

**AUTHORIZATION TO OPERATE AN
UNDERGROUND INJECTION CONTROL
(UIC) CLASS II INJECTION WELL
PERMIT NUMBER # UIC 2R08700008002AP**

ISSUE DATE: DRAFT

EXPIRATION DATE: DRAFT

In compliance with provisions of the West Virginia Code Chapter 22, Article 6, Article 11 and Article 12, as well as Legislative Rules Title 47, Series 13, Series 55 and Series 58, and Title 35 Series 1 and Series 4,

PERMITTEE / OPERATOR

NAME: Ground Resources, LLC
ADDRESS: 513 Charleston Road
Spencer, WV 25276

FACILITY TYPE: Area Permit (EOR)

FIELD NAME: Tariff Field

is authorized by this permit to inject Class II fluids that are brought to the surface in connection with conventional oil or natural gas production into the **Berea Sandstone** formation in accordance with the conditions set forth herein for the purpose of enhanced oil and/or natural gas recovery (EOR). Disposal of waste liquids derived from outside the established field boundary is not permitted.

The injection field is located in **Smithfield** and **Geary** District, **Roane** County, **Tariff 7.5'** Quadrangle. The coordinates for this injection field are: UTM NAD 83 Northing **42793357.4** and Easting **481520.97** (meters); Latitude **38.6626**, Longitude **-81.2124**.

The maximum permitted wellhead injection pressure for all injection wells in the field is established as **557** psi. The actual maximum wellhead injection pressure may be lower based on the most recent Pre-Operation Certificate (WR-37 Form).

All references to West Virginia regulations are to those that are in effect on the date that this permit becomes effective.

Non-compliance with the terms of this permit shall be cause for revocation of Certification under the terms of Chapter 22, Article 12, and revocation of the permit under Chapter 22, Article 11 of the West Virginia Code.

This permit and its authorization to inject shall remain in effect for five (5) years from the date of issuance of the final permit provided all terms of the permit are met.

James Martin, Chief

Office of Oil and Gas

PART I

A. SPECIAL PERMIT CONDITIONS

- 1. Injectate Samples.** The Permittee shall sample, analyze and record the nature of all the injected fluid for the parameters listed in TABLE 1 (Part IV.B.11) from sources at least once a year, or upon request of the Chief, or whenever the Operator observes or anticipates a change in the injection fluid, to yield representative data on their physical, chemical, or other relevant characteristics. New facilities shall submit a representative sample prior to the initiation of injection operations. The Permittee shall take samples at or before the wellhead for analysis. Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods and test results shall be submitted to the Office of Oil and Gas with complete laboratory analysis data sheets (report). Any analysis of injectate with a specific gravity result greater than 1.2 shall be reported to the Chief within twenty-four (24) hours of the results.
- 2. Corrective Action Plan.** The permittee shall comply with corrective action plan requirements as stated in Part V.A.4 below.

PART II

A. FEES

- 1. Annual Permit Fee.** Any person who holds a permit shall pay an annual permit fee in accordance with the provisions of Legislative Rule Title 47, Series 9, Section 7. The annual permit fee is ten dollars (\$10) per injection well for enhanced recovery injection wells. The first annual permit fee shall be remitted to the Office of Oil and Gas one (1) calendar year from the date of permit issuance. Subsequent annual permit fees shall be remitted on or before the anniversary date of the permit issuance. A permit becomes void if the annual permit fee has not been paid within one hundred and eighty (180) days of the due date. The Chief shall not reissue a permit until all annual permit fees due during prior terms have been paid in full.
- 2. Groundwater Protection Fee.** Failure to pay the annual groundwater protection fee of seventy-five dollars (\$75) for Class IIR as required by the West Virginia Code, Chapter 22, Article 11 and/or Article 12, shall be cause for revocation of this permit.

PART III

A. REAPPLICATION

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit an administratively complete application, along with application fee payment, for a new permit at least one hundred and eighty (180) days before this permit expires.

B. IMMEDIATE REPORTING

1. The Permittee shall report any noncompliance which may endanger human health or the environment immediately after becoming aware of the circumstances by using the **WVDEP Emergency Spill line number 1-800-642-3074**. Written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, Permittee shall provide the anticipated time it is expected to continue; and the steps taken or planned to be taken to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported immediately:
2. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water (USDWs); and
3. Any non-compliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between the USDWs, or failure of mechanical integrity test demonstrations.

C. RIGHT OF APPEAL

Notice is hereby given of your right to appeal the terms and conditions of this permit by which you are aggrieved to the State Environmental Quality Board by filing a NOTICE OF APPEAL on the form prescribed by such Board for this purpose, with the Board, in accordance with the provisions of Chapter 22 Article 11, Section 21 of the code of West Virginia within thirty (30) days after the date of issuance of this permit.

D. EFFECT OF PERMIT

The Permittee is allowed to engage in underground injection in accordance with the conditions of this permit based on an approved permit application. The Permittee shall not allow the underground injection activity authorized by this permit to cause or allow the movement of fluid containing any contaminant into underground sources of drinking water and may not cause a violation of any primary drinking water regulation or any health-based limit promulgated under 40 CFR Chapter 1, Part 142, of the Code of Federal Regulations, Title 40, Chapter I, Subchapter D, Part 142 (40 CFR §142) or of any water quality standard promulgated by the West Virginia Department of Environmental Protection/Division of Water and Waste Management. Any underground injection activity not authorized in this permit is prohibited. Compliance with the terms of this permit does not constitute a defense to any action brought under Part C and the imminent and substantial endangerment provisions in Part D of the Safe Drinking Water Act (SDWA) or any other common or statutory law for a breach of another applicable legal duty.

E. PERMIT ACTIONS

- 1. Permit Status Change.** This permit can be modified, revoked and reissued or terminated for cause specified in Chapter 22, Article 11 (hereafter WV Code §22-11), and Chapter 22, Article 12 (hereafter WV Code §22-12) of the West Virginia Code, and Title 47, Series 13 (hereafter Legislative Rule 47 CSR 13) of the Legislative Rules. The filing of a request by the Permittee for a permit modification, revocation and reissuance, suspension or revocation, or notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- 2. Transfer of Permits.** This permit is not transferable to any person unless notice is first provided to the Office of Oil and Gas and the Permittee complies with requirements of Legislative Rule 47 CSR 13-13.17. The Office of Oil and Gas may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act (SDWA).

F. SEVERABILITY

The provisions of this permit are severable, and if any condition of this permit or the Permittee's application of any provision of this permit to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of other provisions of the permit and the remainder of this permit shall not be affected.

G. DURATION OF PERMIT

This permit and the authorization to inject are issued for a period of five (5) years unless terminated under Part III.H.11 of this permit. However, when through no fault of the Permittee the Office of Oil and Gas does not issue a new permit with an effective date on or before the expiration date of the previous permit and the Permittee has submitted a timely administratively complete application as required in Part III.A of this permit, which is a complete application for a new permit, the expired permit shall continue to remain fully effective and enforceable.

H. GENERAL REQUIREMENTS

- 1. Duty to Comply.** The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the SDWA and the State Act and is grounds for enforcement action; for permit suspension or revocation, revocation and reissuance, or modification; or for denial of a permit renewal application. (Legislative Rule 47 CSR 13-13.12.a) Copies of UIC Program regulations (WV Code §22-11) may be obtained from the West Virginia Legislature's Website <http://www.legis.state.wv.us/WVCODE/Code.cfm>, and (Legislative Rule 47 CSR 13) may be obtained from the West Virginia Secretary of State's Website at <http://www.sos.wv.gov/>.

2. **Duty to Reapply.** If the Permittee wishes to continue activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit as required in Part III.A of this permit at least one hundred and eighty (180) days before this permit expires.
3. **Duty to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The Permittee shall take all reasonable steps to minimize or correct any adverse impact on health of persons or the environment resulting from noncompliance with this permit.
5. **Proper Operation and Maintenance.** The Permittee shall at all times properly operate and maintain all facilities, systems of treatment and control, and related equipment which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operating staffing and training, adequate security at the facility to prevent unauthorized access, adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit.
6. **Duty to Provide Information.** The Permittee shall furnish to the Chief within a reasonable time, any information which the Chief may request to determine whether cause exists for modifying, revoking and reissuing, or revoking this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Chief, upon request, copies of records required to be kept by this permit. If the Permittee becomes aware of any incomplete or incorrect information in the permit application or subsequent report(s), the Permittee shall promptly submit information addressing these deficiencies to the Chief.
7. **Inspection and Entry.** The Permittee shall allow the Chief, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:
 - a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance for any substances or parameters at any location.

8. Penalties. Any person who violates a permit requirement is subject to civil penalties, criminal penalties, fines, and other enforcement actions under WV Code §22-11 and WV Code §22-12.

9. Signatory Requirements. Only a duly authorized person may sign documents and reports associated with this permit.

a. All reports required by this permit and other information requested by the Chief shall be signed as follows:

i. For a corporation, by a responsible corporate officer of at least the level of vice-president;

ii. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

iii. For a Municipality, State, Federal, or other public agency by either a principal executive or a ranking elected official.

b. A duly authorized representative of the official designated in paragraph a. above may also sign only if:

i. The authorization is made in writing by a person described in paragraph a. above;

ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and

iii. The written authorization is submitted to, and approved by, the Chief.

c. If an authorization under paragraph (b) of this section is no longer accurate because a different individual has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Chief prior to or together with any reports, information or applications to be signed by an authorized representative.

d. Any person signing a document under paragraph (b) of this section shall make the following certification: (Legislative Rule 47 CSR 13-13.11.d). *"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*

10. Property Rights. Issuance of this permit does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, any infringement of Federal, State or local law or regulations, or any exclusive privilege.

- 11. Permit Actions.** This permit may be modified, revoked and reissued, suspended, or revoked for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, suspension or revocation, or notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- 12. Confidentiality of Information.** In accordance with Legislative Rule 47 CSR 1313.21, any information submitted to the State pursuant to this rule may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions, or in the case of other submissions, by stamping the words "CONFIDENTIAL BUSINESS INFORMATION" on each page containing such information. An affidavit or written request stating the need for requested confidential documents to remain confidential must also be submitted with the documents.
- a. If no claim is made at the time of submission, the State may make the information available to the public without further notice.
 - b. Claims of confidentiality for the following information will be denied:
 - i. The name and address of any permit applicant or Permittee; or
 - ii. Information which deals with the existence, absence, or level of contaminants in drinking water.
- 13. Monitoring Reports.** Monitoring results shall be reported at the intervals specified under Part IV.B of this permit.
- 14. Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.
- 15. Other Information.** Where a Permittee becomes aware that he/she failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Chief, he/she shall promptly submit such facts or information.
- 16. Prohibited Activity.** It shall be unlawful for any person, unless an authorization has been issued by a groundwater regulatory agency, to allow crude oil, or any petroleum product derived from crude oil, or seepage, or natural gas, or condensate, or salt water, or any chemical mixture which may impact groundwater quality to escape from any well, pipeline, impoundment, storage tank, treatment unit, or storage container, or be allowed to flow onto or under the land surface or in such a manner that could impact surface or groundwater quality.
- 17. State or Federal Laws.** Nothing in this permit shall be construed to preclude the institution on any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any State or Federal law or regulation.

PART IV

A. RECORD RETENTION

Required Records. The Permittee shall retain all records concerning the permitted underground injection well until three (3) years after completion of any plugging and abandonment. The Chief may require the Permittee/Operator to deliver the records to the Chief at the conclusion of the retention period.

B. MONITORING REQUIREMENTS

- 1. Sampling and Measurement.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the fluid to be analyzed and the procedure for analysis of the sample shall be in accordance with test procedures approved under 40 CFR 136.3, unless otherwise approved by the Chief. The Permittee shall identify the types of tests and methods used to generate the monitoring data.
- 2. Monitoring Devices.** The Permittee shall install and maintain in good operating condition:
 - a.** A tap on the discharge line between the injection pump and the wellhead for obtaining representative samples of injection fluids;
 - b.** Devices to continuously measure and record injection pressure, flow rates, injection and production volumes;
 - c.** Pressure gauges shall be of a design that provides a full pressure range of at least fifty (50) percent (%) greater than the anticipated operating pressure and a certified deviation accuracy of five (5) percent (%) or less throughout the operating pressure range; and
 - d.** Flow meters shall measure cumulative volumes and be certified for a deviation accuracy of five (5) percent (%) or less throughout the range of rates allowed by the permit.
- 3. Wellhead Pressure Gauge.** A wellhead pressure gauge shall be installed and maintained on the injection tubing or a port provided for temporary gauges to facilitate inspection and ensure compliance of the maximum wellhead injection pressures as approved on Office of Oil and Gas Form WR-37. A daily reading of the maximum injection pressure shall be taken and reported on Form WR-40.

- 4. Daily Monitoring.** The Permittee shall daily monitor all the casing annuli with pressure sensitive devices or with such a method as approved or required by the Office of Oil and Gas to allow early detection of any leaks from the packer, injection zone or casing. The Permittee shall also monitor the daily maximum injection pressure, volume, and rate daily. This information shall be reported monthly using the Office of Oil and Gas electronic WR-40 Form. Submittal shall be through the current WVDEP Electronic Submittal System (ESS): <https://apps.dep.wv.gov/eplogin.cfm>
- 5. Monitoring Records.** Records of monitoring information shall include:
- a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analysis(es) were performed;
 - d. Individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
- 6. Injection Well Mechanical Integrity Testing (MIT).** The Permittee shall conduct a mechanical integrity test of the injection well at a minimum frequency of once every five (5) years per Legislative Rule 35 CSR 4-7.7.b. The Permittee shall notify the Chief of his or her intent to conduct a mechanical integrity test no less than twenty-four (24) hours prior to such demonstration. The Permittee must submit a WR-37 Form to the Office of Oil and Gas within thirty (30) days of each mechanical integrity test conducted. When a pressure test is conducted, the Permittee must submit a pressure recording graph/chart as an attachment to the WR-37 Form. The pressure requirement of a mechanical integrity test on a well is a pressure of at least 150% or 1.5 times the maximum injection pressure. The pressure must be held for a period of at least 20 minutes with no more than 5% pressure loss to be approved for injection operations. Upon failure of a mechanical integrity test or expiration of the five (5) year mechanical integrity test regulatory period, the Permittee shall cease operation/injection and shut-in the well immediately until successfully repaired, tested or permanently plugged and abandoned per regulation. Each mechanical integrity test failure must be documented on the WR-37 Form and submitted with any pressure recording graph/chart. Corrective action for repairs shall be completed for approval by the Office of Oil and Gas and be conducted within ninety (90) days of the failure date. If repaired, the well must be retested and an updated WR-37 Form with any pressure recording graph/chart must be submitted to the Office of Oil and Gas for approval.

- 7. Pipeline Mechanical Integrity Testing (MIT).** All pipeline(s) from the injection pump to the injection well shall be tested for integrity at least once every five (5) years with the results reported on the WR-37 Form along with the pressure test recording graph/chart and then submitted to the Office of Oil and Gas within thirty (30) days. The pipeline integrity test shall pressurize the injection pipeline(s) to 100 psi greater than the maximum permitted wellhead injection pressure for a minimum of twenty (20) minutes, allowing for no more than five (5) percent loss after completion. The Permittee shall notify the Chief of his or her intent to conduct an integrity test of the pipeline(s) no less than twenty-four (24) hours prior to such test. Upon failure of a mechanical integrity test or expiration of the five (5) year mechanical integrity test regulatory period, the Permittee shall cease operation/injection and shut-in the well immediately until successfully repaired, replaced and then tested. Repairs shall be completed by the Permittee and approved by the Office of Oil and Gas prior to resuming operations. All repairs shall be completed within ninety (90) days of the failure date. If repaired, the line must be re-tested and an updated WR-37 Form with pressure recording graph/chart must be submitted to the Office of Oil and Gas for approval. Any change made to the pipeline fittings or piping will require integrity pressure testing. All Office of Oil and Gas forms, including the WR-37 form can be found on the Office of Oil and Gas webpage: <http://www.dep.wv.gov/oil-and-gas/GI/Forms/Pages/default.aspx>.
- 8. Additional MIT Requirements.** In addition to the above requirement, a mechanical integrity test demonstration shall be conducted whenever protective casing or tubing is removed from the well, the packer is replaced or resealed, if a well failure is likely, or as requested by the Chief. The Permittee may continue operation only if they have successfully demonstrated to the Chief the mechanical integrity of the permitted well. The Permittee shall cease injection operations if a loss of mechanical integrity becomes evident or if mechanical integrity cannot be demonstrated. The Permittee must submit a written notification to Office of Oil and Gas within 24 hours if mechanical integrity of the well is lost. The notification must include a plan to repair and retest of the well within 90 days.
- 9. Environmental Measurements.** All environmental measurements required by the permit, including but not limited to, measurements of pressure, temperature, mechanical, and chemical analyses shall be done in accordance with state guidance on quality assurance. All analysis must be performed by a West Virginia certified laboratory. Certified laboratories can be found on the WVDEP webpage at [http://www.dep.wv.gov/WWE/Program ab/Pages/default.aspx](http://www.dep.wv.gov/WWE/Program%20ab/Pages/default.aspx).
- 10. Authorized Injection Fluids.** The Permittee shall not inject any hazardous substances, as defined by 40CFR261. This permit is for authorization of injection of only fluids as defined for Class II wells in Legislative Rule 47CSR13.4.2b. Only Class II fluids produced solely in association with oil and gas production operations within the field boundary and/or fresh water may be injected. No waste liquids derived from outside the permit boundary may be injected.

11. Injectate Samples. The Permittee shall sample, analyze and record the nature of all the injected fluid for the parameters listed in TABLE 1 from sources at least once a year, or upon request of the Chief, or whenever the Operator observes or anticipates a change in the injection fluid, to yield representative data on their physical, chemical, or other relevant characteristics. New facilities shall submit a representative sample prior to the initiation of injection operations. The Permittee shall take samples at or before the wellhead for analysis. Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods and test results shall be submitted to the Office of Oil and Gas with complete laboratory analysis data sheets (report). Any analysis of injectate with a specific gravity result greater than 1.2 shall be reported to the Chief within twenty-four (24) hours of the results.

TABLE 1

Chloride	TPH-GRO
Bromide	TPH-DRO
Strontium	TPH-ORO
Barium	Benzene (B)
Iron	Ethylbenzene (E)
Manganese	Toluene (T)
Aluminum	Total Xylenes (X)
Arsenic	Total Dissolved Solids (TDS)
Sodium	Total Organic Carbon (TOC)
Calcium	Total Suspended Solids (TSS)
Sulfate	Radium-226 and Radium 228
Specific Gravity	Gross Alpha and Gross Beta
pH	

C. REPORTING AND NOTIFICATION REQUIREMENTS

- 1. Anticipated Noncompliance.** The Permittee shall give advance notice to the Chief of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- 2. Other Noncompliance.** The Permittee shall report all instances of noncompliance not reported under paragraphs Part III.B, and Part IV.C.3 of this permit, at the time monitoring reports are submitted. The report shall contain the information listed in Part III.B of this permit. The Permittee shall report all other instances of noncompliance in writing within ten (10) days of the time the Permittee becomes aware of the circumstances. The reports shall contain the information listed in this permit.
- 3. Planned Changes.** The Permittee shall give notice to the Chief as soon as possible of any planned physical alterations, additions to the permitted facility, and/or any changes planned in the operation of the facility.

4. **Conversion and Abandonment Notification.** The Operator shall provide written notification to the Chief prior to conversion or abandonment of the well or in the case of area/enhanced recovery permits before closure of the project, per Legislative Rule 47 CSR 13.6.e. Notice should be given at least thirty (30) days prior to any conversion, abandonment, or alteration. Notice shall also be given prior to the addition, reduction, or conversion of wells within an area/enhanced recovery permit.
5. **Cessation of Injection Activity.** Any well which is not in use for a period of twelve (12) consecutive months shall be presumed to have been abandoned and shall promptly be plugged by the Operator in accordance with the provisions in Chapter 22, Article 6 Section 24 of the West Virginia Code, unless the Operator furnishes satisfactory proof to the Chief that there is a bona fide future use for such well. All lines shall be completely drained of all fluids and the wellhead shut-in anytime injection operations cease for a period of greater than ninety (90) days. The Office of Oil and Gas must be contacted at least twenty-four (24) hours prior to the cessation shut-in process.
6. **Certification of Permit Review.** Within thirty (30) days of receipt of this permit, the Permittee shall report to the Chief that he or she has read and understands and accepts all terms and conditions of the permit. The Certification Document is included as an attachment of this permit, and must be signed, dated and submitted to Office of Oil and Gas.
7. **Duty of Owner/Operator to Report Discharges.** The Owner or Operator or person in charge of a facility subject to this rule from which a reportable discharge, as described in Subsection 3.3 of Legislative Rule 35CSR1, occurs shall notify the Office of Oil and Gas by calling **1-800-642-3074** immediately; but in no case, later than twenty-four (24) hours after becoming aware of the discharge.

PART V

A. OPERATING REQUIREMENTS

1. **Permit Documents On-Site.** The UIC Permit and all attachments must be kept on location at all times.
2. **Required Barrel Counter.** The Permittee shall install and maintain a barrel counter, or other means of flow volume metering, on the injection line. The results are to be recorded and reported on the WR-40.
3. **Annulus Injection Prohibited.** Injection between the outermost casing protecting underground sources of drinking water and the wellbore is prohibited, as is injection into any USDW.

- 4. Corrective Action.** The applicant must satisfy the requirements regarding corrective action required by Legislative Rule 47CSR13.13.9 as follows:
- a.** The hydrostatic fluid level in production wells within the permitted Area of Review that penetrate the injection zone and are improperly sealed, completed, or abandoned shall be monitored on a ninety (90) day schedule and the results recorded throughout the life of the permit. A report of the initial monitoring shall be submitted to the Office of Oil & Gas within ninety (90) days of permit issuance and anytime upon request of the Chief thereafter. In the event that a producing well exhibits a fluid level above sea level elevation then the Office of Oil and Gas must be contacted within twenty-four (24) hours and a remedial plan shall be submitted to the Office of Oil and Gas with ten (10) days.
 - b.** All designated Observation wells shall be monitored on a ninety (90) day schedule and the results recorded throughout the life of the permit. The monitoring records shall be submitted to the Chief or his designated representative when requested. A report of the initial monitoring shall be submitted to the Office of Oil & Gas within ninety (90) days of permit issuance and anytime upon request of the Chief thereafter. In the event that a producing well exhibits a fluid level above sea level elevation then the Office of Oil and Gas must be contacted within twenty-four (24) hours and a remedial plan shall be submitted to the Office of Oil and Gas with ten (10) days.
- 5. Cement Evaluation Analysis.** After conducting a cement squeeze job in an open hole, or after any well cement repair for the well-constructed under this permit, the Permittee shall submit cementing records and cement evaluation logs that demonstrate the isolation of the injection interval(s). The analysis shall include a spherically focused tool, run after the long-string casing is set and cemented, which enables the evaluation of the bond between cement and casing as well as of the bond between cement and formation. The Permittee may not commence or recommence injection until it has received written notice from the Office of Oil and Gas that such a demonstration is satisfactory.
- 6. Loading/Unloading Stations.** Loading and unloading stations shall have spill prevention and control facilities and procedures as well as secondary containment. Spill containment and cleanup equipment shall be readily accessible.
- 7. Above Ground Storage Tanks.**
- a.** The Permittee shall ensure that secondary containment for existing above ground storage tank(s) shall be adequately designed and constructed to be sufficiently impervious to prevent the released substance from penetrating the containment structure until the release can be detected and recovered, but in no case, shall that time be less than seventy-two (72) hours. The secondary containment structure shall have capacity to contain 110% volume of the largest tank. If tank batteries or tanks are connected in series by manifold, the combined volume of the tanks must be considered if the tanks are capable of simultaneous release. The combined capacity of the tanks connected by manifold shall be considered unless the tanks are operated in a manner that prevents fluids from flowing from one tank to another under any conditions.

- b. Above ground tanks connected in series by a manifold shall utilize a system where valves are closed and locked to isolate tanks when their combined volume exceeds the secondary containment capacity. At no time, shall the combined volume of the tanks be accessible through the manifold system exceed the capacity of the secondary containment without someone being on site to monitor.
 - c. All above ground storage tanks within the floodplain, as defined by the Federal Emergency Management Agency "FEMA" 100-year floodplain map, shall be anchored significantly enough to prevent movement in the case of a high-water flood event. The Permittee should contact the county floodplain manager to confirm the floodplain status of the tank(s) location(s).
- 8. Wellhead Reinforcement.** All wellheads shall be reinforced or otherwise armored to protect against accidental collisions, if so positioned where collision could be possible.
- 9. Pumps and Ancillary Equipment.** Pumps and ancillary equipment (e.g. valves, flanges, filters, condensate lines and instrumentation) handling materials that have the potential to contaminate groundwater shall be selected and installed to prevent or contain any spills or leaks.
- 10. Sumps.** Sumps containing materials which have the potential to contaminate groundwater shall be designed, constructed and operated utilizing secondary containment, or other appropriate controls that can prevent groundwater contamination.
- 11. Facility Security.** All valves, water drains, containment areas, and storage areas shall be secured and locked utilizing locking devices and/or plugs. All gates and access points shall be secured and locked while no representative is at the facility.
- 13. Duty to Drain Injection Pipelines.** All lines shall be completely drained of all fluids and the wellhead shut-in anytime injection operations cease for a period of greater than ninety (90) days. The Office of Oil and Gas must be contacted at least twenty-four (24) hours prior to the cessation shut-in process.

B. PLUGGING AND ABANDONMENT

- 1. Any well which is not in use for a period of twelve (12) consecutive months shall be presumed to have been abandoned and shall promptly be plugged by the Operator in accordance with the provisions of Chapter 22, Article 6, of the West Virginia Code, unless the Operator furnishes satisfactory proof to the Chief that there is a bona fide future use for such well.
- 2. Plugging and abandonment shall be conducted in a manner to prevent movement of fluids into or between USDWs (underground sources of drinking water).
- 3. Pursuant to Legislative Rule 47 CSR 13-13.7.f, the Permittee's plugging and abandonment plan shall be incorporated into the UIC permit. See Attachment 1.

4. Prior to well plugging, the Permittee shall apply for and receive a plugging permit from the Office of Oil and Gas to plug and abandon the well in accordance with an approved plugging and abandonment plan.

PART VI

A. SITE SPECIFIC CONDITIONS

1. Appendix C: Injection Well List.
2. Appendix H: Groundwater Protection Plan (GPP).
3. Appendix I: Requirement for Financial Responsibility to plug/abandon an injection well.
4. Attachment 1: Plugging and Abandonment Plan.
5. Attachment 2: Site/Facility Diagram.
6. Right of Appeal
7. UIC Certification of Review

Appendix F
Area Permit Wells - Injectors

Ground Resources, LLC
2R08700008AP
Tariff Field

	API No.	Well Name	Well Type	Well Status	Easting	Northing
1	4708700701	Looney 28	Fluid Injection	Shut-In	481656.0	4278648.0
2	4708702080	Tallman 54	Fluid Injection	Shut-In	481550.6	4277629.1
3	4708702405	Tallman 55	Fluid Injection	Shut-In	481849.0	4277612.0
4	4708702406	Tallman 56	Fluid Injection	Shut-In	481763.0	4277369.6
5	4708702407	Tallman 57	Fluid Injection	Shut-In	481558.3	4277327.8
6	4708702408	Tallman 58	Fluid Injection	Shut-In	481369.9	4277506.4
7	4708702409	Tallman 59	Fluid Injection	Shut-In	481337.3	4277597.0
8	4708702638	Looney 7	Fluid Injection	Shut-In	481742.0	4278369.0
9	4708702778	MJ Snodgrass 12	Fluid Injection	Shut-In	482826.1	4279392.6
10	4708702844	Tallman 40	Fluid Injection	Shut-In	482567.9	4279365.8
11	4708703096	Looney 18	Fluid Injection	Shut-In	481486.8	4279529.4
12	4708703604	Tallman 61	Fluid Injection	Shut-In	481870.8	4277883.6
13	4708703605	Tallman 62	Fluid Injection	Shut-In	481870.8	4277883.6
14	4708703608	Tallman 65	Fluid Injection	Shut-In	481227.5	4277766.9
15	4708703660	Looney 31	Fluid Injection	Shut-In	481758.5	4278368.1
16	4708703774	Looney 40	Fluid Injection	Shut-In	481566.4	4279126.9
17	4708703775	Tallman 70	Fluid Injection	Shut-In	481889.7	4278449.3
18	4708703776	Tallman 71	Fluid Injection	Shut-In	481890.1	4278626.5
19	4708703778	Tallman 73	Fluid Injection	Shut-In	482180.5	4278899.6
20	4708703781	Looney 39	Fluid Injection	Shut-In	481621.0	4278864.0
21	4708703875	Looney 42	Fluid Injection	Shut-In	481435.8	4278385.9
22	4708703878	Tallman 76	Fluid Injection	Shut-In	482147.6	4278561.5
23	4708703879	Tallman 75	Fluid Injection	Shut-In	482066.8	4278465.0
24	4708703880	Looney 41	Fluid Injection	Shut-In	481502.4	4279335.9
25	4708704013	Tallman 64	Fluid Injection	Shut-In	481160.3	4277629.7
26	4708704078	Looney 43	Fluid Injection	Shut-In	481298.0	4279125.0
27	4708704172	Looney 50	Fluid Injection	Shut-In	481191.0	4279045.0

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: Tariff Field - See Attached SPCCounty: RoaneFacility Location: Tariff

Postal Service Address:	1422 Tariff Road		
	Left hand WV 25251		
Latitude :	38.662600	Longitude:	81.2123999

Contact Information:

Person:	Jodi Sutro
Phone Number:	(304) 587-4477
E-mail Address:	jodi.sutro@groundresourcesllc.com

Date: 10/26/17

1. A list of all operations that may contaminate the groundwater.

Oil / Gas Production, Water injection.

possible injection and gathering pipeline leaks,
possible containment structure leaks,
possible equipment leaks,
possible tank truck leaks if used.

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

Secondary Containment has been installed to contain 110% of liquids stored. Spill response equipment is stored at Office Field Office.

3. List procedures to be used when designing and adding new equipment or operations.

Secondary Containment will be installed for new equipment.

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WV Department of
Environmental Protection



4. Summarize all activities at your facility that are already regulated for groundwater protection.

Oil/gas production, water injection

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

Water samples have been analyzed to establish a baseline for previous permits

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

No Waste water will be used for deicing or fill material on the property unless allowed by another rule

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

Employees have received training on how to best management practices and spill response during safety training sessions.

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8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

Provisions for inspections have been included in the SPPC Plan.

Signature: David Fuh

Date: 10/30/17

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APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

To: WV Department of Environmental Protection
Office of Oil and Gas
601 57th Street, SE
Charleston, West Virginia 25304-2345
ATTN: Underground Injection Control Program

From: Ground Resources, LLC
513 Charleston Road
Spencer, WV 25276

Date:

10/26/17

Subject: Underground Injection Control (UIC) Permit Application
2R08702AF
Requirement for Financial Responsibility

I, David W Heeter, verify in accordance with 47CSR13-13.7.g., that I will maintain financial responsibility and resources to close, plug, and abandon underground injection wells(s) in a manner prescribed by the Chief of the Office of Oil and Gas.

Name:

David W Heeter

Signature:

David Heeter

Date:

10/26/17

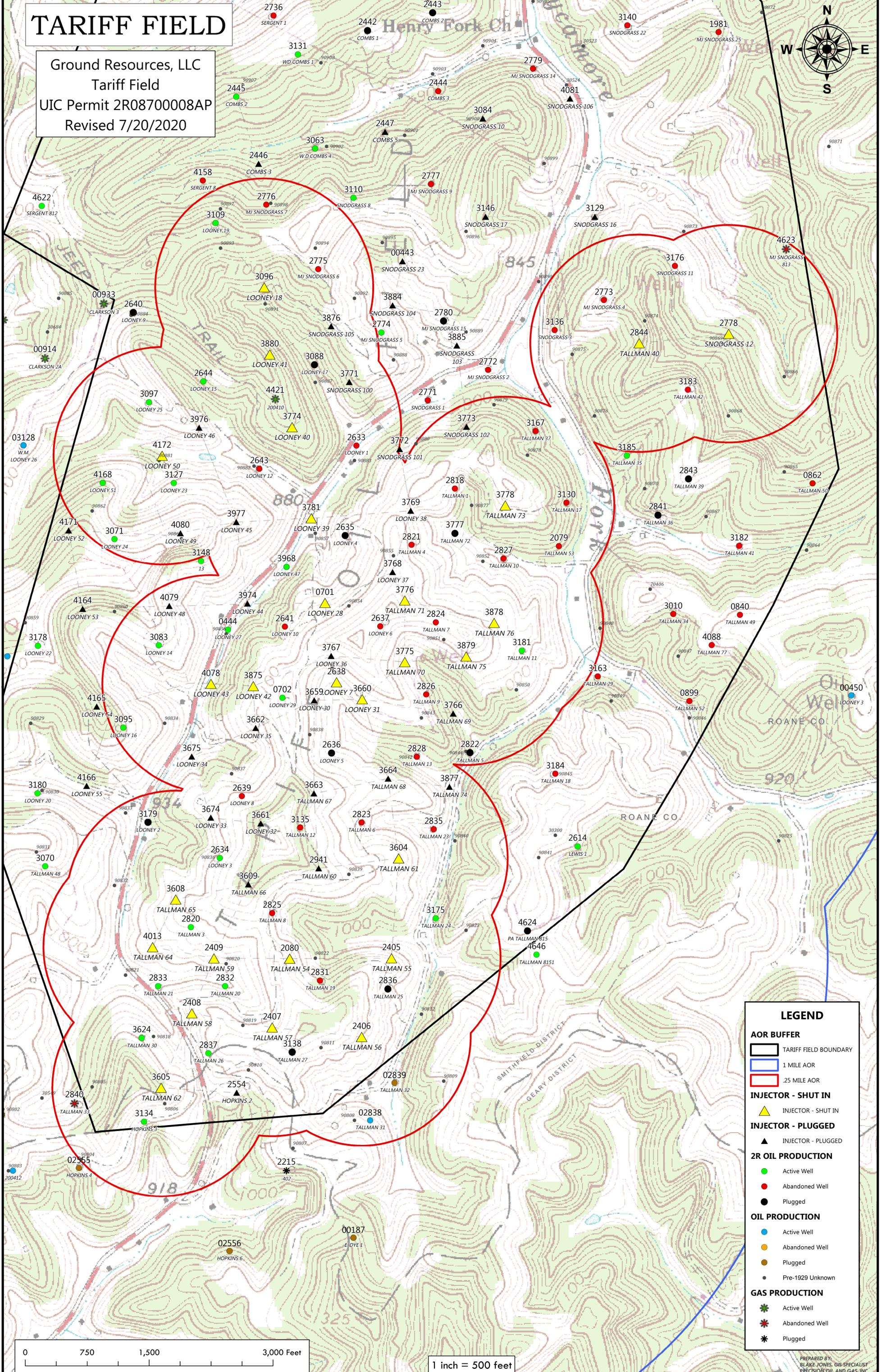
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WV Department of
Environmental Protection

Section 12

A well work plugging permit must be obtained from the West Virginia Department of Environmental Protection Office of Oil and Gas before beginning any well plugging operation. Plan will be in compliance with all applicable plugging and abandonment regulations including 35CSR4-13. The guidelines provided in Oil and Gas rule and code will be followed to complete the necessary application to plug and abandon. The cement plug will be a minimum of 100 feet in thickness. A cement plug will be set above any perforation(s) and/or shot hole(s). All casings will be free pointed and as much casing will be removed as possible. A cement plug will be used to separate oil and gas bearing formations. A cement plug will be placed across all casing cuts. An elevation plug will be placed in each. If surface casing is cemented to surface a cement plug will be placed across the shoe and at the surface. If there is no cemented surface casing then a cement plug will be placed across fresh water zone and at the surface. Gel will be used as a spacer between all cement plugs.

TARIFF FIELD

Ground Resources, LLC
Tariff Field
UIC Permit 2R08700008AP
Revised 7/20/2020



LEGEND

AOR BUFFER

- TARIFF FIELD BOUNDARY
- 1 MILE AOR
- 25 MILE AOR

INJECTOR - SHUT IN

- INJECTOR - SHUT IN

INJECTOR - PLUGGED

- INJECTOR - PLUGGED

2R OIL PRODUCTION

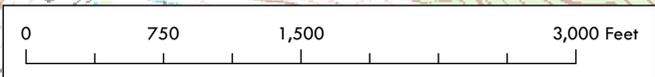
- Active Well
- Abandoned Well
- Plugged

OIL PRODUCTION

- Active Well
- Abandoned Well
- Plugged
- Pre-1929 Unknown

GAS PRODUCTION

- Active Well
- Abandoned Well
- Plugged

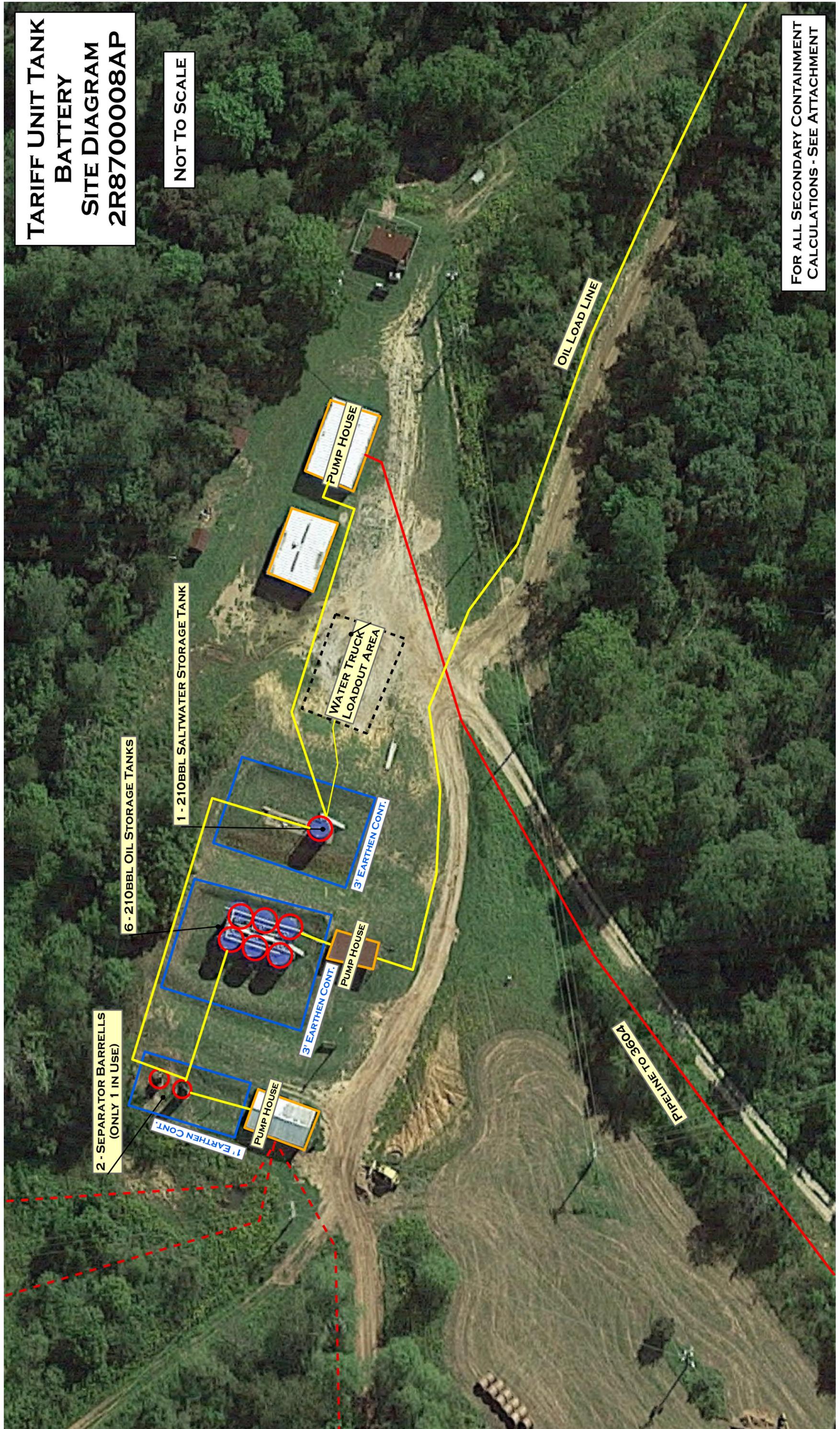


1 inch = 500 feet

TARIFF UNIT TANK
BATTERY
SITE DIAGRAM
2R8700008AP

NOT TO SCALE

FOR ALL SECONDARY CONTAINMENT
CALCULATIONS - SEE ATTACHMENT



2 - SEPARATOR BARRELS
(ONLY 1 IN USE)

6 - 210BBL OIL STORAGE TANKS

1 - 210BBL SALTWATER STORAGE TANK

PUMP HOUSE

PUMP HOUSE

WATER TRUCK
LOADOUT AREA

3' EARTHEN CONT.

3' EARTHEN CONT.

PUMP HOUSE

1' EARTHEN CONT.

PUMP HOUSE

OIL LOAD LINE

PIPELINE TO 3604

RIGHT OF APPEAL

Notice is hereby given of your right to appeal the terms and conditions of this permit of which you are aggrieved to the Environmental Quality Board by filing a NOTICE OF APPEAL, on the form prescribed by such Board for this purpose, in accordance with the provisions of Section 21, Article 11, Chapter 22 of the Code of West Virginia within thirty (30) days after the date of receipt of this permit.

Underground Injection Control Permit

CERTIFICATION DOCUMENT

West Virginia Department of Environmental Protection
Office of Oil and Gas

Permit Id: **2R08700008AP**
-
Permit Name: **Ground Resources, LLC**

In accordance with Part II, Reporting and Notification Requirements, I hereby certify that I have read and am personally familiar with all the terms and conditions of this permit.

I understand that the underground injection of any waste streams other than those provided for in this permit is strictly prohibited. I understand that failure to pay the Annual Permit Fee or any other associated fees required by West Virginia Code, Chapter 22, Articles 11 and 12 shall be cause for revocation of this Permit. I further understand that reporting is required, and noncompliance with the terms of this permit will be cause for revocation of the permit and subject me to significant penalties including the possibility of fines and imprisonment.

Signature

Name and Title (Type or Print)

Date