



DEQ AIR QUALITY PROGRAM
 1410 N. Hilton, Boise, ID 83706
 For assistance, call the
Air Permit Hotline: 1-877-5PERMIT

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OCT 20 2015

DEPARTMENT OF ENVIRONMENTAL QUALITY
 STATE AIR PROGRAM

General Information Form GI
 Revision 7
 6/29/12

Please see instructions on back page before filling out the form. All information is required. If information is missing, the application will not be processed.

Identification

1. Facility name: 2. Existing facility identification number: Check if new facility (not yet operating)

3. Brief project description:

Facility Information

4. Primary facility permitting contact name: Contact type:
 Telephone number: E-mail:

5. Alternate facility permitting contact name: Alternate contact type:
 Telephone number: E-mail:

6. Mailing address where permit will be sent (street/city/county/state/zip code):

7. Physical address of permitted facility (if different than mailing address) (street/city/county/state/zip code):

8. Is the equipment portable? Yes* No *If yes, complete and attach PERF; see instructions.

9. NAICS codes: Primary NAICS Secondary NAICS

10. Brief business description and principal product produced:

11. Identify any adjacent or contiguous facility this company owns and/or operates:

12. Specify type of application Permit to construct (PTC); application fee of \$1,000 required. See instructions.

Tier I permit Tier II permit Tier II/Permit to construct

For Tier I permitted facilities only: If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit.

Co-process Tier I modification and PTC Incorporate PTC at the time of Tier I renewal Administratively amend the Tier I permit to incorporate the PTC upon applicant's request (IDAPA 58.01.01.209.05.a, b, or c)

Certification

In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

13. Responsible official's name: Official's title:
 Official's address:
 Telephone number: E-mail:
 Official's signature: Date:

14. Check here to indicate that you want to review the draft permit before final issuance.

October 23, 2015

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OCT 26 2015

DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

Submitted via Fedex overnight delivery

Mr. Bill Rogers
Idaho Department of Environmental Quality
Air Quality Division – Stationary Source Program
1410 North Hilton
Boise, Idaho 83706-1255

Dear Mr. Rogers:

Enclosed is a Permit to Construct (PTC) application addressing the proposed expansion of the Hilex Poly Company, LLC Facility in Jerome, Idaho.

Hilex Poly previously submitted a PTC Application under the 15-day pre-permit Construction Approval Process as established in IDAPA 58.01.01.213. DEQ denied the pre-construction approval. Hilex Poly requests that DEQ process this revised PTC application under the standard PTC Application process.

This packet includes the PTC applications, DEQ's modeling protocol approval letter, detailed emission calculations for the proposed project, and a receipt for the application fee of \$1,000.

If you have any questions regarding this application, please contact Mike Schutz at (208) 404-4920 or me at (208) 484-9436.

Sincerely,



Douglas Herlocker
Ramboll Environ

Receipt

 [Print this page](#) or check your email for a receipt.

Payment Complete

Idaho.gov State of ID will appear on your statement for this transaction. Thank you for your business.

Order Number: PP3ID3308418SID15146134-3308418
 Order Date: Fri Oct 23 10:56:26 MDT 2015
 Payment Method: American Express xxxxxxxxxxxx1003
 Cost: \$1,030.00

Order

Item/Service	Qty	Price	Total
PTC Application Fee	1	\$1,000.00	\$1,000.00
		Subtotal	\$1,000.00
		Sales Tax	\$0.00
		Shipping	\$0.00
		Purchased through Idaho.gov Price	\$1,030.00

Contact information

Bill To: Mike Schutz
 540 W Nez Perce
 Jerome, ID 83338
Phone: (208) 644-2124 
Email: victoria.norris@novolex.com

Billing questions

Contact Idaho.gov by phone 208-332-0102  or toll-free at 1-877-443-3468 .

[« Return to Catalog](#) | [Sign out](#)

Prepared for:

Hilex Poly Company, LLC
Jerome, Idaho

Prepared by:

Ramboll Environ US Corporation
Lynnwood, Washington
October 2015

Project Number:
29-37004A

PERMIT TO CONSTRUCT APPLICATION

EXPANSION PROJECT

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- Appendix B: Detailed Emission Calculations
- Appendix C: Manufacturer Specifications
- Appendix D: Modeling Protocol and Approval
- Appendix E: Modeling Report
- Appendix F: Modeling File Archive

1. INTRODUCTION

1.1 Background

Hilex Poly Company LLC (Hilex Poly) operates a facility in Jerome, Idaho that manufactures plastic bags. The facility is located within the city limits of Jerome, in Jerome County, which is in attainment or unclassifiable for all criteria air pollutants. The location of the facility and the surrounding area are shown in Figure 1.

Hilex Poly current operates according to the requirements in Permit to Construct (PTC) No. P-2008.0168, issued by Idaho Department of Environmental Quality (DEQ) on June 23, 2005 and revised on March 6, 2009.

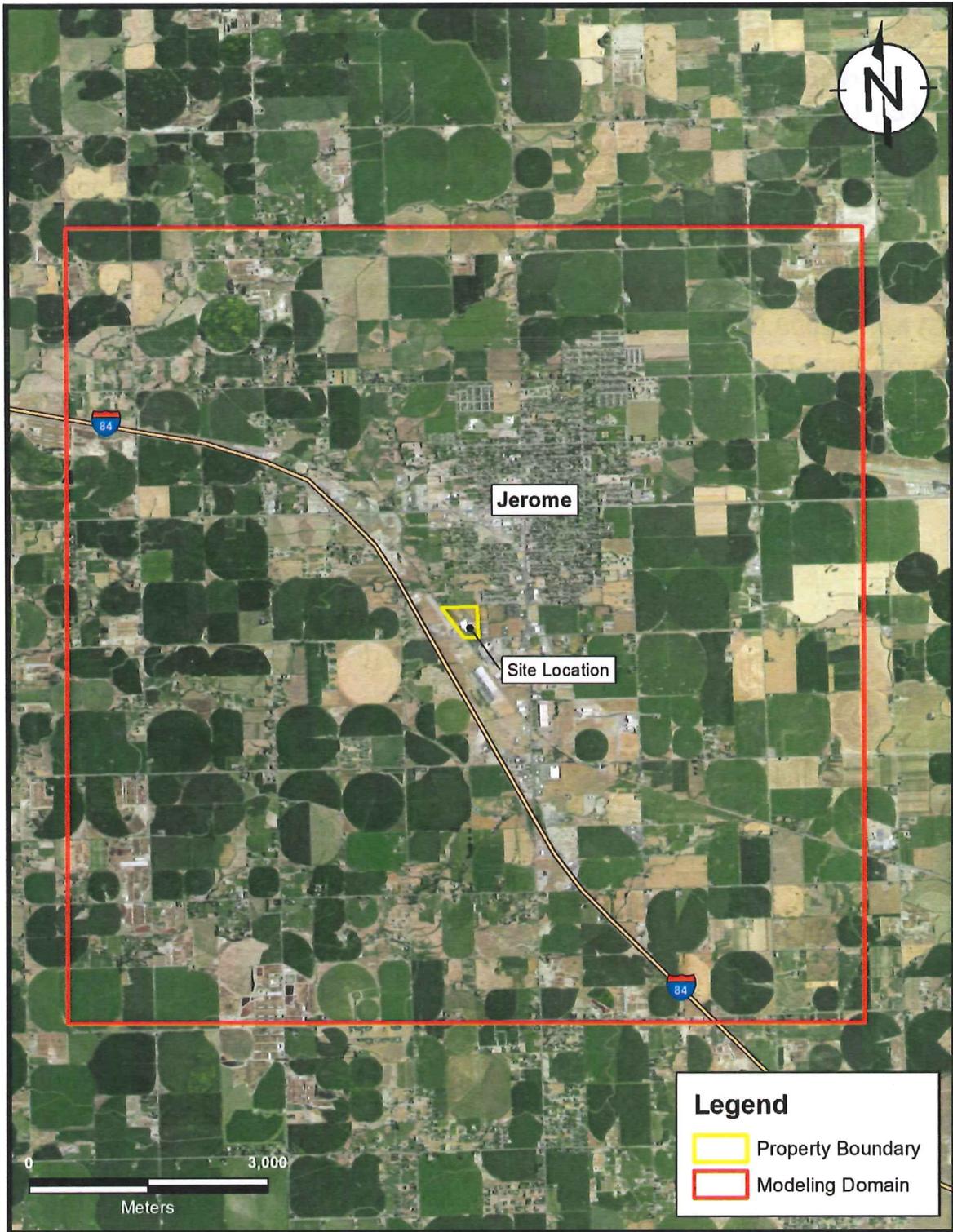


Figure 1. Facility Location

1.2 Project

In response to positive economic conditions, Hilex Poly is proposing to install and operate additional plastic bag extrusion and treater equipment similar to equipment already in use at the facility. Because the proposed project will result in increased air emissions from the facility, a PTC must be obtained from DEQ prior to installing and operating the new equipment. Hilex Poly has retained Ramboll Environ US Corporation (RE) to prepare a PTC application.

Hilex Poly requests that the DEQ grant a PTC for the proposed project at the existing facility. On August 10, 2015 Hilex Poly and Ramboll Environ met with Bill Rogers and Kevin Schilling of DEQ to satisfy the requirements of IDAPA 58.01.01.213.01.b. A 15-day pre-permit to construct application was submitted on October 2, 2015. DEQ denied the pre-permit approval. Hilex Poly is requesting that this revised application be reviewed under the standard PTC program.

Hilex Poly will install the new equipment after DEQ grants the permit to construct. Startup of the proposed new equipment is planned for the 1st Quarter of 2016.

1.3 Organization

Key components of the PTC application include:

- Description of the proposed Facility and potential emissions;
- Discussion of the applicable air quality regulations; and
- Evaluation of Air Quality Impacts.

Appendix A includes DEQ's standard PTC forms. Appendix B provides detailed emission calculations. Appendix C provides manufacturer specifications and engineering drawings of the proposed equipment. Appendix D provides a copy of the modeling protocol and DEQ approval notification. Appendix E provides a stand-alone modeling report. All modeling files supporting the PTC application are provided on a DVD in Appendix F.

2. PROJECT DESCRIPTION

The Hilex Poly facility is located at 540 W Nez Perce Avenue in Jerome, Idaho. The facility manufactures polyethylene plastic bags.

2.1 Process Description

Extruders are used to form polyethylene pellets into tubular film. After the film has cooled, it is passed through corona treaters that prepare the surface of the film for printing. Bag machines print on the film, form it into bags, and package the bags for shipment. Figure 2 presents the process flow diagram.

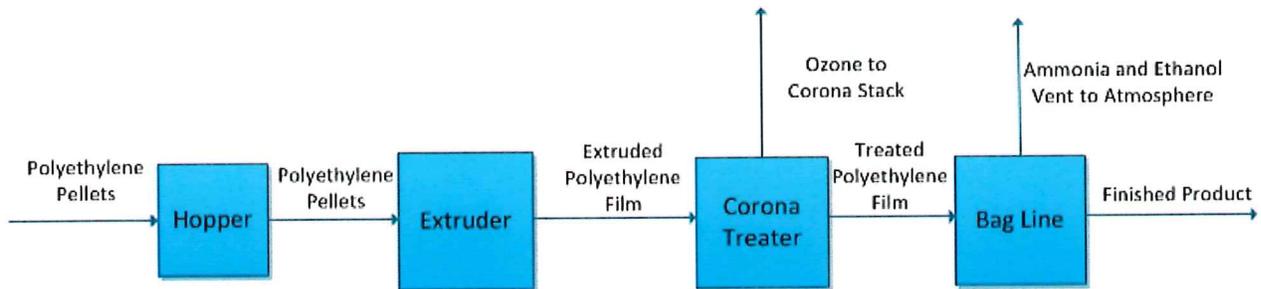


Figure 2. Process Flow Diagram

2.2 Physical Description

Currently, production equipment at the facility consists of 14 extruders with 14 associated corona treaters, and 19 bag machines. The original PTC application included 16 bag machines, and, although the current PTC does not limit the number of bag machines that can be operating at one time, the facility operates a maximum of 16 bag machines at a time, and maintains 3 in reserve.

Hilex Poly now proposes to add 12 new extruders with 12 associated corona treaters, and 6 new bag machines with 3 associated corona treaters. Also, the 3 existing bag machines that have been kept in reserve will be operated along with the 16 existing units. Thus, following the proposed project, a maximum of 26 extruders, 29 corona treaters, and 25 bag machines would be in use at any given time.

2.3 Construction Schedule

Upon issuance of the PTC, Hilex Poly will install the new equipment. The facility will be installed and commissioned in early 2016.

3. PROJECT EMISSIONS

This section describes the methods used to calculate potential short-term and annual emissions attributable to the proposed project. Detailed emission calculations are included in Appendix B of this application.

The proposed project will increase emissions of ozone (O_3), ammonia (NH_3), and ethanol (ethyl alcohol; C_2H_6O). Corona treaters emit ozone, and the bag lines emit ammonia and ethanol. The extruders do not emit any air pollutants. Ozone is an air pollutant regulated under the Clean Air Act, and ammonia and ethanol are toxic air pollutants (TAPs) regulated under IDAPA 58.01.01.210.

Ozone emissions from the corona treaters are based on 0.073 pounds per hour (lb/hr) of ozone per supplied kilowatt (kW) of electricity. This emission factor was supplied by Enercon Industries Corporation, the manufacturer of the existing treaters, and by Pillar, the manufacturer of the proposed treaters. The manufacturer guarantees can be found in Appendix C. The new corona treaters would, as a group, be supplied with a maximum total of 70 kW/hr. The ozone emissions increase from the modification will be 5.11 lb/hr or 22.4 tons/year, based on 8,760 hours of operation per year.

Each bag line emits 0.22 lb/hr of ammonia, and 0.04 lb/hr of ethanol. The ammonia emissions are based off of monthly usage logs from a similar Hilex Poly facility in Mt. Olive, North Carolina, where there are 14 bag lines in operation. Ammonia emissions are generated from the ammonia reducer solution (ARS) used in the bag lines. At the Mt. Olive Facility, maximum amount of ARS used was 73,400 pounds in one month (June 2003). The ARS solution contains 3% ammonia. All the ammonia in the ARS solution is assumed to be emitted. This information was used to develop the bag line emission rate as follows:

- (73,400 lb/month ARS) divided by fourteen machines = 5,243 lb/month ARS
- (5,243 lb/month ARS/machine) divided by (30 day/month) divided by (24 hr/day) = 7.28 lb/hr ARS/ machine
- (7.28 lb/hr ARS/ machine) multiplied by (3% ammonia in ARS) = 0.22 lb/hr ammonia emitted/ machine

The ethanol emissions were estimated based on the Mt. Olive operations. The maximum monthly usage of ethanol was 395.5 pounds in October 2003 for 14 bag lines. The ethanol emission rate per bag line is as follows:

- (395.5 lb ethanol/month) divided by fourteen machines = 28.25 lb ethanol machine/month
- (28.25 lb ethanol (VOC)/month /machine) divided by (31 day/month) divided by (24 hr/day) = 0.04 lb ethanol (VOC)/hr/machine

Following implementation of the project, 6 new bag machines, along with the 3 existing bag machines held in reserve, would be added to normal operations. Ammonia and ethanol are non-carcinogenic TAPs listed in IDAPA 58.01.01.585. Ethanol is also considered a volatile organic compound (VOC). Table 1 summarizes the proposed emission increases attributable to the project.

Table 1. Project Emission Increases

Emission Unit	Ozone		Ammonia		Ethanol / VOCs	
	(lb/hr)	(tpy) ¹	(lb/hr)	(tpy) ¹	(lb/hr)	(tpy) ¹
Corona Treaters (15 new; 70 kW incr.)	5.11	22.4	--	--	--	--
Bag Machines (6 new, 3 reserve)	--	--	1.98	8.67	0.360	1.58
Total	5.11	22.4	1.98	8.67	0.360	1.58

1. Annual emissions based on 8,760 hours of operation per year.

There is no modeling exemption threshold for ozone, so modeling is required to assess compliance with the ambient air quality standard. In IDAPA 58.01.01.585, ammonia and ethanol are assigned screening emission level (EL) of 1.2 lb/hr and 125 lb/hr respectively. The proposed increase in allowable ammonia emissions exceeds the EL, so modeling is required to assess compliance with the acceptable ambient concentration (AAC). Potential ethanol emissions from the proposed project are less than the applicable EL and not modelling is necessary.

4. REGULATORY ANALYSIS

This section identifies and discusses federal and state air quality regulations and guidelines that potentially apply to the proposed project.

4.1 Emission Standards

4.1.1 New Source Performance Standards

New Source Performance Standards (NSPS) are nationally uniform standards applied to specific categories of stationary sources that are constructed, modified, or reconstructed after the standard was proposed. NSPS are found in Title 40, Part 60 of the Code of Federal Regulations (CFR). NSPS usually represent a minimum level of control that is required on a new source. None of the currently promulgated NSPS regulations apply to the proposed new equipment.

4.1.2 National Emission Standards for Hazardous Air Pollutants for Source Categories

The National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations contained in 40 CFR Part 61 – 63 establish emission standards for certain source categories of hazardous air pollutant (HAP) emissions. This Part of the Code represents the federal regulatory mechanism used to regulate HAPs under the Clean Air Act (CAA) after the CAA was amended November 15, 1990. A key component of regulatory applicability under this part is the distinction between a “major source” and an “area source” of HAPs.

With respect to the NESHAP program, a major source is a stationary source that emits or has the potential to emit, in the aggregate, 10 tons per year (tpy) or more of any single HAP, or 25 tpy or more of any combination of HAPs. An area source means any stationary source of HAPs that is not a major source as defined in this part. Ammonia, ethanol and ozone are not classified as HAPs. The facility is currently considered an area source under the NESHAP program, and, following the proposed, expansion, will continue to be an area source under this part.

4.1.3 Prevention of Significant Deterioration

DEQ administers the prevention of significant deterioration (PSD) air quality permit process that applies to major sources. The major source threshold is dependent on the facility type. Plastic bag manufacturing plants are not considered designated facilities under 40 CFR 52.21(b); consequently, the facility is deemed a minor source for the purposes of the PSD program because potential annual emissions of

a regulated pollutant do not exceed 250 tons. Table 2 summarizes potential annual emission from the Facility.

Table 2. Potential Annual Facility Emissions

	Ozone (tpy)	VOC (tpy)
Existing Corona Treaters	22.4	--
Existing Bag Lines	--	2.8
Proposed Corona Treaters	22.4	--
Proposed Bag Lines	--	1.6
Total	44.8	4.4

4.1.4 Air Operating Permit

Title V of the federal Clean Air Act requires facilities to obtain an Air Operating Permit if potential annual emissions are greater than 100 tons of a regulated criteria pollutant, 10 tons of a single HAP, or 25 tons of all HAP combined. Table 2 summarizes regulated criteria pollutant emissions from the facility. There are no HAP emissions from the facility. Potential emissions are less than the Title V thresholds for all regulated pollutants, and, therefore, the Facility is not subject to the Title V permit program.

4.1.5 Chemical Accident Prevention Provisions

40 CFR Part 68 is designed to prevent the accidental release of certain (specified) toxic and flammable substances. A stationary source that has more than a threshold quantity of a regulated substance in a process must develop a Risk Management Plan (RMP).

The facility does not store any substances regulated by 40 CFR 68.130, and is therefore not required to develop and submit an RMP.

4.2 State Requirements

4.2.1 Tier I Air Operating Permit

As discussed in Section 4.1.4 above, potential emissions from the facility will be less than the applicability thresholds for the Title V / Tier I operating permit programs.

4.2.2 General Requirements

Idaho has several general air quality requirements directly applicable to the facility, including:

- Opacity [IDAPA 58.01.01.625]
- Fugitive particulate matter emissions [IDAPA 58.01.01.650-651]
- Nuisance odors [IDAPA 58.01.01.776.01]

Hilex Poly acknowledges its responsibility to comply with each of these regulations.

4.2.3 Permit to Construct Program

DEQ's PTC regulations require all facilities to obtain a PTC or a documented exemption determination before commencing construction of a new source of air pollution or modifying an existing source in a manner that would cause its emissions to increase. The purpose of this document is to comply with DEQ requirements for the new emission units proposed for installation at the facility. Table 3 presents a summary of proposed equipment. The extruders and printing presses do not emit any criteria pollutant or toxic air pollutants, and are included in the table for informational purposes. Draft permit conditions are summarized below.

Table 3. Proposed New Equipment

Equipment	Manufacturer and Model Number	Number to be Installed	Other Specifications
Corona Treaters	Pillar P6000 or equivalent	6	Feed Material: High Density polyethylene Maximum rated input capacity: varies Power Source: Varies
Bag Machines	Lemo 1100 T-Shirt Bag Line or equivalent	6	Type: Flexographic Printer Feed Material: Polyethylene Film Maximum rated input capacity: 0.02 T/hr/machine
Printing Press	Omni Printing Press or equivalent	1	
	F&P #2C 1600 Printing Press or Equivalent	5	
Extruders	Alpine H275S or Equivalent	6	These extruders have corona treaters included.

2.2 Emission Limits for All Corona Treaters Combined

- Ozone emissions from all corona treaters combined shall not exceed 10.2 lb/hr.
- Ozone emissions from all corona treaters combined shall not exceed 44.8 tons per any consecutive 12-month period.

2.4 Power Source Limit

The power supplied to the existing corona treaters combined shall not exceed 70 kilowatts/hour. The power supplied to the new corona treaters combined shall not exceed 70 kilowatts/hour.

5. AIR QUALITY IMPACT ASSESSMENT (AQIA)

Ramboll Environ applied computer-based dispersion modeling techniques to simulate dispersion of ozone and ammonia emissions attributable to the proposed project. The results of the modeling were used to assess compliance with the National Ambient Air Quality Standard (NAAQS) for ozone, and Idaho's acceptable ambient concentration (AAC) for ammonia.

The dispersion modeling techniques employed in the analysis follow a basic set of EPA regulatory guidelines (40 CFR Part 51, Appendix W; called "the Guideline"), and DEQ modeling guidance. The Guideline includes recommendations for model selection, data preparation, and model application, but allows flexibility on a case-by-case basis.

A modeling protocol was submitted to DEQ on September 1, 2015, and DEQ approved the protocol in a letter dated September 14, 2015. Hilex Poly amended the protocol on September 21, 2015, and DEQ approved the addendum on September 25, 2015. The protocol, amendment, and DEQ approvals are all provided in Appendix D.

This section provides a summary of the modeling analysis results. A complete modeling report, developed using DEQ's modeling report template is provided in Appendix E, and a modeling file archive is provided on DVD in Appendix F.

Ramboll Environ conducted an air quality impact assessment (AQIA) using five years of hourly meteorological data from the Jerome airport. The analysis indicates:

- Model-predicted ozone concentrations attributable to the proposed project do not exceed the NAAQS.
- Model-predicted ammonia concentrations attributable to the proposed project do not exceed the AAC.
- Potential ethanol emissions from the proposed project are expected to be less than Idaho's applicable screening emission level, and was therefore not included in the AQIA.

APPENDIX A: DEQ PERMIT TO CONSTRUCT FORMS



DEQ AIR QUALITY PROGRAM
 1410 N. Hilton, Boise, ID 83706
 For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

Please see instructions on page 2 before filling out the form.

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER			
1. Company Name	Hilex Poly Company LLC		
2. Facility Name	Hilex Poly	3. Facility ID No.	053-00011
4. Brief Project Description - One sentence or less	Hilex Poly proposes to add new extruders, corona treaters, and baglines to increase production at their Jerome, Idaho Facility.		
PERMIT APPLICATION TYPE			
5. <input type="checkbox"/> New Source <input type="checkbox"/> New Source at Existing Facility <input type="checkbox"/> PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c <input type="checkbox"/> Unpermitted Existing Source <input type="checkbox"/> Facility Emissions Cap <input checked="" type="checkbox"/> Modify Existing Source: Permit No.: <u>P-2008.0168</u> Date Issued: <u>3/6/2009</u> <input type="checkbox"/> Required by Enforcement Action: Case No.: _____			
6. <input checked="" type="checkbox"/> Minor PTC <input type="checkbox"/> Major PTC			
FORMS INCLUDED			
Included	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CSPTC – Cover Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU0 – Emissions Units General: Corona Treaters, Bag Lines	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU4s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CBP– Concrete Batch Plant Please specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms EI– Emissions Inventory – included in PTC Application Document and Forms (Appendix C)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PP – Plot Plan – included in PTC Application Document (Appendix F, Figure 2)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>

Instructions for Form CSPTC

This form is the cover sheet for an air quality permit application. It provides DEQ with basic information regarding the company and the proposed permitting action. This form helps DEQ efficiently determine whether the application is administratively complete. This form also provides the applicant with a list of forms available to aid the applicant to successfully submit a complete application.

Company Name, Facility Name, and Facility ID Number

- 1-3. Provide the name of your company, the name of the facility (if different than company name), and the facility identification (ID) number (Facility ID No.) in the boxes provided. The facility ID number is also known as the AIRS number or AIRS/AFS number (example: 095-00077). If you already have a permit, the facility ID number is located in the upper right hand corner of the cover page. The facility ID number must be provided unless your facility has not received one, in which case you may leave this box empty. **Use these same names and ID number on all forms.** This is useful in case any pages of the application are separated.
4. Provide a brief description of this permitting project in one sentence or less. Examples might be "Install/construct a new boiler" or "Increase the allowable process throughput." **This description will be used by DEQ as a unique identifier for this permitting project, in conjunction with the name(s) and ID number referenced in 1-3.** You will need to put this description, using the exact same words, on all other forms that are part of this project application. This is useful in case any pages of the application are separated.

Permit Application Type

5. Provide the reason you are submitting the permit application by checking the appropriate box (e.g., a new facility being constructed, a new source being constructed at an existing facility, an unpermitted existing source (as-built) applying for a permit for the first time, a permitted source to be modified, or the permit application is the result of an enforcement action, in which case provide the case number). If you are modifying an existing permitted source, provide the number and issue date of the most recent permit.

If this PTC is for a Tier I source issued pursuant to the procedures contained at IDAPA 58.01.01.209.05.c, the source or modification may operate upon submittal of a Tier I Administrative Amendment issued pursuant to IDAPA 58.01.01.381.

6. Indicate if the application is a minor permit to construct application or a major permit to construct application by checking the appropriate box (e.g., major PTC or minor PTC). If the permit to construct application is for a major new source or major modification, you must ensure that all necessary information required by IDAPA 58.01.01.202, and .204, or .205, as applicable, is provided.

Forms Included

Check the "Included" box for each form included in this permit to construct application. If there are multiples of a form for multiple units of that type, check the box and fill in the number of forms in the blank provided.

The "N/A" box should only be checked if the form is absolutely unnecessary to complete the application. Additional information may be requested.

Application Fee

All applicants for a PTC shall submit a PTC application fee of \$1000.00 to DEQ at the time of the original submission of the application as required by IDAPA 58.01.01.224. An application fee is not required for exemption applicability determinations, typographical errors, and name or ownership changes. An application fee can be paid by check, credit card, or Electronic Funds Transfer (EFT). If you choose to pay by credit card or EFT, call DEQs Fiscal Office to complete the necessary paperwork. Paper checks must be submitted with the original application as described below.

Submit Application

When complete, enclose a check for the application fee along with the hardcopy application certified by a responsible official (as defined in IDAPA 58.01.01.006.94), and send to:

Air Quality Program Office – Application Processing
Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255



Please see instructions on back page before filling out the form. All information is required. If information is missing, the application will not be processed.

Identification

1. Facility name 2. Existing facility identification number Check if new facility (not yet operating)

3. Brief project description

Facility Information

4. Primary facility permitting contact name Contact type
 Telephone number E-mail

5. Alternate facility permitting contact name Alternate contact type
 Telephone number E-mail

6. Mailing address where permit will be sent (street/city/county/state/zip code)

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In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

13. Responsible official's name Official's title
 Official's address
 Telephone number E-mail
 Official's signature Date

14. Check here to indicate that you want to review the draft permit before final issuance.



Please see instructions on page 2 before filling out the form.

IDENTIFICATION							
1. Company Name: Hilex Poly Company, LLC		2. Facility Name: Hilex Poly		3. Facility ID No: 053-00011			
4. Brief Project Description:		Hilex Poly proposes to add new equipment at their Jerome, Idaho Facility.					
EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION							
5. Emissions Unit (EU) Name:		15 NEW CORONA TREATERS					
6. EU ID Number:		E15-29					
7. EU Type:		<input checked="" type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:		Date Issued:			
8. Manufacturer:		PILLAR/SOLO, ALPINE EXTRUDER OR EQUIVALENT					
9. Model:		P6000, HS75 OR EQUIVALENT					
10. Maximum Capacity:		10 KW/HR					
11. Date of Construction:		TBD					
12. Date of Modification (if any):		N/A					
13. Is this a Controlled Emission Unit?		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.					
EMISSIONS CONTROL EQUIPMENT							
14. Control Equipment Name and ID:		N/A					
15. Date of Installation:		N/A		16. Date of Modification (if any): N/A			
17. Manufacturer and Model Number:		N/A					
18. ID(s) of Emission Unit Controlled:		N/A					
19. Is operating schedule different than emission units(s) involved?		<input type="checkbox"/> Yes <input type="checkbox"/> No					
20. Does the manufacturer guarantee the control efficiency of the control equipment?		<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)					
		Pollutant Controlled					
		PM	PM10	SO ₂	NO _x	VOC	CO
Control Efficiency		N/A	N/A	N/A	N/A	N/A	N/A
21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. N/A							
EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)							
22. Actual Operation:		8760 HOURS/YEAR					
23. Maximum Operation:		8760 HOURS/YEAR					
REQUESTED LIMITS							
24. Are you requesting any permit limits?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, indicate all that apply below)					
<input type="checkbox"/> Operation Hour Limit(s):		N/A					
<input checked="" type="checkbox"/> Production Limit(s):		70 KW/HR FOR ALL NEW TREATERS COMBINED					
<input type="checkbox"/> Material Usage Limit(s):		N/A					
<input type="checkbox"/> Limits Based on Stack Testing:		Please attach all relevant stack testing summary reports					
<input type="checkbox"/> Other:		N/A					
25. Rationale for Requesting the Limit(s):		70 KW/HR FOR ALL NEW TREATERS ALLOWS PRODUCTION FLEXIBILITY FOR THE FACILITY WHILE LIMITING OZONE PRODUCTION FROM THE TREATERS.					

Instructions for Form EU0

This form provides DEQ with information about an emissions unit. An emissions unit is the equipment or process that generates emissions of regulated air pollutant(s). This form is used by the permit writer to become familiar with the emissions unit (EU). This form is also used by DEQ to identify the control equipment and the emission point (stack or vent) used for the emission unit(s) proposed in this permit application. This form also asks for supporting documents to verify stated control efficiencies and details about the emission point. Additional information may be requested.

- 1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.
5. Provide the name of the emissions unit (EU), such as "Union boiler," etc. A separate EU0 form is required for each emissions unit.
6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.
7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.
8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.
9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.
10. Provide the maximum capacity of the EU. For example, a boiler's rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer's literature.
11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

Construction fabrication, erection, or installation of an affected facility.

Commenced an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Modification any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted to the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) to the atmosphere not previously emitted.

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.
13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.
14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment's identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.
16. If the air pollution control equipment has been modified, provide the date of the modification.
17. Provide the name of the manufacturer and the model number for the air pollution control equipment.
18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).
19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.
20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).
21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.
22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.
23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.
24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.
25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.



Please see instructions on page 2 before filling out the form.

IDENTIFICATION							
1. Company Name: Hilex Poly Company, LLC		2. Facility Name: Hilex Poly		3. Facility ID No: 053-00011			
4. Brief Project Description:		Hilex Poly proposes to add new equipment at their Jerome, Idaho Facility.					
EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION							
5. Emissions Unit (EU) Name:		BAG LINES					
6. EU ID Number:		BL20-25					
7. EU Type:		<input checked="" type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source		Date Issued:			
		<input type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:					
8. Manufacturer:		LEMO OR EQUIVALENT					
9. Model:		1100 T-SHIRT BAG LINE OR EQUIVALENT					
10.. Maximum Capacity:		0.02 T/HR/MACHINE					
11. Date of Construction:		TBD					
12. Date of Modification (if any):		N/A					
13. Is this a Controlled Emission Unit?		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.					
EMISSIONS CONTROL EQUIPMENT							
14. Control Equipment Name and ID:		N/A					
15. Date of Installation:		N/A		16. Date of Modification (if any): N/A			
17. Manufacturer and Model Number:		N/A					
18. ID(s) of Emission Unit Controlled:		N/A					
19. Is operating schedule different than emission units(s) involved?		<input type="checkbox"/> Yes <input type="checkbox"/> No					
20. Does the manufacturer guarantee the control efficiency of the control equipment?		<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)					
		Pollutant Controlled					
		PM	PM10	SO ₂	NO _x	VOC	CO
Control Efficiency		N/A	N/A	N/A	N/A	N/A	N/A
21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. N/A							
EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)							
22. Actual Operation:		8760 HOURS/YEAR					
23. Maximum Operation:		8760 HOURS/YEAR					
REQUESTED LIMITS							
24. Are you requesting any permit limits?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)					
<input type="checkbox"/> Operation Hour Limit(s):		N/A					
<input type="checkbox"/> Production Limit(s):		N/A					
<input type="checkbox"/> Material Usage Limit(s):		N/A					
<input type="checkbox"/> Limits Based on Stack Testing:		Please attach all relevant stack testing summary reports					
<input type="checkbox"/> Other:		N/A					
25. Rationale for Requesting the Limit(s):		N/A					

Instructions for Form EU0

This form provides DEQ with information about an emissions unit. An emissions unit is the equipment or process that generates emissions of regulated air pollutant(s). This form is used by the permit writer to become familiar with the emissions unit (EU). This form is also used by DEQ to identify the control equipment and the emission point (stack or vent) used for the emission unit(s) proposed in this permit application. This form also asks for supporting documents to verify stated control efficiencies and details about the emission point. Additional information may be requested.

- 1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.
5. Provide the name of the emissions unit (EU), such as "Union boiler," etc. A separate EU0 form is required for each emissions unit.
6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.
7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.
8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.
9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.
10. Provide the maximum capacity of the EU. For example, a boiler's rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer's literature.
11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

Construction fabrication, erection, or installation of an affected facility.

Commenced an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Modification any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted to the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) to the atmosphere not previously emitted.

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.
13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.
14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment's identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.
16. If the air pollution control equipment has been modified, provide the date of the modification.
17. Provide the name of the manufacturer and the model number for the air pollution control equipment.
18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).
19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.
20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).
21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.
22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.
23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.
24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.
25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.



Facility Wide Potential to Emit Emission Inventory Application Template and Instructions

For new stationary sources provide the facility's potential to emit for all NSR Regulated Air Pollutants. The potential to emit provided here must match the emissions rates which are requested to be permitted.

For modifications to existing facilities (including the addition of new emissions units), if the existing facility classification is in question an existing facility wide potential to emit emission inventory will be required to be submitted¹. Contact DEQ to determine if a facility wide emission inventory for the existing facility is required.

All emissions inventories must be submitted with thorough documentation. The emission inventories will be subjected to technical review. Therefore, prepare your application with sufficient documentation so that the public and DEQ can verify the validity of the emission estimates. **Applications submitted without sufficient documentation are incomplete. Follow the instructions provided on page 2; do not proceed until you have read the instructions.**

Applicants must use the Potential to Emit Summary table provided below.

Table 1. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	Ozone	VOCs	NSR Pollutant ^a	NSR Pollutant ^a	NSR Pollutant ^a	NSR Pollutant ^a
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
Existing Corona Treaters	22.4	2.8	0.00	0.00	0.00	0.00
Proposed Corona Treaters	22.4	1.6	0.00	0.00	0.00	0.00
XXX	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Sources						
<i>Not Applicable</i>						
Totals	44.8	4.4	0.00	0.00	0.00	0.00

a) NSR Regulated air Pollutants are defined² as: Particulate Matter (PM, PM-10, PM-2.5), Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone (VOC), Sulfur Dioxide, CO₂e³, Green House Gases (GHG) mass, all pollutants regulated by NSPS (40 CFR 60)(i.e. TRS, fluoride, sulfuric acid mist) & Class I & Class II Ozone Depleting Substances (40 CFR 82)(i.e. CFC, HCFC, Halon, etc.)

Applicants are encouraged to call DEQ's Air Quality Permit Hotline (1-877-573-7648) to ask questions as they prepare the application. **Emission Inventory Instructions:**

¹ The applicant must determine if the existing facility is a major facility. If the facility is an existing PSD major facility and changes are being made to the facility the major modification test must be conducted.

² 40 CFR 52.21(b)(50), as incorporated by reference at IDAPA 58.01.01.107.03.d

³ Multiply each green house gas (GHG) by the global warming potential (GWP) listed at 40 CFR 98, Table A- 1 of Subpart A then sum all values to determine CO₂e (GHGs are carbon dioxide, nitrous oxide, methane, hydrofluorcarbons, perfluorcarbons, sulfur hexafluoride). Be sure to show all calculations as described in the instructions.

1. Use the same emission unit name throughout the application (i.e. in air pollution control equipment forms and for modeling purposes).
2. The application must **show in detail all calculations** used to develop the PTE summary and include:
 - Electronic copies of any spreadsheets used to estimate emissions. If a spreadsheet is used submit an electronic copy of the spread sheet (i.e. Excel File).
 - Documentation of all calculations conducted by hand (i.e. show all calculations).
 - Clear statements on all assumptions relied upon in estimating emissions.
 - Documentation of the emissions factors used to estimate emissions. If the emissions factor documentation is readily available to DEQ, such as an EPA AP-42 emissions factor, a simple reference to the emissions factor suffices. If the emissions factor documentation is not readily available to DEQ the applicant must submit the documentation with the application; ask DEQ if you are uncertain. **Applications without sufficient documentation are incomplete.** Documentation may consist of manufacturer guarantees, research conducted by trade organizations, published emission factors, and source test results. **If there are multiple factors for a given operation, note why the factor used is the most representative.**
 - Copies of manufacturer guarantees upon which emission inventories are based.
 - The best available emission information (see [DEQ's Guidance on Emission Data Hierarchy](#)).
 - If source tests are used as the basis for emissions estimates the source test report must be submitted. If the source test report is on file with DEQ provide the date of the source test was submitted along with the name of the facility and the emission unit that was tested. Source data from similar emissions units may be considered reliable provided it is clearly described why the sources are similar. Similar sources are those that the applicant has shown serve a similar function, use similar raw materials, and have similar processing rates.
3. Fugitive emissions of NSR regulated air pollutants from the source categories listed below must be included in the emission inventory.

Listed Source Categories for Inclusion of Fugitive Emissions

- | | |
|---|---|
| • Coal cleaning plants (with thermal dryers) | • Carbon black plants (furnace process) |
| • Kraft pulp mills | • Primary lead smelters |
| • Portland cement plants | • Fuel conversion plants |
| • Primary zinc smelters | • Sintering plants |
| • Iron and steel mills | • Secondary metal production plants |
| • Primary aluminum ore reduction plants | • Chemical process plants (excluding ethanol plants by natural fermentation). |
| • Primary copper smelters | • Fossil-fuel fired boilers totaling more than 250 MMBtu/hr |
| • Municipal incinerators -250 T/day of refuse | • Petroleum storage and transfer units with total capacity of 300,000 barrels |
| • Hydrofluoric, sulfuric, or nitric acid plants | • Taconite ore processing plants |
| • Petroleum refineries | • Glass fiber processing plants |
| • Lime plants | • Charcoal production plants |
| • Phosphate rock processing plants | • Fossil fuel-fired steam electric plants greater than 250 MMBtu/hr) |
| • Coke oven batteries | • Categories regulated by NSPS or NESHAP prior to 8/7/80 |
| • Sulfur recovery plants | |



Toxic Air Pollutant Emissions Inventory Application Template and Instructions

Applicants must demonstrate preconstruction compliance with toxic air pollutant (TAP) standards contained in IDAPA 58.01.01.210 (*Rules for the Control of Air Pollution in Idaho*). DEQ has developed a TAP completeness checklist in order to assist applicants. DEQ strongly recommends that applicants complete and submit this checklist as part of the application. **Applications which do not follow one of the available methods for demonstrating compliance described in the checklist will be determined incomplete or denied.** Follow this link to the checklist: [Toxic Air Pollutant Application Completeness Checklist](#). Be sure to calculate emissions correctly for the averaging periods as described in the checklist and in the instructions on page 3.

The type of TAP emissions inventory required depends upon which method is used to demonstrate compliance (see the [Toxic Air Pollutant Application Completeness Checklist](#)). **All TAP emissions inventories must be summarized using the emissions inventory summary tables provided below** (Table 1 and Table 2).

The applicant must **document all emission calculations as described in the instructions provided on the following page. Applications without sufficient documentation are incomplete; do not proceed until you have read the instructions.**

Applicants are encouraged to call DEQ's Air Quality Permit Hotline (1-877-573-7648) to ask questions as they prepare the application.

**Table 1. PRE- AND POST PROJECT NON-CARCINOGENIC TAP EMISSIONS SUMMARY
POTENTIAL TO EMIT**

Non-Carcinogenic Toxic Air Pollutants (sum of all emissions)	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Ammonia	3.52	5.50	1.98	1.2	Yes
Ethanol	0.64	0.36	1.0	125	No

Table 2. PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Carcinogenic Toxic Air Pollutants (sum of all emissions)	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
N/A					

- a) *{If you have POM include the following footnote.}* Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Pre-project average emissions are the existing allowable emission rates.

Post-project average emissions are the new proposed emission rates.

Emission Inventory Instructions:

1. The averaging period for the emission rate depends upon whether the TAP is non-carcinogenic or carcinogenic. Non-carcinogenic TAP emissions are averaged over 24 hours, carcinogenic TAP emissions are averaged over 8760 hours.
For more explanation on averaging periods, see the [Toxic Air Pollutant Application Completeness Checklist](#).
2. **Pre-project** average emissions are the existing allowable emission rates.
Post-project average emissions are the new proposed emission rates.
3. Use the same emission unit name/designation throughout the application (i.e. air pollution control equipment forms and modeling forms).
4. The emission inventories will be subjected to technical review; prepare your application with sufficient documentation so that the public and DEQ can verify the validity of the emission estimates. The application must **show in detail all emission calculations** used to develop the emission inventory summary and must include the following:
 - **Clear documentation of any emissions averaging that was used.** For instance if a source only operates 8 hours during any day and the emissions during that 8 hour period are averaged over 24 hours then this must be clearly described in the application. The emissions averaging calculations must also be shown.
 - Electronic copies of any spreadsheets used to estimate emissions. If a spreadsheet is used submit an electronic copy of the spread sheet (i.e. Excel File).
 - Documentation of all calculations conducted by hand (i.e. show all calculations).
 - Clear statements on all assumptions relied upon in estimating emissions.
 - Documentation of the emissions factors used to estimate emissions. If the emissions factor documentation is readily available to DEQ, such as an EPA AP-42 emissions factor, a simple reference to the emissions factor suffices. If the emissions factor documentation is not readily available to DEQ the applicant must submit the documentation with the application; ask DEQ if you are uncertain. **Applications without sufficient documentation are incomplete.** Documentation may consist of manufacturer guarantees, research conducted by trade organizations, published emission factors, and source test results. **If there are multiple factors for a given operation, note why the factor used is the most representative.**
 - Copies of manufacturer guarantees upon which emission inventories are based.
 - The best available emission information (see [DEQ's Guidance on Emissions Data Hierarchy](#)).
 - If source tests are used as the basis for emissions estimates the source test report must be submitted. If the source test report is on file with DEQ provide the date of the source test was submitted along with the name of the facility and the emission unit that was tested. Source test data from similar emissions units may be considered reliable provided it is clearly described why the sources are similar. Similar sources are those that the applicant has shown serve a similar function, use similar raw materials, and have similar processing rates.



DEQ AIR QUALITY PROGRAM
 1410 N. Hilton, Boise, ID 83706
 For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Hilex Poly Company, LLC
Facility Name:	Jerome Facility
Facility ID No.:	053-00011
Brief Project Description:	Hilex Poly proposes to add new extruders, corona treaters, and baglines to increase production at their Jerome, Idaho Facility.

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

Criteria Pollutants	Averaging Period	1.	Significant Contribution Level (µg/m3)	2.	3.	4.	NAAQS (µg/m3)	5.
		Significant Impact Analysis Results (µg/m3)		Full Impact Analysis Results (µg/m3)	Background Concentration (µg/m3)	Total Ambient Impact (µg/m3)		Percent of NAAQS
PM ₁₀	24-hour	0.00	5	0.00	0.00	0.00	150	0%
	Annual	0.00	1	0.00	0.00	0.00	50	0%
SO ₂	3-hr	0.00	25	0.00	0.00	0.00	1300	0%
	24-hr	0.00	5	0.00	0.00	0.00	365	0%
	Annual	0.00	1	0.00	0.00	0.00	80	0%
NO ₂	Annual	0.00	1	0.00	0.00	0.00	100	0%
CO	1-hr	0.00	2000	0.00	0.00	0.00	10000	0%
	8-hr	0.00	500	0.00	0.00	0.00	40000	0%
O ₃	8-hr	N/A	N/A	calculated in AERMOD	calculated in AERMOD	142.70	147	97%

Instructions for Form MI1

This form is designed to provide the air quality modeler with a summary of the air impact analysis results for the criteria pollutants. This information will be used by IDEQ to determine compliance demonstration with the national ambient air quality standards (NAAQS).

Please fill in the same company name, facility name, facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

Significant Impact Analysis - Evaluates the emissions increase from the proposed project only. This analysis determines whether or not a proposed project has a significant impact on ambient air, and therefore, requires a full impact analysis.

Full Impact Analysis - Only required if the significant impact analysis exceeds the significant contribution level - evaluates the emissions from the facility, including the emissions increase from the proposed project. This analysis determines whether the facility, with the emissions increase, complies with the NAAQS.

1. Provide the results of the significant impact analysis in $\mu\text{g}/\text{m}^3$.
2. Provide the results of the full impact analysis in $\mu\text{g}/\text{m}^3$ (if required).
3. List the background concentration in mg/m^3 . Contact the Stationary Source Modeling Coordinator at (208) 373-0502 for the current background concentrations for the area of interest. (Not needed if full impact analysis is not required.)
4. Provide the total ambient impact in mg/m^3 . The total ambient impact is the sum of the background concentration and the full impact analysis result.
5. Calculate the percent of the NAAQS that the total ambient impact analysis represents.

 DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the Air Permit Hotline - 1-877-5PERMIT		PERMIT TO CONSTRUCT APPLICATION Revision 3 3/27/2007								
		Please see instructions on page 2 before filling out the form.								
Company Name:		Hilex Poly Company, LLC								
Facility Name:		Jerome Facility								
Facility ID No.:		053-00011								
Brief Project Description:		Hilex Poly proposes to add new extruders, corona treaters, and baglines to increase production at their Jerome, Idaho Facility.								
POINT SOURCE STACK PARAMETERS										
1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Stack Height (m)	Modeled Diameter (m)	Stack Exit Temperature (K)	Stack Exit Flowrate (acfm)	Stack Exit Velocity (m/s)	Stack orientation (e.g., horizontal, rain cap)
Point Source(s)										
Corona Treater Stack 1	STCK1	702,459.00	4,731,717.00	1,133.00	21.30	0.71	(30.00)	7,969.60	9.50	Vertical
Corona Treater Stack 2	STCK2	702,429.00	4,731,776.00	1,133.00	18.30	0.71	(30.00)	7,969.60	9.50	Vertical
Bagline Vent 1	VENT1	702,388.88	4,731,741.93	1,132.00	7.62	0.61	ambient	1,201.32	1.94	Vertical
Bagline Vent 2	VENT2	702,417.82	4,731,664.08	1,133.00	7.62	0.61	ambient	1,201.32	1.94	Vertical
Bagline Vent 3	VENT3	702,461.52	4,731,633.19	1,133.00	7.62	0.61	ambient	1,201.32	1.94	Vertical

Instructions for Form MI2

This form is designed to provide the air quality modeler with information on the stack characteristics of each point source located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.
2. Provide the identification number for the stack which the emission unit exits.
3. Provide the UTM locations for each point source. The UTM Easting and UTM Northing are the coordinates for the center of the point source.
4. Provide the elevation of the base of the stack. This elevation must be calculated by the same method as the buildings and receptor elevation.
5. Provide the height of the stack, from the ground.

6. Provide the stack diameter that is included in the modeling analysis. Refer to the State of Idaho Modeling Guideline for guidance on developing the appropriate diameter.
7. Provide the stack exit temperature. Include documentation and justification for the exit temperature used.
8. Provide the stack exit flowrate. Include documentation and justification for the exit flowrate used.
9. Provide the stack exit velocity. Include documentation and justification for the exit velocity used.
10. Provide the orientation of the stack (horizontal or vertical). Indicate whether there is an obstruction on the stack, such as a raincap.

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Instructions for Form MI3

This form is designed to provide the air quality modeler with information on the characteristics of each fugitive source located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

Fugitive sources are typically modeled as either area or volume sources. Area sources are used to model fugitives from sources such as roads or parking lots, while volume sources are typically used to model fugitives from piles. Refer to the State of Idaho Air Quality Modeling Guideline for additional guidance on modeling fugitive sources.

1. Provide the name of the fugitive source. This name should match names used on other submittals to IDEQ and within this application.
2. Provide the identification number for the fugitive source.
3. Provide the UTM locations of the fugitive source. The UTM Easting and UTM Northing are the coordinates for the center of the fugitive source.
4. Provide the elevation of the base of the fugitive source. This elevation must be calculated by the same method as the buildings and receptor elevation.
5. Provide the height of the fugitive source, from the ground. This is used for an elevated release. If the fugitive source is at ground level enter zero.
6. Provide the easterly length of the fugitive source.
7. Provide the northly length of the fugitive source.
8. Provide the angle from north, in degrees. This allows for accurate evaluation of the alignment of the fugitive source.
9. Provide the initial vertical dimension of the fugitive source. Refer to the State of Idaho Modeling Guideline for guidance on estimating this value.
10. Provide the initial horizontal dimension of the fugitive source. This parameter is only used for volume sources. Refer to the State of Idaho Modeling Guideline for guidance on estimating this value.

This form is designed to provide the air quality modeler with information on the buildings and structures located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the building ID number.
2. Provide the length of the building.
3. Provide the width of the building.
4. Provide the base elevation of the building. This elevation must be calculated by the same method as the sources and receptor elevation.
5. Provide the height of the building, from the ground.
6. Provide the number of tiers on the building. Refer to the State of Idaho Modeling Guideline for guidance on this topic.
7. Provide a description of the building.



**IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

**Preapplication Meeting Information
Form FRA (Federal Requirements Applicability) -
Regulatory Review**

In each box in the table below, CTRL+click on the blue underlined text for instructions and information.

IDENTIFICATION	
1. Company Name: Hilex Poly Company, LLC	2. Facility Name: Hilex Poly
3. Brief Project Description: Hilex Poly proposes to add new extruders, corona treaters, and baglines to increase production at their Jerome, Idaho Facility.	
APPLICABILITY DETERMINATION	
<p>4. List all applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60).</p> <p>List all non-applicable subparts of the NSPS which may appear to apply to the facility but do not.</p> <p>Examples of NSPS-affected emissions units include internal combustion engines, boilers, turbines, etc. Applicant must thoroughly review the list of affected emissions units.</p>	<p>List of all applicable subpart(s):</p> <p>List of all non-applicable subpart(s) which may appear to apply but do not:</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR part 61 and 40 CFR part 63).</p> <p>List all non-applicable subparts of the NESHAP which may appear to apply to the facility but do not.</p> <p>Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. Reference EPA's webpage on NESHAPs for more information.</p>	<p>List of all applicable subpart(s):</p> <p>List of all non-applicable subpart(s) which may appear to apply but do not: NESHAP Subpart JJJJ (Paper and Other Web Surface Coating)</p> <p><input type="checkbox"/> Not Applicable</p>
<p>6. For each subpart identified above, conduct a complete regulatory analysis using the instructions and referencing the example on the following pages.</p> <p>Note - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation does or does not apply. Regulatory reviews submitted with insufficient detail will be determined incomplete.</p>	<p><input checked="" type="checkbox"/> A detailed regulatory review is provided (Follow instructions and example).</p> <p><input type="checkbox"/> DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date.</p>

**IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT
1-877-5PERMIT.**

It is emphasized that it is the applicant's responsibility to satisfy all technical and regulatory requirements, and that DEQ will help the applicant understand those requirements prior to submittal of the application but that DEQ will not perform the required technical or regulatory analyses on the applicant's behalf.

Instructions for Form FRA

Item 4 & 5. It is important that facilities review the most recent federal regulations when submitting their permit application to DEQ. Current federal regulations can be found at the following website: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?&c=ecfr&tpl=/ecfrbrowse/Title40/40tab_02.tpl.

Item 6. For each applicable subpart identified under items 4-5, conduct a complete regulatory analysis. The facility must follow the procedure given below or obtain permission from DEQ to provide the necessary information using an alternative procedure:

1. Retrieve a TEXT or PDF copy of the applicable federal regulation subpart(s) online at <http://www.gpoaccess.gov/cfr/retrieve.html>.
2. Copy and paste the regulation(s) into the DEQ air permit application.
3. Highlight or underline sections in the regulation(s) that are applicable to the source(s).
4. Under each section of the subpart, explain why the source is or is not subject to the section in addition to how the source will comply with the section. When providing the explanation use a different font than the regulation (i.e. **bold, italic**) so that it is easy for the reader to determine the text provided by the applicant. An example NSPS regulatory analysis is attached. The applicant must provide all information needed to determine applicability. If information is lacking or the analysis is incomplete, the application will be determined incomplete.

Information on NSPS/NESHAP applicability determinations that may be useful to applicants is available on EPA's website: [Clean Air Act Applicability Determination Index - Compliance Monitoring - EPA](#). Another useful source of information is the preamble to the regulation which is published in the Federal Register on the date the regulation was promulgated. Federal Registers may be found online at [Federal Register: Main Page](#). The date the regulation was published in the Federal Register is included in the footnotes of the regulation.

5. DEQ will assist in identifying the applicable requirements that the applicant must include in the application, but will not perform the required technical or regulatory analysis on the applicant's behalf. Applicants should contact the Air Quality Permit Hotline (1-877-573-7648) to discuss NSPS/NESHAP regulatory analysis requirements or to schedule a meeting.
6. Facilities should also document a non-applicability determination on federal air regulations which may appear to apply to the facility but actually do not. A non-applicability determination will avoid future confusion and expedite the air permit application review. If you conduct an applicability determination and find that your activity is not NSPS or NESHAP affected facility, an analysis should be submitted using the methods described above.
7. **It is not sufficient to simply provide a copy of the NSPS or NESHAP. The applicant must address each section of the regulation as described above and as shown in the example that is provided.**

SUBPART JJJJ—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS: PAPER AND OTHER WEB COATING

SOURCE: 67 FR 72341, Dec. 4, 2002, unless otherwise noted.

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WHAT THIS SUBPART COVERS

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§63.3280 WHAT IS IN THIS SUBPART?

This subpart describes the actions you must take to reduce emissions of organic hazardous air pollutants (HAP) from paper and other web coating operations. This subpart establishes emission standards for web coating lines and specifies what you must do to comply if you own or operate a facility with web coating lines that is a major source of HAP. Certain requirements apply to all who are subject to this subpart; others depend on the means you use to comply with an emission standard.

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§63.3290 DOES THIS SUBPART APPLY TO ME?

The provisions of this subpart apply to each new and existing facility that is a major source of HAP, as defined in §63.2, at which web coating lines are operated.

Hilex Poly is not a major source of HAP, so this subpart does not apply.

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§63.3300 WHICH OF MY EMISSION SOURCES ARE AFFECTED BY THIS SUBPART?

The affected source subject to this subpart is the collection of all web coating lines at your facility. This includes web coating lines engaged in the coating of metal webs that are used in flexible packaging, and web coating lines engaged in the coating of fabric substrates for use in pressure sensitive tape and abrasive materials. Web coating lines specified in paragraphs (a) through (g) of this section are not part of the affected source of this subpart.

- (a) Any web coating line that is stand-alone equipment under subpart KK of this part (National Emission Standards for the Printing and Publishing Industry) which the owner or operator includes in the affected source under subpart KK.
- (b) Any web coating line that is a product and packaging rotogravure or wide-web flexographic press under subpart KK of this part (national emission standards for the printing and publishing industry) which is included in the affected source under subpart KK.
- (c) Web coating in lithography, screenprinting, letterpress, and narrow-web flexographic printing processes.
- (d) Any web coating line subject to subpart EE of this part (national emission standards for magnetic tape manufacturing operations).

(e) Any web coating line that will be subject to the national emission standards for hazardous air pollutants (NESHAP) for surface coating of metal coil currently under development.

(f) Any web coating line that will be subject to the NESHAP for the printing, coating, and dyeing of fabric and other textiles currently under development. This would include any web coating line that coats both a paper or other web substrate and a fabric or other textile substrate, except for a fabric substrate used for pressure sensitive tape and abrasive materials.

(g) Any web coating line that is defined as research or laboratory equipment in §63.3310.

[67 FR 72341, Dec. 4, 2002, as amended at 71 FR 29805, May 24, 2006]

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§63.3310 WHAT DEFINITIONS ARE USED IN THIS SUBPART?

All terms used in this subpart that are not defined in this section have the meaning given to them in the Clean Air Act (CAA) and in subpart A of this part.

Always-controlled work station means a work station associated with a dryer from which the exhaust is delivered to a control device with no provision for the dryer exhaust to bypass the control device unless there is an interlock to interrupt and prevent continued coating during a bypass. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

Applied means, for the purposes of this subpart, the amount of organic HAP, coating material, or coating solids (as appropriate for the emission standards in §63.3320(b)) used by the affected source during the compliance period.

As-applied means the condition of a coating at the time of application to a substrate, including any added solvent.

As-purchased means the condition of a coating as delivered to the user.

Capture efficiency means the fraction of all organic HAP emissions generated by a process that is delivered to a control device, expressed as a percentage.

Capture system means a hood, enclosed room, or other means of collecting organic HAP emissions into a closed-vent system that exhausts to a control device.

Car-seal means a seal that is placed on a device that is used to change the position of a valve or damper (e.g., from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

Coating material(s) means all inks, varnishes, adhesives, primers, solvents, reducers, and other coating materials applied to a substrate via a web coating line. Materials used to form a substrate are not considered coating materials.

Control device means a device such as a solvent recovery device or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

Control device efficiency means the ratio of organic HAP emissions recovered or destroyed by a control device to the total organic HAP emissions that are introduced into the control device, expressed as a percentage.

Day means a 24-consecutive-hour period.

Deviation means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:

- (1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;
- (2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or
- (3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during start-up, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Existing affected source means any affected source the construction or reconstruction of which is commenced on or before September 13, 2000, and has not undergone reconstruction as defined in §63.2.

Fabric means any woven, knitted, plaited, braided, felted, or non-woven material made of filaments, fibers, or yarns including thread. This term includes material made of fiberglass, natural fibers, synthetic fibers, or composite materials.

Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

Flexible packaging means any package or part of a package the shape of which can be readily changed. Flexible packaging includes, but is not limited to, bags, pouches, labels, liners and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials.

Formulation data means data on the organic HAP mass fraction, volatile matter mass fraction, or coating solids mass fraction of a material that is generated by the manufacturer or means other than a test method specified in this subpart or an approved alternative method.

HAP means hazardous air pollutants.

HAP applied means the organic HAP content of all coating materials applied to a substrate by a web coating line at an affected source.

Intermittently-controlled work station means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device through a bypass line, depending on the position of a valve or damper. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

Metal coil means a continuous metal strip that is at least 0.15 millimeter (0.006 inch) thick which is packaged in a roll or coil prior to coating. After coating, it may or may not be rewound into a roll or coil. Metal coil does not include metal webs that are coated for use in flexible packaging.

Month means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

Never-controlled work station means a work station that is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.

New affected source means any affected source the construction or reconstruction of which is commenced after September 13, 2000.

Overall organic HAP control efficiency means the total efficiency of a capture and control system.

Pressure sensitive tape means a flexible backing material with a pressure-sensitive adhesive coating on one or both sides of the backing. Examples include, but are not limited to, duct/duct insulation tape and medical tape.

Research or laboratory equipment means any equipment for which the primary purpose is to conduct research and development into new processes and products where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce except in a *de minimis* manner.

Rewind or cutting station means a unit from which substrate is collected at the outlet of a web coating line.

Uncontrolled coating line means a coating line consisting of only never-controlled work stations.

Unwind or feed station means a unit from which substrate is fed to a web coating line.

Web means a continuous substrate (e.g., paper, film, foil) which is flexible enough to be wound or unwound as rolls.

Web coating line means any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station.

Work station means a unit on a web coating line where coating material is deposited onto a web substrate.

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EMISSION STANDARDS AND COMPLIANCE DATES

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§63.3320 WHAT EMISSION STANDARDS MUST I MEET?

(a) If you own or operate any affected source that is subject to the requirements of this subpart, you must comply with these requirements on and after the compliance dates as specified in §63.3330.

(b) You must limit organic HAP emissions to the level specified in paragraph (b)(1), (2), (3), or (4) of this section.

(1) No more than 5 percent of the organic HAP applied for each month (95 percent reduction) at existing affected sources, and no more than 2 percent of the organic HAP applied for each month (98 percent reduction) at new affected sources; or

(2) No more than 4 percent of the mass of coating materials applied for each month at existing affected sources, and no more than 1.6 percent of the mass of coating materials applied for each month at new affected sources; or

(3) No more than 20 percent of the mass of coating solids applied for each month at existing affected sources, and no more than 8 percent of the coating solids applied for each month at new affected sources.

(4) If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 parts per million by volume (ppmv) by compound on a dry basis is achieved and the efficiency of the capture system is 100 percent.

(c) You must demonstrate compliance with this subpart by following the procedures in §63.3370.

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§63.3321 WHAT OPERATING LIMITS MUST I MEET?

(a) For any web coating line or group of web coating lines for which you use add-on control devices, unless you use a solvent recovery system and conduct a liquid-liquid material balance, you must meet the operating limits specified in Table 1 to this subpart or according to paragraph (b) of this section. These operating limits apply to emission capture systems and control devices, and you must establish the operating limits during the performance test according to the requirements in §63.3360(e)(3). You must meet the operating limits at all times after you establish them.

(b) If you use an add-on control device other than those listed in Table 1 to this subpart or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under §63.8(f).

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§63.3330 WHEN MUST I COMPLY?

(a) If you own or operate an existing affected source subject to the provisions of this subpart, you must comply by the compliance date. The compliance date for existing affected sources in this subpart is December 5, 2005. You must complete any performance test required in §63.3360 within the time limits specified in §63.7(a)(2).

(b) If you own or operate a new affected source subject to the provisions of this subpart, your compliance date is immediately upon start-up of the new affected source or by December 4, 2002, whichever is later. You must complete any performance test required in §63.3360 within the time limits specified in §63.7(a)(2).

(c) If you own or operate a reconstructed affected source subject to the provisions of this subpart, your compliance date is immediately upon startup of the affected source or by December 4, 2002, whichever is later. Existing affected sources which have undergone reconstruction as defined in §63.2 are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution control equipment are not considered in determining

whether the existing affected source has been reconstructed. Additionally, the costs of retrofitting and replacing of equipment that is installed specifically to comply with this subpart are not considered reconstruction costs. You must complete any performance test required in §63.3360 within the time limits specified in §63.7(a)(2).

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GENERAL REQUIREMENTS FOR COMPLIANCE WITH THE EMISSION STANDARDS AND FOR MONITORING AND PERFORMANCE TESTS

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§63.3340 WHAT GENERAL REQUIREMENTS MUST I MEET TO COMPLY WITH THE STANDARDS?

Table 2 to this subpart specifies the provisions of subpart A of this part that apply if you are subject to this subpart, such as startup, shutdown, and malfunction plans (SSMP) in §63.6(e)(3) for affected sources using a control device to comply with the emission standards.

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§63.3350 IF I USE A CONTROL DEVICE TO COMPLY WITH THE EMISSION STANDARDS, WHAT MONITORING MUST I DO?

(a) A summary of monitoring you must do follows:

If you operate a web coating line, and have the following:	Then you must:
(1) Intermittently-controlled work stations	Record parameters related to possible exhaust flow bypass of control device and to coating use (§63.3350(c)).
(2) Solvent recovery unit	Operate continuous emission monitoring system and perform quarterly audits or determine volatile matter recovered and conduct a liquid-liquid material balance (§63.3350(d)).
(3) Control Device	Operate continuous parameter monitoring system (§63.3350(e)).
(4) Capture system	Monitor capture system operating parameter (§63.3350(f)).

(b) Following the date on which the initial performance test of a control device is completed to demonstrate continuing compliance with the standards, you must monitor and inspect each capture system and each control device used to comply with §63.3320. You must install and operate the monitoring equipment as specified in paragraphs (c) and (f) of this section.

(c) *Bypass and coating use monitoring.* If you own or operate web coating lines with intermittently-controlled work stations, you must monitor bypasses of the control device and the mass of each coating material applied at the work station during any such bypass. If using a control device for complying with the requirements of this subpart, you must demonstrate that any coating material applied on a never-controlled work station or an intermittently-controlled work station operated in bypass mode is allowed in your compliance demonstration according to §63.3370(n) and (o). The bypass monitoring must be conducted using at least one of the procedures in paragraphs (c)(1) through (4) of this section for each work station and associated dryer.

(1) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from

the control device. The time and flow control position must be recorded at least once per hour as well as every time the flow direction is changed. A flow control position indicator must be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

(2) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line.

(3) *Valve closure continuous monitoring.* Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position when the emission source is in operation and is using a control device for compliance with the requirements of this subpart. The monitoring system must be inspected at least once every month to verify that the monitor will indicate valve position.

(4) *Automatic shutdown system.* Use an automatic shutdown system in which the web coating line is stopped when flow is diverted away from the control device to any bypass line when the control device is in operation. The automatic system must be inspected at least once every month to verify that it will detect diversions of flow and would shut down operations in the event of such a diversion.

(d) *Solvent recovery unit.* If you own or operate a solvent recovery unit to comply with §63.3320, you must meet the requirements in either paragraph (d)(1) or (2) of this section depending on how control efficiency is determined.

(1) *Continuous emission monitoring system (CEMS).* If you are demonstrating compliance with the emission standards in §63.3320 through continuous emission monitoring of a control device, you must install, calibrate, operate, and maintain the CEMS according to paragraphs (d)(1)(i) through (iii) of this section.

(i) Measure the total organic volatile matter mass flow rate at both the control device inlet and the outlet such that the reduction efficiency can be determined. Each continuous emission monitor must comply with performance specification 6, 8, or 9 of 40 CFR part 60, appendix B, as appropriate.

(ii) You must follow the quality assurance procedures in procedure 1, appendix F of 40 CFR part 60. In conducting the quarterly audits of the monitors as required by procedure 1, appendix F, you must use compounds representative of the gaseous emission stream being controlled.

(iii) You must have valid data from at least 90 percent of the hours during which the process is operated.

(2) *Liquid-liquid material balance.* If you are demonstrating compliance with the emission standards in §63.3320 through liquid-liquid material balance, you must install, calibrate, maintain, and operate according to the manufacturer's specifications a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device must be certified by the manufacturer to be accurate to within ± 2.0 percent by mass.

(e) *Continuous parameter monitoring system (CPMS).* If you are using a control device to comply with the emission standards in §63.3320, you must install, operate, and maintain each CPMS specified in paragraphs (e)(9) and (10) and (f) of this section according to the requirements in

paragraphs (e)(1) through (8) of this section. You must install, operate, and maintain each CPMS specified in paragraph (c) of this section according to paragraphs (e)(5) through (7) of this section.

(1) Each CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation to have a valid hour of data.

(2) You must have valid data from at least 90 percent of the hours during which the process operated.

(3) You must determine the hourly average of all recorded readings according to paragraphs (e)(3)(i) and (ii) of this section.

(i) To calculate a valid hourly value, you must have at least three of four equally spaced data values from that hour from a continuous monitoring system (CMS) that is not out-of-control.

(ii) Provided all of the readings recorded in accordance with paragraph (e)(3) of this section clearly demonstrate continuous compliance with the standard that applies to you, then you are not required to determine the hourly average of all recorded readings.

(4) You must determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, you must have at least two of three of the hourly averages for that period using only average values that are based on valid data (*i.e.*, not from out-of-control periods).

(5) You must record the results of each inspection, calibration, and validation check of the CPMS.

(6) At all times, you must maintain the monitoring system in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(7) Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities (including calibration checks or required zero and span adjustments), you must conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating the emissions concentrations and percent reductions specified in §63.3370. You must use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(8) Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation, and you must notify the Administrator in accordance with §63.3400(c).

(9) *Oxidizer*. If you are using an oxidizer to comply with the emission standards, you must comply with paragraphs (e)(9)(i) through (iii) of this section.

(i) Install, calibrate, maintain, and operate temperature monitoring equipment according to the manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months or the chart recorder, data logger, or temperature indicator

must be replaced. You must replace the equipment whether you choose not to perform the calibration or the equipment cannot be calibrated properly.

(ii) For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± 1 °Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone.

(iii) For a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature with an accuracy of ± 1 percent of the temperature being monitored in degrees Celsius or ± 1 degree Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature rise across the catalyst.

(10) *Other types of control devices.* If you use a control device other than an oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of an alternative monitoring method under §63.8(f).

(f) *Capture system monitoring.* If you are complying with the emission standards in §63.3320 through the use of a capture system and control device for one or more web coating lines, you must develop a site-specific monitoring plan containing the information specified in paragraphs (f)(1) and (2) of this section for these capture systems. You must monitor the capture system in accordance with paragraph (f)(3) of this section. You must make the monitoring plan available for inspection by the permitting authority upon request.

(1) The monitoring plan must:

(i) Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained; and

(ii) Explain why this parameter is appropriate for demonstrating ongoing compliance; and

(iii) Identify the specific monitoring procedures.

(2) The monitoring plan must specify the operating parameter value or range of values that demonstrate compliance with the emission standards in §63.3320. The specified operating parameter value or range of values must represent the conditions present when the capture system is being properly operated and maintained.

(3) You must conduct all capture system monitoring in accordance with the plan.

(4) Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit.

(5) You must review and update the capture system monitoring plan at least annually.

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§63.3360 WHAT PERFORMANCE TESTS MUST I CONDUCT?

(a) The performance test methods you must conduct are as follows:

<p>If you control organic HAP on any individual web coating line or any group of web coating lines by:</p>	<p style="text-align: center;">You must:</p>
<p>(1) Limiting organic HAP or volatile matter content of coatings</p>	<p>Determine the organic HAP or volatile matter and coating solids content of coating materials according to procedures in §63.3360(c) and (d). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to §63.3360(g).</p>
<p>(2) Using a capture and control system</p>	<p>Conduct a performance test for each capture and control system to determine: the destruction or removal efficiency of each control device other than solvent recovery according to §63.3360(e), and the capture efficiency of each capture system according to §63.3360(f). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to §63.3360(g).</p>

(b) If you are using a control device to comply with the emission standards in §63.3320, you are not required to conduct a performance test to demonstrate compliance if one or more of the criteria in paragraphs (b)(1) through (3) of this section are met.

(1) The control device is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration and capture efficiency has been determined in accordance with the requirements of this subpart such that an overall organic HAP control efficiency can be calculated, and the continuous emission monitors are used to demonstrate continuous compliance in accordance with §63.3350; or

(2) You have met the requirements of §63.7(h) (for waiver of performance testing; or

(3) The control device is a solvent recovery system and you comply by means of a monthly liquid-liquid material balance.

(c) *Organic HAP content.* If you determine compliance with the emission standards in §63.3320 by means other than determining the overall organic HAP control efficiency of a control device, you must determine the organic HAP mass fraction of each coating material “as-purchased” by following one of the procedures in paragraphs (c)(1) through (3) of this section, and determine the organic HAP mass fraction of each coating material “as-applied” by following the procedures in paragraph (c)(4) of this section. If the organic HAP content values are not determined using the procedures in paragraphs (c)(1) through (3) of this section, the owner or operator must submit an alternative test method for determining their values for approval by the Administrator in accordance with §63.7(f). The recovery efficiency of the test method must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(1) *Method 311.* You may test the coating material in accordance with Method 311 of appendix A of this part. The Method 311 determination may be performed by the manufacturer of the coating material and the results provided to the owner or operator. The organic HAP content must be calculated according to the criteria and procedures in paragraphs (c)(1)(i) through (iii) of this section.

(i) Include each organic HAP determined to be present at greater than or equal to 0.1 mass percent for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and greater than or equal to 1.0 mass percent for other organic HAP compounds.

(ii) Express the mass fraction of each organic HAP you include according to paragraph (c)(1)(i) of this section as a value truncated to four places after the decimal point (for example, 0.3791).

(iii) Calculate the total mass fraction of organic HAP in the tested material by summing the counted individual organic HAP mass fractions and truncating the result to three places after the decimal point (for example, 0.763).

(2) *Method 24.* For coatings, determine the volatile organic content as mass fraction of nonaqueous volatile matter and use it as a substitute for organic HAP using Method 24 of 40 CFR part 60, appendix A. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to you.

(3) *Formulation data.* You may use formulation data to determine the organic HAP mass fraction of a coating material. Formulation data may be provided to the owner or operator by the manufacturer of the material. In the event of an inconsistency between Method 311 (appendix A of 40 CFR part 63) test data and a facility's formulation data, and the Method 311 test value is higher, the Method 311 data will govern. Formulation data may be used provided that the information represents all organic HAP present at a level equal to or greater than 0.1 percent for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and equal to or greater than 1.0 percent for other organic HAP compounds in any raw material used.

(4) *As-applied organic HAP mass fraction.* If the as-purchased coating material is applied to the web without any solvent or other material added, then the as-applied organic HAP mass fraction is equal to the as-purchased organic HAP mass fraction. Otherwise, the as-applied organic HAP mass fraction must be calculated using Equation 1a of §63.3370.

(d) *Volatile organic and coating solids content.* If you determine compliance with the emission standards in §63.3320 by means other than determining the overall organic HAP control efficiency of a control device and you choose to use the volatile organic content as a surrogate for the organic HAP content of coatings, you must determine the as-purchased volatile organic content and coating solids content of each coating material applied by following the procedures in paragraph (d)(1) or (2) of this section, and the as-applied volatile organic content and coating solids content of each coating material by following the procedures in paragraph (d)(3) of this section.

(1) *Method 24.* You may determine the volatile organic and coating solids mass fraction of each coating applied using Method 24 (40 CFR part 60, appendix A.) The Method 24 determination may be performed by the manufacturer of the material and the results provided to you. If these values cannot be determined using Method 24, you must submit an alternative technique for determining their values for approval by the Administrator.

(2) *Formulation data.* You may determine the volatile organic content and coating solids content of a coating material based on formulation data and may rely on volatile organic content data provided by the manufacturer of the material. In the event of any inconsistency between the formulation data and the results of Method 24 of 40 CFR part 60, appendix A, and the Method 24 results are higher, the results of Method 24 will govern.

(3) *As-applied volatile organic content and coating solids content.* If the as-purchased coating material is applied to the web without any solvent or other material added, then the as-applied volatile organic content is equal to the as-purchased volatile content and the as-applied coating solids content is equal to the as-purchased coating solids content. Otherwise, the as-applied volatile organic content must be calculated using Equation 1b of §63.3370 and the as-applied coating solids content must be calculated using Equation 2 of §63.3370.

(e) *Control device efficiency.* If you are using an add-on control device other than solvent recovery, such as an oxidizer, to comply with the emission standards in §63.3320, you must conduct

a performance test to establish the destruction or removal efficiency of the control device according to the methods and procedures in paragraphs (e)(1) and (2) of this section. During the performance test, you must establish the operating limits required by §63.3321 according to paragraph (e)(3) of this section.

(1) An initial performance test to establish the destruction or removal efficiency of the control device must be conducted such that control device inlet and outlet testing is conducted simultaneously, and the data are reduced in accordance with the test methods and procedures in paragraphs (e)(1)(i) through (ix) of this section. You must conduct three test runs as specified in §63.7(e)(3), and each test run must last at least 1 hour.

(i) Method 1 or 1A of 40 CFR part 60, appendix A, must be used for sample and velocity traverses to determine sampling locations.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, must be used to determine gas volumetric flow rate.

(iii) Method 3, 3A, or 3B of 40 CFR part 60, appendix A, must be used for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]," (incorporated by reference, see §63.14).

(iv) Method 4 of 40 CFR part 60, appendix A, must be used to determine stack gas moisture.

(v) The gas volumetric flow rate, dry molecular weight, and stack gas moisture must be determined during each test run specified in paragraph (f)(1)(vii) of this section.

(vi) Method 25 or 25A of 40 CFR part 60, appendix A, must be used to determine total gaseous non-methane organic matter concentration. Use the same test method for both the inlet and outlet measurements which must be conducted simultaneously. You must submit notice of the intended test method to the Administrator for approval along with notification of the performance test required under §63.7(b). You must use Method 25A if any of the conditions described in paragraphs (e)(1)(vi)(A) through (D) of this section apply to the control device.

(A) The control device is not an oxidizer.

(B) The control device is an oxidizer but an exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the emission standards in §63.3320; or

(C) The control device is an oxidizer but the volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or

(D) The control device is an oxidizer but because of the high efficiency of the control device the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

(vii) Except as provided in §63.7(e)(3), each performance test must consist of three separate runs with each run conducted for at least 1 hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining volatile organic compound concentrations and mass flow rates, the average of the results of all the runs will apply.

(viii) Volatile organic matter mass flow rates must be determined for each run specified in paragraph (e)(1)(vii) of this section using Equation 1 of this section:

$$M_r = Q_{sd} C_c [12][0.0416][10^{-6}] \quad \text{Eq. 1}$$

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Where:

M_r = Total organic volatile matter mass flow rate, kilograms (kg)/hour (h).

Q_{sd} = Volumetric flow rate of gases entering or exiting the control device, as determined according to §63.3360(e)(1)(ii), dry standard cubic meters (dscm)/h.

C_c = Concentration of organic compounds as carbon, ppmv.

12.0 = Molecular weight of carbon.

0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(ix) For each run, emission control device destruction or removal efficiency must be determined using Equation 2 of this section:

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \quad \text{Eq. 2}$$

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Where:

E = Organic volatile matter control efficiency of the control device, percent.

M_{fi} = Organic volatile matter mass flow rate at the inlet to the control device, kg/h.

M_{fo} = Organic volatile matter mass flow rate at the outlet of the control device, kg/h.

(x) The control device destruction or removal efficiency is determined as the average of the efficiencies determined in the test runs and calculated in Equation 2 of this section.

(2) You must record such process information as may be necessary to determine the conditions in existence at the time of the performance test. Operations during periods of startup, shutdown, and malfunction will not constitute representative conditions for the purpose of a performance test.

(3) *Operating limits.* If you are using one or more add-on control device other than a solvent recovery system for which you conduct a liquid-liquid material balance to comply with the emission standards in §63.3320, you must establish the applicable operating limits required by §63.3321. These operating limits apply to each add-on emission control device, and you must establish the operating limits during the performance test required by paragraph (e) of this section according to the requirements in paragraphs (e)(3)(i) and (ii) of this section.

(i) *Thermal oxidizer.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (e)(3)(i)(A) and (B) of this section.

(A) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in

the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(B) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(ii) *Catalytic oxidizer.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to paragraphs (e)(3)(ii)(A) and (B) or paragraphs (e)(3)(ii)(C) and (D) of this section.

(A) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(B) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(C) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (e)(3)(ii)(D) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(D) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (e)(3)(ii)(C) of this section. The plan must address, at a minimum, the elements specified in paragraphs (e)(3)(ii)(D)(1) through (3) of this section.

(1) Annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures,

(2) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems, and

(3) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency in accordance with this section.

(f) *Capture efficiency.* If you demonstrate compliance by meeting the requirements of §63.3370(e), (f), (g), (h), (i)(2), (k), (n)(2) or (3), or (p), you must determine capture efficiency using the procedures in paragraph (f)(1), (2), or (3) of this section, as applicable.

(1) You may assume your capture efficiency equals 100 percent if your capture system is a permanent total enclosure (PTE). You must confirm that your capture system is a PTE by demonstrating that it meets the requirements of section 6 of EPA Method 204 of 40 CFR part 51, appendix M, and that all exhaust gases from the enclosure are delivered to a control device.

(2) You may determine capture efficiency according to the protocols for testing with temporary total enclosures that are specified in Methods 204 and 204A through F of 40 CFR part 51, appendix M. You may exclude never-controlled work stations from such capture efficiency determinations.

(3) You may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in appendix A of subpart KK of this part. You may exclude never-controlled work stations from such capture efficiency determinations.

(g) *Volatile matter retained in the coated web or otherwise not emitted to the atmosphere.* You may choose to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere when determining compliance with the emission standards in §63.3320. If you choose this option, you must develop a testing protocol to determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere and submit this protocol to the Administrator for approval. You must submit this protocol with your site-specific test plan under §63.7(f). If you intend to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere and demonstrate compliance according to §63.3370(c)(3), (c)(4), (c)(5), or (d), then the test protocol you submit must determine the mass of organic HAP retained in the coated web or otherwise not emitted to the atmosphere. Otherwise, compliance must be shown using the volatile organic matter content as a surrogate for the HAP content of the coatings.

(h) *Control devices in series.* If you use multiple control devices in series to comply with the emission standards in §63.3320, the performance test must include, at a minimum, the inlet to the first control device in the series, the outlet of the last control device in the series, and all intermediate streams (e.g., gaseous exhaust to the atmosphere or a liquid stream from a recovery device) that are not subsequently treated by any of the control devices in the series.

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REQUIREMENTS FOR SHOWING COMPLIANCE

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§63.3370 HOW DO I DEMONSTRATE COMPLIANCE WITH THE EMISSION STANDARDS?

(a) A summary of how you must demonstrate compliance follows:

If you choose to demonstrate compliance by:	Then you must demonstrate that:	To accomplish this:
(1) Use of “as-purchased” compliant coating materials	(i) Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-purchased; or	Follow the procedures set out in §63.3370(b).
	(ii) Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-purchased	Follow the procedures set out in §63.3370(b).

(2) Use of “as-applied” compliant coating materials	(i) Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-applied; or	Follow the procedures set out in §63.3370(c)(1). Use either Equation 1a or b of §63.3370 to determine compliance with §63.3320(b)(2) in accordance with §63.3370(c)(5)(i).
	(ii) Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-applied; or	Follow the procedures set out in §63.3370(c)(2). Use Equations 2 and 3 of §63.3370 to determine compliance with §63.3320(b)(3) in accordance with §63.3370(c)(5)(i).
	(iii) Monthly average of all coating materials used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and monthly average of all coating materials used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-applied on a monthly average basis; or	Follow the procedures set out in §63.3370(c)(3). Use Equation 4 of §63.3370 to determine compliance with §63.3320(b)(2) in accordance with §63.3370(c)(5)(ii).
	(iv) Monthly average of all coating materials used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and monthly average of all coating materials used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-applied on a monthly average basis	Follow the procedures set out in §63.3370(c)(4). Use Equation 5 of §63.3370 to determine compliance with §63.3320(b)(3) in accordance with §63.3370(c)(5)(ii).
(3) Tracking total monthly organic HAP applied	Total monthly organic HAP applied does not exceed the calculated limit based on emission limitations	Follow the procedures set out in §63.3370(d). Show that total monthly HAP applied (Equation 6 of §63.3370) is less than the calculated equivalent allowable organic HAP (Equation 13a or b of §63.3370).
(4) Use of a capture system and control device	(i) Overall organic HAP control efficiency is equal to 95 percent at an existing affected source and 98 percent at a new affected source on a monthly basis; or oxidizer outlet organic HAP concentration is no greater than 20 ppmv by compound and capture efficiency is 100 percent; or operating parameters are continuously monitored; or	Follow the procedures set out in §63.3370(e) to determine compliance with §63.3320(b)(1) according to §63.3370(i) if using a solvent recovery device, or §63.3370(j) if using a control device and CPMS, or §63.3370(k) if using an oxidizer.
	(ii) Overall organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis;	Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.
	(iii) Overall organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.
	(iv) Overall organic HAP emission rate does not exceed the calculated limit based on	Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less

	emission limitations	than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370). Calculate the monthly organic HAP emission rate according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.
(5) Use of multiple capture and/or control devices	(i) Overall organic HAP control efficiency is equal to 95 percent at an existing affected source and 98 percent at a new affected source on a monthly basis; or	Follow the procedures set out in §63.3370(e) to determine compliance with §63.3320(b)(1) according to §63.3370(e)(1) or (2).
	(ii) Average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(n).
	(iii) Average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(n).
	(iv) Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations	Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370) according to §63.3370(n).
(6) Use of a combination of compliant coatings and control devices	(i) Average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(n).
	(ii) Average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(n).
	(iii) Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations	Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370) according to §63.3370(n).

(b) *As-purchased "compliant" coating materials.* (1) If you comply by using coating materials that individually meet the emission standards in §63.3320(b)(2) or (3), you must demonstrate that each coating material applied during the month at an existing affected source contains no more than 0.04 mass fraction organic HAP or 0.2 kg organic HAP per kg coating solids, and that each coating material applied during the month at a new affected source contains no more than 0.016 mass fraction organic HAP or 0.08 kg organic HAP per kg coating solids on an as-purchased basis as determined in accordance with §63.3360(c).

(2) You are in compliance with emission standards in §63.3320(b)(2) and (3) if each coating material applied at an existing affected source is applied as-purchased and contains no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and each coating material applied at a new affected source is applied as-purchased and contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

(c) *As-applied "compliant" coating materials.* If you comply by using coating materials that meet the emission standards in §63.3320(b)(2) or (3) as-applied, you must demonstrate compliance by following one of the procedures in paragraphs (c)(1) through (4) of this section. Compliance is determined in accordance with paragraph (c)(5) of this section.

(1) *Each coating material as-applied meets the mass fraction of coating material standard (§63.3320(b)(2)).* You must demonstrate that each coating material applied at an existing affected source during the month contains no more than 0.04 kg organic HAP per kg coating material applied, and each coating material applied at a new affected source contains no more than 0.016 kg organic HAP per kg coating material applied as determined in accordance with paragraphs (c)(1)(i) and (ii) of this section. You must calculate the as-applied organic HAP content of as-purchased coating materials which are reduced, thinned, or diluted prior to application.

(i) Determine the organic HAP content or volatile organic content of each coating material applied on an as-purchased basis in accordance with §63.3360(c).

(ii) Calculate the as-applied organic HAP content of each coating material using Equation 1a of this section:

$$C_{ahi} = \frac{\left(C_{hi}M_i + \sum_{j=1}^q C_{hij}M_j \right)}{M_i + \sum_{j=1}^q M_j} \quad \text{Eq. 1a}$$

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Where:

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_j = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

or calculate the as-applied volatile organic content of each coating material using Equation 1b of this section:

$$C_{avi} = \frac{\left(C_{vi}M_i + \sum_{j=1}^q C_{vij}M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}} \quad \text{Eq. 1b}$$

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Where:

C_{avi} = Monthly average, as-applied, volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.

C_{vi} = Volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{vij} = Volatile organic content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(2) *Each coating material as-applied meets the mass fraction of coating solids standard (§63.3320(b)(3)).* You must demonstrate that each coating material applied at an existing affected source contains no more than 0.20 kg of organic HAP per kg of coating solids applied and each coating material applied at a new affected source contains no more than 0.08 kg of organic HAP per kg of coating solids applied. You must demonstrate compliance in accordance with paragraphs (c)(2)(i) and (ii) of this section.

(i) Determine the as-applied coating solids content of each coating material following the procedure in §63.3360(d). You must calculate the as-applied coating solids content of coating materials which are reduced, thinned, or diluted prior to application, using Equation 2 of this section:

$$C_{asi} = \frac{\left(C_{si}M_i + \sum_{j=1}^q C_{sij}M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}} \quad \text{Eq. 2}$$

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Where:

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{sij} = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass-fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(ii) Calculate the as-applied organic HAP to coating solids ratio using Equation 3 of this section:

$$H_{si} = \frac{C_{ahi}}{C_{asi}} \quad \text{Eq. 3}$$

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Where:

H_{si} = As-applied, organic HAP to coating solids ratio of coating material, i.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

C_{asi} = Monthly average, as-applied, coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

(3) *Monthly average organic HAP content of all coating materials as-applied is less than the mass percent limit (§63.3320(b)(2)).* Demonstrate that the monthly average as-applied organic HAP content of all coating materials applied at an existing affected source is less than 0.04 kg organic HAP per kg of coating material applied, and all coating materials applied at a new affected source are less than 0.016 kg organic HAP per kg of coating material applied, as determined by Equation 4 of this section:

$$H_L = \frac{\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{\text{vret}}}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_{ij}} \quad \text{Eq. 4}$$

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Where:

H_L = Monthly average, as-applied, organic HAP content of all coating materials applied, expressed as kg organic HAP per kg of coating material applied, kg/kg.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

(4) *Monthly average organic HAP content of all coating materials as-applied is less than the mass fraction of coating solids limit (§63.3320(b)(3)).* Demonstrate that the monthly average as-applied organic HAP content on the basis of coating solids applied of all coating materials applied at an existing affected source is less than 0.20 kg organic HAP per kg coating solids applied, and all coating materials applied at a new affected source are less than 0.08 kg organic HAP per kg coating solids applied, as determined by Equation 5 of this section:

$$H_s = \frac{\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{\text{vret}}}{\sum_{i=1}^p C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij}} \quad \text{Eq. 5}$$

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Where:

H_s = Monthly average, as-applied, organic HAP to coating solids ratio, kg organic HAP/kg coating solids applied.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i , as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i , applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j , added to as-purchased coating material, i , expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j , added to as-purchased coating material, i , in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

C_{si} = Coating solids content of coating material, i , expressed as a mass fraction, kg/kg.

C_{sij} = Coating solids content of material, j , added to as-purchased coating material, i , expressed as a mass-fraction, kg/kg.

(5) The affected source is in compliance with emission standards in §63.3320(b)(2) or (3) if:

(i) The organic HAP content of each coating material as-applied at an existing affected source is no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and the organic HAP content of each coating material as-applied at a new affected source contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids; or

(ii) The monthly average organic HAP content of all as-applied coating materials at an existing affected source are no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and the monthly average organic HAP content of all as-applied coating materials at a new affected source is no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

(d) *Monthly allowable organic HAP applied.* Demonstrate that the total monthly organic HAP applied as determined by Equation 6 of this section is less than the calculated equivalent allowable organic HAP as determined by Equation 13a or b in paragraph (l) of this section:

$$H_m = \sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{\text{vret}} \quad \text{Eq. 6}$$

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Where:

H_m = Total monthly organic HAP applied, kg.

p = Number of different coating materials applied in a month.

C_{ni} = Organic HAP content of coating material, i , as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i , applied in a month, kg.

q = Number of different materials added to the coating material.

C_{nj} = Organic HAP content of material, j , added to as-purchased coating material, i , expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j , added to as-purchased coating material, i , in a month, kg.

M_{net} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

(e) *Capture and control to reduce emissions to no more than allowable limit (§63.3320(b)(1))*. Operate a capture system and control device and demonstrate an overall organic HAP control efficiency of at least 95 percent at an existing affected source and at least 98 percent at a new affected source for each month, or operate a capture system and oxidizer so that an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis is achieved as long as the capture efficiency is 100 percent as detailed in §63.3320(b)(4). Unless one of the cases described in paragraph (e)(1), (2), or (3) of this section applies to the affected source, you must either demonstrate compliance in accordance with the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device, or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer or demonstrate compliance for a web coating line by operating each capture system and each control device and continuous parameter monitoring according to the procedures in paragraph (j) of this section.

(1) If the affected source has only always-controlled work stations and operates more than one capture system or more than one control device, you must demonstrate compliance in accordance with the provisions of either paragraph (n) or (p) of this section.

(2) If the affected source operates one or more never-controlled work stations or one or more intermittently-controlled work stations, you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section.

(3) An alternative method of demonstrating compliance with §63.3320(b)(1) is the installation of a PTE around the web coating line that achieves 100 percent capture efficiency and ventilation of all organic HAP emissions from the total enclosure to an oxidizer with an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis. If this method is selected, you must demonstrate compliance by following the procedures in paragraphs (e)(3)(i) and (ii) of this section. Compliance is determined according to paragraph (e)(3)(iii) of this section.

(i) Demonstrate that a total enclosure is installed. An enclosure that meets the requirements in §63.3360(f)(1) will be considered a total enclosure.

(ii) Determine the organic HAP concentration at the outlet of your total enclosure using the procedures in paragraph (e)(3)(ii)(A) or (B) of this section.

(A) Determine the control device efficiency using Equation 2 of §63.3360 and the applicable test methods and procedures specified in §63.3360(e).

(B) Use a CEMS to determine the organic HAP emission rate according to paragraphs (i)(2)(i) through (x) of this section.

(iii) You are in compliance if the installation of a total enclosure is demonstrated and the organic HAP concentration at the outlet of the incinerator is demonstrated to be no greater than 20 ppmv by compound on a dry basis.

(f) *Capture and control to achieve mass fraction of coating solids applied limit (§63.3320(b)(3)).* Operate a capture system and control device and limit the organic HAP emission rate from an existing affected source to no more than 0.20 kg organic HAP emitted per kg coating solids applied, and from a new affected source to no more than 0.08 kg organic HAP emitted per kg coating solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, you must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(g) *Capture and control to achieve mass fraction limit (§63.3320(b)(2)).* Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg organic HAP emitted per kg coating material applied at an existing affected source, and no more than 0.016 kg organic HAP emitted per kg coating material applied at a new affected source as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, you must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(h) *Capture and control to achieve allowable emission rate.* Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with paragraph (l) of this section. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, the owner or operator must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(i) *Solvent recovery device compliance demonstration.* If you use a solvent recovery device to control emissions, you must show compliance by following the procedures in either paragraph (i)(1) or (2) of this section:

(1) *Liquid-liquid material balance.* Perform a monthly liquid-liquid material balance as specified in paragraphs (i)(1)(i) through (v) of this section and use the applicable equations in paragraphs (i)(1)(vi) through (ix) of this section to convert the data to units of the selected compliance option in paragraphs (e) through (h) of this section. Compliance is determined in accordance with paragraph (i)(1)(x) of this section.

(i) Determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common solvent recovery device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in §63.3360(c).

(iii) Determine the volatile organic content of each coating material as-applied during the month following the procedure in §63.3360(d).

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).

(v) Determine and monitor the amount of volatile organic matter recovered for the month according to the procedures in §63.3350(d).

(vi) *Recovery efficiency.* Calculate the volatile organic matter collection and recovery efficiency using Equation 7 of this section:

$$R_v = \frac{M_w + M_{vret}}{\sum_{i=1}^p C_{vi} M_i + \sum_{i=1}^q C_{vij} M_{ij}} \times 100 \quad \text{Eq. 7}$$

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Where:

R_v = Organic volatile matter collection and recovery efficiency, percent.

M_w = Mass of volatile matter recovered in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

p = Number of different coating materials applied in a month.

C_{vi} = Volatile organic content of coating material, i , expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i , applied in a month, kg.

q = Number of different materials added to the coating material.

C_{vij} = Volatile organic content of material, j , added to as-purchased coating material, i , expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(vii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month using Equation 8 of this section:

$$H_e = \left[1 - \frac{R_v}{100} \right] \left[\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{\text{ret}} \right] \quad \text{Eq. 8}$$

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Where:

H_e = Total monthly organic HAP emitted, kg.

R_v = Organic volatile matter collection and recovery efficiency, percent.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{ret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

(viii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied using Equation 9 of this section:

$$L = \frac{H_e}{\sum_{i=1}^p C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij}} \quad \text{Eq. 9}$$

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Where:

L = Mass organic HAP emitted per mass of coating solids applied, kg/kg.

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{sij} = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass-fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(ix) *Organic HAP emission rate based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section:

$$S = \frac{H_e}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_{ij}} \quad \text{Eq. 10}$$

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Where:

S = Mass organic HAP emitted per mass of material applied, kg/kg.

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(x) You are in compliance with the emission standards in §63.3320(b) if:

(A) The volatile organic matter collection and recovery efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(B) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(C) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(D) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(2) *Continuous emission monitoring of capture system and control device performance.* Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous emission monitors and continuous monitoring of capture system operating parameters following the procedures in paragraphs (i)(2)(i) through (vii) of this section. Use the applicable equations specified in paragraphs (i)(2)(viii) through (x) of this section to convert the monitoring and other data into units of the selected compliance option in paragraphs (e) through (h) of this section. Compliance is determined in accordance with paragraph (i)(2)(xi) of this section.

(i) *Control device efficiency.* Continuously monitor the gas stream entering and exiting the control device to determine the total organic volatile matter mass flow rate (e.g., by determining the concentration of the vent gas in grams per cubic meter and the volumetric flow rate in cubic meters per second such that the total organic volatile matter mass flow rate in grams per second can be

calculated) such that the control device efficiency of the control device can be calculated for each month using Equation 2 of §63.3360.

(ii) *Capture efficiency monitoring.* Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with §63.3350(f) to ensure capture efficiency.

(iii) Determine the percent capture efficiency in accordance with §63.3360(f).

(iv) *Control efficiency.* Calculate the overall organic HAP control efficiency achieved for each month using Equation 11 of this section:

$$R = \frac{(E)(CE)}{100} \quad \text{Eq. 11}$$

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Where:

R = Overall organic HAP control efficiency, percent.

E = Organic volatile matter control efficiency of the control device, percent.

CE = Organic volatile matter capture efficiency of the capture system, percent.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied, or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common control device during the month.

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in §63.3360(c).

(vii) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material as-applied during the month following the procedure in §63.3360(d).

(viii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month for each month using Equation 12 of this section:

$$H_e = (1 - R) \left(\sum_{i=1}^P C_{\text{ald}} M_i \right) - M_{\text{wet}} \quad \text{Eq. 12}$$

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Where:

H_e = Total monthly organic HAP emitted, kg.

R = Overall organic HAP control efficiency, percent.

p = Number of different coating materials applied in a month.

C_{mi} = Monthly average, as-applied, organic HAP content of coating material, i , expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i , applied in a month, kg.

M_{ret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(ix) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied using Equation 9 of this section.

(x) *Organic HAP emission rate based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

(xi) *Compare actual performance to the performance required by compliance option.* The affected source is in compliance with the emission standards in §63.3320(b) for each month if the capture system is operated such that the average capture system operating parameter is greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3350(f); and

(A) The organic volatile matter collection and recovery efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(B) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(C) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(D) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(j) *Capture and control system compliance demonstration procedures using a CPMS.* If you use an add-on control device, you must demonstrate initial compliance for each capture system and each control device through performance tests and demonstrate continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (j)(1) through (3) of this section. Compliance is determined in accordance with paragraph (j)(4) of this section.

(1) Determine the control device destruction or removal efficiency using the applicable test methods and procedures in §63.3360(e).

(2) Determine the emission capture efficiency in accordance with §63.3360(f).

(3) Whenever a web coating line is operated, continuously monitor the operating parameters established according to §63.3350(e) and (f).

(4) You are in compliance with the emission standards in §63.3320(b) if the control device is operated such that the average operating parameter value is greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3360(e) for each 3-hour period,

and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3350(f); and

(i) The overall organic HAP control efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(ii) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(iii) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(iv) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(k) *Oxidizer compliance demonstration procedures.* If you use an oxidizer to control emissions, you must show compliance by following the procedures in paragraph (k)(1) of this section. Use the applicable equations specified in paragraph (k)(2) of this section to convert the monitoring and other data into units of the selected compliance option in paragraph (e) through (h) of this section. Compliance is determined in accordance with paragraph (k)(3) of this section.

(1) Demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (k)(1)(i) through (vi) of this section:

(i) Determine the oxidizer destruction efficiency using the procedure in §63.3360(e).

(ii) Determine the capture system capture efficiency in accordance with §63.3360(f).

(iii) *Capture and control efficiency monitoring.* Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with §63.3350(e) and (f) to ensure capture and control efficiency.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied, or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common oxidizer during the month.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in §63.3360(c).

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).

(2) Convert the information obtained under paragraph (p)(1) of this section into the units of the selected compliance option using the calculation procedures specified in paragraphs (k)(2)(i) through (iv) of this section.

(i) *Control efficiency.* Calculate the overall organic HAP control efficiency achieved using Equation 11 of this section.

(ii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month using Equation 12 of this section.

(iii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.

(iv) *Organic HAP based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

(3) You are in compliance with the emission standards in §63.3320(b) if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with §63.3360(e) for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3350(f); and

(i) The overall organic HAP control efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(ii) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(iii) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(iv) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(l) *Monthly allowable organic HAP emissions.* This paragraph provides the procedures and calculations for determining monthly allowable organic HAP emissions for use in demonstrating compliance in accordance with paragraph (d), (h), (i)(1)(x)(D), (i)(2)(xi)(D), or (k)(3)(iv) of this section. You will need to determine the amount of coating material applied at greater than or equal to 20 mass percent coating solids and the amount of coating material applied at less than 20 mass percent coating solids. The allowable organic HAP limit is then calculated based on coating material applied at greater than or equal to 20 mass percent coating solids complying with 0.2 kg organic HAP per kg coating solids at an existing affected source or 0.08 kg organic HAP per kg coating solids at a new affected source, and coating material applied at less than 20 mass percent coating solids complying with 4 mass percent organic HAP at an existing affected source and 1.6 mass-percent organic HAP at a new affected source as follows:

(1) Determine the as-purchased mass of each coating material applied each month.

(2) Determine the as-purchased coating solids content of each coating material applied each month in accordance with §63.3360(d)(1).

(3) Determine the as-purchased mass fraction of each coating material which was applied at 20 mass percent or greater coating solids content on an as-applied basis.

(4) Determine the total mass of each solvent, diluent, thinner, or reducer added to coating materials which were applied at less than 20 mass percent coating solids content on an as-applied basis each month.

(5) Calculate the monthly allowable organic HAP emissions using Equation 13a of this section for an existing affected source:

$$H_a = 0.20 \left[\sum_{i=1}^p M_i G_i C_{si} \right] + 0.04 \left[\sum_{i=1}^p M_i (1 - G_i) + \sum_{j=1}^q M_{L_j} \right] \quad \text{Eq. 13a}$$

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Where:

H_a = Monthly allowable organic HAP emissions, kg.

p = Number of different coating materials applied in a month.

M_i = mass of as-purchased coating material, i , applied in a month, kg.

G_i = Mass fraction of each coating material, i , which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

C_{si} = Coating solids content of coating material, i , expressed as a mass fraction, kg/kg.

q = Number of different materials added to the coating material.

M_{L_j} = Mass of non-coating-solids-containing coating material, j , added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

or Equation 13b of this section for a new affected source:

$$H_a = 0.08 \left[\sum_{i=1}^p M_i G_i C_{si} \right] + 0.016 \left[\sum_{i=1}^p M_i (1 - G_i) + \sum_{j=1}^q M_{L_j} \right] \quad \text{Eq. 13b}$$

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Where:

H_a = Monthly allowable organic HAP emissions, kg.

p = Number of different coating materials applied in a month.

M_i = Mass of as-purchased coating material, i , applied in a month, kg.

G_i = Mass fraction of each coating material, i , which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

C_{si} = Coating solids content of coating material, i , expressed as a mass fraction, kg/kg.

q = Number of different materials added to the coating material.

M_{ij} = Mass of non-coating-solids-containing coating material, j, added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

(m) [Reserved]

(n) *Combinations of capture and control.* If you operate more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, you must calculate organic HAP emissions according to the procedures in paragraphs (n)(1) through (4) of this section, and use the calculation procedures specified in paragraph (n)(5) of this section to convert the monitoring and other data into units of the selected control option in paragraphs (e) through (h) of this section. Use the procedures specified in paragraph (n)(6) of this section to demonstrate compliance.

(1) *Solvent recovery system using liquid-liquid material balance compliance demonstration.* If you choose to comply by means of a liquid-liquid material balance for each solvent recovery system used to control one or more web coating lines, you must determine the organic HAP emissions for those web coating lines controlled by that solvent recovery system either:

(i) In accordance with paragraphs (i)(1)(i) through (iii) and (v) through (vii) of this section, if the web coating lines controlled by that solvent recovery system have only always-controlled work stations; or

(ii) In accordance with paragraphs (i)(1)(ii), (iii), (v), and (vi) and (o) of this section, if the web coating lines controlled by that solvent recovery system have one or more never-controlled or intermittently-controlled work stations.

(2) *Solvent recovery system using performance test compliance demonstration and CEMS.* To demonstrate compliance through an initial test of capture efficiency, continuous monitoring of a capture system operating parameter, and a CEMS on each solvent recovery system used to control one or more web coating lines, you must:

(i) For each capture system delivering emissions to that solvent recovery system, monitor the operating parameter established in accordance with §63.3350(f) to ensure capture system efficiency; and

(ii) Determine the organic HAP emissions for those web coating lines served by each capture system delivering emissions to that solvent recovery system either:

(A) In accordance with paragraphs (i)(2)(i) through (iii), (v), (vi), and (viii) of this section, if the web coating lines served by that capture and control system have only always-controlled work stations; or

(B) In accordance with paragraphs (i)(2)(i) through (iii), (vi), and (o) of this section, if the web coating lines served by that capture and control system have one or more never-controlled or intermittently-controlled work stations.

(3) *Oxidizer.* To demonstrate compliance through performance tests of capture efficiency and control device efficiency, continuous monitoring of capture system, and CPMS for control device operating parameters for each oxidizer used to control emissions from one or more web coating lines, you must:

(i) Monitor the operating parameter in accordance with §63.3350(e) to ensure control device efficiency; and

(ii) For each capture system delivering emissions to that oxidizer, monitor the operating parameter established in accordance with §63.3350(f) to ensure capture efficiency; and

(iii) Determine the organic HAP emissions for those web coating lines served by each capture system delivering emissions to that oxidizer either:

(A) In accordance with paragraphs (k)(1)(i) through (vi) of this section, if the web coating lines served by that capture and control system have only always-controlled work stations; or

(B) In accordance with paragraphs (k)(1)(i) through (iii), (v), and (o) of this section, if the web coating lines served by that capture and control system have one or more never-controlled or intermittently-controlled work stations.

(4) *Uncontrolled coating lines.* If you own or operate one or more uncontrolled web coating lines, you must determine the organic HAP applied on those web coating lines using Equation 6 of this section. The organic HAP emitted from an uncontrolled web coating line is equal to the organic HAP applied on that web coating line.

(5) Convert the information obtained under paragraphs (n)(1) through (4) of this section into the units of the selected compliance option using the calculation procedures specified in paragraphs (n)(5)(i) through (iv) of this section.

(i) *Organic HAP emitted.* Calculate the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to paragraphs (n)(1), (2)(ii), (3)(iii), and (4) of this section.

(ii) *Coating solids applied.* If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, the owner or operator must determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).

(iii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.

(iv) *Organic HAP based on materials applied.* Calculate the organic HAP emission rate based on material applied using Equation 10 of this section.

(6) *Compliance.* The affected source is in compliance with the emission standards in §63.3320(b) for the month if all operating parameters required to be monitored under paragraphs (n)(1) through (3) of this section were maintained at the values established under §§63.3350 and 63.3360; and

(i) The total mass of organic HAP emitted by the affected source based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(ii) The total mass of organic HAP emitted by the affected source based on material applied is no more than 0.04 kg organic HAP per kg material applied at an existing affected source and no more than 0.016 kg organic HAP per kg material applied at a new affected source; or

(iii) The total mass of organic HAP emitted by the affected source during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section; or

(iv) The total mass of organic HAP emitted by the affected source was not more than 5 percent of the total mass of organic HAP applied for the month at an existing affected source and no more than 2 percent of the total mass of organic HAP applied for the month at a new affected source. The total mass of organic HAP applied by the affected source in the month must be determined using Equation 6 of this section.

(o) *Intermittently-controlled and never-controlled work stations.* If you have been expressly referenced to this paragraph by paragraphs (n)(1)(ii), (n)(2)(ii)(B), or (n)(3)(iii)(B) of this section for calculation procedures to determine organic HAP emissions for your intermittently-controlled and never-controlled work stations, you must:

(1) Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in bypass mode and the mass of all coating materials as-applied on never-controlled work stations during the month.

(2) Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in a controlled mode and the mass of all coating materials applied on always-controlled work stations during the month.

(3) *Liquid-liquid material balance compliance demonstration.* For each web coating line or group of web coating lines for which you use the provisions of paragraph (n)(1)(ii) of this section, you must calculate the organic HAP emitted during the month using Equation 14 of this section:

$$H_e = \left[\sum_{i=1}^p M_{Ci} C_{ahi} \right] \left[1 - \frac{R_v}{100} \right] + \left[\sum_{i=1}^p M_{Bi} C_{ahi} \right] - M_{vret} \quad \text{Eq. 14}$$

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Where:

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

M_{Ci} = Sum of the mass of coating material, i , as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material, i , as-applied on always-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i , expressed as a mass fraction, kg/kg.

R_v = Organic volatile matter collection and recovery efficiency, percent.

M_{Bi} = Sum of the mass of coating material, i , as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material, i , as-applied on never-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i , expressed as a mass fraction, kg/kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(4) *Performance test to determine capture efficiency and control device efficiency.* For each web coating line or group of web coating lines for which you use the provisions of paragraph (n)(2)(ii)(B) or (n)(3)(iii)(B) of this section, you must calculate the organic HAP emitted during the month using Equation 15 of this section:

$$H_e = \left[\sum_{i=1}^p M_{Ci} C_{ahi} \right] \left[1 - \frac{R}{100} \right] + \left[\sum_{i=1}^p M_{Bi} C_{ahi} \right] - M_{vret} \quad \text{Eq. 15}$$

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Where:

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

M_{ci} = Sum of the mass of coating material, i , as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material, i , as-applied on always-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i , expressed as a mass fraction, kg/kg.

R = Overall organic HAP control efficiency, percent.

M_{bi} = Sum of the mass of coating material, i , as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material, i , as-applied on never-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i , expressed as a mass fraction, kg/kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(p) *Always-controlled work stations with more than one capture and control system.* If you operate more than one capture system or more than one control device and only have always-controlled work stations, then you are in compliance with the emission standards in §63.3320(b)(1) for the month if for each web coating line or group of web coating lines controlled by a common control device:

(1) The volatile matter collection and recovery efficiency as determined by paragraphs (i)(1)(i), (iii), (v), and (vi) of this section is at least 95 percent at an existing affected source and at least 98 percent at a new affected source; or

(2) The overall organic HAP control efficiency as determined by paragraphs (i)(2)(i) through (iv) of this section for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95 percent at an existing affected source and at least 98 percent at a new affected source; or

(3) The overall organic HAP control efficiency as determined by paragraphs (k)(1)(i) through (iii) and (k)(2)(i) of this section for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95 percent at an existing affected source and at least 98 percent at a new affected source.

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NOTIFICATIONS, REPORTS, AND RECORDS

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§63.3400 WHAT NOTIFICATIONS AND REPORTS MUST I SUBMIT?

(a) Each owner or operator of an affected source subject to this subpart must submit the reports specified in paragraphs (b) through (g) of this section to the Administrator:

(b) You must submit an initial notification as required by §63.9(b).

(1) Initial notification for existing affected sources must be submitted no later than 1 year before the compliance date specified in §63.3330(a).

(2) Initial notification for new and reconstructed affected sources must be submitted as required by §63.9(b).

(3) For the purpose of this subpart, a title V or part 70 permit application may be used in lieu of the initial notification required under §63.9(b), provided the same information is contained in the permit application as required by §63.9(b) and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA to implement and enforce this subpart.

(4) If you are using a permit application in lieu of an initial notification in accordance with paragraph (b)(3) of this section, the permit application must be submitted by the same due date specified for the initial notification.

(c) You must submit a semiannual compliance report according to paragraphs (c)(1) and (2) of this section.

(1) Compliance report dates.

(i) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.3330 and ending on June 30 or December 31, whichever date is the first date following the end of the calendar half immediately following the compliance date that is specified for your affected source in §63.3330.

(ii) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the calendar half immediately following the compliance date that is specified for your affected source in §63.3330.

(iii) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(iv) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(v) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and the permitting authority has established dates for submitting semiannual reports pursuant to §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (c)(1)(i) through (iv) of this section.

(2) The compliance report must contain the information in paragraphs (c)(2)(i) through (vi) of this section:

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature certifying the accuracy of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period.

(iv) If there are no deviations from any emission limitations (emission limit or operating limit) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period, and that no CEMS was inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted.

(v) For each deviation from an emission limitation (emission limit or operating limit) that applies to you and that occurs at an affected source where you are not using a CEMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(2)(i) through (iii) of this section, and:

(A) The total operating time of each affected source during the reporting period.

(B) Information on the number, duration, and cause of deviations (including unknown cause), if applicable, and the corrective action taken.

(C) Information on the number, duration, and cause for CPMS downtime incidents, if applicable, other than downtime associated with zero and span and other calibration checks.

(vi) For each deviation from an emission limit occurring at an affected source where you are using a CEMS to comply with the emission limit in this subpart, you must include the information in paragraphs (c)(2)(i) through (iii) and (vi)(A) through (J) of this section.

(A) The date and time that each malfunction started and stopped.

(B) The date and time that each CEMS and CPMS, if applicable, was inoperative except for zero (low-level) and high-level checks.

(C) The date and time that each CEMS and CPMS, if applicable, was out-of-control, including the information in §63.8(c)(8).

(D) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(E) A summary of the total duration (in hours) of each deviation during the reporting period and the total duration of each deviation as a percent of the total source operating time during that reporting period.

(F) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(G) A summary of the total duration (in hours) of CEMS and CPMS downtime during the reporting period and the total duration of CEMS and CPMS downtime as a percent of the total source operating time during that reporting period.

(H) A breakdown of the total duration of CEMS and CPMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes.

(I) The date of the latest CEMS and CPMS certification or audit.

(J) A description of any changes in CEMS, CPMS, or controls since the last reporting period.

(d) You must submit a Notification of Performance Tests as specified in §§63.7 and 63.9(e) if you are complying with the emission standard using a control device and you are required to conduct a performance test of the control device. This notification and the site-specific test plan required under §63.7(c)(2) must identify the operating parameters to be monitored to ensure that the capture efficiency of the capture system and the control efficiency of the control device determined during the performance test are maintained. Unless EPA objects to the parameter or requests changes, you may consider the parameter approved.

(e) You must submit a Notification of Compliance Status as specified in §63.9(h).

(f) You must submit performance test reports as specified in §63.10(d)(2) if you are using a control device to comply with the emission standard and you have not obtained a waiver from the performance test requirement or you are not exempted from this requirement by §63.3360(b). The performance test reports must be submitted as part of the notification of compliance status required in §63.3400(e).

(g) You must submit startup, shutdown, and malfunction reports as specified in §63.10(d)(5), except that the provisions in subpart A of this part pertaining to startups, shutdowns, and malfunctions do not apply unless a control device is used to comply with this subpart.

(1) If actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSMP required by §63.6(e)(3), the owner or operator must state such information in the report. The startup, shutdown, or malfunction report must consist of a letter containing the name, title, and signature of the responsible official who is certifying its accuracy and must be submitted to the Administrator.

(2) Separate startup, shutdown, and malfunction reports are not required if the information is included in the report specified in paragraph (c)(2)(vi) of this section.

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§63.3410 WHAT RECORDS MUST I KEEP?

(a) Each owner or operator of an affected source subject to this subpart must maintain the records specified in paragraphs (a)(1) and (2) of this section on a monthly basis in accordance with the requirements of §63.10(b)(1):

(1) Records specified in §63.10(b)(2) of all measurements needed to demonstrate compliance with this standard, including:

(i) Continuous emission monitor data in accordance with the requirements of §63.3350(d);

(ii) Control device and capture system operating parameter data in accordance with the requirements of §63.3350(c), (e), and (f);

(iii) Organic HAP content data for the purpose of demonstrating compliance in accordance with the requirements of §63.3360(c);

(iv) Volatile matter and coating solids content data for the purpose of demonstrating compliance in accordance with the requirements of §63.3360(d);

(v) Overall control efficiency determination using capture efficiency and control device destruction or removal efficiency test results in accordance with the requirements of §63.3360(e) and (f); and

(vi) Material usage, organic HAP usage, volatile matter usage, and coating solids usage and compliance demonstrations using these data in accordance with the requirements of §63.3370(b), (c), and (d).

(2) Records specified in §63.10(c) for each CMS operated by the owner or operator in accordance with the requirements of §63.3350(b).

(b) Each owner or operator of an affected source subject to this subpart must maintain records of all liquid-liquid material balances performed in accordance with the requirements of §63.3370. The records must be maintained in accordance with the requirements of §63.10(b).

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DELEGATION OF AUTHORITY

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§63.3420 WHAT AUTHORITIES MAY BE DELEGATED TO THE STATES?

(a) In delegating implementation and enforcement authority to a State under 40 CFR part 63, subpart E, the authorities contained in paragraph (b) of this section must be retained by the Administrator and not transferred to a State.

(b) Authority which will not be delegated to States: §63.3360(c), approval of alternate test method for organic HAP content determination; §63.3360(d), approval of alternate test method for volatile matter determination.

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TABLE 1 TO SUBPART JJJJ OF PART 63—OPERATING LIMITS IF USING ADD-ON CONTROL DEVICES AND CAPTURE SYSTEM

If you are required to comply with operating limits by §63.3321, you must comply with the applicable operating limits in the following table:

For the following device:	You must meet the following operating limit:	And you must demonstrate continuous compliance with operating limits by:
1. Thermal oxidizer	a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to §63.3360(e)(3)(i)	i. Collecting the combustion temperature data according to §63.3350(e)(9); ii. Reducing the data to 3-hour block averages; and iii. Maintain the 3-hour average combustion temperature at or above the temperature limit.

2. Catalytic oxidizer	a. The average temperature at the inlet to the catalyst bed in any 3-hour period must not fall below the combustion temperature limit established according to §63.3360(e)(3)(ii)	i. Collecting the catalyst bed inlet temperature data according to §63.3350(e)(9); ii. Reducing the data to 3-hour block averages; and iii. Maintain the 3-hour average catalyst bed inlet temperature at or above the temperature limit.
	b. The temperature rise across the catalyst bed must not fall below the limit established according to §63.3360(e)(3)(ii)	i. Collecting the catalyst bed inlet and outlet temperature data according to §63.3350(e)(9); ii. Reducing the data to 3-hour block averages; and iii. Maintain the 3-hour average temperature rise across the catalyst bed at or above the limit.
3. Emission capture system	Submit monitoring plan to the Administrator that identifies operating parameters to be monitored according to §63.3350(f)	Conduct monitoring according to the plan (§63.3350(f)(3)).

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TABLE 2 TO SUBPART JJJJ OF PART 63—APPLICABILITY OF 40 CFR PART 63 GENERAL PROVISIONS TO SUBPART JJJJ

You must comply with the applicable General Provisions requirements according to the following table:

General provisions reference	Applicable to subpart JJJJ	Explanation
§63.1(a)(1)-(4)	Yes.	
§63.1(a)(5)	No	Reserved.
§63.1(a)(6)-(8)	Yes.	
§63.1(a)(9)	No	Reserved.
§63.1(a)(10)-(14)	Yes.	
§63.1(b)(1)	No	Subpart JJJJ specifies applicability.
§63.1(b)(2)-(3)	Yes.	
§63.1(c)(1)	Yes.	
§63.1(c)(2)	No	Area sources are not subject to emission standards of subpart JJJJ.
§63.1(c)(3)	No	Reserved.
§63.1(c)(4)	Yes.	
§63.1(c)(5)	Yes.	
§63.1(d)	No	Reserved.
§63.1(e)	Yes.	
§63.1(e)(4)	No.	
§63.2	Yes	Additional definitions in subpart JJJJ.
§63.3(a)-(c)	Yes.	

§63.4(a)(1)-(3)	Yes.	
§63.4(a)(4)	No	Reserved.
§63.4(a)(5)	Yes.	
§63.4(b)-(c)	Yes.	
§63.5(a)(1)-(2)	Yes.	
§63.5(b)(1)	Yes.	
§63.5(b)(2)	No	Reserved.
§63.5(b)(3)-(6)	Yes.	
§63.5(c)	No	Reserved.
§63.5(d)	Yes.	
§63.5(e)	Yes.	
§63.5(f)	Yes.	
§63.6(a)	Yes	Applies only when capture and control system is used to comply with the standard.
§63.6(b)(1)-(5)	No	
§63.6(b)(6)	No	Reserved.
§63.6(b)(7)	Yes.	
§63.6(c)(1)-(2)	Yes.	
§63.6(c)(3)-(4)	No	Reserved.
§63.6(c)(5)	Yes.	
§63.6(d)	No	Reserved.
§63.6(e)	Yes	Provisions pertaining to SSMP, and CMS do not apply unless an add-on control system is used to comply with the emission limitations.
§63.6(f)	Yes.	
§63.6(g)	Yes.	
§63.6(h)	No	Subpart JJJJ does not require continuous opacity monitoring systems (COMS).
§63.6(i)(1)-(14)	Yes.	
§63.6(i)(15)	No	Reserved.
§63.6(i)(16)	Yes.	
§63.6(j)	Yes.	
§63.7	Yes.	
§63.8(a)(1)-(2)	Yes.	
§63.8(a)(3)	No	Reserved.
§63.8(a)(4)	No.	
§63.8(b)	Yes.	
§63.8(c)(1)-(3)	Yes	§63.8(c)(1)(i) & (ii) only apply if you use capture and control systems and

		are required to have a start-up, shutdown, and malfunction plan.
§63.8(c)(4)	Yes.	
§63.8(c)(5)	No	Subpart JJJJ does not require COMS.
§63.8(c)(6)-(c)(8)	Yes	Provisions for COMS are not applicable.
§63.8(d)-(f)	Yes	§63.8(f)(6) only applies if you use CEMS.
§63.8(g)	Yes	Only applies if you use CEMS.
§63.9(a)	Yes.	
§63.9(b)(1)	Yes.	
§63.9(b)(2)	Yes	Except §63.3400(b)(1) requires submittal of initial notification for existing affected sources no later than 1 year before compliance date.
§63.9(b)(3)-(5)	Yes.	
§63.9(c)-(e)	Yes.	
§63.9(f)	No	Subpart JJJJ does not require opacity and visible emissions observations.
§63.9(g)	Yes	Provisions for COMS are not applicable.
§63.9(h)(1)-(3)	Yes.	
§63.9(h)(4)	No	Reserved.
§63.9(h)(5)-(6)	Yes.	
§63.9(i)	Yes.	
§63.9(j)	Yes.	
§63.10(a)	Yes.	
§63.10(b)(1)-(3)	Yes	§63.10(b)(2)(i) through (v) only apply if you use a capture and control system.
§63.10(c)(1)	Yes.	
§63.10(c)(2)-(4)	No	Reserved.
§63.10(c)(5)-(8)	Yes.	
§63.10(c)(9)	No	Reserved.
§63.10(c)(10)-(15)	Yes.	
§63.10(d)(1)-(2)	Yes.	
§63.10(d)(3)	No	Subpart JJJJ does not require opacity and visible emissions observations.
§63.10(d)(4)-(5)	Yes.	
§63.10(e)(1)-(2)	Yes	Provisions for COMS are not applicable.
§63.10(e)(3)-(4)	No.	
§63.10(f)	Yes.	
§63.11	No.	
§63.12	Yes.	
§63.13	Yes.	
§63.14	Yes	Subpart JJJJ includes provisions for alternative ASME test methods that are

		incorporated by reference.
§63.15	Yes.	

APPENDIX B: DETAILED EMISSION CALCULATIONS

Hilex Poly Company, LLC
Jerome, ID
Existing and Proposed Units Emission Inventory

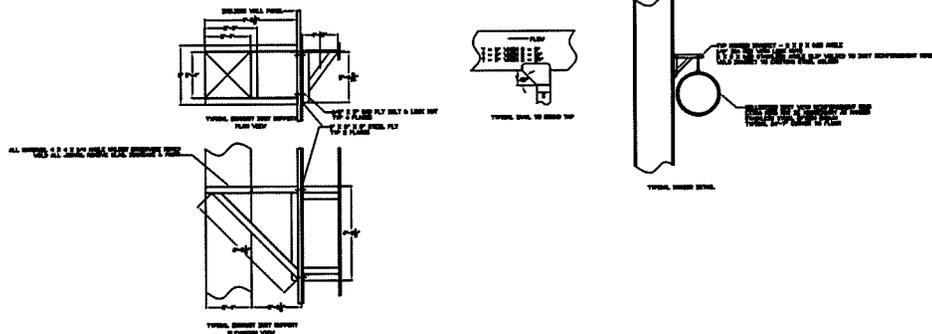
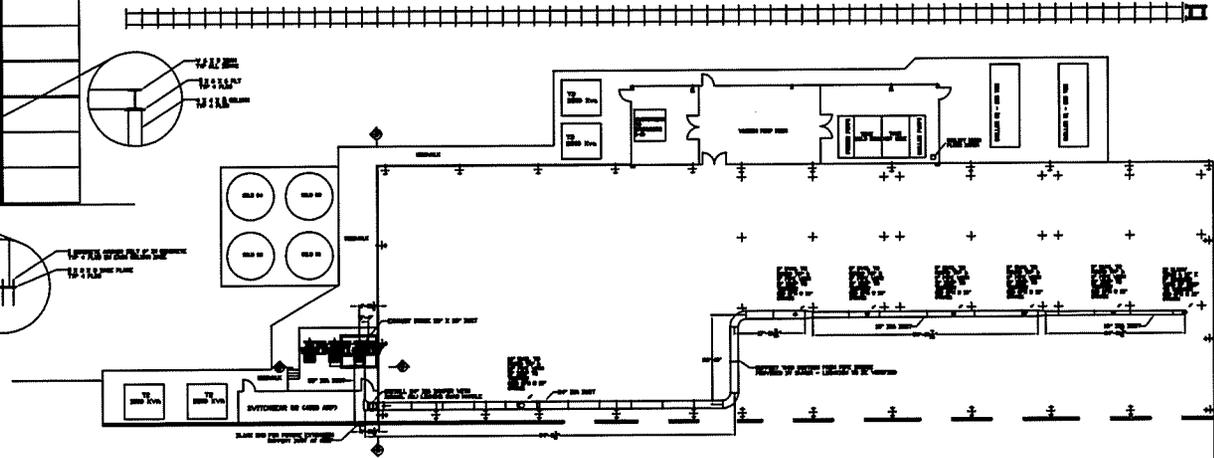
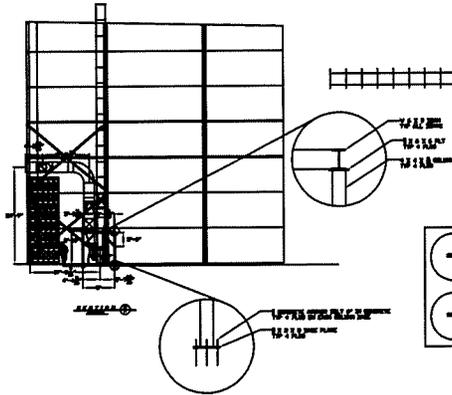
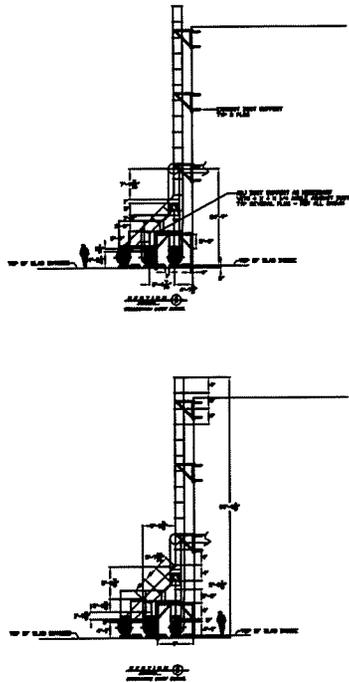
Pollutant	Emission Factor ^a	Source	New Capacity ^b	Existing Capacity	Project Emissions		Existing Emission		Total	
					(lb/hr)	(tpy) ^c	(lb/hr)	(tpy) ^c	(lb/hr)	(tpy) ^c
Ozone	0.073 lb/kW-hr	Corona Treaters	70 kW	70 kW	5.11	22.4	5.11	22.4	10.22	44.8
Ammonia	0.22 lb/hr per bag line	Bag Lines	9 bag lines	16 bag lines	1.98	8.7	3.52	15.4	5.50	24.1
Ethanol	0.04 lb/hr per bag line	Bag Lines	9 bag lines	16 bag lines	0.36	1.6	0.64	2.8	1.0	4.4

a- Emission factors from previous PTC. Ozone emission factor guaranteed by Enercon, manufacturer of the existing Corona Treaters. Ammonia and Ethanol Emission factors based on worst case monthly emission from similar Mount Olive, NC, Hilex Poly Facility.

b - Proposed permit limits

c - Annual emissions based on 8,760 hours/year of operation

APPENDIX C: MANUFACTURER SPECIFICATIONS



- 1. ALL DIMENSIONS ARE IN FEET AND INCHES.
- 2. DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
- 3. DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
- 4. DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
- 5. DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.

THIS DRAWING PREPARED TO ANSI Y 14.3M-1982 DRAWING STANDARDS		HILEX POLY COMPANY	
ENGINE TOLERANCES UNLESS OTHERWISE SPECIFIED: X .000 (3/32) XX .005 (1/32) XXX .010 (1/16) REGULAR .015 (1/16)	UNLESS OTHERWISE SPECIFIED BREAK ALL HIDDEN EDGES	JEROME PLANT LAYOUTS	
SURFACE FINISH TO BE UNLESS OTHERWISE SPECIFIED		OZONE SYSTEM ELEVATIONS	
*THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. IT MUST NOT BE REPRODUCED OR ITS CONTENTS REVEALED IN ANY WAY WHATSOEVER EXCEPT FOR THE PURPOSE FOR WHICH IT HAS BEEN LOANED. IT IS THE PROPERTY OF AND MUST BE RETURNED TO HILEX POLY COMPANY, HARTSVILLE, SC 29550		DESIGNED BY: SJC DATE: 12-18-05	CHECKED BY: N/A DATE: N/A
DESIGNED BY	DATE	REVISION	CHECKED
MD	12/18/05		MD434-005

SUBJECT: OZONE EMISSIONS AND EXHAUST NOTES

To calculate the ozone emissions in pounds per hour use the following formula:

Power Supply KW (times) 0.073 equals Ozone in lbs./hr.

Ozone Concentration = 150 ppm

NOTE: The above formula is specific to Enercon equipment. If the equipment is modified in any way, those changes must be reviewed by Enercon to assure that those changes have not affected ozone generation characteristics.

Comments:

A. **Discharge height Over Ground Level:** We have no specific recommendation. However, we do recommend exhausting be done through the roof.

Caution: Insure that the system exhaust discharge outlet is not located in a position where its output could be recirculated into the plant by HVAC equipment located on the roof.

B. **Maximum & Minimum Airflow:** We only specify a minimum airflow. A reasonable amount (say 10 to 20%) over that level should create no problem with the operation of our equipment. (See specific airflow and water column pressure in the instructional data delivered with each specific system.)

C. **Exhaust Temperature:** Our equipment under normal operation will raise the temperature of the air taken in approximately 30 Degrees C over ambient.

D. **Moisture Content:** Our equipment does not affect the moisture content of the air it takes in, therefore, the moisture content will be that of the plant ambient air and no more.

E. **Exhaust Pipe Materials:** The exhaust pipes should be constructed of stainless steel or PVC. Do **not** use galvanized steel as the ozone will attack it and cause leaks within a short time. Flexible exhaust tubing should only be used if it has a smooth interior surface such that it does not inhibit the exhaust airflow.

Regards,

Matt Rajala
Service Manager



- Corona Treating
- Induction Cap Sealing

Equipment & Systems

Pillar

Subject: Ozone Production and Ozone Destruction.

Ozone Production:

Ozone is the main byproduct of the corona discharge process. The amount of ozone produced is dependent on several factors including atmospheric conditions and the type of corona treating system.

Relative humidity affects the amount of ozone produced more than any other factor. The higher the humidity, the lower the amount of ozone produced. The same holds true for temperature, the higher the ambient temperature, the lower the ozone produced.

The type of treating system is also a factor. The type and shape of the electrode, type of roll covering, amount of exhaust air flow and operating frequency of the power supply all affect the ozone production.

Through various trials in our lab and in production situations, we have determined that .072lbs of ozone per Kilowatt/Hour is the most ozone production that will be seen. This was measured in an air condition lab under ideal conditions for ozone production. By changing various atmospheric conditions and system configurations, the ozone generation ranged between .012lbs/kw/hr to .072lbs/kw/hr.

Ozone Destruction:

Pillar Ozone destruct systems utilize manganese dioxide catalyst to decompose ozone into oxygen through an ambient catalytic reaction.

The manganese dioxide catalyst is over 99% efficient in the destruction of ozone.

As mentioned earlier, ozone is the main byproduct of the corona discharge process. Unfortunately ozone may not be the only byproduct generated. There may also be NO_x's and various contaminants from the process, such as slip additive which enter the exhaust air stream. These other contaminants may mask the catalyst pellets and thus reduce the destruct efficiency.

Older Pillar designs include a pre-filter to capture the particulate contamination to help increase the life of the catalyst.

New Pillar designs have the same pre-filter but we have also added a "guard bed" or "sacrificial bed" of alumina balls prior to the manganese dioxide bed to help capture the NO_x's and other contaminants. The idea is for the alumina bed to be replaced when it becomes contaminated and thus increasing the life of the more expensive manganese dioxide.

It is very difficult to predict the life of the catalyst both on new design and old design destruct systems. In general we would expect a life of several years with the new design providing proper maintenance of the pre-filters and the guard bed.

An example of the worst case would be in a corrosive environment with very high slip usage and high humidity using an older system with no guard bed. In this case we have seen catalyst become contaminated in less than a year.

The key to catalyst life is to protect it by scheduled filter replacement and in the case of newer designs, guard bed replacement.

Most Pillar ozone destruct systems include a magnehelic gauge which measures the pressure drop across the catalyst bed and filters. It measures in inches of water. A high pressure drop indicates a clogged filter or catalyst bed.

The magnehelic has high and low alarm set-point adjustments. Operating outside of the high or low set-point will activate the amber warning light. Spare alarm contacts are also available for customer use.

Since the pressure drop is influenced by the air velocity, it is impossible to predict what the exact pressure drop will be without knowing the actual air velocity but for most installations this reading is somewhere between 4 and 7 inches of water with clean filters and fresh catalyst.

To properly adjust the alarm set-points, we recommend setting them with new filters and known good catalyst. Turn the blower on and set the high alarm about 1 inch above the current reading and set the low alarm about 1 inch below the current reading.

Pillar ozone destruct systems also include a rake which can be used periodically to rake the catalyst. This can assist in releasing surface contamination on the pellets and expose media surface to increase destruction efficiency.

If you have any questions, please feel free to call.

Best Regards,

Charles R. Ballard
Product Manager - Corona Treaters
262-912-7224
cballard@pillartech.com
www.pillartech.com

APPENDIX D: MODELING PROTOCOL AND APPROVAL

Prepared for:

Hilex Poly Company, LLC
Jerome, Idaho

Prepared by:

Ramboll Environ US Corporation
Lynnwood, Washington

Date

September 2015

Project Number

29-37004A

MODELING PROTOCOL

EXPANSION PROJECT

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APPENDICES

Appendix A: DEQ Meteorological Data Processing Memorandum	
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1. INTRODUCTION AND BACKGROUND

Hilex Poly Company LLC (Hilex Poly) operates a facility in Jerome, Idaho that manufactures plastic bags. The facility is located within the city limits of Jerome, in Jerome County, which is in attainment or unclassifiable for all criteria air pollutants. The location of the facility and the surrounding area are shown in Figure 1.

Permit to Construct (PTC) No. P-040408 was issued by Idaho Department of Environmental Quality (DEQ) on January 28, 2005. Revised PTCs have subsequently been issued on June 23, 2005, and March 4, 2009.

In response to positive economic conditions, Hilex Poly is proposing to install and operate additional plastic bag extrusion and treater equipment similar to equipment already in use at the facility. Because the proposed project will result in increased air emissions from the facility, a PTC must be obtained from DEQ prior to installing and operating the new equipment.

Hilex Poly has retained Ramboll Environ US Corporation (RE) to complete an air quality dispersion modeling analysis in support of a PTC application. This modeling protocol is being submitted to present an overview of the proposed modeling methodology that would be used to generate air quality impact predictions for the permit application.

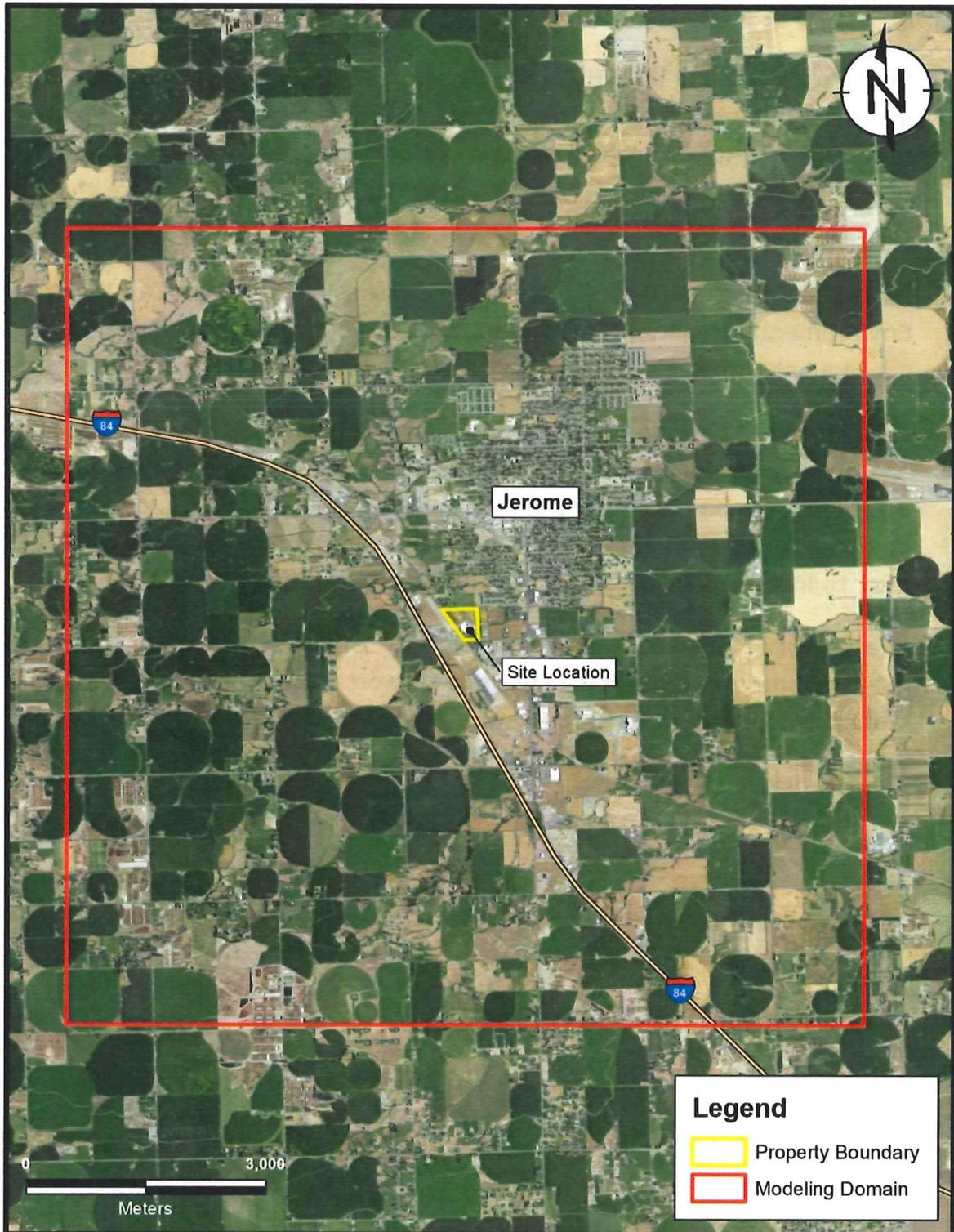


Figure 1. Facility Location

2. PROJECT DESCRIPTION

The Hilex Poly facility is located at 540 W Nez Perce Avenue in Jerome, Idaho. The facility manufactures polyethylene plastic bags.

2.1 Process Description

Extruders are used to form polyethylene pellets into tubular film. After the film has cooled, it is passed through corona treaters that prepare the surface of the film for printing. Bag machines print on the film, form it into bags, and package the bags for shipment.

2.2 Physical Description

Currently, production equipment at the facility consists of 14 extruders with 14 associated corona treaters, and 19 bag machines. The original permit application included 16 bag machines, and, although the permit does not limit the number of bag machines that can be operating at one time, the facility operates a maximum of 16 bag machines at a time, and maintains 3 in reserve. Hilex Poly now proposes to add 12 new extruders with 12 associated corona treaters, and 6 new bag machines with 3 associated corona treaters. Also, the 3 existing bag machines that have been kept in reserve will be operated along with the 16 existing units. Thus, following the proposed modification, a maximum of 26 extruders, 29 corona treaters, and 25 bag machines would be in use at any given time.

2.3 Preliminary Emission Rate Calculations

Corona treaters generate ozone emissions, and the bag lines emit ethanol and ammonia. No air pollutant emissions are attributable to the extruders.

Ozone emissions were calculated using the same emission factor used to calculate emissions for the original permit, 0.073 pounds per hour (lb/hr) of ozone per supplied kilowatt (kW) of electricity. The existing corona treaters are, as a group, limited to a maximum total of 70 kW, which is equivalent to a maximum total ozone emission rate of 5.11 lb/hr. The new corona treaters would, as a group, also be supplied with a maximum total of 70 kW. Using the same emission factor, the maximum total ozone emissions increase will be 5.11 lb/hr.

Each bag machine emits 0.22 lb/hr of ammonia, and 0.04 lb/hr of ethanol. Following implementation of the project, 6 new bag machines, along with the 3 existing bag machines held in reserve, would be added to normal operations. Ammonia is a non-carcinogenic toxic air pollutant (TAP) listed in IDAPA 58.01.01.585. Ethanol is not a TAP, but is a volatile organic compound (VOC). Table 1 summarizes the proposed emission increases attributable to the project.

Table 1. Project Emission Increases

Emission Unit	Ozone		Ammonia		VOCs (Ethanol)	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Corona Treaters (15 new; 70 kW incr.)	5.11	9.59	--	--	--	--
Bag Machines (6 new, 3 reserve)	--	--	1.98	8.67	0.360	1.58
Total	5.11	9.59	1.98	8.67	0.360	1.58

There is no modeling exemption threshold for ozone, so modeling is required to assess compliance with the ambient air quality standard. In IDAPA 58.01.01.585, ammonia is assigned a screening emission level (EL) of 1.2 lb/hr; the proposed increase in allowable ammonia emissions exceeds the EL, so modeling is required to assess compliance with the acceptable ambient concentration (AAC). As stated above, ethanol is not a TAP, and there are no ambient air quality standards for VOCs, so no modeling will be developed to estimate ambient ethanol concentrations.

3. AIR QUALITY IMPACT ANALYSIS METHODOLOGY

An air quality impact analysis (AQIA) will be performed using dispersion modeling techniques developed in accordance with the EPA's Guideline on Air Quality Models (codified as Appendix W to 40 CFR Part 51, hereafter referred to as the Guideline) and DEQ air quality modeling guidance.

The purpose of the AQIA is to assess potential impacts attributable to air pollutant emissions from the proposed facility on air quality in the surrounding area. Computer-based dispersion modeling techniques will be applied to simulate pollutant releases from the facility to assess compliance with the ambient air quality standard for ozone, and the AAC for ammonia.

3.1 Dispersion Model Selection and Application

The rationale for the dispersion modeling approach is based on EPA guidelines, consideration of the local terrain, and emission unit characteristics. AERMOD is currently the preferred dispersion model recommended by the Guideline for complex source configurations, emission units subject to exhaust plume downwash, and situations where there is the potential for exhaust plumes to interact with complex terrain.

RE proposes to use AERMOD (Version 15181) to predict ambient concentration impacts attributable to the facility.

3.2 Model Application

AERMOD will be applied to calculate concentrations using the regulatory defaults and input data discussed in this section.

3.2.1 Emission Rates

There are no Significant Impact Levels (SILs) for ozone, so ozone emissions attributable to existing emission units will be included in the modeling (i.e., ozone emissions from both the existing treater stack, which exhausts the 14 existing corona treaters, and the proposed new treater stack, which will exhaust the 15 proposed new corona treaters).

The maximum potential ammonia emissions increase is based on 3 existing bag lines that have been held in reserve as well as 6 new bag lines, for a total of 9 new emitting bag lines. Because it is unclear which bag line emits through which vent,

the modeling developed for the original permit application applied the total emission rate to each vent to ensure that the worst-case emission condition was reflected in the modeling. Similar to that approach, we will apply the total cumulative ammonia emission rate (i.e., existing bag lines, plus existing bag lines formerly held in reserve, plus proposed new bag lines) to each of the three vents. Table 2 summarizes the emission rates included in the modeling.

Table 2. Modeled Emission Rates

Emission Point	Emission Rate (lb/hr)		Emission Rate (g/s)	
	Ozone	Ammonia	Ozone	Ammonia
Existing Corona Treater Stack	5.11	--	0.644	--
New Corona Treater Stack	5.11	--	0.644	--
Vent 1	--	5.50	--	0.693
Vent 2	--	5.50	--	0.693
Vent 3	--	5.50	--	0.693

3.2.2 Stack Parameters

Table 3 presents the source release parameters used for the existing treater stack, the proposed new treater stack, and the three existing bag machine vents. Existing emission points (i.e., the existing treater stack and the bag machine vents) have not changed, so the stack parameters from the AQIA analysis developed in support of the original permit application were retained. The proposed new treater stack will have the same stack parameters as the existing treater stack, except the height.

Table 3. Emission Point Locations and Release Parameters

Emission Point	UTM Coordinates ¹		Stack Height (ft / m)	Exhaust Temp. ² (°F / K)	Exhaust Velocity (ft/s / m/s)	Stack Inside Diameter (ft / m)
	Easting (m)	Northing (m)				
Existing Corona Treater Stack	702459	4731717	70 / 21.3	+30 / +16.7	31.2 / 9.50	2.33 / 0.71
New Corona Treater Stack	702423	4731770	60 / 18.3	+30 / +16.7	31.2 / 9.50	2.33 / 0.71
Vent 1	702388	4731742	20 / 6.1	Ambient	6.36 / 1.94	2.00 / 0.61
Vent 2	702417	4731664	20 / 6.1	Ambient	6.36 / 1.94	2.00 / 0.61
Vent 3	702461	4731633	20 / 6.1	Ambient	6.36 / 1.94	2.00 / 0.61

1 UTM Zone 11, NAD 83. Elevation for all point sources is 3,717 feet (1,133 meters) above mean sea level (MSL).

2 Corona treater exhaust temperature is 30 °F (16.7 K) greater than the ambient temperature. Exhaust from the vents was assumed to be ambient temperature.

Figure 2 presents the facility site plan with the locations of existing and proposed point sources, as well as existing and proposed significant structures that could potentially influence downwash from point sources.



Figure 2. Site Layout

3.2.3 Meteorological Data

A five-year meteorological database prepared using National Weather Service (NWS) surface observations from the Jerome County Airport (KJER) and upper air observations from the Boise, Idaho Airport (KBOI) for the period January 1, 2008 through December 31, 2012 has been provided by DEQ. A DEQ memorandum describing how the data were processed is provided in Appendix A.

3.2.4 Ambient Air Boundary

The ambient air boundary is defined in IDAPA 58.01.01.006 as “that portion of the atmosphere, external to buildings, to which the general public has access.” The general public is precluded from entering the facility and from entering a large portion of agricultural land surrounding the facility. Public access to the facility is discouraged by the plants rural location, posting of “No Trespassing” signs along property boundaries, and using security guards that require any trespassers to leave the property.

3.2.5 Receptors and Terrain

The 10-kilometer (km) by 10-km modeling domain proposed for the AQIA is presented in Figure 1. Terrain elevations for receptors and stacks will be prepared using the National Elevation Dataset (NED) 1/3 arc-second dataset developed by the United States Geological Survey (USGS). These data have a horizontal resolution of approximately 10 meters (m).

An initial receptor set has been developed to be used for the AQIA (Figure 3). The initial receptor set includes receptors spaced 500 m apart covering the outermost portion of the simulation domain. Nested grids with 25-m, 50-m, and 200-m spacing will be centered on the facility. Receptors will also be placed every 10 m along the ambient air boundary. Maximum AERMOD-predicted concentrations located in coarse receptors areas (i.e., receptor spacing greater than 25 m) will be further investigated using a localized fine (i.e., 25-m spacing) receptor grid.

3.2.6 Building Downwash

EPA’s Building Profile Input Program for the PRIME algorithm (BPIP PRIME, Version 04274) will be used to prepare wind direction-specific building profile information required by AERMOD. The facility layout and structure dimensions will be used to prepare the data input file for BPIP PRIME, which then provides AERMOD with necessary building downwash parameters.

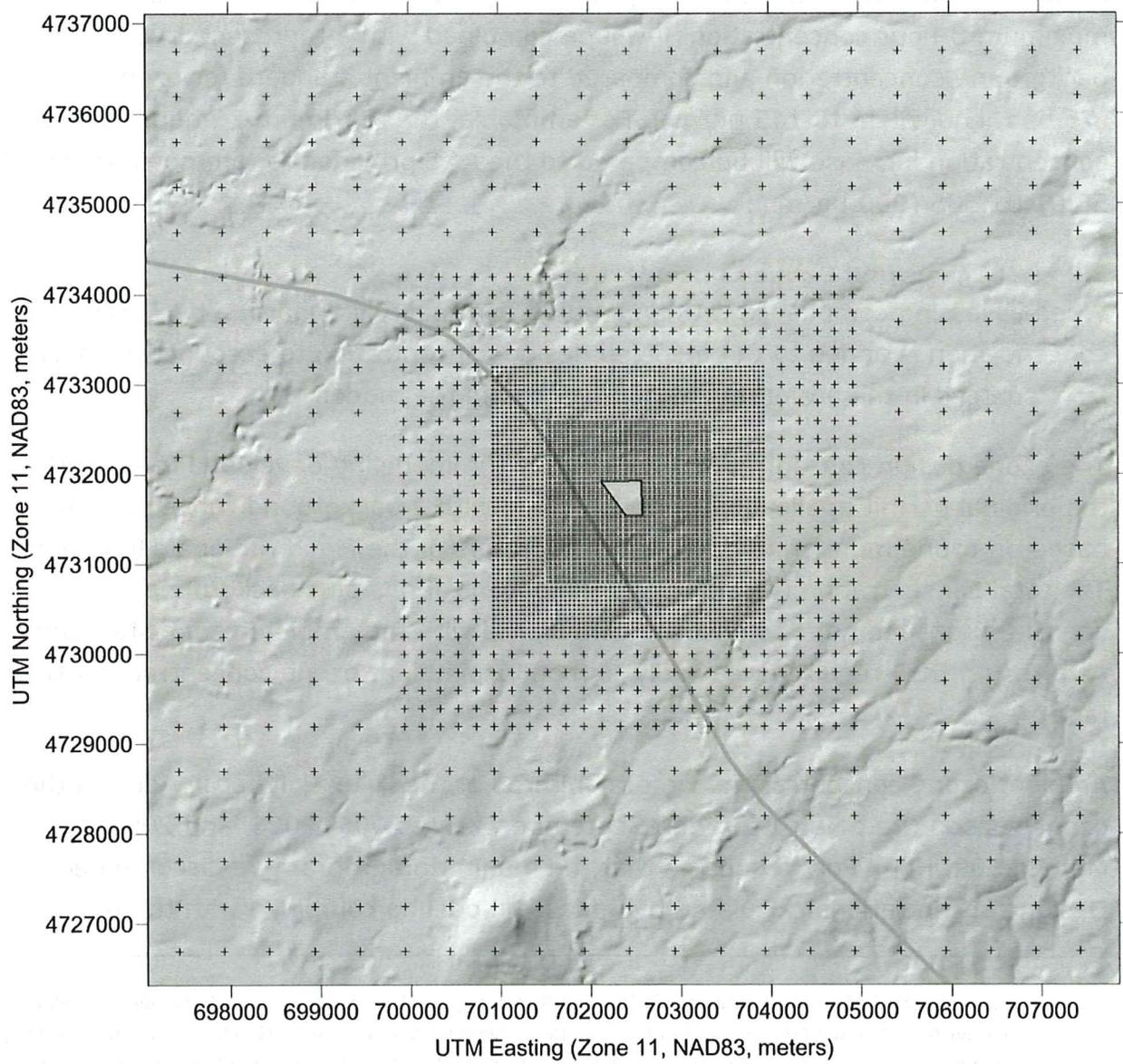


Figure 3. Preliminary Receptor Locations

3.3 Pollutant Impact Assessment

AERMOD will be used to predict ambient ozone and ammonia concentrations from the facility assuming the proposed modifications have been implemented. The design concentration (i.e., the five-year average of the annual 4th highest daily maximum 8-hour concentrations)¹ will be combined with a representative background concentration and compared to the ambient standard for ozone (75 ppb, equivalent to 145 $\mu\text{g}/\text{m}^3$). For ammonia, the maximum 24-hour average concentration increase will be compared to the AAC provided for ammonia in IDAPA 58.01.01.585 (900 $\mu\text{g}/\text{m}^3$).

3.4 Background Ozone Concentration

When assessing compliance with an ambient air quality standard, a background concentration is added to the modeled design concentration to account for impacts from sources in the area that are not included in the model.

The ozone design concentration predicted by the modeling developed in support of the original permit application were combined with a background concentration based on ozone monitoring data from the Craters of the Moon National Monument. The total concentration (modeled design concentrations plus background concentration) did not demonstrate compliance with the ambient ozone standard. As a result, DEQ required Hilex Poly to monitor ambient ozone concentrations at the facility.

Ambient ozone concentrations were monitored at the Hilex Poly facility during the ozone season (i.e., May 1 through September 30) in 2005, 2006, and 2007. In March 2009, Hilex Poly requested that the monitoring program be discontinued. Design concentrations calculated by updated modeling combined with the on-site

¹ Guidance provided by USEPA in "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard" memorandum issued on March 1, 2011 by Tyler Fox, Leader of the Air Quality Modeling Group of EPA's Office of Air Quality Planning and Standards (OAQPS) and "Guidance for PM_{2.5} Permit Modeling" memorandum issued on May 20, 2014 by Stephen D. Page, Director of OAQPS, indicates that modeled design values for assessing compliance with the 1-hour average NO₂, 1-hour average SO₂, and 24-hour average PM_{2.5} standards should be based on a multiyear average of the annual distribution, with the number of years in the multiyear average determined by the length of the National Weather Service (NWS) or site-specific meteorological dataset used in the modeling. Guidance specific to ozone has not been provided by USEPA, most likely because concentrations resulting from direct ozone emissions are not typically modeled. We propose to calculate an ozone design concentration in a manner analogous to that recommended by USEPA for pollutants with similarly-formed short-term ambient standards.

monitoring data demonstrated compliance with the ambient standard, and DEQ approved the request.

For the on-site ozone data, the 3-year average of the annual 4th highest daily maximum 8-hour average concentration was 49.8 parts per billion (ppb), which is equivalent to 96.5 $\mu\text{g}/\text{m}^3$. We propose to combine that background concentration with the modeled design concentration to assess compliance with the ambient standard. However, if, using that background value to calculate the total concentration does not demonstrate compliance, we may further analyze the monitoring data to remove contributions from the facility, or to investigate diurnal variation in the concentrations.

**APPENDIX A
DEQ METEOROLOGICAL DATA
PROCESSING MEMORANDUM**



STATE OF IDAHO
 DEPARTMENT OF ENVIRONMENTAL QUALITY
 AIR QUALITY DIVISION
 1410 NORTH HILTON, BOISE, ID 83706 · (208) 373-0502
 TIFFANY FLOYD, ADMINISTRATOR
 BRUCE LOUKS, MANAGER, MONITORING, MODELING, & EMISSION INVENTORY

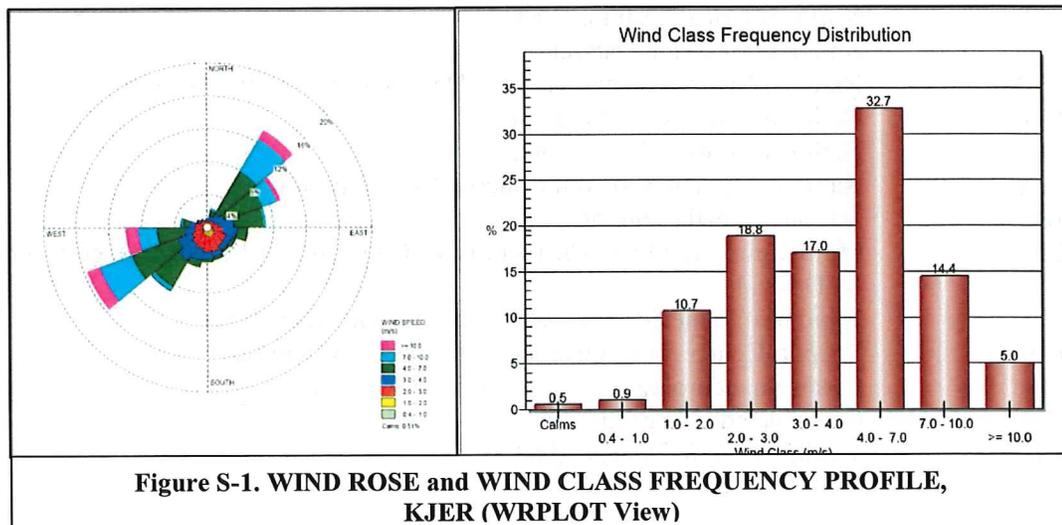
To: Kevin Schilling, NSR Modeling Coordinator, MMEI, Air Quality Division
 From: Cheryl Robinson, P.E., NSR Modeling Analyst, MMEI, Air Quality Division
 Date: November 4, 2013
 Subject: Met Data Processing for NSR Modeling: JEROME COUNTY AIRPORT, 2008-2012t

SUMMARY:

National Weather Service (NWS) surface Hourly Met Data (ISHD, 04110, GMT-7) and 1-minute ASOS winds (KJER, LST) were collected at the Jerome County Airport for the years 2008 through 2012. The locations of surface and upper air stations were determined using Google Earth and Bing Maps. The ASOS has been upgraded to an Ice Free Wind (IFW) sensor. NWS winds were not randomized, NWS data were supplemented by ASOS winds, ASOS winds were adjusted upward by 0.5 m/s to account for truncation, and the ASOS wind threshold was set to the EPA-recommended value of 0.5 m/sec. Upper air soundings collected at the Boise NWS station (24131, BOI, GMT-7) were obtained in FSL format for the same period.

The average Palmer Z Index for the representative state climate division was used to determine relative moisture conditions for each year of the met data set based on a 30-year average covering the period from 1983 through 2012. Snow accumulation during winter months for each year was determined by reviewing NCDC daily snow depth data. Surface roughness, albedo, and Bowen ratio values were adjusted as needed to reflect the number of days of snow cover during winter months. Monthly surface roughness values were determined for each of 12 sectors within a 1-kilometer radius of the surface met station using land use data drawn from a 1992 NLCD file, at an airport, for average and wet conditions, without snow cover during the winter months of December, January, and February. Monthly values for the albedo and Bowen ratio were also based on the 1992 NLCD file for a 10-kilometer domain centered on the surface met station. No adjustments were made to the surface friction, u^* .

Data were processed by DEQ with AERSURFACE v. 13016, AERMINUTE v. 11325, and AERMET v. 12345 using Oris Solutions' BEEST graphical user interface. The SFC and PFL files were flagged with a "t" to indicate that the wind threshold was set to 0.5 m/s.



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1. ACRONYMS

AERMET	AERMOD Meteorological pre-Processor
AERMINUTE	ASOS winds pre-processor for AERMET
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AERSURFACE	Surface characteristics pre-processor for AERMET
ASOS	Automated Surface Observing System
DEQ	Idaho Department of Environmental Quality
EPA	Environmental Protection Agency
ESRL	Earth Systems Research Laboratory
FAA	Federal Aviation Administration
FSL	Forecast Systems Laboratory
ft	feet
GMT	Greenwich Mean Time
IFW	Ice Free Wind
ISHD	Integrated Surface Hourly Data
km	kilometer
LST	local standard time
m	meter
NAD83	North American Datum, 1983
NED	National Elevation Dataset
NESDIS	National Environmental Satellite, Data, and Information Service
NLCD	National Land Cover Database
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
MRLC	Multi-Resolution Land Characteristics Consortium (the current source for obtaining NED files)
PFL	Wind profile meteorology files, output from AERMET
SCRAM	Support Center for Regulatory Atmospheric Modeling
SFC	Surface meteorology files, output from AERMET
UTC	Coordinated Universal Time
WGS84	World Geodetic System, 1984

2. MET DATA PROCESSING FOR NWS AND ASOS SURFACE STATIONS AT AIRPORTS

On December 10, 2012, EPA issued versions 12345 of the regulatory dispersion modeling program AERMOD and the regulatory meteorological data processor AERMET. AERMOD v. 12335 will accept met data processed using AERMET v. 12345 or v. 11059 (released February 28, 2011), but will not accept met data processed using AERMET v. 06341 (issued December 7, 2006) or earlier.

An update to AERMINUTE, the non-regulatory pre-processor for one-minute ASOS winds, was released on November 21, 2011. In addition, on January 16, 2013, EPA released a new version of AERSURFACE which incorporated adjustments to the spatial averaging of land cover parameters to be consistent with published guidance. Although not part of the regulatory AERMOD system, AERSURFACE is commonly used to streamline processing and produce reproducible values for three important surface characteristics: the albedo, Bowen ratio, and surface roughness length. On March 8, 2013, EPA issued a clarification memo regarding the use of ASOS wind data, including a recommendation that the wind speed threshold be set to 0.5 m/sec. These changes triggered the need to update "default" AERMOD-ready met data sets provided by DEQ to applicants for non-PSD air quality permit dispersion modeling.

Obtain Recent Meteorological Data

Integrated Surface Hourly Data (ISHD) were downloaded as zipped *.gz files from the NCDC's Integrated Surface Database (ISD) ftp site for the years 2008-2013. These data are reported in Coordinated Universal Time Code (UTC), which is the same as Greenwich Mean Time (GMT). Data for January 1 of the following year (or a duplicate of the data for December 31st, if January 1 data were missing) were copied and pasted at the end of each year's data to ensure hourly data were available for the last few hours on December 31st when data were converted from GMT to local time. The adjusted data files were saved using the same naming convention as the downloaded files: 123456-54321-YEARp1, where the first number is the met station USAF ID code, followed by the station WBAN ID number, the four-digit year, and "p1" indicating plus one day.

EPA recommends using one-minute ASOS winds when available, which provide minute-by-minute 2-minute-averaged wind speed and direction, in addition to the hourly ISHD data collected at NWS stations. ASOS data for each month of the years 2008 through 2012 were downloaded as plain text files from the NCDC's ftp site. These data are reported in local standard time. No changes were made to the file names, which follow the naming convention 64050CALLYEAR01.dat, where 64050 denotes ASOS wind data, followed by the station call sign, the four-digit year, and a two-digit code from 01 to 12 denoting the month the data was collected.

Upper air soundings in FSL (ACSII text) format were downloaded from the NOAA/Earth Systems Research Laboratory (ESRL) Radiosonde Database ftp site. These data are reported in Coordinated Universal Time Code (UTC), which is the same as Greenwich Mean Time (GMT). The data request submitted for each year was for January 1, hour 0 of each year through January 1, hour 23 of the following year, to ensure hourly data were available for the data is available for the last few hours on December 31st when data were converted from GMT to local time. Soundings were requested for all times and all levels with wind units in tenths of meters per second. ASCII data from the resulting *.tmp file were selected (CNTL+A), copied (CNTL+C), pasted (CNTL+V) into a blank Notepad text file and saved as a plain text file using the naming convention: FAA_FSL_54321_YEARp1.txt, where FAA is the three-letter call sign for the airport, FSL denotes the data format, followed by the station WBAN ID number, the four-digit year, and "p1" indicating plus one day. No actions were taken to fill missing upper air soundings.

Obtain ASOS Station Information

The AERMET source code was downloaded from the EPA SCRAM website. ASOS station commissioning dates are contained in the subroutine called "mod_AsosCommDates.for," which can be opened using a text editor such as Notepad or WordPad.

Note: If the ASOS Commission Date for the Surface Station is in the ASOS commission list (see AERMET source code, mod_AsosCommDates.for) and the "ASOS Station" box is ticked when setting up the run in AERMET View, AERMET will return the following warning message in the Stage 1 Report: ASOS flag on ISHD DATA keyword should NOT be used! Station included in ASOS commission list.

The pdf file of Ice Free Wind installation dates was downloaded from the NOAA website. These are ASOS stations that have been upgraded with a sonic anemometer. The most current listing of IFW installation dates as of October 2013 was issued on October 27, 2009.

The Excel file containing a February 11, 2009 list of ASOS anemometer heights was downloaded from the NOAA website. Anemometer heights for ASOS stations in Idaho and in nearby states are either 33.0 feet (10.05 m) or 26.0 ft (7.92 m).

Determine or Confirm Meteorological Station Coordinates and Elevations

The actual location of surface met towers is very important in determining appropriate surface parameters used in the AERMOD model. This is especially true when determining the surface roughness length, which affects the reduction in wind speed and the level of turbulence and vertical mixing in the wind layers as the air flows over the ground surface. The surface roughness length is calculated based on land use within a one-kilometer radius of the surface met station location.

The location coordinates provided by the FAA or NWS for ASOS stations in Idaho and nearby states typically refer to a point near the center of the runways. On August 6, 2013, DEQ contacted Mr. Christopher Stark, NOAA's ASOS manager, to ask whether better location data were available. Mr. Stark replied that ASOS locations are recorded only to the nearest minute (lat/long), and provided a link to a page on the NOAA website: <http://www.nws.noaa.gov/tg/siteloc.shtml> (Note: the correct url is <http://www.nws.noaa.gov/tg/siteloc.php>). Unfortunately, DEQ had already reviewed the locations provided on that web site, which had prompted the attempt to obtain more accurate coordinates. Similarly, location coordinates and base elevations provided by NWS sources were found to vary depending on the source of the information.

DEQ reviewed online sources of aerial photography, including Google Earth and Bing Maps (aerial and bird's eye views), to determine or confirm the published coordinates and base elevations for NWS and ASOS surface meteorological stations and for NWS upper air stations (datum WGS84/NAD83). Where there appeared to be a substantial difference in the published elevation and the elevation shown in Google Earth, the elevation was verified against the value contained in the National Elevation Database (NED) for the "confirmed" coordinates. Where possible, lat/long coordinates were determined to four decimal places.

Based on this review, it appeared that NWS and ASOS instrument towers were collocated at airport locations in Idaho and neighboring states. Coordinates of the upper air stations were based on the observed location of the rawinsonde balloon inflation shelter/ radiotheodolite dome at each site. All of the upper air sounding stations in Idaho and nearby states are located at NWS offices.

Determine Pairings of Surface and Upper Air Data

DEQ used three criteria to determine which upper air soundings should be paired with the surface station data being processed:

- 1) Geographic proximity to the surface station site,
- 2) Influence of elevated terrain and mountain ranges, and
- 3) Ground-level elevation similar to the elevation at the surface data collection site. A profile interpolation scheme is used in AERMET if the surface station elevation is lower than the elevation at the upper air station. Selecting an upper air station located at a similar elevation as the surface site helps reduce the use of this profile interpolation scheme. In addition, AERMET disregards soundings at levels higher than 5,000 meters above mean sea level. If the surface station is

considerably higher than the upper air sounding location, the upper air profile used in AERMET will be truncated, which may result in underpredicting ambient air concentrations.

Thiessen polygons were used to determine the upper air station located closest to the surface data collection site. The polygons, defined by the perpendicular bisectors of the lines between the locations of the upper air data collection sites, are shown in Figure 2-1. As shown in the figure, upper air sounding sites in or near Idaho include Spokane, Boise, Great Falls, Salt Lake City, Elko, and Riverton.

The Snake River Plain (SRP) stretches across southern Idaho, with Boise and Jerome located in the western SRP. The prevailing westerly winds typically follow the plain, strongly suggesting that upper air soundings collected in Boise are best representative of conditions in Jerome. Surface data collected at the Jerome County Airport (KJER) were therefore paired with upper air soundings collected at the Boise NWS station.

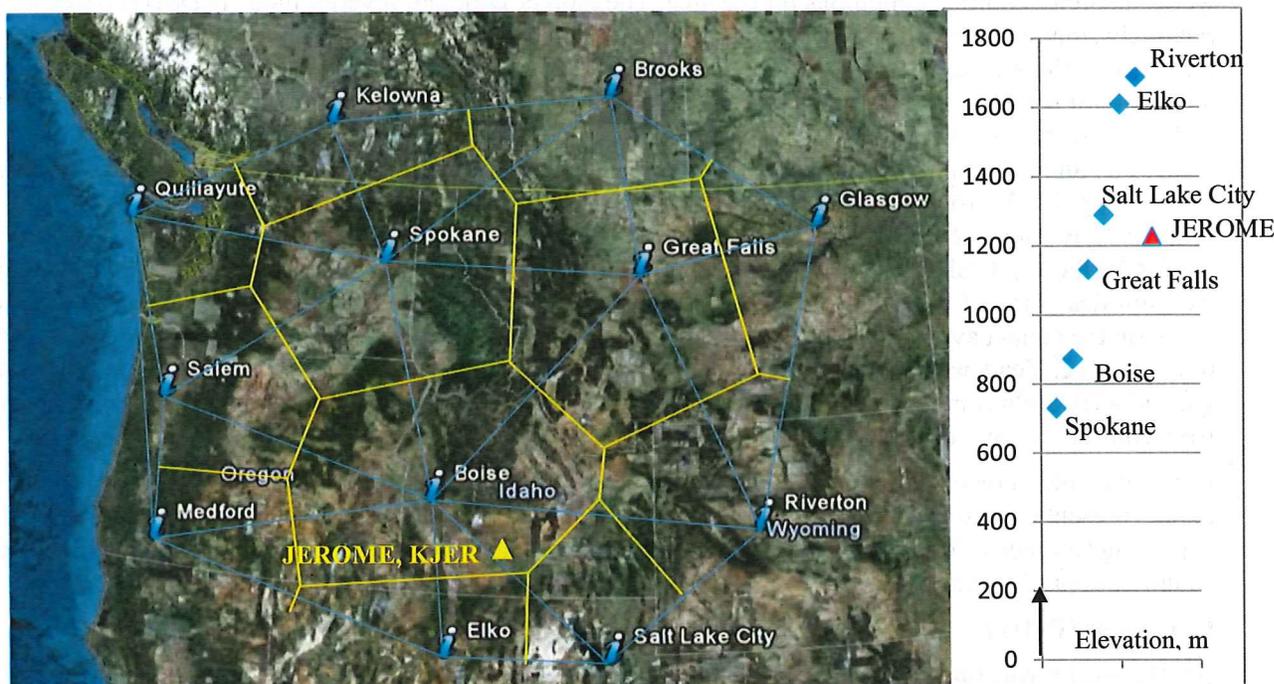


Figure 2-1. SURFACE STATION GEOGRAPHIC PROXIMITY (THIESSEN POLYGONS) AND ELEVATION COMPARISON TO UPPER AIR SOUNDINGS STATIONS

Site characteristics for these six upper air soundings locations are shown in Table 2-1.

Table 2-1. UPPER AIR SOUNDINGS STATIONS							
Location	State	FAA/ICS	WMO ID	WBAN ID	FSL Header		Local Time
					Elevation AMSL	Lat/Lon (degrees)	
Spokane, Washington 2601 N. Rambo Rd.	WA	OTX	72797	04106	728 m (2388 ft)	47.68 / -117.63	Pacific (GMT-8)
Boise, Idaho 3833 Development Ave #3807	ID	BOI	72681	24131	871 m (2858 ft)	43.57 / -116.22	Mountain (GMT-7)
Great Falls, Montana 5324 Tri-Hill Frontage Rd	MT	TFX	72776	04102	1130 m (3707 ft)	47.45 / -111.38	Mountain (GMT-7)
Salt Lake City, Utah 2242 West North Temple	UT	SLC	72572	24127	1288 m (4226 ft)	40.77 / -111.97	Mountain (GMT-7)
Elko, Nevada 3720 Paradise Drive	NV	LKN	72582	04105	1608 m (5276 ft)	40.87 / -115.73	Pacific (GMT-8)
Riverton, Wyoming 12744 West U.S. Hwy 26	WY	RIW	72672	24061	1688 m (5538 ft)	43.06 / -108.47	Mountain (GMT-7)

Obtain and Review Land Use, Moisture Conditions, and Snow Cover Data

At this time, AERSURFACE is compatible only with NLCD land use data collected in or around the year 1992 and reported for 21 land use categories. State-wide NLCD 1992 data for Idaho, Montana, Nevada, Oregon, Wyoming, and Washington were downloaded as zipped bin and tiff files from the Multi-Resolution Land Characteristics Consortium (MRLC) website. In order to review the acceptability of using the 1992 dataset, however, 2006 NLCD was also downloaded for a few locations (until October 1, 2013, when the federal government websites were shut down). After October 1, 2013, DEQ reviewed alternative sources of online aerial photography, including Google Earth, which offered relatively current images as well as historical images in the areas surrounding the airport surface site locations.

Surface characteristics calculated in AERMET depend on whether conditions have been dry, average, or wet compared to normal conditions for the area. The Palmer Drought Severity Index (PDSI) is based on a relatively simple water balance model that considers both precipitation and temperature as well as the influence of these on evapotranspiration, soil moisture, and runoff.¹ The Palmer Z-index (anomaly value) is a measure of the conditions during a particular month from the average moisture conditions for that month and location. As a starting point for the “default” met data sets, DEQ downloaded the Palmer Z-index values and anomaly values (averaged over each year, January through December) from the NCDC website for the years 1895 through 2012. Data were obtained for all nine climate divisions in Idaho, Montana division 1 (Western), Nevada divisions 1 (North West) and 2 (North East), Oregon divisions 8 (Northeast) and 9 (Southeast), Utah divisions 3 (North Central) and 5 (Northern Mountains), and Washington divisions 9 (North Eastern) and 10 (Palouse/Blue Mountains). The upper and lower 30th percentiles were calculated based on the annual average Z-index values and anomaly values reported for the 30-year period from 1983 through 2012. Years with average anomaly values in the lower 30th percentile were considered “dry,” years with anomaly values in the upper 30th percentile were considered “wet,” and conditions for all other years were considered “average.”

Daily snow depth records, if available, for the surface met station or a nearby location considered by DEQ to be representative, were downloaded from the NCDC (or during the federal government shutdown beginning October 1, 2013, from the U.S. Historical Climatology Network operated by UT-Battelle for Oak Ridge National Laboratory) website for the years 2008 through 2012.

Run AERMINUTE

AERMINUTE was run to pre-process the one-minute ASOS wind data for each year. The ISHD file for the same year was included to allow the program to conduct quality assurance checks on the data. The AERMINUTE log for each year was reviewed to assess the validity of the ASOS wind data.

Run AERSURFACE

AERSURFACE inputs included the state-wide 1992 NLCD file and lat/long coordinates (corrected to reflect the actual location) for the surface station. The station is at an airport, the number of sectors was set to 12, the surface characteristic frequency was set to monthly using the default seasonal settings, and the radius for the surface roughness calculation was set to the default value of 1.0 km. Unless supported by additional information included in Section 9 of this report, the location was presumed not to be in an arid region. AERSURFACE was run for each moisture condition (dry, average, or wet) determined to apply to the surface station location in any of the years 2008 through 2012 for two cases: no snow and for continuous snow during the winter months of December, January, and February. The AERSURFACE log for each run was reviewed to ensure the correct input parameters had been used and to check for any warning or error messages.

Note: For surface met stations located near a state border, an appropriately sized domain was selected using the 1992 NLCD seamless data. When using seamless data rather than a tif file encompassing an

¹ William M. Alley, The Palmer Drought Severity Index: Limitations and Assumptions, *Journal of Climate and Applied Meteorology* 23 (1984): 1100, accessed at <http://www.engr.colostate.edu/~jsalas/classes/ce624/Handouts/Palmer%20Index-alley%201984.pdf>

entire state, AERSURFACE appears to require that the location be entered in UTM coordinates rather than in lat/long. In these cases, the EPA DOS version of AERSURFACE was used rather than the AERSURFACE version incorporated into Lakes Environmental's AERMOD View or Oris Solutions' BEEST suite.

Adjust AERSURFACE Output Values to Reflect Actual Snow Cover (as needed)

The resulting AERSURFACE output values for surface roughness, albedo, and Bowen ratio for each year were adjusted as needed to reflect the relative number of days with and without snow cover during winter months. For example, presume that AERSURFACE outputs a January 2008 albedo of 0.15 for no snow conditions, and a value of 0.33 presuming continuous snow cover. Following a convention developed by EPA Region 5 and states within Region 5,² the value for the January 2008 albedo value would be manually adjusted in the input text file to:

$$(2)(0.15) + (29)(0.33) = 0.32$$

31

After making adjustments to the albedo, Bowen ratio, and surface roughness length for January, February, and December, the AERSURFACE output file for each year of the met data set using a descriptive naming convention: AERSURFACE_YEAR_XXX_Snow.out, where YEAR is the four-digit year and XXX denotes whether the moisture conditions for that year were considered to be Dry, average (Avg), or Wet.

Because of the challenges associated with maintaining the appropriate spacing in the AERSURFACE output text file, the AERSURFACE output text file was imported into AERMET (when using Lakes Environmental's AERMET View) or imported into Excel and then copied and pasted directly into the primary site characteristics table (tab SC1, when using Oris Solutions' BEEST AERMET).

Run AERMET

AERMET was run for each year using the information and settings shown in Section 4 of this report. The message and report files were reviewed for each of the three processing stages in AERMET.

Edit SFC and PFL Files

If necessary, edit the SFC and PFL files for each year to remove January 1 hours for the following year. The surface and profile files for each year were also combined into concatenated 5-year SFC and PFL file.

Produce Wind Rose and Wind Frequency Plot

The wind rose and wind frequency plots for this five-year met data set were produced using Lakes Environmental WRPLOT.

Run AERMOD for Data Completeness Check

AERMOD was run using each year of the met data sets as well as concatenated five-year SFC and PFL files for a simple case involving a single stack, flat terrain, and no downwash. The maximum impacts and percentage of missing hours shown in the output files were summarized in a table in Section 10 of this met data processing report.

² EPA Region 5 and States, *Regional Meteorological Data Processing Protocol*, Draft, May 6, 2011, accessed October 9, 2013 at <http://www.pca.state.mn.us/index.php/view-document.html?gid=17386>

3. DATA SOURCES

NOAA Met Station Lookup, <http://www.nws.noaa.gov/tg/siteloc.php>

Note: Do not use the lat/long or elevation data from this site.

NWS/ISHD Surface Data: National Climatic Data Center (NCDC), NOAA Satellite and Information Service
<http://www.ncdc.noaa.gov/oa/climate/isd/index.php>

ASOS Wind Data: NCDC, NOAA Satellite and Information Service
<ftp://ftp.ncdc.noaa.gov/pub/data/asos-onemin/>

FSL Upper Air Soundings: NOAA/Earth Systems Research Laboratory (ESRL) Radiosonde Database
<http://esrl.noaa.gov/raobs/>

ASOS Station Information:

AERMET Source Code, EPA Support Center for Regulatory Atmospheric Modeling (SCRAM)
http://www.epa.gov/ttn/scram/metobsdata_procaccprogs.htm#aermet

NWS, ASOS Anemometer Heights, Excel file, 2/11/09
<http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm>

NWS, Ice Free Wind Installation Dates for NWS and FAA Owned ASOS Sites, October 27, 2009
http://www.nws.noaa.gov/ops2/Surface/documents/IFW_stat.pdf

Surface Weather Observation Stations, ASOS/AWOS (interactive map)
http://www.faa.gov/air_traffic/weather/asos/?state=ID

Land Use Data: Multi-Resolution Land Characteristics Consortium (MRLC)
<http://www.mrlc.gov/>

National Land Cover 1992 Database, zipped *.gz file for the entire state of Idaho
http://landcover.usgs.gov/show_data.php?code=ID&state=Idaho

Source Cite: Vogelmann, J.E., S.M. Howard, L. Yang, C. R. Larson, B. K. Wylie, and J. N. Van Driel, 2001, Completion of the 1990's National Land Cover Data Set for the conterminous United States, Photogrammetric Engineering and Remote Sensing 67:650-662.

U.S. Palmer Drought Indices: NCDC
<http://www.ncdc.noaa.gov>

Snow Depth Historical Data, National Operational Hydrologic Remote Sensing Center. 2004. *Snow Data Assimilation System (SNODAS) data products at NSIDC*. Boulder, CO: National Snow and Ice Data Center. Digital media. <http://www.nohrsc.noaa.gov/>

Note: Data were unavailable from the NCDC site due to the federal government shutdown beginning October 1, 2013. Data were obtained from the U.S. Historical Climatology Network operated by UT-Battelle for the Department of Energy, Oak Ridge National Laboratory. Data for all days from January 2008 through December 2012 were accessed on October 9, 2013 at
http://cdiac.ornl.gov/cgi-bin/broker?PROGRAM=prog.climsite_daily.sas&SERVICE=default&id=457938

4. AERMET SETTINGS

SURFACE DATA (NWS)	JEROME COUNTY AIRPORT JEROME, IDAHO					Time Zone Mountain, GMT-7	
Data Collection	Data Format	Time Format	Call	WBAN	USAF	Height 1 (T, RH)	Height 2 (Winds)
NWS	ISHD	UTC/GMT	KJER	04110	726816	2.0 m	10.0 m
Coordinates/Elevation	Latitude/ Northing (m)	Longitude/ Easting (m)	Elevation				
			(m)	(ft)			
ISHD Header	42.727	-114.450	1234	4049			
Google Earth, WGS84	42.7274	-114.4547	1228	4029			
NED, NAD83							

SURFACE DATA ASOS Winds	JEROME COUNTY AIRPORT JEROME, IDAHO					Time Zone Mountain, GMT-7	
Data Collection	Data Format	Time Format	Call	WBAN	ASOS Commission Date	IFW Sensor Install Date	Height 2 (Winds)
FAA	Metric	LST	KJER	04110	19970201	5/4/2006	7.92 m (26.00 ft)
Coordinates/Elevation	Latitude/ Northing (m)	Longitude/ Easting (m)	Elevation				
			(m)	(ft)			
ASOS Comm. Date File	42.72	-114.45					
FAA ASOS Map	42.727	-114.457					
Google Earth, WGS84	42.7274	-114.4547	1228	4029			

UPPER AIR DATA:	NWS, BOISE STATION 3833 Development Ave #3807, Boise, Idaho					Time Zone Mountain, GMT-7	
Data Collection	Data Format	Time Format	Call	WBAN	USAF		
NWS	FSL	UTC/GMT	BOI	24131	72681		
Coordinates/Elevation	Latitude/ Northing (m)	Longitude/ Easting (m)	Elevation				
			(m)	(ft)			
FSL Header	43.57	-116.22	871	2858			
Google Earth, WGS84	43.568	-116.211	871	2858			
NED, NAD83							

Surface data quality assurance audit parameters: Dry bulb temperature, wind direction, and wind speed.

Upper air data quality assurance audit parameters: Pressure, height, and temperature.

Randomize NWS winds? No

The use of hourly-averaged wind directions from AERMINUTE eliminates the need to randomize the wind directions associated with standard NWS observations, which are reported to the nearest 10 degrees.

Ref: Fox, Tyler, EPA Air Quality Modeling Group, Use of ASOS meteorological data in AERMOD dispersion modeling, March 8, 2013,
http://www.epa.gov/scram001/guidance/clarification/20130308_Met_Data_Clarification.pdf

Adjust ASOS winds for truncation? Yes

Wind speed threshold for 1-minute ASOS winds: 0.5 m/s, per March 8, 2013 Fox memo.

5. METEOROLOGICAL STATION LOCATIONS



Figure 5-1. SURFACE AND UPPER AIR MET STATIONS



Figure 5-2. SURFACE DATA LOCATION: JEROME COUNTY AIRPORT, NWS AND ASOS



Figure 5-3. UPPER AIR SOUNDINGS LOCATION – BOISE NATIONAL WEATHER SERVICE STATION

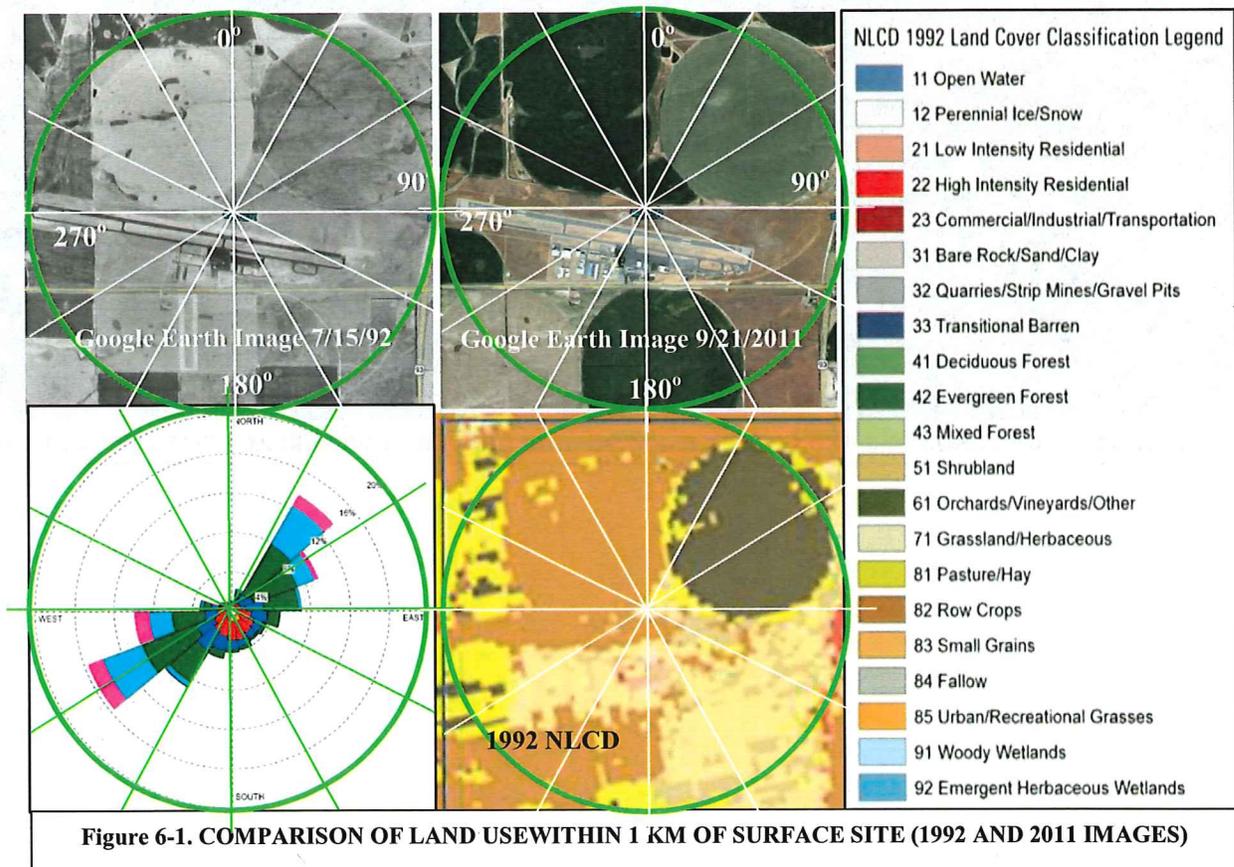
6. LAND COVER

At this time, AERSURFACE accepts only 1992 NLCD data as input for determining three surface characteristics: the surface roughness length z_0 , albedo, and Bowen ratio. Of the three, changes in the surface roughness length typically have the greatest effect on modeled concentrations.³ The surface roughness length is calculated as the inverse-distance weighted geometric mean of gridded roughness values within 1 km of the wind measurement site, based on a maximum of 12 user-defined wind sectors.

A comparison of a July 15, 1992 image and a September 21, 2011 image in Google Earth shows that land use within a 1- km radius of the surface station has not changed substantially since 1992.

Based on the 2008-2012 wind rose, changes to land use in the 0°-30°, 90°-210° and 270°-360° sectors will have little or no effect on modeled concentrations, because winds rarely come from these directions. No adjustments have been made to the 1992 NLCD data set in this case because 1) the observed changes to land use appear to be minor, 2) of the uncertainties associated with using NLCD data to determine surface roughness lengths, and 3) DEQ's goals include streamlining data processing and ensuring that calculated surface characteristics are reproducible as well as representative.

In AERMET, selecting the "airport" option assigns more weight to runways and roads than buildings for the Commercial/Industrial/Transportation land cover category. The "non-airport" option assigns more weight to buildings for this category. Use the "airport" option for the Jerome met data set.



³ Carper, E. and E. Ottersburg, *Sensitivity Analysis Study Considering the Selection of Appropriate Land-Use Parameters in AERMOD Modeling Analysis*. Presented at the 2004 A&WMA Annual Conference, June 2004, accessed October 9, 2013 at www.trinityconsultants.com/WorkArea/DownloadAsset.aspx?id=1627

The Bowen ratio is the ratio of sensible heat to latent heat flux from the ground to the atmosphere, which determines how much solar heating goes to evaporation of surface moisture. The Bowen ratio is based on a simple unweighted geometric mean for a 10 km square domain centered on the surface station site. The albedo is a measure of the reflectivity of a surface, and is calculated based on a simple unweighted arithmetic mean for a 10 km by 10 km domain centered on the surface station site.

As shown in Figure 6-2, land use in the vicinity of the Jerome County Airport has not changed substantially during the past two decades. Values of the Bowen ratio and albedo calculated using 1992 NLCD data should still be representative for processing meteorological data collected during the period from 2008 through 2012.

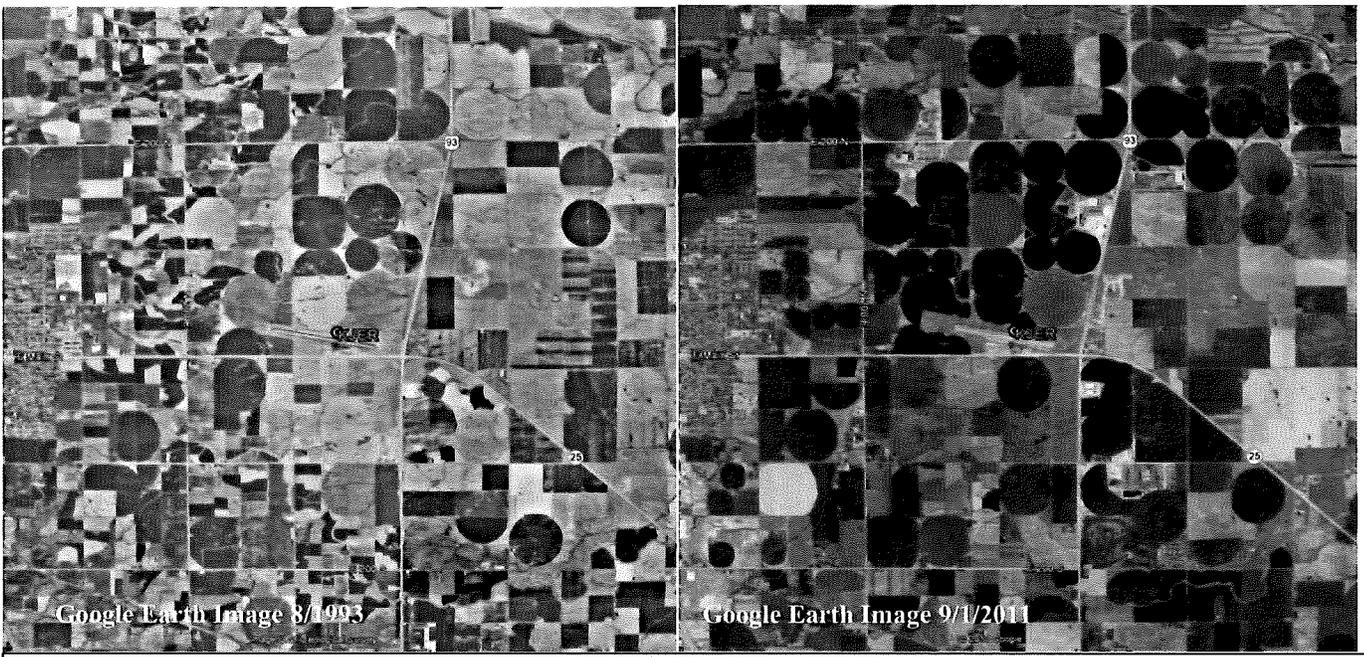


Figure 6-2. COMPARISON OF LAND USE IN A 10-KM DOMAIN CENTERED ON SURFACE SITE (1993 & 2011 IMAGES)

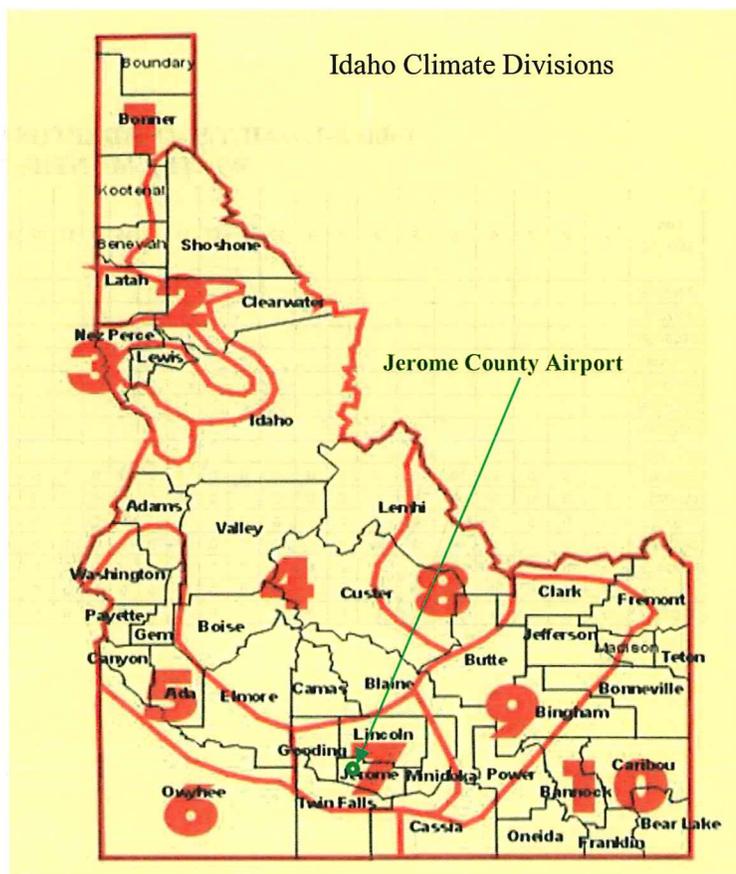
7. CLIMATE/SURFACE MOISTURE CONDITIONS

The Jerome County Airport is located near the center of Idaho Climate Division 7 (Central Plains). This division can be described as a cold semi-arid steppe climate.⁴ The Jerome area is predominantly irrigated farmland, however, which has an effect on the typical temperatures and humidity ranges.

Date	Palmer Z-Index Jan-Dec		AERMET Moisture Conditions
	Value	Anomaly	
198312	2.42	2.38	WET
198412	1.65	1.61	WET
198512	-0.19	-0.23	AVERAGE
198612	0.57	0.53	AVERAGE
198712	-1.53	-1.57	DRY
198812	-0.86	-0.9	DRY
1989			AVERAGE
199012	-1.22	-1.26	DRY
199112	-1.11	-1.15	DRY
199212	-2.28	-2.32	DRY
199312	1.01	0.97	WET
199412	-1.29	-1.33	DRY
199512	1.9	1.86	WET
199612	1.45	1.41	WET
199712	0.82	0.78	AVERAGE
199812	1.42	1.38	WET
199912	0.51	0.47	AVERAGE
200012	-0.73	-0.77	AVERAGE
200112	-1.37	-1.41	DRY
200212	-0.86	-0.9	DRY
200312	-1.01	-1.05	DRY
200412	-0.13	-0.17	AVERAGE
200512	1.47	1.43	WET
200612	1.49	1.45	WET
200712	-1.01	-1.05	DRY
200812	-0.39	-0.43	AVERAGE
200912	0.53	0.49	AVERAGE
201012	0.85	0.81	AVERAGE
201112	1.22	1.18	WET
201212	0.03	-0.01	AVERAGE

The annual average Palmer Z Index anomaly for the representative state climate division was used to determine relative moisture conditions for each year of the met data set based on the 30-year period from 1983 through 2012. Years with annual anomaly values in the lower 30th percentile were considered “Dry” and years with values in the upper 30th percentile were considered “Wet.”

30-YEARS	1983-2012
	<u>Anomaly</u>
Top 30 th percentile, above	0.906
Lower 30 th percentile, below	-0.900



⁴ <http://weatherspark.com/averages/30637/Jerome-Idaho-United-States>

8. SNOW COVER

Snow accumulation during winter months for each year was determined by reviewing NCDC daily snow depth data collected near Jerome (Jerome, Station ID 104670). AERSURFACE was run for average and wet surface moisture conditions and for no snow cover during the winter months of December, January, and February.

The resulting AERSURFACE output values for surface roughness, albedo, and Bowen ratio were NOT adjusted to reflect the relative number of days with and without snow cover during winter months. For example, presume that AERSURFACE outputs a January 2008 albedo of 0.15 for no snow conditions, and a value of 0.33 presuming continuous snow cover. Following a convention developed by EPA Region 5 and states within Region 5,⁵ the value for the January 2008 albedo value is manually adjusted in the input text file to:

$$\frac{(2)(0.15) + (29)(0.33)}{31} = 0.32$$

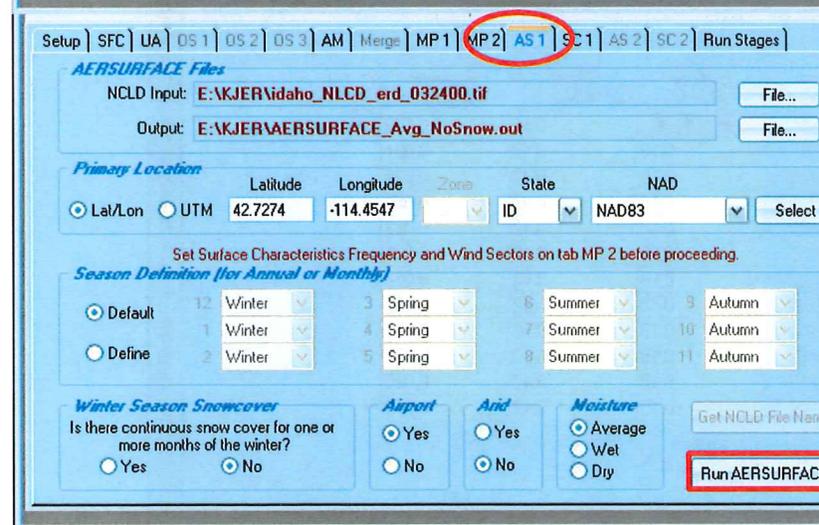
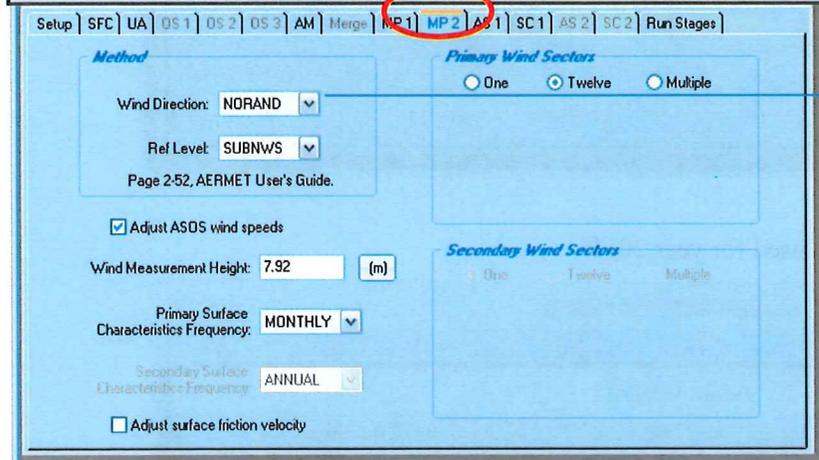
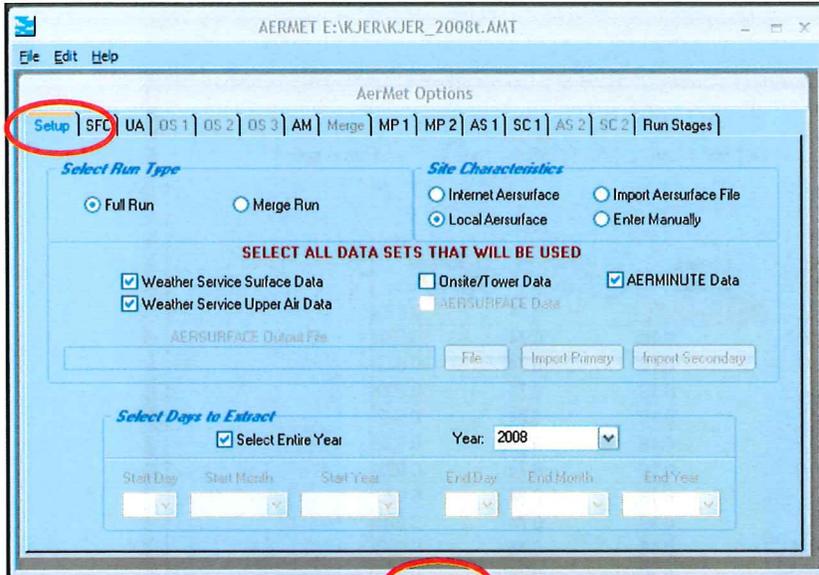
**Table 8-1. DAILY SNOW DEPTHS (INCHES) AT JEROME
 WINTER MONTHS 2008-2012**

Day: MO_YR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Days	DAYS w/o Snow Cover
JAN2008																															31	31	
FEB2008																																29	29
DEC2008																																31	31
JAN2009																																31	31
FEB2009																																28	28
DEC2009																																31	31
JAN2010																																31	31
FEB2010																																28	28
DEC2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	31	31
JAN2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	31
FEB2011	0	0	0	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			28	28	
DEC2011	0	0	--	0	0	0	0	0	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	--	--	--	--	31	31	
JAN2012	0	0	0	0	0	0	--	0	0	0	0	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0	0	0	0	0	31	31	
FEB2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			29	29	
DEC2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	31	31	

⁵ EPA Region 5 and States, *Regional Meteorological Data Processing Protocol*, Draft, May 6, 2011, accessed October 9, 2013 at <http://www.pca.state.mn.us/index.php/view-document.html?gid=17386>

9. SCREEN SHOTS OF DATA PROCESSING STEPS

SCREEN SHOTS – Oris Solutions’ BEEST AERMET – SETUP, MP2, AND AERSURFACE TABS

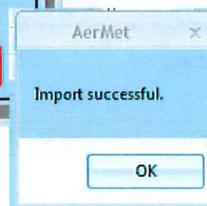


The use of hourly-averaged wind directions from AERMINUTE eliminates the need to randomize the wind directions associated with standard NWS observations, which are reported to the nearest 10 degrees.

Ref: Fox, Tyler, EPA Air Quality Modeling Group, Use of ASOS meteorological data in AERMOD dispersion modeling, March 8, 2013, http://www.epa.gov/scram001/guidance/clarification/20130308_Met_Data_Clarification.pdf

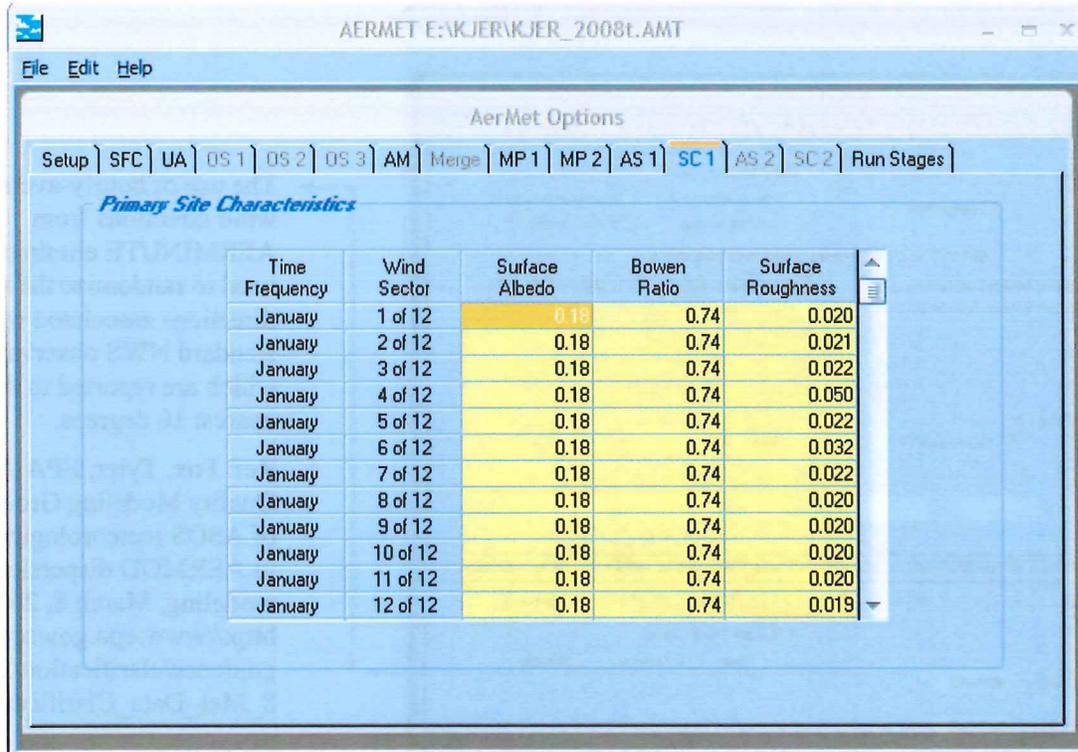
Run AERSURFACE for average conditions, without snow. Run AERMET for years 2008-2010 and 2012. Change the settings and output file name for wet conditions without snow. Rerun AERSURFACE, then run AERMET for 2011

- AERSURFACE_Avg_NoSnow.log
- AERSURFACE_Avg_NoSnow.out
- AERSURFACE_Wet_NoSnow.log
- AERSURFACE_Wet_NoSnow.out



SCREEN SHOTS – Oris Solutions’ BEEST AERMET – SC1 TAB

MOISTURE = AVERAGE, NO SNOW, used for years 2008-2010 and 2012



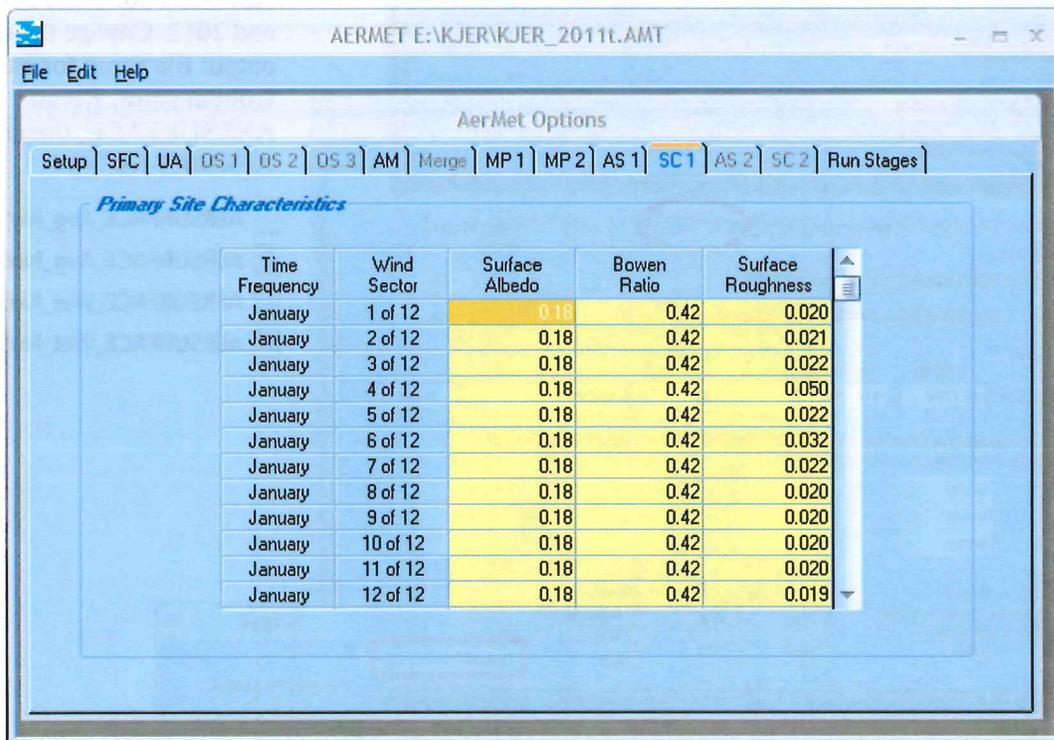
AerMet Options

Setup | SFC | UA | OS 1 | OS 2 | OS 3 | AM | Merge | MP 1 | MP 2 | AS 1 | **SC 1** | AS 2 | SC 2 | Run Stages

Primary Site Characteristics

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
January 1 of 12	1 of 12	0.18	0.74	0.020
January 2 of 12	2 of 12	0.18	0.74	0.021
January 3 of 12	3 of 12	0.18	0.74	0.022
January 4 of 12	4 of 12	0.18	0.74	0.050
January 5 of 12	5 of 12	0.18	0.74	0.022
January 6 of 12	6 of 12	0.18	0.74	0.032
January 7 of 12	7 of 12	0.18	0.74	0.022
January 8 of 12	8 of 12	0.18	0.74	0.020
January 9 of 12	9 of 12	0.18	0.74	0.020
January 10 of 12	10 of 12	0.18	0.74	0.020
January 11 of 12	11 of 12	0.18	0.74	0.020
January 12 of 12	12 of 12	0.18	0.74	0.019

MOISTURE = WET, NO SNOW, used for year 2011



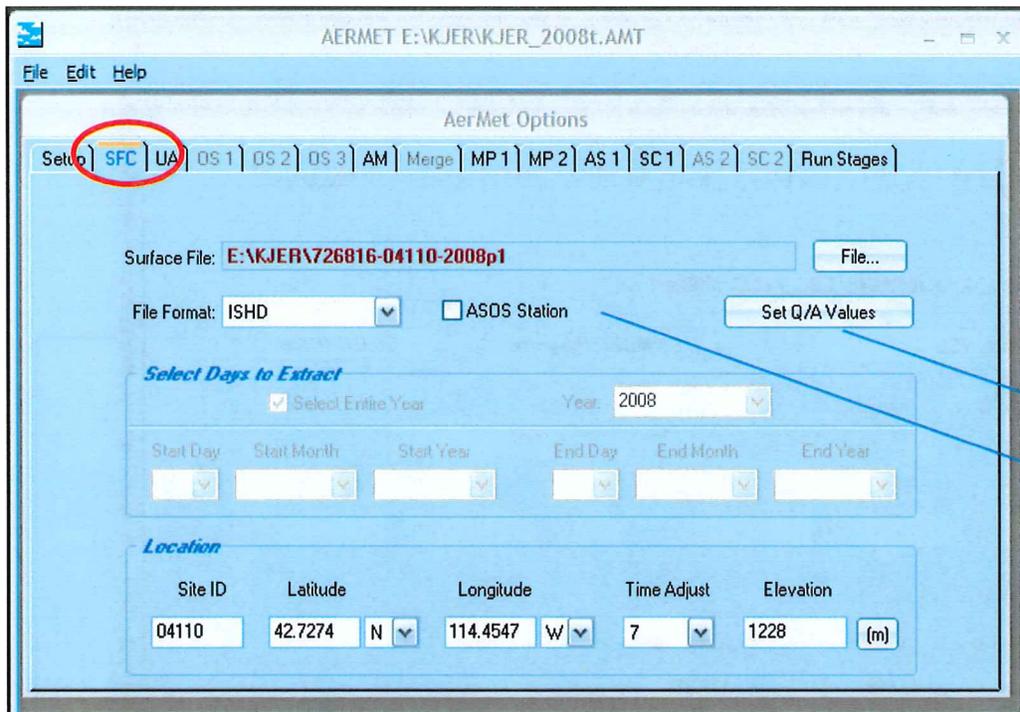
AerMet Options

Setup | SFC | UA | OS 1 | OS 2 | OS 3 | AM | Merge | MP 1 | MP 2 | AS 1 | **SC 1** | AS 2 | SC 2 | Run Stages

Primary Site Characteristics

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
January 1 of 12	1 of 12	0.18	0.42	0.020
January 2 of 12	2 of 12	0.18	0.42	0.021
January 3 of 12	3 of 12	0.18	0.42	0.022
January 4 of 12	4 of 12	0.18	0.42	0.050
January 5 of 12	5 of 12	0.18	0.42	0.022
January 6 of 12	6 of 12	0.18	0.42	0.032
January 7 of 12	7 of 12	0.18	0.42	0.022
January 8 of 12	8 of 12	0.18	0.42	0.020
January 9 of 12	9 of 12	0.18	0.42	0.020
January 10 of 12	10 of 12	0.18	0.42	0.020
January 11 of 12	11 of 12	0.18	0.42	0.020
January 12 of 12	12 of 12	0.18	0.42	0.019

SCREEN SHOTS – Oris Solutions’ BEEST AERMET –Select SURFACE DATA



NOTE: If the ASOS Commission Date for the Surface Station is in the ASOS commission list (see AERMET source code, mod_AsosCommDates.for) AND the ASOS Station box is checked, AERMET will return the following warning message in the Stage 1 Report (.RP1):*

**** WARNING MESSAGES ****

9 SURFACE W06 DATCRD : ASOS flag specified for ISHD on DATA keyword - use only if not in AERMET ASOS commission list.

Variable Name	Enable AUDIT	NO_MISSING (Supress Msgs)	Modify RANGE	Include Endpoints	Lower Bound	Upper Bound	Missing Flag
ALCS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	07850	09999
PWVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	9800	9999
PWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	9800	9999
ASKY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	10	99
ACHT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	888	999
HZVS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	1640	99999
TMPD *	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-300	360	999
TMPW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-650	350	999
DPTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-650	350	999
RHUM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	100	999
WDIR *	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	36	999
WSPD *	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	500	999

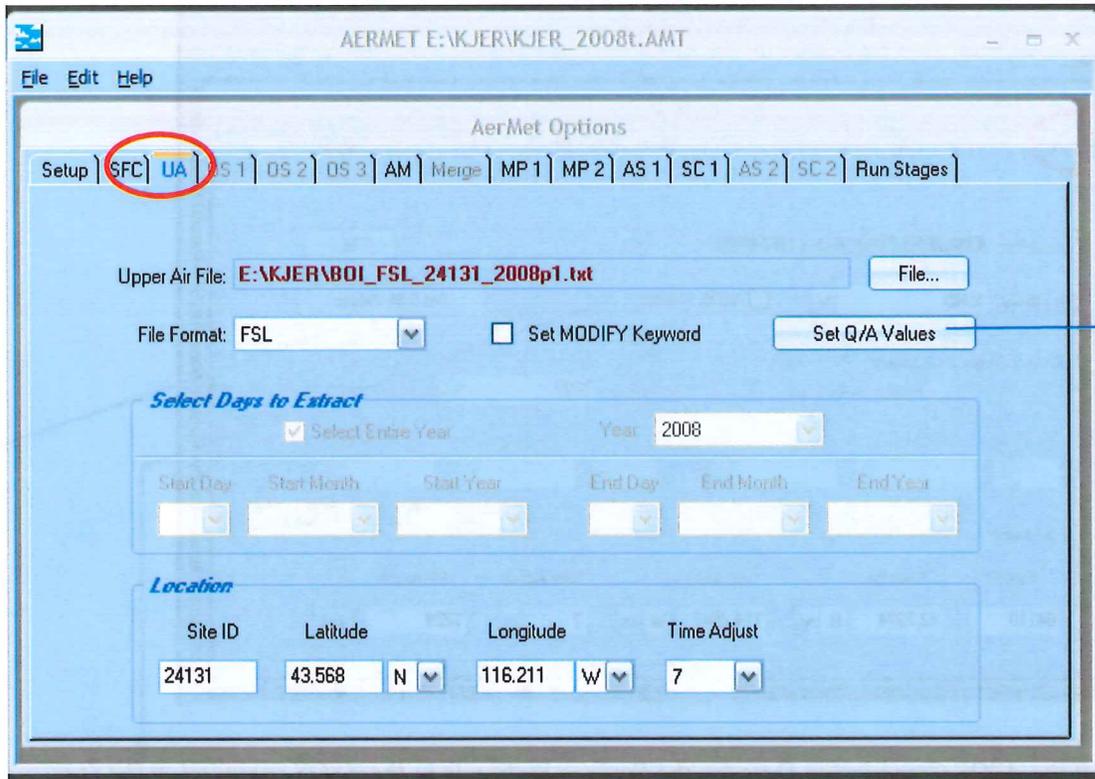
(See Table B-2, AERMET User's Guide)

* Always in AUDIT report.

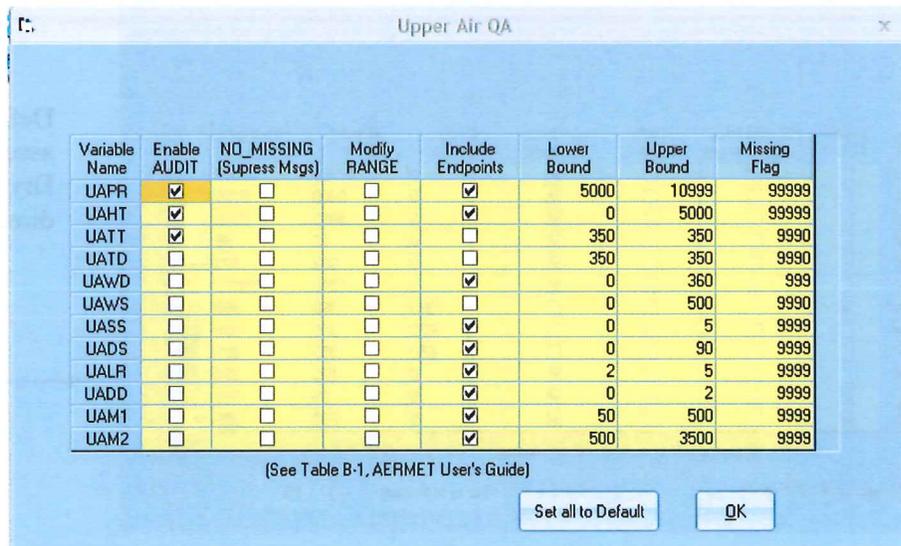
Set all to Default OK

Default surface data quality assurance audit parameters: Dry bulb temperature, wind direction, and wind speed.

SCREEN SHOTS – Oris Solutions’ BEEST AERMET –Select UPPER AIR DATA



AERMET uses only height, pressure, and temperature from the upper air soundings. Suggested upper air data quality assurance audit parameters: Pressure, height, and temperature.



SCREEN SHOTS – Oris Solutions’ BEEST AERMET –AERMINUTE (AM) TAB, *RUN AERMINUTE*

10 AERMINUTE File
 Data file: E:\KJER\AERMINUTE_2008_HRLY
 Threshold Wind Speed
 Winds below 0.5 m/s are considered calm.

2 Run AerMinute

3 Select date range to process
 Start Month: January, Start Year: 2008, End Month: December, End Year: 2008
 Include surface data
 Station is part of Ice Free Winds group
 Commission date: May 4, 2006

4 Select one-minute data files
 Select the folder containing the files: E:\KJER
 Select the files to process:
 64050KJER200805.dat
 64050KJER200806.dat
 64050KJER200807.dat
 64050KJER200808.dat
 64050KJER200809.dat
 64050KJER200810.dat
 64050KJER200811.dat
 64050KJER200812.dat
 64050KJER200901.dat

5 Select surface data files
 Select the folder containing the files: E:\KJER
 Select the files to process:
 726816-04110-2008.gz
 726816-04110-2008p1
 726816-04110-2009.gz
 726816-04110-2009p1
 726816-04110-2010.gz
 726816-04110-2010p1
 726816-04110-2011.gz
 726816-04110-2011p1
 726816-04110-2012.gz

6 Specify output files
 Hourly winds: E:\KJER\AERMINUTE_2008t_HRLY
 Summary: E:\KJER\AERMINUTE_2008t_SUMMARY.csv
 Data comparison: E:\KJER\AERMINUTE_2008t_COMPARE.csv

7 Save file as AERMINUTE_YEAR.AMN

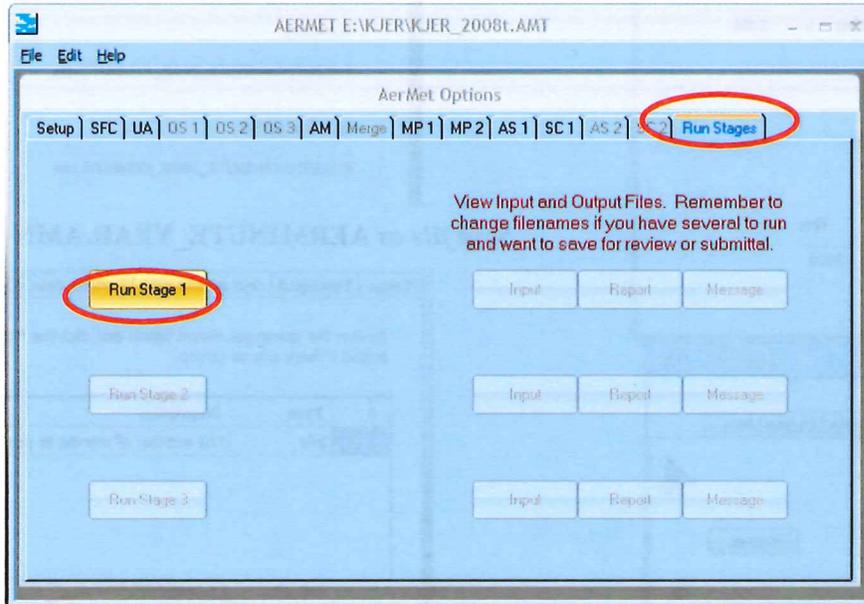
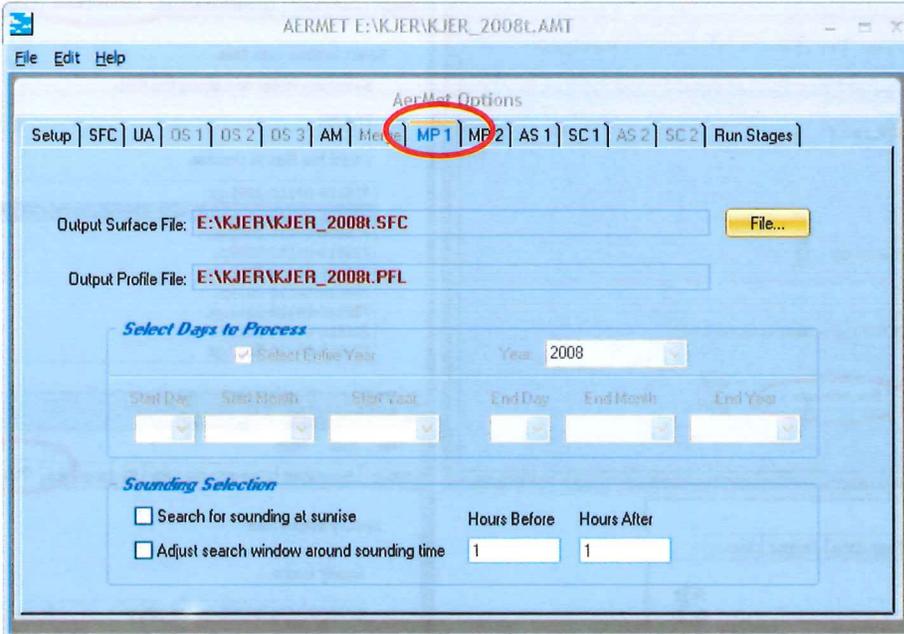
8 Review the messages shown below and click the "Run AerMinute" button if there are no errors.

#	Type	Description
1	Info	The number of months to process is 12.

9 Rename:
 aerminute.log to aerminute_YEAR.log
 bad_records.dat to bad_records_YEAR.dat
 check_records.dat to check_records_YEAR.dat
 good_records.dat to good_records_YEAR.dat

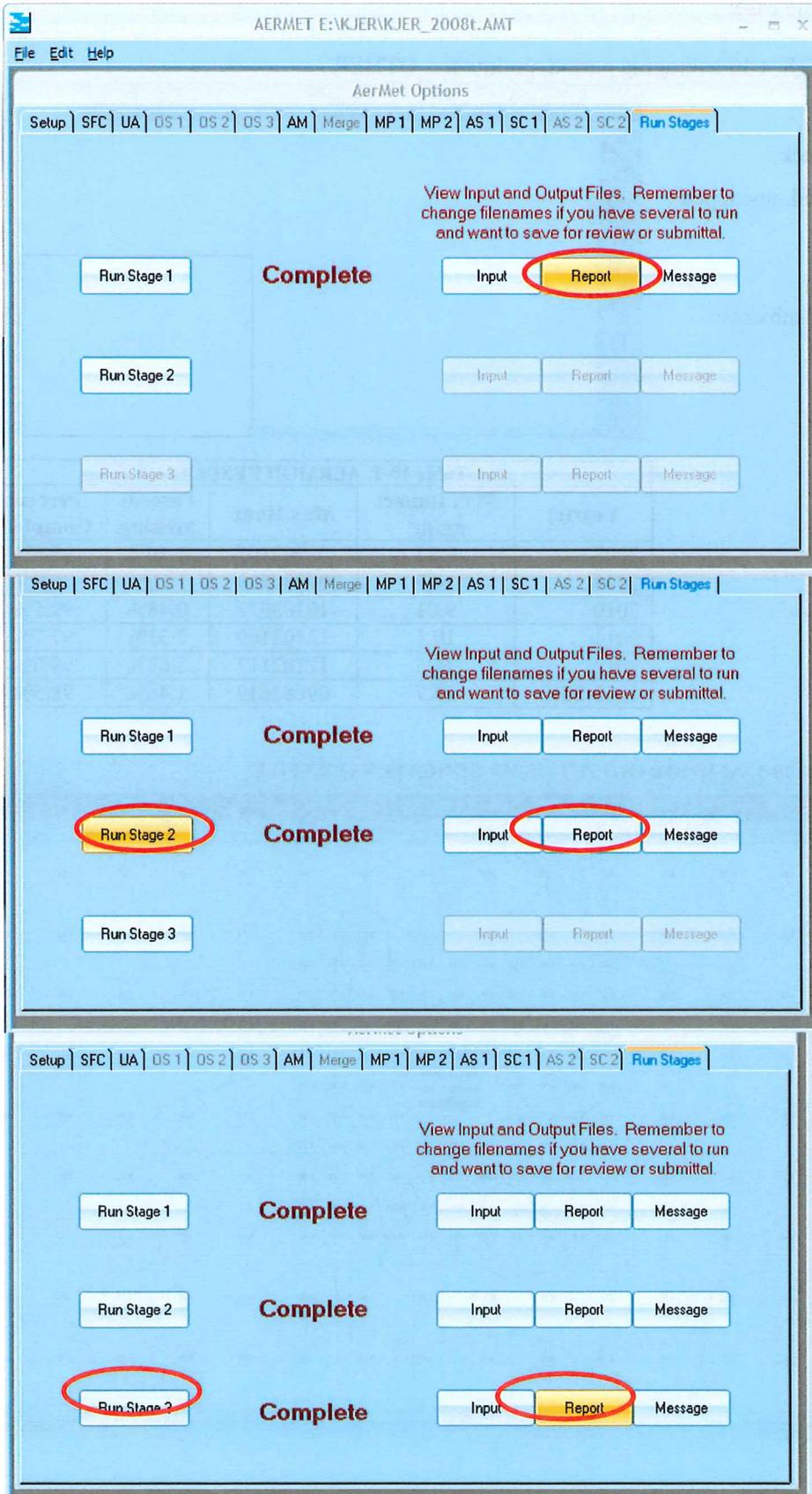
*.AMT file: Save as KBOI_YEAR, increasing to the next year. Repeat steps 1 through 10.

SCREEN SHOTS – Oris Solutions’ BEEST AERMET – MP1 TAB AND RUN AERMET STAGE 1



Rename Discarded_ISHD_Records.dat to
Discarded_ISHD_Records_YEARt.dat

SCREEN SHOTS – Oris Solutions’ BEEST AERMET – RUN AERMET STAGE 2 & STAGE 3



10. AERMOD, SIMPLE STACK, DATA COMPLETENESS RESULTS

AERMOD was run using each year of the met data sets as well as concatenated five-year SFC and PFL files for the following simple case:

Output: High 1st high, 1-hr averaging period, pollutant = OTHER

Emission Rate: 1 lb/hr

Source: Simple Stack

- Release Type: Vertical, uncapped
- Stack Height: 10 m
- Stack Dia: 0.5 m
- Exit Velocity: 25 m/s
- Exit Temp: 0 K (Ambient)
- Base Elev: 436 m

Terrain: Flat

Downwash: None

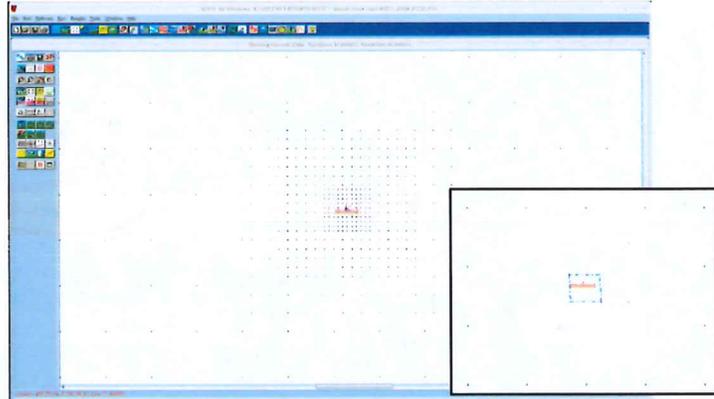
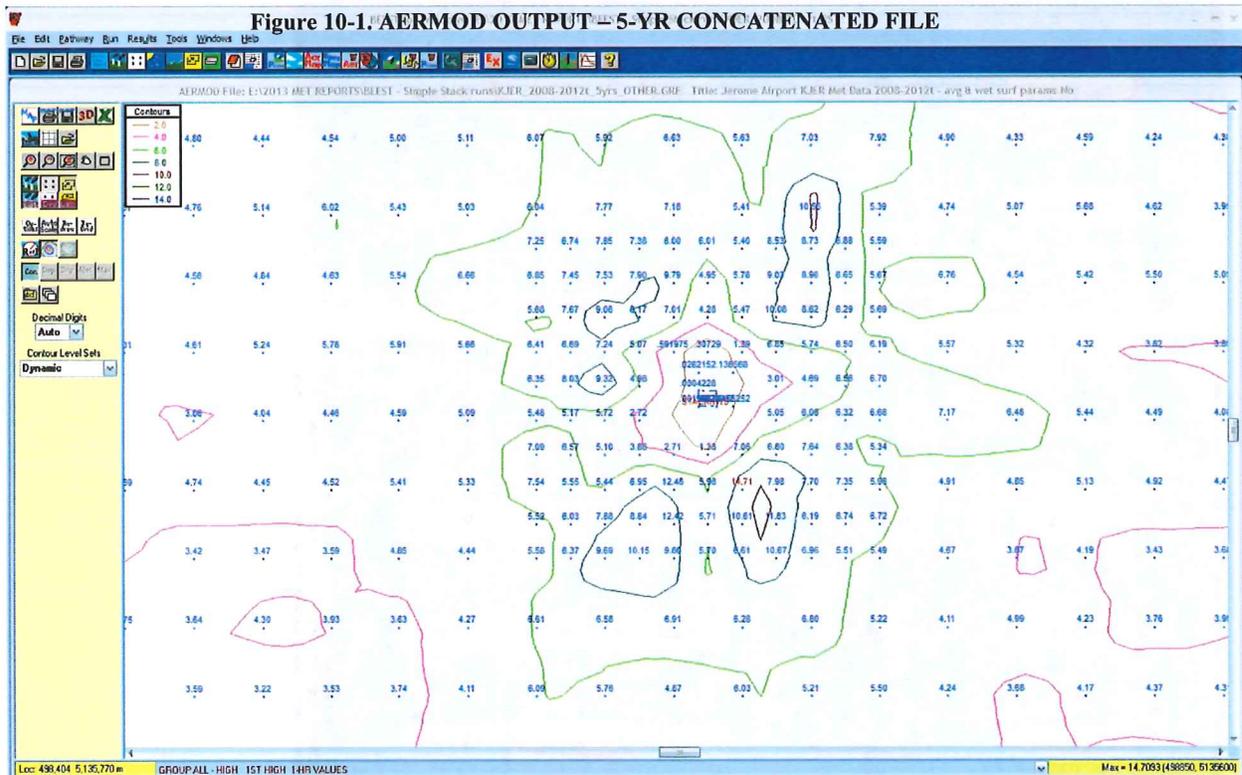
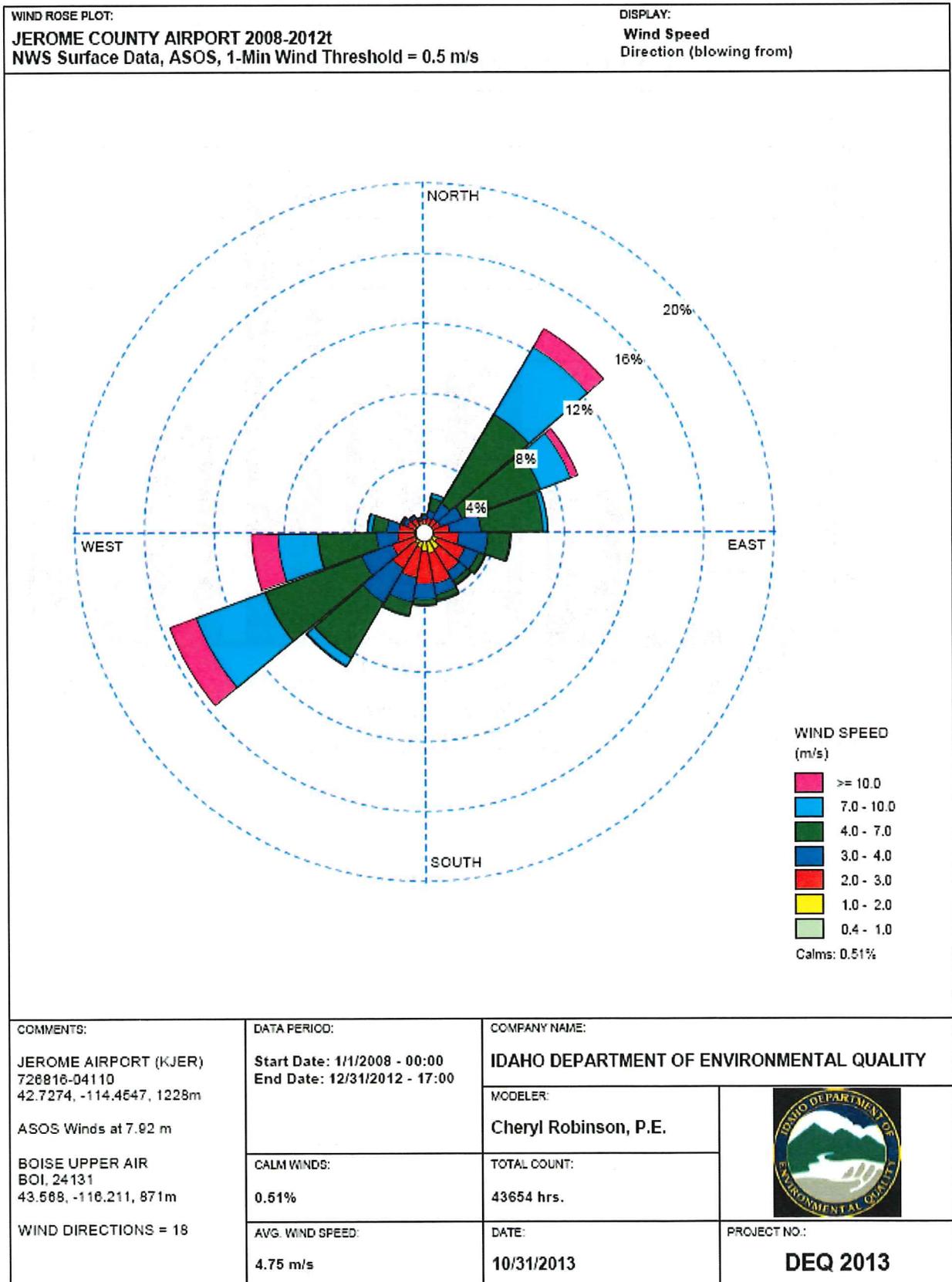


Table 10-1. AERMOD RESULTS

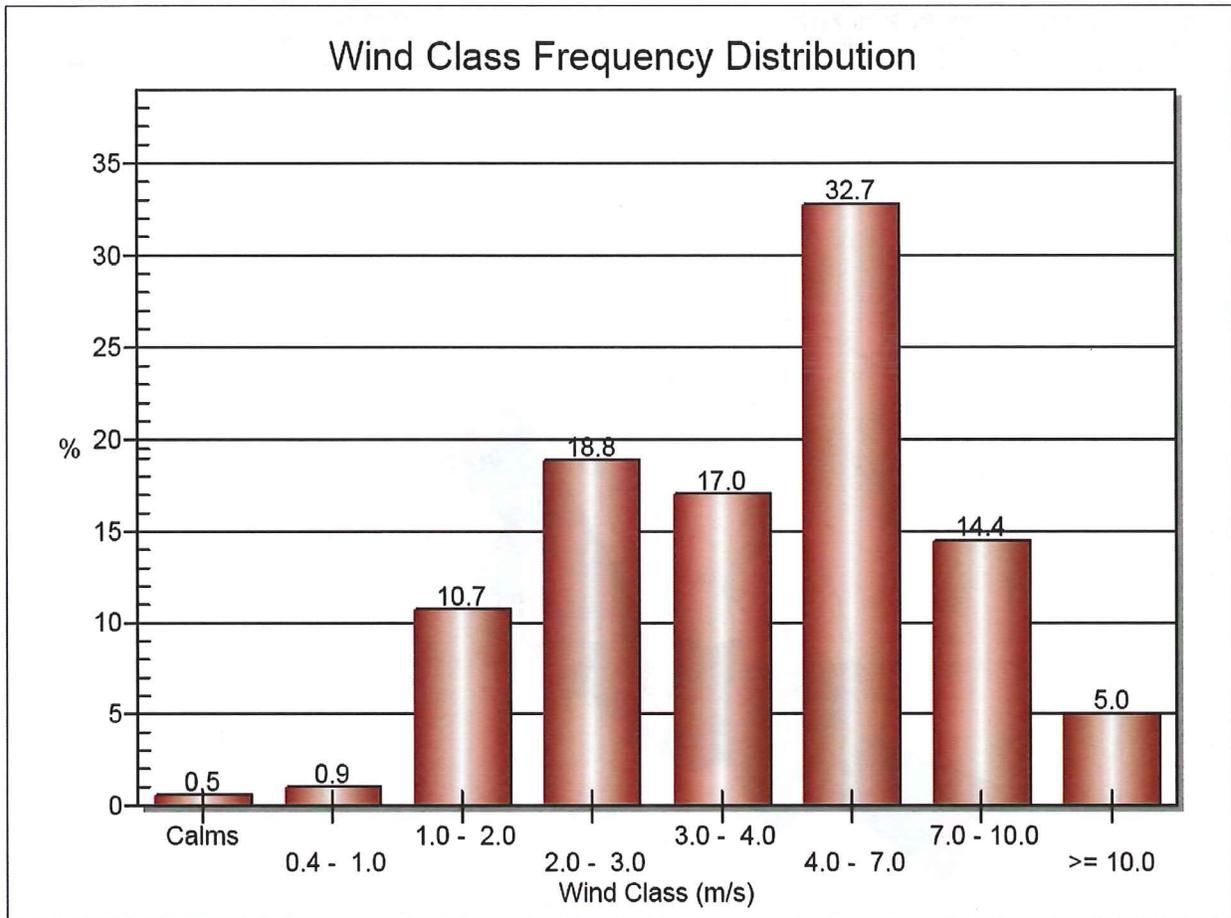
Year(s)	Max Impact $\mu\text{g}/\text{m}^3$	Max Hour	Percent Missing	Percent Complete
2008	9.32	08073107	1.40%	98.6%
2009	14.7	09082619	1.10%	98.9%
2010	9.01	10103017	0.48%	99.5%
2011	10.1	11103109	2.31%	97.7%
2012	12.5	2.03%	98.0%	
2008-2012	14.7	09082619	1.46%	98.5%



11. WIND ROSE



12. WIND CLASS FREQUENCY PROFILE



WRPLOT View 3.1.0 - Lakes Environmental Software



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 NORTH HILTON, BOISE, ID 83706 · (208) 373-0502

C. L. "BUTCH" OTTER, GOVERNOR

JOHN TIPPETS, DIRECTOR

September 13, 2015

Eric Albright
Ramboll Environ on behalf of Hilex Poly Company
Jerome, Idaho

Re: Modeling Protocol for the Hilex Poly Company facility expansion project in Jerome, Idaho

Dear Eric:

DEQ received your dispersion modeling protocol submitted via email on September 1, 2015. The modeling protocol was submitted by Mr. Eric Albright of Ramboll Environ on behalf of the Hilex Poly Company (HPC) facility located in Jerome, Idaho. The modeling protocol proposes methods and data for use in the ambient impact analyses of a Permit to Construct (PTC) application for an expansion project to an existing facility in order to show compliance for their facility. DEQ has the following comments:

- Comment 1: The applicant states that HPC will be utilizing the monitored ambient ozone data from their on-site monitoring program for the period 2005-2007 for background data for use with the air quality modeling assessment to show compliance with the NAAQS. DEQ agrees with this approach, as this usage was one of the incentives to perform the ambient air quality monitoring collection of onsite ozone data at the facility. Due to the time lapse from the previous permit (6 years), DEQ will need to re-confirm that the calculated ambient background values as submitted are acceptable. The applicant also states that if the background ozone data is too high to demonstrate compliance with the NAAQS, the monitored ozone data might be analyzed to remove contributions from the facility. Additionally, diurnal variation may need to be taken into account. DEQ reminds the applicant

that this approach would require assessment by DEQ before final acceptance of the methodology.

- Comment 2: Documentation and justification of release parameters must be provided in the application. Refer to Section 3.4.3 of the *State of Idaho Guideline for Performing Air Quality Impact Analyses*, September 2013. Simply stating that values are “manufacturer data” does not constitute adequate documentation and/or justification. The application has referred to a previous permit for the derivation of these parameters. DEQ requests that the application include this information in an appendix so that the modeling report can be utilized as a stand alone document. If values were obtained from an equipment/engineering firm, then those forms, specification sheets, etc. provided by the firm should be included in the application as documentation for the values used in the modeling analyses
- Comment 3: Descriptions of the facility process are generally adequate. The ambient air boundary, as stated in the State of Idaho Guideline for Performing Air Quality Impact Analyses, should be defined by an area where the public access is precluded. This includes separation from areas of habitation or activities by people not employed by the facility. If a physical barrier is not used to preclude public access from areas excluded from ambient air, then the application must thoroughly describe the methods used to practically preclude access.
- Comment 4: DEQ has recently developed a modeling report template form for consultants/applicants to use when submitting modeling analyses. An electronic copy of this template should have been attached to the email delivering this protocol approval notice. DEQ requires that this template be used for the submitted modeling analyses.
- Comment 5: HPC proposes to use five years of meteorological data collected in nearby Jerome, Idaho. This data was supplied by DEQ, and is acceptable for the analyses. Meteorological data was collected during the ozone monitoring program, but has not been made readily available for AERMOD modeling. This data consists of the ozone monitoring seasons (May-September) for a three year period (2005-2007), and therefore would not constitute a full five year data period as generally recommended by the State of Idaho Guideline for Performing Air Quality Impact Analyses. The data processed from Jerome is deemed representative of the site location.
- Comment 6: The actual derivation of emissions and therefore the applicability to which criteria pollutants and TAPS are to modeled will be reviewed and approved by the permit writer after the application is submitted.

DEQ modeling staff considers the submitted dispersion modeling protocol, with consideration and resolution of the additional items noted above, to be approved. It should be noted, however, that the approval of this modeling protocol is not meant to imply approval of a completed dispersion modeling analysis. Please refer to the *State of Idaho Air Quality Modeling Guideline*, which is available on the Internet at http://www.deq.state.id.us/air/permits_forms/permitting/modeling_guideline.pdf, for further guidance.

DEQ modeling staff requests submission of electronic copies of all modeling input and output files (including BPIP and AERMAP input and output files) with an analysis report. Also, please include with the application materials a copy of the protocol and this protocol approval in the appendix of the application. If you have any questions, please call at 208 373 0220

Sincerely,

Thomas Swain
Analyst 3 , Air Modeling
Idaho Department of Environmental Quality
208 373-0220
thomas.swain@deq.idaho.gov

Annie Klinke

From: Thomas.Swain@deq.idaho.gov
Sent: Friday, September 25, 2015 11:59 AM
To: Eric Albright
Cc: Kevin.Schilling@deq.idaho.gov; Annie Klinke; Doug Herlocker
Subject: RE: Modeling Protocol Approval for Hilex Poly Expansion Project

Eric,

DEQ has reviewed your email describing the proposed methodology to create an hourly background ozone data set for the proposed AERMOD modeling for the Hilex Poly Expansion Project. DEQ agrees that it is acceptable to do so. The monitoring data was collected on site during the typical "high" ozone season for a period of three years. It may also be viewed as being conservative in nature as it likely contains contributions from the Hilex Poly facility as well. Please provide the data as utilized in your formulation of background data with the submittal of the modeling application and corresponding modeling files so that DEQ can review it at that time.

Thanks

Thomas Swain
Analyst 3/Modeler
Idaho DEQ - Air Quality Division
1410 N. Hilton, Boise ID 83706-1255
ph: (208) 373-0220 fax: (208) 373-0340
Thomas.swain@deq.idaho.gov

From: Eric Albright [mailto:ealbright@environcorp.com]
Sent: Tuesday, September 22, 2015 9:42 AM
To: Thomas Swain
Cc: Kevin Schilling; Annie Klinke; Doug Herlocker
Subject: RE: Modeling Protocol Approval for Hilex Poly Expansion Project

Thomas:

I will be out of the office on Friday and early next week. When you send a response, please copy Doug Herlocker and Annie Klinke, both of whom are copied on this email.

Thanks.

Eric

From: Thomas.Swain@deq.idaho.gov [mailto:Thomas.Swain@deq.idaho.gov]
Sent: Tuesday, September 22, 2015 6:37 AM
To: Eric Albright <ealbright@environcorp.com>
Cc: Kevin.Schilling@deq.idaho.gov
Subject: RE: Modeling Protocol Approval for Hilex Poly Expansion Project

Hi Eric

Both Kevin and I will be out of the office until this Friday, so we will be unable to respond until then or next week.

Thanks

Thomas Swain

Analyst 3/Modeler
Idaho DEQ - Air Quality Division
1410 N. Hilton, Boise ID 83706-1255
ph: (208) 373-0220 fax: (208) 373-0340
Thomas.swain@deq.idaho.gov

From: Eric Albright [<mailto:ealbright@environcorp.com>]
Sent: Monday, September 21, 2015 5:15 PM
To: Thomas Swain
Cc: Kevin Schilling; William Rogers; Mike Schutz; Pat M. McCormack; Doug Herlocker
Subject: RE: Modeling Protocol Approval for Hilex Poly Expansion Project

Thomas:

On September 1, 2015, we submitted a dispersion modeling protocol on behalf of the Hilex Poly Company (HPC) for modeling developed in support of a Permit to Construction (PTC) application for a proposed expansion to an existing facility in Jerome, Idaho. At that time, the modeling was still not entirely complete, but, in the interest of schedule, we submitted a description of the methodology as we believed it would ultimately be. The purpose of this email is to communicate a change in the proposed methodology for your review and approval.

As noted in Section 2.12.1 of the memorandum from Kevin Schilling to Carole Zundel on February 25, 2009 that is attached to the Statement of Basis that accompanied the Permit to Construct issued to the facility on March 4, 2009, "ideally, time- and season-specific background values should be developed since ambient ozone concentrations have strong seasonal and diurnal variability." Because on-site monitoring was conducted only during the ozone season (May 1 through September 30), there is insufficient data to calculate season-specific background values. However, we are proposing to use the monitoring data gathered on-site by HPC to calculate hourly average background concentrations for each hour of the day. These background concentrations will be combined with concentrations predicted by the model during the same hour of the day, thus providing total concentrations that reflect the diurnal variation of ambient ozone concentrations, as well as the variation in concentrations calculated by AERMOD, which are influenced by local meteorology.

The Hilex Poly on-site ozone data will be used to create average ozone concentrations for each hour of the day. Hourly average concentrations will be calculated for each hour using the data collected by the monitor at 15-min intervals during the Idaho ozone season for the years 2005, 2006, & 2007. For each hour of the day, an hourly design concentration will be calculated by identifying the 4th highest hourly concentration for each year, and then averaging across the 3-year ozone season dataset. These calculated hourly average background concentrations will be included as inputs to AERMOD using the BACKGRND and HROFDY keywords. AERMOD will add these values to the calculated hourly average ozone concentrations before calculating the total eight-hour average ozone concentrations used to assess compliance with the ambient standard.

Thanks, and please let us know if you have any questions, or need additional information.

Eric

Eric Albright, PE

Senior Manager

D +1 425 4121804

M +1 206 9090591

F +1 425 4121840

ealbright@environcorp.com | ealbright@ramboll.com

Ramboll Environ

19020 33rd Avenue West

Suite 310

Lynnwood, WA 98036

USA

www.ramboll-environ.com

From: Thomas.Swain@deq.idaho.gov [<mailto:Thomas.Swain@deq.idaho.gov>]

Sent: Monday, September 14, 2015 1:46 PM

To: Eric Albright <ealbright@environcorp.com>

Cc: Kevin.Schilling@deq.idaho.gov; William.Rogers@deq.idaho.gov

Subject: Modelin Protocol Approval for Hilex Poly Expansion Project

Eric

Attached is the approval of your proposed modeling protocol for the Hilex Poly Expansion project. Please feel free to call if you have any questions regarding the comments in the letter.

Regards,

Thomas Swain

Analyst 3/Modeler

Idaho DEQ - Air Quality Division

1410 N. Hilton, Boise ID 83706-1255

ph: (208) 373-0220 fax: (208) 373-0340

Thomas.swain@deq.idaho.gov

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APPENDIX E: MODELING REPORT

1. SUMMARY

Hilex Poly Company LLC (Hilex Poly) operates a facility in Jerome, Idaho. In response to positive economic conditions, Hilex Poly is proposing to install and operate additional plastic bag extrusion and treater equipment, similar to equipment already in use at the facility. The new equipment will result in an increase in ozone, ammonia, and ethanol emissions from the facility.

Hilex Poly retained Ramboll Environ (RE) to prepare the air dispersion modeling analysis and evaluate the effects of the increase in emissions on ambient air quality.

2. PROJECT DESCRIPTION AND BACKGROUND AS IT RELATES TO MODELING ANALYSES

2.1 General Facility/Project Description

Extruders are used to form polyethylene pellets into tubular film. After the film has cooled, it is passed through corona treaters that prepare the surface of the film for printing. Bag machines print on the film, form it into bags, and package the bags for shipment.

Currently, production equipment at the facility consists of 14 extruders with 14 associated corona treaters, and 19 bag machines. The original permit application included 16 bag machines, and, although the permit does not limit the number of bag machines that can be operating at one time, the facility operates a maximum of 16 bag machines at a time, and maintains 3 in reserve. Hilex Poly now proposes to add 12 new extruders with 12 associated corona treaters, and 6 new bag machines with 3 associated corona treaters. Also, the 3 existing bag machines that have been kept in reserve will be operated along with the 16 existing units. Thus, following the proposed modification, a maximum of 26 extruders, 29 corona treaters, and 25 bag machines would be in use at any given time.

2.1 Location of Project

The Hilex Poly facility is located at 540 W Nez Perce Avenue in Jerome, Idaho. The facility is located within the city limits of Jerome, in Jerome County, which is in attainment or unclassifiable for all criteria air pollutants. The location of the facility and the surrounding area are shown in Figure 1. The center of the facility is located at UTM Zone 11, 702430, 4731690.

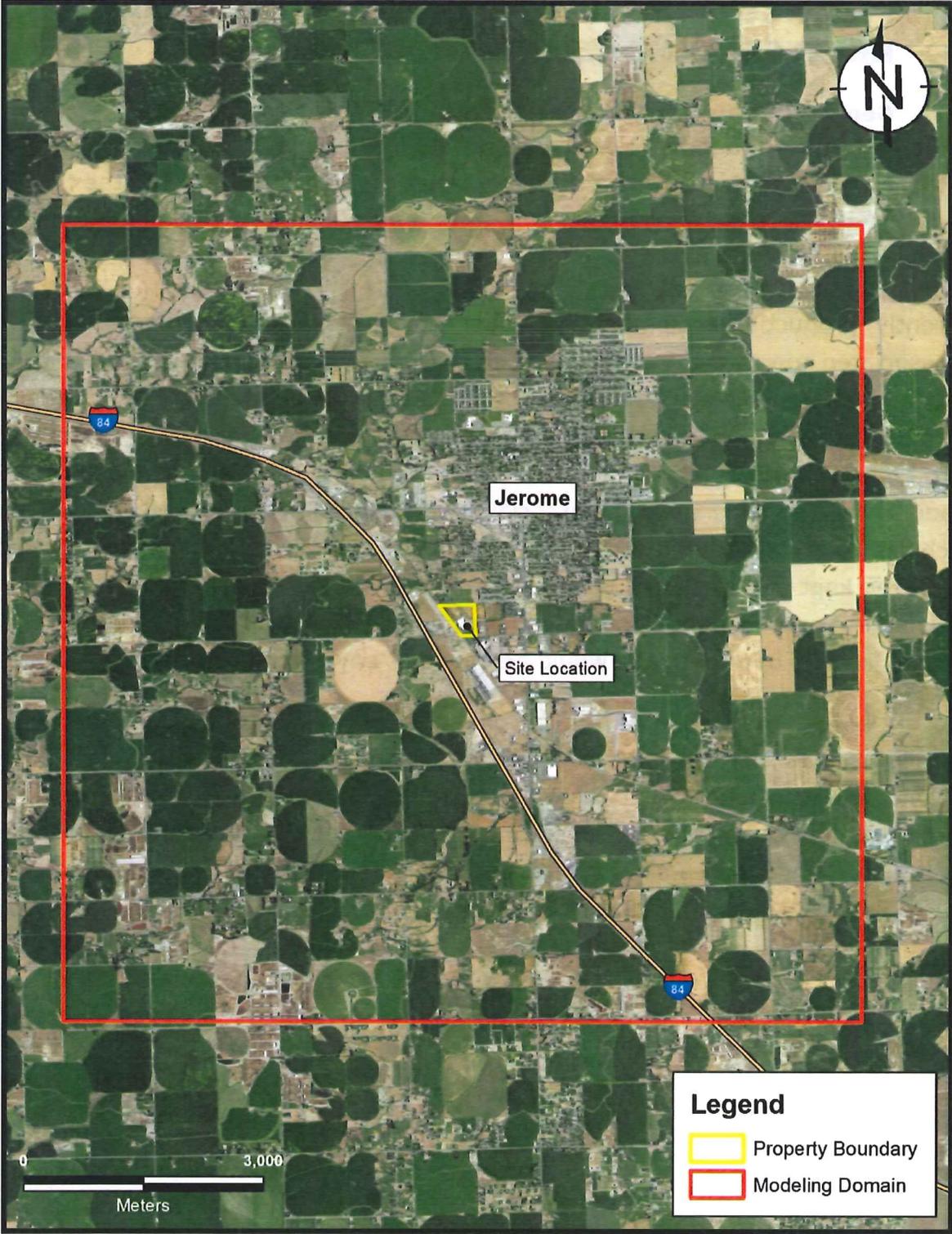


Figure 1. Facility Location

2.2 Existing Permits and Modeling Analyses Performed

Permit to Construct (PTC) No. P-040408 was issued by Idaho Department of Environmental Quality (DEQ) on January 28, 2005. Revised PTCs have subsequently been issued on June 23, 2005, and March 6, 2009 (PTC No. P-2008.0168). The 2005 and 2009 PTC Applications included modeling analyses for ozone and ammonia emissions. As a result of the modeling analysis in 2004, Hilex Poly monitored ozone for three years. The modeling analysis in 2009 indicated compliance with the ambient air quality standards for ozone, and the ozone monitoring requirements were removed from the PTC.

3. MODELING ANALYSES APPLICABILITY AND PROTOCOL

Corona treaters generate ozone emissions, and the bag lines emit ethanol and ammonia. No air pollutant emissions are attributable to the extruders. The increase in ozone and ammonia emissions requires a modeling analysis.

3.1 Applicable Standards

Criteria pollutant National Ambient Air Quality Standards (NAAQS) are listed in Table 1, along with significant impact levels (SILs).

Pollutant	Averaging Period	Significant Impact Levels^a ($\mu\text{g}/\text{m}^3$)^b	Regulatory Limit^c ($\mu\text{g}/\text{m}^3$)	Modeled Design Value Used^d
PM ₁₀ ^e	24-hour	5.0	150 ^f	Maximum 6 th highest ^g
PM _{2.5} ^h	24-hour	1.2	35 ⁱ	Mean of maximum 8 th highest ^j
	Annual	0.3	12 ^k	Mean of maximum 1 st highest ^l
Carbon monoxide (CO)	1-hour	2,000	40,000 ^m	Maximum 2 nd highest ⁿ
	8-hour	500	10,000 ^m	Maximum 2 nd highest ⁿ
Sulfur Dioxide (SO ₂)	1-hour	3 ppb ^o (7.8 $\mu\text{g}/\text{m}^3$)	75 ppb ^p (196 $\mu\text{g}/\text{m}^3$)	Mean of maximum 4 th highest ^q
	3-hour	25	1,300 ^m	Maximum 2 nd highest ⁿ
	24-hour	5	365 ^m	Maximum 2 nd highest ⁿ
	Annual	1.0	80 ^r	Maximum 1 st highest ⁿ
Nitrogen Dioxide (NO ₂)	1-hour	4 ppb (7.5 $\mu\text{g}/\text{m}^3$)	100 ppb ^s (188 $\mu\text{g}/\text{m}^3$)	Mean of maximum 8 th highest ^t
	Annual	1.0	100 ^r	Maximum 1 st highest ⁿ
Lead (Pb)	3-month ^u	NA	0.15 ^r	Maximum 1 st highest ⁿ
	Quarterly	NA	1.5 ^r	Maximum 1 st highest ⁿ
Ozone (O ₃)	8-hour	40 TPY VOC ^v	75 ppb ^w (147 $\mu\text{g}/\text{m}^3$)	Mean of maximum 4 th highest ^x

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/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 O₃.

w. Annual 4th highest daily maximum 8-hour concentration averaged over three years.

x. 5-year mean of the 4th highest daily maximum 8-hour modeled concentrations.

The only toxic air pollutants (TAPs) emitted by the process are ammonia and ethanol. The applicable screening emission level (EL) for each TAP identified in the facility emission inventory is presented in Table 2.

Table 2. TAP ELS AND AACs/AACCS			
TAP	Non-Carcinogen or Carcinogen	Screening Emissions Level (EL)^a (lb/hr)	AAC or AACCS^b (µg/m³)
Ammonia	Non-Carcinogen	1.2	900
Ethanol	Non-Carcinogen	125	94,000

a. ELs from Idaho Air Rules Section 585 and 586 in pounds/hour .

b. Acceptable Ambient Concentration (AAC) or Acceptable Ambient Concentration for a Carcinogen (AACCS) from Idaho Air Rules Section 585 and 586, in micrograms/cubic meter or milligrams/cubic meter. Note that AACs listed in Idaho Air Rules Section 585 are expressed in units of milligrams/cubic meter rather than micrograms/cubic meter.

3.2 Criteria Pollutant Modeling Applicability

Corona treaters generate ozone emissions. No other criteria pollutants are emitted by the treaters or the extruders. Ozone emissions are not normally modeled because ozone is generally not emitted from facilities.

Ozone emissions were calculated using the same emission factor used to calculate emissions for the original permit, 0.073 pounds per hour (lb/hr) of ozone per supplied kilowatt (kW) of electricity. The existing corona treaters are, as a group, limited to a maximum total of 70 kW, which is equivalent to a maximum total ozone emission rate of 5.11 lb/hr. The new corona treaters would, as a group, also be supplied with a maximum total of 70 kW. Using the same emission factor, the maximum total ozone emissions increase is 5.11 lb/hr.

Table 3 lists criteria pollutants for which site-specific modeling analyses were performed to demonstrate compliance with NAAQS. Because ozone does not have a modeling threshold, the increase in ozone emissions requires modeling.

Table 3. MODELING APPLICABILITY		
Criteria Pollutant	Modeled (yes/no)	Basis for Exclusion from Modeling
PM _{2.5} 24-hour	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
PM _{2.5} annual	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
PM ₁₀ 24-hour	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
NO ₂ 1-hour	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
NO ₂ annual	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
SO ₂ 1-hour, 3-hour	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
SO ₂ annual	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c
CO 1-hour, 8-hour	No	X BRC Exempt ^a ___ Emissions Below Level I Thresholds ^b ___ Emissions Below Level II Thresholds ^c

^{a.} If the project would have qualified for a Category I BRC permitting exemption for the criteria pollutant in question, as per Idaho Air Rules Section 221.01, except for the emissions quantities of another criteria pollutant, then a NAAQS compliance analysis is not required under Section 203.02 or 403.02 for that criteria pollutant.

^{b.} Level I Modeling Thresholds from Table 2 in Section 3 of the DEQ Modeling Guideline. NAAQS compliance is assured through DEQ’s non-site-specific modeling analyses.

^{c.} Level II Modeling Thresholds from Table 2 in Section 3 of the DEQ Modeling Guideline. NAAQS compliance is assured through DEQ’s non-site-specific modeling analyses. Level II Modeling Thresholds can only be used with prior DEQ approval.

3.3 TAP Modeling Applicability

The bag lines emit ethanol and ammonia. Each bag machine emits 0.22 lb/hr of ammonia, and 0.04 lb/hr of ethanol. Following implementation of the project, 6 new bag machines, along with the 3 existing bag machines held in reserve, would be added to normal operations. Ammonia and ethanol are non-carcinogenic TAPs listed in IDAPA 58.01.01.585. Table 4 compares the emissions of TAPs to their respective EL.

Table 4. TAP ELS AND AACCS/AACCS			
TAP	Emission Rate (lb/hr)	Screening Emissions Level (EL)^a (lb/hr)	Requires Modeling?
Ammonia	1.98	1.2	Yes
Ethanol	0.36	125	No

^a Screening Emission Levels from IDAPA 58.01.01.585.

3.4 Modeling Protocol

A modeling protocol was submitted to DEQ prior to the application, on September 1, 2015. The protocol was submitted by Eric Albright of RE. Conditional DEQ protocol approval was provided to Eric Albright on September 14, 2015. Hilex Poly amended the protocol on September 21, 2015, and DEQ approved the addendum on September 25, 2015. Project-specific modeling and other required impact analyses were generally conducted using data and methods described in the protocol and in the *Idaho Air Quality Modeling Guideline*. DEQ's conditional protocol approvals are included in Appendix D.

4. MODELED EMISSIONS SOURCES

The corona treaters and the bag lines emit ozone, ammonia, and ethanol. As discussed in the PTC Application and in Section 3 of this modeling report, ozone does not have a modeling threshold, and was modeled for comparison with the NAAQS. Ammonia emissions from the bag line are above the TAP-specific EL, and were modeled for comparison with the AAC.

4.1 Criteria Pollutants

The only criteria pollutant emitted by the facility is ozone. Because it is normally a secondary pollutant, it is generally not modeled, and does not have a SIL. Facility-wide ozone emissions are modeled and added to a diurnal background concentration for comparison with the NAAQS.

4.1.1 Modeled Emissions Rates for Significant Impact Level Analyses

There are no SILs for ozone. No other criteria pollutants are emitted as a result of the proposed project. Table 5 reflects this.

Table 5. MODELED EMISSIONS RATES FOR SIL ANALYSES				
Source ID	Source Description	Pollutant	Averaging Period	Emissions^a (lb/hr)
STCK1	Existing Corona Treater Stack	PM _{2.5}	24-hour	0
			Annual	0
		PM ₁₀	24-hour	0
			NOx	1-hour
		Annual		0
		SO ₂	1-hour	0
		CO	1-hour	0
			8-hour	0
STCK2	New Corona Treater Stack	PM _{2.5}	24-hour	0
			Annual	0
		PM ₁₀	24-hour	0
			NOx	1-hour
		Annual		0
		SO ₂	1-hour	0
		CO	1-hour	0
			8-hour	0

^{a.} Pound/hour emissions rate modeled is the project-specific increase in potential/allowable emissions increase for the averaging period specified for the pollutant.

4.1.2 Modeled Emissions Rates for Cumulative Impact Analyses

The ozone emission calculations are described in Section 3.2 of this document, and apply to both the existing and proposed corona treaters. Both groups of corona treaters have an operating restriction of 70 kW and an emission factor of 0.073 pounds per hour (lb/hr) of ozone per supplied kilowatt (kW) of electricity. Table 6 lists criteria pollutant emissions rates used in the cumulative NAAQS impact analyses.

Table 6. MODELED EMISSIONS RATES FOR CUMULATIVE NAAQS IMPACT ANALYSES

Source ID	Source Description	Pollutant	Averaging Period	Emissions ^a (lb/hr)
STCK1	Existing Corona Treater Stack	PM _{2.5}	24-hour	0
			Annual	0
		PM ₁₀	24-hour	0
			NO _x	1-hour
		Annual		0
		SO ₂	1-hour	0
		CO	1-hour	0
			8-hour	0
		Pb	3-month rolling	0
			quarterly	0
O ₃	8-hour	5.11		
STCK2	New Corona Treater Stack	PM _{2.5}	24-hour	0
			Annual	0
		PM ₁₀	24-hour	0
			NO _x	1-hour
		Annual		0
		SO ₂	1-hour	0
		CO	1-hour	0
			8-hour	0
		Pb	3-month rolling	0
			quarterly	0
O ₃	8-hour	5.11		

^a. Pounds/hour emissions rate modeled is the potential/allowable emissions for the averaging period specified for the pollutant.

4.1.3 NO₂/NO_x Ratio for NO_x Chemistry Modeling

NO_x chemistry modeling was not used in this impact assessment.

4.1.4 Special Methods for Modeling Critical Pollutant Emissions

The diurnal background ozone concentrations, as described in Section 5.8, were included in the AERMOD simulation using the BCKGRND and HROFDAY keywords. AERMOD added the diurnal background concentrations to the model-predicted concentrations before calculating the total eight-hour average ozone concentrations used to assess compliance with the ambient standard.

4.2 Toxic Air Pollutants

The only TAP that required modeling as ammonia. The maximum potential ammonia emissions increase is based on 3 existing bag lines that have been held in reserve as well as 6 new bag lines, for a total of 9 new emitting bag lines. Because it is unclear which bag line emits through which vent, the modeling developed for the original permit application applied the total emission rate to each vent to ensure that the worst-case emission condition was reflected in the modeling. Similar to that approach, we applied the total cumulative ammonia emission rate (i.e., existing bag lines, plus existing bag lines formerly held in reserve, plus proposed new bag lines) to each of the three vents. The modeled emissions are therefore much higher than the Potential to Emit discussed in the PTC application.

Table 7 lists TAP emissions rates that were included in modeling analyses.

TABLE 7. MODELED EMISSIONS RATES FOR TAP ANALYSES				
Source ID	Source Description	TAP	Averaging Period	Emissions^a (lb/hr)
VENT1	Bag Line Exhaust Vent 1	Ammonia	24-hour	5.50
VENT2	Bag Line Exhaust Vent 2	Ammonia	24-hour	5.50
VENT3	Bag Line Exhaust Vent 3	Ammonia	24-hour	5.50

^a. Pounds/hour emissions rate from each vent is the facility-wide ammonia emission rate. The ammonia emissions from the facility could go through any of the three vents, so it was

4.3 Emissions Release Parameters

Table 8 presents the source release parameters used for the existing treater stack, the proposed new treater stack, and the three existing bag machine vents. Stack parameters are based on best available information for each emission point.

Existing emission points (i.e., the existing treater stack and the bag machine vents) have not changed, so the stack parameters from the AQIA analysis developed in support of the original permit application were retained.

The corona treater exhausts using a New York Blower. It is rated at 10,500 cfm at 18.1 of static pressure. The previous PTC applications used an exhaust flow rate of 8,000 cfm. Ramboll Environ conservatively used this lower flow rate to be consistent with the previous application. The exhaust diameter for the stack is provided in the engineering drawings of the proposed duct work. The exhaust temperature of the corona treater stack is 30 degrees Celsius above ambient, as guaranteed by the manufacturer. The stack and ducting for the new corona treater stack is identical to the existing corona treater stack, with the exception of the stack height. Engineering drawings of the new stack and ducting system, and the manufacturer guarantee of the exhaust temperature are included in Appendix C of this application.

The rooftop vents operate in the event that the building air handling system exhaust fans are not operating. The rooftop vents are based on the building height where the vent is located (7.62 m). Each rooftop vent van is rated at 1,200 cfm, and has a diameter of 24 inches.

Table 8. POINT SOURCE STACK PARAMETERS

Release Point	Description	UTM ^a Coordinates		Stack Height (m)	Stack Gas Flow Temp. (K) ^c	Stack Gas Flow Velocity (m/sec) ^d	Model ed Stack Diameter (m)	Orient. Of Release ^e
		Easting -X (m) ^b	Northin g-Y (m)					
STCK1	Existing Corona Treater Stack	702459	4731717	21.3	+30 ^f	9.50	0.71	Vertical
STCK2	New Corona Treater Stack	702429	4731776	18.3	+30 ^f	9.50	0.71	Vertical
VENT1	Bag Line Vent 1	702389	4731742	7.62	ambient	1.94	0.61	Vertical
VENT2	Bag Line Vent 2	702418	4731664	7.62	ambient	1.94	0.61	Vertical
VENT3	Bag Line Vent 3	702462	4731633	7.62	ambient	1.94	0.61	Vertical

a. Universal Transverse Mercator Zone 11, NAD83. Elevation for all point sources is 3,717 feet (1,133 meters) above mean sea level (MSL), with the exception of Vent 1, which

b. Meters.

c. Kelvin.

d. Meters per second.

e. Vertical uninterrupted, rain-capped, or horizontal release.

f. Corona treater exhaust temperature is 30°C (30 K) greater than the ambient temperature. Exhaust from the vents was assumed to be ambient temperature. The manufacturer guarantee for this temperature is in Appendix C.

5. MODELING METHODOLOGY

Table 9 summarizes the key modeling parameters used in the impact analyses.

Table 9. MODELING PARAMETERS		
Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Jerome County, Idaho	Attainment or unclassifiable for all criteria air pollutants
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 15181.
Meteorological Data	KJER surface data KBOI upper air data	The meteorological model input files for this project were developed by IDEQ. See Section 5.2 of this memorandum for additional details of the meteorological data.
Terrain	Considered	3-dimensional receptor coordinates were obtained from USGS National Elevation Dataset (NED) files and were used to establish elevation of ground level receptors. AERMAP was used to determine each receptor elevation and hill height scale.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
NO _x Chemistry	None	NO _x was not modeled.
Receptor Grid	NAAQS Analyses	
	Grid 1	10-meter spacing along the ambient air boundary and in a 600 meter (easting) by 600 meter (northing) grid centered on the facility
	Grid 2	25-meter spacing in a 2,000 meter (easting) by 2,000 meter (northing) grid centered on the facility
	Grid 3	50-meter spacing in a 3,000 meter (easting) by 3,000 meter (northing) grid centered on the facility
	Grid 4	200-meter spacing in a 5,000 meter (easting) by 5,000 meter (northing) grid centered on the facility
	Grid 5	500-meter spacing in a 10,000 meter (easting) by 10,000 meter (northing) grid centered on the facility
	TAPs Analyses	
Same as NAAQS Analyses		

5.1 Model Selection

RE used AERMOD (version 15181), AERMET (version 12345), and AERMAP (version 11103) to predict ambient concentration impacts attributable to the project. AERMOD was applied to calculate concentrations using the regulatory defaults and input data discussed in this section.

5.2 Effects of Terrain

The 10-kilometer (km) by 10-km modeling domain for the AQIA is presented in Figure 1. Terrain elevations for receptors and stacks were prepared using the National Elevation Dataset (NED) 1/3 arc-second dataset developed by the United States Geological Survey (USGS). These data have a horizontal resolution of approximately 10 meters (m). All elevation data are referenced to UTM Zone 11 and Datum NAD83.

5.3 Meteorological Data

A five-year meteorological database prepared using National Weather Service (NWS) surface observations from the Jerome County Airport (KJER) and upper air observations from the Boise, Idaho Airport (KBOI) for the period January 1, 2008 through December 31, 2012 has been provided by DEQ. A DEQ memorandum describing how the data were processed is attached to the modeling protocol in Appendix D.

5.4 Facility Layout

Figure 2 presents the facility site plan with the locations of existing and proposed point sources, as well as existing and proposed significant structures that could potentially influence downwash from point sources. As a part of the Project, Hilex Poly will construct an addition to the main building near the new Corona treater stack (STCK2). The source and building locations are from CAD drawings provided by Hilex Poly.



Figure 2. Site Layout

5.5 Effects of Building Downwash

EPA's Building Profile Input Program for the PRIME algorithm (BPIP PRIME, Version 04274) was used to prepare wind direction-specific building profile information required by AERMOD. The facility layout and structure dimensions was used to prepare the data input file for BPIP PRIME, which then provides AERMOD with necessary building downwash parameters. The main building is a three-tiered structure. Table 10 presents the tier heights.

Table 10. Building/Tier Heights	
Building/Tier Name	Height (m)
Main Building Tier 1	7.62
Main Building Tier 2	16.76
Main Building Tier 3	16.76

5.6 Ambient Air Boundary

The ambient air boundary is defined in IDAPA 58.01.01.006 as "that portion of the atmosphere, external to buildings, to which the general public has access." The general public is precluded from entering the facility and from entering a large portion of agricultural land surrounding the facility. Public access to the facility is discouraged by the plants rural location, posting of "No Trespassing" signs along property boundaries, and using security guards that require any trespassers to leave the property.

5.7 Receptor Network

A receptor set was developed to be used for the AQIA (Figure 3). The receptor set includes receptors spaced 500 m apart covering the outermost portion of the simulation domain. Nested grids with 10-m, 25-m, 50-m, and 200-m spacing are centered on the facility. Receptors are also placed every 10 m along the ambient air boundary. Maximum AERMOD-predicted concentrations occurred in the fine (i.e., 25-m spacing) receptor grid, so no further investigation was required.

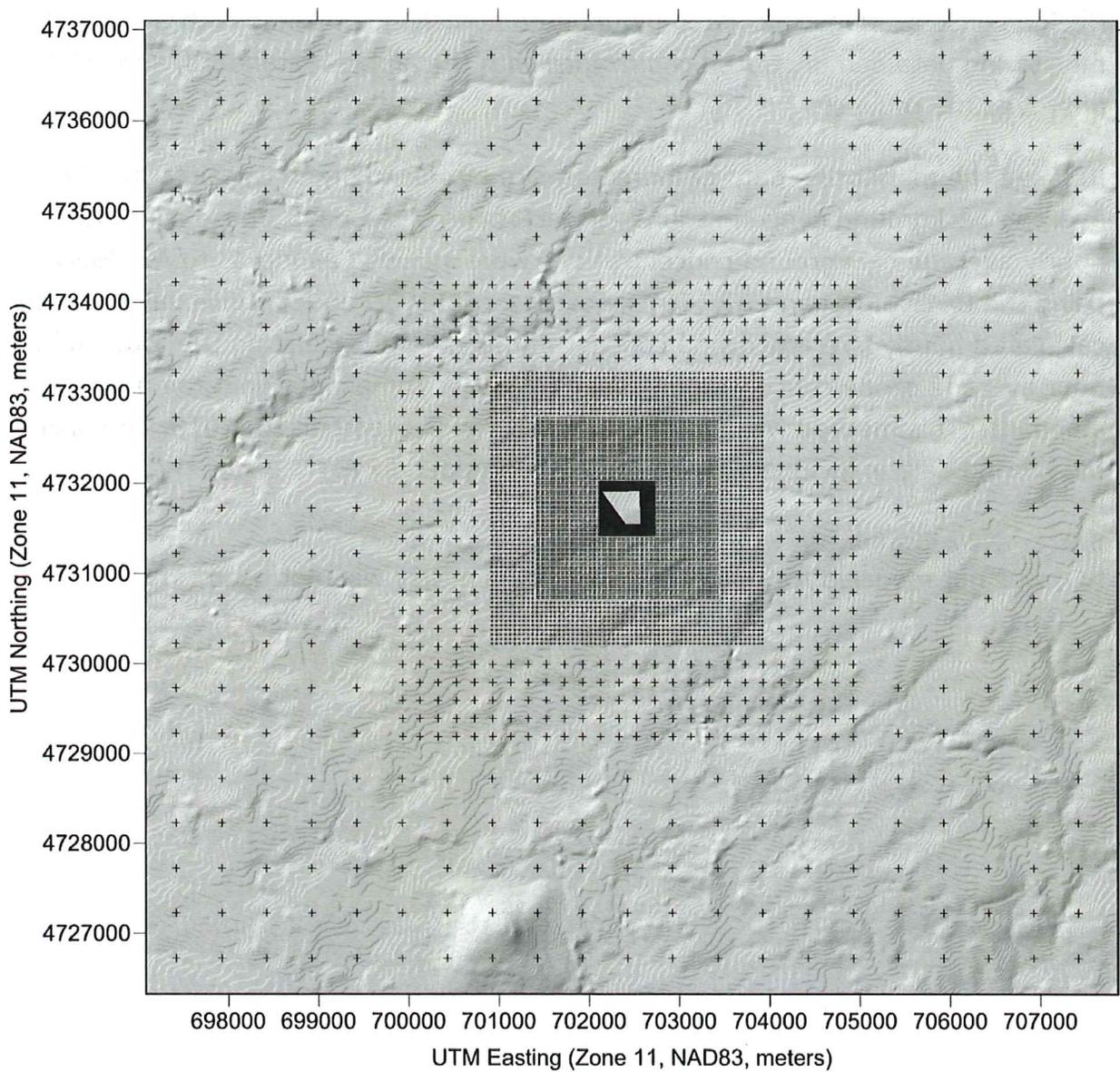


Figure 3. Receptor Locations

5.8 Background Concentrations

When assessing compliance with an ambient air quality standard, a background concentration is added to the modeled design concentration to account for impacts from sources in the area that are not included in the model.

Ambient ozone concentrations were monitored at the Hilex Poly facility during the ozone season (i.e., May 1 through September 30) in 2005, 2006, and 2007. In March 2009, Hilex Poly requested that the monitoring program be discontinued.

Design concentrations calculated by updated modeling combined with the on-site monitoring data demonstrated compliance with the ambient standard, and DEQ approved the request.

RE used the monitoring data gathered on-site by Hilex Poly to calculate hourly average background concentrations for each hour of the day. These calculated hourly average background concentrations were included as inputs to AERMOD using the BACKGRND and HROFDY keywords. AERMOD added these values to the calculated hourly average ozone concentrations before calculating the total eight-hour average ozone concentrations used to assess compliance with the ambient standard. This method was approved by DEQ on September 25, 2015. The ozone monitoring data is included on the CD/DVD in Appendix F.

5.9 NO_x Chemistry

NO_x was not modeled for this AQIA, so NO_x chemistry was not used.

6. RESULTS AND DISCUSSION

RE modeled ozone and ammonia using the inputs discussed in the previous sections. This section describes the results of the modeling, and compares the results with the applicable regulatory value.

6.1 Criteria Pollutant Impact Results

Ozone emissions from the corona treaters were modeled for comparison with the NAAQS. There are no other criteria pollutants emitted by the Project.

6.1.1 Significant Impact Level Analyses

A SIL analysis was not performed as part of this Air Quality Impact Analysis, because there is no SIL for ozone. The increase in ozone emissions was assumed to require a NAAQS analysis.

Table 11 provides results of the SIL analyses.

Table 11. RESULTS FOR SIL IMPACT ANALYSES					
Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m³)^a	Significant Contribution Level (µg/m³)	Impact Percentage of Significant Contribution Level	Cumulative NAAQS Analysis Required
PM _{2.5} ^b	24-hour	0	1.2	0	No
	Annual	0	0.3	0	No
PM ₁₀ ^c	24-hour	0	5.0	0	No
NO ₂ ^d	1-hour	0	7.5	0	No
	Annual	0	1.0	0	No
SO ₂ ^e	1-hour	0	7.8	0	No
	3-hour	0	25	0	No
	24-hour	0	5	0	No
	Annual	0	1.0	0	No
CO ^f	1-hour	0	2,000	0	No
	8-hour	0	500	0	No

- a. Micrograms/cubic meter
- b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
- c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
- d. Nitrogen dioxide.
- e. Sulfur dioxide.
- f. Carbon Monoxide.
- g. Maximum 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of the maximum modeled concentration for each year modeled.

6.1.2 Cumulative NAAQS Impact Analyses

Table 12 provides results of Cumulative NAAQS Impact analyses. The receptor grid described in section 5.7 was used to assess the concentration of ozone. The modeling results are conservative, because it is assumed that ozone is transported without decaying in the atmosphere, and because diurnal background data from ozone season was used throughout the year. The AERMOD-predicted ozone concentrations plus diurnal background values are less than the applicable ozone

NAAQS. Figure 4 shows the spatial distribution of the total concentration of ozone near the facility.

Table 12. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSES					
Pollutant	Averaging Period	Modeled Design Concentration (µg/m³)^a	Background Concentration (µg/m³)	Total Impact (µg/m³)	NAAQS (µg/m³)
PM _{2.5} ^b	24-hour	0 ^g	0	0 ^g	35
	Annual	0 ^h	0	0 ^h	12
PM ₁₀ ^c	24-hour	0 ⁱ	0	0 ⁱ	150
NO ₂ ^d	1-hour	0 ^g	0	0 ^g	188
	Annual	0	0	0	100
SO ₂ ^e	1-hour	0 ^j	0	0 ^j	196
	3-hour	0 ^k	0	0 ^k	1,300
	24-hour	0 ^k	0	0 ^k	365
	Annual	0	0	0	80
CO ^f	1-hour	0 ^k	0	0 ^k	40,000
	8-hour	0 ^k	0	0 ^k	10,000
O ₃	8-hour	--	--	142.7 ^l	147

a. Micrograms/cubic meter

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

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

d. Nitrogen dioxide.

e. Sulfur dioxide.

f. Carbon Monoxide.

g. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of 8th highest modeled concentrations for each year modeled.

h. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of maximum modeled concentrations for each year modeled.

i. Maximum of 6th highest modeled concentrations for a 5-year period (or the maximum of the 2nd highest modeled concentrations if only 1 year of meteorological data are modeled).

j. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of 4th highest modeled concentrations for each year modeled.

k. Maximum of 2nd highest modeled concentrations for each year modeled.

l. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of 4th highest daily max modeled concentrations for each year modeled.

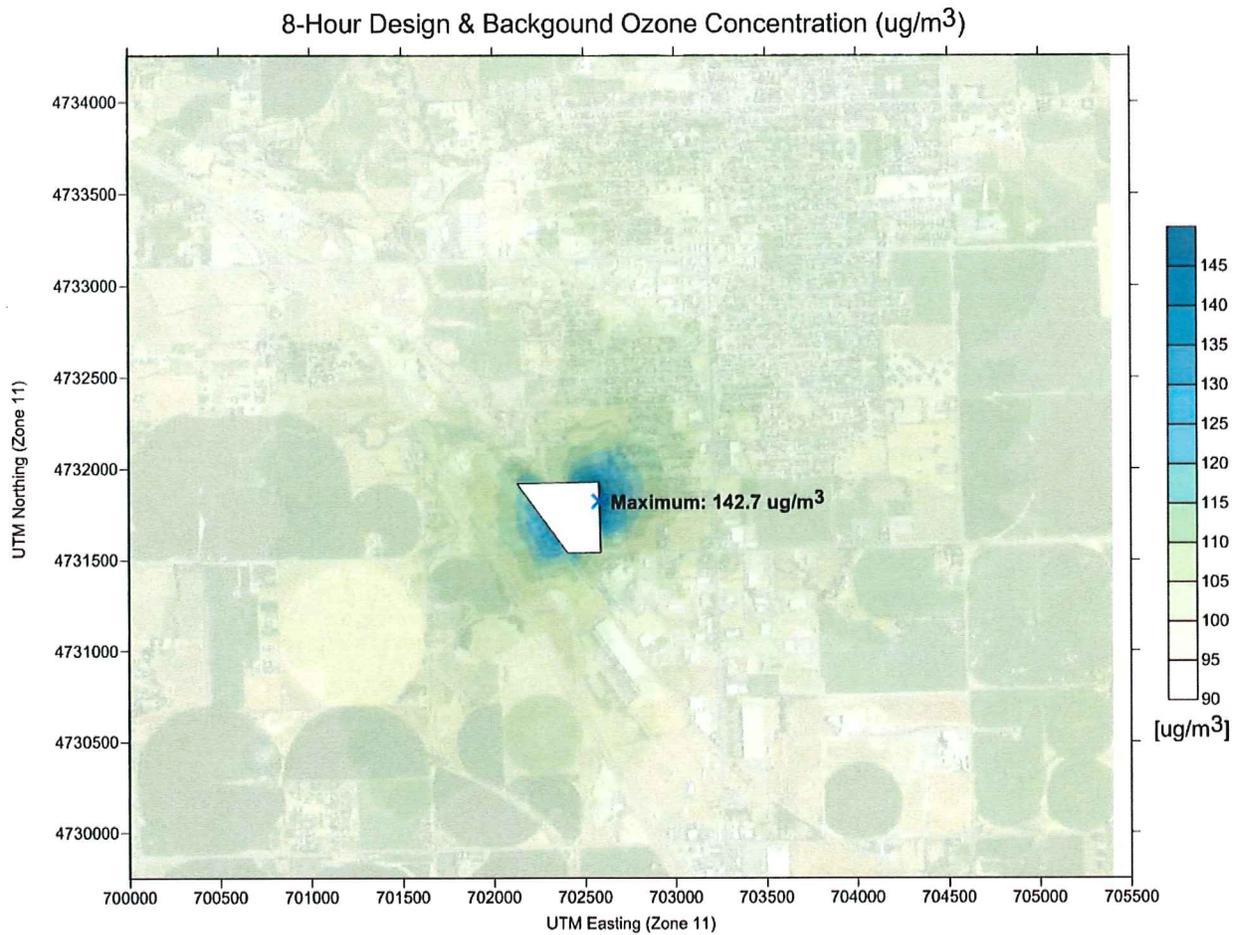


Figure 4. 8-hour ozone isopleth

6.2 TAP Impact Analyses

Table 13 provides results for TAP impact analyses. The maximum model-predicted ammonia concentration is less than the applicable AAC.

Table 13. RESULTS FOR TAP IMPACT ANALYSES

TAP	Averaging Period	Maximum Modeled Impact ($\mu\text{g}/\text{m}^3$) ^a	AAC ($\mu\text{g}/\text{m}^3$)
Ammonia	24-hour	423.59	900

a. Micrograms/cubic meter.

7. QUALITY ASSURANCE/CONTROL

Several quality assurance and quality control (QA/QC) procedures were implemented as part of the AQIA, including:

- Develop plots of building/structure, point source, and receptor locations to confirm the same coordinate system is used throughout AQIA.
- Develop three-dimensional plots of building/structure heights and stack release parameters.
- Cross-checking source release parameters and emission rates in AERMOD input files with information summarized in the AQIA report
- Develop contour plots of AERMOD-predicted concentrations to confirm maximum model-prediction locations are within the refined receptor grid.

APPENDIX F: MODELING FILE ARCHIVE