plant 2-heater 1	Horizontal	567,931.02	4,822,788.90	2,934.3	27.5	68.3	0.052	0.83
PL2_HEAT2	Plant 2-heater 2	Horizontal	567,922.11	4,822,785.46	2,934.2	27.7	68.3	0.052	0.83
PL2_HEAT3	Plant 2-heater 3	Horizontal	567,944.87	4,822,784.97	2,934.4	27.4	68.3	0.052	0.83
PL2_HEAT4	Plant 2-heater 4	Horizontal	567,950.04	4,822,771.12	2,934.1	27.8	68.3	0.052	0.83
PL2_HEAT5	Plant 2-heater 5	Horizontal	567,946.92	4,822,755.74	2,933.6	28.2	68.3	0.052	0.83
PL2_HEAT6	Plant 2-heater 6	Horizontal	567,937.63	4,822,752.68	2,933.6	28.3	68.3	0.052	0.83
PL2_HEAT7	Plant 2-heater 7	Default	567,938.07	4,822,732.07	2,933.1	28.1	68.3	0.052	0.83
PL2_HEAT8	Plant 2-heater 8	Default	567,943.54	4,822,718.54	2,932.8	28.4	68.3	0.052	0.83
PL2_HEAT9	Plant 2-heater 9	Default	567,915.92	4,822,707.32	2,931.9	29.3	68.3	0.052	0.83
PL2_HEAT10	Plant 2-heater 10	Default	567,909.54	4,822,723.15	2,932.2	29.0	68.3	0.052	0.83
PL2_HEAT11	Plant 2-heater 11	Horizontal	567,901.78	4,822,744.20	2932.8	36.7	68.3	0.052	0.83
PL2_HEAT12	Plant 2-heater 12	Horizontal	567,893.33	4,822,769.10	2933.7	35.9	68.3	0.052	0.83
PL2_FAN1	Plant 2–exhaust fan 1	Capped	567,917.69	4,822,777.99	2,933.96	36.7	65	0.0033	2.67
PL2 _FAN2	Plant 2–exhaust fan 2	Capped	567,926.15	4,822,755.49	2,933.43	37.2	65	0.0033	2.67

a. Universal Transverse Mercator.
b. North American Datum 1983.
c. Meters.
d. Feet.
e. Temperature in degrees Fahrenheit.
f. Feet per second.

4.0 Results for Air Impact Analyses

This project's ambient air impact analyses were limited to TAPs. Claimed potential emissions rates of criteria air pollutants were below the BRC thresholds that trigger the requirement of NAAQS compliance demonstration, and SIL and NAAQS analyses were not required for this project.

4.1 Results for Significant Impact Analyses

No significant impacts level (SIL) analyses were conducted for this project.

4.2 Results for Cumulative NAAQS Impact Analyses

No cumulative NAAQS analyses were conducted for this project.

4.3 Results for Toxic Air Pollutant Analysis

Table 11 presents results for TAPs air impact modeling. The impacts listed below are attributed to the facility-wide emissions. All design impacts are the maximum impacts. Annual average carcinogenic TAP impacts used the maximum impact from five individual years of meteorological data. All TAP impacts were below the applicable increments. The formaldehyde impact was just below the allowable increment.

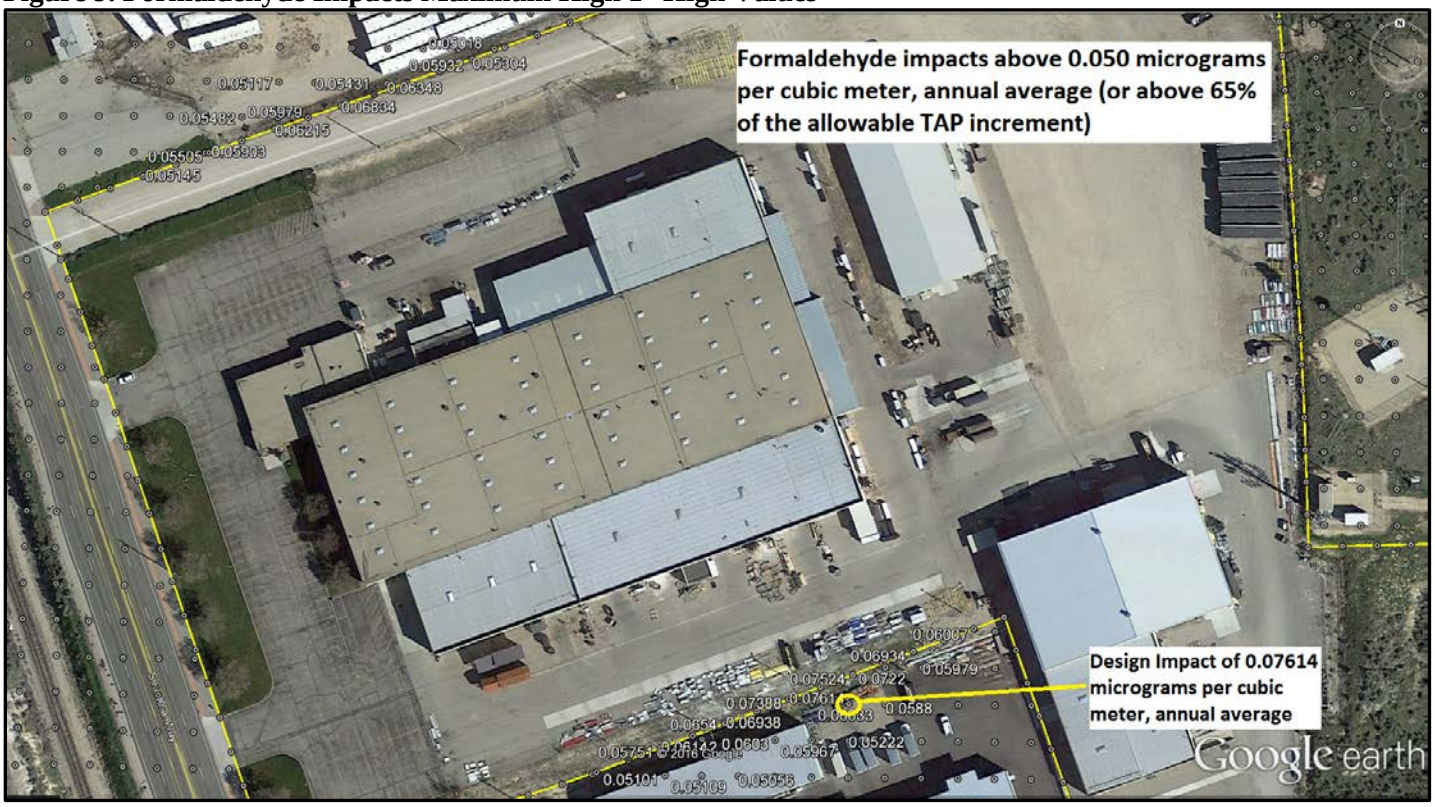
Figure 9 shows all receptors where the annual average impacts over a 5-year period exceeded 65% of the allowable TAP increment of 0.077 $\mu g/m^3$, annual average. The regions of the highest impacts were confined to areas immediately along the ambient air boundary on northern and southern boundary lines along Building Plant 1.

Table 11. RESULTS FOR TOXIC AIR POLLUTANT ANALYSES

Pollutant	CAS[a] Number	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)[b]	AAC/AACC[c] ($\mu g/m^3$)	Percent of Increment
Carcinogenic					
Cadmium	7440-43-9	Annual	4E-05	5.6E-04	7%
Formaldehyde	50-00-0	Annual	0.076	0.077	99%
Tetrachloroethylene	127-18-4	Annual	1.46	2.1	70%
Non-Carcinogenic					
Methylenediphenyl Diisocyanate (MDI)	101-68-8	24-hour	2.45	2.5	98%
Ethylene glycol	107-21-1	24-hour	77.91	6,350	1%
Kaolin	1332-58-7	24-hour	14.50	100	15%
Silica (Quartz)	14808-60-7	24-hour	0.44	5	9%

a. Chemical Abstract Service
b. Micrograms per cubic meter.
c. Allowable Ambient Concentration for Non-carcinogens / Allowable Ambient Concentration for Carcinogens (Toxic Air Pollutant allowable increments listed in Idaho Air Rules Section 585/586).

Figure 9. Formaldehyde Impacts Maximum High 1st High Values



5.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the existing Nashua Homes facility will not cause a violation of any TAPs increment.

References

[1] *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf

[2] *Policy on NAAQS Compliance Demonstration Requirements of IDAPA 58.01.01.203.02 and 01.403.02.* Idaho Department of Environmental Quality Policy Memorandum. Tiffany Floyd, Administrator, Air Quality Division, June 10, 2014.

PTC Prcessing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:	**Nashua Home of Idaho, Inc.**
Address:	**P.O. Box 170008**
City:	**Boise**
State:	**Idaho**
Zip Code:	**83717**
Facility Contact:	**Shain Zenor**
Title:	**General Manager**
AIRS No.:	**001-00327**

N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	1.5	0	1.5
SO_2	1.3	0	1.3
CO	0.0	0	0.0
PM10	1.1	0	1.1
VOC	44.1	0	44.1
TAPS/HAPS	8.9	0	8.9
Total:	0.0	0	**56.9**
Fee Due	**$ 5,000.00**		

Comments: