

Statement of Basis

**Permit to Construct No. P-2012.0001
Project ID 60974**

**J.R. Simplot Co. - Don Siding Plant
Pocatello, Idaho**

Facility ID 077-00006

Proposed for Public Comment

**April 23, 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.

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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
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BAE	Baseline Actual Emissions
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
H ₂ SO ₄	sulfuric acid
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide

NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O ₂	oxygen
PAE	Projected Actual Emissions
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
PM _{2.5}	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO ₂	sulfur dioxide
SO _x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd ³	cubic yards
µg/m ³	micrograms per cubic meter

FACILITY INFORMATION

Description

J.R. Simplot – Don Siding Plant (Simplot) operates an existing integrated ammonium phosphate fertilizer manufacturing plant which is located north-west of Pocatello, ID. The plant produces phosphoric acid, sulfuric acid, nitric acid, ammonia, several grades of solid and liquid fertilizers, and other commercial chemical products.

The No. 400 Sulfuric Acid Plant uses a double-absorption contact process to produce sulfuric acid (H_2SO_4) from elemental sulfur. The elemental sulfur is burned in a furnace to produce an SO_2 -rich gas stream. The SO_2 -rich gas stream is then cooled in a waste heat boiler before being routed to a multi-pass, four-bed catalytic converter where it reacts with oxygen to form sulfur trioxide (SO_3). After the third catalyst bed, the now SO_3 -rich gas stream is cooled and sent to an intermediate absorbing tower where much of the SO_3 is absorbed into a concentrated sulfuric acid solution. The exhaust gas from the intermediate absorbing tower is reheated and returned to the catalytic converter where it passes through the fourth and final catalyst bed where most of the remaining SO_2 is converted to SO_3 . This gas stream exits the converter, is cooled, and is then routed to the final absorbing tower where virtually all of the remaining gas-phase SO_3 is absorbed into a concentrated sulfuric acid solution. The gas exiting the final absorbing tower passes through a set of mist eliminators which collect most of the residual H_2SO_4 mist. This gas stream, which contains nitrogen, oxygen, a small amount of unreacted SO_2 , and NO_x produced from the combustion of sulfur in the furnace, is exhausted through the No. 400 Plant stack. Based on available emissions factor data, it appears there may also be some CO_2 in this gas stream. Much of the energy released through combustion of sulfur and the subsequent oxidation of SO_2 to SO_3 is recovered as steam for use in other areas of the Don Plant.

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) or superseded (S).

November 8, 2005	Tier I Operating Permit 077-00006, Update to the Initial Tier I permit, Permit status (A)
April 5, 2004	Tier I Operating Permit 077-00006, Update to the Initial Tier I permit, Permit status (S)
December 24, 2002	Tier I Operating Permit 077-00006, Initial Tier I permit, Permit status (S)
December 3, 1999	Tier II permit 077-00006, Including the Quality Assurance (QA) requirements of 40 CFR 60, Appendix F, Permit status (A, but the #400 Sulfuric Acid Plant and Associated Handling Section of the permit will become S upon issuance of this permit)
June 29, 1995	PTC Permit 077-00006, PM_{10} SIP permit issuance, Permit status (A)
January 25, 1985	PTC Permit 1260-0006, Initial permit issued for the #400 Sulfuric Acid Plant, Permit status (S)

Application Scope

This PTC replaces a Tier II permit at an existing Tier I facility. See the current Tier I permit statement of basis for the permitting history. The proposed modification will reduce SO₂ emissions from the No. 400 Sulfuric Acid Plant consistent with negotiations between Simplot and U.S. EPA to resolve a pending enforcement action.

When completed, the planned modifications to the No. 400 Plant will accomplish two objectives. The first will be to reduce SO₂ emissions from 4.0 pounds per ton (on a three hour average basis) to a rate of 2.0 pounds per ton (on an annual average basis) or less during Phase I of the modifications and then to a rate of 1.7 pounds per ton (on an annual average basis) or less during Phase II of the modifications. The second objective of the planned modification is to increase the sulfuric acid production of the No. 400 Plant to 2,500 tons per day (on an annual average basis). Simplot's current plans call for these objectives to be accomplished by making changes to the No. 400 Plant during scheduled plant turnarounds in 2012 (Phase I), 2014, and 2016 (Phase II). The reduction in SO₂ emissions will occur in two steps. During the 2012 turnaround, changes will be made to the plant that are projected to reduce SO₂ emissions to an annual average rate of 2.0 pounds per ton or less. During the 2016 turnaround, changes will be made to the plant that are projected to further reduce SO₂ emissions to an annual average rate of 1.7 pounds per ton or less. The increase in production capability will be enabled by the changes planned for 2012, 2014 and 2016. For the purposes of this application, it is assumed that the production increase will occur at the time the SO₂ emissions rate is reduced to 2.0 lb/ton (Phase I). The actual production increase may occur at a later date.

Simplot has completed engineering work on the 2012 planned changes with preliminary engineering done for the out-year changes. The scope of the planned changes as currently envisioned is outlined as follows.

2012 Changes (Phase I):

- Replace the final absorbing tower (FAT) including the mist eliminators and packing.
- Install a new final absorber acid feed cooler.
- Upgrade the capacity of the final absorber acid feed and product pumps.
- Replace the product dilution cooler with a larger unit.
- Install a new cooling tower.
- Replace the current catalyst with a cesium promoted catalyst in the converter.
- Install a new sand filter system for water treatment.
- Make various improvements to infrastructure, electrical, and instrumentation systems including installation of a new motor control center (MCC) and new thermocouples and thermowells in the convertor.

2014 - 2016 Changes (Phase II):

- Replace the economizers.
- Replace the drying tower.
- Replace the converter.
- Replace the superheater.
- Replace the gas heat exchanger.
- Replace the sulfur pumps, sulfur burners, control instrumentation, and a blower.

As can be seen from this list of proposed modifications, virtually all of these changes represent modifications to a single existing emissions unit, the No. 400 Sulfuric Acid Plant. Only the installation of the new cooling tower represents construction of a new emissions unit at the facility. Simplot anticipates that additional changes may be needed beyond those listed above and expects to update this application as necessary once final engineering is completed on the out-year changes. A conservative approach has been used to estimate the emissions impacts from these changes. Thus, any additional changes that may be needed to accomplish the project objectives are not expected to affect the emissions change analysis or the PSD applicability determination presented in the application for this project in any meaningful way.

Application Chronology

January 5, 2012	DEQ received an application and an application fee.
January 12 – January 27, 2012	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
March 14, 2012	DEQ received supplemental information from the applicant.
March 14, 2012	DEQ determined that the application was complete.
March 27, 2012	DEQ received additional supplemental information from the applicant.
April 11, 2012	DEQ made available the draft permit and statement of basis for peer and regional office review.
April 12, 2012	DEQ made available the draft permit and statement of basis for applicant review.
April 23 – May 25, 2012	DEQ provided a public comment period on the proposed action.
Month Day, Year	DEQ received the permit processing fee.
Month Day, Year	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
No. 400 Sulfuric Acid Plant	<u>No. 400 Sulfuric Acid Plant:</u> Installation Date: After August 17, 1971 Max. production: 913,000 T-H₂SO₄/yr	Sulfuric acid mist eliminators	<u>No. 400 Sulfuric Acid Plant Stack:</u> Exit height: 210 ft (64.0 m) Exit diameter 9.5 ft (2.9 m) Exit flow rate: 144,000 acfm Exit temperature: 165 °F (73.8 °C)
H ₂ SO ₄ Storage Tanks	<u>H₂SO₄ Storage Tanks:</u> Total Storage Capacity: XX Vent pressure: XX psig	N/A	<u>Multiple Storage Tank Vents</u>
Cooling Tower	<u>Cooling Tower:</u> Manufacturer: TBD Model: TBD Manufacture Date: 2012 Number of Cells: 1 Max. Water Flow Rate: 6,000 gpm Max. TDS: 6,000 ppm	N/A	<u>Cooling Tower Stack</u>

Emissions Inventories

The **Simplot** facility is an existing PSD major stationary source for SO₂ emissions (**annual facility-wide PTE for SO₂ emissions exceeds 250 T/yr**). In addition, the proposed permit revision may be considered to constitute a “change in the method of operation” of the **No. 400 Sulfuric Acid Plant**. Therefore, a PSD applicability analysis was performed in accordance with the procedures in 40 CFR 52.21. **The facility has proposed that this project will not increase permitted criteria pollutant emissions or emissions of H₂SO₄, H₂S, and NH₃ for the No. 400 Sulfuric Acid Plant.** IDAPA 58.01.01.007.04 defines an emissions increase as “The amount by which projected actual emissions exceed baseline actual emissions of an emissions unit.” Therefore, in order to determine if this project will have an emissions increase for PSD purposes the facility submitted determinations of Projected Actual Emissions (PAE) and Baseline Actual Emissions (BAE) which are presented as follows.

Projected Actual Emissions

The procedure used by [Simplot](#) for calculating [Projected Actual emissions](#) was the calculation approach for [existing units](#) set forth in 40 CFR 52.21, beginning with definitions in 52.21(b)(41). [Using these procedures](#), [Projected Actual criteria pollutant emissions](#) and [fugitive source emissions](#) were calculated. [Projected Actual Emissions](#) are presented in the following table:

Table 2 PROJECTED ACTUAL EMISSIONS

Source	PM ₁₀ (T/yr)	PM _{2.5} (T/yr)	SO ₂ (T/yr)	NO _x (T/yr)	H ₂ SO ₄ (T/yr)	H ₂ S (T/yr)	CO ₂ e (T/yr)
Point Sources Affected by this Permitting Action							
No. 400 Plant Stack	33.3	20.2	611.6	41.1	19.8	0.0	115.8
H ₂ SO ₄ Storage Tanks	0.4	0.4	0.0	0.0	0.4	0.0	0.0
Cooling Tower	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total, Point Sources	33.90	20.60	611.60	41.10	20.20	0.00	115.80
Fugitive Sources							
Fugitive emissions sources	0.0	0.0	0.3	0.0	0.0	28.3	0.0
Total, Fugitive Sources	0.00	0.00	0.30	0.00	0.00	28.30	0.00
Facility Totals							
Total, Projected Actual Emissions	33.90	20.60	611.90	41.10	20.20	28.30	115.80

Baseline Actual Emissions

The procedure used by [Simplot](#) for calculating [Baseline Actual Emissions](#) was the calculation approach [existing units](#) set forth in 40 CFR 52.21, beginning with definitions in 52.21(b)(41). [For this project the facility used the consecutive 24-month baseline period of July 1, 2006 to June 30, 2008](#). [Using these procedures](#), [Baseline Actual criteria pollutant emissions](#) and [fugitive source emissions](#) were calculated. [Baseline Actual Emissions](#) are presented in the following table:

Table 3 BASELINE ACTUAL EMISSIONS

Source	PM ₁₀ (T/yr)	PM _{2.5} (T/yr)	SO ₂ (T/yr)	NO _x (T/yr)	H ₂ SO ₄ (T/yr)	H ₂ S (T/yr)	CO ₂ e (T/yr)
Point Sources Affected by this Permitting Action							
No. 400 Plant Stack	29.8	17.7	1,157.0	37.1	13.1	0.0	106.0
H ₂ SO ₄ Storage Tanks	0.34	0.34	0.0	0.0	0.34	0.0	0.0
Cooling Tower	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total, Point Sources	30.14	18.04	1,157.00	37.10	13.44	0.00	106.00
Fugitive Sources							
Fugitive emissions sources	0.0	0.0	1.50	0.0	0.0	25.90	0.0
Total, Fugitive Sources	0.00	0.00	1.50	0.00	0.00	25.90	0.00
Facility Totals							
Total, Baseline Actual Emissions	30.14	18.04	1,158.50	37.10	13.44	25.90	106.00

Project Emissions Increase

The project emissions increase is presented in the following table:

Table 4 PROJECT EMISSIONS INCREASE

Emissions	PM ₁₀ (T/yr)	PM _{2.5} (T/yr)	SO ₂ (T/yr)	NO _x (T/yr)	H ₂ SO ₄ (T/yr)	H ₂ S (T/yr)	CO ₂ e (T/yr)
Point Sources							
Projected Actual Emissions	33.90	20.60	611.60	41.10	20.20	0.0	115.80
Baseline Actual Emissions	30.14	18.04	1,157.00	37.10	13.44	0.0	106.00
Project Emissions Increase	3.76	2.56	-545.40	4.00	6.76	0.00	9.80

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 5 COMPARISON OF THE PROJECT EMISSIONS INCREASE TO THE PSD MAJOR MODIFICATION THRESHOLDS

Emissions	PM ₁₀ (T/yr)	PM _{2.5} (T/yr)	SO ₂ (T/yr)	NO _x (T/yr)	H ₂ SO ₄ (T/yr)	H ₂ S (T/yr)	CO ₂ e (T/yr)
Point Sources							
Project Emissions Increase	3.76	2.56	-545.40	4.00	6.76	0.0	9.8
PSD Significance Threshold	15	10	40	40	7	10	75,000
Does the Project Emissions Increase Exceed the PSD Major Modification Threshold?	No	No	No	No	No	No	No

As presented in the preceding table this project does not constitute a PSD Major Modification and is not subject to PSD permitting requirements.

Determination of PSD Applicability

The following six issues also need to be addressed to determine if PSD will be triggered for the proposed modification to the No. 400 Sulfuric Acid plant. Therefore, these issues (along with the comments by EPA Region 10) were presented to J.R. Simplot Co. and their responses and DEQ conclusions are detailed as follows.

New Plant Determination – EPA Comment – Simplot is proposing to change out all of the key components in an acid plant. As such, this project appears to be the replacement of an acid plant and not a modification of an existing plant. If this project is the replacement of an acid plant, PSD applicability should be based on the plant's PTE and not on a BAE to PAE basis. If the project is a new plant, a review of the emissions reported in the application indicates that PTE for several pollutants are likely to be above PSD significance levels.

Simplot response – Although Simplot is planning to replace a number of components in the No. 400 plant, it is not correct that “all of the key components will be replaced.” Presumably this issue relates to the appropriate emissions increase test to be used in the PSD applicability analysis for the No. 400 Plant project. Idaho's PSD rules incorporate the relevant provisions of 40 CFR 52.21 applicability procedures by reference. Under the PSD rule, “existing” units may apply the actual-to-projected-actual applicability test while “new” units must apply the actual-to-potential applicability test.

The PSD rule defines a “new” unit as:

“[A]ny emissions unit that is (or will be) newly constructed and that has existed for less than 2 years from the date such emissions unit first operated.” [40 CFR 52.21(b)(7)(i)]

And an existing unit is defined as:

“[A]ny emissions unit that does not meet the requirements in paragraph [40 CFR 52.21](b)(7)(i) of this section. A replacement unit, as defined in paragraph [40 CFR 52.21](b)(33) of this section, is an existing emissions unit.” [40 CFR 52.21(b)(7)(ii)]

Tile No. 400 Plant has “existed” and has been in operation since 1986. It will continue to operate, except for normally scheduled shutdowns, well into the future. The planned modifications do not alter this essential fact. Based on these facts, it is clear from the plain language of the PSD rule that the No. 400 plant is not a “new” unit under the definition at 40 CFR 52.21(b)(7)(i). Since the No. 400 Plant is not a new unit, it must, by definition, be an existing unit (i.e., any unit that is not “new” is “existing” pursuant to the definitions at 40 CFR 52.21(b)(7)). Accordingly, it is appropriate under the applicability procedures found at 40 CFR 52.21(a)(2), to use the actual-to-projected-actual applicability test. This is the approach Simplot has used in assessing PSD applicability as documented in the permit application.

DEQ Conclusion – DEQ staff researched this issue at other sulfuric acid plants around the United States making similar plant modifications to meet EPA consent decrees to lower SO₂ emissions limits. On the basis of this research it was determined that Simplot is proposing to change out similar equipment at the No. 400 Sulfuric Acid Plant as was allowed by the State permitting agencies at these other sulfuric acid plants. In these other permitting actions the modified sulfur acid plants were not considered “new” for PSD purposes. Therefore, DEQ staff has determined that the modifications to the No. 400 Sulfuric Acid Plant do not make the plant a “New Plant” for PSD purposes.

Unidentified Changes to the Plant – EPA Comment – Simplot has indicated that certain future changes have not yet been identified – these changes may result in higher PTE/PAE emissions - as a result, it is impossible to conclude that the project is not subject to PSD when there is a very real possibility that PTE/PAE emissions may be higher than used in the current submittal.

Simplot response – One fundamental objective of the project is to respond to U.S. EPA enforcement initiative negotiations that seek significant emissions reductions from the acid manufacturing industry. Any refinements to the project details will be consistent with this objective. Simplot is not requesting authority to make any changes other than those listed in this attachment. In the emissions analysis submitted with the application in December 2011, Simplot made several conservative assumptions regarding emissions projection parameters. More specifically, the future SO₂ emissions rate is based on an annual average factor of 2.0 lb/ton rather than the lower post-project target of 1.7 lb/ton. Additionally, the projected emissions of other pollutants are based on the assumption that the No. 400 Plant will produce acid at an annual rate of 913,000 tons. This is the maximum expected rate that could result from the project under any circumstances. These assumptions and the resulting emission estimates included with the original application accurately reflect future projected emissions from the No. 400 Plant. In the event that any refinements to the project details reveal a different estimate, Simplot recognizes that further agency review may be triggered.

DEQ Conclusion – As noted in the final sentence of the Simplot response, they acknowledge that any future changes made to the project will be subject to additional agency review. Therefore, this issue has been sufficiently addressed by Simplot. Therefore, DEQ staff has determined that any Unidentified Changes to the No. 400 Sulfuric Acid Plant will be addressed by an additional agency review (including PSD review) when they are proposed by Simplot and presented to DEQ.

Aggregation of Multiple Changes – EPA Comment – The project will include changes in 2012 and for the 2014 - 2016 time period. All of the proposed changes should be aggregated and treated as one project for PSD applicability purposes. It is not clear whether the application is treating all of the 2012 - 2016 project changes as one change or if it is only addressing a subset of those changes.

Simplot response - The application treats all of the planned changes as a single project for purposes of determining PSD applicability. Please see page C-1, Section C.1 of the application which states:

“The changes planned for the 2012 turnaround and subsequent turnarounds are viewed as a single project for PSD applicability purposes because they support the common goals of reducing SO₂ emissions and increasing sulfuric acid production from the No. 400 Plant.”

Also see Section 1.0 of the application which states:

“With this PTC application, Simplot requests IDEQ's authorization to make specific changes to the No. 400 plant as outlined in Section 2. These changes include those planned for 2012 as well as those planned for 2014 and 2016.”

The PSD applicability analysis is based on this approach. However, Simplot accounted only for the SO₂ reductions that will occur in 2012 to ensure the analysis is conservative in terms of computing the emissions changes that will result. In other words, Simplot has only taken credit for the immediate (i.e., 2012) emissions reductions that will result from the project, but has accounted for all of the possible emissions increases through completion of the work in 2016. Additional emissions reductions will occur in the later phases of the project, but these are not accounted for in the present analysis. This conservative approach has no impact on the conclusion of the applicability analysis.

DEQ Conclusion – The response from Simplot has clarified how the aggregation of projects issue was dealt with for this project. Therefore, DEQ has determined that the Aggregation of Multiple Projects for PSD purposes has been addressed under a worst-case emissions increase scenario.

Project Netting – EPA Comment – It appears that Simplot is taking credit for emissions reductions in step 1 of the PSD applicability analysis - this is known as “project netting.” Project netting is not allowed in step 1 of the PSD applicability analysis but emission reductions can be addressed in step 2, when a facility-wide netting analysis is done for the entire contemporaneous period.

Simplot response – It is correct that the PSD rule does not allow “project netting” for projects that involve the construction of new units as is the case with the proposed No. 400 Plant project where a new cooling tower will be constructed as part of the project. It is also correct that the project will result in an emissions decrease for SO₂. This is one of the principal motives behind this project. It is incorrect that Simplot has taken “credit” for this decrease (i.e., project netting was not used in the applicability analysis). Please see Table C-1, footnote D, which states:

“For SO₂, the project will result in a significant decrease in emissions. This decrease is shown as a zero increase for purposes of evaluating PSD applicability.”

Please refer to Attachment C-1 to Appendix C for the specific details of how emissions are calculated for applicability purposes. This documentation clearly shows that reductions are not credited against increases. The reductions simply result in a zero increase relative to baseline emissions.

DEQ Conclusion – The response from Simplot has clarified how emissions were calculated for this project. Therefore, DEQ has determined that Project Netting for PSD purposes is not being performed by the Applicant.

Debottlenecking of the Plant – EPA Comment – The application acknowledges that other units at the Don Plant will be affected by the changes to the No. 400 acid plant, but does not quantify emissions from this type of debottlenecking/increased utilization. Simplot should include this information in their revised analysis.

Simplot response – The PSD source obligation provisions are codified in 40 CFR 52.21(r) and incorporated by reference at IDAPA 58.01.01.205.01. More specifically, 40 CFR 52.21(r)(6)(b) requires that Simplot identify “the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project.” In accordance with this requirement, all such units are identified in Appendix C of the application. The specific units identified are upstream raw material, receiving, handling and storage operations, and downstream product storage, and handling operations. The methodologies of accounting for emissions from these sources are described in Sections C.4 and C.5. As described in Section C.6, no other operations at the Don Plant are projected to have their emissions affected by the planned project.

On March 15, 2012, EPA representative, Pat Nair, requested further analysis of emissions impacts of the proposed project on process units within the phosphoric acid and fertilizer plants at the Don Plant. Specifically, EPA presumes that increased sulfuric acid production will result in increased fertilizer productions and related emissions. Mr. Nair's email states "The increased use of additional sulfuric acid production in the various fertilizer production operations (i.e. the phosphoric acid plant, the three granulation plants, and the ammonium sulfate plant) will clearly result in increased operations of these emission units, resulting in increased emissions." This presumption is inaccurate. Analysis of the phosphoric acid and fertilizer emissions units is not required, because these portions of the plant are not affected units that will be impacted by the proposed project. While some sulfuric acid produced after the project may be utilized for fertilizer production, the total fertilizer production capacity remains unaffected.

Simplot described the relationship between sulfuric acid production and other production levels to EPA during our meeting in Boise on March 1, 2012. This description was also presented in the application. Simplot reiterates the discussion as follows.

Some sulfuric acid produced in the #400 plant is used in the fertilizer production facilities, but the capacity for fertilizer production is not dependent upon or limited by sulfuric acid production. If fertilizer production demand exceeds the supply of sulfuric acid produced by the Don Plant, then Simplot imports sulfuric acid to meet demand. Also, the Don Plant exports sulfuric acid if production of acid exceeds internal demand from the fertilizer plant. This is demonstrated by historical imports and exports as provided in Appendix C of the application and in the table below. Emissions from the fertilizer plant, therefore, are not affected by the proposed increase in sulfuric acid capacity. Only the needs for purchase and sale of sulfuric acid may be impacted. Fertilizer production capacity and sulfuric acid production capacity will continue to be independent after the proposed project.

Table 6 COMPARISON OF DON PLANT SULFIC ACID INPORTS AND EXPORTS

Year	Sulfuric Acid Imported (Tons)	Sulfuric Acid Exported (Tons)	Net Sulfuric Acid (Tons)
1999	35,135	0	-35,135
2000	50,809	0	-50,809
2001	14,605	0	-14,605
2002	0	16,960	16,960
2003	0	34,268	34,268
2004	1,078	52,853	51,775
2005	2,540	21,715	19,175
2006	24,090	46,424	22,334
2007	1,072	57,555	56,483
2008	25,531	23,233	-2,298
2009	8,307	18,104	9,797
2010	2,504	15,937	13,433
2011	16,470	16,086	-384

With respect to power supply emissions units from the boilers, sulfuric acid production is a net heat producer. Therefore, as production of sulfuric acid increases, utilization of the boilers and demand for steam will decrease.

DEQ Conclusion – The response from Simplot has clarified that this project is not considered “debottlenecking” for PSD purposes because sulfuric acid use at the facility is not dependent on the amount of sulfuric acid produced at the facility. Therefore, DEQ has determined that debottlenecking of the No. 400 Sulfuric Acid Plant is not occurring as a result of the proposed modifications by the Applicant.

Projected Actual Emissions (PAE), Could Have Accommodated – EPA Comment – The “could have accommodated” provision is often misunderstood and misapplied by applicants. This provision is in effect a two-part test - excluded emissions must also be unrelated to the project. That is not the case here. Post project emissions are related to the project and so, the “could have accommodated” provision cannot be used.

Simplot response – Simplot has correctly applied the definition in its PSD applicability analysis as discussed below.

The definition of projected actual emissions includes the following language:

“Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions under paragraph (b)(48) of this section and that are also unrelated to the particular project, including any increased utilization due to product demand growth.” [40 CFR 52.21(b)(41)(ii)(c)]

As evident from the regulatory language, excluded emissions must meet two criteria: first, excluded emissions must be emissions that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline; and second, excluded emissions must be unrelated to the project.

Simplot only excluded from the post-project projections the emissions increases that the No. 400 Sulfuric Acid Plant was capable of accommodating during the baseline period and that are unrelated to the project. First, Simplot calculated post project emissions increases based upon the actual demonstrated baseline production rate (839,500 tons per year) compared to emissions projected for the post project acid production rate (913,000 tons per year). The only emissions that are excluded from this comparison are those that can be attributed to the highest level of production achieved (and temporarily sustained) by the No. 400 Sulfuric Acid Plant as it existed and operated during the selected 24-month baseline period (i.e., July 2006 through June 2008). During this baseline period and without the benefit of the proposed physical changes, production was temporarily sustained at a rate greater than 839,500 tons per year. Lack of continuing demand for Simplot's product curtailed the increase. The emissions associated with this achieved production rate (curtailed as a result of lack of demand) are appropriately excluded from the project analysis. Demonstrated operating rates during the baseline period confirm that the No. 400 Sulfuric Acid Plant was capable of accommodating these emissions and that these 2006-2008 emissions were unrelated to the proposed project. The basis for Simplot's assessment of “excludable emissions” is fully documented in Appendix C of the application.

DEQ staff researched this issue by examining EPA's *Technical Support Document for the Prevention of Significant Deterioration (PSD) and Nonattainment Area New Source Review (NSR): Reconsideration* dated October 30, 2003 (Note: This document was provided to DEQ staff by EPA staff at Region 10). Section B.1 of this document addresses comments on the Demand Growth Exclusion as follows (as taken directly from the responses document).

The Environmental Group, Northeast State, and South Coast petitioners state that in the 1998 NOA, EPA presented several arguments against incorporating the demand growth exclusion. However, the final rule included the exclusion for both EUSGUs and other emissions units. The Environmental Group, South Coast, and Northeast State petitioners claim that EPA provided no explanation in the administrative record for this reversal. The South Coast petitioners claim that the demand growth provisions in the final rules are not a logical outgrowth of EPA's proposed rules.

The Northeast State petitioners claim that EPA changed its position as presented in the 1996 NPRM and 1998 NOA on whether demand growth should be taken into account when calculating future actual emissions without providing notice and opportunity for comment. In the preamble to the 1996 NPRM, EPA expressed concern about extending the demand growth exclusion to non-utility industries, and did not propose any rule language for doing so. 61 FR 38628. Then, in the 1998 NOA, EPA took a stronger stand against the demand growth exclusion: “EPA believes that [the demand growth exclusion] should not be extended to non-utility units.” 63 FR 39860. The EPA further explained that “it cannot be said that demand growth is an 'independent factor,' separable from a given physical or operational change” and that “the demand growth is problematic because it is self-implementing and self-policing.” 63 FR 39861.

The Environmental Group petitioners note that EPA stated in the 1998 NOA that “there is no plausible distinction between emissions increases due solely to demand growth as an independent factor and those changes at a source that respond to, or create new, demand growth which then results in increased capacity utilization.” 63 FR 39861. The Environmental Group petitioners claim that if in fact there is no distinction between emissions increases from demand growth and emissions increases resulting from a change, then emissions attributed to demand growth are emissions resulting from a change. Thus, the Environmental Group petitioners claim that allowing a source to exclude emissions attributable to demand growth is a violation of the CAA.

The Northeast State petitioners claim that EPA did not resolve these problems or others articulated in the previous notices concerning the demand growth exclusion. Instead, EPA stated that sources “will be allowed to apply” the demand growth exclusion as presented in the WEPCO rule because “[b]oth the statute and implementing regulations indicate that there should be a causal link between the proposed change and any post-change increase in emissions.” 67 FR 80203. The Northeast State petitioners claim that this statement does not contain an adequate explanation for EPA's reversal of opinion, which is a violation of section 307(d)(6) of the CAA.

Following are EPA’s partial responses to this issue (as taken directly from the responses document).

After reviewing comments received on the 1996 proposal and the 1998 NOA, we determined that our concerns did not justify elimination of the demand growth provisions. The most persuasive argument presented by commenters who supported the demand growth provisions is that the Act clearly provides that only emissions increases resulting from a physical or operational change are to be subjected to the major stationary source requirements for NSR programs under parts C and D of title I. We agree with these commenters and thus we believe it necessary to include the demand growth provisions in order for the calculation of post-change emissions to be consistent with both the Act and the implementing regulations.

The Act clearly suggests that there be a causal link between the proposed change and any post-change increase in emissions, i.e., “...any physical change or change in the method of operation **that would result in** a significant net emissions increase...” [emphasis added]. The major NSR regulations have long provided that a “physical change or change in the method or operation shall not include:” among other things, “an increase in the hours of operation or in the production rate, unless such change would be prohibited under any enforceable permit condition...” See, e.g., §51.166(a)(2)(iii)(f). This provision ensures that emissions increases that result from the normal fluctuation of production to meet market conditions are not subjected to further review and approval by the reviewing authority, as long as the permit does not specifically prohibit them from occurring. The demand growth provisions are an extension of this concept.

Supporters of the demand growth provisions also argued that market factors independently cause an emissions increase absent a physical or operational change. While we projected that it would be difficult to separate demand growth increases from other increases resulting from a project, numerous industry commenters indicated that there are situations where the distinction clearly can be made. Several examples of this are: skyrocketing demand because the product becomes a fad; mishaps at a factory, causing production increases at remaining supplier sources; decrease in raw material prices; opening of new markets; and improved economic conditions.

Based on this information we concluded that it would be inappropriate to eliminate demand growth considerations. When there is a reasonable possibility that the project will result in a significant emissions increase, the final rules require sources using the actual-to-projected-actual test: (1) to maintain records of the amount of emissions excluded from projected actual emissions because the existing unit could have accommodated them during the 24-month period used to establish the baseline actual emissions and that are unrelated to the particular project; and (2) to make such records available to the appropriate reviewing authority if requested to do so. [See, for example, §§51.165(a)(6)(C) and (a)(1)(xxviii)(B)(3).]

DEQ Conclusion – The responses from Simplot and EPA’s *Technical Support Document for the Prevention of Significant Deterioration (PSD) and Nonattainment Area New Source Review (NSR): Reconsideration* dated October 30, 2003 makes it clear that Simplot can use the Projected Actual Emissions Could Have Accommodated exclusion in the PSD Rules. It is also clear to DEQ staff that these emissions could have previously been emitted from the No. 400 Sulfuric Acid Plant and that these emissions are unrelated to the project.

However, please note that DEQ has requested clarification on this issue from EPA (e-mail to Krishna Viswanathan, EPA Region 10, and dated March 2, 2012). As of the date of issuance of these documents for public notice this clarification has not been received by DEQ. If DEQ receives information from EPA that does not support DEQ’s current position prior to final issuance of a final permit, then DEQ will revisit this issue and make a final determination based upon all information at that time.

Overall Final Conclusion – It has been determined by DEQ that PSD is not triggered as a result of the modifications to the No. 400 Sulfuric Acid Plant. In addition, DEQ staff has determined that the project is beneficial to the environment since actual SO₂ emissions from the No. 400 Sulfuric Acid Plant will be going down dramatically as a result of this project.

Potential to Emit

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

Using this definition of Potential to Emit an emission inventory was developed for the [No. 400 Sulfuric Acid Plant](#), the [H₂SO₄ Storage Tanks](#), and the [Cooling Tower operations at the facility](#) (see [Appendix A](#)) associated with this proposed project.

Pre-Project Potential to Emit

The following table presents the pre-project potential to emit for all criteria and GHG pollutants from the units being modified as submitted by the Applicant and verified by DEQ staff. See [Appendix A](#) for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 7 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	PM ₁₀		PM _{2.5}		SO ₂		NO _x		CO ₂ e
	lb/hr ^(a)	T/yr ^(b)	T/yr ^(b)						
No. 400 Sulfuric Acid Plant	13.6	59.6	6.32	27.7	332.9	1,458.0	12.3	49.1	112.7
H ₂ SO ₄ Storage Tanks	0.08	0.36	0.08	0.36	0.00	0.00	0.00	0.00	0.00
Cooling Tower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Project Totals	13.68	59.96	6.40	28.06	332.90	1,458.00	12.30	49.10	112.70

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

Post Project Potential to Emit

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

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

Table 8 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	PM ₁₀		PM _{2.5}		SO ₂		NO _x		CO ₂ e
	lb/hr ^(a)	T/yr ^(b)	T/yr ^(b)						
No. 400 Sulfuric Acid Plant	13.6	59.6	8.3	36.1	333.0	913.0	12.0	48.0	123.0
H ₂ SO ₄ Storage Tanks	0.09	0.39	0.09	0.39	0.00	0.00	0.00	0.00	0.00
Cooling Tower	0.05	0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Totals	13.74	60.19	8.39	36.49	333.00	913.00	12.00	48.00	123.00

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

Change in Potential to Emit

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

Table 9 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions	PM ₁₀		PM _{2.5}		SO ₂		NO _x		CO _{2e}
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	13.68	59.96	6.40	28.06	332.90	1,458.0	12.30	49.10	112.70
Post Project Potential to Emit	13.74	60.19	8.39	36.49	333.0	913.0	12.0	48.0	123.00
Changes in Potential to Emit	0.06	0.23	1.99	8.43	0.10	-545.0	-0.30	-1.10	10.30

Non-Carcinogenic TAP Emissions

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

Table 10 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Hydrogen sulfide	0.00	0.61	0.6100	0.933	No
Sulfuric acid ^a	6.55	6.55	0.0000	0.067	No

^{a)} Sulfuric acid emissions were calculated as total annual emissions with operation of 8,760 hours per year $\{[(28.3 \text{ T/yr} + 0.39 \text{ T/yr}) \times 2,000 \text{ lbs/T}] \div 8,760 \text{ hrs/yr} = 6.55 \text{ lbs/hr}\}$

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

Carcinogenic TAP Emissions

There are no carcinogenic TAPs emitted from the emissions unit associated with this project.

Post Project HAP Emissions

There are no HAPs emitted from the emissions unit associated with this project.

Ambient Air Quality Impact Analyses

An ambient air quality impact analysis was not required for this project as there were no proposed emissions increases and there were no proposed changes in the exhaust stack parameters associated with the No. 400 sulfuric acid plant.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in [Power](#) County, which is designated as attainment or unclassifiable for PM_{2.5}, PM₁₀, SO₂, NO₂, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

As discussed previously the [Simplot](#) facility is an existing PSD major stationary source for SO₂ emissions ([annual facility-wide PTE for SO₂ emissions exceeds 250 T/yr](#)).

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 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 Permits

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

Post project facility-wide emissions from this facility have a potential to emit greater than 100 tons per year for [SO₂](#) emissions. Therefore, this facility is classified as a major facility, as defined in IDAPA 58.01.01.008.10.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

The facility is a major stationary source as defined in 40 CFR 52.21(b)(1). This section defines a Major stationary source as:

Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, Portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants (with thermal dryers), primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140), fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants, or

Notwithstanding the stationary source size specified in paragraph (b)(1)(i) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; or

Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (b)(1) of this section, as a major stationary source, if the changes would constitute a major stationary source by itself.

This facility is one of the facilities designated and does have facility-wide SO₂ emissions that exceed 250 T/yr. The proposed permit revision may be considered to constitute a "change in the method of operation" of the No. 400 sulfuric acid plant. Therefore, a PSD applicability determination was performed as previously detailed in the Emissions Inventory Section of this analysis. As demonstrated in that Section the No. 400 sulfuric acid plant is not undergoing a Major Modification as a result of this project. Therefore, PSD requirements are not applicable to the modification proposed with this project.

NSPS Applicability (40 CFR 60)

Because the facility has a sulfuric acid plant the following NSPS requirements apply to this facility:

- 40 CFR 60, Subpart H - Standards of Performance for Sulfuric Acid Plants

40 CFR 60-Subpart H

Standards of Performance for Sulfuric Acid Plants

§ 60.80

Applicability and Delegation of Authority

Section (a) specifies that the provisions of this subpart are applicable to each sulfuric acid production unit, which is the affected facility. In addition, section (b) specifies that any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart. The Simplot #400 Sulfuric Acid Plant was constructed after August 17, 1971 and is therefore subject to the requirements of this subpart.

§ 60.81

Definitions

The definitions of this section apply to the No. 400 Sulfuric Acid Plant at this facility.

§ 60.82

Standard for Sulfur Dioxide

Section (a) specifies that on and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of 4 lb per ton of acid produced (2 kg per metric ton of acid produced), the production being expressed as 100% H₂SO₄.

This requirement is assured by Permit Condition 8.

§ 60.83

Standard for acid mist

Section (a) specifies that on and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which:

- (1) Contain acid mist, expressed as H₂SO₄, in excess of 0.15 lb per ton of acid produced (0.075 kg per metric ton of acid produced), the production being expressed as 100 percent H₂SO₄.
- (2) Exhibit 10% opacity, or greater.

These requirements are assured by Permit Conditions 12, 13, and 16.

§ 60.84

Emission Monitoring

Section (a) requires that a continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under Performance Specification 2 and for calibration checks under §60.13(d), shall be sulfur dioxide (SO₂). Method 8 shall be used for conducting monitoring system performance evaluations under §60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The span value shall be set at 1,000 ppm of sulfur dioxide.

Section (b) requires that the owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/ton). The conversion factor shall be

determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods (e.g., the Reich test, National Air Pollution Control Administration Publication No. 999-AP-13) and calculating the appropriate conversion factor for each eight-hour period as follows:

$$CF = k \times [(1.000 - 0.015 \times r) \div (r - s)]$$

Where:

CF = conversion factor (lb/ton per ppm, kg/metric ton per ppm).

k = constant derived from material balance. For determining CF in metric units, k=0.0653. For determining CF in English units, k=0.1306.

r = percentage of sulfur dioxide by volume entering the gas converter. Appropriate corrections must be made for air injection plants subject to the Administrator's approval.

s = percentage of sulfur dioxide by volume in the emissions to the atmosphere determined by the continuous monitoring system required under paragraph (a) of this section.

Section (c) requires that the owner or operator shall record all conversion factors and values under paragraph (b) of this section from which they were computed (i.e., CF, r, and s).

These requirements are assured by Permit Condition 15.

Section (d) allows that alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining SO₂ emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring systems for measuring SO₂, O₂, and CO₂ (if required) shall be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in Performance Specifications 2 and 3. The calibration procedure and span value for the SO₂ monitor shall be as specified in paragraph (b) of this section. The span value for CO₂ (if required) shall be 10 percent and for O₂ shall be 20.9 percent (air). A conversion factor based on process rate data is not necessary. Calculate the SO₂ emission rate as follows:

$$Es = (Cs \times S) \div [0.265 - (0.126 \times \%O_2) - (A \times \%CO_2)]$$

Note: This formula should be: $Es = (Cs \times S) \div [0.265 - (0.0126 \times \%O_2) - (A \times \%CO_2)]$

Where:

Es = emission rate of SO₂, kg/metric ton (lb/ton) of 100 percent of H₂SO₄ produced.

Cs = concentration of SO₂, kg/dscm (lb/dscf).

S = acid production rate factor, 368 dscm/metric ton (11,800 dscf/ton) of 100 percent H₂SO₄ produced.

%O₂ = oxygen concentration, percent dry basis.

A = auxiliary fuel factor,

= 0.00 for no fuel.

= 0.0226 for methane.

= 0.0217 for natural gas.

= 0.0196 for propane.

= 0.0172 for No 2 oil.

= 0.0161 for No 6 oil.

= 0.0148 for coal.

= 0.0126 for coke.

%CO₂ = carbon dioxide concentration, percent dry basis.

These requirements are also assured by Permit Condition 15.

Section (e) specifies that for the purpose of reports under §60.7(c), periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under §60.82.

These requirements are also assured by Permit Condition 15.

§ 60.85 Test Methods and Procedures

Section (a) specifies that in conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b). Acceptable alternative methods and procedures are given in paragraph (c) of this section.

Section (b) specifies that the owner or operator shall determine compliance with the SO₂ acid mist, and visible emission standards in §§60.82 and 60.83 as follows:

(1) The emission rate (E) of acid mist or SO₂ shall be computed for each run using the following equation:

$$E = (C \times Q \times s \times d) \div (P \times K)$$

Where:

E = emission rate of acid mist or SO₂ kg/metric ton (lb/ton) of 100 percent H₂SO₄ produced.

C = concentration of acid mist or SO₂, g/dscm (lb/dscf).

Qsd = volumetric flow rate of the effluent gas, dscm/hr (dscf/hr).

P = production rate of 100 percent H₂SO₄, metric ton/hr (ton/hr).

K = conversion factor, 1,000 g/kg (1.0 lb/lb).

(2) Method 8 shall be used to determine the acid mist and SO₂ concentrations (C's) and the volumetric flow rate (Qsd) of the effluent gas. The moisture content may be considered to be zero. The sampling time and sample volume for each run shall be at least 60 minutes and 1.15 dscm (40.6 dscf).

(3) Suitable methods shall be used to determine the production rate (P) of 100 percent H₂SO₄ for each run. Material balance over the production system shall be used to confirm the production rate.

(4) Method 9 and the procedures in §60.11 shall be used to determine opacity.

Section (c) allows that the owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) If a source processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen, the following procedure may be used instead of determining the volumetric flow rate and production rate:

(i) The integrated technique of Method 3 is used to determine the O₂ concentration and, if required, CO₂ concentration.

(ii) The SO₂ or acid mist emission rate is calculated as described in §60.84(d), substituting the acid mist concentration for Cs as appropriate.

These requirements are assured by Permit Condition 19.

NESHAP Applicability (40 CFR 61)

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

MACT Applicability (40 CFR 63)

The facility is not subject to any MACT standards in 40 CFR Part 63.

CAM Applicability (40 CFR 64)

The federal CAM requirements codified in 40 CFR Part 64 are incorporated by reference at IDAPA 58.01.01.107.j. CAM requirements applicable to the [No. 400 Sulfuric Acid Plant](#) were addressed in the Tier I renewal permit application (dated June 20, 2007) for the Don Plant and in a subsequent supplemental letter. CAM plans for PM, PM₁₀, and sulfuric acid mist from the [No. 400 Sulfuric Acid Plant](#) have been submitted to DEQ. Therefore, the requirements of 40 CFR 64 will be incorporated into the renewed Tier I permit for this facility when it is issued.

Permit Conditions Review

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

New Permit Condition 7 was [included to reflect the emissions inventories for the No. 400 Sulfuric Acid Plant, H₂SO₄ Storage Tanks, and the Cooling Tower as provided by the Applicant.](#)

As discussed previously in the 40 CFR 60-Subpart H, Standards of Performance for Sulfuric Acid Plants, new Permit Condition 8, [previous Tier I permit condition 17.1](#), was [included to specify the SO₂ emissions limits of this Subpart.](#)

New Permit Condition 9 was [included to limit SO₂ emissions as proposed by the Applicant after Phase I of the modification to the No. 400 Sulfuric Acid Plant.](#)

New Permit Condition 10 was [included to limit SO₂ emissions as proposed by the Applicant after Phase II of the modification to the No. 400 Sulfuric Acid Plant.](#)

New Permit Condition 11 was [included to limit PM_{2.5} emissions as proposed by the Applicant after Phase I of the modification to the No. 400 Sulfuric Acid Plant.](#)

New Permit Condition 12 was [included to limit Sulfuric Acid Mist emissions as proposed by the Applicant after Phase I of the modification to the No. 400 Sulfuric Acid Plant. The permit condition replaces previous Tier I permit condition 17.2.](#)

As discussed previously in the 40 CFR 60-Subpart H, Standards of Performance for Sulfuric Acid Plants, new Permit Condition 13, [previous Tier I permit condition 17.3](#), was [included to specify the opacity limit of this Subpart.](#)

New Permit Condition 14 was [included to limit sulfuric acid production as proposed by the Applicant after Phase I of the modification to the No. 400 Sulfuric Acid Plant.](#)

As discussed previously in the 40 CFR 60-Subpart H, Standards of Performance for Sulfuric Acid Plants, new Permit Condition 15, [previous Tier I permit condition 17.7](#), was [included to specify the SO₂ CEMS requirements of this Subpart.](#)

As discussed previously in the 40 CFR 60-Subpart H, Standards of Performance for Sulfuric Acid Plants, new Permit Condition 16 was [included to specify the visible emissions monitoring requirements of this Subpart.](#)

New Permit Condition 17 was [included to maintain records of emissions of SO₂, PM_{2.5}, and H₂SO₄ from the No. 400 Sulfuric Acid Plant.](#)

New Permit Condition 18 was [included to maintain records per the Record Keeping General Requirements.](#)

As discussed previously in the 40 CFR 60-Subpart H, Standards of Performance for Sulfuric Acid Plants, new Permit Condition 19, [previous Tier I permit conditions 17.10 and 17.11](#), was [included to specify the source testing requirements of this Subpart.](#)

New Permit Condition 20 was included to require that DEQ be notified when the Phase 1 and Phase 2 modifications have been made to the No. 400 Sulfuric Acid Plant.

Permit Condition 21, previous Tier I permit condition 17.13, was included to specify previously required performance testing requirements.

Permit Condition 22, previous Tier I permit condition 17.14, was included to specify previously required SO₂ emissions reporting requirements.

Permit Condition 23, previous Tier I permit condition 17.15, was included to specify previously required SO₂ CEMS repair requirements.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were comments on the application and there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

{public comment period offered, modify as applicable} A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were/were not submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

{comments received} A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

APPENDIX A – EMISSIONS INVENTORIES

APPENDIX B – FACILITY DRAFT COMMENTS

The following comments were received from the facility on [Month Date, Year](#):

Facility Comment: [XXX](#).

DEQ Response: [XXX](#).

APPENDIX C – PROCESSING FEE