

## **Statement of Basis**

**Permit to Construct No. P-2010.0108  
Project 60566  
Facility ID No. 083-00001**

**The Amalgamated Sugar Company LLC (TASCO)  
Twin Falls Facility  
Twin Falls, Idaho**

**Final**

**October 25, 2010**  
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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.**

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## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
AQCR	Air Quality Control Region
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	continuous emission monitoring systems and continuous emission monitoring equipment
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
day/yr	calendar days per consecutive 12 calendar month period
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
gr	grain (1 lb = 7,000 grains)
HAP	hazardous air pollutants
ID No.	identification number
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
No.	number
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SCL	significant contribution limits
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/yr	tons per consecutive 12-calendar month period
TI	Tier I operating permit
TAP	toxic air pollutants
U.S.C.	United States Code
UTM	Universal Transverse Mercator
VOC	volatile organic compounds
µg/m <sup>3</sup>	micrograms per cubic meter

## FACILITY INFORMATION

### Description

The Amalgamated Sugar Company LLC (TASCO) – Twin Falls Facility operates an existing beet sugar manufacturing plant which is located in Twin Falls, Idaho. At this facility drying and cooling granulators are used to thermally evaporate residual water from wet sugar.

The facility is proposing to replace the existing drying and cooling granulators with a granulator system consisting of a two-stage rotating drum dryer/cooler, followed by a fluidized-bed cooler. Sugar and conditioned air are supplied to the granulator system in countercurrent fashion. Air heated by heat exchanger using boiler steam is supplied directly to the drying stage of the rotary drum. Cooling air is introduced in the fluidized bed cooler and then passes to the cooling stage of the rotary drum. All of the exhaust from the granulator system passes through a baghouse to recover sugar dust generated in the drying and cooling units. Sugar recovered in the baghouse is reprocessed in the factory. The sugar dust recovery baghouse is integral equipment to the granulator process. The granulator system will not operate unless the baghouse is fully functional.

Ancillary equipment associated with the granulator system includes enclosed screw conveyors, rotary air locks, bucket elevator, lump sifter, fans, heat exchangers, pumps, pipelines, and air ducting. The granulator system and ancillary equipment will be located within a building and fugitive emissions were assumed to be negligible.

### 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).

Table 1 PERMITTING HISTORY

Issue Date	Permit Number	Project	Status	History Explanation
March 19, 1981	13-1480-0001	Air pollution source permit to establish requirements for the boilers and the pulp dryer.	E	Initial permit for existing sources.
January 1, 1984	1480-0001	Air pollution source permit to establish emission limits and operating requirements and to incorporate existing requirements.	E	Revised permit 13-1480-0001.
December 17, 2002	9505-063-1 (083-00001)	Initial T1 operating permit.	S	Initial Title V operating permit.
May 21, 2004	T1-030415	Reopening T1 to incorporate revisions resulting from a contested case petition.	A	Revised and replaced permit 9505-063-1 (083-00001). Currently processing renewal application (P-050415).
August 20, 2008	O-2008.0080	Applicability concurrence determining the use of anthracite coal in addition to coke as fuel was not a modification.	n/a	Applicability determination letter.
October 25, 2010	P-2010.0108 PROJ 60566	Initial PTC to replace the granulator systems.	A	Initial permit.

### Application Scope

This permit to construct (PTC) is for a minor modification at an existing Tier I facility.

The applicant has proposed to:

- Install and operate a sugar granulator system, which consists of a dryer/cooler, cooler, baghouse, and associated equipment.
- Shutdown the existing sugar drying and cooling granulators.

## Application Chronology

Table 2 APPLICATION CHRONOLOGY

Date	Description
September 2 to September 3, 2010	The applicant published notice of a public informational meeting for the proposed project.
September 15, 2010	The applicant held a public informational meeting for the proposed project.
September 8, 2010	DEQ received an application and an application fee for the proposed project, including a request for pre-permit construction.
September 22, 2010	DEQ approved pre-permit construction of the proposed project.
September 30, 2010 to October 15, 2010	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
October 1, 2010	DEQ made available the draft permit and statement of basis for peer and regional office review.
October 6, 2010	DEQ determined that the application was complete.
October 6, 2010	DEQ made available the draft permit and statement of basis for applicant review.
October 13, 2010	DEQ received a permit processing fee.
October 25, 2010	DEQ issued the final permit and statement of basis.

## TECHNICAL ANALYSIS

### Emissions Unit

Table 3 EMISSIONS UNIT INFORMATION

Emissions Unit Description		Emission Point Description	
<u>Granulator System (P-W1A) with Baghouse (A-W1A)</u>			
Manufacturer:	BMA, with Scheuch	Exit height:	80 ft
Model:	Drum Dryer 3.2 M Fluidized-Bed Cooler FCP 16/5/5	Exit diameter:	4.0 ft
Manufacture date:	Baghouse SFDW 05/12-D-04 2011	Exit air flow rate:	23,237 dscfm
Maximum capacity:	110,230 lb/hr wet sugar ≤1.2 klb/hr steam usage	Exit temperature:	113 °F
Maximum operation:	24 hr/day and 330 day/yr		

### Emission Inventories

Emission inventories were developed for the proposed project for the emissions of federally-regulated criteria pollutants. The proposed project has been estimated to result in no emissions increase of any hazardous air pollutant (HAP) or toxic air pollutant (TAP).

### Emissions Increase

Potential to emit estimates for the replacement granulator system were based on the baghouse manufacturer's performance guarantee and recommended operating conditions, the existing baghouse performance test data, and the maximum sugar throughput and steam input to the proposed granulator system. For the purposes of this permitting action, the potential to emit was estimated assuming continuous operation at 365 days/yr (considered more conservative than the expected operational schedule of 330 days/yr). Although not accounted for in this analysis, the shutdown and replacement of the existing drying and cooling granulators is expected to result in an overall decrease in sugar dust emissions.

The applicant has indicated that the granulator system baghouse will be designed to reduce PM<sub>10</sub> emissions below the potential to emit provided in Table 4 (lb/hr), as calculated based on the manufacturer certified grain loading performance of 0.003 gr/dscf and a maximum flow rate of 23,237 cfm.

A summary of the potential to emit is provided in Table 4. Refer to the PSD Classification (40 CFR 52.21) section for additional information concerning determining the potential to emit of the proposed emissions units.

**Table 4 POTENTIAL TO EMIT<sup>a,b</sup>**

Emissions Units	Steam Usage	Schedule	Throughput	PM		PM <sub>10</sub> <sup>c</sup>	
	klb/hr	day/yr	lb/hr	lb/hr	T/yr <sup>d</sup>	lb/hr	T/yr <sup>d</sup>
Granulator System	≤1.2	365	110,230	0.60	2.62	0.60	2.62
<b>Potential to Emit, Including Fugitives</b>				<b>0.60</b>	<b>2.62</b>	<b>0.60</b>	<b>2.62</b>

- a) Short-term (lb/hr) and annual (T/yr) emission estimates were established based upon the baghouse manufacturer's performance guarantee and recommended operating conditions, the existing baghouse performance test data, and the maximum sugar throughput and steam input to the proposed granulator system.
- b) Emissions increase as determined in accordance with §52.21(b)(40).
- c) Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
- d) Tons per any consecutive 12 calendar month period, calculated as a 12-month rolling total. For the purposes of this permitting action, the potential to emit was estimated assuming continuous operation at 365 days/yr (considered more conservative than the expected operational schedule of 330 days/yr).

**PSD Applicability Tests**

A comparison of emission increases to the New Source Review (NSR) Prevention of Significant Deterioration (PSD) significance thresholds is presented in Table 5.

**Table 5 NSR PSD APPLICABILITY TESTS**

NSR Pollutant <sup>a</sup>	NSR Pollutant Significance Level <sup>b</sup>	Emissions Increase <sup>c</sup>	Significant Emissions Increase?
	(T/yr)	(T/yr)	Step 1
PM	25	2.62	No
PM <sub>10</sub>	15	2.62	No
PM <sub>2.5</sub> <sup>d</sup>	direct	2.62	No
	as SO <sub>2</sub>	<40 <sup>e</sup>	
	as NO <sub>x</sub>	<40 <sup>e</sup>	
SO <sub>2</sub>	40	<40 <sup>e</sup>	No
NO <sub>x</sub>	40	<40 <sup>e</sup>	No
CO	100	<100 <sup>e</sup>	No
O <sub>3</sub>	as NO <sub>x</sub>	<40 <sup>e</sup>	No
	as VOC	<40 <sup>e</sup>	
Lead	0.6	<0.6 <sup>e</sup>	No
Fluorides	3	<3 <sup>e</sup>	No
Sulfuric acid mist	7	<7 <sup>e</sup>	No
Hydrogen sulfide	10	<10 <sup>e</sup>	No
Total reduced sulfur (including H <sub>2</sub> S)	10	<10 <sup>e</sup>	No
Reduced sulfur compounds (including H <sub>2</sub> S)	10	<10 <sup>e</sup>	No
Other NSR pollutant	any	<any <sup>e</sup>	No

- a) Significance levels which 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.
- b) "Significant" as defined in §52.21(b)(23).
- c) Significant emission increase as determined in accordance with §52.21(b)(40). Potential to emit of the proposed project is provided in Table 4, and baseline actual emissions of the proposed project have been assumed to be zero.
- d) DEQ continues to use the existing interim approach of relying on PM<sub>10</sub> as surrogate for PM<sub>2.5</sub> in accordance with EPA guidance until a revised SIP is adopted.<sup>1</sup>
- e) Emission rates were estimated as negligible and less than significance levels.

<sup>1</sup> "Final Rule on the Implementation of the New Source Review Provisions for Particulate Matter Less Than 2.5 microns (PM<sub>2.5</sub>) Fact Sheet," Raj Rao, Office of Air Quality Planning & Standards, May 08, 2008.

As provided in Table 5, the proposed project is not expected to result in a PSD significant emission increase or major modification. Refer to the PSD Classification (40 CFR 52.21) section for additional information concerning regulated NSR pollutant significance thresholds.

### ***Ambient Air Quality Impact Analyses***

The applicant has demonstrated preconstruction 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.

An ambient air quality impact analyses document has been crafted by DEQ based upon a review of the modeling analysis submitted in the application and has been included in 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<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

### ***Permit to Construct (IDAPA 58.01.01.201)***

An application was submitted requesting a permit to construct the proposed project. Therefore, this permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228. This PTC has been processed in accordance with IDAPA 58.01.01.209.05.a; the applicable requirements contained in this PTC will be incorporated into the Tier I operating permit during renewal.

### ***Tier II Operating Permit (IDAPA 58.01.01.401)***

An application was submitted for a permit to construct the proposed project (refer to the Permit to Construct (IDAPA 58.01.01.201) section for additional information), and an optional Tier II operating permit was not 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)***

The proposed facility is classified as a major facility as defined in IDAPA 58.01.01.008.10, because the estimated emissions of criteria pollutants and HAP have the potential to exceed major source thresholds. This PTC has been processed in accordance with IDAPA 58.01.01.209.05.a; the applicable requirements contained in this PTC will be incorporated into the Tier I operating permit during renewal. It should be noted that permit requirements applicable to the existing drying and cooling granulators (Sections 9 and 10 of Tier I Operating Permit T1-030415) for which shutdown is planned may require revision as a result of this permitting action.

Additionally, based upon information provided in the application and guidance published by EPA,<sup>2</sup> the granulator system baghouse was determined to be inherent process equipment rather than a control device. Inherent process equipment is not considered a control device for the purposes of Compliance Assurance Monitoring (40 CFR 64) applicability as provided in 40 CFR 64.1.

Because the Twin Falls Facility contains a fossil-fuel boiler (or combination thereof) of more than 250 MMBtu/hr heat input, the boiler house (which includes the Foster Wheeler, B&W, and Keeler boilers) has been classified as a designated facility as defined in IDAPA 58.01.01.006.30, and fugitive emissions were included when determining the major facility classification in accordance with IDAPA 58.01.01.008.10.c.i.

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<sup>2</sup> "Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment," David Solomon, Acting Group Leader Integrated Implementation Group, Office of Air Quality Planning and Standards, November 27, 1995.

## **PSD Classification (40 CFR 52.21)**

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.

Because the Twin Falls Facility contains a fossil-fuel boiler (or combination thereof) of more than 250 MMBtu/hr heat input, the boiler house has been classified as a designated facility as defined in IDAPA 58.01.01.006.30, and fugitive emissions were included when determining the major facility classification in accordance with IDAPA 58.01.01.008.10.c.i.

*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 increase of PM<sub>10</sub> resulting from this project is predicted to be less than the significant level as defined in §52.21(b)(23)(i) and as provided in Table 5. Therefore, the requirements of §52.21(j) through (r) do not apply to this project unless otherwise provided.

*In accordance with §52.21(a)(2)(iii), no new major stationary source or major modification to which the requirements of §52.21(j) through (r)(5) apply shall begin actual construction without a permit that states that the major stationary source or major modification will meet those requirements.*

As provided above, §52.21(j) through (r)(5) were not determined to be applicable to this project.

### **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 5, 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.*

Because this project has not been estimated to result in any increase in fugitive emissions, fugitive emissions were not included in the Table 5 emissions increase estimates for the proposed granulator system.

In accordance with §52.21(a)(2)(iv)(d), the actual-to-potential test was used for this project because it involves the construction of a new emissions unit. A significant emissions increase of a regulated NSR pollutant was not projected to occur because the potential to emit (as defined in §52.21(b)(4) and as provided in Table 4) of the new emissions unit following completion of the project was below the pollutant significance thresholds as defined in §52.21(b)(23) and as provided in Table 5.

Because a significant emissions increase of a regulated NSR pollutant was not projected to occur, the net emissions increase from this project was not required or determined as provided in 40 CFR 52.21(b)(3).

*In accordance with §52.21(b)(48)(iii), for a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit. In the latter case, fugitive emissions, to the extent quantifiable, shall be 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 emissions unit is located at a major stationary source that belongs to one of the listed source categories.*

TASCO has used zero for the purposes of determining baseline actual emissions of the proposed granulator system, and the potential to emit of the proposed emissions units has been used for the purposes of determining the emissions increase as provided in Table 5. Although not accounted for in this analysis, the shutdown and replacement of the existing drying and cooling granulators is expected to result in an overall decrease in sugar dust emissions.

*In accordance with §52.21(b)(4), potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.*

Because the granulator system baghouse has been determined to be inherent process equipment, the effect of the baghouse was taken into account in the calculation of potential emissions, and an explicit emission rate limit for the granulator system baghouse was neither required nor included in the permit (refer to the Permit Conditions Review section for additional relevant discussion, associated with Permit Condition 4).

40 CFR 52.21(r) ..... Source obligation.

*In accordance with §52.21(r)(1), any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action.*

*In accordance with §52.21(r)(2), approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. DEQ may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between constructions of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.*

*In accordance with §52.21(r)(3), approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the State implementation plan and any other requirements under local, State, or Federal law.*

Applicable approval to construct and associated requirements are included in §52.21(r)(1) through (4).

*In accordance with §52.21(r)(6), except as otherwise provided in paragraph §52.21(r)(6)(vi)(b), the provisions of this paragraph apply with respect to any regulated NSR pollutant emitted from projects at existing emissions units at a major stationary source in circumstances where there is a reasonable possibility, within the meaning of paragraph §52.21(r)(6)(vi), 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 §52.21(b)(41)(ii)(a) through (c) for calculating projected actual emissions.*

Because the applicant used method §52.21(b)(41)(ii)(d) to quantify emissions, where in lieu of using the method set out in paragraphs §52.21(b)(41)(ii)(a) through (c), the emissions unit's potential to emit, in tons per year, as defined under §52.21(b)(4) is used, the provisions of §52.21(r)(6) were not applicable to the proposed project.

### **NSPS Applicability (40 CFR 60)**

The proposed granulator system is not an affected facility subject to NSPS requirements, and is not expected to alter the applicability status of any existing affected facility at the plant.

### **NESHAP Applicability (40 CFR 61)**

The proposed granulator system is not an affected source subject to NESHAP in 40 CFR 61, and is not expected to alter the applicability status of any existing affected source at the plant.

### **MACT Applicability (40 CFR 63)**

The proposed granulator system is not an affected source subject to NESHAP in 40 CFR 63, and is not expected to alter the applicability status of any existing affected source at the plant.

### **Permit Conditions Review**

This section describes the permit conditions for this initial permit. The requirements of this permit do not contravene and are not intended to contravene any permit conditions in any applicable Tier I, Tier II, or PTC permits (refer to Table 1 in the Permitting History section for information regarding active permits). The permittee must continue to comply with all applicable permits. Existing emissions limits and permit conditions remain applicable and were assumed to be applicable in the development of permit requirements and in the calculation of emission estimates. Existing limits include but are not limited to facility-wide (Section 1 of T1-030415) and general provision (Section 13 of T1-030415) requirements.

#### Initial Permit Conditions 1 and 2

These permit conditions describe the purpose of this permitting action and the emission source and the control equipment regulated by this permit. The information included reflects design, equipment, and operational information presented in the application.

#### Initial Permit Condition 3

This permit condition incorporates visible emission limits in accordance with IDAPA 58.01.01.625.

Compliance with this limit is ensured by complying with facility-wide monitoring and recordkeeping requirements (Permit Condition 14 and Permit Condition 1.8 of Tier I Operating Permit No. T1-030415), which includes monthly facility-wide inspection and corrective action and opacity testing when appropriate.

#### Initial Permit Condition 4

This permit condition incorporates process weight-based PM emission limits for process equipment as defined in IDAPA 58.01.01.006, in accordance with IDAPA 58.01.01.700-703, which includes the granulator system.

Compliance with these limits is ensured based on the relevant calculations provided in the application and by complying with facility-wide visible emission limits and monitoring and recordkeeping requirements (Permit Condition 3 and Permit Conditions 1.7 and 1.8 of Tier I Operating Permit No. T1-030415).

Based upon information provided in the application and guidance published by EPA,<sup>3</sup> the granulator system baghouse was determined to be inherent process equipment rather than a control device. In this determination it was considered that the primary purpose of the equipment was not to control air pollution (rather to recover sugar dust), and that the equipment would be installed if no air quality regulations were in place (dust recovery systems were installed on the existing granulator system prior to the adoption of air pollution control requirements). Due to fire and explosion concerns associated with sugar dust, collection is necessary for facility and worker safety. It was also noted that there are cost savings associated with sugar captured in the baghouse.

The applicant also provided supplemental information which supports:

- PM<sub>10</sub> emissions are conservative estimates based on baghouse design and performance considerations.<sup>4</sup>
- The granulator system will not be operated unless the baghouse is functioning properly.
- Existing facility-wide monitoring and periodic visible emissions inspection requirements (Permit Condition 1.8 of Tier I Operating Permit No. T1-030415) are adequate to ensure proper maintenance and operation of the existing and proposed granulator systems.

Based upon the information cited above, additional emission rate limits, throughput limits, or operation and maintenance requirements for the granulator system baghouse were not considered necessary.

#### Initial Permit Condition 5

This permit condition requires notification of startup of the proposed equipment (the granulator system), and notification of shutdown of the existing equipment (the drying and cooling granulators).

Because preconstruction compliance demonstrations (refer to Appendix B and the Ambient Air Quality Impact Analyses section for additional information) were completed without crediting or accounting for the shutdown of the existing drying and cooling granulators, a deadline for shutdown of the existing equipment was not required or included in this permit condition.

#### Initial Permit Condition 6

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

#### Initial Permit Condition 7

The control equipment maintenance and operation general 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 8

The obligation to comply general 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 9

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

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<sup>3</sup> "Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment," David Solomon, Acting Group Leader Integrated Implementation Group, Office of Air Quality Planning and Standards, November 27, 1995.

<sup>4</sup> "Comments on Draft PTC P-2010.0108" letter to DEQ, TASC0, October 21, 2010.

#### Initial Permit Condition 10

The construction and operation notification general provision requires that the permittee notify DEQ of the dates of construction, initial startup, and achieving the maximum production rate, in accordance with IDAPA 58.01.01.211.

#### Initial Permit Conditions 11, 12, and 13

The performance testing general provisions require notification of intent to test, testing in accordance with the procedures of IDAPA 58.01.0.157, and reporting of test results in accordance with IDAPA 58.01.01.157.

The permittee is encouraged to submit performance test protocol to DEQ for approval prior to any performance testing in accordance with the performance testing general provision (Permit Condition 11).

#### Initial Permit Condition 14

The monitoring and recordkeeping general 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 15

The excess emissions general provision requires that the permittee comply with the procedures for excess emissions events set forth in IDAPA 58.01.01.130-136.

#### Initial Permit Condition 16

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

#### Initial Permit Condition 17

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

#### Initial Permit Condition 18

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

#### Initial Permit Condition 19

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

#### Initial Permit Condition 20

The severability general 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. During this time, there was no comment on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the Application Chronology section for public comment opportunity dates.

## APPENDIX A – EMISSION INVENTORIES



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

**PERMIT TO CONSTRUCT APPLICATION**  
Revision 3  
4/5/2007

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

Company Name: The Amalgamated Sugar Company LLC  
 Facility Name: Twin Falls  
 Facility ID No.: 083-00001  
 Brief Project Description: Replace sugar granulator system.

**SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES**

1.	2.	3.											
		Stack ID	PM <sub>10</sub> lb/hr	PM <sub>10</sub> T/yr	SO <sub>2</sub> lb/hr	SO <sub>2</sub> T/yr	NO <sub>x</sub> lb/hr	NO <sub>x</sub> T/yr	CO lb/hr	CO T/yr	VOC lb/hr	VOC T/yr	Lead lb/hr
Emissions units													
Point Source(s)													
	P-W1A	0.60	2.42										
	New Sugar Granulator System												
	name of the emissions unit2												
	name of the emissions unit3												
	name of the emissions unit4												
	name of the emissions unit5												
	name of the emissions unit6												
	name of the emissions unit7												
	name of the emissions unit8												
	name of the emissions unit9												
	name of the emissions unit10												
	name of the emissions unit11												
	name of the emissions unit12												
	name of the emissions unit13												
	name of the emissions unit14												
	name of the emissions unit15												
	name of the emissions unit16												
	name of the emissions unit17												
	name of the emissions unit18												
	name of the emissions unit19												
	name of the emissions unit20												
	name of the emissions unit21												
	(insert more rows as needed)												
	Total	0.60	2.42										

The Amalgamated Sugar Company LLC  
Twin Falls Facility  
Sugar Granulator Replacement Project  
PTC Application

Table 1. Comparison of Existing and Proposed Sugar Granulator System

<b>Parameter</b>	<b>Existing System</b>	<b>Proposed System</b>
<b>Primary Unit</b>	<b>Drying Granulator</b>	<b>Drying &amp; Cooling Granulator</b>
Identification	S-W1	S-W1A
Emission Point	P-W1	P-W1A
Manufacturer	Linkbelt	BMA
Configuration	Roto-Louvre horizontal drum	Two-stage horizontal drum
Year Installed	1951	2011
Nominal Throughput (Finished Product)	43.75 tons/hr 21,000 Cwt/day	41 metric tons/hour 45 tons/hour 21,650 Cwt/day
Maximum Throughput (Finished Product)	Not rated by manufacturer; Maximum recorded was 22,241 Cwt/day on 4-25-2010	50 metric tons/hour 55 tons/hour 26,400 Cwt/day
Steam Usage	>1.2 klbs/hr	≤1.2 klbs/hour
Location	North end of sugar warehouse	New building west of the sugar warehouse and silos
Sugar Dust Recovery System	Rotoclone wet scrubber	Fabric filter baghouse
Maximum Operation	≤330 days/year	≤330 days/year

Table 2. Comparison of Existing and Proposed Sugar Granulator System

<b>Parameter</b>	<b>Existing System</b>	<b>Proposed System</b>
<b>Secondary Unit</b>	<b>Cooling Granulator (S-W2)</b>	<b>Fluidized Bed Cooler</b>
Identification	S-W2	Combined with S-W1A
Emission Point	P-W2	Combined with P-W1A
Manufacturer	Linkbelt	BMA
Configuration	Roto-Louvre horizontal drum	Fluidized bed
Year Installed	1962	2011
Nominal Throughput (Finished Product)	43.75 tons/hr 21,000 Cwt/day	41 metric tons/hour 45 tons/hour 21,650 Cwt/day
Maximum Throughput (Finished Product)	Not rated by manufacturer; Maximum recorded was 22,241 Cwt/day on 4-25-2010	50 metric tons/hour 55 tons/hour 26,400 Cwt/day
Location	North end of sugar warehouse	New building west of the sugar warehouse and silos
Sugar Dust Recovery System	Dust box type scrubber; Replaced with fabric filter baghouse in 2007	Uses same fabric filter baghouse as drying & cooling granulator (See Table 1)
Maximum Operation	≤330 days/year	≤330 days/year

## **APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES**

## **MEMORANDUM**

**DATE:** October 25, 2010

**TO:** Morrie Lewis, Air Quality Permit Writer, Air Program

**FROM:** Darrin Mehr, Air Quality Analyst, Air Program

**PROJECT NUMBER:** P-2010.0108 Project 60566

**SUBJECT:** Modeling Demonstration for a 15-Day Pre-Permit PTC Application for the Proposed Installation of a Sugar Granulator System at The Amalgamated Sugar Company's Facility Located in Twin Falls, Idaho

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### **1.0 Summary**

The Amalgamated Sugar Company (TASCO) submitted an application for a Permit to Construct (PTC) to install a fluidized bed drying and cooling granulator system for the production of sugar at the facility located in Twin Falls, Idaho.

This unit has a single emission point and will entirely replace the existing system which has two separate emission points for the drying and cooling stages of the sugar granulation process. TASCO indicated that energy demands for the new unit will not increase above levels currently required for the existing granulation process units. Particulate matter emissions are expected to be reduced considerably with the new granulator.

This modeling analysis was based on the permit application and modeling files received on September 8, 2010. Please refer to the permit statement of basis to review a complete history for this project.

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<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and nitrogen oxides (NO<sub>x</sub>) 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 proposed project is subject to review under Section 200 of the Rules. Section 203.02 of the Rules requires the facility to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). Section 210 of the Rules requires the facility to demonstrate compliance with the toxic air pollutants (TAPs) increments, which are listed in Sections 585 and 586 of the Rules.

The modeling analyses: 1) utilized appropriate methods and models; 2) were conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations from emissions associated with the facility were below applicable significant contribution levels for criteria air pollutants at all ambient air locations.

This modeling analysis was conducted by TASCO.

Key assumptions and results that should be considered in the development of the permit are shown in Table 1.

<b>Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES</b>	
<b>Criteria/Assumption/Result</b>	<b>Explanation/Consideration</b>
<p>The source was modeled at a capacity corresponding to hourly emission rates for 24 hours in any day and 365 days per year.</p> <p>PM<sub>10</sub> emission rates estimates were based on the manufacturer's grain loading and the exhaust flow rate for the baghouse. There was no process throughput data used in the emission rate calculation.</p> <p>Modeling staff recommends limiting the emission rate to no greater than 1.03 lb/hr to maintain the project's ambient impact at or below 4.9 µg/m<sup>3</sup>, 24-hr avg.</p> <p>Sugar production was described in the application as occurring for 330 days per year. The modeling accounted for 365 days per year of operation at 24 hours per day, for a total of 4.6 T/yr of PM<sub>10</sub> emissions at a 1.05 lb/hr emission rate.</p>	<p>TASCO's modeling demonstration reflected continuous operation of the source at a PM<sub>10</sub> emission rate of 0.598 pounds per hour (lb/hr) and 2.62 tons per year (T/yr). TASCO scaled the hourly emission rate to a level corresponding to an ambient impact of 5.0 micrograms per cubic meter, 24-hour average (µg/m<sup>3</sup>, 24-hr avg). This emission rate is 1.05 lb/hr of PM<sub>10</sub>.</p> <p>The ambient impact cannot exceed 5.0 µg/m<sup>3</sup>, 24-hr avg. A rounded emission rate of 1.1 lb/hr PM<sub>10</sub> would cause an ambient impact of 5.3 µg/m<sup>3</sup>, 24-hr avg, and a full facility-wide modeling demonstration would be required.</p> <p>TASCO did not model emissions for the annual averaging period but ambient impacts are expected to be below the annual significant contribution level. DEQ ran the 24-hour average scenario using the annual averaging period and obtained a maximum ambient impact of 0.238 µg/m<sup>3</sup>, annual average, at a PM<sub>10</sub> emission rate of 0.598 lb/hr. Applying TASCO's requested scaling factor of "1.75" to the sensitivity run's maximum ambient impact provides a 0.42 µg/m<sup>3</sup>, annual average impact. This is only 42% of the 1.0 µg/m<sup>3</sup> annual average PM significant contribution level.</p>

## **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.

#### ***2.1.1 Area Classification***

The TASCO-Twin Falls facility is located in Twin Falls County, which is designated as an attainment or unclassifiable area for sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), lead (Pb), ozone (O<sub>3</sub>), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM<sub>10</sub>).

There are no Class I areas within 10 kilometers of the facility.

#### ***2.1.2 Significant and Full Impact Analyses***

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the project exceed the significant contribution levels (SCLs) of Section 006 of IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho (Idaho Air Rules), then a cumulative—or full— impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02 for Permits to Construct and Section 403.02 for Tier II Operating Permits. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The cumulative pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. The SCLs and the modeled value that must be used for comparison to the NAAQS are also listed in Table 2.

Table 2. APPLICABLE REGULATORY LIMITS				
Pollutant	Averaging Period	Significant Contribution Levels <sup>c</sup> ( $\mu\text{g}/\text{m}^3$ ) <sup>d</sup>	Regulatory Limit <sup>e</sup> ( $\mu\text{g}/\text{m}^3$ )	Modeled Value Used <sup>h, i</sup>
PM <sub>10</sub> <sup>a</sup>	Annual	1.0 <sup>j</sup>	50 <sup>f, j</sup>	Maximum 1 <sup>st</sup> highest
	24-hour	5.0	150 <sup>g</sup>	Maximum 6 <sup>th</sup> highest <sup>k</sup>
PM <sub>2.5</sub> <sup>b</sup>	Annual	Proposed: 0.3, 0.8, 1.0 <sup>c</sup>	15 <sup>f</sup>	Use PM <sub>10</sub> as a surrogate PM <sub>2.5</sub> –Maximum 1 <sup>st</sup> high <sup>l</sup>
	24-hour	Proposed: 1.2, 4.0, 5.0 <sup>c</sup>	35	Use PM <sub>10</sub> as a surrogate PM <sub>2.5</sub> –Maximum 1 <sup>st</sup> high <sup>l</sup>
Carbon monoxide (CO)	8-hour	500	10,000 <sup>g</sup>	Maximum 2 <sup>nd</sup> highest
	1-hour	2,000	40,000 <sup>g</sup>	Maximum 2 <sup>nd</sup> highest
Sulfur Dioxide (SO <sub>2</sub> ) <i>SO<sub>2</sub> is the indicator species for SO<sub>x</sub></i>	Annual	1.0	80 <sup>f</sup>	Maximum 1 <sup>st</sup> highest
	24-hour	5	365 <sup>g</sup>	Maximum 2 <sup>nd</sup> highest
	3-hour	25	1,300 <sup>g</sup>	Maximum 2 <sup>nd</sup> highest
	1-hour <sup>o</sup>	Not established	196 <sup>o</sup>	Maximum 6 <sup>th</sup> highest <sup>o</sup>
Nitrogen Dioxide (NO <sub>2</sub> ) <i>NO<sub>2</sub> is the indicator species for NO<sub>x</sub></i>	Annual	1.0	100 <sup>f</sup>	Maximum 1 <sup>st</sup> highest
	1-hour <sup>n</sup>	EPA Interim: 4 ppb <sup>n</sup> (7 $\mu\text{g}/\text{m}^3$ )	188 <sup>n</sup>	Maximum 8 <sup>th</sup> highest <sup>n</sup>
Lead (Pb)	Quarterly	NA	1.5 <sup>f</sup>	Maximum 1 <sup>st</sup> highest
	Rolling 3-month average	NA	0.15 <sup>f, m</sup>	Maximum 1 <sup>st</sup> highest

<sup>a</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers.

<sup>b</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

<sup>c</sup> SCLs are defined in Idaho Air Rules Section 006. Proposed Class II PM<sub>2.5</sub> SCLs (72 FR 54111, September 21, 2007). Idaho has not set state-determined interim PM<sub>2.5</sub> SCLs.

<sup>d</sup> Micrograms per cubic meter.

<sup>e</sup> Federal NAAQS (see 40 CFR 50) in effect as of July 1 of each year are incorporated by reference during the legislative session the following spring. See Idaho Air Rules Section 107.

<sup>f</sup> Never expected to be exceeded in any calendar year.

<sup>g</sup> Never expected to be exceeded more than once in any calendar year. The 3-hr and 24-hr standards were revoked (see 75 FR 35520, June 22, 2010) but will be in effect in Idaho until the legislature adjourns *sine die* in Spring 2011.

<sup>h</sup> Concentration at any modeled receptor.

<sup>i</sup> The maximum 1<sup>st</sup> highest modeled value is always used for significant impact analyses.

<sup>j</sup> The annual PM<sub>10</sub> standard was revoked in 2006. The standard is still listed because compliance with the annual PM<sub>2.5</sub> standard is demonstrated by a PM<sub>10</sub> analysis that demonstrates compliance with the revoked PM<sub>10</sub> standard.

<sup>k</sup> PM<sub>10</sub> concentration at any modeled receptor when using five years of meteorological data. Use the maximum 2<sup>nd</sup> highest value for analyses with less than five years of meteorological data or one year of site-specific met data.

<sup>l</sup> PM<sub>2.5</sub> concentration at any modeled receptor when using a single year of site-specific meteorological data or a concatenated file with five years of meteorological data. EPA recommends using the high 8<sup>th</sup> high 3-year average monitored value for background, and using the highest 24-hr average and highest annual averages across five years of met data for the modeled result (Steven Page memo, Modeling Procedures for Demonstrating Compliance with PM<sub>2.5</sub> NAAQS, March 23, 2010).

<sup>m</sup> Pb: The EPA's October 15, 2008 standard became effective in Idaho's NSR program when it was incorporated by reference into the Idaho Air Rules, i.e., when the Idaho Legislature adjourned *sine die* on March 29, 2010.

<sup>n</sup> NO<sub>2</sub> concentration at any modeled receptor when using complete year(s) of site-specific met data or five consecutive years of meteorological data. Compliance is based on the 3-year average of the 98<sup>th</sup> percentile of the annual distribution of 1-hour average daily maximum concentrations. The EPA's February 10, 2010 standard will not be effective in Idaho's NSR program until the Idaho Legislature adjourns *sine die* in Spring 2011. EPA Interim SIL, Page memo, dated June 29, 2010.

<sup>o</sup> SO<sub>2</sub> concentration at any modeled receptor when using five consecutive years of meteorological data. Compliance is based on the 3-year average of the annual 99<sup>th</sup> percentile of 1-hour daily maximum concentrations. The EPA's 1-hour standard (75 FR 35520, June 22, 2010) of 0.075 ppm (196  $\mu\text{g}/\text{m}^3$ ) will not be effective in Idaho's NSR program until the Idaho Legislature adjourns *sine die* in Spring 2011.

Idaho operates the NSR program in accordance with an EPA-approved state implementation plan (SIP). EPA has asserted through a 1997 policy (Seitz) memorandum that compliance with PM<sub>2.5</sub> standards will be assured through air quality analyses for the corresponding PM<sub>10</sub> standard. Although the PM<sub>10</sub> annual standard was revoked in 2006, compliance with the revoked PM<sub>10</sub> annual standard must be demonstrated as a surrogate to the annual PM<sub>2.5</sub> standard. DEQ NSR program management has determined that the additional recommendations described in a March 23, 2010 EPA memorandum (Page) regarding PM<sub>2.5</sub> implementation do not apply to Idaho's SIP-approved NSR program. PM<sub>2.5</sub> standards will not be effective in Idaho until Idaho's PM<sub>2.5</sub> NSR SIP is approved by the EPA.

### ***2.1.3 TAPs Analyses***

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

This project is for an existing facility that proposes to install a single granulator unit. No increases in TAPs emissions were predicted to occur for this project, and no compliance demonstration was required.

## ***2.2 Background Concentrations***

Background concentration values were not required for this project and no recommendations were provided by DEQ in the modeling protocol approval letter.

## **3.0 Modeling Impact Assessment**

### ***3.1 Modeling Methodology***

Table 3 provides a summary of the modeling parameters used in the submitted modeling analyses.

**Table 3. MODELING PARAMETERS**

Parameter	Description/ Values	Documentation/Additional Description
Model	AERMOD	AERMOD, Version 09292
Meteorological data	2000-2004	This data set used five consecutive years of Idaho National Engineering and Environmental Laboratory (INEEL) surface data collected at a monitoring site in Minidoka. Missing surface data fill used National Weather Service (NWS) Burley airport data. Upper air data for the same period was obtained for the NWS Boise airport with MM5 mesoscale model data used for missing Boise upper air data. The DEQ quality control comments rate this data set as good.
Land Use (urban or rural)	Rural	Urban heat rise coefficients were not used. DEQ agrees with the applicant's assessment that a rural land use designation is appropriate.
Terrain	Considered	3-dimensional receptor coordinates were obtained from Digital Elevation Model (DEM) files for the surrounding area.
Building downwash	Downwash algorithm	AERMOD, Version 09292 uses BPIP-Prime and the PRIME algorithms to evaluate structure-induced downwash effects.
Receptor grid	Grid 1	50-meter spacing along the ambient air boundaries for the TASC0 production facility
	Grid 2	30- to 50-meter spacing for discrete receptors placed along Rock Creek which bisects the facility
	Grid 3	50-meter spacing in a 3,000-meter (X) by 2,500-meter (Y) uniform grid roughly centered on the southeastern corner of TASC0's primary process area
	Grid 4	200-meter spacing in a 6,800-meter (X) by 5,800-meter (Y) uniform grid roughly centered on the center of the primary process area of the facility and Grid 3

**3.1.1 Modeling protocol**

A modeling protocol was submitted to DEQ by TASC0, on August 13, 2010. The modeling protocol was approved, with comments, by DEQ, on August 25, 2010.

Modeling was conducted using methods documented in the modeling protocol and the *State of Idaho Air Quality Modeling Guideline*.

**3.1.2 Model Selection**

AERMOD, Version 09292, was used by TASC0 to conduct the ambient air analyses to demonstrate impacts did not exceed the significant contribution level specified by Section 006.105 of the Idaho Air Rules.

**3.1.3 Meteorological Data**

TASC0 used a meteorological data set that was developed using spanning five consecutive years from 2000 to 2004. According to the May 15, 2008 Geomatrix met data preparation report prepared on behalf of Idaho DEQ, the Idaho National Engineering and Environmental Laboratory (INEEL)-operated met tower located in Minidoka, Idaho, was used as the primary source of surface met data. AERSURFACE Version 08009 and the 1992 National Land Cover Dataset (NLCD92) were used to perform the sector analysis for the tower location. Data fill for missing surface data in the INL Minidoka dataset used the Burley, Idaho, National Weather Surface (NWS) data. Upper air data consisted of Boise NWS data with University of Washington Mesoscale Meteorological Model Data—Version 5 (MM5) for filling in missing data. Geomatrix processed the data with AERMET Version 06341 using the Minidoka tower as an on-site tower location.

The land use within a radius of one kilometer surrounding the INEEL Minidoka monitoring site was determined for twelve sectors using the 1992 National Land Cover Database (NLCD92) developed the United States Geological Survey. Geomatrix applied an average moisture condition, non-arid site characteristics, and continuous snow cover during winter months for the determination of albedo, Bowen

ratio, and surface roughness length by AERSURFACE Version 08009. The May 15, 2008 memo documenting the development of this met data set indicates that the INEEL Minidoka met tower is located at an airport. The memo's NLCD92 graphic places the met tower at the following approximate coordinates: Zone 12, 288,200 meters Easting and 4,742,150 meters Northing. A check with Google Earth places this set of coordinates at the Idaho Youth Ranch, located six miles northwest of the town of Minidoka. There is no airport at this location and the land use characteristics in the NLCD92 graphics match well with the predominant agricultural use depicted by Google Earth imagery.

#### ***3.1.4 Terrain Effects***

The modeling analyses conducted by TASC0 considered elevated terrain. The elevation of each receptor was obtained from United Geological Survey (USGS) digital elevation map (DEM) files for the area surrounding the facility. The DEM files used the NAD27 coordinate system. Receptor elevations and hill height scales were determined using AERMAP Version 06341.

#### ***3.1.5 Facility Layout***

DEQ checked Google Earth to verify the facility's layout and cross-referenced the building lengths and widths with the enclosed facility plot plan. Building heights were accepted as submitted for this project. Only storage tank heights were included in the plot plan. The layout and building dimensions were accepted as submitted.

#### ***3.1.6 Building Downwash***

Plume downwash effects caused by structures at the facility were accounted for in the modeling analyses. The Building Profile Input Program-Plume Rise and Building Downwash Model (BPIP-PRIME) was used by the applicant to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters. The output from BPIP-PRIME was used as input to AERMOD, Version 09292, to account for building-induced downwash effects.

#### ***3.1.7 Ambient Air Boundary***

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. TASC0 regarded the creek itself as ambient air and placed a line of discrete receptors along the waterway. TASC0 placed a receptor grid in the areas used for wastewater land application on the south side of the facility (labeled Kimpton/Moore Wastewater Land Application Farms in Figure 2 of the modeling report). TASC0 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.

#### ***3.1.8 Receptor Network***

The receptor grids used by TASC0 met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. TASC0's receptor grid placed the densely-spaced receptor grid in the region of the maximum ambient impacts. DEQ determined the receptor grid was adequate to reasonably resolve the maximum modeled ambient impacts.

### 3.2 Emission Rates

#### 3.2.1 Modeled Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application. The following approach was used for TASC0's modeling demonstration:

- All modeled criteria air pollutant emissions rates were equal to or greater than the facility's emissions calculated in the PTC application and the requested permit allowable emission rates listed in the air quality permit.

Table 4 lists the emissions of PM<sub>10</sub> that were modeled continuously over 24 hours per day to demonstrate that impacts would not exceed the 24-hour PM<sub>10</sub> significant contribution level.

Source ID	Description	PM <sub>10</sub> <sup>a</sup> Emission Rates (lb/hr) <sup>b</sup>
PW1A	Sugar Granulator Baghouse Stack	0.598 (modeled rate)
		1.05 (scaled to 5.0 µg/m <sup>3</sup> , 24-hr avg impact)

<sup>a</sup>. Particulate matter with a mean aerodynamic diameter of ten microns or less

<sup>b</sup> Pounds per hour

### 3.3 Emission Release Parameters

#### 3.3.1 Point Sources

Table 5 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for point sources. The equipment vendor provided TASC0 with design specification data for the exhaust flow rate in units of dry standard cubic feet per minute for this proposed granulator. TASC0 used 2004 performance test data for the Nampa facility's sugar granulator to obtain stack moisture, pressure, and temperature values to develop this modeling demonstration's exhaust parameters. Stack height and diameter were accepted as submitted.

Release Point	Description	Stack Height (m) <sup>a</sup>	Stack Gas Flow Temperature (K) <sup>b</sup>	Stack Gas Flow Velocity (m/sec) <sup>c</sup>	Stack Diameter (m)
PW1A	BMA Sugar Granulator Baghouse Stack	24.38	318.15	11.92	1.22

<sup>a</sup> Meters

<sup>b</sup> Kelvin

<sup>c</sup> Meters per second

### 3.4 Results for Ambient Impact Analyses

#### 3.4.1 Significant Impact Analyses

A significant impact analysis was performed for this project for the PM<sub>10</sub> 24-hour averaging period. The emissions for the proposed sugar granulator were modeled and the impacts were compared to the significant contribution concentrations listed in Section 006.105 of the Idaho Air Rules. The results of TASC0's analysis are listed in Table 6.

<b>Pollutant</b>	<b>Averaging Period</b>	<b>Predicted Ambient Impact (<math>\mu\text{g}/\text{m}^3</math>)<sup>a</sup></b>	<b>Significant Contribution Level (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Full Impact Analysis Required?</b>
PM <sub>10</sub> <sup>b</sup>	24-hour	2.856 <sup>c</sup>	5.0	No
		5.0 <sup>d</sup>		

<sup>a</sup> Micrograms per cubic meter

<sup>b</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

<sup>c</sup> Modeled PM<sub>10</sub> emission rate of 0.598 pounds per hour

<sup>d</sup> Scaled PM<sub>10</sub> emission rate of 1.05 pounds per hour

### **3.4.2 Full Impact Analyses**

A full impact analysis was not performed by TASC0 because ambient impacts were predicted to not exceed the significant contribution levels.

### **3.4.3 Toxic Air Pollutant Impact Analyses**

Dispersion modeling for TAPs was not required for this project. No emission increase of any TAP was predicted to occur for this project.

## **4.0 Conclusions**

The ambient air impact analysis submitted demonstrated to DEQ's satisfaction that 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 – PROCESSING FEE

<b>Emissions Inventory</b>			
<b>Pollutant</b>	<b>Annual Emissions Increase (T/yr)</b>	<b>Annual Emissions Reduction (T/yr)</b>	<b>Annual Emissions Change (T/yr)</b>
NO <sub>x</sub>	0.0	0.00	0.0
SO <sub>2</sub>	0.0	0.00	0.0
CO	0.0	0.00	0.0
PM <sub>10</sub>	3.7	0.00	3.7
VOC	0.0	0.00	0.0
TAP/HAP	0.0	0.00	0.0
<b>Total</b>	<b>3.7</b>	<b>0.00</b>	<b>3.7</b>
Fee Due			<b>\$2,500.00</b>