



DuPont Pompton Lakes Works Site Cleanup Newsletter

SEPTEMBER 2014

Welcome to the latest edition of the U.S. Environmental Protection Agency's DuPont Pompton Lakes Works Newsletter. The EPA issues this communication to keep the community informed of the cleanup activities related to the DuPont Pompton Lakes Works Site.

In addition to the newsletter, the EPA holds regular public information sessions and provides weekly "Open Hours" in the Pompton Lakes Municipal Building (Thursdays from 10 a.m. till 4 p.m.) where people can drop by, ask questions and get information in person. If residents prefer not to come to the Municipal Building, EPA personnel are willing to meet at other locations. In addition, the EPA has met with local officials, local community advisory groups and their representatives and other interested residents to answer questions as well as to respond to requests for information. Representatives of the EPA have also reached out to other local groups, attended a recent borough council meeting, and have met with both the Rotary Club and the League of Women Voters.

Acid Brook Delta and Lake Cleanup Update:

In April 2014, EPA announced that it would revise and re-propose the cleanup plan to remove mercury and lead-contaminated sediment from the Acid Brook Delta (ABD) and other parts of Pompton Lake. The EPA had previously proposed a plan in December 2012 to clean up the Acid Brook and other areas of Pompton Lake. However, both DuPont and the Passaic River Coalition filed appeals to this plan with the EPA's Environmental Appeals Board. The permit appeal process continued from early 2013 through April 2014 when EPA withdrew the plan. Additional scientific information collected during and subsequent to the appeal process is being used to help refine the proposed cleanup plan, which we expect to issue this fall.

As reported in DuPont's March 2014, *Technical Memorandum: Updated Conceptual Site Model*, the following additional work was performed during the appeal process:

For More Information, Please Contact:

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- 10 samples were collected in the uplands area within the Acid Brook Creek bed downstream of Lakeside Avenue to further characterize mercury in sediment and provide greater detail to aid in prospective future excavation efforts;
- Bathymetry (or water-depth analysis) and side scan sonar surveys were performed. Thirty sediment samples were collected for grain size analysis to obtain river bed characterization data and updated bathymetry;
- 109 sediment cores were collected and 288 samples were analyzed for mercury outside the originally proposed 26-acre cleanup area in

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order to collect additional data and confirm conditions; and

- Evaluations of river/lake bed stability and changes in sediment bed elevation patterns were conducted.

DuPont also submitted eight different scopes of work related to ecological investigations. These scopes of work range from collection and analysis of bird, fish and amphibian tissue to the sampling and analysis of sediment pore water. The EPA met with DuPont to discuss this work and DuPont submitted the results of the ecological investigations in a March 2014 document entitled *2013 Ecological Investigation Report*.

Previous data collected as well as the information provided in the *Technical Memorandum: Updated Conceptual Site Model and 2013 Ecological Investigation Report* will provide EPA the basis for revising the permit. **The new permit requirements are currently being developed by EPA, with a goal of proposing a draft permit this fall.** The permit requirements will address the uplands area, dredging of the ABD and Pompton Lake as well as long-term monitoring of Pompton Lake to ensure protection of human health and the ecosystem. The new proposed permit will be at least as protective and will be more detailed than the permit previously issued based on the additional information obtained.

Reminder: Weekly EPA "Open Hours"
Pompton Lakes Municipal Building
Thursdays, 10 a.m. – 4 p.m.

The 2013 Ecological Investigation was designed to evaluate exposure and potential ecological risks in Pompton Lake outside of the originally proposed ABD removal area. EPA is reviewing the results of the ecological investigations in order to:

- evaluate potential direct contact and dietary exposure pathways for mercury to ecological receptors; and
- evaluate the ability of the data collected to support risk-based cleanup decisions for mercury exposure in sediment outside of the originally proposed ABD remedial action area.

As with the previous cleanup plan and permit modification, the EPA's new proposed permit will require DuPont to fund and perform the work. The new proposal will still require DuPont to perform substantial dredging of mercury contaminated sediment from Pompton Lake and removal of contaminated soil from an adjacent shoreline area (i.e. uplands). All of the sediment will be sent to a licensed disposal facility.

There will be a public meeting and a full opportunity for public comment on the new proposed permit modification before it is finalized. The EPA will continue to work closely with the New Jersey Department of Environmental Protection (NJDEP) and DuPont, as well as local residents and stakeholders, on cleanup efforts related to the DuPont site.

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Bioremediation Pilot Study Results:

DuPont has completed a bioremediation pilot study to determine whether this treatment technology would clean up contaminated groundwater in the plume area of Pompton Lakes. Bioremediation uses naturally occurring microorganisms to reduce contamination in the environment. The purpose of the pilot study was to collect the data necessary to evaluate the effectiveness and implementability of bioremediation as a cleanup technology for the intermediate zone of the aquifer, where elevated concentrations of volatile organic compounds contribute to the vapor intrusion problem at Pompton Lakes.

The field testing of the system began June 24, 2013 and was completed on December 20, 2013. DuPont submitted a final report, *EISB (Enhanced In-Situ Bioremediation) Pilot Study Report for the Intermediate Groundwater Near Well 128*, to the EPA and NJDEP in April 2014. Both NJDEP and EPA have reviewed this report.

The data from the pilot study indicates that bioremediation is conceptually feasible for the cleanup of groundwater contamination at the site. There was degradation of both perchloroethylene (PCE) and trichloroethylene (TCE), two principal contaminants of concern related to vapor intrusion, although it was not uniform throughout the targeted treatment zone in the groundwater.

Two general conceptual full-scale treatment options were considered in evaluating the implementability of bioremediation. One option is a series of injection well rows that would serve to create biotreatment zones.

These zones rely on natural groundwater flow to distribute the microorganisms that would enhance biological treatment throughout the targeted area. The second conceptual design is a series of recirculation loops that increase groundwater flow resulting in distribution to the targeted treatment area similar to the pilot study.

The pilot study identified several challenges that would be involved in the full-scale implementation of the technology (regardless of the design) including:

- securing property access to enough areas so that an appropriate number of wells could be installed to treat groundwater successfully;
- the ability of microorganisms treating the groundwater to be distributed sufficiently;
- the feasibility of installing the necessary underground vaults and piping that are components of the bioremediation system given the existing above and below ground infrastructure;
- the probable need for multiple injections to achieve the cleanup objective; and
- operation and maintenance concerns due to biofouling of the bioremediation system.

Based on the information developed during the pilot study and the evaluation conducted in the final report, there would be significant constraints to the full-scale implementation of bioremediation to address groundwater contamination in the intermediate zone of the Well 128 area. However, EPA and NJDEP will assess this information further in conjunction with the results of the in-situ chemical oxidation and hydraulic surcharging pilot studies to determine if one or more of these technologies could be implemented in order to treat the groundwater in the intermediate zone in the area of Well 128.

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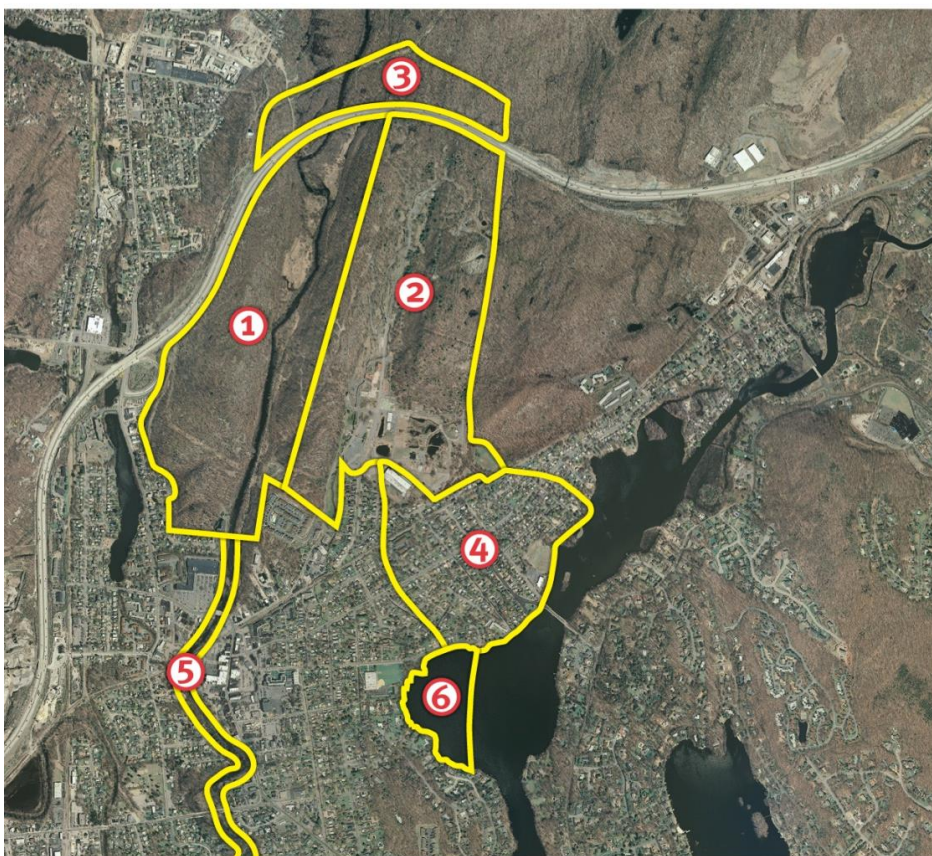
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On-site Soil Cleanup/Corrective Measures Study (CMS) Update:

DuPont submitted a draft Corrective Measures Study (CMS) to the EPA and NJDEP in June 2013 which addresses contaminated soil within the former manufacturing areas of the site. The purpose of this CMS is to identify and evaluate potential cleanup alternatives for impacted soil.

Specifically, the CMS pertains to the following on-site areas of the former manufacturing site:

- Eastern Manufacturing Area (EMA) located east of the Wanaque River, south of New Jersey Interstate 287 (I-287), and west of Ringwood State Park. This area is further broken into the northern, middle and southern portions on the eastern side of the site;
- Northern Manufacturing Area (NMA) located north of I-287 along the Wanaque River; and
- Western Manufacturing Area (WMA) located south of I-287 along the Wanaque River.



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- ① Former Western Valley Manufacturing Area
- ② Former Eastern Valley Manufacturing Area
- ③ Former Northern Manufacturing Area
- ④ Offsite Groundwater Area
- ⑤ Offsite Wanaque River Area
- ⑥ Pompton Lakes Delta Area

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NJDEP and the EPA completed an initial review of the CMS and provided written comments to DuPont. Generally, the nature of the EPA and NJDEP's comments included, but were not limited to, how proposed soil cleanup levels were derived and the level of detail regarding the descriptions of DuPont's proposed remedial alternatives.

There have been recent media reports about the information in the draft CMS. **It is important to emphasize that the CMS is considered a draft document by EPA and NJDEP, subject to further revision. Therefore, proposals in the document will likely change based on EPA and NJDEP review.**

NJDEP, the EPA, and DuPont have had on-going discussions regarding the revisions to the CMS based on NJDEP and the EPA's comments. The process of both agencies reviewing technical documents, preparing comments, discussing the comments with the party performing the environmental cleanup (in this case DuPont), and revision/resubmittal of the document is standard practice. Once approved, the CMS will be incorporated into the permit for the site via the permit modification process. The permit modification process includes public notification and an opportunity for comment prior to the determination of the final cleanup plan.

Vapor Intrusion Program Update:

NJDEP and EPA are committed to providing the community information about vapor intrusion based on the most current scientific data. In March 2013, NJDEP updated their Vapor Intrusion Technical Guidance (NJDEP VI Guidance) including their Vapor Intrusion Screening Levels. The NJDEP VI Guidance is used in the implementation of vapor intrusion programs throughout New Jersey. The Vapor Intrusion Screening Levels were updated based on EPA's on-going evaluation of the toxicity of compounds as well as the EPA methods to calculate risk-based screening values for contaminant concentrations. The updated screening levels which are provided in the table below reflect the changes to both TCE and PCE in groundwater, soil gas and indoor air. The revision of the comparison levels was presented to the community during two of the EPA's previous public availability sessions.

DuPont submitted a *Revised Vapor Interim Remedial Measure Work Plan* in December 2013. This revised work plan has not been approved by the EPA or NJDEP. **Although the Vapor Intrusion Screening Levels have changed, there have been no changes to DuPont's 2008 Vapor Interim Remedial Measures Work Plan that allows for a vapor mitigation system to be installed at any property located above shallow groundwater contamination associated with the DuPont Pompton Lakes Works site.**

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Vapor Intrusion Screening Levels for DuPont Pompton Lakes Site

Site Constituent of Concern	Previous Groundwater Screening Level (in ug/L)	Current Groundwater Screening Level (in ug/L)	Previous Residential Sub-Slab Soil Gas Screening Levels (in ug/m ³)	Current Residential Sub-Slab Soil Gas Screening Levels (in ug/m ³)	Previous Residential Indoor Air Screening Level (in ug/m ³)	Current Residential Indoor Air Screening Levels (in ug/m ³)
Carbon tetrachloride	1	No change	13	31	1	3
1,1-Dichloroethane	3,600	50	5,000	76	510	2
1,2-Dichloroethane	2	3	8	20	0.8	2
1,1-Dichloroethene	250	260	2,000	10,000	220	210
1,2-Dichloroethene (<i>cis</i>)	350	No Criteria	350	No Criteria	36	No Criteria
1,2-Dichloroethene (<i>trans</i>)	300	520	700	3,100	73	63
Tetrachloroethene (PCE)	1	31	16	470	1	9
1,1,1-Trichloroethane	2,300	13,000	22,000	260,000	1,000	5,200
Trichloroethene (TCE)	1	2	11	27	1	2
Vinyl chloride	1	No change	5	13	0.5	1

At this time, EPA, NJDEP and DuPont are preparing correspondence to further inform property owners/residents about the vapor intrusion program. More than 400 residence-specific information packages are being prepared and are expected to be distributed in October 2014. This correspondence will include information regarding a summary of vapor intrusion data collected from your property and EPA, NJDEP and DuPont contact information for you to use in order to further discuss your options under the vapor intrusion program being implemented by DuPont with oversight by NJDEP/EPA.

In addition, information sheets summarizing options that are available regarding your property for sampling, vapor mitigation system installation, vapor mitigation system termination and long-term monitoring will be provided in the package to be sent to residents. These options are consistent with DuPont's current vapor

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intrusion program and/or NJDEP's VI Guidance. This will allow the property owner to make their own informed decision regarding participation in the vapor intrusion program.

It is important to emphasize three points regarding the vapor intrusion program. First, although the current vapor intrusion program allows for a vapor mitigation system to be installed at any property located above groundwater contamination associated with the DuPont Pompton Lakes Works site, NJDEP and EPA encourage that sampling in accordance with NJDEP VI Guidance be performed, if it has not already been conducted, in order for you to make the most informed decision about the need for a vapor mitigation system. Second, the ability of the homeowner to receive for your records a letter indicating no further action at your property from NJDEP with respect to vapor intrusion, if appropriate, would be based on sampling in accordance with the NJDEP VI Guidance. Third, you should understand that vapor mitigation system installation or termination is not a unilateral decision made by DuPont, but rather goes through the process of review and approval/disapproval by NJDEP and EPA.

The NJDEP and EPA remain available to the community to answer any questions regarding the changes to the NJDEP Vapor Intrusion Screening Levels. No official public hearing will be held as a permit modification is not required when the NJDEP screening values used in the vapor intrusion program are modified. Once the information packages are distributed, EPA and NJDEP plan to be available to individuals or groups to discuss the content of the information packages and answer any questions. Additionally, the EPA will continue to hold Open Hours at the Municipal Building on Thursdays.

The NJDEP and EPA will continue to provide oversight of DuPont's vapor intrusion program to ensure protection of public health and the environment in the Pompton Lakes community. Vapor mitigation systems have been installed in 329 homes to date. The EPA and NJDEP continue to encourage all homeowners with homes above the "vapor mitigation area" (the contaminated shallow groundwater plume) to have their homes tested if they have not done so already to determine the need for the installation of a vapor mitigation system. If you would like DuPont to install the vapor mitigation system, please contact David Epps, DuPont Project Director, at 973-492-7733. If you would like a third party contractor to install the system, please call Pat Seppi, the EPA's Community Involvement Coordinator, at 212-637-3679.

Site Background:

From 1902-1994, DuPont manufactured explosives on a 570-acre site located at 2000 Cannonball Road in Pompton Lakes and Wanaque, New Jersey. Past operations and waste management practices have contaminated surface water, soil, sediment and ground water both on- and off-site. The primary soil and sediment contaminants are lead, mercury and copper. Primary ground water contaminants are volatile organic compounds (VOCs) which can cause vapor intrusion in areas where the shallow ground water VOC plume extends beneath homes. The DuPont Pompton Lakes Works site is regulated under the federal Resource Conservation and Recovery Act (RCRA). DuPont is responsible for conducting the necessary cleanup with oversight by the EPA and the New Jersey Department of Environmental Protection.

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