Statement of Basis

Permit to Construct No. P-2012.0054
Project ID 61102

Amalgamated Sugar (TASCO - Twin Falls)
Twin Falls, Idaho

Facility ID 083-00001

Final

November 9, 2012
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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
Btu	British thermal units
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
gph	gallons per hour
HAP	hazardous air pollutants
hr/yr	hours per beet campaign year
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
O_2	oxygen
PC	permit condition
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
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
Rules	*Rules for the Control of Air Pollution in Idaho*
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per beet campaign year
T2	Tier II operating permit
TAP	toxic air pollutants
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The Amalgamated Sugar Company LLC – Twin Falls Facility (TASCO) operates an existing beet sugar manufacturing plant that processes sugar beets into refined sugar, which is located in Twin Falls, Idaho.

Sugar beet processing operations consist of several steps, including diffusion, juice purification, evaporation, crystallization, dried pulp manufacturing, and sugar recovery from molasses.

Prior to removing sucrose from sugar beets by diffusion, the cleaned and washed beets are sliced into long, thin strips called cossettes. The cossettes are conveyed to a continuous diffuser, in which hot water is used to extract sucrose. The sugar enriched water that flows from the outlet of the diffuser is called raw juice and contains between 13% to 18% sugar. The raw juice proceeds to the juice purification operation. The processed cossettes, or pulp, leaving the diffuser is conveyed to the dried pulp manufacturing operation.

In the juice purification stage, non sucrose impurities in the raw juice are removed so that the pure sucrose can be crystallized. First, the juice passes through screens to remove any small cossette particles. The juice is then heated to 80-85°C (176-185°F) and proceeds to the liming system. In the liming system tank, milk of lime [Ca(OH)2 aqueous solution] is added to the juice to absorb or adhere to the impurities. The juice is then sent to the first carbonation tank where carbon dioxide (CO2) gas is bubbled to precipitate the lime as insoluble calcium crystals. Lime kilns are used to produce the CO2 and the lime, which are both used in carbonation; the lime is converted to milk of lime in a lime slaker. After filtration, the juice is softened. Then a small amount of sulfur dioxide (SO2) is added to the juice to inhibit reactions that lead to darkening of the juice. Burning elemental sulfur in a sulfur stove produces the SO2 or it is purchased in liquid form. Following the addition of SO2, the juice (known as thin juice) proceeds to the evaporators.

The evaporation process, which increases the sucrose concentration in the juice by removing water, is performed in a series of five evaporators. Steam from boilers is used to heat the first evaporator, and the steam from the water evaporated in the first evaporator is used to heat the second evaporator, and so on through the five evaporators. After evaporation, the percentage of sucrose in the "thick juice" is 65% to 75%. Some of this thick juice is sent to storage tanks. Most of the thick juice is combined with crystalline sugars produced later in the process and dissolved in the high melter. The mixture is then filtered, yielding a clear liquid known as standard liquor, which proceeds to the crystallization operation.

Sugar is crystallized by low temperature pan boiling. The standard liquor is boiled in vacuum pans until it becomes supersaturated. To begin crystal formation, the liquor is "seeded" with finely milled sugar. When the crystals reach the desired size, the mixture of liquor and crystals, known as massecuite or fillmass, is discharged to the mixer. From the mixer, the massecuite is poured into high speed centrifugals, in which the liquid is centrifuged into the outer shell, and the crystals are left in the inner centrifugal basket. The sugar crystals are washed with pure hot water, and then sent to the granulator / cooling system. After cooling, the sugar is screened and then either packaged or stored in large silos for future packaging.

The liquid that was separated from the sugar crystals in the centrifugals is called syrup. This syrup serves as feed liquor for the second boiling step and is introduced back into a second set of vacuum pans. The crystallization/centrifugation process is repeated once again, resulting in the production of molasses.

The molasses produced in the third boiling step can be used in the production of livestock feed. This molasses can be further desugarized using the separator process. The products of the separator process are "extract" (the high sugar fraction) and – "concentrated separator by product" (CSB, the low sugar fraction). The extract can be stored in tanks or immediately processed in the sugar operation, like thick juice. The CSB is used as livestock feed in a liquid form or is added to the wet pulp.

Wet pulp from the diffusion process is another product of sugar beet processing. Some of the wet pulp is sold as cattle feed directly. However, most of the wet pulp is mechanically pressed to reduce the moisture content from about 95% to 75%. After pressing, the pulp may be sold as cattle feed or sent to the dryer. Before entering the rotary drum dryer, CSB or molasses is added to the pressed pulp. The pressed pulp is then dried by hot air in a horizontal rotating drum known as a pulp dryer. The pulp dryer can be fired by natural gas or coal. The resulting product is typically pelletized and is sold as livestock feed. The remainder of the dried pulp is sold as livestock feed in an unpelletized form.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A), superseded (S), or expired (E).

March 19, 1981	13-1480-0001, Air pollution source permit to establish requirements for the boilers and the pulp dryer, Permit status (E)
January 1, 1984	1480-0001, Air pollution source permit to establish emission limits and operating requirements and to incorporate existing requirements, Permit status (E)
December 17, 2002	9505-063-1, Initial T1 operating permit, Permit status (S)
May 21, 2004	T1-030415, Reopened T1 to incorporate revisions resulting from a contested case petition, Permit status (S)
August 20, 2008	O-2008.0080, Applicability concurrence determining the use of anthracite coal in addition to coke as fuel was not a modification
October 25, 2010	P-2010.0108, Initial PTC to replace the granulator systems, Permit status (A)
October 7, 2011	T1-050415, T1 renewal, Permit status (A)

Application Scope

This PTC is for a minor modification at an existing Tier I facility.

The applicant has proposed to:

- Install and operate a third white pan and associated equipment within the sugar end to increase granulation capacity and reduce energy.
- Replace the No. 1 evaporator and associated equipment.
- Install sugar end equipment to split the sugar-end extract from the molasses separator.

Application Chronology

August 14, 2012	DEQ received an application and an application fee.
August 20 – September 4, 2012	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
September 13, 2012	DEQ received supplemental information from the applicant.
September 10, 2012	DEQ determined that the application was complete.
October 10, 2012	DEQ made available the draft permit and statement of basis for peer and regional office review.
October 15, 2012	DEQ made available the draft permit and statement of basis for applicant review.
October 24, 2012	DEQ received the permit processing fee.
November 9, 2012	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 Description	Control Equipment	Installation Date
Foster Wheeler Boiler (S-B1) Operational capacity: 220,000 lb/hr steam Fuels: coal	Baghouse (A-B1)	1973
B&W Boiler (S-B2) Operational capacity: 250,000 lb/hr steam Fuels: coal, natural gas, combination of coal and gas	Baghouse (A-B2)	prior to 1970
Keeler Boiler (S-B3) Operational capacity: 80,000 lb/hr steam Fuels: natural gas	None	1968
Pulp Dryer (S-D1) PW input rate: 74.8 T/hr Fuels: coal, natural gas, combination of coal and gas	Cyclone and spray-impingement-type scrubber (A-D1A, A-D1B)	prior to 1970
Pellet Cooler No. 1 (S-D2) PW input rate: 8.3 T/hr Pellet Cooler No. 2 (S-D3) PW input rate: 8.3 T/hr	Cyclone (A-D2/3)	prior to 1970 prior to 1970
South Lime Kiln (S-K1) Lime rock input capacity: 102 T/day Fuel input capacity: 9.2 T/day of fuel Fuels: coke, anthracite coal North Belgian Lime Kiln (S-K2) Lime rock input: 238 T/day Fuel input capacity: 21 T/day Fuels: coke, anthracite coal	Exhaust vent scrubber (A-K1/2)	prior to 1970 prior to 1970
Process Slaker (S-K4) Operational capacity: 190 T/day CaO	Cyclone (A-K4)	1988
Granulator System (P-W1A) with Baghouse (A-W1A) Operational capacity: 110,230 lb/hr wet sugar and ≤ 1,200 lb/hr steam usage	None	2011
Pulp Dryer Material Handling (S-D4) Operational capacity: 469 T/day Lime Kiln Material Handling (S-K5) Operational capacity: 370 T/day Main mill (S-O5) Operational capacity: 105,000 gph juice Sulfur stove (S-O6) Operational capacity: 1.8 T/day sulfur	Baghouse (A-D4) Baghouse 1 (A-K5A) Baghouse 2 (A-K5B) None Sulfur tower (A-O6)	prior to 1970 prior to 1970 prior to 1970 prior to 1970

Emissions Inventories

Emission inventories provided in the application included emissions of federally regulated criteria pollutants and greenhouse gases, and state-regulated toxic air pollutants (TAP).

Summaries of these emission inventories are provided below and in Appendix A.

Actual-to-Projected-Actual Emissions

As provided in Table 2 and Table 3, the proposed modification request is not expected to result in a PSD significant net emission increase or PSD major modification. Baseline Actual Emissions (BAE) and Projected Actual Emissions (PAE) were determined using New Source Review (NSR) Prevention of Significant Deterioration (PSD) procedures and definitions set forth in 40 CFR 52.21(a)(2)(iv)(c) and 40 CFR 52.21(b).

The permittee elected to use 2003-2004 as the baseline years.

The new sugar granulation system was addressed in a prior permitting action (PTC No. P-2010.0108). For the purposes of PSD applicability, relevant changes in emissions associated with the new sugar granulation system were considered contemporaneous.

Refer to the PSD Classification (40 CFR 52.21) section for additional information.

Table 2 NSR POLLUTANT EMISSION ESTIMATES

	$PM_{10}/PM_{2.5}$[a]	SO_2	NOx	CO	VOC	CO_2e
Description	**T/yr**	**T/yr**	**T/yr**	**T/yr**	**T/yr**	**T/yr**
Baseline Actual Emissions[b]	352	2219	1228	1902	60	344942
Projected Actual Emissions[b]	342	2107	1200	2001	68	342472
Contemporaneous Emission Decrease (Granulation System Shutdown)[c]	9	0	0	0	0	0.00
Contemporaneous Emission Increase (Granulation System)[c]	2	0	0	0	0	0.00
Beet Slice Throughput Emission Increase	0	0	0	99	8	0.00
Natural Gas Boiler Usage Emission Decrease	-1	-112	-28	0	0	
Net Emission Increases/Decreases	**-10**	**-112**	**-28**	**99**	**8**	**-2470**

a) $PM_{2.5}$ emissions were estimated to be equivalent to PM_{10} emissions.
b) Baseline and Projected Actual Emissions estimates include all emissions units at the facility ("facility-wide") except for the new sugar granulation system project.
c) Contemporaneous emission increases and decreases associated with the new sugar granulation system project (PTC No. P-2010.0108).

Comparison of the Project Emissions Increase to the PSD Significance Thresholds

The comparison of the change in projected actual emissions from baseline actual emissions to the PSD significance thresholds is presented in the following table.

Table 3 NSR PSD APPLICABILITY TESTS

NSR Pollutant [a]		NSR Pollutant Significance Level [b] (T/yr)	Emissions Increase [c] (T/yr)	Significant Emissions Increase? Step 1	Net Emissions Increases [d] (T/yr)	Significant Net Emissions Increase? Step 2
PM		25	0	No	-10	No
PM_{10}		15	0	No	-10	No
$PM_{2.5}$ [e]	direct	10	0	No	-10	No
	as SO_2	40	0		-112	
	as NO_x	40	0		-28	
SO_2		40	0	No	-112	No
NO_x		40	0	No	-28	No
CO		100	99	No	99	No
O_3	as NO_x	40	0	No	-28	No
	as VOC	40	8		8	
Lead		0.6	<0.6 [f]	No	<0.6 [f]	No
Fluorides		3	<3 [f]	No	<3 [f]	No
Sulfuric acid mist		7	<7 [f]	No	<7 [f]	No
Hydrogen sulfide		10	<10 [f]	No	<10 [f]	No
Total reduced sulfur (including H_2S)		10	<10 [f]	No	<10 [f]	No
Reduced sulfur compounds (including H_2S)		10	<10 [f]	No	<10 [f]	No
GHG CO_2e [g]		75,000	0	No	-2470	No
Other NSR pollutant		any	<any [f]	No	<any [f]	No

a) Regulated NSR Pollutant as defined in 40 CFR 52.21(b)(50).
b) "Significant" as defined in 40 CFR 52.21(b)(23). Significance levels that were not determined to be applicable are not listed; the permittee has not proposed operation of a municipal waste combustor or a municipal waste landfill.
c) Significant emission increase as determined in accordance with 40 CFR 52.21(b)(40). In accordance with this definition.
d) Significant net emissions increase as determined in accordance with 40 CFR 52.21(b)(3). Although Step 2 of this PSD applicability test was not required, it is included in the analysis to demonstrate the net emissions decreases associated with the project.
e) $PM_{2.5}$ emissions were estimated to be equivalent to PM_{10} emissions.
f) Emissions were estimated at less than significance levels.
g) Tons of CO_2 equivalent emissions as defined in 40 CFR 52.21(b)(49).

As provided in Table 3, the proposed project is not expected to result in a PSD significant emission increase or major modification. Refer to the PSD classification section for additional information concerning regulated NSR pollutant significance thresholds.

Non-Carcinogenic TAP Emissions

Non-carcinogenic toxic air pollutants (TAP) are regulated on a short-term (i.e., hourly or daily) basis. The PTC application for this project is based on annual rather than short-term (i.e., hourly or daily) emissions increases. As a result, increases in non-carcinogenic TAP emissions above screening emissions levels (EL) were not evaluated. Non-carcinogenic EL are based upon short-term (daily) averaging periods.

Carcinogenic TAP Emissions

Estimated carcinogenic TAP emission increases were provided by the applicant and conservatively evaluated based on an annual slice increase of 200,000 T/yr beets (i.e., from 1,200,000 T/yr and 177 day beet campaign to 1,400,000 T/yr and 198 day campaign), summarized in the following table.

Table 3 CARCINOGENIC TAP EMISSION INCREASES

Source	Acetaldehyde (lb/hr)	Formaldehyde (lb/hr)
Carb Tank #1	4.01E-02	4.35E-04
Carb Tank #2	6.18E-02	4.92E-04
Evaporator Vent	1.03E-03	1.89E-05
TAP Emission Increase	2.47E-01	2.27E-03
Screening Emission Level	3.00E-03	5.10E-04
Exceeds EL?	Yes	Yes

Because the emission estimates of acetaldehyde and formaldehyde for this project exceeded applicable screening emissions levels (EL), modeling was required for these TAP. Refer to Appendix B for a summary of the relevant Ambient Air Quality Impact Analyses.

HAP Emissions

Estimated hazardous air pollutant (HAP) emissions are expected to increase as a result of this proposed modification request, including emissions of acetaldehyde and formaldehyde as provided above. The facility will continue to remain classified as a major source of HAP emissions following this project (refer to the Title V Classification section for additional information concerning the facility classification).

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of acetaldehyde and formaldehyde from this project exceeded applicable screening emission levels (EL) 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 Appendix AB.

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).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Twin Falls 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.

[1] Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

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 new emissions and modified emissions source. 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.

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

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

The facility is classified as a major facility as defined in IDAPA 58.01.01.008.10:

- The facility emits or has the potential to emit a regulated air pollutant in an amount greater than or equal to 100 T/yr (and greater than or equal to 250 T/yr);
- The facility emits or has the potential to emit a single regulated HAP in excess of 10 T/yr;
- The facility emits or has the potential to emit a combination or regulated HAP in excess of 25 T/yr.

The Twin Falls Facility contains a fossil-fuel boiler (or combination thereof) of more than 250 MMBtu/hr heat input; therefore the boiler house (which includes the Foster Wheeler, B&W, and Keeler boilers) was classified as a designated facility as defined in IDAPA 58.01.01.006.30 and 40 CFR 52.21(b)(1)(i)(a), and fugitive emissions are required to be included when determining the major facility classification in accordance with IDAPA 58.01.01.008.10.c.i, and when determining project net emissions increases in accordance with IDAPA 58.01.01.007 and 40 CFR 52.21(b)(48)(ii).

Refer to Appendix A for a summary of the regulated air pollutant emission estimates provided in the application.

PSD Classification (40 CFR 52.21)

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

The facility is classified as an existing major stationary source, because the estimated emissions of criteria pollutants and HAP have the potential to exceed major stationary source thresholds. The facility is a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a).

Refer to the Emission Inventories section and Appendix A for a summary of regulated air pollutant emissions.

IDAPA 58.01.01.205 .....PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN ATTAINMENT OR UNCLASSIFIABLE AREAS.

40 CFR 52.21 .....Prevention of significant deterioration of air quality.

40 CFR 52.21(a)(2).....Applicability procedures.

In accordance with §52.21(a)(2)(i), Prevention of Significant Deterioration (PSD) requirements apply to the construction of any new major stationary source or any project at an existing major stationary source in an area designated as attainment or unclassifiable.

This project has been proposed at an existing major stationary source in an area designated as attainment or unclassifiable (refer to the Attainment Designation (40 CFR 81.313) section for additional information).

In accordance with §52.21(a)(2)(ii), the requirements of §52.21(j) through (r) apply to the construction of any new major stationary source or the major modification of any existing major stationary source, except as otherwise provided.

This project was not considered a major modification as defined in §52.21(b)(2)(i), because it has not been predicted to result in a significant emissions increase as determined in accordance with §52.21(b)(40). The emissions increases resulting from this project are predicted to be less than the significant level as defined in §52.21(b)(23)(i) and as provided in Table 3. Therefore, the requirements of §52.21(j) through (r) do not apply to this project unless otherwise provided.

Emissions increase

In accordance with §52.21(a)(2)(iv)(a), except as otherwise provided, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases—a significant emissions increase (as defined in §52.21(b)(40)), and a significant net emissions increase (as defined in §52.21(b)(3) and (b)(23)).

As provided in Table 3, this project has not been considered a major modification because it has not been estimated to result in a significant emissions increase.

In accordance with §52.21(a)(2)(iv)(b), the procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to §52.21(a)(2)(iv)(c) through (f). For these calculations, fugitive emissions (to the extent quantifiable) are included only if the emissions unit is part of one of the source categories listed in paragraph §52.21(b)(1)(iii) or if the emission unit is located at a major stationary source that belongs to one of the listed source categories. Fugitive emissions are not included for those emissions units located at a facility whose primary activity is not represented by one of the source categories listed in paragraph §52.21(b)(1)(iii) and that are not, by themselves, part of a listed source category. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major stationary source (i.e., the second step of the process) is contained in the definition in §52.21(b)(3). Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

The emissions units which were evaluated (all units except for the new sugar granulation system) are part of a listed source category in §52.21(b)(1)(iii), and fugitive emissions were included in the emissions increase estimates. In accordance with §52.21(a)(2)(iv)(*c*), the actual-to-projected actual test was used for this project because it involves existing emissions units.

Net emissions increase

In accordance with §52.21(b)(3)(i), net emissions increase means, with respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero:

(a) The increase in emissions from a particular physical change or change in the method of operation at a stationary source as calculated pursuant to §52.21(a)(2)(iv); and

(b) Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under §52.21(b)(3)(i)(b) shall be determined as provided in §52.21(b)(48) of this section, except that §52.21(b)(48)(i)(c) and (b)(48)(ii)(d) of this section shall not apply.

In accordance with §52.21(b)(3)(ii), an increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

(a) The date five years before construction on the particular change commences; and

(b) The date that the increase from the particular change occurs.

As verified by the permittee and as provided in the Permitting History section, there was one permit action occurring within the specified five-year contemporaneous period, the new sugar granulation system. As referenced from the Statement of Basis to PTC No. P-2010.0108 the sugar granulation system project resulted in creditable minor increases in PM_{10} emissions.

In accordance with §52.21(b)(3)(iii), an increase or decrease in actual emissions is creditable only if:

(a) The reviewing authority has not relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs; and

(b) The increase or decrease in emissions did not occur at a Clean Unit except as provided in §52.21(x)(8) and (y)(10); and

(c) As it pertains to an increase or decrease in fugitive emissions (to the extent quantifiable), it occurs at an emissions unit that is part of one of the source categories listed in paragraph (b)(1)(iii) of this section or it occurs at an emission unit that is located at a major stationary source that belongs to one of the listed source categories.

In accordance with §52.21(b)(3)(iv), an increase or decrease in actual emissions of SO_2, PM, or NO_x that occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

In accordance with §52.21(b)(3)(v), an increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

In accordance with §52.21(b)(3)(vi), a decrease in actual emissions is creditable only to the extent that:

(a) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(b) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins.

(c) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change; and

In accordance with §52.21(b)(3)(viii), an increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

In accordance with §52.21(b)(3)(ix), §52.21(b)(21)(ii) shall not apply for determining creditable increases and decreases.

In accordance with §52.21(b)(48)(ii), for an existing emissions unit, baseline actual emissions means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete permit application is received for a permit required under this section or by the reviewing authority for a permit required by a plan, whichever is earlier, except that the 10-year period shall not include any period earlier than November 15, 1990.

(a) The average rate shall include emissions associated with startups, shutdowns, and malfunctions; and, for an emissions unit that is part of one of the source categories listed in §52.21(b)(1)(iii) or for an emissions unit that is located at a major stationary source that belongs to one of the listed source categories, shall include fugitive emissions (to the extent quantifiable).

For the purposes of determining net emissions increases, fugitives were included as required by §52.21(b)(48)(ii) and as provided in Table 3.

(b) The average rate shall be adjusted downward to exclude any non-compliant emissions that occurred while the source was operating above an emission limitation that was legally enforceable during the consecutive 24-month period.

(c) The average rate shall be adjusted downward to exclude any emissions that would have exceeded an emission limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive 24-month period. However, if an emission limitation is part of a maximum achievable control technology standard proposed or promulgated under 40 CFR 63, the baseline actual emissions need only be adjusted if DEQ has taken credit for such emissions reductions in an attainment demonstration or maintenance plan consistent with the requirements of §51.165(a)(3)(ii)(G).

(d) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for all the emissions units being changed. A different consecutive 24-month period can be used for each regulated NSR pollutant.

(e) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by §52.21(b)(48)(ii)(b) and (c).

The permittee has elected to use actual production data from the 24-month period that includes the 2003-2004 beet processing campaign for the purposes of determining baseline actual emissions of all regulated NSR pollutants.

Reasonable Possibility Standard

In accordance with §52.21(r)(6), except as otherwise provided in paragraph (r)(6)(vi)(b) of this section, the provisions of this paragraph (r)(6) apply with respect to any regulated NSR pollutant emitted from projects at existing emissions units at a major stationary source (other than projects at a source with a PAL) in circumstances where there is a reasonable possibility, within the meaning of paragraph (r)(6)(vi) of this section, that a project that is not a part of a major modification may result in a significant emissions increase of such pollutant, and the owner or operator elects to use the method specified in paragraphs (b)(41)(ii)(a) through (c) of this section for calculating projected actual emissions.

Projected actual emissions were calculated for each emissions unit and activity using methods specified in 40 CFR 52.21(b)(41)(ii)(*a*) through (*c*), except for that of the new sugar granulation system. Therefore, the provisions of this paragraph were determined to apply to facility-wide emissions of the referenced pollutants, except for those attributed to the new sugar granulation system.

(i) Before beginning actual construction of the project, the owner or operator shall document and maintain a record of the following information:

(a) A description of the project;

(b) Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

(c) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under paragraph (b)(41)(ii)(c) of this section and an explanation for why such amount was excluded, and any netting calculations, if applicable.

This documentation was provided in the application.

(ii) If the emissions unit is an existing electric utility steam generating unit, before beginning actual construction, the owner or operator shall provide a copy of the information set out in paragraph (r)(6)(i) of this section to the Administrator. Nothing in this paragraph (r)(6)(ii) shall be construed to require the owner or operator of such a unit to obtain any determination from the Administrator before beginning actual construction.

Not applicable; the emissions units at the facility are not existing electric utility steam generating units as defined in 40 CFR 52.21(b)(31).

(iii) The owner or operator shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions unit identified in paragraph (r)(6)(i)(b) of this section; and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity or potential to emit that regulated NSR pollutant at such emissions unit.

This requirement was included as Permit Condition 2.8.

(iv) If the unit is an existing electric utility steam generating unit, the owner or operator shall submit a report to the Administrator within 60 days after the end of each year during which records must be generated under paragraph (r)(6)(iii) of this section setting out the unit's annual emissions during the calendar year that preceded submission of the report.

Not applicable; the emissions units at the facility are not existing electric utility steam generating units as defined in 40 CFR 52.21(b)(31).

(v) If the unit is an existing unit other than an electric utility steam generating unit, the owner or operator shall submit a report to the Administrator if the annual emissions, in tons per year, from the project identified in paragraph (r)(6)(i) of this section, exceed the baseline actual emissions (as documented and maintained pursuant to paragraph (r)(6)(i)(c) of this section), by a significant amount (as defined in paragraph (b)(23) of this section) for that regulated NSR pollutant, and if such emissions differ from the preconstruction projection as documented and maintained pursuant to paragraph (r)(6)(i)(c) of this section. Such report shall be submitted to the Administrator within 60 days after the end of such year. The report shall contain the following:

(a) The name, address and telephone number of the major stationary source;

(b) The annual emissions as calculated pursuant to paragraph (r)(6)(iii) of this section; and

(c) Any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection).

This requirement was included as Permit Condition 2.9.

(7) The owner or operator of the source shall make the information required to be documented and maintained pursuant to paragraph (r)(6) of this section available for review upon a request for inspection by the Administrator or the general public pursuant to the requirements contained in §70.4(b)(3)(viii) of this chapter.

This requirement is addressed by the inspection and entry general provision of the Tier I operating permit.

NSPS Applicability (40 CFR 60)

The facility is subject to the requirements of 40 CFR 60 Subpart D – New Source Performance Standards for Fossil Fuel Fired Steam Generators constructed after August 17, 1971, and Subpart A – General Provisions.

The Foster Wheeler Boiler is an affected facility subject to NSPS requirements.

Although the permitting action could potentially involve an affected boiler subject to NSPS requirements, the action is not expected to alter the applicability status of the affected boiler or of any emission sources at the facility.

NESHAP Applicability (40 CFR 61)

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

MACT Applicability (40 CFR 63)

The Twin Falls Facility is a major source of HAP, and has been determined to be subject to the requirements of 40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT). TASCO has certified that an initial notification pursuant to the requirements of 40 CFR 63, Subpart DDDDD was submitted on March 10, 2005 for the Twin Falls Facility.

The United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) vacated the Boiler MACT regulations in their entirety on July 30, 2007. EPA proposed boiler standards for major sources on June 4, 2010, and final standards were promulgated March 21, 2011 (with an effective date of May 20, 2011, and compliance date for affected existing boilers of March 21, 2014). On January 9, 2012 the U.S. District Court for the D.C. Circuit vacated EPA's stay for the Boiler MACT regulations. Although boilers at the Twin Falls Facility are required to comply with applicable Boiler MACT requirements on or before the compliance date, such requirements have not been incorporated into the Title V operating permit for the following reasons: 1) Certain portions of these emission standards have been proposed for reconsideration by EPA (most recently on December 23, 2011); 2) Effective dates of the final rule have been delayed by EPA pending the outcome of judicial and EPA review; and 3) TASCO has requested that these requirements not be incorporated into permit requirements until such rule uncertainties have been resolved.

Although the permitting action involves affected boilers subject to NESHAP requirements, the action is not expected to alter the applicability status of the affected boilers or of any emission source at the facility.

Permit Conditions Review

This section describes the permit conditions for this initial permit. The requirements of this permit are not intended to contravene any permit conditions in any applicable Tier I or PTC permit.

Initial Permit Condition 2.1

This permit condition provides a description of the process at the facility.

Initial Permit Condition 2.2

This permit condition reflects the emission limits proposed by the Applicant and are based on the baseline actual emissions and the proposed modifications.

Initial Permit Condition 2.3

This permit condition establishes a 20% opacity limit for any stack, vent, or functionally equivalent opening associated with the processing of beets or the production of sugar.

Initial Permit Condition 2.4

This permit condition requires that the permittee reasonably control fugitive emissions.

Initial Permit Condition 2.5

This permit condition requires that the facility conduct periodic facility-wide inspections of fugitive dust emissions to demonstrate compliance with the fugitive dust rules.

Initial Permit Condition 2.6

This permit condition incorporates PSD (avoidance) requirements in accordance with 40 CFR 52.21(r)(6).

Initial Permit Condition 2.7

This permit condition ensures compliance with PSD avoidance by complying with the reporting and recordkeeping requirements.

Initial Permit Condition 3.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 3.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 3.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 3.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 3.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Initial Permit Condition 3.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

Initial Permit Condition 3.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 3.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 3.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 30 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 3.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 3.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Initial Permit Condition 3.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 3.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 3.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 3.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 3.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

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

SUMMARY OF CRITERIA POLLUTANT ACTUAL FACILITY EMISSIONS

Baseline vs. Future

Twin Falls Facility

Year	PM10	SO2	CO	NO x	VOC	Production Summary							
						Days			Steam (klbs steam)				
						Beet	Juice	Sep. Only	Total	Coal	%	Gas	%
Baseline	352	2219	1902	1228	60	177	100	66	2,221,500	2,173,500	97.8%	48,000	2.2%
Future-2014	342	2107	1911	1200	68	198	82	60	2,221,500	2,073,500	93.3%	148,000	6.7%
Net	-10	-112	9	-28	8	21	-18	-6	0	-100,000		100,000	

MARY OF BASELINE FACILITY WIDE CRITERIA POLLUTANT EMISSIONS (2003/2004)
. Falls Facility

8/10/2012
177.00 Beet run (days)
166.00 Juice & Sep.run (days)

Source	ID	PM max lbs/hr	PM avg lbs/h	PM year tns/yr	PM10 max lbs/hr	PM10 avg lbs/h	PM10 year tns/yr	SO2 max lbs/hr	SO2 avg lbs/h	SO2 year tns/yr	CO max lbs/hr	CO avg lbs/h	CO year tns/yr	NOx max lbs/hr	NOx avg lbs/h	NOx year tns/yr	VOC max lbs/hr	VOC avg lbs/h	VOC year tns/yr
Foster Wheeler Boiler	S-B1	28.6	21.3	93.2	28.6	21.3	93.2	344.0	255.8	1120.6	64.8	48.2	211.1	199.6	148.4	650.2	0.7	0.5	2.1
B&W Boiler	S-B2	60.6	30.3	132.6	60.6	30.3	132.6	474.0	235.5	1031.6	8.1	4.1	17.8	220.0	111.4	487.8	0.8	0.4	1.9
Keeler Boiler	S-B3	2.2	0.0	0.0	2.2	0.0	0.0	0.06	0.00	0.00	0.5	0.0	0.0	27.8	0.0	0.0	0.6	0.0	0.0
Pulp Dryer	S-D1	47.6	17.2	75.3	59.5	21.5	94.2	33.5	12.7	55.5	186.9	67.5	295.8	44.8	16.9	74.2	2.9	1.1	4.8
Pellet Cooler No. 1	S-D2	2.7	0.5	2.0	1.3	0.2	1.0												
Pellet Cooler No. 2	S-D3	2.7	0.46	2.0	1.33	0.23	1.02												
Pulp Dryer Material Handling	S-D4		0.26	1.16		0.26	1.16												
South Lime Kiln	S-K1		0.12	0.55		0.12	0.55		0.1	0.2		82.6	361.6		0.9	4.1		0.07	0.29
North Lime Kiln	S-K2		0.35	1.54		0.35	1.54		0.1	0.6		231.9	1015.7		2.6	11.5		0.19	0.82
Process Slaker	S-K4		0.27	1.19		0.27	1.19												
Material Handling & Crushing	S-K5		0.03	0.11		0.03	0.11												
Drying Granulator #1	S-W1	3.21	1.84	8.08	3.21	1.84	8.08												
Cooling Granulator #2	S-W2	0.55	0.32	1.38	0.55	0.32	1.38												
Main Mill	S-O5																		
Sulfur Stove	S-O6																23.7	11.5	50.3
Coal Unloading	F-O1			5.28		0.60	2.64	2.6	2.4	10.5									
Coal Storage	F-O2			10.44		1.19	5.23												
Boiler Coal Loading	F-O3			2.11		0.24	1.06												
[illegible]tauling	F-O4			4.69		0.54	2.35												
Boiler Railcar Unloading	F-B4			4.46		0.51	2.23												
Dryer Railcar Unloading	F-D5			0.53		0.06	0.26												
Dried Pulp Storage & Loadout	F-D6			4.56		0.52	2.29												
TOTAL	TOTAL	148.1	72.9	351.2	157.3	80.4	352.0	864.2	506.6	2219.0	260.3	434.2	1902.0	492.2	280.3	1227.8	28.7	13.8	60.3

SECTION 3B. PRODUCTION DATA - BOILER HOUSE

NO.		MATERIAL	UNITS	Max Hr	Avg Hr	ANNUAL
S-B1	FW BOILER	Steam - Beet	1000 lbs	200.0	184	776000
		Coal - Beet	Tons	11.6	10.7	45245
		Steam - Juice/Separator	1000 lbs	200.0	152	527000
		Coal - Juice	Tons	11.6	8.8	28093
S-B2	B&W BOILER	Steam (Coal)-Beet	1000 lbs	200.0	163	655500
		Coal (1)-Beet	Tons	13.4	11.0	46502
		Steam (Natural Gas)-Beet	1000 lbs	200.0	8.8	37500
		Natural Gas (1)-Beet	MMcf	0.286	0.012	50.7
		Steam (Coal)-Juice	1000 lbs	200.0	89	215000
		Coal (1)-Juice	Tons	13.4	6.0	14400
		Steam (Natural Gas)-Juice	1000 lbs	0.286	4.4	10500
		Natural Gas (1)-Juice	MMcf	0.286	0.006	14.2
S-B3	KEELER BOILER	Steam (Natural Gas)-Beet	1000 lbs	80		
		Natural Gas (1)-Beet	MMcf	0.10		
		Steam (Natural Gas)-Juice	1000 lbs	80.00		
		Natural Gas (1)-Juice	MMcf	0.1		
		Total Steam(klbs)				2221500
		Beet Steam (klbs)			66.13%	1469000
		Juice Steam(klbs)			33.87%	752500
		Coal Steam(klbs)			97.84%	2173500
		Gas Steam(klbs)			2.16%	48000

Beet run	**177 days**
Juice Run (testout/cleanup[5])	**100 days**
Separator Only	**66 days**

SECTION 3C. EMISSION FACTORS - BOILER HOUSE

NO.		POLLUTANT	UNIT	EMISSION FACTOR (1) LB/UNIT	REFERENCE
S-B1	FW BOILER	PM	1000 lbs	0.143	NSPS Limit - 40 CFR 60 Subpart D
	- STEAM(coal)	PM10	1000 lbs	0.143	Assume 100% of PM is PM10
		SO2	1000 lbs	1.720	NSPS Limit - 40 CFR 60 Subpart D
		CO	1000 lbs	0.324	AP-42, Table 1.1-3, 9/98
		NOx	1000 lbs	1.00	NSPS Limit - 40 CFR 60 Subpart D
		VOC	1000 lbs	0.0033	AP-42, Table 1.1-19, 9/98
S-B2	B&W BOILER	PM	1000 lbs	0.303	IDAPA 58.01.01.677
	- STEAM (coal)	PM10	1000 lbs	0.303	Assume 100% of PM is PM10
		SO2	1000 lbs	2.370	AP-42, Table 1.1-3,(7/98), 1% sulfur
		CO	1000 lbs	0.041	AP-42, Table 1.1-3, 9/98
		NOx	1000 lbs	1.10	Uncertified Source Test, Safety Factor 5%
		VOC	1000 lbs	0.0040	AP-42, Table 1.1-19, 9/98

SECTION 3C. EMISSION FACTORS - BOILER HOUSE

NO.		POLLUTANT	UNIT	EMISSION FACTOR (1) LB/UNIT	REFERENCE
S-B2	B&W BOILER	PM	1000 lbs	2.92E-02	IDAPA 58.01.01.677
		PM10	1000 lbs	2.92E-02	Assume 100% of PM is PM10
		SO2	1000 lbs	8.02E-04	AP-42, Table 1.4-2, (7/98)
		CO	1000 lbs	6.59E-03	2004 Nampa Stack Test
		NOx	1000 lbs	3.75E-01	AP-42, Table 1.4-1, 7/98
		VOC	1000 lbs	7.40E-03	AP-42, Table 1.4-2, 7/98
S-B3	KEELER BOILER	PM	1000 lbs	2.73E-02	IDAPA 58.01.01.677
	- STEAM (gas)	PM10	1000 lbs	2.73E-02	Assume 100% of PM is PM10
		SO2	1000 lbs	7.46E-04	AP-42, Table 1.4-2, 7/98
		CO	1000 lbs	6.59E-03	2004 Nampa Stack Test
		NOx	1000 lbs	3.48E-01	AP-42, Table 1.4-1, 7/98
		VOC	1000 lbs	7.40E-03	AP-42, Table 1.4-2, 7/98

SECTION 3D. EMISSIONS - BOILER HOUSE (beet)

NO.		POLLUTANT	Max lb/hr	Avg. lbs./hr.	TONS/YR
S-B1	FW BOILER (beet) coal	PM	28.6	28.3	55
		PM10	28.6	28.3	55
		SO2	344.0	316.5	667
		CO	64.8	59.6	126
		NOx	200	184	387
		VOC	0.7	0.6	1.3
S-B2	B&W BOILER (beet) coal	PM	60.6	49.4	99
		PM10	60.6	49.4	99
		SO2	474.0	386.3	777
		CO	8.1	6.6	13
		NOx	220	179	361
		VOC	0.8	0.7	1
S-B2	B&W BOILER (beet) gas	PM	5.6	0.3	0.5
		PM10	5.6	0.3	0.5
		SO2	0.0	0.0	0.0
		CO	1.3	0.1	0.1
		NOx	75.6	3.3	7.1
		VOC	1.5	0.1	0.1
S-B3	KEELER BOILER (beet) gas	PM	2.3	0.0	0.0
		PM10	2.3	0.0	0.0
		SO2	0.0	0.0	0.0
		CO	0.5	0.0	0.0
		NOx	30.2	0.0	0.0
		VOC	0.6	0.0	0.0

SECTION 3D. EMISSIONS - BOILER HOUSE (juice)

NO.		POLLUTANT	Max lb/hr	Avg. lbs./hr.	TONS/YR
S-B1	FW BOILER (juice & sep) coal	PM	28.6	21.7	37.7
		PM10	28.6	21.7	37.7
		SO2	344.0	261.4	453.2
		CO	64.6	49.2	85.4
		NOx	199.6	151.7	263.0
		VOC	0.7	0.5	0.9
S-B2	B&W BOILER (juice & sep) coal	PM	60.6	27.0	32.6
		PM10	60.6	27.0	32.6
		SO2	474.0	210.9	254.8
		CO	8.1	3.6	4.4
		NOx	220.0	97.9	118.3
		VOC	0.8	0.4	0.4
S-B2	B&W BOILER (juice & sep gas	PM	0.01	0.13	0.15
		PM10	0.01	0.13	0.15
		SO2	0.000	0.001	0.001
		CO	0.00	0.03	0.03
		NOx	0.11	1.58	1.98
		VOC	0.002	0.03	0.04
S-B3	KEELER BOILER (juice & sep) gas	PM	2.3	0.00	0.00
		PM10	2.3	0.00	0.00
		SO2	0.0	0.00	0.00
		CO	0.5	0.00	0.00
		NOx	30.2	0.00	0.00
		VOC	0.6	0.00	0.00

SECTION 3B. PRODUCTION DATA - PULP DRYING AND PELLETIZING

NO.	SOURCE	MATERIAL	UNITS	Max Hrly	Avg Hrly	ANNUAL
S-D1	PULP DRYER	Total Input (1)	Tons	70.0	52.2	221545
		Coal (2)	Tons	4.8	3.7	15862
		Natural Gas (2)	MMcf	0.020	0.020	2
S-D2	PELLET COOLER NO. 1	Pellets	Tons	8.3	3.0	12724
S-D3	PELLET COOLER NO. 2	Pellets	Tons	8.3	3.0	12724
S-D4	PULP DRYER MATERIAL HANDLING	Shreds/Pellets	Tons	(3)	(3)	61077

(1) Total input includes press pulp, coal, and additives.
(2) Production data assumes that coal and natural gas are used to dry pulp.
(3) Hourly value cannot be determined because of significant hourly variability.

SECTION 3C. EMISSION FACTORS - PULP DRYING AND PELLETIZING

NO.	SOURCE	POLLUTANT	EMISSION FACTOR		
			UNIT	LB/UNIT	REFERENCE
S-D1	PULP DRYER	PM	Tons	0.68	IDAPA 58.01.01.703
	-TOTAL INPUT	PM10	Tons	0.85	Assume PM10 is 125% of PM
		CO	Tons	2.67	Uncertified source test 20% safety factor
	- COAL	SO2	Tons	7.0	AP-42, Table 1.1-3 (September 1998), 1% sulfur
		NOx	Tons	9.35	Uncertified source test
		VOC	Tons	0.61	Uncertified source test

NO.	SOURCE	POLLUTANT	EMISSION FACTOR		
			UNIT	LB/UNIT	REFERENCE
S-D2	PELLET COOLER NO.1	PM	Tons	0.32	Oct 1999 Compliance Test - Nyssa Facility
	- PELLETS	PM10	Tons	0.16	Assume PM10 is 50 % of PM
S-D3	PELLET COOLER NO. 2	PM	Tons	0.32	Oct 1999 Compliance Test - Nyssa Facility
	- PELLETS	PM10	Tons	0.16	Assume PM10 is 50 % of PM
S-D4	PULP DRYER MATERIAL HANDLING	PM	Tons	0.038	AP-42, Table 10.4-2, Engineering Estimate
	- PELLETS/SHREDS	PM10	Tons	0.038	AP-42, Table 10.4-2, Engineering Estimate

SECTION 3D. EMISSIONS - PULP DRYING AND PELLETIZING

NO.	SOURCE	POLLUTANT	Max lb/hr	Avg. lbs./hr.	TONS/YR
S-D1	PULP DRYER	PM	48	35	75
		PM10	60	44	94
		CO	187	139	296
		SO2	34	26	56
		NOx	45	35	74
		VOC	2.9	2.3	4.8
S-D2	PELLET COOLER NO.1	PM	2.66	0.96	2.0
	- PELLETS	PM10	1.33	0.48	1.0
S-D3	PELLET COOLER NO.2	PM	2.66	0.96	2.0
	- PELLETS	PM10	1.33	0.48	1.0
S-D4	PULP DRYER MATERIAL	PM	(1)	(1)	1.2
	- PELLETS/SHREDS	PM10	(1)	(1)	1.2

SECTION 3B. PRODUCTION DATA - LIME KILN AND CO2 PRODUCTION

NO.	SOURCE	MATERIAL	UNITS	MAX HR.	MAX DAILY	ANNUAL
S-K1	SOUTH KILN	Lime Rock	Tons	(1)	74.0	13,032
		Coke/Coal	Tons	(1)	6.3	1,114
S-K2	NORTH KILN	Lime Rock	Tons	(1)	207.0	36,603
		Coke/Coal	Tons	(1)	17.6	3,115
S-K4	PROCESS SLAKER	CaO	Tons	(1)	160.0	28,309
S-K5	MATERIAL HANDLING/CRUSHING	Lime Rock & Coke	Tons	(1)	305.0	53,864

1) Hourly production data cannot be determined because this is a batch process with significant hourly variability.

SECTION 3C. EMISSION FACTORS - LIME KILN AND CO2 PRODUCTION

			EMISSION FACTOR		
NO.	SOURCE	POLLUTANT	UNIT	LB/UNIT	REFERENCE
S-K1	SOUTH KILN				
	- LIME ROCK	PM	Tons	0.084	EPA AP42 & Eng. Est.
		PM10	Tons	0.084	Assume 100% of PM is PM10
		CO	Tons	55.5	December 2003 Stack Test Nampa Facility
		NOx	Tons	0.630	EPA AP42 Table 1.2-1
	- COKE/COAL	SO2	Tons	0.40	EPA AP42 Table 1.4-2 & 99% removal
		VOC	Tons	0.52	Eng. est. based on 2005 TF stack tests
S-K2	NORTH KILN				
	-LIME ROCK	PM	Tons	0.084	EPA AP42 & Eng. Est.
		PM10	Tons	0.084	Assume 100% of PM is PM10
		CO	Tons	55.5	Uncertified Source Test, Mini-Cassia
		NOx	Tons	0.630	EPA AP42 Table 1.2-1
	- COKE/COAL	SO2	Tons	0.40	EPA AP42 Table 1.4-2 & 99% removal
		VOC	Tons	0.52	Eng. est. based on 2005 TF stack tests
S-K4	PROCESS				
	SLAKERS	PM	Tons	0.084	EPA AP-42,Table 11.17-2
	- CaO	PM10	Tons	0.084	Assume PM10 is 100% of PM
S-K5	MATERIAL HANDLING	PM	Tons	0.004	EPA AP-42,Table 11.9-4
	and CRUSHING	PM10	Tons	0.004	Assume PM10 is 100% of PM
	- CaO				

SECTION 3D. EMISSIONS - LIME KILN AND CO2 PRODUCTION

NO.	SOURCE	POLLUTANT	MAX LBS/HR.	MAX LBS/DAY	TONS/YR (1)
S-K1	SOUTH KILN	PM	(2)	6.22	0.55
		PM10	(2)	6.22	0.55
		SO2	(2)	2.52	0.22
		CO	(2)	4,107	362
		NOx	(2)	46.62	4.11
		VOC	(2)	3.30	0.29
S-K2	NORTH KILN	PM	(2)	17.39	1.54
		PM10	(2)	17.39	1.54
		SO2	(2)	7.04	0.6
		CO	(2)	11,489	1015.7
		NOx	(2)	130.41	11.53
		VOC	(2)	9.22	0.82
S-K4	PROCESS SLAKER	PM	(2)	13.44	1.19
		PM10	(2)	13.44	1.19
S-K5	MATERIAL HANDLING	PM	(2)	1.28	0.11
		PM10	(2)	1.28	0.11

(1) Annual production rates are based on 365 days of operation.
(2) Hourly production data cannot be determined, because of a batch process with significant hourly variability.

SECTION 3B. PRODUCTION DATA - SUGAR WAREHOUSE AND HANDLING

NO.	SOURCE	MATERIAL	UNITS	Max hrly	Hourly	ANNUAL
S-W1	DRYING GRANULATOR	Sugar	Tons	45.8	37.9	230,777
S-W2	COOLING GRANULATOR	Sugar	Tons	45.8	37.9	230,777

SECTION 3C. EMISSION FACTORS - SUGAR WAREHOUSE AND HANDLING

NO.	SOURCE	POLLUTANT	EMISSION FACTOR			
			UNIT	UNIT	LB/UNIT	REFERENCE
S-W1	DRYING GRANULATOR - SUGAR	PM	lb per	Tons	0.07	AP42 Table 9.10.1.2-1
		PM10	lb per	Tons	0.07	Assume PM10 is 100% of PM
S-W2	COOLING GRANULATOR	PM	lb per	Tons	0.012	2003 Compliance Test
		PM10	lb per	Tons	0.012	Assume PM10 is 100% of PM

SECTION 3D. EMISSIONS - SUGAR WAREHOUSE AND HANDLING

NO.	SOURCE	POLLUTANT	Max lbs./hr.	Avg. lbs./hr.	TONS/YR
S-W1	DRYING GRANULATOR	PM	3.21	2.65	8.08
	- SUGAR (tons)	PM10	3.21	2.65	8.08
S-W2	NO. 1 COOLING GRANULATOR	PM	0.55	0.45	1.38
	- SUGAR	PM10	0.55	0.45	1.38

SECTION 3B. PRODUCTION DATA - OTHER SOURCES

NO.	SOURCE	MATERIAL	UNITS	Max Hrly	Avg Hrly	ANNUAL
S-O5	MAIN MILL	Thin Juice	1000 gal	85.6	78.0	363,362
S-O6	SULFUR STOVE (2)	Sulfur	Tons	0.028	0.028	230

SECTION 3C. EMISSION FACTORS - OTHER SOURCES

			EMISSION FACTOR		
NO.	SOURCE	POLLUTANT	UNIT	LB/UNIT	REFERENCE
S-O5	MAIN MILL	VOC	1000 gal	0.277	Nonvalidated Test Method
S-O6	SULFUR STOVE	SO2	Ton	91.60	Uncertified Stack Test

SECTION 3D. EMISSIONS - OTHER SOURCES

NO.	SOURCE	POLLUTANT	Max lbs/h	Max lbs/day	Tons/yr
S-05	MAIN MILL	VOC	23.7	569.1	50.3
S-06	SULFUR STOVE	SO2	2.6	61.6	10.5

Note: ANNUAL PRODUCTION BASED ON 365 DAYS OF OPERATION.

Beet Campaign	176.87	4245
Juice Run	165	3960
Total	341.87	8205

Fugitive Dust Emissions Estimates
Baseline Emissions

8/1/2012

		POLLUTANT	UNIT	Process Input	Emission Factor LB/UNIT	REFERENCE	Emission PM10 (tons/yr)
F-01	Coal Unloading Railcar to Storage						
	Railcar unloading	PM	Tons	160,000	6.60E-02	AP-42 Table 11.9-4	5.28
	Railcar unloading	PM10	Tons	160,000	3.30E-02	50% of Total PM	2.64
						F-01 PM10 total	2.64
						F-01 PM total	5.28
F-02	Coal Storage Area						
	Coal Handling (2 transfers)	PM	Tons	160,000	5.60E-02	AP-42 Table 11.9-4	4.48
		PM10	Tons	160,000	2.80E-02	50% of Total PM	2.24
	Vehicle Traffic	PM	Days	365	2.96	AP-42, Chapter 13.2.2-4	0.54
		PM10		365	1.48	50% of Total PM	0.27
	Active / Inactive Pile	PM	Days	365	29.7	AP-42 Table 11.9-4	5.42
		PM10		365	14.9	50% of Total PM	2.72
						F-02 PM10 total	5.23
						F-02 PM total	10.44
F-03	Coal Loading Railcars						
	Coal loading to boilers & pulp dryer	PM	Tons	151,000	2.80E-02	AP-42 Table 11.9-4	2.11
	Coal loading to boilers & pulp dryer	PM10	Tons	151,000	1.40E-02	50% of Total PM	1.06
						F-B3 PM10 total	1.06
						F-B3 PM total	2.11
F-04	Beet Hauling						
	Vehicle Traffic - Unloading	PM	Days	365	15.3	AP-42, Chapter 13.2.2-4	2.79
		PM10		365	7.65	50% of Total PM	1.40
	Vehicle Traffic - To Process	PM	Days	365	10.4	AP-42, Chapter 13.2.2-4	1.90
		PM10		365	5.20	50% of Total PM	0.95
						F-B4 PM10 total	2.36
F-B4	Boilerhouse Coal Unloading					F-B4 PM total	4.69
	Railcar Unloading	PM	Tons	135,000	6.60E-02	AP-42 Table 11.9-4 7/98	4.46
	Railcar Unloading	PM10	Tons	135,000	3.30E-02	50% of Total PM	2.23
						F-B4 PM10 total	2.23
						F-B4 PM total	4.46
F-D5	Dryer Coal Unloading						
	Railcar Unloading	PM	Tons	16,000	6.60E-02	AP-42 Table 11.9-4	0.53
	Railcar Unloading	PM10	Tons	16,000	3.30E-02	50% of Total PM	0.26
						F-D5 PM10 total	0.26
F-D8	Dried Pulp Storage & Loadout					F-D8 PM total	0.53
	Pellets and Shreds	PM	Tons	62,000	1.47E-01	AP-42 Table 10.4-2	4.56
	Pellets and Shreds	PM10	Tons	62,000	7.40E-02	50% of Total PM	2.29
						F-D7 PM10 total	2.29
						F-D7 PM total	4.58

8/14/2012

SUMMARY OF CRITERIA POLLUTANT EMISSIONS - FUTURE with SUGAR END and ENERGY EFFICIENCY IMPROVEMENTS
Twin Falls Facility

198.00 Beet run (days)
142.00 Juice/Sep.run (days)

Source	ID	PM max lbs/hr	PM avg lbs/h	PM year tns/yr	PM10 max lbs/hr	PM10 avg lbs/h	PM10 year tns/yr	SO2 max lbs/hr	SO2 avg lbs/h	SO2 year tns/yr	CO max lbs/hr	CO avg lbs/h	CO year tns/yr	NOx max lbs/hr	NOx avg lbs/h	NOx year tns/yr	VOC max lbs/hr	VOC avg lbs/h	VOC year tns/yr
Foster Wheeler Boiler	S-B1	28.6	21.3	93.2	28.6	21.3	93.2	344.0	255.8	1120.6	58.2	43.3	189.6	199.6	148.4	650.2	0.7	0.5	2.1
B&W Boiler	S-B2	60.6	27.1	118.9	60.6	27.1	118.9	474.0	208.5	913.1	6.7	3.0	13.4	220.0	103.1	451.5	0.8	0.5	2.1
Keeler Boiler	S-B3	2.2	0.0	0.0	2.2	0.0	0.0	0.06	0.00	0.00	0.5	0.0	0.0	27.8	0.0	0.0	0.5	0.0	0.0
Pulp Dryer	S-D1	47.6	19.2	84.2	59.5	24.0	105.3	33.5	14.0	61.5	186.9	75.5	330.8	44.8	18.8	82.2	2.9	1.2	5.4
Pellet Cooler No. 1	S-D2	2.7	0.6	2.4	1.3	0.3	1.2												
Pellet Cooler No. 2	S-D3	2.7	0.56	2.4	1.33	0.28	1.22												
Pulp Dryer Material Handling	S-D4		0.31	1.35		0.31	1.35												
South Lime Kiln	S-K1		0.12	0.55		0.12	0.55		0.051	0.223		82.6	361.6		0.94	4.11		0.067	0.292
North Lime Kiln	S-K2		0.35	1.54		0.35	1.54		0.142	0.623		231.9	1015.7		2.63	11.53		0.186	0.816
Process Slaker	S-K4		0.27	1.19		0.27	1.19												
Material Handling & Crushing	S-K5		0.03	0.11		0.03	0.11												
Drying Granulator #1	S-W1	0.30	0.25	1.10	0.30	0.25	1.10												
Cooling Granulator #2	S-W2	0.30	0.25	1.10	0.30	0.25	1.10												
Main Mill	S-O5																		
Sulfur Stove	S-O6																24.3	13.2	57.7
Coal Unloading	F-O1		1.21	5.28		0.60	2.64	2.6	2.6	11.2									
Coal Storage	F-O2		2.38	10.44		1.19	5.23												
r Coal Loading	F-O3		0.48	2.10		0.24	1.05												
bot Hauling	F-O4		1.07	4.69		0.54	2.35												
Boiler Railcar Unloading	F-B4		0.99	4.36		0.50	2.18												
Dryer Railcar Unloading	F-D5		0.14	0.59		0.07	0.30												
Dried Pulp Storage & Loadout	F-D6		1.04	4.56		0.52	2.29												
TOTAL	TOTAL	144.9	77.7	340.1	154.1	78.3	342.8	854.2	481.1	2107.2	252.3	436.3	1911.1	492.2	273.9	1199.6	29.2	15.6	68.4

SECTION 3B. PRODUCTION DATA - BOILER HOUSE

NO.		MATERIAL	UNITS	Max Hr	Avg Hr	ANNUAL
S-B1	FW BOILER	Steam - Beet	1000 lbs	200.0	170	776000
		Coal - Beet	Tons	11.6	9.9	45245
		Steam - Juice & Sep	1000 lbs	200.0	127	527000
		Coal - Juice & Sep	Tons	11.6	7.4	28093
S-B2	B&W BOILER	Steam (Coal)-Beet	1000 lbs	200.0	148	655500
		Coal (1)-Beet	Tons	13.4	9.9	46502
		Steam (Natural Gas)-Beet	1000 lbs	200.0	0	37500
		Natural Gas (1)-Beet	MMcf	0.270	0.286	51
		Steam (Coal)-Juice & Sep	1000 lbs	200.0	95	115000
		Coal (1)-Juice & Sep	Tons	13.4	6.4	14400
		Steam (Natural Gas)-Juice &	1000 lbs	200.0	95	110500
		Natural Gas (1)-Juice & Sep	MMcf	0.270	0.13	14
S-B3	KEELER BOILER	Steam (Natural Gas)-Beet	1000 lbs	80		
		Natural Gas (1)-Beet	MMcf	0.10		
		Steam (Natural Gas)-Juice &	1000 lbs	80.00		
		Natural Gas (1)-Juice & Sep	MMcf	0.1		
		Total Steam(klbs)				2221500
		Beet Steam (klbs)			66.13%	1469000
		Juice & Sep Steam(klbs)			33.87%	752500
		Coal Steam(klbs)			93.34%	2073500
		Gas Steam(klbs)			6.66%	148000

Note: Annual steam production estimated based on baseline opeartions. Future annual steam production estimates for the beet campaign, juice and separator only runs will vary based on several factors including the size of the beet crop.

SECTION 3C. EMISSION FACTORS - BOILER HOUSE

NO.		POLLUTANT	UNIT	EMISSION FACTOR (1) LB/UNIT	REFERENCE
S-B1	FW BOILER	PM	1000 lbs	0.143	NSPS Limit - 40 CFR 60 Subpart D
	- STEAM(coal)	PM10	1000 lbs	0.143	Assume 100% of PM is PM10
		SO2	1000 lbs	1.720	NSPS Limit - 40 CFR 60 Subpart D
		CO	1000 lbs	0.291	AP-42, Table 1.1-3, 9/98
		NOx	1000 lbs	1.00	NSPS Limit - 40 CFR 60 Subpart D
		VOC	1000 lbs	0.0033	AP-42, Table 1.1-19, 9/98
S-B2	B&W BOILER	PM	1000 lbs	0.303	IDAPA 58.01.01.677
	- STEAM (coal)	PM10	1000 lbs	0.303	Assume 100% of PM is PM10
		SO2	1000 lbs	2.370	AP-42, Table 1.1-3,(7/98), 1% sulfur
		CO	1000 lbs	0.033	AP-42, Table 1.1-3, 9/98
		NOx	1000 lbs	1.10	Uncertified Source Test, Safety Factor 5%
		VOC	1000 lbs	0.0040	AP-42, Table 1.1-19, 9/98

SECTION 3C. EMISSION FACTORS - BOILER HOUSE

NO.		POLLUTANT	UNIT	EMISSION FACTOR (1) LB/UNIT	REFERENCE
S-B2	B&W BOILER				
	- STEAM (gas)	PM	1000 lbs	2.92E-02	IDAPA 58.01.01.677
		PM10	1000 lbs	2.92E-02	Assume 100% of PM is PM10
		SO2	1000 lbs	8.02E-04	AP-42, Table 1.4-2, (7/98)
		CO	1000 lbs	6.59E-03	2004 Nampa Stack Test
		NOx	1000 lbs	3.75E-01	AP-42, Table 1.4-1, 7/98
		VOC	1000 lbs	7.40E-03	AP-42, Table 1.4-2, 7/98
S-B3	KEELER BOILER	PM	1000 lbs	2.73E-02	IDAPA 58.01.01.677
	- STEAM (gas)	PM10	1000 lbs	2.73E-02	Assume 100% of PM is PM10
		SO2	1000 lbs	7.46E-04	AP-42, Table 1.4-2, 7/98
		CO	1000 lbs	6.59E-03	2004 Nampa Stack Test
		NOx	1000 lbs	3.48E-01	AP-42, Table 1.4-1, 7/98
		VOC	1000 lbs	6.84E-03	AP-42, Table 1.4-2, 7/98

SECTION 3D. EMISSIONS - BOILER HOUSE (beet)

NO.		POLLUTANT	Max lb/hr	Avg. lbs./hr.	TONS/YR
S-B1	FW BOILER (beet) coal	PM	28.6	24.3	55
		PM10	28.6	24.3	55
		SO2	344.0	292.4	667
		CO	58.2	49.5	113
		NOx	200	170	387
		VOC	0.7	0.6	1.3
S-B2	B&W BOILER (beet) coal	PM	60.8	44.8	99
		PM10	60.8	44.8	99
		SO2	474.0	350.8	777
		CO	6.7	4.9	11
		NOx	220	163	361
		VOC	0.8	0.6	1
S-B2	B&W BOILER (beet) gas	PM	5.8	0.0	0.5
		PM10	5.8	0.0	0.5
		SO2	0.2	0.0	0.0
		CO	1.3	0.0	0.1
		NOx	75.0	0.0	7.0
		VOC	1.5	0.0	0.1
S-B3	KEELER BOILER (beet) gas	PM	2.2	0.0	0.0
		PM10	2.2	0.0	0.0
		SO2	0.1	0.0	0.0
		CO	0.5	0.0	0.0
		NOx	27.8	0.0	0.0
		VOC	0.5	0.0	0.0

SECTION 3D. EMISSIONS - BOILER HOUSE (juice)

NO.		POLLUTANT	Max lb/hr	Avg. lbs./hr.	TONS/YR
S-B1	FW BOILER (juice & sep) coal	PM	28.6	18.2	37.7
		PM10	28.6	18.2	37.7
		SO2	344.0	218.4	453.2
		CO	58.2	37.0	76.7
		NOx	199.6	126.7	263.0
		VOC	0.7	0.4	0.9
S-B2	B&W BOILER (juice & sep) coal	PM	60.8	26.8	17.4
		PM10	60.8	26.8	17.4
		SO2	474.0	225.2	136.3
		CO	6.7	3.2	1.9
		NOx	220.0	104.5	63.3
		VOC	0.8	0.4	0.2
S-B2	B&W BOILER (juice & sep) gas	PM	5.8	2.8	1.8
		PM10	5.8	2.8	1.8
		SO2	0.2	0.1	0.0
		CO	1.3	0.6	0.4
		NOx	75.0	35.6	20.7
		VOC	1.5	0.7	0.4
S-B3	KEELER BOILER (juice & sep) gas	PM	2.2	0.0	0.0
		PM10	2.2	0.0	0.0
		SO2	0.1	0.0	0.0
		CO	0.5	0.0	0.0
		NOx	27.8	0.0	0.0
		VOC	0.5	0.0	0.0

SECTION 3B. PRODUCTION DATA - PULP DRYING AND PELLETIZING

NO.	SOURCE	MATERIAL	UNITS	Max Hrly	Avg Hrly	ANNUAL
S-D1	PULP DRYER	Total Input (1)	Tons	70.0	52.1	247769
		Coal (2)	Tons	4.8	3.7	17582
		Natural Gas (2)	MMcf	0.020	0.020	2
S-D2	PELLET COOLER NO. 1	Pellets	Tons	8.3	3.2	15206
S-D3	PELLET COOLER NO. 2	Pellets	Tons	8.3	3.2	15206
S-D4	PULP DRYER MATERIAL HANDLING	Shreds/Pellets	Tons	(3)	(3)	71000

(1) Total input includes press pulp, coal, and additives.
(2) Production data assumes that coal and natural gas are used to dry pulp.
(3) Hourly value cannot be determined because of significant hourly variability.

SECTION 3C. EMISSION FACTORS - PULP DRYING AND PELLETIZING

NO.	SOURCE	POLLUTANT	EMISSION FACTOR UNIT	LB/UNIT	REFERENCE
S-D1	PULP DRYER	PM	Tons	0.68	IDAPA 58.01.01.703
	-TOTAL INPUT	PM10	Tons	0.85	Assume PM10 is 125% of PM
		CO	Tons	2.67	Uncertified source test 20% safety factor
	- COAL	SO2	Tons	7.0	AP-42, Table 1.1-3 (September 1998), 1% sulfur
		NOx	Tons	9.35	Uncertified source test
		VOC	Tons	0.61	Uncertified source test

NO.	SOURCE	POLLUTANT	EMISSION FACTOR UNIT	LB/UNIT	REFERENCE
S-D2	PELLET COOLER NO.1	PM	Tons	0.32	Oct 1999 Compliance Test - Nyssa Facility
	- PELLETS	PM10	Tons	0.16	Assume PM10 is 50 % of PM
S-D3	PELLET COOLER NO. 2	PM	Tons	0.32	Oct 1999 Compliance Test - Nyssa Facility
	- PELLETS	PM10	Tons	0.16	Assume PM10 is 50 % of PM
S-D4	PULP DRYER MATERIAL HANDLING	PM	Tons	0.038	AP-42, Table 10.4-2, Engineering Estimate
	- PELLETS/SHREDS	PM10	Tons	0.038	AP-42, Table 10.4-2, Engineering Estimate

SECTION 3D. EMISSIONS - PULP DRYING AND PELLETIZING

NO.	SOURCE	POLLUTANT	Max lb/hr	Avg. lbs./hr.	TONS/YR
S-D1	PULP DRYER	PM	48	35	84
		PM10	60	44	105
		CO	187	139	331
		SO2	34	26	62
		NOx	45	35	82
		VOC	2.9	2.3	5.4
S-D2	PELLET COOLER NO.1	PM	2.66	1.02	2.4
	- PELLETS	PM10	1.33	0.51	1.2
S-D3	PELLET COOLER NO.2	PM	2.66	1.02	2.4
	- PELLETS	PM10	1.33	0.51	1.2
S-D4	PULP DRYER MATERIAL	PM	(1)	(1)	1.3
	- PELLETS/SHREDS	PM10	(1)	(1)	1.3

SECTION 3B. PRODUCTION DATA - LIME KILN AND CO2 PRODUCTION

NO.	SOURCE	MATERIAL	UNITS	MAX HR.	MAX DAILY	ANNUAL
S-K1	SOUTH KILN	Lime Rock	Tons	(1)	74.0	13,032
		Coke/Coal	Tons	(1)	6.3	1,114
S-K2	NORTH KILN	Lime Rock	Tons	(1)	207.0	36,603
		Coke/Coal	Tons	(1)	17.6	3,115
S-K4	PROCESS SLAKER	CaO	Tons	(1)	160.0	28,309
S-K5	MATERIAL HANDLING/CRUSHING	Lime Rock & Coke	Tons	(1)	305.0	53,864

(1) Hourly production data cannot be determined because this is a batch process with significant hourly variability.

SECTION 3C. EMISSION FACTORS - LIME KILN AND CO2 PRODUCTION

			EMISSION FACTOR		
NO.	SOURCE	POLLUTANT	UNIT	LB/UNIT	REFERENCE
S-K1	SOUTH KILN				
	- LIME ROCK	PM	Tons	0.084	EPA AP42 & Eng. Estimate
		PM10	Tons	0.084	Assume 100% of PM is PM10
		CO	Tons	55.5	December 2003 Stack Test Nampa Facility
		NOx	Tons	0.630	EPA AP42 Table 1.2-1
	- COKE/COAL	SO2	Tons	0.40	EPA AP42 Table 1.4-2 & 99% removal
		VOC	Tons	0.52	Eng. est. based on 2005 TF stack tests
S-K2	NORTH KILN				
	-LIME ROCK	PM	Tons	0.084	EPA AP42 & Eng. Estimate
		PM10	Tons	0.084	Assume 100% of PM is PM10
		CO	Tons	55.5	Uncertified Source Test, Mini-Cassia
		NOx	Tons	0.630	EPA AP42 Table 1.2-1
	- COKE/COAL	SO2	Tons	0.40	EPA AP42 Table 1.4-2 & 99% removal
		VOC	Tons	0.52	Eng. est. based on 2005 TF stack tests
S-K4	PROCESS				
	SLAKERS	PM	Tons	0.084	EPA AP-42,Table 11.17-2
	- CaO	PM10	Tons	0.084	Assume PM10 is 100% of PM
S-K5	MATERIAL HANDLING	PM	Tons	0.004	EPA AP-42,Table 11.9-4
	and CRUSHING	PM10	Tons	0.004	Assume PM10 is 100% of PM
	- CaO				

SECTION 3D. EMISSIONS - LIME KILN AND CO2 PRODUCTION

NO.	SOURCE	POLLUTANT	MAX LBS/HR.	MAX LBS/DAY	TONS/YR (1)
S-K1	SOUTH KILN	PM	(2)	6.22	0.55
		PM10	(2)	6.22	0.55
		SO2	(2)	2.52	0.22
		CO	(2)	4,107	362
		NOx	(2)	46.62	4.11
		VOC	(2)	3.30	0.29
S-K2	NORTH KILN	PM	(2)	17.39	1.54
		PM10	(2)	17.39	1.54
		SO2	(2)	7.04	0.6
		CO	(2)	11,489	1015.7
		NOx	(2)	130.41	11.53
		VOC	(2)	9.22	0.82
S-K4	PROCESS SLAKER	PM	(2)	13.44	1.19
		PM10	(2)	13.44	1.19
S-K5	MATERIAL HANDLING	PM	(2)	1.28	0.11
		PM10	(2)	1.28	0.11

(1) Annual production rates are based on 198 days of operation.
(2) Hourly production data cannot be determined, because of a batch process with significant hourly variability.

SECTION 3B. PRODUCTION DATA - SUGAR WAREHOUSE AND HANDLING

NO.	SOURCE	MATERIAL	UNITS	Max hrly	Hourly	ANNUAL
S-W1	DRYING GRANULATOR	Sugar	Tons	55.0	45.8	400,000
S-W2	COOLING GRANULATOR	Sugar	Tons	55.0	45.8	400,000

SECTION 3C. EMISSION FACTORS - SUGAR WAREHOUSE AND HANDLING

NO.	SOURCE	POLLUTANT	EMISSION FACTOR UNIT			UNIT	LB/UNIT	REFERENCE
S-W1	DRYING GRANULATOR - SUGAR	PM	lb	per		Tons	0.0055	BMA 0.003 gr/dscf estimate
		PM10	lb	per		Tons	0.0055	Assume PM10 is 100% of PM
S-W2	COOLING GRANULATOR	PM	lb	per		Tons	0.0055	BMA 0.003 gr/dscf estimate
		PM10	lb	per		Tons	0.0055	Assume PM10 is 100% of PM

SECTION 3D. EMISSIONS - SUGAR WAREHOUSE AND HANDLING

NO.	SOURCE	POLLUTANT	Max lbs./hr.	Avg. lbs./hr.	TONS/YR
S-W1	DRYING GRANULATOR	PM	0.30	0.25	1.10
	- SUGAR (tons)	PM10	0.30	0.25	1.10
S-W2	NO. 1 COOLING GRANULATOR	PM	0.30	0.25	1.10
	- SUGAR	PM10	0.30	0.25	1.10

SECTION 3B. PRODUCTION DATA - OTHER SOURCES

NO.	SOURCE	MATERIAL	UNITS	Max Hrly	Avg Hrly	ANNUAL
S-O5	MAIN MILL	Thin Juice	1000 gal	87.6	79.6	416,275
S-O6	SULFUR STOVE (2)	Sulfur	Tons	0.028	0.028	244

SECTION 3C. EMISSION FACTORS - OTHER SOURCES

			EMISSION FACTOR		
NO.	SOURCE	POLLUTANT	UNIT	LB/UNIT	REFERENCE
S-O5	MAIN MILL	VOC	1000 gal	0.277	Non Validated Source Test
S-O6	SULFUR STOVE	SO2	Ton	91.60	Uncertified Stack Test

SECTION 3D. EMISSIONS - OTHER SOURCES

NO.	SOURCE	POLLUTANT	Max lbs/h	Max lbs/day	Tons/yr
S-05	MAIN MILL	VOC	24.3	582.4	57.7
S-06	SULFUR STOVE	SO2	2.6	61.6	11.2

Note: ANNUAL PRODUCTION BASED ON 365 DAYS OF OPERATION.

Beet Campaign	198	4752
Juice Run	165	3960
Total	363	8712

Fugitive Dust Emissions Estimates

Future

8/1/2012

		POLLUTANT	UNIT	Process Input	Emissions Factor LB/UNIT	REFERENCE	Emission PM10 (tons/yr)
F-01	Coal Unloading Railcar to Storage						
	Railcar unloading	PM	Tons	160,000	6.60E-02	AP-42 Table 11.9-4	5.28
	Railcar unloading	PM10	Tons	160,000	3.30E-02	50% of Total PM	2.64
						F-01 PM10 total	2.64
						F-01 PM total	5.28
F-02	Coal Storage Area						
	Coal Handling	PM	Tons	160,000	5.60E-02	AP-42 Table 11.9-4	4.48
		PM10	Tons	160,000	2.80E-02	50% of Total PM	2.24
	Vehicle Traffic	PM	Days	365	2.98	AP-42, Chapter 13.2.2-4	0.54
		PM10		365	1.49	50% of Total PM	0.27
	Active / Inactive Pile	PM	Days	365	29.7	AP-42 Table 11.9-4	5.42
		PM10		365	14.9	50% of Total PM	2.72
						F-02 PM10 total	5.23
						F-02 PM total	10.44
F-03	Coal Loading Railcars						
	Coal loading to boilers & pulp dryer	PM	Tons	150,000	2.80E-02	AP-42 Table 11.9-4	2.10
	Coal loading to boilers & pulp dryer	PM10	Tons	150,000	1.40E-02	50% of Total PM	1.05
						F-B3 PM10 total	1.05
						F-B3 PM total	2.10
F-04	Beet Hauling						
	Vehicle Traffic - Unloading	PM	Days	365	15.30	AP-42, Chapter 13.2.2-4	2.79
		PM10		365	7.65	50% of Total PM.	1.40
	Vehicle Traffic - To Process	PM	Days	365	10.40	AP-42, Chapter 13.2.2-4	1.90
		PM10		365	5.20	50% of Total PM	0.95
						F-B4 PM10 total	2.35
						F-B4 PM total	4.69
F	Boilerhouse Coal Unloading						
	Railcar Unloading	PM	Tons	132,000	6.60E-02	AP-42 Table 11.9-4 7/98	4.36
	Railcar Unloading	PM10	Tons	132,000	3.30E-02	50% of Total PM	2.18
						F-B4 PM10 total	2.18
						F-B4 PM total	4.36
F-D5	Dryer Coal Unloading						
	Railcar Unloading	PM	Tons	18,000	6.60E-02	AP-42 Table 11.9-4	0.59
	Railcar Unloading	PM10	Tons	18,000	3.30E-02	50% of Total PM	0.30
						F-D6 PM10 total	0.30
						F-D6 PM total	0.59
F-D6	Dried Pulp Storage & Loadout						
	Pellets and Shreds	PM	Tons	71,000	1.47E-01	AP-42 Table 10.4-2	4.56
	Pellets and Shreds	PM10	Tons	71,000	7.40E-02	50% of Total PM	2.29
						F-D7 PM10 total	2.29
						F-D7 PM total	4.58

GHG Baseline Emissions Summary
Twin Falls Facility

Source	CO2 (tons/y)	CH4 (tons/y)	N2O (tons/y)
Total - Boilers	293642	33	5
Total - Pulp Dryers	36530	4	1
Total - Lime Kilns	12112	1	0.2
Total	342284	38	6

Future Emissions Summary
Twin Falls Facility

Source	CO2 (tons/y)	CH4 (tons/y)	N2O (tons/y)
Total - Boilers	287542	31	5
Total - Pulp Dryers	40491	5	1
Total - Lime Kilns	12112	1	0.2
Total	340145	37	5

GHG Net Emissions Summary
Twin Falls Facility

Source	CO2 (tons/y)	CH4 (tons/y)	N2O (tons/y)
Total - Boilers	-6100	-1	0
Total - Pulp Dryers	3961	0	0.1
Total - Lime Kilns	0	0	0.0
Total	-2139	-1	-0.1

GHG Emissions Estimates
Baseline Period (Average 2003-2004)
The Amalgamated Sugar Co. LLC
Twin Falls Facility

Source Name	Source ID	Annual	Units	Emissions Parameter	Factor	Units	Reference	Annual Emissions (tons/y)
FW Boiler	S-B1	1,303,000	klbs steam - coal	CO_2	267	lbs/klb steam	40CFR98 Subpart C Table C-1	173951
		1,303,000	klbs steam - coal	CH_4	0.03	lbs/klb steam	40CFR98 Subpart C Table C-2	20
		1,303,000	klbs steam - coal	N_2O	0.0044	lbs/klb steam	40CFR98 Subpart C Table C-2	3
B&W Boiler	S-B2	870,500	klbs steam - coal	CO_2	267	lbs/klb steam	40CFR98 Subpart C Table C-1	116212
		870,500	klbs steam - coal	CH_4	0.03	lbs/klb steam	40CFR98 Subpart C Table C-2	13
		870,500	klbs steam - coal	N_2O	0.0044	lbs/klb steam	40CFR98 Subpart C Table C-2	2
		48,000	klbs steam - gas	CO_2	145	lbs/klb steam	40CFR98 Subpart C Table C-1	3480
		48,000	klbs steam - gas	CH_4	0.0028	lbs/klb steam	40CFR98 Subpart C Table C-2	0.07
		48,000	klbs steam - gas	N_2O	0.00028	lbs/klb steam	40CFR98 Subpart C Table C-2	0.01

	CO_2(tons/y)	CH_4(ton/y)	N_2O(tons/y)
Total - Boilers	293642	33	5

Source Name	Source ID	Annual	Units	Emissions Parameter	Factor	Units	Reference	Annual Emissions (tons/y)
Pulp Dryer	S-D1	15862	tons - coal	CO_2	4606	lbs/ton coal	40CFR98 Subpart C Table C-1	36530
		15862	tons - coal	CH_4	0.518	lbs/ton coal	40CFR98 Subpart C Table C-2	4
		15862	tons - coal	N_2O	0.076	lbs/ton coal	40CFR98 Subpart C Table C-2	0.6

	CO_2(tons/y)	CH_4(ton/y)	N_2O(tons/y)
Total - Pulp Dryers	36530	4	0.6

Source Name	Source ID	Annual	Units	Emissions Parameter	Factor	Units	Reference	Annual Emissions (tons/y)
South Kiln	S-K1	1114	tons - coal/coke	CO_2	5728	lbs/ton	40CFR98 Subpart C Table C-1	3190
		1114	tons - coal/coke	CH_4	0.602	lbs/ton	40CFR98 Subpart C Table C-2	0
		1114	tons - coal/coke	N_2O	0.0878	lbs/ton	40CFR98 Subpart C Table C-2	0.05
North Kiln	S-K2	3115	tons - coal/coke	CO_2	5728	lbs/ton	40CFR98 Subpart C Table C-1	8921
		3115	tons - coal/coke	CH_4	0.602	lbs/ton	40CFR98 Subpart C Table C-2	0.9
		3115	tons - coal/coke	N_2O	0.0878	lbs/ton	40CFR98 Subpart C Table C-2	0.1

	CO_2(tons/y)	CH_4(ton/y)	N_2O(tons/y)
Total - Lime Kilns	12112	1	0.2

GHG Emissions Estimates
Projected
The Amalgamated Sugar Co. LLC
Twin Falls Facility

Source Name	Source ID	Annual	Units	Emissions Parameter	Factor	Units	Reference	Annual Emissions (tons/y)
FW Boiler	S-B1	1,303,000	klbs steam - coal	CO_2	267	lbs/klb steam	40CFR98 Subpart C Table C-1	173951
		1,303,000	klbs steam - coal	CH_4	0.03	lbs/klb steam	40CFR98 Subpart C Table C-2	20
		1,303,000	klbs steam - coal	N_2O	0.0044	lbs/klb steam	40CFR98 Subpart C Table C-2	3
B&W Boiler	S-B2	770,500	klbs steam - coal	CO_2	267	lbs/klb steam	40CFR98 Subpart C Table C-1	102862
		770,500	klbs steam - coal	CH_4	0.03	lbs/klb steam	40CFR98 Subpart C Table C-2	12
		770,500	klbs steam - coal	N_2O	0.0044	lbs/klb steam	40CFR98 Subpart C Table C-2	2
		148,000	klbs steam - gas	CO_2	145	lbs/klb steam	40CFR98 Subpart C Table C-1	10730
		148,000	klbs steam - gas	CH_4	0.0028	lbs/klb steam	40CFR98 Subpart C Table C-2	0.21
		148,000	klbs steam - gas	N_2O	0.00028	lbs/klb steam	40CFR98 Subpart C Table C-2	0.02

	CO_2(tons/y)	CH_4(ton/y)	N_2O(tons/y)
Total - Boilers	287542	31	5

Source Name	Source ID	Annual	Units	Emissions Parameter	Factor	Units	Reference	Annual Emissions (tons/y)
Pulp Dryer	S-D1	17582	tons - coal	CO_2	4606	lbs/ton coal	40CFR98 Subpart C Table C-1	40491
		17582	tons - coal	CH_4	0.518	lbs/ton coal	40CFR98 Subpart C Table C-2	5
		17582	tons - coal	N_2O	0.076	lbs/ton coal	40CFR98 Subpart C Table C-2	0.7

	CO_2(tons/y)	CH_4(ton/y)	N_2O(tons/y)
Total - Pulp Dryers	40491	5	1

Source Name	Source ID	Annual	Units	Emissions Parameter	Factor	Units	Reference	Annual Emissions (tons/y)
South Kiln	S-K1	1114	tons - coal/coke	CO_2	5728	lbs/ton	40CFR98 Subpart C Table C-1	3190
		1114	tons - coal/coke	CH_4	0.602	lbs/ton	40CFR98 Subpart C Table C-2	0
		1114	tons - coal/coke	N_2O	0.0878	lbs/ton	40CFR98 Subpart C Table C-2	0.05
North Kiln	S-K2	3115	tons - coal/coke	CO_2	5728	lbs/ton	40CFR98 Subpart C Table C-1	8921
		3115	tons - coal/coke	CH_4	0.602	lbs/ton	40CFR98 Subpart C Table C-2	0.9
		3115	tons - coal/coke	N_2O	0.0878	lbs/ton	40CFR98 Subpart C Table C-2	0.1

	CO_2(tons/y)	CH_4(ton/y)	N_2O(tons/y)
Total - Lime Kilns	12112	1	0.2

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: October 3, 2012

TO: Kelli Wetzel, Permit Writer, Air Quality Division

FROM: Cheryl Robinson, P.E., Air Quality Engineer/Modeling Analyst, Air Quality Division

PROJECT NUMBER: P-2012.0054 PROJ 61102

SUBJECT: Modeling Review for Amalgamated Sugar, Twin Falls, Facility ID 083-00001
Sugar End Improvements: Add 3rd White Vacuum Pan, replace No. 1 Evaporator with a more efficient unit, and implement energy efficiency improvements to increase daily sugar granulation capacity, and increase annual beet slice from 1.2 MMT/yr to 1.4 MMT/yr

1.0 Summary

On August 14, 2012 DEQ received an application from the Amalgamated Sugar Company, LLC (TASCO – Twin Falls) to make several modifications to their Twin Falls sugar plant, including proposing to "split" the sugar end to decrease internal recycling of materials. Additional supporting documentation for stack parameters was received on September 13, 2012.

The facility is a *designated facility*, as defined in IDAPA 58.01.01.006.30, Rules for the Control of Air Pollution in Idaho (Rules), because the facility has fossil fuel-fired steam generating boiler(s) with a total heat input capacity in excess of 250 million BTUs per hour. The facility's potential to emit (PTE) of particulate matter with an aerodynamic diameter of ten microns or less (PM_{10}), sulfur dioxide (SO_2), carbon monoxide (CO), and nitrogen oxides (NO_x) each is greater than 250 tons per year (T/yr). The facility is therefore a major facility under the New Source Review (NSR) PSD program.

The most recent modification to the TASCO Twin Falls facility was the granulator replacement project (installation of a new fluidized bed drying and cooling granulator system), with emissions routed to a baghouse (emission source PW1A). PTC P-2010.0108 Proj 60566 was issued for that project on October 25, 2010, and notification of commencement of construction was received by DEQ on December 27, 2010.

Air quality analyses involving atmospheric dispersion modeling of emissions associated with the facility were performed to demonstrate the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]) or Toxic Air Pollutant (TAP) increment (Idaho Air Rules Section 203.03).

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 demonstrated to the satisfaction of the Department 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.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
• Annual beet slice is limited to 1,400,000 tons per year. • The beet campaign runs 198 days per year.	• Compliance with TAPs increments, including for acetaldehyde and formaldehyde was based on increasing beet slice from 1.2 MMT/yr to 1.4 MMT/yr, an increase of 200,000 T/yr.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance for this facility located at 2320 Orchard Drive in Twin Falls, Idaho. Approximate UTM coordinates for the facility are 710.9 km Easting and 4712.1 km Northing, in UTM Zone 11 (Datum WGS84). The base elevation at the facility is approximately 1,163 m (3,816 ft).

2.1.1 Area Classification

The facility is located within Twin Falls County which is designated as an attainment or unclassifiable area for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone, particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers ($PM_{2.5}$), and sulfur oxides (SO_x). There are no Class I areas within 10 kilometers of this location.

2.1.2 DEQ Modeling Thresholds

Modeling is typically not required if the changes in estimated criteria pollutant emission rates for a proposed project are below DEQ's modeling thresholds, shown in Table 2. "Case-by-case" thresholds may be used only with prior DEQ approval. Based on a comparison of the TASCO emission parameters and distance to the ambient air boundary, DEQ used the "Threshold II" values to determine whether modeling was required for this project.

Table 2. DEQ CRITERIA POLLUTANT MODELING THRESHOLDS

Criteria Air Pollutants	Averaging Period	DEQ Modeling Threshold			
		Threshold I		Threshold II (Case-by-Case)	
PM_{10}	24-hr	0.22	lb/hr	2.6	lb/hr
$PM_{2.5}$	24-hr	0.054	lb/hr	0.63	lb/hr
	Annual	0.35	T/yr	4.1	T/yr
CO	1-hr, 8-hr	15	lb/hr	175	lb/hr
NO_2	1-hour	0.20	lb/hr	2.4	lb/hr
	Annual	1.2	T/yr	14	T/yr
SO_2	1-hr	0.21	lb/hr	2.5	lb/hr
	24-hr	0.22	lb/hr	2.6	lb/hr
	Annual	1.2	T/yr	14	T/yr
Lead	3-month rolling avg	14	lb/mo		

Information provided with the application—combined with DEQ's calculations--demonstrated that the increases in emissions of criteria pollutants associated with this project were below DEQ's modeling thresholds for all pollutants and averaging times. Background concentrations of criteria pollutants were therefore not needed for this project.

Table 3. CRITERIA POLLUTANT EMISSIONS INCREASE COMPARED TO MODELING THRESHOLDS

Description	PM_{10}	$PM_{2.5}$		CO		NO_2		SO_2	
	(lb/hr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)
Install Granulation System	0.84[a]	0.10[a]	0.24[a]	---	---	---	---	---	---
Increase Beet Slice Throughput	---	---	---	42[d]	99[c]	---	---	---	---
Total Emissions Increase	0.84	0.10	2.35	42	---	---	---	---	---
Level II Modeling Threshold	2.6	0.63	4.1	175	---	2.4	14	2.5	14
Modeling Required?	No	No	No	No	---	No	No	No	No

Table 3 Notes

[a] PM_{10} emissions increased by 2.35 TPY as a result of increased fugitive emissions from F-04, Beet Hauling (vehicle traffic) associated with increasing the beet slice from 1.2 MMT/yr to 1.4 MMT/yr. This PM_{10} increase value was taken from Table 1 in Section 4 of the application (Baseline actual vs. Predicted actual emissions), additional figures after the decimal point determined from emission inventory spreadsheet TFFutureFacilityEmissions12Aug13.xls, worksheets: 'EMISSIONS' and 'Fugitives.'

Emissions from vehicles traveling on unpaved surfaces at industrial sites may be calculated using AP-42, Section 13.2.2, Equation (1a): $E = k\ (s/12)^a (W/3)^b$. For a particular area or roadway in an industrial area, s, W, a, and b will be fixed. The value of k for $PM_{2.5}$ is 0.15, however, one tenth the 1.5 value of k for PM_{10}.
DEQ set $PM_{2.5}$ emissions equal to 0.1 times the PM_{10} emissions provided in the application = 0.1 (2.35 TPY) = 0.24 TPY
Pound per hour rates were then calculated as: 0.24 TPY x 2000 lb/T x yr/198 day beet run x day/24 hr = 0.10 lb/hr

[b] Pound per hour rates calculated by DEQ as: 2.35 T/yr x 2000 lb/T x yr/198 day beet run x day/24 hr = 0.84 lb/hr

[c] The increase in CO emissions was taken from Table 1 in Section 4 of the application (Baseline actual vs. Predicted actual emissions).

[d] Pound per hour rates calculated by DEQ as: 99 T/yr x 2000 lb/T x yr/198 day beet run x day/24 hr = 41.7 lb/hr

2.1.3 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.*

Permit 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 emissions increase 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.

In accordance with Section 210.20 of the Idaho Air Rules, a demonstration of compliance with state-only TAPs standards is not required for any TAP that is regulated at the time of permit issuance under 40 CFR Part 60 (New Source Performance Standards [NSPS]), 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants [NESHAP], or 40 CFR Part 63 (NESHAP for Source Categories / MACT standards).

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

Air quality analyses using AERMOD were conducted in support of the submitted permit application. A brief description of parameters used in the modeling analyses is provided in Table 4.

Table 4. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 12060 (Trinity Consultants' BREEZE graphical user interface)
Meteorological data	Minidoka INL/Burley, 2000-2004	DEQ provided AERMOD-ready surface (.sfc) and upper air profile (.pfl) files for the years 2000-2004 developed using surface data collected at the Minidoka INL site supplemented with NWS surface data collected at the Burley airport, with upper air soundings collected at the Boise Airport during the same period.
Terrain	7.5-minute DEM	AERMAP v. 11103, using the 1-arc second USGS digital elevation model (DEM) file for the Twin Falls Quadrangle (NAD27).
Building downwash	BPIP-PRIME v. 04274	Building downwash parameters were calculated using the BPIP PRIME algorithm (version 04274).
Receptor Grid	Receptors	Receptor locations were defined in UTM coordinates (NAD27)
	Nested Square Grids	50-meter (m) spacing along the ambient air boundary (fence line) 200-meter (m) spacing on a 6.8 km by 5.8 km area grid centered on the plant Refined grid: 1.2 km by 3 km with 50-meter spacing concentrating on the E-W corridor along Orchard Drive East.

3.1.2 Modeling Protocol and Methodology

A modeling protocol was not submitted for this project. Modeling was generally conducted using methods described in the *State of Idaho Air Quality Modeling Guideline*. Default rural dispersion was used.

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. EPA provided a one-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

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 offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer.
- Improved plume rise and buoyancy calculations.
- Improved treatment of terrain effects on dispersion.
- New vertical profiles of wind, turbulence, and temperature.

3.1.4 Meteorological Data

DEQ recommended using the AERMOD-ready meteorological data set for Minidoka INL/Burley for the years 2000-2004.

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in these analyses. AERMAP v. 11103 was used to extract the actual elevation of each receptor and determine the controlling hill height elevation from a 1-arc second (about 30 meter resolution) 7.5-minute DEM file for the Twin Falls Quadrangle. The DEM file

encompassed the area between -112.250 and -112.500 degrees longitude and 43.125 and 43.375 degrees north latitude (coordinate system ID NAD27).

3.1.6 Facility Layout

The facility layout is shown in Figure 3-1.

3.1.7 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the submitted modeling analyses. The Building Profile Input Program with Plume RIse Model Enhancements (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emission release parameters for input to AERMOD.

3.1.8 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access. The ambient air boundary was defined as the area outside the property owned and controlled by TASCO, and Rock Creek where it runs through TASCO's property. Ambient air was determined to exist for all areas immediately exterior to the facility's property. The main processing area of the facility is fenced. Security and facility operating staff patrol and maintain a presence for all hours of the day. Restricted access notification signs are posted along the facility property bordering Rock Creek, which bisects this facility. TASCO regarded the creek itself as ambient air and placed a line of discrete receptors along the waterway. TASCO also placed a receptor grid in the areas used for wastewater land application on the south side of the facility. TASCO placed signs at points of access notifying the general public that access is restricted.

This approach follows the methods of determining the ambient air boundary as specified in the *State of Idaho Air Quality Modeling Guideline*, and was accepted as described in the modeling report and applied in the modeling demonstration.

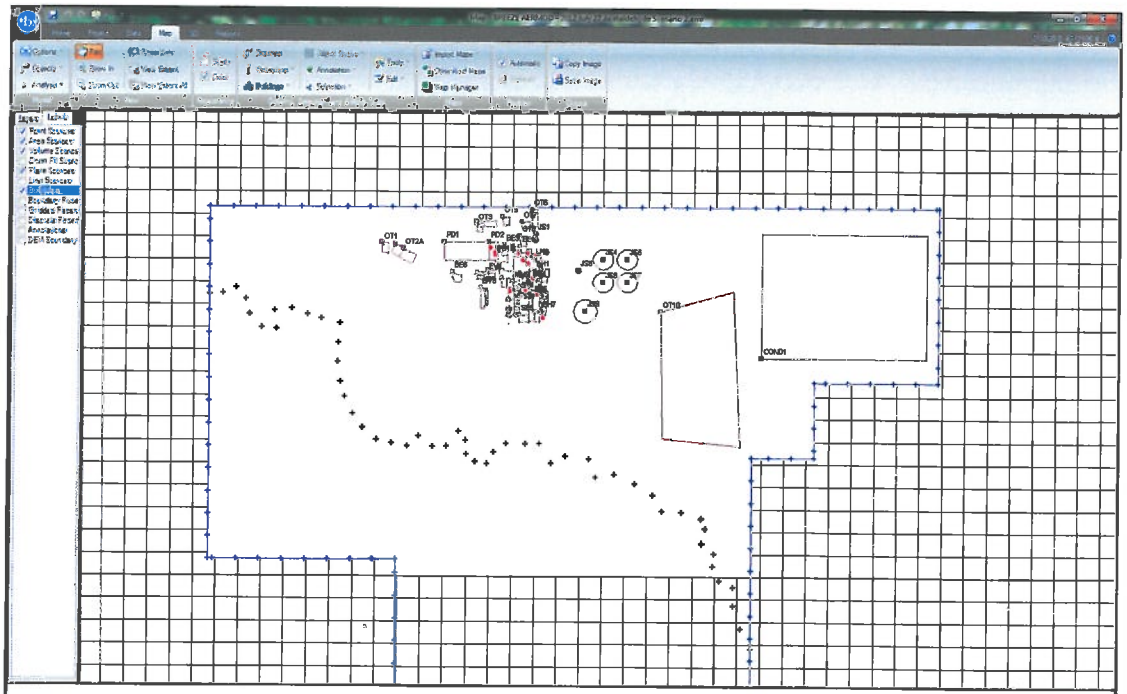

Figure 3-1. FACILITY AMBIENT AIR BOUNDARY

3.1.9 Receptor Network

The receptor grid used for the submitted modeling analyses are summarized in Table 4, and shown graphically in Figure 3-2. TASCO's receptor grid placed a more densely-spaced receptor grid in the region of the maximum ambient impacts. Based on a review of the dispersion modeling output files, DEQ determined the receptor grid was adequate to reasonably resolve the maximum modeled ambient impacts.

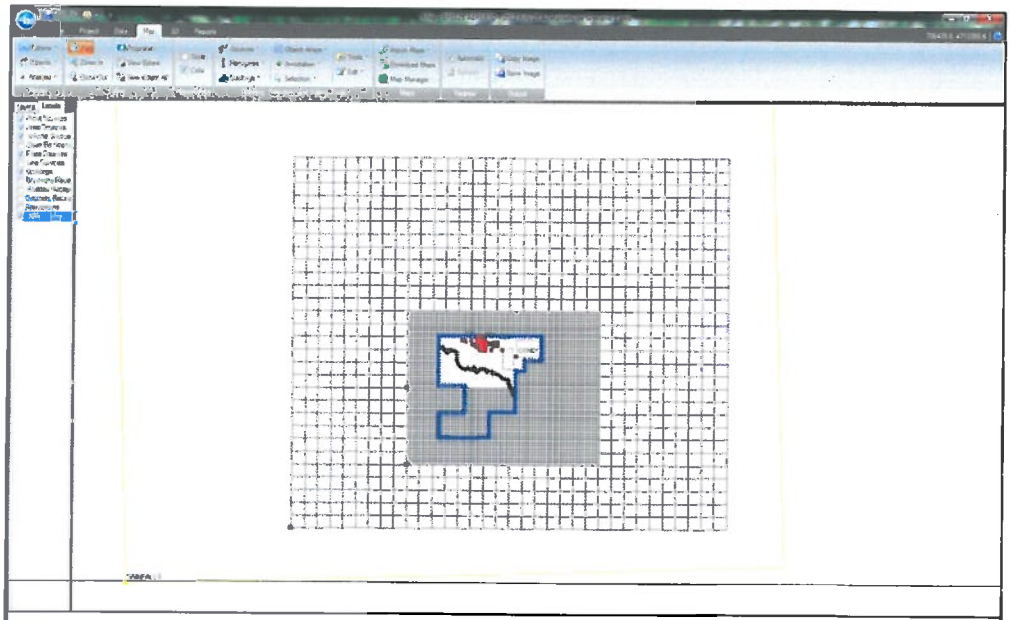

Figure 3-2. RECEPTOR GRID

3.2 TAPs Emission Rates and Emission Release Parameters

The emission release parameters used in the submitted analysis are shown in Table 5. The application stated the net change in emissions of TAPs associated with this project were compared to the screening emission levels (ELs) listed in Section 585 and 586 of the Idaho Air Rules, although the calculations were not included with the application.

DEQ obtained TAPs emissions for the Main Mill from Appendix A to the Statement of Basis for TASCO – Twin Falls' Tier I Permit, T1-050415, issued October 7, 2011, which were based on beet slice throughput of 1.2 million tons per year. The increase in four TAPs associated with increasing beet slice to 1.4 million tons per year, and comparison to the applicable screening emission levels are show in Table 5. As shown in the table, the increase in emissions associated with increasing the beet slicing throughput exceeded the applicable EL for two carcinogenic pollutants: acetaldehyde and formaldehyde.

Table 5. TAPS EMISSION INCREASE COMPARED TO EL

Pollutant	Emissions @ 1.2 MMT/yr beet slice (TPY)	Emissions @ 1.4 MMT/yr beet slice (TPY)	Emission Increase (TPY)	Emission Increase, (lb/hr, 24-hr avg.)[a]	Emission Increase, (lb/hr, annual avg)	EL (lb/hr)	Emission Increase > EL?
Acetaldehyde	4.17	4.87	0.695	---	0.16	0.003	Yes
Acrolein	0.100	0.117	0.017	0.007	---	0.017	No
Formaldehyde	0.040	0.047	0.007	---	1.52E-03	5.10E-05	Yes
Methanol	78.6	91.6	13.09	5.51	---	17.3	No

[a] 24-hr average = TPY x 2000 lb/TPY x year/198 day beet campaign x day/24 hrs

[b] Annual average = TPY x 2000 lb/TPY x year /24 hrs

Supplemental information from an October 12, 2005 source test on the 1st and 2nd carbonation stacks was reviewed to confirm the modeled stack parameters.

The evaporator vents were modeled as a single point source using stack parameters from an October 11, 2005 source test on a different evaporator vent configuration at TASCO's Paul facility. **THIS IS NOT AN ACCEPTABLE METHOD FOR MERGING THE VENTS INTO A "REPRESENTATIVE" SINGLE STACK. CRITERIA POLLUTANT MODELING USING THIS APPROACH WILL BE REJECTED.**

Because dispersion modeling from the evaporator vents is only for state-regulated TAPs, DEQ determined that the increase in emissions of acetaldehyde and formaldehyde from this project would not cause an exceedance of the applicable AACCs based on:

1) Emissions from the vents will be subject to downwash from the surrounding buildings,

2) Maximum ground-level ambient impacts from vent sources typically occur quite near the exhaust location,

3) The distance to the nearest ambient air boundary (to the north) is about 120 meters (394 feet),

4) The prevailing wind direction in the Rupert area is roughly east-west rather than to the north, and

5) 99% of the acetaldehyde emissions and 98% of the formaldehyde emissions were presumed emitted from the carbonation stacks.

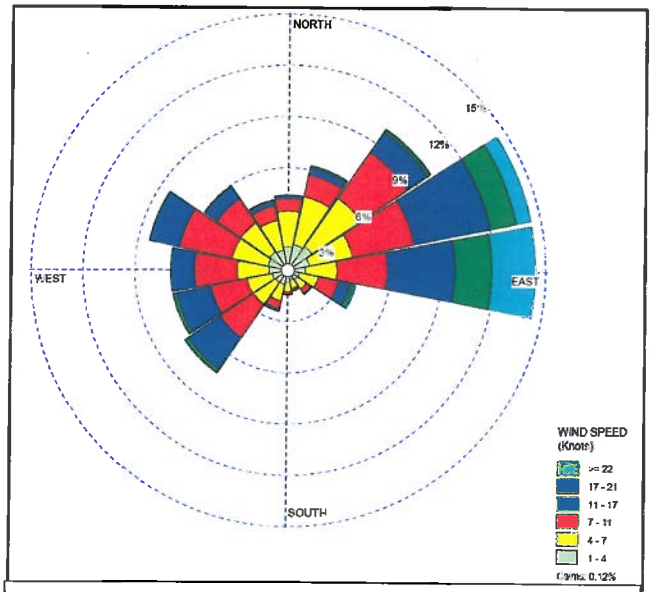

Figure 3-3. INL Minidoka/Burley 2000-2004 Wind Rose

Emission release parameters were taken from the dispersion modeling files, in addition to the modeled emission rates of acetaldehyde and formaldehyde, are shown in Table 6. Total emission rates calculated by DEQ (shown in Table 5 above) are included in parentheses for comparison with the total modeled emission rates.

Table 6. EMISSION RELEASE PARAMETERS AND TAPS EMISSION RATES

Source ID	Description	UTM Zone 12 (NAD27)		Base Elevation (m)	Stack Height (m / ft)	Exit Temp (K / °F)	Exit Velocity (m/s)	Stack Dia (m, ft)	Acetal-dehyde (lb/hr)	Formal-dehyde (lb/hr)
		Easting, X (m)	Northing, Y (m)							
PB1	Foster Wheeler Boiler Stack	711018.0	4711770.0	1160.7	47.85 157 ft	416.5 290 °F	15.1	2.01 6.6 ft	0	0
PB2	B & W Boiler Stack	710993.0	4711857.0	1160.7	66.14 217 ft	456.5 362 °F	22.6	2.74 9 ft	0	0
PB3	Keeler Boiler Stack	711003.0	4711822.0	1160.7	15.00 49.2 ft	422.0 300 °F	10.9	1.22 4 ft	0	0
PD1A	South Pulp Dryer Stack	710912.0	4711910.0	1160.7	28.04 92 ft	347.6 166 °F	6.87	2.44 8 ft	0	0
PD1B	North Pulp Dryer Stack	710912.0	4711914.6	1160.7	28.04 92 ft	347.6 166 °F	6.87	2.44 8 ft	0	0
PD3A	Pellet Cooler #1 & #2	710901.0	4711926.0	1160.7	24.08 79 ft	298.2 77 °F	3.41	1.52 5 ft	0	0
PK1/2A	1st Carbonation Stack	710984.0	4711912.0	1160.7	29.87 98 ft	361.5 191 °F	5.64	0.90 2.94 ft	0.0401	4.35E-04
PK1/2B	2nd Carbonation Stack	710972.0	4711898.0	1160.7	28.96 95 ft	346.5 164 °F	2.22	1.52 5 ft	0.0618	4.92E-04

Table 6. EMISSION RELEASE PARAMETERS AND TAPS EMISSION RATES										
Source ID	Description	UTM Zone 12 (NAD27)		Base Elevation (m)	Stack Height (m / ft)	Exit Temp (K / °F)	Exit Velocity (m/s)	Stack Dia (m, ft)	Acetal-dehyde (lb/hr)	Formal-dehyde (lb/hr)
		Easting, X (m)	Northing, Y (m)							
PK1/2D	Lime Kiln Bypass	711000.0	4711909.0	1160.7	27.00 88.6 ft	359.3 187 °F	23.2	0.46 1.51 ft	0	0
PK4	Process Slaker Stack	711015.0	4711895.0	1160.7	11.89 39 ft	308.2 95 °F	15.5	0.48 1.58 ft	0	0
PW1	Drying Granulator Stack	710983.0	4711841.0	1160.7	19.81 65 ft	307.0 93 °F	12.2	0.81 2.67 ft	0	0
PW2	Cooling Granulator Stack	710978.0	4711830.0	1160.7	21.34 70 ft	302.6 85 °F	12.2	0.91 3 ft	0	0
PO6	Sulfur Stove	710964.0	4711912.0	1160.7	37.00 121.4 ft	355.4 180 °F	3.66	0.20 0.66 ft	0	0
PW1A	Fluidized Bed Granulator	710945.0	4711829.0	1160.7	24.38 80 ft	318.2 113 °F	11.9	1.22 4 ft	0	0
SO5	#1 Evaporator Vent	710984.0	4711890.0	1160.7	18.29 60 ft	368.2 203 °F	17.3	0.30 1 ft	0.00103	1.89E-05
								Total	**0.103 (0.16)**	**9.46E-04 (1.52E-03)**

m = meters, ft = feet, m/sec= meters per second, K = Kelvin, °F = degrees Fahrenheit

3.3 Modeling Results

The modeled maximum ambient impacts for increased emissions of acetaldehyde and formaldehyde for this project are shown in Table 7. Maximum modeled impacts for each pollutant and year were predicted to occur to the northeast of the emission sources, along the property boundary running parallel to Orchard Drive. DEQ's clarifications with regard to the maximum modeled impact and percent of the AACC increment—based on DEQ's estimates of the emission increase—are shown in parentheses in the table.

Table 7. MODELING RESULTS				
Pollutant	Averaging Period	Modeled Maximum Ambient Impact ($\mu g/m^3$)	AACC Increment ($\mu g/m^3$)	Percent of AACC Increment
Acetaldehyde	Annual	2000: 0.0221 2001: 0.0217 2002: 0.0228 **2003: 0.0262 DEQ: (0.041)** 2004: 0.0223	0.45	5.8% (9.0%)
Formaldehyde	Annual	2000: 2.0E-04 2001: 2.0E-04 2002: 2.1E-04 **2003: 2.4E-04 DEQ: (3.7E-07)** 2004: 2.0E-04	0.077	0.3% (0.5%)

4.0 Conclusions

The ambient air impact analysis submitted demonstrated to DEQ's satisfaction that the increase in emissions from the facility, as represented by the applicant in the permit application, will not cause or significantly contribute to a violation of any air quality standard.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on October 31, 2012:

Facility Comment: In the draft PTC, page 4, Table 2.1, Facility-wide emission limits – For footnote "c", TASCO requests that annual ton per year period be changed from "Tons per consecutive 12 calendar month period" to "Beet Campaign" defined as follows: "The period starting with the first day of the new beet crop processing and ending the day before the start of the next year's beet processing." Basing annual emissions on a beet campaign period is more consistent with facility production records and annual operations.

DEQ Response: This change has been made.

Facility Comment: In the draft PTC, page 4, Condition 2.4 Annual Beet Throughput – Please delete this permit condition. The annual slice limitation is not needed since the permit already includes annual emissions limitations. As presented in the Permit to Construct application, trace quantities of acetaldehyde and formaldehyde were estimated from the main mill vents based on beet slice. Modeled impacts of these TAP's were only a fraction (<10%) of the Acceptable Annual Ambient Concentrations (AAAC) in IDAPA 58.01.01.586. In addition, net VOC emission increases (from the main mill vents) based on a 1, 400,000 ton beet crop are only 8 tons per year, well below the 40 tons per year VOC emissions significance level. Therefore, this annual beet slice limitation is overly restrictive and unnecessary.

DEQ Response: DEQ concurs that the annual slice limitation is not needed because the facility wide emission limits already provide the necessary limitations. The annual beet throughput was included to assist the facility with any PSD avoidance issues in the future. The permit condition is removed at the facility's request.

Facility Comment: In the draft PTC, page 5, Beet Throughput Monitoring – Please delete (see previous comment).

DEQ Response: Because the annual beet throughput permit condition was removed, the beet throughput monitoring condition is removed since it is no longer necessary.

Facility Comment: In the draft SOB, page 3, Beet Campaign – If DEQ approves TASCO requested changes to Table 2.1 of the draft permit, then the definition of beet campaign should be added to the list of acronyms, units, and chemical nomenclature.

DEQ Response: DEQ has added the definition of the beet campaign year in section 1 of the PTC.

Facility Comment: In the draft SOB, page 5, Application Scope – Please delete "Increase in the annual beet slice throughput". As discussed in the permit application, the Twin Falls facility is proposing sugar end improvements and energy efficiency projects. Annual beet slice is not affected by these proposed equipment changes.

DEQ Response: The increase in the annual beet slice throughput has been removed from the Application Scope section.

Facility Comment: In the draft SOB, page 15, MACT applicability (40 CFR 63) – Additional clarifying language was added to this section based on EPA's December 23, 2011 proposed reconsideration of the Boiler MACT standards.

DEQ Response: The proposed clarifying language has been added in the Statement of Basis.

APPENDIX D – PROCESSING FEE