PAWLING RUBBER
SITE NUMBER: 314002
PAWLING, NY, DUTCHESS COUNTY

New York State Superfund
Record of Decision

March 1992

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York 12233
THOMAS C. JORLING, *Commissioner*

DECLARATION FOR THE RECORD OF DECISION

Site Name and Location
Pawling Rubber
157 Charles Colman Boulevard
Pawling, NY 12564
Site Code: 314002
Funding Source: Responsible Party

Statement of Purpose
This document describes the remedial alternatives considered for the inactive hazardous waste disposal site at Pawling Rubber, Site Code 314002, and identifies the New York State Department of Environmental Conservation's (NYSDEC) preferred remedial alternative developed in accordance with the New York State Environmental Conservation Law (NYSECL), and consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC Section 9601, et., seq. as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Exhibit A identifies the documents that comprise the Administrative Record for the site. The documents in the Administrative Record are the basis for the Record of Decision.

Assessment of the Site
Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action described in this Record of Decision (ROD), present a current or potential threat to public health welfare, and the environment.

Statement of Basis
This decision is based upon the Administrative Record for the Pawling Rubber site and the comments received from the pubilc. A copy of the Record is available for public review and/or copying at the following locations:

NYSDEC, Region 3
21 South Putt Corners Road
New Paltz, NY 12561

Pawling Village Hall
9 Memorial Avenue
Pawling, NY 12564

Pawling Free Library
11 Broad Street
Pawling, NY 12564

Description of the Remedy
This operable unit is the first of two planned for the site. The first operable unit addresses the source of the contamination by treating the contaminated soil and groundwater in the

unconsolidated overburden. The function of this operable unit is to remediate the contamination source and to prevent additional off-site migration. The second operable unit will involve continued study and possible remediation of the bedrock aquifer. The proposed remedy for the Pawling Rubber site consists of the following:

- ★ Overburden groundwater extraction through pumping from recovery wells;
- ● Groundwater treatment by air stripping and granular activated carbon adsorption polish;
- ★ Treatment of contaminated soils in the saturated and unsaturated zones by air sparging and soil ventilation;
- ● Off-gas treatment by solvent recovery (on-site carbon regeneration);
- ★ Off-site destruction of waste solvent by incineration.

Declaration

The selected remedy is protective of human health and the environment complies with Federal and New York State requirements that are legally applicable, or relevant and appropriate requirements (ARARs) to the remedial action. This remedy utilizes permanent solutions, alternative treatment and resource recovery technologies to the maximum extent practicable for this site.

3-24-92
Date

Edward O. Sullivan
Commissioner
Office of Environmental Remediation

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RECORD OF DECISION

Pawling Rubber; Pawling, Dutchess County, Site Number 3-14-002

I. PROBLEM STATEMENT

A series of investigations discovered high levels of tetrachloroethene (PCE), trichloroethene (TCE) and toluene in the area of a landfill on the site. Vinyl chloride at 4,800 ppb (parts per billion), trans 1,2 dichloroethene at 20,000 ppb, TCE at 41,000 ppb, PCE at 42 ppb and toluene 170,000 ppb, were detected in the 1990 groundwater investigation. No significant levels were detected in the soil. The soil gas survey conducted in 1990 showed TCE at 270 ppm (parts per million), PCE at 2 ppm, and toluene at 110 ppm. The compounds detected on site are mostly volatile organic compounds (VOCs), which volatilize quickly when exposed to the atmosphere. The site is on a plateau of bedrock, and adjacent to the site is a New York State (NYS) Regulated Wetland which contains the Swamp River. There is no evidence of extensive off-site migration of contamination. The Corbin Road municipal supply well, which is only used under drought conditions, is ¼ mile from the site, and is not presently affected by the site.

II. GOALS FOR THE REMEDIAL ACTIONS

The goals for the remedial action are to:

1. Eliminate the source of contamination, and the prevent of off-site migration of the contamination. The source is the high concentration plume in the groundwater.

2. Restore groundwater quality at the site to meet NYS standards within a period of five years from commencement of remedial action.

   Groundwater monitoring wells will be sampled to determine the effectiveness of the remedial action. After the first year of the remedial action, the monitoring wells data will be evaluated. If the results of the evaluation suggest that the clean-up goal will not be obtained, the remedial action will be modified accordingly.

   The New York State Groundwater Standards for the contaminants of concern:

vinyl chloride	2 ppb
tetrachloroethene (PCE)	5 ppb
trichloroethene (TCE)	5 ppb
1,2 dichloroethene	5 ppb
toluene	5 ppb

3. Remediation of contaminated soil.

   The levels of contamination detected in the soil are below clean-up action goals,

therefore no soil clean-up goals is required. The air sparging system recommended as one of the remedial actions will strip the contaminants in the saturated zone and unsaturated zones.

The soil clean-up goals for the site have been determined to be the following:

vinyl chloride	0.15 ppm
trichloroethene (TCE)	1.0 ppm
1,2 dichloroethene	0.5 ppm
toluene	1.5 ppm

III. SITE LOCATION AND DESCRIPTION

The site is located at latitude 41° 34' 07" and longitude 73° 35' 53", on USGS map Pawling, NY quadrangle (Figure 1). The plant site is ten acres and the size of the contamination area is approximately ½ acre (Figure 2). The site is on plateau and the low lying area to the North and West is a regulated wetland and the Swamp River. The grade difference between the wetland and site is approximately 10 feet.

The site is owned and operated by the Pawling Corporation. The site address is: 157 Charles Colman Boulevard, Pawling, NY 12564.

The New York State Department of Environmental Conservation Inactive Hazardous Waste Site Registry description is located in Exhibit B.

IV. SITE HISTORY

The Pawling Corp. formerly the Pawling Rubber Company is a rubber and plastic manufacturer. The site was placed on the New York State Inactive Hazardous Waste Disposal Site Registry in 1983 as a class 2a. A class 2a site is defined as a temporary classification assigned to sites that have inadequate and/or insufficient data for inclusion in any of the other classifications.

During the 1960's to the early 1970's some of the waste materials from this facility were disposed in landfills on the site. One landfill was used for construction and demolition material, scrap rubber and scrap machinery. This landfill was tested and found not to contain hazardous waste. The second landfill was used for disposing waste liquid solvents. The solvents were disposed in pits and ignited. The pits were filled with soil after each such burning episodes.

The contamination problem was discovered in June 1987 by the NYSDEC Division of Water that the site's non-contact cooling water violated a State Pollution Discharge Elimination System (SPDES) permit #NY-004618. The violation was the non-contact cooling water which exceeded limits of heavy metals, halogenated organic solvents and organic solvents. In May 1988 an Order on Consent was signed between the NYSDEC Division of Water and Pawling Corp.

The Order on Consent called for the following:

- ★ Investigations to define the extent, degree and source of contamination,
- ● Methods of removing the contamination,
- ★ Methods of treating the recovered groundwater,
- ● Description of the point of discharge of the recovered groundwater,
- ● Schedule of implementation.

The site classification was changed from 2a to 2 in July 1989. A class 2 site is defined as a significant threat to the public health or environment; action required. Pawling Corporation has voluntarily conducted remedial investigation of the site and has furnished the NYSDEC with the following reports:

Groundwater Investigation Report: March 3, 1988, April 19, 1988, September 2, 1988

Amended Groundwater Investigation, February 1, 1989

Limited Feasibility Study, December 31, 1990

Groundwater Investigation and Pre-Remedial Design Report,January 3, 1991

A state-funded Phase I Investigation was performed and completed in June 1988. The Pawling Corp.'s investigation reports and the state-funded investigation report are part of the Administration Record (Exhibit A) and is available for public review in the repositories. The locations of the repositories are stated in the Declaration of the Record of Decision. In April 1991 a public meeting was held in the Village of Pawling on the proposed remedial action; a thirty day comment period was offer to the public.

There has been 18 monitoring wells and two drive points installed on site. A drive point is a one inch inside diameter stainless steel pipe which is driven below the water table. The drive point is not screened. The purpose of the drive point is to measure groundwater levels and collect groundwater samples. The drive points were placed in the wetland. Pawling Corporation also conducted a soil-gas survey and has collected and analyzed surface water, soil and sediment samples. Some of the field work was overseen by the Department. A pilot pump test and air stripper test has been conducted to ascertain the performance of the air stripping alternative.

The 1988 investigations showed the presence of contamination in the groundwater. The 1988 investigations also showed that a not-in-service Corbin Road municipal well, which is ¼ mile away, for the Village of Pawling may have been impacted by the site.

V. CURRENT SITE STATUS

A series of investigations discovered high levels of tetrachloroethene (PCE), trichloroethene (TCE) and toluene in the area of a landfill on the site. Vinyl chloride at 4,800 ppb, trans 1,2 dichloroethene at 20,000 ppb, TCE at 41,000 ppb, PCE at 42 ppb and toluene at 170,000 ppb, were detected in a 1990 groundwater investigation. A portable gas chromoatograph was used to

detected chlorinated hydrocarbons and toluene of soils during the well installation. The highest levels detected by the gas chromoatograph were 3,009 ppm of chlorinated hydrocarbons and 1,100 ppm of toluene.

The remedial design for the selected remedial action was completed in June 1991. The remedial action for the site was begun in September 1991. Prior to construction of the remedial action, a field test was conducted to determine the effective range of air sparging and vacuum vapor extraction system. The locations of wells for the sparging and extraction system were determined based upon a soil gas survey conducted for the "Groundwater Investigation and Pre-Remedial Design Report." From the results of this field test, the original design of the air sparging and vacuum vapor extraction system was changed; the system is smaller than planned.

The construction of the selected remedial action started on October 1, 1991. The construction started with the installation of the trench and the pipe network for the air sparging and vapor vacuum extraction system. This phase of construction was overseen by the Department. The next phase of the construction was the installation of the equipment shed which will house the air stripper, carbon units, pumping equipment and electrical equipment. The last phase of construction will be the connection of the equipment, the piping and the electricity. The completion of the construction phase took place on February 21, 1992.

The Village of Pawling well on Corbin Road which is ¼ mile from the site, has been sampled by the Pawling Corp in June 1991. The sampling results showed no detectable contamination.

VI. ENFORCEMENT STATUS

The site was placed on the New York State Inactive Hazardous Waste Disposal Site Registry in 1983 and was classified 2 - Significant threat to the public health or environment - Action required. The site was listed for violating New York State Groundwater Standards and for confirmed hazardous waste disposal. The responsible party is the Pawling Corporation. An Order on Consent was signed with the Division of Water in 1986 to investigate and to remediate the site.

VII. SUMMARY OF SITE RISKS

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 and the New York State Environmental Conservation Law directs the Department to protect human health and the environment from current and potential exposure to hazardous waste.

There have been four carcinogens and one non-carcinogen detected at the Pawling site in the groundwater. These contaminants toxicity, mobility, persistence and concentration warrant concerns for human health and the environment.

Exposure Assessment:

Currently the groundwater at the site is only used for non-contacted cooling water. The site borders a NYS regulated wetland and the Swamp River. The site may be impacting the Village of Pawling, Corbin Road municipal well. Currently this well is not being used by the village.

In developing the hypothetical exposure scenarios for groundwater at this site, it was assumed that nearby residents would be exposed by ingestion to water contaminated at the highest concentrations found on site.

Toxicity Assessment:

Four carcinogens and one non-carcinogen were detected in the groundwater. The equations are listed on Table 1 and contaminants detected are listed on Table 2. Table 1, equation 1 is used by the USEPA to established chronic toxicity criteria for the ingestion of water. The highest levels detected were used in the equation as the levels ingested by a 70kg. adult.

For non-carcinogen effects, Minimum Effective Doses (MEDs) and USEPA Reference Dose Values (RFDs) are used. MED is the minimum incremental carcinogenic response observed. The RFD is the estimate of a daily exposure to the human population to be without an appreciable risk of deleterious effects during a lifetime. For carcinogen effects, USEPA Risk Specific Doses (RSDs) and USEPA Carcinogenic Potency Factors (CPFs) are used. RSD were developed by the USEPA to evaluate environmental concentrations under intake assumptions which correspond to excess lifetime cancer risks of carcinogens. The CPF was developed by USEPA Carcinogen Assessment Group to evaluate cancer risks. The toxic assessment for the site is represented on Table 2.

Summary of Risk Characterization:

Given the proximity of the wetland and Swamp River and the possibility of impacting of the Village of Pawling, Corbin Road well, there are high risks from the current and potential exposure, unless the Remedial Action is implemented.

VIII. EVALUATION OF REMEDIAL ALTERNATIVES

A. RESPONSE ACTIONS FOR THE PAWLING SITE

The following general response actions were considered for addressing groundwater contamination at the Pawling site.

1GW. No Action: No action is included as a baseline general response against which other actions can be measured.

2GW. Institutional Actions: Institutional Actions, such as fencing or deed restrictions, could potentially be feasible to limit access to the contaminated areas and monitor groundwater contamination characteristics over time.

3GW. Containment: Containment of contaminated groundwater.

4GW. Collection: Collection of groundwater via recovery wells and/or trenches would require treatment and disposal of the extracted water.

5GW. Treatment: Treatment of groundwater would require extraction followed by above ground treatment.

6GW. Discharge: On-site discharge would require extraction, injection wells and effective treatment.

7GW. In-Situ Treatment: In-situ treatment of groundwater. This would involve treatment of the groundwater in place and would require some groundwater extraction.

The following general response actions were considered for contaminated soils at the Pawling site:

1S. No Action: No action is included as a baseline general response against which other actions can be measured.

2S. Institutional Actions: Institutional Actions would limit access to the contaminated areas and monitor soil contamination characteristics over time.

3S. Containment Actions: Containment actions to limit the contamination migration.

4S. Excavation Actions: Excavation actions would involve removing the contaminated soil, treatment and disposal of soil either on or off the site.

5S. In-Situ Actions: In-situ actions would remove or destroy contamination from the soil without removal of the soil.

The following general response actions were considered for treating air impacts at the Pawling site:

1A. No Action: No action is included as a baseline general response against which other actions can be measured.

2A. Treatment: Treatment of air off-gas from remedial technologies is feasible.

B. TECHNOLOGY SCREENING FOR GROUNDWATER

Technically implementable remedial technologies and associated processes for contaminated groundwater which were evaluated and found feasible and effective.

1. Collection Utilizing Overburden Wells. Consists of constructing recovery wells in the overburden aquifer zone for the removal of contaminated groundwater.

2. Treatment of Groundwater Using Air Stripping. Air stripping is an effective means of removing VOCs from water. Air stripping is a mass transfer process in which volatile constituents in water are transferred to the gas phase (air). Air stripping is frequently accomplished by either packed tower or air diffuser set up.

   The packed tower consists of a tower filled with a packing and attached to an air blower at the base of the tower. The contaminated stream enters the top of the tower as the air enters the bottom. The counter current flow strips the VOCs from the water and

exhausts them through the top of the tower.

Diffused air type strippers operate by passing air from a blower through diffusers that are placed in a contaminated water stream. The air bubbling through the stream strips the VOCs from the water and exhausts them through the top of the stripper. Both air stripping technologies operate on the same properties with much the same efficiencies. The differences remain in the size and configuration of the units physical components.

3. Treatment of Groundwater Using a Bioreactor. The bioreactor process uses a microbial population to metabolize organic constituents in a waste stream by means of passing the waste stream over a fixed film of cultured microorganisms. The bioreactor unit consists of a honeycomb-like structure (the medium) sealed inside an engineered enclosure. Bacteria growing on the medium adsorb biodegradable organic contaminants from the water and convert them to inert substances such as carbon dioxide and water. An air blower attached to the base of the unit supplies oxygen to the microbial population and nutrients are added to enhance the bacterial growth.

4. In-situ Treatment of Groundwater Using Air Sparging. Air sparging consists of a network of sparge points placed with screened intervals below the groundwater table. Compressed air is introduced to the groundwater through the sparge points. The air rises to the top of the groundwater table collecting VOCs from the groundwater. The VOC laden air is either allowed to naturally leave the vadose zone soils or is collected by a soil venting system.

5. On-site Discharge to Local River. Involves piping effluent waters from the treatment system to a local river.

C. REMEDIAL TECHNOLOGY SCREENING FOR SOIL

Technically, implementable remedial technologies and associated processes for contaminated soil in the unsaturated or vadose zone (above the water table) and saturated zone (below the water table) which were evaluated and found feasible and effective.

1. In-situ Treatment Vapor Extraction. Utilizes a network of soil vapor extraction points which are connected to a vapor extraction blower. The blower draws air from the vadose zone inducing a vacuum in the soil pore spaces. This vacuum will draw VOCs adsorbed on the soil into the pore spaces and out of the extraction point.

2. In-situ Treatment Air Sparging/Vapor Extraction. Air sparging consists of a network of sparge points placed with screened intervals below the groundwater table. Compressed air is introduced to the groundwater through the sparge points. The air rises to the top of the saturated zone and collecting the VOCs from the vadose zone within the soil. The VOC laden air is then collected by use of a vapor extraction system as described above.

D. TECHNOLOGY SCREENING FOR AIR

Technology implementable remedial technologies and associated processes for contaminated air discharges from remedial systems which were evaluated and found feasible and effective.

1. Treatment of Air Discharge Using Carbon Adsorption. The process of adsorption onto carbon involves contacting an air waste stream with carbon, usually by flow through packed bed reactors. The carbon selectively adsorbs VOCs by a molecules and internal pores of carbon granules. Adsorption depends on strength of molecular attraction between adsorbant and adsorbate, molecular weight, surface area, and contact time. Once the micro pore surfaces are saturated with VOCs, the carbon must be either replaced with virgin carbon or regenerated.

2. On-site Disposal, Regeneration. On-site disposal by regeneration would include installation of a solvent recovery system capable of collecting VOCs from waste air streams and regenerating the carbon. The regeneration process would include low pressure steam stripping of the VOCs from the carbon, collection of the VOCs from the steam stripping process and the disposal of the collected concentrated liquid VOCs.

IX. CITIZEN PARTICIPATION

To inform the local community and to provide a mechanism for citizens to make the Department aware of their concerns, a citizen participation program has been implemented. In accordance with the Citizen Participation (CP) Plan developed for this project, the following goals have been accomplished:

- ★ Information repositories have been established;
- ★ Documents and reports associated with the project have been placed into the repositories;
- ● A "contact list" of interested parties (e.g. local citizens, media, public interest groups, government agencies, economic agencies, etc.) has been created;
- ★ Periodic meetings with village and town boards and the Rotary Club to discuss status of project;
- ★ A legal notice of the completion of the RI/FS and the preferred remedial action was published in the Pawling News Chronicle and Harlem Valley Times from March 3, 1991 to April 3, 1991;
- ● A public notice of the completion of the RI/FS and the preferred remedial action was distributed to the contact list;
- ★ A public comment period was established from April 4, 1991 to May 4, 1991 and a public meeting was held on April 4, 1991 to discuss the RI/FS and the preferred remedial action. A fact sheet summarizing the preferred

action was distributed at the public meeting. The minutes of the public meeting are part of the Administrative Record for the project and are in the document repositories for public inspection;

A summary of the comments/questions received during the April 4, 1991 public meeting and the comment period, as well as the responses to those comments, are included in Exhibit C. A public notice of the selected remedy and a brief summary of the remedial program will be issued to the contact list.

X. DETAILED ANALYSIS OF SELECTED REMEDIAL ACTION

Comparison of the various remedial alternatives was done in the Limited Feasibility Study. Based upon the comments received from the public, the series of Groundwater Investigation Reports, the Limited Feasibility Study, and the criteria for selecting an alternative which meet the applicable, or relevant and appropriate requirements (ARARs), the following remedial actions were recommended:

- ★ Overburden groundwater extraction through pumping from recovery wells;
- ● Groundwater treatment by air stripping and granular activated carbon adsorption polish;
- ● Contaminated soils treatment, in the vadose and saturated zones, by air sparging and soil ventilation;
- ★ Off-gas treatment by solvent recovery (on-site carbon regeneration);
- ★ Off-site destruction of waste solvent by incineration.

The Remedial Action was evaluated for the following criteria:

1. Implementability,
2. Short-term effectiveness,
3. Long-term effectiveness.

1. Implementablility

Groundwater and Soil

Air Sparging/vapor extraction system can be implemented using common drilling and construction techniques. Care must be taken to operate the air sparging system with the vapor extraction system and groundwater control system to prevent the migration of contaminants due to air sparging.

Groundwater

Air stripping can be implemented using any number of vendors and common

construction techniques.

Air

Regeneration at an on-site facility can be easily implemented by construction of carbon treatment and regeneration system available from vendors and arranging the proper shipment of collected liquid VOCs to an approved facility. Several approved waste haulers are available in the area.

2. Short-term Effectiveness

The selected remedial action would reduce the future risk by controlling groundwater migration and reducing VOCs concentrations and mass. The selected remedial action would also hasten the reduction of VOCs concentrations and mass in soils.

3. Long-term Effectiveness

The selected alternative effectively reduce the volume of contamination in the vadose and saturated zone in soils and prevent any additional migration of VOCs in the soils and groundwater. Air Sparging/Vapor Extraction has been shown effective for the removal of VOCs from vadose and saturated zones in soils. Air stripping is a well documented and effective technology to remove VOCs from water streams. Air stripping is applicable for all the contaminants at the Pawling site. Regeneration is a proven technology for destruction of VOCs.

The selected alternative results in a remedial program which is both protective of human health and environment and which recognizes the unique problems presents at the site. To achieve the clean-up goal, groundwater monitoring wells will be sampled periodically to determine the effectiveness of the remedial action. After the first year of the remedial action, the monitoring wells data will be evaluated. If the results of the evaluation suggest that the clean-up goal will not be achieved within a five year period, the remedial action will be modified accordingly.

FIGURE 1

SITE LOCATION MAP

PAWLING CORPORATION

PAWLING, NY

SOURCE: U.S.G.S. 7.5 MIN. PAWLING QUAD, 1971.

SCALE: 1" = 2083'

0 0.5

FIGURE 2
SITE PLAN

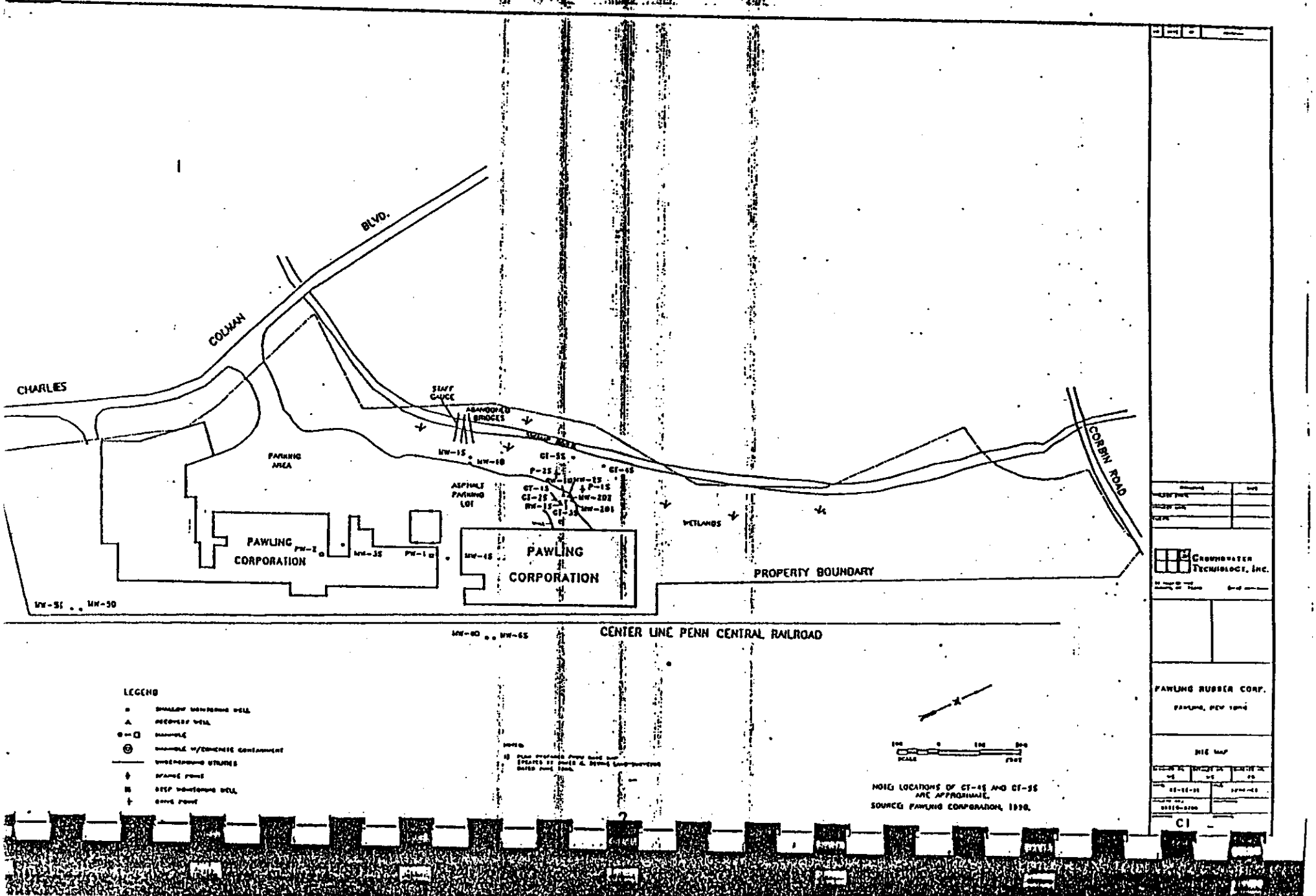

TABLE 1

POTENTIAL EXPOSURE ROUTES

PAWLING RUBBER CO., DUTCHESS COUNTY, SITE NO. 314002

POTENTIAL EXPOSURE ROUTES OF THE PAWLING RUBBER SITE

GROUNDWATER:
INGESTION OF DRINKING WATER

AIR:
INHALATION (DEPENDENT OF THE EFFLUENT LEVELS OF THE REMEDIAL ACTION)

SURFACE WATER:
INGESTION OF DRINKING WATER
CONSUMPTION OF CONTAMINATED BIOTA

INTAKE ASSUMPTION FOR SELECTED ROUTES OF EXPOSURE

SURFACE WATER & GROUNDWATER (INGESTION)
2 LITERS/DAY FOR 70 KG ADULT / 70 YR EXPOSURE PERIOD (EQ. 1)

AIR (INHALATION)

20 M^3 AIR/DAY FOR 70 KG ADULT / 70 YR EXPOSURE PERIOD (EQ. 2)

TABLE 2

TOXIC ASSESSMENT CHART

PAWLING RUBBER CO., DUTCHESS COUNTY, SITE NO. 314002
SUMMARY OF ANALYTICAL DATA

	HIGHEST LEVELS DETECTED ON SITE (PPM)	NYS GW STANDARDS (PPM)	LEVELS IN WATER INTAKE PER DAY (PPM/DAY)	WATER CONCENTRATION FOR HUMAN EXPOSURES FOR: CONSUMPTION FISH ONLY (PPM)	CONSUMPTION WATER & FISH (PPM)
VC	4.8	2.0E-03	1.4E-01	5.20E-01	2.00E-03
T1,2-DCE	20	5.0E-03	5.7E-01	1.85E-03	3.30E-05
TCE	41	5.0E-03	1.20	8.00E-02	2.70E-03
PCE	4.0E-02	5.0E-03	1.0E-03	8.85E-03	8.00E-04
TOLUENE	170	5.0E-03	4.9	42.4	1.43

VC = VINYL CHLORIDE
T1,2-DCE = TRANS 1,2-DICHLOROETHENE
TCE = TRICHLOROETHENE
PCE = TETRACHLOROETHENE

	NON-CARCINOGENIC EFFECTS		CARCINOGENIC EFFECTS ORAL RSD	
	MED (PPM)	RFD (PPM/DAY)	CPF (PPM/DAY)	WATER (PPM)
VC	228		2.3	
T1,2-DCE	189		6.0E-01	5.8E-04
TCE	9.5		1.1E-02	3.2E-03
PCE	1460	2.0E-02	5.1E-02	6.9E-03
TOLUENE	2690	3.0E-01		

MED = MINIMUM EFFECTIVE DOSE
RFD = USEPA REFERENCE DOSE VALUE
RSD = USEPA RISK SPECIFIC DOSE
CPF = USEPA CARCINOGENIC POTENCY FACTOR

EXHIBIT A

List of Documents in the Administrative Record

Groundwater Investigation Report, prepared by Groundwater Technology, Inc.(GTI), March 3, 1988, and April 19, 1988.

Phase I Investigation Report, prepared by Gibbs & Hill, Inc., June 1988.

Groundwater Investigation Report, prepared by GTI September 19, 1988.

Amended Groundwater Investigation Report, prepared by GTI, February 1, 1989.

Limited Feasibility Study Report, prepared by GTI, December 31, 1990.

Groundwater Investigation and Pre-Remedial Design Report, prepared by GTI, January 3, 1991.

Remedial System Design, prepared by GTI, February 16, 1991.

Air Sparging Technology Case Studies prepared by GTI, July 1991.

EXHIBIT B. EXERPT FROM THE REGISTRY OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

CLASSIFICATION CODE: 2 REGION: 3 SITE CODE: 314002
EPA ID: NYD001354349

NAME OF SITE : Pawling Rubber Company
STREET ADDRESS: 157 Charles Colman Blvd.

TOWN/CITY:	COUNTY:	ZIP:
Pawling	Dutchess	12564

SITE TYPE: Open Dump- Structure- Lagoon- Landfill-X Treatment Pond-
ESTIMATED SIZE: Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Pawling Rubber Company
CURRENT OWNER ADDRESS.: 157 Charles Colman Blvd., Pawling, NY
OWNER(S) DURING USE...: Pawling Rubber Company
OPERATOR DURING USE...: Pawling Rubber Company
OPERATOR ADDRESS.....: 157 Charles Colman Blvd., Pawling, NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From unknown To early 70s

SITE DESCRIPTION:
Pawling Rubber is a rubber manufacturing plant. An inactive landfill on site is covered by a paved parking lot. The property is in a wetlands area. A low area is landfilled using construction materials, blocks, boards, scrap rubber and scrap machinery. A low area adjacent to the parking lot is filled in with soil. A brook, which is piped under the parking lot and through the landfill area, joins the Swamp River running north through the wetlands along the west side of the property. A Phase I investigation is complete.
Pawling Rubber is under a consent order with the Division of Water (DOW) to complete an investigation and for remediation of the site. The company has completed the hydrogeological study of the site for the DOW, which showed that there is contamination of the surficial aquifer with perchloroethylene, trichloroethylene, and toluene. The source of these solvents is a landfill area, and a trench area, where solvents were burned in open trenches. This contamination is in excess of the NYS groundwater quality standards.
The responsible party has installed two monitoring wells in wetlands. Sampling was conducted in December 1990 which revealed groundwater standards exceeded for perchloroethylene at 37 and 25 ppb. A limited feasibility study has been completed and remedial alternatives are being considered.

HAZARDOUS WASTE DISPOSED: TYPE	Confirmed-X	Suspected- QUANTITY (units)
Perchloroethylene (F001)		Unknown
Trichloroethylene (F001)		"
Toluene (F005)		"

ANALYTICAL DATA AVAILABLE:
Air- Surface Water-X Groundwater-X Soil-X Sediment-

CONTRAVENTION OF STANDARDS:
Groundwater-X Drinking Water-X Surface Water- Air-

LEGAL ACTION:

TYPE..: State- Federal-
STATUS: Negotiation in Progress- Order Signed-

REMEDIAL ACTION:

Proposed-X Under design- In Progress- Completed-
NATURE OF ACTION: Remediation

GEOTECHNICAL INFORMATION:
SOIL TYPE: Silt and clay
GROUNDWATER DEPTH:

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

The groundwater is contaminated with chlorinated solvents. Further investigation has been conducted to determine the extent of contamination and remedial alternatives, which are being considered.

ASSESSMENT OF HEALTH PROBLEMS:

EXHIBIT C
Responsiveness Summary

The Responsiveness Summary for the April 4, 1991 public meeting on the Pawling Rubber Inactive Hazardous Waste Disposal Site (314002) is attached here and includes the following information:

1). Minutes of the public meeting with comments/ questions and responses provided during the meeting.

2). Written comments and responses provided during the public comment period.

3). Minutes of an April 23, 1991 meeting with Pawling Rubber and Pawling Village officials on the remediation project.

4). Record of activities which took place as a result of comments received at both the April 4 and April 23, 1991 meetings and during the comment period.

1. Minutes of the April 4, 1991 Public Meeting
With Comments & Responses Provided During the Meeting

MINUTES OF PUBLIC MEETING

PAWLING CORPORATION

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

April 4, 1991
7:30 pm

Village of Pawling
Village Hall - Meeting Room
3 Memorial Drive
Pawling, New York 12564

The meeting began with Roger Smith, President of Pawling Corporation, introducing the evening's speakers: Susan Thompson, Regulatory Affairs Manager at Pawling Corporation, Wendy Leonard, Senior Hydrologist, Groundwater Technology, Inc., and Michael Sykes, Project Engineer, Groundwater Technology, Inc. Roger then explained what would occur over the course of the meeting and stated that the audience should kindly refrain from asking questions until after all of the speakers were through.

Susan Thompson then took the floor to explain the history of Pawling Corporation and to detail the events that led up to tonight's meeting. The Corporation has been located at 157 Charles Coleman Boulevard in the Village of Pawling since 1946, producing rubber, silicone, and plastic products. The 21.5 acre site includes wetlands with Swamp River running through the property. Pawling Corporation was the sixth occupant of the building and, in 1984, Pawling Rubber Corporation changed it's name to Pawling Corporation to reflect the diverse materials the corporation was producing.

In 1987, the Village of Pawling found it necessary to construct a new well, with Corbin Road being the site for that new well. The well was installed, but the Department of Health needed to perform a series of tests before the water could be deemed safe to drink. During this testing process, they discovered chlorine solvents present in the water. The NYSDEC was brought in to determine the source of contamination. Pawling Corporation was first on the list to check as a source of contamination, although several other places were also investigated. The source of contamination was found not to be from our storm drain.

On February 24, 1988, a consent was signed by the NYSDEC mandating Phase 1 of a groundwater investigation. At this time, Pawling Corporation retained the services of Groundwater Technology, Inc., in an effort to satisfy the conditions of the consent order. The overall objectives of the groundwater investigation were to delineate the concentration and extent of any metal or solvent contamination in the groundwater, to evaluate the pathways of groundwater flow, to determine if any upgradient sources were impacting the groundwater at Pawling Corporation, and to provide information which would be required for a design of a site remediation system, if necessary.

The overall work scope designed to achieve these objectives consisted

etc., then they will begin drilling, pipe installation, construction of required buildings and, finally, installation of the pumping system. Once this is all completed, the solvent system, air stripper, and solvent recovery system would be installed. When the entire process passes the final inspection, the system can be started up; this will probably occur in the middle of August 1991. The system is designed to discontinue operation if anything goes wrong anywhere in the system. If this were to occur, representatives from Pawling Corporation and/or Groundwater Technology, Inc., would be immediately notified.

Sue Thompson then opened the floor to questions from the audience. Jeff Asher began by asking what exactly was meant by the term "contaminates" and which solvents we were specifically concerned with. Sue answered that the predominate solvents found were toluene and trichloroethylene. Jeff then asked if any benzyme was found and Sue informed him that Pawling Corporation had tested for it and none was found. Jeff then asked why the "no action" alternative was not chosen since the Corporation was not yet mandated to correct this problem. Sue's response was that since Pawling Corporation is aware, their objective is to clean it up so that future generations are not affected by it.

Luther Jackson then suggested that routine public meetings be arranged in order to keep everyone abreast of the progress of this intense and complicated process. Sue stated that this is definitely possible and she had already been speaking to the Mayor about this. She added that the goal of Pawling Corporation was to keep all channels of communication open.

Rita Asher commented that the newspaper stated that this entire cleanup process was going to take ten years to complete itself. Her question was what did Pawling Corporation anticipate as their drop-off levels in this time? Wendy Leonard answered this by first stating that she was not aware of where the ten year time frame came from, but that the process should take about five years, according to the NYSDEC. She also reminded everyone that this figure was an approximate one in that Pawling Corporation wanted to avoid giving anyone false hopes. Wendy added that quarterly reports would be sent to the state and that they would be available to the public.

A concerned resident then brought up the possibility of how this entire process would affect residents of the Village of Pawling. The

resident stated that the Village had been having quite a few problems and, in his opinion, this was driving the Village into the ground. He also commented that the well-being of the Village and it's residents relied heavily upon Pawling Corporation as a source of employment. He expressed his concern about the cost of this cleanup, however, Roger quickly informed him that the entire cost would be paid for by Pawling Corporation, not the village.

Next, a woman asked what would happen to the bedrock throughout this process. Sue commented that if we are aggressively cleaning the overburden, this will force some of the water into the bedrock. Wendy then added that the bedrock water is actually coming up and discharging into the stream. Roger then added that testing will be done on the bedrock and it may be possible that we will have to drill down into the bedrock after Phase I.

John Lappas stood and commented that Pawling Corporation recognized this problem, "took the bull by the horns" and is to be commended on the action they are taking without being mandated to do so.

Another village resident then questioned the possibility of making all information regarding the cleanup process available to our school children. Roger exclaimed that he would be happy to do this and that anyone interested should contact Sue Thompson.

Mark Chipkin stated that he, too, wanted to commend Pawling Corporation for taking action before a consent order was issued. The first request he had was clarification regarding a newspaper article that claimed that the village was testing its wells, but was not finding solvents. He wanted to know why the third well was pulled and Sue explained that we were not sure of the direction of the groundwater flow in the cracks. Normally, the flow goes into the stream and this means we are responsible. However, sometimes the flow can go into a North/Northwest direction. Little is known about the flow direction, therefore, we cannot determine this.

Mark then asked if we weren't using this well because solvents were found, but Roger explained to him that he would have to ask the village officials about this.

Mark stated that he was still concerned about the other two wells and wanted to know if the NYSDEC had checked them for the same contaminants. A man from the audience answered "yes" they had been checked.

The next step, Wendy explained, was to begin evaluating the many different remedies that could be used. All alternatives were given careful thought and investigative research and only two (2) seemed possible and acceptable based on their short term and long term effectiveness, implementability, cost, state and community acceptance, and overall security of health and environment.

The Air Sparging/Vent System is the preferred remedial alternative by the NYSDEC and Pawling Corporation. This procedure begins with an air stripper being used to remove the VOCS from the groundwater in the well field. The air stripper is a 12-stage diffused air bubble aeration system. The solvents would rather be in the air bubble, thereby, stripping the VOCS from the water and transporting them into a solvent recovery system. The next step is to pipe the discharged water from the air stripper through two (2) liquid phase carbon units as a treatment backup.

Next, sparge points are installed in the contaminated area that inject air into the ground to enhance volatilization of the VOCS from the groundwater and soils below the groundwater table. Air is then bubbled into the groundwater and this acts as a stripping device because it takes the VOCS out of the groundwater. The injected air also acts as an oxygen source for the microbial population associated with the groundwater. This helps to speed up the natural biodegradation process.

The soil vent system then draws all the soil gases from the pore spaces above the surficial water table and feeds the air through a solvent recovery system so that the organics in the air stream are absorbed. This still leaves us with VOCS present in the two remedial air streams created by the air stripper and the soil vent. To remove them, an automatic solvent recovery system must be installed and this unit is 95% effective in removing the VOCS (this percentage does meet the states limits). The VOCS are then condensed to liquid form and stored in two 55 gallon drums until they are packaged and sent to the treatment area. The solvent potentially will be recycled by Pawling Corporation and any unrecycled solvent will be transported to a permitted incineration facility.

It was then explained to the audience that this alternative is preferred and accepted by the NYSDEC and Pawling Corporation, with implementation beginning in June of 1991. After tonight's meeting, Pawling Corporation will begin to obtain building plans, building permits,

of a site inspection, aerial photo review, background data review, soil borings, soil sample analysis, soil gas survey, installation of groundwater monitoring wells in both overburden and bedrock, groundwater gauging and sampling, overburden and bedrock pumping tests, and steam water and sediment sampling.

Phase 1 of the investigation included the installation of well couplets installed next to each other. Initially, Sue explained, we had three (3) well couplets. During the investigation, however, we found that the water flowed North and Northwest, therefore, only two (2) couplets were necessary. In the Northern area, we discovered the contamination. Lead was found down below, but it was below the background levels and the NYSDEC agreed that no further action would be taken against Pawling Corporation regarding this matter.

The results of these investigations found groundwater containing dissolved concentrations of volatile organic compounds (VOCS) towards the north end of the parking lot. This was a result of burning solvent waste in the late 1960's when there were no regulations regarding disposal of waste. Lead was detected above groundwater drinking limits in an upgradient well which suggested that there was a high background level or that an off-site source contributed to the lead levels in the groundwater. For this reason, further remedial investigation concerning lead was discontinued.

Pawling Corporation took the initiative prior to a consent order mandating initiation of a Remedial Investigation/Feasibility Study so that the environment would not be further jeopardized. Although, as mentioned above, this procedure is not mandated by the NYSDEC, all work is being done under their guidance and approval.

What the Remedial Investigation found is that Pawling Corporation has a plume of contaminated water that feeds into Swamp River. This plume is from the overburden and bedrock. Wendy Leonard, Senior Hydrologist for Groundwater Technology, Inc., began by explaining that the company's goal was to select the best remedy and be able to explain it to the citizens of Pawling so they would be able to understand the process and results.

The first objective was to determine what impacted medias had been affected. It was found that the soil and groundwater had definitely been affected and the possibility of air contamination also needed to be considered.

Mark then directed a question for Keith Brown, NYSDEC representative. Mark voiced his concern about the homes in the area and wanted to know if Pawling Corporation had been checking individual wells. He felt that if there were cracks, the contamination could leak into homeowners wells and this was a health concern. Keith stated that the NYSDEC does not handle the water quality because it simply is not their expertise. He explained that it would have to be the local Health Department's responsibility to test the wells and that they had already been contacted regarding this. Mark then reiterated the importance of the public knowing to have their water checked as soon as possible.

Mark's next concern was with reference to the waterlands and not be able to test them as it would affect the vegetation in the area. He explained that he, too, wanted to protect the waterlands, but asked Pawling Corporation to please consider a way of testing safely, as children play their routinely.

Mark then wanted to know what the acceptable level of toluene was. Sue stated that she was not sure, and although toluene is not cancer-causing, it can kill you. Mark then questioned the acceptable level of chlorinated substances and Sue explained that she would have to get back to him regarding the answer.

Sandor Deak then wanted to know if Swamp River was connected to the New York Water System and Sue informed him that it was not. He then expressed his concern about not being involved in the decisions that Pawling Corporation was making, but Sue explained that we have a Draft Citizen Participation Plan, which includes phone numbers and addresses so that citizens can contact knowledgeable people regarding questions they may have.

Sandor also expressed his concern that maybe Pawling Corporation was trying to take a less expensive route. Roger informed him that the corporation had already spent $300,000 on this investigation so far, and that they would probably spent another $400,000 capital, in addition to the cost of monitoring the project (approximately $84,000 for five years).

The meeting was brought to an end with a man from the audience thanking Pawling Corporation and all of the evening's speakers for making their expertise available to the public and answering the publics questions.

2. Written Comments & Responses Provided During the Public Comment Period

May 1, 1991

Sandor Ropecci-Derk
RFD #1, Box 642
Pawling, N.Y. 12564
Phone: 914-855-9342

Mr. Keith Browne
Enviromental Engineer
Region 3
New York State Enviromental Conservation
21 South Putt Comers Road
New Paltz, New York 12461-1646

~~Re: Suggestions of Remedies after Public Hearing in Pawling~~

Dear Mr. Browne,

Regarding the public-hearing held about the ...minated grounds, swamps and groundwatersupply Village and Town of Pawling, I respectfully submit suggestions about the problems to be solved as far as ...w them:

1) Set up a Pollution Committee of equal numbers of ...sentatives of the 1) Village 2) of the Town of Pawling ...he DEC 4) the Pawling Corporation and 5) The Greater ...ork Water System to direct and monitor the remedial of the contaminated areas.

2) Pawling Corporation being named the main ~~....~~

source of pollution please decide if it was negligent in causing and remedying the contamination. The fact of contamination does known for years and years.

3) Please decide what are the resources profits etc. of Pawling Corporation and what parts of these should use Pawling Corporation to remedy the damage it did to the Pawling area and possibly to the Greater New York Water System

4) Set up a timetable for the remedial efforts being planned and the goals of each stage.

5) Investigate if there are any health impairment of people who lived or are living in the contaminated areas.

6) There are several houses in the contaminated area which are known as not connected to the central water system (168-170 Charles Colman Blvd) Compell the Village of Pawling to set up and provide a definite and certified record of those houses which are connected and those which are not connected to the central water system, in contrast to the existing lawful instruct Prosecute the officials who neglected their duties. Do the same about the contaminated areas of the Town of Pawling.

7) Recompensate the Village of Pawling for one and possibly two water wells which were dug, paid for and abandoned by the village in the polluted

area.

Decide what would be the long term effects for Bowling, if Bowling Corporation would be compelled to leave the Bowling area.

Thanking you, I am,

Sincerely yours,

Samuel Rupert-Deuk

taxpayer

New York State Department of Environmental Conservation
Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696
914-255-5453

May 13, 1991

Thomas C. Jorling
Commissioner

MR SANDOR KOPEOCI-DEAK
RFD #1, BOX 642
PAWLING NY 12569

RE: Pawling Rubber
Site NO.: 314002

Dear Mr. Kopeoci-Deak:

Thank you for your letter of May 1, 1991 on the proposed remedial project at Pawling Corporation. The Department appreciates your comments.

The following are the responses to your suggestions:

1. The purpose of the April 4, 1991 Informational Meeting at the Village Hall, was to inform all concerned parties of the situation at the Pawling Corporation site. The Department and the New York State Department of Health will be directing and monitoring the remedial project. Comments received from concerned parties will be incorporated into the work plan as appropriate.

2. Pawling Corporation has assumed the responsibility of remediating the contamination associated with their former operating practices.

3. The same as 2.

4. The Department has established clean-up goals and a time table for remediation. The clean-up goals are the New York State Groundwater Standards. The Pawling Corporation was given a timeframe of five years to meet the clean-up goals.

5. The route of exposure which could effect residents from the site is groundwater. The County and New York Departments of Health have been requested to monitor local drinking water supplies.

6. There is only one home on Charles Colman Boulevard which is using a private well. All others are connected to the central water system. The New York State Department of Health will conduct a door by door

survey of the area to verify residents water source and collect water samples if necessary.

7. This issue is between the Village of Pawling and the Pawling Corporation.

If you want any additional information or would like to submit any additional comments, please contact me at (914) 255-5453.

Thank you for your cooperation in this matter.

Sincerely,

Keith Browne

Keith Browne
Environmental Engineer
Region 3

KB/di

cc: E. O'Dell

3. Minutes of an April 23, 1991 Meeting with Pawling Corporation and Pawling Village Officials

Meeting
Pawling Corporation Groundwater
Remediation Project

April 23, 1991

Present:		
	Earl M. Slocum	Village Official
	John T. Lappas	Village Official
	Bart Clark	Slayton Engineer
	Michael Keupp	Village Official
	Ron Gainer	Slayton Engineer
	Traci Perlman	Pawling Corporation
	Susan R. Thompson	Pawling Corporation

Update: Pawling Corporation

In response to comments made during the April 4, 1991, Public Meeting, Susan Thompson reported that three main concerns have been addressed.

Ms. Reed Asher had suggested an educational program be developed for local school children. Pawling Corporation has contacted the Pawling grade school, high school, and Trinity Pawling. Preliminary arrangements have been made with both the grade school and Trinity Pawling. Ms. Boka, Pawling High School, will be called again.

A suggestion to establish a repository in the Town Hall was made by Mr. Jim Tanner. All reports regarding Pawling Corporation have been copied and left at the Town Hall for citizen review.

Mr. Mark Chipkin was concerned that local residents might be on private wells and thus were in danger. Groundwater Technology, an engineering firm retained by Pawling Corporation, did an extensive search early in the investigation to determine if there were private wells in the immediate vicinity. Their findings concluded that local residents were on municipal water supply. In order to confirm this information, a questionnaire was mailed to those in the immediate area to confirm GTI's findings. To date, 13 questionnaires have been sent. Pawling Corporation has received 9 responses, all confirming the use of municipal water supply.

Update: Department of Environmental Conservation

Several "new players" have been identified at the Department of Environmental Conservation. These divisions now have expressed interest in the project. This may change the

timetable which was proposed by Pawling Corporation because of the evaluation time required by these departments. Pawling Corporation has requested a contact list from Mr. Keith Browne, DEC project manager, so that all may be informed in a timely fashion and delays, hopefully, will be minimal.

The April 10, 1991, correspondence from Keith Browne was discussed and is attached. Response to the letter was discussed at the meeting. A written response will be sent to Mr. Browne and copies sent to Mr. Keupp.

Groundwater Remediation Project Overview

Pawling Corporation discussed briefly the proposed site remediation measures.

Questions

Mayor Slocum asked about the possibility of Pawling Corporation testing the abandoned well on Corbin Road. Although studies to date have focused on the area of contamination, flow pattern of the waters below, and measures to clean up the site, future studies may include testing the Corbin Road well and installing additional overburden wells on the opposite side of the Swamp River. The village agreed to assist in whatever way possible. Pawling Corporation will contact Groundwater Technology and request that a sampling program be prepared for the overburden well on Corbin Road. All collected information will be forwarded to both the DEC and Mr. Keupp for evaluation.

The future water supply needs of the village were discussed. Ron Gainer agreed that the village had drilled a new well on Reservoir Road, however, the well failed to yield the amount of water which had been expected. The village will look at either using the Corbin Road abandoned well or search for alternative sites to supply the Village's water supply needs.

Well Log Data for the Corbin Road shallow well was obtained several years ago from the Dutchess County Health Department by Pawling Corporation (enclosed). It was noted that although monitoring wells are known to exist at the site, no information can be found regarding studies which may have been done. The Village agreed to share any information that they have and Pawling Corporation will do the same.

The goals of the Village and Pawling Corporation seem to be identical: the health and safety of all in the Town and Village of Pawling as well as the protection of the environment. The meeting ended with all agreeing to continue the open lines of communication which currently exist.

4. Record of Follow-up Activities

Pawling Corporation carried out several additional citizen participation activities as a follow-up on comments received during the public comment period. The following record is a list of the comments provided to Pawling Corporation and the activities which took place in response.

Q - Could a document repository be established in the Town Hall?

R - A repository has been established in the Pawling Town Hall. The repository contains the Administrative Record for the project.

Q - Could Pawling provide information regarding the clean-up process to area schools?

R - An educational program has been developed which will be presented to the grade school, the high school and Trinity Pawling.

Q - Are all residents who are potentially affected by the site connected to the municipal water system?

R - Although an earlier study suggested that the local residents were on municipal water supply, Pawling Corporation conducted a written survey of 29 residences. The results of the survey, confirmed by village records, indicate one resident on a private water system with the remaining 28 on a municipal system.

The New York State Department of Health (NYSDOH), in conjunction with Pawling Corporation, sampled the residence with a private water supply. No contamination was detected.

Q - Mayor Slocum asked if Pawling Corporation could test the abandoned well on Corbin Road.

R - Pawling Corporation prepared and conducted a sampling program for the overburden well on Corbin Road.