



RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

April 10, 2023

INST: 00001073
BK: 3566 Page(s) 54 - 57

Quonset Development Corporation
Steven J. King, Managing Director
30 Enterprise Drive
North Kingstown, RI 02852

Freshwater Wetlands Permit

Re: Application No. 23-0043 in reference to the location below:

Approximately 150 feet west of Cross Park Avenue, south of Utility Pole 51, approximately 700 feet northwest of its intersection with Davisville Road, Assessor's Plat 191, Lot 11, North Kingstown, RI.

Dear Mr. King:

Kindly be advised that the Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Application for a Freshwater Wetlands Permit** as described in Section 3.11 of the Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act, 250-RICR-150-15-3 ("Rules"). This review included a site inspection of the above referenced property ("subject property") and an evaluation of the proposed construction of an 82,500 ft.² building with rooftop solar, associated paved parking areas, stormwater practices, and landscaping as illustrated and detailed on site plans submitted with your application. These site plans were received by the DEM on February 17, 2023.

Our observations of the subject property, review of the site plans and evaluation of the proposed project reveals that alterations of jurisdictional areas are proposed. However, pursuant to Section 3.7 of the Rules, this project meets all Standards, and a **Freshwater Wetlands Permit** may be issued under the following terms and conditions:

Terms and Conditions for Wetlands Application No. 23-0043: and RIPDES No. RIR102497:

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, R.I. Gen. Laws § 2-1-18 et seq.
2. This determination also includes your final authorization to discharge storm water associated with construction activity under the **2020 RIDPES General Permit for Stormwater Discharge During Construction Activity ("CGP")**. For future references and inquiry, your permit authorization number is RIPDES No. **RIR102497**.
3. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plans submitted with your application and received by the DEM on February 17, 2023. A copy of the site plans stamped approved by the DEM is enclosed. Changes or revisions to the project that would alter freshwater wetlands are not authorized without a permit from the DEM.
4. Where the terms and conditions of the permit conflict with the approved site plans, these terms and conditions shall be deemed to supersede the site plans.

5. You must notify this Program in writing of the anticipated start date, and of your contractor's contact information, by submitting the Notice of Start of Construction Form prior to commencement of any permitted site alterations or construction activity. You must also notify this Program in writing upon completion of the project. The Start of Construction Form can be found on the webpage: dem.ri.gov/stormwaterconstruction.
6. A copy of the stamped approved site plans and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plans must be made available for review by any DEM or town representative upon request.
7. Within ten (10) days of the receipt of this permit, you must record this permit in the land evidence records of the Town of North Kingstown and supply this Program with written documentation obtained from the Town showing this permit was recorded.
8. The effective date of this permit is the date this letter was issued. This permit expires five (5) years from the date of this letter unless renewed pursuant to the Rules.
9. Any material utilized in this project must be clean and free of matter that could pollute any jurisdictional area.
10. Prior to commencement of site alterations, you shall erect or post a sign resistant to the weather and at least twelve (12) inches wide and eighteen (18) inches long, which boldly identifies the initials "DEM" and the application number of this permit. This sign must be maintained at the site in a conspicuous location until such time that the project is complete.
11. Both the owner and the contractor retained to undertake the construction activity are required to comply with all terms and conditions of the CGP. This includes maintaining the Soil Erosion and Sediment Control (SESC) Plan, performing the required inspections and maintenance of the selected Best Management Practices (BMPs), and retaining inspection records. Further information on the requirements of the CGP is available at:

<http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/pdfs/cgp092620.pdf>
12. Temporary erosion and sediment controls detailed or described on the approved site plans shall be properly installed at the site prior to or commensurate with site alterations. Such controls shall be properly maintained, replaced, supplemented, or modified as necessary throughout the life of this project to minimize soil erosion and to prevent sediment from being deposited in any freshwater wetland, buffer, floodplain, area subject to storm flowage, or area subject to flooding or other jurisdictional areas not subject to disturbance under this permit.
13. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.
14. You are responsible for the proper installation, operation, maintenance, and stability of any mitigative features, stormwater treatment facilities, and systems of treatment and control that are installed or used in compliance with this permit to prevent harm to adjacent freshwater wetland, buffer or floodplain, area subject to storm flowage, or area subject to flooding or other jurisdictional areas until documentation is provided that this responsibility has been assigned to another entity. The long-term operation and maintenance plan shall be strictly followed. The long-term operation and maintenance plan shall be that entitled "Stormwater Operation & Maintenance Plan; Project Name: Quonset Soil Solutions; Project Location: Cross Park Avenue, North Kingstown, RI 02852; Applicant: Quonset

Soil Solutions, LLC, 2000 Chapel View Blvd, Suite 500, Cranston, RI 02920; Lessee: 31 Cross Park, LLC, 2000 Chapel View Blvd, Suite 500, Cranston, RI 02920; Owner: Quonset Development Corporation, 95 Cripe St, North Kingstown, RI 02852", dated Revised February 2023, dated received 2/17/2023, prepared by Green Development, LLC, 2000 Chapel View Blvd, Suite 500, Cranston, RI 02920.

15. This Program has made specific revisions to the approved site plans. These revisions are clearly marked in red on the approved plans. This project must take place in compliance with these revisions. Specifically, with respect to the 6" diameter tertiary outlet pipe from proposed Infiltration Pond 2 to the adjacent wetland, the invert of this pipe must be revised to be lowered to an invert of 27.25' at its inlet end (at the infiltration pond end) to allow it to match the inlet invert elevation that is provided in the submitted analysis.
16. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetland, buffer or floodplain, area subject to storm flowage or area subject to flooding or jurisdictional areas and the functions and values provided by such freshwater wetlands, buffer or floodplain, area subject to storm flowage or area subject to flooding
17. Artificial lighting authorized by this permit must be directed away from all vegetated wetland and buffer areas. Where this is not possible, the use of deflectors to concentrate lighting away from vegetated wetlands must be employed.
18. You must provide written certification from a registered land surveyor or registered professional engineer that the stormwater drainage system including any and all basins, piping systems, catch basins, culverts, swales and any other stormwater management control features have been constructed/installed in accordance with the site plans approved by this permit. This written certification must be submitted to this Program within twenty (20) days of its request or upon completion of the project.

Pursuant to the provisions in 250-RICR-150-15-3.8.13 and 250-RICR-150-15-3.14.4(A), as applicable, any properly recorded and valid Freshwater Wetlands Permit is automatically transferred to the new owner upon sale of the property.

Please be aware that the RIDEM's Rules and Regulations Governing the Establishment of Various Fees (250-RICR-30-00-1) require that RIPDES CGP permit holders to pay an Annual Fee of \$100.00. An invoice will be sent to the owner on record in May/June of each year if the construction was still active as of December 31st of the previous year. The owner will be responsible for the Annual Fee until the construction activity has been completed, the site has been properly stabilized, and a completed Notice of Termination (NOT) has been received by the RIPDES Program.

You are required to comply with the terms and conditions of this permit and to carry out this project in compliance with the Rules at all times. Failure to do so may result in an enforcement action by this Department (and/or subject you to the enforcement provisions of the U.S. Army Corps of Engineer's regulations.)

In permitting the proposed alterations, the DEM assumes no responsibility for damages resulting from faulty design or construction.

Kindly be advised that this permit is not equivalent to a verification of the type or extent of freshwater wetlands on site. Should you wish to have the types and extent of freshwater wetlands verified, you may submit the appropriate application in accordance with 250-RICR-150-15-3.9.3.

This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

Please contact Rene Legault of this office (telephone: 401-222-6820, ext. 2777732) should you have any questions regarding this letter.

Sincerely,



Andy Charpentier, Principal Environmental Scientist
Office of Water Resources
Freshwater Wetlands Program

AC/RJL/rjl

Enclosure: Approved site plans

ec: Neal Personeus, DEM Stormwater Program
Adam White, North Kingstown Town Director of Public Works
Donald Peck, North Kingstown Town Building Official
Kevin Morin, PE, Green Development, LLC.
Joseph McCue, McCue Environmental, LLC.

RECEIVED FOR RECORD
TOWN OF NORTH KINGSTOWN, RI
APR 12, 2023 02:14 PM
Jeannette Alyward
TOWN CLERK



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF AIR RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

15 May 2023

Mr. Mark De Pasquale
Chief Executive Officer
Quonset Soil Solutions, LLC
2000 Chapel View Blvd, Suite 500
Cranston, RI 02920



Dear Mr. De Pasquale:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for a new facility which will convert clean wood chips through pyrolysis to high-carbon-content biochar and pollution control equipment.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval Nos. 2552 - 2563).

Any source with the potential to emit greater than major source thresholds as defined under Operating Permits, 250-RICR-120-05-29, is subject to the Operating Permit Program. With the issuance of this permit your facility located at 31 Cross Park Avenue, North Kingstown is subject to the Operating Permit Program as an Emissions Cap Source, with allowable emissions restricted to below the major source threshold. An emissions cap means any emission limitation or physical or operational limitation, imposed in a federally enforceable document that establishes the maximum quantity of emissions which may be released from a stationary source. The Office of Air Resources considers this minor source permit an emissions cap. Operating Permit Fees, 250-RICR-120-05-28, requires stationary sources with an emissions cap to pay an annual compliance/assurance fee of \$350.00. Notification concerning the payment of this fee will be mailed to you this upcoming fall.

If there are any questions concerning this permit, please contact me by telephone at 401-222-2808, extension 277-7154 or by email at jikku.samuel@dem.ri.gov.

Sincerely,

Jikku Samuel
Senior Air Quality Specialist
Office of Air Resources

cc: Quonset Development Corporation
ec: Rick Mandile – Sage Environmental
Lynne Santos, P.E. – Trinity Consultants

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MINOR SOURCE PERMIT

QUONSET SOIL SOLUTIONS, LLC

APPROVAL NOs. 2552 - 2563

Pursuant to the provisions of Air Pollution Control Permits, 250-RICR-120-05-9, this minor source permit is issued to:

Quonset Soil Solutions, LLC

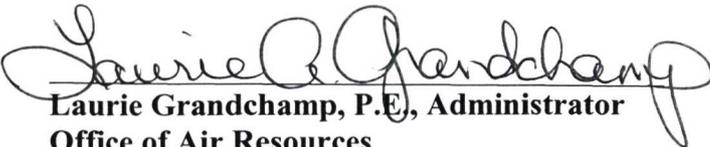
For the following:

Installation of four (4) Biogreen pyrolysis units for biochar production each equipped with one (1) 0.12 MMBtu/hr natural gas-fired start-up pyrolysis gas heater (Approval Nos. 2552-2555). Installation of two (2) 5.0MMBtu/hr start-up natural gas-fired single-pass dryers, Model No. 5120B. (Approval Nos. 2556-2557). Installation of two (2) dryer baghouses, Model No. CR344-12N (Approval Nos. 2558-2559). Installation of two (2) thermal oxidizers, Model No. PGV-6000, each equipped with a 2.048 MMBtu/hr natural gas-fired start-up burners, Model No. Lovomat-250 (Approval Nos. 2560-2561). Installation of an air pollution control system consisting of a Selective Catalytic Reduction (SCR) system, Model No. 22068 (Approval No. 2562) and a baghouse, Model No. 120TB-BHWT-5508 to treat pyrolysis emissions (Approval No 2563).

Located at: Plat 191, Lot 011, corner of Cross Park Avenue and Davisville Road,

31 Cross Park Avenue, Quonset Development Park, North Kingstown, RI 02852

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Quonset Soil Solutions, LLC* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.


Laurie Grandchamp, P.E., Administrator
Office of Air Resources

4 May 15 2023
Date of Issuance

**STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

Permit Conditions and Emissions Limitations

QUONSET SOIL SOLUTIONS, LLC

APPROVAL NOs. 2552 - 2563

I. The following requirements are applicable to:

- One (1) single-pass dryer unit (D-01), Model No. 5120B, 5.0 MMBtu/hr start-up (Dryer 1; Equipped with a baghouse (BH-01), Model No. CR344-12N.
- One (1) single-pass dryer unit (D-02), Model No. 5120B, 5.0 MMBtu/hr start-up (Dryer 2; equipped with a baghouse (BH-02), Model No. CR344-12N.

A. Emission Limitations

1. D-01, BH-01 & D-02, BH-02

a. Volatile Organic Compounds (VOC)

- (1) The emission rate of volatile organic compounds discharged to the atmosphere from the two dryer baghouse exhausts shall not exceed 1.19 pounds per hour.
- (2) The emission rate of volatile organic compounds discharged to the atmosphere from the two dryer baghouse exhausts shall not exceed 10,429 pounds per 12-month rolling average.

b. Particulate Matter

- (1) Particulate matter generated from each of the dryers shall be captured, contained and routed to a baghouse. Particulate matter from these operations shall not exceed 0.002 grains per dry standard cubic foot (0.002 gr/dscf) before being discharged to the atmosphere.
- (2) The emission rate of particulate matter discharged to the atmosphere from the dryer baghouse exhausts shall not exceed 1.37 pounds per hour.
- (3) The emission rate of particulate matter discharged to the atmosphere from the two dryer baghouse exhausts shall not exceed 12,014 pounds per 12-month rolling average.

c. Hazardous Air Pollutants (HAP)

- (1) The emission rate of hazardous air pollutants discharged to the atmosphere from the dryer baghouse exhausts shall not exceed 0.29 pounds per hour.
- (2) The emission rate of hazardous air pollutants discharged to the atmosphere from the two dryer baghouse exhausts shall not exceed 2,572 pounds per 12-month rolling average.

d. Listed Toxic Air Contaminants

- (1) Formaldehyde

The total quantity of formaldehyde emissions discharged to the atmosphere from the two dryer exhausts shall not exceed:

Pollutant	Allowable Emissions		
	lbs/hour	lbs/day	lbs/year
Formaldehyde	0.187	4.48	1,630

e. Opacity

Visible emissions from the dryer baghouse exhaust shall not exceed 10% opacity (six-minute average).

B. Operating Requirements

1. The maximum throughput of each dryer shall not exceed 1,800 kilogram (kg) per hour (kg/hr) on a dry basis. That is, the total plant throughput shall not exceed 3,600 kg/hr on a dry basis.
2. The maximum firing rate for each dryer shall not exceed 5.0 MMBtu/hr when burning natural gas.
3. In the event that a dryer is not operational, materials received must be adjusted so as not to exceed plant storage capacity.
4. Emissions from the dryers shall be captured, contained, and routed to the dryer baghouses prior to discharge to the atmosphere.
5. There shall be no bypassing of the air pollution control system baghouses for each dryer during start-up, operation, or shutdown.
6. The owner/operator shall maintain and operate each of the baghouses according to the manufacturer's design specifications and operating procedures.

7. The owner/operator shall develop, maintain, and follow a preventative maintenance procedure (e.g., periodic inspections and filter changes) for the dryers and air pollution control systems (i.e., baghouses) in accordance with manufacturer's instructions to ensure that the baghouse efficiency does not degrade.

C. Monitoring Requirements

1. The owner/operator shall monitor and record the amount and type of woodchips (i.e., hardwoods vs softwoods) entering the dryers on a monthly basis such that the emissions can be determined based on wood type and amount.
2. The owner/operator shall monitor and record the amount of natural gas utilized by the dryers on a monthly basis.
3. The pressure drop across the dryer baghouses shall be monitored continuously. Pressure drop shall be checked a minimum of once per day, and the date, time, and measurement shall be recorded.
4. The filter bags of the dryer baghouses must be periodically inspected to ensure no holes or leaks exist that will allow dust particles to enter the discharge gas stream. If leaks or abnormal conditions are detected, action to correct the abnormal condition shall be implemented before the dust collector is put back into service.
5. The owner/operator shall conduct inspections of the interior of the dryer baghouses for structural integrity and to determine the condition of the dryer baghouses every 12 months.

D. Recordkeeping and Reporting

1. The owner/operator shall collect, record, and maintain the following records on a monthly basis, no later than 15 days after the first of each month, for the month prior and provide such records to the Office of Air Resources upon request:
 - a. The natural gas fuel use of each of the dryer burners.
 - b. The gross throughput of each dryer, grouped by input type (i.e., hardwoods and softwoods).
 - c. The hours of operation for each dryer unit for the previous month and the total hours of operation for the prior consecutive 12-month period.
 - d. The pressure drop across the baghouse on a daily basis.
 - e. Inspection logs of the baghouse filter bags.
 - f. Records of all maintenance performed on the dryers, baghouses, and monitoring equipment.

The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and USEPA upon request.

2. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days of determining that the combined maximum throughput for any consecutive 12-month period exceeds 34,763 tons (on a dry basis) for both dryers.
3. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days of identifying a leak or abnormal condition within the dryer baghouses. The date, time, and corrective actions taken shall be provided.
4. The owner/operator shall, on a daily basis, measure and record the pressure drop across each baghouse and the date, time and measurement shall be recorded. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and USEPA upon request.

II. The following requirements are applicable to:

- Pyrolysis unit (BGR-01), which is equipped with a 0.12 MMBtu/hr start-up burner, exhausting to a 2.048 MMBtu/hr natural gas(start-up)/20.5 MMBtu/hr pyrolysis gas/condensate thermal oxidizer (TO-01), Model No. PGV-6000, followed by an air pollution control system consisting of a Selective Catalytic Reduction (SCR-01) unit, Model No. 22068, and a baghouse (BH-03), Model No. 120TB-BHWT-588.
- Pyrolysis unit (BGR-02) which is equipped with a 0.12 MMBtu/hr start-up burner, exhausting to TO-01 followed by an air pollution control system consisting of SCR-01 and BH-03.
- Pyrolysis unit (BGR-03) which is equipped with a 0.12 MMBtu/hr start-up burner, exhausting to a 2.048 MMBtu/hr natural gas(start-up)/20.5 MMBtu/hr pyrolysis gas/condensate thermal oxidizer (TO-02), Model No. PGV-6000, followed by an air pollution control system consisting of SCR-01 and BH-03.
- One pyrolysis unit (BGR-04) which is equipped with a 0.12 MMBtu/hr start-up burner, exhausting to TO-02 followed by an air pollution control system consisting of SCR-01 and BH-03.

A. Emission Limitations

1. BGR-01, BGR-02, BGR-03, BGR-04, TO-01, TO-02, SCR-01, BH-03

a. Nitrogen Oxides (as Nitrogen Dioxide (NO₂))

- (1) The emission rate of nitrogen oxides discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 2.62 pounds per hour.

- (2) The emission rate of nitrogen oxides discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 22,961 pounds per 12-month rolling average.

b. Carbon Monoxide (CO)

- (1) The emission rate of carbon monoxide discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 2.38 pounds per hour.
- (2) The emission rate of carbon monoxide discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 20,892 pounds per 12-month rolling average.

c. Volatile Organic Compounds (VOC)

- (1) The overall VOC control efficiency of each thermal oxidizer shall be at least 99.9%.
- (2) The emission rate of volatile organic compounds discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 0.35 pounds per hour.
- (3) The emission rate of volatile organic compounds discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 3,066 pounds per 12-month rolling average.

d. Hazardous Air Pollutants (HAP)

- (1) The emission rate of hazardous air pollutants discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 0.35 pounds per hour.
- (2) The emission rate of hazardous air pollutants discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 3,062 pounds per 12-month rolling average.
- (3) Listed Toxic Air Contaminants

The emissions of the following listed toxic air contaminants discharged to the atmosphere from the four pyrolysis units treated by the thermal oxidizer, SCR and baghouse shall not exceed the levels specified in the following table:

Pollutant	Allowable Emissions		
	lbs/hour	lbs/day	lbs/year
Acetaldehyde	---	---	1,154
Ammonia	0.374	8.97	3,275
Benzene	0.139	3.33	1,214
Formaldehyde	0.0249	0.597	218
Naphthalene	---	0.034	12.3
Phenol	8.04×10^{-3}	---	70.4
Quinoline	---	---	1.70
Manganese	---	5.12×10^{-3}	1.87

e. Sulfur Dioxide (SO₂)

- (1) The emission rate of sulfur dioxide discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 0.45 pounds per hour.
- (2) The emission rate of sulfur dioxide discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 3,955 pounds per 12-month rolling average.

f. Particulate Matter (as PM)

- (1) The emission rate of particulate matter discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 0.70 pounds per hour.
- (2) The emission rate of particulate matter discharged to the atmosphere from the four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall not exceed 6,188 pounds per 12-month rolling average.

g. Opacity

The four pyrolysis units treated by the two thermal oxidizers, SCR and baghouse shall be operated with no visible emissions.

B. Operating Requirements

1. The pyrolysis units shall be operated and maintained according to the manufacture specifications.
2. All pyrolysis gas and condensate will be captured, contained, and routed to the thermal oxidizers.

3. The thermal oxidizers shall be operated and maintained according to the manufacturer's design specifications whenever pyrolysis gas is being routed to the thermal oxidizers.
4. The minimum operating temperature of each thermal oxidizer shall be 1,562°F when receiving pyrolysis gas and pyrolysis gas condensate from the pyrolysis process, or at a lower temperature that has been demonstrated in the most recent compliance test to achieve the required 99.9% control efficiency.
5. The minimum residence time of pyrolysis gas in the each of the two combustion chambers within each thermal oxidizer shall be 0.9 seconds, for a total minimum residence time of 1.8 seconds in the thermal oxidizer(s).
6. Each thermal oxidizer shall be operated at all times when pyrolysis gas or condensate is being sent to it.
7. Temperature sensors shall be utilized to monitor the temperature within the thermal oxidizers.
8. The SCR system shall be operated at all times that pyrolysis systems (including the thermal oxidizers) are operating except for pyrolysis/thermal oxidizer startup and shutdown.
9. Urea shall be injected into the SCR system whenever the catalyst bed is at or above 545° F.
10. Flue gas from the SCR shall be captured, contained, and routed to the BH-03 to reduce particulate matter emissions after the pyrolysis gas has passed through the thermal oxidizer(s) and SCR.
11. The owner/operator shall maintain and operate the BH-03 according to the manufacturer's design specifications and operating procedures whenever the pyrolysis process is emitting particulate matter.
12. There shall be no bypassing of any of the air pollution control systems for each pyrolysis unit during start-up, operation, or shutdown as part of normal facility operations.
13. Each thermal oxidizer shall be equipped with a failure monitoring system and safety programable logic controller (PLC). During normal shutdown, the unit shall be designed to ensure combustion of the pyrolysis gas is treated by the air pollution control equipment completely, before being discharged to the atmosphere. During normal shutdown there shall be no bypassing of the SCR system and associated baghouse.
14. In the event that a thermal oxidizer requires an emergency shutdown, which would require the stopping of the air fans, the condensate shall be collected and the inlet to the thermal oxidizer shall be closed. The scrubbed pyrolysis gas remaining in the

pyrolysis reactors shall be pushed through the thermal oxidizers via the pyrolysis gas fans. In this scenario involving, at minimum, a double point of failure, each thermal oxidizer is specifically designed to operate as an emergency flare. Residual heat within the thermal oxidizer in failure ensures continued treatment of the scrubbed pyrolysis gas stream during the twenty-minute interval of emergency shutdown. The owner/operator shall notify the Office of Air Resources within 24 hours of becoming aware of this occurrence.

15. The owner/operator shall install and operate an alarm system on the urea injector in such a manner that an operator will be alerted if the urea flow is outside the designed manufacturer's design range.
16. Each thermal oxidizer shall be equipped with an interlock system that ensures ignition of the start-up burner flame before pyrolysis gas is discharged to the device.
17. The owner/operator shall ensure that the installation, operation, and maintenance of the ductwork, pipes, connections, conduits, vessels, etc., that are used to convey emissions are properly designed, constructed and maintained to prevent leaks.

C. Monitoring Requirements

1. The owner/operator shall install and operate a thermocouple to continuously measure the temperature in each chamber of each thermal oxidizer.
2. The owner/operator shall install and operate a thermocouple to continuously measure inlet temperature to the SCR system.
3. The owner/operator shall install and operate a flowmeter on the urea supply line to continuously monitor overall urea consumption.
4. The owner/operator shall install and operate a differential pressure transmitter to continuously monitor pressure drop across the SCR catalyst.
5. The equipment to continuously monitor the temperature in each chamber of the thermal oxidizer, the inlet temperature to the SCR system, the overall urea consumption, and the pressure drop across the SCR system shall be calibrated and maintained according to the manufacturer's specifications.

D. Recordkeeping and Reporting

1. The owner/operator shall collect, record, and maintain the following records on a monthly basis, no later than 15 days after the first of each month, and provide such records to the Office of Air Resources upon request:
 - a. The hours of operation for each pyrolysis unit for the previous month and the total hours of operation for the prior consecutive 12-month period.
 - b. Natural gas usage for all combustion equipment.

- c. The operating temperature of each thermal oxidizer's combustion chamber.
 - d. The calculated pyrolysis gas flowrate and total pyrolysis syngas combusted in the thermal oxidizer during the month.
 - e. The condensate flowrate and total condensate combusted in the thermal oxidizer during the month.
 - f. Inlet temperature to the SCR.
 - g. Pressure drop across the SCR catalyst.
 - h. A maintenance log for the capture systems, control devices, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
 - i. An operating log for each pyrolysis unit, including the date(s) and time(s) each pyrolysis unit is in operation.
 - j. The type (i.e., hardwoods vs softwoods) and amount of woodchips processed in the pyrolysis lines.
 - k. The flow rate on the urea supply line.
2. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the urea solution injection rate was outside of the range recommended by the manufacturer. The date, time, duration of exceedance, and the measured injection rate shall be provided.
 3. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days of determining the total quantity of woodchips processed through the pyrolysis lines exceeds 34,763 (on a dry basis) tons on a rolling 12-month basis.
 4. The owner/operator shall notify the Office of Air Resources in writing within 15 days of the date that the catalyst of the SCR is replaced.

III. The following requirements are applicable to operations on a facility-wide basis:

A. Emission Limitations

1. Volatile Organic Compounds (VOCs)

The total quantity of VOC emissions discharged to the atmosphere from all operations conducted at the entire facility shall not exceed 8,167 pounds of VOC per calendar month based upon a 12-month rolling average.

2. Hazardous Air Pollutants (HAPs)

The total quantity of HAP emissions discharged to the atmosphere from the entire facility shall not exceed 1,500 pounds of any one (1) HAP or 4,000 pounds of any combination of HAPs per calendar month based upon a 12-month rolling average. HAP shall mean an air pollutant which has been listed pursuant to Section 112(b) of the Clean Air Act Amendments of 1990.

3. Listed Toxic Air Contaminants

a. The total quantity of emissions discharged to the atmosphere from the entire facility, of any listed toxic air contaminant, with the exception of acetaldehyde, ammonia, benzene, formaldehyde, naphthalene, phenol, quinoline, and manganese shall not exceed the minimum quantity for that contaminant as specified in 250-RICR-120-05-9.17, Appendix A, based upon a 12-month rolling total. Emissions from activities exempted from the provisions of "Air Toxics" 250-RICR-120-05-22.5(B) are not included in this limitation.

4. Odors

Any air contaminant or combination of air contaminants discharged to the atmosphere from the facility shall not create an objectionable odor beyond the property line of this facility. Odor evaluations shall be conducted according to the provisions of Air Pollution Control Regulation, "Odors" 250-RICR-120-05-17.

B. Operating Requirements

a. The owner/operator shall only be allowed to process virgin wood through any of the pyrolysis line(s). For purposes of this permit *Virgin Wood* shall be defined as wood that has been obtained from a forestry, and/or clean wood or bark that has not been recycled or processed other than for size reduction.

C. Compliance Demonstration/Stack Testing

1. Compliance with the emission limitations specified in Conditions I.A.1.d(1), II.A.1.c(1) and II.A.1.d(3) shall be demonstrated within 180 days of startup of each pyrolysis unit and dryer.

Thereafter, performance testing shall be conducted every 10 years to demonstrate compliance with the control efficiency limitation specified in Condition II.A.1.c(1) of this permit.

2. A stack testing protocol shall be submitted to the Office of Air Resources at least 60 days prior to the performance of any stack tests. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any performance test.

3. All test procedures used for stack testing shall be approved by the Office of Air Resources prior to the performance of any stack tests.
4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required stack testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.
5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emissions limitation.
6. All stack testing must be observed by a representative of the Office of Air Resources or its authorized representatives to be considered acceptable, unless the Office of Air Resources provides prior written authorization to the owner/operator to conduct the testing without an observer present.
7. A final report of the results of stack testing shall be submitted to the Office of Air Resources no later than 60 days following completion of testing.

D. Recordkeeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than the last day of the following month, determine the total quantity of VOC discharged to the atmosphere from all operations at the entire facility. Monthly and 12-month rolling averages shall be calculated. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
2. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of VOCs discharged to the atmosphere from all operations at this facility exceeds 8,167 pounds per calendar month (12-month rolling average).
3. The owner/operator shall, on a monthly basis, no later than the last day of the following month, determine the total quantity of HAP emissions discharged to the atmosphere from all operations at the entire facility. Monthly and 12-month rolling averages shall be calculated. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
4. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of HAP emissions discharged to the atmosphere from all operations at this facility exceeds 1,500 pounds of any one (1) HAP or 4,000 pounds of any combination of HAPs per calendar month (12-month rolling average).
5. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of acetaldehyde, ammonia, benzene, formaldehyde, naphthalene, phenol, quinoline, and manganese discharged to the atmosphere from the facility during the previous month. Hourly emission averages

shall be calculated for the aforementioned air toxics. These hourly averages shall be used for comparison to the hourly emission limitations specified in III.A.3.a of this permit. Daily emission totals shall be calculated for the aforementioned air toxics to be used for comparison to the daily emission limitations specified in III.A.3.a of this permit. Monthly and annual emission averages shall be calculated for the aforementioned air toxics to be used for comparison to the annual emission limitations specified in III.A.3.a of this permit. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

6. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of acetaldehyde, ammonia, benzene, formaldehyde, naphthalene, phenol, quinoline, or manganese discharged to the atmosphere from the facility exceeds the respective hourly, daily or annual emission limitations specified in Condition III.A.3.a of this permit.
7. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of each listed toxic air contaminant in 250-RICR-120-05-9.17, Appendix A discharged to the atmosphere from all operations at the entire facility excluding acetaldehyde, ammonia, benzene, formaldehyde, naphthalene, phenol, quinoline, and manganese. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
8. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of emissions discharged to the atmosphere from the entire facility, of any listed toxic air contaminant excluding acetaldehyde, ammonia, benzene, formaldehyde, naphthalene, phenol, quinoline, and manganese, exceeds the minimum quantity for that contaminant as specified in 250-RICR-120-05-9.17, Appendix A. In accordance with "Air Toxics", 250-RICR-120-05-22, this notification shall be included in the annual air pollution inventory.
9. The owner/operator shall notify the Office of Air Resources in writing of the date of actual initial start-up of each device permitted under this permit no later than fifteen days after such date.
10. Any breakdown or malfunction of any air pollution control system resulting in the discharge of uncontrolled emission of pyrolysis gas, pyrolysis condensate or dryer emissions shall be reported to the Office of Air Resources within one hour after the occurrence. A written report of any breakdown or malfunction shall be submitted within five (5) days of the breakdown or malfunction. The following information shall be provided in each report:
 - a. The date the breakdown or malfunction occurred
 - b. The suspected reason for the malfunction
 - c. The corrective action taken

d. The time needed to make repairs

A copy of each report shall be kept at the facility.

11. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations
12. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:
 - a. Change the representation of the facility in the application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of this permit.
 - d. Qualify as a modification under 250-RICR-120-05-9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

13. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
 - a. The name and location of the facility.
 - b. The subject source(s) that caused the noncompliance with the permit term.
 - c. The time and date of first observation of the incident of noncompliance.
 - d. The cause and expected duration of the incident of noncompliance.
 - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.

- f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.
14. The owner/operator shall maintain properly signed, contemporaneous operating logs or other relevant evidence to document actions during startup/shutdown periods.
15. All records required in this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources or its authorized representative and the USEPA upon request.

E. Other Permit Conditions

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the equipment shall be designed, constructed and operated in accordance with the representation of the equipment in the permit application.
2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this permit have been achieved. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.
4. The emission and dispersion characteristics of all sources of acetaldehyde, ammonia, benzene, formaldehyde, naphthalene, phenol, quinoline, and manganese at the facility shall be consistent with the parameters used in the air quality modeling to demonstrate that the emissions of the aforementioned air toxics do not cause an impact, at or beyond the property line of the facility, which exceeds the Acceptable Ambient Level for the aforementioned air toxics. The Office of Air Resources, in its sole discretion, may reopen this minor source permit if it determines that the emission and dispersion characteristics have changed significantly and that emission limitations must be revised and/or added to this permit to ensure compliance with 250-RICR-120-05-22.

5. The Office of Air Resources may reopen and revise this permit if it determines that:
 - a. a material mistake was made in establishing the operating restrictions; or,
 - b. inaccurate emission factors were used in establishing the operating restrictions; or,
 - c. emission factors have changed as a result of stack testing or emissions monitoring; or,
 - d. revisions that are necessary due to additional applicable requirements pursuant to state or federal law or from any regulatory agency.

D. Malfunctions

1. The owner/operator may seek to establish that a malfunction of any air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:
 - a. The malfunction was not attributable to improperly designed equipment, lack of preventative maintenance, careless or improper operation or operator error.
 - b. The malfunction is not part of a recurring pattern indicative of inadequate design, operation or maintenance.
 - c. Repairs were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable.
 - d. All possible steps were taken to minimize emissions during the period of time that repairs were performed.
 - e. Emissions during the period of time that the repairs were performed will not:
 - (1) Cause an increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by 250-RICR-120-05-22 and any Calculated Acceptable Ambient Levels; and
 - (2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.
 - f. The reasons that it would be impossible or impractical to cease the source operation during said period.

- g. The owner/operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence.

This demonstration must be provided to the Office of Air Resources within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.

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FINAL CONDITIONAL APPROVAL
May 17, 2023

The Quonset Development Corporation (QDC) has reviewed the Technical Review application for the Green Development Quonset Soil Solutions Facility - received on May 15, 2023. The following documents are included in the review and APPROVED with the following conditions:

Approved Documents

1. Civil Plans by Green Development Inc. dated April 4, 2023 with updated sheet 5 dated 5/15/2023
2. Landscaping Plans by Kevin Alverson Landscape Architecture, dated March 28, 2023
3. Architectural Plans by the Robins Green Beretta Corporation, dated March 10, 2023
4. Crumbler Building Elevations dated April 5, 2023

Conditions of approval

- 1) At permitting, QDC must review and approve any signage and sign illumination.
- 2) Coordination with QDC's Wastewater Superintendent regarding inspection of the chemical storage area to confirm secondary containment and no drains to sewer system will be necessary prior to building permit completion.



Steven J. King, P.E.
Managing Director
Quonset Development Corporation