

**AUTHORIZATION TO OPERATE AN
UNDERGROUND INJECTION CONTROL
(UIC) CLASS 2 INJECTION WELL
PERMIT NUMBER No. 2R09500004AP**

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,

Ascent Resources – Marcellus, LLC
Suite 600 Caffery Parkway
Lafayette, LA 70503

FACILITY TYPE: Area Permit (EOR)
FIELD NAME: Stringtown

is authorized by this permit to inject Class 2 fluids that are brought to the surface in connection with conventional oil or natural gas production and fresh water into the Gordon Sand 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 in McElroy, McClellan, and Green Districts of Wetzel, Tyler, and Doddridge Counties on the Center Point and Pine Grove 7.5' Quadrangles. The coordinates for this injection field are: UTM NAD 83 Northing 4367888 and Easting 526584 Latitude 39.460154, Longitude -80.6900985.

The maximum permitted wellhead injection pressure for all injection wells in the Stringtown Field is established as 652 psi. The minimum mechanical integrity test (MIT) pressure for all injection wells is 717 psi. Individual well pressures will be approved upon submittal of form WR-37.

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.10) 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.5 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 2R 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 Emergency Spill number **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 the 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 the 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, 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 minimum test pressure for all permitted injection wells in the Stringtown Field is **717** psi. (652 x 1.1). 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 **752** psi (652 + 100) 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 retested 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://wwwv.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 the Office of Oil and Gas within 24 hours if mechanical integrity of the well is lost.

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 <https://dep.wv.gov/WWE/Prourams/lab/Documents/Certified-Lab-Lists/Commercial%20Labs.pdf>

10. **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

Aluminum	Iron	pH
Arsenic	Manganese	Specific Gravity
Barium	Sodium	Total Dissolved Solids (TDS)
Bromide	Strontium	
Calcium	Sulfate	Radium-226 and Radium 228
Chloride		Gross Alpha and Gross Beta

C. REPORTING AND NOTIFICATION REQUIREMENTS

1. **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 the Office of Oil and Gas.
2. **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.
3. **Other Noncompliance.** The Permittee shall report all instances of noncompliance not reported under paragraphs Part III.B, and Part IV.C.1 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.
4. **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.
5. **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.
6. **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.
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 Emergency Spill number **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. **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 2 wells in Legislative Rule 47CSR13.4.2b. Only Class 2 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.
3. **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.
4. **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.
5. **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 and Gas within ninety (90) days of permit issuance and anytime upon request of the Chief thereafter. If 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 and Gas within ninety (90) days of permit issuance and anytime upon request of the Chief thereafter. If 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.

- 6. 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.
- 7. 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.
- 8. 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).
- 9. Wellhead Reinforcement.** All wellheads shall be reinforced or otherwise armored to protect against accidental collisions, if so positioned where collision could be possible.
- 10. 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.

- 11. 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.
- 12. 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. 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 A
Injector Well List
Stringtown Field**

	API #	Name / No.	Easting	Northing	Well Type	Well Status	Penetrate Injection Zone	Penetrate Confining Zone	Surface Elevation	Total Vertical Depth	Perf Depth
1	4701704299	C. Wright 5	525840.0	4364197.2	Injector	Shutin	Y	Y	1006	2960	2856
2	4701705243	O.W.O. Hardman 1	526146.7	4363924.4	Injector	Shutin	Y	Y	1330	3380	3173
3	4701705273	C. Wright 7	525633.0	4364264.0	Injector	Shutin	Y	Y	1026	3120	2884
4	4709501124	Thomson Heirs 8	525861.5	4367402.6	Injector	Shutin	Y	Y	908	2880	2788
5	4709501410	J. Lemasters 18	526572.0	4368201.0	Injector	Shutin	Y	Y	854	3010	2920
6	4709501411	M.H. Pennick 9	526375.4	4367662.1	Injector	Shutin	Y	Y	996	3000	2906
7	4709501412	F.M. Lemasters 10	525652.2	4366884.5	Injector	Shutin	Y	Y	1235	3206	3144
8	4709501416	F.R. Ball 20	527035.9	4367422.7	Injector	Shutin	Y	Y	877	2856	2776
9	4709501417	J.B. Gorrell 4	527053.8	4366907.4	Injector	Shutin	Y	Y	1232	3285	3210
10	4709501418	J.B. Gorrell 5	526537.9	4367211.6	Injector	Shutin	Y	Y	852	3015	2966
11	4709501420	M.H. Pennick 8	526375.4	4367662.1	Injector	Shutin	Y	Y	1186	3220	3068
12	4709501501	J. Lemasters 20	526501.2	4368533.6	Injector	Shutin	Y	Y	1150	3190	3046
13	4709501506	L.J. Lemasters K-12	527368.4	4368939.3	Injector	Shutin	Y	Y	911	2985	2914
14	4709501509	S.P. Lemasters J-10	527258.3	4368246.3	Injector	Shutin	Y	Y	1114	3142	3028
15	4709501510	S.P. Lemasters M-10	527997.2	4368539.0	Injector	Shutin	Y	Y	1033	3050	2948
16	4709501511	L.J. Lemasters M-12	528033.0	4369042.0	Injector	Shutin	Y	Y	1030	3136	3024
17	4709501512	C.C. Pennick M-14	527903.0	4369535.0	Injector	Shutin	Y	Y	1000	3005	2906
18	4709501515	C. McCoy L-8	527694.1	4367829.1	Injector	Shutin	Y	Y	1355	3326	3260
19	4709501524	Nancy Allen M-9	528068.1	4367983.4	Injector	Shutin	Y	Y	1013	3021	2896
20	4709501530	W.J. Wharton D-7	525507.1	4367530.3	Injector	Shutin	Y	Y	1105	3090	2982
21	4709501531	F.M. Lemasters D-6	525345.2	4367037.8	Injector	Shutin	Y	Y	1381	3375	3248
22	4709501532	J.H. Dawson F-14	526144.4	4369386.1	Injector	Shutin	Y	Y	1427	3788	3668
23	4709501533	J.T. Eddy N-10B	528299.8	4368778.5	Injector	Shutin	Y	Y	1379	3390	3260
24	4709501535	A.D. Lemasters H-12	526515.7	4369000.8	Injector	Shutin	Y	Y	961	2966	2849
25	4709501539	J.H. Dawson F-12	526097.7	4368934.9	Injector	Shutin	Y	Y	1256	3420	3288
26	4709501541	R.M. Stackpole F-9	526260.3	4368420.0	Injector	Shutin	Y	Y	1255	3407	3324
27	4709501542	Q. Huffman F-11	526244.4	4368355.6	Injector	Shutin	Y	Y	1001	3021	2879
28	4709501543	J.N. Glover E-8	525715.0	4367902.8	Injector	Shutin	Y	Y	1011	3052	2906
29	4709501554	J. Lemasters 15	526121.6	4367653.2	Injector	Shutin	Y	Y	1243	3237	3135
30	4709501565	R.L. Ball L-7	527969.1	4367426.0	Injector	Shutin	Y	Y	830	3007	2904
31	4709501604	F.R. Ball K-5	527408.1	4366812.0	Injector	Shutin	Y	Y	1148	3148	3034
32	4709501621	M.A. Eddy O-7	528612.1	4367589.6	Injector	Shutin	Y	Y	1375	3383	3230
33	4709501626	W.M. Fluharty D-14	525388.3	4369415.8	Injector	Shutin	Y	Y	1004	3025	2870
34	4709501627	E. Longstreth E-12	525548.0	4368928.0	Injector	Shutin	Y	Y	885	2882	2750
35	4709501628	A. Glover C-9	525183.4	4368126.5	Injector	Shutin	Y	Y	846	2846	2718
36	4709501641	F.R. Ball M-6	527986.6	4367023.4	Injector	Shutin	Y	Y	893	2925	2774
37	4709501646	Martha Elder 11	526544.4	4365311.0	Injector	Shutin	Y	Y	1097	3143	2979
38	4709501648	U Stackpole E-11	525632.2	4368627.3	Injector	Shutin	Y	Y	1297	3328	3170
39	4709501655	Martha Elder 12	526111.6	4364794.1	Injector	Shutin	Y	Y	1304	3360	3176
40	4709501657	Issac Baker 5	525741.6	4364728.4	Injector	Shutin	Y	Y	1030	3020	2898
41	4709501659	Baker Heirs 11	525739.9	4365243.8	Injector	Shutin	Y	Y	1168	3172	3028
42	4709501662	B.A. Swiger 7	525288.0	4365628.9	Injector	Shutin	Y	Y	800	2841	2680
43	4709501663	Silas Wyatt E-2B	525689.0	4366049.0	Injector	Shutin	Y	Y	1007	3020	2890
44	4709501666	J.L. McIntyre 12	526446.0	4365826.1	Injector	Shutin	Y	Y	1320	3336	3200
45	4709501667	Martha Elder 13-R	526045.6	4365261.0	Injector	Shutin	Y	Y	1017	2990	2929
46	4709501687	L.J. Lemasters 3-A	527674.1	4368924.3	Injector	Shutin	Y	Y	1054	3050	2963
47	4709501688	A.D. Lemasters 13-A	527627.5	4368473.1	Injector	Shutin	Y	Y	1274	3299	3144
48	4709501749	Baker Heirs 12	526062.3	4365083.8	Injector	Shutin	Y	Y	893	3097	2976
49	4709501750	Martha Elder 15	526544.4	4365311.0	Injector	Shutin	Y	Y	1159	3239	3084
50	4709501763	Martha Elder 16	526559.2	4365681.5	Injector	Shutin	Y	Y	812	2885	2785
51	4709501766	Peter Horner 13	526573.4	4366229.2	Injector	Shutin	Y	Y	1247	3234	3131
52	4709501770	Tennant Heirs 3	526076.3	4365712.1	Injector	Shutin	Y	Y	933	2970	2802
53	4709501777	Isaac Baker 6	525740.7	4365018.3	Injector	Shutin	Y	Y	925	2940	2794
54	4709501794	H.J. Ingram 5	526830.4	4366375.0	Injector	Shutin	Y	Y	1006	3030	2888
55	4709501795	E.T. Parks 7	526831.3	4366117.3	Injector	Shutin	Y	Y	919	2990	2797
56	4709501836	J.Q. McIntyre 11	526866.2	4365312.1	Injector	Shutin	Y	Y	1045	3110	2897
57	4709501837	M.V. Baker 22	526916.4	4364780.7	Injector	Shutin	Y	Y	913	3020	2785
58	4709501838	M.V. Baker 23	526963.7	4365038.6	Injector	Shutin	Y	Y	1033	3080	2898
59	4709501839	J.Q. McIntyre 10	526817.1	4365553.5	Injector	Shutin	Y	Y	799	2810	2656
60	4709501851	B.A. Swiger 9	525429.0	4365889.0	Injector	Shutin	Y	Y	1231	3300	3122
61	4709501889	F.R. Ball 23	527137.6	4367283.5	Injector	Shutin	Y	Y	1207	3200	3053
62	4709501890	Isaac Baker 10	525331.7	4364921.3	Injector	Shutin	Y	Y	1347	3470	3243
63	4709501892	L.J. Lemasters 8	528004.5	4368752.9	Injector	Shutin	Y	Y	1124	3200	2959
64	4709501896	J. Haught 7	525143.0	4365179.0	Injector	Shutin	Y	Y	890	3050	2780
65	4709501899	J.B. Gorrell 6	526893.8	4367093.0	Injector	Shutin	Y	Y	1217	3330	3113
66	4709501903	L.J. Lemasters 9	527646.3	4369278.7	Injector	Shutin	Y	Y			

	API #	Name / No.	Easting	Northing	Well Type	Well Status	Penetrate Injection Zone	Penetrate Confining Zone	Surface Elevation	Total Vertical Depth	Perf Depth
67	4709501909	F.M. Lemasters 12	525461.2	4366635.8	Injector	Shutin	Y	Y	1029	3120	2686
68	4709501910	W.J. Wharton 6	525415.5	4367298.7	Injector	Shutin	Y	Y	1024	3090	2881
69	4709501913	C.C. Penick 56	528019.7	4369293.9	Injector	Shutin	Y	Y	1145	3300	3054
70	4709501916	A.D. Lemasters 26	527532.0	4368897.7	Injector	Shutin	Y	Y	955	3224	3040
71	4710300906	Rachel Wright 3	526430.0	4374091.8	Injector	Active	Y	Y	854	2697	2682
72	4710300947	J.A. Booth 5	526597.0	4372336.6	Injector	Shutin	Y	Y	1217	3099	3082
73	4710301315	Irene Reilly 13	526163.0	4371477.0	Injector	Shutin	Y	Y	1005	2990	2888
74	4710301514	C.T. Hall K-14B	527526.7	4369664.7	Injector	Shutin	Y	Y	1405	3600	3466
75	4710301516	C.C. Penick L-15	527493.5	4369970.6	Injector	Shutin	Y	Y	1386	3520	3388
76	4710301542	N. Noland L-17	528231.8	4370424.4	Injector	Shutin	Y	Y	925	3017	2920
77	4710301543	C.C. Penick M-15	528104.8	4369940.7	Injector	Shutin	Y	Y	1249	3264	3143
78	4710301544	H. Noland M-17	528096.0	4370425.0	Injector	Shutin	Y	Y	1000	3050	2893
79	4710301545	J.T. Reilly J-17	527363.1	4370437.3	Injector	Shutin	Y	Y	927	2962	2821
80	4710301625	E.B. Lemasters P-12	528861.0	4369073.7	Injector	Shutin	Y	Y	1040	3059	2946
81	4710301626	M. Lemasters P-14	529019.3	4369744.9	Injector	Shutin	Y	Y	1038	3089	2956
82	4710301627	T.W. Reilly N-17	528552.8	4370602.8	Injector	Shutin	Y	Y	991	3070	2906
83	4710301628	T.W. Reilly P-17B	528935.6	4370652.5	Injector	Shutin	Y	Y	1030	3055	2954
84	4710301628	T.W. Reilly P-17B	528935.6	4370652.5	Injector	Shutin	Y	Y	1445	3492	3334
84	4710301632	G.V. Reilly N-19	528313.0	4371259.0	Injector	Shutin	Y	Y	1438	3656	3510
85	4710301633	M.J. Reilly O-19	528331.0	4371215.0	Injector	Shutin	Y	Y	1438	3656	3510
86	4710301634	C.C. Penick O-15	528873.5	4370056.3	Injector	Shutin	Y	Y	1458	3479	3374
87	4710301635	H.M. Jamison Q-17	529385.2	4370831.4	Injector	Shutin	Y	Y	1477	3804	3666
88	4710301641	I. Wiley G-22	525894.6	4371946.3	Injector	Shutin	Y	Y	851	2849	2708
89	4710301642	S.H. Wiley G-23	525888.1	4372382.5	Injector	Shutin	Y	Y	831	2798	2694
90	4710301643	Irene Reilly G-20	525944.6	4371398.9	Injector	Shutin	Y	Y	855	2923	2740
91	4710301645	Irene Reilly I-20	526555.3	4371529.8	Injector	Shutin	Y	Y	1476	3427	3342
92	4710301657	WM. Fluharty E-14	525484.8	4369432.2	Injector	Shutin	Y	Y	1416	3415	3290
93	4710301659	A. Wiley F-25	525999.1	4372914.5	Injector	Shutin	Y	Y	814	2807	2656
94	4710301660	J. Wiley G-25	526321.3	4372883.3	Injector	Shutin	Y	Y	1041	3038	2896
95	4710301671	WM. Fluharty E-15	525756.9	4369819.7	Injector	Shutin	Y	Y	1022	3007	2892
96	4710301672	WM. Fluharty E-16	525723.2	4370286.7	Injector	Shutin	Y	Y	963	2942	2820
97	4710301673	J.K. Fluharty E-18	525757.0	4370784.0	Injector	Shutin	Y	Y	1268	3262	3124
98	4710301675	H. Fluharty G-17	526398.3	4370385.6	Injector	Shutin	Y	Y	1243	3255	3118
99	4710301677	Irene Reilly H-19	526685.6	4371030.9	Injector	Shutin	Y	Y	1382	3385	3258
100	4710301678	S.H. Wiley G-24	526322.9	4372432.3	Injector	Shutin	Y	Y	1249	3235	3097
101	4710301679	J. Wiley H-25	526707.9	4372916.9	Injector	Shutin	Y	Y	1299	3279	3160
102	4710301692	D. Cunningham F-18B	526075.0	4370883.9	Injector	Shutin	Y	Y	915	2911	2781
103	4710301693	L.J. Fluharty F-29	526027.1	4374203.2	Injector	Shutin	Y	Y	964	2925	2790
104	4710301694	McCoy Heirs H-27	525256.2	4373524.1	Injector	Shutin	Y	Y	1045	3027	2890
105	4710301695	E. Miller F-27	525916.7	4373510.2	Injector	Shutin	Y	Y	1050	3052	2878
106	4710301696	McCoy Heirs G-27	526303.4	4373447.0	Injector	Shutin	Y	Y	1057	3052	2900
107	4710301699	A. Wiley E-26	525821.2	4373123.3	Injector	Shutin	Y	Y	843	2846	2690
108	4710301702	S.H. Wiley E-24R	525323.1	4372751.1	Injector	Shutin	Y	Y	852	3433	3284
109	4710301739	F.L. Hoge H-15	526488.0	4369840.0	Injector	Shutin	Y	Y	1419	3435	3304
110	4710302391	Israel Miller 7	525809.0	4373961.0	Injector	Shutin	Y	Y	1150	3260	2975
111	4710302393	McCoy Heirs 14	526303.5	4373232.3	Injector	Active	Y	Y	1051	3170	2896
112	4710302505	McCoy Heirs 15	526685.0	4373230.0	Injector	Shutin	Y	Y	1062	3170	2903

APPENDIX A Injection Well Form

1) GEOLOGIC TARGET FORMATION		Gordon Sand	
Depth	<u>2960</u>	Feet (top)	<u>2990</u> Feet (bottom)
2) Estimated Depth of Completed Well, (or actual depth of existing well):		<u>3090</u>	Feet
3) Approximate water strata depths:		Fresh <u>100-520</u> Feet	Salt <u>1300-2000</u> Feet
4) Approximate coal seam depths:		<u>650-1260 feet</u>	
5) Is coal being mined in the area?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6) Virgin reservoir pressure in target formation		<u>1488</u> psig	Source <small>Calculated - 0.60 psi/ft.</small> <input checked="" type="checkbox"/>
7) Estimated reservoir fracture pressure		<u>3747</u>	psig (BHFP)
8) MAXIMUM PROPOSED INJECTION OPERATIONS:			
Injection rate (bbl/hour)	<u>60</u>		
Injection volume (bbl/day)	<u>1440</u>		
Injection pressure (psig)	<u>1378</u>		
Bottom hole pressure (psig)	<u>2678</u>		
9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES:			
<u>Produced water associated with oil production from the Gordon Sand.</u>			
Temperature of injected fluid: (°F)		<u>Atmospheric</u>	
10) FILTERS (IF ANY)			
<u>First stage - Walnut shell filter</u>			
<u>Second stage - 10 micron cartridge filter at wellhead</u>			
11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL			
<u>All buried metallic pipelines are protected by an impressed current system or by galvanic anodes. Both have a minimum criteria of -0.850 mv with reference to a saturated copper-copper sulfate half-cell.</u>			

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APPENDIX A (cont.)

12. Casing and Tubing Program

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	11.75	New	Limited Service	38	~21	~21	2
Fresh Water	8.625	New	limited Service	20	~450	~450	114
Coal							
Intermediate 1							
Intermediate 2							
Production	4.5	New	J-55	10.5	~3000	~3000	360
Tubing	2.375	New	J-55	4.7	0	~2900	N/A
Liners							

TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor	12.25	11.75	.300	1120	Class A w/3% CaCl	1.45	Yes
Fresh Water	11	8.625	.223	1176	Class A w/3% CaCl	1.18	Yes
Coal							
Intermediate 1							
Intermediate 2							
Production	6.5	4.5	.224	4790	50/50Pozmix W 2% cacl	1.23	No
Tubing		2.375	.19	7700			
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	Tension			
Sizes:	2-3/8" x 4"			
Depths Set:	2900			

Typical Construction (Type A)

Water Injection Well

Stringtown Field

Cement Circulated
to surface

~ 1000'

~ 1500'

~ 2900'

~ 3000'

Fresh water sands

Pittsburgh Coal
surface casing.
(8 5/8" or 7")

Top of cement
salt sand

Gorden

4 1/2" Csg., J-RR, 10.5 #/ft.

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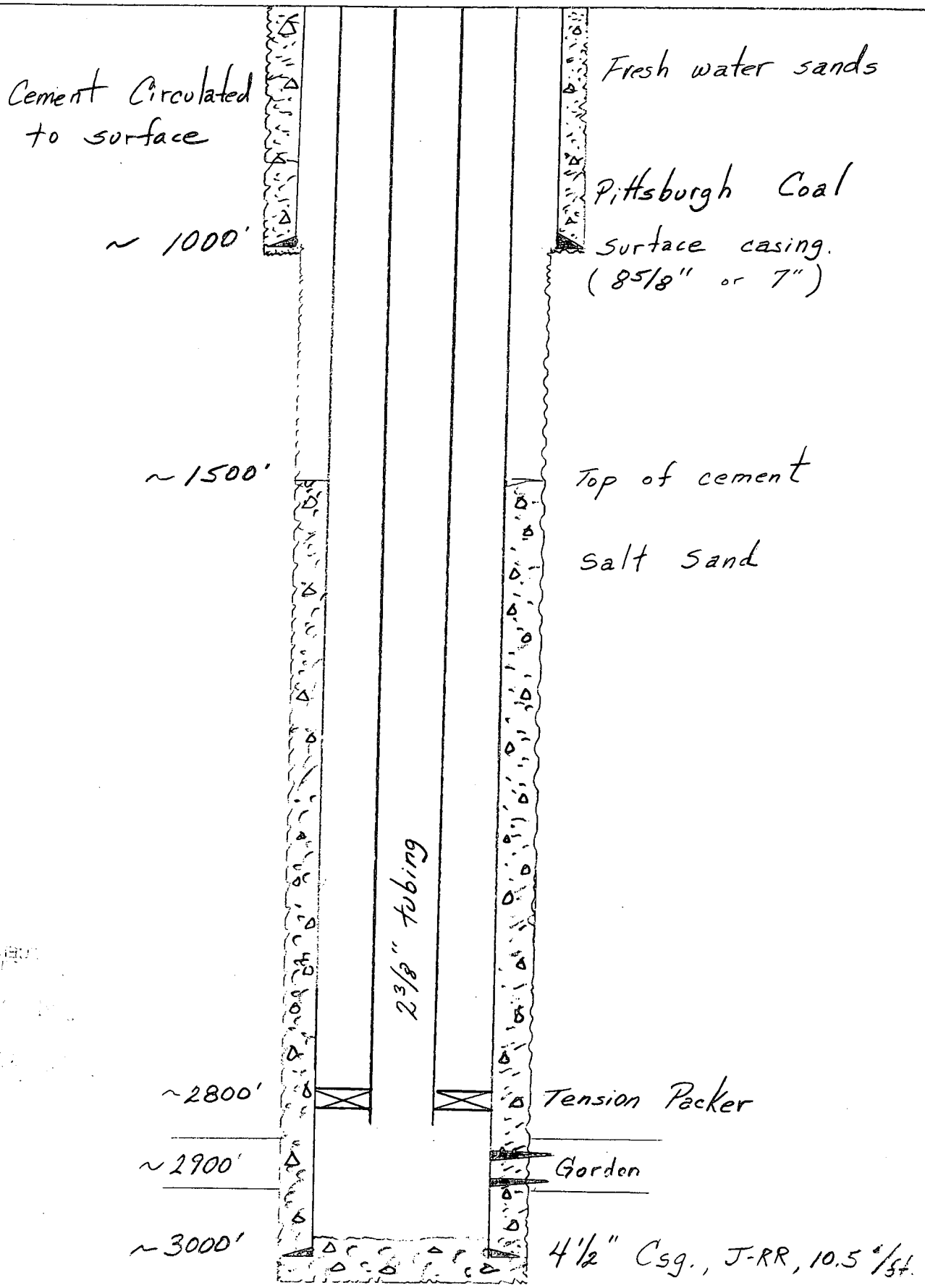
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Typical Construction (Type A-1)

Water Injection Well

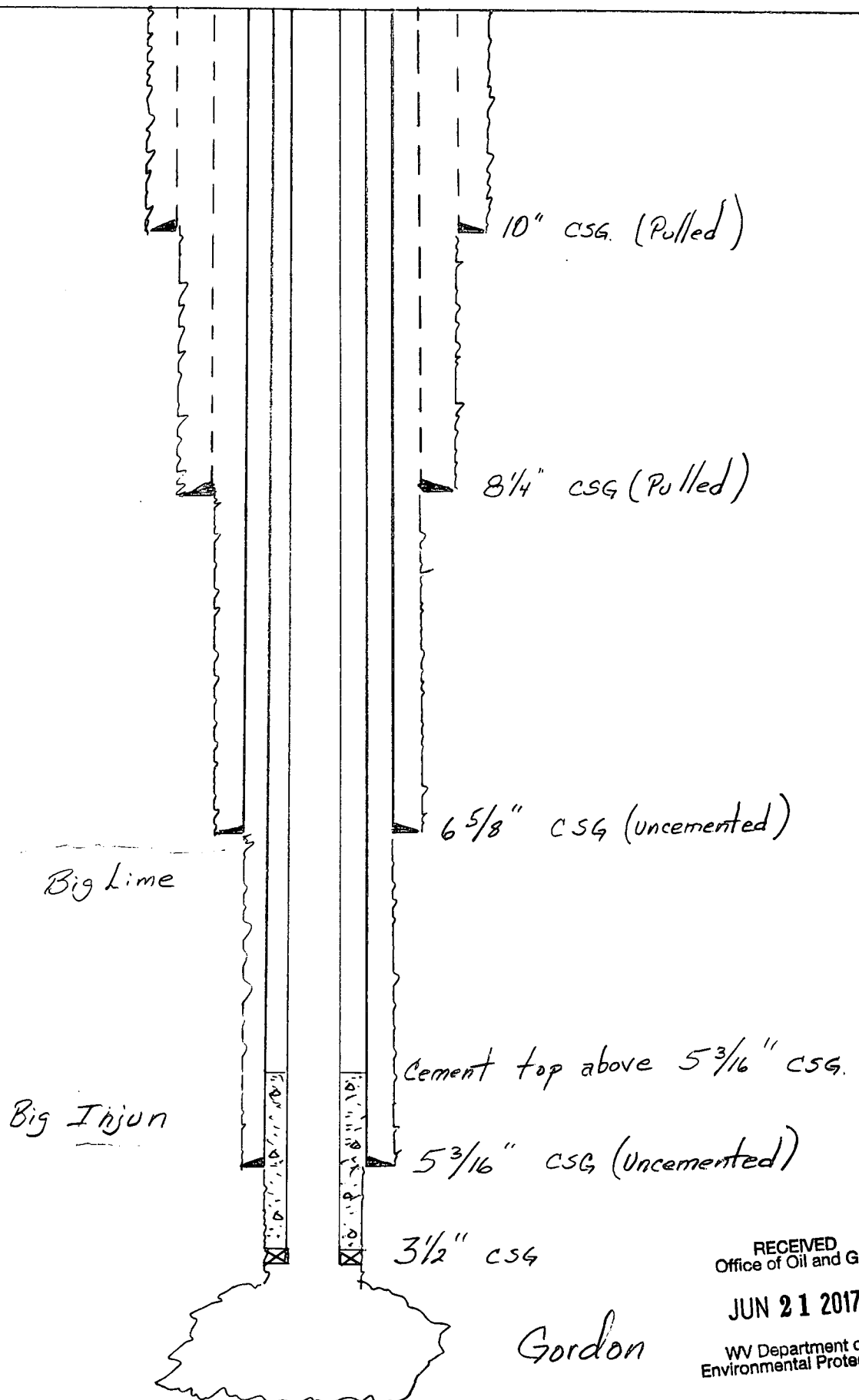
Stringtown Field



Typical Construction (Type C)

Water Injection Well

Stringtown Field



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Gordon

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: Stringtown

County: Wetzel, Tyler & Doddridge

Facility Location:

Postal Service Address:	8082 Indian Creek Road, Jacksonburg, WV 26377	
Latitude and Longitude:	526660.3 4368162.1	

Contact Information:

Person:	Joe Starkey
Phone Number:	740-432-9003
E-mail Address:	joe.starkey@ascentresources.com

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Date: March 7, 2017

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

Release of oil or produced water at a production facility
 Release of sludge from produced water filter backwash and holding tanks
 Release from production gathering pipeline system
 Release from water injection pipeline system

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

All tanks used for holding and processing oil and produced water are located within spill containment of adequate size to hold the largest tank. The containment is earthen dikes. Both the production gathering and water injection pipeline systems are constructed of either non-corrosive materials or coated steel pipe. The steel lines are protected from corrosion by cathodic protection from both sacrificial anodes and impressed current systems. All pipelines are listed with WV811 to minimize the possibility of third party damage and subsequent releases of product.

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

The Stringtown Waterflood Project is a fully developed project that is operating towards its end. Nothing new is planned or projected at this time. However, if new facilities should be installed, such facilities would be designed to meet all current environmental policies. Any tanks installed would be placed within properly designed containment. Pipelines would be buried to minimize the possibility of damage and protected from corrosion by cathodic protection or be made of non-corrosive materials.



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

Storage tanks under WV tank rule.
Water disposal under UIC
Spills (releases) under EPA

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

See attached report by Test America for detailed information on groundwater quality.

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 material shall be used for deicing or fill materials.

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.

Ascent Resources has a training department. Among the many subjects covered in training for all lease operators is water regulations pertaining to ground water protection. Employees are trained to be sensitive to even minor spills for they soak into the ground and reappear after rain events. Employees are taught to avoid all spills and how to immediately clean up. Water collected is tested for total dissolved solids, turbidity, presence of hydrocarbons and foam (surfactants). If any of the minimum limits are exceeded the storm water is hauled away for proper disposal. Otherwise, storm water is released from containment. Employees are also taught "housekeeping" techniques for equipment and tools to prevent ground water contamination. Attached is an outline used by EHS trainers covering these ground water protection subjects.

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

Storage tanks for oil, produced water and backwash sludge are all contained at the same location within the same containment system at production battery 1 & 2 and 3. Lease operators visit these sites daily where they may observe any situations that may lead to a release to the environment that may cause ground water contamination. Each operator has been trained to be responsible and sensitive to spills and their ramifications.

The production gathering pipelines and water injection pipelines are both protected from corrosion by cathodic protection. Both a rectifier and sacrificial anodes are used for cathodic protection. The pipelines are listed with WV811 to protect them from third party damage. The produced water disposal system also has automatic shut-downs based upon pressure. If the pressure on the system drops indicating a line failure, the water disposal pumps will automatically shut-down to minimize the environmental impact. Also, a majority of the pipelines are located along or near lease roads traveled frequently by Ascent personnel. If a release occurs, it will be discovered, contained and cleaned up in a short amount of time.

Signature: Wanda R. Quinn

Date: June 1, 2017

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APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

In accordance with WV Code 47CSR13.13.7.g, all UIC permits shall require the permittee to maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Chief. The permittee must show evidence of financial responsibility to the Chief by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Chief. This certification must be signed by one of the following:

1. For a corporation: by a principle corporate officer of at least the level of vice-president;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: by either a principle executive officer or ranking elected official;
4. Or a duly authorized representative in accordance with 47CSR13.13.11.b. (A person may be duly authorized by one of the primary entities (1-3) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

Ascent Resources- Marcellus, LLC

(Company Name)

2R09500004AP

(UIC Permit Number)

I certify in accordance with 47CSR13.13.7.g., that the company/permit holder cited above 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 and that documents to support this requirement are on record with the same.

Joshua Credeur

(Print Name)

SVP-Production Appalachia

(Print Title)



(Signature)

7-1-24

(Date)

Section 12

Plugging and Abandonment

All water injection wells shall be plugged and abandoned per the current rules and requirements of the West Virginia Department of Environmental Protection. West Virginia code has been written to insure the protection of fresh ground water sources and commercial coal seams from contamination from subsurface sources of salt water and hydrocarbons.

All water injection wells have surface casing run through all shallow fresh water sources and commercial coal seams. The surface casing in all cases has been cemented to surface. This cemented surface casing prevents communication of any type into or out of the ground water strata.

The production casing will be cut off above the cement top and pulled from the well. Cement plugs required by West Virginia DEP code in the P & A process will require cement across the cut area of the production casing preventing vertical movement through this area. Also, cement plugs will be placed on the inside of the surface casing across the fresh water strata and the commercial coal seams. These cement plugs act as an insurance to the fully cemented surface casing to prevent any fluid movement in these strata.

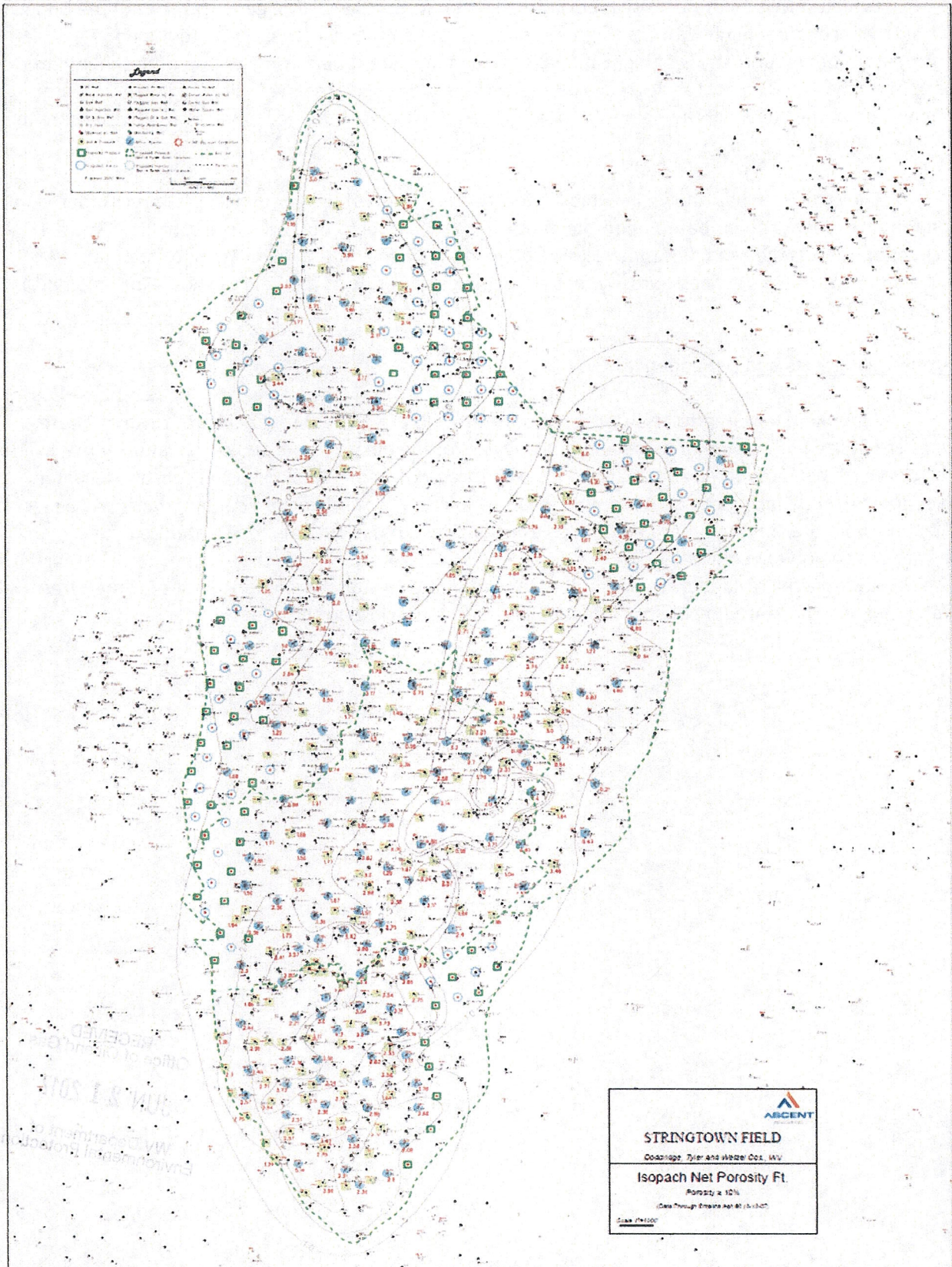
The rules currently in place in the Department of Environmental Protection require activities that protect the fresh water sources from subsurface contamination. Ascent Resources will abide by the DEP rules for plugging water injection wells when the water injection wells reach the end of their economic usefulness.

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WV Department of
Environmental Protection

Exhibit 8-M





1361

Left Hand Fork

1361

Left Hand Fork Stackpole Run

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WV Department of
Environmental Protection

Page ___ of ___

Class II Manifest

UIC # _____

*I hereby certify that the contents of this shipment are Class II fluids that were brought to the surface in connection with oil or natural gas production.

Hauler Name	*Signature	Receiver's Name	*Signature	API or Other	Volume of Load (Barrels)	Was the Load Split (Y/N)	Date

Make as many copies of the document as necessary to comply with the UIC permit. Page numbers should be maintained sequentially to provide an adequate record.

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.

APPLICATION CERTIFICATION

In accordance with WV Code 47CSR13.13.11, all UIC permit applications must be signed by one of the following:

1. For a corporation: by a principle corporate officer of at least the level of vice-president;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: by either a principle executive officer or ranking elected official;
4. Or a duly authorized representative in accordance with 47CSR13.13.11.b.
(A person may be duly authorized by one of the primary entities (1-3) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

(Company Name)

(UIC Permit Number)

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.

(47CSR13.13.11.d)

(Print Name)

(Print Title)

(Signature)

(Date)