



October 20, 2016

Mrs. Jeannette DeBartolomeo
Maryland Department of the Environment (MDE)
Oil Control Program
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

Re: **Rebound Evaluation Completion**
Royal Farms Store # 96
500 Mechanics Valley Road
North East, MD
OCP Case No. 2011-0729-CE
MDE Facility No. 13326

Dear Mrs. DeBartolomeo,

Advantage Environmental Consultants, LLC (AEC), on behalf of Royal Farms / Two Farms, Inc. (Royal Farms), is presenting this data and analysis package for the twelfth month of the second round of the Rebound Evaluation following deactivation of the Vapor Extraction / Groundwater Extraction (VE/GE) remediation system located at 500 Mechanics Valley Road in North East, MD (i.e. the "Site"). Sampling procedures and analysis parameters used for this Rebound Evaluation are outlined in AEC's Rebound Evaluation Work Plan – Revised dated April 20, 2015 and approved by MDE in a letter dated May 21, 2015.

The results included in this report show that the rebound evaluation has been completed. According to AEC's approved Rebound Evaluation Work Plan – Revised "The rebound evaluation will be considered complete if the sampling and rebound evaluation activities continue for one year without the restart criteria being reached." This condition has been met.

Data for the evaluation was obtained by sampling eight select representative wells on a monthly basis for 6 months following operation of the VE/GE System and then quarterly for the remainder of the rebound period. Eight wells were utilized for the purposes of this evaluation: MW-8, RW-1, RW-2, RW-4, RW-6, RW-8, RW-11, and RW-12. A figure depicting the well locations is included as Figure 1 of Attachment A.

Established Baseline

The rebound in the selected wells was assessed for the following fuel constituents: benzene, total BTEX (benzene, toluene, ethylbenzene, and xylenes), and naphthalene. Baseline concentrations for these constituents in each respective well were established based on results reported from sampling events after the discovery of the release and prior to the start-up of the VE/GE system. The baseline concentrations for the rebound study are listed in Table 1 of Attachment B.

Evaluation Parameters

Laboratory results from each Rebound Evaluation event were compared to the baseline concentrations for benzene, total BTEX, and naphthalene in each well independently. A ratio was generated for each constituent in each well using the most recent laboratory results in relation to the

established baseline concentration. Rebound concentration ratios are listed in Table 1 of Attachment B. For analysis of the data obtained from each Rebound Evaluation sampling event, rebound response for benzene, total BTEX, and naphthalene in each well was classified under one of the following three cases:

- Case A – Little-to-No Rebound, defined as the rebound ratio less than 0.25 (25 percent);
- Case B – Gradual Rebound, defined as the rebound ratio greater than or equal to 0.25 percent but less than 0.75 ; and,
- Case C - Rapid Rebound, defined as the rebound ratio greater than or equal to 0.75 (75 percent).

If a rebound ratio for benzene, total BTEX, or naphthalene was greater than 75 percent (Case C - Rapid Rebound) in the same well during two consecutive sampling events, then the rebound test was terminated and the VE/GE system was restarted. Sampling results from the third month of the first round of the Rebound Evaluation met the restart criteria for a single constituent (naphthalene) in a single well (RW-11) and the VE/GE System was restarted for one month in August of 2015. Case C threshold concentrations for each constituent of concern in each selected well are included in Table 1 of Attachment B.

Sampling Events

The VE/GE system was shut down to begin the second round of the Rebound Evaluation on September 4, 2015. AEC performed sampling for the twelfth and final month of the Rebound Evaluation on August 15, 2016 along with the regular quarterly sampling event for the third quarter of 2016. Samples were collected using the purge and bail method in accordance with standard operating procedures for groundwater sampling at the Site.

Results

Sampling results indicate that the Case C criteria has not been met for any of the constituents of concern in any of the selected wells for a period on one year. Therefore, the Rebound Evaluation is complete. Rebound results for all wells are included in Table 1 of Attachment B. Laboratory analytical results and chain of custody documentation is included as Attachment C.

In addition to benzene, total BTEX, and naphthalene; methyl-tert butyl ether (MTBE) is also included in all laboratory analysis for this Rebound Evaluation at the request of MDE. MTBE was not reported above laboratory detection limits in samples from the selected rebound evaluation wells during this evaluation.

Upon acknowledgement of the completion of this Rebound Evaluation by MDE, AEC will begin preparation of a Subsurface Investigation Work Plan to assess soil conditions at the Site.

Sincerely,

Advantage Environmental Consultants, LLC



James Wolf
Project Manager

Attachments

cc: T. Ruszin

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C