



July 26, 2019

Mr. T. Greg Merrion, President
Merrion Oil and Gas Corporation
610 Reilly Ave
Farmington, NM 87401

Re: Technical Deficiency Letter
ET Braddock Well Pad
Application No. ESP070218-001 (Initially assigned as PAD0200114)
East Pittsburgh Borough, North Braddock Borough, and North Versailles Township
Allegheny County

Dear Mr. Merrion:

The Department of Environmental Protection (DEP) has reviewed the above referenced application/NOI and subsequent modifications and has identified the following technical deficiencies. The Pennsylvania Erosion and Sediment Pollution Control Program Manual 363-2134-008 (March 2012 as corrected/amended) ("E&S Manual") and the Pennsylvania Stormwater Best Management Practices Manual 363-0300-002 (December 2006 as corrected/amended) ("SW BMP Manual") include information that will aid you in responding to some of the deficiencies listed in the enclosure. The deficiencies are based on applicable laws and regulations, and the guidance set forth by the DEP to establish means of satisfying the applicable regulatory and statutory requirements. The incomplete submission of the application package voids the permit decision guarantee process and any agreements that have been made regarding the timeline for the permit application review. The DEP will continue to follow the permit review process procedures in the review and processing of this permit application.

Pursuant to 25 Pa. Code § 102.6(c) you must submit a response fully addressing each of the significant technical deficiencies set forth above. Please note that this information must be received within sixty (60) calendar days from the date of this letter, on or before September 24, 2019, or DEP may consider the application to be withdrawn by the applicant.

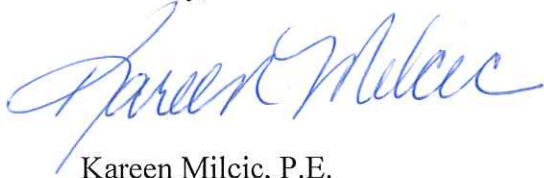
You may request a time extension in writing before September 24, 2019 to respond to deficiencies beyond the sixty (60) calendar days. Requests for time extensions will be received by DEP and considered. You will be notified in writing of the decision either to grant or deny, including a specific due date to respond if the extension is granted. Time extensions shall be in accordance with 25 Pa. Code § 102.6(c).

Please submit 1 original and 3 copies of the revised E&S plan and the revised PCSM plan to the Department, Southwest District Oil and Gas Operations, 400 Waterfront Drive, Pittsburgh, PA 15222.

If you believe that any of the stated deficiencies are not significant, instead of submitting a response to that deficiency, you have the option of requesting that DEP make a permit decision based on the information you have already provided regarding the subject matter of that deficiency. If you choose this option with regard to any deficiency, you should explain and justify how your current submission satisfies that deficiency. Please keep in mind that if you fail to respond, your application will be considered withdrawn.

Should you have any questions regarding the identified deficiencies, please contact me or Tae-Uk Kim, Ph.D., P.E. at taekim@pa.gov or 412-442-4046 and refer to ESP070218-001, to discuss your concerns or to schedule a meeting. The meeting must be scheduled within the 60 calendar days allotted for your reply, unless otherwise extended by DEP. You may also follow your application through the review process via *eFACTS on the Web* at: <https://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx>

Sincerely,



Kareen Milcic, P.E.
Environmental Engineering Manager
Southwest District Oil and Gas Operations

cc: Tessa M. Antolick, P.E.
ARM Group Inc.
2548 Park Center Boulevard
State College, PA 16801

Ryan G. Merrion, Vice President, Merrion Oil and Gas Corporation

B. Bailey, P.E.
K. Milcic, P.E.
Tae-Uk Kim, Ph.D. P.E.
M. Stephan
K. Knickelbein
N. Alwine
L. Fraley State

East Pittsburgh Borough
North Braddock Borough
North Versailles Township
File No. ESP070218-001

TUK/km

ENCLOSURE**DEP File No. ESP070218-001
ET Braddock Well Pad****TECHNICAL DEFICIENCIES**

The following items must be included in the resubmittal of your application or the submission of additional information. Please be advised that the deficiencies contained in this letter are in accordance with PA Code Title 25 Chapter 102.4(b)(5), 102.4(b)(6), 102.6(c), 102.8(f), 102.8(g), 102.8(h), and 102.11(a), unless other specific regulations are identified for a particular item, and which have been discussed previously in pre-application meetings and/or site visits.

1. NOI (25 Pa. Code § 102.4(c), 102.6(a)(1), 102.6(c)(1))
 - a. Section C.3. Fill Material.
 - i. In the Department's November 21, 2018 email regarding this NOI, Items 2.c.ii and 5.a., the use of clean fill was addressed. The Department is providing additional clarification. In accordance with the NOI instructions, if the site will need to have fill imported from an off-site location, the responsibility for performing environmental due diligence and the determination of clean fill will in most cases reside with the Operator. The designer must include a note on the drawings to identify the Operator's responsibility and provide the definition of Clean Fill and Environmental Due Diligence. Please be sure that the drawings contain a note regarding Clean Fill and Environmental Due Diligence. If fill will be imported or exported, Form FP-001 must be used to certify the origin of the fill material. This form needs to be submitted to the Department prior to import or export of the fill. The two FP-001s that were recently submitted to the Oil and Gas program were incomplete. You may complete these forms and submit them to the Waste Management Program. Please be sure to provide a copy of the submission to the Oil and Gas Program.
 - b. Section D.3. Summary Table for Supporting Calculation and Measurement Data
 - i. Other deficiencies in this letter may necessitate revisions to this section of the NOI. Please make all necessary corrections to the tables to be consistent with the changes that are made because of deficiencies identified in this letter.
 - ii. PCSM DA-2 and SR DA-2 are inconsistent with the Calculations - Section 2.0 Pre/Post-Development Hydrology Summary of PCSM narrative package. Please review this information and revise the summary table accordingly.
 - c. Section H. Permit Coordination
 - i. Please update this section with any recent information relative to any pending permits or any other permits, approvals, or planning requirements for this project.
2. E&S narrative (25 Pa. Code §102.6(c), 102.4(b)(4), 102.4(b)(5), 102.4(b)(6), 102.11(a))

- a. A new consultant prepared the revised NOI. Please note that the narrative provided in this revised application is the same as the former consultant's narrative, even though ARM, the new consultant, sealed and signed the cover page. Please review the narrative for information that is out of date or inconsistent with information in other parts of the application (narratives/drawings). All inconsistencies need to be addressed as it appears that the change in consultants resulted in inconsistencies. Please address the following items and make the necessary corrections to the E&S narrative:
- i. Page 5 Section 1.0: It is stated that "all soil erosion and sediment control practices ...dated March 2000 or later." This statement references an out of date manual. The most up to date E&S Manual should be used. Please update this section to reflect the requirements of the E&S Manual. Please review the E & S Plan to determine if any changes are needed as a result of using an out of date manual.
 - ii. Page 6 Section 1.1.D): It is stated in this section that the scope of work for the site is under 10 acres. However, the proposed LOD for the site is more than 10 acres. Please be certain that the information contained in this section is consistent with narratives and drawings throughout the application.
 - iii. Page 7 Section 1.4 Notes: It is stated in this section that "disturbed areas will be seeded and mulched per the specifications on DEP standard worksheet #7". DEP Standard Worksheet #7 is not related to seeding and mulching. Please revise this statement to include the correct worksheet reference (worksheet number).
 - iv. Page 9 Section 1.8 A. Please update this section to reflect the requirements of the E&S Manual, not the out of date manual that was cited.
 - v. Page 12 Section 1.8 Stage 4. 2): This section outlines the conversion of the sediment trap to a detention pond. This conflicts with the PCSM/SR plan, as the proposed sediment trap will be converted to a wet pond. Please revise this section to be consistent with the PCSM/SR plan.
 - vi. Pages 14-15 Temporary Seeding Schedule and Fertilizer Rates and Permanent Seeding Schedule and Fertilizer Rates.
 - 1) The information presented in the narrative is inconsistent with Tables 11.2, 11.3, 11.4, and 11.5 or drawing C710. Please correct this information and confirm that it is consistent with the E&S Manual.
 - 2) Please propose meadow species or mix in accordance with the recommendation in Chapter 6, page 213, of the SW BMP Manual. Please be advised that you propose to restore the site to a "meadow in good conditions or better" in your PCSM/SR plan/calculations. Kentucky 31 Tall Fescue is grass and Crown Vetch is an invasive species, and therefore does not meet the requirements to reestablish a meadow in good condition or better. This mix would not be considered meadow for steep slopes. Please revise these pages to reflect your intent to restore the site to a meadow in good condition or better and propose species or a mix to achieve this restoration requirement.

- vii. Pages 16-17 Section 2.4.A): Please update/revise the contents of this section to be consistent with the information contained on page 3 of the NOI (the presence of manganese and naphthalene) and Appendix J Geotech Report.
- viii. Pages 18-20: The DEP has jurisdiction over this permit, so please remove the references to the ACCD Standard Notes and revise the Standard Notes in accordance with pages 394-396 of the PA E&S Manual.
- ix. Page 21:
 - 1) The information presented on Standard E&S Worksheet #21 is not consistent with Tables 11.2, 11.3, 11.4, 11.5 and drawing C710. Please correct this information on the Worksheet and confirm it is consistent with the E&S Manual.
 - 2) Please propose meadow species or mix in accordance with the recommendations in Chapter 6, page 213, of the SW BMP Manual. Please be advised that you propose “meadow in good conditions or better” in your PCSM/SR plan/calculations. Kentucky 31 Tall Fescue is grass and Crown Vetch is an invasive species, and therefore does not meet the requirements to reestablish a meadow in good condition or better. This mix would not be considered meadow for steep slopes. Please revise these pages to reflect your intent to restore the site to a meadow in good condition or better and propose species or a mix to achieve this restoration requirement.
 - 3) Please add vegetation for the proposed wet pond. As stated in the PA SW BMP Manual, “vegetation is an integral part of a Wet Pond system. Vegetation in and adjacent to a pond may enhance pollutant removal, reduce algal growth, limit erosion, improve aesthetics, create habitat, and reduce water warming (Mallin et al., 2002; NJ DEP, 2004; University of Wisconsin, 2000). Wet ponds should have varying depths to encourage vegetation in shallow areas. The emergent vegetation zone (areas not more than 18" deep) generally supports the majority of aquatic vegetation and should include the pond perimeter. Robust, non-invasive, perennial plants that establish quickly are ideal for wet ponds. The designer should select species that are tolerant of a range of depths, inundation periods, etc. Monoculture planting should be avoided due to the risk from pests and disease. See local sources for recommended plant lists or Appendix B.”
- b. Appendix B Sediment Trap
 - i. Worksheet #8 included in the application is out of date. Please revise your submission to include the current version of this worksheet. In addition, some of the data used on this worksheet is inconsistent with the other design calculations (HydroCAD). Moreover, the embankment spillway data was not provided. Please use Standard E&S Worksheet #19 of the E&S Manual and include all of the necessary corrections, including the information regarding the embankment spillways.
- c. Appendix D Anti-Seep Collar
 - i. The Vertical Projection (“V”) of 2.88’ is incorrect and conflicts with other data in the application. Please revise the value accordingly. To be consistent with

- other data presented in your application, the vertical projection should be 1.70. A proposed value of 2.0 would also be acceptable. This statement is only applicable if other calculations do not change. If other calculations change, you may need to revise the value of V accordingly.
- ii. The Maximum spacing of the collars was calculated to be 40.25". This calculation is incorrect. Using either the V value of 2.88 or 2.0 yields a maximum spacing of 40.32" or 28" respectively. Please review the vertical projection and the maximum spacing of the collars accordingly.
- d. Appendix E Channels
- i. The PC-1B drainage area is larger than 1.24 acre as depicted on the plan drawing. The PC-1B drainage area should be the combined area from PC-1C and the contributing drainage area from PC-1B.
 - ii. The permanent condition data (e.g. flow depth) of PC-1A, PC-1C, and PC-2 are identical even though the discharge and drainage from each are different. Please correct the data.
 - iii. For both temporary stage (E&S) and permanent stage (PCSM/SR), please justify and/or explain that the flows from the area between the drainage area of PC-1A and the drainage area of PC-2 are not coming toward PC-1A and PC-2. Please be advised that the channels should be designed not only for the permanent condition drainage (PCSM stage), but also for the temporary condition drainage (E&S stage (including bulk earth moving)).
3. PCSM/SR narrative (25 Pa. Code §102.6(c), 102.8(b), 102.8(f), 102.8(g), 102.8(h), 102.11(a))
- a. Please be sure to revise the narratives accordingly to other deficiencies identified in this letter.
 - b. Narrative Page 2 Section 1.1: Please correct the handwritten phone number and identify the correct plan preparer (ARM) in the table.
 - c. Narrative Page 7 Section 1.5.2: Vegetated Filter Strip ("VFS"). Please be advised that "the filter strip area should be densely vegetated with a mix of salt-and drought-tolerant and erosion-resistant plant species. Filter strip vegetation, whether planted or indigenous, may range from turf and native grasses to herbaceous and woody vegetation. The optimal vegetation strategy consists of plants with dense growth patterns, a fibrous root system for stability, good regrowth ability (following dormancy and cutting), and adaptability to local soil and climatic conditions. Native vegetation is always preferred. (See Appendix B for vegetation recommendations.)" Please refer to BMP 6.4.9 in the SW BMP Manual.
- i. The western VFS (200ft 1%) is proposed to be a turf grass filter strip, which is inconsistent with the entire volume and rate calculations as this area needs to be controlled and restored to meadow in good conditions or better. Turf grass is insufficient to meet the volume reduction requirements and it has a much different curve number. Please review the PCSM and the SR plans, and the plan drawings WS-2A, WS-2B, WS-3A, and WS-3B. Please be advised that turf grass is not considered meadow and revise your plans and calculations to reflect

the selection of meadow rather than turf grass. Additionally, the use of turf grass also conflicts with Section 1.5.3 of the Landscape Restoration.

- ii. The eastern VFS (25ft 1%) is proposed to be a turf grass filter strip, which is inconsistent with the entire volume and rate calculations as this area needs to be controlled and restored to meadow in good conditions or better. Turf grass is insufficient to meet the volume reduction requirements and it has a much different curve number. Please review the PCSM and the SR plans, and the plan drawings WS-2A, WS-2B, WS-3A, and WS-3B. Please be advised that turf grass is not considered meadow and revise your plans and calculations to reflect the selection of meadow rather than turf grass. Additionally, the use of turf grass also conflicts with your Section 1.5.3 of the Landscape Restoration. Finally, the turf grass VFS minimum length is 100 ft. If a length that is less than the minimum length of VFS is proposed, then indigenous woods (50 ft), native grasses and some trees (75 ft), etc. should be proposed.
- d. Rate Calculations - Section 3.1 PCSM Hydrology Calculations
- i. Post Undetained POI1
 - 1) Meadow is being proposed on the Sheet Flow 15 ft. area on drawings WS2A/WS2B and in other calculations. Therefore, the roughness coefficient should not be 0.150 which is associated with grass: short in HydroCAD. Please revise the roughness coefficient to be consistent with meadow conditions.
 - 2) Gravel is being proposed at the Shallow Concentrated Flow 148 ft. area as depicted on drawings WS2A/WS2B and in other calculations. Therefore, the velocity constant Kv should not be 16.1 fps as this velocity constant is used for grassed water ways. Please revise the velocity constant to be consistent with the use of gravel.
 - 3) The channel flow data is inconsistent with your channel calculation(s) data of E&S (diversion berm). Please revise the channel flow data.
 - ii. Post Detained POI1 – Wet Pond
 - 1) Impervious area is being proposed at the Shallow Concentrated Flow 310 ft. area as depicted on drawings WS2A/WS2B and in other calculations. Therefore, the velocity constant Kv should not be 16.1 fps as this velocity constant is used for grassed water ways. Please revise the velocity constant to be consistent with the use of impervious areas.
 - iii. Pre POI2
 - 1) Meadow exists at the Sheet Flow 50 ft. area as depicted on drawings WS1A/WS1B. Therefore, the roughness coefficient should not be 0.150 as this roughness coefficient is used for grass: short in HydroCAD. Please revise the roughness coefficient to be consistent with meadow conditions.
 - iv. Post POI2
 - 1) Meadow is being proposed at the Sheet Flow 50 ft. area as depicted on drawings WS2A/WS2B and in other calculations. Therefore, the roughness coefficient should not be 0.150 as this roughness coefficient

- is used for grass: short in HydroCAD. Please revise the roughness coefficient to be consistent with meadow conditions.
- 2) Impervious area is being proposed at the Shallow Concentrated Flow 17 ft. area as depicted on drawings WS2A/WS2B and in other calculations. Therefore, the velocity constant K_v should not be 16.1 fps as this velocity constant is used for grassed water ways. Please revise the velocity constant to be consistent with the use of impervious areas.
 - 3) The channel flow data is inconsistent with your channel calculation(s) data of E&S (PC-3). Please revise the channel flow data.
- e. Rate Calculations - Section 3.2 SR Hydrology Calculations
- i. Post Undetained POI1
 - 1) Meadow is being proposed at the Sheet Flow 15 ft. area as depicted on drawings WS3A/WS3B and in other calculations. Therefore, the roughness coefficient should not be 0.150 as this roughness coefficient is used for grass: short in HydroCAD. Please revise the roughness coefficient to be consistent with meadow conditions.
 - 2) Gravel is being proposed at the Shallow Concentrated Flow 759 ft. area as depicted on drawings WS2A/WS2B and in other calculations. Therefore, the velocity constant K_v should not be 16.1 fps as this velocity constant is used for grassed water ways. Please revise the velocity constant to be consistent with the use of gravel.
 - ii. Post Detained POI1 – Wet Pond
 - 1) Revise according to other deficiencies (e.g. PCSM calculations).
 - iii. Pre POI2
 - 1) Revise according to other deficiencies (e.g. PCSM calculations).
 - iv. Post POI2
 - 1) Meadow is being proposed at the Sheet Flow 50 ft. area as depicted on drawings WS3A/WS3B and in other calculations. Therefore, the roughness coefficient should not be 0.150 as this roughness coefficient is used for grass: short in HydroCAD. Please revise the roughness coefficient to be consistent with meadow conditions.
 - 2) Gravel is being proposed at the Shallow Concentrated Flow 17 ft. area as depicted on drawings WS3A/WS3B and in other calculations. Therefore, the velocity constant K_v should not be 16.1 fps as this velocity constant is used for grassed water ways. Please revise the velocity constant to be consistent with the use of gravel.
 - 3) The channel flow data is not consistent with your channel calculation(s) data of E&S (PC-3). Please revise.
- f. Section 6.0 Stormwater Facilities Maintenance and Inspection Plan
- i. Please insert page numbers for ease of reference.
 - ii. The page starting with “The inspection shall...” is only related to East Pittsburgh Borough. Please provide additional maintenance and inspection plan in accordance with the SW BMP Manual.

- iii. Please provide additional details (BMP specific) for the proposed stormwater facilities maintenance and inspection plan in reference to Chapter 102, Chapter 78, PA Storm Water Manual BMP 6.4.8, 6.4.9, 6.6.2, etc.
- g. Infiltration Testing
 - i. The Infiltration Testing of I-1 and B-13 are unacceptable as the testing was conducted during a period of freezing weather. The DEP referred to a weather data reference (e.g. www.timeanddate.com), and the temperature on January 16, 2018 (the date that the testing was conducted) was lower than 32 degrees Fahrenheit with light snow. Data collected under these conditions may not be used to design a wet pond or used in any part of this application.
 - ii. The Infiltration Testing of I-2 is unacceptable. The minimum initial water depth should be 6 inches. Depending upon the selection of the BMPs, additional infiltration testing may not be required. For example, if a wet pond is going to be proposed, then additional infiltration testing would not be required as a wet pond is not an infiltration BMP. Please revise your narrative to clearly identify the selected storm water BMP, including an explanation that additional infiltration testing is not needed based upon the selection. If the proposed BMP warrants additional testing, then please revise the application accordingly.
 - iii. Percolation tests were conducted. Please be advised that percolation tests would be applicable for on-site sewage but are inappropriate infiltration tests for any infiltration BMPs. Your design does not include infiltration BMPs, therefore, simply acknowledge this comment.
 - iv. Revise Appendix J Geotech Report page 8 section 5.4 accordingly.
4. Drawings (25 Pa. Code §102.4(b)(4), 102.4(b)(5), 102.4(b)(6), 102.8(b), 102.8(f), 102.8(g), 102.8(h), 102.11(a))
 - a. The Department reviewed the “site characterization” and preliminarily concluded that E&S controls along with a site-specific soil and groundwater handling plan may be sufficient to prevent discharge of pollutants from the site at unacceptable levels. In accordance with the requirements of 25 PA Code Chapter 102, Sections :102.4(b)(4), 102.4(b)(5), 102.4(b)(6), 102.4(c), 102.8(b), 102.8(f), 102.8(h), and 102.11(a), please provide the following to support the conclusion that adequate controls are proposed to prevent discharges of pollutants from the existing site:
 - i. the profile of the new access road to the proposed well pad with the exact scale (including exiting grade and proposed grade).
 - ii. the cross sections of the proposed well pad and the surrounding area including the areas of fill and cut with the exact scale (including exiting grade and proposed grade). Please be advised that due to the nature of the proposed well pad location, impermeable liners should be proposed beneath the well pad to minimize storm water infiltration.
 - iii. Please provide the cross sections of the proposed tank pad and the surrounding area including fill and cut areas with exact scale (including existing grade and proposed grade).
 - iv. Please provide all locations, depths, and areas for proposed use of clean fill.

- b. If a wastewater aboveground storage tank (AST) is proposed, please depict the location in the plan. Please be advised that if a wastewater AST pad is proposed, then it should not be located within the floodplain.
- c. E&S C704A and C705A– Please depict the secondary containment area on these drawings.
- d. E&S C705A, C705B, C705C.
 - i. Please depict the necessary trench plug locations where the gas line and the water line are being located underground.
 - ii. For gas line stations 24+50-27+70, provide compost filter socks.
 - iii. For gas line stations 25+50-26+50, provide a waterbar(s).
 - iv. Please provide the cribbing where the proposed gas line is being placed above ground. Please be advised that the pipeline on the ground may create potential erosion channels during and after storm events.
- e. E&S C706 #8-2: Please revise the data in the tables to conform with deficiencies in this letter and the provided calculations and plan (grade) drawings. Slope Z2 is incorrect as it should be 4 per your other drawings. Please correct Slope Z2.
- f. E&S C707: Please revise the data in the channel schedule according to other deficiencies in this letter.
- g. E&S C708: Make all necessary corrections according to other deficiencies in this letter.
- h. E&S C710: Standard Worksheet #21: Make all necessary corrections according to other deficiencies in this letter. It is inconsistent with Table 11.2-11.5 in the same drawing.
- i. SR-1: Grass is inconsistent with other drawings and calculations, specifically, WS-3A, WS-3B, rate calculations, and volume calculations (meadow). Revise this drawing to reflect meadow conditions.
- j. SR-2: Revise this drawing to be consistent with C705C (gas line).
- k. N-1: Make all necessary corrections according to other deficiencies in this letter.
- l. PCSM/SR C701: This drawing is unnecessary but, if it remains as a part of your submission, then please revise the drawing number to C601 to avoid a confusion with E&S drawing.
- m. PCSM/SR C601
 - i. Please revise drawing number C602 if necessary.
 - ii. The emergency spillway detail is labeled as “detention pond emergency spillway”. Your proposal, as outlined in narratives and other drawings includes a wet pond/retention basin, not a detention pond. Please revise this detail.
 - iii. Provide the manufacturer specification or data of the impermeable liner being proposed for use at the wet pond area. Please be advised that it is considered a permanent system, so the permeability should be 1×10^{-10} cm/s similar with the secondary containment requirements of Chapter 78a.64a.
 - iv. Make all necessary corrections for the table of channel schedule according to other deficiencies in this letter.
- n. Please provide the cross sections of the proposed wet pond and the surrounding area with exact scale (including existing grade and proposed grade).
- o. Please make all necessary corrections of drawings according to other deficiencies in this letter.