Stoltz, Carrie R - DNR

From: Dave Larsen <dlarsen@reiengineering.com>
Sent: Monday, July 23, 2018 1:29 PM
To: Stoltz, Carrie R - DNR
Cc: Snowbank, Sheri A - DNR
Subject: Injection Request/WPDES Permit - Moose Junction Lounge
Attachments: 6510 Injection Permit Cover Sheet.pdf; 6510 Injection Permit.pdf; 6510 WPDES Application.pdf; GR-320-IRC SDS.pdf; GR-320-IRC-R Specification Sheet.pdf; GR-320-IRC-V Specification Sheet.pdf; Injection Map.pdf

Follow Up Flag: Follow up
Due By: Wednesday, July 25, 2018 7:00 AM
Flag Status: Flagged

Carrie, attached should be the following documents for the application to inject granulated carbon at Moose Junction:

- Copy of injection intent. Hardcopy with payment forwarded to Kathleen Shafel.
- Injection Permit Request (with attachments)
    - Proposed Injection Map
    - Carbon Spec Sheets
    - Carbon SDS
- WPDES Permit Application

Please let me know if you need anything additional. Site work is scheduled to start on August 6, 2018.

FYI – REI will also be completing injection requests for the following additional sites:
Bayside Forestry in Solon Springs
Former Holiday 66 in Ashland
Form Lou John site in Amery

REI anticipates completing Bayside and Holiday projects in August and the Lou John site has not been scheduled.

Please let me know if you have any questions.

Thank you,
David N. Larsen P.G
Senior Hydrogeologist / Professional Geologist

REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING
4080 N. 20th Avenue
Wausau, WI 54401
REIengineering.com

David N. Larsen, P.G.
Senior Hydrogeologist
Dlarsen@REIengineering.com

Tel: 1-877-734-7745
715-675-9784
Cell: 715-551-3434
Fax: 715-675-4060

Connect with us : 

REI
CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING

July 23, 2018

Wisconsin Department of Natural Resources
Attn: Ms. Kathleen Shafel
223 E Steinfest Road
Antigo, WI 54409

Subject:

Moose Junction Lounge
Injection/Infiltration Permit – Cover Sheet
BRRTS #03-06-000601
PECFA #54830-9999-97

Dear Ms. Shafel:
The purpose of this correspondence is to provide information for the approval of an injection/infiltration request for the Moose Junction Lounge site in Dairyland, Wisconsin. Below is the information specific to the WDNR RR-935 requirement for notification of injection as an approved option for groundwater remediation.

Cover Sheet Components
BRRTS Activity Number:
03-06-000301

Site Name: Moose Junction Lounge
13195 South State Highway 35
Dairyland, WI 54830

Responsible Party:
Trent Sprague
13195 South State Highway 35
Dairyland, WI 54830

Environmental Consultant:
REI Engineering, Inc.
4080 N 20th Avenue
Wausau, WI 54401
715-675-9784
Attn: David Larsen
dlarsen@reiengineering.com

Request Type: Technical Review

Fee: $700.00

If you have any questions or comments, please contact our office at (715) 675-9784 or electronically at dlarsen@reiengineering.com.

Sincerely,
REI Engineering, Inc.

David N. Larsen P.G.
Senior Hydrogeologist / Project Manager

Attachments: Trent Sprague Technical Assistance Fee Payment

REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING

June 25, 2018

Wisconsin Department of Natural Resources
Attn: Ms. Carrie Stoltz
107 Sutliff Avenue
Rhinelander, WI 54501

Subject:

Moose Junction Lounge
Injection/Infiltration Permit
BRRTS #03-06-000301
PECFA #54830-9999-97

Dear Ms. Stoltz:
The purpose of this correspondence is to provide information for the approval of an injection/infiltration request for the Moose Junction Lounge site in Dairyland, Wisconsin. A request documenting injection intent along with the required fee has previously been forwarded to the Northern Region RR EPA.

Cover Sheet Components

BRRTS Activity Number:
03-06-000301
Site Name:
Moose Junction Lounge
13195 South State Highway 35
Dairyland, WI 54830
Responsible Party:
Trent Sprague
13195 South State Highway 35
Dairyland, WI 54830
Environmental Consultant:
REI Engineering, Inc.
4080 N 20th Avenue
Wausau, WI 54401
715-675-9784
Attn: David Larsen
dlarsen@reiengineering.com
Request Type:
Technical Review
Fee:
$700.00

Infiltration/Injection Components

Infiltration / Injection:
Injection

Injectate:
Granulated Carbon Slurry (Reactivated Carbon GR-320-IRC using the CleanInject ™ process)

Contaminants Being Treated:
Dissolved phase petroleum compounds

Implementation Plan:

Proposed 42 injection points.

42 injection locations, 6 injection intervals with an injection depth of 4-14 feet and an injectate rate of 40# per injection interval (10,080 pounds of injectate).

Actual injection location, depth, intervals and injection rate may vary based site-specific circumstances.

Constraints on Injection System:

Access to State Highway 35 right of way will be required to complete the injection plan.

Time Frame for Approval:

Site work is proposed for early August 2018, site time to completion is anticipated at six (6) days.

Location of Proposed Injection Wells:

See attached Figure 1 (Proposed Injection Locations) which documents proposed injection locations and injection rates.

Injection Specific Monitoring Plan:

Groundwater sampling frequency will be at the direction of the WDNR Project Manager. Quarterly groundwater sampling will commence no later than 90 days after injection completion.

Pre-Injection Vapor Screening:

Vapor Screening was addressed in a previously submitted report.

Additional Information Needed for Injection of Reactive Materials

Reactivated Carbon GR-320-IRC using the CleanInject ™ process excludes the use of reactive materials. GR-320-IRC is a mixture of both coal and coconut activated carbon with 90% of particle sizes less than 44 microns. Concentrations of the injectate are proposed at 40 pounds GR-320-IRC per interval for this application. Post injection groundwater monitoring has been approved and any modifications to the approved plan will need to be authorized by the WDNR Project Manager.

If you have any questions or comments, please contact our office at (715) 675-9784 or electronically at dlarsen@reiengineering.com.

Sincerely,
REI Engineering, Inc.

David N. Larsen P.G.
Senior Hydrogeologist / Project Manager

cc: Mr. Trent Sprague, 13195 South State Highway 35, Dairyland, WI 54830

Attachments:

Figure 1 – Proposed Injection Locations
Attachments:
GR-320-IRC-V Specification Sheet
GR-320-IRC-R Specification Sheet
GR-320-IRC Safety Data Sheet

Date Received _____
(Leave blank)

Request for Coverage Under
Wisconsin Pollutant Discharge Elimination System (WPDES)
Wastewater Discharge Permit (WI-0046566-06) for
Contaminated Groundwater from Remedial Action Operations

(Revised 8 / 2012)

Please type or print required information, except for the signature.

I. GENERAL INFORMATION

A: FACILITY LOCATION INFORMATION		
Name of Facility / Project Moose Junction Lounge	Official Representative Onsite	Title
(Address or Highway / Road with Distance and Direction from nearest City) 13195 S State Highway 35	Telephone No.:	Fax #
City, State, Zip Code Dairyland, WI 54830	County Douglas	Email Address

B: Individual, parent company, or organization with direct control over the facility. Enter full official legal name of the owner or parent company, if there is one, the mailing address, and the name and title of the official representative (responsible party) signing this application if he/she is located at address of parent company.		
Parent Company/Owner	Company Contact	Title
Mailing Address - PO Box, Street, or Route	Telephone No.:	Fax #
City, State, Zip Code	Email Address	

C: Consulting Firm for Groundwater		
Company Name REI Engineering, Inc	Company Contact David Larsen / Project Manager	Title
Mailing Address - PO Box, Street, or Route 4080 N 20th Avenue	Telephone No.: 715-675-9784 / 715-675-4060	Fax #
City, State, Zip Code Wausau, WI 54401	Email Address dlarsen@reiengineering.com	

D. **Name of Person to Receive Discharge Monitoring Report Forms** from Department:
David Larsen

E. **Any Other Necessary Contact Person** (name, phone, email)

F. **DNR Environmental Response & Repair Project Number, and DNR Project Manager name:**
BRRTS# 03-16-000301
WDNR Project Manager: Carrie Stoltz

II. SPECIFIC INFORMATION ON PROJECT

A. Pollutants

1. The suspected **sources of the pollutants** (estimate of material release quantity and contributing activities)

2. Check **all fuel and waste types** suspected in the contamination at this site:

☐ Unleaded Gasoline	☐ Jet Fuel	☐ Pesticides
X Leaded Gasoline	☐ Waste Oil	☐ Fertilizers
☐ Diesel Fuel	☐ Solvents	
☐ Heating Oil	☐ Other:	

3. Check **all pollutants identified at this site**:

X BETX (Benzene, Ethylbenzene, Toluene, Xylene)	☐ Pesticides/Fertilizers
☐ PAHs (Polynuclear aromatic hydrocarbons)	☐ Total Recoverable Lead *
☐ VOCs (Volatile Organic Chemicals)	☐ Other_____

* Include upstream receiving water hardness analysis if lead is detected.

B. Treatment

1. **Describe the existing treatment system:**

Treatment Techniques Used

- ☐ Pump & Treat
  - ☐ Air stripping
  - ☐ GAC (Granular Activated Carbon)
- ☐ Augmented Insitu Bioremediation (with chemicals or nutrient addition)
- ☐ Other (describe)

2. **If any cleaning, softening or descaling of the treatment system**
   a. Identify any additives that are proposed or being used for cleaning, softening, or descaling of the treatment system. Provide Material Safety Data Sheets, and describe dosage.

   b. Describe what is done to clean, soften or descale, and how often it is done.

   c. Where is the reject water from cleaning and descaling discharged?

   ☐ same discharge point as treated effluent ☐ sanitary sewer ☐ other (please describe)

3. **Anticipated operating schedule** during the new permit term (2012 – 2017)

4. **Anticipated flowrate** (in gpm), and total volume of treated water to be discharged per month:

5. **Effluent discharge point location:**

6. Is an **air permit** from the DNR air management program required? If not, why not

III. DISCHARGE MANAGEMENT PLAN UPDATE

Include the following information:

1. A **summary** of analytical results for contaminants **detected** at the site.

2. Results from the most recent **volatile organic compounds (VOC) scan**, including methods used and detection levels.

3. Results from an analysis of the **poly-nuclear aromatic hydrocarbons (PAHs)** shown on the right, including methods used and detection levels (unless PAH data are already submitted)

   The lab needs to reach the lowest detection level achievable for each parameter because of the low limit for total PAHs. EPA test method SW-846 8310 is recommended.

benzo(a)anthracene	dibenzo(a,h)anthracene
benzo(a)pyrene	fluoranthene
benzo(b)fluoranthene	indeno(1,2,3-cd)pyrene
benzo(g,h,i)perylene	naphthalene
benzo(k)fluoranthene	phenanthrene
chrysene	pyrene

4. **Contaminants proposed for periodic monitoring** and demonstration of why any monitoring required in the permit should be exempted due to low level of contaminants in the wastewater discharge.

5. **Information to support request for any alternate effluent limit** for discharges to groundwater (Part 5 of permit) or request for temporary exemption for in-situ discharges (Part 6 of permit).

6. **Plans and specifications for the proposed treatment system** identifying sampling points. For supplier furnished package treatment units, only a flow diagram, design summary, and unit sizing calculations are required.

7. **General description of operations**, identifying operational tasks, who is responsible to do that task, and how frequently the task is done (particularly needed at pump & treat systems).

8. A **site plan** that identifies general land uses, underground storage tanks and pipelines, groundwater monitoring and recovery wells, contaminant plume definition and zone of influence, other known spills in the area, septic tanks and drain fields, separation distances to potable water supply wells and residences, and other pertinent information.

9. A **detailed map** of the discharge location, showing if discharge is direct or via a storm sewer or other conveyance. Indicate distance from site to discharge location and other impacted water bodies or wetlands.
   - If a city storm sewer is used, approval from the municipality is required.
   - If a new outfall structure is proposed, the plans should identify the outfall and incorporate appropriate erosion control methods. A permit for riprap projects (available at most DNR offices) should be obtained.
   - Wetland discharges are not allowed unless they meet wetland protection requirements of Ch. NR 103, Wis. Admin. Code.

III. SIGNATURES

A. Signature of person completing the form, attesting to the accuracy and completeness of the statements made.

1.	David Larsen	Project Manager	7/25/18
Name		Title	Date Signed

4080 N 20th Avenue, Wausau, WI 54401	dlarsen@reiengineering.com	(715) 675-9784
Address	Email	Telephone Number

B. This application must be signed by the official representative of the permitted facility (responsible party) who is: the owner, the sole proprietor for a sole proprietorship, a general partner for a partnership, or by a ranking elected official or other duly authorized representative for a unit of government, or an executive officer of at least the level of vice president for a corporation, having overall responsibility for the operation of the facility. If the application is not signed, or is found to be incomplete, it will be returned.

Sprague, Trent E	Owner
Typed or Printed Name of Official Representative	Title
Trent E Sprague	7/18/18
Signature of Official Representative	Date Signed

Submit this General Permit Request for Coverage:

Department of Natural Resources,
Water Permits Central Intake - WT/3,
P.O. Box 7185,
Madison, WI 53707-7185.

The decision on whether to cover this discharge under the remediation general permit will be made by regional DNR wastewater staff. Upon receipt in Madison, this application will be forwarded to the appropriate regional staff person.

A copy of the submittal should also be sent to the Department Remediation & Redevelopment Project Manager.
Watershed Central:\General Permits\Reissue Docs\Grw Remediation\Request For Coverage 2012.doc

SAFETY DATA SHEET

Prepared in accordance with the United States Hazard Communication Standard: 29 CFR 1910.1200 (2012) **Revision date:** 1/6/2015

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name: GR-320 IRC

Synonyms: Activated carbon

Recommended use: Liquid and vapor applications (purification, decolorization, separation, catalyst and deodorization)

Restrictions on use: No information available.

Supplier:

Geologic Restoration, PLLC
11160 Downs Road
Pineville, NC 28134
Tel: 704-413-3311
Fax: 980-237-7622

Emergency Telephone Number: US: CHEMTREC 1-800-424-9300 or 1-703-527-3887
International CHEMTREC: +1 703-741-5970 or +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status: This chemical is not considered hazardous by the United States 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Label Elements

Pictogram: None
Signal Word: None

Hazard statements: None

Hazards not otherwise classified (HNOC)

Odorless black granules or powder. Avoid contact with skin and eyes. Avoid breathing dust. Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result. Prior to entering a confined space that contains or previously contained activated carbon, the space should be evaluated for oxygen and carbon monoxide concentrations, and any other hazards, by a qualified person.

Workers should also take appropriate precautions when dealing with spent (used) activated carbons which may exhibit hazardous properties associated with the adsorbed materials.

Avoid dust formation. Powdered material may form an explosible dust-air mixture. If transferring product under pressure, avoid generation of dust if an ignition source is present.

Activated carbons have high surface area which may cause self-heating during oxidation. See Section 5.

Do not generate dust because airborne respirable crystalline silica may be generated.

Potential health effects

Principle Routes of Exposure:	Inhalation, Eye contact, Skin Contact
Eye Contact:	May cause mechanical irritation. Avoid contact with eyes.
Skin Contact:	May cause mechanical irritation. Avoid contact with skin.
Inhalation:	Dust may be irritating to respiratory tract. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.
Ingestion:	Adverse health effects are not known or expected under normal use.
Carcinogenicity:	See Section 11.
Target Organ Effects:	Lungs, Eyes, Skin
Medical Conditions Aggravated by Exposure:	Asthma, Respiratory disorder, Skin disorders
Potential Environmental Effects:	No special environmental precautions required. See also Section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Activated carbon.

Chemical name	CAS No	weight-%	Trade secret
Activated Carbon	7440-44-0	100	

This product, which is manufactured from a naturally occurring raw material(s), contains <10% total crystalline silica (quartz, CASRN 14808-60-7).

4. FIRST AID MEASURES

FIRST AID MEASURES

Skin Contact	Wash thoroughly with soap and water. Seek medical attention if symptoms develop.
Eye contact	Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if symptoms develop.
Inhalation	If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.
Ingestion	Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms:	The most important known symptoms and effects are described in Section 2 and/or in Section 11.

Indication of any immediate medical attention and special treatment needed

Note to physicians:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:	Use foam, carbon dioxide (CO2), dry chemical or water spray. A fog is recommended if water is used.
Unsuitable Extinguishing Media:	DO NOT USE a solid water stream as it may scatter and spread fire. In the event of a fire, spreading large amounts of activated carbon is not recommended due to the risk of creating uncontrolled dust emissions.
Specific hazards arising from the chemical:	Burning produces irritant fumes. If transferring product under pressure, avoid generation of dust if an ignition source is present. Activated carbons have high surface area which may cause self-heating during oxidation. An adequate air gap between packages of activated carbon is recommended to reduce risk of propagation of the event. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame.
Hazardous combustion products:	Used activated carbon may produce additional combustion products which are based on the substance(s) adsorbed. Materials allowed to smolder for long periods in enclosed spaces may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Carbon monoxide (CO). Carbon dioxide (CO2).
Protective equipment and precautions for firefighters:	In the event of fire, wear self-contained breathing apparatus. Wear suitable protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions:	Avoid dust formation. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.

Environmental Precautions:

Environmental Precautions: No special environmental precautions required. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Avoid dry sweeping and use water spraying or vacuum cleaning systems to prevent airborne dust generation. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by using a brush or compressed air. Pick up and transfer to properly labelled containers. Spent granular activated carbon may be recyclable. Dispose of virgin (unused) carbon (surplus or spillage) in a facility permitted for non-hazardous wastes. Spent (used) carbon should be disposed of in accordance with applicable laws. Do not reuse empty bags: dispose of in a facility permitted for non-hazardous wastes. See Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling: Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Dust may form explosible mixture in air.

Activated carbons have high surface area which may cause self-heating during oxidation. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations. Fine dust is capable of penetrating electrical equipment and may cause electrical shorts. If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of product and dust.

Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not store together with strong oxidizing agents. Keep in properly labeled containers. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosible mixture if they are released in the atmosphere in sufficient concentrations. Prior to entering a confined space that contains or previously contained activated carbon, the space should be evaluated for oxygen and carbon monoxide concentrations, and any other hazards, by a qualified person.

Incompatible materials: Strong oxidizing agents. Strong acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines:

Exposure limits for components or similar components are stated below.

Dust, or Particulates Not Otherwise Specified:	Austria MAK:	10 mg/m³, STEL 2x30 min, Inhalable dust 5 mg/m³, TWA, Inhalable dust
	Belgium:	10 mg/m³, TWA, Inhalable 3 mg/m³ TWA, Respirable
	Canada (Saskatchewan):	10 mg/m³, TWA, Inhalable 3 mg/m³ TWA, Respirable
	China:	8 mg/m³, TWA 10 mg/m³, STEL
	France:	10 mg/m³, TWA Inhalable dust 5 mg/m³, TWA Respirable dust
	Germany - TRGS 900:	10 mg/m³, TWA, Inhalable 3 mg/m³, Respirable fraction
	Hong Kong:	10 mg/m³, TWA
	Ireland:	10 mg/m³, TWA, Total inhalable 4 mg/m³, TWA, Respirable
	Italy:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	Japan:	3 mg/m³ TWA, Respirable
	Malaysia:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	The Netherlands:	3.5 mg/m³, Inhalable
	Spain:	10 mg/m³, VLA, Inhalable 3 mg/m³, VLA, Respirable
	Sweden:	10 mg/m³, NGV, Total inhalable 5 mg/m³, NGV, Respirable
	United Kingdom - WEL:	10 mg/m³, TWA, Total Inhalable dust 4 mg/m³, TWA, Respirable dust
	US ACGIH - PNOS:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	US OSHA - PEL:	15 mg/m³, TWA, Total dust 5 mg/m³, TWA, Respirable

Silica, Crystalline (Quartz) CAS RN 14808-60-7:	Austria MAK:	0.15 mg/m³, TWA (Respirable)
	Belgium:	0.1 mg/m³, TWA (Alveolar fraction)
	Denmark:	0.1 mg/m³, TWA (Respirable)
	Finland:	0.05 mg/m³, TWA (Respirable)
	France:	0.1 mg/m³, VME (Alveolar fraction)
	Ireland:	0.1 mg/m³, TWA (Respirable)
	Italy:	0.025 mg/m³, TWA (Respirable)
	Japan:	(3 mg/m³)/(1.19%SiO2 + 1) (Respirable)
	Switzerland:	0.15 mg/m³, TWA (Respirable)
	UK WEL:	0.1 mg/m³, TWA (Respirable)
	US OSHA PEL:	(10 mg/m³) /(%SiO2 + 2) (Respirable)
		(30 mg/m³)/(%SiO2 + 2) (Total)
	US ACGIH TLV:	0.025mg/m³ (Respirable)

MAK: Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)
NGV: Nivå Gräns Värde (Level Limit Value)
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TRGS: Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)
TWA: Time Weighted Average
US ACGIH: United States American Conference of Governmental Industrial Hygienists
US OSHA: United States Occupational Safety and Health Administration
VLA: Valore Límite Ambientales (Environmental Limit Value)
WEL: Workplace Exposure Limit

Engineering Controls: Ensure adequate ventilation to maintain exposures below occupational limits. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated.

Personal protective equipment [PPE]

Respiratory Protection: Approved respirator may be necessary if local exhaust ventilation is not adequate.

Hand Protection: Wear suitable gloves.

Eye/face Protection: Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin and Body Protection: Wear suitable protective clothing. Wash clothing daily. Work clothing should not be allowed out of the workplace.

Other: Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information given is based on data obtained from this substance or from similar substances.

Physical State:	Solid	**Odor:**	Generally odorless. May produce slight sulfur smell when wet.
Appearance:	Granular	**Odor threshold:**	Not Applicable
Color:	Black		

Property	Values	Remarks • Method
pH:		Not Applicable
Melting point/freezing point:		Not Applicable
Boiling point / boiling range:		Not Applicable
Evaporation Rate:		Not Applicable
Vapor pressure:		Not Applicable
Vapor Density:		Not Applicable
Density:		No information available
Bulk Density:	28 - 34 lbs/ft³	
Specific Gravity at 20°C:		No information available
Water solubility:		Insoluble
Solubility(ies):		No information available
Partition Coefficient (n-octanol/water):		No information available
Decomposition temperature:		No information available
Viscosity:		No information available
Kinematic viscosity:		No information available
Dynamic viscosity:		No information available
Oxidizing Properties:		Not Applicable
Softening point:		No information available
VOC content (%):		Not Applicable
% Volatile (by Volume):		No information available
% Volatile (by Weight):		No information available
Surface Tension:		No information available
Explosive properties:		No information available
Flash Point:		Not Applicable
Flammability (solid, gas):		No information available
Flammability Limit in Air:		No information available
Explosion Limits in Air - Upper (g/m³):		No information available
Explosion Limits in Air - Lower (g/m³):		No information available
Autoignition Temperature:		No information available
Minimum Ignition Temperature:		No information available
		No information available
Minimum Ignition Energy:		No information available
Ignition Energy:		No information available
Maximum Absolute Explosion Pressure:		No information available
Maximum Rate of Pressure Rise:		No information available
Burn Velocity:		No information available
Kst Value:		No information available
Dust Explosion Classification:		No information available

10. STABILITY AND REACTIVITY

Reactivity: May react exothermically upon contact with strong oxidizers.

Stability: Stable under recommended handling and storage conditions.

Possibility of hazardous reactions: None under normal processing.

Hazardous polymerization: Hazardous polymerization does not occur.

Conditions to avoid: Keep away from heat and sources of ignition. Avoid dust formation. Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result.

Activated carbons have high surface area which may cause self-heating during oxidation.

Incompatible materials: Strong oxidizing agents. Strong acids.

Explosion data See also Section 9.

Sensitivity to Mechanical Impact: None.

Sensitivity to Static Discharge: Dust may form explosible mixture in air. Do not create a dust cloud by using a brush or compressed air.

Hazardous decomposition products: Used activated carbon may produce additional combustion products which are based on the substance(s) adsorbed. Materials allowed to smolder for long periods in enclosed spaces may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information given is based on data obtained from this substance or from similar substances.

Acute toxicity

Not classified.

Oral LD50: LD50/oral/rat = >2000 mg/kg. (OECD 423).

Inhalation LC50: LC50/inhalation/1h/rat = >8.5 mg/L (OECD 403)

Dermal LD50: Absorption highly unlikely, no health effects known.

Skin corrosion/irritation: Not classified
Skin irritation test, rabbit (OECD 404): Not irritating

Serious eye damage/eye irritation: Not classified. Eye irritation test, rabbit (OECD 405): Not irritating.

Sensitization: Not classified. Not sensitizing based on Local Lymph Node Assay (OECD 429).

Mutagenicity: Not classified.
- Gene mutation in bacteria (Bacterial Reverse Mutation Assay/Ames) (OECD 471): not mutagenic.
- In vitro Mammalian Chromosome Aberration Test (OECD 473): not clastogenic.
- In vitro Mammalian Cell Gene Mutation Test (OECD 476).: non-mutagenic.

Carcinogenicity: Not classified.

Contains a component (crystalline silica) that is listed by IARC as group 1, by ACGIH as group A2, and by NTP as a known human carcinogen.

Reproductive Toxicity:	Not classified. Repeated dose inhalation toxicity test showed no reproductive target organ effects, and a toxicokinetic study showed no product migration to reproductive organs.
STOT - single exposure:	Not classified.
STOT - repeated exposure:	Not classified. Repeated dose toxicity study, inhalation (rat) 90 days (OECD 413): NOAEC 7.29 mg/m^3 (respirable). This test was conducted on activated carbon containing negligible crystalline silica; therefore activated carbon itself is not classified for STOT-RE. Although respirable crystalline silica is classified as STOT-RE1, this product contains <1% respirable crystalline silica, therefore it is not classified for STOT-RE.
Aspiration Hazard:	Based on industrial experience and available data, no aspiration hazard is expected.

12. ECOLOGICAL INFORMATION

Information given is based on data obtained from this substance or from similar substances.

Aquatic Toxicity:	Non toxic. The substance is highly insoluble in water and the substance is unlikely to cross biological membranes. No adverse ecological effects are known.
Terrestrial Toxicity:	Earthworm reproduction study (OECD 222), NOAEC for body weight reduction 1000 mg/kg soil; NOAEC for reproduction 3200 mg/kg soil. Non toxic in soil.

ENVIRONMENTAL FATE

Persistence and degradability	Not expected to degrade
Bioaccumulation	Not expected due to physicochemical properties of the substance.
Mobility:	Not expected to migrate. Insoluble.
Distribution to Environmental Compartments:	Insoluble. Expected to remain on soil surface.
Other adverse effects:	No information available.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this MSDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations.

RCRA:	Unused product is not a hazardous waste under U.S. RCRA, 40 CFR 261. Spent (used) product may be hazardous based on the substance adsorbed.

Disposal of wastes

Activated carbon, in its original state, is not a hazardous material or hazardous waste. Follow applicable regulations for waste disposal.

Spent (used) activated carbon may be classified as a hazardous waste depending upon its use, the substance(s) adsorbed, and how it is ultimately managed. Follow applicable regulations for disposal.

Recycling (reactivation) may be a viable alternative to disposal. Dust formation from residues in packaging should be avoided and suitable worker protection assured. Store used packaging in enclosed receptacles.

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

DOT

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ICAO (air)

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IATA

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IMDG

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

RID

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ADR

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

15. REGULATORY INFORMATION

Hazard Classification

United States - OSHA (29 CFR 1910.1200): Not Hazardous
Canada - WHMIS Classification (CPR, SOR/88-66): Not controlled
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the M/SDS contains all the information required by the Controlled Products Regulations.

Chemical name	WHMIS - Ingredient Disclosure
Quartz (respirable) 14808-60-7	1

International Inventories

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory	Complies
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List	Complies
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances	Complies
ENCS - Japan Existing and New Chemical Substances	Complies
IECSC - China Inventory of Existing Chemical Substances	Complies
KECL - Korean Existing and Evaluated Chemical Substances	Complies
PICCS - Philippines Inventory of Chemicals and Chemical Substances	Complies
AICS - Australian Inventory of Chemical Substances	Complies
NZIoC - New Zealand Inventory of Chemicals	Complies
TCSI - Taiwan Chemical Substance Inventory	Complies

US Federal Regulations

TSCA Section 12(b) Export Regulations:
This product does not contain any components that are subject to TSCA 12(b) Export Notification

SARA 311/312 Hazard Categories

Acute Health Hazard	NO
Chronic Health Hazard	NO
Fire hazard	NO
Sudden release of pressure hazard	NO
Reactive Hazard	NO

Clean Air Act Amendments of 1990
(CAA, Section 112, 40 CFR 82):
This product does not contain any components listed as a Hazardous Air Pollutant, Flammable Substance, Toxic Substance, or Class 1 or 2 Ozone Depletor

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
Quartz (respirable) 14808-60-7 (<10)	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania	Louisiana:
Quartz (respirable) 14808-60-7	X	X	X	

16. OTHER INFORMATION

Disclaimer:
The information set forth is based on information that Geologic Restoration, PLLC believes to be accurate. No warranty, expressed or implied, is intended. The information is provided solely for your information and consideration and Geologic Restoration, PLLC assumes no legal responsibility for use or reliance thereon.

Prepared by: Geologic Restoration, PLLC
Revision date: 1-June-2015

End of Safety Data Sheet

GR-320-IRC REACTIVATED
POWDERED ACTIVATED CARBON
SPECIFICATION SHEET

TYPICAL PROPERTIES

Parameter	Unit	Value	Method
Type		Reactivated	
Surface Area	m^2/gm	850-900	
Iodine Number	$mg\ g^{-1}$	>800	ASTM D4607
Bulk Density	gl^{-1}	450-500	
Moisture As Packed	% wt	5	ASTM D2867
Mesh Size US Sieve			
-100 Mesh	% wt	99	
-200 Mesh	% wt	95	
-325 Mesh	% wt	90	

PACKAGING OPTIONS

- 50 / 55 lbs. Polypropylene bags
- 1000 / 1100 lbs. Super Sacks

NOTES

GR-320-IRC Reactivated is manufactured from select grades of spent activated carbons. The material is manufactured under stringently controlled conditions by indirect heat to produce a porous adsorbent with highly developed internal surface area.

DISCLAIMER

This information is offered solely for your consideration and verification. It has been gathered from reference materials and / or test procedures and is believed to be true and accurate. None of this information shall constitute a warranty or representation expressed or implied, for which we assume legal responsibility or that the information or good described is fit for any particular use either alone or in combination with other goods or processes.

GEOLOGIC RESTORATION, PLLC

11160 Downs Road, Pineville, NC 28134
Tel: (704) 413-3311
Web: www.geologicrestoration.com

GR-320-IRC VIRGIN
POWDERED ACTIVATED CARBON
SPECIFICATION SHEET

TYPICAL PROPERTIES

Parameter	Unit	Value	Method
Type		Coconut Shell	
Surface Area	m^2/gm	1150-1250	BET
Iodine Number	$mg\ g^{-1}$	1100	ASTM D4607
Apparent Density	gms/cc	0.47-0.52	ASTM D2854
Moisture As Packed	% wt	5	ASTM D2867
Mesh Size US Sieve			
-100 Mesh	% wt	99	
-200 Mesh	% wt	95	
-325 Mesh	% wt	90	

PACKAGING OPTIONS

- 50 / 55 lbs. Polypropylene bags
- 1000 / 1100 lbs. Super Sacks

NOTES

GR-320-IRC Virgin is manufactured from high quality coconut shells. The material is manufactured under stringently controlled conditions by steam activation to produce a porous adsorbent with highly developed internal surface area and pore structure.

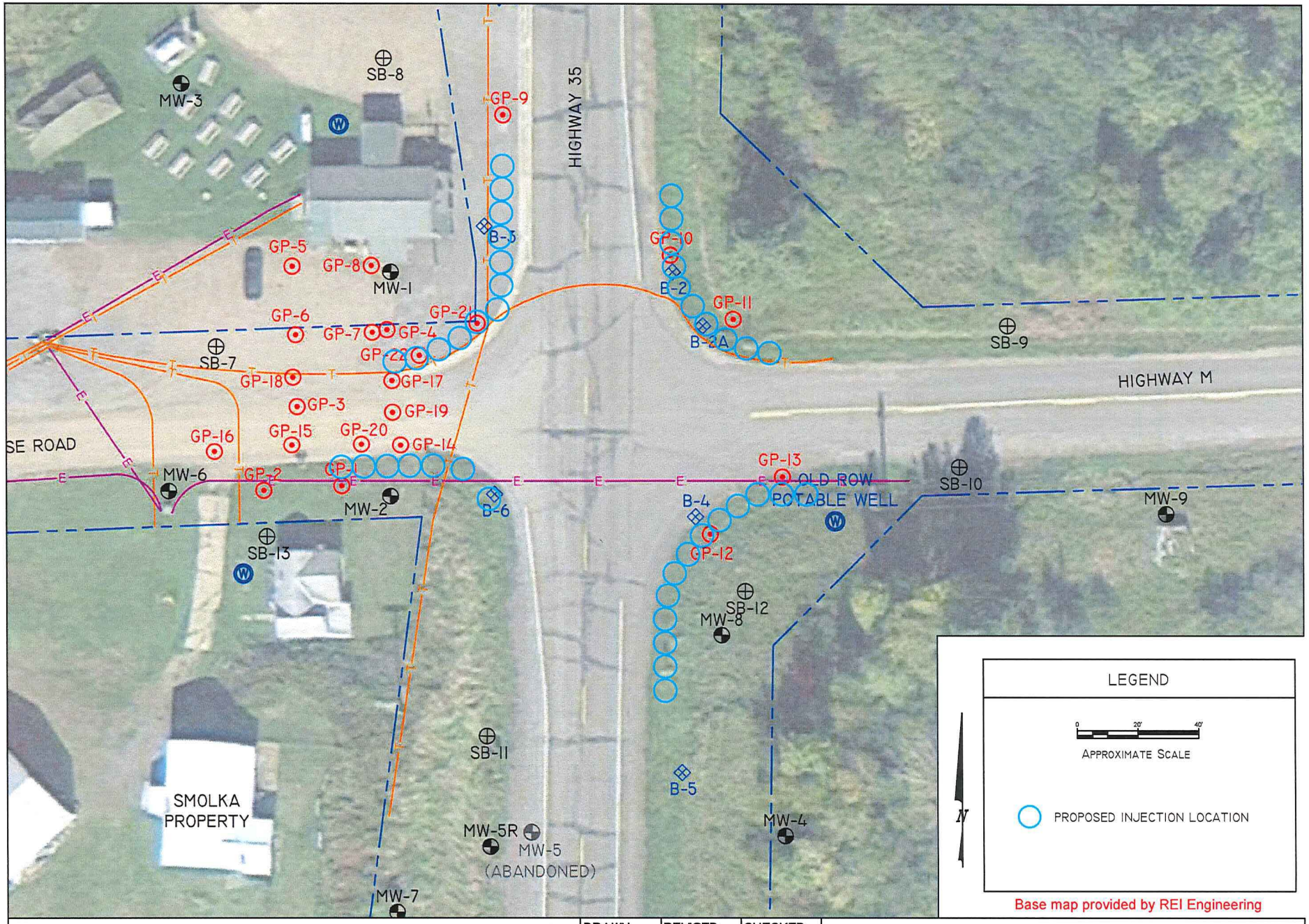
GR-320-IRC Virgin is NSF-61 and ISO 9001:2008 certified and manufactured to AWWA standards.

DISCLAIMER

This information is offered solely for your consideration and verification. It has been gathered from reference materials and / or test procedures and is believed to be true and accurate. None of this information shall constitute a warranty or representation expressed or implied, for which we assume legal responsibility or that the information or good described is fit for any particular use either alone or in combination with other goods or processes.

GEOLOGIC RESTORATION, PLLC

11160 Downs Road, Pineville, NC 28134
Tel: (704) 413-3311
Web: www.geologicrestoration.com



Base map provided by REI Engineering

GEOLOGIC RESTORATION, PLLC

DRAWN	REVISED	CHECKED
EAC	EAC	BEC
DATE 4/18/18	DATE 4/26/18	DATE 4/26/18

FIGURE 1 (PROPOSED INJECTION LOCATIONS)

MOOSE JUNCTION LODGE
13195 HIGHWAY 35 SOUTH
DAIRYLAND, WISCONSIN