

Permit to Construct Application - Replace Existing Box Fumigation Chamber

Prepared for:
Idaho Department of
Environmental Quality

Seminis Vegetable Seeds, Inc.
Nampa, Idaho

May 31, 2012

www.erm.com

RECEIVED
JUN 06 2012
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

June 4, 2012

Department of Environmental Quality
Air Quality Division
Stationary Source Program
1410 North Hilton
Boise, Idaho 83706-1255

RECEIVED
JUN 06 2012
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

Subject: Request to Construct Before Obtaining a Permit to Construct for a Modification to Seed Fumigation Operations
Seminis Vegetable Seeds, Inc.
Facility ID No. 027-00072

Dear Sir or Madam:

Seminis Vegetable Seeds, Inc. (Seminis) is submitting this Request to Construct Before Obtaining a Permit to Construct (Request) for modifications to seed fumigation operations conducted at their Facility ID No. 027-0072 in Nampa, Idaho. Seminis will decommission the existing box fumigation chamber and replace it with a larger chamber. This Request and attachments make up the Pre-Permit Construction Approval Application and is developed and submitted as described at IDAPA 58.01.01.213. *Pre-Permit Construction*.

Seminis submits to the IDEQ that the replacement project addressed in this Request and application package is eligible for the 15-Day Pre-Permit Construction Approval. IDAPA 58.01.01.213 01 states that pre-permit construction approval is available for non-major sources and non-major modifications when specific conditions put forth in IDAPA 58.01.01.213 are met. Pre-permit construction is not available for any new source or modification that:

- uses emissions netting to stay below major source levels;
- uses optional offsets pursuant to Section 206; or
- would have an adverse impact on the air quality related values of any Class I area.

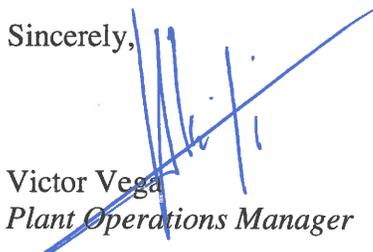
As can be determined from this application package, the Nampa facility is not relying on emissions netting for this project to remain below the major source thresholds for a major source or for avoidance of any new source review programs such as Prevention of Significant Deterioration (PSD) or Nonattainment New Source Review (NA-NSR). The facility operates under PTC P-2009.0110 Project 60650 which limits the facility to less than the major source threshold for new source review of 250 tons per year for PSD and is not located in any nonattainment area. In addition, we are not relying on any optional offsets as defined at IDAPA 58.01.01.206 *Optional Offsets For Permits To Construct*. Since the facility is not subject to new source review, it is not subject to an assessment of adverse impacts on air quality related values of Class I areas. Therefore, the project is eligible for the 15-Day Pre-Permit Construction Approval

This Request and application package includes the following attachments as required by IDAPA 58.01.01.213.01.c:

- A copy of the Notice of Public Meeting;
- Process Description and Equipment List;
- Permit To Construct Application which includes the emission level of 0.0545 lbs/hour for the fumigation chamber; and
- The air dispersion modeling technical support document that includes results that demonstrate compliance with all applicable air quality rules and regulations.

If you have any questions on this submittal, please don't hesitate to contact Mr. Dennis Huett. Mr. Huett can be reached by email at dennis.l.huett@monsanto.com or at (208) 468-4542.

Sincerely,



Victor Vega
Plant Operations Manager

cc: Ms. Teri Merial, Monsanto Company

NOTICE OF PUBLIC MEETING

PUBLIC NOTICE OF MEETING

Seminis Vegetable Seeds, Inc.

1811 E. Florida Avenue

Nampa, Idaho

On June 12, 2012 at 2:00 PM MDT, Seminis will hold a meeting for the general public at it's facility at 1811 E. Florida Avenue to discuss air quality related aspects of planned modifications to its facility. The Seminis facility processes seeds from beans, peas, carrot, onion and corn and certain seeds are fumigated to control pests, as required by states and countries where the product is distributed. Seminis has applied to the Idaho Department of Environmental Quality for an air permit to replace an existing fumigation chamber at the site. This meeting will address questions from the public regarding this proposed project.

Trustee, and the successful bidder shall have no further recourse, if the sale is set aside for any reason, the Purchaser at the sale shall be entitled only to a return of the deposit paid. The Purchaser shall have no further recourse against the Mortgagee, the Mortgagee, or the Mortgagee's Attorney. Date: 5/16/2012 By: Pioneer Title Company of Ada County dba Pioneer Lender Trustee Services as Trustee By: Quality Loan Service Corp. of Washington, a Washington Corporation, its attorney-in-fact 2141 5th Avenue San Diego, CA 92101 Brooke Frank, Assistant-Secretary For Sale Information Call: 714-730-2727 or Login to: www.ipsasap.com If you have previously been discharged through bankruptcy, you may have been released of personal liability for this loan in which case this letter is intended to exercise the note holders rights against the real property only. THIS IS AN ATTEMPT TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE. As required by law, you are hereby notified that a negative credit report reflecting on your credit record may be submitted to a credit-report agency if you fail to fulfill the terms of your credit obligations. A-4246254 05/30/2012 06/06/2012, 06/15/2012, 06/20/2012

LEGAL NOTICE
Notice of Trustee's Sale TS
No.: ID-11-417638-NH

On 9/18/2012, at 11:00 am (recognized local time), at the following location in the County of CANYON, State of Idaho: At the entrance of Pioneer Title Company of Canyon County, located at 610 S. Kimball Avenue, Caldwell, ID 83605, Pioneer Title Company of Ada County dba Pioneer Lender Trustee Services as Trustee on behalf of Aurora Loan Services, LLC will sell at

der for Sale of Foreclosure executed on April 11, 2012 and entered with the Court on April 13, 2012 and Writ of Execution issued on April 19, 2012 out of and under the seal of the above-entitled Court on a Judgment and Decree of Foreclosure recovered in said Court in the above-entitled action on the 13th day of April, 2012, in favor of the above-named Plaintiff, I am commanded and required to proceed to notice for sale to sell at public auction the real property described in said Order for Sale of Foreclosure, and Writ of Execution and to apply the proceeds of such sale to the satisfaction of said Judgment and Decree of Foreclosure with interest thereon and my fees and costs.

LEGAL NOTICE
NOTICE OF SALE
Case No. CV11-12904

The property directed to be sold is situate in Canyon County, State of Idaho, and is described as follows, to-wit:
Lot 8 in Block 9 of Four Seasons Subdivision No. 3, according to the official plat thereof, filed in Book 38 of Plats at Page(s) 38, records of Canyon County, Idaho.

Which may commonly be known as: 2604 Fallcrest Street, Caldwell, Idaho, 83607.

NOTICE IS HEREBY GIVEN that on the 6th day of June, 2012, at the hour of 10:30 o'clock a.m., at the location of the Main Lobby of the Canyon County Courthouse, 1115 Albany Street, Caldwell, Idaho, I will attend, offer and sell at public auction all or so much of the above-described property thus directed to be sold as may be necessary to raise sufficient funds to pay and satisfy the Judgment and Decree of Foreclosure as set out in said Order for Sale of Foreclosure to the highest bidder therefor in lawful money. The time period for redemption of the above property is six (6) months from the date of sale herein.

obtained at Health and Welfare website: <http://healthandwelfare.idaho.gov/FoodCashAssistance/CashAssistanceforFamilies/tabid/172/Default.aspx>.

Proposals must be received by Program Manager Rosie Andueza at the Department of Health and Welfare at anduezar@dhw.idaho.gov, or by mail at 450 W. State Street, Boise, ID 83720 by 5:00 pm Mountain Standard Time June 6, 2012.

May 28; 29, 30, 2012
 679118

LEGAL NOTICE
NOTICE OF SALE
Case No. CV11-12904

IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF CANYON
BANK OF AMERICA, N.A., successor by merger to **BAC Home Loans Servicing, LP** f/k/a **Countrywide Home Loans Servicing, LP**
 Plaintiff,
VS.
SPENCER JEWETT, CARL L. HEIL (Deceased), Unknown Heirs, Assigns and Devisees of Carl L. Heil; and Does 1-10 as individuals with an interest in the property legally described as:
 The North 50 feet of Lots 11 and 12 in Block 4 of Fogstad's Addition to Nampa, Canyon County, Idaho, according to the Plat of said addition filed in Book 1 of Plats at Page 17-4, records of said County.
 Which may commonly be known as: 6 N. State Street, Nampa, Idaho, 83651
 Defendants.

Under and by virtue of an Order for Sale of Foreclosure executed on March 22, 2012 and entered with the Court on

LEGAL NOTICE
 As Per Idaho S55-2306 and S49-1705(3)(e), the contents of the storage units below will be sold at public auction to the highest bidder on Wed June 13, 2012 at 10:00 am. The auction will be held at **FORTRESS STORAGE, 59 N. Happy Valley Road, Nampa, Idaho, 208-461-4432.** Tenant's name and last known address are listed. Tenant has until auction starts to pay balance which would cancel the auction. All sales are **CASH ONLY** and are final.

Unit # 1012: Outside parking, Danny Ferguson, 4201 E. Victory Rd, Nampa, ID 83687
 1987 Nissan Pulsar VIN# JN1TPN34S9HM019761

Unit #0624-10x20
 Tommy Garcia, 2495 W. Lake, Hazel, Mendlian, ID 83642
 2 Wood Tables; 10+ Tires Lawnmower, Ladder, 18+ Boxes, 2+ Totes, TV, DVD Player, Engine Parts, Lawn Chairs, Office Chair, Bakers Rack, Refrigerator, Scrap Metal, Car Parts, Lots of Misc. Metal

May 30, 2012
 June 6, 2012
 681677

LEGAL NOTICE
NOTICE OF SALE
Case No. CV-12-443

IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF CANYON
GENERATION MORTGAGE COMPANY,
 Plaintiff,
VS.
GABRIEL MANZANARES (Deceased); Unknown Heirs, Assigns and Devisees of Gabriel Manzanares; SECRETARY OF HOUSING AND UPR-

CALDWELL, ID OR TELE
PHONE 208-454-7520
DATED This 16th day of April, 2012.

CHRIS SMITH, CANYON COUNTY SHERIFF
 By: P.S. Rea #5916

Lance E. Olsen/SB #7106
 Derrick J. O'Neill/SB #4021
ROUTH CRABTREE OLSEN, PS
 300 Main Street, Suite 150
 Boise, Idaho 83702
 Telephone: 208-489-3035
 Facsimile: 208-854-3998
derrick@onellipfc.com

Attorneys for Plaintiff
 May 16, 23, 30, 2012
 695539

LEGAL NOTICE
PUBLIC NOTICE OF MEETING

Seminis Vegetable Seeds, Inc.
 1811 E. Florida Avenue
 Nampa, Idaho

On June 12, 2012 at 2:00 PM MDT, Seminis will hold a meeting for the general public at its facility at 1811 E. Florida Avenue to discuss air quality related aspects of planned modifications to its facility. The Seminis facility processes seeds from beans, peas, carrot, onion and corn and certain seeds are fumigated to control pests, as required by states and countries where the product is distributed. Seminis has applied to the Idaho Department of Environmental Quality for an air permit to replace an existing fumigation chamber at the site. This meeting will address questions from the public regarding this proposed project.

May 30, 2012
 681897

LEGAL NOTICE
NOTICE OF TRUSTEES SALE

On September 26, 2012, at

*PROCESS DESCRIPTION AND
EQUIPMENT LIST*

Process Description and Equipment List

The Seminis facility in Nampa, Idaho processes seeds from beans, peas, carrot, onion and corn. The bean and pea seed processing operation begins with raw seeds shipped to the facility via flat or hopper bottom trucks. The seeds are transferred from the trucks onto a receiving conveyor in the receiving building. The conveyor system transfers the seeds into a series of steel bins. The incoming product is weighed and analyzed for moisture content and product quality before being transferred to the seed cleaning line building for cleaning and sorting.

A small percentage of product arrives at the Nampa facility already in steel bins, bypassing the receiving line, and is transferred directly to the cleaning line building. Once cleaning and sorting is completed, the seeds are transferred to the seed storage building until customers request product orders. Upon customer requests, the seeds are transferred to the seed treatment and packaging building. Seeds are coated with appropriate herbicide and pesticide according to customer requests or growing conditions. After seed coating is completed, seeds are packaged, placed on pallets, and prepared for shipment off-site by rail or trucks.

All incoming product is received in bulk seed form, except for corn, which is received on the cob. The corn is husked and dried, then the kernels are removed from the cob and incorporated into cleaning and treatment process. The product is packaged after processing and stored prior to shipment off-site.

In addition to the cleaning and treatment process, certain seeds are fumigated to control pests, as required by states and countries where the product is distributed. The application is for the decommissioning of the existing box fumigation chamber and replacement with a larger chamber.

Seed product is placed in a fumigation chamber. The chamber is closed and the seed is fumigated with phosphine for 3-5 days. At the end of the fumigation, the doors to the chamber are opened and a fan draws the phosphine from the chamber and exhausts it out a stack. The chamber is vented for 24 hours.

Equipment List - The only equipment for this project includes the new fumigation chamber, fan and stack.



15- Day Pre-Permit Construction Approval Application Completeness Checklist

This checklist is designed to aid the applicant in submitting a complete pre-permit construction approval application. This checklist should be completed and submitted with the pre-permit construction approval application.

I. Actions Needed Before Submitting Application

- Refer to the Rule. Read the Pre-Permit Construction requirements contained in IDAPA 58.01.01.213, Rules for the Control of Air Pollution in Idaho.
- Refer to DEQ's Pre-Permit Construction Approval Guidance Document. DEQ has developed a guidance document to aid applicants in submitting a complete pre-permit construction approval application. The guidance document is located on DEQ's website (go to http://www.deq.idaho.gov/air/permits_forms/permitting/ptc_prepermit_guidance.pdf)
- Consult with DEQ Representatives. Schedule a pre-application meeting with DEQ to discuss application requirements before submitting the pre-permit construction approval application. Schedule the meeting by contacting the DEQ Air Permit Hotline at **877-5PERMIT**. The meeting can be in person or on the phone. Refer to IDAPA 58.01.01.213.01b.
- Schedule Informational Meeting. Schedule an informational meeting before submitting the pre-permit construction approval application for the purposes of satisfying IDAPA 58.01.01.213.02.a. The purpose for the informational meeting is to provide information about the proposed project to the general public. Refer to IDAPA 58.01.01.213.01.c.
- Submit Ambient Air Quality Modeling Protocol. It is required that an ambient air quality modeling protocol be submitted to DEQ at least two (2) weeks before the pre-permit construction approval application is submitted. Contact DEQ's Air Quality Hotline at **877-5PERMIT** for information about the protocol.
- Written DEQ Approved Protocol. Written DEQ approval of the modeling protocol must be received before the pre-permit construction approval application is submitted. Refer to IDAPA 58.01.01.213.01.c.

II. Application Content

Application content should be prepared using the checklist below. The checklist is based on the requirements contained in IDAPA 58.01.01.213 and DEQ's Pre-Permit Construction Approval Guidance Document.

- Pre-Permit Construction Eligibility and Proof of Eligibility. Pre-permit construction approval is not available for any new Prevention of Significant Deterioration (PSD) major source, any proposed PSD major modification, or any proposed major NSR project in a non-attainment area. Emissions netting and emissions offsets are not allowed to be used. A certified proof of pre-permit construction eligibility must be submitted with the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.01.
- Request to Construct Before Obtaining a Permit to Construct. A letter requesting the ability to construct before obtaining the required permit to construct must be submitted with the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.01.c.
- Apply for a Permit to Construct. Submit a Permit to Construct application using forms available on DEQ's website at <http://www.deq.idaho.gov>. Refer to IDAPA 58.01.01.213.01.a.



Department of Environmental Quality
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

AQ-CH-P004

- Permit to Construct Application Fee. The permit to construct application fee of \$1000 must be submitted at the time the original pre-permit construction approval application is submitted. Refer to IDAPA 58.01.01.224. If the pre-permit construction approval is denied and a new application is submitted, a new \$1,000 application fee will be required to be submitted. The application fee is not transferable or refundable. The application fee can be paid by check, credit card or Electronic Funds Transfer (EFT). If you choose to pay by credit card or EFT, please refer to the following Access Idaho link:
<https://www.accessidaho.org/secure/deq/payport/item.html?id=511>
If you choose to pay by check, enclose the check with your pre-permit construction approval application.
- Notice of Informational Meeting. Within 10 days after the submittal of the pre-permit construction approval application, an informational meeting must be held in at least one location in the region where the stationary source will be located. The information meeting must be made known by notice published at least 10 days before the informational meeting in a newspaper of general circulation in the county in which the stationary source will be located. A copy of this notice, as published, must be submitted with the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.02.a. Additional information regarding the informational meeting is included in DEQ's Pre-Permit Construction Approval Guidance Document. (go to http://www.deq.idaho.gov/air/permits_forms/permitting/ptc_prepermit_guidance.pdf)
- Process Description(s). The process or processes for which pre-permit construction approval is requested must be described in sufficient detail and clarity such that a member of the general public not familiar with air quality can clearly understand the proposed project. A process flow diagram is required for each process for which pre-permit construction approval is requested. Refer to IDAPA 58.01.01.213.01.c.
- Equipment List. All equipment that will be used for which pre-permit construction approval is requested must be described in detail. Such description includes, but is not limited to, manufacturer, model number or other descriptor, serial number, maximum process rate, proposed process rate, maximum heat input capacity, stack height, stack diameter, stack gas flowrate, stack gas temperature, etc. All equipment that will be used for which pre-permit construction approval is requested must be clearly labeled on the process flow diagram. Refer to IDAPA 58.01.01.213.01.c.
- Scaled Plot Plan. It is required a scaled plot plan be included in the permit to construct application and it must clearly label the location of each proposed process and the equipment that will be used in the process.
- Proposed Emissions Limits and Modeled Ambient Concentration for All Regulated Air Pollutants. All proposed emission limits and modeled ambient concentrations for all regulated air pollutants must demonstrate compliance with all applicable air quality rules and regulations. Regulated air pollutants include criteria air pollutants (PM₁₀, SO_x, NO₂, O₃, CO, lead), toxic air pollutants listed pursuant to IDAPA 58.01.01.585 and 586, and hazardous air pollutants listed pursuant to Section 112 of the 1990 Clean Air Act Amendments (go to <http://www.epa.gov/ttn/atw/188polls.html>). Describe in detail how the proposed emissions limits and modeled ambient concentrations demonstrate compliance with each applicable air quality rule and regulation. It is requested that emissions calculations, assumptions, and documentation be submitted with sufficient detail so DEQ can verify the validity of the emissions estimates. Refer to IDAPA 58.01.01.213.01.c.
- Restrictions on a Source's Potential to Emit. Any proposed restriction on a source's potential to emit such that permitted emissions will be either below major source levels or below a significant increase must be described in detail in the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.01.d.
- List all Applicable Air Quality Rules and Regulations. All applicable rules and regulations must be cited by the rule or regulation section/subpart that applies for each emissions unit. Refer to IDAPA 58.01.01.213.01.c.
- Certification of Pre-Permit Construction Approval Application. The pre-permit construction approval application must be signed by the Responsible Official and must contain a certification signed by the Responsible Official. The certification must state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Refer to IDAPA 58.01.01.213.01.d and IDAPA 58.01.01.123.



Department of Environmental Quality
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

AQ-CH-P004

-
- Submit the Pre-Construction Approval Application. Submit the pre-permit construction approval application and application fee to the following address:

Department of Environmental Quality
Air Quality Division
Stationary Source Program
1410 North Hilton
Boise, ID 83706-1255

PERMIT TO CONSTRUCT APPLICATION
With
AIR DISPERSION MODELING
TECHNICAL SUPPORT DOCUMENT

June 4, 2012

Air Quality Program Office – Application Processing
Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706-1255

Subject: Application for a Permit to Construct for a Modification to Seed Fumigation Operations
Seminis Vegetable Seeds, Inc.
Facility ID No. 027-00072

Dear Sir or Madam:

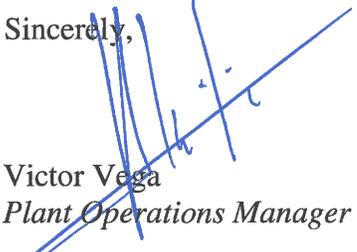
Seminis Vegetable Seeds, Inc. (Seminis) is submitting this Permit to Construct application for modifications to seed fumigation operations conducted at their Facility ID No. 027-0072 in Nampa, Idaho. Seminis will decommission the existing box fumigation chamber and replace it with a larger chamber.

The application includes the following attachments:

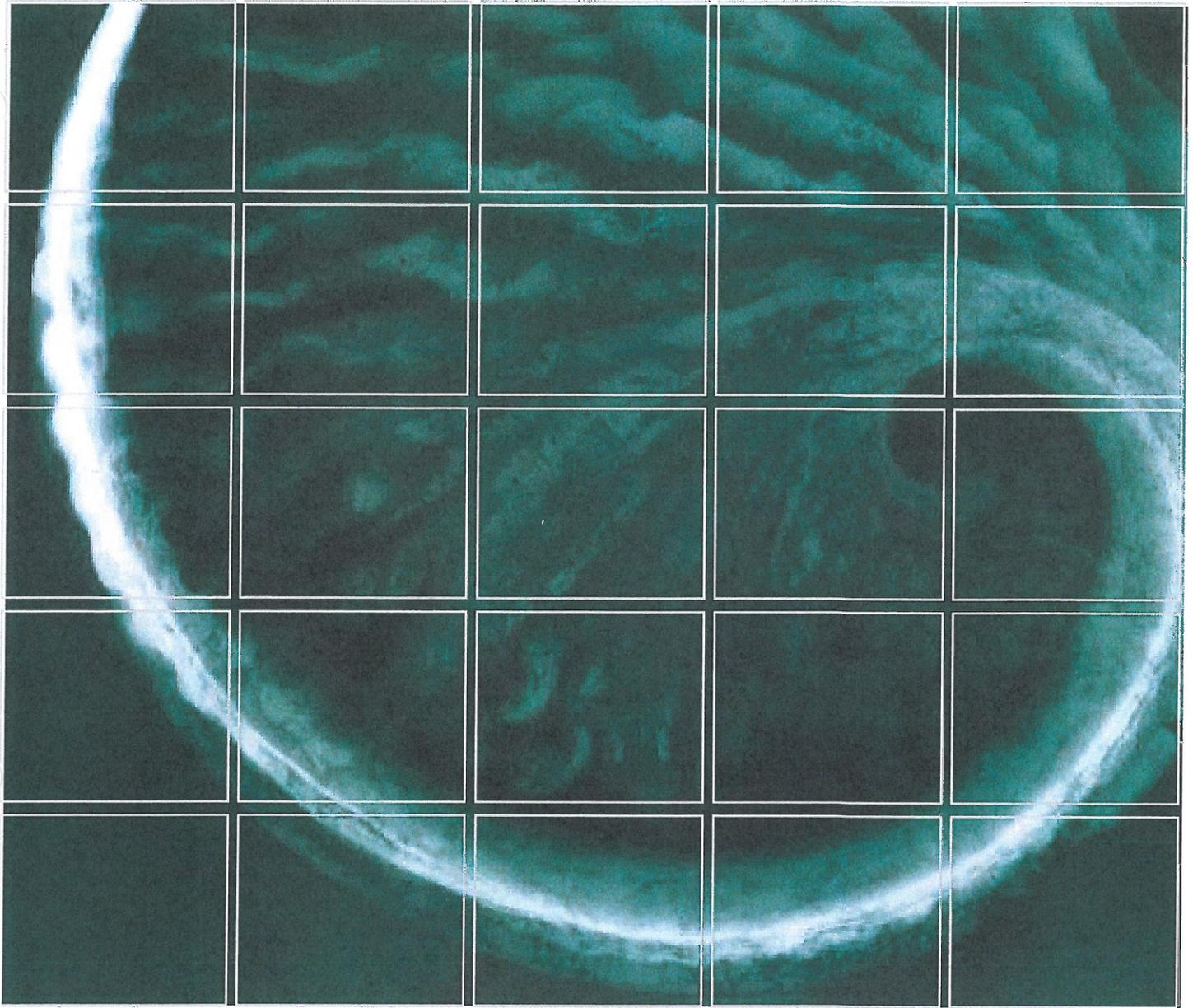
- Form CSPTC, Form GI, and one Form EU0
- Minor Source Permit to Construct Application Completeness Checklist
- TAP Preconstruction Compliance Application Completeness Checklist
- Supplemental Application Document and Drawings
- Emissions Calculations
- Material Safety Data Sheets
- Technical Support Document for Toxic Air Pollutant Air Quality Impact Analysis

If you have any additional questions, please don't hesitate to contact Mr. Dennis Huett. Mr. Huett can be reached by email at dennis.l.huett@monsanto.com or at (208) 468-4542.

Sincerely,


Victor Vega
Plant Operations Manager

cc: Ms. Teri Merial, Monsanto Company



Permit to Construct Application – Replace Existing Box Fumigation Chamber

Prepared for:
Idaho Department of
Environmental Quality

Seminis Vegetable Seeds, Inc.
Nampa, Idaho

May 31, 2012

www.erm.com

Delivering sustainable solutions in a more competitive world



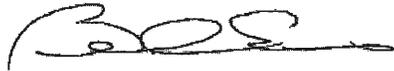
Idaho Department of Environmental Quality

Permit to Construct Application – Replace Existing Box Fumigation Chamber

Seminis Vegetable Seeds, Inc.
Nampa, Idaho

May 31, 2012

Project No. 0159228



Bernard Evans, P.E.
Project Manager



Dave R. Jordan, P.E.
Principal-in-Charge

Environmental Resources Management
700 West Virginia Street, Suite 601
Milwaukee, WI 53204

1.0 INTRODUCTION

Seminis Vegetable Seeds, Inc. (Seminis) is submitting a Permit to Construct application for seed fumigation operations conducted at their Facility ID No. 027-0072 in Nampa, Idaho. The site is required to fumigate to control pests and to meet the requirements of states and countries where product is distributed. This application outlines toxic air pollutant (TAP) emissions related to seed fumigation.

This application is for the decommissioning of the existing box fumigation chamber and the replacement with a larger box chamber. This application package includes the information necessary for the Idaho Department of Environmental Quality (DEQ) to process and issue the Permit to Construct (PTC) for this minor source.

1.1 APPLICATION SUMMARY

The seed fumigation operations result in phosphine emissions, a non-carcinogenic TAP, from the facility. The required application forms, emissions calculations, Material Safety Data Sheets (MSDS), and TAP air quality impact analysis follow this introduction. Section 2.0 of this application describes the physical characteristics of the existing facility and the seed fumigation operations. Emissions are discussed in Section 3.0. Applicable requirements and proposed permit condition language are presented in Section 4.0. Figure 1-1 is an aerial view of the site. Figure 2-1 is a plot plan. Appendix A includes DEQ Permit to Construct Forms. Appendix B contains the TAP emissions calculations. Appendix C includes the MSDS for fumigation chemicals. Appendix D includes an air quality impact analysis for TAP emissions.

1.2 FEES

The Permit to Construct Application Fee of \$1,000 will be submitted concurrently with this application.

2.0 SEED (BEAN, PEA, CORN, CARROT AND ONION) PROCESSING OPERATION

This section includes the facility description, process and emission source descriptions, and the seed fumigation operations.

2.1 FACILITY DESCRIPTION

The Seminis facility in Nampa, Idaho processes seeds from beans, peas, carrot, onion and corn. The bean and pea seed processing operation begins with raw seeds shipped to the facility via flat or hopper bottom trucks. The seeds are transferred from the trucks onto a receiving conveyor in the receiving building. The conveyor system transfers the seeds into a series of steel bins. The incoming product is weighed and analyzed for moisture content and product quality. It is then transferred with mobile forklifts to the seed cleaning line building for cleaning and sorting.

A small percentage of product arrives at the Nampa facility already in steel bins, bypassing the receiving line, and is transferred directly to the cleaning line building. Once cleaning and sorting is completed, the seeds are transferred to the seed storage building until customers request product orders. Upon customer requests, the seeds are transferred to the seed treatment and packaging building. Seeds are coated with appropriate herbicide and pesticide according to customer requests or growing conditions. After seed coating is completed, seeds are packaged, placed on pallets, and prepared for shipment off-site by rail or trucks.

All incoming product is received in bulk seed form, except for corn, which is received on the cob. The corn is husked and dried, then the kernels are removed from the cob and incorporated into cleaning and treatment process. The product is packaged after processing and stored prior to shipment off-site.

In addition to the cleaning and treatment process, certain seeds are fumigated to control pests, as required by states and countries where the product is distributed. Three types of fumigation with phosphine gas occur at the facility: box chamber fumigation, building fumigation, and pea box fumigation. The application is for the decommissioning of the

existing box fumigation chamber and replacement with a large box chamber. A description of box fumigation follows.

Box Chamber Fumigation

Seed product is placed in a fumigation chamber. The box is closed and the seed is fumigated with 99 grams of phosphine for 3-5 days. At the end of the fumigation, the doors to the chamber are opened and a fan is placed in the chamber for ventilation. The chamber is then vented for 24 hours.

2.2

PROCESS EMISSION SOURCE DESCRIPTIONS

The replacement of the box fumigation chamber with the new box chamber does not increase the throughput of any of the existing process and emission sources. The following are the existing process and emission sources:

- Corn Receiving and Husking
- Maxon Burner, Corn Drying
- Pea and Bean Receiving Controlled by Baghouse #1
- Corn/Pea Cleaning/Cleaning Line #1 Controlled by Baghouse #2
- Bean/Pea Cleaning/Cleaning Line #2 Controlled by Baghouse #3
- Electric Color Sorter Controlled by Baghouse #2
- Treatment/Packaging Facility Line #1 Controlled by Baghouse #4
- Treatment/Packaging Facility Line # 2 Controlled by Baghouse #5
- Corn Sheller Line Controlled by Baghouse #6
- Mini-pack Line Controlled by Baghouse #7
- Box Chamber Fumigation
- Building Fumigation
- Pea Box Fumigation

3.0 EMISSIONS

3.1 TAP EMISSIONS FOR THIS PROJECT

Table 3-1 summarizes the maximum uncontrolled TAP emission rate from the proposed seed fumigation operations. There is no air pollution controls used in the box fumigation chamber, and therefore, only maximum uncontrolled TAP emissions are submitted with this permit application. Detailed emission calculations are included in Appendix B, and the location of the box fumigation chamber is detailed in Figure 2-1. Material Safety Data Sheets for the fumigants are provided in Appendix C.

Table 3-1 Maximum Uncontrolled TAP Emissions Rates

Type of Fumigation	Maximum Uncontrolled Phosphine Emission Rate (lb/hr)
Existing Box Fumigation Chamber	0.00908
New Box Fumigation Chamber	0.05452
Increase in Emissions With this Modification	0.04544

3.2 TAP COMPLIANCE USING UNCONTROLLED AMBIENT CONCENTRATION

A complete air quality impact analysis of compliance with TAP ambient concentration requirements associated with the change in TAP emissions is included in Appendix D.

Table 3-2 summarizes the maximum predicted ambient concentration of phosphine based on uncontrolled phosphine emissions compared to the acceptable ambient concentration (AAC) for the modeling scenario outlined in the air quality impact analysis.

Table 3-2 Maximum Predicted TAP Concentrations

Sources	Maximum Predicted 24 Hour Average Phosphine Concentration ($\mu\text{g}/\text{m}^3$)	Applicable Ambient Concentration ($\mu\text{g}/\text{m}^3$)
Replace Box Fumigation Chamber	3.81	20

As demonstrated above, the maximum predicted 24-hour average concentrations due to the replacement of the existing box fumigation chamber with the new fumigation chamber is less than the AAC.

4.0 *APPLICABLE REQUIREMENTS AND PROPOSED PERMIT CHANGES*

4.1 *APPLICABLE REQUIREMENTS*

The seed fumigation operations are subject to the following IDAPA regulations:

- IDAPA 58.01.01.161, Toxic Substances;
- IDAPA 58.01.01.210, Demonstration of Preconstruction Compliance with Toxic Standards; and
- IDAPA 58.01.01.585, Toxic Air Pollutants Non-Carcinogenic Increments

4.2 *SUGGESTED PERMIT MODIFICATIONS*

As described in Sections 2.1 and 3.2, Seminis requests that the Permit to Construct be modified to remove the exiting box fumigation chamber and replace it with the new box fumigation chamber as described in this application.

FIGURES

Figure 1-1
Aerial View of the Seminis Vegetable Seeds, Inc. Plant



Figure 2-1
Plot Plan of the Seminis Vegetable Seeds, Inc. Plant



APPENDIX A

DEQ Forms for Permit to Construct a Modification



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 Seminis, Inc.

2. Facility Name Seminis Vegetable Seeds 3. Facility ID No. 027-00072

4. Brief Project Description - One sentence or less Increase chemical usage limits in Section 2.8 of permit P-2009.0110 and establish a new TAP emission calculation methodology.

PERMIT APPLICATION TYPE

5. New Source New Source at Existing Facility PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
 Unpermitted Existing Source Facility Emissions Cap Modify Existing Source: Permit No.: P-2009.0110 Date Issued: 02/18/11
 Required by Enforcement Action: Case No.: _____

6. Minor PTC 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	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU4s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CBP– Concrete Batch Plant Please specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Forms EI-CP1 - EI-CP4– Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PP – Plot Plan	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>



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

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION

1. Company Name		2. Facility Name	
Seminis Vegetable Seeds, Inc.		Seminis Vegetable Seeds	
3. Brief Project Description:	Establish a Permit to Construct for modification to seed fumigation operations and the associated TAP emissions. The existing fumigation chamber will be replaced with a new chamber.		

FACILITY INFORMATION

4. Primary Facility Permit Contact Person/Title	Victor Vega	Plant Operations Manager
5. Telephone Number and Email Address	208.468.4517	victor.h.vega@monsanto.com
6. Alternate Facility Contact Person/Title	Dennis Huett	ESH Site Technician
7. Telephone Number and Email Address	208.468.4542	dennis.l.huett@monsanto.com
8. Address to Which the Permit Should be Sent	1811 E. Florida Avenue	
9. City/County/State/Zip Code	Nampa	Canyon Idaho 83686
10. Equipment Location Address (if different than the mailing address above)		
11. City/County/State/Zip Code		
12. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. SIC Code(s) and NAICS Code	Primary SIC: 0723	Secondary SIC: NAICS:
14. Brief Business Description and Principal Product	Beans, Peas, Onion, Carrot, and Corn Seed Processing, Treatment, and Packaging Facility	
15. Identify any adjacent or contiguous facility that this company owns and/or operates		
16. Specify the reason for the application	<input checked="" type="checkbox"/> Permit to Construct (PTC) <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>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.</p> <input type="checkbox"/> Incorporate the PTC at the time of the Tier I renewal <input type="checkbox"/> Co-process the Tier I modification and PTC <input type="checkbox"/> Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c) </div> <input type="checkbox"/> Tier I Permit <input type="checkbox"/> Tier II Permit <input type="checkbox"/> Tier II/Permit to Construct	

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.

17. Responsible Official's Name/Title	Victor Vega	Plant Operations Manager
18. Responsible Official's Signature		Date: June 4, 2012
19. <input checked="" type="checkbox"/> Check here to indicate that you would like to review the draft permit prior to final issuance.		



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

IDENTIFICATION						
1. Company Name: Seminis Vegetable Seeds, Inc.		2. Facility Name: Seminis Vegetable Seeds		3. Facility ID No: 027-00072		
4. Brief Project Description:				Establish a Permit to Construct for seed fumigation operations and the associated TAP emissions.		
EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION						
5. Emissions Unit (EU) Name:		CHAMBER FUMIGATION				
6. EU ID Number:						
7. EU Type:		<input type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #P-2009.0110		Date Issued: 2/18/11		
8. Manufacturer:		CUSTOM				
9. Model:		CUSTOM				
10. Maximum Capacity:		CUSTOM				
11. Date of Construction:		2012				
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:			16. Date of Modification (if any):			
17. Manufacturer and Model Number:						
18. ID(s) of Emission Unit Controlled:						
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)				
Control Efficiency		Pollutant Controlled				
		PM	PM10	SO ₂	NO _x	VOC
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.						
EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)						
22. Actual Operation:		91 FUMES PER YEAR				
23. Maximum Operation:		91 FUMES PER 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):						
<input type="checkbox"/> Production Limit(s):						
<input type="checkbox"/> Material Usage Limit(s):						
<input type="checkbox"/> Limits Based on Stack Testing:		Please attach all relevant stack testing summary reports				
<input type="checkbox"/> Other:						
25. Rationale for Requesting the Limit(s):						

Department of Environmental Quality - Air Quality Division Toxic Air Pollutant (TAP) Preconstruction Compliance Application Completeness Checklist

This checklist is designed to aid the applicant in submitting a complete preconstruction compliance demonstration for toxic air pollutants (TAPs) in permit to construct applications. The applicant must place a check mark in the box for each section below that applies.

I. Actions Needed Before Submitting Application

- Refer to the Rule. Read the Demonstration of Preconstruction Compliance with Toxic Standards contained in IDAPA 58.01.01.210 (Rules Section 210) Rules for the Control of Air Pollution in Idaho (Rules). Toxic air pollutants (TAPs) are regulated in accordance with Rules Section 210 only from emission units constructed or modified on or after July 1, 1995.

Determine if a new (constructed after June 30, 1995) emission unit has the potential to emit a TAP listed in IDAPA 58.01.01.585 (Rules Section 585) or IDAPA 58.0101.586 (Rules Section 586). Potential toxic air pollutants can be determined by reviewing commonly available emission factors, such as EPA's AP-42, or calculating emissions using a mass balance. For TAPs that are emitted but not listed in Rules Section 585 and 586, contact the Air Permit Hotline at 877-5PERMIT.

Determine if the proposed construction or modification is exempt from the need to obtain a permit to construct in accordance with IDAPA 58.01.01.220-223. Use the Exemption Criteria and Reporting Requirements for TAPs IDAPA 58.01.01.223 checklist to assist you in the exemption determination. If the source does not qualify for an exemption in accordance with IDAPA 58.01.01.220-223 complete the following checklist and submit it with the permit application. Please note that fugitive TAP emissions are not included in the IDAPA 58.01.01.223 exemption determination, but fugitive TAP emissions are included in the analysis if a permit is required. Stated another way: if a source is required to obtain a Permit to Construct because it does not meet the exemption criteria for any reason all TAP emissions, including fugitive TAPs, are included in the compliance demonstration in the application for the permit to construct. Should you have any questions regarding the fact that all TAPs, including fugitive TAPs, are included in the TAP preconstruction compliance demonstration submitted with a permit to construct application you may call the Air Permit Hotline at 877-5PERMIT.

Will the new or modified source result in new or increased potential emissions of TAPs?

- Yes. If yes, continue to section II.
- No. If no, no further action is required.

II. Application Content

If a new source has the potential to emit a TAP, or if a modification to an existing source increases the potential to emit of a TAP, then one of the following methods (A-J) of demonstrating TAP preconstruction compliance must be documented for each TAP. Standard methods are one of A-C. The applicant may also use one of the specialized methods in D-J. Fugitive TAP emissions shall be included in the analysis. The compliance methods are based on the requirements of Rules Section 210. Applicants are often able to demonstrate preconstruction TAP compliance using a combination of methods A and B.

Emission Calculations

Emissions calculation methodologies used are dependent on whether a specific TAP is a non-carcinogen or a carcinogen and whether the compliance method chosen from the list below calls

for controlled or uncontrolled emissions. Non-carcinogens are regulated based on a 24-hour averaging period and emission rates used for comparison to the non-carcinogen screening emissions level (EL) should be the maximum controlled or uncontrolled emissions quantity during any 24-hour period divided by 24. Carcinogens are regulated as a long term increment and emission rates used for comparison to the carcinogen EL should be the maximum controlled or uncontrolled emissions quantity during any 1 year period divided by 8760.

Modeling Analyses

Atmospheric dispersion modeling is required when controlled TAP emissions rates exceed ELs. Modeling analyses should be conducted in accordance with IDAPA 58.01.01.210.03. Quantification of Ambient Concentrations and the State of Idaho Air Quality Modeling Guideline (http://www.deq.idaho.gov/air/data_reports/publications.cfm#model). For non-carcinogen 24-hour increments, compliance is demonstrated using the maximum modeled 24-hour-averaged concentration from available meteorological data (typically a five-year data set). For carcinogen long-term increments, compliance is demonstrated using the maximum modeled average concentration for the duration of the data set (one-year to five-year data set).

A submitted modeling report should clearly specify modeled emissions rates and results. All electronic model input files should be submitted, including BPIP input files.

Poly aromatic Hydrocarbons

Questions often arise regarding polyaromatic hydrocarbons as they are listed in Rules Section 586 of the Rules. The following two points are provided for clarification.

- 1) The following group of 7 PAH's (i.e. named POM), shall be combined and considered as one TAP equivalent in potency to benzo(a)pyrene:
Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a, h)anthracene, chrysene, indeno(1,2,3,-cd) pyrene, benzo (a) pyrene
- 2) All other PAH's are considered as a single pollutant and the emission of each is compared the PAH increment listed in Rules Section 586.

Compliance Methods

Fill in letter(s) (A-J) from the list below for TAP compliance demonstration method(s) used: **B.**

A. TAPs Compliance Using Uncontrolled Emissions (Rules Section 210.05)

- Calculate the uncontrolled emissions (Rules Section 210.05) of each TAP from new emissions units. Uncontrolled emission rates are emissions at maximum capacity without the effect of physical or operational limitations. See Quantification of Emission Rates (Rules Section 210.02). Show calculations and state all assumptions.
- Calculate the increase of TAP emissions from modified emissions units. Show calculations and state all assumptions. The increase in emissions for a modified emission unit is determined by subtracting the potential to emit the TAP before the modification from the uncontrolled potential to emit after the modification. In conducting this analysis please note the following for TAP emission rate increase determinations:

Uncontrolled emission rates after the modification are emissions at maximum capacity without the effect of physical or operational limitations.

When determining the emissions increase from existing permitted emissions units the emission rate before the modification is equivalent to the emission limits contained in the permit for the

TAPs or, if there no emission limits in the permit, by determining what the emission rate is under the physical or operational limitations contained in the permit.

- Aggregate the uncontrolled emissions for each TAP from all new emissions units with the increase in emissions from all modified emissions units.
- If the aggregated emissions increase for each TAP from the new and modified units, as determined above, are less than or equal to the respective TAP screening emissions level (EL) then preconstruction compliance with toxic standards has been demonstrated and no further analysis is required. Submit a table comparing the uncontrolled emissions rate to the applicable EL.

If aggregated emissions are greater than the respective screening emissions level (EL) for any pollutants, use another compliance demonstration method for those pollutants, such as methods B, C, or D.

B. TAP Compliance Using Uncontrolled Ambient Concentration (Rules Section 210.06)

- Determine the uncontrolled emissions of each TAP from new emission units and the increase in emissions from all modified emissions units as described above in compliance Method A. Show calculations and state all assumptions.
- Model the uncontrolled emissions of each TAP from new emissions units and the increase in emissions from all modified emissions units.
- If the uncontrolled ambient concentration is less than or equal to the acceptable ambient concentration increment listed in Rules Section 585 and 586 no further procedures for demonstrating preconstruction compliance will be required for that TAP as part of the application process. Submit a table comparing uncontrolled ambient concentrations to the applicable acceptable ambient concentration.

C. TAP Compliance Using Controlled Ambient Concentrations (Rules Section 210.08)

- Determine the controlled emissions from new emissions units and the controlled emission increase from modified emissions units. Show all calculations and state all assumptions, including the control methods.
- Model the controlled emissions of each TAP from new emissions units and the increase in controlled emissions from all modified emissions units.

TAP emissions levels (EL) included in Rules Section 585 and 586 are derived based on generic modeling. If the sum the of emissions from new and modified sources is below the EL compliance is demonstrated without the need to conduct site-specific dispersion modeling.
- If the controlled ambient concentration from emission increases from new emissions units and modified emissions units is less than the applicable acceptable ambient concentration no further procedures for demonstrating preconstruction compliance are required.
- The Department shall include an emission limit for the TAP in the permit to construct that is equal to or, if requested by the applicant, less than the emission rate that was used in the modeling (Rules Section 210.08.c).

In some instances the Department may consider a throughput limit or other inherently-limiting operational restriction in a permit as an effective emission limit for the TAP, rather than including a specific emission rate limit.. Note that the applicant may model uncontrolled emissions as described in compliance Method B in an attempt to avoid TAPs emissions limitations.

D. TAPs Compliance for NSPS and NESHAP Sources (Rules Section 210.20)

- If the owner or operator demonstrates that the TAP emissions from the source or modification is regulated by 40 CFR Part 60, 40 CFR Part 61 or 40 CFR Part 63, no further procedures for demonstrating preconstruction compliance will be required for that TAP.
- Provide a demonstration that the TAP is regulated under 40 CFR Part 60, 40 CFR Part 61 or 40 CFR Part 63. This demonstration must be specific for each TAP emitted.

E. TAP Compliance Using Net Emissions (Rules Section 210.09)

An applicant may use TAP net emissions to show preconstruction compliance; however this analysis may require more work than some of the others procedures available to demonstrate preconstruction compliance. When netting, all emissions increases and decreases of the TAP that have occurred within five years must be included in the analysis as described below.

- Determine the net emission increase for a TAP. A net emissions increase shall be an emission increase from a particular modification plus any other increase and decreases in actual emissions at the facility that are creditable and contemporaneous with particular modification (Rules Section 210.09). Show all calculations and state all assumptions.
- A creditable increase or decrease in actual emissions is contemporaneous with a particular modification if it occurs within five (5) years of the commencement of the construction or modification (Rules Section 210.09.a).

Actual emissions are (Rules Section 006.03):

- In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of normal source operation. The Department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, productions rates, and types of materials processed, stored, or combusted during the selected time period.
- The Department may presume that the source-specific allowable emissions for the unit are equivalent to actual emissions of the unit.
- For any emission unit (except electric utility steam generating units) that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.
- Do not include emissions increases from emission units that have an uncontrolled emission rate that is 10% or less than the applicable screening emission level (EL) in Rules Section 585 and 586 (Rules Section 007.09.c.ii) and do not include emission increases from environmental remediation sources (Rules Section 007.09.c.iii). Show all calculations and state all assumptions.
- If the net emission increase is less than or equal to the applicable screening emissions level (EL) listed in Rules Section 585 and 586, no further procedures for demonstrating preconstruction compliance will be required (Rules Section 210.09.c).
- The Department shall include emission limits and other permit terms for the TAP in the permit to construct that will assure that the facility will be operated in the manner described in the preconstruction compliance demonstration (Rules Section 210.09.d).

In some instances the Department may consider a throughput limit or other inherently-limiting operational restriction in a permit as an effective emission limit for the TAP. rather than including a specific emission rate limit..

F. TAP Compliance Using Net Ambient Concentration (Rules Section 210.10)

- Determine the emission increase from the new source or modification, and all other creditable emission increases and decrease using the methods described above in compliance Method E.
- Model the emissions increases and decreases for each TAP. Modeling TAP decreases is accomplished by using negative valued emissions rates in the model input.
- If the net ambient concentration is less than or equal to the applicable ambient concentration increment listed in Rules Section 585 and 586, no further procedures for demonstrating preconstruction compliance are required.
- The Department shall include emission limits and other permit terms for the TAP in the permit to construct that will assure that the facility will be operated in the manner described in the preconstruction compliance demonstration (Rules Section 210.10.d).

In some instances the Department may consider a throughput limit or other inherently-limiting operational restriction in a permit as an effective emission limit for the TAP, rather than including a specific emission rate limit..

G. TAP Compliance Using T-RACT Ambient Concentration for Carcinogens (Rules Section 210.12)

The applicant may use T-RACT to demonstrate preconstruction compliance for TAPs listed in Rules Section 586 only.

T-RACT is an emissions standard based on the lowest emission of TAPs that a particular source is capable of meeting by application of control technology that is reasonably available, as determined by the Department, considering technological and economic feasibility. If control technology is not feasible, the emission standard may be based on the application of a design, equipment, work practice or operational requirement, or combination thereof (Rules Section 007.16).

T-RACT Submittal Requirements

- The applicant shall submit the following information to the Department identifying and documenting which control technologies or other requirements the applicant believes to be T-RACT (Rules Section 210.14).

The technical feasibility of a control technology or other requirements for a particular source shall be determined considering several factors including but not limited to:

- Process and operating procedures, raw materials and physical plant layout.
- The environmental impacts caused by the control technology that can not be mitigated, including but not limited to, water pollution and the production of solid wastes.
- The energy requirements of the control technology.

The economic feasibility of a control technology or other requirement, including the costs of necessary mitigation measures, for a particular source shall be determined considering several factors including, but not limited to:

- Capital costs.
- Cost effectiveness, which is the annualized cost of the control technology divided by the amount of emission reduction.
- The difference in costs between the particular source and other similar sources, if any, that have implemented emissions reductions.
- Compare the source's or modification's approved T-RACT ambient concentration to the applicable acceptable ambient concentration increment listed in Rules Section 586 multiplied by a factor of 10. If the sources approved T-RACT concentration is less than or equal to 10 times the applicable acceptable ambient concentration increment listed in Rules Section 586, no further procedures for demonstrating preconstruction compliance will be required.
- If an application is submitted to the Department without T-RACT and determined complete, and T-RACT is later determined to be applicable the completeness determination of the application will be revoked until a supplemental application is submitted and determined complete. When the supplemental application is determined complete, the timeline for agency action shall be reinitiated (Rules Section 210.13.b).
- If the Department determines that the source has proposed T-RACT, the Department shall develop emission standards to be incorporated into a permit to construct.

In some instances, the Department may consider a throughput limit or other inherently limiting operational restriction in a permit as an effective emission limit for the TAP, rather than including a specific emission rate limit..

H. TAP Compliance Using the Short Term Source Factor (Rules Section 210.15)

- For short term sources, the applicant may utilize a short term adjustment factor of ten (10) only for a carcinogenic pollutant listed in Rules Section 586. For a carcinogen listed in Rules Section 586 multiply either the applicable acceptable ambient concentration increment or the screening emission rate (EL), but not both, by ten (10) to demonstrate preconstruction compliance (Rules Section 210.15).
- A short term source is any new stationary source or modification to an existing source, with an operational life no greater than five (5) years from the inception of any operations to cessation of actual operations (Rules Section 210.15).

I. TAP Compliance for Environmental Remediation Sources (Rules Section 210.16)

- For remediation sources subject to or regulated by the Resource Conservation and Recovery Act and the Idaho Rules and Standard for Hazardous Waste, or the comprehensive Environmental Response, Compensation and Liability Act or a consent order, if the estimated ambient concentration is greater than the acceptable ambient impact increment listed in Rules Section 585 and 586, Best Available Control Technology shall be applied and operated until the estimated uncontrolled emission from the remediation source are below the applicable acceptable ambient concentration increment (Rules Section 210.16).

J. TAP Compliance Using Offset Ambient Concentration (Rules Section 210.11)

- Contact the Department prior to proposing to utilize Offset Ambient Concentrations to demonstrate preconstruction compliance.
- Emission offsets must satisfy the requirements for emission reduction credits (Rules Section 460).
 - The proposed level of allowable emissions must be less than the actual emissions of the emissions units providing the offsets (Rules Section 460.01).
 - An air quality permit must be issued that restricts the potential to emit of the emission unit providing the offset.
 - Emission reduction imposed by local, state or federal regulations or permits shall not be allowed.
- Compare the source's or modifications approved emission offset ambient concentration to the applicable acceptable ambient concentration listed in Rules Section 585 and 586. If the source's or modifications approved offset concentration is less than the acceptable ambient concentration listed in Rules Section 585 and 586, no further procedures for demonstrating preconstruction compliance will be required.
- The Department shall include emission limits and other permit terms for the TAP in the permit to construct that will assure that the facility will be operated in the manner described in the preconstruction compliance demonstration (Rules Section 210.10.d).



Department of Environmental Quality
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

AQ-CH-P008

Department of Environmental Quality - Air Quality Division Minor Source Permit to Construct Application Completeness Checklist

This checklist is designed to aid the applicant in submitting a complete permit to construct application.

I. Actions Recommended Before Submitting Application

- Refer to the Rule. Read the Permit to Construct requirements contained in IDAPA 58.01.01.200-228, Rules for the Control of Air Pollution in Idaho. The Rules are available on DEQ's website (go to <http://adm.idaho.gov/adminrules/rules/idapa58/0101.pdf>).
- Refer to DEQ's Permit to Construct Guidance Document. DEQ has developed a guidance document to aid applicants in submitting a complete permit to construction application. The guidance document is located on DEQ's website (go to http://www.deq.idaho.gov/air/permits_forms/permitting/ptc_prepermit_guidance.pdf).
- Consult with DEQ Representatives. It is recommended that the applicant schedule a pre-application meeting with DEQ to discuss application requirements before submitting the permit to construct application. The meeting can be in person or on the phone. Contact DEQ's Air Quality Hotline at **877-5PERMIT** to schedule the pre-application meeting.
- Submit Ambient Air Quality Modeling Protocol. It is strongly recommended that an ambient air quality modeling protocol be submitted to DEQ at least two (2) weeks before the permit to construct application is submitted. Contact DEQ's Air Quality Hotline at **877-5PERMIT** for information about the protocol.

II. Application Content

Application content should be prepared using the checklist below. The checklist is based on the requirements contained in IDAPA 58.01.01.202.

- Apply for a Permit to Construct. Submit a Permit to Construct application using forms available on DEQ's website at http://www.deq.idaho.gov/air/permits_forms/forms/ptc_general_application.pdf.
- Permit to Construct Application Fee. The permit to construct application fee of \$1000 must be submitted at the time the original permit to construct application is submitted. Refer to IDAPA 58.01.01.224. If the permit to construct application is withdrawn or denied and a new application is submitted, a new \$1,000 application fee is required to be submitted. The application fee is not transferable or refundable. The application fee can be paid by check, credit card or Electronic Funds Transfer (EFT). If you choose to pay by credit card or EFT, please refer to the following Access Idaho link:
<https://www.accessidaho.org/secure/deq/payport/item.html?id=511>
If you choose to pay by check, enclose the check with your permit to construct application.
- Process Description(s). The process or processes for which construction is requested must be described in sufficient detail and clarity such that a member of the general public not familiar with air quality can clearly understand the proposed project. A process flow diagram is required for each process.
- Equipment List. All equipment that will be used for which construction is requested must be described in detail. Such description includes, but is not limited to, manufacturer, model number or other descriptor, serial number, maximum process rate, proposed process rate, maximum heat input capacity, stack height, stack diameter, stack gas flowrate, stack gas temperature, etc. All equipment that will be used for which construction is requested must be clearly labeled on the process flow diagram.
- Potential to Emit. Submit the uncontrolled potential to emit (pre-control equipment emissions estimates) and the controlled potential to emit (post-control equipment emissions estimates) for all equipment for which construction is requested. Any limit on the equipment for which is construction is requested may become a



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AQ-CH-P008

limit on that equipment in the permit to construct.

- Potential to Emit and Modeled Ambient Concentration for All Regulated Air Pollutants. All proposed emission limits and modeled ambient concentrations for all regulated air pollutants must demonstrate compliance with all applicable air quality rules and regulations. Regulated air pollutants include criteria air pollutants, toxic air pollutants listed pursuant to IDAPA 58.01.01.585 and 586, and hazardous air pollutants listed pursuant to Section 112 of the 1990 Clean Air Act Amendments (go to <http://www.epa.gov/ttn/atw/188polls.html>). Describe in detail how the proposed emissions limits and modeled ambient concentrations demonstrate compliance with each applicable air quality rule and regulation. It is requested that emissions calculations, assumptions, and documentation be submitted with sufficient detail so DEQ can verify the validity of the emissions estimates.
- Scaled Plot Plan. It is required a scaled plot plan be included in the permit to construct application and it must clearly label the location of each proposed process and the equipment that will be used in the process.
- List all Applicable Requirements. All applicable requirements must be cited by the rule or regulation section/subpart that applies for each emissions unit.
- Certification of Permit to Construct Application. The permit to construct application must be signed by the Responsible Official and must contain a certification signed by the Responsible Official. The certification must state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Refer to IDAPA 58.01.01.123.
- Submit the Permit to Construct Application. Submit the permit to construct application and application fee to the following address:

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

APPENDIX B
Emissions Calculations

Appendix B
Calculations of Maximum Uncontrolled Emissions
Box Chamber Fumigation Operations

<u>Existing Chamber Fumigation</u>		
3 - 5 day fume + 1 day vent = 4 - 6 day total	4	days
Max Fume per year = $365/4 = 91$	91	fumes/year
99 grams (0.218 lbs) per fume	0.218	lbs/fume
Vent for 24 hours	0.00908	lbs/hr

<u>New Box Chamber Fumigation</u>		
3 day fume + 1 day vent = 4 day total	4	days
Max Fume per year = $365/4 = 91$	91	fumes/year
Chamber configuration	2	sides
Plates per side	9	plates
Phosphine per plate	33	grams
	12.375	grams/hr
Phosphine vented per side (assumes 24 hour vent after fuming)	0.02725771	lbs/hr
Total for Proposed Fumigation Chamber	0.05451542	lbs/hr
Change in Phosphine Emissions	0.04543542	lbs/hr

APPENDIX C

Material Safety Data Sheets



MSDS: 0011037
Date: 10/31/2005
Supersedes: 04/21/2004

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ECO2FUME® Fumigant Gas
Product Description: Physical mixture of phosphine and carbon dioxide
Use: Fumigant

Supplied By: CYTEC CANADA INC., GARNER ROAD, P.O. BOX 240,
NIAGARA FALLS, ONTARIO, CANADA L2E 6T4 1-905/356-9000
EMERGENCY PHONE: In CANADA: 905/356-8310 In USA: 1-800/424-9300 or 1-703/527-3887.

Manufactured By: CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA,
WEST PATERSON, NEW JERSEY 07424, USA - 973/357-3100

® indicates trademark registered in the U.S. Outside the U.S., mark may be registered, pending or a trademark. Mark is or may be used under license.

2. COMPOSITION/INFORMATION ON INGREDIENTS

WHMIS REGULATED COMPONENTS

Component / CAS No.	% (w/w)	OSHA (PEL):	ACGIH (TLV)	Carcinogen
Carbon dioxide 124-38-9	97.8 - 98.2	5000 ppm exposures < 10,000 ppm to be cited de minimus (TWA) 9000 mg/m ³ (TWA)	5000 ppm (TWA) 30,000 ppm (STEL)	-
Phosphine 7803-51-2	1.8 - 2.2	0.3 ppm (TWA) 0.4 mg/m ³ (TWA)	0.3 ppm (TWA) 1 ppm (STEL)	-

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR:

Color: colorless
Appearance: gas
Odor: garlic

STATEMENTS OF HAZARD:

DANGER! POISONOUS LIQUID AND GAS UNDER PRESSURE
MAY BE FATAL IF INHALED
CONTACT WITH LIQUEFIED MATERIAL MAY CAUSE FROSTBITE

POTENTIAL HEALTH EFFECTS

EFFECTS OF EXPOSURE:

The acute 1-hour inhalation LC50 (rat) is greater than 4026 ppm. This material contains ~98% of an asphyxiant gas (carbon dioxide) with ~2% of a material which is acutely toxic by inhalation (phosphine). Overexposure can cause nausea, headache, dizziness, drowsiness, loss of consciousness, coma, and death. Based on the physical form of this material, overexposure by the oral or dermal route is unlikely. However, direct contact with liquefied carbon dioxide can cause frostbite. Refer to Section 11 for toxicology information on the regulated components of this product.

4. FIRST AID MEASURES

Ingestion:

Not an expected route of exposure.

Skin Contact:

Liquefied gas may cause frostbite if contact is made with skin. Treat as thermal burn. Remove contaminated clothing and shoes without delay. Get medical attention immediately. When vaporized, gas is not known to be absorbed through skin and skin contact is not an expected route of exposure.

Eye Contact:

Never put oil or ointment into eyes without medical advice. In case of freezing or cryogenic burns by rapidly evaporating liquid, rinse eyes with cool water. Do not rinse eyes with hot or even warm water. Remove victim from source of contamination. Open eyelids wide to allow liquid to evaporate. In case of contact with gas, hold eyelids open and immediately wash continuously with cool water for at least 15 minutes. Obtain medical attention immediately.

Inhalation:

Move person to fresh air. If person is not breathing, immediately call for emergency medical support then, begin cardiopulmonary resuscitation including artificial respiration, preferably with a bag-valve-mask device if possible. Rescuers within the areas of potentially unsafe levels of this product (the "HOT ZONE") should employ appropriate personal protective equipment such as SCBA during the rescue of the victim. Call a poison control center or doctor for further treatment advice.

Notes To Physician:

This product is a gaseous mixture of phosphine (not phosgene) and carbon dioxide. Mild exposure by inhalation causes malaise, ringing of ears, fatigue, nausea and pressure in chest, which are relieved by removal to fresh air. Moderate poisoning causes weakness, vomiting, pain just above stomach, chest pain, diarrhea and difficulty breathing. Symptoms of severe poisoning may occur within a few hours or up to several days, resulting in pulmonary edema and may lead to dizziness, cyanosis, unconsciousness and death.

5. FIRE-FIGHTING MEASURES

Extinguishing Media:

Move containers from fire area if it can be done without risk. For small fires, use carbon dioxide or dry chemical to extinguish fires. For large fires, use water spray, fog or alcohol foam to extinguish fires.

Protective Equipment:

Wear self-contained, positive pressure breathing apparatus and full firefighting protective clothing for fire situations only. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

In case of fire, stop flow of gas if possible. Keep cylinders cool by spraying with water if exposed to fire. Cylinders are not fitted with pressure relief devices and may explode if over-heated. Move cylinders from fire area if you can do it without risk. Withdraw immediately if cylinders can not be kept cool. Damaged cylinders should be handled only by a specialist.

Mechanical/Static Sensitivity Statements:

None

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure.

Methods For Cleaning Up:

All releases can produce high levels of gas. Evacuate area. Stop leak if possible if it can be done without risk. Isolate area until gas has dispersed.

7. HANDLING AND STORAGE

HANDLING

Precautionary Measures: Do not breathe gas. Do not get in eyes, on skin or on clothing. Keep container tightly closed. Use with adequate ventilation. Keep cylinder out of sun and away from heat. Keep cylinder in an upright position and protect from falling. This gas deadens the sense of smell. Do not depend on odor to detect presence of gas. Read and follow Application Manual before using this product.

X POISON X

Special Handling Statements: Cylinders must be handled in accordance with industry standards for compressed gases. Refer to the Compressed Gas Association (CGA) Pamphlet P-1 "Safe Handling of Compressed Gases In Containers". Phosphine gas may react with certain metals and cause corrosion, especially at higher temperatures and relative humidity. Metals such as brass, copper and other copper alloys and precious metals are susceptible to corrosion. Small electric motors, smoke detectors, brass sprinkler heads, batteries, chargers, forklifts, sensors, communication devices, computers and other electronic or electrical equipment should be protected or removed before fumigation.

STORAGE

Cylinders should be stored in an assigned area which should be cool, dry, well ventilated and fire resistant. It is recommended that both full and used cylinders be stored outdoors in a dedicated and properly designed and labeled storage area, away from other building ventilation intakes. This area should be secured, locked and have a well-drained, firm and level surface, preferably reinforced concrete. Cylinders must be stored in an upright position and secured or protected from falling. Cylinders should never be stored where the temperatures will exceed 52 C (125 F). The indoor storage of toxic gases is prohibited in some jurisdictions. The storage of these gases in occupied spaces is not recommended. Indoor storage in a separate building with no other occupancy is suitable. The building should be adequately ventilated and equipped with a continuous monitoring and alarm system.

Storage Temperature: Store at <52 °C 125 °F

Reason: Safety.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

All direct exposure to this material must be prevented.

Respiratory Protection:

Where exposures are unknown or exceed the established exposure standard, use recommended respirator or full protective suit with air supply appropriate for the material and level of exposure. Where exposures are below the PEL, no respiratory protection is required. See governmental recommendations on respiratory protection such as US NIOSH "GUIDE TO INDUSTRIAL RESPIRATORY PROTECTION".

Eye Protection:

Provide eye wash fountain and safety shower in close proximity to points of potential exposure. Prevent eye and skin contact. Safety glasses should be worn when working with pressurized equipment.

Skin Protection:

Wear leather work gloves or leather faced cotton gloves when connecting or disconnecting cylinders from dispensing equipment. Steel toed safety shoes are recommended for anyone handling compressed gas cylinders.

Additional Advice:

Food, beverages, and tobacco products should not be carried or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	colorless
Appearance:	gas
Odor:	garlic
Boiling Point:	sublimes
Melting Point:	sublimes
Vapor Pressure:	47266mm Hg @ 25 °C
Specific Gravity:	Not applicable
Vapor Density:	1.53 @ 25 °C
Percent Volatile (% by wt.):	100
pH:	Not applicable
Saturation in Air (% By Vol.):	Not applicable
Evaporation Rate:	Not applicable
Solubility in Water:	Slight
Volatile Organic Content:	None
Flash Point:	Non Flammable
Flammable Limits (% By Vol):	Non-flammable mixture
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Not available
Partition coefficient (n-octanol/water):	Not applicable
Odor Threshold:	Not available

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	None known
Polymerization:	Will not occur
Conditions To Avoid:	None known
Materials To Avoid:	Copper, brass and other copper alloys, precious metals
Hazardous Decomposition Products:	oxides of phosphorus oxides of carbon

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 3. HAZARDS IDENTIFICATION. Toxicological information on the regulated components of this product is as follows:

Carbon dioxide, in a liquefied or solid state, can cause frostbite and freeze burns with contact. Carbon dioxide gas is an asphyxiant which depletes the amount of available oxygen in breathing air. Overexposure to carbon dioxide at low levels can cause headache, nausea, weakness, confusion, and labored breathing. Overexposure to higher concentrations can cause excitation, euphoria, dizziness, drowsiness, loss of consciousness, coma, and death. The 4-hour inhalation LC50 (rat) value is estimated to be >5,000 ppm.

Phosphine has a 4-hour inhalation LC50 (rat) value of 57 ppm (0.079 mg/L). Inhalation overexposure is characterized by severe pulmonary irritation, dyspnea, dizziness, lethargy, and stupor. Human evidence indicates that pulmonary irritation and pulmonary edema are the main toxic effects of phosphine inhalation. Phosphine has also been shown to cause central nervous system depression and gastrointestinal irritation, as well as, renal and hepatic toxicity. Acute inhalation overexposure to high concentrations of phosphine can be fatal. In an in vivo cytogenetic study, rats exposed to phosphine via inhalation at concentrations of 0, 6.2 and 19 ppm were examined for chromosomal aberrations in whole blood lymphocytes and bone marrow cells. A significant increase in cells with chromosomal aberrations were seen in male rats exposed to 19 ppm phosphine. No increase in cells with chromosomal aberrations were observed in the bone marrow of female rats, nor in the whole blood lymphocytes of male or female rats.

12. ECOLOGICAL INFORMATION

Environmental exposure from substances of this preparation are limited due to the physical form of the product.

13. DISPOSAL CONSIDERATIONS

Cytec encourages the recycle, recovery and reuse of materials, where permitted, as an alternative to disposal as a waste. Cytec recommends that organic materials classified as hazardous waste according to the relevant local or national regulations be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Proper Shipping Name: Liquefied gas, toxic, n.o.s. [Inhalation hazard - Zone D]

Hazard Class: 2.3

UN/ID Number: UN3162

Transport Label Required: Poison Gas

Technical Name (N.O.S.): Contains phosphine

Hazardous Substances:

<u>Component / CAS No.</u>	<u>Reportable Quantity of Product (lbs)</u>
Phosphine	4545.455

TRANSPORT CANADA

Proper Shipping Name: Liquefied gas, toxic, n.o.s.

Hazard Class: 2.3

Packing Group: -

UN Number: 3162

Transport Label Required: Toxic Gas

Technical Name (N.O.S.): Contains phosphine

ICAO / IATA

Proper Shipping Name: Liquefied gas, toxic, n.o.s.
Hazard Class: 2.3
Packing Group: -
UN Number: 3162
Transport Label Required: ---
Packing Instructions/Maximum Net Quantity Per Package:
Passenger Aircraft: -; FORBIDDEN
Cargo Aircraft: -; FORBIDDEN
Technical Name (N.O.S.): Contains phosphine

IMO

Proper Shipping Name: Liquefied gas, toxic, n.o.s.
Hazard Class: 2.3
UN Number: 3162
Packing Group: -
Transport Label Required: Toxic Gas
Technical Name (N.O.S.): Contains phosphine

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Controlled products Regulations and this Material Safety Data Sheet contains all the information required by the Controlled Products Regulations.

WHMIS CLASSIFICATION:

Class A Compressed Gas
Class D1A Very Toxic

INVENTORY INFORMATION

United States (USA): All components of this product are included on the TSCA Inventory in compliance with the Toxic Substances Control Act, 15 U. S. C. 2601 et. seq.

Canada: Components of this product have been reported to Environment Canada in accordance with Sections 66 and/or 81 of the Canadian Environmental Protection Act (1999), and are included on the Domestic Substances List.

European Union (EU): All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) in compliance with Council Directive 67/548/EEC and its amendments.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS). Not to be available except to authorized or licensed persons. NRA Approval: File Number 50177

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 0 - Materials that will not burn.

Reactivity: 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.

Reasons For Issue:

New Format

Prepared By: Randy Deskin, Ph.D., DABT +1-973-357-3100

Date: 10/31/2005

This information is given without any warranty or representation. We do not assume any legal responsibility for same, nor do we give permission, inducement, or recommendation to practice any patented invention without a license. It is offered solely for your consideration, investigation, and verification. Before using any product, read its label.

**MATERIAL SAFETY DATA SHEET: MAGNESIUM PHOSPHIDE-
MAGTOXIN® SPOT FUMIGANT, FUMI-CEL®, FUMI-STRIP®**

PROPER DOT SHIPPING NAME: MAGNESIUM PHOSPHIDE, CL 4.3 UN2011 PG I DANGEROUS WHEN WET, POISON LABELS APPLY

SECTION I - PRODUCT INFORMATION

Manufacturer:

DEGESCH America, Inc.	Telephone: (540) 234-9281/1-800-330-2525
153 Triangle Dr.	Telefax: (540) 234-8225
P. O. Box 116	Internet address: http://www.degeschamerica.com
Weyers Cave, VA 24486 USA	E-Mail: degesch@degeschamerica.com

EMERGENCY TELEPHONE NOS.:

Emergency - Chemtrec (800) 424-9300
Emergency and Information - DEGESCH America, Inc. (540) 234-9281/(800) 330-2525

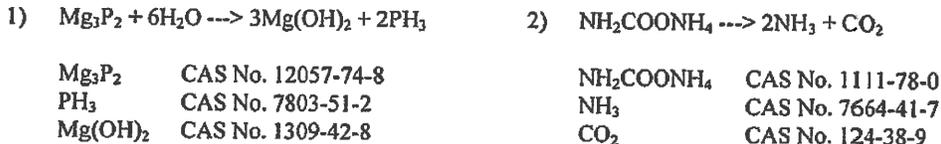
Packaging: Magtoxin is available in porous blister packs called the Magtoxin Prepac Spot Fumigant. Fumi-Cel is produced by impregnating magnesium phosphide into polyethylene in the form of a 117g plate, each plate liberating 33g of hydrogen phosphide. The Fumi-Strip is formed by attaching together, end-to-end, 20 of the Fumi-Cel plates. Fumi-Cel and Fumi-Strip do not liberate carbon dioxide and ammonia. All metal phosphide products are packed in gas-tight containers.

Date of Revision: July 2000

SECTION II - HAZARDOUS INGREDIENTS INFORMATION

Identity:

Magtoxin Spot Fumigant, Fumi-Cel, Fumi-Strip, Magnesium Phosphide, Mg_3P_2 - Reacts with water to produce phosphine (hydrogen phosphide, PH_3) as shown in Equation 1. Magtoxin is formulated with 66% magnesium phosphide and also contains ammonium carbamate and inert ingredients. Ammonium carbamate releases ammonia and carbon dioxide as shown in Equation 2. The Fumi-Cel and Fumi-Strip formulation does not contain ammonium carbamate.



NFPA Chemical Hazard Ratings:

Flammability Hazard 4
Health Hazard 4
Reactivity Hazard 2
Special Hazard W

SARA Physical and Health Hazards:

Fire
Reactivity
Immediate (Acute)

Inhalation Exposure Limits:

Component	OSHA PEL	ACGIH TLV		NIOSH
	TWA (ppm)	TWA (ppm)	STEL (ppm)	IDLH (ppm)
Hydrogen Phosphide*	0.3	0.3	1.0	50
Ammonia	50	25	35	300
Carbon Dioxide	5,000	5,000	30,000	40,000

*EPA limits are 0.3 ppm TWA during fumigation and 0.3 ppm ceiling at all other times.

SECTION III - PHYSICAL CHARACTERISTICS

Boiling Point:

Mg_3P_2 >1000°C
 PH_3 -87.7°C

Specific Gravity of Vapors (Air = 1):

Mg_3P_2 N/A
 PH_3 1.17

Vapor Pressure:

Mg₃P₂ 0mm Hg
 PH₃ 40mm Hg @-129.4°C

Solubility in Water:

Mg₃P₂ Insoluble, reacts
 PH₃ 26cc in 100 ml water at 17°C

Appearance and Odor:

Magtoxin and magnesium phosphide are a dark charcoal gray. The paper covering the polyethylene matrix of the Fumi-Cel and Fumi-Strip is yellow-orange in color. The hydrogen phosphide (phosphine, PH₃) gas produced by these products has an odor described as similar to garlic, carbide or decaying fish.

Specific Gravity:

Mg₃P₂ 2.06

Melting Point:

AIP >1000°C
 PH₃ -133.5°C

SECTION IV - FIRE AND EXPLOSION HAZARD DATA**Flash Point:**

Magnesium phosphide and Magtoxin are not themselves flammable. However, they react readily with water to produce hydrogen phosphide (phosphine, PH₃) gas which may ignite spontaneously in air at concentrations above its LEL of 1.8% v/v. UEL of hydrogen phosphide is not known.

Extinguishing Media:

Suffocate flames with sand, carbon dioxide or dry extinguishing chemicals.

Special Fire Fighting Procedures:

Do not use water on metal phosphide fires.

Respiratory Protection:

Wear NIOSH/MSHA approved SCBA or equivalent respiratory protection.

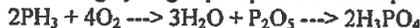
Protective Clothing:

Wear gloves when handling Magtoxin.

Unusual Fire and Explosion Hazards:

Hydrogen phosphide-air mixtures at concentrations above the lower flammable limit of 1.8% v/v, PH₃ may ignite spontaneously. Ignition of high concentrations of hydrogen phosphide can produce a very energetic reaction. Explosions can occur under these conditions and may cause severe personal injury. Never allow the buildup of hydrogen phosphide to exceed explosive concentrations. Open containers of metal phosphides in open air only and never in a flammable atmosphere. Do not confine spent or partially spent dust from metal phosphide fumigants as the slow release of hydrogen phosphide from these materials may result in the formation of an explosive atmosphere. Spontaneous ignition may occur if large quantities of magnesium phosphide or aluminum phosphide are piled in contact with liquid water. This is particularly true if quantities of these materials are placed in moist or spoiled grain which can provide partial confinement of the hydrogen phosphide gas liberated by hydrolysis.

Fires containing hydrogen phosphide or metal phosphides will produce phosphoric acid by the following reaction:

**SECTION V - REACTIVITY DATA****Stability:**

Magnesium phosphide is stable to most chemical reactions, except for hydrolysis. Magtoxin, Fumi-Cel and Fumi-Strip will react with moist air, liquid water, acids and some other liquids to produce toxic and flammable hydrogen phosphide gas. Magnesium phosphide is more reactive than aluminum phosphide and will liberate hydrogen phosphide more rapidly and more completely at lower temperatures and humidities.

Incompatibility:

Avoid contact with water and oxidizing agents.

Corrosion:

Hydrogen phosphide gas may react with certain metals and cause corrosion, especially at higher temperatures and relative humidities. Metals such as copper, brass and other copper alloys, and precious metals such as gold and silver are susceptible to corrosion by phosphine. Small electric motors, smoke detectors, brass sprinkler heads, batteries and battery chargers, fork lifts,

temperature monitoring systems, switching gears, communication devices, computers, calculators and other electrical equipment may be damaged by this gas. Hydrogen phosphide will also react with certain metallic salts and, therefore, sensitive items such as photographic film, some inorganic pigments, etc., should not be exposed.

Hazardous Polymerization:

Will not occur.

SECTION VI - HEALTH HAZARD INFORMATION

Routes of Entry:

The dermal toxicity of magnesium phosphide is very low. The LD₅₀ via the dermal route is estimated to be greater than 5,000 mg per kilogram for a 1-hour exposure. Primary routes of exposure are inhalation and ingestion.

Acute and Chronic Health Hazards:

Magnesium phosphide is a highly acute toxic substance. The LC₅₀ of hydrogen phosphide gas is about 190 ppm for a one-hour inhalation exposure. The acute oral toxicity of the Magtoxin formulation was found to be 9.1 mg/kg of body weight. Magnesium phosphide and phosphine are not known to cause chronic poisoning.

Carcinogenicity:

Magnesium phosphide and phosphine are not known to be carcinogenic and are not listed as such by NTP, IARC or OSHA.

Signs and Symptoms of Exposure:

Magnesium phosphide fumigant products react with moisture from the air, acids and many other liquids to release hydrogen phosphide (phosphine, PH₃) gas. Mild exposure by inhalation causes malaise (indefinite feeling of sickness), ringing in the ears, fatigue, nausea and pressure in the chest which is relieved by removal to fresh air. Moderate poisoning causes weakness, vomiting, pain just about the stomach, chest pain, diarrhea and dyspnea (difficulty in breathing). Symptoms of severe poisoning may occur within a few hours to several days resulting in pulmonary edema (fluid in lungs) and may lead to dizziness, cyanosis (blue or purple skin color), unconsciousness, and death.

Emergency and First Aid Procedures:

Symptoms of overexposure are headache, dizziness, nausea, difficult breathing, vomiting, and diarrhea. In all cases of overexposure get medical attention immediately. Take victim to a doctor or emergency treatment facility.

If the gas or dust from magnesium phosphide is inhaled:

Get exposed person to fresh air. Keep warm and make sure person can breathe freely. If breathing has stopped, give artificial respiration by mouth-to-mouth or other means of resuscitation. Do not give anything by mouth to an unconscious person.

If magnesium phosphide pellets or powder are swallowed:

Drink or administer one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, syrup of ipecac. Do not give anything by mouth if victim is unconscious or not alert.

If powder or granules of magnesium phosphide get on skin or clothing:

Brush or shake material off clothes in a well ventilated area. Allow clothes to aerate in a ventilated area prior to laundering. Do not leave contaminated clothing in occupied and/or confined areas such as automobiles, vans, motel rooms, etc. Wash contaminated skin thoroughly with soap and water.

If dust from pellets or tablets gets in eyes:

Flush with plenty of water. Get medical attention.

SECTION VII - SPILL OR LEAK PROCEDURES

Spill Cleanup Procedures:

If possible, dispose of spilled Magtoxin, Fumi-Cel or Fumi-Strip by use according to label instructions. Freshly spilled material which has not been contaminated by water or foreign matter may be replaced into original containers. Punctured flasks, pouches or containers may be temporarily repaired using aluminum tape. If the age of the spill is unknown or if the product has been contaminated with soil, debris, water, etc., gather up the spillage in small open buckets having a capacity no larger than about 1 gallon. Do not add more than about 0.5kg (1 lb.) to a bucket. If on-site wet deactivation is not feasible, transport the uncovered buckets in open vehicles to a suitable area. Respiratory protection will most likely be required during cleanup of spilled magnesium phosphide fumigants. If the concentration of hydrogen phosphide is unknown, NIOSH/MSHA approved SCBA or its equivalent must be worn. Small amounts of spillage, from about 2 to 4 kg (4 to 9 lbs.) may be spread out over the ground in an open area to be deactivated by atmospheric moisture. Alternatively, spilled magnesium phosphide fumigants may be deactivated by the wet method as described in the following.

Wet Deactivation of Spilled Magnesium Phosphide Products:

1. Spilled magnesium phosphide fumigants, Magtoxin, Fumi-Cel and Fumi-Strip, may be deactivated with water. Do not use detergent for the deactivation of these products. Fill the container in which the deactivation is to be performed with water to within a few inches of the top.
2. The spilled material is added slowly to the water. Magtoxin Prepacs, Fumi-Cel or Fumi-Strips may ignite during wet deactivation if they are allowed to float to the surface. Add weights or otherwise ensure that they stay submerged until deactivation is complete. At no time should the deactivation container be covered.
3. Due to the reactivity of magnesium phosphide, additions of spilled product to the water should be made slowly and carefully. This should be done in open air and respiratory protection will probably be required.
4. Allow the mixture to stand, with occasional stirring, for about six hours. Do not cover the container. The mixture will then be safe for disposal.
5. Dispose of the deactivated material, with or without preliminary decanting, at a sanitary landfill or other suitable site approved by local authorities. Where permissible, the deactivation water containing spent dust may be poured into a storm sewer or out onto the ground.

For Assistance:

Contact - DEGESCH America, Inc.
Telephone: (540) 234-9281/1-800-330-2525
Fax: (540) 234-8225
Internet address: <http://www.degeschamerica.com>
E-Mail: degesch@degeschamerica.com
or
Chemtrec: (800) 424-9300

Disposal of Spent Magtoxin, Prepacs, Fumi-Cel and Fumi-Strip:

When being disposed of, spilled or partially reacted magnesium phosphide fumigants are considered hazardous wastes under existing Federal Regulations. If properly exposed, the grayish-white residual dust from Magtoxin and spent Fumi-Cel or Fumi-Strip will not be a hazardous waste and normally contain only a very small amount of unreacted magnesium phosphide. This waste will be safe for disposal. Properly exposed material is not a hazardous waste. However, the residuals from incompletely exposed magnesium phosphide fumigants may require special care.

Since tins, pails and pouches used to package these products are not contacted by metal phosphides, they are not required to be triple rinsed or dry deactivated. Empty tins and pails may be offered for recycling or reconditioning, or punctured and disposed of in a sanitary landfill, or by other procedures approved by state and local authorities.

Some local and state waste disposal regulations may vary from the following recommendations. Disposal procedures should be reviewed with appropriate authorities to ensure compliance with local regulations. Contact your State Pesticide or Environmental Control Agency or Hazardous Waste Specialist at the nearest EPA Regional Office for guidance.

1. Confinement of partially spent fumigant or residual dust, as in a closed container, or collection and storage of large quantities of fumigant may result in a fire or explosion hazard. Small amounts of hydrogen phosphide may be given off from unreacted magnesium phosphide, and confinement of the gas may result in a flash.
2. In open areas, small amounts of spent residual dust may be disposed of on site by burial or by spreading over the land surface away from inhabited buildings.
3. Residuals from magnesium phosphide fumigants may also be collected and disposed of at a sanitary landfill, incinerator or other approved sites or by other procedures approved by Federal, State or Local authorities.
4. From 1 to 2 kg (2 to 4 lbs.) of spent fumigant may be collected for disposal in an open 1-gallon bucket. **Caution:** Do not collect dust in large drum, dumpsters, plastic bags or other containers where confinement may occur. Transport the buckets in an open vehicle for disposal or deactivation.

Deactivation of Partially Spent Magtoxin, Fumi-Cel and Fumi-Strip:

Magtoxin Prepacs, Fumi-Cels or Fumi-Strips which are only partially spent may be rendered inactive by either a "dry" or "wet" deactivation method. The "dry" method entails holding the Prepacs, Cels or Strips out of doors in locked, 30-gallon wire baskets which are available from DEGESCH America, Inc., or your supplier. Protect the partially spent magnesium phosphide fumigants from rain. The deactivated products may then be taken to an approved site for incineration or burial at periodic intervals or whenever the wire container is full. **Caution:** Storage of partially spent magnesium phosphide in closed containers

may result in a fire hazard.

Alternatively, partially spent Prepacs, Fumi-Cels and Fumi-Strips may be treated by the "wet" deactivation method as follows:

1. Fill the container in which the deactivation is to be performed with water to within a few inches of the top. Detergent is not necessary for the deactivation of spent magnesium phosphide fumigants.
2. The spent material is added slowly to the water. Magtoxin Prepacs, Fumi-Cels or Fumi-Strips may ignite during wet deactivation if they are allowed to float to the surface. Add weights or otherwise ensure that they stay submerged until deactivation is complete.
3. Partially spent Magtoxin Prepacs, Fumi-Cels or Fumi-Strips may react quite vigorously during wet deactivation if they were exposed under cold and/or dry conditions or if the fumigation period was shortened. It is suggested that a small portion of the product be tested prior to immersing large amounts of material in water if it is suspected that the product contains considerable unreacted magnesium phosphide.
4. Due to the reactivity of magnesium phosphide, additions to the water should be made slowly and carefully. Deactivation should be carried out in open air and respiratory protection may be required.
5. Allow the mixture to stand for about six hours. Do not cover the container.
6. Dispose of the deactivated material, with or without preliminary decanting, at a sanitary landfill or other suitable site approved by local authorities. Where permissible, deactivation water containing spent dust may be poured into a storm sewer or out onto the ground.

Precautions to be Taken in Handling and Storage:

Store Magtoxin, Fumi-Cel and Fumi-Strip products in a locked, dry, well-ventilated area away from heat. Post as a pesticide storage area. Do not store in buildings inhabited by humans or domestic animals.

Other Precautions:

1. Do not allow water or other liquids to contact magnesium phosphide fumigants.
2. Do not pile up large quantities of magnesium phosphide products during fumigation or disposal.
3. Once exposed, do not confine the fumigant or otherwise allow hydrogen phosphide concentration to exceed the LEL.
4. Open containers of Magtoxin, Fumi-Cel or Fumi-Strip only in open air. Do not open in a flammable atmosphere. Hydrogen phosphide in the head space of containers may flash upon exposure to atmospheric oxygen.
5. See EPA approved labeling for additional precautions and directions for use.
6. Magtoxin, Fumi-Cel and Fumi-Strip are restricted use pesticides due to acute inhalation toxicity of highly toxic hydrogen phosphide (phosphine, PH_3) gas. For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified Applicator's Certification.

SECTION VIII - CONTROL MEASURES

Respiratory Protection:

NIOSH/MSHA approved full-face mask with approved canister for phosphine (hydrogen phosphide, PH_3) may be worn at concentrations up to 15 ppm. At levels above this or when the hydrogen phosphide concentration is unknown, NIOSH/MSHA approved SCBA or equivalent must be worn.

Protective Clothing:

Wear gloves when contact with magnesium phosphide is likely to occur.

Eye Protection:

None required.

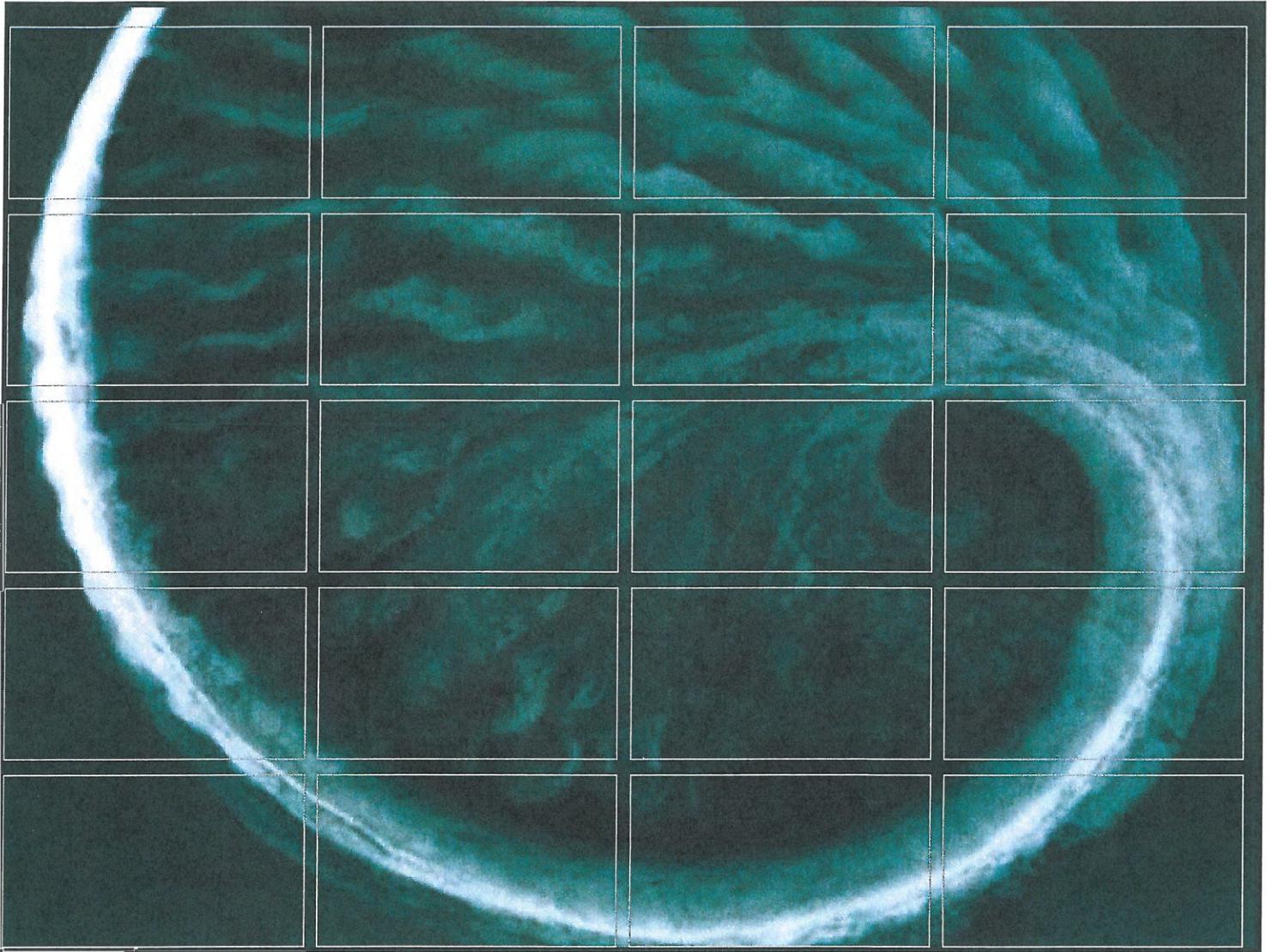
Ventilation:

Local ventilation is generally adequate to reduce hydrogen phosphide levels in fumigated areas to below the TLV/TWA. Exhaust fans may be used to speed the aeration of silos, warehouses, shipholds, containers, etc.

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, expressed or implied, and we assume no responsibility for any loss, damage, or expense, direct or consequential, arising out of their use.

APPENDIX D

**Technical Support Document - Toxic Air Pollutant Modeling
Analysis**



Technical Support Document

**Air Quality Impact Analyses for Phosphine Emissions
from Box Chamber Fumigation Activities**

**Seminis Vegetable Seeds, Inc
Canyon County, Nampa, Idaho**

May 31, 2012

**Air Quality Impact Analyses for
Phosphine Emissions from Box Chamber
Fumigation Activities**

**Seminis Vegetable Seeds, Inc
Canyon County, Nampa, Idaho**

May 2012

Project # 0159228



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INTRODUCTION

Seminis Vegetable Seeds, Inc. (Seminis) is submitting an air permit application to replace an existing box fumigation chamber with a new box fumigation chamber at the plant located at 1811 East Florida Avenue in Nampa, Idaho. The UTM coordinates at the approximate center of the property are 536416 meters E, 48222795 meters N (NAD 83). An aerial view of the facility is provided in Figure 1-1.

As part of the permit application, the State of Idaho Department of Environmental Quality (DEQ) has requested that Seminis perform air quality impact analyses for phosphine emissions resulting from the fumigation activities at the plant to ensure that ambient air concentrations of phosphine comply with the Idaho Administrative Procedure Act (IDAPA) acceptable ambient concentrations (AAC) of 20.0 $\mu\text{g}/\text{m}^3$ (0.02 mg/m^3) for a 24-hour averaging period, as defined in IDAPA 35.01.01.585.

Seminis processes seeds from carrots, beans, peas, onion and sweet corn. Seeds are treated with proprietary chemicals on one of two seed treatment lines. The facility conducts seed fumigation in a fumigation chamber and building fumigation using phosphine gas. The facility also performs "pill fuming" where small pills that liberate phosphine are added to boxes of seeds, and the boxes are covered by waxed cardboard lids. Existing phosphine emission sources in the facility include Building L, Building S, Building T, fumigation chamber, and pea box fumigation. Seminis is planning to decommission the existing box fumigation chamber on the property and add a new two chamber box to achieve the facility's fumigating needs.

The analysis will include atmospheric dispersion modeling using a USEPA-approved model to simulate the downwind transport of phosphine and to estimate maximum concentrations as a result of the phosphine emissions from the new fumigation chamber. The maximum predicted 24-hour predicted concentrations will be compared against the applicable AAC for phosphine.

Section 2.0 presents a description of the fumigation scenarios. Section 3.0 provides a description of the dispersion model protocol, including databases, characterization of the study area, and an emissions inventory of fumigation scenarios for the air quality impacts assessment. Section 4.0 reports the results of the ambient air quality impact analysis and provides interpretation, analysis, and comparison of the predicted concentrations

with the applicable AAC. Section 5.0 summarizes the results of the air quality impact analyses.

Figure 1-1
Aerial View of the Seminis Vegetable Seeds, Inc. Plant



2.0 DESCRIPTION OF THE FUMIGATION SCENARIOS

Seminis is proposing to perform additional fumigation processes in a new fumigation chamber located west of the existing Building T. The new chamber will consist of two chambers directly adjacent to each other and have a combined dimension of 40 feet x 30 feet x 14 feet that will be divided length-wise equally into two separate chambers. Each of the chambers will have a vertical stack from which phosphine emissions will be vented to the atmosphere. Emission rates and source locations of these sources are summarized in Table 2-1. Calculation of phosphine emission rates for the fumigation process are provided in Appendix A.

**Table 2-1
New Chamber Fumigation Emission Inventory**

Source Description	Stack ID	Coordinates (m)		Phosphine Emission Rates (lb/hr)	
		Eastings	Northings	Per Stack	Total
New Chamber	CH Stack 1	536340.80	4822708.95	0.02726	0.0545
	CH Stack 2	536345.48	4822707.03	0.02726	

Figure 2-1 depicts a plot plan of the Seminis plant. The locations where fumigation is anticipated to occur are labeled on the plot plan.

Figure 2-1
Plot Plan of the Seminis Vegetable Seeds, Inc. Plant



3.0

DISPERSION MODEL, DATABASES, AND ANALYSES FOR AIR QUALITY IMPACT EVALUATION

Air quality modeling analyses were performed to assess the ambient air quality impact of the proposed fumigation scenarios. Dispersion modeling analyses were performed to demonstrate compliance with the IDAPA AAC of 20.0 $\mu\text{g}/\text{m}^3$ for 24-hour average phosphine concentrations off-site. A detailed description of the modeling approach and data requirements for the assessment of the air quality impact due to the fumigation scenarios is included in this section.

3.1

DESCRIPTION OF AIR QUALITY DISPERSION MODEL

The modeling was performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), version 12060. AERMOD is an EPA-approved, steady state Gaussian plume model capable of modeling multiple sources in simple and complex terrain. AERMOD is the model currently approved for industrial sources. Regulatory default settings were used, including the following:

- receptor elevations and hill scales
- boundary layer parameters calculated by AERMET
- regulatory default model parameters, including:
 - calm and missing data treatment
 - buoyancy induced dispersion
 - stack-tip downwash
 - direction specific building downwash

Some elevated emission sources of the fumigation activities at the plant may be influenced by building induced aerodynamic downwash. Since downwash is a function of projected building width and height, it is necessary to account for the changes in building projection as they relate to changes in wind direction. Once these projected dimensions are determined, they can be used as input to the AERMOD model.

In October 1994, the United States Environmental Protection Agency (USEPA) released an updated Building Profile Input Program (BPIP) that utilizes the Plume Rise Model Enhancements or "PRIME" algorithms. The BPIP (version 04274) program contains improved plume rise and building downwash algorithms to determine wind direction - dependent building dimensions. The BPIP algorithms have been incorporated into the commercially available BEEST GEP-BPIP program.

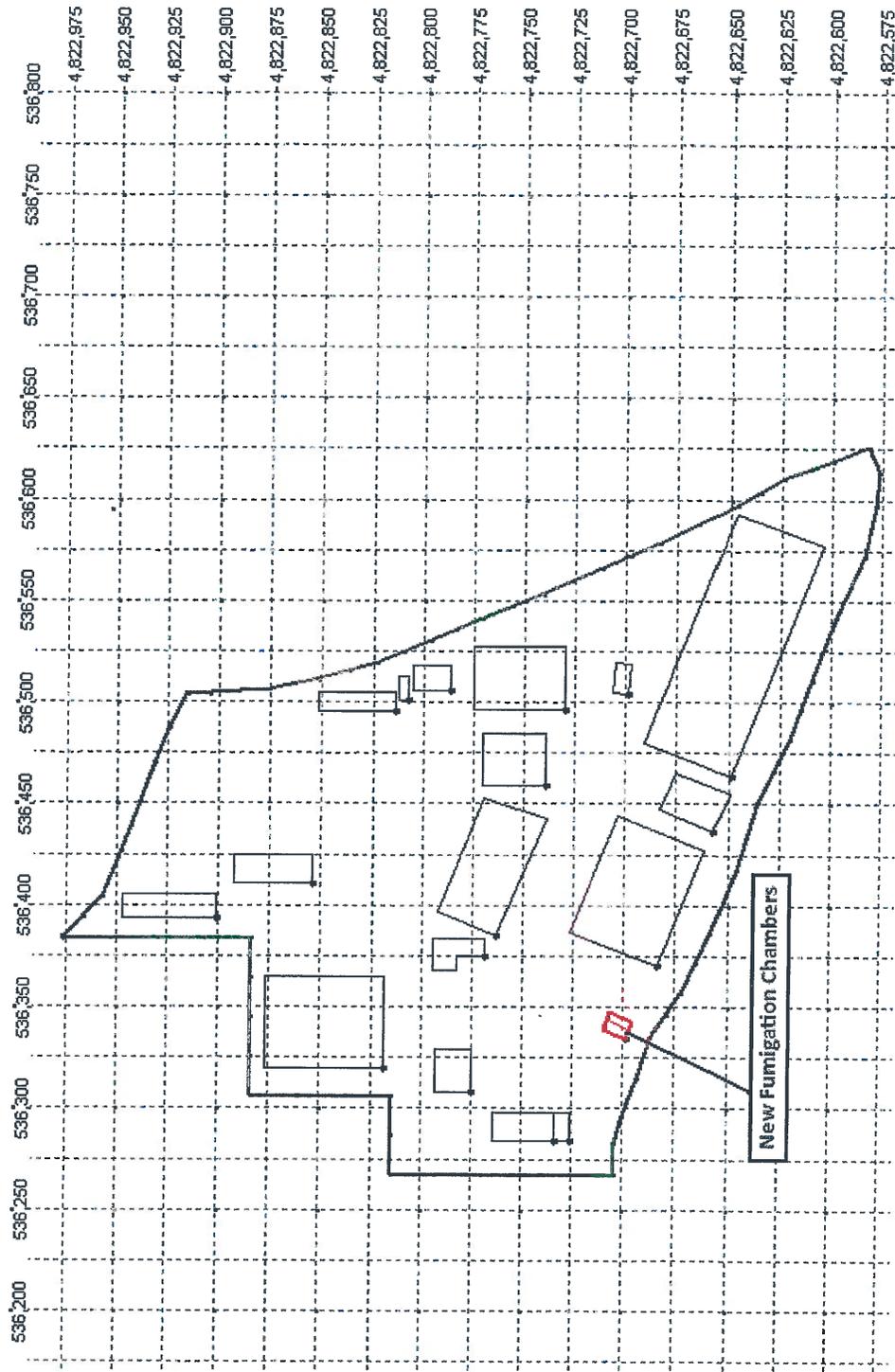
The BPIP program builds a mathematical representation of each building to determine projected building dimensions and its potential zone of influence. These calculations are performed for 36 different wind directions (at 10 degree intervals). For example, the BPIP building dimensions for a wind direction orientation of 30 degrees are used for wind directions between 26 and 35 degrees. If the BPIP program determines that a source is under the influence of several potential building wakes, the structure or combination of structures which has the greatest influence ($H_b + 1.5 L_b$) was selected for input to the AERMOD model. Conversely, if no building wake effects are predicted to occur for a source for a particular wind direction, or if the worst-case building dimensions for that direction yield a wake region height less than the source's physical stack height, building parameters are set equal to zero for that wind direction. The building wake criteria influence zone is $5 L_b$ downwind, $2 L_b$ upwind, and $0.5 L_b$ crosswind. These criteria are based on the recommendations by the USEPA.

Building dimensions, input to the model for the Seminis plant, are presented in Table 3-1. The dryer structures (Structures A through I as depicted in Figure 2-1) are not considered in the analysis because they have no side walls, thus wind flow is not impeded in and around their locations. Figure 3-1 illustrates the emission sources in relation to building structures and property boundary as input into the dispersion model.

**Table 3-1
Building Dimensions Used in the Modeling Analyses**

Number	Building Name	Dimension (feet)		
		Peak Height	Length	Width
1	Building L	25	190	150
2	Building T	30.5	200	150
3	Building S	30.5	400	150
4	Moisturizer	20	90	65
5	Research	14	100	45
6	Office	14	70	60
7	Analysis	16	80	50
8	Building M	35	200	100
9	Building N	35	100	85
10	Pea & Bean Receiver	24	50	24
11	Building P	31	150	100
12	Shop/Break Room	18	60	40
13	Sheller	21	125	30
14	Husker	19	125	40
15	Building I	22	150	40
16	Cob	21	40	16
17	Research Addition	14	45	26
18	New Fumigation Chambers	14	40	30

Figure 3-1.
Emission Sources in Relation to Building Structures and Property Boundary



3.2 *DATABASES FOR AIR QUALITY EVALUATION*

The databases required for input to the dispersion model included source emission data, meteorological data, receptor points, and terrain heights for all sources, buildings, and receptors.

3.2.1 *Emission Inventory Data*

The emission inventory of the proposed fumigation operation is presented in Table 3-2. Emission calculations are provided in Appendix A.

3.2.2 *Meteorological Data*

Meteorological data used in the dispersion modeling analyses consisted of 5 years (2005-2009) of surface and upper air observations at the Boise Airport National Weather Service (NWS) station in Boise, Idaho. These meteorological data were processed by DEQ to create the necessary surface data and atmospheric profile data for use by AERMOD.

3.2.3 *Receptor Grids*

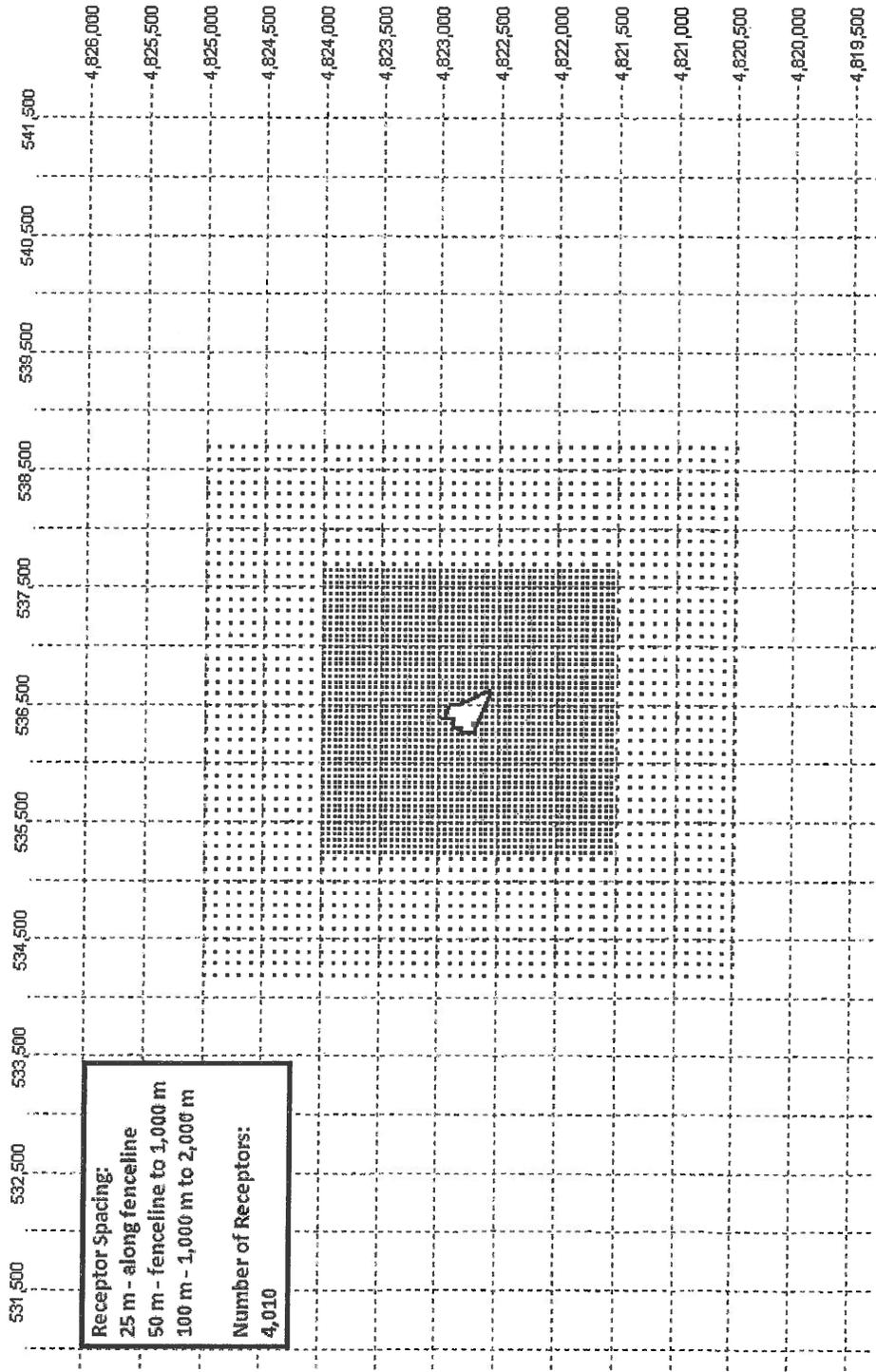
The receptor grid for the AERMOD dispersion modeling analyses was designed to identify the maximum air quality impact due to the proposed fumigation processes. The grid consists of 4,010 receptors extending to 2 kilometers from the Seminis plant. Since the facility has stack heights less than GEP stack height, building downwash will result in maximum predicted concentrations near the facility boundary.

The receptor spacing is as follows:

1. 25-meter spacing along the facility fence-line;
2. 50-meter spacing fence line to 1,000 meter;
3. 100-meter spacing from 1,000 m to 2,000 meter.

The complete receptor grid is shown in Figure 3-3. The latest version of the AERMAP program (version 11103), with terrain National Elevation Dataset (NED) TIF files will be used to develop hill scale and terrain elevation inputs for each receptor. All coordinates will be based on the NAD83 datum.

Figure 3-2.
Receptor Grid for Ambient Air Quality Impact Analyses



3.3

METHODOLOGY FOR AIR QUALITY MODELING

The emission from the fumigation sources will be modeled to determine maximum predicted off-site concentrations at each receptor in the model. In order to compare against IDEQ's AAC, the highest 24-hour average phosphine concentration over the historical 5-year meteorological data previously identified will be used as comparison to the phosphine AAC of 20.0 ug/m³.

4.0

AMBIENT AIR QUALITY IMPACT ASSESSMENT

Air quality dispersion modeling analyses to support the fumigation activities at the Seminis plant for the fumigation scenarios are presented below. A compact disc of the model input and output is available in Appendix B.

4.1

SUMMARY OF MODELING RESULTS FOR FUMIGATION SCENARIOS

Table 4-1 presents the dispersion modeling results for the new chamber fumigation. The maximum predicted 24-hour average phosphine concentration is 3.81 µg/m³. This includes having two vertical unobstructed stacks with a release height 20 feet above grade. This fumigation process is in compliance with the 24-hour phosphine AAC of 20 µg/m³.

**Table 4-1
Maximum Predicted Phosphine Concentrations
Due to New Chamber Fumigation Processes**

Averaging Period		Maximum Predicted Concentration	Easting	Northing	Time		
		(µg/m ³)	(m)	(m)	Month	Day	Hour
24-Hour Highest	2005	3.25	536267.4	4822748.3	02	23	24
	2006	3.40	536267.4	4822748.3	10	19	24
	2007	3.81	536267.4	4822748.3	01	18	24
	2008	3.74	536267.4	4822748.3	10	29	24
	2009	3.56	536267.4	4822748.3	02	04	24

5.0

SUMMARY AND CONCLUSIONS

Air quality modeling analyses were performed to assess the ambient air quality impact of a new box fumigation chamber at the Seminis Vegetable Seeds, Inc. plant in Nampa, Idaho. Dispersion modeling analyses using AERMOD were performed to demonstrate compliance with the IDAPA AAC of 20.0 $\mu\text{g}/\text{m}^3$ for 24-hour average phosphine concentrations off-site.

Modeling predicted maximum 24-hour phosphine concentrations for the new chamber fumigation processes below the phosphine AAC. Therefore, the new chamber fumigation processes is in compliance with the 24-hour phosphine AAC of 20 $\mu\text{g}/\text{m}^3$.

Appendix A

Phosphine Emission Calculations

New Fumigation Operations Emission Rate Calculations

<u>New Fumigation Chambers</u>		
Number of fumes		
3 day fume + 1 day vent = 4 day total	4	days
Max Fume per year = $365/4 = 91$	91	fumes/year
Chamber configuration	2	sides
Plates per side	9	plates
Phosphine per plate	33	grams
Phosphine vented per side (assumes 24 hour vent after fuming)	12.375	grams/hr
	0.02726	lbs/hr
Total for Future Fumigation Chamber Configuration	0.05452	lbs/hr

Appendix B

Dispersion Model Input and Output

CD submittal with

Dispersion Model Input and Output