



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



Application Receipt and Permit Classification

- 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 (NO_x), 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.



Application Receipt and Permit Classification (cont'd)

- NO_x 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



Emission Source ID	Emission Source Description	Control System ID	Control System Description
ES-1	Biochar Kilns (426 Units) each with integral Natural Gas-Fired Kiln Burners (0.0078 mmBtu/hr maximum heat input each)	CD-1	Afterburners (62 units) Natural Gas-Fired (0.125 mmBtu/hr maximum heat input each)



Other Equipment which are also Emission Sources



Insignificant / Exempt Activities *

Crusher and Kiln Loading **

Product Handling and Packaging ***

Haul Roads

Diesel Storage Tank

Maintenance Welding

Biochar Storage Silos

* 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)



Kiln is then moved to a cooling area for 8-10 hours.



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



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



Synthetic Minor Source Permit Requirements

State Rule Requirements:

- 15A NCAC 02Q .0309 - **Notification of Start-up Stipulation**
- 15A NCAC 02D .0605 – **Source Testing Stipulation** - PM, NO_x, 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** - NO_x < 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



Proposed Air Permit

Recap of major points:

- Majority of air emissions are NO_x, 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;
- NO_x, 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:

<https://deq.nc.gov/news/events/public-hearing-international-tie-disposal-llc-project-tie>

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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