



Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

March 4, 2020

Mr. Thomas Ruszin, III
Two Farms, Inc.
t/a Royal Farms
3611 Roland Avenue
Baltimore, MD 21211

**RE: RESPONSE TO CASE CLOSURE REQUEST AND
CONTINUED MONITORING REQUIREMENTS**
Case No. 2010-0339-BA
Royal Farms No. 64
7950 Pulaski Highway, Rosedale
Baltimore County, Maryland
Facility I.D. No. 3975

Dear Mr. Ruszin:

The Maryland Department of the Environment's (MDE) Oil Control Program (OCP) completed a review of the case file for the above-referenced property, including the *Case Closure Request*, dated April 8, 2019; the *Request for Case Closure*, dated June 20, 2019; and the *Quarterly Progress Report - Second Quarter 2019*, dated August 16, 2019. Advantage Environmental Consultants, LLC (AEC), on behalf of Two Farms, Inc., requested case closure based on the evaluation of the seven risk factors described in MDE's *Maryland Environment Assessment Technology (MEAT) for Leaking Underground Storage Tanks* guidance document, Mann-Kendall statistical analysis of dissolved levels from the monitoring well network, potable well search, and the off-site receptor risk evaluation (Petroleum Vapor Intrusion-PVI). The OCP approved suspension of monitoring well sampling during MDE's evaluation of the case closure request and until a written response is received from MDE.

As approved in the *Correction Action Plan ("CAP")* dated October 7, 2010, *CAP Addendum ("CAPA")*, dated June 27, 2013, and MDE's *CAP Addendum Approval* letter, dated September 4, 2013, one of the remedial end goals for the project was the achievement of stable or decreasing trends of dissolved phase hydrocarbons in groundwater monitoring wells using Mann-Kendall statistical analyses. Based on the most recent Mann-Kendall analyses provided in the 2nd quarter 2019 report, this end goal has not been achieved. Specifically, increasing benzene concentration trends were noted in off-site monitoring wells MW-27 and CMW-1 (current concentration as of July 2019 was 129 and 152 parts per billion [ppb], respectively). Increasing or probably increasing trends were also noted in on-site wells MW-2R and MW-8R for methyl tertiary-butyl ether (MTBE) and/or naphthalene.

The increasing trends of dissolved MTBE in MW-2R is not considered significant since the concentrations were all at the detection limits and the current reported concentration is 2.5 ppb. Naphthalene, however, demonstrates an increasing trend with a most recent concentration of 214 ppb. MW-8R demonstrated a probable increasing trend of naphthalene with a current concentration of 74.6 ppb. Additionally, no trend was demonstrated for one or more compounds for wells MW-1, MW-2R, MW-3, MW-5R, MW-6, MW-8R, MW-9, MW-18, MW-21, and MW-30.

The OCP has had discussions with AEC pertaining to prior Mann-Kendall analyses submitted regarding the appropriateness of the dataset used for Mann-Kendall calculations. Input data initially included assigned concentration values for wells that contained LPH but were not sampled. Another issue focused on values used when laboratory results were less than method detection or reporting limits (non-detect). AEC ran three Mann-Kendall analyses using different methods in the most recent 2nd quarter report. The first analysis used all data collected since 2010 and one-half the laboratory quantitative limit values for non-detect results. The second Mann-Kendall analysis used all laboratory data since 2010 and used a value of 1 ppb for non-detect results. The third Mann-Kendall analysis excluded the early dataset that contained elevated detection limits and used one-half the laboratory quantitative limit value for non-detections. Early dissolved phase data collected (2010 to 2012) were analyzed by a different laboratory (Anabell Laboratories), which contained non-detect results with elevated detection or reporting limits. In general, all three Mann-Kendall analyses of the three varied datasets yielded similar trends with limited exceptions.

The MDE requires that future Mann-Kendall statistical analyses be performed using all data (including the Anabell Laboratory data) and one-half the laboratory detection limit for entries when results are reported as non-detect (the first of three methods provided in the recent report). Using that statistical analysis evaluation, dissolved levels of all monitoring wells show either stable, probably declining, or declining trends with the exceptions of the calculated increasing, probably increasing, or no trends as discussed above.

Based on the increasing, probably increasing, and no trend evaluation results, the OCP requires continued quarterly monitoring of select monitoring wells. Once all wells demonstrate decreasing, probably decreasing, or stable trends based on the Mann-Kendall statistical evaluations, case closure may be requested. The OCP may consider allowing exceptions if well concentration trends are based on low level detections. An alternative contingency plan may also be proposed and discussed with the OCP to achieve case closure consideration.

The monitoring wells depicted in the following table must continue to be sample on a quarterly basis unless noted otherwise. These wells were selected based on the increasing trends in the identified wells discussed above and review of the dissolved phase data. The OCP also considered AEC's approach in prior monitoring well network selection based on sampling a set of wells within the plume source area, mid-plume area, and down-gradient plume. Once a year, all wells must continue to be sampled (4th quarter) for laboratory analysis. All wells must continue to be gauged on a quarterly basis. If LPH are detected, it must be reported to MDE within 2 hours of detection.

Table
 Monitoring Well Sampling and Gauging Schedule to be Performed

Area	Current Quarterly Sampling Wells	MDE Required Quarterly Sampling	Notes
Source Area	MW-1 MW-21	MW-1, MW-21, MW-2R MW-5R, MW-8R	Additional wells added based on statistical increasing trends and concentrations detected in the wells.
Mid-Plume	MW-15, MW-23, MW-24, MW-30	MW-23, MW-24	Based on data, Royal Farms may reduce quarterly sampling to bi-annual for MW-15 and MW-30.
Down-gradient Plume	MW-26, MW-27 MW-28, MW-29 CMW-1, CMW-2	MW-26, MW-27, MW-28 MW-29, CMW-1, CMW-2	
**Note: Remaining monitoring and recovery wells must continue to be sampled on an annual basis. Gauging of all wells must be performed on a quarterly basis.			

Groundwater samples must continue to be analyzed for full-suite volatile organic compounds (VOCs), including fuel oxygenates and naphthalene, using EPA Method 8260 and total petroleum hydrocarbons – diesel and gasoline range organics (TPH-DRO and TPH-GRO) using EPA Method 8015. If concentration trends meet the approved CAPA end goals (stable and/or declining trends), Two Farms, Inc. may request case closure. For future requests, a stand-alone case closure document must be provided that includes, at a minimum, the following:

- Brief history of site, with dates of milestones (i.e., dates of release, investigations performed, remediation system startup and shutdown, rebound assessment start and end; discussion of mass removal of petroleum contamination with supporting trend graphs and data tables.)
- Case Closure End Goals discussion for each goal established per the CAP and CAPA and a statement regarding if the goal was satisfied. If the goal was not satisfied, a discussion and rationale must be provided if case closure is warranted based on other cleanup goal achievements and risk evaluations.
- Reference to all pertinent documents (i.e., reference to potable well survey report soil vapor and air sampling reports, rebound assessment reports).
- Mann-Kendall statistical analyses as discussed above.
- Site maps, analytical summary data tables, trend graphs as provided in quarterly reports (groundwater concentrations and groundwater elevations with respect to time).

Based on years of dissolved sampling data, Two Farms, Inc. may also provide a request of select monitoring well abandonment for OCP consideration.

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If you have any questions or concerns, please contact Ms. Ellen Jackson at 410-537-3482 (ellen.jackson@maryland.gov) or me at 410-537-3489 (andrew.miller@maryland.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Miller". The signature is fluid and cursive, with a large initial "A" and "M".

Andrew Miller, Chief
Remediation Division
Oil Control Program

cc: Mr. Kevin Koepenick, Manager, Groundwater Management Section, Baltimore County DEPS
Ms. Ellen Jackson, Northern Region Supervisor, Remediation Division, Oil Control Program
Mr. Christopher H. Ralston, Program Manager, Oil Control Program