



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

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March 2, 2015

Ms. Megan Tingley
Fairfax Petroleum Realty, LLC
6820-B Commercial Drive
Springfield, VA 22151

PC#2010-3028; Former Great Falls Exxon
9901 Georgetown Pike, Great Falls, Fairfax County 22066
Corrective Action Plan Addendum (CAPA) received October 2, 2014
CAPA Approval, **CAP #505**

Dear Ms. Tingley:

The Northern Regional Office of the Department of Environmental Quality (DEQ) has completed review of the referenced Corrective Action Plan Addendum (CAPA) prepared for Fairfax Petroleum Realty, LLC (Fairfax Petroleum) by Kleinfelder. The proposed remediation strategy complies with the Virginia DEQ Storage Tank Program Technical Manual. Approval of the revised corrective action strategy is hereby granted. CAP Tracking Number 505 still applies for the approved corrective action.

The CAP Monitoring Reports (CMR) are to be submitted to the Remediation Division of the DEQ Northern Regional Office. The effectiveness of the proposed strategy is to be monitored as outlined in the approved CAP and as further clarified below.

This Corrective Action Plan Addendum is approved based on:

1. Monitoring for petroleum contaminants and indicators of natural attenuation in appropriate monitoring wells, as shown on the schedule in the attached modified Table 10 of the CAPA. Annual sampling events need to include analysis for the full "8260" suite of volatile organic contaminants while active remediation is taking place. Dissolved phase MTBE concentrations plans and groundwater elevation contour plans will continue to be included in each monitoring report.

2. If soil vapor extraction system sampling being carried out in the first quarter of 2015 demonstrates no significant recovery is occurring, the soil vapor extraction component of the corrective action plan can be ended.
3. The end point for bedrock monitoring well 23D will be 343 ug/l, rather than the proposed 429 ug/l. Bedrock concentrations in on-site monitoring wells need to reduce to concentrations that achieve an estimated mass flux, leaving the site through the nominal transect D-D', less than 0.01 grams/day. Achieving these concentrations and this mass flux will ensure that groundwater abstracted from a hypothetical bedrock drinking water well in residential areas of Great Falls will not exceed the Virginia DEQ petroleum program risk management level of 12 ug/l. Mass flux estimates for transect D-D' are to be included in, as a minimum, each annual fourth quarter groundwater monitoring report.
4. The proposed end point for the overburden (also referred to as the shallow, or saprolite) on-site groundwater will initially be set at the 5,000 ug/l proposed in the CAPA. The CAPA justifies the proposed 5,000 ug/l by indicating natural biodegradation and attenuation will ensure a mass flux of MTBE beyond the former Great Falls Shell (new Exxon) or south beyond the Crossroads building that is protective of potential shallow drinking water wells in those directions. The CAPA also suggests that mass flux downward, to the fractured bedrock, will also be sufficiently low as a result of natural biodegradation and attenuation to be protective of drinking water wells constructed in fractured bedrock. While the groundwater chemistry and the concentrations of MTBE degradation products are indicative of natural degradation occurring, the amount of degradation has not been quantified, or compared to either observed changes in MTBE and degradation products or the amount of degradation required to achieve proposed mass flux end points (e.g. 0.0049 grams/day in transect C, 0.01 grams/day in fractured bedrock, transect D). By January 31, 2016, Fairfax Petroleum should provide information corroborating that the required rate of degradation is occurring to achieve the predicted protective mass flux rates or propose a lower end point. Mass flux estimates for each transect and estimates of mass reductions from active remediation and from degradation between those transects, will be included in at least each annual fourth quarter monitoring report.
5. By January 31, 2016, Fairfax Petroleum should demonstrate that the remedial objectives (average end point concentrations and mass flux) are being achieved on the former Great Falls Shell service station (new Exxon) or will be achieved using the existing remedial technologies. If Fairfax Petroleum cannot demonstrate this, a corrective action plan addendum should be prepared by March 31, 2016 describing proposals to achieve the remedial objectives on the new Exxon.
6. Active remediation should continue until the average end point concentrations and mass flux objectives are met for two consecutive quarters.

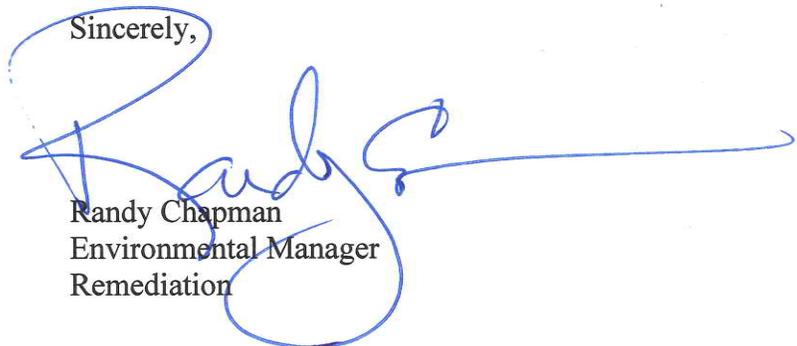
7. Once the remedial objectives (average end point concentrations and mass flux objectives) have been met for two consecutive quarters, active remediation can end and post-remediation monitoring can begin.
8. Post-remediation monitoring should continue for eight quarters.
9. Post-remediation monitoring should demonstrate, with a reasonable degree of statistical certainty, that post remediation concentrations are stable or falling and demonstrate continued degradation and reduction of remaining MTBE and degradation products.

Fairfax Petroleum shall submit monitoring reports no later than **April 31, 2015** and at quarterly intervals thereafter.

Please note: A General VPDES Permit for Discharges from Petroleum Contaminated Sites is required.

Please feel free to contact **Alex Wardle** via e-mail at alexander.wardle@deq.virginia.gov or by telephone at (703) 583-3822 if you have any questions concerning this matter.

Sincerely,



Randy Chapman
Environmental Manager
Remediation

Enc: revised table 10 of the CAPA
Comments and responses review

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