

SECTION 11o

Final EPA Injection Well Permit (As issued by EPA)



Change in Use Well Permit Application
Marjorie C. Yanity
API# 37-063-31807-00
Grant Township, Indiana County, PA



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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

SEP 11 2014

Mr. Jim Ashbaugh
P.E. Vice President Engineering
Pennsylvania General Energy Company, LLC
120 Market Street
Warren, PA 16365

Re: Underground Injection Control Permit PAS2D013BIND;
Marjorie C. Yanity 1025 Injection Well in Grant Township, Indiana County, PA
Underground Injection Control Appeal No. 14-63, 14-64 & 14-65
Notice of Final Permit Decision

Dear Mr. Ashbaugh:

Pursuant to 40 C.F.R. § 124.19(i)(2)(i), this is a notice of the U. S. Environmental Protection Agency (EPA) Region III's final permit decision regarding UIC Permit No. PAS2D013BIND, which EPA issued to Pennsylvania General Energy Company, LLC on March 19, 2014.

Following the issuance of the permit, several petitioners filed for review of the permit with the EPA Environmental Appeals Board. The effect of these petitions was to stay the issued permit. See 40 C.F.R. § 124.16(a)(1). On August 21, 2014, the Board denied the three petitions. *In re Pennsylvania General Energy Company, LLC*, UIC Appeal Nos. 14-63, 14-64 and 14-65 (EAB, August 21, 2014)(Order Denying Review).

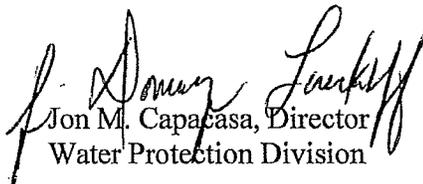
Under 40 C.F.R. § 124.19(m), the Petitioners had ten days from the date they were served with the EAB Order Denying Review to file a motion for reconsideration of the Board's decision. The period for filing motions for reconsideration has expired and according to the EAB Docket for the case, no such motion was filed. Hence, EPA is hereby issuing the final permit decision regarding Permit No. PAS2D013BIND. This permit will become effective on the date of this letter.



Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.
Customer Service Hotline: 1-800-438-2474

If you have any questions, please contact Stephen Platt of my staff by telephone at (215) 814-5464 or by email to platt.steve@epa.gov.

Sincerely,


Jon M. Capacasa, Director
Water Protection Division

cc: Suzanne Watkins
Judy & Paul Wanchisn
Stacy and Mark Long
William J. Woodcock III



*Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.
Customer Service Hotline: 1-800-438-2474*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

INJECTION CONTROL PERMIT NUMBER PAS2D013BIND
AUTHORIZATION TO OPERATE CLASS II-D INJECTION WELLS

In compliance with provisions of the Safe Drinking Water Act, as amended, 42 U. S. C. §§ 300f *et seq* (SDWA) and the SDWA implementing regulations promulgated by the U. S. Environmental Protection Agency at Parts 144 -147 of Title 40 of the Code of Federal Regulations, this permit authorizes

Pennsylvania General Energy Company, LLC
120 Market Street
Warren, Pennsylvania 16365

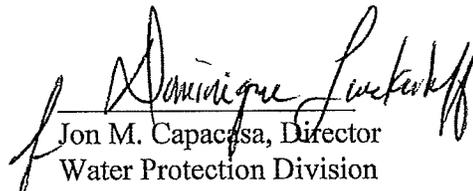
to convert the Marjorie C. Yanity 1025 production well into a Class II-D brine disposal Injection Well (hereinafter, "Injection Well or Facility") and to operate the Injection Well for the purpose of injecting fluids produced in association with Pennsylvania General Energy's (PGE) oil and gas production operations into the Huntersville Chert Formation, in accordance with the provisions of this permit. The Injection Well will be located in Grant Township, Indiana County, Pennsylvania. The coordinates for the Injection Well are: Latitude 40° 44' 43.00" and Longitude -78° 55' 34.00".

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 September 11, 2014.

This permit shall remain in effect until midnight September 11, 2024.

Signed this 11 day of September, 2014.


Jon M. Capacasa, Director
Water Protection Division

PART 1

A. Effect of a Permit

Pennsylvania General Energy Company, LLC (the "Permittee") is allowed to engage in underground injection at the Injection Well in accordance with the conditions of this permit. The Permittee shall not allow the underground injection activity, otherwise authorized by this permit, to cause or contribute to the movement of fluid containing any contaminant into any underground source(s) 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 if it may otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by permit or 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 the terms of this permit does not constitute a defense to any action brought under Part C or D of the SDWA, 42 U.S.C. §§ 300f-300j-11, 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 or upon request as specified in 40 C.F.R. §§ 144.12, 144.39 and 144.40. Also, the permit is subject to minor modifications as specified in 40 C.F.R. § 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 May 2, 2013, 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 regulations, including 40 C.F.R. Parts 124, and 144-147, and with the conditions of this permit, except to the extent and for the duration that EPA authorizes any noncompliance in an emergency permit issued under 40 C.F.R. §144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance or 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 the 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, adequate security to prevent unauthorized access and operation of the Injection Well and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities 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 of the Water Protection Division ("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 the law to:

a. Enter upon the Permittee's premises where the 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 the Facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times any substances or parameters at any location for the purposes of assuring permit compliance or as otherwise authorized by the SDWA.

7. Penalties. Any person who violates a requirement of this permit is subject to administrative or civil penalties, fines and other enforcement actions under the SDWA. Any person who willfully violates conditions of this permit 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 7520-7, approval is received from the Director, and the requirements of 40 C.F.R. § 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 or its implementing regulations. The transferee is not authorized to inject under this Permit unless and until the Director notifies the transferee that the transferee is so authorized through issuance of a revised permit identifying the transferee as the permittee.

9. Signatory Requirements.

a. The Permittee shall sign all reports required by this permit and other information requested by the Director 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 officer or a ranking elected official.

b. A duly-authorized representative of the person 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 the 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 this permit 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. EPA will deny any claims of confidentiality for the following information:

- (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 the 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

The Permittee shall sign and certify copies of all reports and notifications required by this permit in accordance with the requirements of paragraph I.D.9 of this Permit and shall submit such information to the Director at the following address:

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

B. Monitoring Requirements

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The Permittee shall obtain representative sample(s) of the fluid to be analyzed and conduct analysis(es) of the sample(s) in accordance with the approved methods and test procedures provided in 40 CFR § 136.3, or methods and test procedures otherwise approved by the Director. The Permittee shall identify in its monitoring records the types of tests and methods used to generate the monitoring data.

2. The Permittee shall continuously monitor and record surface injection pressure, annular pressure, flow rate and cumulative volume in the Injection Well beginning on the date the Injection Well commences operation and concluding when the Injection Well is plugged and abandoned. The Injection Well shall be equipped with an automatic shut-off device which would be activated in the event of a mechanical integrity failure. The Permittee shall compile the monitoring data monthly to complete the Annual Report referenced in paragraph II.D.8 of this permit.

3. The Permittee shall monitor the nature and composition of the injected fluid by sampling, analyzing and recording the injected fluid for the parameters listed below, at the initiation of the injection operation and every two years thereafter, and whenever the operator anticipates a change in the injection fluid.

- | | |
|------------------------|--------------------------|
| - pH | - Manganese |
| - Specific Gravity | - Total Dissolved Solids |
| - Specific Conductance | - Barium |
| - Sodium | - Hydrogen Sulfide |
| - Chloride | - Alkalinity |
| - Iron | - Dissolved Oxygen |

- Magnesium
- Total Organic Carbon (TOC)

- Hardness

4. The Permittee shall verbally report to the Director analytical results for specific gravity that are greater than 1.22 and for TOC that are greater than 250 mg/l within twenty-four hours of obtaining the results.

5. The Permittee shall make a demonstration of mechanical integrity in accordance with 40 CFR § 146.8 at least once every five years. In addition to the above requirement, the Permittee shall conduct a mechanical integrity test demonstration on the Injection Well when the protective casing or tubing is removed from the well, the packer is resealed, or a well failure is likely, or as requested by the Director. The Permittee may continue operation of the Injection Well only if the Permittee has demonstrated the mechanical integrity of the Injection Well to the Director's satisfaction. The Permittee shall cease injection operations if a loss of mechanical integrity becomes evident or if the Permittee cannot demonstrate mechanical integrity.

6. The Permittee shall perform all environmental measurements required by the permit, including, but not limited to; measurements of pressure, temperature, mechanical integrity (as applicable) and chemical analyses in accordance with EPA guidance on quality assurance.

C. 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 paragraph IIC.2 below. This period may be extended by the Director at any time. If the period is extended, the Permittee shall comply with the new period.

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 paragraph II.C.3 of this permit, until at least three years after the plugging and abandonment procedures are complete. The Permittee shall continue to retain these records after the three year retention period unless he or she delivers the records to the Director or obtains written approval from the Director to discard the records.

3. 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;
 - g. The results of such analyses.

D. Reporting and Notification Requirements

1. Report on Permit Review. Within 30 days of receipt of this permit, the Permittee shall ensure the person designated pursuant to paragraph I.D.9 of this permit reports 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 Permittee shall not commence injection until construction or well rework is complete and all of the following conditions have been satisfied:

a. The Permittee has submitted notice of completion of construction (EPA Form 7520-10) to the Director;

b. 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; and

c.(i) The Director has inspected or otherwise reviewed the Injection Well and finds it is in compliance with the conditions of this permit; or

c.(ii) The Permittee has not received notice from the Director of his or her intent to inspect or otherwise review the Injection Well within 13 days of the date of the notice in paragraph II.D.2.a of this permit, 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, or has endangered, health or the environment. The Permittee shall provide such report orally (phone numbers: (215) 814-5445 or (215) 814-5464) within 24 hours from the time the Permittee becomes aware of the circumstances. The Permittee shall include the following information in the oral report:

(1) Any monitoring or other information which indicates that any contaminant may endanger, or has endangered an underground source of drinking water.

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

b. The Permittee shall provide a written submission within five days of the time the Permittee becomes aware of the circumstances described above. 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 recurrence 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 to the Director in writing within ten (10) days of the time the Permittee becomes aware of the circumstances. The report shall contain the information listed in paragraph II.D.3 of this permit.

6. Planned Changes. The Permittee shall provide written notice to the Director as soon as possible of any planned physical alterations or additions to the permitted Facility.

7. Conversion. The Permittee shall provide written notice to the Director 30 days prior to the any conversion of the Injection Well to an operating status other than an injection well.

8. Annual Report. The Permittee shall submit a written Annual Report to the Director summarizing the results of the monitoring required in Permit Condition C of Part II of this permit. This report shall include monthly monitoring records of injected fluids, 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 this information with its Annual Report EPA Form 7520-11 (Annual Disposal Injection Well Monitoring Report). The Permittee shall submit the Annual Report to the Director no later than January 31st of each year, 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 in writing at least 45 days before plugging and abandonment of the Injection Well as described in condition in Part III.C of this permit. The Director may allow a shorter notice period upon written request.

b. The Permittee shall submit any revisions to the Plugging and Abandonment Plan attached to and incorporated into this permit (Attachment 1) to the Director no less than 45 days prior to plugging and abandonment on EPA Plugging and Abandonment Form 7520-14. The Permittee shall not commence plugging and abandonment until it receives written approval of the revisions to the Plan from the Director.

c. To the extent that any unforeseen circumstances occur during plugging and abandonment of the Injection Well that cause the Permittee to believe the Plugging and Abandonment Plan should be modified, the Permittee shall obtain written approval from EPA of any changes to the Plugging and Abandonment Plan prior to plugging the Injection Well.

d. Within 60 days after plugging the Injection Well, the Permittee shall submit a Plugging and Abandonment Report to the Director which shall consist of either:

(i) A statement that the Injection Well was plugged in accordance with the EPA approved Plugging and Abandonment Plan; or

(ii) Where actual plugging differed from the Plugging and Abandonment Plan previously submitted, the Permittee shall provide to the Director an updated version of form 7520-14 specifying the different procedures used.

e. The Permittee shall ensure that the Plugging and Abandonment Report is certified as accurate by the person who performed the plugging operation.

10. Compliance Schedules. The Permittee shall submit reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit no later than 30 days following each schedule date.

11. Mechanical Integrity Tests. The Permittee shall notify the Director in writing at least 30 days prior to conducting Mechanical Integrity Testing on the Injection Well.

12. Cessation of Injection Activity. After the Permittee has ceased injection into the Injection Well for two years, the Permittee shall plug and abandon the Injection Well in accordance with the Plugging and Abandonment Plan (Attachment 1 hereto) unless the Permittee:

a. Provides written notice to the Director describing actions and/or procedures, necessary to ensure that the Injection Well will not endanger any USDW during the period of temporary abandonment. These actions and procedures shall include compliance with the requirements of this permit applicable to active injection wells unless waived, in writing, by the Director;

b. Receives approval from the Director that the actions and/or procedures described in the notice are satisfactory; and

c. Implements such EPA approved actions and/or procedures.

E. Mechanical Integrity

1. Standards. The Permittee shall 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 during the term of this permit and the Permittee shall comply with the Director's request.

Part III

A. Construction Requirements

1. Confining Zone. Notwithstanding any other provision of this permit, the Permittee shall inject through the Injection Well only into a formation which is separated from any Underground Source of Drinking Water by a confining zone, as defined in 40 C.F.R. § 146.3, that is free of known open faults or fractures within the Area of Review as required in 40 C.F.R. § 146.22.

2. Casing and Cementing. The Permittee shall:

a. ensure the Injection Well is cased and cemented to prevent the movement of fluids into or between underground sources of drinking water and in accordance with 40 CFR §§ 146.22 and 147.1955(b);

b. ensure the casing and cement used in the Injection well is designed for the life expectancy of the well;

c. ensure the Injection Well has 11 ¾ inch surface casing installed from the surface to 568 feet below land surface and cemented back to the surface;

d. ensure the Injection Well has 8 5/8 inch intermediate casing string installed from the surface to 1539 feet below land surface and cemented back to the surface;

e. ensure the Injection Well has 4 ½ inch long string casing installed from the surface to 7788 feet and cemented back to approximately 6850 feet below land surface to isolate the injection zone; and

f. install in the Injection Well, and inject through, a tubing string set on a packer placed above the injection zone's perforated interval at approximately 7544 feet.

3. Logs and Tests. In accordance with 40 CFR § 146.22(f), the Permittee shall prepare logs and perform tests as follows during the drilling and construction or rework of the Injection Well: electric, gamma ray and caliper logs in the open hole, a cement bond, temperature or density log on the surface casing (if cement returns are not achieved), and a cement bond log/variable density log on the long string casing. The Permittee shall submit to the Director, for the Injection Well, cement records, a narrative report that interprets the well log(s) and test results, which specifically relate to the results of the cementing operation, and a detailed description of the rationale used to make these interpretations. The narrative report shall be prepared by a knowledgeable log analyst and submitted to the Director. The Director may prescribe additional logs or waive logging requirements in the future should field conditions so warrant.

4. Mechanical Integrity. The Permittee is prohibited from conducting injection operations in the Injection Well until it (i) demonstrates the mechanical integrity of the Injection Well in accordance with 40 C.F.R. § 146 and (ii) receives notice from the Director that such a demonstration is satisfactory in accordance with paragraph II.D.2 of this permit.

5. Corrective Action. The Permittee is prohibited from conducting injection operations in the Injection Well until it has plugged all abandoned wells identified within the area of review.

6. Completion Reports. The Permittee shall prepare a written Completion Report that summarizes the activities and the results of the testing required in Condition A.1 through 5 of Part III of this permit and submit the Completion Report to the Director prior to the commencement of injection operations.

B. Operating Requirements

1. Injection Formation. The Permittee shall inject only into the Huntersville Chert Formation located at the subsurface interval between approximately 7544 feet and 7620 feet.
2. Injection Fluid. The Permittee shall not inject any hazardous waste as defined in 40 CFR Part 261 or any fluid, other than the produced fluids solely from oil and gas production activity at PGE's oil and gas production operations.
3. Injection Volume Limitation. Injection volume shall not exceed 30,000 barrels per month.
4. Injection Pressure Limitation. The Permittee shall not exceed a surface injection pressure maximum of 2933 psi and a bottom-hole injection pressure maximum of 6918 psi. These pressures were calculated based on a maximum injection fluid specific gravity of 1.22. If the specific gravity of the injection fluid exceeds 1.22, then the Permittee shall reduce the surface injection pressure by an amount necessary to avoid exceeding the bottom-hole pressure maximum. The Permittee shall not inject fluid at a pressure which initiates fractures in the confining zone, as defined in 40 C.F.R. § 146.3, adjacent to underground sources of drinking water or causes the movement of injection or formation fluids into an underground source of drinking water.
5. The Permittee is prohibited from injecting between the outermost casing protecting USDW and the well bore, and also from injecting into any USDW.

C. Plugging and Abandonment.

1. Plugging and Abandonment. The Permittee shall plug and abandon the Injection Well as provided in the EPA approved Plugging and Abandonment Plan (EPA Form 7520-14) (Attachment 1).
2. The Permittee shall plug and abandon the Injection Well in such a manner that fluids shall not move into or between USDWs.

D. Financial Responsibility

1. 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 accordance with 40 CFR § 144.52(a)(7) in the amount of at least \$60,000. A well may not be constructed, reworked or operated if the financial responsibility for that well has not been established. The Permittee shall not substitute an alternative demonstration of financial responsibility from that which the Director has approved, unless it 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.

2. Insolvency of Financial Institution. In the event of the bankruptcy of the trustee or issuing institution of the financial mechanism, or a suspension or revocation of the authority of the trustee institution to act as a trustee or the institution issuing the financial mechanism to issue such an instrument, the Permittee must immediately notify the Director and submit an alternative demonstration of financial responsibility acceptable to the Director within sixty days after such an event.



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility Marjorie C. Yanity, Well #1025	Name and Address of Owner/Operator Pennsylvania General Company, L.L.C. 120 Market Street, Warren PA, 16365
---	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State Pennsylvania	County Indiana	Permit Number 37-063-31807-00
	Surface Location Description <input type="checkbox"/> 1/4 of <input type="checkbox"/> 1/4 of <input type="checkbox"/> 1/4 of <input type="checkbox"/> 1/4 of Section <input type="checkbox"/> Township <input type="checkbox"/> Range <input type="checkbox"/>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <input type="checkbox"/> ft. frm (N/S) <input type="checkbox"/> Line of quarter section and <input type="checkbox"/> ft. from (E/W) <input type="checkbox"/> Line of quarter section.		
	TYPE OF AUTHORIZATION <input checked="" type="checkbox"/> Individual Permit <input type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <input type="text" value="1"/>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input checked="" type="checkbox"/> CLASS II <input checked="" type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name <input type="text" value="Marjorie C. Yanity"/>		Well Number <input type="text" value="37-063-31807"/>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
16"		28	28	24"	<input checked="" type="checkbox"/> The Balance Method	
11-3/4"	42	569	569	15"	<input type="checkbox"/> The Dump Bailor Method	
8-5/8"	24	1,540	1,540	11"	<input type="checkbox"/> The Two-Plug Method	
4-1/2"	11.6	7,788	7,788	7-7/8"	<input type="checkbox"/> Other	

CEMENTING TO PLUG AND ABANDON DATA:							
	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (Inche:	4.5	4.5/7.87	7.875	7.875	7.875		
Depth to Bottom of Tubing or Drill Pipe (ft)	7,788	6,900	3,300	1,900	669		
Sacks of Cement To Be Used (each plug)	27.5	47	130	154	156		
Slurry Volume To Be Pumped (cu. ft.)	32.5	55.4	153.4	181.5	65.9		
Calculated Top of Plug (ft.)	7,450	6,700	2,950	1,490	504		
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6	15.6		
Type Cement or Other Material (Class III)	Class A	Class A	Class A	Class A	Class A		

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
7,544	7,564		

Estimated Cost to Plug Wells

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) James Ashbaugh, V.P. Engineering	Signature 	Date Signed 01/21/2013
---	----------------------	----------------------------------

**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 PAS2D013BIND

FOR

Pennsylvania General Energy Company, LLC
120 Market Street
Warren, Pennsylvania 16365

FOR

A project consisting of one Class II-D injection well, the Marjorie C. Yanity 1025 that will be converted from a production well and used for the disposal of fluids produced in association with oil and gas production operations. The proposed well will be located in:

Grant Township
Indiana County, Pennsylvania
Latitude 40°44'43.00" Longitude -78°55'34.00"

On February 7, 2013, Pennsylvania General Energy Company, LLC ("PGE" or "the Permittee") submitted a UIC permit application for the construction and operation of the above referenced Injection Well. On March 4, 2013, EPA sent a Notice of Deficiency (NOD) to PGE requesting additional information. In response to the March 4, 2013 EPA request, PGE supplemented the original application with additional information on May 13, 2013. PGE's February 7, 2013 and May 13, 2013 submittals are collectively referred to in this Statement of Basis as the "permit application." EPA has deemed the permit application complete.

Pursuant to the federal Safe Drinking Water Act, 42 U.S.C. §§ 300f *et seq.*, and its implementing regulations, 40 CFR Parts 144-146, and § 147.1955, the EPA UIC Program is responsible for regulating, through the issuance of permits, the construction, operation, monitoring and closure of injection wells that place fluids underground for enhanced recovery of oil or natural gas or disposal. Today's draft permit specifies conditions for injection well

construction, operation, monitoring, reporting, and plugging and abandonment which are specified so as to protect, and prevent the movement of fluids into, Underground Sources of Drinking Water (USDW). The Permittee's UIC project and the draft permit conditions specific to the project are described below:

Area of Review: Pursuant to the applicable regulation, 40 C.F.R. §§ 144.3 and 146.6(b), the "Area of Review" 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. PGE initially chose a one-quarter mile fixed-radius as the Area of Review around the proposed injection well. To determine whether the one-quarter mile fixed radius was acceptable, EPA conducted a zone of endangering influence (ZEI) calculation (a modified Theis equation flow model) using geologic information pertinent to the injection zone as well as anticipated operational parameters provided to EPA by PGE in its permit application. EPA determined, based on the ZEI calculation that after ten (10) years of operation, the zone of endangering influence would be approximately 1420 feet from the injection well bore or one hundred feet more than the one-quarter mile fixed-radius chosen by PGE. As a result of this calculation, PGE provided information on the well population within the ZEI by conducting reviews of Pennsylvania Department of Environmental Protection Bureau of Oil and Gas well records and conducting a field survey of the area. PGE indicated in its permit application that no wells were found which penetrate the injection zone within this ZEI. The draft permit also requires PGE to perform corrective action on any unplugged/abandoned wells that penetrate the injection zone within the Area of Review if they are identified at a future date.

Underground Sources of Drinking Water (USDWs): A USDW is defined by the UIC regulations as an aquifer or its portion which, among other things, contains a sufficient quantity of ground water to supply a public water system and which also contains fewer than 10,000 mg/l (milligrams per liter) Total Dissolved Solids, and which is also not an exempted aquifer. The Permittee has identified the depth of the lowermost USDW, in the vicinity of the Injection Well, to be approximately 520 feet below surface elevation. The geologic name of this formation is the Pottsville Group. The construction of the injection well, as provided in the permit application, was designed to meet the regulatory criteria of 40 CFR §§ 146.22 and 147.1955. This well has a 11 ¾ inch ground water protective string of casing (surface casing) running from the surface to approximately 568 feet which is cemented back to the surface as well as a 8 5/8 inch intermediate casing running from the surface to a depth of approximately 1539 feet and cemented back to the surface. In addition, the permit application indicates that 4 ½ inch long string casing was placed to a depth of 7788 feet and cemented back to a depth of 6850 feet as required by 40 C.F.R. § 147.1955(b)(5). Injection will occur through a 2 3/8 inch tubing string set on a packer installed above the injection perforations and located at a depth of approximately 7544 feet.

Injection and Confining Zones: Injection of fluids for disposal is limited by the permit to the Huntersville Chert Formation in the interval between approximately 7544 feet through 7620 feet

(top of perforations at 7544 feet). This injection zone is separated from the lowermost USDW by an interval of approximately 7024 feet, while the confining zone, immediately adjacent to the injection zone, is comprised of approximately 180 feet of limestone and shale. In addition, gamma ray logging information from this well shows additional confining units of shale and or limestone between the lowermost USDW and the confining units adjacent to the injection zone.

Maximum Injection Pressure: The maximum allowable surface injection pressure for the permitted operation will be 2933 pounds/square inch (psi) and the maximum bottom-hole pressure will be 6918 psi . These maximum pressures were developed using a specific gravity for the injection fluid of 1.22 and an injection well depth of 7544 feet. Injection pressure as well as annular pressure will be continuously monitored. EPA expects that the pressure limitation will meet the regulatory criteria of 40 CFR § 146.23(a). The maximum injection pressure has been calculated to prevent the initiation of new or the propagation of existing fractures in the injection zone during operation of the Injection Well.

Geologic and Seismic Review: The SDWA regulations for Class II wells do not require consideration of seismicity; unlike the SDWA regulations for Class I wells used for the injection of hazardous waste. See regulations for Class I hazardous waste injection wells at 40 C.F.R. §§ 146.62(b)(1) and 146.68(f). Nevertheless, EPA evaluated factors relevant to seismic activity such as the existence of any known faults and/or fractures and any history of, or potential for, seismic events in the area of the Injection Well as discussed below and addressed more fully in *“Region 3 framework for evaluating seismic potential associated with UIC Class II permits, September, 2013.”* EPA also established a maximum injection pressure in the draft permit designed to limit the potential for seismic events.

The permit provides that the Permittee shall inject through the Injection Well only into a formation which is free of known open faults or fractures within the Area of Review as required in 40 C.F.R. § 146.22. The Permittee submitted geologic information that indicates the absence of faults in the confining and injection zone. Although this does not conclusively demonstrate the absence of whether any faults exist, the probability of injection induced seismicity is low because of other considerations.

Earthquake activity in Pennsylvania has been associated with the Precambrian, crystalline, igneous/metamorphic bedrock, sometimes referred to as “basement rock”, which is located below sedimentary bedrock, either from basement faulting or faulting at a shallower depth caused by tectonic stresses that originated from the basement rock. The available geophysical and seismic information researched by the Permittee, as well as through EPA’s review of published information of seismicity in Pennsylvania (refer to information referenced below), shows no evidence of faults that reach the land’s surface from basement rock. Basement rock, in the area of the proposed permit, is located at depths approximating 16,000 feet, almost 8500 feet below the proposed injection zone.

EPA’s review of historic seismic events, from 1938 to the present, from seismometers located in

Clearfield and Venango Counties, Pennsylvania, indicates that minor seismic events (magnitude 0-3) have been recorded in this area of Pennsylvania. Nevertheless, the United States Geologic Survey (USGS) and the Pennsylvania Bureau of Topographic and Geologic Survey have not recorded any seismic activity that originated in Indiana County, Pennsylvania. See “Earthquake Epicenters in Pennsylvania”, Pennsylvania Department of Conservation and Natural Resources website; and “Earthquakes Hazards Program, Pennsylvania Seismicity Map 1973 to Present”, United States Geological Survey website.

In addition, the National Academy of Sciences report, “Induced Seismicity Potential in Energy Technologies”, National Academy Press, 2013, indicates that oil and gas production in a reservoir can assist in preventing future impacts from seismicity due to injection because of the reduction in reservoir pore pressure during the years of gas production. PGE identified in the Permit Application significant gas production in the vicinity of the proposed Injection Well (both shallow gas production at depths of approximately 3500 feet as well as deeper gas production at depths similar to the proposed injection zone).

EPA developed the maximum injection pressure for the Injection Well using data submitted by PGE in the permit application. PGE provided to EPA fracture stimulation data it obtained when the well was completed for gas production that included an instantaneous shut-in pressure (ISIP). The ISIP is the minimum pressure necessary to begin to reopen any fractures created during the fracture stimulation process and is significantly lower than the pressure required to fracture the rock. EPA limited in the draft permit the surface injection pressure and the bottom-hole injection pressure to a level lower than both the ISIP and the fracture pressure to prevent the initiation of new or the propagation of existing fractures.

Finally, a number of factors help to prevent injection wells from failing in a seismic event and contributing to the contamination of a USDW. Most deep injection wells, those that are classified as Class I or Class II injection wells, such as the PGE proposed Injection Well, are constructed to withstand significant amounts of pressure. The PGE Injection Well will be constructed with multiple steel strings of casing that are cemented in place. Furthermore, the draft permit requires PGE to mechanically test the Injection Well to ensure integrity before operations begin and to continuously monitor the Injection Well during operations to detect any potential mechanical integrity concerns. The Injection Well will also be designed to automatically shut in and cease operation if a seismic event occurs that would affect the operation and/or mechanical integrity of the well. For the reasons above, the risk of seismic activity in Indiana County as a result of the PGE Injection Well operation would be very low.

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. Since this is a proposed private disposal well, the sources of the disposal fluids will be solely from PGE’s oil and gas production facilities. Analyses of injection fluid will be conducted as stated in Part II, paragraph C.3 of the draft permit. The parameters chosen for sampling reflect not only some of the typical constituents found in the injection fluid, but also shallow ground

water. Should a ground water contamination incident occur during the operation of the Injection Well, EPA will be able to compare samples collected from ground water with the injection fluid analysis to help determine whether operation of the Injection Well may be the cause for the contamination.

Testing, Monitoring and Reporting Requirements: The Permittee is required to conduct a two part mechanical integrity test (MIT) after completing construction of the well. The two part MIT consists of a pressure test to make sure the casing, tubing and packer in the well do not leak and a fluid movement test to make sure that the movement of fluid does not occur outside the injection zone. In addition to the monitoring described above, additional pressure testing of the casing, tubing and packer will occur every five years or whenever a rework on the well requires the tubing and packer to be released and reset. 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. These tests as well as the monitoring will provide documentation as to the absence of fluid movement into or between USDWs and flow conditions that exist in the injection zone during operation, thus helping to assure that USDWs are protected.

Plugging and Abandonment: The Permittee 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. These provisions should preclude the possibility of abandonment without proper closure.

Expiration Date: Pursuant to 40 C.F.R. § 144.36, a final permit, when issued, will be in effect for ten years from the date of permit issuance. Also, pursuant to 40 C.F.R. § 146.36, EPA expects to review the permit at least once every five years to determine whether it should be modified, revoked and reissued, terminated or a minor modification made as provided in 40 C.F.R. §§ 144.39, 144.40 or 144.41. 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:

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

A public hearing has been tentatively scheduled for Monday, October 28, 2013 at 7:00 PM, at the Grant Township Municipal Building, 100 East Run Road, Marion Center, Pennsylvania 15759. Requests to hold a public hearing must be received in the office listed above by Friday, October 18, 2013. When requesting a public hearing, please state the nature of issues proposed to be raised. EPA expressly reserves the right to cancel this hearing unless a significant degree of public interest, specific to the proposed UIC brine disposal injection operation, is evidenced by the above date. The Administrative Record for this action will remain open for public comment until Monday, October 28, 2013.