Department of Environmental Conservation

Division of Hazardous Waste Remediation

Orange County Landfill
Operable Unit No. 2

Site Number 336007
Orange County, New York

Record of Decision

January 1994

Funded Under Title 3
of the
1986 Environmental Quality Bond Act

New York State Department of Environmental Conservation
MARIO M. CUOMO, *Governor* THOMAS C. JORLING, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

ORANGE COUNTY LANDFILL INACTIVE HAZARDOUS WASTE SITE
ORANGE COUNTY NEW YORK
OPERABLE UNIT NO. 2, SITE NO. 336007

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for Operable Unit No. 2 of the Orange County Landfill inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Orange County Landfill Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and environment.

Description of Selected Remedy

Based upon the results of the Focused Feasibility Study (FFS) for the Orange County Landfill and the criteria identified for evaluation of alternatives the NYSDEC has selected early capping of the landfill in accordance with NYCRR Part 360. The components of the remedy are as follows:

- stabilization of the roadway embankment located between the landfill and Cheechunk Canal;
- continued collection and off-site treatment of leachate from the collection system. After capping, rainwater falling on the landfill would be collected and discharged as storm water. The effectiveness of the existing collection system and the treatment of leachate will be further evaluated under the RI/FS for the entire site;
- a cover system meeting the requirements of 6 NYCRR Part 360;
  collection and treatment of the landfill gases by combining the cap system with the existing landfill gas collection system used to generate electrical power.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. While early capping of the waste mass is expected to significantly reduce the mobility of contaminants, other containment technologies to enhance this action will be evaluated as part of the full Remedial Investigation/Feasibility Study of the site.

January 28, 1994

Date

Ann Hill DeBarbieri
Deputy Commissioner

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RECORD OF DECISION

ORANGE COUNTY LANDFILL
Site No. 3-36-007 Operable Unit #2 Source Control
Orange County, Town of Goshen, New York
January 1994

SECTION 1: PURPOSE OF THE SELECTED ACTION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected an action to accelerate the remedial process at the Orange County Landfill by constructing a final cap over the waste mass while conducting investigations into outside impacts.

This Record of Decision (ROD) identifies the selected action, summarizes the alternatives considered, and discusses the rationale for this action. The ROD is a summary of the information that can be found in greater detail in the Proposed Remedial Action Plan (PRAP) and other documents contained in the public information repositories. The details of the PRAP were presented at a public meeting held October 28, 1993 at the Orange County Fire Training Center at 7:00 p.m.

NYSDEC selected this action after careful consideration of all comments submitted during a public comment period, which began October 15, 1993 and concluded November 15, 1993. Appendix A of this document contains a responsiveness summary of the public's questions regarding the action to be taken.

This ROD is issued by the NYSDEC as an integral component of the citizen participation plan responsibilities provided by the New York State Environmental Conservation Law (ECL), 6 NYCRR Part 375 and the Federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

The public was provided opportunities to review all available documents to gain a more comprehensive understanding of the site and the investigations conducted there. The project documents are located at the following repositories:

Thrall Library
(Reference Desk)
(914) 342-5877
22-24 Orchard Street
Middletown, NY
10940

Goshen Library
(Reference Desk)
(914) 294-6606
203 Main Street
Goshen, NY
10924

Orange County Government Center
(914) 294-5151 ext. 1130
255-275 Main Street
Goshen, NY 10924

Mr. John L. Henkes, P.E.
Project Manager
NYSDEC-Main Office
50 Wolf Rd. - Rm. 222
Albany, NY 12233-7010
(518) 457-1708 or
1-800-342-9296

Ms. Erin O'Dell
NYSDEC-Region 3
50 South Putt Corners Rd.
New Paltz, NY 12561-1696
(914) 255-5453 or
1-800-342-9296

SECTION 2: SITE LOCATION AND DESCRIPTION

The Orange County Landfill is located in a rural setting south of Route 17M in the Town of Goshen, New York. The site consists of a former municipal landfill approximately 75 acres in size. Operable Unit #2, the subject of this ROD, consists of capping the waste mass covering this 75 acres as a means of early source control (see Figure 1). Operable Unit #1 will have a separate PRAP and ROD; after conducting a full Remedial Investigation/Feasibility Study (RI/FS).

An Operable Unit represents a discrete portion of the remedy for a site which for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the contamination present at a site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Orange County Department of Public Works operated the landfill between 1974 and January 1992. During that time approximately seven million cubic yards of predominately municipal waste was landfilled. However, documentation also shows that small quantities of waste oil, septic sludge, industrial waste and hazardous waste were also disposed of at this site: wastes include still bottom residues (D001 waste), acids (nitro, hydrofluoric, and glacial acetic), tetrachloroethylene (F001, F002 waste), and solvents (methanol, ethanol, toluene and benzene).

3.2: Past Investigations and Actions

As part of an ongoing effort to reduce the site's impact on surrounding areas, the County has installed a partial leachate collection system and surface water runoff collection system. Currently, the leachate and surface water runoff are collected and transported off-site for treatment. A landfill gas collection system, used to generate electrical power, is also in use at the landfill. Figures 2 and 3 show the schematics of all these systems.

Numerous studies and investigations have been conducted at this site, including a Phase I Inactive Hazardous Waste Site Investigation (Gibbs & Hill, June 1988), Hydrologeological Investigation (Wehran, July 1988), Water Quality Assessment (Wehran, 1987 to 1989) and Quarterly Groundwater Sampling (Certified Environmental Service, Inc., 1989 to present).

From these past investigations of groundwater quality, it is evident that in the vicinity of the landfill many parameters are in exceedance of New York State groundwater standards. These include: total dissolved solids, iron, manganese, arsenic, barium, boron, cadmium, chromium, copper, lead, sodium, magnesium,

zinc, phenols, pH, sulfate, ammonia, benzene, trichloroethene, 1,1,1, tricholorethene, tetrachloroethene and toluene.

In March of 1992, NYSDEC classified the site as a "Class 2" inactive hazardous waste disposal site. The Class 2 designation indicates a site at which the disposal of hazardous waste constitutes a significant threat to human health or the environment--specifically for the Orange County Landfill, the threat of contaminating a principal aquifer underlying the site.

SECTION 4: CURRENT STATUS

As the first step in the remedial program for the site, Orange County will conduct a Remedial Investigation and Feasibility Study (RI/FS) of the site under the supervision of the NYSDEC Division of Hazardous Waste Remediation.

As with many inactive hazardous waste sites, when the major source of contamination is clearly evident, the strategy for the remedial program is to conduct an early evaluation of actions that will quickly control the source of contamination. In this way, the NYSDEC seeks to accelerate the remedial process by separately selecting, designing and implementing a portion of the remedial action to address this threat. At the same time, an RI/FS will be completed to ensure that an effective overall remedy is chosen for the site.

The Orange County Landfill typifies this situation where it is well recognized that early containment of the source of contamination through construction of a final cover or "cap" will afford a significant reduction in the threat to public health and the environment.

Water-impermeable caps are a proven technology to reduce the environmental and human health impacts of hazardous constituents in landfill waste. They reduce the production of leachate by preventing rainwater from passing through the waste. In turn this reduces the migration of hazardous contaminants to the groundwater which is used for drinking by local residences. Properly designed caps also control emission of fugitive dusts or air contaminants, which may impact human and environmental receptors. They also create a physical barrier to human and animal exposure to the waste itself.

A formal risk assessment will be performed as part of the RI/FS at the site. However, sufficient evidence exists now to warrant early capping of the waste to reduce or eliminate the major routes of exposure to site contaminants.

SECTION 5: ENFORCEMENT STATUS

The NYSDEC and Orange County entered into a Consent Order on January 17, 1993. The Order obligates the County to implement a full remedial program and allows reimbursement to the County of up to 75 percent of the eligible cost of the remediation, under Title 3 of the Environmental Quality Bond Act.

The following is the chronological enforcement history of this site.

Orders on Consent

Date	Index	Subject
12/3/86	3-1238/8607	Alleged Violations NYCRR Part 360
7/7/89	3-1238/8607	Alleged Violations NYCRR Part & 421
1/15/92	3-2342/9103	Violations of NYCRR Part 360
1/17/93	W306039206	Remedial Program

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Program goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR 375-1.10. These goals are established under the guideline of meeting all standard, criteria, and guidance

(SCGs) and protecting human health and the environment. Specifically for this site the SCGs have been identified as follows:

- o New York State Solid Waste Facilities Regulations (6 NYCRR Part 360);
- o State Pollutant Discharge Elimination Systems (SPDES - 6 NYCRR Parts 750-758): Stormwater as a point-source discharge;
- o New York State Groundwater and Surface Water Standards (6 NYCRR Parts 701 - 705);
- o NYSDEC Division of Water Technical and Operations Guidance Series (TOGS) 1.1.1: Ambient Water Quality standards and Guidance Values;
- o New York State Air Quality Regulations (6NYCRR Parts 200-257).

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this action are to ...

- Reduce, control, or eliminate the generation of leachate within the waste mass.
- Eliminate or reduce the threat to surface waters by eliminating any future contaminated surface run-off.
- Eliminate the potential for direct human or animal contact with the waste material on site.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the early capping of the site were identified, screened and evaluated in a report entitled Focused Feasibility Study for Accelerated Remedial Action, Orange County Landfill, 1993. A summary of the detailed analysis follows.

7.1: Description of Alternatives

Alternative I: No Action

A "no-action," i.e., non-capping, alternative is being evaluated, along with the capping alternatives, primarily to provide a baseline for effectiveness and cost comparison as required under the National Contingency Plan (NCP). It would consist of continued collection and treatment of leachate and surface water runoff and the continued attempt at establishing vegetation on the landfill slopes.

Capital Costs:	$0
Annual Maintenance:	$2.6 million
Present Worth:	$40 million
O & M Period:	Assumed-30 years

The annual maintenance (O&M) costs are based on past expenditures. The large difference between this cost and the maintenance of the alternative results from water runoff associated with the no action alternative.

This is an unacceptable alternative as the site would remain in its present condition, and human health and the environment would not be adequately protected.

Alternative II: Part 360 Cap

This alternative would consist of constructing a cap fulfilling the specifications of the New York State Solid Waste Management Facilities Regulations (6 NYCRR Part 360). Briefly, the remedy would consist of:

- stabilization of the roadway embankment located between the landfill and Cheechunk Canal;
- continued collection and off-site treatment of leachate from the collection system. After capping, rainwater falling on the landfill would be collected and discharged as storm water. The effectiveness of the existing collection system and the treatment of leachate will be further evaluated under the RI/FS for the entire site;
- a cover system meeting the requirements of 6 NYCRR Part 360.
- collection and treatment of the landfill gases by combining the cap system with the existing landfill gas collection system used to generate electrical power.

Figure 4 depicts a standard Part 360 cap design.

Capital Cost:	$17.3 million
Time to Complete:	1 - 2 years
Annual Maintenance:	$200,000
Present Worth:	$20.4 million

Alternative III: RCRA Cap

This alternative is similar to the Part 360 cap except the cover system would utilize a composite barrier layer. Figure 4 also shows a typical RCRA cap system.

Capital Cost:	$26 million
Time to Complete:	1 - 2 Years
Annual Maintenance:	$200,000
Present Worth:	$29.1 million

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion.

1. Compliance with New york State Standards, Criteria, and Guidance (SCGs).

Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. These were identified under Section 6.

Alternative I (No Action) would not meet the capping requirements of 6 NYCRR Part 360, and would likely (as it has in the past) result in violation of 6 NYCRR Parts 750-758 (SPEDES violation). Current data also shows that the no action alternative results in the exceedance of New York State Groundwater Standards 6 NYCRR Part 702.

Alternatives II and III would both meet the capping requirements of Part 360 and should prevent further SPEDES violations. Both systems would significantly reduce leachate generation and hence significantly reduce the further degradation of groundwater quality.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

Alternative I would be the least protective of human health or the environment, since it would continue to allow significant continued infiltration of water into the waste, promoting the generation and migration of leachate into the aquifer.

Alternative I would also not be effective at eliminating long term human exposure to waste since erosion would remove the cover. The high quantities of eroded sediment could create their own environmental threat. Both Alternatives II and III would provide full hydraulic and landfill gas barriers, facilitating a significant reduction in leachate generation. The RCRA cap would provide a slightly higher efficiency of preventing infiltration into the waste mass than the 360 cap.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the other alternatives.

Under Alternative I an indefinite period of time would elapse for the landfill waste to naturally biodegrade and cease producing leachate and gas, with minimal means for preventing migration of these releases.

Alternative II could be implemented in a slightly shorter time than the RCRA cap, but both could be constructed in 1-2 years. With respect to short term risks, none of the alternatives appear to require extensive excavation of landfill refuse which would pose the greatest risk to on-site workers and the community. Both of the cap alternatives would involve the use of heavy construction equipment associated with the short term construction risks and the risks of dust emissions and soil erosion, both of which can be controlled through commonly employed techniques. Over all, the longer it takes to construct an alternative the more construction-related risk would be incurred.

4. Long-term Effectiveness and Permanence.

This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

As evidenced by past violations and groundwater data, Alternative I (no action) is not able to control the source of contamination and would result in unacceptable health and environmental impacts. Alternatives II and III utilize full hydraulic barriers which would nearly eliminate infiltration of rainwater and hence greatly reduce the production of leachate. When long term reliability of the alternatives is considered Alternative I (no action) also rates poorly. Merely revegitating the side slopes would not prevent excessive erosion from eventually exposing waste. Caps also require maintenance. The soils are subject to erosion and settlement damage and the membrane barrier is subject to puncture, tearing and cracking. However, when properly designed, constructed and maintained, caps should function as intended indefinitely.

One concern with the RCRA cap on the relatively long steep slopes of the landfill is that the drainage layer above the geomembrane will develop greater friction at the geomembrane interface than the geomembrane-low permeability layer. This will require the geomembrane to carry a higher tensile load than a membrane between two similar materials. Also, the 20 mm geomembrane used in the RCRA cap would be more susceptible to puncture than the 40 mm geomembrane utilized in a Part 360 cap.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

No treatment of wastes or contaminants would be performed under any of the proposed

alternatives. Due to the extreme volume of refuse in a typical municipal landfill, containment is generally pursued instead of treatment as a means of reducing the mobility of containments. As to the completeness of containment, Alternatives II and III would both significantly reduce the migration of containments. Alternative I allows for the continued release of contaminants to the environment.

6. Implementability. The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personal and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

The technologies and construction methods employed in all of the alternatives are well established. Materials are readily available along with an adequate number of vendors for competitive bidding. There does not appear to be any unusual administrative difficulties with any of the alternatives.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The cost for each alternative was presented under their perspective description. The operation and maintenance for the capping alternatives assumes that leachate would be collected and transported off-site for disposal. This will be evaluated further under Operable Unit No. 1. All present worth analysis were based on 30 year annual cost at 5% discount rate.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

8. **Community Assessment** - Concerns of the community regarding the FFS report and the Proposed Remedial Action Plan were evaluated. In general, the public did not oppose accelerated capping of the landfill with the exception of Orange Environment, Inc., which expressed a distrust with proceeding with the final cover in that it might discourage a complete investigation or other possible remedial measures. Appendix contains a " Responsiveness Summary" that describes in detail the public comments received and the Department's response to these concerns.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the FFS, and the evaluation presented in Section 7.2, the NYSDEC is selecting Alternative II as the remedy for this site.

Alternative II "Part 360 Cap" was the selected action because it will provide the best balance of the evaluation criteria. The no action alternative does not meet SCGs nor is it protective of human health and the environment. It is also considerably more expensive to maintain than the capping alternatives by virtue of the large volume of surface water runoff to be collected and treated.

Both of the capping alternatives meet SCG's and are protective. In the short term, Alternative III "RCRA Cap" has slightly higher construction related risk than Alternative II "Part 360 Cap," because of the longer construction time and the volume of material to be utilized. In the long term, the RCRA Cap has a slightly higher efficiency for preventing rainwater from entering the landfill; but also has a higher risk of tensile failure in

the geomembrane, cannot withstand as much subsidence as the Part 360 Cap (i.e., a 20 mm geomembrane vs. a 40 mm geomembrane), and costs more to construct.

The estimated present worth cost to implement the selected remedy is $20.4 million. The cost to construct the remedy is estimated to be $17.3 million and the estimated average annual operation and maintenance cost for 30 years is $200,000.

The elements of the recommended remedy are as follows:

1. a remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program;

2. stabilization of the roadway embankment located between the landfill and Cheechunk Canal;

3. continued collection and off-site treatment of leachate from the collection system. After capping, rainwater falling on the landfill would be collected and discharged as storm water. The effectiveness of the existing collection system and the treatment of leachate will be further evaluated under the RI/FS for the entire site;

4. a cover system meeting the requirements of 6NYCRR Part 360;

5. if contaminated soils or materials are identified outside the foot print of the landfill prior to capping they can be consolidated into the landfill as shaping material only after NYSDEC review and approval;

6. collection and treatment of landfill gases utilizing new and existing systems.

The remedy results in hazardous waste remaining untreated at the site. As a result, a long term monitoring program will be instituted. This program will determine the effectiveness of the selected remedy and any subsequent actions to be implemented. This long term monitoring program will be a component of the operations and maintenance for the site and will be developed as part of the design tasks for each particular element of the remedy.

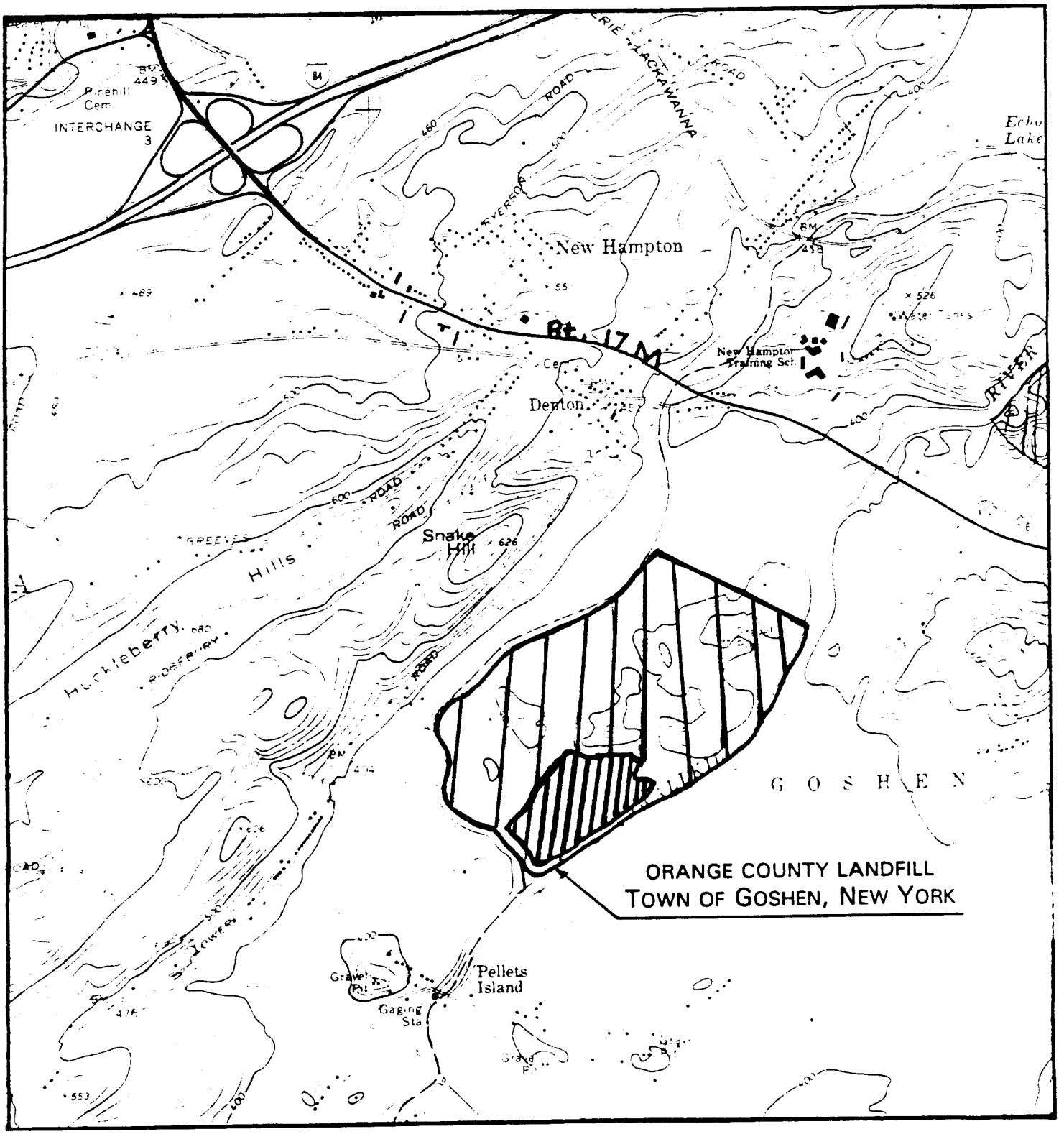
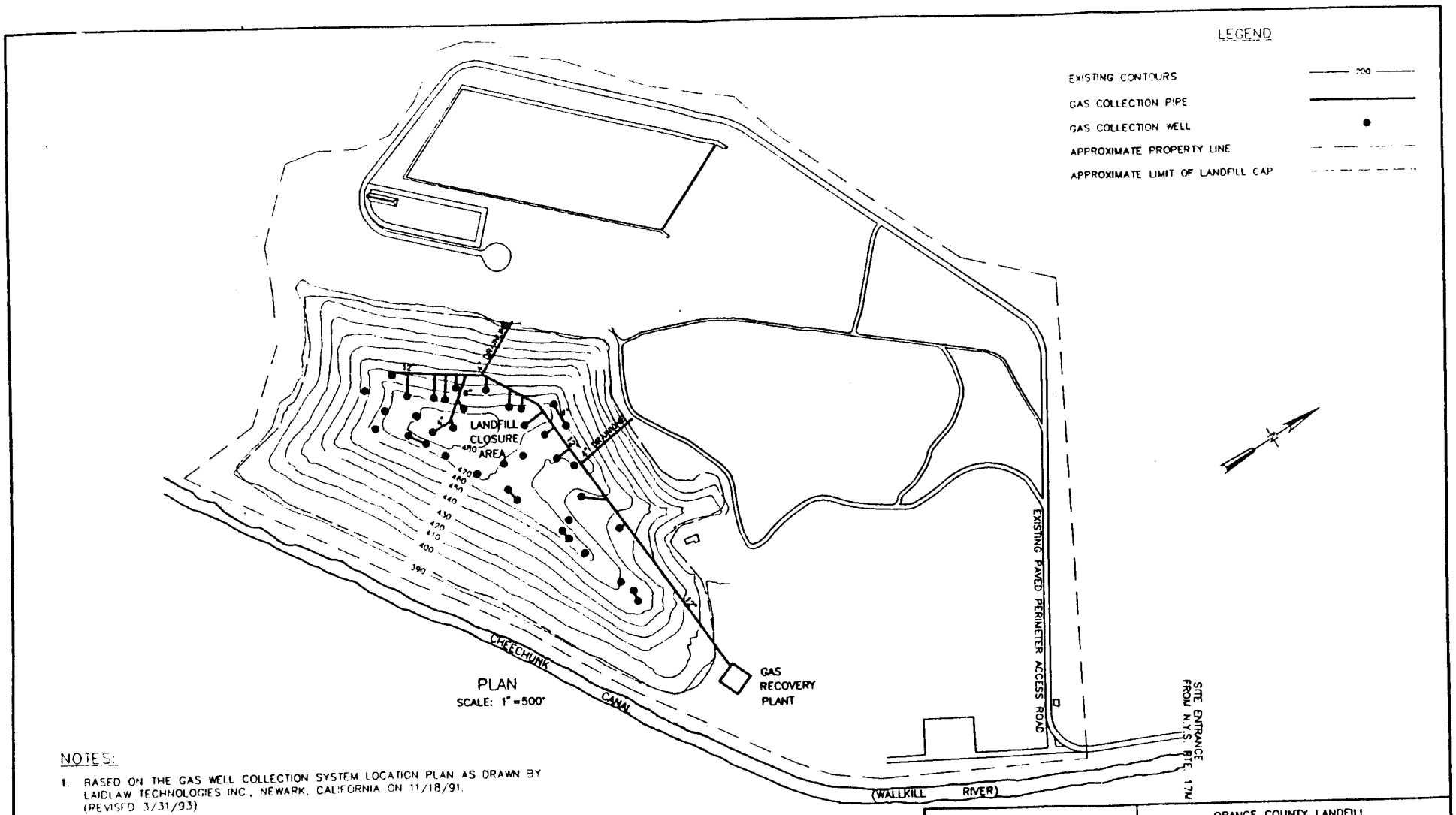


FIGURE 1

The Orange County Landfill is located in a rural setting south of Route 17M in the Town of Goshen, New York. Operable Unit No. 2, the subject of this PRAP, consists of a 75 acre area used for disposal of wastes, shown in heavy stripes within the borders of the property.



NOTES:

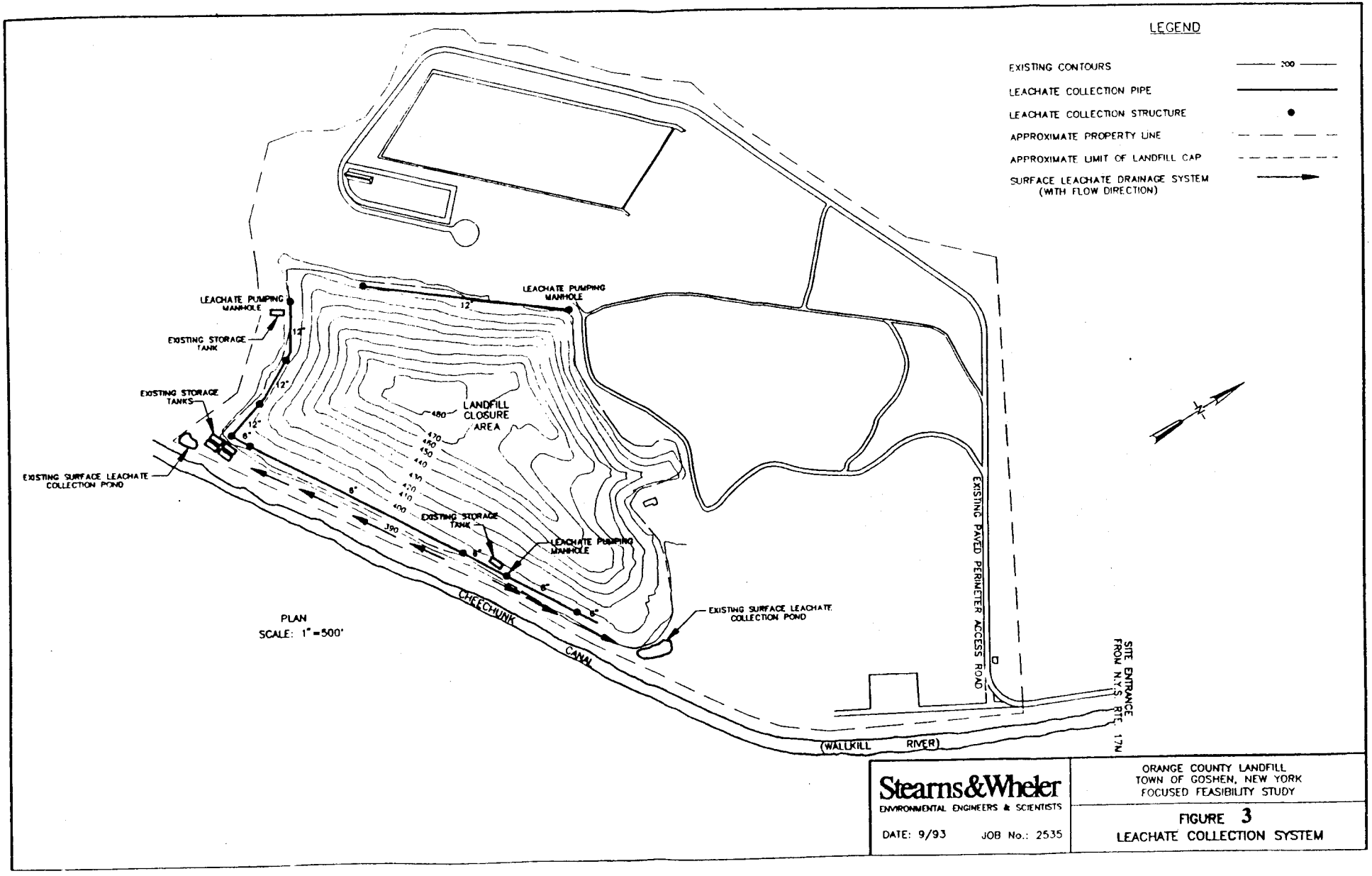
1. BASED ON THE GAS WELL COLLECTION SYSTEM LOCATION PLAN AS DRAWN BY LAIDLAW TECHNOLOGIES INC., NEWARK, CALIFORNIA ON 11/18/91. (REVISED 3/31/93)
2. GAS COLLECTION WELLS ON THE SOUTHERN SIDE OF LANDFILL CONNECT TO A 10"-INCH HEADER PIPE. INFORMATION IS NOT AVAILABLE REGARDING THE CONFIGURATION OF THE 10-INCH HEADER PIPE AND THE COLLECTION WELLS.

Stearns & Wheler
ENVIRONMENTAL ENGINEERS & SCIENTISTS

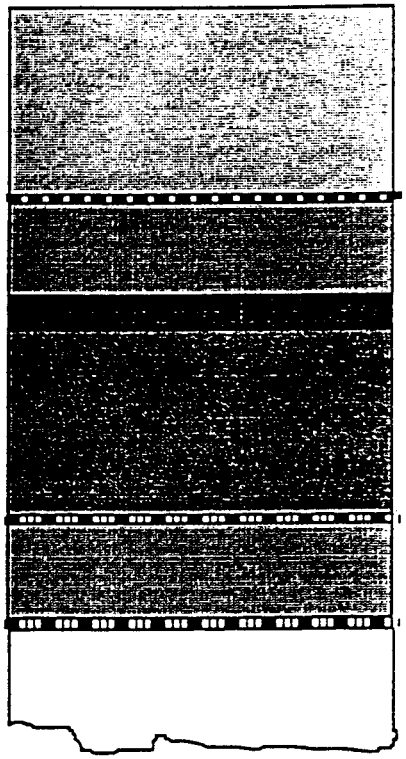
DATE: 9/93 JOB No.: 2535

ORANGE COUNTY LANDFILL
TOWN OF GOSHEN, NEW YORK
FOCUSED FEASIBILITY STUDY

FIGURE 2
GAS WELL COLLECTION SYSTEM


LEGEND
EXISTING CONTOURS
200
LEACHATE COLLECTION PIPE
LEACHATE COLLECTION STRUCTURE
APPROXIMATE PROPERTY LINE
APPROXIMATE LIMIT OF LANDFILL CAP
SURFACE LEACHATE DRAINAGE SYSTEM (WITH FLOW DIRECTION)
LEACHATE PUMPING MANHOLE
EXISTING STORAGE TANK
EXISTING STORAGE TANKS
LANDFILL CLOSURE AREA
EXISTING SURFACE LEACHATE COLLECTION POND
CHEECHUNK CANAL
EXISTING PAVED PERIMETER ACCESS ROAD
SITE ENTRANCE FROM N.Y.S. RTE. 17N
(WALLKILL RIVER)
PLAN
SCALE: 1" = 500'
Stearns & Wheler
ENVIRONMENTAL ENGINEERS & SCIENTISTS
DATE: 9/93
JOB No.: 2535
ORANGE COUNTY LANDFILL
TOWN OF GOSHEN, NEW YORK
FOCUSED FEASIBILITY STUDY
FIGURE 3
LEACHATE COLLECTION SYSTEM

Standard RCRA Cap



24" Vegetative Top Cover

Filtration Geotextile

12" Drainage Layer (k= 1 x 10^-3 cm/sec)

20 mil Geomembrane

24" Low Permeability Layer
(1 x 10-7 cm/sec)

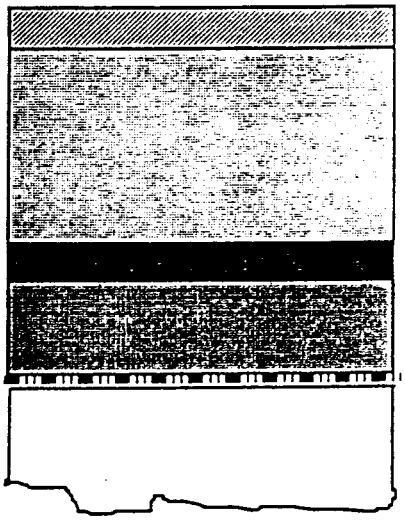
Separation Geotextile

12" Gas Venting Layer (k= 1 x 10^-3 cm/sec)

Separation Geotextile

Waste

Standard Part 360 Cap



6" Topsoil Layer

24" Barrier Protection Layer

40 mil Geomembrane or
18" Low Permeability Layer (k= 1 x 10^-7 cm/sec)*

12" Gas Venting Layer (k= 1 x 10^-3 cm/sec)

Separation Geotextile

Waste

*Separation Geotextile required under 18" Low Permeability Layer.

FIGURE 4
RCRA CAP VS. 6NYCRR PART 360 CAP

Focused Feasibility Study
Orange County Landfill

Stearns & Wheler
ENVIRONMENTAL ENGINEERS & SCIENTISTS

APPENDIX A

RESPONSIVENESS SUMMARY

The New York State Department of Environmental Conservation (NYSDEC) held a public meeting on October 28, 1993 at the Orange County Fire Training Center to discuss the Focused Feasibility Study Report (FFS) and the Proposed Remedial Action Plan (PRAP), and to receive public comment. Present at the meeting were representatives from NYSDEC, the New York State Department of Health (NYSDOH), Stearns & Wheler Consultants, Orange County and concerned citizens (attendance list attached).

The FFS report and the PRAP were made available for public viewing by October 15, 1993 at the document repositories established for this site. During the public comment period, which extended from October 15, 1993 to November 15, 1993, two written comments were received. The first written comment was from the Honorable Benjamin Gilman and was read into the stenographic record at the October 28 meeting. This comment basically stressed the importance of environmental protection and policies and did not specifically comment on the proposed plan.

The second written comment was from Dr. Michael Edelstein, President of Orange Environment, Inc. Dr. Edelstein expressed a distrust of proceeding with a final cover system over the landfill in that it might discourage a complete investigation of the site and specifically stated non-support for the FFS as the basis for progress at the site. Mr. John Henkes, the NYSDEC project manager for the project, responded directly to Dr. Edelstein (copy attached). Attached to Dr. Edelstein's letter were written comments from Mr. Michael Lane of HJA Associates, Inc., environmental information specialist. The letters from Messrs. Edelstein and Lane constituted Orange Environment's comments on the FFS and PRAP. Mr. Lane's comments were specific and covered most of the FFS by section and the topics discussed at the public meeting.

A third written comment was received after the public comment period and is also included in this responsiveness summary as an attachment with a direct response by Mr. Henkes. Mr. Thomas

Cione, Assistant Orange County Attorney, asked for clarification regarding the extent of the site and remedial program, and the possible affect on future use of the proposed landfill expansion located adjacent to the former municipal landfill. As a result of Mr. Cione's inquiries, this Record of Decision reflects a site description more consistent with the Registry of Inactive Hazardous Waste Sites in New York State then contained in the Proposed Remedial Action Plan.

The first part of this comment/response section will deal with Mr. Lane's comments by section of the FFS; followed by any verbal comments received at the public meeting not addressed in Mr. Lane's letter.

I. Mr. Lane of HJA Associates, Inc., General Comments

1. Comment No. 1

The FFS and RI/FS work plan should be issued at the same time. DEC Project Manager John Henkes in his comments on the Draft RI/FS work plan stated "...it is strongly recommended that the RI/FS work plan and the FFS be placed in the public repositories at the same time, and ... be discussed at the same public meeting." (Letter, Henkes to Provost, July 23, 1993). The FFS and RI/FS work plan are closely related, the RI/FS field work will determine the nature and extent of site contamination, the FFS contains a plan to cap contaminated areas. Failure to submit the RI/FS work plan and the FFS at the same time minimizes the extent to which effective public comment is possible. As it now stands, the public has no way of knowing what comprehensive field studies will in fact determine the total extent of site contamination, and that these studies are not minimized in any way by the possibility of early capping.

Response No. 1

Thought it is preferable to finalize the RI/Fs work plan and the FFS at the same time, both reports can stand on their own.

The scope of the proposed plan is well defined, and in as much as the RI/FS is

impacted by the proposed plan such issues were discussed at the public meeting and addressed in this responsiveness summary.

Contrary to HJA's statement that "the FFS contains a plan to cap contaminated areas" the proposed plan is to cap the waste mass, which is very well defined compared to "contaminated areas." Off-site investigations will be conducted as part of the overall remedial program.

As with many inactive hazardous waste sites, when the major source of contamination is clearly evident, the strategy for the remedial program is to conduct an early evaluation of actions that quickly control the major source of contamination. In this way, the NYSDEC seeks to accelerate the remedial process by separately selecting, designing and constructing a part of the remedial action to address this threat.

With regards to public involvement in the remedial program, the PRAP states that the extent of this action only covers the capping of the 75 acre waste mass itself. It further states that Operable Unit No. 1 will have a separate PRAP and Record of Decision; after conducting a Remedial Investigation/Feasibility Study (RI/FS). This insures that the public will have the same opportunity to comment on the remedial program, as it did on the proposed accelerated capping.

Mr. Lane's observation that "the public has no way of knowing what comprehensive field studies will in fact determine the total extent of site contamination" is absolutely true. What is well recognized by the NYSDEC, New York State Department of Health (NYSDOH) Stearns & Wheler and Orange County (and proposed to the public) is that the most logical approach to minimize the spread of contamination from this site is early capping of the waste mass. It is further recognized that early capping will not compromise the site investigation or any possible future actions.

2. Comment No. 2

The FFS shows incomplete knowledge of existing reports and of the extensive comments made by the DEC over a period of several years, especially with respect to leachate pathways, leachate collection, and the need for additional monitoring wells. For example, in the FFS, page 13, is the comment "The amount of spoils ... are expected to be small since the monitoring wells have already been installed..." However in John Henkes' letter to Joseph Provost, p.2, is a description of several gaps in the monitoring well network, along with the comment "...As a result, it will be necessary to install new wells and conduct some additional subsurface investigations." There are numerous other examples where assertions made in the FFS are counter to existing information, including prior DEC comments.

Response No. 2

There have been a great number of past investigations conducted at this site. This information will be utilized in the remedial investigation, especially with respect to leachate pathways and collection. The amount of spoils generated by monitoring well installation will be minuscule compared to the overall project and should not be considered a hinderance to progress at the site. An important aspect of the FFS was an assessment of the amount of spoils that may be generated from areas immediately outside the waste mass contaminated by surface water runoff (see Section 4.8 of the FFS). Briefly, the conclusion is that construction of the cap should not be delayed for the purpose of consolidating investigation spoils or other contaminated medium into the landfill; that addressing such waste by means other than consolidation is more economical. This conclusion is also based in part on the elevation and slopes of the landfill which do not provide room for large volumes of additional material. If scheduling and design permits, contaminated material found outside the waste mass may be consolidated into the waste mass subject to NYSDEC approval.

3. Comment No. 3 General Comments

Recognizing the extremely preliminary nature of the FFS, a revised version should be made available to the public for comment, and to the DEC to serve as a basis for issuance of the ROD. Because the FFS contains significant inaccuracies, as already determined by existing DEC comments, this draft is not an adequate basis for informed public comment. A revised draft should be prepared and issued simultaneously with the RI/FS work plan, as previously requested by the DEC.

Response No. 3

The commentator has not identified any significant inaccuracies and none that would change the decision to accelerate capping to use NYCRR Part 360 Regulations. The FFS and the Department's analysis of alternatives clearly indicate that accelerating the construction of a final cap is the most appropriate course of action at this site.

4. Comment No. 4 - Specific Comments on the FFS Cover Letter

A cap may not eliminate the need to treat surface water, depending on the extent of surface soil contamination in areas that are not under the cap. Since the landfill owner has not obtained surface soil samples, the extent of this aspect of contamination is not now known.

Response No. 4

Noted in Section 4.8 of the FFS, "Runoff pond sediments and leachate collection line spoils are two obvious locations where soil contamination should be evaluated." Any areas utilized for transport or storage of storm water will be investigated and remediated if necessary prior to discharging surface water as storm water.

5. Comment No. 5 - Specific Comment on Permanent Action Alternative

Permanent action is supposedly limited by the "...Site investigations conducted to date (which) have not identified any hot spots or areas of high organic or inorganic contaminants which could be excavated and treated, either on-site or off-site" (FFS,

p.6). What is the nature of these investigations? If there have not been systematic soil and groundwater samples taken from within the existing landfill, how can it be claimed that there are no hot spots? Also, there is no discussion of the possibility of illegal dumping which may have created hot spots. These hot spots would need to be determined by sampling, perhaps aided by interviews with local residents.

Samples to check for hot spots should be obtained before the final cap is installed.

Response No. 5

The investigation of "hot spots" (pockets of hazardous waste) within the landfill consisted of a review of historical disposal records and evaluation of contaminants found in wells around the landfill perimeter (see Section 4.7 of the FFS). An assessment of this information indicates that hot spots are not a major factor in defining the nature of contamination at this site.

There is always the possibility of hazardous waste hot spots created by undocumented or illegal disposal. In assessing this possibility, community interviews were conducted by representatives of NYSDEC and NYSDOH and a pre-investigation public information meeting was held in addition to the PRAP meeting. While there have been several accounts of nighttime activities at the landfill no one with intimate knowledge of hazardous waste disposal has come forward. If, however, such information or knowledge becomes available, additional investigation work may be warranted. The presence of a final cover would not hinder such investigations significantly.

6. Comment No. 6 - No Action Alternative

The no action alternative discussion is incomplete. An interim cap has been installed. This cap is reportedly up to several feet thick, and of impermeable clay. The interim cap may already be significantly reducing the quantity of leachate being produced. It may also be reducing the contamination picked up by surface water runoff. Any

discussion of capping should include an assessment of the current cap. The assessment should consider the interim cap's thickness, permeability, as determined by a systematic sampling program, and its current condition. Based on this work, a HELP model should be run, and the results compared with estimated conditions prior to the interim cap and to expected performance of a full regulatory cap.

The interim cap assessment should also provide for indirect measures of cap performance. Has the level of the leachate mound decreased as a consequence of the interim cap? Have any trends in landfill gas quality and/or quantity been noted which might suggest a reduction in water infiltration?

A permanent cap is clearly needed, but construction timing should consider the existence and performance of the interim cap. The possible beneficial effects of this existing cap are entirely ignored in the FFS.

Response No. 6

A no action alternative evaluates the site as it exists now. In the PRAP, the interim cap has been evaluated against the capping alternatives, and was found to be unacceptable for a number of reasons; not the least of which was the cost of maintaining it. The interim cap does not prevent leachate seeps from forming on the side slopes, which contaminate rainwater runoff. Currently, it costs about 2.4 million dollars per year to treat this runoff. Under the final capping alternatives rainwater runoff could be discharged as storm water, thus eliminating this cost. The interim cap also rated poorly with regard to the other evaluation criteria including compliance with New York State Standards, Criteria and Guidance, and the long and short term protection of human health and the environment.

7. Comment No. 7 - Control and Isolation Alternative

The FFS states (p. 6) that this alternative may consist of a Part 360 cap or a RCRA cap. Are there other options? What about temporary soil or geomembrane covers

until the RI field activities are completed? Can the existing interim cap serve as the basis for an eventual final cap. These, or other possible design modifications to lessen project cost are ignored.

Response No. 7

There are an infinite number of possible cap designs which would meet the requirements of NYCRR part 360 or RCRA. Final cap configuration will be determined during design. The problem with temporary soil covers at this site has been noted above by the assessment of the interim cap. A temporary geomembrane cover alone would trap landfill gasses beneath it which would result in a very hazardous situation. Geomembrane covers are also susceptible to damage by the sun, wind, and construction equipment if they are not covered by a protective layer. With regard to using the interim cap as part of the final one -- the first layer of any final cap system would be a venting layer; as noted in Comment No. 6, the interim cap is predominantly clay, which is not suitable for this purpose.

8. Comment No. 8

The effect of a final cap on the existing gas production project is ignored. What is the economic consequence to the County of any expected reduction in gas production? Data should be furnished for gas production from unlined, but fully capped facilities, to use as a basis for predicting probable trends at the Orange County Landfill. If the County is serious about deriving the benefits of continued landfill gas production, the gas engineering consultants should be fully integrated into preparation, or at least review, of the FFS and the RI/FS work plan.

Response No. 8

The proposed plan calls for integrating the gas venting layer of the cap with the existing collection system. The details for this are currently being evaluated and discussed with Landfill Generating Partners. They are aware of the proposed plan to

cap the landfill and have not formally commented on this proposal.

9. Comment No. 9

What is the effect of the final cap on leachate generation? As with gas production, there are unlined but capped landfills in New York State which can furnish a basis for estimating leachate production. Does the estimated infiltration reduction of 99.5% (FFS, p.6) translate into an estimated leachate production and collection rate of .5% the current rate? If it does not, this point should be made very clear both in the FFS, RI/FS work plan, and in public meetings.

Response No. 9

As noted in the FFS and PRAP, the final cap will greatly reduce the infiltration of rain water. By definition, the water that infiltrates and comes in contact with the waste is leachate. The HELP model used to evaluate the proposed Part 360 cap estimated that infiltration, and thus the generation of leachate, would be reduced by 99.5%. However, this does not directly relate to a leachate collection rate of .5% of the current rate since it is unknown how efficient the current leachate collection system is. Approximately 130,000 gal/month of leachate are being collected now. Observing how this figure changes after capping will be a task under the RI/FS program.

10. Comment No. 10

How is leachate collection to be included in the capping option? The FFS, p.6, states that "Possible options for capping included use of a Part 360 cap, use of a RCRA cap, and implementation of either cap along with leachate collection and treatment." However, on page 7 of the FFS, under Results of Preliminary Screening, a cap is discussed, but no mention is made of leachate collection or treatment. Leachate sampling is mentioned in later sections of the FFS, but the issue of possible modifications to the existing collection system is deferred to the RI/FS. This is totally

unacceptable, especially in view of numerous comments from the NYSDEC regarding known and continuing leachate discharges. The existing leachate collection system at Orange County Landfill according to the NYSDEC is not functioning properly. The following excerpt is taken from page 6 of the July 23 letter from John Henkes to Joseph Provost, and refers to the Stearns & Wheler Draft RI/Fs work plan.

The statement in paragraph two that "Presumably, the leachate collection system is effectively collecting leachate/groundwater..." should be eliminated. This is not a reasonable presumption. Modification and/or replacement of the leachate collection system should be an integral part of the FFS. Alternatively, a full discussion of installing leachate collection systems through a cap should be included. This discussion should include examples of facilities where a fully functioning leachate collection system has been retrofitted and operated through a Part 360 or a RCRA cap.

Response No. 10

The proposed plan calls for continued collection and treatment of leachate from existing systems. It also states that the effectiveness of this system and the treatment of leachate will be further evaluated under the RI/FS. There does not appear to be any technical difficulties in constructing a leachate collection system after construction of the cap.

11. Comment No. 11 - 4.7 Hot Spot Identification and Evaluation

The term "hot spot" is not defined. Does this represent organic contamination, or inorganic? Although it is not stated specifically, there seems to have been no sampling either of water within the landfill or soils immediately below the landfill to assess the possibility of hot spots. Additional testing is mentioned in the last sentence of section 4.7. What is the nature of this testing? Would any of this testing involve penetrating the landfill cap? Would it be more cost effective to penetrate the existing

interim cap, or penetrate and fully repair the final cap.

Response No. 11

The term "hot spot" is used to describe a pocket of hazardous waste, either organic or inorganic. It consists of toxic and/or mobile material of sufficient quantity that its remediation will significantly reduce the environmental or public health threat posed by the overall site. The removal or treatment of hot spots is generally practicable when the wastes are in a discrete, accessible location within the landfill. Sampling of water within the landfill or soils immediately below the landfill is not anticipated during the RI/FS. The additional testing mentioned in Section 4.7 refers to groundwater sampling from existing and new wells outside the waste mass and from leachate taken from the existing collection system. Further details will be presented in the RI/FS work plan. If further investigation reveals information indicating that such sampling is appropriate, penetrating the final cap and repairing it will be much less expensive then delaying the construction of the final cap.

12. Comment No. 12

The sampling program for hot spots should reflect awareness of current state and federal superfund site investigations. Is there a potential problem with dense non-aqueous phase liquids (DNAPLS)? Are any of the known hazardous wastes dumped at the landfill, such as still bottom residues, more dense than water so that they would migrate downward and collect in the silt and clay trough which has been described by the NYSDEC? If so, sampling locations and protocols should reflect this possibility.

Response No. 12

All sampling locations and protocols will be contained in the RI/FS work plan. It is reasonable to assume that a municipal landfill of this size would contain significant amounts of all priority pollutants, all of which may pose their own particular problems. The presence or absence of NAPLS at this site would not affect the

selection or design of a final cap. The still bottom residues that were disposed of at the landfill are a hazardous waste by virtue of their ignitibility. An estimated 18 drums of this waste was disposed of at the Orange County Landfill in 1974.

13. Comment No. 13

In a National Priority List site now undergoing remediation in upstate New York, a clay and silt layer underneath the site was found to be highly contaminated. The EPA in this case has expanded the remedial action to include treatment of the silt and clay layer. Regardless of whether or not remedial action will eventually be needed underneath the existing landfill, the fact remains that significant contamination is likely in all soil layers, including the clay and silt, under the landfill. Determination of the nature and severity of this contamination will require taking samples through the garbage mass. All aspects of the proposed sampling program should be considered before the timing of capping is finalized.

In summary, the entire discussion on capping is cursory, and gives the strong impression of attempting to provide the briefest possible justification for a nearly 20 million dollar project.

Response No. 13

While it is true that the soils beneath the landfill are likely contaminated, determining the nature and severity of this contamination will not require taking samples through the waste mass. Rather, the approach to this will be to look at the results of this contamination through leachate and groundwater sampling.

The approach referenced by Mr. Lane (based on conversation with Mr. Lane he was referring to the Fulton Terminal NPL site) is quite different. The Record of Decision for this site calls for the excavation and treatment of all the waste and underlying contaminated soils. This approach requires direct analysis of the contaminated medium for the purpose of assessing the need to remove it and to evaluate treatment technologies. Unfortunately, this is not a feasible approach for a site of this size.

14. Comment No. 14 - (4.8 Consolidation of Waste)

Limiting the potential waste to be included under the cap to runoff pond sediments and collection line spoils is totally inadequate. Other soil contamination may exist at the site, and should be determined by RI field investigations.

Response No. 14

The proposed plan does not limit the potential waste to be included under the cap to the runoff pond sediments and collection line spoils. Other soil contamination will be determined by field investigations and may be used as shaping material.

15. Comment No. 15 - 4.10 Phased Construction

As mentioned previously in these comments, assuming now that only a small amount of "spoils" will be produced is premature, given existing NYSDEC comments on the RI/FS work plan.

Response No. 15

The amount of spoils generated by the RI/FS investigation (several yards at most) is insignificant compared to the overall project. The noted NYSDEC comment on the

RI/FS work plan regarding monitoring well installation and additional subsurface investigation has no bearing on the issue of phased construction.

16. Comment No. 16 - 4.11 Slope Stability

The Melick - Tully and Associates report is not currently available to the public. Given the public concern about the slope stability which was evident at the October 28 public meeting, a more complete discussion of this issue is needed, as is full availability of key documents.

Response No. 16

Since requested a copy of the Melich-Tully report will be sent to Orange Environment. Stabilization of the embankment forming the perimeter road will be incorporated into the final cap design, as specified in the FFS and proposed plan. This issue will undoubtedly be a topic of future public meetings.

17. Comment 17

5.1 Existing System of Collection and Treatment

The discussion about leachate collection is misleading. The existing system is not fully described or evaluated. There is no mention of depths of pipe, positions with respect to the clay and silt layer, and whether or not there is reason to believe the pipe is crushed or clogged. The NYSDEC, in existing correspondence has estimated that the leachate collection system is collecting only about half the existing leachate production. No hint of these problems is given in the FFS discussion.

Response No. 17

It was not the intent of the FFS nor the proposed plan to evaluate the existing collection system. As proposed, this task will be undertaken during the RI/FS.

18. Comment No. 18 - Depth and Limit of Waste

Coordination between the RI/FS work plan and the FFS is needed. In comments on the Draft RI/FS work plan, DEC Project Manager John Henkes noted that areas

outside the current footprint appear to have been used for waste disposal. The FFS calls for an evaluation of past disposal practices. Much of this study may be already have been done by the DEC, in which case available information should be fully utilized.

Response No. 18

The evaluation of past disposal practices under the accelerated action is to better define the footprint of the waste mass. The investigation of areas outside the obvious waste mass will be dealt with under the overall remedial program.

19. Comment No. 19 - Leachate Pathways

This discussion ignores pathways which have been described by the NYSDEC and by previous engineering consultants for the County. The section is totally inadequate and should be expanded and completely rewritten. If current consultants for Orange County do not use extensive existing information which county and state taxpayers have already supported, the credibility of the current effort suffers.

Response No. 19

The purpose of this proposed plan is to reduce the creation of leachate by capping of the landfill. It does not address leachate pathways, which will be a very important aspect of the RI/FS. Existing information will be utilized when appropriate.

20. Comment 20 - Vertical Separation

The purpose of the RI, which is not yet done, is to establish the nature and extent of contamination. Prior to completion of the RI/FS field activities, the assumption of uncontaminated groundwater at the site is premature.

Response No. 20

The term uncontaminated in section 5.5 of the FFS was used to describe a direction of groundwater flow (i.e. groundwater moving toward the landfill as opposed to away from it) rather than the condition of the groundwater.

21. Comment No. 21 - Characterization of Leachate as Hazardous or Non-Hazardous

This section is meaningless without a sampling protocol. Leachate composition varies significantly in space and time. Any analysis for hazardous waste characteristics must be preceded by enough baseline sampling to establish system characteristics. Only in this way, is there some assurance that representative samples are being taken. This discussion should include definitions of hazardous waste and hazardous substance, and a statement of what conclusions that will be drawn if the leachate passes or fails the RCRA hazardous waste test.

Response No. 21

All sampling will be governed by the field sampling plan and Quality Assurance/Quality Control Plan developed for the RI/FS. The observation that leachate composition varies in space and time is correct and will be addressed in the RI/FS.

In New York State, hazardous waste is defined by NYCRR Part 371; hazardous substances are defined under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. Repetition of these within a FFS, PRAP or RI/FS work plan is not necessary. If leachate fails the RCRA hazardous waste test, it will be managed as a hazardous waste.

22. Comment 22

The basis of the 130,000 gallons per month is not explained. Is this figure derived from the HELP model calculations?

Response No. 22

The 130,000 gal/month figure is based on what is currently being collected from the subsurface collection systems. It was used in estimating operation and maintenance costs. This figure may increase slightly from the loading of the cap or from

modification of the collection system in the short-term. In the long-term, it should be significantly lower due to the substantial reduction in leachate generation.

II. Verbal questions or comments received at the October 28, 1993 public meeting not addressed under Mr. Lanes letter.

23. Comment No. 23

What effects will the proposed 360 cap have on the leachate? After it is installed, how much would it reduce the flow of leachate into the creek and aquifer?

Response No. 23

The impermeable layer of the Part 360 cap is very efficient at reducing the generation of new leachate. The HELP model used to evaluate the various alternatives estimated that leachate generation would be reduced approximately 99.5% of its current rate. How this translates into leachate leaving the site (such as into the Cheechunk Canal or the aquifer) depends greatly on how efficient the existing collection system is. In the long term, it can be expected that a very large reduction in the volume of leachate leaving the site will result from installing the cap.

24. Comment No. 24

The road along the Cheechunk Canal has been falling in for years and the County keeps moving the road over to where I say the garbage is only about five feet in from the Cheechunk Canal. Don't you have to answer that problem first before worrying about capping? I would say if you dig five feet under the roadway you would find garbage.

Response No. 24

It is definitely important to consider the stability of the roadway while designing the cap. However, your description of the slopes problem is not consistent with the investigations and monitoring to date. Slope inclinometer data has been showing that the garbage mass itself is quite stable and that the slope failure that is observed

involves only the roadway itself. The almost seasonal collapse of the roadway followed by bringing in fill to repair it gives the illusion that the waste is moving toward the canal over time. This assessment is also consistent with borings in the area that have not encountered waste below the roadway. Based on existing information the waste mass is at least 100 ft. from the canal.

Not withstanding the past investigations, it is important first to know the details of the cap (i.e. its cross-section, access roads and drainage structure) in the area of the slope failure before analyzing how to stabilize the situation. This is best addressed as part of the design.

25. Comment No. 25

In the Part 360 cap design; what type of soil is placed underneath the geomembrane? Wouldn't you have a greater risk of tearing with a sand material than if you have clay underneath, especially with the steepness of that slope?

Response No. 25

An air venting layer is used beneath the geomembrane to prevent the very hazardous situation of landfill gases building up beneath it. The venting material is granular in nature (sandy) with a very low percentage of fine particles. It is true that a granular material and a clay material will act differently when placed against a geomembrane on a slope. As part of design, the stability of the selected cap is evaluated as it relates to the stresses on the geomembrane. These stresses relate mostly to the steepness of the slope and the length of the slope. When the stresses are felt to be too high, which might cause the materials to tear, the geometry can be reconfigured or other materials (reinforcement) can be added to the cap section.

Based on past experiences it does not appear that such problems will be significant when designing the cap for this site.

26. Comment No. 26

Are the inclinometers placed in the slopes to monitor stability still being maintained? Have they shown any movement? Which ones are still operational? Can the public see the data generated?

Response No. 26

The three inclinometers that were within the failure zone of the slope (the ones closest to the canal) are no longer functioning. The rest of the inclinometers were last monitored in the summer of 1992 (about six months after disposal at the landfill stopped).

The results of this were consistent with past readings that indicate that the waste mass is stable. It is anticipated that additional readings will be made before construction of the cap begins and possibly during stabilization of the slope. This information is available to the public at the Albany office.

27. Comment No. 27

How impermeable is the proposed geomembrane with regard to chemical reactions to organics.

Response No. 27

The geomembrane does not come in direct contact with the waste; so any reaction would come from volatiles or gases that rise out of it. Immediately below the geomembrane will be an active gas collection system; which, as an added benefit, should reduce or prevent chemical reaction with the geomembrane. A very low density polyethylene geomembrane, which is typically used at municipal waste landfills, is currently planned.

28. Comment No. 28

We have a consistent odor problem in the area of the Wallkill Valley, which has Orange County and Al Tori Landfills within it. I'm curious whether odors are

emanating right now from the Orange County site. In particular, I'm interested in getting the NYSDOH to engage in ambient air sampling at this site.

Response No. 28

Investigations of sites like Orange County Landfill typically include ambient air monitoring; both for on-site workers and the community, and in assessing whether or not collection and treatment of the off gases from the landfill will be necessary. During the remedial program, air monitoring will be conducted during some activities, particularly when dealing directly with wastes. However, a large scale air pathway analysis is not planned since the proposal already calls for active collection and treatment of the landfill gasses. Current odor problems in the area can be directed to the NYSDOH at 1-800-458-1158.

29. Comment No. 29

What is the time frame for this work?

Response No. 29

We are still optimistically planning to start construction of the cap in the Spring of 1994. It will take at least one to two years to complete it.

30. Comment No. 30

What is the breakdown of the cost of the remedial program.

Response No. 30

The State will reimburse the County 75% of the eligible costs.

31. Comment No. 31

If home owner wells on the other side of the river are found to be impacted during the investigation, could that impact the cap? Wouldn't something have to be done?

Response No. 31

The cap would not change, but the extent of groundwater contamination may impact other aspects of the remedial program such as the leachate collection system, and

addressing current or potential groundwater contamination.

32. Comment No. 32

If cost wasn't an issue, would the NYSDEC, NYSDOH, County and consultants still recommend the Part 360 cap over the RCRA cap?

Response No. 32

Considering costs is a required aspect of evaluating the alternatives. However, there are a number of aspects of the Part 360 cap (other than cost) that make it more desirable than the RCRA cap for this site including the ease of design, construction, quality control, and making repairs to the cap; less truck traffic coming into the site, and dealing with internal forces of the cap between the geomembrane and clay of a RCRA cap.

33. Comment No. 33

I thought that Part 360 was used for regular landfills. Since this is a hazardous waste landfill, can it still be used? Has it been used?

Response No. 33

Part 360 requirements for final covers are typically preferred (and used) over RCRA caps for municipal waste landfills that are classified as inactive hazardous waste disposal sites.

34. Comment No. 34

How will the weather affect construction of the landfill.

Response No. 34

Overly dry or wet weather can hinder progress. The soils to be used will have to be within a small range of moisture content to properly construct the cap. Excessively wet weather may require extra handling of the material. If it is overly dry, you might see water trucks wetting the material to keep the dust down and to help compact the soils.

35. Comment No. 35

Will any of the waste be exposed during construction? What are the hazards to the workers and the public?

Response No. 35

Although there will probably be some areas of the landfill where waste will be exposed for a short period of time, there will not be any need for major consolidation or movement of waste. All field work will be governed by procedures outlined in a Health and Safety Plan developed for this site, which covers both on-site workers and the surrounding public.

36. Comment No. 36

I'm trying to get a picture of the Summer of 1994. Will there be a lot of truck traffic? Will you map the truck route? Will you have control over how fast they drive and how well the trucks are covered. What about excessive noise and dust and odor?

Response No. 36

Your concerns are well taken. Many thousands of truck loads of soil and material will be needed to construct the cover. Where this material will be coming from is not known at this time, and is often left up to the contractor hired to do the work. Before construction starts such details will be made available to the public. Both the County and the NYSDEC will be able to take action to correct the problems you noted and will provide the public with a contact person to hear such complaints. Coordination with local police will also be a mechanism for alleviating traffic and speeding problems if necessary.

37. Comment No. 37

Will there be a study of local wildlife as a way of monitoring health around the landfill?

Response No. 37

As part of the first phase of our RI/FS investigation into the extent of contamination, a wildlife assessment will be conducted to identify possible sensitive receptors or ecosystems. Based on these initial results, there may be additional studies into the actual or potential impact of site contaminants on wildlife.

38. Comment No. 38

If you put a cover over the landfill you will be eliminating the storm water collection system that currently collects a small amount of leachate. This will in effect push more leachate into the ground and into the Cheechunk Canal.

Response No. 38

This affect may be possible but only to a very minute degree and for a very short period of time. More of this affect will be from the weight of the cap on the leachate, but once this pressure has dissipated the cap will nearly eliminate the production of new leachate and greatly reduce the driving forces which push existing leachate into the aquifer and canal.

39. Comment No. 39

Is there anything being done right now on the landfill?

Response No. 39

There are several actions currently taking place, including repairs to the gas collection systems, and collection and treatment of leachate and contaminated storm water runoff. There will also be minor temporary actions taken to address the visible leachate out breaks and repairs to the access road along the Cheechunk Canal.

40. Comment No. 40

What are you going to do about the river closing up?

Response No. 40

Part of the proposed plan calls for the stabilization of the roadway. Though the

details of this are not yet known, the action will prevent future slope failures into the river. The focus of the slope stability treatment will be on containing the waste and protecting the cap. The possible encroachment of the river from past slope failure cannot be a focus of the remedial program beyond stabilization.

41. Comment No. 41

Which sides will you be working on first?

Response No. 41

Many such details will be left up to the contractor after review and approval by the County and NYSDEC.

42. Comment No. 42

Has the draft RI/FS work plan been made available to the public? If not, when will it? How many drafts have been done so far?

Response No. 42

The draft RI/FS work plan will be made available after the NYSDEC accepts it for public comment. This will be followed by another public information meeting. The second draft is currently under review. The draft plan may be made available to the public as early as February.

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Please fax to John Henkes @ (518) 457-1088

Environmental Conservation

ATTENDANCE SHEET

ORANGE COUNTY LANDFILL HAZARDOUS WASTE SITE # 336007
PROPOSED REMEDIAL ACTION PLAN - OPERABLE UNIT 2
OCTOBER 28, 1993

Please Print Name	Address	Representing
1. Georgia Tineys		Congressman Ben Gilman
2. Fawzy I. Abdelsadek		Public
3. M. Lane		
4. [illegible]	[illegible] New Hampton NY	[illegible]
5. Mark Westerman		J-W Operating Co.
6. Anthony P. Russo	Environmental Compliance Services, Inc. 9 Academy Ave Middletown NY	
7. Mary Troy	THR	
8. Graham S. Jamison	Town of Crawford	
9. Marie Gallagher	Unionville N.Y.	
10. Louis K. Gallagher	Unionville N.Y.	
11. John Henkes	NYSDEC	
12. Mike Edelstein	Orange Environment INC.	
13. Scott Thornton	Orange Environment	
14. Loretta Dombroski	Box 716 New Hampton, NY 10958	
15. Howard B. LaFever	One Remington Park Dr. Cazenovia, N.Y. 13035	Stearns & Wheler
16. Jeffrey H. Heath	"	"
17. William C. Gunther	Orange County	R&T Inc
18. David L. Russell	Newburgh, NY	Legislator
19. Gloria Smith	New Hampton	Swamp
20. Tom Crone	O C Land	Goshen

New York State Department of Environmental Conservation

ATTENDANCE SHEET

ORANGE COUNTY LANDFILL HAZARDOUS WASTE SITE # 336007
PROPOSED REMEDIAL ACTION PLAN - OPERABLE UNIT 2
OCTOBER 28, 1993

Please Print Name	Address	Representing
1. Jeff Bridges	RD1 Box 563 Newhampton	T. Wawayanda
2. Linda & Michael Krouse	Rd 4 Box 580 Montague NJ	Greenville
3. Otto Pahucki III	Box 12 Maple Ave New Hampton NY 1095[illegible]	
4. Carole Gallagher	Box 333 Unionville NY 10988	Village of Unionville
5. Hans Hasnay	25 Fenton Hill Rd Washingtonville N.Y. 10992	—
6. [illegible] McInerney	14 Cardinal Dr Wash'ville, N.Y. 10992	self
7. Nina Knapp	2 University Place	NYSDOH
8. Robert MacEwan	255 Main St Goshen	Co Atty Office
9. Stan Stoltz	45 E. Main St Middletown N.Y.	
10. Kevin S Conero	100 Wallkill Ave Montgomery	
11. Jeffrey Soons	c/o 25 Main St, Goshen, NY 10924	Orange [illegible]
12.		
13.		
14.		
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18.		
19.		
20.		

ORANGE ENVIRONMENT
P.O. BOX 25 • GOSHEN, NY 10924 • 914-294-5852

November 15, 1993

John Henkes,
New York State DEC
50 Wolf Road
Albany, N.Y.

Dear John,

This letter and the attachment prepared by Michael Lane of HJA Associates constitute our comment on the Draft Focused Feasibility Study for Orange County landfill submitted by Stearns and Wheler on the behalf of Orange County.

In brief, we are concerned that a number of factual inconsistencies and unresolved issues rob this study of its value. While we continue to want Orange County to take immediate steps toward addressing the catastrophic water pollution problems associated with this site, we are loathe to support so ill-conceived a plan. It makes little sense---and may even prove to be detrimental, to proceed with a full final capping at a time when so little is known about the detailed contamination of the site, the stability of the site and the underlying soils and other features.

We believe that the accelerated steps need to be taken in conjunction with the plan for the full study, as originally contemplated. The county's failure to do this baffles us because it is so self-defeating. It also smacks of an effort to put in place a full cover that will discourage a complete investigation and needed remediation. These steps will be taken at enormous expense despite the fact that there has been no investigation of the effectiveness of the interim cover and of other less expensive approaches to achieving short term intercession of water entering the site without impeding long term action and study.

For these reasons, we cannot support the Stearns and Wheler document as the basis for progress at this site. However, we do not want to see this site languish in an extended delay period either. We propose a joint meeting with the DEC and County and OE to identify steps of immediate action that make sense. Our concern is that, by promoting an accelerated capping, the consultant has created an artificial choice between delay and doing too much. Neither makes sense. We look forward to working with you to try to bring some credibility into this review. Your own comments, largely ignored by Stearns and Wheler, suggest that you may share many of our concerns. Let's reign this process in before more time and money is wasted.

Michael C Edelstein

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

November 16, 1993

Dr. Michael Edelstein
Orange Environment, Inc.
P.O. Box 25
Goshen, New York 10924

Dear Dr. Edelstein:

Thank you for your comments on the Focused Feasibility Study (FFS) for the Accelerated Remedial Action, Orange County Landfill. I must, however, disagree with your assessment of the plan. The strategy of accelerating the final cover system is very well conceived and makes a lot of sense -- both economically, and in the interest of protecting human health and the environment. Too infrequently is such a combination so evident; we should embrace it.

I believe many of your concerns will be alleviated as we make progress on the overall program and look forward to more open discussions with you on the remediation of this site. Your letter and the comments provided by HJA Associates, Inc., will be incorporated into the Responsiveness Summary in the Record of Decision for this site.

Sincerely,

John L. Henkes, P.E.
Project Engineer
Eastern Projects Section
Division of Hazardous Waste Remediation

cc: M. Lane, HJA Assoc.
W. Gunther, Orange Co.
J. Heath, Stearns & Wheler
S. Thornton, O.C.S.L.I.P.

bcc: S. Ervolina
C. Vasudevan
E. O'Dell-Keller, Region 3
K. Malhotra, Region 3

JLH:tfz

c:\wp51\john\Edel.Let

COUNTY OF ORANGE

Department of Law

COUNTY GOVERNMENT CENTER, GOSHEN, NEW YORK 10924-1627
TEL: (914) 294-5151 EXT. 1185 FAX: (914) 294-7486

Mary M. McPhillips
County Executive

Stephen R. Hunter
County Attorney

December 28, 1993

John L. Henkes, P.E.
Division of Hazardous Waste Remediation
New York State Department of
Environmental Conservation
50 Wolf Road, Room 222
Albany, New York 12233-7010

Re: PRAP - Capping Landfill

Dear John:

Before a ROD is reached on the PRAP, we believe it is necessary to clarify an issue recently brought up. The second page of the PRAP states: "Operable Unit #1, which consists of the site as a whole, will have a separate PRAP and ROD; after conducting a RI/FS."

Are we to assume that the entire 300 acres is now considered a hazardous waste site? If so, should the County amend its application for state assistance so as to include costs associated with the landfill outside the heretofore 75 acre unit? If not, will the designation "Operable Unit #1" and the requirement that a PRAP and ROD be issued for the larger unit have an effect on the future use on the landfill expansion?

Please advise.

Very truly yours,

THOMAS J. CIONE
Assistant County Attorney

TJC/lks
cc: Jeffrey Heath, P.E.
Stearns & Wheler
One Remington Park Drive
Cazenovia, New York 13035

DAYBOOK

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

January 11, 1994

Mr. Thomas Cione
Assistant County Attorney
Orange County
County Government Center
Goshen, New York 10924-1627

Dear Mr. Cione:

RE: Orange County Landfill
Site I.D. #3-36-007

This letter is in response to your December 28, 1993 letter to me raising questions regarding the extent of the site and the possible effect the site may have on the future use of the landfill expansion.

The Department defines a site by the source (or location) where hazardous waste was initially disposed. For lack of more definite information, the Registry of Inactive Hazardous Waste Disposal Sites in New York State describes the Orange County Landfill Site as being the former municipal landfill, approximately 75 acres in size. In defining the nature and extent of contamination emanating from the source, the investigation will extend off-site well beyond the boundary of the former municipal landfill. While the investigations may include or extend beyond the area of the landfill expansion, operation of the landfill would not significantly interfere with the investigation or remediation of the site and, therefore, should not be a factor in its operation.

There are two operable units at this site because of the approach chosen for the remedial program. Acceleration of the capping required that two decision documents be completed: one considering various capping options and the second to be prepared after conducting a full remedial investigation and feasibility study.

There is no need to amend the application for State assistance to reflect this assessment of the site boundaries, the investigation, or the use of multiple operable units. The description of the site in the Record of Decision will reflect the description contained in the registry noted above.

Sincerely,

John L. Henkes, P.E.
Project Manger
Eastern Projects Section
Bureau of Eastern Remedial Action
Division of Hazardous Waste Remediation

cc: W. Gunther

bcc: M. O'Toole
C. Goddard
S. Ervolina
C. Vasudevan
R. Rusinko, DEE, Tarrytown
A. Klauss, Region 3
A. Fuchs, Region 3
J. Jiudice, Region 3
S. Parisio, Region 3

JLH:tlr

APPENDIX B

ADMINISTRATIVE RECORD

1. Phase I investigation Orange County Landfill by Gibbs and Hill, Inc., dated June 1988.

2. Order on Consent, Index W3-0603-92-06
   Between NYSDEC and Orange County dated January 1993.

3. Focused Feasibility study Report for Accelerated Remedial Action, Orange County Landfill prepared by Stearns & Wheler dated September 1993.

4. Proposed Remediation Action Plan
   Orange County Landfill
   Site #3-36-007, Operable Unit No. 2