# Exhibit B

## July 8, 2016 Notice of Deficiency Letter re UIC Permit Application

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION III**
**1060 Chapline Street**
**Wheeling, West Virginia 26003**

July 8, 2016

Mr. D. Marc Jacobs, Jr., Senior Vice President
Penneco Oil Company
6608 Route 22, P.O. Box 300
Delmont, Pennsylvania 15626-0300

Re: Notice of Deficiency; Penneco Environmental Solutions, LLC
Underground Injection Control (UIC) Program
Class IID Injection Well Permit Application Sedat # 3A

Dear Mr. Jacobs:

On April 12, 2016, the U. S. Environmental Protection Agency (EPA) received from Penneco Environmental Solutions, LLC, a permit application for a brine disposal injection well (Class IID) in Plum Borough, Allegheny County, Pennsylvania. EPA has assigned UIC facility identification number PAS2D701BALL to this well.

We have completed our initial review of the permit application. The application is comprehensive and addresses the majority of the critical permitting issues. However, there are a few items which require further explanation before we can finalize a Draft Permit and a Statement of Basis which summarizes the proposed brine disposal well operation. Specifically, please provide a response to the items described in Attachment 1.

Please send your response to me. Once we have received the necessary information we will continue with development of a draft permit, statement of basis and preparations for public participation including a public notice. Thank you for your cooperation with this matter. Please contact me at 304 234-0286 with any questions.

Sincerely,

Mark Nelson

Mark Nelson, Hydrologist
Water Protection Division

Attachment

# Attachment

## Comments and Questions

Item 1. Application Page

The location provided (latitude/longitude) in the application cover page does not match the location provided in the half mile and other Area of Review (AOR) maps. On the maps provided in the AOR attachment, the proposed injection well is southwest of the location specified on the application cover page. Please verify the correct coordinates of the well, and if incorrect, adjust the Area of Review accordingly. Should this change any wells captured in the Area of Review, update all records accordingly.

Item 2. Attachment B – Area of Review

40 CFR 144.31(e)(7) requires a topographic map (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment, storage, or disposal facilities; each well where fluids from the facility are injected underground; and those wells, springs, and other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within a quarter mile of the facility property boundary.

Past practice has been to require applicants to include this information for ½ mile from the injection well. The definition of ¼ mile from the facility property boundary has been challenged and Region 3 has used ¼ mile past the area of review (1/2 mile total) in past permits. Applicant provided a map showing water wells, however a narrative explaining that the search was done within a ½ mile should be included. Depths of these water wells should be included in the table. Also, a list of all landowners within this expanded area and their addresses must be submitted.

Item 3. Attachment E – USDWs

Pennsylvania Geological Report #37 states, "The Conemaugh Group is a reliable source of small to moderate supplies of water. Some wells yield more than 100 gpm, but the median yield for wells in this aquifer is 20 gpm. The deepest water well reported in the Conemaugh Group was drilled 640 feet and produced 25 gpm. Chemical analyses of ground water in the Conemaugh Group show a wide range in chemical character. The range of dissolved solids is from 99 to 722 mg/1. Data are available for one well in the Mauch Chunk Formation. This well is 615 feet deep and yields 254 gpm."

Several well logs show fresh water below the proposed injection well surface casing depth. Well 003-22200 indicated fresh water at a depth of 700 feet, Well 003-22205 indicated fresh water at 870 feet, and Well 129-23073 indicated fresh water at 1,755 feet. Applicant needs to clarify their definition of "fresh" water. The UIC regulations protect USDWs, which are all aquifers with water quality less than 10,000 mg/L and capable of supplying a public water supply (1 gallon per minute).

Based on this information, further data is needed in order to determine the depth of the lowermost USDW. Include the geological name and depth of bottom of all USDWs in the AOR. USDWs include all aquifers with water quality less than 10,000 milligrams per liter of total dissolved solids (TDS) and capable of yielding 1 gallon per minute of water. These aquifers need not presently supply drinking water to be considered a USDW. Additionally, any zone currently supplying drinking water regardless of quality is a USDW.

The depths of the USDWs are to be determined, if possible, from evaluation of the borehole electric log and, in some case, the porosity log in combination with available information on the geologic formations present in the area. The water resistivity of the deepest USDW is to be calculated by the static spontaneous potential method and converted to TDS (mg/l) or sodium chloride equivalent to verify that the zone in question has less than 10,000 mg/1 TDS. It may be necessary to calculate TDS in lower geologic units to verify that the overlying unit is the lowest USDW. Where information is available on USDWs in an area, it may not be necessary to calculate TDS. However, the site-specific depths of the USDWs should be determined from the borehole logs. The entire log should be provided in the permit application and the depth and name of all formations should be indicated on the log. The water resistivity calculations and TDS conversion factors should also be provided.

If an electric log is unavailable or not useable for the well, a log from a nearby well (preferably within the AOR) may be substituted. If no log is available from the well or any well in the vicinity, the USDWs are to be identified on the basis of the best available information (i.e. geologic references; driller's logs; etc.).

For existing wells or proposed well conversions: The permit application for any existing well or any well convened after the effective date of the UIC program must provide an electric log through the entire wellbore unless logs are available from a well within the AOR. Per 40 CFR §146.22(f), the logs should be evaluated by a knowledgeable log analyst. All formations should be identified on the log or a separate listing provided with the names and depths to bottom.

Item 4. Attachment G – Geologic Data

The table in Attachment G lists a well with permit #003-21289 as being captured within the ¼ mile Area of Review. This well number does not exist in any records provided. Based upon the mapping and locational data provided, it is assumed that the well intended to be referenced is #003-21287 (Howard 1). If this is the case please provide an update to Attachment G reflecting the correct well number in the table.

Item 5. Attachment G – Geologic Data

Provide additional details of the methodology for arriving at an injection zone Fracture Gradient (FG) of 1.23 including the Specific Gravity of the fluid used during the well stimulation/injection tests.

Item 6. Attachment G – Geologic Data

Pages 29 through 35 of the HFRAC Report in application Attachment G are illegible. Provide a legible copy of these pages.

Item 7. Attachment G – Geologic Data

Justify why 1.8mD was chosen as the permeability value for the injection zone. The permeability table, total porosity vs. permeability, and the geologic report indicate permeability values as highly variable in the Murrysville Sandstone layer.

Item 8. Attachment G – Geologic Data

The permit application states, "While there are some deep seated basement faults associated with the Rome Trough in the AOR there are no apparent faults at shallower depths." Please expand in detail the mapping and review done to determine the absence of faults and folds in the lease. Provide the sources of information used to determine the absence of faults.

Please also submit a seismic evaluation of the area. This evaluation can include published geologic reports and other available information including: surrounding geologic quadrangle maps in the vicinity of the injection well, the United States Geologic Survey (USGS) Hazard Maps, and boring logs generated during drilling operations for comparison to the geologic quadrangle maps. The evaluation should include a narrative supported by evidence of why the proposed injection will not induce seismicity. Also included in this section would be a summary of the history of production from the Murrysville in the project area and a discussion on any seismic activity that has occurred in the area.

Attachment D of the permit application includes a cross section. Please include a narrative discussing whether there is or is not geologic displacement in the area to further substantiate information on whether faulting does or does not exist in the area.

Item 9. Attachment H – Operating Data

Provide additional details on the source of the injection fluid including a more specific description of the locations of the producing wells and the producing formations. Confirm that all produced fluids originate from Penneco owned wells.

Item 10. Attachment P – Monitoring Program

Provide additional details for the monitoring/sampling program, including the frequency, for proposed monitoring well Sedat # 1 003-21210. Describe the observations which will be conducted at this well and the criteria/parameters for evaluating the results.