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STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FACT SHEET

40192

Public Meeting
on
Results of
Remedial Investigation/Feasibility Study
at
Combe Fill South Landfill
Chester and Washington Townships
Morris County
July 14, 1986

Site Description: The Combe Fill South Landfill is an inactive site located on a 115-acre tract of land in Washington and Chester Townships, bordered by 50 acres of hardwood wetlands. The site consists of an old fill area, a new landfill area and two open fields. Ground water runoff, surface water runoff and landfill leachate from the southwestern portion of the site constitute the headwaters of the east and west branches of Trout Brook, which flows southeast toward the Lamington River (also known as the Black River). Tanners Brook is approximately one-half mile to the northwest.

Approximately 65 acres of the old fill area, dating back to the 1940s, were used for the disposal of household and industrial wastes, dead animals, sewage sludge, septic tank wastes, chemicals and waste oils. No records are available to indicate the specific types or volumes of industrial wastes disposed of at the site. There are allegations that the open fields may have been used for unauthorized disposal of chemical and industrial wastes. The landfill has leachate seeps, swampy areas and pools of standing water. Many areas have exposed waste due to erosion.

Background: In December 1972 the Combe Fill South Landfill, operated by Chester Hills Inc., was certified and approved for the disposal of non-hazardous, municipal solid waste. This action marked the first state regulatory control over the landfill operation. In September 1978, ownership and operation of the landfill were transferred from Chester Hills Inc. to the Combe Fill Corporation. The landfill was closed and regraded shortly after Combe Fill Corporation filed for bankruptcy in September 1981. The property is currently held by a trustee-in-bankruptcy.

The New Jersey Department of Environmental Protection (NJDEP) issued several Administrative Orders to the Combe Fill Corporation which culminated in a Closure Order in September 1981. Proper grading, capping, well monitoring, and a leachate collection system were implemented as part of the landfill closure plan. NJDEP has taken samples of landfill leachate, surface water of the east and west branches of Trout Brook, and potable wells for local residences.

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In December 1983 the NJDEP and the United States Environmental Protection Agency (USEPA) signed a Cooperative Agreement for a Remedial Investigation/Feasibility Study (RI/FS) at the site. In July 1984, NJDEP awarded the contract for the Remedial Investigation/Feasibility Study to Lawler, Matusky & Skelly Engineers of Pearl River, New York. The cost of this study is approximately \$740,000. Additionally, NJDEP spent approximately \$100,000 for sampling residential wells, surface water and sediments.

Status: The Draft Remedial Investigation/Feasibility Study Report was completed in June 1986 and the remedial action alternatives are presently being evaluated by NJDEP and USEPA. This Draft Report has been available since June 23, 1986 at the following repositories: Chester Township Library in Chester, Washington Township Public Library in Long Valley, Chester Township Municipal Building, Washington Township Municipal Building in Long Valley, and the NJDEP, Division of Hazardous Site Mitigation in Trenton. The public comment period will extend until July 31, 1986. Any comments on the study should be submitted to Janice Haveson at NJDEP, Office of Community Relations, CN 028-432 East State Street, Trenton, NJ 08625. After considering all public comments, NJDEP and USEPA will determine the selected remedial alternative for the site and sign a Record of Decision which will specify the details of the long-term site cleanup.

The Combe Fill South Landfill was officially included on the National Priorities List (NPL) in September 1983. Of the 97 New Jersey sites on the (NPL) the Combe Fill South site is ranked 44th.

Summary of Remedial Investigation/Feasibility Study

The Remedial Investigation included the following activities:

- Ongoing field investigations to identify the location, nature, and extent of the hazardous wastes contained in the old and new landfill areas and the adjacent fields.
- Examination of the landfill discharges to determine the concentrations and extent of ground water contamination. (9 deep and 6 shallow monitoring wells)
- Sampling/analysis of residential wells.
- Qualitative and quantitative evaluation of surface water discharges that impact on Trout Brook, Tanners Brook and Lamington River.
- Air monitoring to identify specific types and concentrations of organic compounds that are discharged to the air.
- Qualitative and quantitative assessment of soil contamination.
- Determination of the degree of on-site and off-site radioactivity and whether it is natural, disturbed-natural, or waste-generated.
- Definition of the potential for long-term environmental impacts via air, surface water, and ground water discharges.

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The Results of the Remedial Investigation revealed that:

- Ground water is the primary means by which contamination is leaving the site. The ground water movement in the shallow saprolite and deeper bedrock aquifers has a northeasterly and southwesterly directional flow due to the geological formations beneath the landfill. The pattern of contamination found in the shallow and deep monitoring wells mirrors this ground water flow. The highest concentrations of organic pollutants were found in the southwestern sections of the site, while the lowest concentrations were found along and just beyond the northern boundary of the landfill.
- Contamination leaving the site via the ground water has impacted the potable wells along Schoolhouse Lane and, to a lesser extent, along Parker Road. Ground water from the landfill does not flow toward East Valley Brook Road. Any contamination in that area probably does not originate at the landfill.
- Analysis of soil samples revealed significant levels of priority pollutant volatiles, base/neutral extractable compounds and miscellaneous heavy metals.
- Analysis of leachate seeps at the landfill revealed significant concentrations of volatile organics, metals and phenols. Analysis of surface waters revealed much lower levels of organics, with the highest concentrations found along the main stem of Trout Brook. Elevated levels of organics and heavy metals were found in accumulated sediments.
- The landfill is a source of methane and volatile organic compound emissions to the air. However, the downwind concentrations detected were not significantly different from upwind concentrations, suggesting that the landfill does not significantly impact air quality.
- Elevated radiation levels detected in two shallow wells and one leachate seep in the area near the headwaters of the east branch of Trout Brook may be related to the landfill.

Summary of Remedial Alternatives for Long-Term Site Remediation

• Alternative 1 - Minimal Action

This entails the installation of security fencing around the perimeter of the landfill, installation and sampling of monitoring wells, delivery of bottled water to residents and development of a permanent alternate water supply for impacted residences.

• Alternative 2 - Creation of On-Site RCRA-Approved Landfill

Construction of an on-site RCRA-approved landfill facility including excavation of wastes and installation, filling and capping of landfill cells. This alternative would include the purchase of over 100 acres of adjacent property for the construction of this facility, as well as fencing, well monitoring and an alternate water supply for impacted residences.

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- Alternative 3A - Cap, Trench and Treatment

This includes a multilayered clay cap covering existing waste areas, a ground water and leachate collection trench, and on-site treatment and disposal of collected leachate. This alternative also includes passive gas venting to control and regulate the emission of methane and other gases, fencing and an alternate water supply for impacted residences.

- Alternative 3B - Cap, Trench, Deep Pumping and Treatment

This is identical to Alternative 3A except that it attempts to remediate the contaminated bedrock ground water by the use of two deep wells. These wells would pump contaminated ground water from the bedrock to the on-site treatment facility for treatment and surface discharge.

- Alternative 3C - Cap, Shallow Pumping, Deep Pumping and Treatment

This is similar to Alternative 3B except that a shallow pumping system would be used in place of the leachate collection trench to collect and transport the contaminated shallow ground water to an on-site treatment facility.

- Alternative 4 - Cap, Shallow and Deep Pumping, Treatment, Gas Collection Effluent Discharge and Water Barrier

This includes all of the components of Alternative 3A as well as an active gas collection and treatment system, ten deep pumping wells, discharge of treated effluent via a one-mile pipeline to the Lamington River and an upgradient ground water barrier to prevent ground water from moving on site.

- Alternative 5A - Cap and Circumferential Barrier

This is similar to Alternative 3B except that it does not provide for the collection and treatment of ground water. Instead, the site is encircled with a slurry wall which would prevent further off-site migration of ground water in the saprolite, but would not treat any of the contaminated ground water.

- Alternative 5B - Clayless Cap, Trench and Treatment

This is identical to Alternative 3A except that the multilayered cap does not include a clay layer. Eliminating the clay layer will significantly reduce construction time and cost, but will require the treatment of higher ground water flows at the on-site treatment facility for a greater period of time.

For further information, or if you have any questions, contact Janice Haveson of NJDEP's Office of Community Relations at (609) 984-3081.

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NJDEP Recommended Alternative

The NJDEP recommends a modified version of Alternative 3C for the long-term site remediation. The components of this alternative include:

- RCRA-type multilayered terraced cap: 24" clay with partial membrane cover over 80 acres;
- Pumping of the shallow aquifer: 48 wells;
- On-site treatment with discharge to Trout Brook: leachate and ground water;
- Active gas collection and treatment system;
- Security fencing around site perimeter with warning signs;
- Grading, filling, site preparation, and access road;
- Surface water controls;
- Environmental monitoring;
- Monitoring wells: additional wells will be installed at the site perimeter; and
- Permanent alternative water supply for affected residences

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