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

UNDERGROUND INJECTION CONTROL PERMIT NUMBER PAS2D701BALL
AUTHORIZATION TO OPERATE CLASS II-D INJECTION WELL

In compliance with provisions of the Safe Drinking Water Act, as amended, 42 U. S. C. §§ 300f-300j-1 (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

Penneco Environmental Solutions, LLC
6608 Route 22
Delmont, Pennsylvania 15626-0300

to convert the Sedat #3A well into a Class II-D commercial brine disposal Injection Well (hereinafter, "Injection Well", "Penneco Injection Well Sedat #3A", "Sedat #3A", or "Facility") and to operate the Injection Well for the purpose of injecting fluids produced in association with oil and gas production operations in accordance with the provisions of this permit. The Injection Well will be located in Plum Borough, Allegheny County, Pennsylvania. The coordinates for the Injection Well are: Latitude 40° 31' 38.5" and Longitude -79° 42' 48.5".

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

This permit shall become effective on March 7, 2018.

This permit shall remain in effect until midnight March 7, 2028.

Signed this 7th day of March, 2018.

Catharine M. McManus

Catharine McManus, Acting Director
Water Protection Division

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PART I. EFFECT OF PERMIT

A. Effect of a Permit

Penneco Environmental Solutions, 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 C.F.R. 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. §§ 300h-300i-4, 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 from one another, and if any provision of this permit or the Permittee's March 9, 2016 application, and the supplemental submissions on September 10, 2016 and March 22, 2017 (collectively the "Application"), 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 all permit conditions. 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. Permittee need not comply with the provisions of this permit to the extent and for the duration such noncompliance is permitted by an EPA issued emergency permit pursuant to 40 C.F.R. §144.34.

2. 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.

3. 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.

4. 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.

5. 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.

6. Duty to Provide Information. The Permittee shall furnish to the Director of the EPA Region III 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, but no later than 24 hours after becoming aware, submit information identifying and addressing these deficiencies. Notification shall be made pursuant to Part 2.D.3 of this permit.

7. 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.

8. 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.

9. Transfer of Permits. This permit is not transferable to any person except after notice is sent on EPA Form 7520-7 ("Completion Report for Brine Disposal, Hydrocarbon Storage, or Enhanced Recovery") (available at https://www.epa.gov/sites/production/files/2016-01/documents/7520-10_508c.pdf), 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.

10. 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."

11. Confidentiality of Information.

a. In accordance with 40 C.F.R. Parts 2 (Public Information), and 40 C.F.R. § 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 C.F.R. 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.

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. MONITORING AND RECORDKEEPING

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.10 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 19103-2029

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

paragraph II.B.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 C.F.R. § 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 paragraphs II.C.4 and C.5 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 including supporting documentation.

C. 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 C.F.R. § 136.3 and EPA's SW-846 Compendium, 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 Sedat #3A Injection Well beginning on the date the Sedat #3A Injection Well commences operation and concluding when the Injection Well is plugged and abandoned. 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 (e.g., from different geologic formations, geographic regions, different customers, etc.).

- pH
- Specific Gravity
- Specific Conductance
- Sodium
- Chloride
- Iron
- Magnesium
- Total Organic Carbon (TOC)
- Manganese
- Total Dissolved Solids
- Barium
- Hydrogen Sulfide
- Alkalinity
- Dissolved Oxygen
- Hardness

4. The Permittee shall also monitor and record semi-annually the fluid level of the following depleted gas production well identified in the Application:

   Sedat #1 well, also known by the Pennsylvania permit number as well 003-21210, located approximately 1,010 feet southwest of Sedat #3A.

   If the fluid level in the monitoring well identified above is observed to rise within 100 feet of the base of the USDW, the Permittee shall stop disposal operations immediately, and shall notify the EPA orally (phone numbers: (215) 814-5469 or (215) 814-5498) within 24 hours of the observation and shall send written notification to EPA within 5 days of the observation. EPA will evaluate the operating conditions in order to instruct the Permittee on how to control the fluid level.

5. The Permittee shall measure the specific gravity of each truckload of fluid delivered to the Facility intended for injection under this permit prior to unloading. If the specific gravity of any such truckload exceeds 1.11, the Permittee shall dilute the injection fluid with another produced fluid such that the resulting specific gravity is low enough to ensure that the specific gravity of the injected fluid is less than or equal to 1.11.

6. If at any point during this permit term the Permittee learns of analytical results for specific gravity in the Sedat #3A Injection Well that are greater than the following values, it shall follow the procedures for reporting noncompliance described at Section II.D.3 herein: 1.11 for specific gravity or greater than 250 mg/l for TOC.

7. The Permittee shall make an initial demonstration of mechanical integrity by demonstrating both that: (1) there is no significant leak in the casing, tubing or packer; and (2) there is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore. The Permittee shall make such demonstration in accordance with any of the methods identified at 40 C.F.R. § 146.8. Following the initial demonstration, demonstration of mechanical integrity of Sedat #3A will be made at least once every two (2) years from the date of the initial demonstration. The Permittee shall conduct subsequent two (2) year demonstrations no more than thirty (30) days prior to the anniversary date of the issuance of this permit.

   In addition to the above requirement, the Permittee shall conduct a mechanical integrity test demonstration on the Sedat #3A Injection Well at any time that the protective casing or tubing is removed from the well, the packer is reseated, or a well failure is likely, or as requested by the Director. The Permittee may continue operation of the Sedat #3A Injection Well only if the Permittee has demonstrated the mechanical integrity of the Sedat #3A Injection Well to the Director's satisfaction. If at any point during the term of this permit a loss of mechanical integrity becomes evident or if the Permittee cannot demonstrate mechanical integrity, the Permittee shall immediately cease injection into the Sedat #3A Injection Well.

8. For the duration of the permit period, the Permittee shall equip the Sedat #3A Injection Well with an automatic shut-off device which would be activated in the event of a mechanical integrity failure.

9. 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.

10. The Permittee shall maintain a record of every load of fluid received. The record shall include the hauler's name, the producing well operator's name, and the location from which 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 the volumes from each operator documented.

D. Reporting and Notification Requirements

1. Report on Permit Review. Within 30 days of the effective date of this permit, the Permittee shall ensure the person designated pursuant to paragraph I.D.10 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. Authorized Injection. The Permittee is not authorized to inject into the Sedat #3A Injection Well 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 Sedat #3A Injection Well has mechanical integrity in accordance with 40 C.F.R. § 146.8 and the Permittee has received written notice from the Director that such demonstration is satisfactory; and

   c. The Director has inspected or otherwise reviewed the Injection Well and finds it is in compliance with the conditions of this permit; or the Permittee has not received notice from the Director of his or her intent to inspect or otherwise review the Sedat #3A 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, event or action which may endanger, or has endangered, health or the environment, including, without limitation seismicity, spills, failure of mechanical integrity, possible contamination of a USDW, or other activity deemed extraordinary to normal operating conditions. The Permittee shall provide such report orally to phone numbers: (215) 814-5469 or (215) 814-5498 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 cause an endangerment, 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 contribute, or has caused or

contributed, to fluid migration into or between underground sources of drinking water, or failure of mechanical integrity test demonstrations.

b. In addition to the oral report required in II.D.3.a herein, the Permittee shall provide a written submission to EPA at the address in Paragraph II.A. of this permit herein 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 30 days 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 for which noncompliance was not anticipated to the Director in writing within five (5) 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 immediate written notice to the Director regarding any planned physical alterations or additions to the permitted Facility.

7. Conversion. The Permittee shall submit to EPA for review and approval thirty (30) days prior to the conversion of the Sedat #3A Injection Well to an operating status other than an injection well. Permittee shall not commence conversion of the well for any purpose until it receives written approval from EPA.

8. Annual Report. The Permittee shall submit a written Annual Report to the Director summarizing the results of all monitoring required in 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 report shall list any additives used in the operation of the well. The Permittee shall complete and submit this information with its Annual Report EPA Form 7520-11 (Annual Disposal Injection Well Monitoring Report) (available at: https://www.epa.gov/sites/production/files/2016-01/documents/7520-11_508c.pdf). 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 Sedat #3A 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. Prior to abandoning the Sedat #3A Injection Well, the Permittee shall prepare, maintain, and comply with a plan for plugging and abandonment (hereinafter, "Plugging and Abandonment Plan") that: (i) meets the requirements of 40 C.F.R. § 146.10; (ii) is submitted to and approved by the Director; and (iii) contains the following information: (A) The nature and quantity and material to be used in plugging; (B) The location and extent (by depth) of the plugs; (C) Any proposed test or measurement to be made; (D) The amount, size, and location (by depth) of casing to be left in the well; (E) The method and location where casing is to be parted; (F) The estimated cost of plugging the well; and (G) Any other relevant information needed to review and ensure that the Plugging and Abandonment Plan meets all SDWA permit requirements. The EPA-approved Plugging and Abandonment Plan, included as Attachment 1 hereto, will be incorporated herein.

c. The Permittee shall submit any revisions to the EPA-approved Plugging and Abandonment Plan to the Director on EPA Form 7520-14 (EPA Plugging and Abandonment Form) no less than 45 days prior to commencing plugging and abandonment. The Permittee shall not commence plugging and abandonment until it receives written approval of the revisions to the Plan from the Director.

d. 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.

e. Within 60 days after plugging the Sedat #3A Injection Well, the Permittee shall submit a Plugging and Abandonment Report to the Director which shall consist of either:

(i) A statement that the Sedat #3A 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.

f. The Permittee shall ensure that the Plugging and Abandonment Report is accurate and certified as complete 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 Sedat #3A Injection Well.

12. Cessation of Injection Activity. Two years after the Permittee has ceased injection into the Sedat #3A Injection Well, the Permittee shall plug and abandon the Sedat #3A Injection Well in accordance with the EPA-Approved Plugging and Abandonment Plan 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 C.F.R. § 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 promptly comply with the Director's request.

Part III. CONSTRUCTION, OPERATION, AND FINANCIAL RESPONSIBILITY

The Permittee is not authorized to inject into the Sedat #3A Injection Well until it has demonstrated to the Director that all of the following conditions have been satisfied:

A. Construction Requirements

1. Confining Zone. The Area of Review (AOR) for this permit is the one-quarter mile fixed radius from the Sedat #3A Injection Well. 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 maintain the following conditions in the Injection Well at all times:

   a. casing and cementing to prevent the movement of fluids into or between underground sources of drinking water and in accordance with 40 C.F.R. §§ 146.22(b) and 147.1955(b);

   b. the casing and cementing used shall maintain its integrity for the life expectancy of the Injection Well;

   c. surface casing that has been installed from the surface to 643 feet below land surface and cemented back to the surface;

   d. long string casing installed from the surface to 1,948 feet and cemented back to the surface to isolate the injection zone; and

   e. a tubing string set on a packer placed above the injection zone's perforated interval at approximately 1,796 feet.

3. Logs and Tests. In accordance with 40 C.F.R. § 146.22(f), the Permittee shall prepare logs and perform tests as follows during the 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 Sedat #3A 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 Sedat #3A Injection Well until it has plugged all abandoned wells identified within the Area of Review. The Permittee shall take the following corrective action if any of the following situations occur at the Sedat #3A Injection Well at any point during this permit term:
(a) an abandoned well is identified within the Area of Review as described herein; or
(b) the maximum surface injection pressure exceeds 1,421 psi at any point in time.
If either of these situations occur, the Permittee shall:
a. Immediately cease injecting into the Injection Well to allow the well to stabilize;
b. Notify the Director verbally upon discovery;
c. Within five (5) days of discovery, submit to the Director for review and approval a Corrective Action Plan consistent with 40 C.F.R. § 146.7.
d. Upon receipt of approval of the Corrective Action Plan by the Director, the Permittee shall implement the approved plan immediately.
e. If the well cannot be stabilized to the satisfaction of EPA and Pennsylvania Department of Environmental Protection, plug the well as otherwise described herein.

6. Completion Reports. Prior to the commencement of injection operations, 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 for review and approval. Recommencement of injection operations shall not begin until the Director has approved the Completion Report.

B. Operating Requirements

1. Injection Formation. The Permittee shall inject only into the Murrysville sandstone located in the subsurface interval between 1,822 to 1,950 feet below land surface elevation through perforations located in the subsurface interval between approximately 1,896 feet and 1,936 feet.

2. Injection Fluid. The Permittee shall not inject any hazardous waste as defined in 40 C.F.R. Part 261 or any fluid, other than fluids produced solely in association with oil and gas production operations and additives necessary to maintain the integrity of the well.

3. Injection Volume Limitation. Injection volume shall not exceed 54,000 barrels per month. A barrel consists of 42 gallons.

4. Injection Pressure Limitation. The Permittee shall not exceed a surface injection pressure maximum of 1,421 psi and a bottom-hole injection pressure maximum of 2,332 psi. These pressures were calculated based on a maximum injection fluid specific gravity of 1.11. If the specific gravity of the injection fluid exceeds 1.11, then the Permittee shall dilute the injection fluid so that its specific gravity is no greater than 1.11. 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 USDW, or causes the movement of injection or formation fluids into an USDW.

5. The Permittee shall inject fluids into the well solely through the tubing string installed inside the long string casing. The Permittee is prohibited from injecting between the outermost casing protecting the 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), which is incorporated herein.

2. The Permittee shall plug and abandon the Injection Well to prevent movement of fluids 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 Injection Well in accordance with 40 C.F.R. § 144.52(a)(7) in the amount of at least $12,515. The well may not be constructed, reworked or operated if the financial responsibility for that well has not been established. Further, the Permittee must provide documentation to the Director that financial responsibility has been established for the Injection Well prior to construction, rework or operation. Before operation of the Sedat #3A Injection Well commences, the Permittee will provide a Letter of Credit and Standby Trust Agreement assuring the plugging costs for the Injection Well. The Permittee shall not substitute this Letter of Credit with an alternative demonstration of financial responsibility,

unless it has previously submitted evidence of that alternative demonstration to the Director and the Director notifies it 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.

The Permittee shall continue to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in the manner required herein until:

a. The Injection Well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to this permit and 40 C.F.R. §§ 144.51(o), 146.10, and 146.92 of this chapter, and submitted a plugging and abandonment report pursuant to § 144.51(p); or

b. The Injection Well has been converted in compliance with the requirements of 40 C.F.R. § 144.51(n); or

c. The transferor of a permit has received notice from the Director that the owner or operator receiving transfer of the permit, the new permittee, has demonstrated financial responsibility for the Injection Well.

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 shall immediately notify the Director in writing and submit an alternative demonstration of financial responsibility acceptable to the Director within sixty days after such an event.

ATTACHMENT 1

OMB No. 2040-0042 Approval Expires 11/30/2014

EPA

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Penneco Environmental Solutions, LLC 1800 Old Leechburg Road, Pittsburgh, PA 15239	Penneco Environmental Solutions, LLC 6608 Route 22, Delmont, PA 15626

Locate Well and Outline Unit on Section Plat - 640 Acres

N
W E
S

State	County	Permit Number
PA	Allegheny	37-003-21223

Surface Location Description

1/4 of ____ 1/4 of ____ 1/4 of ____ 1/4 of Section ____ Township ____ Range

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells ____

Lease Name Sedat #3A

WELL ACTIVITY
- [ ] CLASS I
- [x] CLASS II
  - [x] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number PS-46

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
7"	20		1948	8 3/4
9 5/8	32		643	12 1/4
13 3/8	48		34	15

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] 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	7	7					
Depth to Bottom of Tubing or Drill Pipe (ft	1940	743					
Sacks of Cement To Be Used (each plug)	32	38					
Slurry Volume To Be Pumped (cu. ft.)	38.5	45.5					
Calculated Top of Plug (ft.)	1770	543					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	1	1					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
1896	1936		

Estimated Cost to Plug Wells

$12,515 see attached bid sheets

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)*	Signature	Date Signed
D. Marc Jacobs, Jr. Senior Vice President		02/26/2016

EPA Form 7520-14 (Rev. 12-11)