

FINAL DECISION DOCUMENT

PINE LAKE PARK GROUND WATER CONTAMINATION SITE MANCHESTER TOWNSHIP, OCEAN COUNTY, NEW JERSEY PI Number: G000009218

October 2011

Introduction

The Pine Lake Park Ground Water Contamination Site is located in Manchester Township, Ocean County. Volatile organic compounds were first detected in the Pine Lake Park area groundwater in 1987. Following further investigations at the site, residents were connected to public water.

This Decision Document presents a brief summary of the Remedial Investigation (RI) that was completed for the site in 2010. Based on the findings/conclusions of the RI, the New Jersey Department of Environmental Protection (NJDEP) has determined that no further action is warranted for the Pine Lake Park area ground water.

Site Location and Description

Pine Lake Park is a residential community of approximately 1,700 homes situated between Route 37 and Route 571 in Manchester Township, Ocean County (Figure 1). The site also encompasses an adjacent smaller residential community, known as Savannah Acres, located between Route 37 and the Pine Lake Park Community. The site covers an area of approximately 1,400 acres. The area surrounding the site is composed of commercial and residential properties.

Beginning in 1987, Ocean County Health Department and New Jersey Department of Environmental Protection (NJDEP) sampled over 1,300 domestic wells in the area. Several chlorinated compounds were detected in the ground water during this sampling. A public water supply system was provided to the Pine Lake Park community by the Manchester Utilities Authority in 1990.

The South Brunswick Asphalt Co. site (PI No. 016764) is located adjacent to and up-gradient of the Pine Lake Park community. Investigation performed at the South Brunswick Asphalt Company site indicated that contaminants found in the ground water at this site were similar to contaminants previously detected in ground water beneath the Pine Lake Park community. The South Brunswick Asphalt site is currently being remediated by a developer as a Brownfield site with no obligation to remediate any offsite contamination. In the absence of any viable responsible parties, the Pine Lake Park ground water contamination was investigated using public funds.

Site History and Enforcement Activities

Contamination was first detected in the Pine Lake Park community ground water in August 1987 when routine sampling of a domestic well was conducted for the sale of a private residence. Subsequently, Ocean County Health Department and NJDEP sampled a total of 1,337 domestic wells in the Pine Lake Park Area between 1987 and 1989. Contaminants detected in the private domestic wells included carbon tetrachloride, trichloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethane, tetrachloroethylene, 1,1-dichloroethylene, chloroform, and methylene chloride. The concentration of contaminants exceeded the State regulatory Maximum Contaminant Levels (MCL) in 157 wells.

A public water supply system was provided to the Pine Lake Park community by the Manchester Utilities Authority in 1990. A Spill Compensation and Control Fund claim was submitted to NJDEP to recover the cost of installation of the water pipelines. The claim was determined to be valid, and approximately \$17 million was paid to the Manchester Township Municipal Utilities Authority, Manchester Township and approximately 1,050 homeowners of Pine Lake Park.

The South Brunswick Asphalt Co. site (SBA site) is located up-gradient of the Pine Lake Park community. As part of the ground water investigation of the SBA site, several monitor wells were installed on both the SBA site and within the Pine Lake Park community. The contaminants detected in the groundwater at the SBA site were found to be similar to the contaminants previously detected in domestic and monitor wells at the Pine Lake Park community. The extent of ground water contamination detected within the Pine Lake Park community warranted further investigation.

Remedial Investigation Summary

In 2008, the NJDEP initiated a Remedial Investigation (RI) of the Pine Lake Park community ground water. The RI consisted of sampling existing monitor wells, ground water screening throughout the Pine Lake Park community using drill rigs and hydropunch sampling, and receptor evaluation.

1. Existing Monitor Wells

Reports associated with past investigations at Pine Lake Park and South Brunswick Asphalt Company site indicate the existence of many monitor wells in the southwestern portion of the site. Some of these monitor wells were installed in 1988 as part of South Brunswick Asphalt site investigation. Thirty-one of these wells were identified in the field during the recent investigation. One of the wells was damaged beyond repair. A comprehensive well condition assessment was conducted on the thirty viable existing monitor wells. Following this assessment, concrete pads, manholes and well-caps were replaced as necessary and new locks were installed on these wells. The wells were then re-developed and made ready for sampling.

All of the thirty existing monitor wells were sampled in September 2009. The ground water samples were analyzed for volatile organic compounds. The analytical results showed that no analytes were detected (i.e. "No Detections") in any of the samples collected from these monitor wells.

2. Ground Water Screening

Between August and October of 2009, ground water screening techniques were employed at twenty-five locations distributed across the site to characterize the ground water quality beneath the site. The sampling locations were spaced 2000 feet apart and were located at the nodes of a rectangular grid covering the entire site. This arrangement allowed for data coverage well beyond the area of the existing permanent monitor wells.

At each location, ground water screening was completed to a maximum depth of 170 feet below ground surface in the Kirkwood/Cohansey aquifer system or at the top of the clay confining layer below it, if the confining layer was found at a depth less than 170 feet. The maximum depth of 170 feet for investigational purposes was chosen based on historical data and depths of existing monitor wells and private/potable wells at the southwestern end of Pine Lake Park.

Mud rotary drilling techniques were used for performing the investigation at the ground water screening locations. Prior to reaching a desired sample interval, a hydropunch sampler was advanced into virgin materials to collect each ground water sample. The water samples were collected approximately every 20 feet from first water to a maximum depth of approximately 170 feet below ground surface. A total of 198 such ground water samples were collected from the 25 screening locations at various depths.

The collected water samples were analyzed for volatile organic compounds. Of the 198 ground water screening samples, only one sample exhibited an exceedance of the Ground Water Quality Standards (GWQS). In the sample collected from approximately 82 feet below ground surface at a screening location, 1,1-dichloroethylene was detected at a concentration of 3.8 microgram per liter, slightly above the GWQS of 1 microgram per liter for this contaminant. This screening location is situated about 800 feet west of Pine Lake. Samples from some of the remaining 24 screening locations had detections of a few analytes, all at concentrations well below GWQS. Detected compounds included: 1,1,1 trichloroethane, toluene, methyl tertiary butyl ether, acetone, carbon disulfide, and chloroform.

3. Confirmatory Sampling of Select Existing Monitor Wells

A confirmatory sampling was performed of twelve wells selected from the existing thirty monitor wells. Six shallow and six deep wells were chosen for this ground water sampling. Samples were analyzed for volatile organic compounds and 1,4-dioxane. Samples from eight of the wells had detections of a few analytes, all at concentrations well below GWQS. Detected compounds included: 1,1,1-trichloroethane, 1,1-dichloroethane, methyl tertiary butyl ether, and chloroform.

4. Receptor Evaluation

A qualitative baseline ecological evaluation was completed to identify any potential ecological and human receptors that could be affected by contamination associated with the site.

With the exception of one isolated exceedance of the GWQS for 1,1-dichloroethylene at a ground water screening location, the results of the remaining 197 ground water screening samples and all permanent monitor well ground water samples collected during the remedial investigation in two rounds of sampling did not indicate that significant dissolved phase volatile organic compound contamination is present in the ground water beneath the site. In addition, the Manchester Municipal Utilities Authority installed potable water lines at the site in 1990. It is believed that all potable wells in the area were abandoned at that time and the residents use the supplied pipe-borne water. Hence, it was decided that a well search was not required for this site.

Based on the data collected during the remedial investigation, 1,1-dichloroethylene was identified as a contaminant of ecological concern in one solitary ground water screening sample at a depth of 82 feet below ground surface. Environmentally sensitive areas identified on, and immediately adjacent to, the site include forested, scrub-shrub and emergent wetlands, as well as surface water associated with Union Branch, Ridgeway Branch, Sunken Branch, Pine Lake, and Toms River. Potential migration pathways include shallow ground water discharging to down-gradient surface water features. However, the single detection of 1,1-dichloroethylene at a depth of 82 feet is unlikely to reach surface water or have any significant adverse ecological or human health effect. It must be noted that no monitoring wells showed ground water contamination above the New Jersey Ground Water Quality Standards in two rounds of sampling. No other pathways to environmentally sensitive areas, such as seeps or discharges, were identified. In addition, there was no evidence of stressed or dead vegetation or dissolved soil, sediment, or water within or adjacent to the site.

More detailed information on the above investigation summary can be found in the *Remedial Investigation Report* dated March 2011 prepared by the Louis Berger Group, Inc., and other documents in the file.

Selected Remedy

The results of multiple rounds of ground water sampling within the Pine Lake Park community indicate that the ground water is no longer contaminated in this area. More detailed discussions of the findings of the remedial investigation are documented in the Remedial Investigation Report. The selected remedy for this area of investigation is "No Action". The NJDEP has determined that no further action is warranted with respect to ground water in the Pine Lake Park community. The existing Well Restriction Area for Pine Lake Park will also be revoked.

Community Participation

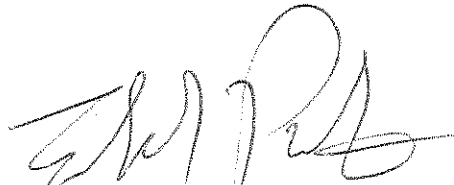
A Fact Sheet was prepared and mailed to the residents in Pine Lake Park in June 2009 before the commencement of remedial investigation activities. A copy of the final RI report has been sent to the Township for the benefit of local residents and officials. NJDEP issued a Draft Decision Document in May, 2011 which was sent to the Manchester Township Mayor and the Ocean County Health Officer for their purview. No comments were received during the review period, May 5 through May 23, 2011. NJDEP prepare a press release for publication in the Asbury Park Press published on August 12, 2011. The public comment period concluded on September 14, 2011, with no comments received from the community.

Approval

As presented herein, the NJDEP has selected **No Further Action** as the selected remedy for the Pine Lake Park site. The selected remedial action is protective of human health and the environment, and is cost-effective remedy pursuant to the Spill Compensation and Control Act and the Technical Requirements for Site Remediation.

APPROVED

DISAPPROVED

 10/4/11
Edward Putnam, Assistant Director
Publicly Funded Remediation Element
Division of Publicly Funded Site Remediation