Sedat #3A Comment-Response

Pennsylvania Department of Environmental Protection

April 14, 2020

Introduction:

On October 1, 2018, the Department held a public hearing in Plum Borough to solicit comments related to Penneco Environmental Solutions' (Penneco) permit application to convert the Sedat #3A (Sedat) well from a production well to an injection disposal well. This Comment and Response Document summarizes the comments submitted to the Department by 42 commentators before, during and after the public hearing. Where multiple commentators made a similar comment, the comment is paraphrased. Each public comment is listed with the identifying number for each commentator that made the comment to the Department. A list of the commentators, including names and affiliations/places of residence (if any) is provided as follows:

Commenters:

1.	Matt Kelso	Plum, PA
2.	Rachael Neffshade	Plum, PA
3.	William Moutz	Verona, PA
4.	Michelle Naccarati-Chapkins	Executive Director, Women for Healthy Environment
5.	Kelly Yagatich	Monroeville, PA
6.	Daniel Laird	Plum, PA
7.	James Rosenberg	Grindstone, PA
8.	Angela Billanti	Pittsburgh, PA
9.	Gillian Graber	Trafford, PA
10.	Matthew Mehalik	Gibsonia, PA
11.	Severo Miglioretti	Plum, PA
12.	Michele Fetting	near Plum, PA
13.	Dr. Lawrence Irr	Trafford, PA
14.	Douglas Shields	Pittsburgh, PA
15.	Stephanie Plavica	Plum, PA
16.	John Stolz	Glenshaw, PA
17.	Matthew Vento	Plum, PA
18.	Mike Doyle	President, Plum Borough Council
19.	Public Petition	
20.	Derek Kovacs	Plum, PA
21.	Jessica Kovacs	Plum, PA
22.	Karen Orba	New Kensington, PA
23.	Linda Marra	Plum, PA
24.	Amy Wetmore	Plum, PA
25.	Roy Conrad	Plum, PA
26.	Mary Cunningham	New Kensington, PA

27.	Ron Slabe	New Kensington, PA
28.	Martha Robbins	Oakmont, PA
29.	Thomas Whalen	Oakmont, PA
30.	Paul Bell	Pittsburgh, PA
31.	Mary Kay Anderson	Hermitage, PA
32.	Dr. Cynthia Walter	Greensburg, PA
33.	Kari Pohl	Aliquippa, PA
34.	Terri Baumgardner	Aliquippa, PA
35.	Kenneth Fleeman	Burgettstown, PA
36.	Carlana Rhoten	
37.	Sanghyun Lee (et al)	Environmental Integrity Project
38.	Roger Desy	Verona, PA
39.	Wendy Ritenauer	Penn Hills, PA
40.	Sandra Appleman	Plum, PA
41.	Michael Dell	Plum, PA
42.	Dr. Sara DeMartino	Plum, PA

A. COMMENT: Some waste fluid associated with oil & natural gas development can be radioactive, and Penneco did not address radiation in a radiation protection plan or in the PPC Plan. (1, 5, 7, 8, 12, 13, 14, 17, 23, 37)
    - RESPONSE: The Department recently studied radioactivity in oil & gas related waters. This two-year DEP study of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) was released in January 2015 and analyzed the naturally occurring levels of radioactivity associated with oil and natural gas development in Pennsylvania. The study concluded, in part, that there is little potential for harm to workers or the public from radiation exposure due to oil and gas development. The TENORM study can be found at: http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=5815&DocName=01%20PENNSYLVANIA%20DEPARTMENT%20OF%20ENVIRONMENTAL%20PROTECTION%20TENORM%20STUDY%20REPORT%20REV%201.PDF%20

      Additionally, Penneco developed a Radiation Protection Plan, which was reviewed by a Department Radiation Health Physicist and determined to be adequate.

B. COMMENT: The ¼ mi. Area of Review (AOR) referenced in Penneco's application to the EPA is not large enough. (16, 37)
    - RESPONSE: Penneco chose to use a ¼ mi. (1320 ft.) fixed radius around the well for the AOR, which is allowable under EPA regulation 40 CFR § 146.6. Based on information provided by the applicant and other relevant information, EPA calculated the Zone of Endangering Influence (ZEI) and confirmed the adequacy of the ¼ mi. fixed AOR. ZEI is defined by EPA regulation as "….the radius of which is the lateral distance in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water….". Part II.C.4 of the EPA permit also requires Penneco to use the Sedat #1 well as a monitoring well, which the Department believes is appropriate because the Sedat #1 is drilled to the correct depth and is inside the AOR (approximately 945 ft. SW of the Sedat #3A). According to the EPA and Department permits, if the fluid level in the Sedat #1 is observed to rise within 100 ft. of the base of the underground source of drinking water (USDW), Penneco shall stop disposal operations immediately and shall notify EPA and the Department.

      Based on EPA's calculation of the ZEI confirming the adequacy of the ¼ mi. AOR and the location of the Sedat #1 monitoring well, the Department believes that the ¼ mi. AOR is appropriate and that there are measures in place to stop injection if the disposal fluid would rise to an elevation that would threaten the USDW.

C. COMMENT: What is the disposal fluid composition? Why is the disposal fluid classified as a residual waste and not a hazardous waste? The Sedat #3A would be a Residual Waste Facility and would require an additional permit from the Bureau of Waste Management. (4, 7, 14, 19, 23, 32)

- RESPONSE: The EPA UIC permit limits this well to the disposal of fluids produced in association with oil and gas production with a limit of 54,000 barrels per month and prohibits the injection of hazardous waste or any other fluid.

  Drilling fluids, produced waters and other wastes associated with the exploration, development or production of crude oil or natural gas are exempt from the federal hazardous waste regulations (see 40 C.F.R. §261.4(b)(5)). This exemption has been incorporated into Pennsylvania law pursuant to 25 PA Code §261.a.1.

  Section 3273.1 of the 2012 Pennsylvania Oil & Gas Act exempts disposal of residual waste in a disposal well from the Solid Waste Management Act's permitting and bonding requirements if (1) the well is permitted properly under Section 3211 of the 2012 Pennsylvania Oil & Gas Act, (2) the owner or operator has satisfied the bonding requirements of Section 3225 of the Oil & Gas Act, and (3) the owner or operator maintains compliance with 25 PA Code §78 and other applicable regulations. Penneco has met all of these requirements, therefore the well qualifies for regulation under 25 PA Code §78 and not the Solid Waste Management Act.

D. COMMENT: Spills could occur that may affect the Allegheny River or other surface waters and drinking supplies. (2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 19, 23, 28, 29, 30, 33, 38, 40, 42)
   - RESPONSE: Penneco's Control & Disposal (C&D) Plan meets the Department's *"Guidelines for the Development and Implementation of Environmental Emergency Response Plans"* guidance (document #400-2200-001) and associated regulatory requirements. Penneco's Erosion & Sediment Control (E&S) Plan meets the requirements of 25 PA Code §102 and 25 PA Code §105. These plans are appropriate for the site and contain measures to address spills and emergencies and to protect the watershed.

E. COMMENT: Injection into the Sedat well could pollute private or public water supplies by mechanical integrity/leaks, insufficient formation integrity, insufficient depth, pathways such as mines, faults and other wells drilled into the injection zone or abandoned wells that are not properly cemented or plugged. If a water supply is polluted, who is responsible for remediation? Water testing of water supplies should be required prior to and during injection activities (2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 19, 23, 28, 30, 32, 33, 37, 38, 42)
   - RESPONSE: Penneco identified five water wells and two springs within the AOR. The sources of the springs are likely shallow water bearing zones in the Casselman Formation. According to the Pennsylvania Groundwater Information System (PAGWIS), wells for domestic and industrial use in Plum Boro and Upper Burrell Twp. have depths ranging from 18 ft to 500 ft, but the median depths appear to be between 125 ft. and 150 ft., and Penneco cited the Pennsylvania Geological Survey Water Resource Reports 35 and 37 that water quality in this area is extremely poor beyond 500 ft. in depth because of moderate to high mineralization (high dissolved solids). Based on this

information, it appears that surface casing was set to an appropriate depth (643 ft.) to cover the deepest fresh groundwater and deepest Plum Boro water wells, which both should be around 500 ft. deep. Since the injection zone in the Murrysville is 1822 ft. deep, the separation between the injection zone and fresh groundwater is adequate with the Riddlesburg Shale confining zone directly above the Murrysville and other low permeability shale layers existing between the injection zone and fresh groundwater. These low permeability confining layers also exist between the Murrysville and the abandoned Renton Mine, and should prevent injected fluid from reaching the mine. Additionally, Part III.B.4 of the EPA permit protects the integrity of the confining zone by prohibiting injection at a pressure which initiates fractures in the confining zone, adjacent to a USDW, or causes the movement of injection or formation fluids into a USDW.

A Department review of the Sedat #3A Well Record determined that the casings are cemented to the surface and the Mechanical Integrity Assessment reports from 2014, 2015, 2016 and 2017 are adequate to demonstrate that there is no defective casing or cement in the well.

The Department did not find evidence that faults exist within the AOR that would act as a pathway to convey injected fluid into fresh groundwater (see Comment I). Other wells that were drilled into the injection zone within the AOR are also not likely to act as a pathway to convey injected fluid into fresh groundwater (See Comment U).

Penneco will use the Sedat #1 well as a monitoring well, which is located closer to the Sedat #3A than any of the identified water wells or springs. If the fluid level in the monitoring well rises to within 100 ft. of the base of the USDW, Penneco will be required to stop disposal operations immediately and notify the EPA and the Department.

Prior to operation of the Sedat #3A as a disposal well, water testing of public or private water supplies may be conducted at the discretion of Penneco. It is typical practice that well operators sample water supplies to establish baseline water quality prior to drilling or operating a well. During operation as a disposal well, Part II.C.3 of the EPA permit requires Penneco to monitor the nature and composition of the injected fluid for specified parameters. If Penneco chooses to test water supplies during operation of the Sedat #3A, the supplies would typically be tested for many of these same parameters. Owners of water supplies may also choose to collect baseline samples and/or post-operation samples of their own supplies. If a water supply is affected, Section 3218 of the 2012 Pennsylvania Oil & Gas Act requires a well operator who affects a public or private water supply by pollution or diminution to restore or replace the affected supply with an alternate source of water adequate in quantity or quality for the purposes served by the supply.

F. COMMENT: Penneco has a violation history and cannot be trusted to operate a disposal well. DEP has issued permits to operators who have ongoing violations. (6, 9, 14, 21, 40)
   - RESPONSE: Penneco Environmental Solutions' compliance history does not show any open violations in Pennsylvania, and they are registered and bonded to operate oil and gas wells in Pennsylvania. The Department regularly uses its authority to require operators to rectify violations and may deny a well permit application pursuant to Section 3211(e.1) of the 2012 Pennsylvania Oil & Gas Act.

G. COMMENT: A disposal well could result in decreased property values. The location is in a populated area and Plum Borough and many of its residents don't want the well, so it should be moved into the country away from people or restricted to industrial zones. (5, 6, 8, 9, 12, 13, 19, 20, 21, 22, 23, 24, 25, 27, 31, 41)

   RESPONSE: The impact of an activity on property values and concerns in this regard may be directed to local officials that may consider zoning and land use.

H. COMMENT: There are general air quality concerns at the site, including but not limited to diesel fumes from trucks. (3, 4, 5, 8, 9, 10, 15, 19, 23, 28, 30, 32, 33, 38, 42)
   - RESPONSE: The well is subject to the requirements of Exemption 38 of the Department's Plan Approval and Operating Permit Exemptions Policy, which applies to well sites and is available to the public as Document Number 275-2101-003. Nevertheless, the Department's approval of a permit to operate a well, or its exemption from air permitting requirements, does not limit the Department's ability to respond to future complaints from a citizen regarding an air quality concern.

     With regard to truck traffic, the 2008 Pennsylvania Diesel-Powered Motor Vehicle Idling Act prohibits the owners and drivers of any diesel-powered motor vehicle with a gross weight of 10,001 lbs. or more engaged in commerce from causing the engine of the vehicle to idle for more than five minutes in any continuous 60-minute period, except as provided in the Act, and 25 Pa Code. §123.1 permits emissions from the use of roads or streets.

I. COMMENT: Seismic activity/earthquakes could occur as a result of the injection. (1, 2, 3, 4, 6, 10, 14, 15, 17, 23, 33, 37, 39, 40, 42)

   RESPONSE: The Department's analysis does not show the likelihood that the operation of this proposed well would cause earthquakes. The majority of disposal wells in the United States do not pose a hazard for induced seismicity, however faults in the Precambrian basement are believed by some experts to have generated seismic events in other states. The proposed Sedat #3A injection zone is separated from the Precambrian basement by approximately 17,000 ft. with the Riceville-Oswayo Shale and multiple other low-permeability geologic confining zones within this distance. No faults are known to be located within the AOR, with the closest fault being an

inferred fault located approximately 4.8 mi. to the southeast of the Sedat #3A. These factors would likely negate any contribution of the Precambrian basement to potential seismic activity. Additionally, the location is within the relatively seismically stable interior of the state of Pennsylvania, and the Department's review did not identify any known seismic events within the ¼ mi. AOR or historic earthquakes (since 1970) of magnitude two (2M) or greater within Allegheny County. Although the Department's review did not show that injection into the proposed Sedat well would likely cause earthquakes, Penneco will be required to monitor seismicity in an abundance of caution.

J. COMMENT: The proposed Sedat well would violate Article 1, Section 27 of the Pennsylvania Constitution. DEP should require an environmental risk assessment. (7, 9, 19, 23, 33, 40)
   - RESPONSE: The Department's review of Penneco's application concluded, among other things, that the well's mechanical integrity is adequate, the injection formation's distance and geologic separation from public natural resources is adequate, there are no Threatened, Endangered or Special Concern species at the site, and that Penneco is properly bonded. The requirements of applicable statutes, regulations and guidance manuals have been met in Penneco's application to the Department and permit conditions are in place to address seismicity, mechanical integrity, monitoring and reporting. No separate environmental risk assessment is required. The permit requirements, terms and conditions, including special conditions, the Department's thorough review process and consideration of site-specific conditions, as well as the consideration of public comments, demonstrate that the permitted activity will not be detrimental or prejudicial to the public interest and that the Department met its obligations under Article 1, Section 27 of the Pennsylvania Constitution.

K. COMMENT: The permeability of the injection zone and confining layers is not suitable to handle the injected fluid. (7, 32)
   - RESPONSE: The Murrysville Sandstone is a reservoir that has contained natural gas and associated fluids in Pennsylvania, so it should be a good candidate to contain injected fluid. The Riddlesburg Shale (approximately 80-90 ft. thick) is the confining layer directly above the Murrysville and the Riceville-Oswayo Shale (approximately 30 ft. thick) is the confining layer directly below the Murrysville. Well records from the area indicate the presence of multiple other shale layers that would function as confining layers above and below the Murrysville. A geologic characteristic of shale is low permeability relative to other rock types, and therefore it would function as a satisfactory confining layer.

L. COMMENT: The EPA Permit requires the Sedat #1 well (#003-21210) to be used as a monitoring well, however Penneco has not applied for a monitoring well permit with DEP. (7, 32)
   - RESPONSE: Production records indicate that the Sedat #1 well is still producing from gas bearing formations deeper than the Murrysville. Prior to the Sedat #3A's use as a

disposal well, the Sedat #1 will be plugged back and open to the Murrysville to be used for monitoring. As such, the Department's permit requires Penneco to obtain a permit to change the use of the Sedat #1 to a monitoring well prior to initiation of injection activities in the Sedat #3A.

M. COMMENT: The Sedat #3A well should be classified as abandoned since there has been no production since 2015. (10)
    - RESPONSE: The Department acknowledges this comment. Production on the Sedat #3A was last reported in 2015, however if Penneco utilizes this well for waste disposal, it would not be classified as abandoned pursuant to Section 3203 of the 2012 Pennsylvania Oil & Gas Act.

N. COMMENT: Penneco has not met the requirements of PA Code §91.51. DEP has the obligation to conduct an independent review of the application under this regulation. (37)
    - RESPONSE: The Department has completed an independent review of the Sedat #3A application, which included an evaluation pursuant to 25 Pa Code. §91.51 and determined that Penneco has shown by the log of strata penetrated and by the stratigraphic structure of the region that it is improbable that the disposal would be prejudicial to the public interest and acceptable to the Department. The Department has also determined that the disposal would be for an abatement of pollution by providing a lawful alternative to other disposal options that have greater risk to the public.

O. COMMENT: Society needs to develop and use other sources of energy such as wind and solar. (3, 36)
    - RESPONSE: The Department acknowledges this comment.

P. COMMENT: Increased truck and rail traffic will deteriorate roads, cause noise and increase accidents. (3, 4, 8, 14, 15, 26, 40)
    - RESPONSE: The impact of an activity that may deteriorate roads, cause noise or increase accidents, and concerns in this regard may be directed towards appropriate state or local agencies.

Q. COMMENT: DEP did not provide proper notice to the public of the October 1 public hearing (notice was not published in the PA Bulletin) and did not provide the public a draft permit for comment before the hearing. DEP should schedule a second public hearing when it has completed the review and publicized the permit materials (3, 4, 10, 34).
    - RESPONSE: The 2012 Pennsylvania Oil & Gas Act and 25 Pa Code. §78, which regulate the review of disposal well applications do not contain provisions that require public hearings for well permit applications or how to publicize them. Nevertheless, the Department chose to hold a public hearing on October 1 in Plum and believed that the best way to inform the community was to publish a notice in the Pittsburgh Post-

Gazette on September 19 and 26 and to issue a press release on its website on September 18 in advance of the hearing. The Pittsburgh Tribune also included information from the press release in the newspaper on September 18. The permit application was submitted on June 12, 2018 and has been available for review at the Department's Southwest Regional Office since then.

R. COMMENT: The benefits of local disposal of produced fluids outweigh the minimal risks. (35)
   - RESPONSE: The Department acknowledges this comment.

S. COMMENT: The subsurface integrity of the area local to the Sedat #3A has been compromised by underground coal mines and use of the Sedat #3A as a UIC well could cause problems including but not limited to displacement, collapse, and subsidence. (1, 4, 8, 10, 11, 15, 16, 17, 39, 40, 42)
   - RESPONSE: The abandoned workings of the Renton Mine are approximately 560 ft. in elevation, which is approximately 1276 ft. above the Murrysville. Well logs from the area indicate the presence of multiple shale layers between the Renton Mine and the Murrysville, which would confine the injected fluid to the Murrysville so it does not reach the mine. Additionally, the Department's review of the Sedat 3A's Well Record and Mechanical Integrity Assessments (MIA) indicate that the casings are cemented to the surface and there is no evidence of defective casing or cement, so the fluid should be confined to the wellbore. By reason that the injected fluid should be confined to the Murrysville and to the wellbore, the Department does not believe that it would reach the Renton Mine and cause these problems.

T. COMMENT: The Renton Mine fire is still burning approximately 2 mi. from the Sedat #3A. (1, 38)
   - RESPONSE: According to the Department's Bureau of Abandoned Mine Reclamation, a project was completed to prevent the fire from migrating, and a current project is ongoing to extinguish the fire.

U. COMMENT: The Sedat #3A may communicate with other conventional, unconventional, abandoned and unmapped oil and gas wells. (3, 4, 6, 7, 8, 9)
   - RESPONSE: Penneco identified four wells within the AOR (API #003-21210, #003-21222, #003-22200, #003-21644), which were confirmed by the Department. The Department reviewed the Well Records/Completion Reports of these wells and confirmed that they are properly cased and cemented and there is no evidence that any are open to the Murrysville. The Department also examined the Well Records/Completion Reports of oil & gas wells that were drilled within ½ mi. of the Sedat #3A and did not find evidence that any of these wells were fracked into the Murrysville. Based on these findings, there is no evidence that wells exist which would act as conduits for injected fluid from the Sedat #3A. Additionally, Part III.A.5 of the EPA permit prohibits Penneco from conducting injection operations in the Sedat #3A until it has plugged all abandoned

wells within the AOR, and it requires Penneco to take corrective action if an abandoned well is identified.

If a future well would be drilled through the Murrysville, it must meet the casing and cementing requirements of 25 Pa Code. §78 or §78a, which would prevent it from acting as a conduit for injected fluid from the Sedat #3A. The Department also has the authority to limit future drilling or hydraulic fracturing in the vicinity of the Sedat #3A if it believes that a problem may be created by these activities.

V. COMMENT: The disposal well is likely to create health hazards, reducing quality of life and impacting the health of residents who live, work and recreate in Plum, as well as fauna and flora. (9, 12, 13, 14)
    - RESPONSE: The Department's review concluded that the Sedat #3A has mechanical integrity, sufficient confining zones exist above and below the injection formation, and no preferential pathways exist that would convey injected fluid into a USDW or into an area where induced seismicity may occur. Penneco's Erosion & Sediment Control Plan and Control & Disposal Plan conform to applicable regulations and guidelines and are adequate to minimize accelerated erosion and potential sediment impacts to surface waters and identifies the control and disposal practices used by Penneco. The Department believes that the above factors are sufficient to minimize the potential of health impacts to residents of the area. The Department's approval of a permit to operate a well does not limit its ability to respond to future complaints from a citizen regarding a concern.

W. COMMENT: There should be a 3rd party review of the application. (4)
    - RESPONSE: Department staff have adequate experience, knowledge and training to conduct a technical review of the application.