Division of Air Quality
March 1, 2021 Public Hearing
International Tie Disposal, LLC - Project Tie
Draft Air Quality Permit
Presentation Objectives

International Tie Disposal – Project Tie - Draft Air Quality Permit

• Explain permitting process

• Describe permit classification

• Describe the equipment being permitted

• Summarize permit requirements
Permitting Process

• Permit application receipt & review

• Verify emission factors and process rates

• Determine permit classification – Small, Synthetic Minor, Title V

• Determine applicable rules/regulations – federal & state

• Write enforceable permit requirements for applicable rules

• Public participation

• Final action on permit
Compliance Program

After permit is issued – DAQ Compliance Program is engaged

All permit conditions have a requirement or standard the permittee must meet

DAQ issued permits require a combination of (if not all of) the following:

- Inspection & Maintenance plan
- Monitoring and Recordkeeping
- Reporting
- Source Testing

DAQ conducts unannounced inspections to verify compliance with all permit requirements and to physically verify site operations.
Proposed International Tie Disposal – Project Tie Facility
A Permit Application was received on June 16, 2020 for a proposed facility that would use a pyrolysis process to create a biochar product from railroad ties and/or untreated wood. Biochar is a carbon-rich solid that is derived from biomass (organic matter from plants) that is heated in a limited oxygen environment.

Review of emission rates/factors show that ITD Project Tie has the potential to emit:

- **Less than 100 tons/year of the following Criteria Air Pollutants:** Particulate Matter of (PM10), Sulfur Dioxide (SO2);
- **Greater than 100 tons/year of the following Criteria Air Pollutants:** Nitrogen Oxides (NOx), Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) and;
- **Less than 10 tons/yr of any individual Hazardous Air Pollutant (HAP) and**;
- **Less than 25 tons/yr of total HAPs**

An Air Quality permit is required for this facility.

The proposed facility is taking operational limits and installing controls to stay below the 100 tons per year of Criteria pollutants; therefore, it is classified as a **Synthetic Minor** facility.
• NOx and CO emissions will be kept under the Title V threshold of 100 tons/year by limiting the number of Biochar (kiln) operations.

• VOC emissions will be kept under the Title V threshold of 100 tons/year by the use of Afterburners (Natural Gas-Fired) and by limiting the number of Biochar (kiln) operations.
### Process Equipment

<table>
<thead>
<tr>
<th>Emission Source ID</th>
<th>Emission Source Description</th>
<th>Control System ID</th>
<th>Control System Description</th>
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<tbody>
<tr>
<td>ES-1</td>
<td>Biochar Kilns (426 Units) each with integral Natural Gas-Fired Kiln Burners</td>
<td>CD-1</td>
<td>Afterburners (62 units) Natural Gas-Fired (0.125 mmBtu/hr maximum heat input each)</td>
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Other Equipment which are also Emission Sources

<table>
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<th>Insignificant / Exempt Activities *</th>
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<tr>
<td>Crusher and Kiln Loading **</td>
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<tr>
<td>Product Handling and Packaging ***</td>
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<tr>
<td>Haul Roads</td>
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<tr>
<td>Diesel Storage Tank</td>
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<tr>
<td>Maintenance Welding</td>
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<tr>
<td>Biochar Storage Silos</td>
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</tbody>
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* 15A NCAC 02Q .0102 (h)(5) “ACTIVITIES EXEMPTED FROM PERMIT REQUIREMENTS” “...any source whose potential uncontrolled emissions of particulate matter (PM10), sulfur dioxide, nitrogen oxides, volatile organic compounds, and carbon monoxide shall each be no more than five tons per year.”

** Crusher system housed in intermodal shipping containers with conveyors at feed end to load railroad ties and at the loading end to load shredded wooden material into the portable kilns.

*** Product handling and packaging system housed in a series of intermodal shipping containers equipped with dust collection vents that vent to one of two external cartridge-type bagfilters (3,048 square feet of filter area, each).
Process Description

Railroad ties are shipped to site via rail; stacked and sorted into (1) reusable ties, (2) landscape ties, (3) the remaining ties which will be processed into biochar.

Remaining railroad ties are shredded and then loaded into pyrolysis kilns.

Shredded ties are processed into Biochar. (8-15 hours/kiln)

Biochar is cleaned and sorted in the enclosed product handling and packaging area into sizes and loaded into super sacks or silos.

Kiln is then moved to a cooling area for 8-10 hours.
Photographs of a similar facility in Weld County, Colorado, known as Biochar Now, LLC

Shredded Wood Loaded into a Mobile Kiln
Photographs of a similar facility in Weld County, Colorado, known as Biochar Now, LLC

**Biochar Kilns**
Dimensions:
~7.5 feet in Diameter
~8 feet in height

**Afterburner Stack**
Dimension:
~8 feet in height

**Loader placing Afterburner Stack on Kiln**
Photographs of a similar facility in Weld County, Colorado, known as Biochar Now, LLC

Biochar Processing Line

Loader Removing Afterburner Stack from Kiln
Photographs of a similar facility in Weld County, Colorado, known as Biochar Now, LLC

Loader Removing Kiln Lid after Cooling Period

Loader Transporting Kiln to the Enclosed Product Handling and Packaging Area
Photographs of a similar facility in Weld County, Colorado, known as Biochar Now, LLC

- Product Handling and Packaging Line
Photographs of a similar facility in Weld County, Colorado, known as Biochar Now, LLC

Biochar Loaded into Supersacks
State Rule Requirements:

- **15A NCAC 02Q 0309 - Notification of Start-up Stipulation**

- **15A NCAC 02D 0605 – Source Testing Stipulation** - PM, NOx, CO, VOC, Visible Emissions, and HAP testing within 90 days of start-up (ES-1 and CD-1) and annual/periodic testing

- **15A NCAC 02D 0611 – Afterburners Requirements** - continuous temperature monitoring, recordkeeping, and inspection and maintenance requirements

- **15A NCAC 02D 0315 – Synthetic Minor Stipulation** - NOx < 100 TPY, CO < 100 TPY, VOC < 100 TPY. Operations/Restrictions: No more than 58,400 kiln operations will process biochar per 12 consecutive months. Recordkeeping and Semi-Annual Reporting of Number of Kiln Operations
Other Applicable Rules

• 15A NCAC 2D .0515  Particulates from Miscellaneous Industrial Processes
• 15A NCAC 2D .0516  Sulfur Dioxide Emissions from Combustion Sources
• 15A NCAC 2D .0521  Control of Visible Emissions
• 15A NCAC 2D .0535  Excess Emissions Reporting and Malfunctions
• 15A NCAC 2D .0540  Particulates from Fugitive Dust Emission Sources
• 15A NCAC 2D .1806  Control and Prohibition of Odorous Emissions
• 15A NCAC 2Q .0711  Emission Rates Requiring a Permit
Recap of major points:

- Majority of air emissions are NOx, CO and VOC; each of which are reduced by add-on controls or limits on biochar kiln operations;

- No Toxic Air Pollutants exceed the rate requiring modeling;

- NOx, CO and VOC emissions - compliance verified through stack testing and continuous parametric monitoring.
Documents Review and Comment Submittals

Draft Permit, Draft Permit Review, Permit Application, Environmental Justice Report and Public Notice:


Public comment period closes March 3rd at 5pm:

Email to DAQ.publiccomments@ncdenr.gov
– please type “International Tie ” in the subject line.
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