ARM Group Inc.
Engineers and Scientists

December 10, 2019

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Pre-Design Investigation Work Plan –
Parcel B14: Humphrey Impoundment (Revision 0)
Comment Response Letter
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group Inc. (ARM) is providing the following responses to a set of comments received from the Maryland Department of the Environment (MDE) in an email dated June 29, 2018 regarding the submission of the Pre-Design Investigation Work Plan (Revision 0 dated June 29, 2018) for Parcel B14: Humphrey Impoundment of the Tradepoint Atlantic property located in Sparrows Point, Maryland. This letter provides responses to the comments, and a revised Pre-Design Investigation Work Plan (Revision 1), is provided along with this letter. Responses to the comments are provided below; the original comments are included in italics with responses following.

1. *Concerns about the well construction, including the proposal to test 1" diameter temporary wells that probably haven't been developed. Provide rationale for conducting this testing on these small diameter wells.*

   In lieu of using the six existing 1-inch diameter temporary wells listed originally proposed in Table 1 of the Pre-Design Investigation Work Plan (Revision 0), three 2-inch diameter monitoring wells will be installed. Prior to the determination of where the 2-inch diameter monitoring wells will be installed, an inclusive NAPL gauging event of the 1-inch piezometers will be completed. The 2-inch monitoring wells will be installed at the locations of current 1-inch diameter temporary wells with the greatest NAPL thickness measurements and/or NAPL measurements greater than 0.5 feet. Although piezometers B14-044-PZ through B14-047-PZ will be gauged during this event, these four piezometers will not be considered for transmissivity testing as they are located outside the Parcel B14 boundary.

2. *Some of these wells have submerged screens based on their gauging data. For example, B-14-21-PZ is screened from 5 to 15 feet below ground surface with ~1' of riser pipe. The depth to product and water from top of casing was 4.65 and 5.24 feet, respectively, which would make all the measured product in the well above the screen. ASTM states "any well being tested should be screened over the entire mobile interval of LNAPL." Provide rational for why this may not be an issue for this site, or how this issue will be dealt with.*

   Construction of the three proposed 2-inch diameter monitoring wells will include a minimal amount of solid riser pipe above the screen in order to minimize the potential of a submerged screen; however, at least one foot of sand above the top of screen and a minimum of two feet of bentonite from top of sand to grade are required to prevent surface water intrusion. The locations of the proposed 2-inch wells for transmissivity testing will be selected to avoid any areas where the screens would be submerged.

3. *They are proposing to test wells that have or had >0.50' product (1st sentence, 2nd paragraph on pg. 5). If a well had >0.50' product months ago but now has 0.10' of product, are they still going to test it? It may not be practical to test wells with minimal thicknesses. For 0.10' of product, ARM would have to bail it all out and keep it below 0.02' (<25%) and then measure the quantity of product removed every time they bailed it, which would be minimal and not realistic in the field. Thicknesses greater than 0.25' at the time of the test might be more reasonable.*

   An inclusive round of NAPL gauging will be completed on each existing 1-inch diameter piezometer prior to selecting the final locations where bail-down tests will be completed. A total of three 2-inch diameter monitoring wells will be installed at the locations with the greatest thickness of product recorded during this gauging event. No well will be installed in any location with less than 0.25 ft of product observed.

4. *The plan states that the test is complete when 3 or 4 discharge rates are within 25% of each other. It is actually when 3 or 4 rates are within 25% of each other and no consistently decreasing trend is observed.*

   After further review of ASTM E2856-13 and review of the historic LNAPL thickness, the NAPL transmissivity testing method was changed from manual skimming to the bail-down testing method. ASTM E2856-13 states that equilibrium is reached when a plateau of at least three measurements of LNAPL thickness is obtained over a period of at least one quarter of a log cycle when plotted on a semi-log scale. A definition of equilibrium as 3 readings within 10% of each other is proposed.

5. *Another minor thing: The plan proposes beginning gauging 10-15 minutes after the initial product removal. Our geologist suggested beginning gauging sooner in case it recharges faster than expected.*

   The work plan has been revised to modify the gauging frequency to reflect the change in NAPL bail-down transmissivity testing method. Measurements will be collected as close to each minute as possible for the first 100 minutes and will then be adjusted based on the initial results.

If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group Inc. at 410-290-7775.

Respectfully submitted,
ARM Group Inc.

Stewart Kabis, G.I.T.
Project Geologist

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