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Via Electronic Mail

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**Re: Response to PADEP Letter of Deficiency on
Interim Site Characterization Report
eFACTS PF No. 881609
eFACTS Activity No. 60986
Twin Oaks – Newark 14”-Diameter Pipeline
Upper Makefield Township, Bucks County**

David:

Sunoco Pipeline LP (“SPLP”) provides this response to the Letter of Deficiency that SPLP received via email on November 21, 2025 (the “Letter”), for the Interim Site Characterization Report (“ISCR”) that SPLP submitted to the Department on September 2, 2025, in accordance with paragraph b.ii of the Department’s March 6, 2025 Order (the “Order”). The Letter provided the Department’s comments on the ISCR, SPLP’s responses to the public comments received during the September 15, 2025 public meeting, and the Comment-Response Document (“CRD”) that SPLP submitted to the Department on October 31, 2025.

Please note that SPLP disputes that the ISCR was deficient, as the Department suggests in the Letter, and nothing in this response should be construed as an admission of any such deficiencies. Nevertheless, SPLP responds to each of the comments provided in the Letter, as follows:

Department Comment:

1. Date of Start of Pipeline Leak:

In response to a public comment regarding the start of the pipeline release, SPLP stated in the CRD that “*SPLP has assessed the likely date when the leak began.*”

If the date that the release began is known to SPLP, it should be shared in the revised ISCR. Understanding when the release first began impacts the conceptual site model and

the determination of the nature, extent, direction, rate of movement, volume, and composition of contamination in affected environmental media.

SPLP Response: Based on a review of currently available information, SPLP has determined that the earliest the release from the pipeline could have begun was May or June 2024. This date will be included in the revised ISCR and will be used in the further development and refinement of the conceptual site model.

Department Comment:

2. Septic System Evaluation

Evaluation of the potential migration of contamination through septic systems was first requested by DEP via comment in DEP’s May 13, 2025 Letter of Deficiency for the Site Characterization Work Plan. SPLP provided a response to DEP’s comment in SPLP’s June 27, 2025 “Response to Letter of Deficiency for the Site Characterization Work Plan.”

In DEP’s August 29, 2025 Approval of the Site Characterization Work Plan, DEP indicated that “The response provided by SPLP constitutes an initial evaluation of the potential migration of contaminants related to the pipeline release into residential septic systems. DEP requests that SPLP include this evaluation in the Interim Site Characterization Report.”

DEP understands that the date of this request so close to the due date of the ISCR prevented SPLP from including this evaluation in the ISCR. SPLP sent a document to DEP titled “Septic System Migration Pathway Evaluation,” dated September 29, 2025, that provided the requested evaluation of the pathway.

SPLP should include the September 29, 2025 Septic System Migration Pathway Evaluation as an attachment in the revised ISCR.

SPLP Response: The September 29, 2025 Septic System Migration Pathway Evaluation will be included as an attachment to the revised ISCR.

Department Comment:

3. Extent of LNAPL:

DEP acknowledges that, in recent months, light nonaqueous phase liquid (LNAPL) has not been detected in some of the wells that had previously contained LNAPL. However, SPLP’s assertion in Section 4.3 of the ISCR that the extent of LNAPL is shrinking is based on data collected from monitoring wells that are, in most cases, hundreds of feet from the release area.

To date, no wells have been installed beneath the release area to characterize groundwater despite soil analytical data from post-excavation samples PE-1 and PE-7 collected at 7 ft below ground surface (bgs) indicating the presence of naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene at concentrations greater than Statewide health standard soil medium-specific concentrations (MSCs).

Recovery wells RW-2 and RW-3 were installed approximately 70 ft southeast and 40 ft east of the release area, respectively. The wells installed by SPLP nearest to recovery wells RW-2 and RW-3 are located approximately 225 ft to the west (MW-1 and MW-2 clusters), approximately 275 ft to the south (MW-6 cluster), approximately 250 ft to the east (MW-11 cluster), and 66 ft to the north (RW-4). Data from the RW-2 and RW-3 pumping tests presented in Appendix N-2 of the ISCR indicate minimal connectivity, if any, between RW-3 and RW-4.

One of the stated goals of the ISCR is that it should “*establish the information known, relevant data gaps, plans for further characterization, and the ability of the data to support development of remedial actions.*” SPLP does not yet have an adequate data set to determine the lateral extent of LNAPL is shrinking, as the full lateral extent of LNAPL is not known. This is a significant data gap that should have been identified in the ISCR and SPLP should have provided plans in the ISCR for further characterization of the extent of LNAPL.

DEP recommends that additional LNAPL delineation wells be installed at the release area and near RW-2, RW-3, and the 128 Walker Road supply well in order to better define the extent of LNAPL and enable SPLP to accurately determine whether the extent of LNAPL is shrinking.

SPLP Response: SPLP acknowledges the Department’s comment but respectfully disagrees with the Department’s summary of the conclusions set forth in Section 4.3 of the ISCR and notes that it is inaccurate to assert that the report stated that the extent of LNAPL “is shrinking” is “based on data collected from monitoring wells.” Rather, SPLP noted in Section 4.3 of the ISCR that the number of potable water supply wells and recovery wells with detections of LNAPL has decreased, and that fact coupled with the decreased thickness of the LNAPL that was encountered, “suggest that the lateral extent of LNAPL is shrinking.” SPLP also notes that no LNAPL had been observed in any of the 16 monitoring wells that had been installed as of the date of the ISCR. In fact, LNAPL has not been observed in any of the 26 monitoring wells that have been installed to date, including those that were installed after the date of submission of the ISCR.

SPLP also respectfully disagrees with the Department’s comment and premise that SPLP has not laterally delineated the extent of LNAPL. To date, SPLP has installed 26

monitoring wells that surround the locations where LNAPL is currently present, and SPLP has also confirmed that the only locations where LNAPL remains present is limited to RW-2, RW-3, and two potable wells immediately adjacent to the release area. Accordingly, SPLP respectfully disagrees that there is a “significant data gap” as the Department suggests in its comment, or that SPLP should have provided plans for further characterization of the extent of LNAPL in the ISCR.

Nevertheless, SPLP plans to perform additional work to confirm and further refine SPLP’s characterization of LNAPL by performing Mise-A-La-Masse geophysical testing in locations directly proximate to the release location, as well as locations where LNAPL was historically present. SPLP anticipates performing this testing in mid-late January 2026, subject to obtaining the necessary access. Based on the results of the Mise-A-La-Masse geophysical testing, SPLP will then confirm locations to install additional wells, if and as necessary, to assist with further refinement of SPLP’s characterization of the extent of LNAPL. More specifically, and again subject to obtaining the necessary access and utility clearances, SPLP plans to install one additional well at the release area, one additional well to the south of RW-2, and if supported by the results of the Mise-A-La-Masse geophysical testing, one additional well to north/northeast of RW-3.

Department Comment:

4. Groundwater Characterization:

Groundwater samples collected on June 24, 2025, from the deepest packer testing zones within recovery wells RW-2 (48-63 ft bgs) and RW-3 (47-65 ft bgs) contained concentrations of one or more of benzene, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene greater than groundwater MSCs. These samples were collected from intervals that were, in theory, isolated from the shallower portions of the wells overlying the tested zone.

As documented in Appendix N-1 of the ISCR, SPLP also completed packer testing of nine zones within the supply well at 108 Spencer Road, all of which contained concentrations of benzene greater than the groundwater MSC at depths ranging from 24.8 to 460 ft bgs.

Concentrations of VOCs greater than groundwater MSCs have also been identified in the influent from several residential supply wells with pumps at depths of up to 400 ft bgs. SPLP’s deepest monitoring wells installed to date are at 75 ft bgs.

The existing monitoring well network is insufficient to characterize the nature and extent of dissolved-phase VOC contamination related to the pipeline release. Additional monitoring wells should be installed to vertically delineate dissolved-phase VOC impacts

identified in recovery wells RW-2 and RW-3 and domestic potable supply wells containing VOC concentrations greater than groundwater MSCs.

Furthermore, the monitoring well analytical dataset provided in the ISCR is incomplete, as the submittal of the ISCR occurred prior to the installation and sampling of 13 monitoring well pairs intended for use in horizontal delineation of dissolved-phase VOC contamination. Therefore, the ISCR did not substantially characterize the horizontal extent of groundwater contamination. SPLP should include all available monitoring well analytical data and an interpretation of the results in the revised ISCR.

SPLP Response: SPLP acknowledges the Department’s comments but respectfully disagrees with the Department’s assertions that the existing monitoring well network is insufficient or that the monitoring well analytical data set included in the ISCR was “incomplete.” As specifically stated in the ISCR, SPLP was still in the process of installing, developing, and sampling additional monitoring wells in the Mt. Eyre Manor neighborhood at the time that the ISCR was submitted on September 2, 2025. Thus, the data summarized and presented in the ISCR only included the data and sampling results that were available as of the submission of the report. SPLP has since completed the installation of 10 additional monitoring wells and has performed three separate sampling events of all 26 monitoring wells and gathered transducer data – the results of which were summarized in the Remedial Action Progress Report #3 (submitted to the Department on December 9, 2025), and in an amended version of the Remedial Action Progress Report #3 (submitted to the Department on December 19, 2025). SPLP will include a summary of available analytical and transducer data for all 26 monitoring wells, as well as an interpretation of the data, in the revised ISCR.

Regarding the Department’s assertions about horizontal delineation, SPLP references its response to Department Comment No. 3 above which outlines SPLP’s plans to perform Mise-A-La-Masse geophysical testing in the Mt. Eyre Manor neighborhood and to thereafter install additional wells to further refine the horizontal delineation of groundwater impacts.

In response to the Department’s comments regarding the vertical delineation of dissolved-phase VOC impacts to groundwater, SPLP disagrees with the conclusion that the Department appears to draw from the Downhole Packer Test Report and Packer and Pump Test Report for 108 Spencer Road (Appendix N-1 of the ISCR). While benzene was present in samples collected at depths ranging from 24.8 to 460 ft bgs during the packer test, this benzene is not indicative of deep groundwater impacts. Rather, as stated in Section 4 of the report (Appendix N-1 of the ISCR), transducer data collected during the testing indicate a decreased seal integrity of the lower packer during the test and that

“vertical mixing of water from a shallow contamination source would result in VOC concentrations at depth.”

SPLP also disagrees with the Department’s implied assertion that the results of sampling from potable wells in the Mt. Eyre Manor neighborhood suggests that there is contamination present in the deep aquifer. The residential potable wells cited by the Department are being actively used under pumping conditions, which draws impacted water from the shallow aquifer into those wells, and the impacted water is then pulled vertically downward inside the well to the pump intake. Further, it is worth noting that published geological literature for the area reflect that the most productive water bearing zones are within the shallow aquifer, and that groundwater yields generally decrease with depth. Thus, many of the wells in the Mt. Eyre Manor neighborhood are drilled to significant depths to provide sufficient water storage within the well borehole to meet residential water use demands. Therefore, the observations of concentrations of VOCs in influent samples at residential water supply wells do not necessarily indicate impacts in the aquifer adjacent to the pump intake within the well. Accordingly, the detection of VOCs at concentrations above the MSCs in samples taken from residential supply wells does not support the Department’s apparent conclusion that there is contamination present in the deep aquifer in the Mt. Eyre Manor neighborhood.

Nevertheless, in response to the Department’s comments about vertical delineation, SPLP will review all existing information regarding hydraulic gradients obtained from transducer data, the sampling and testing performed at a replacement potable well at Walker Road, monitoring well sampling data, and available information regarding casing and pump depths for residential wells. SPLP will also perform additional depth-interval testing at the former water supply well at 108 Spencer Road given the seal integrity issues identified in the Downhole Packer Test Report and Packer and Pump Test Report for 108 Spencer Road (Appendix N-1 of the ISCR). Based on SPLP’s review of existing information and the results of additional depth-interval testing, SPLP will determine whether the vertical delineation of groundwater impacts needs to be further refined, and any such refinement may include the installation of an additional monitoring well at a depth greater than 75 feet.

Department Comment:

5. Groundwater Flow Direction

The first paragraph of ISCR Section 4.2.2 states, “*groundwater flow is expected to be eastward based on regional recharge-discharge relationships*” and “*[g]roundwater flow is expected to be toward the northeast based on the geologic and hydrogeologic literature.*”

Interpretation of groundwater flow in the ISCR was limited to a single potentiometric surface map (Figure 4-3) using data from a single round of gauging completed on August 13, 2025. This potentiometric surface map indicated a southeasterly groundwater flow direction, contrary to the assumptions stated in the previous paragraph.

Based on the information provided in the ISCR, SPLP has not generated an adequate dataset to make informed interpretations of the complex hydrogeologic flow conditions within a fractured bedrock aquifer with dozens of active domestic water supply wells. A comprehensive understanding of the complex hydrogeologic flow conditions is essential to support the development of remedial actions.

DEP is aware that SPLP has installed 13 monitoring well pairs and placed pressure transducers in these wells, information not provided in the ISCR. Data from these transducers should be utilized by SPLP to generate a more robust and fuller interpretation of groundwater flow, and SPLP should present these data and interpretations in the revised ISCR.

SPLP Response: SPLP acknowledges the Department’s comment but specifically notes that in addition to describing general regional groundwater flow direction, Section 4.2.2 of the ISCR also stated that “groundwater flow in the bedrock aquifer beneath the investigation area is generally controlled by the distribution of fractures. Therefore, the direction of groundwater flow is not likely to be perpendicular to equipotential contour lines as would be the case in other hydrogeological settings.” SPLP agrees with the Department that the hydrogeological flow conditions in the area of the Mt. Eyre Manor neighborhood are complex and required additional assessment (which SPLP specifically recommended in the ISCR), and SPLP has either already completed or is actively in the process of completing that additional assessment as described below. More specifically, Section 4.5.4 of the ISCR described the additional activities SPLP would conduct to further evaluate groundwater flow in the area of the Mt. Eyre Manor neighborhood, including installing transducers in the monitoring and recovery wells and performing pulse testing.

Since the submission of the ISCR, SPLP has completed the installation and development of 26 monitoring wells, and has installed transducers in each monitoring well, each recovery well, and the former domestic supply well at 108 Spencer Road. SPLP has used the data from these transducers to create groundwater level elevation contour maps for both the shallow and deep aquifer for the months of September, October, and November 2025. These maps were included as appendices to the Remedial Action Progress Report #3 and in the amended Remedial Action Progress Report #3. SPLP is also performing pulse testing at each of the monitoring wells, and as of the date of this response, that testing has been completed at 22 wells. Pulse testing was attempted at the remaining 4 wells, but there was insufficient water to complete the test at those 4 locations. SPLP will include a

summary and evaluation of the data generated by the transducers and the pulse testing in the revised ISCR.

Department Comment:

6. Professional Geologist Seal

The report contains information and analysis that constitutes professional geologic work. Therefore, the report must be sealed by a professional geologist in accordance with 49 Pa. Code Section 37.59(2).

SPLP Response: SPLP disagrees that the ISCR was required to be sealed by the professional geologist that prepared the portions of the report containing professional geological work, as it was an interim submittal and not a “final or complete” report as defined by the cited regulation. Nevertheless, SPLP acknowledges the Department’s comment, and in accordance with 49 Pa. Code § 37.59(2)-(3), will provide a cover page for the revised ISCR that contains the seals and signatures from each Pennsylvania registered professional geologist, with attributions for who prepared each section or portion of the document that constitutes professional geological work.

Department Comment:

Although not a deficiency in the ISCR, DEP offers the following comment:

In response to public comments regarding the inclusion of LNAPL fingerprint analysis data in the ISCR, SPLP stated in the CRD that, “[t]hese questions are not on the content of the ISCR. Moreover, forensic analysis of hydrocarbons is not required under Act 2, and the absence of inclusion of any forensic analysis in the ISCR does not constitute a technical deficiency or data gap.”

DEP is aware that SPLP has collected LNAPL samples for forensic analysis. These data are important for refining the conceptual site model and in the understanding of the nature, extent, and composition of contamination in affected environmental media. DEP requests that available LNAPL forensic analysis data be included in the revised ISCR.

SPLP Response: SPLP acknowledges the Department’s comment and will include a summary of LNAPL forensic analyses in the revised ISCR.

As detailed above in its responses to the Department’s comments, SPLP is in the process of scheduling and performing additional geophysical testing, which is anticipated to be completed in mid-late January 2026, subject to obtaining the necessary access. As also detailed above, after that geophysical testing is completed, SPLP will then confirm the locations of the additional wells it plans to install, and subject to obtaining site access and utility clearances, SPLP will then promptly install these additional wells. Once the additional wells are installed and developed, two rounds of groundwater samples will be collected from the additional wells, and SPLP will submit a revised ISCR within 60 days of receipt of those sampling results.

Thank you,



Brad Fish
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Energy Transfer