



UNITED STATES

ENVIRONMENTAL PROTECTION AGENCY

REGION III

STATEMENT OF BASIS

CHESTER COUNTY SOLID WASTE AUTHORITY
LANCHESTER LANDFILL

NARVON, PENNSYLVANIA

EPA ID NO. PAD 980 550 545

TABLE OF CONTENTS

SECTION	PAGE
I. Introduction.....	2
II. Facility Background.....	2
III. Summary of the Environmental History	4
A. Environmental Impacts	
B. Corrective Action	
IV. Proposed Remedy	7
A. Operation and Maintenance and Monitoring Actions	
B. Institutional Controls	
V. Evaluation of EPA's Proposed Remedy.....	8
VI. Environmental Indicators.....	9
VII. Financial Assurance.....	10
VIII. Public Participation	10

Figures

1 - Regional Location map, Lanchester Landfill

2 - Chester County Solid Waste Authority, Lanchester Landfill

I. Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the Chester County Solid Waste Authority (CCSWA) Lanchester Landfill, located at 7224 Division Highway, Narvon, Pennsylvania (hereinafter referred to as Lanchester, the Facility or site). EPA's proposed remedy for the Facility consists of the following three components: 1) operation and maintenance of the Facility's landfill caps; 2) operation and maintenance of the Facility's groundwater monitoring system, and 3) compliance with and maintenance of institutional controls. These components are being implemented under the Facility's state-issued municipal solid waste operating permit and post-closure permit described more fully below. This SB highlights key information relied upon by EPA in proposing its remedy for the Facility.

The Facility is subject to EPA's Corrective Action program under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901 *et seq.* The Corrective Action program requires that facilities subject to certain provisions of RCRA investigate and address releases of hazardous waste and hazardous constituents, usually in the form of soil or groundwater contamination, that have occurred at or from their property.

EPA is providing a 45-day public comment period on this SB. EPA may modify its proposed remedy based on comments received during this period. EPA will announce its selection of a final remedy for the Facility in a Final Decision and Response to Comments (Final Decision) after the public comment period has ended.

Concurrently with this SB, EPA is soliciting comments on a draft federal permit to be issued under Section 3004(u) of RCRA, 42 U.S.C. § 6924. The draft federal permit incorporates the Facility's Municipal Solid Waste Operating Permit, No. 100944, and its RCRA Post-Closure Permit, No. PAD 980 550 545, as described in more detail below. The components of EPA's proposed final remedy as described in this SB are contained in the RCRA Post-Closure Permit and the Municipal Solid Waste Operating Permit, and are enforceable thereunder.

EPA will make a decision on the draft federal permit after considering the information submitted during the public comment period. The final federal permit will be signed concurrently with the Final Decision and both will become effective upon signature. The Final Decision will be incorporated into the final federal permit and made a part thereof.

Information on the Corrective Action program as well as a fact sheet for the Facility can be found at <http://www.epa.gov/reg3wcmd/correctiveaction.htm>.

II. Facility Background

The Facility is located at 7224 Division Highway in Narvon, Pennsylvania, Caernarvon Township, Lancaster County, Pennsylvania (Figure 1). The Facility property consists of approximately 630 acres, including 160 acres of landfills, and is located at the border of Lancaster County and Chester County, with part of the property in each county. The Facility is

bordered by wooded and agricultural property, along with limited commercial and residential property. Prior to use as a disposal facility, the Facility operated as a sand quarry.

The following three landfills, comprising approximately 160 acres collectively, are located at the Facility: the Mountain Top Landfill, the Stabilized Waste Landfill and the Municipal Landfill (Figure 2). The Stabilized Waste Landfill is currently being maintained and monitored under a RCRA post-closure permit, Permit No. PAD 980 550 545, and the Municipal Landfill currently operates under PADEP Municipal Solid Waste Operating Permit No. 100944 and accepts municipal solid waste. While the Mountain Top Landfill is not operating under a permit, because of its proximity to the Municipal Landfill, its maintenance and monitoring obligations are required by Municipal Solid Waste Operating Permit No. 100944.

The Facility's RCRA Post-Closure Permit and Municipal Solid Waste Operating Permit collectively impose operation and maintenance and groundwater monitoring requirements on the entire Facility. As part of its post-closure care and operating requirements, embodied in the permits, CCSWA conducts quarterly groundwater monitoring to assess releases from the three landfills and maintains the integrity and protectiveness of the landfill caps. The monitoring system for the landfills includes 42 wells and 3 sumps located throughout the Facility. In addition, CCSWA samples 27 off-site wells either quarterly or annually, depending on the permit requirements for each well.

Disposal Areas

- 1) The Mountain Top Landfill comprises 9 acres and was operated as an unregulated landfill. It was constructed directly on the bedrock floor of a former sand quarry. Disposal records are not available and unregulated landfilling and dumping is believed to have started during the 1960s. The Mountain Top Landfill was closed in 1974 at which time the area was capped with a reported 6-foot thick layer of compacted local soil and a vegetative cover.
- 2) The Stabilized Waste Landfill (formerly known as the IU Site) comprises 8 acres and, beginning in 1980, was operated as an industrial waste disposal facility under a permit issued by the Pennsylvania Department of Environmental Resources (PADER), which subsequently changed its name to PADEP. Wastes accepted at the Stabilized Waste Landfill consisted mainly of industrial metal hydroxide sludges, which are RCRA hazardous wastes. During its operation, this landfill received over 570,000 tons of stabilized metal bearing sludges. These sludges were treated using a lime-fly ash pozzolanic stabilization process prior to landfilling. The Stabilized Waste Landfill was closed in 1984.
- 3) The original area of the Municipal Landfill was constructed beginning in 1984 with a single asphalt liner. All areas constructed after 1988 have a double liner and leachate collection system. The Municipal Landfill consists of the following four sub-areas:
 - a) Municipal Site Landfill: 76 acres;

- b) Area B Landfill: 37 acres;
- c) Area C Landfill: 48 acres, with 20 acres overlapping the Municipal Site Landfill; and
- d) Area D Landfill: 54 acres, with 32 acres overlapping Area B and C Landfills.

Area C and Area D Landfills currently accept municipal solid waste. The other sub-areas are filled to capacity and were closed as described in Section III.B.3, below.

III. Summary of Environmental History

A. Environmental Impacts

CCSWA monitors the groundwater with quarterly sampling, in accordance with the PADEP RCRA post-closure permit and the PADEP operating permit requirements as follows:

- 1) Groundwater beneath the Facility property (on-site)

On-site groundwater is sampled at 42 wells and 3 sumps. Groundwater sampling data show that the groundwater is contaminated with three metals, mercury, chromium and arsenic, and one organic compound, benzene. The groundwater contamination is localized and contaminant concentrations in on-site groundwater have decreased over time.

During 2009, the contaminants listed below were detected in the well samples at concentrations above their respective Maximum Contaminant Level (MCL) for that contaminant promulgated at 40 C.F.R. Part 141 pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. Section 300g-1.

<u>Contaminant</u>	<u># of wells</u>	<u>Concentration</u>	<u>Sample quarter</u>	<u>MCL</u>
Mercury	7	3.2 ppb* to 10.0 ppb	3 rd	2 ppb
Mercury	1	3.2 ppb	1 st	2 ppb
Chromium	1	240 ppb	1 st	100 ppb
Arsenic	2	20 ppb and 30 ppb	3 rd	10 ppb
Benzene	1	10 ppb	3 rd	5 ppb

* ppb = parts per billion

- 2) Groundwater surrounding the Facility property (off-site)

- a) Twenty seven (27) off-site wells are sampled.
- b) Organic chemical contamination - Three off-site wells have organic chemical contamination (past or current) above the applicable MCL. The contaminants found are vinyl chloride, trichloethene (TCE), cis-1,2-dichloroethene, and 1,1-dichloroethane. Concentrations of these contaminants have not been found in on-site wells above their respective MCLs. CCSWA provides activated carbon treatment systems for these three wells. All samples taken of groundwater that was already filtered through the activated carbon treatment systems (post-filter samples) are in

compliance with MCLs.

During 2009, TCE was detected in one groundwater sample taken before the groundwater had been treated by the activated carbon treatment system (pre-filter sample) in concentrations above the respective MCL, as follows:

<u>Contaminant</u>	<u># of wells</u>	<u>Concentration</u>	<u>Sample quarter</u>	<u>MCL</u>
TCE	1	16 ppb and 25 ppb	2 nd and 3 rd	5 ppb

TCE was not detected in any post-filter samples.

- c) Nitrate-nitrogen contamination - Four wells have nitrate-nitrogen contamination above the MCL for that contaminant. Nitrate-nitrogen is not a contaminant generally associated with landfills. The contaminant is most likely associated with agricultural activity in the area.

In 2009, nitrate-nitrogen was detected in four wells at concentrations between 11 ppm and 20 ppm. The MCL for nitrate-nitrogen is 10 ppm.

B. Corrective Action

CCSWA has taken the actions listed below to prevent the release of contamination and to mitigate past releases. Additional details on these actions are provided in the PADEP-approved Environmental Indicator Inspection Report for Chester County Solid Waste Authority Lanchester Landfill (Foster Wheeler Environmental Corporation, March 2002) and EW-312 Pyrolysis/Combustion Investigation Final Report (Blazosky Associates, Inc., October 2009), which are included in the Administrative Record for this Facility.

1) Mountain Top Landfill

In 1991, CCSWA completed construction of a cap over the Mountain Top Landfill under PADEP oversight. An additional composite cap, consisting of a synthetic liner and soil, was constructed over the flat areas of this landfill and a clay cap was constructed over the steep slope areas. The construction of the cap also included the installation of surface water/runoff channels, a passive gas management system, and a leachate collection system. A detailed description of the cap construction is provided in the PADEP-approved Final Report of Soils Quality Assurance Monitoring Mountain Top Landfill, Railroad Cut Backfilling and Final Cover System (Environmental Resources Management, Inc., June 1992). Prior to the capping project, leachate seeped out at several locations around the perimeter of the landfill. The capping and leachate collection system has eliminated the seeps.

This landfill is being monitored and maintained under the PADEP Operating Permit No. 100944 for the Municipal Landfill. While the Mountain Top landfill is not regulated by Operating Permit No. 100944, the permit requires groundwater monitoring, inspection and maintenance of the Mountain Top Landfill.

2) Stabilized Waste Landfill (formerly known as the IU Site)

In 1989, CCSWA completed construction of a composite cap, consisting of a synthetic liner and soil, over this landfill. A detailed description of the project is provided in the PADEP-approved Certification Report for the IU Site Remedial Closure (Wehran Envirotech, May 1989).

PADEP issued a RCRA post-closure permit, No. PAD 980 550 545, for this landfill on August 29, 2008. The permit requires groundwater monitoring, inspection, maintenance, and financial assurance for the Stabilized Waste Landfill.

3) Municipal Landfill Areas

Closure of the sub-areas that are filled to capacity occurred in four phases from 1992 through 2008. The closure activities include interim covers for areas that are or will be overfilled, final covers (synthetic liner and soil) for completed areas, drainage layers and gas management systems.

a) Municipal Landfill – Northern Side

In 1990, CCSWA identified groundwater contamination at the Northern Side of the Municipal Landfill. The Northern Side is located between the Municipal Site Landfill Area and Area C (Figure 2). Groundwater from wells MW-27 and MW-28 contained detectable levels of several volatile organic compounds (VOCs). The VOCs were detected in concentrations below their respective MCLs, except for vinyl chloride, which was detected at its MCL of 2 (ppb). The groundwater contamination was localized to the Northern Side, and was believed to be caused by the migration of landfill gas to shallow groundwater via the monitoring wells. Additional gas recovery wells were installed and the VOC concentrations decreased to concentrations below MCLs. In 2001, wells MW-27 and MW-28 were abandoned to allow for expansion of the Municipal Landfill. The groundwater in this area is now monitored by new wells which were installed after the landfill expansion.

b) Municipal Landfill – Southwestern Side

In 1998, CCSWA identified low levels of VOCs in the groundwater along the southwest perimeter of the Facility property, in the area of wells MW-7A and MW-82. This area is south of the Mountain Top Landfill (figure 2) and referred to as the Southwestern Side. The VOC contamination was not present in upgradient or downgradient wells. The contamination had three possible sources: the Mountain Top Landfill, the adjacent Baldwin Electric property, and/or the adjacent property formerly operated by Dukeman Amoco. The source of the contamination has not been determined.

Groundwater was extracted from well MW-7A and aerated to reduce the VOC concentrations. The aerated groundwater was then used as spray irrigation on the

Facility's closed areas. The system operated from 1998 until 2003. Groundwater sample data continue to show that the remediation was successful. VOC concentrations in these wells are below the respective GWQS.

c) **Municipal Landfill – Area C**

In March 2009, smoke was observed emanating from landfill gas extraction well 312 (EW-312). The pyrolysis/combustion was caused by a high vacuum at that well that allowed atmospheric gas to migrate into the waste material. The additional oxygen lead to pyrolysis/combustion of the waste material. The smoldering waste was excavated and extinguished with water. In the area surrounding EW-312, 17 locations were sampled for temperature and gases. Monitoring through September 2009 confirmed that all smoldering waste was extinguished. CCSWA will continue to monitor temperature and gases in the area of EW-312 and throughout the Municipal Landfill.

4) Off-Site Wells

CCSWA collects groundwater samples from 27 off-site, private water supply wells, on a quarterly or annual schedule depending on CCSWA's permit requirements for each particular well. Samples are analyzed for organic and inorganic chemicals of concern. As described in Section III.A, above, CCSWA maintains activated carbon filter systems on three of the off-site wells to remove organic chemical contamination.

IV. Proposed Remedy

EPA is proposing operation and maintenance and monitoring actions for the landfill caps and the groundwater monitoring system, and compliance with and maintenance of institutional controls as the final remedy for the Facility.

A. Operation and Maintenance and Monitoring Actions

EPA believes that the operation and maintenance and monitoring actions necessary to assure continued protection of human health and the environment at the Facility are already required under the operating and post-closure permits issued and enforceable by PADEP. Those two permits collectively impose operating and maintenance and monitoring requirements on the entire Facility. The Municipal Landfill operating permit requires CCSWA to (1) maintain a PADEP-approved groundwater monitoring program for the Facility, (2) inspect and maintain the landfill containment systems for the Facility, and (3) maintain financial assurance for the purpose of assuring post-closure care for the Facility. CCSWA is also required to maintain and monitor the Stabilized Waste Landfill under a PADEP post-closure permit. The post-closure permit requires CCSWA to maintain the cap for that landfill and the groundwater monitoring system for at least 30 years, at which point the permit will be renewed or replaced with a similar State mechanism.

B. Institutional Controls

Because contaminants remain in the soil and groundwater at the Facility at levels which exceed residential use, EPA's proposed remedy requires the implementation and maintenance of institutional controls to restrict activities that may result in human exposure to those contaminants. Institutional Controls are non-engineered instruments, such as administrative and/or legal controls, that minimize the potential for human exposure to contamination and/or protect the integrity of a remedy.

EPA is proposing the following land and use restrictions be implemented through institutional controls at the Facility:

- a) The Facility shall not be used for residential purposes unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment and EPA provides prior written approval for such use;
- b) The Facility shall not be used in any way that will adversely affect or interfere with the integrity and protectiveness of the caps over the Mountain Top and Stabilized Waste Landfills and all associated pipes and wells unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment and EPA provides prior written approval for such disturbance; and
- c) The groundwater from the Facility shall not be used for any purpose other than to conduct the operation and maintenance and monitoring activities required by PADEP and to implement EPA's selected remedy, unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and EPA provides written approval for such use.

EPA has determined that all of the above listed restrictions are contained in the Facility's RCRA Post-Closure Permit and Municipal Solid Waste Operating Permit and are enforceable thereunder. EPA's draft federal permit requires CCSWA to comply with the terms of those permits. In addition, EPA proposes to require CCSWA to file with the land records for the Facility property a notice which provides notice to all successors-in-title that the Facility was used as a landfill. The notice will be implemented under the RCRA Post-Closure Permit for the Municipal Landfill areas, and it has been implemented under 25 Pa. Code Section 264.119(b) for the Stabilized Waste landfill.

While the operation and maintenance and monitoring requirements and the land and use restrictions already required by PADEP at the Facility are sufficient to minimize the potential for human exposure to contamination and/or protect the integrity of the Facility's landfill caps and groundwater monitoring system, if the Facility fails to meet its obligations under its PADEP permits, or if EPA, in its sole discretion, deems that additional operation and maintenance and monitoring activities and/or institutional controls are necessary to protect human health or the environment, EPA has the authority to require and enforce additional corrective actions.

V. Evaluation of EPA's Proposed Remedy

This section provides a description of the criteria EPA uses to evaluate proposed remedies under the Corrective Action Program. The criteria are applied in two phases. In the first phase, EPA evaluates three criteria, known as threshold criteria. In the second phase, EPA uses seven balancing criteria to select among alternative solutions, if more than one is proposed. The Facility has demonstrated that the current conditions meet the threshold criteria established by EPA. Because EPA is not selecting among alternatives, a complete evaluation of the balancing criteria is not necessary.

The following is a summary of EPA's evaluation of the threshold criteria:

- 1. Protect Human Health and the Environment** - This proposed remedy protects human health and the environment from exposure to contamination. The measures already implemented by CCSWA under PADEP oversight pursuant to PADEP permits are appropriate and sufficient to protect human health and the environment. Land and groundwater use are currently managed and restricted under PADEP permits. In addition, there are no human health threats associated with domestic uses of the contaminated groundwater at the Facility because groundwater is not used for drinking water purposes. CCSWA maintains activated carbon filter systems on three off-site wells which have had or currently have contaminated groundwater.
- 2. Achieve Media Cleanup Objectives** - EPA's proposed remedy meets the appropriate cleanup objectives, which are the protectiveness of human health and the environment, based on assumptions regarding current and reasonably anticipated land and water resource use(s). The groundwater monitoring system confirms that contamination from the landfills is not migrating off-site. Although three off-site wells have VOC contamination, the VOCs are not the same VOCs found in the on-site groundwater. In addition, CCSWA is required by the PADEP operating permit and post-closure permit to continue monitoring the groundwater on a quarterly basis to ensure that contaminants of concern are not released from the landfills above applicable MCLs, and will continue to be required to do so as a condition of the proposed federal draft permit.
- 3. Controlling the Source of Releases** - In all remedy decisions, EPA seeks to eliminate or reduce further releases of hazardous wastes or hazardous constituents that may pose a threat to human health and the environment. The Facility has remediated the sources of releases through the closure and post-closure activities described above in Section III.B. Corrective Action. Groundwater monitoring and site inspections continue, under the PADEP operating permit and post-closure permit, to detect any release that may occur in the future. Groundwater is monitored throughout the fill areas and around the perimeter of the Facility. EPA's draft federal permit will require CCSWA to comply with the groundwater monitoring and site inspections provisions of those permits.

VI. Environmental Indicators

Under the Government Performance and Results Act (GPRA), EPA has set national goals to address RCRA corrective action facilities. Under GPRA, EPA evaluates two key

environmental clean-up indicators for each facility: (1) Current Human Exposures Under Control and (2) Migration of Contaminated Groundwater Under Control. EPA determined that the Facility met the Current Human Exposures Under Control environmental indicator on September 30, 2003 and the Migration of Contaminated Groundwater Under Control environmental indicator on March 3, 2009. The environmental indicator determinations are available at <http://www.epa.gov/reg3wcmd/ca/pa/pdf/pad980550545.pdf>.

VII. Financial Assurance

In accordance with PADEP regulations, CCSWA has provided two bonds to assure that routine maintenance and other contingencies will be completed during the closure and post closure period at the Facility. One bond is for \$586,332 and covers the post-closure care of the Stabilized Waste Landfill. The second bond is for \$21,000,000 and covers the cost of closure and post-closure care of the Municipal Landfill operations.

VIII. Public Participation

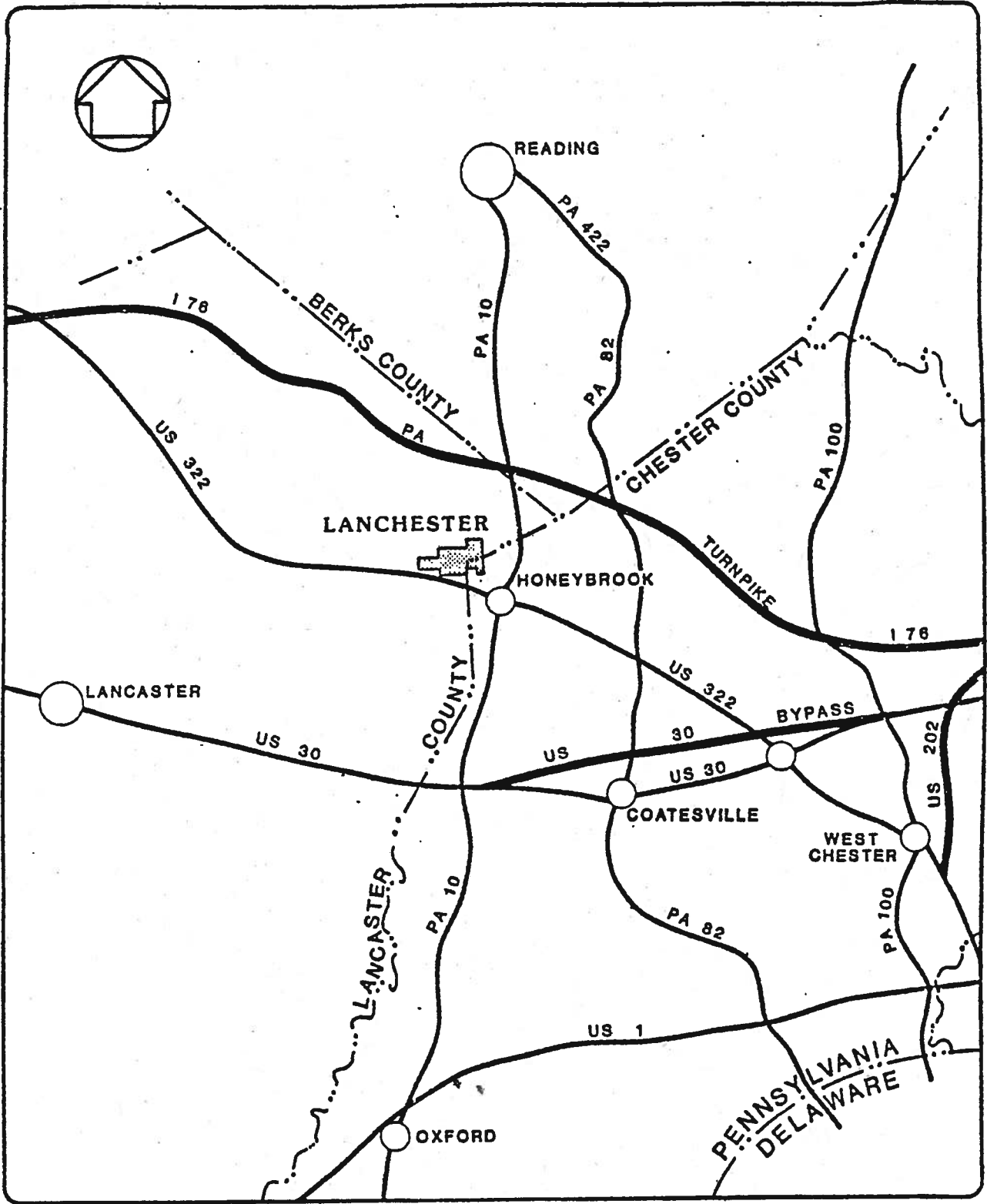
Interested persons are invited to comment on EPA's proposed decision. The public comment period will last forty-five (45) calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, e-mail, or phone to Ms. Maureen Essenthier at the address listed below.

A public meeting will be held upon request. Requests for a public meeting should be made to Maureen Essenthier at the address listed below. A meeting will not be scheduled unless one is requested.

The Administrative Record contains all the information considered by EPA for the proposed decision at this Facility. The Administrative Record is available at the following location[s]:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Maureen Essenthier (3LC30)
Phone: (215) 814-3416
Fax: (215) 814 -3113
Email: essenthier.maureen@epa.gov

The Administrative Record is available for review between 8:00 AM and 4:30 PM, Monday through Friday.



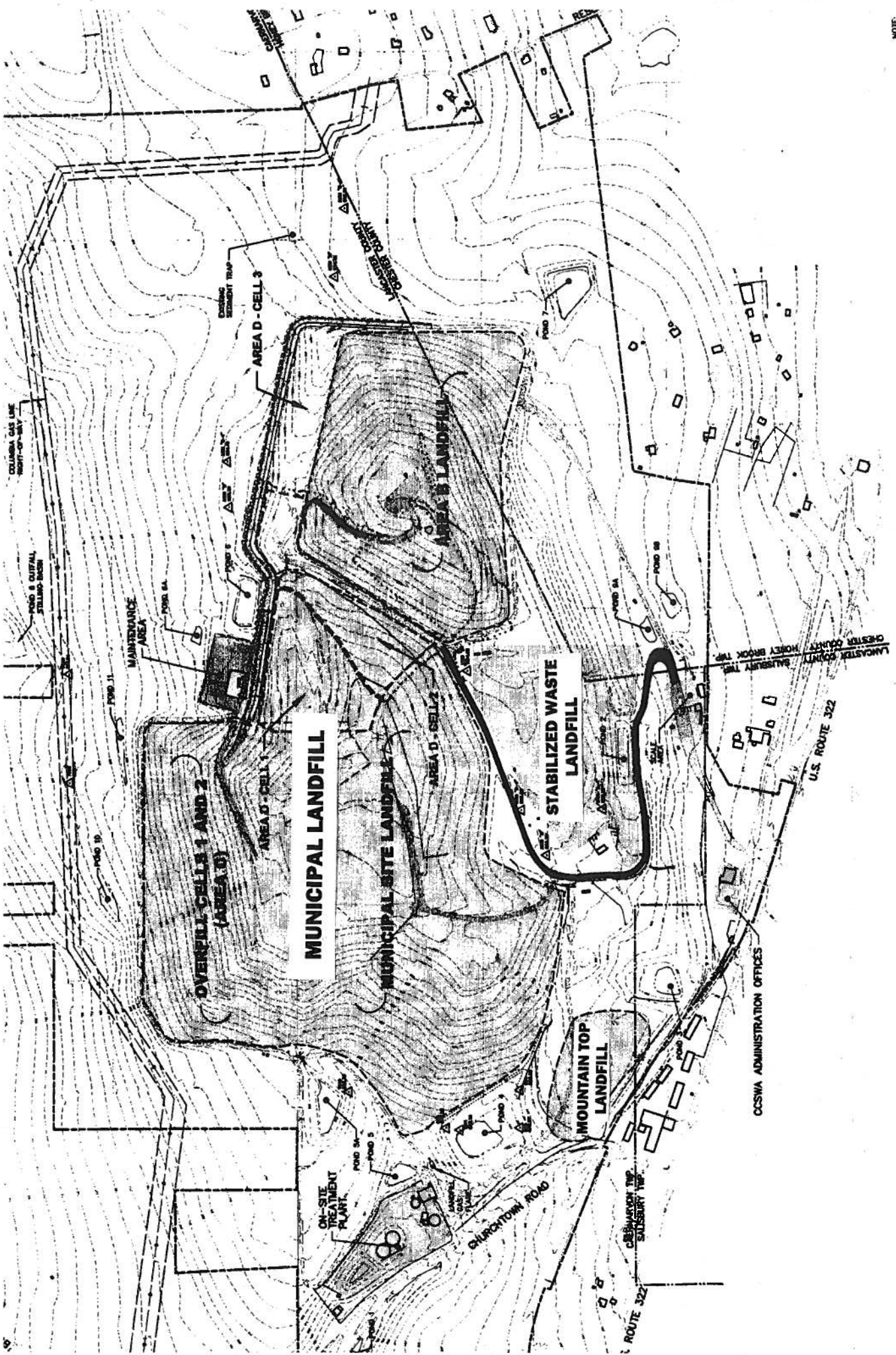
SOURCE:
 LANCHESTER SITE ANALYSIS
 AND LAND ASSESSMENT,
 CHESTER COUNTY PLANNING
 COMMISSION, SEPTEMBER, 1986.

NOT TO SCALE



LANDFILL PROPERTY

FIGURE 1
REGIONAL LOCATION MAP
LANCHESTER SANITARY
LANDFILL



NOTE:

**CHESTER COUNTY SOLID WASTE AUTHORITY
LANCHESTER LANDFILL**

FIGURE 2