Department of Environmental Conservation

Division of Hazardous Waste Remediation

Record of Decision

Prattsburg Site
Town of Cohocton, Steuben County
Site Number 8-51-013

March 1995

TECHNOLOGY
SECTION
COPY

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* MICHAEL D. ZAGATA, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Prattsburg Landfill Site
Town of Cohocton, Steuben County, New York
Site No. 8-51-013

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Prattsburg Landfill Inactive Hazardous Waste Site, 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 Prattsburg 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 a 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 will be addressed by remedial construction activities to be completed as specified in this ROD.

Description of the Selected Remedy

The selected remedial action provides for the protection of human health and the environment by reducing the mobility of hazardous waste at the site, and by removing exposure to contaminants remaining at the site. The Remedial Plan is technically feasible and it complies with statutory requirements. Briefly, the selected remedial action plan includes the following:

- Construction of a landfill cap which will comply with permeability requirements of the 1986 Consent Order for closure. The 1986 order requires eighteen inches of clay with a permeability of 1×10^{-7} cm/sec or less, or a geomembrane as its performance equivalent. Prior to emplacing the low permeability layer, top soil on the existing cap will be removed and stockpiled. Material will be brought in to eliminate low spots, and additional gas venting will be installed. The low permeability layer will then be emplaced, followed by a barrier protection layer. The topsoil will then be replaced, and the cap will be revegetated.

- Appropriate measures will be taken to limit access to the landfill.

- A long-term monitoring program will be instituted to monitor effectiveness of the remedy.

- Steuben County will either

  - establish a protective buffer around the landfill to prevent incompatible future usage of adjacent lands,

  or

  - conduct a periodic survey of adjacent property. If residential wells are installed, the County will sample said well(s) prior to use and monitor them periodically. If contamination is found at levels of public health concern, the County will install and maintain individual treatment units in affected wells.

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. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable, and satisfies the statutory preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/29/95
Date

Michael J. O'Toole, Jr., Director
Division of Hazardous Waste Remediation

RECORD OF DECISION

PRATTSBURG LANDFILL
Town of Cohocton, Steuben County, New York
Site No. 8-51-013
March, 1995

SECTION 1: SITE LOCATION AND DESCRIPTION

The Prattsburg Landfill, inactive hazardous waste site number 8-51-013, is located on Wheaton Road in the Town of Cohocton, Steuben County. This fifteen acre site is located on a hill, bounded by woods and agricultural fields. The site location is shown on Figure 1.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

The exact age of the Prattsburg Landfill is not known, although it is believed to have been in use for at least a few decades. The facility was originally operated by the Towns of Cohocton and Prattsburg. Steuben County took over the landfill in 1976 and operated it until 1986, when it was closed pursuant to a NYSDEC Consent Order signed by Steuben County.

The original four monitoring wells have been sampled quarterly. One well has been consistently dry. The other three wells have shown the presence of low concentrations of volatile organic compounds, including benzene, ethylbenzene, xylene, dichlorobenzene, methyl ethyl ketone, and trichloroethylene.

2.2: Remedial History

Evidence exists that hazardous wastes generated by the Gunlocke Company were disposed of at this facility. This evidence, combined with the analytic results obtained from the quarterly sampling program discussed in section 3.1, resulted in the site being classified as a Class 2 site and added to the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites. A Class 2 site is one which presents a significant threat to the public health or environment, requiring remedial action. In June 1992, Steuben County and NYSDEC signed a Consent Order requiring the completion of a Remedial Investigation/ Feasibility Study at the site. This Consent Order also made Steuben County eligible for reimbursement of up to 75% for costs the County incurred meeting the order.

SECTION 3: CURRENT STATUS

Steuben County initiated a Remedial Investigation/ Feasibility Study (RI/FS) in May 1993 to address the contamination at the site. This work was completed under the oversight and guidance of the NYSDEC and the New York State Department of Health (NYSDOH).

3.1: Summary of the Remedial Investigation

The purpose of the Remedial Investigation (RI) was to define the nature and extent of any contamination resulting from previous activities at the site. A report entitled "Phase I Remedial Investigation, Prattsburg Landfill, Steuben County, New York," Revised December 1994, has been prepared describing the field activities and findings of the RI in detail.

The RI activities consisted of the following:

- Electromagnetic survey to determine extent of fill areas, and to identify possible areas of buried drums.
- Installation of six bedrock and one overburden monitoring wells to more fully characterize groundwater quality and hydrogeologic conditions.
- On-site and off-site soil samples to assess the potential for exposure to contamination by contact with soils.
- Surface water and sediment sampling to determine potential impacts.
- Air samples were collected from gas vents installed within landfill refuse.
- Groundwater well user survey.
- Test pit excavations to investigate magnetic anomalies identified during the electromagnetic survey, and to measure thickness of the existing cap.
- Explosive gas survey around the perimeter of the landfill to determine if any gas migration away from the landfill is taking place.
- Attempts to measure in-situ permeability of the present cap.
- Risk Assessment to characterize any potential risk to human health posed by site contamination.

- Fish and Wildlife Impact Analysis to provide information on the ecology of the site and its surroundings.

Site maps showing sampling locations are shown on Figure 2 and Figure 3.

The analytical data obtained from the RI was compared to applicable Standards, Criteria, and Guidance (SCGs) in determining remedial alternatives. Groundwater, drinking water and surface water SCGs identified for the Prattsburg Landfill site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and on Part V of NYS Sanitary Code. For the evaluation and interpretation of soil and sediment analytical results, NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used to develop remediation goals for soil.

Site Geology and Hydrogeology

The landfill is located on top of a saddle between two hills, overlying a bedrock ridge trending northwest-southeast. The overburden in the vicinity of the landfill is a dense, gravelly till from fifteen to seventeen feet thick. An eight to ten foot layer of coarse gravel, sand, and silt lies beneath the till, below which lies weathered shale bedrock.

There is very little overburden groundwater in the vicinity of the landfill. Overburden wells south and east of the landfill have consistently been dry. Bedrock wells monitor a waterbearing zone in the shallow bedrock, however, yields are low. Bedrock groundwater appears to flow in two directions: groundwater flows to the north in the northeastern section of the site; it flows to the west in the southwestern section of the site.

a. Groundwater Quality

1. **Metals:** Analytic results for metals showed exceedances for some metals. See Table 1.

Overburden: Groundwater standards were exceeded for barium and magnesium (NW corner), and iron and manganese (NW and NE corners) in overburden wells installed in the corners of the landfill.

Bedrock: Groundwater standards in the bedrock groundwater were exceeded as follows: chromium (SW and NE corners), iron and manganese (SW, NW, and NE corners), and magnesium (NW corner).

2. **Volatile Organic Compounds (VOCs):** Results of the RI sampling generally confirmed quarterly monitoring results obtained over the past three years.

Overburden: The overburden well in the NW corner had three VOCs (xylene, ethylbenzene, and carbon disulfide), above groundwater standards (120, 98, and 19 ppb, respectively). The overburden well in the NE corner had trace amounts of volatile organics. Overburden groundwater in the SE corner had (24 ppb) of tetrachloroethylene.

Bedrock: Three bedrock groundwater wells were installed adjacent to the overburden wells in the SW, NW, and NE corners of the landfill. Generally, bedrock groundwater in each corner of the landfill is similar in composition and concentration to the corresponding overburden groundwater. However, the bedrock well in the NE corner showed acetone (22 ppb) which was not seen in the corresponding overburden well. Three off-site bedrock wells were installed: one to the NW, one to the west, and one to the south. Results show no landfill contaminants in bedrock groundwater NW of the site, and trace detections west and south of the site. The only exceedance of groundwater standards in bedrock was one detection of toluene at 7 ppb in the first round of sampling of off-site bedrock wells.

3. **Semi-Volatile Organic Compounds (SVOCs):** Only one well (overburden, NW corner) has semi-volatile organic contamination at levels above groundwater standards: a phenol and a phthalate in the low ppb (13-23) range. No exceedances of SVOC standards were found within bedrock groundwater.

4. **Pesticides and PCBs:** None were detected in any groundwater samples.

b. Soil Quality

Eight surface soil samples were taken from on- and off-site, at locations shown on Figure 2.

1. **Metals:** Metals concentrations in surface soil are shown on Table 2. There are no standards for metals concentrations in soils. Samples SS-5 and SS-6, south and NW of the landfill respectively, could be considered representative of background conditions. Concentrations for each metal are generally uniform for all samples, indicating there have been no site impacts to surface soils.

2. **Volatile Organic Compounds:** No volatile organics were detected in soil samples.

3. **Semi-Volatile Organic Compounds:** One sample, obtained in the NW quadrant of the site, showed the presence of semi-volatile compounds. Fluoranthene, pyrene, benzo-(a)anthracene, chrysene, and bis(2-ethyl-hexyl) phthalate were detected at 74-420 ppb, all below soil clean-up standards. These compounds are generally associated with fuel combustion, asphalt and tars and may be related to landfill closure, oiling of Wheaton Road, or investigation activities.

4. **Pesticides and PCBs:** Five pesticides were detected at low levels in soil samples: Heptachlor, 2.4 ppb; DDE, 1.1 to 26 ppb; DDT, 1.4 to 25 ppb; alpha-chlordane, 3.5 ppb; gamma-chlordane, 2.5 ppb. These detections were in both on- and off-site soils and are not

unusual as residuals in an agricultural area such as this. Highest levels were noted off-site in the active agricultural field west of the landfill. No PCBs were detected in soil samples.

c. Surface Water Quality

Due to lack of nearby surface water features, only two surface water sampling locations were identified. One sample was obtained from the farm pond northwest of the site along Wheaton Road (SW 2), and another from a stream east of the site (SW 1). Surface water sampling locations are shown on Figure 3.

1. **Metals:** In general, metals concentrations were below surface water standards, with the exception of iron (578 ppb) and thallium (5 ppb).

2. **Volatile Organic Compounds:** Only one volatile organic was identified: carbon disulfide in the pond at 15 ppb. No surface water quality standard exists for this compound.

3. **Semi-Volatile Organic Compounds:** No semi-volatile compounds were identified in surface water samples.

4. **Pesticides and PCBs:** No pesticides or PCBs were detected in surface water samples.

d. Sediment Quality

Four sediment samples were collected. Sediment samples were obtained at the two surface water sampling locations (SED 1 and SED 2, east and west of the landfill), as well as one from a dry creek bed north of the site (SED 3), and one from across Wheaton Road to the west where there was evidence of possible past seepage (SED 4). Sediment sampling locations are shown on Figure 3.

1. **Metals:** Metals results are shown on Table 3. There are no standards for metals concentrations in sediments, however, all values were below NYSDEC guidance levels. Concentrations for each metal are generally uniform for all samples, indicating there have been no site impacts on sediments.

2. **Volatile Organic Compounds:** One VOC, acetone, was detected in one sediment sample (9 ppb) obtained east of the landfill.

3. **Semi-Volatile Organic Compounds:** One semi-volatile, bis (2-ethylhexyl)- phthalate, was detected in one sample at 110 ppb.

4. **Pesticides and PCBs:** Several different pesticides were detected in sediment samples, as shown on Table 4. These were generally the same pesticides seen in soils. This is not unusual in an agricultural area such as this. No PCBs were detected.

e. **Groundwater User Survey**

A water well reconnaissance survey was conducted by Steuben County for the purpose of identifying groundwater users within a one-mile radius of the Landfill. There were 24 respondents who indicated groundwater use, with no unusual water quality problems reported. There is only one downgradient residence within one mile of the landfill. The NYSDOH and Steuben County attempted on two occasions to sample this residential well, however, they were denied access both times.

f. **Existing Cover Evaluation**

As one element of the Remedial Investigation, specific field activities were designed to measure thickness and determine permeability of the existing cover. Attempts to measure the cover permeability were unsuccessful due to the presence of stones in the cover material. As such the County was not able to verify compliance with a fundamental performance requirement of the 1986 Consent Order. Thickness of the cover material ranged from one foot to over five feet.

3.2: Summary of Human Exposure Pathways:

A baseline human health risk assessment was performed as a part of the RI. This health risk assessment included an exposure pathway analysis to identify media of concern and assess the potential for human exposure based on these pathways. Under current site conditions, no pathways are complete. Under future use scenarios, the only potential exposure pathway would be groundwater consumption if water supply wells were installed adjacent to the landfill. Assuming that current conditions do not change, the results of the risk assessment indicate risk levels from groundwater use would be below the threshold of concern. However, should contaminant levels increase from the uncontrolled migration out of the landfill, the future risk scenario could rise to unacceptable levels. Installation and use of groundwater wells adjacent to the landfill could actually increase contaminant migration if installed in the affected bedrock zone.

3.3: Summary of Environmental Exposure Pathways:

A Fish and Wildlife Impact Analysis was completed in accordance with current NYSDEC Division of Fish and Wildlife Guidance. Results show no evidence of stressed vegetation adjacent to the landfill, and no rare, endangered, threatened, or special concern species were observed.

SECTION 4: ENFORCEMENT STATUS

The NYSDEC and Steuben County entered into a Consent Order on July 30, 1986 which required Steuben County to cease accepting solid waste and to prepare and implement an approved closure plan for the landfill. The closure plan prepared by Steuben County was not approved by the

NYSDEC, however, a cover was constructed over the landfill. As described in Section 3.1.f, the cover is not in compliance with the 1986 Consent Order.

The NYSDEC and Steuben County entered into a second Consent Order in June, 1992. This Order obligates Steuben County to implement a full remedial program and provides eligibility for reimbursement to the County of up to 75 percent of the eligible cost of the remediation.

The following is the chronological enforcement history of this site.

Orders on Consent

Date	Index	Subject
7/30/86	8-0492	Landfill Closure
6/11/92	B8-0228-88-07	Remedial Program

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6NYCRR 375-1.10. These goals are established under the guideline of meeting all standard, criteria, and guidelines (SCGs) and protecting human health and the environment.

At a minimum, through the proper application of scientific and engineering principles, 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.

The goals selected for this site are:

- *Reduce, control, or eliminate the generation of leachate within the landfill mass.*
- *Eliminate the potential for direct human or animal contact with waste in the landfill.*
- *Prevent, to the extent possible, migration of contaminants in the landfill to groundwater.*
- *Provide for attainment of SCGs.*

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the Prattsburg Landfill site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled Feasibility Study, Prattsburg Landfill, revised January 1995. A summary of the detailed analysis follows.

6.1: Description of Alternatives

Alternative 1: No Action

Total Present Worth: $85,000*
Capital Cost: 0
Present Worth O&M: 85,000
Time to Implement: none
*Present worth based on a 12 year period of operation and a discount rate of 5%.

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It includes no further construction activities but requires continued monitoring for the next twelve years, as required under the 1986 Consent Order. The site would remain in an unremediated state.

Alternative 2: Limited Action

Total Present Worth: $694,000*
Capital Cost: 444,000
Present Worth O&M: 250,000
Time to Implement: one month
*Present worth based on a 30 year period of operation and a discount rate of 5%.

This alternative (called Alternative 3 in the Feasibility Study Report) would include limiting access to the landfill by installing a fence around the perimeter of the landfill or other appropriate measures. Limiting access to the site, would reduce the possibility of erosion to the cap caused by trespassers' activities. The cover would be regraded and revegetated, to eliminate low areas in the cover which have developed since the landfill was closed. These low spots serve to collect precipitation and result in localized areas of increased recharge. Regrading the cover and establishing a consistent slope would eliminate the low spots and promote runoff, both of which could reduce potential infiltration through the cover into the waste mass. Prior to regrading, topsoil would be scraped off the surface of the existing cover and stockpiled. Additional gas vents would be installed. When regrading is complete, the topsoil would be replaced and vegetation would be reestablished.

Long-term groundwater monitoring would also be instituted. Institutional controls including establishment of a protective buffer around the landfill would be recommended to prevent potential risks to human health until groundwater standards are met. A periodic, long term groundwater users survey to identify possible new receptors near the landfill would also be implemented.

Alternative 3: Consent Order Cap (Improved)

Total Present Worth:	$1,650,000*
Capital Cost:	1,400,000
Present Worth O&M:	250,000
Time to Implement:	three months

*Present worth based on a 30 year period of operation and a discount rate of 5%.

This alternative (called Alternative 4 in the FS Report) would consist of rebuilding the existing cap to comply with terms of the 1986 Consent Order, improved to include a barrier protection layer and additional gas venting. Topsoil would be scraped off the surface of the existing cover and stockpiled. Material would be brought in to eliminate low spots, and covered with a low permeability layer. The 1986 Consent Order requires that this layer be 18 inches of clay with a permeability of 1 x 10^{-7} cm/sec or less. A geomembrane with a performance equivalent to the Consent Order requirement could be substituted for the clay. A barrier protection layer would then be placed over the low permeability layer. Topsoil would be replaced and the cap would be revegetated.

Access to the landfill would be limited by perimeter fencing or other appropriate measures. Long-term groundwater monitoring would be implemented. Institutional controls including establishment of a protective buffer around the landfill would be recommended to prevent potential risks to human health until groundwater standards are met. A periodic, long term groundwater users survey to identify possible new receptors near the landfill would also be implemented.

Alternative 4: 1988 Part 360 Cap

Total Present Worth:	$2,250,000*
Capital Cost:	2,000,000
Present Worth O&M:	250,000
Time to Implement:	six months

*Present worth based on a 30 year period of operation and a discount rate of 5%.

This alternative (called Alternative 5a in the FS Report) includes a cap consistent with the 1988 version of Part 360 (Solid Waste) regulations. This cap would be constructed of a 12" gas venting layer with additional gas vents overlain by 18" of low permeability (less than 1 x 10^{-7} cm/sec) barrier clay layer or a geomembrane. Over the low permeability layer, a 24" barrier protection layer would be installed, covered with 6" of topsoil and revegetated.

Access to the landfill would be limited by perimeter fencing or other appropriate measures. Long-term groundwater monitoring would also be implemented. Institutional controls including establishment of a protective buffer around the landfill would be recommended to prevent potential risks to human health until groundwater standards are met. A periodic, long term groundwater users survey to identify possible new receptors near the landfill would also be implemented.

6.2: 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 (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

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.

Alternative 1: This alternative would not comply with SCGs or the 1986 Consent Order.

Alternative 2: This alternative may eventually comply with chemical-specific SCGs for groundwater through natural attenuation given enough time. A long term monitoring program would be instituted to provide an early warning system to determine if groundwater begins to migrate toward groundwater users. Permanent institutional controls would be recommended to prevent potential future exposures to human health adjacent to the landfill. 6 NYCRR Part 360 regulations for landfill closure would not be met, nor would the 1986 Consent Order requirements.

Alternative 3: This alternative would eventually comply with chemical-specific SCGs for groundwater. Infiltration into the landfill would be decreased, allowing contaminant levels in groundwater to slowly decrease through natural attenuation to meet SCGs. A long term monitoring program would be instituted to provide an early warning system to determine if groundwater begins to migrate toward groundwater users. Institutional controls would be recommended to prevent potential future exposures to human health adjacent to the landfill until groundwater standards are met.

This alternative would fully meet the 1986 Consent Order requirements and would comply with the 1988 version of 6 NYCRR Part 360 with the exception of the gas venting layer. Because the Prattsburg Landfill has not been accepting new waste since 1986, a full gas venting layer is not necessary, however, some gas vent improvements are appropriate. It has been estimated that 50% of total gas production from any landfill occurs during the first five years after capping. Therefore, it can reasonably be expected that during the eight years since the landfill ceased operating, the majority of landfill gas has been produced and dissipated through the existing vents. Any gas produced after cap reconstruction would be adequately dispersed through the refuse to gas venting structures.

Alternative 4: As with Alternative 3, this alternative would eventually comply with chemical-specific SCGs for groundwater. Infiltration into the landfill would be decreased, allowing contaminant levels in groundwater to slowly decrease through natural attenuation to meet SCGs.

A long term monitoring program would be instituted to provide an early warning system to determine if groundwater begins to migrate toward groundwater users. Institutional controls would be recommended to prevent potential future exposures to human health adjacent to the landfill until groundwater standards are met. All location- and action-specific SCGs including 6 NYCRR Part 360 would be met. This alternative would substantially surpass the 1986 Consent Order closure requirements.

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 1: Because no remediation would occur, this alternative would not provide any additional protection from possible future threats to human health posed by contaminants migrating from the landfill mass.

Alternative 2: Although some cap repair would occur, infiltration through the cap would likely continue to cause some groundwater contamination. This alternative would not provide any additional protection from possible future threats to human health posed by contaminants migrating from the landfill mass.

Alternative 3: Reconstruction of the cap to comply with the 1986 Consent Order and improved by a barrier protection layer, would eliminate most infiltration through the landfill. Through natural attenuation, groundwater contamination would gradually naturally attenuate to groundwater standards and the potential threat to human health would decline. As such, this alternative does provide long term effective protection to human health and the environment.

Alternative 4: Installation of a 1988 Part 360 cap would eliminate most infiltration through the landfill. Through natural attenuation, groundwater contamination would gradually naturally attenuate to groundwater standards and the potential threat to human health would decline. As such, this alternative does provide long term effective protection to human health and the environment.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

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 other alternatives.

Alternative 1: Because no remedial activities would occur, this alternative would have no short-term adverse impacts.

Alternative 2: Although it is possible that refuse could be exposed during repair activities, no significant short-term impacts would be expected beyond normal construction concerns with dust and erosion.

Alternative 3: Same as alternative 2, but with increased truck traffic during construction.

Alternative 4: Same as alternative 3.

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.

Alternative 1: The no action alternative has no long-term effectiveness. Only the current isolation of the landfill assures no human exposures. As such, the long term reliability of this alternative is low.

Alternative 2: Repair of the existing cap would not treat or remove any waste from the site. The potential risk of exposure to contaminated groundwater would still exist, although institutional controls would reduce the likelihood of exposure. The long term reliability of this alternative is questionable.

Alternative 3: Construction of this cap would not treat or remove any waste from the site. However, with reduced infiltration into the landfill, groundwater contaminants would gradually decrease. Institutional controls would reduce the likelihood of exposure until groundwater standards are reached. The long term reliability of this alternative is high.

Alternative 4: Same as alternative 3.

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.
Alternative 1: This alternative would not reduce toxicity, mobility, or volume of wastes at the site.

Alternative 2: This alternative would not reduce toxicity, mobility, or volume of wastes at the site to any significant degree.

Alternative 3: This alternative would not reduce toxicity, or volume of wastes at the site. However, this cap would restrict infiltration into the landfill and significantly decrease the mobility of contaminants.

Alternative 4: Same as alternative 3.

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.

Alternative 1: No action other than continued monitoring would be easily implemented.

Alternative 2: This alternative would be easily accomplished, technically and administratively. The technology is simple, materials are readily available as are qualified contractors.

Alternative 3: Same as alternative 2.

Alternative 4: Same as alternative 2 & 3.

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 costs for each alternative for the Prattsburg Landfill are presented in Table 5.

Alternative 1, No Action, would be the least expensive. The only costs to be incurred would be quarterly sampling for an additional twelve years as required by the 1986 Consent Order. Total present worth would be $85,000.

Alternative 2, Limited Action, is the next least expensive. Capital (construction) costs and thirty years of monitoring would bring the total present worth to almost $700,000.

Alternative 3, Improved Consent Order Cap, would cost approximately $1.65 million.
Alternative 4, 1988 Part 360 Cap, would be the most expensive alternative at about $2.25 million.

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 Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. A "Responsiveness Summary" has been prepared that describes public comments received and presents the Department response. This Responsiveness Summary is included in the ROD as Appendix A. There have been no substantive changes made to the remedy proposed in the PRAP as a result of the public comments received.

SECTION 7: SUMMARY OF THE PREFERRED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is proposing Alternative 3 as the remedy for this site.

Alternatives 1 and 2 would not satisfy SCGs. Alternatives 3 and 4 would meet or even surpass SCGs. Alternative 2 would be somewhat more effective than Alternative 1, but its long term effectiveness is questionable. Alternatives 3 and 4 are equally effective and protective in the long term, have no significant short term impacts beyond normal construction concerns and are readily implementable. Alternative 3 is lower in cost than Alternative 4 and since it equally satisfies the other criteria, including the threshold criteria, it is the preferred alternative.

The estimated present worth cost to implement the remedy is $ 1,650,000. The cost to construct the remedy is estimated to be $ 1,400,000 and the estimated average annual operation and maintenance cost for 30 years is $ 250,000.

The elements of the selected 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. A cap will be constructed which will comply with permeability requirements of the 1986 Consent Order. Any topsoil presently covering the landfill will be removed and stockpiled. Material will be brought in to eliminate low spots. Additional gas venting will be installed. A low permeability layer consisting of either eighteen inches of clay with a permeability of 1×10^{-7} cm/sec or less, or a geomembrane which is the performance equivalent of the clay layer, will be emplaced. This will be overlain by a barrier protection layer and six inches of topsoil. The landfill cap will then be reseeded for revegetation.

3. Steps will be taken to limit access by installing perimeter fencing or other appropriate measures.

4. A long-term, comprehensive monitoring program will be instituted to allow the effectiveness of the selected remedy to be monitored. This long term monitoring program will be a component of the operations and maintenance for the site and will be developed in accordance with the NYS Department of Health.

5. Although the Risk Assessment showed that potential future human health risk due to groundwater consumption outside the landfill footprint is below levels of concern, it is recommended that the County establish a protective buffer around the landfill to prevent incompatible future usage of the area in the immediate vicinity. The protective buffer would place an emphasis on assuring that no future human exposures to groundwater would take place. If an adequate protective buffer is established, requirements for long-term groundwater monitoring will be reduced.

Alternatively, if an adequate protective buffer is not established, the County will conduct a periodic survey of property adjacent to the landfill. If residential wells are installed adjacent to the landfill, Steuben County will sample said well(s) prior to use and monitor them periodically for volatile organic compounds and metals. If contamination is found at levels of public health concern in private wells, the County will install and maintain individual treatment units for all affected wells.

SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

Document repositories were established at the following locations for public review of project related material:

Prattsburg Library Association
26 Main Street
Prattsburg, New York 14873
Ms. Marian Loeffler

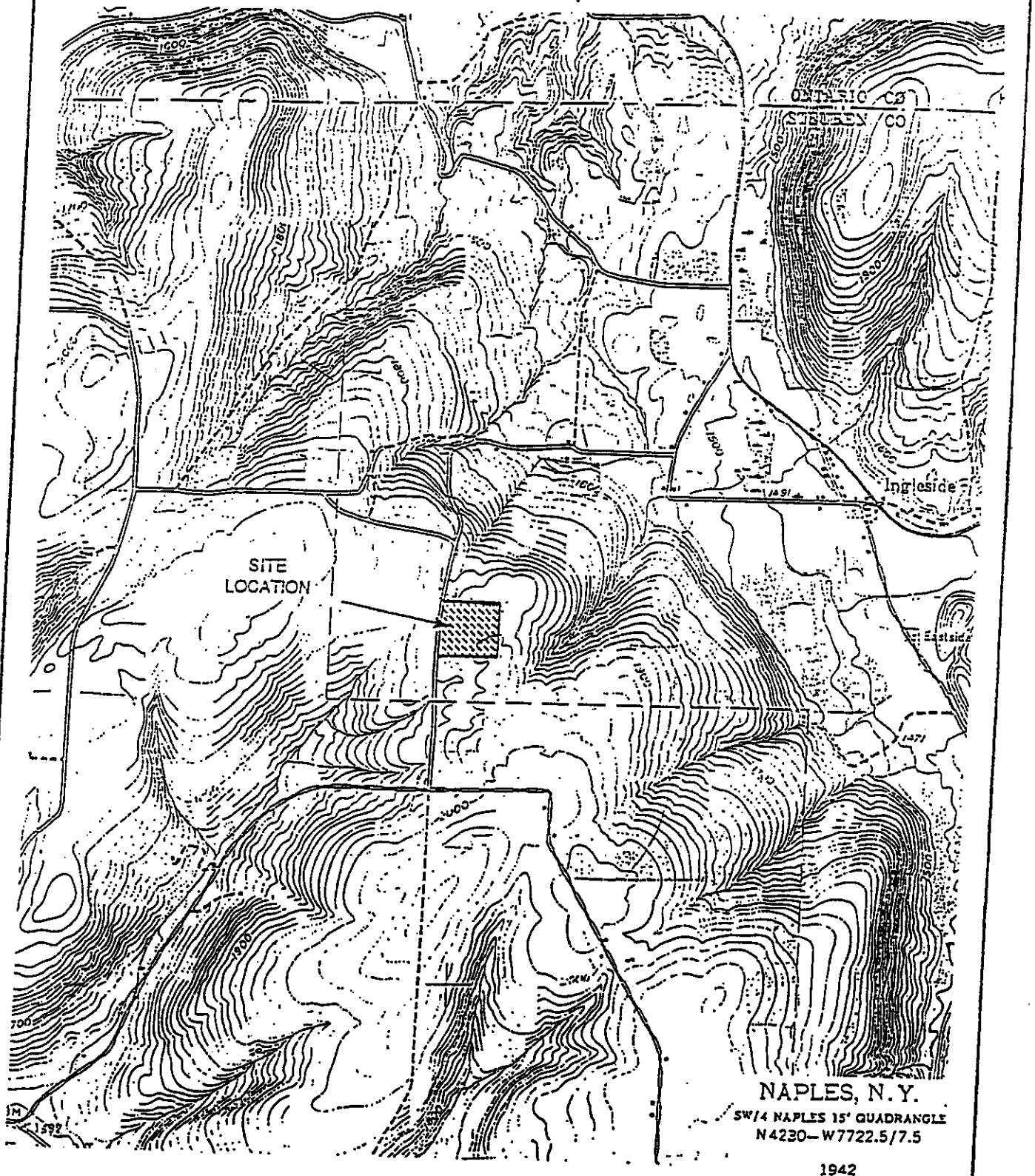
NYSDEC Div. of Hazardous Waste Remediation
50 Wolf Road, Room 222
Albany, New York 12233-7010
Ms. Karen Maiurano, Project Manager
(518) 457-5636

Steuben County Dept. Of Public Works
3 East Pulteney Square
Bath, New York 14810
Mr. Richard Dunn, Assist. Commissioner of Public Works
(607) 776-9631

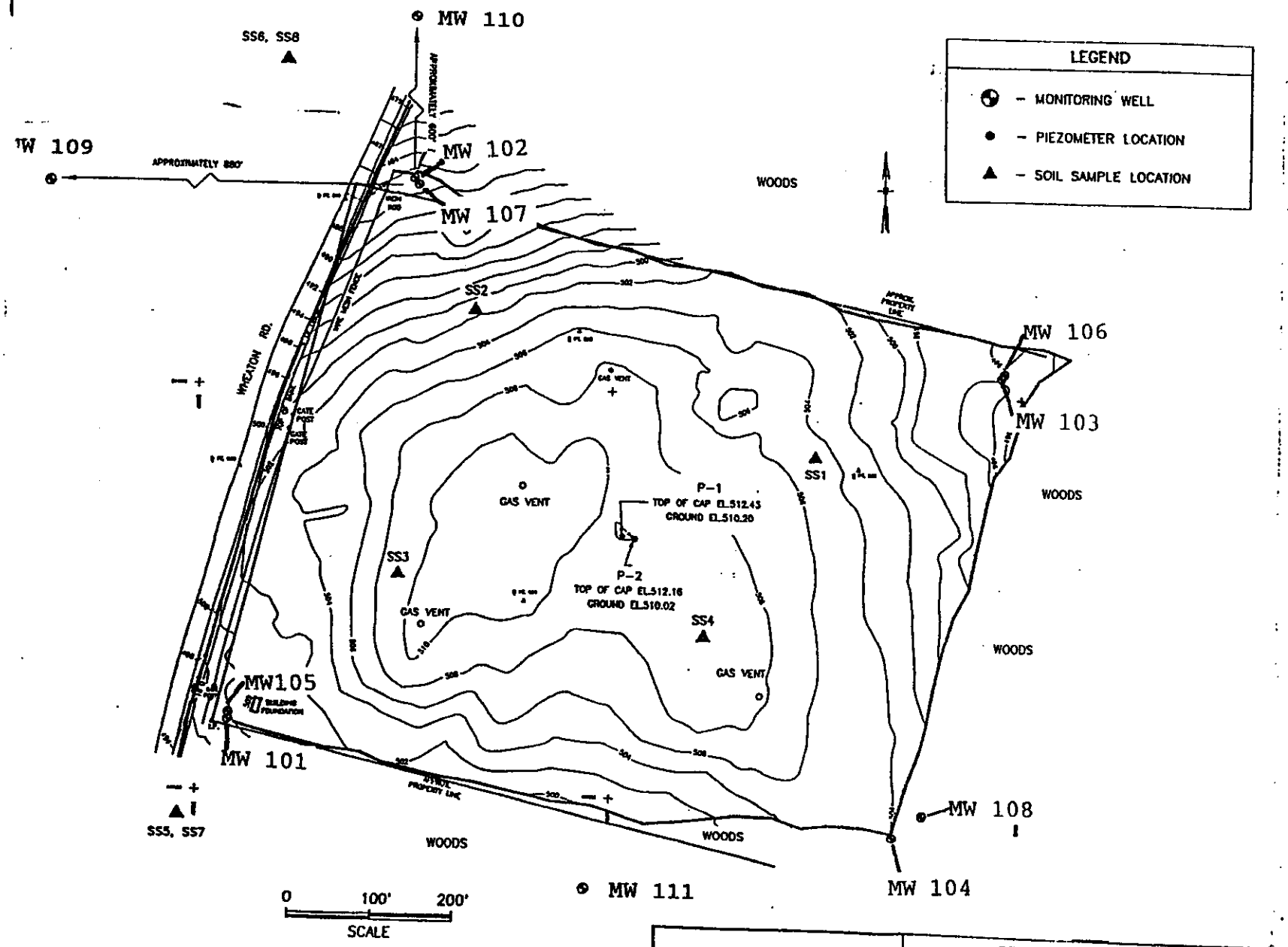
NYSDEC Region 8 Office
6274 East Avon-Lima Road
Avon, New York 14414
Ms. Linda Vera, Citizen Participation Specialist
(716) 226-2466

The following citizen participation activities were conducted:

- Citizen Participation Plan prepared March 1993.
- Fact Sheet distributed February 1993 announcing remedial investigation at Prattsburg Landfill.
- Public Meeting February 16, 1993 to inform interested parties and answer questions about the Prattsburg RI/FS.
- Fact sheet distributed describing results of the RI/FS and PRAP, February 1995.
- Public comment period on PRAP from February 15 through March 24, 1995.
- Public meetings to present PRAP on March 1, 1995 and March 14, 1995.



Stearns & Wheler ENVIRONMENTAL ENGINEERS & SCIENTISTS	REMEDIAL INVESTIGATION PRATTSBURG LANDFILL STEUBEN COUNTY, NEW YORK
DATE: 8/93 JOB No.: 2379	FIGURE 1 SITE LOCATION



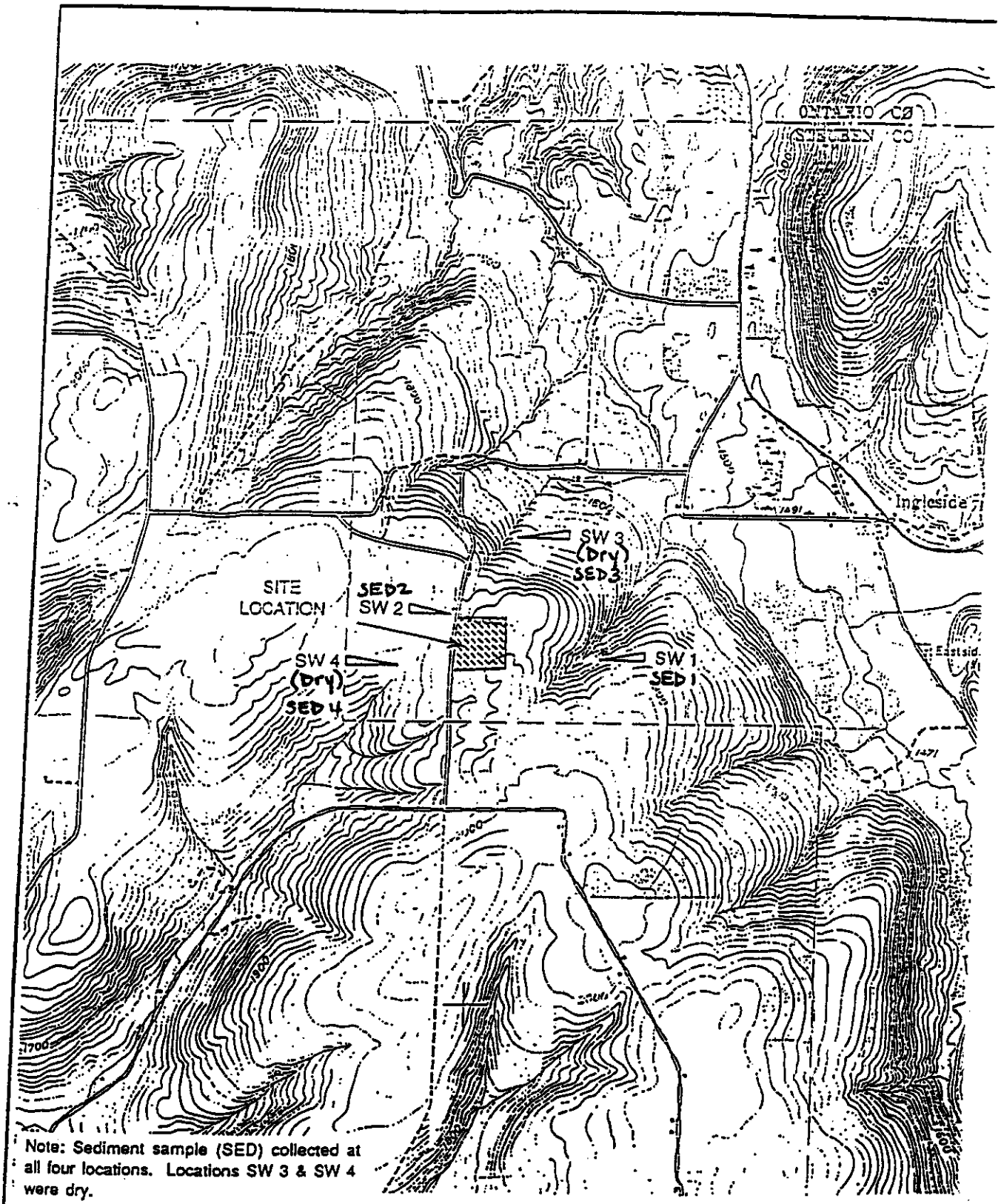
LOCATIONS FOR MW109, MW110 & MW111 ARE APPROXIMATIONS ONLY.

Stearns&Wheler
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DATE: 8/93 JOB No.: 2379

REMEDIAL INVESTIGATION
PRATTSBURG LANDFILL
STEUBEN COUNTY, NEW YORK

Figure 2: Groundwater and Soil Sampling Locations



Note: Sediment sample (SED) collected at all four locations. Locations SW 3 & SW 4 were dry.

Stearns&Wheler
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DATE: 10/93 JOB No.: 2379

REMEDIAL INVESTIGATION
PRATTSBURG LANDFILL
STEUBEN COUNTY, NEW YORK

FIGURE 3: SEDIMENT+ SURFACE WATER SAMPLE LOCATIONS

Table 1.

SUMMARY OF TOTAL INORGANICS CONCENTRATIONS IN GROUNDWATER
6/7/93
REMEDIAL INVESTIGATION
PRATTSBURG LANDFILL
STEUBEN COUNTY, NY

METALS DATA (ug/L):

Analyte	Groundwater Standard	102	103	105	106	107
Aluminum	none	7340 J	2090 J	9200 J	30600 J	19200 J
Antimony	3G	60	60.0 U	60.0 U	60.0 U	60.0 U
Arsenic	25	14.5	3.9	7.6 J	11.5	10
Barium	1000	1800	571	992	574	837
Beryllium	3G	0.90 U	0.90 U	0.90 U	0.93	0.90 U
Cadmium	10	4.90 U	4.90 U	4.9 U	4.9 U	4.9 U
Calcium	none	143000	599900	96100	46400	126000
Chromium	50	9.3	5.2 U	51.2	135	33.5
Cobalt	none	21.2	12.2 U	12.2 U	29.7	23.6
Copper	200	15.6	5.2 U	14.8	73.4	36.4
Iron	300	20700	5670	22400	57900	37900
Lead	25	16.2	5.4 J	6.6 J	19.4	16.0
Magnesium	35000G	50200	17400	29900	11800	40800
Manganese	300	12100	5930	4760	805	2180
Mercury	2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	none	33.6 U	33.6 U	89.2	263	61.7
Potassium	none	10800	1240 U	2660	17700	12900
Selenium	10	5.0 U	5.0 U	5.0 U	5.0 U	5.0
Silver	50	6.5 U	6.5 U	6.5 U	6.5 U	6.5
Sodium	none	57800	6520	14000	199000	73900
Thallium	4G	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 UJ
Vanadium	none	7.3 U	7.3 U	7.3 U	48.0	28.4
Zinc	300	68.7	36.8	60.0	164	313
Cyanide	100	10.0 U	10.0 U	10.0 U	10.0	10.0

Highlighted cell indicates exceedance of water quality standard.
(U) - Under detection limits.
(J) - Estimated concentrations.

Stearns & Wheler
Job No. 2379
Nov-93

Table 2

SUMMARY OF INORGANIC CONCENTRATIONS IN SOIL

REMEDIAL INVESTIGATION

PRATTSBURG LANDFILL

STEUBEN COUNTY, NY

METALS DATA (ug/L):

Metal Name	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8-9
Aluminum	13200 J	14000 J	15500 J	15800 J	18500 J	11900 J	16200 J	12600 J
Antimony	14.3 UJ	15.4	14.5 UJ	13.5 UJ	15.1 UJ	14.3 UJ	1407 UJ	14.3 UJ
Arsenic	9.2	7.1	7	7.6	6.8	4.5	7.2	4.4
Barium	90.2	102	141	136	64.7	73.4	50.4	88.6
Beryllium	0.58	0.63	0.59	0.6	0.62	0.65	0.55	0.3
Cadmium	1.2 U	1.3 U	1.2 U	1.1	1.2 U	1.2 U	1.2 U	1.2 U
Calcium	19300	47400	22100	22000	20500	6100	8270	12200
Chromium	16.8 J	16.6 J	18.1 J	19.2 J	16.8 J	10.1 J	17.4 J	12.3 J
Cobalt	13.9	16.9	17.1	17.6	15.3	10.3	14	8.6
Copper	18.3	24.7	20.9	24.1	12.3	10.5	14.8	15.2
Iron	25800	30900	32400	32500	30400	23900	26000	22000
Lead	15.6 J	28.2 J	14.5 J	16.2 J	13.4 J	18.5 J	13.5 J	16.2 J
Magnesium	5310 J	5450 J	5310 J	5470 J	3660 J	3310 J	3960 J	5760 J
Manganese	507	568	482	492	554	710	531	470
Mercury	.12 U	.13 U	.12 U	.11 U	.13U	0.12 U	.12 U	.12 U
Nickel	27	32.3	33.1	33.4	20.6	16.7	27.1	14.3
Potassium	1850	1590	1420	1460	868	735	1060	1200
Selenium	1.2 U	1.3 U	1.2 U	1.1 U	1.3 U	1.2 J	1.2 U	1.2 U
Silver	1.5 UJ	1.7 UJ	1.6 UJ	1.5 UJ	1.6 UJ	1.5 UJ	1.6 UJ	1.5 UJ
Sodium	231 U	249 U	235 U	219 U	245 U	231 U	238 U	232 U
Thallium	1.2 UJ	1.3 J	1.2 UJ	1.1 UJ	1.3 UJ	1.2 UJ	1.2 UJ	1.2 UJ
Vanadium	23.2	23.4	23.1	23.6	27	21	23.5	21.3
Zinc	78.5	91.7	82.2	81.7	94.7	66.7	82.6	72.6
Cyanide	.65 U	0.57	.69 U	.58 U	0.72 U	.64U	.63 U	.67 U

(U) - Under detection limits.

(J) - Estimated concentrations.

Stearns & Wheler

Job No. 2379

Nov-93

Table 3

SUMMARY OF INORGANICS CONCENTRATIONS IN SEDIMENTS
REMEDIAL INVESTIGATION
PRATTSBURG LANDFILL
STEUBEN COUNTY, NY

METALS DATA (ug/L):

Metal Name	SED1	SED2	SED3	SED4
Aluminum	12100 J	8100 J	14500 J	11900 J
Antimony	15.7 UJ	16.1 UJ	13.7 UJ	17.8 UJ
Arsenic	13.3	8.3	12.2	22
Barium	177	80.9	226	402
Beryllium	0.55	0.46	0.65	0.62
Cadmium	1.3 U	1.3 U	1.3	1.5 U
Calcium	1960	7420	2810	2360
Chromium	15.8 J	12.2 J	17.9 J	14 J
Cobalt	14.4	12.2	16.1	10.2
Copper	15.3	47.2	21.8	17.3
Iron	27800	20600	29000	26800
Lead	18 J	14.9 J	23.1 J	27.2 J
Magnesium	3870 J	5120 J	4270 J	2720 J
Manganese	608	180 J	1130	1100
Mercury	.13 U	.13 U	.11 U	.15 U
Nickel	23.8	18.7	25	19.4
Potassium	780	1000	1790	1030
Selenium	1.3 U	1.3 U	1.1 U	1.5 U
Silver	1.7 UJ	1.7 UJ	1.5 UJ	1.9 U
Sodium	255 U	260 U	222 U	288 U
Thallium	1.3 U	1.3 UJ	1.1 U	1.5 U
Vanadium	19.6	17.5	22.5	23.7
Zinc	87	60.1	107	88.7
Cyanide	.71 U	.51 U	.69 U	.62 U

Sampled 6/93
(U) - Under detection limits.
(J) - Estimated concentrations.

Table 4
SUMMARY OF PESTICIDES/PCBs IN SEDIMENTS
REMEDIAL INVESTIGATION
PRATTSBURG LANDFILL
STEUBEN COUNTY, NY

PESTICIDES/PCBs , UG/KG

Sample ID	4,4'-DDE	4,4'-DDD	4,4'-DDT	alpha-Chlordane	gamma-Chlordane	Dieldrin
SED 1	1.7 J		1.2 J		1.5 J	
SED 2				17	23	3.2 J
SED 3	4.9	3.3 J	4.9			
SED 4	7.5		2.7 J			

Sampled 6/93
(U) - Under detection limit.
(J) - Estimated value.
No PCB aroclors were detected.

TABLE 5: ALTERNATIVE COST COMPARISON PRATTSBURG LANDFILL

	Capital Cost	Operation and Maintenance Present Worth	Total Present Worth
Alternative 1: No Action	$ 0	$ 85,000(1)	$ 85,000
Alternative 2: Limited Action	$ 444,000	$ 250,000(2)	$ 694,000
Alternative 3: Consent Order Cap with Improvements	$ 1,400,000	$ 250,000(2)	$ 1,650,000
Alternative 4: 1988 Part 360 Cap	$ 2,000,000	$ 250,000(2)	$ 2,250,000

(1) Present worth based on a 12 year period of operation and a discount rate of 5%.

(2) Present worth based on a 30 year period of operation and a discount rate of 5%.

APPENDIX A
RESPONSIVENESS SUMMARY

Following are questions and the State's response from the March 1, 1995 public meeting:

Q. **Why is the Prattsburg Landfill being capped?**

A. Steuben County signed a Consent Order with the NYSDEC in 1986 to close the landfill. The consent order included requirements for capping, specifying the material to be used and the thickness of the cap. During the Remedial Investigation recently completed, the county was unable to show that the cap which they constructed complies with these requirements. In places, the cap thickness is less than the required eighteen inches. Also, the cap material contains too many rocks to effectively prevent infiltration. Thus, the county is not in compliance with the consent order.

Additionally, data obtained during the Remedial Investigation indicate that without further action, there is a potential for future health risks due to ingestion of groundwater should residences be built in the immediate vicinity of the landfill. Construction of a cap which complies with NYSDEC requirements would reduce the potential future risks by eliminating infiltration of water through the cap and into the landfill waste, thus minimizing migration of contaminated groundwater from the site.

Q. **How much will the cap cost?**

A. As stated in the PRAP, capital costs for the cap will be approximately $1,400,000, and long-term operation and maintenance over thirty years will be about $250,000.

Q. **What is the risk and why spend money? Due to the present state economy could this be put off a few years? Could the money be used instead to buy property to protect against exposures?**

A. The Risk Assessment indicated that there is no present human health risk due to migration of landfill contaminants. However, there is documentation that hazardous waste went into the landfill mass and there are contaminants in excess of standards in groundwater under private property adjacent to the landfill. There are not adequate controls in place to assure that health risks and human exposures will not become problems in the future. Capping the landfill in accordance with the 1986 closure consent order will minimize infiltration through the cap and waste, and protect against potential future risks.

Title 3 of the Environmental Quality Bond Act provides for state assistance to municipalities for remediating inactive hazardous waste landfills. Under this program, 75% of eligible costs of cap construction are reimbursable to the municipality. Many municipalities across the state have taken advantage of this program, and the amount of money available is decreasing. We do not know if additional funding will be available when present funds run

out. If the county were to delay cap construction until some future date, it is possible that state assistance would not be available, and the county would need to fund the entire cost of cap construction.

With very limited exceptions, Title 3 state assistance money may not be used to buy property. These funds could not be used to buy property in lieu of landfill closure as a means to protect against exposures. Additionally, even if this approach were used, the County's legal obligations would not necessarily be met.

Q. **What would the penalty be to the county for not being in compliance with state regulations?**

A. In the event that future penalties should ever be considered, the level of penalty would be set at that time via the legal process. The NYSDEC has been working with Steuben County using both financing and guidance to help the County come into compliance with applicable environmental regulations.

Q. **Who pays for the long-term operation and maintenance of the landfill?**

A. Steuben County is responsible for long-term O & M costs.

Q. **How is the geomembrane sealed? Is it a tough, durable material? Can it get stretched? Does it decompose? Why won't clay be used?**

A. The geomembrane will be heat sealed when it is placed over the landfill. It is very durable, and can withstand large stretching forces. It will not decompose as long as it is protected from sunlight. The geomembrane is preferred over clay because it is cheaper and in some ways technically superior (i.e., less susceptible to desiccation, less truck traffic during construction, etc.).

Q. **Who are the engineering firms and contractors who will do this work and where are they from? How many contractors have the capability to install the geomembrane?**

A. The engineering firm hired by the County for design is Stearns and Wheler, based in Cazenovia. The construction will be put out for bid after design details have been completed, so it is not known at this time where the construction contractors will be from. The contractor will be selected using State and County procurement requirements. Many contractors are qualified to do this work.

Q. **Will there be hazards from the new gas vents?**

A. After construction of the new cap, there will be no more gas generated by the landfill than before construction. Monitoring at the existing gas vents during the investigation indicated there are no current risks associated with landfill gas, so it is expected that there will be no additional risks with additional vents.

Q. **How deep are the monitoring wells? What is their flow rate? How do their depths compare to the depths of residential wells?**

A. There are five overburden wells and six bedrock wells. Flow rates were not measured in the wells, however, the bedrock hydraulic conductivity is approximately 2×10^{-4} cm/sec. This is a moderately tight (low flow) bedrock. Groundwater velocity through the bedrock is estimated to be up to thirty feet per year.

The bedrock monitoring wells are installed in the top five to ten feet of bedrock. The top of bedrock is about twenty feet below ground surface in the vicinity of the landfill. Residents who responded to the well users survey are located southeast, east, and northeast of the landfill. Those who are along Hill Road south and southeast are higher in elevation than the landfill. Those residents living east and northeast of the landfill in Ingleside are about four hundred feet lower in elevation than the landfill. Two respondents are located north of the landfill about 350 feet lower in elevation than the landfill. Reported depths of residential wells range from twenty feet to two hundred feet.

Q. **Were any attempts made to monitor groundwater contamination farther from the landfill? How can you be sure contamination is not going to the east beyond the landfill? Why weren't residential wells sampled? Could there be an underground stream heading towards the homes?**

A. All data gathered during the investigation shows that bedrock groundwater is moving to the west and northwest from the site. Three off-site bedrock wells installed near the landfill did not show significant levels of contaminants. The only downgradient residence in the vicinity of the landfill did not allow access for well sampling. Other residences are located at greater distances from the landfill, and are not in the direction of groundwater flow. Furthermore, the bedrock in this area is shale, and though shale does transmit water, underground "streams" do not occur in shale.

Q. **How long did the landfill operate?**

A. The NYSDEC does not know exactly when the landfill began operating. It was originally operated by the Towns of Prattsburg and Cohocton, possibly beginning in the late 1960's.

Q. **What is the criteria for determining if the public is in agreement with the PRAP? What public response would change a PRAP? Who makes the final decision on what the remedy will be?**

A. All public comments are considered, including those received during the public meeting and those made in writing to the NYSDEC. If the public expresses strong disapproval of the PRAP, the NYSDEC would review its selection. Many factors would be taken into consideration, and any decision would be based on site-specific conditions. For example, the nature of the problem, the remedy recommended by the state, the remedy preferred by the public, the cost of each remedy, the effectiveness of each remedy, and the rationale for the selection would all be considered. The Commissioner of the NYSDEC has the authority to

make the final decision. This authority is currently delegated to the Director of the Division of Hazardous Waste Remediation.

Q. Why wasn't the public notified about the March 1, 1995 meeting?

A. Due to a mailing error, public notification for the March 1 meeting was sent to only a portion of the mailing list. Because of this problem the period for public comment was extended and a second public meeting was scheduled. A second mailing was sent on March 7 to the entire mailing list to inform the public of the second meeting and the extended comment period. The second public meeting was held March 14, 1995, and the public comment period was extended through March 24, 1995.

Following are the additional questions and the State's response from the March 14, 1995 public meeting:

Q. Do the contaminants degrade and does the risk lessen in time?

A. The contaminants are expected to slowly degrade with time through natural attenuation. However, this does not assure that the potential future risk from landfill contaminants will decrease in time if the landfill cap is not reconstructed. It is likely that the existing cap will further degrade with time, allowing increased infiltration and causing increased contaminant loadings to the groundwater. Should this occur, the increased contaminant release from the waste mass may overwhelm natural attenuation mechanisms and result in higher or locally more widespread groundwater contamination.

Q. How far is the nearest house and how long will it take for water to get there?

A. The nearest house is about one half mile away.

Using conservative estimates, the County's consultant estimated that groundwater moves at a maximum of 30 feet per year. Assuming for discussion that it moves directly toward the nearest downgradient house and that no attenuation ever occurs, it would take almost 90 years to reach the house.

Q. What happened that the cap permeability testing wasn't successful? Couldn't other tests, such as a perc test, be tried?

A. The most reliable method to measure soil permeability is to drive a hollow tube sampler into the ground to obtain an undisturbed soil sample. When the sampler is retrieved, the ends are sealed and it is sent to a laboratory for analysis. This is the standard method for this critical requirement and is the most widely accepted. During several attempts to drive samplers into the landfill cap material, there were so many rocks in the cap that the sampling devices crumpled, and it was not possible to obtain an undisturbed sample. There are other methods, such as infiltrometer tests, that are occasionally used but none were expected to provide reliable data for the particular conditions at Prattsburg.

Q. Which branches of New York State government are responsible for this program?

A. The Executive branch is responsible for implementing the statutes created by the Legislative branch. The New York State Department of Environmental Conservation and the New York State Department of Health are the agencies within the Executive branch with primary responsibility to implement this program.

Q. What did they use for cover material when the landfill was capped in 1986?

A. Material obtained from borrow pits at the landfill site was used. It contained many rocks, was not screened prior to cover construction, and never met the minimum requirements for the critical low permeability barrier layer.

Q. What material will be used for the barrier protection layer?

A. A barrier protection layer is normally a readily available "low spec" earthen material such as silty sand or other soil with a low rock content. The actual material to be used for Prattsburg will be specified during cap design, and its source will be determined once the construction contractor has been hired. It is important to understand that the low permeability barrier layer requires different material with much more stringent material requirements.

Q. Does groundwater flow through the landfill?

A. The waste trenches were excavated down to bedrock but remain above the bedrock groundwater table. As such, groundwater does not flow directly through the refuse. The groundwater contamination detected in monitoring wells at the landfill is due to water infiltrating the cap, flowing down through the waste mass and into adjacent overburden and rock.

Q. What is the difference between groundwater and surface water?

A. Surface water includes ponds, lakes, wetlands, streams, etc. Groundwater is found beneath the surface, in pore spaces and fractures of soil and rock. Groundwater often becomes surface water when it seeps out of the ground and enters surface water features.

Q. If there's not much contamination there now, would a few more years of rain and snow eliminate it?

A. It is not known how much total hazardous waste went into the landfill nor can we reasonably estimate how long it would take for all of it to leach out if the landfill is not properly capped. Experience has shown that landfills similar to Prattsburg will continue to pollute for many years if left uncontrolled.

Q. If bond act money wasn't there, would the County still consider properly capping the landfill? How would Steuben County prioritize its landfills? Is there enough Bond Act money to close all the County municipal landfills?

A. If EQBA funds were not available to assist Steuben County, the County would still be legally obligated to properly close its landfills. Without State assistance the County would likely prioritize capping of its municipal landfills based the size of each project, available funds and need. Steuben County has stated that their first priority would be the Old Bath Landfill, then the Lindley Landfill. Presumably Prattsburg would be the County's last priority. Currently there is enough Bond Act money to close Old Bath, Lindley, and Prattsburg. However, funds for the Lindley Landfill may be in jeopardy if site evaluations are not completed early enough. Delaying Prattsburg would not help to assure Lindley funding is available down the road, but would place Prattsburg funding in jeopardy.

Q. Is there a Steuben County Department of Health?

A. No. For those counties without health departments, the New York State Department of Health maintains a District Office. The NYS Department of Health's District Office for Steuben County is located in Hornell, New York at 107 Broadway. The District Director is Mr. Richard Bills and his phone number is (607) 324-8371.

Q. Will this be put to a vote by the people?

A. No. Elected representatives of Steuben County signed a consent order in 1992 to undertake a remedial program at the landfill, including remediation if warranted. Results of the remedial investigation indicate remediation is necessary. There has been cooperation among all parties (NYSDEC, NYSDOH, and Steuben County) during the RI/FS process, including development of the Proposed Remedial Action Plan. Steuben County legislators are in agreement with the proposed remedy.

Q. Is there a way to measure gases coming through the landfill vents and relate them to the degradation of waste?

A. There is no need to measure the vent gases to relate them to their source. The vast majority of these gases are from decomposition of household waste and are not related to hazardous waste compounds. Also, considering the isolation of the site and that no evidence of big pockets of hazardous waste was encountered, there would be no real value to monitoring the vent gases for traces of hazardous waste compounds.

Q. Would the County consider sampling some residences to assure residents that their water is not contaminated?

A. Yes, Steuben County will arrange to sample some residential wells.

Q. Were springs below the landfill ever tested?

A. Springs were not found in the vicinity of the landfill during investigation activities. Streams which break out downgradient of the landfill and likely to be groundwater fed were sampled, and no contamination was detected.

Q. Which contaminants were above NYSDEC standards?

A. Below is a table showing compounds which exceed groundwater standards. Multiple detections at individual wells are due to multiple rounds of sampling.

Compound	Groundwater Standard	Detections above Standards	Well ID Numbr
Tetrachloroethylene	5 ppb	24 ppb	104
Ethylbenzene	5 ppb	17 ppb 45 ppb 91 ppb 98 ppb 200 ppb	107 102 107 102 107
Xylene	5 ppb	43 ppb 46 ppb 100 ppb 120 ppb	107 107 107 102
Benzene	0.7 ppb	6 ppb	103
Toluene	5 ppb	7 ppb	111

One written response was received from a Prattsburg resident expressing the opinion that a buffer zone around the landfill be purchased by Steuben County instead of capping the landfill (letter attached).

DEC Response: If the County establishes a buffer zone around the landfill instead of reconstructing the cap, their legal requirement of the 1986 consent order cap construction would not be met.

Additionally, prior to installation of the off-site bedrock wells, Steuben County discussed the possibility of purchasing land with adjacent land owners. At that time, no one was willing to sell their land. We have no reason to expect that these same land owners would now be willing to sell their land to establish a buffer zone.

Further, as discussed in response to earlier comments in the Responsiveness Summary, if Steuben County postpones capping, it is likely the county would have to fund the entire the cost of the project.

A written comment was received from an Ingleside resident southeast of the landfill in support of the PRAP. This resident also requests that their well be sampled periodically by the State or County (letter attached).

DEC Response: As we presented at the public meetings, all data that was gathered during the RI indicated that groundwater flow is to the north and northwest away from the landfill. It does not appear that groundwater flows southeast toward this residence. Additionally, the landfill is over five hundred feet higher than the residence, and six hundred feet higher than the depth of the well. Even if contaminants were migrating from the landfill in the direction of this residence, they would have to travel over one horizontal mile and six hundred vertical feet to reach the well. In all likelihood these contaminants would become diluted and naturally degrade long before they could contaminate this well.

However, to ease residents' concerns, Steuben County agreed at the March 14, 1995 public meeting to sample selected residential wells. This well will be included in that sampling.

Because the NYSDEC and NYSDOH identified no clear technical basis to justify long-term residential monitoring, we do not believe it is appropriate to include such a provision as a mandate in the ROD.

APPENDIX B
ADMINISTRATIVE RECORD

- Remedial Investigation/Feasibility Study Workplan for Prattsburg Landfill prepared by Stearns & Wheler for Steuben County, March 1993.
- Subcontractor Procurement, Remedial Investigation/Feasibility Study Workplan for Prattsburg Landfill prepared by Stearns & Wheler for Steuben County, March 1993.
- Scope of Services and Compensation and Agreement for Geophysical Services, Prattsburg Landfill RI/FS, March 1993
- Scope of Services and Compensation and Agreement for Monitoring Well and Piezometer Installation, Prattsburg Landfill RI/FS, March 1993
- Scope of Services and Compensation and Agreement for Laboratory Analytical Services, Prattsburg Landfill RI/FS, March 1993
- Remedial Investigation Report for Prattsburg Landfill prepared by Stearns & Wheler for Steuben County, December 1994.
- Feasibility Study Report for Prattsburg Landfill prepared by Stearns & Wheler for Steuben County, January 1995.
- Proposed Remedial Action Plan, Prattsburg Landfill, February 1995.
- Order on Consent, Index #B8-0228-88-07, June 11, 1992.
- Order on Consent, Case #8-0492, July 30, 1986.
- Citizen Participation Plan, prepared by Stearns & Wheler for Steuben County, March, 1993.
- NYSDEC, Division of Hazardous Waste Remediation Technical and Administrative Guidance Memoranda 4000-4053.
- NYSDEC, Division of Water Technical and Operational Guidance Series.
- New York State Environmental Conservation Law 6 NYCRR Part 375, May, 1992.
- National Oil and Hazardous Substance Pollution Contingency Plan, 40 CFR Part 300, 1990.
- State Assistance Contract No. C300290, November 5, 1992.

- December 1994 Groundwater Sampling Results, Prattsburg Landfill, Steuben County, prepared by Stearns & Wheler, January 26, 1995.

- Report on Soil Cover & Hydrogeologic Investigation, Prattsburg Landfill Closure, Steuben County, New York, prepared for Larsen Engineers/Architects by H&A of New York, May 1987.

- Ground Water Quality Monitoring Report for * Sampling Period, Prattsburg Landfill, prepared by Malcolm Pirnie.

    * April 25, 1990
    * July 25, 1990
    * October 24, 1990
    * January 30, 1991
    * April 24, 1991
    * July 24, 1991
    * October 24, 1991
    * January 24, 1992
    * April 23, 1992
    * July 22, 1992
    * October 15, 1992
    * January 6, 1993
    * April 7, 1993

- Annual Ground Water Quality Summary Report for * Calendar Year at Prattsburg Landfill, prepared by Malcolm Pirnie.

    * 1990
    * 1991
    * 1992