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Review of Ground Water Contamination at the DuPont Pompton Lakes Works Site
October 2011

Introduction

The Technical Assistance Services for Communities (TASC) program reviewed documents pertaining to the investigation of environmental conditions at the DuPont Pompton Lakes Works (PLW) site. The review focused on whether the list of 10 ground water contaminants of concern identified by DuPont is an appropriately comprehensive list of ground water contaminants migrating off site. The review is summarized in an accompanying two-page fact sheet; this document provides additional information to support the fact sheet.

This report is provided by the U.S. Environmental Protection Agency's (EPA's) TASC program, which is implemented by independent technical and environmental consultants. Its contents do not necessarily reflect the policies, actions or positions of EPA.

TASC reviewed the following documents:

1. 1982 Superfund Hazard Ranking System scoring package
2. November 1995 Comprehensive Groundwater Monitoring Plan
3. 2000 Annual Groundwater Report
4. 2004 Annual Groundwater Report
5. 2009 New Jersey Department of Environmental Protection (NJDEP) and DuPont Pompton Lakes Split Ground Water Sampling Data
6. January 2010 Remedial Technology Evaluation for Offsite Groundwater Contamination
7. June 2010 Eastern Manufacturing Area Remedial Investigation Report
8. December 2010 Vapor Intrusion Remedial Investigation Report

Two of these documents were particularly helpful in evaluating whether the appropriate contaminants are being monitored: the 1995 Comprehensive Groundwater Monitoring Plan, and the June 2010 Eastern Manufacturing Area Remedial Investigation Report. The remaining documents were helpful in understanding the status of on-site and off-site investigations. TASC did not review all of the documents pertaining to the site. Additional information may be available that would affect TASC's interpretation and comments.

TASC did not find any significant deficiencies in the processes used by DuPont and NJDEP to identify contaminants of concern for the DuPont PLW site, as presented in the 1995 Comprehensive Groundwater Monitoring Plan. Comprehensive ground water analyses for many contaminants were completed prior to selecting the contaminants of concern for further ground water monitoring. Comprehensive sampling and analyses of soil in different locations of the PLW site were also completed, as presented in the June 2010 remedial investigation report. The contaminants that were found in the on-site soils in 2010 had previously been included in the ground water testing conducted prior to the 1995 Comprehensive Groundwater Monitoring Plan, with the exception of some explosive compounds.

Due to the length of time that has passed since the 1995 plan was written, increasing knowledge and changing regulations warrant a review of the 1995 ground water database referred to in the Comprehensive Groundwater Monitoring Plan to establish that concentrations of contaminants found in the ground water do not exceed current New Jersey ground water standards. Specific recommendations are given in the Findings and Recommendations section of this report. The issues raised by TASC in this review document are concerns that warrant further evaluation and consideration. The TASC review is intended to facilitate further communication between the community and the regulatory agencies.

The sections below present a summary of each document and TASC's observations.

1982 Hazard Ranking System Scoring Package

The Hazard Ranking System (HRS) is the principal mechanism used by EPA to evaluate uncontrolled waste sites for possible inclusion on the Superfund National Priorities List. It is a numerical screening system that uses information from initial, limited investigations to assess the relative potential of sites to pose a threat to human health or the environment. The 1982 HRS package contains information from the limited investigations conducted during HRS scoring of the DuPont Pompton Lakes Works site.

The HRS package states that DuPont Pompton Lakes Works manufactured lead azide, an explosive, and produced, filled and assembled cartridges, shells and wire for blasting caps. Process wastes were discharged to unlined ponds and lagoons. Until 1963, wastes were buried in eight disposal sites around the plant. Water well sampling by NJDEP found chloroform, benzene, tetrachloroethene, trichloroethene and trichlorobenzene. Water in an unlined blasting pond had high levels of lead. Copper was detected in surface water downhill from the plant. EPA has not placed the site on the National Priorities List.

November 1995 Comprehensive Ground Water Monitoring Plan (CGMP)

The purpose of the 1995 CGMP was to "provide a comprehensive groundwater monitoring plan" for the site. The report states that, from 1981 to 1995, ground water at the DuPont PLW site was sampled under a number of different programs, including the discharge to ground water permit, a sitewide sampling program and a voluntary sampling program. The CGMP consolidated all of the ground water monitoring programs under the September 15, 1988 Administrative Consent Order.

Ground water quality at the site was characterized from 1981 to 1995 by installing nearly 100 ground water monitoring wells both on- and off-site and testing ground water for a wide range of constituents. Analytical parameter lists varied over time.

Fourteen monitoring wells were sampled for priority pollutants in 1982 and 1984. Subsequently 12 additional monitoring wells and 26 private wells were sampled for priority pollutants. This sampling event confirmed that chlorinated volatile organic compounds (VOCs) were present in ground water off-site, but had not impacted the public supply wells. Priority pollutants are a set of chemical pollutants that EPA regulates, and for which they have developed analytical test methods. The current set includes 129 chemicals and may be viewed at: http://water.epa.gov/scitech/methods/cwa/pollutants.cfm.

In 1989, DuPont began sampling the ground water pursuant to its discharge to ground water permit. This permit required that 32 wells be sampled for a variety of compounds and results reported to NJDEP on a quarterly basis.

For the CGMP, all of the site's existing ground water sampling data were compiled and evaluated. The data included sampling results for 312 contaminants, including VOCs, semivolatile organic compounds (SVOCs), pesticides, herbicides, polychlorinated biphenyls (PCBs), metals and other inorganic constituents; these are listed in Table 3 of the CGMP.

Ground water in the vicinity of the DuPont PLW site falls into the category of a Class II-A aquifer. A Class II-A aquifer is defined as a potential source of potable water. The ground water sampling results were compared to the regulatory limits for Class II-A aquifers. Many of the contaminants listed in Table 3 of the CGMP do not have a Class II-A standard. The report states that health-based screening levels were calculated for those contaminants based on standard risk assessment methodologies, and no additional contaminants of concern were identified. Health-based screening level calculations were not included in the report; therefore, TASC was not able to review those calculations. It is possible that incorporating updated health information published since 1995 would result in revised health-based screening levels. **Therefore, the community may want to ask NJDEP to use current health information to calculate health-based screening levels for contaminants detected at the site that do not have Class II-A standards and, if necessary, add new contaminants to the list of contaminants of concern that are monitored in ground water.**

Of the 312 contaminants listed in Table 3 of the CGMP, 34 were found at concentrations above their Class II-A standard. Therefore, DuPont reduced the number of ground water contaminants of potential concern from 312 to 34. Results for these 34 contaminants are summarized in Table 6 of the CGMP. One contaminant that was eliminated at this step is indeno(1,2,3-c,d)pyrene. When the CGMP was written in 1995, this contaminant had no regulatory standard; however, it now has a Class II-A standard (0.2 micrograms per liter (µg/L)). It was only detected in one sample at the site; its concentration was 1.9 µg/L, which is above the standard (Table 3, page 4).[1] **The community may want to request that NJDEP evaluate whether ground water should be analyzed for indeno(1,2,3-c,d)pyrene in light of the new, more stringent standard.**

[1] Parenthetical citations refer to the document being discussed, in this case, the CGMP.

After further analyzing each of the 34 contaminants of potential concern, DuPont reduced the list to 11:

1. tetrachloroethene (also called perchloroethylene, perc or PCE)
2. trichloroethene (also called trichloroethylene or TCE)
3. *cis*-1,2-dichloroethene (also called *cis*-1,2-dichloroethylene)
4. *trans*-1,2-dichloroethene (also called *trans*-1,2-dichloroethylene)
5. 1,1-dichloroethene (also called 1,1-dichloroethylene)
6. 1,1,1-trichloroethane
7. 1,1-dichloroethane
8. 1,2-dichloroethane
9. vinyl chloride
10. carbon tetrachloride
11. lead

The CGMP presents a justification for eliminating the other 23 contaminants of potential concern from further analysis. These justifications, and TASC's observations, are presented in Table 1 below. Table 1 also includes lead, which was removed from monitoring in 2000.

Table 1. Ground Water Contaminants Detected above Standards but Removed from Monitoring

Contaminant	DuPont Justification	TASC Observation
Iron and manganese	Occur naturally due to geology; not related to site activities.	Seems reasonable. According to the Passaic Valley Water Commission, due to the region's water chemistry, "rust, mostly iron and manganese, builds up all year and is deposited on the inside of our water mains."[2]
Lead	In 2000, only one sample was above the 10 µg/L standard.	In 2000, five wells (including two off-site wells) were above the new standard of 5 µg/L. Suggest continued monitoring for lead.
Mercury	"Limited number of wells exceeding the standard and no evidence of off-site migration" (p. 15).	Seems reasonable.
Selenium	"Infrequent detection of selenium, the limited number of wells above the Class II-A standard, and no off-site concentrations above the Class II-A standard" (p. 15).	The standard has been lowered from 0.05 milligrams per liter (mg/L) to 0.04 mg/L. Suggest re-analyzing the data using the new, more stringent standard.

[2] http://www.pvwc.com/water%20quality/quality.htm

Contaminant	DuPont Justification	TASC Observation
Cadmium	"Limited number of wells with detection of cadmium above Class II-A standard and the low frequency of detection" (p. 16).	Seems reasonable.
Arsenic	"Limited number of wells with detection of arsenic above the Class II-A standard and the low frequency of detection" (p. 16).	The 1995 report shows that arsenic was detected above 0.008 mg/L in off-site wells 128, 138 and 139. Furthermore, the standard has been lowered from 0.008 mg/L to 0.003 mg/L. Suggest considering continued monitoring for arsenic unless it can be shown that it is not due to site activities.
Aluminum	Detected infrequently, not related to site activities.	Seems reasonable.
Antimony	"Limited number of wells with detection of antimony above Class II-A standard and the low frequency of detection" (p. 17).	The standard has been lowered from 0.02 mg/L to 0.006 mg/L. Suggest re-analyzing the data using the new, more stringent standard.
Copper	"Limited number of wells with detection of copper above Class II-A standard and the low frequency of detection" (p. 17).	Seems reasonable. Copper's standard has been increased from 1 mg/L to 1.3 mg/L.
Sodium	"Not frequently detected and is not a federally regulated drinking-water parameter" (p. 17).	Seems reasonable.
Ammonia	"Detected in a limited number of wells, is not detected downgradient, and is not a federally regulated drinking-water compound" (p. 18).	Seems reasonable.
Fluoride	"Detected in a limited number of wells and downgradient wells consistently exhibit concentrations below the Class II-A standard" (p. 18).	Seems reasonable.
Sulfate	"Detected in only one well sitewide" and the standard "is based on aesthetics rather than adverse health effects" (p. 18)	Seems reasonable.

Contaminant	DuPont Justification	TASC Observation
Total dissolved solids (TDS)	May not be due to site activities. "Above the Class II-A standard in a limited number of wells" (p. 19).	About a quarter of the wells sampled exceeded the Class II-A standard. However, it does not seem useful to resume testing for TDS because it is probably not a health issue. TDS testing is usually used as a preliminary screen to identify whether testing for other substances is needed.
Methylene chloride	Not site-related. Common laboratory contaminant. "Limited number of wells with consistent detection of methylene chloride above the Class II-A standard and the low frequency of detection" (p. 19).	Seems reasonable. The standard has been increased from 2 µg/L to 3 µg/L.
Benzene	"Limited number of wells with detection of benzene above the Class II-A standard and the low frequency of detection" (p. 20).	The 1995 report shows that benzene was detected above its standard in off-site well 138. Also, Table 22 of the report shows that many of the samples in which benzene was not detected have detection limits above the standard, so it is possible that benzene was present in these samples above its standard even though it was not detected. Suggest considering continued monitoring for benzene unless it can be shown that it is not due to site activities.
1,1,2-Trichloroethane	"Limited number of wells with detections of 1,1,2-TCA and the low frequency of detection" (p. 20).	Seems reasonable.
Chlorobenzene	"Limited number of wells with detection of chlorobenzene above the Class II-A standard and the low frequency of detection" (p. 20).	The standard has been increased from 4 µg/L to 50 µg/L; no samples exceeded the current standard (Table 3).
Acetone	"Limited number of wells with detection of acetone above the Class II-A standard and the low frequency of detection" (p. 21).	The standard has been increased from 700 µg/L to 6,000 µg/L; no samples exceeded the current standard (Table 3).

Contaminant	DuPont Justification	TASC Observation
Chloroform	"Limited number of wells with detection of chloroform above the Class II-A standard and the low frequency of detection" (p. 21).	The standard has been increased from 6 µg/L to 70 µg/L; no samples exceeded the current standard (Table 3).
Bromodichloromethane	"Limited number of wells with detection of bromodichloromethane above Class II-A standard and the low frequency of detection" (p. 21).	Seems reasonable.
Dibromochloromethane	"Limited number of wells with detection of dibromochloromethane above Class II-A standard and the low frequency of detection" (p. 21).	The standard has been lowered from 10 µg/L to 1 µg/L. Suggest re-analyzing the data using the new, more stringent standard.
Bis(2-ethylhexyl)phthalate	"Limited number of wells with detection of bis(2-ethylhexyl)phthalate above the Class II-A standard and the low frequency of detection" (p. 22).	The standard has been lowered from 30 µg/L to 3 µg/L. Suggest re-analyzing the data using the new, more stringent standard.

The CGMP proposed to continue analyzing ground water for 11 contaminants (listed here above Table 1). These include ten chlorinated VOCs, as well as lead. Nine of the VOCs are PCE, TCE and their degradation products. The other VOC, carbon tetrachloride, was detected consistently in an off-site well. The report states that, although it is unclear whether activities at the site caused the carbon tetrachloride contamination, DuPont will include carbon tetrachloride in future analyses of ground water. The CGMP stated that lead was not a major concern because the lead seemed to be primarily attached to particles in the ground water sampled, which means that the lead is less likely to migrate with the ground water. However, TASC notes that it is appropriate to compare the unfiltered, total metal concentration against the standard; NJDEP's sampling manual states:

> NJDEP requires metals analysis to be performed on unfiltered ground water samples pursuant to the requirements of the Safe Drinking Water Act and the Clean Water Act. The purpose is to obtain a representative sample as it actually occurs in the aquifer and to maintain consistency in sample handling for samples collected for both inorganic and organic analysis. Filtration is recommended only when dissolved metals (0.45 microns or larger) data is needed for evaluation against the NJDEP and USEPA surface water quality criteria for discharge of ground water to surface water. Otherwise, filtration should only be allowed after approval of the sampling objectives, method, filter type and size by the NJDEP under an approved oversight document.[3]

[3] http://www.state.nj.us/dep/srp/guidance/fspm/pdf/chapter06e.pdf, page 138

The report states DuPont's intent to continue to monitor both filtered and unfiltered lead and total suspended solids for at least one year and then more fully evaluate the need to continue monitoring for lead.

Overall, TASC believes that the CGMP was an appropriate, comprehensive analysis of ground water sampling results, considering the NJDEP Class II-A ground water standards in place in 1995. Because chlorinated VOCs are the most commonly detected contaminants at the site, it is appropriate to focus on them when analyzing ground water samples. **However, TASC recommends that the community request that NJDEP review currently available data to evaluate whether monitoring should resume for any of the contaminants that have been removed from monitoring, based on new, more stringent Class II-A standards or new information about health effects. In particular, it may be prudent to resume monitoring for lead, as noted in Table 1 above. It may also be prudent to monitor for arsenic and benzene, unless it can be shown that these are not due to site activities. Chemicals deleted from the list of 34 ground water contaminants of potential concern that now have new, more stringent standards include lead, selenium, arsenic, antimony, dibromochloromethane and bis(2-ethylhexyl)phthalate, as noted in Table 1 above.** Lastly, a Class II-A standard has been issued for indeno(1,2,3-c,d)pyrene since 1995, and it has been detected above this standard.

2000 Annual Ground Water Report

The report presents all laboratory analytical results from the May and November 2000 sampling events. The results from analyses for the 10 VOCs of concern, as defined in the CGMP, and total lead from May and November 2000 are summarized in Table 3 of the report. Contaminants included in the analyses are only those 11 contaminants specified in the CGMP.

Thirty three on- and off-site wells were sampled for total lead in May and November 2000. All of the wells had lead concentrations below the ground water quality criterion of 10 µg/L for total lead, except well 125-D (12.8 µg/L in November 2000). On October 27, 2000, DuPont wrote a letter to NJDEP, which confirmed verbal agreement to remove dissolved lead and total suspended solids from the CGMP. **Although TASC believes it was appropriate to discontinue analyses for lead based on the analytical results and the ground water quality criterion at that time, the current ground water quality standard for lead is now 5 µg/L.[4] Five wells sampled in 2000 had lead concentrations above 5 µg/L; two of these wells were off-site. Because of this, the community may want to suggest that analysis of ground water samples for lead be resumed.**

2004 Annual Ground Water Report

This annual report presents the results from the May/June and December 2004 ground water sampling events for the Acid Brook Valley at the DuPont Pompton Lakes Works. Analyses were conducted for the 10 VOCs identified as contaminants of concern. Lead was not included in the analyses.

[4] http://www.nj.gov/dep/wms/bwqsa/Appendix_Table_1.htm

2009 NJDEP and DuPont Pompton Lakes Split Ground Water Sampling Data
Community concern about the reduced number of contaminants chosen for analysis in the 1995 CGMP led to NJDEP's decision to split ground water samples with DuPont and analyze the ground water samples to confirm that the 10 selected contaminants of concern were appropriate. NJDEP split eight ground water samples with DuPont from both on-site and off-site wells. NJDEP and DuPont samples were analyzed by the same analytical method for the same expanded list of VOC compounds but different laboratories were used. NJDEP analyzed the eight ground water samples for 35 VOCs, including the 10 VOCs identified as contaminants of concern in the 1995 CGMP. The samples were not analyzed for metals. No VOCs were detected above their standards, other than those VOCs included on the list of 10 contaminants of concern. These analytical results suggest that the 10 chlorinated VOCs chosen for sampling in the 1995 CGMP are the appropriate VOCs to target for ground water analyses. However, as noted previously, the community may want to ask NJDEP to consider analyzing samples for other contaminants, in addition to VOCs, especially in light of new, more stringent standards or new information about health effects.

January 2010 Remedial Technology Evaluation for Offsite Groundwater Contamination
The purpose of this report was to review and recommend potential remedial technologies that could be applied at the DuPont PLW site to address elevated concentrations of chlorinated VOCs in the off-site ground water that are beyond capture by the existing pump-and-treat system. The report outlines the remedial technologies reviewed in terms of their effectiveness in providing protection to human health and the environment as well as their implementability, and recommends options for further evaluation for remediation of off-site ground water. The recommended technologies for further evaluation are targeted ground water extraction and treatment, enhanced anaerobic bioremediation and in-situ chemical oxidation. TASC believes that these are reasonable options to further evaluate. Each option has been used successfully at other sites to remediate chlorinated VOCs in ground water.

June 2010 Eastern Manufacturing Area (EMA) Remedial Investigation Report
The purpose of the June 2010 EMA remedial investigation report was to present the soil data collected during the remedial investigation of the EMA. In addition to the chlorinated VOCs identified as contaminants of concern in the CGMP, several SVOCs, polycyclic aromatic compounds (PAHs), PCBs and metals, including arsenic, chromium and mercury, are identified as soil contaminants.

The report describes the ground water pump-and-treat system implemented in August 1998:

> Five recovery wells extract, on average, 8 million gallons of groundwater per month from the Acid Brook valley alluvial aquifer. Groundwater containing chlorinated VOCs is treated by air stripping, and then is re-introduced into the ground via subsurface infiltration beds located on-site along DuPont's southwest boundary. Pump-and-Treat Compliance reports are submitted on a quarterly basis. (p. 9)

The report states that it only addresses the EMA North Plant and the Mid-Plant regions. As indicated in Table 1 of the report, there are 75 areas of concern (AOCs) in the North Plant region and 62 AOCs in the Mid-Plant region. In addition to these 137 AOCs within the North Plant and

the Mid-Plant regions, there are three AOCs (AOCs 118, 182 and 186) in the EMA that span across one or more of the plant regions. AOC 118 is the Acid Brook, a stream and its tributaries that run through Acid Brook Valley and discharge into Pompton Lake. AOCs 182 and 186 are the designations for transformers and storm sewers, respectively, located throughout the manufacturing area. Elements of AOCs 118, 182 and 186 that are located within the EMA North Plant and the Mid-Plant regions are also included in this report.

The report indicates that analyses of soil samples primarily consisted of using X-ray fluorescence (XRF) to test for copper, lead and mercury. A large number of soil samples were also tested for VOCs, SVOCs, PAHs and organic explosives. A few soil samples were tested for other metals, as well. Soil in the vicinity of transformers was tested for PCBs. Table 2 of the remedial investigation report lists the contaminants analyzed for in each soil sample. Except as noted below, TASC believes that the selection of contaminants for laboratory analysis is comprehensive and appropriate.

AOC 13
On page 15, the report states that AOC 13 consists of an impoundment that historically contained an alcohol/water mixture that was used in shipping PETN, RDX and lead styphnate. A test pit was dug and three samples were collected at depths between 0 and 3.5 feet below ground surface. The samples were analyzed for copper, lead and mercury using XRF. No analysis for RDX or PETN is mentioned for these samples from AOC 13. This may be an oversight if these materials were historically present in the impoundment. It is unclear if this is the case. It is also unclear why samples from this area were analyzed for copper and mercury.

AOC 156 – Area South of FA-1068 (Ingredient Storage)
The constituents that may have been stored here include but are not limited to sodium azide, lead nitrate, lead acetate, dextrin, soda ash, dinitro-ortho-cresol, potassium perchlorate, caustic soda, magnesium powder, barium peroxide, selenium, amorphous silica, potassium chlorate, hydrochloric acid and Dupanol G. One sample was collected at this site; it was analyzed for only copper, lead and mercury. It is unclear why analysis of the soil sample did not include select constituents stored in this location.

AOC 159 – Alcohol Drain in FA-172 (Powder Drainage Area)
AOC 159 consists of the area beneath the floor drain in former building FA-172. The floor drain received alcohol that was used as the liquid packing material for explosive powders. The alcohol was discharged to the drain when explosive powders were unpacked. Three samples were collected at this site; they were analyzed for only copper, lead and mercury. It is unclear why analysis of the soil samples did not include explosives.

AOC 160 – Area of FA-1090 (Storage Magazine)
AOC 160 consists of the area adjacent to a former roof vent that may have vented powders from the powder drying operation housed in the building. Three samples were collected at this site; they were analyzed for only copper, lead and mercury. It is unclear why analysis of the soil samples did not include explosives.

AOC 163 – Area Around FA-1193
AOC 163 consists of the area around former building FA-1193 where a roof vent may have allowed powders to vent to the environment. Three samples were collected at this site; they were analyzed for only copper, lead and mercury. It is unclear why analysis of the soil samples did not include explosives.

Although it is unclear to TASC why the soil samples from the AOCs discussed above were not analyzed for explosives, overall it appears that appropriate care was taken to identify any explosive materials in the soil using both field screening and laboratory tests. The report states that during the 1990 and 1991 remedial investigation, all soil samples were screened for primary explosive compounds, lead styphnate, lead azide and mercury fulminate, as well as for the organic explosive compounds, PETN, RDX, TNT, TETRYL and HMX.

The June 2010 EMA remedial investigation report states that potassium perchlorate was processed at the site in building FA-1250, near AOC 187, and may have been stored at AOC 156 (ingredient storage) (pp. 38, 43). However, the 1995 CGMP does not indicate that any ground water samples were tested for perchlorate. Perchlorate is an emerging contaminant of concern. EPA announced in February 2011 that it will regulate perchlorate under the Safe Drinking Water Act. Currently, EPA recommends using the Interim Health Advisory level of 15 µg/L as a preliminary remediation goal.[5] **TASC recommends that the community ask NJDEP to consider testing ground water for perchlorate.**

Likewise, the 1995 CGMP does not indicate that any ground water samples were tested for the explosives PETN, RDX, TNT, TETRYL and HMX, though the June 2010 EMA remedial investigation report indicates that these chemicals were potentially used on-site, and RDX and TNT were found in soil on-site (p. 8, Appendix A). TASC recommends that the community ask NJDEP to consider testing ground water for these chemicals.

December 2010 Vapor Intrusion Remedial Investigation Report
The purpose of the vapor intrusion remedial investigation report was to summarize the vapor intrusion investigative activities that occurred from March 2008 through May 2010 and present the data collected along with observations from the statistical evaluation conducted on that data. The report stated that vapor intrusion investigative activities were ongoing.

The report states that the off-site ground water plume exists in a residential neighborhood south of the DuPont PLW site. Ground water underlying this area is impacted by chlorinated VOCs with concentrations varying across the alluvial zone from non-detect at the cross-gradient eastern and western limits up to several hundred parts per billion (ppb) total VOCs in the interior of the plume. Based on data from the early phases of the vapor intrusion investigation, installation of vapor mitigation systems was offered to property owners located in the area above contaminated shallow ground water and selected areas along the edges of the shallow ground water plume boundary. Figure 22 of the report indicates that about 190 vapor intrusion mitigation systems have been installed. It appears that appropriate investigation and mitigation of vapor intrusion is occurring.

[5] http://water.epa.gov/drink/contaminants/unregulated/perchlorate.cfm#five

Findings and Recommendations

TASC did not find any significant deficiencies in the processes used by DuPont and NJDEP to identify contaminants of concern for the DuPont Pompton Lakes Works, as presented in the 1995 CGMP. Comprehensive ground water analyses for many contaminants were completed prior to selecting the contaminants of concern for further ground water monitoring. Comprehensive sampling and analyses of soil in different locations of the Pompton Lakes Works were also completed, as presented in the June 2010 EMA remedial investigation report. The contaminants that were found in the on-site soils in 2010 had previously been included in the ground water testing conducted prior to the 1995 CGMP, with the exception of some explosive compounds.

Recommendations

- TASC recommends that the community request that NJDEP review currently available data to evaluate whether monitoring should resume for any of the contaminants that have been removed from monitoring, based on new, more stringent Class II-A standards. In particular, it may be prudent to resume monitoring for lead. It may also be prudent to monitor for arsenic and benzene, unless it can be shown that these are not due to site activities. Chemicals deleted from the list of 34 ground water contaminants of potential concern that now have new, more stringent standards include lead, selenium, arsenic, antimony, dibromochloromethane and bis(2-ethylhexyl)phthalate.
- The community may want to ask NJDEP to use current health information to calculate health-based screening levels for contaminants detected at the site that do not have Class II-A standards and, if necessary, add new contaminants to the list of contaminants of concern that are monitored in ground water.
- TASC recommends that the community ask NJDEP to consider testing ground water for perchlorate.
- TASC recommends that the community ask NJDEP to consider testing ground water for the organic explosives PETN, RDX, TNT, TETRYL and HMX.
- When the CGMP was written in 1995, indeno(1,2,3-c,d)pyrene had no regulatory standard; however, it now has a Class II-A standard (0.2 µg/L). It was only detected in one sample at the site; its concentration was 1.9 µg/L, which is above the standard. The community may want to request that NJDEP evaluate whether ground water should be tested for indeno(1,2,3-c,d)pyrene in light of the new, more stringent standard.

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