United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R03-89/075
June 1989

EPA

Superfund Record of Decision:

Whitmoyer Laboratories, PA

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R03-89/075	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Whitmoyer Laboratories, PA First Remedial Action			5. Report Date 06/30/89 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 22-acre Whitmoyer Laboratories site is located in Jackson Township, Lebanon County, Pennsylvania. Land use surrounding the site is predominantly agricultural; however, there is some residential, commercial, and industrial development within 1.5 miles of the site. This includes a manufacturing plant to the south; a pharmaceutical factory to the east; a large, active limestone quarry to the west; and an elementary school to the northwest of the site. Portions of the site are within neighboring Tulpehocken Creek's 100-year floodplain. The creek, which is bordered by small, open wetlands areas, is being proposed for inclusion in Pennsylvania's scenic river system, with a "priority 1A status." Priority 1A status would designate the stream as being in most urgent need of protection. In 1957 site owners began producing organic arsenicals at the site. In 1964 widespread ground water contamination was discovered onsite leading to the placement of concentrated wastes in a concrete vault and the initiation of ground water pumping and treatment. Sludges from the ground water treatment were later consolidated in lagoons. In 1987 an EPA investigation revealed that approximately 69,000 gallons of concentrated liquids had been abandoned onsite in 18 tanks and 14 piping units. The wastes include 5,000 gallons of water-immiscible liquids, 25,000 gallons of water-miscible liquids with a high arsenic content, and

(See Attached Sheet)

17. Document Analysis a. Descriptors

Record of Decision - Whitmoyer Laboratories, PA
First Remedial Action
Contaminated Media: concentrated liquids in tanks and piping units
Key Contaminants: VOCs (PCE), metals (arsenic)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 48
	20. Security Class (This Page) None	22. Price

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EPA/ROD/R03-89/075
Whitmoyer Laboratories, PA
First Remedial Action

16. Abstract (Continued)

69,000 gallons of water-miscible liquids with a low arsenic content. All the tanks and piping units are within 400 feet of Tulpehocken Creek; 27 of the 32 tanks and piping are within 150 feet. Because the site slopes toward the creek, any release from a tank or piping failure is likely to contaminate the creek. Flooding of the creek could cause failure of these tanks, resulting in catastrophic release of contaminants to the creek. Additionally, contaminants released from the tanks and piping units could migrate to ground water and or the drinking water supply lines serving the site. Because the concentrated liquids pose significant health and environmental threats, their removal is addressed in this first operable unit. Subsequent operable units will identify potential soil, ground water, and surface water/sediment contamination and additional remedial actions that may be necessary. The primary contaminants of concern in the concentrated liquids are VOCs including PCE, and metals including arsenic.

The selected interim remedial action for this site includes consolidating, transporting offsite, and then treating, using thermal treatment or biodegradation, or recycling approximately 69,000 gallons of concentrated liquid wastes at a permitted RCRA facility, followed by disposing of treated water in offsite surface water and disposing of solid residues in an offsite landfill; decontaminating 32 tanks and approximately 2,000 feet of piping to meet RCRA Subtitle C closure standards and disposing of the tanks and piping onsite; and treating and disposing of the cleaning agent residues offsite at RCRA-permitted facilities. The estimated capital cost of this interim remedial action is $475,000, with no O&M costs.

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Whitmoyer Laboratories Site, Jackson Township, Lebanon County, Pennsylvania.

Concentrated Liquids Operable Unit.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the concentrated liquids operable unit at the Whitmoyer Laboratories Site, Lebanon County, Pennsylvania. The remedial action was developed in accordance with the statutory requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and is consistent with the National Contingency Plan (NCP) 40 CFR Part 300. This decision is based on the administrative record file for this site (index attached). The attached index identifies the items which comprise the administrative record upon which the selection of the remedial action is based.

The Commonwealth of Pennsylvania concurs with this remedial action. A copy of the concurrence letter is attached.

DESCRIPTION OF THE SELECTED REMEDY

This operable unit is the first of several for the site. This first operable unit addresses hazardous concentrated liquids (that are present in tanks and vessels), outdated liquid products, and other miscellaneous liquid chemicals (hereafter referred to as "concentrated liquids") which have been abandoned at the site. Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment..

The selected remedy involves consolidating the waste liquids into approximately three general categories, transporting the wastes off-site for treatment, and eventually disposing of the treated liquids into an off-site surface-water body and disposing of solid residuals in an off-site landfill. Organic compounds present in the liquids will be destroyed, either directly or indirectly, through thermal treatment or biodegradation; or be recycled. The tanks and vessels (and associated piping) will then be cleaned, using, as appropriate, steam, emulsifiers, water, etc., to remove the bulk contamination from these items

and meet Resource Conservation Recovery Act (RCRA) closure regulations. The decontaminated tanks and vessels would then be left on-site for future reuse, scrap, or disposal. No demolition of the tanks and vessels is included under this alternative. The cleaning agents would be treated and disposed off-site. Under the selected remedy, specific treatment technology(ies) are not identified at this point so as not to limit potential viable technologies for the remedial action.

The remedy does not address threats posed by groundwater, surface water/sediment, soils, and other contaminant sources at the site. Subsequent records of decision for these items will be prepared following completion of the Remedial Investigation (RI) and Feasibility Study (FS).

The major components of the selected remedy include:

* Interim tank inspection.

* Compatibility testing and consolidation of approximately 69,000 gallons of concentrated liquid wastes into approximately three categories.

* Transportation of these wastes off-site for treatment.

* Treatment of the wastes at a permitted facility.

* Disposal/discharge of solid and liquid treatment residuals.

* Decontamination of 32 tanks and vessels and about 2,000 linear feet of piping.

* Collection, off-site transportation, treatment and disposal of about 8,000 gallons of decontamination fluids.

* Inspection of tanks and piping for compliance with design specifications.

The selected remedy is one of the first phases of the long-term remediation of this site and will be consistent with the final remedy.

DECLARATION STATEMENT

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate for this remedial action, and is cost-effective. This remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. Because this remedy for the concentrated liquids operable unit will not result in hazardous substances remaining on-site above health-based levels, the five-year facility review will not apply to this action.

6/30/89
Date

Edwin B. Erickson
Regional Administrator
Region III

ROD DECISION SUMMARY

SITE NAME, LOCATION, AND DESCRIPTION

The Whitmoyer Laboratories Site is located on approximately 22 acres in Jackson Township, Lebanon County, Pennsylvania, about 1 mile southwest of the Borough of Myerstown (see Figures 1 and 2). The site lies between the Union Canal of Tulpehocken Creek and the Conrail (Reading) Railroad. Fairfield Avenue forms the site's eastern boundary, while Creamery Street adjoins the site to the west.

A food storage warehouse is active in Building 18 on site. Land surrounding the site is predominantly farmland, with scattered farmhouses. A Sterling Drug factory is located 2,000 feet east of the site, while PJ Valves, a manufacturing plant, is located about 1,500 feet to the south. A large active limestone quarry, locally referred to as the Calcite Quarry, is located approximately 1.5 miles west of the site.

TOPOGRAPHY, SURFACE WATER, AND DRAINAGE

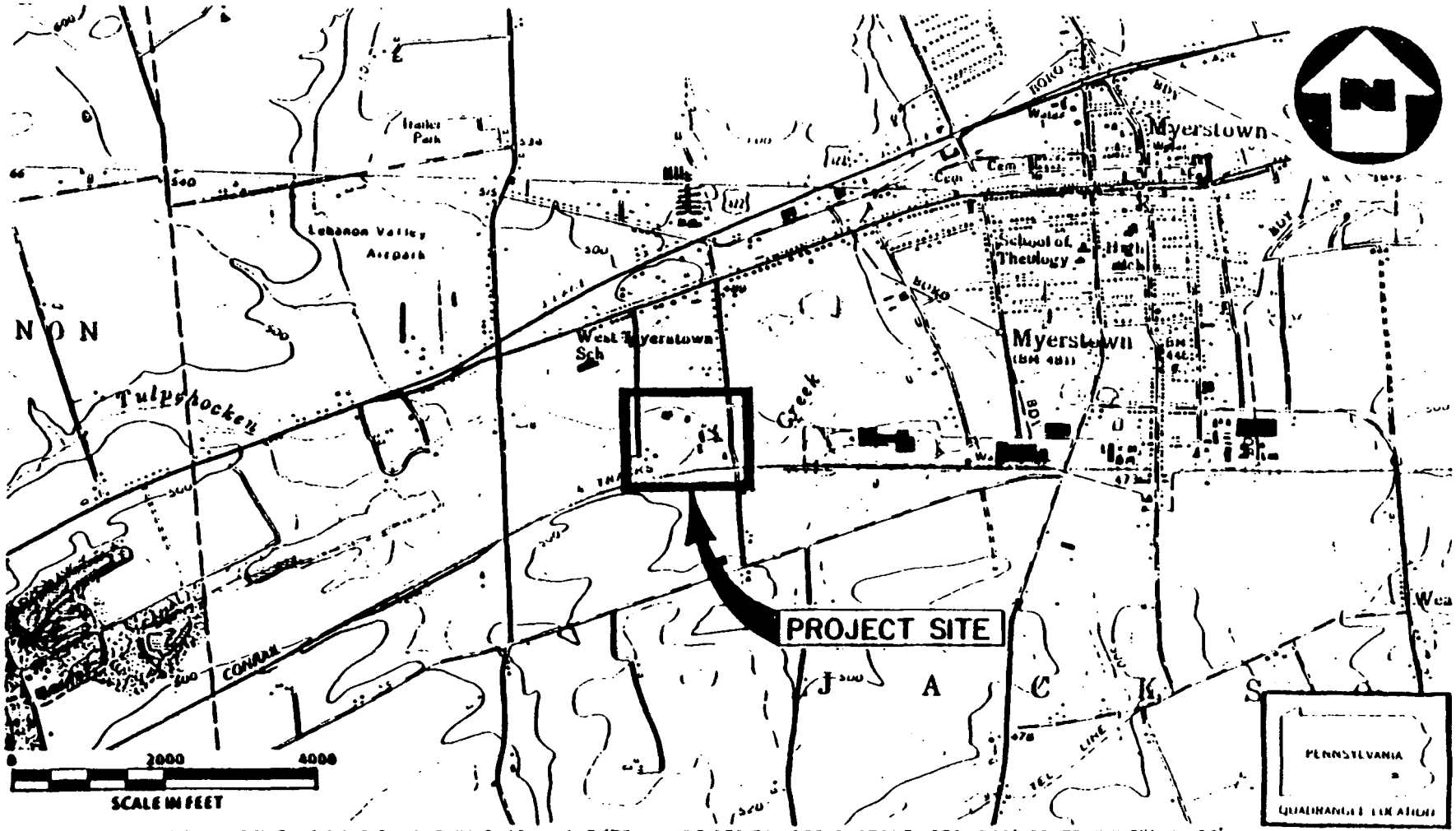
Topographic relief on the site is moderate, varying in elevation from 493 feet in the southwest corner to 449 feet in the northeast corner. The entire site drains to Tulpehocken Creek, with drainage being roughly perpendicular to the creek axis. Portions of the site are within the 100-year flood plain of Tulpehocken Creek.

The Union Canal branches from Tulpehocken Creek just west of the site and rejoins the creek near the site's eastern boundary. Myerstown is the first downstream community, at a distance of approximately 3/4 mile. Tulpehocken Creek is a tributary to and joins the Schuylkill River near Reading, Pennsylvania. The Schuylkill River flows into the Delaware River, which eventually empties into the Atlantic Ocean. Tulpehocken Creek (and the Schuylkill River) serve as drinking water supplies and irrigation sources downstream of the site.

The headwaters of the section of Tulpehocken Creek which passes by the site originate approximately 3 miles to the northwest. The creek is formed by springs and runoff from Blue Mountain.

GEOLOGY

The Whitmoyer Laboratories Site is located within the Lebanon Valley, part of the Great Valley portion of the Valley and Ridge physiographic province. The valley is a topographic expression of the underlying, relatively easily eroded carbonate bedrock units. The site is underlain by carbonate bedrock of the Ontelaunee formation, the youngest member of the Ordovician Age



BASE MAP IS A PORTION OF THE U.S.G.S. RICHLAND, PA QUADRANGLE (7.5 MINUTE SERIES, 1955, PHOTOREVISED 1969). CONTOUR INTERVAL 20'

FIGURE 1

LOCATION MAP
WHITMOYER LABORATORIES SITE, MYERSTOWN, PA

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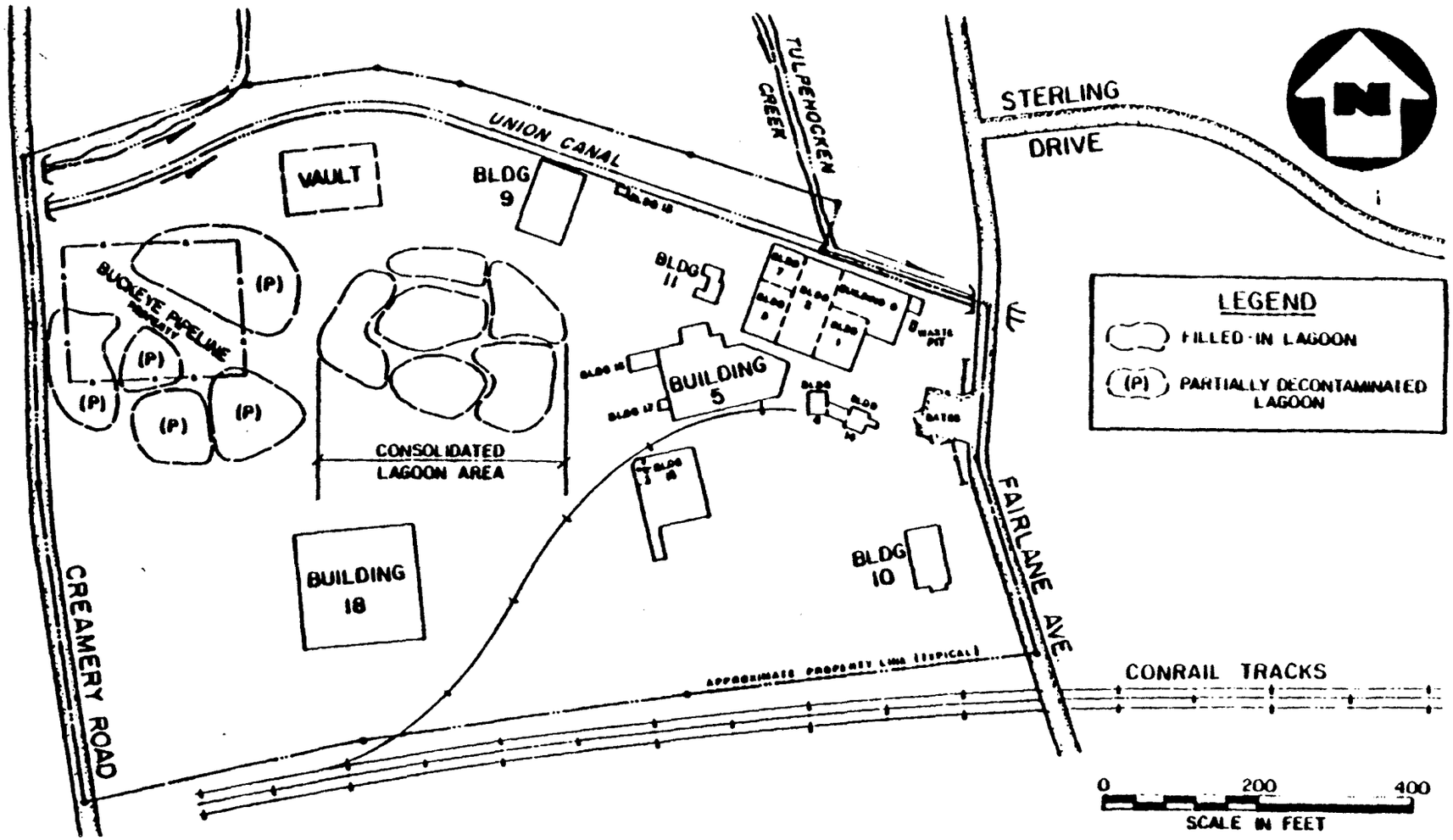

SOURCE: GENERAL LAYOUT DRAWING, PREPAREDNESS, PREVENTION & CONTINGENCY PLAN, DEC. 22, 1982.

FIGURE 2

GENERAL ARRANGEMENT
WHITMOYER LABORATORIES SITE, MYERSTOWN, PA

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Beekmantown group. A thin mantle of clayey residual soil overlies bedrock in the site vicinity. Depths to bedrock in the site vicinity range from 0-18 feet, based on available boring logs. The depth to bedrock is greatest in the vicinity of Tulpehocken Creek and the Union Canal.

Soils in the area are primarily residual soils derived from weathering of the bedrock surface, with some alluvium adjacent to Tulpehocken Creek. Based on available boring logs for the area, the soils consist predominantly of silt and clay. A thin veneer of organic-rich topsoil overlies the residual soils throughout much of the area.

HYDROGEOLOGY

The carbonate bedrock units underlying the Lebanon Valley form the major aquifer in the area. The various formations present, although differing somewhat in water-yielding capacity, are considered to form a single, large, heterogeneous, unconfined aquifer. The porosity of the carbonate aquifer is almost entirely secondary, with fractures enlarged through solution-channeling,forming the primary groundwater storage zones and migration pathways.

Groundwater flow directions in the area generally follow topography, then follow stream flow direction in valley bottoms. In the site area, groundwater flows to the northeast towards Tulpehocken Creek and the Union Canal, then generally follows the course of the stream to the east-northeast.

Groundwater in the bedrock aquifer is used for potable and industrial water supplies. Approximately 40 residences in the site vicinity have potable water supply wells tapping the aquifer. Twenty of these residences have been placed on bottled water by EPA due to contamination of their water supply from past site activities. Large industrial users of groundwater include Sterling Drug, Inc., Quaker Alloy Casting Co., and P.J. Valves, Inc.

The Myerstown Water Authority provides potable water to the residents of Myerstown. One of their reserve wells (#8) taps the bedrock aquifer underlying the site. This well is utilized during periods of high demand. To date, contamination from the site has not been detected in this well.

CLIMATOLOGY

The Whitmoyer Laboratories Site is located within the southeastern Piedmont climatological division of Pennsylvania. Second Mountain, which rises 1,500 feet along the north border; and South Mountain, which rises 1,000 feet along the southern border, form the Lebanon Valley, in which the site is located. The Lebanon Valley has a humid continental climate.

The average annual precipitation at the site is 42.3 inches; this precipitation is mostly evenly distributed throughout the year, with slightly less precipitation occurring in the winter. The average annual snowfall is 27 inches. Evaporation at the site is 36.3 inches; thus, net precipitation is 6 inches.

In the summer, high temperatures are generally in the mid-80s and the lows near 60°F. During the winter the highs average in the upper 30s and the lows in the 20s. The prevailing wind is from the northwest in winter and from the west-southwest in summer.

POPULATION AND ENVIRONMENTAL RESOURCES

Lebanon County, according to the 1980 census, has a population of 109,829, and is classified by the Commonwealth of Pennsylvania as a "fifth class" county. The population of Myerstown in 1984 was 3,270. Populations of 1,296 and 4,683 reside within one and three miles of the site, respectively.

Portions of Tulpehocken Creek contain very small, open water wetlands areas consisting of small pockets along the riverine system of the creek and Union Canal.

The area has some habitat value, with opossum, raccoon, numerous fish, a water snake, and various songbirds observed during a 1986 EPA site visit.

Tulpehocken Creek has been proposed for inclusion on the Commonwealth of Pennsylvania's scenic river system, with a "priority 1A status." This designation is for streams which "have the most urgent need for protection and immediate need for additional study," according to a Pennsylvania Department of Environmental Resources (PADER) official. This designation is currently in the public hearing process.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

A brief chronology of site history and enforcement activities follows.

1900 Circa	-	An oil pipeline was constructed across the site.
1934	-	Whitmoyer Laboratories, Inc. (WLI) formed.
1957	-	WLI begins production of organic arsenicals at the site.
1964	-	ROHM & HAAS buys WLI. Widespread contamination discovered. Concentrated wastes placed in a concrete vault. Groundwater pump-and-treat program initiated. Ocean dumping of wastes begins.
1971	-	Groundwater pump-and-treat and ocean dumping program terminated.
1977	-	Sludges from groundwater treatment consolidated in eastern lagoons.
1978	-	Beecham Laboratories acquires WLI.
1982	-	Stafford Laboratories, Inc. purchases WLI.
1984	-	Stafford Laboratories, Inc. files for bankruptcy. Whitmoyer Laboratories Site proposed for the National Priorities List (NPL).
1985	-	WLI files a RCRA Closure Plan with PADER, and switches its RCRA status from a Treatment, Storage, or Disposal facility to a generator facility.
1986	-	Whitmoyer Laboratories Site finalized on the NPL.
1987	-	Stafford Laboratories, Inc. abandons facility, with very little, if any, of the RCRA Closure Plan implemented. EPA initiates RI/FS.
1988	-	EPA initiates an emergency response to remove abandoned drums from the site. This work continues into summer of 1989.
1989 April	-	EPA sends Special Notice letters to ROHM & HAAS Company, Beecham labs, Mr. C.W. Whitmoyer, Stafford Laboratories, Meyerwhit Land Corporation and the Buckeye Pipeline Company for the concentrated liquids operable unit. ROHM & HAAS, Beecham, and Meyerwhit Land Corporation have declined the opportunity to perform the Remedial Design and Remedial Action (RD/RA).
June	-	The 60-day moratorium initiated by the Special Notice Letters ends on June 24, 1989. If a good faith offer to perform the RD/RA is not received by this date, EPA will begin the RD/RA for the concentrated liquids operable unit with funds from the Hazardous Substances Superfund.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Concentrated Liquids Assessment and Proposed Plan for the Whitmoyer Laboratories Site concentrated liquids operable unit were released to the public in April 1989. These two documents were made available to the public in the administrative record file and information repository maintained at the EPA Region III Docket Room and the Myerstown Public Library, respectively. The notice of availability of these documents was published in the Lebanon Daily News on April 17, 1989. A public comment period was held from April 17, 1989 through May 17, 1989. Although EPA provided the opportunity for a public meeting in the affected area, no citizens requested EPA to hold a public meeting, and one was not held. A response to the comments received during the public comment period is included in the Responsiveness Summary, which is part of this Record of Decision.

SCOPE AND ROLE OF OPERABLE UNIT

As with many Superfund sites, the problems at the Whitmoyer Laboratories Site are complex. As a result, EPA is dividing the site into operable units. The exact number of operable units has not been determined at this time. The concentrated liquids represent the first operable unit for the site. The concentrated liquids were identified by EPA as the site's first operable unit because of the significant, actual, and potential threats these liquids pose to human health and the environment. The primary response objective is to reduce or eliminate these threats by the selected remedial action.

This action will be consistent with any future response action taken at the site. An RI/FS is currently under way to investigate potential soil, groundwater, and surface water/sediment contamination, as well as other contaminant sources. The results of the RI/FS will be used to identify additional remediation activities which may be necessary.

SITE CHARACTERISTICS

During the RI, 18 tanks and 14 piping units (process vessels with associated piping) were found to contain concentrated liquids including hazardous substances. These tanks and units were sampled by EPA during the weeks of August 15, 1988 and November 28, 1988. Sample locations are shown on Figure 3.

In October, 1988, EPA's REM III contractor conducted an inventory of miscellaneous liquids (unsold products, process chemicals, and wastes) abandoned at the site. Since the majority of these liquids are clearly labeled, no sampling of miscellaneous liquids was conducted.

Based on existing information and analytical results, nearly all of the concentrated tank, piping, and miscellaneous liquids can be categorized into three groups for remediation purposes: water-immiscible liquids, water-miscible liquids with high arsenic content, and water-miscible liquids with low arsenic content. Seventy-two gallons of miscellaneous liquids are currently unclassifiable. It is expected that these wastes will fall into one of these three categories when additional information on these wastes is collected during the remedial design phase.

Table 1 presents the classification of these concentrated liquids addressed by this document. Altogether, there are approximately 69,000 gallons of concentrated liquids. Of this amount, 39,000 gallons (57 percent) are classified as water-miscible liquids with low arsenic content; 25,000 gallons (36 percent) are classified as water-miscible liquids with high arsenic content; and 5,000 gallons (7 percent) are classified as water-immiscible liquids.

SUMMARY OF SITE RISKS

Proper maintenance and controls are needed at the site to prevent releases of the concentrated liquids which may present an imminent and substantial endangerment to public health and the environment. The greatest risks to human health from the facility are associated with direct contact with the concentrated liquids by unauthorized personnel on-site (e.g., trespassers, vandals, etc.). Some of the liquids, including raw arsenic acid (TA0006) and several miscellaneous product liquids, are corrosive. Most of the water-immiscible liquids present in tanks and piping contain suspected volatile toxic organics, and, as a result, their associated vapors are toxic. Some of the water-immiscible liquid is predominantly aniline. Concentrated aniline is acutely toxic to humans. Aniline penetrates the skin rapidly and induces methemoglobinemia in those persons sufficiently exposed. Death can result from a significant exposure. Nearly all of the tanks and piping contain significant levels of arsenic. One-third of the tanks and piping contain very high arsenic concentrations (average 3 percent arsenic). Accidental ingestion of arsenic can cause sickness or death. Arsenic is also a known human carcinogen. Accidental ingestion of any of the concentrated liquids addressed here will likely result in toxic effects.

A threat to human health and the environment is also posed by tank/piping failure. Tanks and piping (vessels) can fail primarily under three scenarios. Tanks, vessels, and their attendant piping and valves can fail due to freezing weather. To date, the tanks do not appear to be significantly affected by freezing weather. However, continued lack of maintenance,

TABLE 1

CLASSIFICATION OF CONCENTRATED LIQUIDS
WHITMOYER LABORATORIES SITE

Class	Sample	Gallons	Notes
Immiscible	TA0004	1,900	F002 waste, assumed EP Toxic for As. Mostly aniline.
	TA0005	200	F002 waste, assumed EP Toxic for As, Hg, and possibly Se. Mostly aniline.
	TA0007	150	F002 waste, assumed EP Toxic for As. Mostly PCE.
	PI0004	300	F002 waste, assumed EP Toxic for As. Mostly PCE.
	PI0005	300	F002 waste, assumed EP Toxic for As. Mostly PCE.
	PI0008	400	F002 waste, assumed EP Toxic for As. Mostly PCE.
	PI0009	60	F002 waste, assumed EP Toxic for As. Mostly aniline.
	PI0010	150	Assumed EP Toxic for As. Mostly cresylic acid. RCRA F004 waste laws are ARARs.
	PI0011	350	F002 waste, assumed EP Toxic for As. Mostly aniline.
	PI0014	500 (est)	F002 waste, assumed EP Toxic for As. Mostly aniline.
	Miscellaneous	690	Mostly oil.
	TOTAL	5,000*	Average BTU Content = 9,900 BTU/lb; Average Cl content = 28%; Estimated As content = 75-100 mg/kg arsenic.
Water-miscible liquid with High Arsenic Content	TA0001	7,700	F002 waste, EP Toxic for As, Cd, and possibly Se.
	TA0002	5,200	F002 waste, EP Toxic for As, and possibly Cd and Se.
	TA0003	2,800	F002 waste, EP Toxic for As, Cd, and Se.
	TA0006	30	P010 waste, Corrosive. EP Toxic for As, Cd, Se, and possibly Hg.
	TA0008	3,600	F002 waste, Sludge. Ignitable, but will not combust. EP Toxic for As, Cd, Se, and Hg.
	PI0001	600	F002 waste, EP Toxic for As, Cd, and Se.
	PI0002	500	F002 waste, EP Toxic for As, Cd, and possibly Se.
	PI0003	500	F002 waste, EP Toxic for As, Cd, and Se.
	PI0006	1,000	F002 waste, EP Toxic for As, Cd, and Se.
	PI0007	950	F002 waste, EP Toxic for As, Cd, and Se.
	PI0012,D	1,700	F002 waste, EP Toxic for As, Cd, and Se.
	PI0013	500	F002 waste, EP Toxic for As, and possibly Cd and Se.
	Miscellaneous	110	Arsenic acid waste in 55-gal. drums. Assumed EP Toxic for As.
	TOTAL	25,000*	Average arsenic content = 30,000 mg/kg As.* May contain a significant organic content.

TABLE 1
CLASSIFICATION OF CONCENTRATED LIQUIDS
WHITMOYER LABORATORIES SITE
PAGE TWO

Class	Sample	Gallons	Notes
Water-miscible Liquid with Low Arsenic Content	TA0009	5,000	Assumed EP Toxic for As.
	TA0010	500	Probably piperazine solution. 11% organic carbon.
	TA0011	600	
	TA0012,D	4,400	Assumed EP Toxic for As.
	TA0013	12,000	Contains 1.5% Zinc. pH-4. Includes 600 gals. of sludge.
	TA0014	7,200	Assumed EP Toxic for As. Includes 1,400 gals. of sludge.
	TA0015,D	2,100	Assumed EP Toxic for As.
	TA0016	1,500	Assumed EP Toxic for As.
	TA0017	1,800	Assumed EP Toxic for As.
	TA0018	2,500	Assumed EP Toxic for As.
	Miscellaneous	1,600	Half of category is Tesan Teat Dip. Some miscellaneous wastes are corrosive.
	TOTAL	39,000*	Average Arsenic Content = 18 mg/kg As. Average TOC Content = 2.5%, Average COD Content = 8.9% Average BOD Content = 5.1%
Unclassifiable	TOTAL	70	These wastes should be classifiable in one of the three other categories once more information is obtained.

Total Estimated Volume - Concentrated Liquids = 69,000 gallons.
* All data rounded to two significant digits or the nearest 10-gallon increment for small quantities.

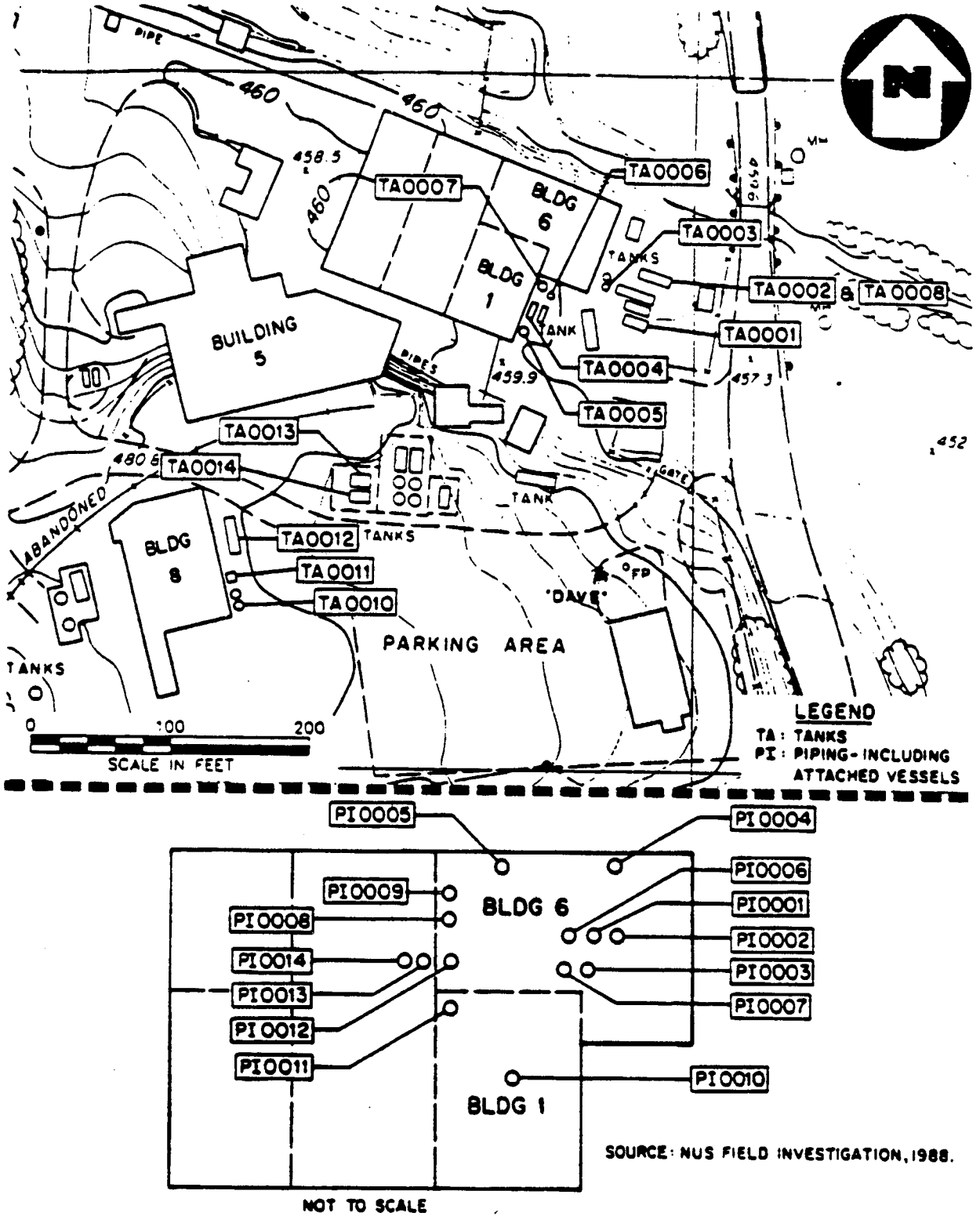

FIGURE 3

TANK, VESSEL, AND PIPING LOCATION
WHITMOYER LABORATORIES SITE, MYERSTOWN, PA

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coupled with an extended period of freezing weather, as occurs periodically, could result in the rupture of many of the unwinterized tanks and piping. They can also fail due to deterioration over time from stress, fatigue, or the effects of the concentrated liquids. Structural integrity testing of the tanks and vessels was outside the scope of the RI and was not conducted. The potential for tank/piping failure from acts of vandalism is also present.

There is the possibility of direct contact with the concentrated liquids during tank failure. The potential effects of direct contact are discussed above.

All of the tanks and piping are within 400 feet of Tulpehocken Creek; 27 of the 32 tanks and piping (and attached vessels) are within 150 feet. The site slopes toward the creek. Thus, any releases from tank/vessel failure are likely to reach and contaminate Tulpehocken Creek. All but two of the tanks are diked. This diking could prevent a significant portion of the tank contents from contaminating the environment during a tank failure. However, without maintenance of the diking integrity and periodic removal of accumulated precipitation, the dikes will be ineffective at containing leaks. Releases from the tanks and vessels could also cause migration of contaminants to groundwater and/or the sewer line serving the site; such migration could additionally contaminate this potable water supply and/or cause an upset at the sewage plant.

Many of the concentrated liquids have low flash points and/or are combustible. A fire could cause the release of hazardous substances to the atmosphere. A tank/piping explosion would cause the release of hazardous substances to the environment. The West Myerstown Elementary School, a potential receptor, is located approximately 1,800 feet northwest of the tanks and piping.

The Map of Flood-Prone Areas, published by the United States Geologic Survey, and the Flood Insurance Rate Map, published by the Federal Emergency Management Agency, both show the tanks associated with samples TA0001-TA0008 to be in the 100-year flood plain (elevation 559 above MSL, see Figure 3). Severe flooding could cause the failure of these tanks, with catastrophic release of contaminants to the creek waters.

DESCRIPTION OF ALTERNATIVES

Using information collected by EPA's REM III contractor and the findings of past and present investigations and data analysis, EPA developed five alternatives for an early action Record of Decision for the concentrated liquids operable unit at the Whitmoyer Laboratories Site. EPA's approach to this early action ROD has been to evaluate a limited number of alternatives. The wastes to be remediated are liquid wastes only and this leads toward

treatment of the waste rather than containment. Also treatment of liquid wastes is generally required to meet the Land Disposal Regulations (LDR) treatment standards. The five alternatives are No Action; Off-site Disposal (without treatment); Off-site Treatment and Disposal; On-site Treatment and Disposal; and On-site Containment.

Three of these alternatives were eliminated from further consideration based on critical flaws. Off-site Disposal (without treatment) was eliminated since the wastes, as liquids, are not readily landfillable; disposal without treatment of the F-wastes, P-waste, and "California List" wastes is generally prohibited under the 40 CFR 268 Land Ban requirements, and the wastes contain levels of priority pollutants and conventional parameters that are significantly higher than typical concentration standards required for direct discharge to surface waters. On-site Treatment and Disposal was eliminated, since the relatively low volume of wastes present, coupled with relatively high mobilization, engineering, and capital costs, would result in very high treatment costs. This alternative offers the same degree of protection as off-site treatment but at a much higher cost. On-site containment was eliminated from further consideration, since this alternative offers only a temporary solution and would not be effective in the long term. Based on this analysis, EPA retained two alternatives for further consideration. The two alternatives are:

* No Action
* Off-site Treatment and Disposal

ALTERNATIVE 1 - NO ACTION

Alternative 1 consists of no action for the concentrated liquid wastes. This alternative is considered as a baseline for comparison with other alternatives. The no-action alternative would not involve any actions other than those currently provided at the site. These include existing diking of all of the tanks (except the two tankers), site fencing, and a security guard service.

Under the no-action alternative, existing chemicals would be allowed to remain on- site. This alternative would not minimize or eliminate any possible catastrophic threat to human health and the environment that currently exists. In addition, this alternative would not provide a permanent solution, nor would it comply with other statutory or regulatory requirements (in particular, RCRA storage, disposal, and closure requirements).

ALTERNATIVE 2 - OFF-SITE TREATMENT AND DISPOSAL

Alternative 2 consists of consolidating the waste liquids into three general categories, transporting the wastes off-site for treatment, and eventually disposing of the treated water in an off-site surface water and disposing of solid residuals in an off-site landfill. The organic compounds would be destroyed, either directly or indirectly, through thermal treatment or biodegradation, or recycled. The tanks and vessels (and associated piping) would then be cleaned, using, as appropriate, steam, emulsifiers, water, etc., to remove the bulk contamination from these items and meet RCRA Subtitle C closure standards. The decontaminated tanks, vessels, and piping would then be left on site for future reuse, scrap, or disposal. No demolition of the tanks and vessels would be included under this alternative. The cleaning agent residuals would likewise be treated and disposed off site. The off-site treatment facilities must be RCRA permitted facilities and be in compliance with their permit.

The three major categories of concentrated liquids are --

* Water-Immiscible
* Water-Miscible High Arsenic
* Water-Miscible Low Arsenic

The consolidation activities under this alternative are not planned to occur until actual on-site remedial action occurs. The waste categories presented here are preliminary, to allow for optimization under remedial design. In particular, discrete tank, piping or miscellaneous wastes may be moved to other categories in order to facilitate treatment. Also, additional categories may be developed or categories eliminated, based on optimization during remedial design.

The potential tasks under this alternative are summarized as follows:

* Interim tank inspection.

* Compatibility testing and consolidation of approximately 69,000 gallons of concentrated liquid wastes into approximately three categories.

* Transportation of these wastes off-site, in accordance with RCRA, US Department of Transportation (DOT), and State regulations.

* Treatment of the wastes at permitted facility(ies) (as yet unidentified), in accordance with RCRA and State regulations.

* Disposal/discharge of solid and liquid treatment residuals, in accordance with RCRA, Clean Water Act and State regulations.

* Decontamination of 32 tanks (and piping vessels) and about 2,000 linear feet of piping, in accordance with RCRA closure standards and design specifications.

* Collection, transportation, treatment, and disposal of about 8,000 gallons of decontamination fluids, in accordance with RCRA, DOT, and State regulations.

* Inspection of tanks and piping for compliance with design specifications.

Potential treatment technologies for the three categories of concentrated liquids are presented in Table 2. This table is developed based on applicable EPA guidance, coupled with a review of the volumes, matrices, and contaminants present in the concentrated liquids.

This alternative involves the treatment and disposal of RCRA hazardous listed and characteristic wastes off-site. Some of these wastes are classified as RCRA F-wastes, P-wastes (40 C.F.R. 261.31 and .32) and/or "California List" wastes (RCRA Section 3004(d)(2)). EPA has promulgated land disposal restrictions (LDR) for these wastes; thus the land disposal restrictions are applicable requirements for these wastes. The off-site treatment facilities must be able to achieve the LDR treatment standards for these wastes.

Under this alternative, specific treatment technologies are not identified at this point so as not to limit potential viable technologies under remedial action. Final selection of technologies will be made based on vendor responses to performance specifications. Criteria to be used in this selection include:

* Compliance of vendors with their permits (RCRA, NPDES, and pretreatment standards).
* Compliance with CERCLA and ARARs.
* Permanence.
* Ultimate fate of contaminants.
* Reduction in volume, mobility, and toxicity.
* Costs.

For purposes of costing this alternative, the following treatment technologies were selected:

* Water-Immiscible: Incineration, followed by NPDES POTW or surface water discharge of waters and RCRA hazardous waste disposal of inorganic residues.

TABLE 2

RELATIVE APPLICABILITY OF TREATMENT TECHNOLOGIES
WHITMOYER LABORATORIES SITE

Technology • Process Options	Applicable To	Material					
		Water Immiscible		Water Miscible High Arsenic		Water Miscible Low Arsenic	
		Applicability	Potential Interferences	Applicability	Potential Interferences	Applicability	Potential Interferences
Thermal Treatment							
• Incineration	Organics	High		Low/Moderate	High water content	Low/Moderate	High water content
• Pyrolysis	Organics	Moderate	High liquid content	Low	High water content	Low	High water content
• Vitrification	Organics/metals	Moderate	High liquid content	Low	High water content	Low	High water content
Physical Treatment							
• Sedimentation	Solids/metals	Low		High		High	
• Filtration	Solids/metals	Not applicable		High		High	
• Carbon Adsorption	Organics	Not applicable		Moderate		Moderate	
• Reverse Osmosis	Metals/organics	Not applicable		Pot. applicable		Pot. applicable	
• Distillation	Organics	Pot. applicable	Impurities	Not applicable		Not applicable	
• Air Stripping	Volatile organics	Pot. applicable	Semivolatile Organics	Pot. applicable	Semivolatile Organics	Pot. applicable	Semivolatile Organics
Chemical Treatment							
• Oxidation	Metals/organics	Low	High concentration	Moderate		Moderate	
• Neutralization	Metals	Not applicable		Moderate		Moderate	
• Precipitation	Metals	Not applicable		High	Organometallics	High	Organometallics
Biological							
• Aerobic	Organics	Low	Toxicity	Low	Toxicity	Moderate	Toxicity
• Anaerobic	Organics	Low	Toxicity	Pot. applicable		Pot. applicable	

* Water-Miscible High Arsenic: Physical/chemical treatment, followed by National Pollution Discharge Elimination System (NPDES) Publicly Owned Treatment Works (POTW) or surface water discharge of waters and RCRA hazardous waste disposal of inorganic residues.

* Water-Miscible Low Arsenic: Physical/chemical treatment, followed by NPDES POTW or surface-water discharge of water and hazardous or nonhazardous disposal of inorganic residues.

At the completion of this remedial alternative, human health and environmental risks posed by the liquids will either be substantially reduced or eliminated. The estimated capital cost of this alternative is approximately $475,000. There are no annual operation and maintenance (O&M) costs. The estimated time to implement this alternative and to meet the cleanup goals is 18 months or less.

SUMMARY of THE COMPARATIVE ANALYSIS of ALTERNATIVES

OVERALL PROTECTION of HUMAN HEALTH and the ENVIRONMENT

Alternative 1 - No Action would not protect human health and the environment. The risks presently posed by the liquids are discussed above. Risks associated with direct human contact are somewhat reduced due to the presence of a security guard service; however, accidental contact with the waste is still conceivable. Since some of the wastes are ignitable and have high BTU values, there is a risk of fire occurring at the site. Because seven tanks lie within the flood plain, there is a risk of release during flooding.

If no action is taken, it is likely that one or more of the tanks will eventually leak or fail. At the same time, the containment dikes will eventually fill with rain water, since there is net precipitation at the site. With the dikes full of rain water, they will not offer secondary containment protection. Also some tanks have no secondary containment structures. Therefore, the no-action alternative would not protect the environment from leaks and potential catastrophic failure of the tanks. Environmental media likely to be affected by leaks and catastrophic failure include soils, groundwater, and surface water (Tulpehocken Creek).

Alternative 2 - Off-site Treatment and Disposal of the wastes would involve removing the wastes from the site and thereby minimizing long-term risks at the site associated with these wastes. This alternative would eliminate the direct contact threat posed by the wastes and would remove the threat to human health and the environment from the stored liquids. The wastes would then be treated to destroy or recycle the organic contaminants, using the technologies identified in the Description of Alternatives. The metal contaminants would be treated using

described in the Description of Alternatives, and then disposed in an appropriate landfill designed to protect human health and the environment.

Alternative 2 would also include interim periodic inspection of the tanks prior to remediation. These inspections could provide some additional protection by identifying leaks and potentially identifying other means of failure.

COMPLIANCE WITH ARARs

Alternative 1 - No Action would not comply with the ARARs presented in Appendix A.

Alternative 2 - Off-site Treatment and Disposal would comply with each of the ARARs presented in Appendix A. Since some of the concentrated liquids are RCRA-listed wastes and/or "California List" wastes, the "land ban" regulations of 40 C.F.R. Part 268 are applicable to these wastes, and must be complied with by the off-site treatment facility. Alternative 2 would also meet each of the response objectives.

COST

Alternative 1 - No Action has a zero cost associated with it. Items such as site maintenance, security service, and 5-year site review are all assumed to be covered under other operable units at the site.

The estimated costs associated with Alternative 2--Off-site Treatment and Disposal--total about $475,000, including $50,000 for remedial design and construction management. Since the actions associated with this alternative would require less than 1 year to remediate, there are no long-term operation and maintenance costs. Included in the capital cost under disposal are secondary costs for the vendors, including solid residue disposal in a hazardous waste landfill and treated water discharge. Engineering costs, which include consolidation compatibility testing, specification preparation, bid review, construction monitoring, and compliance inspection, are also a part of the cost estimate.

LONG-TERM EFFECTIVENESS and PERMANENCE

Alternative 1 - No Action would not be effective in the long term. With time, the integrity of tanks, vessels, and piping will deteriorate. Deterioration mechanisms include corrosion, weathering, freezing, and metal fatigue. Additionally, with time, the secondary containment systems will likely deteriorate. Two of the tanks at the site (TA-0009 and 0012) contain about 10,000 gallons of waste and have no secondary containment. An additional concern is that tanks TA0001-0008 are in the 100-year flood plain and are subject to catastrophic washout. The possibility of a fire at the site is also increased over the long term.

With the hazardous materials removed from the site, and the tanks, vessels, and piping decontaminated, Alternative 2--Off-site Treatment and Disposal would be effective in the long term. Destruction or recycling of the organic contaminants would eliminate future risks associated with them. Metals residuals may require additional remedial measures following treatment prior to disposal. If necessary these metals may be treated prior to disposal to reduce mobility and will be placed into an off-site disposal facility for proper long-term management. These items would be covered under the off-site treatment vendor's operation. This alternative offers a high degree of permanence and is consistent with future remedial efforts for the remaining operable units at the site.

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME

Alternative 1 - No Action would not result in the reduction of the toxicity of the existing wastes. Mobility and volume may increase with time as a result of leaks or tank failure. This failure would result in contamination of other media at the site, including groundwater, soils, and potentially surface water (Tulpehocken Creek).

Alternative 2 - This alternative satisfies the statutory preference for reduction in toxicity, mobility, and volume of hazardous substances. Off-site Treatment and Disposal would result in a significant reduction in toxicity of the organics--by destruction; reduction in volume of contaminated materials by separation of water from the contaminants; and mobility of the residual metals by concentrating, deterring, and placing them in a properly managed landfill. The metals may also be stabilized by the vendor prior to landfilling.

SHORT-TERM EFFECTIVENESS

In the short term, Alternative 1 - No Action may be moderately effective. However, the potential for accidental human contact and catastrophic tank failure remain major risks. Additionally, it should be noted that currently at least one tank (TA0002/0008) has been observed to be leaking; this leak is currently controlled by a secondary containment structure. The no-action alternative can be in effect almost immediately following completion of the Record Of Decision.

Alternative 2 - Off-site Treatment and Disposal would likewise have some short-term risks. There are risks associated with tank failure during the period from the present time until completion of off-site transport. However, these risks will be decreased by periodic inspection. The risk of accidental human contact and

catastrophic tank failure cannot be eliminated, however. The off-site treatment and disposal alternative also carries some additional short-term risk associated with transporting the contaminated wastes off-site. These risks are primarily associated with potential transport truck accidents. Risk reduction techniques, including personal protection equipment, monitoring, emergency spill response measures, etc., will be incorporated into the remedial design to minimize these risks.

All of the tasks under this alternative can be implemented within 2 to 18 months, with actual on-site activities requiring about 1 month or less. The interim inspection task under this alternative can be implemented immediately.

IMPLEMENTABILITY

Alternative 1 - No Action is readily implemented, since no permits or action-related activities are involved.

Alternative 2 - Off-site Treatment and Disposal would involve a remedial design phase to develop action plans and specifications and selection of a contractor to perform the remedial work. Since about one-half to all of the waste is RCRA hazardous, manifesting would be required for transportation and off-site disposal of the wastes. The availability of vendors capable of performing the treatment and disposal work is somewhat limited, although there are several vendors available for each of the three categories of waste.

At the completion of tank, vessel, and piping decontamination, these items would be inspected to ensure compliance with decontamination requirements.

STATE ACCEPTANCE

The Commonwealth of Pennsylvania, Department of Environmental Resources (PADER) has reviewed the information available for the site. Alternative 1 - No Action is not acceptable to PADER. PADER concurs with the selection of Alternative 2--Off-site Treatment and Disposal as the remedy for the concentrated liquids operable unit. See attached concurrence letter.

COMMUNITY ACCEPTANCE

The Proposed Plan for the concentrated liquids operable unit was issued in April 1989. A public comment period on EPA's plans was provided from April 17, 1989 until May 17, 1989. Community support for the proposed action is high (see the attached Responsiveness Summary).

EXPLANATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Whitmoyer Laboratories Site concentrated liquids operable unit was released for comment in April 1989. The Proposed Plan identified Alternative 2--Off-site Treatment and Disposal as the preferred alternative. EPA reviewed all of the comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the remedy, as it was originally identified in the Proposed Plan, were necessary.

THE SELECTED REMEDY

Based upon consideration of information available for the Whitmoyer Laboratories Site Concentrated Liquids Operable Unit, which are set forth in the Administrative Record, an evaluation of the risks currently posed by the site, the requirements of CERCLA, the detailed evaluation of alternatives, and community input, both EPA and the Commonwealth of Pennsylvania have selected Alternative 2 (Off-site Treatment and Disposal) as the remedy to be implemented for the operable unit. This alternative will significantly reduce or eliminate the actual and potential threats to human health and the environment posed by the liquids, is consistent with EPA's strategy for remediation of the site and meets the criteria specified in CERCLA Section 121(b)(1).

Approximately 69,000 gallons of concentrated liquids will be treated in this operable unit. A summary of the concentrated liquids is provided in Table 3. (More information permitting classification of the 70 gallons of currently unclassifiable liquids will be collected during the remedial design.) These liquids will be consolidated and transported off-site for treatment/disposal. RCRA hazardous wastes that are restricted from land disposal (40 CFR 268) must be treated to the appropriate treatment standards by the off-site treatment facility prior to disposal. Organic compounds will be destroyed or recycled. Residual metals in the concentrated liquids may be treated prior to disposal to reduce mobility and will be placed into an off-site disposal facility for proper long-term management. The tanks, vessels and associated piping will be cleaned using appropriate decontamination fluids, and left on-site for future reuse, scrap, or disposal. The cleaning agents will also be treated and disposed off-site.

RESPONSE OBJECTIVES

The response objectives for this operable unit are to --

* Reduce or eliminate potential exposure pathways by which contaminants may reach potential receptors.

* Protect the environment from potential leaks and/or catastrophic tank failure.

* Be cost-effective.

TABLE 3

CLASSIFICATION OF CONCENTRATED LIQUIDS
WHITMOYER LABORATORIES SITE

Class	Gallons	Notes
Immiscible	5,000*	Average BTU Content = 9,900 BTU/lb; Average Cl content = 28%; Estimated As content = 75-100 mg/kg arsenic.
Water-miscible liquid with High Arsenic Content	25,000*	Average arsenic content = 30,000 mg/kg As.* May contain a significant organic content.
Water-miscible Liquid with Low Arsenic Content	39,000*	Average Arsenic Content = 18 mg/kg As. Average TOC Content = 2.5%, Average COD Content = 8.9% Average BOD Content = 5.1%
Unclassifiable	70	These wastes should be classifiable in one of the three other categories once more information is obtained.

Total Estimated Volume - Concentrated Liquids = 69,000 gallons.

* All data rounded to two significant digits or the nearest 10-gallon increment for small quantities.

* Be in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

* Be conducted in accordance with the National Contingency Plan (NCP Section 300.68).

* Be in compliance with applicable or relevant and appropriate requirements (ARARs).

* Provide permanent solutions to contamination problems to the maximum extent practicable.

* Be effective over both the short - and long-term.

* Be acceptable to State authorities and the local community.

* Leave the facility in a state conducive to remediation of other areas of the site.

STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that when complete, the selected remedial action for this site must comply with applicable or relevant and appropriate environmental requirements established under Federal and State environmental laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and utilize treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that permanently and significantly reduce the volume, toxicity or mobility of hazardous wastes. The following sections discuss how the selected remedy for this site meets these statutory requirements.

PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedy protects human health and the environment through off-site liquids treatment to destroy or recycle organic contaminants and to collect metal contaminants for disposal in an appropriate landfill. The selected remedy eliminates a direct contact threat and allows other areas of the site which may pose potential health threats to be remediated. Tanks, vessels, and associated piping will be cleaned, with cleaning agents also being treated and disposed off-site. Prior to remediation, tanks and vessels will be periodically inspected.

Destruction (or recycling) of organic compounds will eliminate the threats posed by these chemicals. Since metals cannot be destroyed, there will be some long-term risks; however, these metals may be treated prior to disposal to reduce mobility and will be placed into an off-site landfill for proper long-term management. Any short-term risks from implementation of the selected remedy will be mitigated by incorporating into the design personal protection equipment, monitoring, and emergency spill procedures.

ATTAINMENT OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The selected remedy of off-site treatment and disposal will attain all applicable or relevant and appropriate requirements. The ARARs are specified in Appendix A.

COST-EFFECTIVENESS

EPA and the Commonwealth of Pennsylvania believe the selected remedy is cost-effective in mitigating the risks posed by the concentrated liquids in a reasonable period of time (less than 18 months). Because organic chemicals present in the liquids will be destroyed (or recycled) and metals will be disposed in an appropriate landfill, selection of the off-site treatment and disposal remedy affords a high degree of long-term effectiveness and permanence.

The capital cost of the concentrated liquids remedy is estimated to be $475,000, including $50,000 for remedial design and construction management, with no annual O&M costs. While these costs are significantly greater than for the no-action alternative, the selected remedy is protective of public health and the environment and complies with all ARARs; the no-action alternative does not achieve these criteria. Therefore, EPA and the Commonwealth of Pennsylvania believe that the selected remedy is cost effective.

UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT (OR RESOURCE RECOVERY TECHNOLOGIES) TO THE MAXIMUM EXTENT PRACTICABLE.

The concentrated liquids found at the site represent a principal threat to human health and the environment. By treating all of the concentrated liquids and decontamination fluids at an off-site treatment facility, the selected remedy uses treatment technologies to the maximum extent practicable.

PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

By treating all of the concentrated liquids and decontamination fluids at an off-site treatment facility, the selected remedy addresses the principal threats posed by the concentrated liquids through the use of treatment technologies. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied.

Destruction (or recycling) of organic compounds will eliminate the threats posed by these chemicals. Since metals cannot be destroyed, there will be some long-term risks; however, these metals may be treated prior to disposal to reduce mobility and will be placed into an off-site landfill for proper long-term management. Any short-term risks from implementation of the selected remedy will be mitigated by incorporating into the design personal protection equipment, monitoring, and emergency spill procedures.

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The selected remedy of off-site treatment and disposal will attain all applicable or relevant and appropriate requirements. The ARARs are specified in Appendix A.

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EPA and the Commonwealth of Pennsylvania believe the selected remedy is cost-effective in mitigating the risks posed by the concentrated liquids in a reasonable period of time (less than 18 months). Because organic chemicals present in the liquids will be destroyed (or recycled) and metals will be disposed in an appropriate landfill, selection of the off-site treatment and disposal remedy affords a high degree of long-term effectiveness and permanence.

The capital cost of the concentrated liquids remedy is estimated to be $475,000, including $50,000 for remedial design and construction management, with no annual O&M costs. While these costs are significantly greater than for the no-action alternative, the selected remedy is protective of public health and the environment and complies with all ARARs; the no-action alternative does not achieve these criteria. Therefore, EPA and the Commonwealth of Pennsylvania believe that the selected remedy is cost-effective.

UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT (OR RESOURCE RECOVERY TECHNOLOGIES) TO THE MAXIMUM EXTENT PRACTICABLE.

The concentrated liquids found at the site represent a principal threat to human health and the environment. By treating all of the concentrated liquids and decontamination fluids at an off-site treatment facility, the selected remedy uses permanent treatment technologies to the maximum extent practicable.

PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

By treating all of the concentrated liquids and decontamination fluids at an off-site treatment facility, the selected remedy addresses the principal threats posed by the concentrated liquids through the use of treatment technologies. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied.

TABLE 3

Estimated Costs of Selected Remedy

Site Work (Mobilization/Demobilization, Liquid removal, Tank decon, Safety monitoring)	$199,462
Off-Site Transportation of Liquids	15,200
Off-Site Treatment of Liquids and Decon water	123,000
Contingency (20%)	67,533
	405,195
Design	50,000
Interim Inspection Monitoring (10 months)	20,000
Total Project Costs	$475,195

APPENDIX A

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

Action	ARARS	
	Alt. 1 No Action	Alt. 2 - Off-site treatment and disposal
1. Consolidation of 69,000 gallons of concentrated hazardous wastes into tanks and containers, off-site transport, treatment & disposal of toxic waste.	N/A	a) Any air emission generated during the remedial action must not exceed National Ambient Air Quality Standards established under the Clean Air Act, Section 109, and 40 C.F.R. Parts 50 and 51. b) Federal Flood Plain Executive Order 11988 provides for consideration of flood plains during remedial actions. Liquids located in the 100 year flood plain will be consolidated in an area outside the flood plain. c) Any new on-site tanks and containers must be constructed, operated, and closed in accordance with 40 C.F.R. Part 264, Subparts I and J, respectively and 25 PA Code Chapter 75.264 Subparts (q) and (r).
2. Transport of concentrated wastes in tanks and containers.	N/A	a) Transport of hazardous waste for treatment and disposal must satisfy Pennsylvania Solid Waste Disposal Regulation, 25 PA. Code Chapters 262 and 263 (40 C.F.R. Parts 262 and 263). b) Transport of hazardous materials for treatment and disposal must satisfy Department of Transportation regulations set forth in 49 C.F.R. Part 107, 171.1-171.500. The DOT regulations govern the transport of hazardous waste materials, including packaging, shipping, equipment and placarding.

Action	Alt. 1 No Action	Alt. 2 - Off-site Treatment and disposal
3. Consolidation of 69,000 gallons of concentrated hazardous wastes into tanks and container.	N/A	Regulations of the Occupational Safety & Health Administration ("OSHA"), 29 C.F.R. Parts 1904, 1919 and 1926, provide occupational safety and health requirements applicable to workers engaged in on-site hazardous waste field activities.
4. Decontamination of 32 tanks and 2,000 linear feet of piping on site.	N/A	a) The handling and closure of the existing RCRA-regulated tanks and piping must satisfy 40 C.F.R. Part 264, Subparts I ("Use and Management of Containers") and J ("Tank Systems"), respectively and 25 PA Code 75.264. b) Closure of the units must also satisfy 40 C.F.R. Part 264, Subpart G ("Closure and Post-Closure") and 25 PA Code Chapter 75.264(o).
5. Off-site disposal of 69,000 gallons of concentrated hazardous wastes off-site.	N/A	a) Any hazardous waste delivered off-site must be delivered to a treatment/storage/disposal ("TSD") facility which has qualified for Interim status or has obtained a RCRA permit. Such treatment, storage, or disposal must be performed in accordance with 40 C.F.R. Part 265, or the analogous State regulations, or the TSD's permit, as may be appropriate. b) Section 121(d)(3) of CERCLA mandates that hazardous wastes disposed off-site be disposed of at a facility that is operating in compliance with interim status requirements or a permit and if the wastes are to be land-disposed, the receiving facility must not be

Action	Alt. 1 No Action	Alt. 2 - Off-site Treatment and disposal
		releasing any hazardous wastes or constituents into groundwater, surface water or soil and any releases from other units at the facility must be controlled by RCRA corrective action. c) Any off-site disposal must comply with the EPA Off-Site Disposal Policy, OSWER Directive No. 9834.11 (11/13/87).
6. Off-Site disposal of 8,000 gallons of water used, used to decontaminate on-site tanks and piping.	N/A	id. (See 5 above)

WHITMOYER LABORATORIES SITE
LEBANON COUNTY, PENNSYLVANIA

FINAL
RESPONSIVENESS SUMMARY
JUNE 23, 1989

This Responsiveness Summary is intended to document public concerns and comments expressed during the public comment period. The summary is also intended to document the EPA's responses to the comments and concerns that were received. Information is organized as follows:

Attachment:
List of Community Relations Activities
Conducted at the Whitmoyer Laboratories Site

1.0 OVERVIEW

The public comment period for the Whitmoyer Laboratories Site began on April 17, 1989, and extended until May 17, 1989. In a public announcement that appeared in the Lebanon County Daily News on April 17, 1989, EPA summarized the Agency's Proposed Plan for disposing of concentrated liquids from the site and offered the local community an opportunity to request a public meeting to discuss the plan. The announcement also informed community members that copies of the Proposed Plan and the Concentrated Liquids Assessment, upon which the plan was based, were available locally at the Myerstown Public Library in Myerstown, Pennsylvania. No public meeting requests were received. Consequently, no meeting was held.

2.0 SUMMARY OF COMMENTS AND RESPONSES

During the comment period, only one comment was received regarding the Proposed Plan to dispose concentrated liquids. The comment was presented in a letter from a local official associated with the Lebanon County Emergency Planning Agency, and it was dated April 25, 1989.

COMMENT: This official stated that he needed specific information from EPA in order to enhance the original site emergency contingency plan and provide for a

WHITMOYER LABORATORIES SITE
ADMINISTRATIVE RECORD FILE *
INDEX OF DOCUMENTS

I. SITE IDENTIFICATION

1) U.S. EPA Identification and Preliminary Assessment, 12/23/83. P. 100001-100004.

2) U.S. EPA Site Inspection Report, 4/11/84. P. 100005-100011.

* Administrative Record file available 6/16/89.

Note: Company or organizational affiliation is identified in the index only when it appears in the file.

II. REMEDIAL ENFORCEMENT PLANNING

1) Letter to Mr. Jon F. Horwath, Buckeye Pipe Line Company, from Mr. Thomas C. Voltaggio, U.S. EPA, re: 104(e) information request, 4/14/89. P. 200001 - 200005.

2) Letter to Mr. Harold Bogatz, Myerwhit Land Corporation, from Mr. Thomas C. Voltaggio, U.S. EPA, re: 104(e) information request, 4/14/89. P . 200006-200010. A certified mail receipt is attached.

3) Letter to Beecham Laboratories, from Mr. Thomas C. Voltaggio, U.S. EPA, re: Whitmoyer Laboratories Superfund NPL Site, 4/14/89. P. 200011-200016. A certified mail receipt is attached.

4) Letter to Mr. Frank A. Lucero, Stafford Laboratories, from Mr. Thomas C. Voltaggio, U.S. EPA, re: 104(e) information request, 4/14/89. P. 200017-200020. A certified mail receipt is attached.

5) Letter to Ms. Ellen Friedell, Rohm & Haas Company, from Mr. Thomas C. Voltaggio, U.S. EPA, re: 104(e) information request, 4/14/89. P. 200021-200025. A certified mail receipt is attached.

6) Letter to Mr. C.W. Whitmoyer from Mr. Thomas C. Voltaggio, U.S. EPA, re: 104(e) information request, 4/14/89. P. 200026-200030. A certified mail receipt is attached.

7) Letter to Mr. Thomas C. Voltaggio, U.S. EPA, from Mr. Harold Bogatz, Meyerwhit Land Corporation, re: Meyerwhit Land Corporation's response to the 104(e) letter dated April 14, 1989. P. 200031-200031.

III. REMEDIAL RESPONSE PLANNING

1) Fact Sheet: Arsanilic Acid Startup Fact Sheet, 5/10/77. P. 300001-300005.

2) Memorandum to Mr. R.L. Widerkehr from Mr. Harold M. Huffman, Whitmoyer Laboratories, Inc. re: Arsenical Waste Disposal, 7/21/80. P. 300006-300021. An Arsenical Waste Disposal report is attached.

3) Memorandum to those listed from Mr. Lloyd J. Croesus, Whitmoyer Laboratories, re: EPA Notification of Hazardous Waste Activity, 8/11/80. P. 300022-300023.

4) Letter to Mr. Donald Wanamaker, Lion Technology, from Mr. Lloyd J. Croesus, Whitmoyer Laboratories, Inc., re: Fiberglass Tank - RCRA Consultation, 8/27/81. P. 300024-300024.

5) Letter to Mr. Lawrence P. Gemmell, GEM-CHEM Co., from Mr. Lloyd J. Croesus, Whitmoyer Laboratories, re: Transmittal of an aniline water stream data sheet, 9/28/82. P. 300025-300030. The aniline water stream data sheet is attached.

6) Material Safety Data Sheet for Emulsified Cresylic Acid solution, prepared by Whitmoyer Laboratories, Inc., 12/21/82. P. 300031-300032.

7) Memorandum to Mr. W.H. Skinner from Mr. L.J. Croesus, Whitmoyer Laboratories, Inc., re: Expense Projection for November and December 1983, 11/10/83. P. 300033-300033.

8) Memorandum to those listed from Mr. Lloyd Croesus, Whitmoyer Laboratories, Inc., re: Arsenical Wastewater Shipment to Waste Conversion Company on November 10, 1983, 11/11/83. P. 300034-300034.

9) Memorandum to those listed from Mr. Lloyd Croesus, Whitmoyer Laboratories, Inc., re: Update on Arsenical Wastewater Shipment to Waste Conversion Company on November 10, 1983, 11/15/83. P. 300035-300036.

10) Report: Analytical Laboratory Request and Report for Waste from 8108 Tanker at 12 noon on 11/1/83, prepared by Whitmoyer Laboratories, Inc., 11/22/83. P. 300037-300037.

11) Memorandum to Regional File from Mr. Timothy Alexander, Harrisburg Regional Office, re: Transmitting information in regard to the level of arsenic found in the lagoons, 12/29/83. P. 300038-300039.

12) Letter to Mr. Krishnan Ramamurthy, Pennsylvania Department of Environmental Resources, from Mr. Lloyd Croesus, Whitmoyer Laboratories, Inc., re: Transmittal of proposed material balance, 1/18/84. P. 300040-300044.

13) Report: Analytical Laboratory Request and Report Form for Study and Liquid from T-R for Sample Numbers 2024001 and 2024002 prepared by Whitmoyer Laboratories, Inc., 2/84. P. 300045-300045.

14) Memorandum to Mr. F.A. Lucero from Mr. A.C. Smith, re: Phenol Residue Inventory, 10/10/84. P. 300046-300046.

15) Letter to Mr. Tim Alexander, Pennsylvania Department of Environmental Resources, from Mr. Arnold Smith, Whitmoyer Laboratories, Inc., re: Transmittal of the final revision of the Revised Closure Plan, 5/17/85. P. 300047-300082. The plan is attached.

16) Letter to Mr. Stephen R. Wassersug, U.S. EPA, from Mr. Arnold C. Smith, Whitmoyer Laboratories, Inc., re: Transmittal of a topographic map and a site map and a list of Whitmoyer SWMU's 9/23/85. P. 300083-3000089. A Certification Statement, a topographic map and a site map are attached.

17) Memorandum to Mr. F.A. Lucero from Mr. A.C. Smith, Whitmoyer Laboratories, Inc., re: Six Month Plan for the removal of Accumulated Hazardous Waste, 10/31/85. P. 300090-300090.

18) Telecon Note to Mr. Dave Fantasia, Waste Conversion from Mr. D. Brayack, NUS Corporation, re: P waste and F waste at facility, 3/9/86. P. 300091-300091.

19) Site Visit Note to Mr. Trepanowski, NUS Corporation, re: visited Mr. Kirst to observe the tanks and the plant, 1/12/88. P. 300092-300092.

20) Telecon Note to Mr. Arnold C. Smith and Mr. John Trepanowski, NUS Corporation, re: P waste and F waste at facility, 3/21/88. P. 300093-300093.

21) Telecon Note to Kathy Marino, Rollins, from Mr. John Trepanowski, NUS Corporation, re: Waste Incineration, 5/23/88. P. 300094-300094.

22) Telecon Note to Mr. Bruce Marte, SCA, from Mr. John Trepanowski, NUS Corporation, re: SCA's requirement for a waste profile, 5/23/88. P. 300095-300095.

23) Telecon Note to Mr. Mike Camfield, CECOS Landfill, from Mr. John Trepanowski, NUS Corporation, re: EP Toxicity values and corrosivity of a waste for acceptance, 5/23/88. P. 300096-300096.

24) Telecon Note to Mr. Jim Callahan, Chemical Waste Management, from Mr. John Trepanowski, NUS Corporation, re: Model City, 5/23/88. P. 300097-3000097.

25) Report: Final Work Plan, Whitmoyer Laboratories Site, Jackson Township, Lebanon County, Pennsylvania, prepared by EBASCO Services, Inc., 6/10/88. P. 300098-300387.

26) Report: Final Field Operations Plan, Whitmoyer Laboratories Site, Jackson Township, Lebanon County, Pennsylvania, prepared by EBASCO Services, Inc., 6/10/88. P. 300388-300732.

27) Letter to Mr. John Trepanowski, NUS Corporation, from Mr. Kirk A. Stemple, Chemical Waste Management, Inc., re: Transmittal of Waste Profile Sheets, 6/20/88. P. 300733-300742. Waste Profile sheets for Arsanilic, Carbarsone and Aniline are attached.

28) Site Visit Note, re: Tanks on site, 7/19/88. P. 300743-300744.

29) Site Visit Note, re: Tanks on site and their contents, 9/27/88. P. 300745-300745.

30) Telecon Note between Mr. John Trepanowski, NUS Corporation, and Mr. Jeff Pike, U.S. EPA Region III, re: Inventory of the Whitmoyer product inventory, aniline storage, and a memo on subject, 9/28/88. P. 300746-300746.

31) Telecon Note between Mr. John Trepanowski, NUS Corporation, and Mr. Ken Sirmarco, Delaware Container Company, re: Delaware Container Company analyses on wastes at Whitmoyer, 10/13/88. P. 300747-300747.

32) Report: Preliminary Health Assessment or Whitmoyer Laboratories, Jackson Township, Lebanon County Pennsylvania, prepared by Office of Health Assessment, Agency for Toxic Substances and Disease Registry (ATSDR), 11/17/88. P. 300748-300751.

33) Telecon Note between Mr. John Trepanowski, NUS Corporation, and Mr. Walter Mock, Betz Entec, re: Drums in Building 9 at site, 2/3/89. P. 300752-300757.

34) Telecon Note between Mr. David Brayack, NUS Corporation, and Mr. Rich Fuller, Rollins, re: Incineration of liquid, 2/8/89. P. 300758-300758.

35) Telecon Note between Mr. John Trepanowski, NUS Corporation and Mr. Pat McManus and Mr. Jeff Pike, U.S. EPA, re: Tank wastes and characteristic wastes, 3/1/89. P. 300759-300760.

36) Telecon Note between Mr. John Trepanowski, NUS Corporation, and Mr. Pat McManus and Mr. Jeff Pike, U.S. EPA, re: Liquid in Tank 7, 3/1/89. P. 300761-300763.

37) Telecon Note between Mr. John Trepanowski, NUS Corporation and Mr. Pat McManus, U.S. EPA, re: Soil and groundwater wastes, 3/10/89. P. 300764-300764.

38) Telecon Note between Mr. D. Brayack, NUS Corporation, and Mr. Kevin Zarovick, Chemical Waste, re: Incineration and treatment of wastes, 3/13/89. P. 300765-300765.

39) Letter to Mr. Jeffrey Pike, U.S. EPA, from Ms. Noreen Chamberlain, Pennsylvania Department of Environmental Resources, re: Confirmation of receipt of Whitmoyer Laboratories, Inc. Draft Proposed Plan, 3/22/89. P. 300766-300766.

40) Report: Final Concentrated Liquids Assessment, Whitmoyer Laboratories Site, Lebanon County, Pennsylvania, prepared by NUS Corporation, 3/24/89, P. 300767-300836.

41) Report: Proposed Plan Superfund Concentrated Liquids Remedial Action, (no author cited), 4/17/89, P. 300837-300845.

42) Material Safety Data Sheet for Piperazine 65, prepared by Dow Chemical U.S.A., (undated). P. 300846-300846.

43) Chem-Clear Inc., Sample Form for Sample No. 1644 (undated). P. 300847-300849.

IV. REMOVAL DOCUMENTS

1) Letter to Mr. Jack L. Downie, U.S. EPA, from Mr. David P. Kammer re: Laboratory and Industrial Chemicals/Hazardous waste in the buildings and storage tanks at site, 8/25/88. P. 400001-400002.

2) Memorandum to Dr. J. Winston Porter, U.S. EPA, from Mr. James M. Seif, U.S. EPA, re: Justification for Additional Funding Request of CERCLA Removal Funds and Change of Scope of Work, 9/21/88. P. 400003-400009. A memorandum regarding the ceiling increase and a Change of Scope of Work is attached.

3) Memorandum to Dr. J. Winston Porter, U.S. EPA, from Mr. Stanley L. Laskowski, U.S. EPA, re: Request for an Exemption to the One-Year Statutory Limit and Change of Scope of Work, 12/16/88. P. 400010-400016. The request for an approval of exemption to the One-Year Statutory Limit and Change of Scope of Work is attached.

4) Letter to Mr. Thomas C. Voltaggio, U.S. EPA, from Ms. Ellen S. Friedell, Rohm and Haas Company, re: Removal of Concentrated Liquid, 4/27/89. P. 400017-400017.

5) Memorandum to Dr. J. Winston Porter, U.S. EPA, from Mr. James M. Seif, U.S. EPA, re: Justification for Approval of a Removal Action, (undated). P. 400018-400024. A CERCLA Funding Request Form is attached.

V. COMMUNITY INVOLVEMENT/CONGRESSIONAL CORRESPONDENCE/IMAGERY

1) Geological Survey Map of Flood Prone Areas, 1973, 500001-500001.

2) Geological Survey Map of Flood Prone Areas, 1973, 500002-500002.

3) Map Index and panels 5, 11, 12, 13, 14, Flood Insurance Rate Map (FIRM) of Township of Jackson, Pennsylvania, Lebanon County, (undated). P. 500003-500008.

4) Photograph of Leaking arsenic wastewater tank 1/5/Town on 12/22/82 Preparedness, Prevention and Contingency Plan Map, (undated). P. 500009-500009.

5) Photograph of Methanol and Cellosolve Tanks, (undated). P. 500010-500010.

6) Photograph of Tank T-3 mark PCE Aniline (Tank 10 on the 12/22/82 Preparedness, Prevention, and Contingency Plan Map) and Tank marked PCE (Tank 9 on the 12/22/Map), (undated). P. 500011-500011.

7) Photograph of Tank T-10 Arsenical Wastewater (Tank 4 on the 12/22/82 Preparedness, Prevention, and Contingency Plan Map), (undated). P. 500012-500012.

8) Photograph of Tanker Truck (marked 725) showing lack of secondary containment, (undated). P. 500013-500013.

9) Photograph of Tanker Truck (marked 410) taken to show lack of secondary containment and proximity to Tulpehocken Creek, (undated). P. 500014-500014.

10) Photograph of unmarked tanker (Tanker 19 and 20 on the 12/22/82 Preparedness, Prevention, and Contingency Plan Map), (undated). P. 500015-500015.

11) **Report:** Site Analysis, Whitmoyer Laboratories Myerstown, Pennsylvania, prepared by U.S. EPA, (undated). P. 500016-500038.

12) Report: Final Community Relations Plan Concerning Remedial Planning Activity at Selected Uncontrolled Hazardous Substance Disposal Sites (no author cited), (undated). P. 500039-500063.

SITE SPECIFIC GUIDANCE DOCUMENTS

1) Report: Rexolin Chemicals AB Description and classification of Chemical Piperazine 65 (technical grade), prepared by Rexolin Chemicals, 2/1/79.

2) Report: U.S. EPA Site Analysis: Whitmoyer Laboratories, Myerstown, Pennsylvania, prepared by The Bionetics Corporation, 8/84.

3) Report: Aniline - A Proposal for Testing Needs to Fill the Data Gap Present in the Literature, prepared by Dr. Raymond S.H. Yang, 12/18/85.

4) Report: Toxicological Profile for Arsenic (Draft for Public Comment), prepared by The Agency for Toxic Substances and Disease Registry, U.S. EPA, 11/87.

5) Fact Sheets: LARO, 10 FEC-80, PIPERAZINE-34, HYDROL Concentrate, PANTEK II, prepared by Whitmoyer Laboratories Inc., (undated).

6) Fact Sheets: TESAN, 10FEC-20, 10FEC-80, PANTEK-II, Clean Hatch, Piperazine-34, Piperazine Dihydrochloride, Arsanilic Acid-100, Ethylenediamine Dihydriodide (EDDI), Whitsyn-S, Tzad, San-O-FEC-5; prepared by Whitmoyer Laboratories, Kent, and Hess & Clark, Inc., (undated).

GENERAL GUIDANCE DOCUMENTS *

1) "Interim Priorities List," Federal Register, dated 10/23/81.

2) "Expanded Eligibility List," Federal Register, dated 7/32/82.

3) "Proposal of First National Priority List," Federal Register, dated 12/30/82.

4) Community Relations in Superfund: A Handbook (interim version), dated 9/83.

5) "Proposal of Update 1," Federal Register, dated 9/8/83.

6) Memorandum to U.S. EPA from Mr. William Heckman, Jr. entitled "Transmittal at Superfund Removal Procedures - Revision 2," dated 8/20/84.

7) EPA Groundwater Protection Strategy, dated 9/84.

8) "Proposal of Update 2," Federal Register, dated 10/15/84.

9) Memorandum to Mr. Jack McGraw entitled "Community Relations Activities at Superfund Sites - Interim Guidance," dated 3/22/85.

10) "Proposal of Update 3," Federal Register, dated 4/10/85.

11) Guidance on Remedial Investigations under CERCLA, dated 6/85.

12) Guidance on Feasibility Studies under CERCLA, dated 6/85.

13) Memorandum to Toxic Waste Management Division Directors Regions I-X from Mr. William Hedeman and Mr. Gene Lucero re: Policy on Floodplains and Wetlands Assessments for CERCLA Actions, dated 8/6/85.

14) Groundwater Contamination and Protection, prepared by Mr. Donald V. Feliciano, dated 8/28/85.

15) Memorandum to U.S. EPA from Mr. Gene Lucero re: Community relations at Superfund Enforcement sites, dated 8/28/85.

16) "Proposal of Update 4," Federal Register, dated 9/18/85.

17) "Promulgation of Sites from Updates 1-4," Federal Register, dated 6/10/86.

18) Superfund Public Health Evaluation Manual, dated 10/86.

19) CERCLA Compliance with Other Laws Manual, dated 5/88.

20) Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA - Interim Final, prepared by the U.S. EPA Office of Energy and Remedial Response, [illegible].

* Located in EPA Region III office.

public safety services response in the event an unplanned incident occurred during the remedial action. The information requested included the following:

- The name and number of an EPA contact person who will be able to provide pertinent information in the event of a release.
- The work schedule, as well as the shipping schedule and travel routes for all vehicles transporting hazardous wastes from the site through Lebanon County.
- Contingency plan coordination among EPA, County EMA (Emergency Management Agency), local public safety units, Pennsylvania Department of Environmental Resources (PADER), and the state Fish Commission.
- Information regarding the type of protective equipment needed by public safety personnel who would be called on to respond to an emergency.
- Status reports regarding cleanup activities.
- Information, in the event of a release, regarding level of concern and area or radius of contaminent plume migration.

EPA RESPONSE: The name, address, and phone number of the EPA Remedial Project Manager (RPM) for the Proposed Concentrated Liquids Remedial Action was provided in a letter, dated June 1, 1989. In addition, the RPM stated that the requested information regarding schedules, travel routes, and protective equipment will be defined during the remedial design and will, subsequently, be provided to the appropriate officials, as it is developed. The RPM also said that EPA will coordinate contingency planning with the necessary emergency response units and establish an acceptable project status reporting format for use during the remedial action.

3.0 REMAINING CONCERNS

There do not appear to be any significant remaining concerns regarding the proposed remedial action. Both state and local officials seem to be in agreement with EPA's preferred alternative.

ATTACHMENT

COMMUNITY RELATIONS ACTIVITIES
CONDUCTED AT THE
WHITMOYER LABORATORIES SITE, LEBANON COUNTY, PENNSYLVANIA

- EPA established a local Information Repository at the Myerstown Public Library.

- EPA provided the name of a Community Relations Coordinator who could be contacted by the public, as needed, and who would be knowledgeable about site-related activities.

- EPA participated in a meeting called by local citizens. Agency representatives presented general Superfund information and discussed the status of the WLI site.

- EPA conducted numerous Public Meetings. Meetings were held during Fall 1987 and in February and July 1988.

- EPA representatives visited local residents' homes, in January 1988, to discuss well-sampling data and the proposed municipal waterline extension.

- EPA met with township officials and water authority representatives, on March 8 and 20, 1989, to discuss the extension of the public water supply system to residences affected or threatened by the site.

- EPA prepared a Community Relations Plan, a Proposed Plan, Press Releases, and a Responsiveness Summary for the site and made copies available at the local Information Repository.

- EPA provided a 30-day Public Comment Period, following the release of the Proposed Plan for the Concentrated Liquids Remedial Action.