NWI-RI151-003 (Rev1)

Air Impact Modeling Analysis for the Fabri-Kal Facility in Burley, ID

Burley, Idaho
Facility Permit No. < to be determined >

August 2016
(Revision 1)

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1.0 Summary

This air impact modeling analysis has been prepared for Fabri-Kal in support of the construction air permit application for the full buildout of the thermoforming facility located in Burley, Idaho. Based on the analysis and results presented in the following sections of this report, the Fabri-Kal facility under the operational conditions included in the permit application will maintain compliance with all applicable ambient air quality standards and maximum allowable concentrations.

A pre-application meeting was held via teleconference on July 2, 2015 during which the State identified requirements and guidance for an air impact modeling analysis. Construction and operation of the facility is being implemented in two phases over several years. The facility is currently operating under the first building phase. The proposed second phase, for which this air permit application has been submitted, will complete the full buildout of the facility scheduled to occur in 2017. The facility emission sources include raw material handling, heating processes, space heating, and an emergency generator.

On November 16, 2015, and prior to performing the impact analysis, an air dispersion modeling protocol describing the proposed emission sources and analysis methodology was submitted to the Idaho Department of Environmental Quality (IDEQ). The protocol was accepted by IDEQ on December 10, 2015 pending incorporation of comments. The approval letter and protocol are provided in Appendix A.

Revisions to the proposed Potential-To-Emit (PTE) emissions inventory have occurred since the modeling protocol was submitted and approved. The updated emissions inventory and emission calculations are provided in Appendix B. The PTE emission levels and hourly emission rates were based on capacity operation for 8,760 operating hours per year with the exception of the emergency shutdown heaters and generator which are being permitted with restricted annual operating hours.

Facility-wide PTE hourly emission rates were compared to IDEQ screening emission levels. Any pollutant with an emission rate exceeding the screening level must be included in dispersion modeled is required with the permit application. The applicable averaging period for each of these pollutants is also listed.

<u>Criteria Pollutants</u>

- NOx .....1-hr & Annual
- PM10 ..... 24-hr
- PM2.5 .....24-hr & Annual

<u>Idaho Toxic Air Pollutants (TAPs)</u>

- Arsenic .....Carcinogen TAP.....Annual
- Cadmium .....Carcinogen TAP.....Annual
- Formaldehyde .....Carcinogen TAP.....Annual
- Nickel .....Carcinogen TAP.....Annual

Since this is a new facility that has never been modeled, a <u>Significant Impact Analysis</u> was not performed. Instead, a <u>Cumulative NAAQS Impact Analysis</u> was performed to demonstrate compliance with all applicable air quality standards.

The US EPAs AERMOD air dispersion modeling system was used to perform the air quality impact analysis. For the criteria pollutants, the modeling results were added to ambient background concentrations (provided by IDEQ) and compared to the applicable National Ambient Air Quality Standards (NAAQS). For the carcinogenic TAPs, the modeling results were compared to the Idaho Acceptable Ambient Concentrations for Carcinogens (AACCs).

The dispersion modeling as detailed in this report was based on the following guidance documents from the IDEQ and EPA air modeling websites:

- State of Idaho Guideline for Performing Air Quality Impact Analyses
- AERMOD Users Guide and Addendum (version 15181)
- EPA Clarification Memos (Modeling Guidance for PM2.5, 1-hour NO2, and 1-hour SO2)
- 40 CFR 51 Appendix W – Guideline on Air Quality Models.

2.0 Project Description and Background

2.1 General Facility Description

Fabri-Kal is proposing to construct and operate a 100,000 square foot design and manufacturing facility for ag-based and plastic packaging solutions for the foodservice, consumer product, and retail markets. Wheat and soy straw, sodium hydroxide, and polypropylene pellets are the raw materials. Natural gas will be combusted to supply process heat for material preparation and thermoforming, space heating, and emergency power. Material handling and natural gas combustion will result in air emissions.

The process includes the following types of equipment: storage silos (for polypropylene pellets), hammer mill grinder (for wheat and soy straw), cooking tank, extruder, process boilers, process heaters (furnaces and infrared heaters), air handling units, emergency process shutdown heaters, and an emergency generator. Natural gas will be the only fuel for heating and emergency power.

Raw ag-fiber material is received by truck in the form of wheat and soy straw bales. It is then ground into short pieces. The grinding occurs outside in a covered bunker attached to the main building. Ground straw is loaded into a cooking tank, mixed with hot water and sodium hydroxide, and heated with steam from process boilers. All steam from the cooking process will be vented outside. The pulp slurry is pressed to remove the cooking liquid. It is then rehydrated through a process sequence to achieve the desired fiber length and consistency. The finished pulp is placed in a storage tank that feeds into the thermoforming process. Additional raw material (polypropylene) received by railcar or truck in pelletized form is vacuum unloaded to storage silos. It is then vacuum-fed to an extruder that utilizes heat and pressure to form a thin plastic sheet.

The finished pulp and plastic sheet is fed into thermoforming machines where a vacuum forms the product shape. Plastic product is cooled with water, dried, trimmed to the final shapes, stacked, and box packed. Trimmed waste is reground and pneumatically fed back into the production line.

2.2 Facility Location

The facility location is approximately 1 mile southwest of the city center as shown on Figure 1. Its address and coordinates are:

<u>Address</u>

- 2457 Washington Avenue
  Burley ID 83318

<u>Coordinates</u>

- Lat/Long 42° 31’ 38” N, 113° 48’ 42” W (approx. center of proposed site)
- UTMs Zone 12, 269.017 km East, 4712.107 km North
  (Note that the UTM coordinates have been refined based on IDEQ review and comments on the originally submitted air impact modeling analysis).

Burley is a small city situated in south central Idaho along the Snake River (see Figure 1). Most of the city lies in Cassia County, with only a small portion extending northward into Minidoka County. The population is just over 11,000 within the city boundaries and about 43,000 within these two counties. The terrain is relatively flat ranging in elevation between 4,150 and 4,250 ft above sea level within 5-10 kilometers of Burley, and then gently sloping to 4,400 ft at the base of the Albion mountain range 15 km to the southeast (SE) and further to the south (S). The mountain peaks range in elevation from 4,600 (17 km SE) to 10,339 ft (Cache Peak, 40 km S).

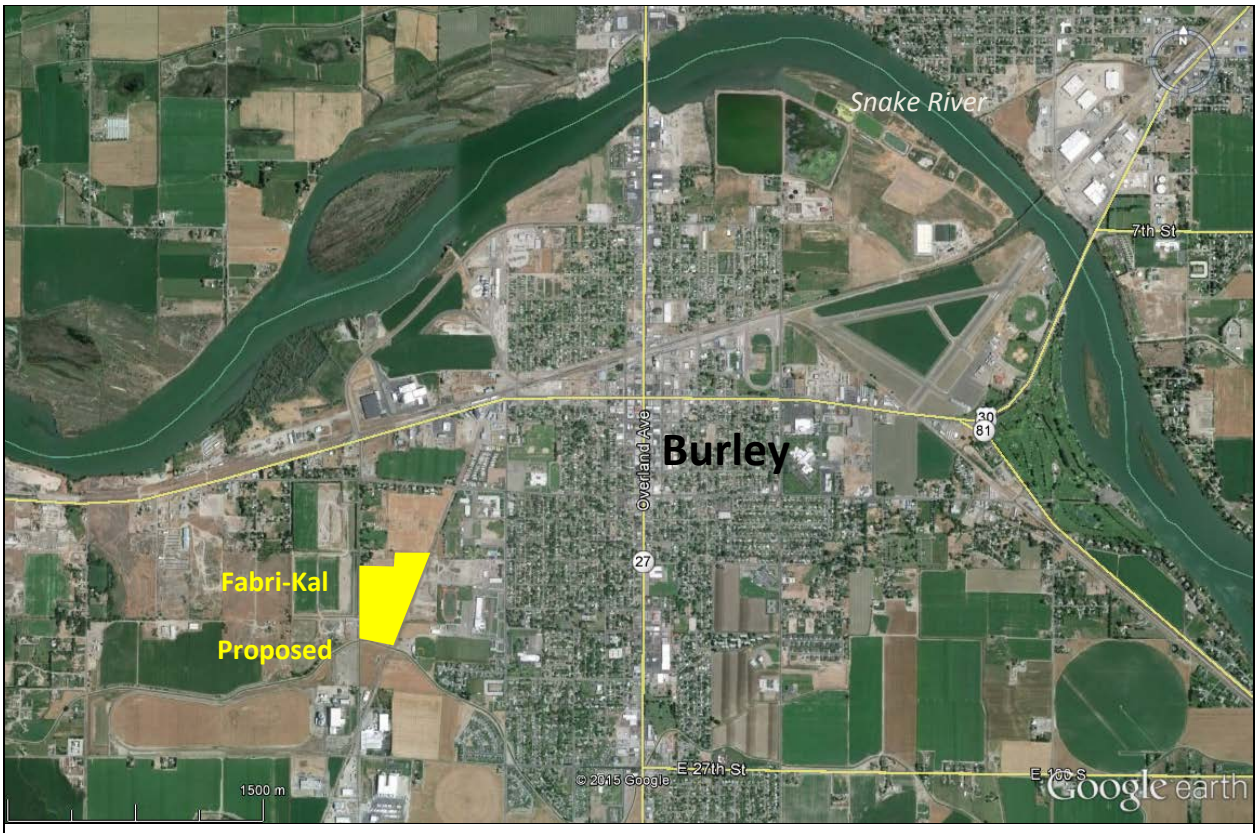


Figure 1 – Site Location in Burly, Idaho

2.3 Existing Permits and Modeling Analyses Performed

There are no permits currently existing for the facility, and air quality modeling has not been previously performed.

3.0 Modeling Analysis Applicability and Protocol

A demonstration that a facility will be in compliance with applicable air quality standards is generally required with an air permit application. This is typically done through an emissions assessment and air dispersion modeling analysis.

The general approach for determining applicability and compliance with air quality standards is summarized below:

(1) All emission sources at the facility submitting the air permit application that emit a criteria pollutant and/or an Idaho TAP are to be considered in the evaluation.

(2) Facility-wide PTE emission rates, both in terms of maximum hourly and annual average hourly, are calculated and compared to respective screening emission levels to identify pollutants of concern.

(3) Pollutants of concern are identified as those which have a facility-wide PTE emission rate exceeding the respective screening emission levels listed in IDEQ dispersion modeling guidance or ID regulations.

(4) Pollutants of concern must be included in an air dispersion modeling analysis. All other emitted pollutants are deemed to be in compliance with the applicable ambient air quality standard or allowable ambient concentration based on screening.

(5) For the pollutants of concern, all sources contributing to the facility-wide PTE emissions of these pollutants must be included in dispersion modeling with the following exceptions:

    (a) Exclusion – NOx emissions from emergency power equipment that is intended to operate intermittently 100 hr/yr or less were excluded from the cumulative NAAQS analysis for 1-hour NO2 (see the *Idaho Guideline for Performing Air Quality Impact Analysis – Appendix A – Guidance for 1-Hour NO2 Modeling of Intermittent Sources*). Since the facility will be requesting a permit limit of 100 hr/yr operation for the natural gas-fired Emergency Generator, this source met the conditions for exclusion from the 1-hr NOx modeling analysis.

    (b) Exclusion – TAP emissions from sources covered under a NESHAP were excluded from dispersion modeling. Since the natural gas-fired Emergency Generator is subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, subpart ZZZZ), this source met the conditions for exclusion of its TAP from the modeling analysis.

(6) Results from the dispersion modeling are compared to the applicable air quality standards to determine the facility's air quality compliance status. For criteria pollutants, ambient background concentrations are fist added to the model results before comparing to the regulatory limit.

3.1 Applicable Standards

Criteria Pollutants

Air emissions of criteria pollutants emitted by the facility must be demonstrated to be in compliance with the applicable National Ambient Air Quality Standards (NAAQS) listed in **Table 1**. Note that the NAAQS are specific to pollutants and averaging periods. Additional information relevant to a dispersion modeling analysis is also provided in **Table 1**.

Table 1 – Applicable Regulatory Limits – Criteria Pollutants

Pollutant	Screening (A) Emission Level (lb/hr)	Averaging Period	Significant Impact Level ($\mu g/m^3$)	NAAQS (B) Regulatory Limit ($\mu g/m^3$)	Dispersion Modeling (C) Design Value for Full Impact Analysis
Carbon Monoxide (CO)	15	1-hour	2,000	40,000	Maximum 2nd highest
		8-hour	500	10,000	Maximum 2nd highest
Nitrogen Dioxide (NO2)	0.20	1-hour	7.5	188	Mean of maximum 8th highest
		Annual	1.0	100	Maximum 1st highest
PM10	0.22	24-hour	5.0	150	Maximum 6th highest
PM2.5	0.054	24-hour	1.2	35	Mean of maximum 8th highest
		Annual	0.3	12	Mean of maximum 1st highest
Sulfur Dioxide (SO2)	0.21	1-hour	7.8	196	Mean of maximum 4th highest
		3-hour	25	1,300	Maximum 2nd highest
Lead (Pb)	0.019	3-month Rolling	-	0.15	Maximum 1st highest
Ozone (O3)	(Not emitted by the facility)				

(A) Screening emission level values shown are the Level 1 modeling thresholds for criteria pollutants as listed in *Table 2 of the State of Idaho Guideline for Performing Air Quality Impact Analyses*. Level 1 thresholds are emission rates below which modeling will not be required in most instances. Thorough justification for using Level 1 thresholds is not generally required.
(B) NAAQS listing as of August 2016 (Source – https://www.epa.gov/criteria-air-pollutants/naaqs-table)
(C) Application of the dispersion modeling design values is discussed in Section 5.0 – Modeling Methodology.

Idaho Toxic Air Pollutants

Air emissions of Idaho TAPs emitted by the facility from sources must be demonstrated to be in compliance with the applicable allowable ambient concentrations (AACs or AACCs) for TAPs. These are designated in Idaho Air Rules Section 585 for non-carcinogenic TAPs (AACs) and in Section 586 for carcinogenic TAPs (AACCs). IDEQ exempts from air modeling analyses any TAP emissions from sources subject to a federal National Hazardous Emissions Standard for Hazardous Air Pollutants (NESHAPs) or Maximum Achievable Control Technology (MACT) regulation. **Table 2** lists the Idaho TAPs applicable to the non-exempt Fabri-Kal emission sources along with the standards and dispersion modeling considerations (see also Appendix B Table B-3 and Table B-4).

Table 2 – Applicable Regulatory Limits – Idaho TAPs

Pollutant	Screening [(A)] Emission Level (lb/hr)	Averaging Period	AAC [(B)] (μg/m^3)	AACC [(B)] (μg/m^3)	Dispersion Modeling [(C)] Design Value for Full Impact Analysis
Non-Carcinogenic (from Idaho Air Rules Section 585)					
Barium	0.033	24-hour	0.025	-	Maximum 1st highest
Chromium	0.033	"	0.025	-	"
Cobalt	0.0033	"	0.0025	-	"
Copper	0.013	"	0.01	-	"
Dichlorobenzene (as 1,4-)	30	"	22.5	-	"
Hexane	12	"	9	-	"
Manganese	0.067	"	0.05	-	"
Molybdenum	0.333	"	0.25	-	"
Naphthalene	3.33	"	2.5	-	"
Pentane	118	"	88.5	-	"
Selenium	0.013	"	0.01	-	"
Toluene	25	"	18.75	-	"
Vanadium	0.003	"	0.0025	-	"
Zinc	0.667	"	0.5	-	"
Carcinogenic TAPs (from Idaho Air Rules Section 586)					
Arsenic	1.50E-06	Annual	-	2.3E-04	Maximum 1st highest
Benzene	8.00E-04	"	-	1.2E-01	"
Benzo(a)pyrene	2.00E-06	"	-	3.0E-04	"
Beryllium	2.80E-05	"	-	4.2E-03	"
Cadmium	3.70E-06	"	-	5.6E-04	"
Formaldehyde	5.10E-04	"	-	7.7E-02	"
3-Methylchloranthrene	2.50E-06	"	-	3.7E-04	"
Nickel	2.70E-05	"	-	4.2E-03	"
PAH (except 7-PAH group)	9.10E-05	"	-	1.4E-02	"
POM (7-PAH group)	2.00E-06	"	-	3.0E-04	"

(A) Threshold screening level values shown are from Idaho Air Rules Section 585 for non-carcinogenic TAPs and Section 586 for carcinogenic TAPs. The is the Level 1 modeling threshold for criteria pollutants as listed in *Table 2 of the State of Idaho Guideline for Performing Air Quality Impact Analyses*. Level 1 thresholds are emission rates below which modeling will not be required in most instances. Thorough justification for using Level 1 thresholds is not generally required.

(B) AAC – Acceptable Ambient Concentration for non-carcinogenic TAPs from Idaho Air Rule Section 585. AACC – Acceptable Ambient Concentration for carcinogenic TAPs from Idaho Air Rule Section 586.

(C) Application of the dispersion modeling design values is discussed in Section 5.0 – Modeling Methodology.

3.2 Criteria Pollutant Modeling Applicability

Maximum hourly and annual average hourly emission rates are compared to screening emission levels in Appendix B Table B-3 and Table B-4 to identify the pollutants that must be included in dispersion modeling. The results of this comparison are summarized below in **Table 3** for the criteria pollutants.

Table 3 – Modeling Applicability – Criteria Pollutants

Criteria Pollutant	Averaging Period	Modeled (yes/no)	Basis for Exclusion from Modeling
CO	1-hour, 8-hour	No	Max Hourly Emission Rate Below Level 1 Threshold
NO2	1-hour, Annual	**YES**	-
PM10	24-hour	**YES**	-
PM2.5	24-hour, Annual	**YES**	-
SO2	1-hour, 3-hour	No	Max Hourly Emission Rate Below Level 1 Threshold

3.3 TAP Modeling Applicability

Maximum hourly and annual average hourly emission rates are compared to screening emission levels in Appendix B Table B-3 and Table B-4 to identify the pollutants that must be included in dispersion modeling. The results of this comparison are summarized below in **Table 4** for the Idaho TAPs.

Table 4 – Modeling Applicability – TAPs

Criteria Pollutant	Averaging Period	Modeled (yes/no)	Basis for Exclusion from Modeling
Non-Carcinogenic (from Idaho Air Rules Section 585)			
Barium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold\
Chromium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Cobalt	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Copper	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Dichlorobenzene (as 1,4-)	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Hexane	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Manganese	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Molybdenum	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Naphthalene	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Pentane	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Selenium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Toluene	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Vanadium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Zinc	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Carcinogenic TAPs (from Idaho Air Rules Section 586)			
Arsenic	Annual	**YES**	-
Benzene	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Benzo(a)pyrene	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Beryllium	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Cadmium	Annual	**YES**	-
Formaldehyde	Annual	**YES**	-
3-Methylchloranthrene	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Nickel	Annual	**YES**	-
PAH (except 7-PAH group)	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
POM (7-PAH group)	Annual	No	Avg Hourly Emission Rate Below Screening Threshold

3.4 Modeling Protocol

A modeling protocol was submitted to IDEQ prior to the application, on November 16, 2015. The protocol was submitted by North Wind Resource Consulting. Conditional IDEQ protocol approval was received on December 10, 2015. The project-specific modeling analysis was conducted using data and methods described in the protocol and in the Idaho Air Quality Modeling Guideline. The protocol and approval notice is included in Appendix A.

Concerns identified by DEQ in the protocol approval notice have been addressed in the analyses performed and in this Modeling Report as follows:

- Comment 1 – Release Parameters:
  Documentation and justification of release parameters are provided in the application.

- Comment 2 – Emergency Generator Emissions:
  Operating limit of 100 hr/yr has been requested for this source in the application. Therefore, NOx emissions from the generator qualify for exemption from the 1-hr NO2 NAAQS modeling per IDEQ guidelines. However, the NOx emissions have been included in the Annual NO2 NAAQS. In addition, since the emergency generator is subject to the requirements of the NESHAP for stationary reciprocating internal combustion engines (40 CFR 63, subpart ZZZZ), the TAP emissions from the generator are also exempt from modeling.

- Comment 3 – Ambient Air Boundary:
  The ambient air boundary has been redefined as the property line based on the following discussion submitted to IDEQ by Saige Ballock-Dixon (North Wind Resource Consultants) via email on December 15, 2015 and approved by Thomas Swain (IDEQ Air Quality Division) via email on January 12, 2016.

  "*The facility is located in a rural area with farmland to the west, southwest and northeast. A farm area with buildings and residence exists to the north. School sports fields exist to the east, but are separated by approximately one quarter mile and a fenced borrow material area. The school is located to the east of the sports fields and people from the school are not expected to access the facility property. The facility is located on the outskirts of the city in farmland near other industrial buildings (half mile to the south). Due to these reasons it is not likely that the general public will access the facility property. No trespassing signs will be posted around the property and site personal will periodically check the area and ask any trespassers to leave the property.*"

- Comment 4 – Meteorology:
  Data from Burley Idaho airport for the period 2008-20012 is deemed appropriate by IDEQ and was used in the modeling.

- Comment 5 – Roof Vents:
  Roof vents for air handling units have been redefined as individual point sources equipped with raincaps instead of being treated collectively as an area source. Since reliable flow rate data is not available for these roof vents, an exit velocity of 0.001 m/sec was conservatively applied in the modeling. Also, reliable flow rate data is not available for the furnace units which are equipped with vertical stacks without raincaps. An exit velocity of 1.00 m/sec was applied in the modeling for the furnace units.

- Comment 6 – Ambient Background Concentrations:
  IDEQ provided updated ambient background concentrations to use in the cumulative NAAQS analysis. These values were provided in an email from Thomas Swain (IDEQ Air Quality Division) on February 18, 2016 and were obtained from the Northwest International Air Quality Environmental Science and Technology Consortium' s NW AIRQUEST tool via. These ambient background values are applicable to Latitude 42.529°N and Longitude 113.91°W.

- Comment 7 – Emissions Data:
  The emissions inventory for this project have been revised since submittal and approval of the protocol. The updated emission inventory, complete with detailed emission calculations, are provided in Appendix B of this air impact modeling analysis document. These emission calculations are also included in the permit application for IDEQ's review.

- Comment 8 – Ground Elevation Data:
  The base elevation for the two facility buildings was determined as 4183 ft MSL (1275.0 m) from survey data provided on facility drawings. This value was used for the buildings and source base elevations in the dispersion modeling. This value was also confirmed by AERMAP which provided a ground elevation of 1274.74 m for the approximate facility center coordinates of 269.017 km East, 4712.107 km North.

- Comment 9 – Ambient Ratio Method (ARM) for NOx to NO2 Conversion:
  The modeling for 1-hr and annual NO2 NAAQS was performed using NOx emission rates as input to AERMOD. The ARM adjustment factors of 0.80 for 1-hour NO2 and 0.75 for annual NO2 were then applied after modeling with the NOx emission rates. The application of the ARM adjustment factor is presented in modeling results table in this document.

- Comment 10 – IDEQ Modeling Report Template:
  The IDEQ modeling template has been used for this modeling analysis report.

4.0 Modeled Emission Sources

The modeled emission sources are identified along with their annual operating hours in **Table 5** (see Appendix B Table B-1 for additional source detail). Operating limits of 500 hours per year for each emergency shutdown heater and 100 hours per year for the emergency generator are being requested in the permitting process. All other emission sources are being permitted to potentially operate up to 8,760 hours per year. The boilers are equipped with reduced NOx burners and the air handling units are equipped with low NOx burners.

Table 5 – Modeled Emission Sources

Modeling ID	Description	PTE Operation (hr/yr)
Point Sources		
B.1	Boiler 1	8760
B.2	Boiler 2	8760
B.3	Boiler 3	8760
F.A1	Furnace 1	8760
F.A2	Furnace 2	8760
F.A3	Furnace 3	8760
F.A4	Furnace 4	8760
IRH.B1	Infrared Heater 1	8760
IRH.B2	Infrared Heater 2	8760
MAU.A1	Make-Up Air (MAU) Unit 1	8760
MAU.D1	Make-Up Air (MAU) Unit 3	8760
MAU.F1	Make-Up Air (MAU) Unit 4	8760
MAU.F2	Make-Up Air (MAU) Unit 5	8760
UH.B1	Emergency Shutdown Heater 1	500
UH.C1	Emergency Shutdown Heater 2	500
UH.C2	Emergency Shutdown Heater 3	500
UH.C3	Emergency Shutdown Heater 4	500
UH.D1	Emergency Shutdown Heater 5	500
UH.D2	Emergency Shutdown Heater 6	500
UH.F1	Emergency Shutdown Heater 7	500
UH.F2	Emergency Shutdown Heater 8	500
UH.F3	Emergency Shutdown Heater 9	500
EMGEN	Emergency Generator	100
Volume Sources		
GRINDER	Grinding System (Grinder, Bale Feed Conveyor, Conveyor)	8,760

Calculations of PTE emission annual levels and hourly rates are provided in Appendix B. All process heating units and the emergency generator will combust natural gas only. Emission factors from equipment suppliers, AP-42 Section 1.4 (External Combustion – Natural Gas), and AP-42 Section 3.2 (Stationary Internal Combustion – Natural Gas) were applied to these emission units. For the hay grinding operation, no direct AP-42 emission factors were identified. Therefore, emissions from this unit

were estimated using information from AP-42 Section 9.3 (Grain Harvesting). Emissions from the polypropylene processes (storage and heating) were based on WebFire emission factors for Source Classification Code (SCC) 03101811, manufacturer headspace testing for the thermoforming process, and mass balance.

For dispersion modeling, maximum hourly emission rates based on capacity operation were used for short-term modeled averaging periods (i.e., 24-hours or shorter). For long-term modeled averaging periods, annual average hourly emission rates were used. The annual average hourly rates were calculated as:

Average Annual Emission Rate (lb/hr) = Max Hourly Emission Rate (lb/hr) × PTE operation (hr/yr) / 8,760 hr/yr

4.1 Criteria Pollutants

Criteria pollutants that may potentially be emitted at levels above the screening emission levels are required to be modeled. This includes NO2, PM10, and PM2.5 (see **Table 3** and Appendix B Table B-3 and Table B-4).

4.1.1 Modeled Emissions Rates for Significant Impact Level Analyses

A significant impact level analysis has not been performed for this facility since it is a new facility that has never been modeled. Instead, only a cumulative impact analysis has been performed that includes all existing and proposed emission sources.

4.1.2 Modeled Emissions Rates for Cumulative Impact Level Analyses

Emission rates used for the NAAQS cumulative impact analysis are provided in **Table 6** (see also Appendix B Table B-3 and Table B-4). Note that NOx emissions from the Emergency Generator are listed as exempt from the 1-hour NO2 NAAQS analysis per IDEQ guidance for emergency equipment permitted for 100 hr/yr or less.

4.1.3 NO2/NOx Ratio for NOx Chemistry Modeling

The U.S. EPA allows using a Tier 2 Ambient Ratio Method (ARM) for conversion of NOx to NO2 without additional justification by the applicant as follows:

- Annual Average: NO2 = NOx × 0.75 (per 40 CFR 51 Appendix W Section 5.2.4.c)
- 1-Hour Average: NO2 = NOx × 0.80 (per EPA Memorandum, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO2 NAAQS (dated Mar 01 2011).

The dispersion modeling was run using NOx emission rates. The ARM adjustment factors were then applied to the modeling results.

4.1.4 Special Methods for Modeling Criteria Pollutant Emissions

No special or unique methods were used for handling emissions.

Table 6 – Modeled Emission Rates for NAAQS Cumulative Impact Analysis

Modeling ID	Hourly Emission Rate (lb/hr)				
	NOx 1-hour	NOx Annual	PM10 24-hour	PM2.5 24-hour	PM2.5 Annual
Point Sources					
B.1	0.554	0.554	0.047	0.047	0.047
B.2	0.554	0.554	0.047	0.047	0.047
B.3	0.329	0.329	0.025	0.025	0.025
F.A1	0.006	0.006	0.0004	0.0004	0.0004
F.A2	0.006	0.006	0.0004	0.0004	0.0004
F.A3	0.004	0.004	0.0003	0.0003	0.0003
F.A4	0.006	0.006	0.0004	0.0004	0.0004
IRH.B1	0.020	0.020	0.0015	0.0015	0.0015
IRH.B2	0.020	0.020	0.0015	0.0015	0.0015
MAU.A1	0.211	0.211	0.032	0.032	0.032
MAU.D1	0.211	0.211	0.032	0.032	0.032
MAU.F1	0.211	0.211	0.032	0.032	0.032
MAU.F2	0.211	0.211	0.032	0.032	0.032
UH.B1	0.015	0.0008	0.0011	0.0011	0.00006
UH.C1	0.015	0.0008	0.0011	0.0011	0.00006
UH.C2	0.015	0.0008	0.0011	0.0011	0.00006
UH.C3	0.015	0.0008	0.0011	0.0011	0.00006
UH.D1	0.015	0.0008	0.0011	0.0011	0.00006
UH.D2	0.015	0.0008	0.0011	0.0011	0.00006
UH.F1	0.015	0.0008	0.0011	0.0011	0.00006
UH.F2	0.015	0.0008	0.0011	0.0011	0.00006
UH.F3	0.015	0.0008	0.0011	0.0011	0.00006
EMGEN	(exempt)	0.028	0.01	0.01	0.00012
Volume Sources					
GRINDER	-	-	0.027	0.027	0.027

4.2 Toxic Air Pollutants

Idaho TAPs that may potentially be emitted at levels above the screening emission levels are required to be modeled. This includes the carcinogenic TAPs arsenic, cadmium, formaldehyde, and nickel (see **Table 4** and Appendix B Tables B-3 and B-4).

Emission rates used for the TAP impact anaysis are provided in **Table 7** (see also Appendix B Tables B-3 and B-4). Note that the TAP emissions from the Emergency Generator are listed as exempt due to this emission unit being subject to a federal NESHAP.

No special or unique methods were used for handling emissions.

Table 7 – Modeled Emission Rates for TAP Impact Analysis

Modeling ID	Hourly Emission Rate (lb/hr)			
	Arsenic Annual	Cadmium Annual	Formaldehyde Annual	Nickel Annual
Point Sources				
B.1	1.24E-06	6.79E-06	4.63E-04	1.30E-05
B.2	1.24E-06	6.79E-06	4.63E-04	1.30E-05
B.3	6.59E-07	3.62E-06	2.47E-04	6.92E-06
F.A1	1.18E-08	6.47E-08	4.41E-06	1.24E-07
F.A2	1.18E-08	6.47E-08	4.41E-06	1.24E-07
F.A3	7.84E-09	4.31E-08	2.94E-06	8.24E-08
F.A4	1.18E-08	6.47E-08	4.41E-06	1.24E-07
IRH.B1	3.92E-08	2.16E-07	1.47E-05	4.12E-07
IRH.B2	3.92E-08	2.16E-07	1.47E-05	4.12E-07
MAU.A1	8.43E-07	4.64E-06	3.16E-04	8.85E-06
MAU.D1	8.43E-07	4.64E-06	3.16E-04	8.85E-06
MAU.F1	8.43E-07	4.64E-06	3.16E-04	8.85E-06
MAU.F2	8.43E-07	4.64E-06	3.16E-04	8.85E-06
UH.B1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.C1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.C2	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.C3	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.D1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.D2	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.F1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.F2	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.F3	1.68E-09	9.23E-09	6.30E-07	1.76E-08
EMGEN	(exempt)	(exempt)	(exempt)	(exempt)
Volume Sources-				
GRINDER	-	-	-	-

4.3 Emission Release Parameters

Release parameters for the modeled sources are provided in **Table 8** (Point Sources) and **Table 9** (Volume Sources). Source descriptions have been provided in **Table 5**.

Table 8 – Point Source Stack Parameters

POINT SOURCES								
Modeling ID	UTM Coordinates (m)		Base Elevation (m)	Stack Height (m)	Exit Temp (°K)	Exit Velocity (m/s)	Stack Diameter (m)	Release Orientation
	East	North						
B.1	268972	4712104	1275.0	11.1	489.8	4.52	0.41	Vertical
B.2	268977	4712239	1275.0	11.1	489.8	4.52	0.41	Vertical
B.3	268972	4712094	1275.0	11.1	477.6	4.04	0.30	Vertical
F.A1	268971	4712154	1275.0	9.2	338.7	1.00	0.08	Vertical
F.A2	268971	4712144	1275.0	9.2	338.7	1.00	0.08	Vertical
F.A3	268971	4712135	1275.0	9.2	338.7	1.00	0.08	Vertical
F.A4	268970	4712116	1275.0	9.2	338.7	1.00	0.08	Vertical
IRH.B1	269037	4712147	1275.0	9.2	491.5	0.001	0.15	Raincap
IRH.B2	269037	4712127	1275.0	9.2	491.5	0.001	0.15	Raincap
MAU.A1	268994	4712155	1275.0	9.2	295.4	0.001	0.13	Raincap
MAU.D1	269025	4712102	1275.0	9.2	295.4	0.001	0.13	Raincap
MAU.F1	268998	4712291	1275.0	9.2	295.4	0.001	0.13	Raincap
MAU.F2	269030	4712237	1275.0	9.2	295.4	0.001	0.13	Raincap
UH.B1	269024	4712166	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.C1	268973	4712068	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.C2	268974	4712085	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.C3	268973	4712054	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.D1	269037	4712061	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.D2	269038	4712086	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.F1	268979	4712224	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.F2	268978	4712203	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.F3	268977	4712189	1275.0	9.2	463.7	0.001	0.13	Raincap
EMGEN	268963	4712104	1275.0	1.2	866.5	0.001	0.06	Raincap

For point sources, the stack heights and diameters were provided by the project engineer. For the boilers (B Units) ~~and furnaces (F Units)~~, the exit temperature and velocity were also provided by the project engineers, but calculations of these values were not made available to the modeler for inclusion in this report as supporting documentation. For the furnaces (F Units), reliable exhaust data could not be provided by the project engineers. Since these units are equipped with vertical stacks without raincaps, these units were modeled with an exit velocity of 1.00 m/sec which is consistent with IDEQ guidance provided in Comment 5 of the modeling protocol review. For the make-up air units (MAUs), exhaust temperatures could not be provided by the project engineers. Therefore 72°F (equivalent to a normal indoor temperature) was conservatively used. For rooftop exhaust vents associated with infrared heaters (IRH Units), make-up air units (MAU Units), and Emergency Shutdown Heaters (UH Units), exhaust flow rates could not be provided by the project engineers. Therefore, it was conservatively

assumed that these vents were equipped with raincaps and were modeled with an exit velocity of 0.001 m/sec. For the emergency generator, the exhaust temperature and flow rate were obtained from the operating data sheet for the specific spark-ignited generator set engine identified by the project engineers.

Table 9 – Volume Source Release Parameters

POINT SOURCES								
Modeling ID	UTM Coordinates (m)		Base Elevation (m)	Structure Height (m)	Structure Width (m)	Release Height (m)	Lateral Sigma-Y (m)	Vertical Sigma-Z (m)
	East	North						
GRINDER	268977	4712036	1275.0	8.64	24.38	4.32	5.67	4.02

For the volume source, the grinding system will be a ground-based operation located under an open-air roof immediately adjacent to the south end of the main manufacturing building. This grinding operation will be open to the atmosphere on ~~the other three~~ several sides. The height of the open-air roof is 28.4 ft. The horizontal dimensions of the covered grinding area is 80 ft × 80 ft. For modeling of a volume source, the Release Height, Initial Lateral Dimension (Sigma-Y), and Initial Vertical Dimension (Sigma-Z) are used to define the model input values. These are calculated from the volume source structure height and width using the following equations:

- Release Height = Source Structure Height × 0.5
- Lateral Dimension = Source Structure Width / 4.3
- Vertical Dimension = Source Structure Height / 2.15

5.0 Modeling Methodology

A summary of key modeling components in the impact analyses is presented in **Table 10**. Details of these various modeling components are provided in the following subsections.

Table 10 – Summary of Modeling Methodology

Modeling Component	Description/Values	Documentation/Addition Description
General Facility Location	• Rural • Attainment for all NAAQS	Determination of rural environment was made from review of satellite data of the Burley, Idaho area and 3-km surrounding the Fabri-Kal facility site.
Model	• AERMOD	AERMOD with the PRIME downwash algorithm, version 15181.
Meteorological Data	• 24133 surface data • 24131 upper air data	Meteorological data input files for this project were provided by IDEQ Division of Air Quality.
Terrain	• National Elevation Dataset • AERMAP	USGS National Elevation Dataset (NED) digital elevation data was obtained from the Multi-Resolution Land Characteristic (MRLC) Consortium Viewer (http://www.mrlc.gov/viewerjs/) for the Burley, Idaho area and encompassing several kilometers beyond the expanse of the receptor grid established for the modeling analysis. The data was downloaded as a seamless 1/3-arc second (30-m resolution) NED dataset in GeoTiff format that adequately frames the entire receptor grid. AERMAP version 11103 was used to process the NED dataset to determine each receptor's elevation and hill height scale.
Building Downwash	• BPIP-PRM	Plume downwash was considered for the stacks and structures associated with the facility. The BPIP-PRIME program was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
NOx Chemistry	• Ambient Ratio Method	Ambient Ratio Method (ARM) adjustment factors of 0.80 were used for 1-hour NO2 and 0.75 for annual NO2. These factors were applied after modeling with the NOx emission rates.
Receptor Grid	• Grid 1	25-meter spacing along and out to a distance of 50 meters beyond the ambient air boundary [1].
	• Grid 2	50-meter spacing beyond the ambient air boundary and out to a distance of 500 meters from the facility center.
	• Grid 3	100-meter spacing between 500 and 2,000 meters from the facility center.
	• Grid 4	250-meter spacing between 2,000 to 5,000 meters from the facility center.
Ambient Background Concentrations	• NW QUEST Tool	IDEQ provided ambient background concentrations obtained from the NW QUEST tool. The values were applied to the NAAQS cumulative impact analysis.

[1]- Ambient boundary receptor UTM coordinates were revised based on IDEQ review of the original air impact analysis. This revision corrected: (1) an approximately 20-meter westward grid shift of the original receptor coordinates caused be rounding of the facility center UTM coordinates in the original analysis, and (2) a 1° 54' rotational offset between Grid North and True North as identified on the USGS 7.5-minute topographic quadrangle for Burley, ID. North Wind had relied on site engineering drawings based on true north for the original ambient boundary placement. The revised ambient boundary receptor UTM coordinates were then verified with Google Earth imagery dated 06-03-2016.

5.1 Model Selection

The US EPA's AERMOD (version dated 15181) air dispersion modeling system was used for all short-term and long-term NAAQS and TAP modeling. This is the most recent version of the preferred model for performing an air quality impact analysis in support of an air permit application for a typical industrial manufacturing facility. This modeling system consists of the following models and programs:

- AERMOD.....version 15181 .....Dispersion model
- AERMAP.....version 11103 .....Terrain processor
- BPIP-PRM.....version 04274 .....Building profile processor

AERMOD was used in a refined modeling mode since IDEQ provided pre-processed 5-year surface/upper air meteorological data suitable for Burley, ID. The model is very well suited for the flat to gently sloping terrain environment found within 15 km of the proposed site. The AERMAP and BPIP-PRM programs were used to develop terrain and building profile parameters to be used as input to AERMOD.

5.1.1 BPIP-PRM Setup

AERMOD includes algorithms to calculate impacts due to building downwash. These require building/tier profile information generated by Building Profile Input Program (BPIP) with Plume Rise Model Enhancements (PRM). The BPIP-PRM (version dated 04274) utility program provided the required direction-specific building dimensions for near and far wake downwash calculations in AERMOD.

Required inputs to BPIP-PRM are:

- Prime processing switch (i.e., switch set to 'P')
- Building/tier base elevations and corner coordinates
- Stack IDs, base elevations, and coordinates.

Facility stacks the building corners were included in the BPIP-PRM input file using UTM Zone 12 coordinates. The base elevation for buildings and stacks was obtained from site design specifications

The BPIP-PRM output included, for each point source point, 36 direction-dependent building heights, crosswind widths, and stack-building offsets. This direction-dependent information was input to AERMOD for wake downwash calculations.

5.1.2 AERMAP Setup

The AERMAP terrain processor was used to extract the elevation and hill height scale height for each receptor in the modeling analysis. AERMOD uses as input digital U.S. Geological Survey National Elevation Datasets (NED). Required inputs to AERMAP are:

- Domain Coordinates
- Anchor Point Coordinates
- Source/Building Center Coordinates (optional)
- Receptor Coordinates
- Output File Names

The domain includes two coordinates (lower left and upper right) that define the aerial bounds for the analysis area (i.e., the receptor grid) with a sufficient buffer for AERMAP to determine hill scale heights. The anchor point coordinates represent the approximate facility center. Source and building center coordinates can be entered as a way to either establish base elevations to use in the modeling or to double-check elevations obtained from site survey drawings. In this case, it was used as a double check.

AERMAP output includes two files containing coordinates, elevations, and hill height scales: one file for the receptors, and one for the sources/buildings. The receptor file was used as direct input to AERMOD.

5.1.3 AERMOD Setup

AERMOD was used as downloaded from the EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) website (https://www3.epa.gov/scram001/dispersion_prefrec.htm). No third party software (such as Breeze or BEE-Line) was used. AERMOD option settings are summarized below.

- *Program Control*
  - *Regulatory default settings*
  - *Concentration values*
  - *Pollutant ID*
  - *1-hr, 3-hr, 8-hr, 24-hr and annual averaging periods (as applicable)*
- *Sources*
  - *Maximum or Average hourly emission rates for each source (as applicable)*
  - *Direction dependent building dimensions for point sources (BPIP-PRM output)*
  - *Source group = ALL*
- *Receptors*
  - *Discrete receptors for ambient air boundary and off-site locations out to 5 km*
  - *Terrain elevations and hill height scales (AERMAP output)*
- *Meteorology*
  - *5-year meteorology data set (5 individual years or concatenated, as applicable)*
- *Output Control*
  - *Due to the statistical nature of the various NAAQS and AACC evaluated in this analysis, the model was instructed to provide output per the settings in **Table 11**:*

Table 11 – AERMOD Program and Output Control Settings

Pollutant	Average Period	Meteorology	AERMOD Settings		
			Program Control		Output Control
NAAQS Modeling					
NO2	1-hour	5-yr dataset	POLLUTID NO2	AVERTIME 1	RECTABLE ALLAVE EIGHTH
	Annual	Five 1-yr datasets	POLLUTID NO2	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
PM10	24-hour	5-yr dataset	POLLUTID PM10	AVERTIME 24	RECTABLE ALLAVE SIXTH
PM2.5	24-hour	5-yr dataset	POLLUTID PM2.5	AVERTIME 24	RECTABLE ALLAVE FIRST
	Annual	5-yr dataset	POLLUTID PM2.5	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Carcinogenic TAP Modeling					
Arsenic	Annual	5-yr dataset	POLLUTID ARS	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Cadmium	Annual	5-yr dataset	POLLUTID CAD	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Formaldehyde	Annual	5-yr dataset	POLLUTID FOR	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Nickel	Annual	5-yr dataset	POLLUTID NIC	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST

5.2 Meteorological Data

IDEQ has provided the preprocessed National Weather Service (NWS) meteorology for this AERMOD dispersion modeling analysis. It consists of five separate 1-year datasets and a concatenated 5-year dataset of Burley Airport (NWS station 24133) surface data and coincident Boise (NWS station 24131) upper air data for the years 2008-2012.

5.3 Effects of Terrain

The AERMAP terrain processor was used to extract receptor elevation and hill scale heights from a Geological Survey National Elevation Datasets (NED). Since the USGS no longer provides NED data in the AERMET-required GeoTiff format, a different source for the NEDs data was found. A seamless 1/3-arc second (30-m resolution) NED dataset in GeoTiff format that adequately frames the entire receptor grid has been obtained from the Multi-Resolution Land Characteristics (MRLC) Consortium Viewer (website - http://www.mrlc.gov/viewerjs/) and successfully processed with AERMAP for the entire receptor grid. Building and source elevations were based on site design drawings that included survey data.

5.4 Facility Layout

Scaled facility plot plans are provided in Figure 2 (site construction plan), Figure 3 (overlay on Google Map image dated 06/03/2016 which shows the facility's main building), and Figure 4 (emission source locations). The emission source locations were obtained from detailed site construction plans and additional information provided by the project engineer.

5.5 Effects of Building Downwash

The BPIP-PRM program was used to generate building profile data for input to the dispersion modeling analysis to account for building downwash effects. The locations and dimensions of the on-site buildings are required along with any nearby off-site buildings that may affect dispersion. The maximum dimensions for the on-site buildings are listed in **Table 12**. The nearest off-site building shown on **Figure 3** are sufficiently small or distant to not override the downwash effects from the on-site buildings.

Table 12 – On-Site Building Dimensions

Building	Base Elevation (m)	Height (m)	East-West (m)	North-South (m)
Building 1	1275.0	9.1	109.7	121.9
Building 2	1275.0	9.1	73.2	121.9
Offices	1275.0	4.6	12.2	48.8

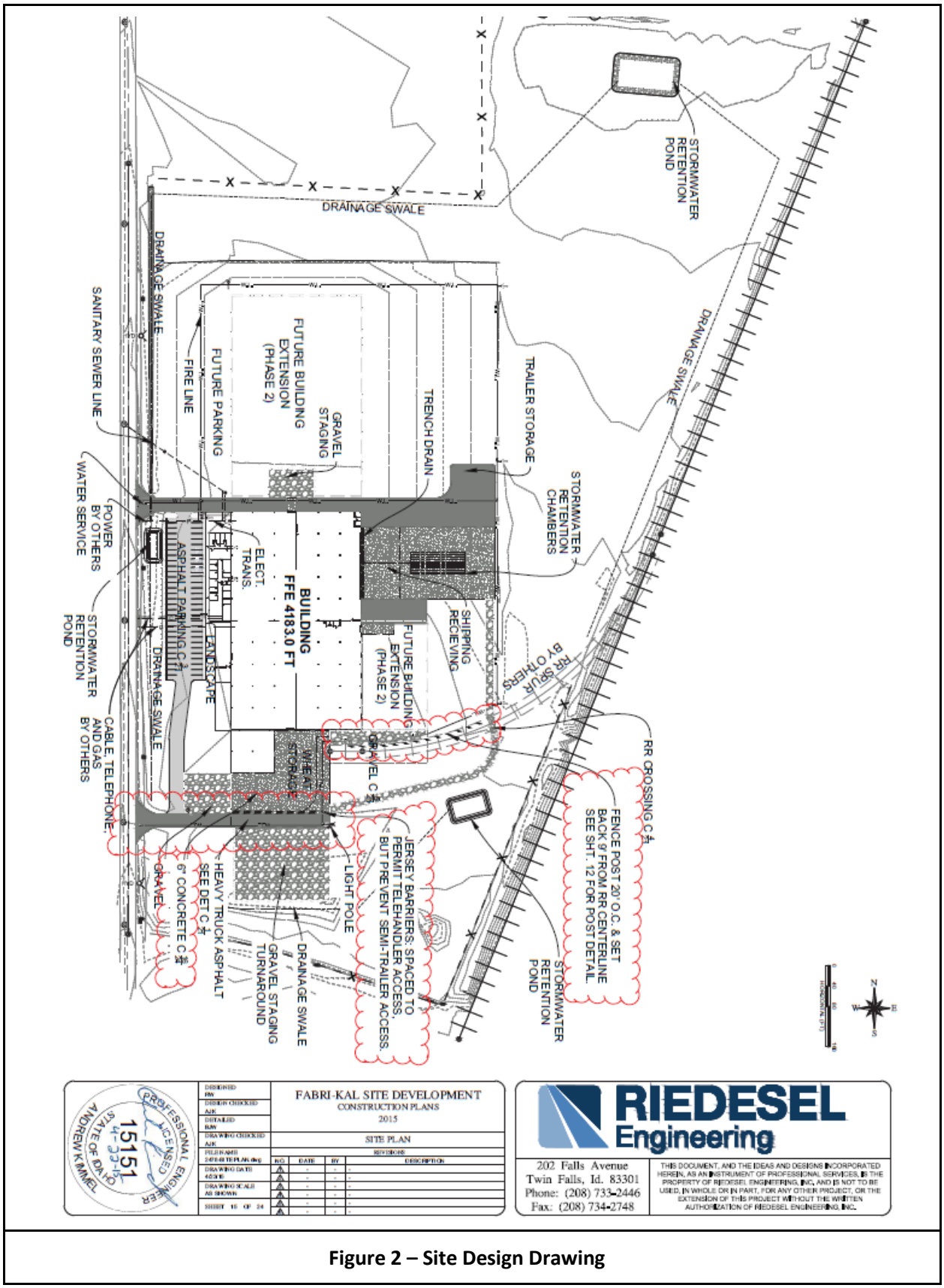


Figure 2 – Site Design Drawing

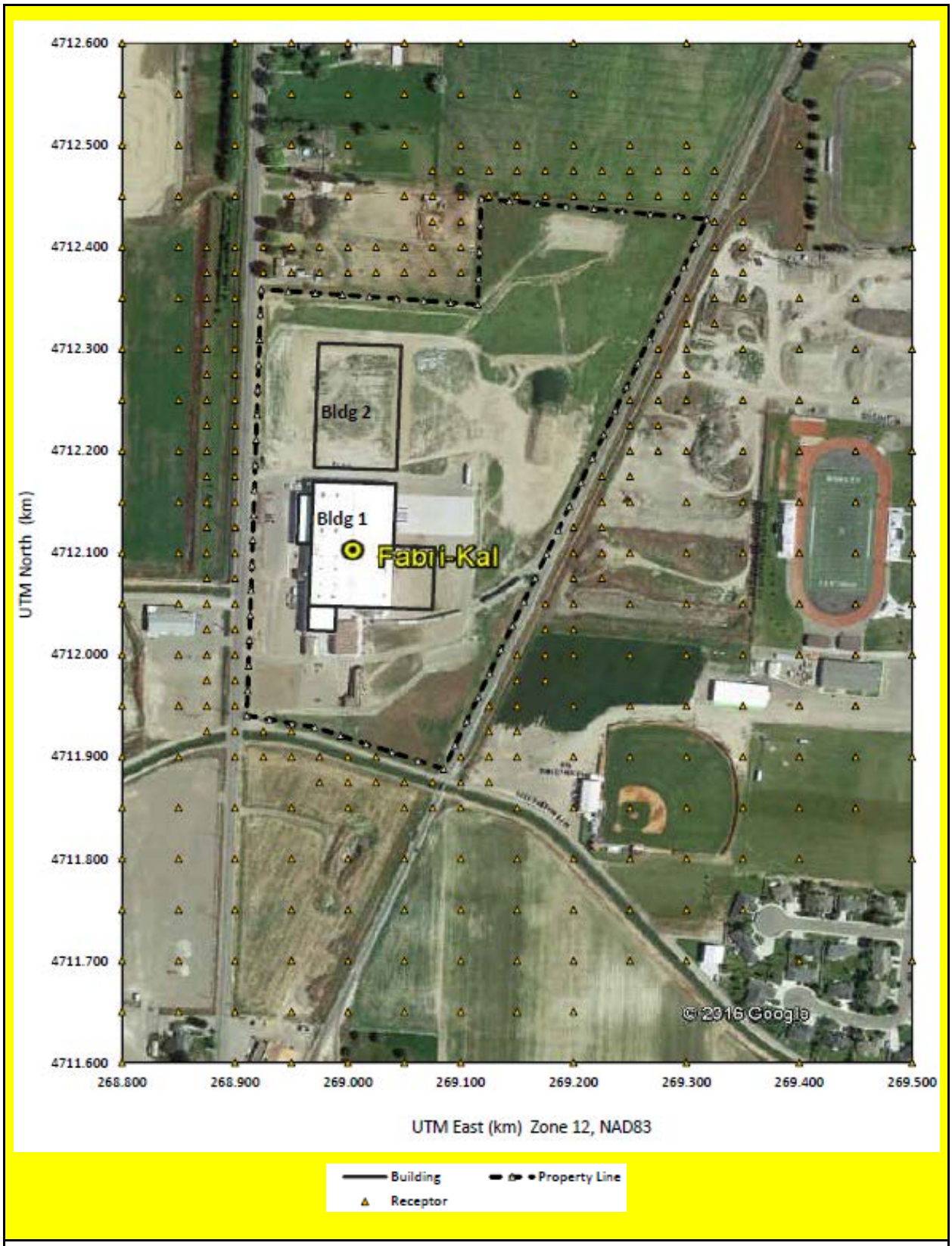


Figure 3 – Fabri-Kal Site Plan

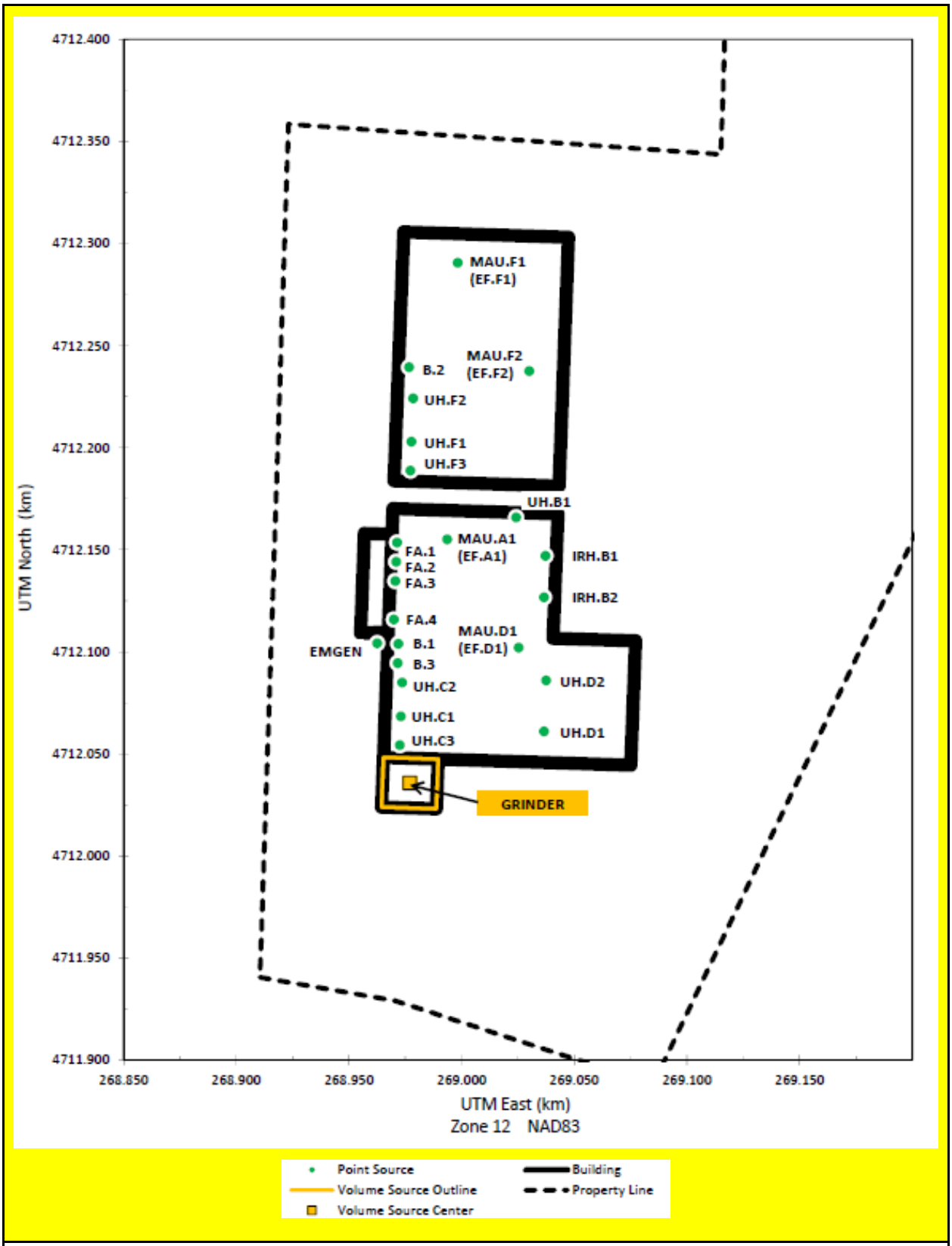


Figure 4 – Emission Source Locations

5.6 Ambient Boundary

The ambient boundary for this project has been defined as the facility property line as shown in Figure 3. Justification to use the property line was addressed in Section 3.4 – Modeling Protocol in the response to IDEQ Comment 3 to the protocol, and is reiterated in the paragraph below.

The facility is located in a rural area with farmland to the west, southwest and northeast. A farm area with buildings and residence exists to the north. School sports fields exist to the east, but are separated by approximately one quarter mile and a fenced borrow material area. The school is located to the east of the sports fields and people from the school are not expected to access the facility property. The facility is located on the outskirts of the city in farmland near other industrial buildings (half mile to the south). Due to these reasons it is not likely that the general public will access the facility property. No trespassing signs will be posted around the property and site personal will periodically check the area and ask any trespassers to leave the property.

5.7 Receptor Network

Receptors represent locations where the dispersion model is instructed to evaluate air quality impacts associated with the input source data. These must be place along the ambient boundary and in the area surrounding the facility. Each receptors has both a horizontal (x and y coordinates) and vertical (elevation) component.

Receptor Locations – Receptors were selected to ensure that dispersion modeling will identify the maximum pollutant concentrations to which the general public may be exposed. This included a combination of ambient boundary receptors and a grid of receptors beyond this boundary. Receptor spacing is:

- Ambient Boundary and Perimeter ..... 25-m spacing
- Off-Site Grid..... 50-m spacing near the ambient boundary
- Off-Site Grid..... 100-m spacing out to 2 km from facility center
- Off-Site Grid..... 250-m spacing out to 5 km from facility center.

Note – Because dispersion at the facility will be influenced by building downwash, the maximum impacts are anticipated to occur at or very close to the ambient boundary. The receptor spacing listed above is more than adequate to identify the location of the maximum facility impacts.

The ambient boundary and receptor grid is presented in a series of three figures: Figure 5 showing the ambient boundary receptors and 50-m spaced receptors out to 500 m from the facility center, Figure 6 showing the 100-m spaced receptors between 500 and 2000 m from the facility center, and Figure 7 showing the 250-m spaced receptors beyond 2000 m from the facility center and out to a distance of 5 km.

Elevation Data – The EPA's AERMAP terrain processor was used to extract receptor elevations from Geological Survey National Elevation Datasets (NED) as described above in Section 5.3 – Effects of Terrain.

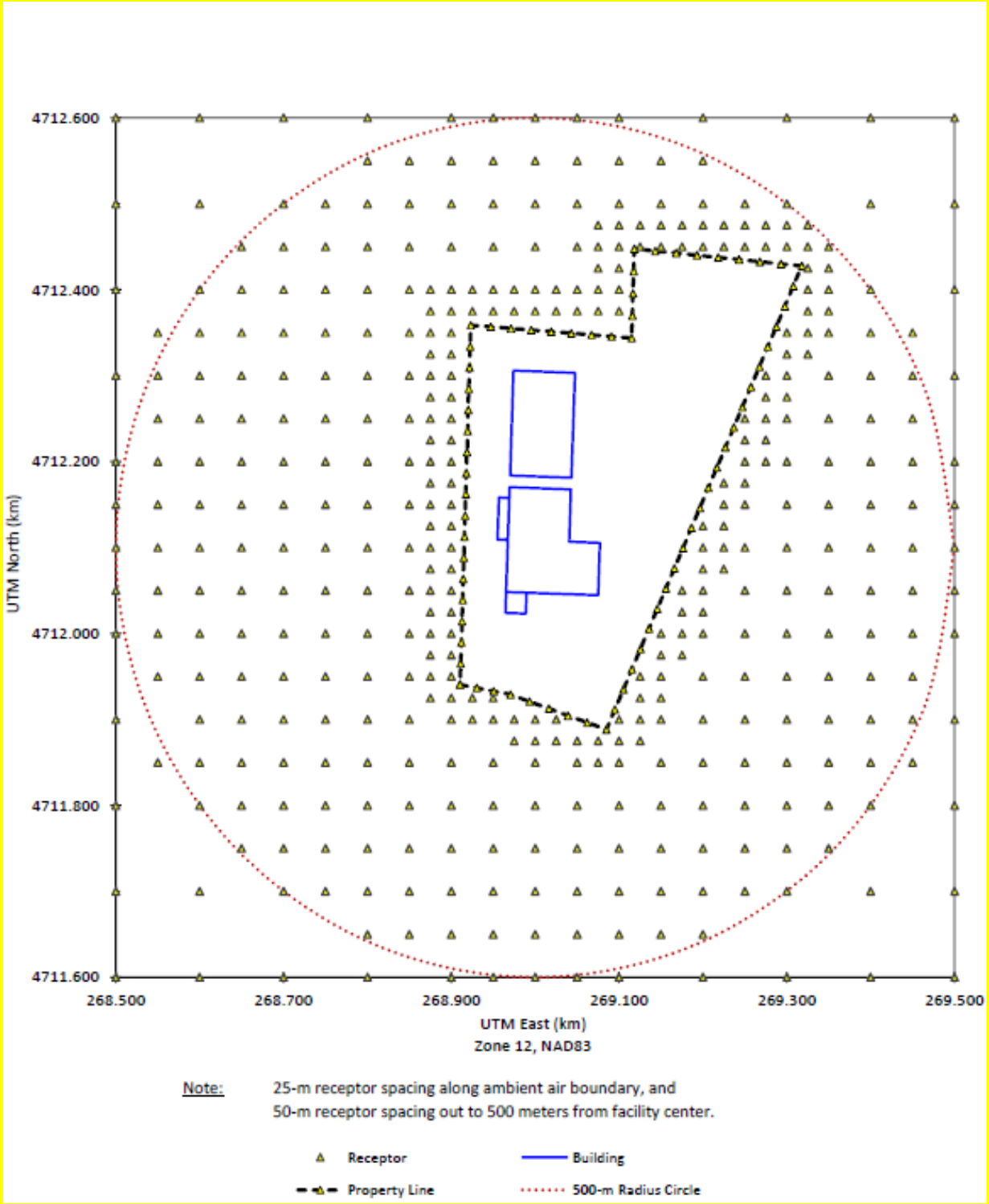


Figure 5 – Ambient Boundary and 50-m Receptor Grid

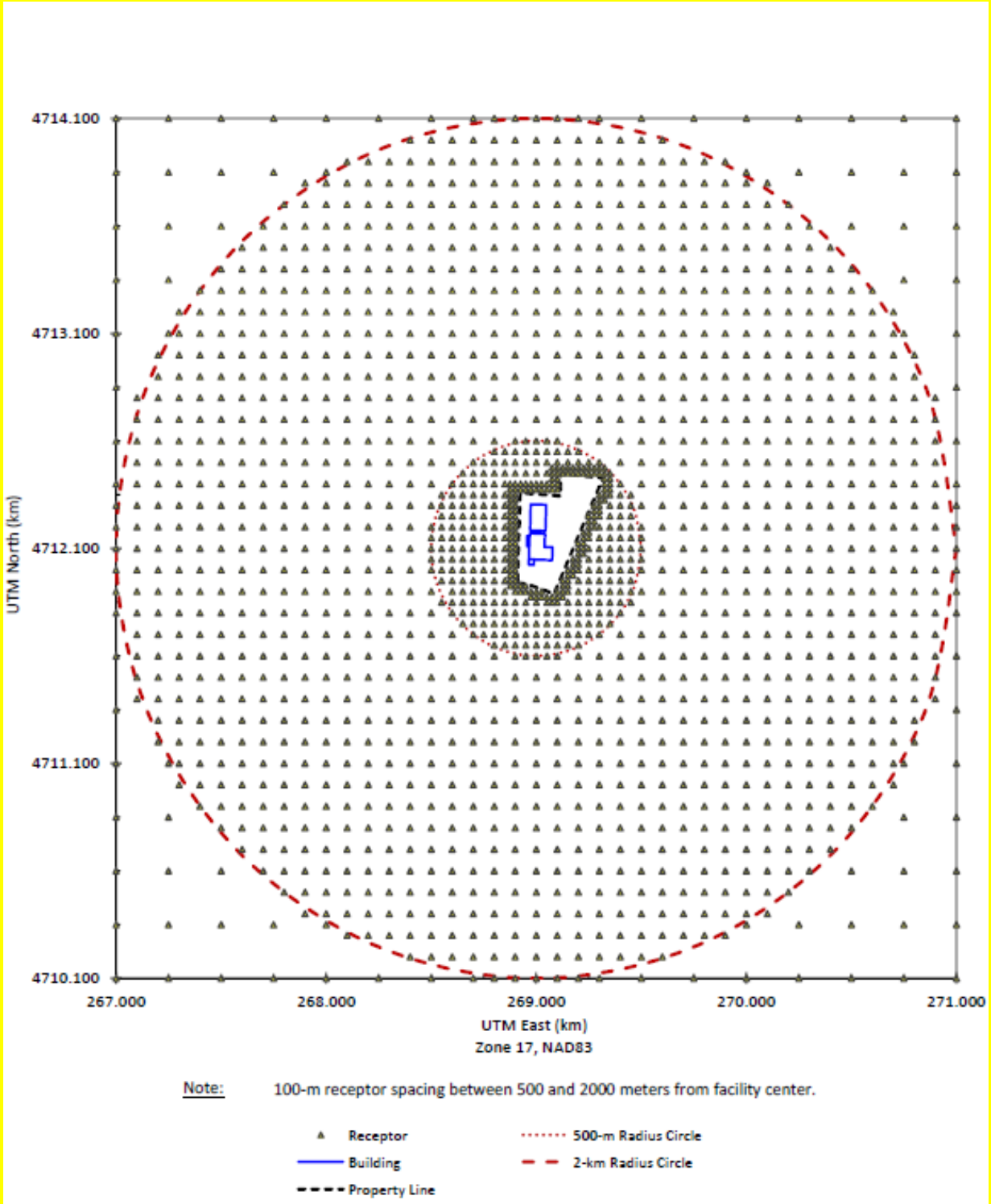


Figure 6 – 100-m Receptor Grid

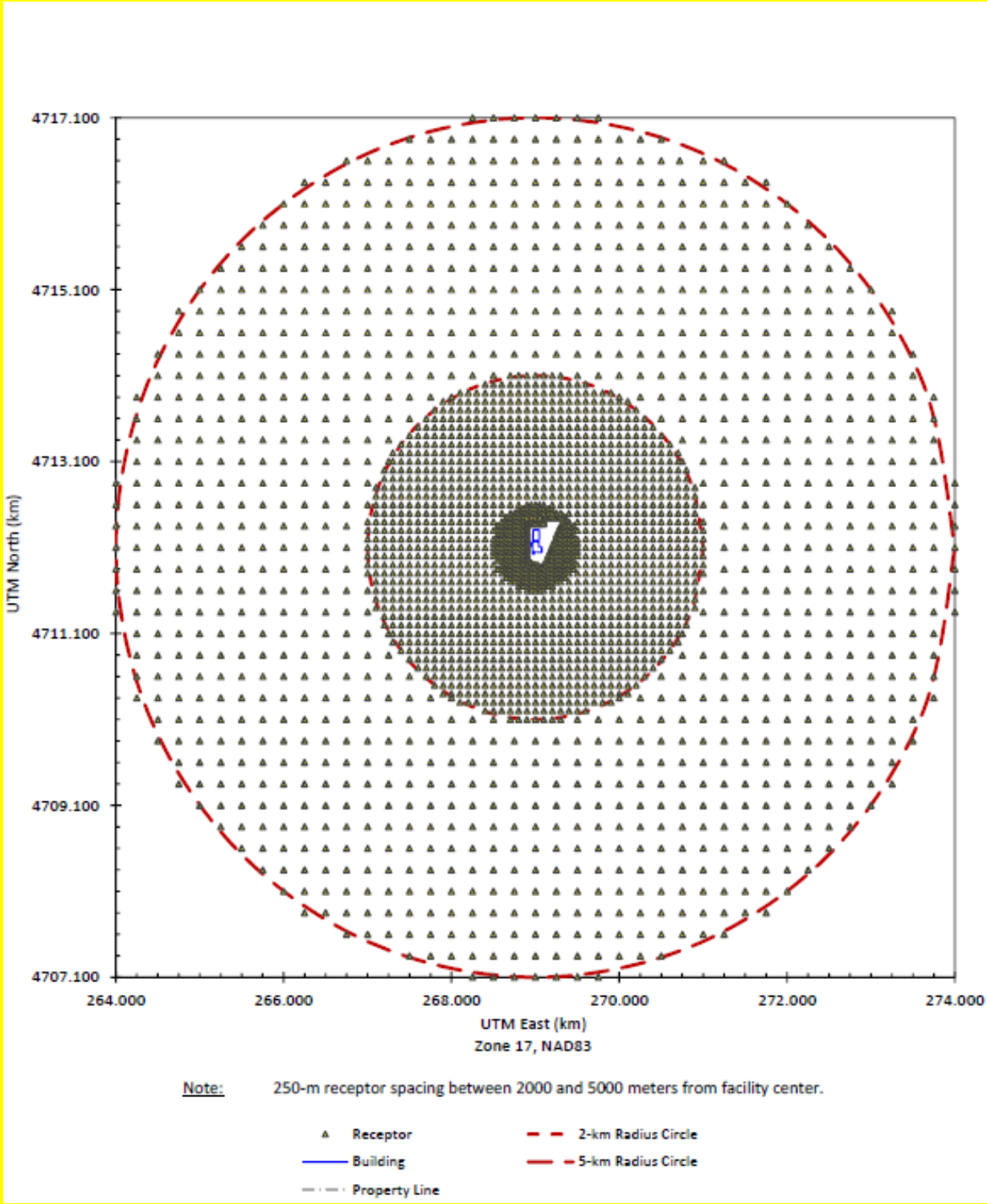


Figure 7 – 250-m Receptor Grid

5.8 Background Concentrations

IDEQ provided ambient background concentrations of the criteria pollutants for use in the cumulative NAAQS analysis. Justification to use this data was addressed in Section 3.4 – Modeling Protocol in the response to IDEQ Comment 6 to the protocol. These concentrations were obtained by IDEQ from the Northwest International Air Quality Environmental Science and Technology Consortium' s NW AIRQUEST lookup tool (http://lar.wsu.edu/nw-airquest/lookup.html) for criteria pollutant design values. Ambient background concentrations are listed in **Table 13** for the criteria pollutants that are required to be modeled. Note that IDEQ converted the NW AIRQUEST values for NO2 from parts per billion (ppb) to micrograms per cubic meter (µg/m^3).

Table 13 – Ambient Background Concentrations – Criteria Pollutants

Criteria Pollutant	Averaging Period	Ambient Background (µg/m^3)
NO2	1-hour	31.96
	Annual	5.83
PM10	24-hour	47
PM2.5	24-hour	13
	Annual	4.3

5.9 NOx Chemistry

The 1-hour an annual NAAQS for nitrogen oxides are defined in terms of nitrogen dioxide (NO2) concentrations. However, U.S. EPA's AP-42 emission factors for fuel combustion (in the case of this project, natural gas). IDEQ requires that dispersion modeling for NO2 be performed using the NOx emission rates developed from the AP-42 emission factors. However, IDEQ also allows the applicant to take credit for in-plume conversion of NOx to NO2. There are several approaches that can be applied for this; some requiring no additional justification by the applicant, and others that require additional data and further justification. For the Fabri-Kal project, the U.S. EPA's Ambient Ratio Method (ARM) was used. Specifically, the U.S. EPA allows using a Tier 2 Ambient Ratio Method (ARM) for conversion of NOx to NO2 without additional justification by the applicant as follows:

- Annual Average: NO2 = NOx × 0.75 (per 40-CFR-51 Appendix W Section 5.2.4.c)
- 1-Hour Average: NO2 = NOx × 0.80 (per EPA Memorandum, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO2 NAAQS (dated Mar 01 2011).

To apply the ARM conversion factors, the dispersion modeling was run using the NOx emission rates. The ARM adjustment factors were then applied to the modeling results presented in Section 6.1 – Criteria Pollutant Impact Results.

Justification to use the ARM method was also addressed in Section 3.4 – Modeling Protocol in the response to IDEQ Comment 9 to the protocol and in Section 4.1.3 – NO2/NOx Ratio for NOx Chemistry Modeling.

6.0 Results and Discussion

Results of the NAAQS and TAP dispersion modeling are presented in this section of the report along with a determination of the facility's compliance status with regard to the applicable air quality standards.

6.1 Criteria Pollutant Impact Results

The Fabri-Kal facility at full buildout will maintain compliance with the NAAQS (i.e., will not cause or contribute to a NAAQS violation).

6.1.1 Significant Impact Level Analyses

A Significant Impact Level analysis was not performed for this facility. Instead, the applicant chose to proceed directly to the cumulative NAAQS impact analysis.

6.1.2 Cumulative NAAQS Impact Analyses

The results of the individual AERMOD modeling runs for the NAAQS analysis are presented in **Table 14**. The highest modeled value from all receptors for the selected the AERMOD Output Option is shown for each individual model year or the 5-yr concatenated meteorology dataset, as appropriate. The compliance demonstration is presented in **Table 15**. Note that the NOx-to-NO2 chemistry is applied in this compliance demonstration. Also, ambient background concentrations were added to the maximum facility impacts to determine the maximum total impact for comparison to the NAAQS. In all cases, the total impact is shown to be less than the NAAQS; indicating that the Fabri-Kal facility will maintain compliance with the NAAQS.

Table 14 – AERMOD Modeling Results – Criteria Pollutants

Pollutant (A)	Averaging Period	Basis for Model Results			Facility Maximum Off-site Impact (µg/m3)						AERMOD Maximum Facility Impact (µg/m^3)
		Hourly Emission Rate (B)	Meteorological Data Set (C)	AERMOD Output Option (D)	2008	2009	2010	2011	2012	5-year 2008-2012	
NOx	1-Hour	Max	Concatenated	A7	-	-	-	-	-	174.81	**174.81**
	Annual	Average	Individual Years	A1	10.16	11.63	13.40	10.26	10.86	-	**12.02**
PM10	24-hour	Max	Concatenated	A3	-	-	-	-	-	7.15	**7.15**
PM2.5	24-hour	Max	Concatenated	A4	-	-	-	-	-	5.75	**5.75**
	Annual	Average	Concatenated	A5	-	-	-	-	-	1.40	**1.40**

(A) Only the pollutants with Facility-Wide PTE emission rates exceeding the respective Threshold Screening Levels have been included in the AERMOD dispersion modeling analysis.
(B) Maximum hourly emission rates used for modeling of 24-hour or shorter averaging periods. Average annual hourly emission rates used for modeling of annual averaging periods.
(C) Maximum modeled facility impacts based on AERMOD refined analysis using 5 years of meteorological data provided by Idaho DEQ: Individual year and 5-year concatenated datasets for years 2008 - 2012 for Surface Station ID = 24133 and Upper Air Station ID = 24131.
(D) AERMOD Output Option used for defining maximum facility impacts:

- A1 - Highest 1st High over 5 years.
- A2 - Highest 2nd High over 5 years.
- A3 - Highest 6th High over 5 years.
- A4 - Highest average of 8th High over 5-years.
- A5 - Highest average of annual mean over 5-years.
- A6 - 5-year average of 4th High daily 1-hour maximum.
- A7 - 5-year average of 8th High daily 1-hour maximum.

Table 15 – Air Quality Compliance Summary – Criteria Pollutants

Pollutant	Averaging Period	Maximum Off-site Air Quality Impact (µg/m3)					Air Quality Standard		
		AERMOD Maximum Facility Impact	Tier 2 NO2/NOx Ratio	Tier 2 Ratio Applied (A)	Ambient Back-Ground	Total Impact (B)	NAAQS	Percent of NAAQS	Compliance with NAAQS
NOx	1-Hour	174.81	0.80	139.85	31.96	171.81	188	91%	Yes
	Annual	13.40	0.75	10.05	5.83	15.88	100	16%	Yes
PM10	24-hour	7.15	-	-	73	80.15	150	53%	Yes
PM2.5	24-hour	5.75	-	-	13	18.75	35	54%	Yes
	Annual	1.40	-	-	4.3	5.70	12	47%	Yes

(A) NO2 Tier 2 Ratio Applied = (NO2 Facility Impact) × (Tier 2 NO2-NOx Ratio)
(B) Total Impact = (Facility Impact) + (Background Concentration)

6.2 TAP Impact Analyses

Results of the individual AERMOD modeling runs for the TAP analysis are presented in **Table 16**. The highest modeled value from all receptors for the selected AERMOD Output Option is shown for each individual model year. The compliance demonstration is presented in **Table 17**. Since ambient background concentrations are not applicable to the TAP analysis, the facility maximum impact represents the total impact. In all cases, the total impact is shown to be less than the AACC; indicating that the Fabri-Kal facility will maintain compliance with the Idaho TAP air quality standards.

Table 16 – AERMOD Modeling Results – Carcinogenic TAP Pollutants

Pollutant (A)	Averaging Period	Basis for Model Results			Maximum Off-site Air Quality Impact (µg/m3)					AERMOD Maximum Modeled Impact (µg/m^3)
		Hourly Emission Rate (B)	Meteorological Data Set (C)	AERMOD Output Option (D)	2008	2009	2010	2011	2012	
Arsenic	Annual	Average	Individual Years	A1	0.00003	0.00003	0.00003	0.00003	0.00003	**0.00003**
Cadmium	Annual	Average	Individual Years	A1	0.00017	0.00018	0.00019	0.00018	0.00019	**0.00019**
Formaldehyde	Annual	Average	Individual Years	A1	0.01147	0.01207	0.01260	0.01218	0.01298	**0.01298**
Nickel	Annual	Average	Individual Years	A1	0.00032	0.00034	0.00035	0.00034	0.00037	**0.00037**

(A) Only the pollutants with Facility-Wide PTE emission rates exceeding the respective Threshold Screening Levels have been included in the AERMOD dispersion modeling analysis.
(B) Maximum hourly emission rates used for modeling of 24-hour or shorter averaging periods. Average annual hourly emission rates used for modeling of annual averaging periods.
(C) Maximum modeled facility impacts based on AERMOD refined analysis using 5 years of meteorological data provided by Idaho DEQ: Individual year and 5-year concatenated datasets for years 2008 - 2012 for Surface Station ID = 24133 and Upper Air Station ID = 24131.
(D) AERMOD Output Option used for defining maximum facility impacts:

- A1 - Highest 1st High over 5 years.
- A2 - Highest 2nd High over 5 years.
- A3 - Highest 6th High over 5 years.
- A4 - Highest average of 8th High over 5-years.
- A5 - Highest average of annual mean over 5-years.
- A6 - 5-year average of 4th High daily 1-hour maximum.
- A7 - 5-year average of 8th High daily 1-hour maximum.

Table 17 – Air Quality Compliance Summary – TAPs

Pollutant	Averaging Period	Maximum Off-site Air Quality Impact (µg/m3)					Air Quality Standard		
		AERMOD Maximum Facility Impact	Tier 2 NO2/NOx Ratio	Tier 2 Ratio Applied (A)	Ambient Back-Ground (B)	Total Impact (C)	AACC (DC)	Percent of AACC	Compliance with AACC
Arsenic	Annual	0.00003	-	-	-	0.00003	2.30E-04	13%	Yes
Cadmium	Annual	0.00017	-	-	-	0.00019	5.60E-04	34%	Yes
Formaldehyde	Annual	0.01178	-	-	-	0.01298	7.70E-02	17%	Yes
Nickel	Annual	0.00033	-	-	-	0.00037	4.20E-03	9%	Yes

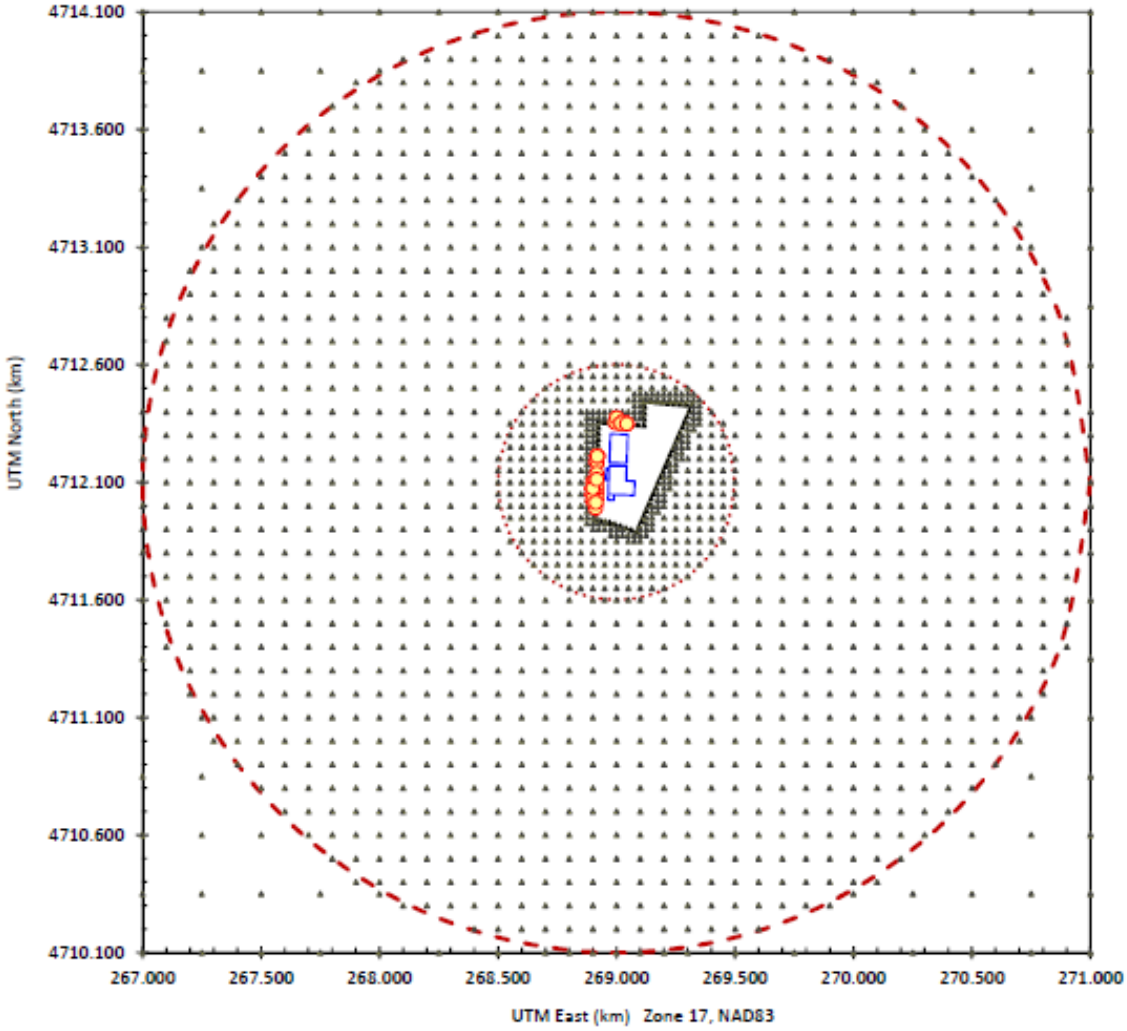
(A) NO2 Tier 2 Ratio is not applicable to TAPs.
(B) Ambient Background is not applicable to TAPs.
(C) Total Impact = Maximum Facility Impact (for TAPs).
(D) AACC = Acceptable Ambient Concentration for Carcinogens.

6.3 Location of Maximum Impacts

A requirement of the NAAQS and TAP impact analyses is a sufficiently dense receptor grid to reasonably resolve the maximum modeled concentration and confidently demonstrate compliance with standards. To verify the sufficiency of the receptor grid used in these analyses, the maximum modeled impact locations have been plotted against the receptor grid for all NAAQS pollutants and averaging periods in **Figures 8** and for all TAP pollutants in **Figure 9** (TAPs). In all cases, the maximum impacts are shown to occur along the property line in the area with 25-m receptor spacing. From this, it is concluded that the maximum modeled impacts have been adequately resolved.

6.4 Electronic Copies of Modeling Files

The modeling files for AERMAP, BPIP-PRM, and AERMOD have been included in Appendix C of this document for IDEQ's review



Notes:
(1) - Max impact locations are for 5 years of NAAQS air dispersion modeling.
(2) - For pollutants modeled with individual years of meteorology, the chart includes results from 5 model runs.
(3) - For pollutants modeled with 5-year concatenated meteorology, the chart includes results from 1 model run.
(4) - There is duplication of maximum impact locations from year-to-year and pollutant-to-pollutant.

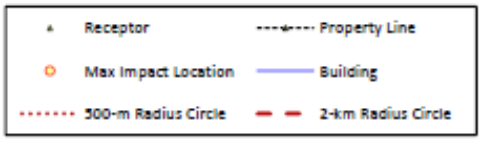
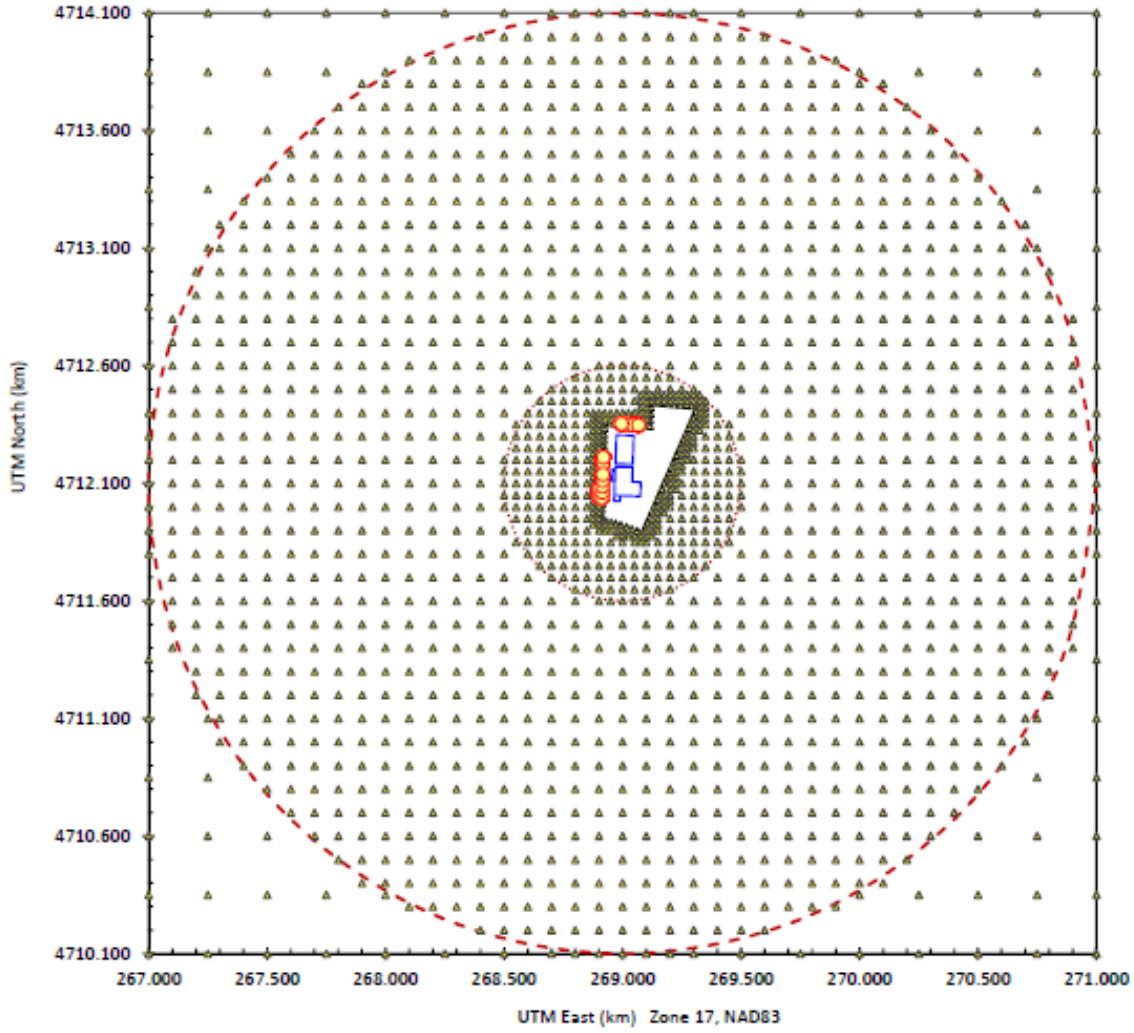


Figure 8 – Maximum Impact Locations – NAAQS Analysis



Notes:
(1) - Max impact locations are for 5 years of TAP air dispersion modeling.
(2) - For pollutants modeled with individual years of meteorology, the chart includes results from 5 model runs.
(3) - For pollutants modeled with 5-year concatenated meteorology, the chart includes results from 1 model run.
(4) - There is duplication of maximum impact locations from year-to-year and pollutant-to-pollutant.

Figure 9 – Maximum Impact Locations – TAP Analysis

7.0 Quality Assurance/Control

This dispersion modeling analysis was performed by a degreed North Wind meteorologist with experience in dispersion modeling. Quality assurance methodology for the various modeling components are summarized below.

- Emission Release Parameters – Parameters used in the dispersion modeling (building dimensions, source locations, stack heights, exhaust parameters, etc.) were provided to the project engineer for verification.

- Meteorological Data – This was provided by IDEQ and used without an independent validation by North Wind for accuracy.

- Ambient Background Concentrations – This was provided by IDEQ. North Wind performed an independent validation of this data for accuracy using the Northwest International Air Quality Environmental Science and Technology Consortium' s NW AIRQUEST lookup tool (http://lar.wsu.edu/nw-airquest/lookup.html).

- Building Data – This was provided by the Fabri-Kal project engineers through site design drawings and used without an independent validation by North Wind for accuracy.

- Receptor Locations – Ambient boundary receptor UTM coordinates were revised based on IDEQ review of the original air impact analysis. This revision corrected: (1) an approximately 20-meter westward grid shift of the original receptor coordinates caused be rounding of the facility center UTM coordinates in the original analysis, and (2) a 1° 54' rotational offset between Grid North and True North as identified on the USGS 7.5-minute topographic quadrangle for Burley, ID. North Wind had relied on site engineering drawings based on true north for the original ambient boundary placement. The revised ambient boundary receptor UTM coordinates were then verified with Google Earth imagery dated 06-03-2016.

- Terrain Data – U.S. Geological Survey digital elevation data was obtained from the Multi-Resolution Land Characteristics (MRLC) Consortium Viewer website (http://www.mrlc.gov/viewerjs/) and successfully processed with AERMAP for the entire receptor grid. Had the downloaded digital dataset not adequately covered the modeling receptor grid domain, AERMAP would identify this as an error.

- Dispersion Model and Related Programs – The EPA SCRAM website was consulted May 2016 to verify the most recent model versions were used: AERMOD (version date 15181), AERMAP (version date 11103), and BPIP-PRM (version date 04274).

- Location of Maximum Impacts – The location of maximum impacts have been plotted against the receptor grid to verify adequate spatial resolution of the maximum impacts (see **Figure 8** (NAAQS analysis) and **Figure 9** (TAP analysis).

- Electronic Copies of the Modeling Files – The modeling files have been included in Appendix C of this document for IDEQ's review.

APPENDIX A

Dispersion Modeling Protocol
and
IDEQ Approval Letter

APPENDIX B

Detailed Air Emission Calculations

APPENDIX C

Air Modeling Files
(CD-ROM)

DEQ AIR QUALITY PROGRAM
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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	COOKING TANK/ MINNOW PULPER
6.	EU ID Number:	COOKING TANK
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	FORDHAM MANUFACTURING
9.	Model:	NA
10..	Maximum Capacity:	3,000 GALLONS
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
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?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	24 HOURS/DAY
23.	Maximum Operation:	3,000 GALLONS

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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

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

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

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

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Revision 4
08/28/08

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	COOKING TANK/SHARK PULPER
6. EU ID Number:	COOKING TANK
7. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8. Manufacturer:	BELOIT JONES
9. Model:	3140 HYDRO PULPER
10.. Maximum Capacity:	3,000 GALLONS
11. Date of Construction:	NOVEMBER 2015
12. Date of Modification (if any):	NA
13. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
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?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	24 HOURS/DAY
23. Maximum Operation:	3,000 GALLONS

REQUESTED LIMITS

24. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
☐ Other:	
25. Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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

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

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

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	EXTRUDERS
6.	EU ID Number:	EXTRUDER
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	Polytype OMV
9.	Model:	D140/E76 EXTRUSION/THERMOFORMING IN-LINE SYSTEM
10..	Maximum Capacity:	2,500 LBS/HR
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
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?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	24 HOURS/DAY
23.	Maximum Operation:	2,500 LBS/HR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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

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

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

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

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

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	FURNACE (F))
6.	EU ID Number:	F-A1, F-A2, F-A4
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	CARRIER
9.	Model:	4ATTR6042(A1), 4ATTR6024(A2), 4ATTR6030 (A4)
10..	Maximum Capacity:	60,000 BTU/HR
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
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?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	12 HOURS/DAY
23.	Maximum Operation:	8760 hours/year

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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

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

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

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

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

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	FURNACE (F)
6.	EU ID Number:	F-A3
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TRANE
9.	Model:	ATTR6036
10..	Maximum Capacity:	40,000 BTU/HR
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
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?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	12 HOURS/DAY
23.	Maximum Operation:	8760 hours/year

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

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

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	GRINDER
6.	EU ID Number:	GRINDER
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	WARREN AND BAERG MANUFACTURING
9.	Model:	G254-26 GRINDER
10..	Maximum Capacity:	43,000 LBS/DAY
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
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?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	12 HOURS/DAY
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

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

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description:	Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	SILO
6.	EU ID Number:	SILO
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	CST STORAGE
9.	Model:	NA
10..	Maximum Capacity:	8,083 FT3
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
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?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

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:	24 HOURS/DAY
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

Instructions for Form EU0

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

1 - 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

5. Provide the name of the emissions unit (EU), such as “Union boiler,” etc. A separate EU0 form is required for each emissions unit.

6. Provide the identification (ID) number of the EU. It can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and any other air quality permit application(s) (e.g., operating permit application) to identify this EU.

7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.

8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.

9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.

10. Provide the maximum capacity of the EU. For example, a boiler’s rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer’s literature.

11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

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

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

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

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.

13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.

14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment’s identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.

16. If the air pollution control equipment has been modified, provide the date of the modification.

17. Provide the name of the manufacturer and the model number for the air pollution control equipment.

18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).

19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.

20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).

21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.

22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.

23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.

24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.

25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.

Fabri-Kal Emission Sources

May 2016
(UTM grid aligned with Tru

		Original (X,Y)		Origina
		X (m)	Y (m)	E (km)
B.1	Boiler 1 (Natural Gas)	-45	-5	268.955
B.2	Boiler 2 (Natural Gas)	-45	130	268.955
B.3	Boiler 3 (Natural Gas)	-45	-12	268.955
F.A1	Furnace (Natural Gas)	-47	45	268.953
F.A2	Furnace (Natural Gas)	-47	35	268.953
F.A3	Furnace (Natural Gas)	-47	26	268.953
F.A4	Furnace (Natural Gas)	-47	7	268.953
IRH.B1	Infrared Heater (Natural Gas)	19	41	269.019
IRH.B2	Infrared Heater (Natural Gas)	19	20	269.019
MAU.A1	Make-Up Air Unit (Natural Gas) & Bldg Exhaust Fan EF.A1	-25	47	268.975
MAU.D1	Make-Up Air Unit (Natural Gas) & Bldg Exhaust Fan EF.D1	9	-5	269.009
MAU.F1	Make-Up Air Unit (Natural Gas) & Bldg Exhaust Fan EF.F1	-25	183	268.975
MAU.F2	Make-Up Air Unit (Natural Gas) & Bldg Exhaust Fan EF.F2	9	131	269.009
UH.B1	Emergency Shutdown Heater (Natural Gas)	5	59	269.005
UH.C1	Emergency Shutdown Heater (Natural Gas)	-43	-40	268.957
UH.C2	Emergency Shutdown Heater (Natural Gas)	-43	-24	268.957
UH.C3	Emergency Shutdown Heater (Natural Gas)	-43	-54	268.957
UH.D1	Emergency Shutdown Heater (Natural Gas)	21	-45	269.021
UH.D2	Emergency Shutdown Heater (Natural Gas)	21	-20	269.021
UH.F1	Emergency Shutdown Heater (Natural Gas)	-43	116	268.957
UH.F2	Emergency Shutdown Heater (Natural Gas)	-43	94	268.957
UH.F3	Emergency Shutdown Heater (Natural Gas)	-43	80	268.957
EMGEN	Emergency Generator (Natural Gas)	-54	-5	268.946
GRINDER	Grinding System (as volume source)	-37	-73	268.963

August 2016

ıe N) **(UTM grid shift & 2° rotation)**

l (UTM)	New (X,Y)		New (UTM)		Difference (X,Y)	
N (km)	X (m)	Y (m)	E (km)	N (km)	X (m)	Y (m)
4712.095	-45	-3	268.972	4712.104	0	-2
4712.230	-40	132	268.977	4712.239	-5	-2
4712.088	-45	-13	268.972	4712.094	0	1
4712.145	-46	47	268.971	4712.154	-2	-2
4712.135	-46	37	268.971	4712.144	-1	-2
4712.126	-46	28	268.971	4712.135	-1	-2
4712.107	-47	9	268.970	4712.116	0	-2
4712.141	20	40	269.037	4712.147	-1	1
4712.120	20	20	269.037	4712.127	-1	1
4712.147	-23	48	268.994	4712.155	-2	-1
4712.095	8	-5	269.025	4712.102	0	0
4712.283	-19	184	268.998	4712.291	-6	-1
4712.231	13	130	269.030	4712.237	-5	0
4712.159	7	59	269.024	4712.166	-2	0
4712.060	-44	-39	268.973	4712.068	1	-2
4712.076	-43	-22	268.974	4712.085	1	-1
4712.046	-44	-53	268.973	4712.054	2	-2
4712.055	20	-46	269.037	4712.061	2	1
4712.080	21	-21	269.038	4712.086	1	1
4712.216	-38	117	268.979	4712.224	-4	-1
4712.194	-39	96	268.978	4712.203	-3	-1
4712.180	-40	82	268.977	4712.189	-3	-1
4712.095	-54	-3	268.963	4712.104	0	-2
4712.027	-40	-71	268.977	4712.036	3	-2

Difference (UTM)	
E (km)	N (km)
-0.017	-0.009
-0.022	-0.009
-0.017	-0.006
-0.019	-0.009
-0.018	-0.009
-0.018	-0.009
-0.017	-0.009
-0.018	-0.006
-0.018	-0.006
-0.019	-0.008
-0.017	-0.007
-0.023	-0.008
-0.022	-0.007
-0.019	-0.007
-0.016	-0.009
-0.016	-0.008
-0.015	-0.009
-0.015	-0.006
-0.016	-0.006
-0.021	-0.008
-0.020	-0.008
-0.020	-0.008
-0.017	-0.009
-0.014	-0.009