Summary of Comments received on Petroleum Program Corrective Action Plan for PC 2013-3154, the Potomac River Generating Station published December 23, 2014 and DEQ responses

Comment	Comment submitted by/date	DEQ response
…there are substantial concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX), as well as a significant amounts of napthalene and a wide array of other petroleum hydrocarbons at the site. These compounds may be in and above the water table, in the lower aquifer, and even seeping into the Potomac at certain identified seep sites….. Thus, VDEQ would be well-advised to require a vigorous cleanup that will ensure that future use of this land as a park or for some form of development will be safe for all citizens in the community, including children who might play on this land when it is converted to other uses.	Eric D. Olson, February 3, 2015, City of Alexandria, February 10, 2015	The CAP remedial objectives are to achieve compliance with the limits and requirements of the General VPDES Permit for Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests as found in 9VAC25-120 for petroleum and free phase petroleum removal to a thickness of 0.01 feet or to the maximum extent practicable. The Corrective Action Plan (CAP) recognizes that a range of petroleum contaminants associated with heating oil are present and require clean up. DEQ's petroleum program has the authority to require clean up for existing and planned future use of land. The responsible person, NRG, may carry out more extensive clean up but DEQ does not have the authority to require it. If, during the Corrective Action Plan implementation new information is obtained indicating that the approved plan is no longer protective of human health and the environment, DEQ will require that the plan is modified.
DEQ should ensure that independent experts carefully review the CAP to confirm that the remediation will meet the goal of making this land as safe as possible for all possible future users of the land	Eric D. Olson, February 3, 2015	DEQ has no authority to require, or resources to conduct, a review by independent experts. DEQ has been given the task of reviewing and approving CAPs in accordance with appropriate Commonwealth laws, regulation, and guidance. The approach adopted by NRG appears to be protective and is consistent with industry practice.
The underground storage tanks should be removed properly, disposed of according to applicable laws,	Tescia Yonkers, February 8, 2015	The two 25,000 gallon underground heating oil tanks that are the subject of this CAP were

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regulation and ordinances to the satisfaction of the appropriate governmental authorities..		abandoned in place in accordance with City of Alexandria requirements. DEQ has no authority over the closure of these heating oil tanks. DEQ has authority over releases of petroleum from these tanks and this is the subject of the CAP.
The removal of any petroleum equipment, the liability, any clean-up, remedial, removal or restoration work required by any federal, state or local governmental agency or political subdivision because of Hazardous Material present in the soil or ground water on or under or emanating from the Premises should be at the expense of Mirant	Tescia Yonkers, February 8, 2015	NRG has access to $1,000,000 from the Virginia Petroleum Storage Tank Fund, less their financial responsibility of $500 for remediation of petroleum contaminants from underground storage tanks. All expenses beyond $1,000,000, or expenses for work not required as part of the CAP or not authorized by DEQ as appropriate and necessary, will be met by NRG directly.
Outside work at the property line not to exceed 55 db and outdoor work to be done between the hours of 7 am and 6 pm weekdays	Andrea Grimaldi, February 13, 2015	Working practices, noise, and other routine construction practices and building designs are regulated by the City of Alexandria and DEQ expects NRG to meet or exceed the City's requirements.
City, community, and immediate neighborhood to be kept up to date on the progress of the CAP and that information be transparent and shared in a timely fashion	Andrea Grimaldi, February 13, 2015, Elizabeth Chimento, February 11, 2015, City of Alexandria, February 10, 2015	NRG will be asked to provide reports on the progress of the CAP every three months. DEQ expects to have those reports available on DEQ's website within five working days of each report being submitted to DEQ. DEQ suggests an annual meeting of the PRGS Monitoring group to review the progress of the CAP as this project goes forward.
The CAP should address the impact of remedial strategies on the ecology and aquatic habitat of the Potomac River.	City of Alexandria, February 10, 2015	The CAP remedial objectives are to achieve compliance with the limits and requirements of the

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		General VPDES Permit for Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests as found in 9VAC25-120 for petroleum and free phase petroleum removal to a thickness of 0.01 feet or to the maximum extent practicable. The VPDES requirements are designed to protect the Virginia Water Quality Standards as found in 9VAC25-260 et seq., specifically concerning standards for human health and aquatic life.
Have enough investigation locations been constructed to fully delineate the plume, especially pathways south of the underground tanks and south of the screen house?	Elizabeth Chimento, February 11, 2015	A typical DEQ petroleum release investigation involves three to five investigation locations, and a more complex investigation might involve ten to fifteen investigation locations. This investigation has, to date, included 46 laser induced fluorescence (LIF) probes, and thirty eight monitoring or recovery wells, of which seven specifically target the potential for movement to the south around the screen house. DEQ expects continued monitoring from the existing points to verify no significant movement of petroleum is occurring to the south. If data gaps are identified that have a material effect on the corrective action performance DEQ will require action by NRG.
There are data gaps leading to an incomplete Conceptual site model	District Department of the Environment, February 13, 2015 (DDOE)	
Hydraulic conductivity value is not representative and should not be used to support any finding that the	DDOE	DEQ anticipates that a significant amount of recoverable and mobile product is present as a

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contamination is immobile and not migrating to the river		result of this release and understands the corrective action plan methodology to be capable of recovering that mobile product and preventing movement to the Potomac River. DEQ does not consider the hydraulic conductivity values described in the CAP to have been a significant variable in the remediation technology selection.
Oppose the conclusion that "mobile LNAPL is limited at site so significant LNAPL recovery is not anticipated"	DDOE	
Recommend all improperly constructed monitoring wells allowing downward migration of free phase or dissolved phase contamination to the "deep zone" are properly abandoned. Recommend all wells placed in the "deep zone" utilize double casing construction techniques.	DDOE	The wells constructed as part of this CAP and SCR were specifically designed to target specific strata (the "deep" and "shallow" more permeable layers). There are numerous potential pathways between the "shallow" and "deep" layers, including site utilities, foundations and natural gravel features cutting through from shallow to deep. Wells should, however, be constructed with appropriate caution and double casing construction is a potential way of reducing the risk that wells act as a potential pathway.
The possibility that tidal fluctuation could act as a pumping mechanism and pull contamination under the sheet water piling into the river should be evaluated	DDOE	NRG will be asked to address this as appropriate, but there is no evidence from the LIF investigation that this mechanism has created any significant downward migration. The length of the pathway from the contaminated area, under the sheet pile(s), through the river sediment, to the river is significant, and the induced hydraulic gradient due to tidal fluctuation slight.
Additional sampling is required around the bulkhead to assess potential migration north and south around the bulkhead.	DDOE	Extensive LIF and monitoring well investigation has been carried out in available locations north and south of the bulkhead and DEQ does not require

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		NRG carry out additional investigation at this time.
Recommend extraction wells along the NPS trail. Does not consider biosparge an appropriate treatment technology.	DDOE	DEQ does not typically consider groundwater extraction wells appropriate in permeable strata adjacent to large surface water bodies. Biosparge has been used at other DEQ petroleum releases to abate free product contamination sites by volatilizing petroleum and increasing oxygen available to encourage biodegradation.
Biodegradation is not occurring in the deep aquifer. Recommend injecting magnesium sulfate solution into the area to provide a readily available receptor and initiate anaerobic degradation	DDOE	Biodegradation is an important component of the remedial strategy and if it is not shown to be taking place along the margins of the plume NRG will need to design an appropriate remedial measure to ensure that it can take place. Requiring a specific bioremediation technology does not appear appropriate at this time.
Recommend a robust post remediation monitoring plan; remediation wells not to be used as compliance wells; three month trial system shutdown is not adequate; complete full method 8260 VOC scan a start up and at least once a year at select locations.	DDOE	DEQ agrees that an enhanced monitoring plan is required and will specify the required monitoring in the CAP approval. DEQ agrees that remediation wells should not be used as compliance monitoring wells, though once active remediation is complete, monitoring remediation wells may be appropriate.
Include additional subsurface soil and groundwater testing on NPS land to determine full nature and extent.	National Park Service (February 11, 2015 (NPS)	NPS should work with NRG regarding additional sampling NPS requires.
Provide a long term plan for maintenance of the bulkhead	NPS	Agreed
What are the effects of tidal fluctuations on the fuel oil release?	NPS	NRG will be asked to describe what, if any, effect tidal fluctuations could have on the fuel oil release.
Please test the riverbed to delineate contaminants from	NPS	DEQ understands that some river sediment

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the heating oil spill and other past NRG spills		sampling has been carried out by NRG to meet DDOE requirements. DEQ does not have jurisdiction over the Potomac River and suggests NPS work directly with NRG to establish what additional sampling will meet NPS requirements.
Recommend a remedial goal be the removal of contamination from property managed by NPS	NPS	DEQ has the authority to request clean up that is protective of human health and the environment, and NRG has proposed remedial end points consistent with DEQ's requirements (removal of free phase hydrocarbons, removal of dissolved phase hydrocarbons to to achieve compliance with the limits and requirements of the General VPDES Permit for Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests as found in 9 VAC25-120). NPS should work directly with NRG if these end points do not meet NPS requirements.