Air Quality Permitting
Response to Public Comments

October 28, 2016

 Permit to Construct No. P-2015.0060
 Project 61639

The Amalgamated Sugar Company LLC
Nampa, Idaho

Facility ID No. 027-00010

Prepared by:
Kelli Wetzel, Permit Writer
AIR QUALITY DIVISION

Final
BACKGROUND

The Idaho Department of Environmental Quality (DEQ) provided for public comment on the proposed permit to construct for The Amalgamated Sugar Company LLC in Nampa from September 27 through October 27, 2016, in accordance with IDAPA 58.01.01.209.05.c. During this period, comments were submitted in response to DEQ’s proposed action. Each comment and DEQ’s response is provided in the following section.

PUBLIC COMMENTS AND RESPONSES

Public comments regarding the technical and regulatory analyses and the air quality aspects of the proposed permit are summarized below. Questions, comments, and/or suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department’s technical analysis, or the proposed permit are not addressed. For reference purposes, a copy of the Rules for the Control of Air Pollution in Idaho can be found at:


Comment 1: This proposed modification appears to be motivated by a desire to reduce facility wide emissions. Table 2 in DEQ’s Statement of Basis (SOB) lists the changes in emissions associated with the proposed boiler conversion. While the change in fuel source would reduce emissions of NOx, SO2, and PM, DEQ acknowledges that the proposed action would also increase emissions of CO and VOC. In addition, Table 2 highlights that the proposed changes would increase CO2 equivalent (CO2e) emissions, however there is no mention or discussion of the increase in CO2e emissions.

We find the increased emissions of CO2e to be concerning and unclear. According to the U.S. Energy Information Administration,1 coal emits anywhere from 205.7-228.6 pounds of CO2 per million Btus of energy, whereas natural gas emits 117.0 pounds of CO2 per million Btus of energy. Given these values, one would assume that a change in fuel source would correspond to decreased emissions of CO2 and by association a decrease in CO2e. Section 5.5 of TASCO’s PTC application indicates that this will not be the case, and instead CO2 emissions will increase and in turn drive the increase in CO2e.

We are pleased to see TASCO’s interest in reducing emissions from their facility. However, it appears the proposed actions may contribute more greenhouse gases than previous operations. Based on TASCO’s permit application, baseline CO2 emissions from Boilers 1 & 2 were 108,648 T/yr. TASCO’s projected CO2 emissions of 134,291 T/yr are based on an annual usage of 1,839,600 klbs steam – gas. We propose TASCO curtail operations to an annual usage of 1,488,329 klbs steam-gas. Utilizing this value will ensure that CO2 emissions do not increase, thereby increasing CO2e emissions, while simultaneously retaining the lowered emissions of NOx, SO2, and PM. We believe this proposal would provide the best net environmental benefit.

Response 1: The facility has proposed a modification to utilize only natural gas in the No. 1 and No.2 B&W Boilers and to eliminate coal as a fuel source. The emission changes for this project, referred to as the boiler conversion project, are presented in Table 2 of the Statement of Basis. The project was proposed for an existing major stationary source as defined in 40 CFR 52.21(b) and therefore a PSD (Prevention of Significant Deterioration) applicability analysis was used to address any emission increases.

In a June 23, 2014 Supreme Court Decision, EPA can limit a facility’s CO2e emissions only if they are a major source for another criteria pollutant and not solely CO2e. In accordance with §52.21(a)(2)(iv)(c), the actual-to-projected actual test was used for the project because it involves existing emissions units. The sum of the difference between projected actual emissions
(as defined in §52.21(b)(41) and baseline actual emissions (as defined in §52.21(b)(48) for this permitting action did not equal or exceed pollutant significance thresholds as defined in §52.21(b)(23).

The facility elected to use actual production data from the 24-month period that includes the 2006-2007 beet processing campaign for the purposes of determining baseline actual emissions of all regulated NSR pollutants. During this baseline year, coal was the primary boiler fuel source accounting for over 94% of fuel usage. These baseline emissions were then compared to the projected actual emissions which in the case is the facility’s potential to emit. The increase in CO₂e emissions also reflects an increased utilization of the boilers in the projected actual emissions. The increase in CO₂e emissions is below the PSD significance threshold of 75,000 tons per year and therefore no usage limits will be placed on the facility’s boiler operations.

Comment 2: Add a missing project from 2012 in the Statement of Basis - A seventh white sugar centrifugal was installed as a spare to replace the production of the other six centrifugals as they are individually removed from service for repairs or maintenance. All seven white centrifugals can be operated as needed.

Response 2: The requested change has been made.

Comment 3: Propose adding the following language under the Emissions Evaluation section of the Statement of Basis – “The following comparisons were provided: 1) Emissions from the B&W boilers firing coal and natural gas (projected emissions); 2) Facility wide baseline emissions for 2006/2007 vs. projected emissions; and 3) Facility wide baseline emissions for 1979/1980 vs. projected emissions. Summaries of these emission inventories are provided below and in Appendix A.

Response 3: The requested change has been made.


Response 4: The requested change has been made.

Comment 5: Propose deletion of the paragraph on page 12 of the Statement of Basis – “Although not addressing surplus/excess emissions that occurred during the relevant lookback timeframe (1979 through 2007), by incorporating federally-enforceable emission limits in the permit pursuant to PSD program requirements, emissions at the beginning and at the end of the relevant timeframe are made comparable. A summary of these emission limits is provided in Table 4; refer to the Permit Conditions Review section for further discussion of these limits.”

Response 5: The paragraph will remain in the Statement of Basis as it provides an explanation of the historical lookback comparison and the emission limits relevant to the PSD program.

Comment 6: Propose changing the title of Table 4 to “Federally-Enforceable Permit Conditions For the Project” on page 13 of the Statement of Basis.

Response 6: The title of Table 4 in the Statement of Basis will remain the same as it accurately reflects the intent of the table.

Comment 7: Propose changing the first sentence under the Permit to Construct section on page 12 of the Statement of Basis to “The permittee has requested that a PTC be issued to the facility for the modified emission sources project to fire natural gas only in the No. 1 and No. 2 B&W boilers”.

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Response 7: The requested change has been made.
Appendix

Public Comments Submitted for

Permit to Construct

P-2015.0060
RE: Proposed Permit to Construct No. P-2015.0060 for The Amalgamated Sugar Company

Dear Ms. Drier and Ms. Wetzel;

Thank you for the opportunity to comment on the proposed air quality permit to construct for The Amalgamated Sugar Company’s (TASCO) facility in Nampa, ID. Since 1973, the Idaho Conservation League has been Idaho’s leading voice for clean water, clean air and wilderness—values that are the foundation for Idaho’s extraordinary quality of life. The Idaho Conservation League works to protect these values through public education, outreach, advocacy and policy development. As Idaho’s largest state-based conservation organization, we represent over 25,000 supporters, many of whom have a deep personal interest in protecting Idaho’s air quality.

This proposed modification appears to be motivated by a desire to reduce facility wide emissions. Table 2 in DEQ’s Statement of Basis (SOB) lists the changes in emissions associated with the proposed boiler conversion. While the change in fuel source would reduce emissions of NOx, SO2, and PM, DEQ acknowledges that the proposed action would also increase emissions of CO and VOC. In addition, Table 2 highlights that the proposed changes would increase CO2e equivalent (CO2e) emissions, however there is no mention or discussion of the increase in CO2e emissions.

We find the increased emissions of CO2e to be concerning and unclear. According to the U.S. Energy Information Administration¹, coal emits anywhere from 205.7-228.6 pounds of CO2 per million Btus of energy, whereas natural gas emits 117.0 pounds of CO2 per million Btus of energy. Given these values, one would assume that a change in fuel source would correspond to decreased emissions of CO2 and by association a decrease in CO2e. Section 5.5 of TASCO’s PTC application indicates that this will not be the case.

¹Emission estimates obtained from: https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11

RTI: Idaho Conservation League comments on The Amalgamated Sugar Company’s proposed Permit to Construct No. P-2015.0060
and instead CO₂ emissions will increase and in turn drive the increase in CO₂e.

We are pleased to see TASCO’s interest in reducing emissions from their facility. However, it appears the proposed actions may contribute more greenhouse gases than previous operations. Based on TASCO’s permit application, baseline CO₂ emissions from Boilers 1 & 2 were 108,648 T/yr. TASCO’s projected CO₂ emissions of 134,291 T/yr are based on an annual usage of 1,839,600 klbs steam – gas. We propose TASCO curtail operations to an annual usage of 1,488,329 klbs steam-gas. Utilizing this value will ensure that CO₂ emissions do not increase, thereby increasing CO₂e emissions, while simultaneously retaining the lowered emissions of NOₓ, SO₂, and PM. We believe this proposal would provide the best net environmental benefit.

Please do not hesitate to contact me at 208-345-6933 ext. 23 or ahopkins@idahoconservation.org if you have any questions regarding our comments or if we can provide you with any additional information on this matter.

Sincerely,

Austin Hopkins
Conservation Assistant
In order to improve the performance of the molasses separator, the separator was converted to a coupled loop operating mode. Based on a steam balance assessment for this reconfiguration, energy usage was projected to remain the same or decrease for this operating mode.

A seventh white sugar centrifugal was installed as a spare to replace the production of the other six centrifugals as they are individually removed from service for repairs or maintenance. All seven white centrifugals can be operated as needed.

Separator and sugar end efficiency improvements were completed over a two year period beginning in 2010. These projects were designed so that steam consumption rates and air emissions would not increase during all modes of operation. A PTC exemption evaluation was previously submitted and discussed with IDEQ for these projects.


Byproduct tanks were installed for storage of concentrated separator byproduct (CSB) which is principally sold as an animal feed byproduct. The primary purpose of these tanks was to provide long-term storage of the animal feed byproduct for sales throughout the year. In 2015, two tanks were replaced with one tank to maximize sales.

To ensure energy efficient facility operations, evaporator heat exchangers (calandrias) have been routinely replaced or upgraded. These projects include: 1) Replace calandria in Evaporator 4A (2003), 2) Replace calandria in Evaporator 4B (2004), 3) Replace calandria in Evaporator 5A (2006), 4) Evaporator 3B upgrade, 5) Replace calandria in #3 White Pan (2014) and 6) Replace calandria in #2 White Pan (2015). Heat exchanger replacements or upgrades allow for more efficient use of boiler steam.


This project consisted of five phases to replace and modernize the boiler control systems. Previous combustion and burner management systems were replaced with new equipment. Improved controls are expected to improve combustion and energy efficiencies.

The historic equipment review initiated by DEQ in 2002 is resolved by issuance of this PTC. Tier I Operating Permit TI-050020, issued on December 12, 2002 and modified on May 23, 2006 included a compliance schedule to address permitting issues raised by equipment that was installed historically at TASCO-Nampa. TASCO satisfied the compliance schedule and no further information, review, or enforcement is required by DEQ to resolve the historic equipment changes. The proposed boiler emission reductions accomplished by this Tier I PTC address DEQ's conclusions with respect to increased utilization of the boilers resulting from historic equipment changes. The conditions of this PTC, therefore, fulfill the compliance schedule and DEQ's historic equipment review. The Tier I operating permit renewal can be issued without Section 14 (compliance schedule).

**Boiler Conversion Project Chronology**

- **December 21, 2015**
  - DEQ received an application and an application fee.

- **January 20, 2016**
  - DEQ determined that the application was incomplete.
Emissions Evaluation

Emission inventories provided in the application include emissions of state-regulated toxic air pollutants (TAP), and federally-regulated criteria pollutants, hazardous air pollutants (HAP), and greenhouse gases (GHG). The following comparisons were provided: 1) Emissions from the B&W boilers firing coal and natural gas (project emissions); 2) Facility wide baseline emissions for 2006/2007 vs. projected emissions; and 3) Facility wide baseline emissions for 1979/1980 vs. projected emissions. Summaries of these emission inventories are provided below and in Appendix A.

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

NSR Applicability for Boiler Conversion Project

As summarized in Table 2, upon completion of the boiler conversion project to permanently disable the coal feed system for the B&W boilers, an apparent increase in federally-regulated air pollutants is expected, with the exception of volatile organic compounds (VOC) and carbon monoxide (CO). The emission increase of VOC and CO is not expected to exceed the significance threshold; therefore, the boiler conversion project would not be applicable to PSD program requirements. The permittee has elected to use 2006-2007 for the baseline years (Table 3); coal was the primary boiler fuel source over this timeframe, accounting for 94% of overall fuel usage. In addition, baseline emissions were based on the operation of three coal-fired pulp dryers. Refer to the PSD Classification (40 CFR §21.21) section for additional information. The permittee has also reported estimated PTE is equivalent to the potential emissions (PTE) for the facility.

Table 2: BOILER CONVERSION PROJECT EMISSION CHANGES – NSR APPLICABILITY

<table>
<thead>
<tr>
<th>Description</th>
<th>CO (a)</th>
<th>NOx (a)</th>
<th>SO2 (b)</th>
<th>PM10 (c)</th>
<th>PM2.5 (c)</th>
<th>VOC (d)</th>
<th>CO2e (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Actual Emissions</td>
<td>2241.0</td>
<td>1963.0</td>
<td>2374.4</td>
<td>171.1</td>
<td>73.1</td>
<td>418,807</td>
<td></td>
</tr>
<tr>
<td>Projected Actual Emissions</td>
<td>2257.7</td>
<td>974.9</td>
<td>1616.6</td>
<td>115.6</td>
<td>77.3</td>
<td>463,572</td>
<td></td>
</tr>
<tr>
<td>Emission Increases</td>
<td>16.7</td>
<td>-988.1</td>
<td>-757.8</td>
<td>-55.5</td>
<td>4.2</td>
<td>44,565</td>
<td></td>
</tr>
<tr>
<td>Significance Threshold</td>
<td>100</td>
<td>40</td>
<td>40</td>
<td>15</td>
<td>40</td>
<td>75,000</td>
<td></td>
</tr>
</tbody>
</table>

(a) PM10, PM2.5, and PM2.5 emissions were estimated to be equivalent; significance threshold used is for PM2.5, the most stringent threshold when applying assumption.
(b) Emission of NOx as defined in 40 CFR §21.21(b)(23).
(c) Emission of CO2 as defined in 40 CFR §21.21(b)(23).
(d) Emission of VOC as defined in 40 CFR §21.21(b)(23).
(e) Emission of CO2e as defined in 40 CFR §21.21(b)(23).
The boiler conversion project is therefore not expected to result in a PSD significant net emission increase. Baseline Actual Emissions (BAE) and Projected Actual Emissions (PAE) were determined using New Source Review (NSR) Prevention of Significant Deterioration (PSD) procedures and definitions set forth in 40 CFR 52.21(a)(2)x(vi) and 40 CFR 52.21(b).

**Toxic Air Pollutant Emissions Changes for the Boiler Conversion Project**

Upon completion of the boiler conversion project, no apparent increase in state-regulated toxic air pollutants (TAP) is expected. The applicant has demonstrated preconstruction compliance with TAP standards in accordance with IDAPA 58.01.01.210.


A comparison of historical and projected facility-wide emissions was undertaken in an effort to reexamine historical modifications (including PSD modifications) that occurred at the TASCO-Nampa facility within the timeframe from 1979-80 until approximately 2007. Refer to the Project Chronology section for a summary of these historical modifications.

Up to six unpermitted equipment changes at the TASCO-Nampa facility within this timeframe resulted in both a change in the method of operation of emissions units, and in probable net emissions increases. Collectively, these equipment changes:

- included the addition of juice storage tanks, drying and cooling granulators, generators, and replacement of diffusers
- resulted in corresponding net emission increases, with at least one (or more) such emission increases exceeding the PSD NSR regulated pollution applicability thresholds
- would have been subject to requirements and review under the PSD program

As provided in Table 3, when comparing 1979-1980 baseline emissions to the projected actual emissions following the facility’s commitment to fire natural gas only in the No. 1 and No. 2 B&W boilers, overall facility-wide emissions are expected to return to pre-1979 emissions levels, with the exception of VOC and CO emissions.

<table>
<thead>
<tr>
<th>Description</th>
<th>CO (×)</th>
<th>NOx (×)</th>
<th>SO2 (×)</th>
<th>PM10 (×)</th>
<th>VOC (×)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979-1980 Baseline Actual Emissions</td>
<td>1913.8</td>
<td>1606.9</td>
<td>1638.1</td>
<td>159.4</td>
<td>50.1</td>
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<tr>
<td>Projected Actual Emissions</td>
<td>2257.7</td>
<td>974.9</td>
<td>1616.6</td>
<td>115.6</td>
<td>77.3</td>
</tr>
<tr>
<td>Emission Changes</td>
<td>343.9</td>
<td>-632</td>
<td>-21.5</td>
<td>-43.8</td>
<td>27.2</td>
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<tr>
<td>Significance Thresholds</td>
<td>100</td>
<td>40</td>
<td>40</td>
<td>15</td>
<td>40</td>
</tr>
</tbody>
</table>

1. Baseline Emissions as defined in 40 CFR 52.21(b)(2)
2. Average of actual emissions over 1979-1980 for purposes of the historical lookback review, with steam from coal combustion 99.7% by weight.
3. Projected actual emission estimates include all emissions units at the facility ("facility-wide"), with steam from natural gas combustion 100% by weight.
4. Emission increases or decreases are calculated as the difference between the historical and projected actual emissions.
5. Significance threshold changes are based on the significance threshold calculations as determined in accordance with 40 CFR 52.21(b)(2), 40 CFR 52.21(b)(2), and 40 CFR 52.21(b)(2), except as noted above in the historical lookback.

Although possible net unpermitted excess emissions that occurred during the relevant lookback timeframe (1979 through 2007) are not addressed by incorporating federally enforceable emission limits in the permit pursuant to PSD program requirements, emissions at the beginning and at the end of the relevant timeframe are made comparable. A summary of these emission limits is provided in Table 3; refer to the Permit Conditions Review section for further discussion of these limits.

Projected CO emissions as provided in Table 4 are well below annual emissions limits in the Tier I (No. 1)
Table 4  FEDERALLY-ENFORCEABLE PERMIT CONDITIONS REQUIRED PURSUANT TO 40 CFR 61.31 FOR THE PROJECT

<table>
<thead>
<tr>
<th>Permit(s)</th>
<th>Condition(s)</th>
<th>Limit Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-2015.0060PROJ61639</td>
<td>2.1</td>
<td>Conversion of B&amp;W boilers to natural gas firing only</td>
</tr>
<tr>
<td>P-2015.0060PROJ61639</td>
<td>2.5</td>
<td>No benefit of emission decreases in NSR applicability or netting (upon completion of boiler conversion to gas firing under condition 2.1)</td>
</tr>
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</table>

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Canyon County, which is designated as attainment or unclassifiable for PM2.5, PM10, SO2, NO2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIROS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

- **A** = Use when any one HAP has actual or potential emissions ≥ 10 Txyr or if the aggregate of all HAPs (Total HAPs) has actual or potential emissions ≥ 25 Txyr.

- **SM50** = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federal limitations and the permit sets limits ≥ 5 Txyr of a single HAP or ≥ 20 Txyr of THAP.

- **SM** = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federal limitations) and the potential HAP emissions are limited to < 5 Txyr of a single HAP and/or < 20 Txyr of THAP.

- **B** = Use when the potential to emit without permit restrictions is below the 10 and 25 Txyr major source threshold.

- **UNK** = Class is unknown

For All Other Pollutants:

- **A** = Actual or potential emissions of a pollutant are ≥ 100 Txyr.

- **SM50** = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 Txyr if and only if the source complies with federal enforceable limitations) and potential emissions of the pollutant are ≥ 50 Txyr.

- **SM** = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 Txyr if and only if the source complies with federal enforceable limitations) and potential emissions of the pollutant are < 50 Txyr.

- **B** = Actual and potential emissions are < 100 Txyr without permit restrictions.

- **UNK** = Class is unknown.

Table 5  REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Permitted PTE (Txyr)</th>
<th>Major Source Thresholds (Txyr)</th>
<th>AIROS/AFS Classification</th>
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<tbody>
<tr>
<td></td>
<td>PM</td>
<td>PM\textsubscript{10}</td>
<td>PM\textsubscript{2.5}</td>
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<td>----------------------</td>
</tr>
<tr>
<td></td>
<td>115.6</td>
<td>122.9</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>A</td>
<td>A</td>
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</table>

**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 modified emission sources project to fire natural gas only in the No. 1 and No. 2 B&W boilers. 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 58.01.01.200-220. This PTC was processed in accordance with IDAPA 58.01.01.209.05.c, and the applicable requirements contained in this PTC will be incorporated into the Tier I operating permit as an administrative amendment.

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

IDAPA 58.01.01.401 Tier II Operating Permit

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

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

IDAPA 58.01.01.301 Requirement to Obtain Tier I Operating Permit

TASCO-Nampa is classified as a major facility as defined in IDAPA 58.01.01.008.10:

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

TASCO-Nampa has a fossil-fuel boiler (or combination thereof) of more than 250 MMBtu/hr heat input, therefore the boiler house (which includes the No. 1 and No. 2 B&W Boilers, Riley Boiler, and Union Boiler) was classified as a designated facility as defined in IDAPA 58.01.01.006.30 and 40 CFR 52.21(b)(1)(ix)(a), and fugitive emissions were included when determining the major facility classification in accordance with IDAPA 58.01.01.008.10.c.i, and when determining project net emissions increases in accordance with IDAPA 58.01.01.007 and 40 CFR 52.21(b)(48)(i).

This PTC was processed in accordance with IDAPA 58.01.01.209.05.c, and the applicable requirements contained in this PTC will be incorporated into the Tier I operating permit.

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

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1 As discussed in the permit application, IDEQ previously issued facility wide Tier II operating permits in support of the Ada County PM\textsubscript{10} Maintenance Plan and a Tier II permit for the Riley boiler BART determination that addressed emissions from the boilers when combusting coal. Compliance with this proposed PTC will demonstrate compliance with those existing Tier II permits.