

# **EXHIBIT 4**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

STATEMENT OF BASIS

FOR

U. S. EPA's UNDERGROUND INJECTION CONTROL (UIC) PROGRAM  
DRAFT CLASS IID PERMIT NUMBER PAS2D216BWAR

FOR

Bear Lake Properties, LLC  
3000 Village Run Road, Unit 103, #223  
Wexford, Pennsylvania 15090

FOR

A project consisting of one Class IID injection well used for the disposal of produced fluids (brine) associated with oil and gas production activities located at:

Bittinger #1  
Columbus Township  
Warren County, Pennsylvania

On October 29, 2010, Bear lake Properties, LLC submitted a UIC permit application for the construction and operation of the above referenced injection well. EPA has reviewed this application and has found it to be acceptable.

The draft permit specifies conditions for construction, operation, monitoring, reporting, and plugging and abandonment, which are specified so as to prevent the movement of fluids into an Underground Source of Drinking Water. General provisions for EPA UIC permit requirements are found at 40 CFR Parts 144 and 146. In addition, permit conditions specific to this project, are as follows:

**Area of Review:** This is an area surrounding the project or a well which the applicant must, first research, and then develop a program for corrective action to address any wells which penetrate the injection zone and which may provide conduits for fluid migration. Bear Lake Properties has provided documentation on the well population within the Area of Review and has calculated a zone of endangering influence based on geologic conditions at the site and anticipated operational parameters. After extensive research of local, county and state well records, no wells, other than Bear Lake Property gas production wells, were found which penetrate the injection zone within this Area of Review,. However, if another well is located at a future date, corrective action will be performed on that well in the form of plugging and abandonment of the well.

**Underground Sources of Drinking Water:** USDWs are defined by the UIC regulations as aquifers or portions thereof which contain waters that have 10,000 parts per million or less of Total Dissolved Solids and which are being or could be used as a source of drinking water. The permittee has identified the lowermost USDW's depth to be approximately 300 feet below surface elevation. The geologic name of this fresh water bearing formation is a part of the Chadaloin formation. The proposed construction of the injection well meets the regulatory criteria of 40 CFR §146.22 which requires surface casing to be placed to at least 50 feet below the lowermost USDW and cemented back to the surface. The Bittinger #1 well's construction has surface casing cemented from its depth of 401 to the surface.

**Injection and Confining Zones:** Injection of fluids for disposal is limited by the permit to the Medina Formation in the perforated interval between 4210 feet to 4327 feet. This injection zone is separated from the lowermost USDW by an interval of approximately 3910 feet, while the confining zone, immediately adjacent to the injection zone, is comprised of approximately 520 feet of dolomite and salt formations.

**Injection fluid:** The permit limits this well to the disposal of produced fluids associated with oil and gas production activities with an expected maximum volume of 30,000 barrels per month.

**Maximum Injection Pressure:** The maximum allowable surface injection pressure for the permitted operation will be 1696 psi. The maximum bottom-hole pressure shall not exceed 3916 psi. Pressure will be continuously monitored. This pressure limitation will meet the regulatory criteria of 40 CFR § 146.23(a) and has been calculated using the upper perforated interval in the well, the specific gravity of the injection fluid, and the geologic information appropriate to the injection zone at this locality.

**Monitoring and Reporting Requirements:** The permittee will be responsible for monitoring injection pressure, annular pressure, flow rate and cumulative volume on a continuous basis and reporting this data to EPA on an annual basis. The permittee is also required to conduct a mechanical integrity test (MIT) once every two years. This test will provide EPA with an evaluation of the integrity of the casing and tubing in the well as well as documentation as to the absence of fluid movement into or between USDWs, thus helping to assure that USDWs are protected.

**Plugging and Abandonment:** The facility has submitted a plugging and abandonment plan that will result in an environmentally protective well closure at the time of cessation of operations. The permittee has also made a demonstration of financial responsibility that indicates adequate resources will be maintained for well closure and should preclude the possibility of abandonment without proper closure.

**Expiration Date:** A final permit, when issued, will be in effect for five years from the date of permit issuance. This proposed draft permit contains essentially the same conditions as the final permit will unless information is supplied to EPA which would warrant alternative conditions or actions on this permit application.

**Additional Information:** Questions, comments and requests for additional information may be directed to the contact person listed below. A public hearing has been tentatively scheduled for Tuesday, February 23, 2011, at 7:00 PM at the Youngsville High School auditorium, 227 College Street, Youngsville, Pennsylvania 16371. EPA reserves the right to cancel this hearing, and will hold this hearing, only if the Agency receives significant written expressions of public interest, specific to the proposed permit action, by February 16, 2011. In any case

the Administrative Record for this action will remain open for public comment until February 23, 2011. Requests for a public hearing should be directed to:

S. Stephen Platt  
Ground Water & Enforcement Branch (3WP22)  
U.S. Environmental Protection Agency  
1650 Arch Street  
Philadelphia, PA 19103-2029  
(215) 814-5464



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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**UNDERGROUND INJECTION CONTROL PERMIT NUMBER PAS2D216BWAR  
AUTHORIZATION TO OPERATE A CLASS IID INJECTION WELL**

In compliance with provisions of the Safe Drinking Water Act, as amended, (42 U.S.C. §§ 300f-300j-11, commonly known as the SDWA), the Resource Conservation and Recovery Act (42 U.S.C. §§ 6901-6991i, commonly known as RCRA) and attendant regulations promulgated by the U. S. Environmental Protection Agency under Title 40 of the Code of Federal Regulations,

Bear Lake Properties, LLC

3000 Village Run Road, Unit 103, #223

Wexford, PA 15090


is authorized by this permit to inject fluids through a Class IID commercial injection well, Bittinger #1, from a facility located in Columbus Township, Warren County, PA into the Medina Formation in accordance with the conditions set forth herein.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective.

This permit shall become effective on June 8, 2011.

This permit and its authorization to inject shall remain in effect until midnight June 8, 2016.

Signed this 8<sup>th</sup> day of June, 2011.

  
Jon M. Capacasa, Director  
Water Protection Division



## PART I

### A. Effect of Permit

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The underground injection activity, otherwise authorized by this permit, shall not allow the movement of fluid containing any contaminant into underground sources of drinking water (USDW), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by rule is prohibited. 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, or any infringement of State or local law or regulations. Compliance with 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 any breach of any other applicable legal duty.

### B. Permit Actions

This permit can be modified, revoked and reissued or terminated for cause as specified in 40 CFR §§ 144.12, 144.39 and 144.40. Also, the permit is subject to minor modifications as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee shall not stay the applicability or enforceability of any permit condition.

### C. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

### D. General Requirements

1. Duty to Comply. The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance

constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

2. Need 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.

3. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

4. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, facility security, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit.

5. Duty to Provide Information. The permittee shall furnish to the Director, within a time specified by the Director, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, 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 reports, the permittee shall promptly submit information addressing these deficiencies.

6. Inspection and Entry. The permittee shall allow the Director, 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 any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA.

7. Penalties. Any person who violates a permit requirement is subject to civil penalties, fines and other enforcement actions under the SDWA and may be subject to the same such actions pursuant to RCRA. Any person who willfully violates permit conditions is subject to criminal prosecution.

8. Transfer of Permits. This permit is not transferable to any person except after notice is sent on EPA Form 7520 and approval is given by the Director and the requirements of 40 CFR § 144.38 are satisfied. The Director may require modification or revocation of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.

9. Signatory Requirements.

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

(1) for a corporation, by a responsible 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; or

(3) 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:

(1) the authorization is made in writing by a person described in paragraph a. above;

- (2) the authorization specifies either 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 a position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
- (3) the written authorization is submitted to the Director.

c. If an authorization under paragraph b. of this section is no longer accurate because a different individual or position 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 Director 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 a. or b. of this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

#### 10. Confidentiality of Information.

a. In accordance with 40 CFR Parts 2 (Public Information) and § 144.5, any information submitted to the Director pursuant to these permits may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the

information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2.

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee.

(2) Information which deals with the existence, absence, or level of contaminants in drinking water.

11. Reapplication. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 100 days before this permit expires.

12. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

## PART II

### A. General

Copies of all reports and notifications required by this permit shall be signed and certified in accordance with the requirements of Section D(9) of Part I of this permit and shall be submitted to the Director at the following address:

Ground Water & Enforcement Branch (3WP22)  
Office of Drinking Water & Source Water Protection  
U. S. Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103

### B. Record Retention

1. The permittee shall retain records of all monitoring and other information required by this permit, including the following (if applicable), for a period of at least five years from the date of the sample, measurement, report or application, unless such records are required to be retained for a longer

period of time under paragraphs B.2 and B.3, below. This period may be extended by request of the Director at any time.

a. All data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR § 144.31.

b. Calibrations and maintenance records and all original strip chart recordings for continuous monitoring instrumentation.

c. Copies of all reports required by this permit.

2. The permittee shall retain records concerning the nature and composition of all injected fluids, as listed in Part II, paragraphs C.3.through C.5.of this permit, until three years after the completion of any plugging and abandonment procedures.

3. The permittee shall continue to retain the records after the above specified retention periods unless he or she delivers the records to the Director or obtains written approval from the Director to discard the records.

4. Records of monitoring information shall include:

a. The date, exact place, and the time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. A precise description of both sampling methodology and the handling (custody) of samples;

d. The date(s) analyses were performed;

e. The individual(s) who performed the analyses;

f. The analytical techniques or methods used; and

g. The results of such analyses.

5. Monitoring the nature of injected fluids shall comply with applicable analytical methods cited in Part II, paragraph C.1., below.

6. All environmental measurements required by the permit, including, but not limited to measurements of pressure, temperature, mechanical integrity (as applicable) and chemical

analyses shall be done in accordance with EPA guidance on quality assurance.

### C. Monitoring Requirements

1. 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 and Appendix III of 40 CFR Part 261, unless otherwise approved by the Director. The permittee shall identify the types of tests and methods used to generate the monitoring data.

2. Injection pressure, annular pressure, flow rate and cumulative volume shall be observed and recorded continuously beginning on the date on which the well commences operation and concluding when the well is plugged and abandoned. The permittee shall monitor and record semi-annually the fluid level of the depleted natural gas production wells located within the Bear Lake injection facility property as referenced in the Permit Application.

3. The permittee shall sample, analyze and record the nature of the injected fluid for the parameters listed below at the initiation of the injection operation and every year thereafter, or whenever the operator observes or anticipates a change in the injection fluid (see condition C.4. below).

-pH	-Manganese
-Specific Gravity or Fluid	-Total Dissolved Solids
-Density	-Barium
-Specific Conductance	-Hydrogen Sulfide
-Sodium	-Dissolved Oxygen
-Iron	-Alkalinity
-Magnesium	-Hardness
-Chloride	-Total Organic Carbon

4. Samples of injection fluid shall be collected and analyzed from initial loads received from each disposal customers and each type of source (e.g., from different geologic formations, geographic regions, etc.). Minimum analyses of the fluid will include specific gravity, Total Dissolved Solids, pH and Total Organic Carbon (TOC). Any analysis of specific gravity greater than 1.22 and any analysis of TOC greater than 250 mg/l shall be reported to the Director within twenty four hours of the results.

5. The permittee shall maintain a record of every load of fluid received. The record shall include the hauler's name, the operator's name and the location from where the load was obtained, the volume of the load and whether the load of fluid delivered was a split load. If the load was a split load, each operator's name and location shall be listed and, if possible, the volumes of fluid from each operator documented.

6. A demonstration of mechanical integrity in accordance with 40 CFR § 146.8 shall, after the initial demonstration, be made at least once every two years. Subsequent two year demonstrations shall be conducted no more than 30 days prior to the anniversary date of the issuance of this permit. 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 reseated, or a well failure is evident. The permittee may continue operation only if he or she has successfully demonstrated to the Director 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. Any such test shall be conducted in keeping with the notification requirements of Permit Condition D.11. of Part II of this permit.

D. Reporting and Notification Requirements.

1. Report on Permit Review. Within 30 days of receipt of this permit, the permittee shall report to the Director that he or she has read and is personally familiar with all terms and conditions of this permit.

2. Commencing Injection. The operator of a new injection well may not commence injection until construction is complete, and

a. The permittee has demonstrated to EPA that the injection well has mechanical integrity in accordance with 40 CFR § 146.8 and the permittee has received written notice from the Director that such demonstration is satisfactory;

b. The permittee has submitted notice of completion of construction (EPA Form 7520-10) to the Director; and

c. The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

d. The permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in paragraph (a) of this permit condition, in which case, prior inspection or review is waived and the permittee may commence injection.

3. Twenty-four Hour Reporting.

a. The permittee shall report to the Director any noncompliance which may endanger health or the environment. Such report shall be provided orally (phone numbers: (215)814-5464 or (215)814-5445) within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(2) Any noncompliance with a permit condition, or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water, or failure of mechanical integrity test demonstrations.

b. A written submission shall also be provided within five 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, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

4. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

5. Other Noncompliance. 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 Permit Condition D.3., of Part II of this permit.

6. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

7. Conversion. The permittee shall notify the Director thirty days prior to the conversion of the well to an operating status other than an injection well.

8. Annual Report. The permittee shall submit an annual report to the Director summarizing the results of the monitoring required by Permit Condition C within Part II of this permit. This report shall include monthly monitoring records of injected fluids, fluid level monitoring results, the results of any mechanical integrity test(s), and any major changes in characteristics or sources of injected fluids. The permittee shall complete and submit its Annual Report EPA Form 7520-11 (Annual Disposal/Injection Well Monitoring Report). The Annual Report shall be submitted not later than January 31st, summarizing the activity of the calendar year ending the previous December 31st.

9. Plugging and Abandonment Reports and Notifications.

a. The permittee shall notify the Director 45 days before the plugging and abandonment of the well. The Director may allow a shorter notice period upon written request.

b. Revisions to the Plugging and Abandonment Plan must be submitted to the Director no less than 45 days prior to plugging and abandonment on EPA Plugging and Abandonment Form 7520-14. The Director must approve the revisions prior to the start of plugging operations.

c. Within 60 days after plugging the well, the permittee shall submit a report to the Director which shall consist of either:

(1) A statement that the well was plugged in accordance with the plan previously submitted to and approved by the Director; or

(2) Where actual plugging differed from the plan previously submitted, an updated version of the plan, on the form supplied by the Director, specifying the different procedures used.

The report shall be certified as accurate by the person who performed the plugging operation.

10. 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 30 days following each schedule date.

11. Mechanical Integrity Tests. The permittee shall notify the Director of his or her intent to conduct a mechanical integrity test at least 30 days prior to such a demonstration.

12. Cessation of Injection Activity. After a cessation of injection for two years the owner or operator shall plug and abandon the well in accordance with the Plugging and Abandonment Plan unless he:

a. Provides notice to the Director; and

b. Describes actions or procedures, satisfactory to the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to an active injection well unless waived in writing by the Director.

#### E. Mechanical Integrity Standards

1. Standards. The permittee shall have and maintain the mechanical integrity of the permitted injection well pursuant to 40 CFR § 146.8.

2. Request from Director. The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

### PART III

#### A. Construction Requirements

1. Notwithstanding any other provision of this permit, the injection well shall inject only into formations which are separated from any underground source of drinking water by a confining zone that is free of known open faults or fractures within the Area of Review.

2. Casing and Cementing. The permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well and, at a minimum, the operation shall be conducted in accordance with the construction details described in the permit application. However, in all cases cemented surface casing shall be installed from the surface to a

depth at least fifty feet below the lowermost underground source of drinking water and the injection zone shall be isolated by the placement of long string casing to total depth and cemented back at least 100 feet above the injection zone. Injection shall occur through a tubing string and packer installed inside the long string casing.

3. Logs and Tests. The logs and tests listed below shall be conducted during the drilling and construction of the well or, in the event that the well is being converted to an injection well, obtain and submit the logs and tests from the well's original construction. A descriptive report interpreting the results (which specifically relate to (1) the lowermost underground source of drinking water and the confining zone adjacent to it and (2) the injection zone and adjacent formations) shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum, such logs and or tests shall include the following:

- A cement bond log and variable density log which document the cemented portion of the long string casing.
- A log which documents the location of the surface casing.
- Records documenting the cementing of the surface casing.
- Gamma Ray logs which document the geologic formations in the wellbore.

4. Mechanical Integrity. Injection operations are prohibited until the permittee demonstrates that the well covered by this permit has mechanical integrity in accordance with 40 CFR § 146.8 and the permittee has received notice from the Director that such a demonstration is satisfactory in accordance with the provisions of Condition D.2. of Part II of this permit.

5. Corrective Action. Injection operations are prohibited until the permittee has successfully performed any activities detailed in the Corrective Action Plan submitted in their Permit Application, and hereby incorporated. If any abandoned well is discovered within the one-quarter mile area of review as identified in the Permit Application, the permittee shall notify the Director upon discovery and within five (5) days submit to the Director for approval a plan for corrective action and implement the approved plan.

## B. Operating Requirements

1. Injection Formation. Injection shall be limited to the Medina Formation in the subsurface interval between approximately 4210 feet to 4327 feet (perforated interval).

2. Injection Fluid. The permittee shall not inject any hazardous substances, as defined by 40 CFR 261, nor any other fluid, other than the fluids produced in association with oil and gas production activity. This includes all fluids which are brought to the surface in association with oil and gas production.

3. Injection Volume Limitation. Injection volume shall not exceed 30,000 barrels per month.

4. Injection Pressure Limitation. Injection pressure, shall not exceed a surface injection pressure maximum of 1696 psi and a bottom hole pressure maximum of 3916 psi. These pressure calculations are based on the specific gravity of the injection fluid not exceeding 1.218. If the specific gravity of the injection fluid should exceed 1.218, then the surface injection pressure must be revised downward so as not to exceed the bottomhole pressure. Injection at a pressure which initiates new fractures or propagates existing fractures in the confining zone adjacent to underground sources of drinking water or causes the movement of injection or formation fluids into an underground source of drinking water is prohibited.

5. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited, as is injection into any USDW.

#### C. Plugging and Abandonment

1. Plugging and Abandonment. The permittee shall plug and abandon the well in accordance with the approved plugging and abandonment plan (EPA Form 7520-14) provided in the Permit Application, which is hereby incorporated.

2. Plugging and Abandonment shall be conducted in such a manner that movement of fluids will not be allowed into or between underground sources of drinking water.

#### D. Financial Responsibility

The permittee shall maintain continuous compliance with the requirement to maintain financial responsibility and resources to close, plug and abandon the underground injection well in the amount of at least \$30,000. If the circumstances regarding the acceptability of the Letter of Credit and Standby Trust Agreement

submitted to EPA to demonstrate financial responsibility should change, the permittee shall provide advance notification to the Director, and the Director may seek an alternative financial demonstration from the permittee.

The permittee shall not substitute an alternative demonstration of financial responsibility for that which the Director has approved, unless he or she has previously submitted evidence of that alternative demonstration to the Director and the Director notifies him or her that the alternative demonstration of financial responsibility is acceptable. The Director may require the permittee to submit a revised demonstration of Financial Responsibility if the Director has reason to believe that the original demonstration is no longer adequate to cover the costs of plugging and abandonment.

# **EXHIBIT 5**



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**Underground Sources of Drinking Water:** USDWs are defined by the UIC regulations as aquifers or portions thereof which contain waters that have 10,000 parts per million or less of Total Dissolved Solids and which are being or could be used as a source of drinking water. The permittee has identified the lowermost USDW's depth to be approximately 300 feet below surface elevation. The geologic name of this fresh water bearing formation is a part of the Chadaloin formation. The proposed construction of the injection well meets the regulatory criteria of 40 CFR §146.22 which requires surface casing to be placed to at least 50 feet below the lowermost USDW and cemented back to the surface. The Bittinger #4 well's construction has surface casing cemented from its depth of 506 to the surface.

**Injection and Confining Zones:** Injection of fluids for disposal is limited by the permit to the Medina Formation in the perforated intervals between 4285 feet to 4302 feet and from 4352 feet to 4365 feet. This injection zone is separated from the lowermost USDW by an interval of approximately 3985 feet, while the confining zone, immediately adjacent to the injection zone, is comprised of approximately 604 feet of shale and salt formations.

**Injection fluid:** The permit limits this well to the disposal of produced fluids associated with oil and gas production activities with an expected maximum volume of 30,000 barrels per month.

**Maximum Injection Pressure:** The maximum allowable surface injection pressure for the permitted operation will be 1726 psi. The maximum bottom-hole pressure shall not exceed 3984 psi. Pressure will be continuously monitored. This pressure limitation will meet the regulatory criteria of 40 CFR § 146.23(a) and has been calculated using the upper perforated interval in the well, the specific gravity of the injection fluid, and the geologic information appropriate to the injection zone at this locality.

**Monitoring and Reporting Requirements:** The permittee will be responsible for monitoring injection pressure, annular pressure, flow rate and cumulative volume on a continuous basis and reporting this data to EPA on an annual basis. The permittee is also required to conduct a mechanical integrity test (MIT) once every two years. This test will provide EPA with an evaluation of the integrity of the casing and tubing in the well as well as documentation as to the absence of fluid movement into or between USDWs, thus helping to assure that USDWs are protected.

**Plugging and Abandonment:** The facility has submitted a plugging and abandonment plan that will result in an environmentally protective well closure at the time of cessation of operations. The permittee has also made a demonstration of financial responsibility that indicates adequate resources will be maintained for well closure and should preclude the possibility of abandonment without proper closure.

**Expiration Date:** A final permit, when issued, will be in effect for five years from the date of permit issuance. This proposed draft permit contains essentially the same conditions as the final permit will unless information is supplied to EPA which would warrant alternative conditions or actions on this permit application.

**Additional Information:** Questions, comments and requests for additional information may be directed to the contact person listed below. A public hearing has been tentatively scheduled for Tuesday, February 23, 2011, at 7:00 PM at the Youngsville High School auditorium, 227 College Street, Youngsville, Pennsylvania 16371. EPA reserves the right to cancel this hearing, and will hold this hearing, only if the Agency receives significant written expressions of public interest, specific to the proposed permit action, by February 16, 2011. In any case,



the Administrative Record for this action will remain open for public comment until February 23, 2011. Requests for a public hearing should be directed to:

S. Stephen Platt  
Ground Water & Enforcement Branch (3WP22)  
U.S. Environmental Protection Agency  
1650 Arch Street  
Philadelphia, PA 19103-2029  
(215) 814-5464



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

**UNDERGROUND INJECTION CONTROL PERMIT NUMBER PAS2D215BWAR  
AUTHORIZATION TO OPERATE A CLASS IID INJECTION WELL**

In compliance with provisions of the Safe Drinking Water Act, as amended, (42 U.S.C. §§ 300f-300j-11, commonly known as the SDWA), the Resource Conservation and Recovery Act (42 U.S.C. §§ 6901-6991i, commonly known as RCRA) and attendant regulations promulgated by the U. S. Environmental Protection Agency under Title 40 of the Code of Federal Regulations,

Bear Lake Properties, LLC

3000 Village Run Road, Unit 103, #223

Wexford, PA 15090


is authorized by this permit to inject fluids through a Class IID commercial injection well, Bittinger #4, from a facility located in Columbus Township, Warren County, PA into the Medina Formation in accordance with the conditions set forth herein.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective.

This permit shall become effective on June 8, 2011.

This permit and its authorization to inject shall remain in effect until midnight June 8, 2016.

Signed this 8<sup>th</sup> day of June, 2011.

  
Jon M. Capacasa, Director  
Water Protection Division



## PART I

### A. Effect of Permit

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The underground injection activity, otherwise authorized by this permit, shall not allow the movement of fluid containing any contaminant into underground sources of drinking water (USDW), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by rule is prohibited. 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, or any infringement of State or local law or regulations. Compliance with 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 any breach of any other applicable legal duty.

### B. Permit Actions

This permit can be modified, revoked and reissued or terminated for cause as specified in 40 CFR §§ 144.12, 144.39 and 144.40. Also, the permit is subject to minor modifications as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee shall not stay the applicability or enforceability of any permit condition.

### C. Severability

The provisions of this permit are severable, and if any provision of this permit or the permittee's application, dated October, 2010 (Permit Application), to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

### D. General Requirements

1. Duty to Comply. The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is

authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

2. Need 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.

3. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

4. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, facility security, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit.

5. Duty to Provide Information. The permittee shall furnish to the Director, within a time specified by the Director, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, 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 reports, the permittee shall promptly submit information addressing these deficiencies.

6. Inspection and Entry. The permittee shall allow the Director, 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 any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA.

7. Penalties. Any person who violates a permit requirement is subject to civil penalties, fines and other enforcement actions under the SDWA and may be subject to the same such actions pursuant to RCRA. Any person who willfully violates permit conditions is subject to criminal prosecution.

8. Transfer of Permits. This permit is not transferable to any person except after notice is sent on EPA Form 7520 and approval is given by the Director and the requirements of 40 CFR § 144.38 are satisfied. The Director may require modification or revocation of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.

9. Signatory Requirements.

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

(1) for a corporation, by a responsible 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; or

(3) 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:

(1) the authorization is made in writing by a person described in paragraph a. above;

- (2) the authorization specifies either 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 a position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
- (3) the written authorization is submitted to the Director.

c. If an authorization under paragraph b. of this section is no longer accurate because a different individual or position 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 Director 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 a. or b. of this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

#### 10. Confidentiality of Information.

a. In accordance with 40 CFR Parts 2 (Public Information) and § 144.5, any information submitted to the Director pursuant to these permits may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the

information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2.

b. Claims of confidentiality for the following information will be denied:

- (1) The name and address of any permit applicant or permittee.
- (2) Information which deals with the existence, absence, or level of contaminants in drinking water.

11. Reapplication. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 100 days before this permit expires.

12. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

## PART II

### A. General

Copies of all reports and notifications required by this permit shall be signed and certified in accordance with the requirements of Section D(9) of Part I of this permit and shall be submitted to the Director at the following address:

Ground Water & Enforcement Branch (3WP22)  
Office of Drinking Water & Source Water Protection  
U. S. Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103

### B. Record Retention

1. The permittee shall retain records of all monitoring and other information required by this permit, including the following (if applicable), for a period of at least five years from the date of the sample, measurement, report or application, unless such records are required to be retained for a longer

period of time under paragraphs B.2 and B.3, below . This period may be extended by request of the Director at any time.

a. All data required to complete the Permit Application form for this permit and any supplemental information submitted under 40 CFR § 144.31.

b. Calibrations and maintenance records and all original strip chart recordings for continuous monitoring instrumentation.

c. Copies of all reports required by this permit.

2. The permittee shall retain records concerning the nature and composition of all injected fluids, as listed in Part II, paragraphs C.3.through C.5.of this permit, until three years after the completion of any plugging and abandonment procedures.

3. The permittee shall continue to retain the records after the above specified retention periods unless he or she delivers the records to the Director or obtains written approval from the Director to discard the records.

4. Records of monitoring information shall include:

a. The date, exact place, and the time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. A precise description of both sampling methodology and the handling (custody) of samples;

d. The date(s) analyses were performed;

e. The individual(s) who performed the analyses;

f. The analytical techniques or methods used; and

g. The results of such analyses.

5. Monitoring the nature of injected fluids shall comply with applicable analytical methods cited in Part II, paragraph C.1., below.

6. All environmental measurements required by the permit, including, but not limited to; measurements of pressure, temperature, mechanical integrity (as applicable) and chemical



analyses shall be done in accordance with EPA guidance on quality assurance.

C. Monitoring Requirements

1. 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 and Appendix III of 40 CFR Part 261, unless otherwise approved by the Director. The permittee shall identify the types of tests and methods used to generate the monitoring data.

2. Injection pressure, annular pressure, flow rate and cumulative volume shall be observed and recorded continuously beginning on the date on which the well commences operation and concluding when the well is plugged and abandoned. The permittee shall monitor and record semi-annually the fluid level of the depleted natural gas production wells located within the Bear Lake injection facility property as referenced in the Permit Application.

3. The permittee shall sample, analyze and record the nature of the injected fluid for the parameters listed below at the initiation of the injection operation and every year thereafter, or whenever the operator observes or anticipates a change in the injection fluid (see condition C.4. below).

-pH	-Manganese
-Specific Gravity or Fluid	-Total Dissolved Solids
-Density	-Barium
-Specific Conductance	-Hydrogen Sulfide
-Sodium	-Dissolved Oxygen
-Iron	-Alkalinity
-Magnesium	-Hardness
-Chloride	-Total Organic Carbon

4. Samples of injection fluid shall be collected and analyzed from initial loads received from each disposal customer and each type of source (e.g., from different geologic formations, geographic regions, etc.). Minimum analyses of the fluid will include specific gravity, Total Dissolved Solids, pH and Total Organic Carbon (TOC). Any analysis of specific gravity greater than 1.22 and any analysis of TOC greater than 250 mg/l shall be reported to the Director within twenty four hours of the results.

5. The permittee shall maintain a record of every load of fluid received. The record shall include the hauler's name, the operator's name and the location from where the load was obtained, the volume of the load and whether the load of fluid delivered was a split load. If the load was a split load, each operator's name and location shall be listed and, if possible, the volumes of fluid received from each operator documented.

6. A demonstration of mechanical integrity in accordance with 40 CFR § 146.8 shall, after the initial demonstration, be made at least once every two years. Subsequent two year demonstrations shall be conducted no more than 30 days prior to the anniversary date of the issuance of this permit. 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 reseated, or a well failure is evident. The permittee may continue operation only if he or she has successfully demonstrated to the Director 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. Any such test shall be conducted in keeping with the notification requirements of Permit Condition D.11. of Part II of this permit.

D. Reporting and Notification Requirements.

1. Report on Permit Review. Within 30 days of receipt of this permit, the permittee shall report to the Director that he or she has read and is personally familiar with all terms and conditions of this permit.

2. Commencing Injection. The operator of a new injection well may not commence injection until construction is complete, and

a. The permittee has demonstrated to EPA that the injection well has mechanical integrity in accordance with 40 CFR § 146.8 and the permittee has received written notice from the Director that such demonstration is satisfactory;

b. The permittee has submitted notice of completion of construction (EPA Form 7520-10) to the Director; and

c. The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

d. The permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in paragraph (a) of this permit condition, in which case, prior inspection or review is waived and the permittee may commence injection.

3. Twenty-four Hour Reporting.

a. The permittee shall report to the Director any noncompliance which may endanger health or the environment. Such report shall be provided orally (phone numbers: (215)814-5464 or (215)814-5445) within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(2) Any noncompliance with a permit condition, or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water, or failure of mechanical integrity test demonstrations.

b. A written submission shall also be provided within five 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, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

4. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

5. Other Noncompliance. 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 Permit Condition D.3., of Part II of this permit.

6. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

7. Conversion. The permittee shall notify the Director thirty days prior to the conversion of the well to an operating status other than an injection well.

8. Annual Report. The permittee shall submit an Annual Report to the Director summarizing the results of the monitoring required by Permit Condition C within Part II of this permit. This report shall include monthly monitoring records of injected fluids, fluid level monitoring results, the results of any mechanical integrity test(s), and any major changes in characteristics or sources of injected fluids. The permittee shall complete and submit with its Annual Report EPA Form 7520-11 (Annual Disposal/Injection Well Monitoring Report). The Annual Report shall be submitted not later than January 31st, summarizing the activity of the calendar year ending the previous December 31st.

9. Plugging and Abandonment Reports and Notifications.

a. The permittee shall notify the Director 45 days before the plugging and abandonment of the well. The Director may allow a shorter notice period upon written request.

b. Revisions to the Plugging and Abandonment Plan must be submitted to the Director no less than 45 days prior to plugging and abandonment on EPA Plugging and Abandonment Form 7520-14. The Director must approve the revisions prior to the start of plugging operations.

c. Within 60 days after plugging the well, the permittee shall submit a report to the Director which shall consist of either:

(1) A statement that the well was plugged in accordance with the plan previously submitted to and approved by the Director; or

(2) Where actual plugging differed from the plan previously submitted, an updated version of the plan, on the form supplied by the Director, specifying the different procedures used.

The report shall be certified as accurate by the person who performed the plugging operation.

10. 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 30 days following each schedule date.

11. Mechanical Integrity Tests. The permittee shall notify the Director of his or her intent to conduct a mechanical integrity test at least 30 days prior to such a demonstration.

12. Cessation of Injection Activity. After a cessation of injection for two years the owner or operator shall plug and abandon the well in accordance with the Plugging and Abandonment Plan unless he:

a. Provides notice to the Director; and

b. Describes actions or procedures, satisfactory to the Director, which the permittee will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to an active injection well unless waived in writing by the Director.

#### E. Mechanical Integrity Standards

1. Standards. The permittee shall have and maintain the mechanical integrity of the permitted injection well pursuant to 40 CFR § 146.8.

2. Request from Director. The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

### PART III

#### A. Construction Requirements

1. Notwithstanding any other provision of this permit, the injection well shall inject only into formations which are separated from any underground source of drinking water by a confining zone that is free of known open faults or fractures within the Area of Review.

2. Casing and Cementing. The permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well and, at a minimum, the operation shall be conducted in accordance with the construction details described in the Permit Application. However, in all cases cemented surface casing shall be installed from the surface to a

depth at least fifty feet below the lowermost underground source of drinking water and the injection zone shall be isolated by the placement of long string casing to total depth and cemented back at least 100 feet above the injection zone. Injection shall occur through a tubing string and packer installed inside the long string casing.

3. Logs and Tests. The logs and tests listed below shall be conducted during the drilling and construction of the well or, in the event that the well is being converted to an injection well, obtain and submit the logs and tests from the well's original construction. A descriptive report interpreting the results (which specifically relate to (1) the lowermost underground source of drinking water and the confining zone adjacent to it and (2) the injection zone and adjacent formations) shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum, such logs and or tests shall include the following:

- A cement bond log and variable density log which document the cemented portion of the long string casing.
- A log which documents the location of the surface casing.
- Records documenting the cementing of the surface casing.
- Gamma Ray logs which document the geologic formations in the wellbore.

4. Mechanical Integrity. Injection operations are prohibited until the permittee demonstrates that the well covered by this permit has mechanical integrity in accordance with 40 CFR § 146.8 and the permittee has received notice from the Director that such a demonstration is satisfactory in accordance with the provisions of Condition D.2. of Part II of this permit.

5. Corrective Action. Injection operations are prohibited until the permittee has successfully performed any activities detailed in the Corrective Action Plan submitted in their Permit Application, and hereby incorporated. If any abandoned well is discovered within the one-quarter mile area of review as identified in the Permit Application, the permittee shall notify the Director upon discovery and within five (5) days submit to the Director for approval a plan for corrective action and implement the approved plan.

## B. Operating Requirements

1. Injection Formation. Injection shall be limited to the Medina Formation in the subsurface interval between approximately 4285 feet to 4302 feet (upper perforations) and 4352 feet to 4365 feet (lower perforations).

2. Injection Fluid. The permittee shall not inject any hazardous substances, as defined by 40 CFR 261, nor any other fluid, other than the fluids produced in association with oil and gas production activity. This includes all fluids which are brought to the surface in association with oil and gas production.

3. Injection Volume Limitation. Injection volume shall not exceed 30,000 barrels per month.

4. Injection Pressure Limitation. Injection pressure shall not exceed a surface injection pressure maximum of 1726 psi and a bottom hole pressure maximum of 3984 psi. These pressure calculations are based on the specific gravity of the injection fluid not exceeding 1.218. If the specific gravity of the injection fluid should exceed 1.218, then the surface injection pressure must be revised downward so as not to exceed the bottomhole pressure. Injection at a pressure which initiates new fractures or propagates existing fractures in the confining zone adjacent to underground sources of drinking water or causes the movement of injection or formation fluids into an underground source of drinking water is prohibited.

5. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited, as is injection into any USDW.

## C. Plugging and Abandonment

1. The permittee shall plug and abandon the well in accordance with the approved plugging and abandonment plan (EPA Form 7520-14) provided in the Permit Application, which is hereby incorporated.

2. Plugging and Abandonment shall be conducted in such a manner that movement of fluids will not be allowed into or between underground sources of drinking water.

## D. Financial Responsibility

The permittee shall maintain financial responsibility and resources to close, plug and abandon the underground injection

well in accordance with 40 CFR Section 144.52(a)(7) in the amount of at least \$30,000. If the circumstances regarding the acceptability of the Letter of Credit and Standby Trust Agreement submitted to EPA to demonstrate financial responsibility should change, the permittee shall provide advance notification to the Director, and the Director may seek an alternative financial demonstration from the permittee.

The permittee shall not substitute an alternative demonstration of financial responsibility for that which the Director has approved, unless he or she has previously submitted evidence of that alternative demonstration to the Director and the Director notifies him or her that the alternative demonstration of financial responsibility is acceptable. The Director may require the permittee to submit a revised demonstration of Financial Responsibility if the Director has reason to believe that the original demonstration is no longer adequate to cover the costs of plugging and abandonment.



# **EXHIBIT 6**



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029**

**Responsiveness Summary to Public Comment  
For  
The Issuance of Underground Injection Control (UIC) Permits  
For  
Bear Lake Properties, LLC**

On January 10, 2011, the U.S. Environmental Protection Agency (EPA) Region III issued a public notice requesting comment and the opportunity for a public hearing for the proposed issuance of two Underground Injection Control (UIC) permits, PAS2D215BWAR and PAS2D216BWAR, for Bear Lake Properties, LLC. EPA received numerous requests to hold this hearing, but the hearing, scheduled for February 23, 2011, was postponed since EPA was unable to arrange for stenographic support in time for the hearing. EPA subsequently issued another public notice rescheduling the public hearing for March 23, 2011. On March 23, 2011, EPA held a public hearing at the Columbus Township Social Hall in Columbus, Pennsylvania. Over 200 people attended this public hearing and EPA received oral comments from 19 people in attendance at the hearing. EPA also extended the public comment period until March 30, 2011, during the hearing, inviting any additional written comments.

The responsiveness summary which follows provides answers to questions raised from over 350 people who either sent written public comment to the attention of EPA Region III, or who provided comments at the hearing. EPA wishes to thank the commenters for their informative and thoughtful comments and to thank the people from Columbus Township who assisted EPA in hosting the public hearing.

**1) EPA's jurisdiction and authority**

Many people raised concerns which the EPA UIC program does not have the regulatory jurisdiction to address. These included the potential for increased truck traffic, the potential for damage to the roads, increased noise, protection of wildlife, the protection of worker safety and the operator's development of health and safety plans and storm water management plans, among others. When making the decision whether to issue UIC permits for Bear Lake Properties, EPA's jurisdiction rests solely in determining whether the proposed injection operation will safely protect underground sources of drinking water (USDWs) (i.e., aquifer systems containing less than 10,000 milligrams per liter total dissolved solids). Although these other concerns may be relevant, they cannot be addressed within a UIC permit. The public would need to seek assistance through local Columbus Township or Warren County ordinances for traffic, road and noise concerns and state or federal agencies for concerns regarding wildlife protection, storm water management or health and safety.

It is important to note that every UIC permit, that EPA Region III issues, contains several conditions that require the permittee to meet all other local, state or federal laws that are in place. Part I. A. of the proposed permit contains a clause that states, " Issuance of this permit does not convey property rights or mineral rights of any sort of any exclusive privilege; nor does it



authorize any injury to persons or property, an invasion of other property rights or any infringement of State or local law or regulations". In addition, Part I. D. 12 of the proposed permit indicates, "Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation". Therefore, EPA's UIC permit is only one of several authorizations that a permittee may be required to obtain before they are allowed to commence operation.

**2) EPA should require the operator to find another location for disposal**

Similar to the response above, EPA does not have the jurisdiction, to direct an operator to a particular geographic location. The location chosen by an operator is based on many factors: economics, property ownership, geologic suitability, etc. It is EPA's responsibility to review each UIC permit application it receives and make a determination as to whether USDWs will be protected from the proposed operation, not to identify suitable injection sites.

**3) Other possible disposal alternatives and other technologies available for the treatment of produced fluid**

EPA acknowledges that there are other alternatives for the disposal of produced fluid from oil and gas development as well as wastewater treatment technologies available for the treatment of produced fluid. Even though other disposal alternatives may exist and wastewater treatment technologies are available, the UIC program must determine whether underground injection can be implemented in a manner protective of USDWs. If underground injection is done in accordance with the UIC program requirements, it is one of the best alternatives available for the disposal of fluids produced in association with oil and gas production activities. EPA cannot deny an operator a UIC permit because other disposal alternatives or treatment technologies exist.

**4) Is this proposed injection activity in an earthquake prone area?**

EPA has no evidence the location proposed for this injection operation is located in an earthquake prone area. Evidence indicates that there are no deep-seated transmissive faults that intersect the proposed injection zone or that could be influenced by the proposed injection operation in the future. It is important to keep in mind that the reservoir proposed for injection, the Medina Formation, produced, and continues to produce, natural gas. Over the past three decades, natural gas has been removed from the pore space within this reservoir, depleting the formation of much of the natural gas it contained as well as reducing the formation's reservoir pressure. Earthquakes can occur when a geologic formation becomes under-pressurized (i.e., through geologic formation collapse causing the structure of the formation to shift) or when it becomes over-pressurized. The Medina Formation in this location is presently under-pressurized from decades of natural gas production and there has been no evidence of earthquakes due to the removal of this natural gas. In addition, the proposed injection operation will not over-pressurize the formation. Because of the removal of millions of cubic feet of natural gas, pore space has been created to accept the injection of fluid. The permits would also be conditioned to prevent the over-pressurization, or fracturing, of the formation.



### **5) Are the fluids being injected toxic, hazardous and/or radioactive?**

Individual constituents within the fluid produced from an oil or gas production reservoir, or from the return flow of fluid used in a hydraulic fracturing process, can be determined to be toxic, hazardous or radioactive. However, these fluids when produced in association with oil and gas production are exempt from the hazardous waste regulation by Congress and are not classified as hazardous under the Resource Conservation and Recovery Act. Therefore, the UIC program does not regulate fluids produced in association with oil and gas production activities as hazardous waste. Disposal of these fluids is permissible down a Class II brine disposal injection well. Commenters raised the issue that the disposal of these fluids underground is not safe. However, a counterpoint to this comment, made by another commenter, indicated that the injection of these fluids deep underground is safer than allowing them to be discharged into a stream or a river or allowing them to overflow or seep into the ground from above-ground containment pits.

One of the major reasons behind the development of the UIC regulations was to provide a regulated alternative whereby oil and gas related fluids could be safely managed. Hazardous waste produced by the petrochemical industry, as well as other industries, has been safely injected underground since the UIC regulations went into effect in the early 1980's. These fluids are injected down Class I hazardous waste injection wells below the lowermost USDW. The mandate of the UIC program is to protect USDWs from the subsurface emplacement of fluids. This has been accomplished through strict well construction criteria, the testing and inspection of injection well operations, monitoring and reporting requirements, and plugging and abandonment requirements. As mentioned in an earlier response, the UIC program provides one of the safest methods for the disposal of any kind of fluid as long as it is done under the requirements imposed by the UIC regulations.

### **6) Abandoned wells may pose a risk to drinking water supplies**

It is a fact that abandoned wells can pose a risk to USDWs by providing a conduit for the migration of fluid out of an injection zone. There are several requirements that the UIC regulations, as well as a UIC permit, impose on an operator to ensure that abandoned wells will not pose a risk to USDWs. The operator is required to conduct a review within a specified area around his proposed operation to determine whether any abandoned wells exist within that disposal area which could pose a threat to USDWs. The area of review can be a fixed radius of no less than one-quarter mile around an injection well or facility boundary (i.e., for an area permit) or may be a calculated "zone of endangering influence". The zone of endangering influence calculation is based on geologic parameters found in the injection zone, such as permeability, porosity, etc. and proposed operational conditions, such as injection volumes, rates, length of injection, etc. The operator must review all information of public record to determine whether any abandoned wells or other potential conduits exist within the area of review or zone of endangering influence, that penetrate the proposed injection zone, in this case, the Medina Formation. If abandoned wells are found to exist, then corrective action, in the form of plugging and abandonment of those wells, must be taken.

Bear Lake Properties chose to calculate the zone of endangering influence based on the simultaneous operation of both of the proposed injection wells. EPA conducted its own zone of endangering influence calculation to verify the calculation submitted by Bear Lake Properties and found the calculation acceptable. The only wells found that penetrate the Medina Formation, within the calculated zone of endangering influence, are production wells owned by Bear Lake Properties.



During the public hearing, commenters indicated to EPA that they did not think that all abandoned wells near the proposed injection site had been documented. It was unclear whether these wells might exist within the zone of endangering influence, outside of this area, or might be wells that do not penetrate the injection zone. EPA requested that Bear Lake Properties conduct another survey of the area surrounding the proposed injection operation, using information provided at the public hearing, to determine whether other abandoned wells did, in fact, exist. Public records, obtained by EPA subsequent to the public hearing, indicated no record of wells being drilled in the area of the proposed injection operation prior to the wells that are present today. The additional information and maps, submitted to EPA, provided information on all of the gas wells that are located within a two mile radius of the injection well site. This map confirmed the information submitted by Bear Lake Properties, that only gas production wells owned by Bear Lake Properties exist within the zone of endangering influence. The additional survey conducted by Bear Lake Properties indicated that only the Bittinger #1 and Bittinger #4 are contained within the area of review.

EPA has also required in the proposed permits monitoring of the fluid level in the injection zone during injection operations to ensure that pressure created by the injection operation will not cause migration of fluid up abandoned wells that could exist. By monitoring fluid level, and making sure that it remains safely below the lowermost USDW, then even if an abandoned well were to exist ( i.e., a well that might have been drilled in the past without having information of public record), the monitoring would detect and prevent fluid migration into the lowermost USDW. EPA Region III has a permit condition in the proposed Bear Lake Properties permits that requires the fluid level to be monitored during the injection operation. Until the Bittinger #1 or the Bittinger #4 are placed into operation, they will be used to monitor the fluid level or formation pressure during injection to determine reservoir response and ensure protection of USDWs. The R. Trisket 2, located 0.34 miles to the west of Bittinger #1 and the Smith/Raz Unit 1, located 0.40 miles to the east of Bittinger #1 will also be used as monitoring wells during the Bittinger #1's operation. During Bittinger #4's operation, the R. Trisket 1, located 0.33 miles to the west of Bittinger #4 and the Joseph Bittinger 2, located 0.37 miles to the east of Bittinger #4 will also be used as monitoring wells.

#### **7) Bear Lake Properties did not survey drinking water wells in New York State**

Written comments received by EPA as well as public testimony provided at the public hearing expressed concern that Bear Lake Properties did not adequately survey drinking water wells located in New York State. Subsequent to the public hearing, EPA requested that Bear Lake Properties conduct another survey of drinking water wells located within one mile of the proposed injection well facility. This one mile survey did include properties located in New York State. The revised survey map Bear Lake Properties provided to EPA, with GPS latitude/longitude locations, identified 10 private drinking water wells located in New York State, within one mile of the Bittinger #4 well, the closest well to the New York/Pennsylvania state line.

#### **8) Bear Lake Properties' well construction standards and mechanical integrity testing are not adequate**

Many comments that EPA received indicated that the proposed injection wells were not constructed properly and that well testing requirements contained within the draft permits were also inadequate.

The comments received provided a review of the Pennsylvania Department of



Environmental Protection's (PADEP) well casing standards (PADEP Chapter 78 regulations on production wells) and compared those to the proposed construction of the Bittinger #1 and Bittinger #4 wells under the UIC program requirements. Examples of some of the issues provided to EPA included, "gas migration stems from inadequate cement, cementing procedures", "the operator shall install casing that can withstand the effects of tension and prevent leaks...", "used casing may be approved for use as surface casing, intermediate or production casing but must be pressure tested..."

The Bittinger #1 and Bittinger #4 proposed UIC permits both require that surface casing be set 50 feet below the lowermost USDW (Note: The UIC program defines a USDW as any aquifer system having less than 10,000 mg/l total dissolved solids (TDS), that is currently used, or could be used in the future. This definition is more stringent than the PADEP definition that requires protection of the "deepest fresh water"). The surface casing must also be cemented to the surface. The lowermost USDW has been identified at a depth of 300 feet and the Bittinger #1 and Bittinger #4 wells have surface casing set at 401 feet and 506 feet, respectively. This is well below the "fresh water" that would be protected under the PADEP requirements. In addition, the proposed permits require production casing (also referred to as long string casing) to be set through, or above, the injection zone, located at approximately 4300 feet, and cemented back at least 100 feet above the injection zone. Injection tubing and packer is then set inside the production casing and injection occurs through the tubing and packer. This construction provides three layers of protection for the USDWs. PADEP requirements do not require the additional two layers of protection.

Prior to the operation of the wells, EPA requires that the wells be tested for mechanical integrity. Cementing records and logs are required to show that each well has adequate cement to prevent fluid migration out of the injection zone and an internal pressure test is required to ensure that the casing, tubing and packer will not leak during the well's operation. The internal pressure test requires the annulus of the well (the space between the production casing and the tubing and packer) to be pressure tested to ten percent above the permitted maximum injection pressure and held for at least 30 minutes, with no more than a five percent loss in pressure allowed.

The UIC program in EPA Region III has been utilizing the construction and testing standards discussed above for brine disposal injection wells in Pennsylvania since it started implementing the UIC program in June, 1985. PADEP does not have these requirements for mechanical integrity testing or logging. EPA finds that these requirements have effectively protected USDWs from the subsurface injection of fluids.

#### **9) Mechanical integrity tests must be conducted quarterly**

Many comments indicated that mechanical integrity of the injection wells should be done on a quarterly basis. The comments were based on a review of PADEP's Chapter 78 regulations, specifically Section 78.88 which is entitled, "Mechanical integrity of operating wells". This section of the PADEP regulation refers more to the frequency of well inspections and is not the same as the mechanical integrity testing requirements imposed by EPA. Section 78.88 indicates, "...that the operator shall inspect each operating well at least quarterly". It then goes into some detail about what must be inspected.

There is a significant difference between the inspection of a well and the mechanical integrity testing of an injection well. As stated in the previous comment, EPA requires that every injection well be tested before it operates to make sure that the casing, tubing and packer placed in the well do not leak. The proposed UIC permits for the Bittinger #1 and Bittinger #4 wells also require that the wells be tested for mechanical integrity every two years. In between the

testing, the wells are continuously monitored for injection pressure, annular pressure and injection volume to ensure that the wells maintain mechanical integrity continuously and operate in accordance with their permit conditions. Should a problem occur during the operation of either well, each well is designed with an automatic pressure shut-down device that will discontinue operation of the well. The continuous monitoring of the wells, as well as the presence of company employees on site, ensures that the wells operate in a safe and protective manner. EPA will also be conducting periodic routine compliance inspections between mechanical integrity testing cycles to verify all operating and recording devices are operational.

**10) Bear Lake Properties has not demonstrated financial resources should a well failure occur.**

Under the UIC regulations, owners and operators of injection wells are required to demonstrate financial responsibility in order to properly plug and abandon the injection well when the operation ceases and the well is no longer used for injection. Bear Lake Properties has submitted a \$60,000 letter of credit and standby trust agreement (\$30,000 for each injection well) for the plugging and abandonment of the Bittering #1 and Bittering #4 wells. This submission was reviewed and approved by EPA Region III.

Although a separate issue from the financial responsibility required as part of the UIC permit, EPA also has emergency authorities in place under the Safe Drinking Water Act (SDWA) if endangerment to USDWs should result from injection activities. Section 1431 under the SDWA allows EPA to take an action against an owner or operator if the potential for endangerment exists. This action can include a requirement that the owner or operator provide alternative drinking water to a citizen affected by the endangerment as well as require the remediation of any aquifer system affected by the injection operation.

**11) Wastewater entering the facility for injection should be more fully characterized.**

EPA believes that the conditions in Part II, C.3. and C.4., within the permit, are sufficient to adequately characterize and monitor the wastewater for injection purposes. If this wastewater were to be disposed in a different manner (i.e., disposed directly into the environment by stream discharge) then a more extensive characterization would be necessary. However, this wastewater will be injected almost one mile beneath the earth's surface into an environment similar in nature to where the wastewater was generated.

EPA has also added a new condition to the final permit. The condition, found in Part II, C.5., requires that, "The permittee to maintain a record of every load of brine received. The record shall include the hauler's name, the operator(s) name and location from whom the load was obtained, the volume of the load and whether the load of fluid delivered was a split load. If the load was a split load, each operator's name and location shall be listed and, if possible, the volumes of fluid received from each operator documented."

**12) The UIC permits are issued for a five year period. What happens after that, can the operator just walk away?**

The UIC permits would be in effect for five years from the date of issuance. After five years, the operator may apply to EPA Region III for permit reissuance. EPA will make a determination as to whether the permits should be reissued at that time. If a determination is made to reissue the permits, EPA would public notice the permit reissuance and offer an opportunity for a public hearing. If the operator determines that they no longer wish to operate the injection wells, the



wells must be plugged and abandoned in accordance with the UIC permit requirements and abide by all other closure requirements that have been imposed by local or state jurisdictions. The owner's financial responsibility is not released by EPA until the wells are properly plugged and abandoned.

### **Federal Underground Injection Control Program Permit Appeals Procedures**

The provisions governing procedures for the appeal of an EPA permitting decision are defined at 40 CFR Part 124.19. The appeals process allows for a written petition of appeal from any person who commented on the draft permit, either in writing during the comment period or orally at the public hearing. Persons who have not previously been involved in the comment period are limited in their appeal rights to those points which have been changed between the draft and final permits. Appeals may be made by citizens, groups, organizations, governments and the permittee within this procedural framework.

A petition for appeal must be filed within thirty (30) days of the date of the accompanying announcement of EPA's permit decision. Such written requests are to be addressed to EPA at the address listed below with a copy sent to EPA Region III.

The Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue Northwest  
Washington, DC 20004

The petition should specify the reasons supporting the appeal of the permit and a demonstration that the petitioner had raised the issue previously during the comment period or at the hearing. If the appeal is based on a change between the draft and final permit conditions, it should be so stated explicitly. The petitioner must also state whether, in his or her opinion, the permit decision or the permit's conditions appealed are objectionable because of:

1. Factual or legal error, or
2. The incorporation of a policy consideration which the Administrator should, at his or her discretion review.

Within a reasonable time of receipt of the Appeals Petition, the Administrator will either grant or deny the appeal.

Denials are considered final agency action, upon which the permit becomes effective, and the Agency will so notify the petitioner. The petitioner may, thereafter, challenge the permit decision in Federal District Court.

If granted, EPA must so notify the public in accordance with the notification requirements of 40 CFR 124.10. The public notice shall set forth a timetable by which the person(s) making an appeal and EPA, as the permitting authority, must submit written briefs and shall also specify that any interested party may submit an amicus brief within these deadlines.

When a petition for appeal is granted, the permit conditions appealed are not deemed to be in effect and if these permit conditions are essential to the operation, the activity may not commence. Individually contested permit conditions are also stayed (not in effect) but other permit conditions are still in effect if they are legally severable from the contested condition.

The EPA Administrator will decide the appeal on the basis of the written briefs and the





total administrative record of the permit action. If the Administrator decides the appeal on its merits, he or she will direct the Region III office to implement his or her decision by permit issuance, modification or denial. The Administrator may order all or part of the permit decision back to the EPA Region III office for reconsideration. In either case, a final agency decision has occurred when the permit is issued, modified or denied and an Agency decision is announced. After this time, all administrative appeals have been exhausted, and any further challenges to the permit decision must be made to Federal District Court.

