Statement of Basis

Permit to Construct No. P-2015.0013
Project ID 61490

CTI Foods - SSI Food Services Division
Wilder, Idaho

Facility ID 027-00138

Final

May 27, 2016
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Permit Writer

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

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
bhp	brake horsepower
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides

NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_X	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

CTI Foods – SSI Food Services Division operates an existing food processing facility which is located in Wilder, Idaho. At this facility four natural gas-fired boilers and a natural gas-fired water heater are used to provide steam and hot water for food processing equipment at the facility. There are also two multi-purpose ovens (MPOs), two fajita branders, two Unitherms, a Cook King, a Fajita Fulton, and a Cook Fulton that are all natural gas-fired and are used to cook meat at the facility. There is also one diesel-fired emergency IC engine which powers a fire water pump.

MPOs

The two Multi-Purpose Ovens are on the fajita line, which operate in parallel with each other, and cook the meat products with steam and direct-fired heat.

Unitherms

The two Unitherm ovens are searing/cooking units on the Cooked Patty line, with direct-fired heat, and are used to provide char flavor and branding marks on the meat products.

Fulton Heaters

Fulton is a brand of thermal fluid heater that provides an in-direct heat source to cook the meat products in the Stein JSO ovens on the cooked patty line and the Pro-grill oven on the fajita line. One Fulton heater is currently dedicated to each line.

Cook King

The Cook King is a brand of branding/searing oven on the Fajita Line that adds char flavor and branding marks to the meat products using direct-fired heat.

Fulton Thermal Fluid Heater

The Fulton Thermal Fluid Heater is used to heat thermal fluid used to cook products on both the fajita and cooked patty lines.

Emergency IC Engine

The facility has one emergency IC engine that powers a fire water pump.

Plant History

CTI Foods – SSI Food Services Division purchased this facility in 1985 from the J.R. Simplot Co. The plant was operated as a kill plant until 1987 when it was remodeled and converted to a processing plant only. In August of 1988 the plant was badly damaged in a fire originating in the freezer. The plant was rebuilt and opened again in 1989 with a dual IQF patty line, a cook patty line, and a packaging area for sandwich assembly.

In 1992 Plant 2 was added and a cook line was added. The Plant 1 cook patty line was joined by a single kettle line for taco meat. The cook patty line was moved to Plant 2 and a second kettle for taco meat was added in Plant 1. A maintenance shop was added to the rear of the plant in 1992.

Plant 3 was added in 1996. First designed as a storage facility and a truck shop, the buildings were joined and converted to production. Initially, Plant 3 was configured to do cooked tacos but when that opportunity passed Plant 3 was modified to produce cooked patties.

The Finished Goods Freezer Storage additions were completed in 1999 and 2013. The receiving area was expanded in 2014. The main office area was expanded in 2015. Plant 2 is currently being added on to and includes the addition of the new Fulton heater.

Permitting History

This is the initial PTC for an existing unpermitted facility, thus there is no permitting history.

Application Scope

The facility is obtaining the initial permit for the unpermitted equipment at the facility.

Application Chronology

March 18, 2015	DEQ received an application and an application fee.
April 6 – April 21, 2015	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
April 16, 2015	DEQ determined that the application was incomplete.
May 29, 2015	DEQ received supplemental information from the applicant.
June 25, 2015	DEQ determined that the application was incomplete.
October 19, 2015	DEQ received supplemental information from the applicant.
November 16, 2015	DEQ determined that the application was incomplete.
January 20, 2016	DEQ received supplemental information from the applicant.
February 18, 2016	DEQ determined that the application was complete.
April 14, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
April 18, 2016	DEQ made available the draft permit and statement of basis for applicant review.
April 18, 2016	DEQ received the permit processing fee.
May 27, 2016	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
500HP	500 Sellers Boiler: Manufacturer: Sellers Model: 105E Burner Model: 5000 C-P Manufacture Date: 7/02 Heat input rating: 20.9 MMBtu/hr Fuel: Natural gas	N/A	500HP Exhaust: Exit height: 57.0 ft (17.37 m) Exit diameter: 2.5 ft (0.762 m) Exit flow rate: 5,817 acfm Exit temperature: 370 °F (460.93 °C)
350HP	350 Clayton Boiler: Manufacturer: Clayton Model: EG-354 Burner Model: 4000-C-P Manufacture Date: 2011 Heat input rating: 14.645 MMBtu/hr Fuel: Natural gas	N/A	350HP Exhaust: Exit height: 50.0 ft (15.24 m) Exit diameter: 2.0 ft (0.61 m) Exit flow rate: 4,072 acfm Exit temperature: 370 °F (460.93 °C)
300HP	300 Sellers Boiler: Manufacturer: Sellers Model: 105E Burner Model: 4000-C-P Manufacture Date: 1992 Heat input rating: 12.56 MMBtu/hr Fuel: Natural gas	N/A	300HP Exhaust: Exit height: 51.0 ft (15.54 m) Exit diameter: 1.833 ft (0.559 m) Exit flow rate: 3,491 acfm Exit temperature: 370 °F (460.93 °C)
200HP	200 Sellers Boiler: Manufacturer: Sellers Model: 105E Burner Model: 3000-C-P Manufacture Date: 1992 Heat input rating: 8.37 MMBtu/hr Fuel: Natural gas	N/A	200HP Exhaust: Exit height: 46.0 ft (14.02 m) Exit diameter: 1.67 ft (0.508 m) Exit flow rate: 2,327 acfm Exit temperature: 370 °F (460.93 °C)
WHTR	Sellers Water Heater: Manufacturer: Sellers Model: BT1001500 Burner Model: 3000-C-P Manufacture Date: 1992 Heat input rating: 10.0 MMBtu/hr Fuel: Natural gas	N/A	WHTR Exhaust: Exit height: 34.0 ft (10.36 m) Exit diameter: 1.833 ft (0.559 m) Exit flow rate: 2,546 acfm Exit temperature: 300 °F (422.04 °C)
F11	MPO L1: Manufacturer: MPO Model: D421 Burner Model: 425 P Manufacture Date: 1/1992 Heat input rating: 0.450 MMBtu/hr Max. production: 4,375 lb/hr Fuel: Natural gas	N/A	F11 Exhaust: Exit height: 36.0 ft (10.97 m) Exit diameter: 1.0 ft (0.305 m) Exit flow rate: 915 acfm Exit temperature: 298 °F (420.93 °C)
F21	MPO L2: Manufacturer: MPO Model: D421 Burner Model: 425 Manufacture Date: 2/1996 Heat input rating: 0.450 MMBtu/hr Max. production: 4,375 lb/hr Fuel: Natural gas	N/A	F21 Exhaust: Exit height: 36.0 ft (10.97 m) Exit diameter: 1.0 ft (0.305 m) Exit flow rate: 915 acfm Exit temperature: 298 °F (420.93 °C)

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
F12	Fajita Brander L1: Manufacturer: Custom built Model: 125 Burner Model: L-B Manufacture Date: 10/1998 Heat input rating: 0.650 MMBtu/hr Max. production: 4,375 lb/hr Fuel: Natural gas	N/A	F12 Exhaust: Exit height: 36 ft (10.97 m) Exit diameter: 1.67 ft (0.508 m) Exit flow rate: 629 acfm Exit temperature: 213 °F (373.71 °C)
F22	Fajita Brander L2: Manufacturer: Custom built Model: 125 Burner Model: L-B Manufacture Date: 10/1998 Heat input rating: 0.650 MMBtu/hr Max. production: 4,375 lb/hr Fuel: Natural gas	N/A	F22 Exhaust: Exit height: 36.0 ft (10.97 m) Exit diameter: 1.0 ft (0.305 m) Exit flow rate: 629 acfm Exit temperature: 213 °F (373.71 °C)
U11	Unitherm L1: Manufacturer: Unitherm Model: 42-12BP Burner Model: L-B Manufacture Date: 2012 Heat input rating: 5.0 MMBtu/hr Max. production: 2,000 lb/hr Fuel: Natural gas	N/A	U11 Exhaust: Exit height: 40.0 ft (12.19 m) Exit diameter: 2.5 ft (0.762 m) Exit flow rate: 12,000 acfm Exit temperature: 190 °F (360.93 °C)
U21	Unitherm L2: Manufacturer: Unitherm Model: 42-12BP Burner Model: L-B Manufacture Date: 2012 Heat input rating: 5.0 MMBtu/hr Max. production: 2,000 lb/hr Fuel: Natural gas	N/A	U21 Exhaust: Exit height: 40.0 ft (12.19 m) Exit diameter: 2.5 ft (0.762 m) Exit flow rate: 12,000 acfm Exit temperature: 190 °F (360.93 °C)
P31	Cook King P3: Manufacturer: Cook King Model: CB3445L Burner Model: L-B Manufacture Date: 2013 Heat input rating: 1.80 MMBtu/hr Max. production: 1,750 lb/hr Fuel: Natural gas	N/A	P31 Exhaust: Exit height: 8 ft (2.44 m) Exit diameter: 1.0 ft (0.305 m) Exit flow rate: 3,500 acfm Exit temperature: 190 °F (360.93 °C)
FAJFUL	Fajita Fulton: Manufacturer: Fulton Model: ST1260F Burner Model: FT-0400-C Manufacture Date: 2001 Heat input rating: 2.40 MMBtu/hr Fuel: Natural gas	N/A	FAJFUL Exhaust: Exit height: 29.0 ft (8.84 m) Exit diameter: 1.0 ft (0.305 m) Exit flow rate: 531 acfm Exit temperature: 200 °F (366.48 °C)
COOKFUL	Cook Fulton: Manufacturer: Fulton Model: FT0240C Burner Model: FT-0240-C Manufacture Date: 1997 Heat input rating: 4.0 MMBtu/hr Fuel: Natural gas	N/A	COOKFUL Exhaust: Exit height: 29.0 ft (8.84 m) Exit diameter: 1.0 ft (0.305 m) Exit flow rate: 884 acfm Exit temperature: 200 °F (366.48 °C)

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
NEWFUL	Fulton Thermal Fluid Heater: Manufacturer: Fulton Model: FT-0600CU Burner Model: LMV51 Manufacture Date: 2014 Heat input rating: 8.0 MMBtu/hr Fuel: Natural gas	N/A	Fulton Thermal Fluid Heater Exhaust: Exit height: 59 ft (18.0 m) Exit diameter: 1.67 ft (0.51 m) Exit flow rate: 1,769 acfm Exit temperature: 200 °F (93.3 °C)
FIRE	Emergency IC Engine Powering a Fire Water Pump: Manufacturer: Cummins Model: CFP 59-F55 Manufacture Date: 2006 Horsepower rating: 200 bhp Fuel: Diesel	N/A	FIRE Exhaust: Exit height: 8 ft (2.44 m) Exit diameter: 0.333 ft (0.102 m) Exit flow rate: 1,300 acfm Exit temperature: 850 °F (727.59 °C)

Emissions Inventories

Potential to Emit

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

Using this definition of Potential to Emit an emission inventory was developed for the four natural gas-fired boilers, the water heater, the MPOs, the Unitherms, the Fulton heaters, the Cook King, and the emergency IC engine operations at the facility (see Appendix A) associated with this proposed project. For the four natural gas-fired boilers, the water heater, the MPOs, the Unitherms, the Fulton heaters, and the Cook King, emissions estimates of criteria pollutant, GHG, HAP PTE were based on emission factors from AP-42, operation of 8,760 hours per year, and source testing performed on the cooking equipment at the facility for this proposed project. For the diesel-fired emergency IC engine emissions estimates of criteria pollutant, GHG, HAP PTE were based on emission factors from AP-42 and operation of 100 hours per year.

Uncontrolled Potential to Emit

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

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

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For the four natural gas-fired boilers, the water heater, the MPOs, the Unitherms, the Fulton heaters, and the Cook King, emissions estimates of criteria pollutant, GHG, HAP PTE were based on emission factors from AP-42, operation of 8,760 hours per year, and source testing performed on the cooking equipment at the facility for this proposed project. For the diesel-fired emergency IC engine emissions estimates of criteria pollutant, GHG, HAP PTE were based on emission factors from AP-42 and operation of 100 hours per year. This was done as there are no add-on controls for the emissions units and 8,760 hrs/yr of annual operation were assumed (except for the emergency IC engine).

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC	CO_2e
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
500 Sellers Boiler	0.683	0.054	8.984	7.547	0.494	10,765
350 Clayton Boiler	0.478	0.038	6.289	5.283	0.346	7,543
300 Sellers Boiler	0.410	0.032	5.391	4.529	0.297	6,470
200 Sellers Boiler	0.273	0.022	3.594	3.020	0.198	4,312
Sellers Water Heater	0.326	0.026	4.294	3.607	0.236	5,151
MPO L1	0.125	0.0012	0.193	0.162	1.92	230
MPO L2	0.125	0.0012	0.193	0.162	1.92	230
Fajita Brander L1	0.125	0.0017	0.279	0.235	1.92	335
Fajita Brander L2	0.125	0.0017	0.279	0.235	1.92	335
Unitherm L1	0.06	0.0129	2.147	1.804	13.14	2,575
Unitherm L2	0.06	0.0129	2.147	1.804	13.14	2,575
Cook King	0.05	0.0046	0.773	0.649	11.50	925
Fajita Fulton	0.078	0.0062	1.031	0.866	0.057	1,235
Cook Fulton	0.131	0.010	1.718	1.443	0.095	2,060
Fulton Thermal Fluid Heater	0.262	0.020	3.436	2.886	0.19	4,120
Emergency IC Engine	1.93	1.80	27.16	5.85	2.20	11
Total, Point Sources	**5.24**	**2.04**	**67.91**	**40.08**	**49.57**	**48,872**

The following table presents the uncontrolled Potential to Emit for HAP pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

Hazardous Air Pollutants	PTE (T/yr)
Arsenic	0.00007
Benzene	0.00788
Beryllium	0.000005
Cadmium	0.000412
Chromium	0.000350
Cobalt	0.000031
Dichlorobenzene	0.000451
Formaldehyde	0.0281
Hexane	0.6745
Manganese	0.000142
Mercury	0.000097
Naphthalene	0.000229
Nickel	0.000788
Selenium	0.000009
Toluene	0.001275
Total	**0.71**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

This is an existing facility. However, since this is the first time the facility is receiving a permit, pre-project emissions are set to zero for all criteria pollutants.

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria and GHG pollutants from all emissions units at the facility as determined by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC		CO_2e
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	T/yr[b]
500 Sellers Boiler	0.156	0.683	0.012	0.054	2.051	8.984	1.723	7.547	0.113	0.494	10,765
350 Clayton Boiler	0.109	0.478	0.009	0.038	1.436	6.289	1.206	5.283	0.079	0.346	7,543
300 Sellers Boiler	0.094	0.410	0.0074	0.032	1.231	5.391	1.034	4.529	0.068	0.297	6,470
200 Sellers Boiler	0.062	0.273	0.005	0.022	0.821	3.594	0.689	3.020	0.045	0.198	4,312
Sellers Water Heater	0.075	0.326	0.006	0.026	0.980	4.294	0.824	3.607	0.054	0.236	5,151
MPO L1	0.028	0.125	0.0003	0.0012	0.044	0.193	0.037	0.162	0.44	1.92	230
MPO L2	0.028	0.125	0.0003	0.0012	0.044	0.193	0.037	0.162	0.44	1.92	230
Fajita Brander L1	0.028	0.125	0.0004	0.0017	0.064	0.279	0.054	0.235	0.44	1.92	335
Fajita Brander L2	0.028	0.125	0.0004	0.0017	0.064	0.279	0.054	0.235	0.44	1.92	335
Unitherm L1	0.01	0.06	0.0029	0.0129	0.490	2.147	0.412	1.804	3.00	13.14	2,575
Unitherm L2	0.01	0.06	0.0029	0.0129	0.490	2.147	0.412	1.804	3.00	13.14	2,575
Cook King	0.01	0.05	0.0011	0.0046	0.176	0.773	0.148	0.649	2.63	11.50	925
Fajita Fulton	0.018	0.078	0.0014	0.0062	0.235	1.031	0.198	0.866	0.013	0.057	1,235
Cook Fulton	0.030	0.131	0.0024	0.010	0.392	1.718	0.329	1.443	0.022	0.095	2,060
Fulton Thermal Fluid Heater	0.060	0.262	0.021	0.020	0.784	3.436	0.658	2.886	0.044	0.19	4,120
Emergency IC Engine	0.44	1.93	0.41	1.80	6.20	27.16	1.34	5.85	0.5	2.20	11
Post Project Totals	**1.19**	**5.24**	**0.48**	**2.04**	**15.50**	**67.91**	**9.16**	**40.08**	**11.33**	**49.57**	**48,872**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC		CO_2e
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Potential to Emit	1.19	5.24	0.48	2.04	15.50	67.91	9.16	40.08	11.33	49.57	48,872
Changes in Potential to Emit	**1.19**	**5.24**	**0.48**	**2.04**	**15.50**	**67.91**	**9.16**	**40.08**	**11.33**	**49.57**	**48,872**

Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Barium	0.00E-03	3.76E-04	0.00038	0.033	No
Chromium	0.00E-03	7.99E-05	0.0000799	0.033	No
Cobalt metal, dust, and fume	0.00E-03	7.19E-06	0.000007	0.0033	No
Copper fume	0.00E-03	7.27E-05	0.00007	0.013	No
Dichlorobenzene	0.00E-03	1.03E-04	0.0001	0.0026	No
Hexane	0.00E-03	1.54E-01	0.154000	12	No
Manganese fume	0.00E-03	3.25E-05	0.00003	0.067	No
Molybdenum insoluble	0.00E-03	9.41E-05	0.00009	0.667	No
Naphthalene	0.00E-03	5.22E-05	0.0001	3.33	No
Nitrous oxide	0.00E-03	1.88E-01	0.1880	6	No
Pentane	0.00E-03	2.22E-01	0.2220000	118	No
Selenium	0.00E-03	2.05E-06	0.00000	0.013	No
Toluene	0.00E-03	2.91E-04	0.00029	25	No
Vanadium	0.00E-03	1.97E-04	0.00020	0.003	No
Zinc oxide fume	0.00E-03	2.48E-03	0.00248	0.333	No

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 7 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Arsenic compounds	**0.00E-03**	**1.71E-05**	**0.000017**	**1.5E-06**	**Yes**
Benzene	0.00E-03	1.80E-04	0.00018	8.0E-04	No
Beryllium	0.00E-03	1.03E-06	0.000001	2.8E-05	No
Cadmium	**0.00E-03**	**9.41E-05**	**0.000094**	**3.7E-06**	**Yes**
Formaldehyde	**0.00E-03**	**6.42E-03**	**0.00008**	**5.1E-04**	**Yes**
3-Methylchloranthrene	0.00E-03	1.54E-07	0.0064	2.5E-06	No
Nickel	**0.00E-03**	**1.80E-04**	**0.00000015**	**2.7E-05**	**Yes**
PAHs	0.00E-03	9.75E-07	0.00018	9.1E-05	No

Some of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is required for arsenic compounds, cadmium, formaldehyde, and nickel because the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 8 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (lb/hr)	PTE (T/yr)
Arsenic	1.71E-05	0.00007
Benzene	1.80E-04	0.000788
Beryllium	1.03E-06	0.000005
Cadmium	9.41E-05	0.000412
Chromium	7.99E-05	0.000350
Cobalt	7.19E-06	0.000031
Dichlorobenzene	1.03E-04	0.000451
Formaldehyde	6.42E-03	0.0281
Hexane	**1.54E-01**	**0.6745**
Manganese	3.25E-05	0.000142
Mercury	2.22E-05	0.000097
Naphthalene	5.22E-05	0.000229
Nickel	1.80E-04	0.000788
Selenium	2.05E-06	0.000009
Toluene	2.91E-04	0.001275
Totals	**0.16**	**0.71**

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of PM_{10}, $PM_{2.5}$, NO_X, CO, and TAP from this project were above applicable modeling levels and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

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

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

[1] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

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

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

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

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

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

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

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

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

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

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

UNK = Class is unknown.

Table 9 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	5.24	5.24	**100**	B
$PM_{10}/PM_{2.5}$	5.24	5.24	**100**	B
SO_2	2.04	2.04	**100**	B
NO_X	67.91	67.91	**100**	B
CO	40.08	40.08	**100**	B
VOC	49.57	49.57	**100**	B
HAP (single)	0.67	0.67	**10**	B
HAP (Total)	0.71	0.71	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

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

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 Tier II Operating Permit

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

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.4, 3.4, and 4.4.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676 Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. For the facility the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler, 300 Sellers Boiler, Sellers Water Heater, Fulton Heaters, and the Fulton Thermal Fluid Heater are subject to this requirement. This requirement is assured by Permit Conditions 2.5 and 3.5.

Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)

IDAPA 58.01.01.701 Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.700 through 703 set PM emission limits for process equipment based on when the piece of equipment commenced operation and the piece of equipment's process weight (PW) in pounds per hour (lb/hr). IDAPA 58.01.01.701 and IDAPA 58.01.01.702 establish PM emission limits for equipment that commenced operation on or after October 1, 1979 and for equipment operating prior to October 1, 1979, respectively.

For equipment that commenced operation on or after October 1, 1979, the PM allowable emission rate (E) is based on one of the following four equations:

IDAPA 58.01.01.701.01.a: If PW is $< 9{,}250$ lb/hr; $E = 0.045\ (PW)^{0.60}$

IDAPA 58.01.01.701.01.b: If PW is $\geq 9{,}250$ lb/hr; $E = 1.10\ (PW)^{0.25}$

For equipment that commenced prior to October 1, 1979, the PM allowable emission rate is based on one of the following equations:

IDAPA 58.01.01.702.01.a: If PW is $< 17{,}000$ lb/hr; $E = 0.045\ (PW)^{0.60}$

IDAPA 58.01.01.702.01.b: If PW is $\geq 17{,}000$ lb/hr; $E = 1.12\ (PW)^{0.27}$

For this facility the Multi-Purpose Ovens (MPOs), Fajita Branders, Unitherm flame grills, and Cook King oven are subject to this requirement. These process lines were all constructed after October 1, 1979 and have hourly throughputs of less than 9,250 lb/hr.

For the existing Multi-Purpose Ovens (MPOs) emissions units with a proposed throughput of 4,375 lb/hr, E is calculated as follows:

Therefore, E is calculated as:

$E = 0.045 \times PW^{0.60} = 0.045 \times (4{,}375)^{0.60} = 6.88$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.028 lb-PM_{10}/hr. Assuming PM is 50% PM_{10} means that PM emissions will be 0.056 lb-PM/hr (0.028 lb-PM_{10}/hr ÷ 0.5 lb-PM_{10}/lb-PM). Therefore, compliance with this requirement has been demonstrated.

For the existing Fajita Branders emissions units with a proposed throughput of 4,375 lb/hr, E is calculated as follows:

Therefore, E is calculated as:

$E = 0.045 \times PW^{0.60} = 0.045 \times (4{,}375)^{0.60} = 6.88$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.028 lb-PM_{10}/hr. Assuming PM is 50% PM_{10} means that PM emissions will be 0.056 lb-PM/hr (0.028 lb-PM_{10}/hr ÷ 0.5 lb-PM_{10}/lb-PM). Therefore, compliance with this requirement has been demonstrated.

For the existing Unitherm flame grills emissions units with a proposed throughput of 2,000 lb/hr, E is calculated as follows:

Therefore, E is calculated as:

$E = 0.045 \times PW^{0.60} = 0.045 \times (2{,}000)^{0.60} = 4.30$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.01 lb-PM_{10}/hr. Assuming PM is 50% PM_{10} means that PM emissions will be 0.02 lb-PM/hr (0.01 lb-PM_{10}/hr ÷ 0.5 lb-PM_{10}/lb-PM). Therefore, compliance with this requirement has been demonstrated.

For the existing Cook King oven emissions unit with a proposed throughput of 1,750 lb/hr, E is calculated as follows:

Therefore, E is calculated as:

$E = 0.045 \times PW^{0.60} = 0.045 \times (1{,}750)^{0.60} = 3.97$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.01 lb-PM_{10}/hr. Assuming PM is 50% PM_{10} means that PM emissions will be 0.02 lb-PM/hr (0.01 lb-PM_{10}/hr ÷ 0.5 lb-PM_{10}/lb-PM). Therefore, compliance with this requirement has been demonstrated.

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

IDAPA 58.01.01.301 Requirement to Obtain Tier I Operating Permit

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

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

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

NSPS Applicability (40 CFR 60)

Because the facility has four natural gas-fired boilers and a hot water heater the following NSPS requirement applies to this facility:

- 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

DEQ has been delegated authority to this subpart.

72 FR 32759, June 13, 2007, 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Sections that are highlighted are applicable to the emissions units at the facility.

§ 60.40c Applicability and delegation of authority

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

(b) In delegating implementation and enforcement authority to a State under section 111(c) of the Clean Air Act, §60.48c(a)(4) shall be retained by the Administrator and not transferred to a State.

(c) Steam generating units that meet the applicability requirements in paragraph (a) of this section are not subject to the sulfur dioxide (SO_2) or particulate matter (PM) emission limits, performance testing requirements, or monitoring requirements under this subpart (§§60.42c, 60.43c, 60.44c, 60.45c, 60.46c, or 60.47c) during periods of combustion research, as defined in §60.41c.

(d) Any temporary change to an existing steam generating unit for the purpose of conducting combustion research is not considered a modification under §60.14.

(e) Affected facilities (i.e. heat recovery steam generators and fuel heaters) that are associated with stationary combustion turbines and meet the applicability requirements of subpart KKKK of this part are not subject to this subpart. This subpart will continue to apply to all other heat recovery steam generators, fuel heaters, and other affected facilities that are capable of combusting more than or equal to 2.9 MW (10 MMBtu/h) heat input of fossil fuel but less than or equal to 29 MW (100 MMBtu/h) heat input of fossil fuel. If the heat recovery steam generator, fuel heater, or other affected facility is subject to this subpart, only emissions resulting from combustion of fuels in the steam generating unit are subject to this subpart. (The stationary combustion turbine emissions are subject to subpart GG or KKKK, as applicable, of this part.)

(f) Any affected facility that meets the applicability requirements of and is subject to subpart AAAA or subpart CCCC of this part is not subject to this subpart.

(g) Any facility that meets the applicability requirements and is subject to an EPA approved State or Federal section 111(d)/129 plan implementing subpart BBBB of this part is not subject to this subpart.

(h) Affected facilities that also meet the applicability requirements under subpart J or subpart Ja of this part are subject to the PM and NO_X standards under this subpart and the SO_2 standards under subpart J or subpart Ja of this part, as applicable.

(i) Temporary boilers are not subject to this subpart.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler are all rated at 10 to 100 MMBtu/hr. Therefore, the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler are subject to the requirements of Subpart Dc.

§ 60.41c Definitions

The definitions of this subpart apply to the units subject to this subpart.

§ 60.42c Standards for sulfur dioxide (SO_2)

(b) Except as provided in paragraphs (c) and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that:

(1) Combusts only coal refuse alone in a fluidized bed combustion steam generating unit shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 20 percent (0.20) of the potential SO_2 emission rate (80 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO2 in excess of SO_2 in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is fired with coal refuse, the affected facility subject to paragraph (a) of this section. If oil or any other fuel (except coal) is fired with coal refuse, the affected facility is subject to the 87 ng/J (0.20 lb/MMBtu) heat input SO_2 emissions limit or the 90 percent SO_2 reduction requirement specified in paragraph (a) of this section and the emission limit is determined pursuant to paragraph (e)(2) of this section.

(2) Combusts only coal and that uses an emerging technology for the control of SO_2 emissions shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 50 percent (0.50) of the potential SO_2 emission rate (50 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 260 ng/J (0.60 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility is subject to the 50 percent SO_2 reduction requirement specified in this paragraph and the emission limit determined pursuant to paragraph (e)(2) of this section.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler all combust natural gas exclusively. Therefore, the SO_2 standards of this subpart do not apply to the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler.

§ 60.43c Standards for particulate matter (PM)

(a) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts coal or combusts mixtures of coal with other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emission limits:

(1) 22 ng/J (0.051 lb/MMBtu) heat input if the affected facility combusts only coal, or combusts coal with other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility combusts coal with other fuels, has an annual capacity factor for the other fuels greater than 10 percent (0.10), and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler all combust natural gas exclusively. Therefore, the PM standards of this subpart do not apply to the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler.

§ 60.48c Reporting and recordkeeping requirements

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(4) Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler are subject to these requirements. Permit Condition 2.7 includes the requirements of this section.

(g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.

(2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO_2 standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO_2 standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler are subject to these requirements. Permit Condition 2.8 includes the requirements of this section.

(h) The owner or operator of each affected facility subject to a federally enforceable requirement limiting the annual capacity factor for any fuel or mixture of fuels under §60.42c or §60.43c shall calculate the annual capacity factor individually for each fuel combusted. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of the calendar month.

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler were not limited in their annual capacity. Therefore, they are not subject to this requirement.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

The 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler are subject to these requirements. Permit Condition 2.9 includes the requirements of this section.

NESHAP Applicability (40 CFR 61)

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

MACT Applicability (40 CFR 63)

Because the facility has an existing compression-ignited IC engine (the emergency IC engine powering a fire water pump) the following NESHAP requirements apply to this facility:

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

DEQ has been delegated authority to this subpart.

69 FR 33506, June 15, 2004, 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Sections that are highlighted are applicable to the emissions units at the facility.

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

§ 63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§ 63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

This facility is an area source for HAPs emissions. Therefore, the existing emergency IC engine powering a fire water pump is subject to the requirements of Subpart ZZZZ.

§ 63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

Section (a) defines an affected source as any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

Sections (1)(i) through (1)(iv) defines existing stationary RICE as the following:

For stationary RICE with a site rating of more than 500 brake horsepower (bhp) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

For stationary RICE with a site rating of less than or equal to 500 brake bhp located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

Sections (2)(i) through (2)(iii) defines new stationary RICE as the following:

A stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

A stationary RICE with a site rating of equal to or less than 500 bhp located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

Section (3)(i) through (2)(iii) defines reconstructed stationary RICE as the following:

A stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

A stationary RICE with a site rating of equal to or less than 500 bhp located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

Section (b) specifies which stationary RICE are subject to limited requirements of this subpart. An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f). The requirements of (b)(1)(i) through (ii) are as follows:

The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions.

The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions.

Section (2) specifies that a new or reconstructed stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10% or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

Section (3) allows that the following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

Existing spark ignition 2-stroke lean-burn (2SLB) stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing spark ignition 4-stroke lean-burn (4SLB) stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing limited use stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10% or more of the gross heat input on an annual basis;

Existing residential emergency stationary RICE located at an area source of HAP emissions;

Existing commercial emergency stationary RICE located at an area source of HAP emissions; or

Existing institutional emergency stationary RICE located at an area source of HAP emissions.

The existing emergency IC engine powering a fire water pump were installed prior to June 12, 2006 per the Applicant. Therefore, for Subpart ZZZZ the existing emergency IC engine powering a fire water pump is considered "existing."

§ 63.6595 When do I have to comply with this subpart?

(a) Affected sources.

(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(b) Area sources that become major sources. If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

Therefore, the emergency IC engine powering a fire water pump shall comply with Subpart ZZZZ on and after May 3, 2013. This requirement is assured by Permit Condition 4.5.

§ 63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.

Table 10 - Table 2D to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

For each...	You must meet the following requirement, except during periods of startup...	During periods of startup you must...
4. Emergency stationary CI RICE and black start stationary CI RICE.	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;	
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	

Therefore, the emergency IC engine powering a fire water pump shall comply with these requirements. This requirement is assured by Permit Condition 4.5.

§ 63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

Therefore, the emergency IC engine powering a fire water pump shall comply with these requirements. This requirement is assured by Permit Condition 4.6.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

PERMIT SCOPE

Permit Condition 1.1 explains that this is the initial permit for an existing facility.

Table 1.1 includes the existing equipment at the facility being permitted as a result of this project.

NATURAL GAS-FIRED BOILERS AND WATER HEATER

Permit Condition 2.1 provides the process description for the emissions units permitted in this section of the permit.

Table 2.2 includes the emissions units, control devices, and emissions points for the emissions units permitted in this section of the permit.

Permit Condition 2.3 specifies the criteria emissions limits for the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler, 300 Sellers Boiler, and Sellers Water Heater as proposed by the Applicant.

Permit Condition 2.4 establishes that emissions from the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler, 300 Sellers Boiler, and Sellers Water Heater shall not exceed 20% opacity as required by IDAPA 625.

Permit Condition 2.5 establishes that PM emissions from the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler, 300 Sellers Boiler, and Sellers Water Heater shall not exceed the grain loading limits as required by IDAPA 676.

Permit Condition 2.6 requires that the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler, 300 Sellers Boiler, and Sellers Water Heater combust natural gas exclusively as proposed by the Applicant.

As discussed previously Permit Conditions 2.7 thru 2.9 specify the requirements of NSPS Subpart Dc for the 500 Sellers Boiler, 350 Clayton Boiler, 300 Sellers Boiler.

Permit Condition 2.10 was included per current DEQ guidance on permits that include NSPS requirements.

MULTI-PURPOSE OVENS (MPOs), FAJITA BRANDERS, UNITHERMS, COOK KING, FAJITA FULTON, AND COOK FULTON

Permit Condition 3.1 provides the process description for the emissions units permitted in this section of the permit.

Table 3.2 includes the emissions units, control devices, and emissions points for the emissions units permitted in this section of the permit.

Permit Condition 3.3 specifies the criteria emissions limits for the Multi-Purpose Ovens (MPOs), Fajita Branders, Unitherms, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater as proposed by the Applicant.

Permit Condition 3.4 establishes that emissions from the Multi-Purpose Ovens (MPOs), Fajita Branders, Unitherms, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater shall not exceed 20% opacity as required by IDAPA 625.

Permit Condition 3.5 establishes that PM emissions from the Fulton Heaters and the Fulton Thermal Fluid Heater shall not exceed the grain loading limits as required by IDAPA 676.

Permit Condition 3.6 requires that the Multi-Purpose Ovens (MPOs), Fajita Branders, Unitherms, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater combust natural gas exclusively as proposed by the Applicant.

Permit Condition 3.7 includes the meat throughputs for the Multi-Purpose Ovens (MPOs), Fajita Branders, Unitherms, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater as proposed by the Applicant.

Permit Condition 3.7 requires that the Applicant monitor and record the cooked meat throughputs for the Multi-Purpose Ovens (MPOs), Fajita Branders, Unitherms, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater.

EMERGENCY IC ENGINE

Permit Condition 4.1 provides the process description for the emissions units permitted in this section of the permit.

Table 4.2 includes the emissions units, control devices, and emissions points for the emissions units permitted in this section of the permit.

Permit Condition 4.3 specifies the criteria emissions limits for the emergency IC engine as proposed by the Applicant.

Permit Condition 4.4 establishes that emissions from the emergency IC engine shall not exceed 20% opacity as required by IDAPA 625.

As discussed previously Permit Conditions 4.5 thru 4.7 specify the requirements of NESHAP Subpart ZZZZ for the emergency IC engine.

Permit Condition 4.7 was included per current DEQ guidance on permits that include NESHAP requirements.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

CTI
Plant Potential to Emit

	$PM_{2.5}$		PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr
Natural Gas	0.55	2.39	0.55	2.39	0.05	0.22	8.56	42.99	7.19	31.48	0.40	1.73
Diesel Fire Pump	0.44	1.93	0.44	1.93	0.41	1.80	6.20	27.16	1.34	5.85	0.50	2.20
Process	0.15	0.66	0.15	0.66							10.38	45.44
Total	1.14	4.98	1.14	4.98	0.46	2.02	14.76	70.15	8.52	37.33	11.27	49.38
Significant Emission Rate		10		15		40		40		100		40

Plant Annual Emissions

Natural Gas Usage Based on an Annual Capacity Factor for All Units of 100%
Diesel Fire Pump Usage Based on 100 Hours Operation at Capacity
Process Emissions are Based on Process PTE

	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO	VOC
	t/yr	t/yr	t/yr	t/yr	t/yr	t/yr
Natural Gas	2.39	2.39	0.22	42.99	31.48	1.73
Diesel Fire Pump	0.02	0.02	0.02	0.31	0.07	0.03
Process	0.66	0.66				45.44
Total	3.08	3.08	0.25	43.30	31.55	47.20
Significant Emission Rate	10	15	40	40	100	40

CTI
Process PTE Emissions

PM Emission Factors are from IDEQ review of September 2014 source test dated 12/17/14.
VOC Emission Factors are from South Coast Air Quality Management District factors for commercial cooking.

			Emission Factor			Production (PTE)		$PM_{2.5}$		PM_{10}		VOC	
	Product	Equipment	$PM_{2.5}$ (lb/ton)	PM_{10} (lb/ton)	VOC (lb/ton)	lb/hr	lb/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Plant 2	Burger	Unitherm Flame Grill-1	0.013	0.013	3.0	2,000	17,520,000	0.01	0.06	0.01	0.06	3.00	13.14
		Unitherm Flame Grill-2	0.013	0.013	3.0	2,000	17,520,000	0.01	0.06	0.01	0.06	3.00	13.14
	Fajita Meat	MPO-1	0.013	0.013	0.2	4,375	38,325,000	0.028	0.125	0.028	0.125	0.44	1.92
		MPO-2	0.013	0.013	0.2	4,375	38,325,000	0.028	0.125	0.028	0.125	0.44	1.92
		Brander-1	0.013	0.013	0.2	4,375	38,325,000	0.028	0.125	0.028	0.125	0.44	1.92
		Brander-2	0.013	0.013	0.2	4,375	38,325,000	0.028	0.125	0.028	0.125	0.44	1.92
Plant 3	Burger	Cook King Oven	0.013	0.013	3.0	1,750	15,330,000	0.01	0.05	0.01	0.05	2.63	11.50
							Totals	0.15	0.66	0.15	0.66	10.38	45.44

CTI
Fuel Burning PTE Emissions

Natural Gas

Reference: AP-42 section 1.4 (7/98) Emission Factors for Industrial Boilers Burning Natural Gas

Natural Gas	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
Boilers	7.6	lb/MMCF	0.6	lb/MMCF	100	lb/MMCF	84	lb/MMCF	5.5	lb/MMCF
Process Burners	7.6	lb/MMCF	0.6	lb/MMCF	100	lb/MMCF	84	lb/MMCF	5.5	lb/MMCF

Emissions

	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
Source	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr
500 Sellers Boiler	0.1559	0.6828	0.0123	0.0539	2.0512	8.9842	1.7230	7.5467	0.1128	0.4941
350 hp Clayton Boiler	0.1091	0.4779	0.0086	0.0377	1.4358	6.2887	1.2061	5.2825	0.0790	0.3459
300 hp Sellers Boiler	0.0935	0.4097	0.0074	0.0323	1.2309	5.3913	1.0339	4.5287	0.0677	0.2965
200 hp Sellers Boiler	0.0624	0.2732	0.0049	0.0216	0.8206	3.5942	0.6893	3.0191	0.0451	0.1977
Water Heater - Sellers	0.0745	0.3264	0.0059	0.0258	0.9804	4.2941	0.8235	3.6071	0.0539	0.2362
MPO L-1	Included in Process Emissions		0.0003	0.0012	0.0441	6.2887	0.0371	0.1623	Included in Process Emissions	
MPO L-2			0.0003	0.0012	0.0441	0.1932	0.0371	0.1623		
Fajita Brander - L1			0.0004	0.0017	0.0637	0.1932	0.0535	0.2345		
Fajita Brander - L2			0.0004	0.0017	0.0637	0.2791	0.0535	0.2345		
Unitherm L-1			0.0029	0.0129	0.4902	0.2791	0.4118	1.8035		
Unitherm L-2			0.0029	0.0129	0.4902	2.1471	0.4118	1.8035		
Cook King P-3			0.0011	0.0046	0.2353	2.1471	0.1482	0.6493		
Fajita Fulton	0.0179	0.0783	0.0014	0.0062	0.3922	1.0306	0.1976	0.8657	0.0129	0.0567
Cook Fulton	0.0298	0.1305	0.0024	0.0103	0.1765	1.7176	0.3294	1.4428	0.0216	0.0945
AMU P-3	0.0002	0.0008	0.0000	0.0001	0.0025	0.0107	0.0021	0.0090	0.0001	0.0006
AMU King Air P-2	0.0003	0.0011	0.0000	0.0001	0.0034	0.0150	0.0029	0.0126	0.0002	0.0008
AMU Hastings P-1	0.0001	0.0007	0.0000	0.0001	0.0020	0.0086	0.0016	0.0072	0.0001	0.0005
AMU Hastings P-2	0.0001	0.0007	0.0000	0.0001	0.0020	0.0086	0.0016	0.0072	0.0001	0.0005
AMU Triton P-2	0.0006	0.0025	0.0000	0.0002	0.0076	0.0333	0.0064	0.0279	0.0004	0.0018
Hartzel P-1	0.0015	0.0065	0.0001	0.0005	0.0196	0.0859	0.0165	0.0721	0.0011	0.0047
Total Natural Gas	0.55	2.39	0.05	0.22	8.56	42.99	7.19	31.48	0.40	1.73

Diesel Emergency Fire Pump

Reference: AP-42 section 3.3 (10/96) Emission Factors for Gasoline and Diesel Industrial Engines

	PM_{10}	SO_2	NO_X	CO	VOC
Emission Factor	2.20E-03 lb/hp-hr	2.05E-03 lb/hp-hr	0.031 lb/hp-hr	6.68E-03 lb/hp-hr	2.51E-03 lb/hp-hr

Emissions

	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
Source	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr
Diesel Fire Pump 200 bhp	0.44	1.93	0.41	1.80	6.20	27.16	1.34	5.85	0.50	2.20

CTI
Fuel Burning Equipment

Natural Gas 1020 Btu/CF
Hours/Year 8760

	Source	Btu/hr	MMBtu/hr	Hourly	Annual	Fuel
Process	500 Sellers Boiler	20,922,000	20.92	0.0205 MMCF	179.68 MMCF	Natural Gas
	350 hp Clayton Boiler	14,645,000	14.65	0.0144 MMCF	125.77 MMCF	Natural Gas
	300 hp Sellers Boiler	12,555,000	12.56	0.0123 MMCF	107.83 MMCF	Natural Gas
	200 hp Sellers Boiler	8,370,000	8.37	0.0082 MMCF	71.88 MMCF	Natural Gas
	Water Heater - Sellers	10,000,000	10.00	0.0098 MMCF	85.88 MMCF	Natural Gas
	MPO L-1	450,000	0.45	0.0004 MMCF	3.86 MMCF	Natural Gas
	MPO L-2	450,000	0.45	0.0004 MMCF	3.86 MMCF	Natural Gas
	Fajita Brander - L1	650,000	0.65	0.0006 MMCF	5.58 MMCF	Natural Gas
	Fajita Brander - L2	650,000	0.65	0.0006 MMCF	5.58 MMCF	Natural Gas
	Unitherm L-1	5,000,000	5.00	0.0049 MMCF	42.94 MMCF	Natural Gas
	Unitherm L-2	5,000,000	5.00	0.0049 MMCF	42.94 MMCF	Natural Gas
	Fajita Fulton	2,400,000	2.40	0.0024 MMCF	20.61 MMCF	Natural Gas
	Cook Fulton	4,000,000	4.00	0.0039 MMCF	34.35 MMCF	Natural Gas
	Cook King P-3	1,800,000	1.80	0.0018 MMCF	15.46 MMCF	Natural Gas
Plant Heating	AMU P-3	25,000	0.03	0.00002 MMCF	0.21 MMCF	Natural Gas
	AMU King Air P-2	35,000	0.04	0.00003 MMCF	0.30 MMCF	Natural Gas
	AMU Hastings P-1	20,000	0.02	0.00002 MMCF	0.17 MMCF	Natural Gas
	AMU Hastings P-2	20,000	0.02	0.00002 MMCF	0.17 MMCF	Natural Gas
	AMU Triton P-2	77,440	0.08	0.0001 MMCF	0.67 MMCF	Natural Gas
	Hartzel P-1	200,000	0.20	0.0002 MMCF	1.72 MMCF	Natural Gas
	Total		87.27	0.0856 MMCF	749.49 MMCF	
					764,480 MMBtu	
					7,644,803 Therms	

HAPs and TAPS

Natural Gas

Reference: AP-42 section 1.4 (7/98) Emission Factors for Industrial Boilers Burning Natural Gas

Heat Input	87.27 10^6 Btu/hr	**(Total Plant)**
Natural Gas	1,020 Btu/cf	
Hours per year	8,760	

Pollutant	Factor lb/10^6 CF	Factor lb/10^6 Btu	Emission Rate lb/hr	Idaho EL lb/hr	Greater Than EL	Idaho Toxic Class	PTE Emission Rate t/yr
2-Methylnaphthalene	2.40E-05	2.35E-08	2.05E-06				8.994E-06
3-Methylchloranthrene	1.80E-06	1.76E-09	1.54E-07	2.5E-06	No	A	6.75E-07
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	1.37E-06				6.00E-06
Acenaphthene	1.80E-06	1.76E-09	1.54E-07				6.75E-07
Acenaphthylene	1.80E-06	1.76E-09	1.54E-07				6.75E-07
Anthracene	2.40E-06	2.35E-09	2.05E-07				8.99E-07
Arsenic	2.0E-04	1.96E-07	1.71E-05	1.5E-06	Yes	A	7.49E-05
Barium	4.4E-03	4.31E-06	3.76E-04	0.03	No	B	1.65E-03
Benzene	2.1E-03	2.06E-06	1.80E-04	8.0E-04	No	A	7.87E-04
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	1.03E-07				4.50E-07
Beryllium	1.2E-05	1.18E-08	1.03E-06	2.8E-05	No	A	4.50E-06
Cadmium	1.1E-03	1.08E-06	9.41E-05	3.7E-06	Yes	A	4.12E-04
Chromium	9.3E-04	9.15E-07	7.99E-05	0.033	No	B	3.50E-04
Cobalt	8.4E-05	8.24E-08	7.19E-06	0.0033	No	B	3.15E-05
Copper	8.5E-04	8.33E-07	7.27E-05	0.013	No	B	3.19E-04
Dichlorobenzene	1.20E-03	1.18E-06	1.03E-04				4.50E-04
Fluoranthene	3.00E-06	2.94E-09	2.57E-07				1.12E-06
Fluorene	2.80E-06	2.75E-09	2.40E-07				1.05E-06
Formaldehyde	7.5E-02	7.35E-05	6.42E-03	5.1E-04	Yes	A	2.81E-02
Hexane (n,hexane)	1.8E+00	1.76E-03	1.54E-01	12	No	B	0.67
Manganese	3.8E-04	3.73E-07	3.25E-05	0.067	No	B	1.42E-04
Mercury	2.60E-04	2.55E-07	2.22E-05				9.74E-05
Molybdenum	1.1E-03	1.08E-06	9.41E-05	0.667	No	B	4.12E-04
N_2O	2.2	2.16E-03	1.88E-01	6	No	B	0.82
Naphthalene	6.1E-04	5.98E-07	5.22E-05	3.33	No	B	2.29E-04
Nickel	2.1E-03	2.06E-06	1.80E-04	2.7E-05	Yes	A	7.87E-04
Pentane	2.6E+00	2.55E-03	2.22E-01	118	No	B	0.97
Phenanathrene	1.70E-05	1.67E-08	1.45E-06				6.37E-06
Pyrene	5.00E-06	4.90E-09	4.28E-07				1.87E-06
Selenium	2.4E-05	2.35E-08	2.05E-06	0.013	No	B	8.99E-06
Toluene	3.4E-03	3.33E-06	2.91E-04	25	No	B	1.27E-03
Vanadium	2.3E-03	2.25E-06	1.97E-04	0.003	No	B	8.62E-04
Zinc	2.9E-02	2.84E-05	2.48E-03	0.667	No	B	1.09E-02
Polyaromatic hydrocarbon (PAH)	1.14E-05	1.12E-08	9.75E-07	9.1E-05	No	A	4.27E-06
PAH Emission Factor is the sum of the following substances in accordance with IDAPA 58.01.01.586 Table							
Benz(a)anthracene	1.8E-06	1.76E-09					
Benzo(a)pyrene	1.2E-06	1.18E-09					
Benzo(b)fluoranthene	1.8E-06	1.76E-09					
Benzo(k)fluoranthene	1.8E-06	1.76E-09					
Chrysene	1.8E-06	1.76E-09					
Dibenzo(a,h)anthracene	1.2E-06	1.18E-09					
Indeno(1,2,3-cd)pyrene	1.8E-06	1.76E-09					
						Total	2.52

CTI Wilder
Annual Greenhouse Gas Emissions

Fuel Burning	MMBtu/yr	Basis	Diesel Calculations				
Total Plant Natural Gas =	834,560	Capacity	hp-hr	Btu/hp-hr	Btu/hr	hr/yr	MMBtu/yr
Diesel =	140	100 hr/yr	200	7,000	1,400,000	100	140

		CO_2 Emissions		CH_4 Emissions			N_2O Emissions			Total CO_2e
	Annual Throughput	Emission Factor	tons/yr	Emission Factor	tons/yr	CO_2e (tons/yr)	Emission Factor	tons/yr	CO_2e (tons/yr)	tons/yr
Natural Gas	834,560 MMBtu	117.0 lb/MMBtu =	48,812	2.20E-03 lb/MMBtu =	0.92	19.32	2.20E-04 lb/MMBtu =	0.09	28.52	48,860
Diesel	140.0 MMBtu	163.1 lb/MMBtu =	11	6.61E-03 lb/MMBtu =	0.00	0.01	1.32E-03 lb/MMBtu =	0.0001	0.03	11
									Total	48,872

CO_2 Emission Factors
From Tables C-1 and C-2 to 40 CFR 98 Subpart C - Default Emission Factors

	CO_2		CH_4 (GWP=21)		N_2O (GWP=310)	
	kg CO_2 /mmBtu	lb CO_2 /mmBtu	kg CH_4/mmBtu)	lb CH_4/mmBtu)	kg N_2O/mmBtu	lb N_2O/mmBtu
Natural Gas	53.06	117.0	1.0E-03	2.2E-03	1.0E-04	2.2E-04
Diesel	73.96	163.1	3.0E-03	6.6E-03	6.0E-04	1.3E-03

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: April 14, 2016

TO: Darrin Pampaian, P.E., Permit Writer, Air Program

FROM: Darrin Mehr, Analyst, Air Program

PROJECT: P-2015.0013 PROJ 61490 – PTC Application for CTI Food Services Division – Installation of a New Thermal Fluid Heater and Initial Facility-wide PTC for the Facility Located Near Wilder, Idaho.

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

Contents

Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
acfm	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
As	Arsenic
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
Cr6+	Hexavalent Chromium
DEM	Digital Elevation Map
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
GEP	Good Engineering Practice
hr	hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
m	Meters
m/sec	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NWS	National Weather Service
O_3	Ozone
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	parts per million
PRIME	Plume Rise Model Enhancement
PTC	Permit to Construct
PTE	Potential to Emit
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
tpy	tons per year

USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
$\mu g/m^3$	Micrograms per cubic meter of air

1.0 Summary

1.1 General Project Summary

On March 18, 2015, CTI Foods – SSI Food Services Division (CTI Foods) submitted an application for an initial Permit to Construct (PTC for the facility. The facility previously operated as an exempt source and was subsequently directed by the DEQ permitting group to obtain a PTC, following issuance of a PTC exemption denial and notice that the facility does not qualify for a PTC exemption. This project also incorporated a proposed natural gas-fired hot oil heater unit in the facility-wide analyses.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 and 203.03 [Idaho Air Rules Section 203.02 and 203.03]). LPG Associates, Inc. (LPG Associates), CTI Foods' permitting consultant, submitted analyses and applicable information and data to enable DEQ to evaluate potential impacts to ambient air.

LPG Associates performed project-specific air quality impact analyses to demonstrate compliance for facility-wide allowable emissions with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the pollutant dispersion modeling analyses used to demonstrate that the estimated emissions associated with operation of the facility as modified will not cause or significantly contribute to a violation of the applicable air quality standards. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. This modeling review also did not evaluate the accuracy of emissions estimates. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the DEQ Statement of Basis.

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

This modeling review memorandum is based on the modeling report submitted on January 18, 2016 and the modeling files submitted on January 19, 2016. These materials were submitted as part of the PTC application.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	**Explanation/Consideration**
Increased Stack Heights: CTI Foods proposed to increase stack heights of 3 boilers. Affected boilers with heights above grade elevation: • 500 HP Sellers Boiler: Existing = 42 feet, Proposed Future = 57 feet • 350 hp Clayton Boiler: Existing = 20 feet, Proposed Future = 50 feet • 300 hp Sellers Boiler: Existing = 46 feet, Proposed Future = 51 feet	The increased stack heights were used in the modeling analyses to improve exhaust plume dispersion characteristics and comply with the 1-hour average NO_2 NAAQS. Existing stack termination heights were obtained from the March 18, 2015 modeling report associated with a previously submitted application that was later determined incomplete. These sources are equipped with rain caps and plume dispersion is inhibited by these caps. The proposed stack height increases are critical to the compliance demonstration and should be considered as an operating condition for the PTC.
Operating Hours: All sources were modeled using specified hourly emissions rates for 24 hours per day and 8,760 hours per year except for the fire water pump engine. The fire water pump engine was modeled at 12 hours per day and 100 hours per year of operation. This was applied in the $PM_{2.5}$ and PM_{10} NAAQS compliance demonstrations.	Except for emergency equipment, unrestricted operation was assumed using the hourly emission rates applied in the model. The firewater pump engine is an emergency stationary internal combustion engine that is exempt from the 1-hour NO_2 NAAQS compliance demonstration as per DEQ guidance. Annual hours of operation—including emergency operation, testing, and maintenance—should be limited to 100 hours per year for the fire water pump engine.
NEW Fulton Thermal Oil Heater Stack Parameters: The New Fulton Thermal Fluid Heater will be a Model FT-C 0800 (or 8 million Btu/hr heat output) This is a high efficiency 4 pass heat exchange unit. Modeled stack diameter was 20 inches.	Given the 1-hour NO_2 NAAQS compliance demonstration indicated that NO_2 impacts are 99.9% of the allowable standard, it is imperative that new NO_2 source is constructed and operated as represented in the air impact analyses. The emissions release stack must meet the following: • Vertical and uninterrupted release at all times during operation. • A maximum of 20 inches in diameter. • Stack termination at no less than 59 feet above grade.

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

1.2 Summary of Submittals and Actions

March 10, 2014: LPG Associates contacted DEQ concerning a modeling applicability determination for the CTI Foods facility.

March 21, 2014:	DEQ contacted LPG Associates with initial modeling applicability information and suggested guidance to review.
April 1, 2014:	DEQ emailed LPG Associates the current 5-year meteorological dataset for the project. The met data was generated by DEQ based on Boise data.
April 30, 2014:	LPG Associates emailed DEQ EPA AQS monitoring data tables and a Caldwell airport wind rose for DEQ to consider in establishing ambient backgrounds and met data for the CTI Foods project.
May 15, 2014:	DEQ, CTI Foods, and LPG Associates participated in a conference call regarding the facility-wide permitting project and $PM_{2.5}$ emission factors. The project was delayed pending new performance test results for process unit $PM_{2.5}$ emissions.
March 18, 2015:	DEQ received the project's initial permit application modeling report and modeling files.
April 16, 2015:	DEQ declared the permit application incomplete.
May 29, 2015	DEQ received a response package to the incompleteness determination.
June 1, 2015:	CTI Foods and LPG Associates submitted the modeling files for the May 29, 2015 incompleteness response.
June 25, 2015:	DEQ declared the permit application incomplete.
July 8, 2015:	LPG Associates, on behalf of CTI Foods, submitted a justification and request for authorization to use the non-default regulatory Tier 2 Ambient Ratio Method 2 (Tier 2 ARM2) for the 1-hour 1-NO_2 NAAQS compliance demonstration. The submittal and a July 14, 2015 addendum were submitted via email.
September 30, 2015:	DEQ issued an approval for CTI Foods to use the Tier 2 ARM2 method for this project, via email.
October 19, 2015:	DEQ received an application incompleteness response package from LPG Associates, via email, on behalf of CTI Foods.
November 16, 2015:	DEQ declared the permit application incomplete, via email.
December 15, 2015:	CTI Foods requested a response extension in order to include a new emissions unit in the permit application and modeling demonstration.
January 18, 2016:	DEQ received a revised permit application from LPG Associates, on behalf of CTI Foods, via email.
January 19, 2016:	DEQ received the electronic modeling file for the January 18th submittal via email.
February 18, 2016:	DEQ declared the application complete.

2.0 Background Information

2.1 Permit Requirements for Permits to Construct

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

The facility was notified by the stationary source air permitting group that the facility did not qualify as an exempt source and needed to obtain a PTC.

2.2 Project Location and Area Classification

The facility is located near Wilder, Idaho, in Canyon County. The area is designated as attainment or unclassifiable for all pollutants.

2.3 Modeling Applicability for Criteria Pollutants

Idaho Air Rules Section 203.02 state that a PTC cannot be issued unless the application demonstrates to the satisfaction of DEQ that the new source or modification will not cause or significantly contribute to a NAAQS violation. Atmospheric dispersion modeling is used to evaluate the potential impact of a proposed project to ambient air and demonstrate NAAQS compliance. However, if the emissions associated with a project are very small, project-specific modeling analyses may not be necessary. If the emissions increases associated with a project are below modeling applicability thresholds established in the *Idaho Air Modeling Guideline* ("State of Idaho Guideline for Performing Air Quality Impact Analyses," available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf), then a project-specific analysis is not required. Modeling applicability emissions thresholds were developed by DEQ based on modeling of a hypothetical source and were designed to reasonably ensure that impacts are below the applicable Significant Impact Level (SIL). DEQ has established two threshold levels: Level 1 thresholds are unconditional thresholds, requiring no approval for use by DEQ; Level 2 thresholds are conditional upon DEQ approval, which depends on evaluation of the project and the site, including emissions quantities, stack parameters, number of sources emissions are distributed amongst, distance between the sources and the ambient air boundary, and the presence of sensitive receptors near the ambient air boundary.

2.3.1 Below Regulatory Concern (BRC) Modeling Exemption

DEQ's regulatory interpretation of permit exemption provisions of Idaho Air Rules (Policy on NAAQS Compliance Demonstration Requirements, DEQ policy memorandum, July 11, 2014) is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant." The interpretation policy also states that the exemption criteria of uncontrolled PTE not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year.

The submitted emissions inventory asserts that facility-wide PTE emissions of sulfur dioxide (SO_2) and lead (Pb) are below BRC levels, as listed in Table 2. Therefore, a NAAQS compliance demonstration for SO_2 and Pb, per Idaho Air Rules Section 203.02 is not required for permit issuance.

Table 2. CRITERIA POLLUTANT NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY

Criteria Pollutant	Below Regulatory Concern Level (ton/year)	Applicable Facility-Wide Potential Emissions (ton/year)	NAAQS Compliance Exempted per BRC Policy?
PM_{10}[a]	1.5	3.34	No
$PM_{2.5}$[b]	1.0	3.34	No
Carbon Monoxide (CO)	10.0	34.4	No
Sulfur Dioxide (SO_2)	4.0	0.27	Yes
Nitrogen Oxides (NOx)	4.0	42.22	No
Lead (Pb)	0.06	Not listed in inventory[c]	Yes
Ozone as VOC or NOx	4.0	49.6 T/yr VOCs	No

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. Potential lead emissions form the facility are assumed to be well below 120 pounds per year (10% of the 0.6 ton per year significant emission rate defined by Section 006.101.a.iv of the Idaho Air Rules).

2.3.2 Exclusion from Impact Analyses Based on Modeling Thresholds

DEQ may determine that reasonably expected impacts from specific criteria pollutant emissions, for those pollutants not excluded from analysis by DEQ's regulatory interpretation policy of exemption provisions (discussed above), are so minimal that NAAQS compliance is assured without the need to perform a project-specific impact analysis. Modeling applicability threshold emissions values were established to evaluate the level below which NAAQS compliance is effectively assured. These thresholds are established in the *Idaho Air Quality Modeling Guideline* (http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf). Modeling thresholds, for criteria pollutants other than Pb, were developed to ensure modeled impacts are less than the SIL for sources with good dispersion characteristics. The modeling threshold for Pb was set to assure compliance with the NAAQS, since there is no SIL for Pb.

In the event the requested potential to emit for the project exceeds the BRC policy thresholds or the pollutant emissions do not otherwise qualify for a BRC exemption, DEQ evaluates whether emissions comply with Level I de minimis thresholds or, on a case-by-case basis, Level II discretionary thresholds, if DEQ determines the modeling situation is appropriate to apply these less conservative values. Carbon monoxide (CO) emissions exceeded the BRC threshold so emissions were compared against the Level I de minimis threshold of 15 pounds per hour. Potential hourly emissions of CO, considering all process equipment and the fire water pump engine, were estimated to be 9.2 pounds per hour- well below the Level I modeling threshold.

Emissions of NO_x, PM_{10}, and $PM_{2.5}$ exceeded the Level I modeling thresholds for the project and also exceeded the Below Regulatory Concern (BRC) policy thresholds for modeling. Emissions of CO and SO_2 did not exceed the Level I modeling thresholds for the combined project defined as an initial facility-wide PTC and installation of a new Fulton thermal oil heater unit. Pb emission were not addressed in the emissions inventory submitted with the application and were evaluated by the DEQ permit writer to be negligible and well below the 120 pounds per year BRC threshold.

Project-specific modeling was required for the facility-wide emissions of the CTI facility for the 24-hour and annual $PM_{2.5}$, 24-hour PM_{10}, and 1-hour and annual NO_2 ambient standards.

2.3.3 Ozone Modeling Applicability

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

Addressing secondary formation of O_3 has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

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

Allowable emissions estimates of VOCs and NOx are below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis.

2.3.4 Secondary Particulate Formation Modeling Applicability

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

2.4 Significant and Cumulative NAAQS Impact Analyses

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

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts,

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

Table 3. APPLICABLE REGULATORY LIMITS

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

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

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

Compliance with Idaho Air Rules Section 203.02 is demonstrated if: a) specific applicable criteria pollutant emissions increases are at a level defined as BRC, using the criteria established by DEQ regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling applicable emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 Toxic Air Pollutant Analyses

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

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

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

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

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

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. The DEQ permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

3.0 Analytical Methods and Data

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant's consultant, LPG Associates, to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

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

Table 5 provides a brief description of parameters used in the modeling analyses.

Table 5. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Wilder, Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 15181. The non-default Beta algorithms for capped and horizontal releases for point sources were used for this project.
Meteorological Data	Boise	2008-2012 - See Section 3.3 of this memorandum. Surface and upper air data from Boise, Idaho.
Terrain	Considered	Receptor elevations were determined using a digital elevation map (DEM) file based on the NAD83 datum.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility.
Receptor Grid	Grid 1	10-meter spacing along the ambient air boundary.
	Grid 2	10-meter spacing in a 500-meter (x) by 600-meter (y) rectangular grid centered on the facility. This fine grid provides a minimum coverage of 100 meters from the ambient air boundary.
	Grid 3	30-meter spacing in a 1,300-meter (x) by 1,410-meter (y) rectangular grid centered on Grid 2.
	Grid 4	100-meter spacing in a 2,300-meter (x) by 2,400-meter (y) rectangular grid centered on Grid 3.

3.1.2 Modeling Protocol

A modeling protocol was not submitted to DEQ prior to submittal of the application. DEQ and LPG Associates exchanged several emails concerning the project, addressing a number of modeling applicability and method topics.

DEQ provided LPG Associates with a DEQ-generated 5-year meteorological dataset using Boise airport surface, ASOS for data fill, and upper air data. The met data was provided to LPG Associates via email on April 1, 2014.

Final project-specific modeling was generally conducted using data and methods described in the *Idaho Air Modeling Guideline*.

3.1.3 Model Selection

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

AERMOD version 15181 was used by LPG Associates for the modeling analyses to evaluate impacts of the facility. This is the current version of this regulatory guideline model.

NO_2 1-hour impacts can be assessed using a tiered approach to account for $NO/NO_2/O_3$ chemistry. Tier 1 assumes full conversion of NO to NO_2. Tier 2 ARM assumes a 0.80 default ambient ratio of NO_2/NO_x. Tier 2 ARM assumes a default ratio of 0.75 of NO_2/NO_x for annual average NO_2.

Tier 2 ARM2 is a more refined method of estimating the conversion of NO to NO_2 for the 1-hour NO_2 standard than the established Tier 2 ARM. Tier 2 ARM2 relies on a considerable body of EPA Air Quality System (AQS) monitoring data analyzing the NO_2/NO_x ratios of the nationwide data. As described in the underlying technical paper submitted to EPA[1] and EPA's related guidance[2] the nationwide EPA data was separated into groups or "bins" of data values spaced in increments of 10 parts per billion (ppb) where NOx monitoring values were less than 200 ppb and 20 ppb "bins" for values greater than 200 ppb. Within each 10 ppb and 20 ppb bin, the 98th percentile value for the NO_2/NO_x was determined and used in the dataset to create a sixth order polynomial regression equation that is used to calculate a NO_2/NO_x ratio based on total NO_x.

Tier 3 is a more refined assessment of the NO to NO_2 conversion, using a supplemental modeling program with AERMOD to better account for $NO/NO_2/O_3$ atmospheric chemistry. Either the Plume Volume Molar Ratio Method (PVMRM) or the Ozone Limiting Method (OLM) can be specified within the AERMOD input file for the Tier 3 approach. EPA guidance (Memorandum: from Tyler Fox, Leader, Air Quality Modeling Group, C439-01, Office of Air Quality Planning and Standards, USEPA; to Regional Air Division Directors. *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard.* March 01, 2011) has not indicated a preference for one option over the other (PVMRM vs OLM) for particular applications. The Tier 2 ARM2 and both Tier 3 methods are considered to be non-regulatory guideline methods and must be approved by DEQ for the applicant's use on a case-by-case basis. LPG Associates elected to use a Tier 2 ARM2 approach for the 1-hr NO_2 NAAQS analyses.

DEQ approved the use of the Beta algorithms for treatment of point sources with horizontal release orientation or equipped with a rain cap that impedes the vertical momentum of exhaust plumes. Thermal buoyancy with regard to the temperature of the plume is still accounted for with this method.

3.1.3.1 Justification for Use of Tier 2 ARM2 for NO_2 NAAQS Demonstration

The Tier 2 ARM2 approach is generally considered to be conservative compared to Tier 3 methods, provided certain criteria are met. EPA's current guidance[2] prescribes the process that should be used for evaluation and agency approval of ARM2 for use in a 1-hour NO_2 NAAQS compliance demonstrations. On July 8, 2015, LPG Associates submitted a formal email request for approval to use ARM2 for the project. Included with this request was justification for use of the method, including an AERMOD

analysis of the project's NO_2 impacts, based on the defined project at that time (this preceded the proposal for the New Fulton Thermal Heater unit). DEQ granted the request and accepts the information already submitted as appropriate justification for use of the Tier 2 ARM2 method.

Section 3.2.6 of EPA's September 30, 2014 guidance memorandum[2] provides a succinct summary of a four-part framework to demonstrate that the Tier 2 ARM2 method is appropriate for the modeling demonstration. LPG Associates' responses from their July 8, 2015 justification for each of the criteria are described below:

1. **EPA Criteria from Memorandum:**
   Impacts from the "primary source" are less than 150 to 200 ppb (or 282 micrograms per cubic meter ($\mu g/m^3$) to 360 $\mu g/m^3$) when using the Tier 1 method of total conversion (all NOx is NO_2).

   DEQ requested that CTI Foods' justification for ARM2 include a Tier I impact analysis that assumes 100% conversion of NO to NO_2 (no application of ARM2). DEQ also requested that model impacts representing the maximum of 1st highest maximum daily 1-hour impact of NO_x from the facility be used in the evaluation. This compares to the NO_2 design value of the standard, which is the maximum of highest 8th maximum daily 1-hour impacts.

   CTI Foods Response:
   A Tier 1 NO_2 modeling analysis was performed and the highest of 1st high modeled values over the 5-year period was 204.6 $\mu g/m^3$. This is below the minimum appropriateness threshold of 282 $\mu g/m^3$. This analysis is conservative in that DEQ has determined the appropriate value for comparison to the threshold is the maximum of 8th highest maximum daily 1-hour total NOx values. This conservative approach offsets the exclusion of the new Fulton heater in the Tier 1 analysis for ARM2 justification of use.

2. **EPA Memorandum:**
   If the total predicted NOx from a Tier 1, total conversion, analysis exceeds the 150-200 ppb threshold recommended above, then the representative background NO_2 concentration may also be considered to justify a higher NOx threshold. If representative background NO_2 levels are generally low (less than about 20-30 ppb), then it may be appropriate to consider a higher NOx threshold to justify use of ARM2.

   DEQ Comment:
   CTI's Tier I impact was below 150 ppb (or 282 $\mu g/m^3$) minimum threshold value. This condition does not affect CTI Foods' request.

3. **EPA Memorandum:**
   If the total NO_x from a Tier 1 total conversion analysis exceeds the 150-200 ppb threshold outlined above, then the NO_2/NO_x In-Stack Ratio (ISR) of the primary source should be considered. If the primary source has ISRs that are all below 0.2, then ARM2 should be appropriately conservative for a Tier 2 analysis. If the source has a known ISR greater than 0.2, then ARM2 may be used, but the minimum ARM2 ratio should be adjusted to match the source's ISR. If a source has multiple stacks with varying ISRs, then nominally, the minimum ARM2 ratio should be set to the maximum source ISR.

CTI Foods Response:
DEQ indicated in the June 25, 2015 incompleteness letter that a minimum NO_2/NO_X in stack ratio (ISR) of 0.5 could be used for the ARM2 method without further addressing the ISR for all the fuel burning sources. The minimum ISR ratio of 0.5 will be used for the CTI modeling.

DEQ Comment:
Use of the 0.5 NO_2/NO_x ratio negates any need for additional substantiation.

4. **EPA Memorandum:**
EPA conducted sensitivity tests to evaluate the threshold where the Tier 2 ARM2 method NO_2/NO_x ratios are less conservative than the Tier 3 OLM, Tier 3 PVMRM, or actual NO_2/NO_x ratios. EPA concluded that the ARM2 method would not be appropriate if the background ozone is frequently (more than seven days per year) greater than 80 to 90 ppb during a typical year.

DEQ provided CTI Foods with background ozone data obtained from a Middleton, Idaho site for the years 2002 through 2006. The Middleton data was the best available ozone dataset available that covered multiple years at a site located in relatively close proximity to CTI Foods.

CTI Foods Response and Analysis:
The data showed the following frequencies of monitored ozone levels greater than 80 ppb and greater than 90 ppb:

Year	Days > 80 ppb	Days > 90 ppb
2002	7	2
2003	2	0
2004	0	0
2005	2	1
2006	3	0

All the years showed seven or fewer days with an hourly ozone reading > 80 ppb, which matches the criteria of no more than seven days per year with ozone levels greater than 80 to 90 ppb.

In conclusion, DEQ concurs that CTI Foods' project qualifies for use of Tier 2 ARM2 based on the request for authorization and justification materials presented to DEQ in the July 8, 2015 submittal. DEQ formally approved the request on September 30, 2015 via email.

3.2 Background Concentrations

A background concentration tool was used to establish ambient background concentrations for this project. A beta version of the background concentration tool was developed by the Northwest International Air Quality Environmental Science and Technology Consortium (NW Airquest) and provided through Washington State University (located at http://lar.wsu.edu/nw-airquest/lookup.html). The tool uses regional scale modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data. The background is added to the design value for each pollutant and averaging period.

DEQ requested that CTI's NAAQS demonstration use the NW AIRQUEST backgrounds concentration tool for the facility's location to obtain ambient backgrounds for the 24-hour PM_{10}, 24-hour and annual $PM_{2.5}$, and 1-hour and annual NO_2. The coordinates of the facility are 43.695 degrees latitude and -116.913 degrees longitude.

The DEQ-recommended background values for the project are listed in Table 4.

Table 4. BACKGROUND CONCENTRATIONS

Pollutant and Averaging Period	NW AIRQUEST BackgroundConcentration ($\mu g/m^3$)[a]
NO_2[b], 1-hour	60
NO_2, annual	5.3
PM_{10}[c] 24-hour	64[e]
$PM_{2.5}$[d] 24-hour	18
$PM_{2.5}$ annual	5.3
Ozone (for Tier 3 1-hr NO_2 Analyses)	56 ppb[f]

a. Micrograms per cubic meter, except where noted otherwise.
b. Nitrogen dioxide.
c. Particulate matter with a mean aerodynamic diameter of ten microns or less.
d. Particulate matter with a mean aerodynamic diameter of 2.5 microns or less.
e. Extreme values were removed.
f. parts per billion.

3.3 Meteorological Data

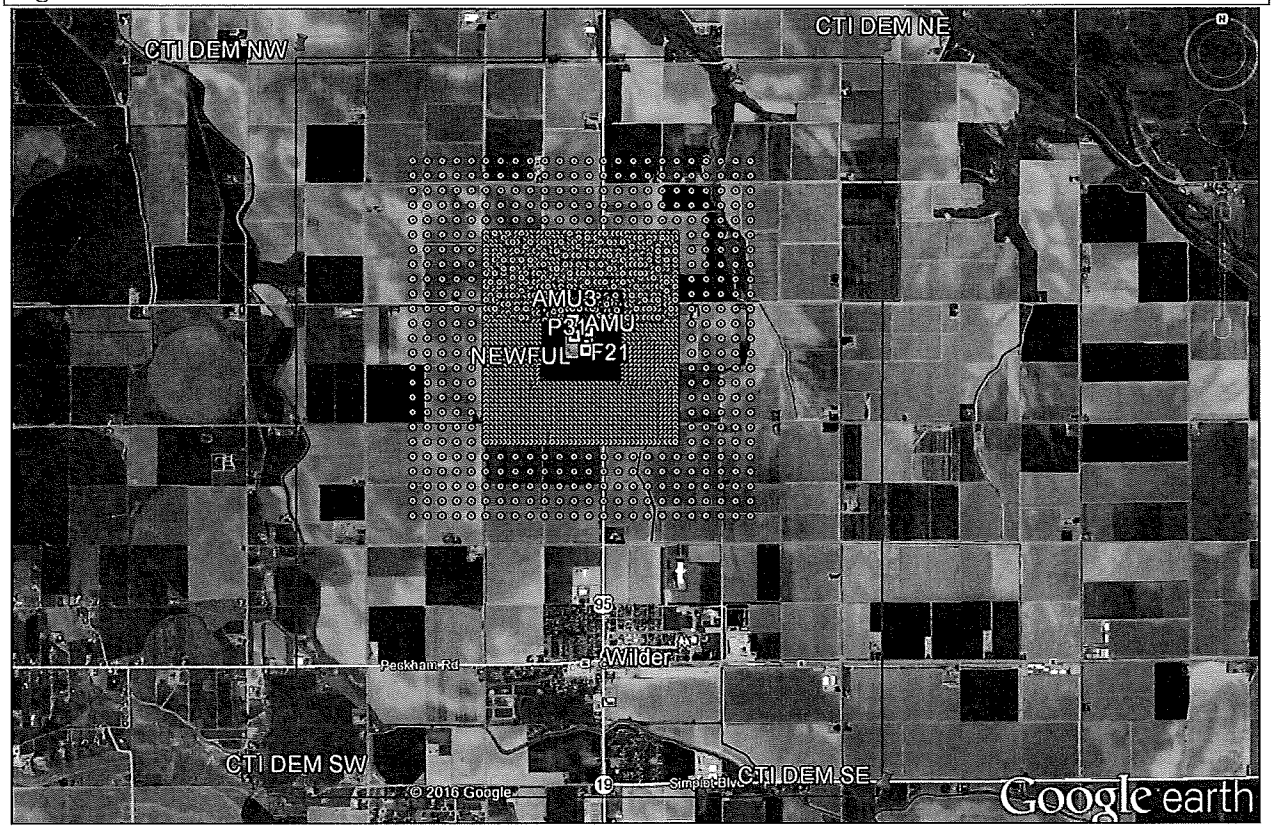
DEQ provided LPG Associates, via an April 1, 2014 email, with a model-ready meteorological dataset processed from Boise surface and upper air meteorological data covering the years 2008-2012. The model-ready dataset for this project was generated from monitored data collected at Boise airport (FAA airport code KBOI) for surface and Automated Surface Observing System (ASOS) data and upper air data from the National Weather Service (NWS) Station site (site code BOI). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. AERMINUTE version 11325 was used to process ASOS wind data for use in AERMET. AERMET Version 12345 was used to process surface and upper air data and generate a model-ready meteorological data input file. DEQ determined these data were reasonably representative for the CTI Foods Wilder, Idaho site and approved use of this dataset for the project.

3.4 Terrain Effects

LPG Associates used a digital elevation model (DEM) file in North American Datum 1983 (NAD83), to calculate elevations of receptors. The terrain preprocessor AERMAP version 11103 was used to extract the elevations from the DEM file and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.
Figure 1 shows the extent of the DEM file coverage that was used in the final January 18, 2016 air impact analyses. The spatial resolution of the data for the horizontal coordinates and elevation was listed in the submitted files as 7.4857 meters for the X coordinate data; 10.2832 meters for the Y coordinate data; and, 1.0000 meters for the Z (vertical) coordinate data.

The submitted AERMAP output file "CTI.Mot" included receptors only. Buildings and emission sources were not included in this AERMAP run to establish base elevations.

Figure 1. TERRAIN DATA COVERAGE AND RECEPTOR DOMAIN



3.5 Building Downwash Effects on Modeled Impacts

Potential downwash effects on the emissions plume were accounted for in the model by using building parameters as described by LPG Associates. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and release parameters for input to AERMOD. DEQ noted that base elevations many of the emission sources were approximately 0.7 meters to 0.9 meters higher than the base elevations of the primary structures where these point source stacks were located. All stacks were assigned a base elevation of 737.9 meters versus base elevations of 737.2 meters for "MAIN" building, and 737.0 meters for the 8-tiered "SLOPE" building. These two structures make up the primary processing building at this facility. The MAIN and SLOPE Modeled building heights are listed in Table 6.

One off-site structure was included in the model setup, which was located directly across Highway 95, in the vicinity of the boiler stacks.
The increase in stack base height compared to building base height will result in an artificial stack height increase in the model setup. This could be critical to the 1-hour NO_2 NAAQS compliance demonstration because modeled impacts are very near the standard. DEQ performed a sensitivity analysis for 1-hour NO_2 to verify NAAQS compliance when stack base elevations and building base elevations for the MAIN and SLOPE structures are identical, thereby eliminating the artificial stack height increase caused by the

discrepancy in base elevation between buildings and stacks. See Section 4.4 of this memorandum to review the results of the simple sensitivity analyses performed by DEQ.

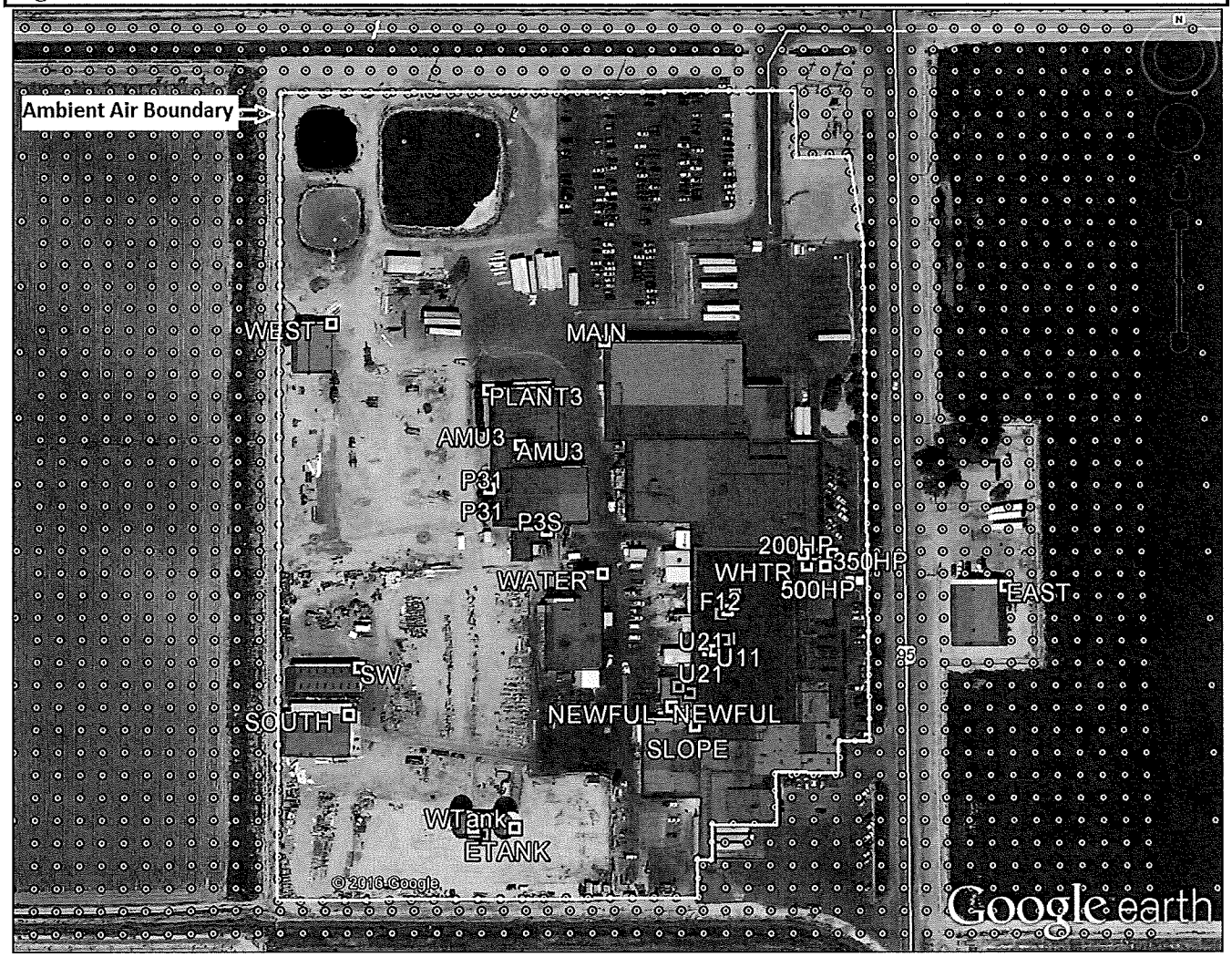
Table 6. MODELED BUILDING HEIGHTS			
Building Name	**Number of Building Tiers**	**Base Elevation (m)[a]**	**Tier Height (m)**
MAIN	1	737.2	7.32
SLOPE	8	737.0	Tier 1 - 7.54
			Tier 2 - 7.77
			Tier 3 - 8.00
			Tier 4 – 8.23
			Tier 5 – 8.46
			Tier 6 – 8.69
			Tier 7 – 8.92
			Tier 8 – 9.14
PLANT3	1	737.9	6.10
WATER	1	737.9	7.32
P3S	1	737.9	4.88
WEST	1	739.1	4.88
EAST	1	737.0	7.32
SW	1	739.1	6.10
SOUTH	1	739.1	6.10
Fire	1	737.9	3.05
WTank	1	737.9	12.19
ETANK	1	737.9	12.19

a. Meters.

3.6 Facility Layout

CTI Foods' modeled emission points, structures, and ambient air boundary are shown in Figure 3. The facility's structure locations and horizontal dimensions closely matched those presented in the photographic imagery shown from the web-based mapping program Google earth. Figure 3 shows an orthogonal view of the stack and structure layout as setup in the modeling demonstration BPIP-PRIME setup.

Figure 2. CTI FOODS FACILITY LAYOUT



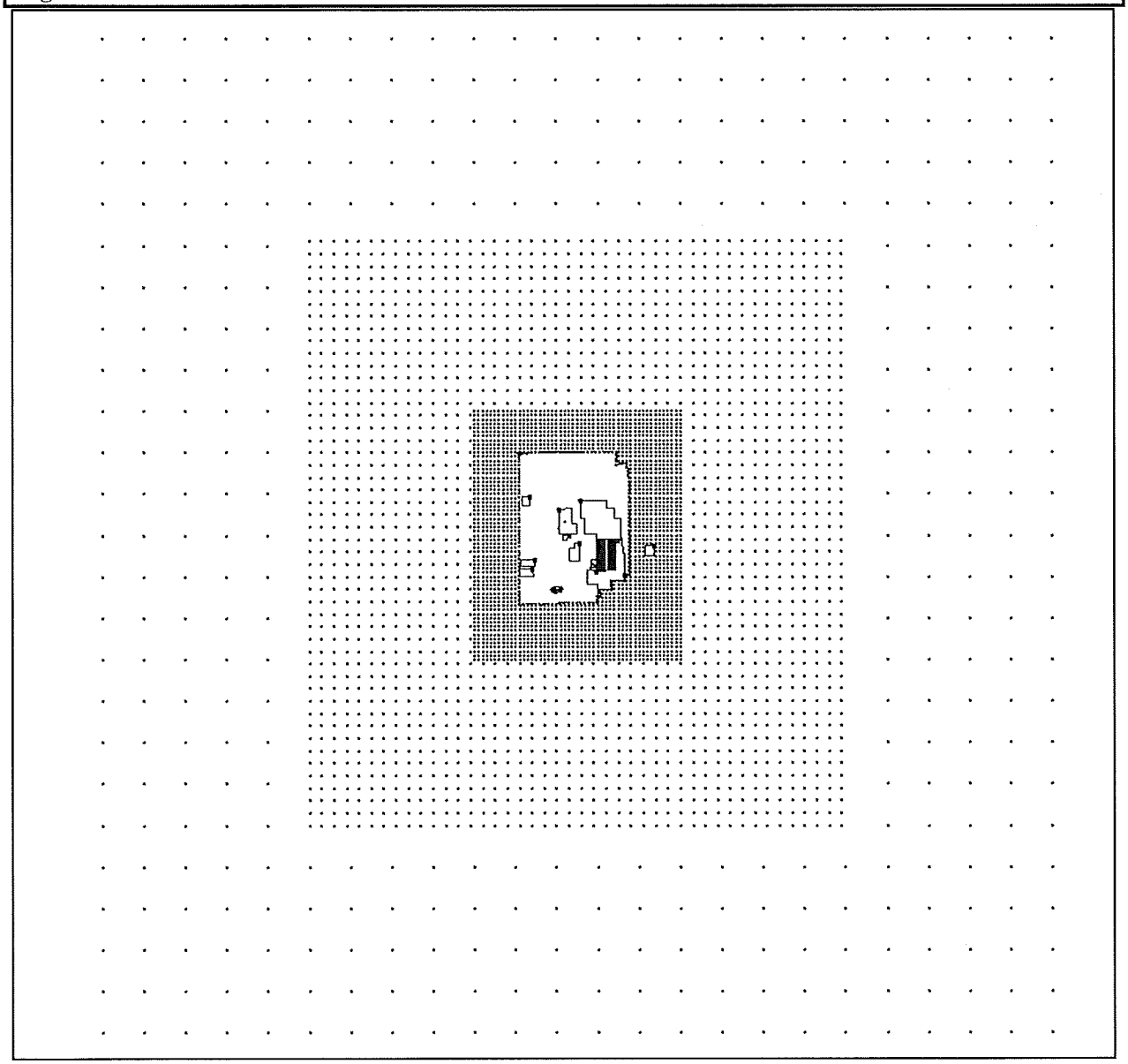
3.7 Ambient Air Boundary

The ambient air boundary used for this project is depicted in Figure 2. CTI's ambient air boundary was established by a fence in some areas of the facility. CTI's January 19, 2016 incompleteness determination response modeling demonstration corrected the ambient air boundary to exclude from ambient air a section of land at the northeast corner of facility, where a small electrical substation is present. A portion of the facility's parking lot where delivery vehicles are provided access to the facility was also treated as ambient air. The ambient air boundary was established at the facility's building wall in this area. DEQ agrees that the ambient air boundary employed in the final modeling demonstration was accurate and effectively precluded public access based on the methods described in the modeling report according to the criteria described in DEQ's *Modeling Guideline*.

3.8 Receptor Network

Table 5 describes the receptor network used in the submitted modeling analyses. DEQ determined that the receptor network was adequate to reasonably assure compliance with applicable air quality standards at all ambient air locations. Figure 3 below present the modeled receptor network for the project. The same network was used for criteria air pollutants and TAPs modeling analyses.

Figure 3. CTI FOODS FULL RECEPTOR GRID



3.9 Emission Rates

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

provided the modeled emissions inputs for the permit writer to review for accuracy and completeness, and to determine whether modeled emissions represent potential to emit (PTE) as limited by design capacity or if an enforceable permit limit is necessary to effectively establish PTE.

3.9.1 Criteria Pollutant Emissions Rate

Table 6 lists criteria pollutant continuous (24 hours per day) emissions rates used to evaluate NAAQS compliance for standards with averaging periods of 24 hours or less. Table 7 lists criteria pollutant continuous (8,760 hours/year) emissions rates used to evaluate NAAQS compliance for standards with an annual averaging period. Emissions for the fire water pump engine were limited to 12 hours per day for the 24-hour averaging period and 100 hours per year for the annual averaging period. These modeled rates must represent allowable facility-wide emissions for the listed averaging period.

Table 6. SHORT-TERM EMISSIONS RATES USED IN MODELING ANALYSES

Emissions Point	Description	PM_{10}[a] (lb/hr)[b]	$PM_{2.5}$[c] (lb/hr)	NO_x[d] (lb/hr)
500HP	500 Sellers Boiler	0.156	0.156	2.051
350HP	350 hp Clayton Boiler	0.109	0.109	1.436
300HP	300 hp Sellers Boiler	0.094	0.094	1.231
200HP	200 hp Sellers Boiler	0.063	0.063	0.821
WHTR	Water Heater - Sellers	0.075	0.075	0.980
F11	MPO L-1	0.029	0.029	0.044
F12	Fajita Brander - L-1	0.029	0.029	0.064
F21	MPO L-2	0.029	0.029	0.044
F22	Fajita Brander - L-2	0.029	0.029	0.064
U11	Unitherm L-1	0.013	0.013	0.490
U21	Unitherm L-2	0.013	0.013	0.490
P31	Cook King P-3	0.011	0.011	0.177
FAJFUL	Fajita Fulton	0.018	0.018	0.235
COOKFUL	Cook Fulton	0.030	0.030	0.392
FIRE	Diesel Fire Pump Engine	0.220	0.220	NA[e]
NEWFUL	New Fulton	0.060	0.060	0.784
AMU	Air Makeup Units for Main Building	0.003	0.003	0.0325
AMU3	Plant 3 building air makeup units	0.0002	0.0002	0.0025

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Pounds per hour.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Nitrogen oxides.
e. NOx emissions from emergency internal combustion engines are not required to be modeled for the 1-hour average NO_2 standard, per DEQ policy.

Table 7. LONG-TERM EMISSIONS RATES USED IN MODELING ANALYSES			
Emissions Point	Description	$PM_{2.5}$[a] (lb/hr)[b]	NO_x[c] (lb/hr)
500HP	500 Sellers Boiler	0.156	2.05
350HP	350 hp Clayton Boiler	0.109	1.44
300HP	300 hp Sellers Boiler	0.094	1.23
200HP	200 hp Sellers Boiler	0.063	0.82
WHTR	Water Heater - Sellers	0.075	0.98
F11	MPO L-1	0.029	0.04
F12	Fajita Brander - L-1	0.029	0.06
F21	MPO L-2	0.029	0.04
F22	Fajita Brander - L-2	0.029	0.06
U11	Unitherm L-1	0.013	0.49
U21	Unitherm L-2	0.013	0.49
P31	Cook King P-3	0.011	0.18
FAJFUL	Fajita Fulton	0.018	0.24
COOKFUL	Cook Fulton	0.030	0.39
FIRE	Diesel Fire Pump Engine	0.003	0.07
NEWFUL	New Fulton	0.060	0.78
AMU	Air Makeup Units for Main Building	0.0026	0.035
AMU3	Plant 3 building air makeup units	1.83E-04	0.0025

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
b. Pounds per hour.
c. Nitrogen oxides.

3.9.2 TAP Emissions Rates

The increase in potential emissions from the proposed project are required to demonstrate compliance with the TAP increments, with an ambient impact analyses required for any TAP having an emission rate increase that exceeds the screening emissions level (EL) specified by Idaho Air Rules Section 585 or 586.

LPG Associates and CTI Foods identified four carcinogenic TAPs with facility-wide emissions rates that exceeded the ELs, including arsenic, cadmium, formaldehyde, and nickel. These emissions are solely attributed to natural gas combustion and are linearly related to heat input and operating hours. All sources were assumed to operate at capacity for 8,760 hours per year except for the diesel-fired emergency fire water pump engine, which was limited to 100 hours per year of total operation. The modeled formaldehyde emission rate for the emergency engine was based on 100 hours per year of operation spread evenly over 8,760 hours per year.

CTI Foods' modeling analyses used the formaldehyde ambient impacts as a representative impact/emissions scenario to calculate the facility's other TAPs impacts from their specific emissions rates. The arsenic, cadmium, and nickel emissions were not explicitly modeled. Results from the formaldehyde analysis were used to generate a dispersion factor of impacts per unit emissions ($\mu g/m^3$ / lb/hr). This method is accurate because impacts vary linearly with emissions, and it is usable where the emissions ratio of one TAP to another is consistent for all modeled sources. Because the facility's emergency generator also emitted formaldehyde, based on 100 hours operation out the year, but did not emit the other three TAP compounds, the generation of a dispersion factor based on the compliance demonstration's impact for formaldehyde is conservative. Table 8 lists the emissions factors that were applied to the natural gas combustion emission units and Table 9 provides the source-specific TAP emissions rates. Factors used by CTI Foods were identical for a given TAP for all boilers and process burners; therefore, the emissions ratio of one TAP to formaldehyde emissions is consistent for all boilers/heaters, so scaling the other pollutant impacts by the formaldehyde impacts was appropriate. All TAPs modeled were carcinogenic TAPs and are based on the same annual averaging period so the scaling approach is appropriate.

Table 8. TAP EMISSION FACTORS FOR SCALING IMPACTS								
Emissions Source	**Formaldehyde**		**Arsenic**		**Cadmium**		**Nickel**	
Boilers and Process Heaters	7.50E-02	(lb/MMcf)[a]	2.00E-04	(lb/MMcf)	1.10E-03	(lb/MMcf)	2.10E-03	(lb/MMcf)
	7.00E-03	(lb/hr[b] total emissions)	1.87E-05	(lb/hr total emissions)	1.03E-04	(lb/hr total emissions)	1.96E-04	(lb/hr total emissions)

a. Pounds per million cubic feet.
b. Pounds per hour.

Table 9. EMISSIONS RATES USED IN TAPs MODELING ANALYSES					
Emissions Point	**Description**	**Arsenic (lb/hr)[a]**	**Cadmium (lb/hr)**	**Formaldehyde (lb/hr)**	**Nickel (lb/hr)**
500HP	500 Sellers Boiler	4.10E-06	2.26E-05	1.54E-03	4.31E-05
350HP	350 hp Clayton Boiler	2.87E-06	1.58E-05	1.08E-03	3.02E-05
300HP	300 hp Sellers Boiler	2.46E-06	1.35E-05	9.21E-04	2.58E-05
200HP	200 hp Sellers Boiler	1.64E-06	9.03E-06	6.15E-04	1.72E-05
WHTR	Water Heater - Sellers	1.96E-06	1.08E-05	7.35E-04	2.06E-05
F11	MPO L-1	8.82E-08	4.85E-07	3.31E-05	9.26E-07
F12	Fajita Brander - L-1	1.27E-07	7.01E-07	4.78E-05	1.34E-06
F21	MPO L-2	8.82E-08	4.85E-07	3.31E-05	9.26E-07
F22	Fajita Brander - L-2	1.27E-07	7.01E-07	4.78E-05	1.34E-06
U11	Unitherm L-1	9.80E-07	5.39E-06	3.67E-04	1.03E-05
U21	Unitherm L-2	9.80E-07	5.39E-06	3.67E-04	1.03E-05
P31	Cook King P-3	3.53E-07	1.94E-06	1.33E-04	3.71E-06
FAJFUL	Fajita Fulton	4.71E-07	2.59E-06	1.76E-04	4.94E-06
COOKFUL	Cook Fulton	7.84E-07	4.31E-06	2.94E-04	8.24E-06
FIRE	Diesel Fire Pump Engine	0	0	1.79E-05	0
NEWFUL	New Fulton	1.57E-06	8.63E-06	5.88E-04	1.65E-05
AMU	Air Makeup Units Main Building	6.91E-08	3.80E-07	2.60E-05	7.26E-07
AMU3	Plant 3 building air makeup units	4.90E-09	2.70E-08	1.84E-06	5.15E-08

a. Pounds per hour.

3.10 Emission Release Parameters

Table 10 lists emissions release parameters for modeled sources. A majority of the point sources were modeled with rain-capped releases. One point source was modeled with a horizontal release and a few point sources were modeled with vertical and uninterrupted releases of their plumes. Relatively small air makeup unit emissions were modeled as elevated volume sources.

DEQ accepted the volume source release parameters as submitted as appropriate values based on the support documentation presented in the modeling report.

Table 10. EMISSIONS RELEASE PARAMETERS								
Point Sources								
Release Point	**New or Existing & Description**	**UTM[d] Coordinates, Zone 11**		**Stack Height (m)**	**Modeled Diameter (m)**	**Stack Gas Temperature (K)[b]**	**Stack Flow Velocity (m/s)[c]**	**Stack Release**
		Easting (x) (m)[a]	**Northing (y) (m)**					
500HP	500 Sellers Boiler	507051.37	4838083.18	17.4	0.76	460.9	6.0	Raincap
350HP	350 hp Clayton Boiler	507055.19	4838088.65	15.2	0.61	460.9	6.6	Raincap
300HP	300 hp Sellers Boiler	507047.59	4838088.42	15.5	0.56	460.9	6.7	Raincap
200HP	200 hp Sellers Boiler	507042.66	4838088.65	14.0	0.51	460.9	5.4	Raincap
WHTR	Water Heater - Sellers	507045.32	4838083.57	10.4	0.56	422.0	4.9	Raincap
F11	MPO L-1	507010.29	4838051.36	11.0	0.30	420.9	5.9	Raincap
F12	Fajita Brander - L-1	507009.67	4838063.79	11.0	0.51	373.7	1.5	Raincap
F21	MPO L-2	507008.16	4838050.84	11.0	0.30	420.9	5.9	Raincap
F22	Fajita Brander - L-2	507006.62	4838062.31	11.0	0.30	373.7	4.1	Raincap
U11	Unitherm L-1	507003.65	4838046.12	12.2	0.76	360.9	5.3	Raincap
U21	Unitherm L-2	507000.68	4838046.2	12.2	0.76	360.9	5.3	Raincap
P31	Cook King P-3	506904	4838118	2.4	0.51	360.9	8.1	Horizontal
FAJFUL	Fajita Fulton	506993.11	4838027.17	8.8	0.30	366.5	3.4	Default[e]
COOKFUL	Cook Fulton	506988.02	4838030	8.8	0.41	366.5	3.2	Default
FIRE	Diesel Fire Pump Engine	506900.56	4837964.47	2.4	0.10	491.5	17.5	Default
NEWFUL	New Fulton	506983	4838022	18.0	0.51	366.5	4.1	Default

Volume Sources						
Release Point	**Description**	**Location UTM Coordinates**		**Release Height (m)**	**Initial Horizontal Dimension (m)**	**Initial Vertical Dimension (m)**
		Easting (x) (m)	**Northing (y) (m)**			
AMU	Air Makeup Units Main Building	507017.5	4838065	9.1	40.1	4.3
AMU3	Plant 3 building air makeup units	506920	4838132	6.1	13.8	2.8

a. Meters.
b. Meters per second.
c. Kelvin.
d. Universal Transverse Mercator.
e. Uninterrupted vertical release.

Each project's permit application is to have stand-alone documentation to support the exhaust parameters used in the modeling demonstration. DEQ critical review of the volumetric flow rates for capped sources takes into consideration that the momentum buoyancy of the exhaust plume is minimized because the cap effectively halts the vertical flow of the plume and forces it to move in a horizontal or downward direction.

LPG Associates and CTI Foods provided documentation and justification of the release parameters used in the model setup. Stack release heights for all point sources were described as being determined by on-site measurement of the length of stack above the roofline by CTI Foods' staff. Total height above grade was determined by adding roof height to the height above roofline. The stack heights were also included on two facility layout schematic diagrams. The base elevations for all sources (including volume sources) were set at a uniform value of 737.9 meters (or 2420.9 feet). A table of the summary of data was presented in the modeling report with the values. The information submitted as supporting documentation and justification of release heights and diameters was determined adequate by DEQ.

Emergency Diesel-fired Engine (FIRE)

The emergency diesel engine's flow rate and exit temperature were supported with a Donaldson Company, Inc., "Engine Exhaust Temp/Flow Guide" from the company's Exhaust Product Guide, which

may be obtained at the following link: https://www.donaldson.com/content/dam/donaldson/engine-hydraulics-bulk/catalogs/Exhaust/North-America/F110028-ENG/Exhaust-Product-Guide.pdf.

The data for an 8.2LT Detroit Diesel internal combustion (IC) engine with 205 horsepower was presented for the CTI Foods IC engine. The exhaust at 3,000 revolutions per minute and 205 horsepower had exhaust temperature of 850 degrees Fahrenheit (°F) and 1,342 cubic feet per minute (cfm). Where cfm is listed as units, DEQ modeling staff assumes the units are in terms of actual cubic feet per minute (acfm), not standard cubic feet per minute (scfm). The modeled flow rate was 300 acfm and the modeled exit temperature was 425 °F. Considering the IC engine stack release height was modeled at 8.0 feet above grade, no stack extension was employed and no significant cooling of the exhaust is expected. The modeled flow rate and temperature are considered by DEQ to be conservative for modeling purposes. The stack diameter and release height were described in the application as being determined by measurement.

Process Units MPO and Fajita Brander Lines 1 and 2 (F11, F12, F21, and F22)
Performance test documentation for testing dated September 11 and 12, 2014, and a DEQ approval letter dated December 17, 2014 for testing conducted on Fajita Line 2 MPO and Fajita Line 2 Brander was included as support documentation for emission factors for the facility processes and stack parameters for these process units and stacks. Stack flow rates and exit temperatures for the Line 2 stack test results were used for the four stacks that comprise Lines 1 and 2 MPOs and branders. The source test documentation showed that the cross sectional area the Line 2 MPO and Brander stacks was 0.66 square feet. This equates to an equivalent diameter of 11 inches. LPG Associates modeled a 12 inch diameter for the Line 2 MPO, and Line 2 Brander, and the Line 1 MPO as well. This is approvable because modeling a larger exit diameter would be considered conservative, notwithstanding the fact that exhaust velocity effects on plume rise are minimized because these stacks were modeled as capped sources. The Line 1 Brander stack was modeled with a 20-inch stack diameter and this value was described as being obtained by on-site measurement.

Stack test temperatures of 298.1 °F supported the modeled exit temperature for the two MPO stacks and the test report Brander temperature of 213.7 °F supported the modeled temperature for Lines 1 and 2.

Process Unit Unitherm Lines 1 and 2 (U11 and U21)
Support documentation of the flow rate for these two capped stacks was based on a Unitherm Food Systems, Inc., fan curve data sheet for a specific propeller design, and motor horsepower and fan revolutions per minute. The value used by LPG Associates and CTI Foods was based on a ventilation system static pressure of 1 inch water column, gage, and the modeled flow rate of 5,160 ACFM matched the specification sheet value. Exit temperatures were not measured values. The temperatures were assumed by CTI Foods to be similar to the tested Brander, and a value of 190 °F was modeled, which is 23 °F lower than the Brander stack test temperature. Exit diameter and stack height were derived from on-site measurement. Modeled values for stacks U11 and U21 were identical.

Cook King P-3 (P31)
A Grainger vendor equipment sheet for the fan was included as flow rate justification. The flow rate for an 18-inch diameter blower at a system static pressure of 1 inch water column, gage, was selected by CTI Foods. A flow rate of 7,305 ACFM matched the modeled flow rate. Exit temperature was assumed by CTI Foods to be similar to the tested Brander, and a value of 190 °F was modeled, which is 23 °F lower than the Brander stack test temperature. Exit diameter and stack height were derived from on-site measurement.

New Fulton FT-C0800 Thermal Oil Heater (NEWFULTON)
The New Fulton heater unit is a proposed unit. No specific documentation on the unit's stack parameters was included in the application. CTI Foods modeled the proposed unit's stack with a release height of 59 feet above grade and an exit diameter of 20 inches with an unobstructed vertical release--no rain cap. Vendor documentation was not included. Volumetric flow rate was established using EPA F-factor for natural gas, the rated heat input capacity of the unit, and an adjustment to an assumed exit temperature of 200 °F. This follows the same method used for the other thermal fluid heater unit flow rate values.

DEQ modeling staff accessed the Fulton company website at "fulton.com" and reviewed the information available for this unit. The website literature on this unit indicated that the flue outlet diameter on the unit is 20 inches and the manufacturer's recommended stack diameter is 24 inches. CTI Foods modeled a stack diameter equal to the 20 inch flue diameter, which maintains a higher exit velocity than if a 24 inch diameter was modeled. The 20-inch stack provides improved dispersion characteristics.

Fajita and Cook Fulton Thermal Oil Heaters (FAJFUL and COOKFUL)
These are existing emissions units. The volumetric flow rate was established using the same natural gas combustion F-Factor, heat input, and assumed 200 °F exit temperature as the New Fulton thermal oil heater. Release heights and exit diameters were described as being measured values.

Increasing stack release height also improves dispersion of exhaust plumes. CTI Foods has proposed to increase stack heights for three boilers to the following heights listed in Table 11.

Table 11. CHANGES TO STACK HEIGHTS

Emissions Unit	Existing Stack Height Above Grade (feet)	Future Stack Height Above Grade (feet)
500 hp Sellers Boiler	42	57
350 hp Clayton Boiler	20	50
300 hp Sellers Boiler	46	51

Volumetric flow rates of combustion sources were estimated using EPA F-factors for natural gas-fired combustion.

AMU and AMU3
Rooftop-mounted natural gas-fired space heaters were modeled as elevated volume sources. Release heights were established by LPG Associates as the height at roofline for each source. The vertical (sigma z) dispersion coefficient was estimated using the method listed in the DEQ Modeling Guideline. The source is on a building so each value was appropriately estimated using the height of the building divided by a value of 2.15. Initial lateral values (sigma y) were estimated using the wall length of the building divided by a value of 4.3 per the DEQ Modeling Guideline.

DEQ accepted the volume source release parameters as submitted as appropriate values based on the support documentation presented in the modeling report and considering the magnitude of emissions in comparison with other sources at the facility.

4.0 Results for Air Impact Analyses

4.1 Results for Significant Impact Analyses

CTI Foods did not perform significant impacts level analyses (SIL) analyses for those pollutants that were required to be modeled. CTI Foods presented cumulative – or full – impact analyses for 24-hour PM_{10},

annual and 24-hour $PM_{2.5}$, and annual and 1-hour NO_2 standards.

Lead emissions were not included in the project's listing of potential emissions; however, this facility combusts natural gas as a fuel in all process equipment and boilers, and a minimal amount of diesel in a 200 brake horsepower engine for 12 hours per day up for to 100 hours per year. The facility processes edible food products and the manufacturing processes are not identified as those that would emit lead. DEQ modeling staff confidently conclude lead emissions are below the DEQ modeling threshold of 14 pounds per month. Facility-wide carbon monoxide (CO) emissions were below the 15 pound per hour Level I modeling threshold and sulfur dioxide (SO_2) emissions were below the Below Regulatory Concern (BRC) threshold of 0.40 tons per year. Modeling was not required for these criteria air pollutants to demonstrate that the ambient impacts were below the SILs or, if greater than the SIL, complied with the NAAQS.

4.2 Results for Cumulative NAAQS Impact Analyses

The results for the cumulative impact analyses are listed in Table 12. Ambient impacts for the facility were below the applicable NAAQS. Impacts associated with facility-wide requested potential emissions were relatively close to the 24-hour $PM_{2.5}$ and very close to the 1-hour NO_2 NAAQS when combined with the DEQ-approved ambient background concentration values.

Table 12. RESULTS FOR CUMULATIVE IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Design Value Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Ambient Impact ($\mu g/m^3$)	NAAQS[b] ($\mu g/m^3$)	Percent of NAAQS
$PM_{2.5}$[c]	24-hour	14.0[f]	18	32	35	91%
	Annual	3.0[g]	7.3	10.3	12	86%
PM_{10}[d]	24-hour	17.5[h]	64	81.5	150	54%
NO_2[e]	1-hour	127.8[i]	60	187.8	188	99.9%
	Annual	34.1[j]	5.3	39.1	100	39%

a. Micrograms per cubic meter.
b. National ambient air quality standards.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Nitrogen dioxide.
f. Modeled design value is the maximum 5-year mean of 8th highest 24-hour values from each year of a 5-year meteorological dataset.
g. Modeled design value is the maximum 5-year mean of annual average values from each year of a 5-year meteorological dataset.
h. Modeled design value is the maximum of 6th highest 24-hour values from a 5-year meteorological dataset.
i. Modeled design value is the maximum 5-year mean of 8th highest daily 1-hour maximum impacts for each year of a 5-year meteorological dataset using the Tier 2 ARM2 compliance method.
j. Modeled design value is the maximum impact out of 5 individual years of maximum annual average impacts.

4.3 Results for Toxic Air Pollutant Impact Analyses

Dispersion modeling was required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 586 for those TAPs with applicable emissions increases exceeding emissions screening levels (ELs). The results of the TAPs analyses are listed in Table 13. The predicted ambient TAPs impacts were below applicable TAPs increments.

Table 13. RESULTS OF TAPs ANALYSES				
Toxic Air Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)[a]	AACC[b] ($\mu g/m^3$)	Percent of AACC
Arsenic	Annual	6.4E-05	2.3E-04	28%
Cadmium	Annual	3.5E-04	5.6E-04	63%
Formaldehyde	Annual	2.4E-02	7.7E-02	31%
Nickel	Annual	6.7E-04	4.2E-03	16%

a. Micrograms per cubic meter.
b. Acceptable ambient concentration for carcinogens.

4.4 Results of Sensitivity Analyses for Differences Between Stack Base and Building Elevations

DEQ noted that the base elevations for all point and volume sources were set to the same value of 2,420.93 feet above sea level (737.9 meters). The base elevations for the most important structures for building-induced downwash concerns are the "MAIN" and "SLOPE" structures. These two structures are essentially part of the same primary processing building at the CTI Foods facility. The base elevations in the final January 19, 2016 modeling BPIP modeling files were 737.0 meters for the SLOPE building and 737.2 meters for the MAIN building. The differences resulted in stack bases set at 0.93 meters (3 feet) higher for the SLOPE structure base and 2.4 feet higher than the MAIN building base. A simple sensitivity analysis, setting the structures and source base elevations to 737.9 meters, was performed by DEQ to verify the stack heights of the three boilers that were proposed to be increased were adequate increases and that the proposed stack height for the proposed NEW Fulton Heater was also adequate for the facility to demonstrate compliance with all applicable NAAQS. Other than the changes to the building base elevations, the same assumptions used by LPG Associates and CTI Foods were used by DEQ in the sensitivity analysis. The receptor spacing was 10 meters in this area for CTI Foods' submitted NAAQS demonstration and was unchanged for the sensitivity analysis.

As shown in Table 14, the sensitivity analysis showed the design concentration was unchanged. Compliance was demonstrated at 99.9% of the allowable 1-hour NO_2 NAAQS with the DEQ-approved ambient background added to the design impact. The ambient impacts for the receptors in the surrounding area may have increased slightly but the NO_2 design concentration remained 127.8 $\mu g/m^3$, 1-hr average.

Table 14. RESULTS FOR DEQ SENSITIVITY ANALYSES						
Pollutant	Averaging Period	Modeled Design Value Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Ambient Impact ($\mu g/m^3$)	NAAQS[b] ($\mu g/m^3$)	Percent of NAAQS
NO_2[c]	1-hour	127.8[d]	60	187.8	188	99.9%

a. Micrograms per cubic meter.
b. National ambient air quality standards.
c. Nitrogen dioxide.
d. Modeled design value is the maximum 5-year mean of 8th highest daily 1-hour maximum impacts for each year of a 5-year meteorological dataset using the Tier 2 ARM2 compliance method.

5.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the CTI Foods facility will not cause or significantly contribute to a violation of any NAAQS or a violation of any applicable TAPs increments.

[1] *Ambient Ratio Method Version 2(ARM2) for use with AERMOD for1-hr NO_2 Modeling Development and Evaluation Report,* Prepared for American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, by M. Podrez, RTP Environmental Associates, Inc., 2031 Broadway, Suite 2, Boulder, Colorado 80302, September 20, 2013.

[2] *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard,* R. Chris Owen and Roger Brode, Environmental Protection Agency, Office of Air Quality Planning and Standards, September 30, 2014.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on April 28, 2016:

Facility Comment: Statement of Basis, Table 2 – Uncontrolled NO_X emissions from the MPO L1, MPO L2, Fajita Brander L1, Fajita Brander L2, Unitherm L1, Unitherm L2, and Cook King are listed incorrectly.

DEQ Response: The requested changes will be made to the Statement of Basis.

Facility Comment: Statement of Basis, Table 4 – Post Project PTE for NO_X emissions from the MPO L1, MPO L2, Fajita Brander L1, Fajita Brander L2, Unitherm L1, Unitherm L2, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater are listed incorrectly.

DEQ Response: The requested changes will be made to the Statement of Basis.

Facility Comment: Statement of Basis, Table 5 – PTEs for NO_X emissions are listed incorrectly.

DEQ Response: The requested changes will be made to the Statement of Basis.

Facility Comment: Statement of Basis, Table 9 – Uncontrolled and Permitted PTEs for NO_X emissions are listed incorrectly.

DEQ Response: The requested changes will be made to the Statement of Basis.

Facility Comment: Permit, Table 3.2 – NO_X emissions from the MPO L1, MPO L2, Fajita Brander L1, Fajita Brander L2, Unitherm L1, Unitherm L2, Cook King, Fajita Fulton, Cook Fulton, and Fulton Thermal Fluid Heater are listed incorrectly.

DEQ Response: The requested changes will be made to the permit.

The following comments were received from the facility on May 3, 2016:

Facility Comment: Permit Condition 2.6 – The 300 HP Sellers boiler is listed twice. We only have one 300 HP Sellers boiler. I thought that the 200 HP Sellers is below the limit necessary to monitor, but was the intent to include it or was this just a typo?

DEQ Response: This was a typographical error and the Permit will be corrected to list the 200 Sellers boiler in this permit condition as was intended.

Facility Comment: Permit Condition 2.7 – Regarding notification of construction or reconstruction. Since these units have been in service for a number of years, is there any action required by CTI now?

DEQ Response: Permit Condition 2.7 is a Federal requirement so the facility would need to contact EPA Region 10 for clarification on this permit requirement.

Facility Comment: Permit Condition 3.1 – The new Fulton heater we are installing and placing into service next week. The permit lists it as already in service. Do we need to make any notifications or does this permit address?

DEQ Response: This question would need to be posed to the Boise Regional Office as it is a Compliance issue.

Facility Comment: Permit Condition 3.2, Table 3.1 – New Fulton Heater - I suggest we use "Fulton 3 Exhaust" as the identifying name in Table 3.1

DEQ Response: The requested change will be made to the Permit.

Facility Comment: Permit Condition 3.8 – To clarify, since the emission calculations used finished product volumes, we will monitor and report finished product.

DEQ Response: The requested clarifications will be made to Permit Conditions 3.7 and 3.8 since both are affected by this comment.

Facility Comment: Permit Comment – I did not see a reference to exhaust stack heights for the boilers. However, since the modeling was based on stack heights elevated above current install, we will make the proper modifications.

DEQ Response: No changes will be made to the permit as modeling was performed using the information provided by the facility on exhaust stack heights.

APPENDIX D – PROCESSING FEE

PTC Fee Calculation

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

Company: CTI Foods - SSI Food Services Div.
Address: 22303 Hwy. 95
City: Wilder
State: ID
Zip Code: 83676
Facility Contact: Dave Kubosumi
Title: VP Engineering
AIRS No.: 027-00138

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	67.9	0	67.9
SO_2	2.0	0	2.0
CO	40.1	0	40.1
PM10	5.2	0	5.2
VOC	49.6	0	49.6
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**164.8**
Fee Due	**$ 7,500.00**		

Comments: