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EPA Superfund
Record of Decision:

WESTINGHOUSE ELEVATOR CO. PLANT
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GETTYSBURG, PA
03/31/1995

RECORD OF DECISION
WESTINGHOUSE ELEVATOR CO. PLANT
Operable Unit Two
(Soils)

DECLARATION

SITE NAME AND LOCATION

Westinghouse Elevator Company Plant

Cumberland Township
Adams County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedial action for Operable Unit 2 (Soils) at the Westinghouse Elevator Company Plant Site in Adams County, Pennsylvania. The selected remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA), 42 U.S.C. §§ 9601 et. seq.; and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the Administrative Record for this Site.

The Pennsylvania Department of Environmental Resources (PADER), acting on behalf of the Commonwealth of Pennsylvania, concurs with the selected remedy.

DESCRIPTION OF THE REMEDY

The Westinghouse Plant was constructed in 1968 for the manufacture of elevator and escalator components. Schindler Elevator Corporation has leased and operated the plant building since January 1989. This ROD addresses only contaminated soils at the Westinghouse Elevator Plant Site. The previous Record of Decision, issued on June 30, 1992, selected extraction and treatment of on-Plant and off-Plant ground water, using extraction wells, air stripping of contaminants from ground water, and carbon adsorption of the contaminants in the effluent air stream.

The selected remedy for the soils at the Westinghouse Elevator Plant is No Additional Action for this Operable Unit. The other alternatives evaluated would produce little or no environmental benefit at substantial cost. Although risks presented by the soils are not above EPA's acceptable risk levels, since the previous ROD for Operable Unit 1 addressed the Applicable or Relevant and Appropriate Requirements ("ARARs") of the Commonwealth of Pennsylvania with regard to the ground water portion of the Site, this ROD will address ARARs for the soils portion of the Site. The Commonwealth's ARARs and the need to evaluate the impact of the leaching of contaminated soils on ground water of the Commonwealth required completion of the Feasibility Study and a more detailed remedy selection analysis in this ROD.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective.

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

Because the selected remedy in the previous ROD for Operable Unit 1 will result in hazardous substances remaining onsite below the ground water table and above health-based levels, a review under Section 121(c) of CERCLA, 42 U.S.C. §9621 (c), will be conducted within five years after initiation of the ground water remedy to ensure that the selected remedy is providing protection of human health and the environment.

Thomas C. Voltaggio Date
Division Director
Hazardous Waste Management Division
Region III

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RECORD OF DECISION
WESTINGHOUSE ELEVATOR CO. PLANT SITE
OPERABLE UNIT TWO (Soils)

DECISION SUMMARY

I. SITE NAME, LOCATION AND DESCRIPTION

Site Description

The Westinghouse Elevator Plant is located on approximately 90 acres of land along the west side of Biglerville Road (Route 34), approximately 1.5 miles north of downtown Gettysburg in Cumberland Township, Adams County, Pennsylvania (figure 1 - Appendix B). The Site coordinates are latitude 39° 51' 08" north and longitude 77° 14' 21" west. The Plant is bounded to the south by property that is part of the Gettysburg Battlefield National Park; and to the west, north and east by residential and small commercial properties (Figure 2-Appendix B). The closest private residences are approximately 200 feet east of the Plant building.

Prior to its current use, most of the property consisted of farmland. A farm pond, approximately two acres in area, existed on the property near what is now the main entrance to the Westinghouse Plant. The Westinghouse Plant ("Plant") was constructed in 1968 for the manufacture of elevator and escalator components. The Westinghouse Electric Co. ("Westinghouse") began operating the Plant following completion of construction and used the solvents trichloroethene ("TCE") and 1,1,1-trichloroethane ("TCA") in the manufacturing process. Since January 1989 the Plant has been leased and operated by the Schindler Elevator Corporation ("Schindler").

The regional topography in the area of the Site is low to medium relief, undulating terrain. Specifically, the Site slopes moderately to the east, dropping in elevation from 600 feet above mean sea level ("MSL") in the west to 525 feet above MSL in the east.

Ground water is the only source of potable water in the area and residents near the Site are dependent on municipal or private wells. EPA considers this source of drinking water to be a class IIA aquifer.

The Site is located within the watershed of Rock Creek, a small southward-flowing stream located approximately three-quarters of a mile to the east of the Plant. Two small intermittent streams (Northern and Eastern Tributaries - figure 2-Appendix B) are present near the Site. Most surface water at the plant is collected by a storm drainage system which eventually discharges to the two tributaries. No flood plains or wetlands are present on the Plant property.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

Site History

The Plant has been in operation since 1968 as a manufacturing Plant of elevator and escalator components and continues operations currently. The manufacturing process utilized by Westinghouse and continued to be used by Schindler consists of several steps including parts delivery and unloading; metal parts degreasing; rust prevention; primer and finisher paint booth operations; oven drying; acoustical coating; machining and sawing; adhesive application; final assembly; and shipping.

Chemical feed materials used in many of the operations include solvents, paints, cutting and lubricating oils, and insulation board. The major solvent used up to 1975 was TCE, after which time TCA was substituted for TCE. Waste materials generated include spent solvents, paint sludges, spent oils and greases, and excess insulation board. The processes which generated the majority of hazardous or otherwise regulated wastes related to contaminants found in ground water are described below.

> Metal parts degreasing operations remove thin coatings of oil applied by the parts suppliers to bare metal surfaces for corrosion prevention. Spent solvent saturated with oil is containerized and stored in the drum storage area for off-Site disposal.
>
> Prior to 1975, a Triclene-phosphatizing process preceded paint booth operations. Triclene-phosphatizing is a process of producing a crystalline iron phosphate layer on steel surfaces to prevent corrosion. Major ingredients include TCE and phosphoric acid. Waste materials were either drummed for storage in the drum storage area or pumped into large holding tanks, located near the southwest corner of the Plant, for off-Site disposal. The Triclene procedure was eliminated in 1975 and replaced by a lead chromate primer application process.

Machining and sawing operations utilize lubricating and cutting oils. Some solvents are used to remove oils from metal parts after cutting operations or to clean equipment motors. Waste oils and degreasing solvents are drummed and stored in the drum storage area for off-Site disposal.

Prior to 1981, drummed waste chemicals were stored in an area located in the southern portion of the Plant. This area is currently referred to as the old waste drum storage area. Drummed wastes are currently stored on a covered, diked concrete pad referred to as the hazardous waste drum storage area which is located near the shipping docks.

As a result of Plant operations, a number of potential source areas for the detected contamination were identified at the Site. These areas include the former solvent remote fill line, the degreasing solvent storage tank location, pumphouse area, railroad dock, and the old waste drum storage area. The location of each area is shown on Figure 3-Appendix B. Each area is briefly described below.

The former solvent remote fill line is located in the southwestern portion of the facility. Beginning in 1980, tank trucks containing fresh degreasing solvent filled a storage tank in the interior of the building through this buried line. Prior to 1980, degreasing solvent was purchased and stored in 55-gallon drums. In 1985, Westinghouse discontinued the use of the buried remote line. This area is considered to be a potential source due to the possibility of spills during filling operations or line integrity failures.

Degreasing solvent is currently stored in an above-ground tank located on a diked concrete pad in the courtyard of the building. This tank is filled through the current remote fill line. The fill connection is located at the south end of the building and feeds directly to the tank. This area is considered a potential source due to the possibility of leaks, spills, or ruptures. In May 1991, a spill of about twenty gallons of solvent occurred and was reported to the PADER by Schindler. Schindler removed contaminated soil along the concrete pad.

In the past, metal grates from the Plant's paint booths were cleaned on a concrete pad in the pumphouse area, located at the southwest corner of the Plant. Caustic solutions with solvents were used to loosen excess paint build-up on the grates. The loosened paint was then scoured off using a steam cleaner. This is considered a potential source area due to the nature of operations whereby solvent-contaminated washwater may have been discharged directly into the environment.

At the railroad dock area, located at the north end of the Plant, solvent-coated metal chips and shavings that accumulated at the bottom of degreasing tanks were stored in metal bins prior to removal by truck for recycling. Information in EPA's files indicates that these bins had holes in the bottom to drain the solvent. This area is considered to be a potential source due to solvent drippings leaking out of the containers and migrating into the subsurface environment.

The old waste drum storage area is located on the southern side of the building. Prior to 1981, drummed waste was stored in this area until shipped for disposal. This is considered to be a potential source due to the possibility of spills. Testimony in the Nerry v. Westinghouse Electric Corporation, Civil Action No. 86-1673 (M.D.Pa.) action describes several major spills in this general area.

In addition to the above-listed potential sources, the former pond area, located on the eastern side of the Plant is considered a potential source based on the soil analyses. This area may have become contaminated by migration of contaminants from the pumphouse and railroad loading docks along a subsurface channel in the bedrock surface identified in the RI report (Figure 3-14 of the RI). Westinghouse has alleged that some drums may have been disposed in the pond before their ownership, but no information has been supplied to EPA to support this assertion.

INVESTIGATIONS

Investigations of alleged environmental problems related to the Site were initiated in 1983, based on complaints from local residents to the Pennsylvania Department of Environmental Resources (PADER). PADER representatives visited the Plant in 1983 and collected samples from the Plant irrigation well and from neighboring residential wells. Chemical analyses of these samples confirmed the presence of Volatile Organic Compounds ("VOCs") including TCE and TCA in the on-Plant and off-Plant ground water. Analysis of residential well samples continued until alternative water supplies were provided by Westinghouse. The residential well sampling indicated widespread contamination throughout the area bounded by Biglerville, Table Rock and Boyd's School Roads.

Subsequently, in October 1983, PADER sampled two suspected source areas on the Plant property including soils from the railroad dock and surface water samples from the old waste drum storage area. Chemical analysis by both PADER and Westinghouse indicated the presence of volatile organics in surface water, ground water, and soil samples from the Site. In November 1983, Westinghouse initiated the removal of 10 drums of contaminated soil from the railroad dock area and 33 drums of contaminated soil from the pumphouse area. The drums were manifested as a hazardous waste and were sent to a secure landfill in New York State. Figure 3-Appendix B shows these areas.

In January 1984, Westinghouse contracted R.E. Wright to serve as a consultant. During 1984, Wright collected additional water and soil samples from various locations at the Site, installed fifteen monitoring wells and conducted a pump test.

In 1984, Westinghouse installed water mains along Biglerville Road and a portion of Boyd's School Road to provide residents with access to the public water supply. Since 1984, Westinghouse has installed additional mains along stretches of Boyd's School Road, Cedar Avenue, Maple Avenue, and Apple Avenue. Westinghouse also installed monitoring wells and sampled ground water from these wells during this time. The extent of the waterlines is shown in figure 2 - Appendix B.

In June 1984, Westinghouse installed and began to extract ground water at the Site and to operate an air stripping tower to remove TCE and other VOCs from ground water. At a later time, PADER ordered Westinghouse to continue the operation of the stripping tower, but Westinghouse contested the Order. The stripper has been shut down several times for various reasons and then restarted. The stripper has generally been in operation since February 1989 and currently treats about nine gallons per minute of contaminated ground water. The stripper discharges to the Northern Tributary, a stream along Boyd's School Road, and is regulated by a National Pollutant Discharge Elimination System ("NPDES") permit.

On March 10, 1987, Westinghouse entered into a Consent Agreement with EPA to perform a Remedial Investigation and Feasibility Study ("RI/FS") of the Site. The Remedial Investigation was completed in two phases: a) Phase I determined the Site contaminants and hydrogeology and b) Phase II investigated the extent of contamination. The Phase II Remedial Investigation Report was completed on July 2, 1991 and a draft Feasibility Study was submitted to EPA in October 1991, which needed substantial modifications. Additionally, finalization of the report was further delayed by the need to investigate soil contamination from a TCA spill which occurred on May 3, 1991, at which time Schindler was operating the Plant. Schindler removed contaminated soils and sampled the area to verify the cleanup at PADER's request. This area needed additional sampling and study before a remedial action decision could be made on the Site's soils. Therefore, to avoid further delay in the ground water cleanup, EPA allowed Westinghouse to submit a revised Feasibility Study that only addressed sediments, surface water, and ground water at the Site. A Record of Decision ("ROD") for the Site's ground water, surface waters and sediments was issued on June 30, 1992. The ROD selected extraction of ground water using two well systems (see OU1 ROD) and treatment of the ground water by air stripping. The extraction/treatment system is currently in the design phase. A supplementary Feasibility Study for soils was completed by Westinghouse's contractor in December 1993.

CERCLA ENFORCEMENT

An initial PRP search identified only Westinghouse as a Responsible Party and only Westinghouse was issued a General Notice letter for the RI/FS. However, the TCA spill at the Plant that occurred in May 1991, prompted EPA to issue a General Notice letter to Schindler Elevator Corporation. Following the issuance for the ground water ROD on June 30, 1992, EPA issued Special Notice Letters to Westinghouse and Schindler which encouraged them to submit a good faith offer to perform the work called for in the ROD. EPA did not receive a good faith offer from either Westinghouse or Schindler, so on December 29, 1992, EPA issued a Unilateral Administrative Order to Westinghouse and Schindler compelling them to implement the selected remedial action for ground water. Westinghouse agreed to comply with the order, but Schindler declined, claiming that they had sufficient cause for not complying with the Order.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS and Proposed Remedial Action Plan (Proposed Plan) were released for public comment as part of the administrative record file on February 3, 1995, in accordance with Sections 113(k)(2)(B), 117(a), and 121(f)(1)(G) of CERCLA, 42 U.S.C. §§ 9613 (k) (2) (B), 9617 (a), and 9621 (f)(1)(G). These and other related documents were made available to the public in both the administrative record file located in Region III Offices and at the Adams County Public Library; a notice of availability was published in the Gettysburg Times on February 3, 1995. A public meeting to discuss the Proposed Plan was held on February 23, 1995, in Cumberland Township, Pennsylvania. The comment period ended on March 6, 1995. EPA's response to all comments on the Proposed Plan and related documents received during the comment period is included in the Responsiveness Summary in this ROD. In addition, a copy of the transcript of the public meeting has been placed in the administrative record file and information repository.

IV. SCOPE AND ROLE OF RESPONSE ACTION

The Principal Threat at the Site is from Dense Non-Aqueous Phase Liquids ("DNAPLs") that have migrated into fractured bedrock beneath the water table at the Site and the highly contaminated ground water associated with the DNAPLs. This threat is being addressed by the ROD for the Site ground water.

Soils studies during the Phase II investigation, the Risk Assessment, and the additional courtyard soils study did not identify any direct significant exposure risk to employees, because the contamination is several feet below the surface or is at very low concentrations. Residential exposure to soil was not considered realistic because the site's ongoing present and future use is as a limited-access industrial site. However, contaminants may be leaching from subsurface soils, thereby contributing to ground water contamination slightly. Contaminated soils will be addressed in this ROD. When EPA addresses problems at a site in more than one ROD, EPA calls each ROD an Operable Unit. Sediments, surface and ground water were addressed under Operable Unit One and this ROD for soils will be considered Operable Unit Two. EPA considers this a final action ROD for the Site.

The only significant threat to human health and the environment, identified by the RI, is from domestic use of contaminated ground water. The overall remedial goals for all Site media relate to this threat. The scope and role of the selected alternative addressing ground water is to prevent migration of all contaminated ground water to the extent technically practicable, especially ground water in contact with DNAPLs, to off-Plant residential wells and to restore the aquifer to the extent practicable. This threat will be satisfactorily addressed by the previous ROD for Operable Unit One.

V. SUMMARY OF SITE CHARACTERISTICS

GENERAL

The Westinghouse Plant is located on approximately 90 acres of land along the west side of Biglerville Road (Route 34), approximately 1.5 miles north of downtown Gettysburg in Cumberland Township, Adams County, Pennsylvania (figure 1 - Appendix B). The Gettysburg area has no large rivers nearby and is very dependent on ground water. Yields from wells in the Gettysburg Formation are relatively low and the area is experiencing substantial development placing continuing pressure on the current municipal water supply. The area has three Superfund sites including the Hunterstown Road Site, the Shriver's Corner Site and the Westinghouse Plant Site. Additionally, a RCRA Site in downtown Gettysburg contaminated several of the municipal wells which were shut down. Before the contamination was discovered at the Westinghouse Plant Site, the adjacent residential areas used private wells for full domestic use. These areas are now served by water lines, but some residents have declined to use public water and some residents use their wells for watering gardens.

Prior to its current use, most of the Plant property consisted of farmland. A farm pond, approximately two acres in area, existed on the property near what is now the main entrance to the Westinghouse Plant. The Westinghouse Plant was constructed in 1968 for the manufacture of elevator and escalator components by Westinghouse. Since January 1989 the Plant has been leased and operated by Schindler.

The manufacturing processes at the Site consist of several steps: parts delivery and unloading; metal parts degreasing; Triclene phosphatizing; primer and finisher paint booth operations; oven drying; acoustical coating; machining and sawing; adhesive application; final assembly; and shipping. Chemical feed materials used in some of these operations include solvents, paints, cutting and lubricating oils, and insulation board. TCE was the primary solvent used at the Site until 1975 at which time TCA was substituted.

LAND USE

The Plant is bounded to the south by property that is part of the Gettysburg Battlefield National Park (Figure 2 - Appendix B). The National Park Service (NPS) is concerned about the limitations that the Westinghouse Plant contamination may place on their ability to site a large well on park property. The NPS is also concerned about the potential to contaminate a residential well, just south of the Plant, and currently used by NPS employees. This well has been tested and only a trace of solvents was detected and the level was far below drinking water standards (less than 1 ppb TCE).

Adjacent to the Plant property and north and east of the Plant are residential and small commercial properties. The closest private residences are approximately 200 feet east of the Plant along Biglerville Road. A residential area is to the west of the Plant about 1000 feet from the Plant building. Ground water is the only source of potable water in the area and residents near the Site are dependent on municipal or private wells. EPA's Ground Water Protection Strategy classifies aquifers based on the following criteria:

1) Special Ground Water - Class One - Highly vulnerable ground water that is irreplaceable with no alternative source of drinking water available to substantial populations.

2) Current and Potential Sources of Drinking Water - Class Two - Class IIA is water currently used and Class IIB is water that could potentially be used.

3) Ground water not a potential source of drinking water because of quality.

EPA considers this source of drinking water to be a class IIA aquifer. It is estimated that the total population within a three mile radius that uses ground water from the same hydrogeologic formation is 11,600.

TOPOGRAPHY

The regional topography in the area of the Site is low to medium relief, undulating terrain. Specifically, the Site slopes moderately to the east, toward Rock Creek, dropping in elevation from 600 feet above mean sea level ("MSL") in the west to 525 feet above MSL in the east.

Regional Geology

Prior to the Plant construction the natural soils were classified by the U.S. Soil Conservation Service as part of the Penn-Readington-Croton association. These soils are gently to moderately sloping, shallow to moderately deep shaley soils derived from the underlying Triassic red beds. These natural soils were disturbed due to Plant construction activities. Based on geotechnical information and summaries made by Paul C. Rizzo Associates, a majority of the soil underlying the Plant is fill material with a mixture of grain sizes from clay to boulders. Some natural soil was encountered, with bed thicknesses between two and four feet.

The Site is located within the Gettysburg Basin, one of a number of discrete elongate sedimentary basins parallel to the Appalachian orogen in eastern North America. These basins are of early Mesozoic age (Late Jurassic-Early Triassic) and are comprised largely of continental clastic rocks and accompanying basic intrusive and extrusive igneous rocks (Froelich and Olsen, 1985). Geology local to the Site appears to be unmetamorphosed sedimentary rock. The sedimentary rocks underlying the Plant are mapped as the Heidlersburg member of the Gettysburg Formation. The Heidlersburg member is described as a lacustrine (lake deposited) series of red and gray arkosic sandstones, red mudstones, and dark gray sandstones and shales (Root, 1988). Site investigations have mapped the underlying stratigraphy as being comprised of red and gray siltstones and shales overlain by approximately two to ten feet of red to brown clay. Bedrock is generally fractured and weathered in the upper fifty feet and is encountered two to ten feet below ground surface (Rizzo, 1991).

Regional Hydrogeology

Ground water in the vicinity of the Site is stored in and transmitted through a complex system of interconnected fractures consisting of bedding planes and steeply dipping joints. Investigations have shown that there exists two flow regimes (shallow and deep).

The shallow regime consists of the localized saturated soils and weathered bedrock. Ground water flow direction in this regime is generally to the east-southeast towards Rock Creek and is primarily influenced by local topography, but bedding planes still produce some anisotropic influence. The approximate ground water gradient in the shallow regime is about 0.03 ft/ft. Net permeabilities from packer tests for this zone ranged from 6 X 10-6 to 5 X 10-3 cm/sec.

The deep regime is below weathered bedrock and flow direction is much more complicated and is strongly influenced by the structure of the geology. The details of this site's complex hydrogeology are discussed in the RI/FS and the Record of Decision for Operable Unit One.

EPA believes that Rock Creek is the ultimate surface water discharge point for contaminated ground water, since Rock Creek is the only large stream that drains the Gettysburg basin.

Known or Suspected Sources of Contamination

After a review of Plant processes and extensive remedial investigations at the Site, at least six potential sources of contamination have been identified. During Phase I and Phase II investigations, soil samples were obtained and analyzed from these areas. After the Phase I investigation, the contaminants that were related to disposal practices, that had significant toxicity, and were detected at significant concentrations during the Phase I investigation were identified as Contaminants of Interest ("COI"). The Phase II investigation then focused only on those contaminants. The laboratory results indicated that the following Contaminants of Interest were detected at each area:

- Former Solvent Remote Fill Area/Old Waste Drum Storage Area - No COI were detected.
- Degreasing Solvent Storage Tank/Courtyard Area - No COI were detected in this area.
- Pumphouse Area - 1,1 dichloroethane and 1,1,1-trichloroethane detected during Phase I. Contamination not detected in Phase II boring.
- Railroad Dock - Contaminated with VOCs before removal action. Xylenes detected during Phase II.
- Old Drum Storage Area - No VOCs Detected.
- Former Pond Area - TCE; TCA; 1,1-dichloroethane; 1,2-dichloroethane; 1,1- dichloroethene and 1,2-dichloroethene detected during Phase II.

The solvents TCE and TCA are heavier than water and will dissolve only very slowly in ground water. When large amounts of these solvents are spilled they may sink through the ground water as a separate phase until they are trapped by solid rock or the bottom of a fracture. They then will dissolve into ground water over many years. These solvents are called Dense Non-Aqueous Phase liquids ("DNAPLs"). EPA believes that DNAPLs have migrated through the soil into bedrock at the Westinghouse Plant beneath the water table and that this is the primary source of ground water contamination. It is impossible to calculate or estimate the amount of DNAPLs present in the bedrock.

Identified Compounds of Interest

During the Phase I remedial investigation, a composite soil sample from the Pumphouse Area contained 0.52 parts per million of polychlorinated biphenyls ("PCBs"). This level is below the EPA cleanup level for residential soils (1 part per million parts of soil (ppm)) and well below the EPA cleanup level for industrial soils (10 ppm). PCBs were not found in any other samples during the Phase I RI. EPA did not consider PCBs a contaminant of concern at the site and Phase II RI samples were not analyzed for PCBs.

During the Phase I Remedial Investigation, composite samples from the Remote Fill Area, the Pump House, and the Old Drum Storage Area contained somewhat elevated levels of Polycyclic Aromatic Hydrocarbons ("PAHs"). The levels of total PAHs were as follows: 1) Remote Fill Area - 3.7 ppm; 2) Pumphouse Area - 5.2 ppm and 3) Old Drum Storage Area - 6.8 ppm. PAHs are very common contaminants formed during combustion and are also present in crude oil and coal. PAHs are deposited along roadways from automobile and truck exhaust and are commonly elevated along roadways and in industrial areas. When risks from carcinogenic contaminants exceed 1 X 10-4 (the probability that 1 cancer incidence will occur for 10,000 people exposed for a lifetime) EPA generally takes action. Contaminant trigger levels based on a 10-4 risk at an industrial site for the most carcinogenic PAHs such as benzo(a)pyrene is about 39 ppm. The acceptable level for total PAHs which includes PAHs with lower risks would be even higher. Additionally, during the Remedial Investigation, it was learned that the Westinghouse Plant parking lot was resurfaced with a commercial product that contains these compounds. One compound Bis(2-Ethylhexyl)- phthalate was found in only one surface sample and one subsurface sample at a different location. This compound is added to plastics to reduce brittleness. Bis(2-ethylhexyl) Phthalate is also a common environmental contaminant. Westinghouse did not produce plastics at the Plant and EPA believes that this was probably a lab contaminant. None of these compounds were found in ground water at the site and they do not appear to be moving. The compounds are not volatile and would not pose a significant risk from inhalation. The contamination is adjacent to an operating manufacturing facility and direct ingestion of soil by children is extremely unlikely. At the end of the Phase I remedial investigation EPA eliminated these compounds (semivolatiles) from further study.

Metals and inorganic compounds were not found at elevated levels and appear to be at the same levels as uncontaminated soils near the Plant.

Sporadic detections of common laboratory contaminants such as methylene chloride, acetone, toluene, and tetrachloroethane (PCE) were observed in soil samples. Methylene chloride and acetone were the most frequently observed compounds in this category, but was also found in sample blanks. Sample method blanks are tests of the laboratory contaminant detection equipment with clean samples. In other words, the equipment detected methylene chloride in samples where it was known that no methylene chloride was present. Methylene chloride and acetone are commonly used to clean laboratory equipment and glassware. Toluene and Tetrachloroethane were detected in only one or two samples at very low levels. In any case, a remedy effective for the contaminants of interest would also be effective for these trace contaminants.

Based on the Remedial Investigations, COI for soil contamination at the Site have been identified. The COI are TCE, TCA, 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethene, 1,2-dichloroethane, and xylenes. TCE is moderately toxic to humans by ingestion and inhalation and is considered a probable carcinogen. TCA is moderately toxic to humans by ingestion, inhalation, skin contact, subcutaneous (beneath the skin), and intraperitoneal (space between membrane that lines interior wall of abdomen and covers abdominal organs) routes and is currently not classified as a carcinogen. 1,1-dichloroethene is a poison by inhalation, ingestion, and intravenous routes; moderately toxic by subcutaneous route; and is currently considered to be a possible carcinogen. 1,1-dichloroethane is moderately toxic by ingestion and is a possible carcinogen. 1,2-dichloroethene is a poison by inhalation, ingestion, and intravenous routes; moderately toxic by subcutaneous route; and is currently not classified as a carcinogen. 1,2-dichloroethane is a poison by ingestion; moderately toxic by inhalation and subcutaneous routes; and is considered a probable carcinogen (Sax and Lewis, 1989). Exposure to high levels of xylenes adversely affects the central nervous system and irritates the mucous membranes. Xylene has not been found to be either a mutagen or a carcinogen.

Contaminant Fate and Transport

In the environment, the COI are typically found dissolved in fluids, adsorbed to solids, or volatilized into the air. Potential transport mechanisms include advection, diffusion, dispersion, dilution, degradation, volatilization, absorption, and particulate transport, and are described as follows:

- Advection consists of the transport of a dissolved species by virtue of the flow of the solvent (in this case, ground water).
- Diffusion is a mechanism whereby solute distributions within water spread due to random molecular movements.
- Dispersion is an analogous spreading mechanism produced by random velocity variations in the movement of water.
- Dilution is the process whereby the mixing of two streams of water containing unequal concentrations of dissolved species produces a single stream with an average concentration.
- Degradation is the process whereby compounds undergo transformation or other biological or chemical reactions which destroy them.
- Volatilization consists of the evaporation of certain of the lighter compounds from water and soil into the gaseous phase, which can be either the atmosphere or soil gas.
- Adsorption is the process whereby dissolved compounds in fluids that come in contact with solid media become attached to the surface of the solid. Adsorption is often reversible and termed desorption.
- Particulate transport consists of the movement of absorbed compounds by virtue of the movement of the particles to which they are attached.

The dominant transport mechanism for COI at the Elevator Plant Site is believed to be through ground water migration. COI are carried to the ground water as precipitation infiltrates from the surface to the saturated zone. A minor mechanism of transport for the chlorinated aliphatic hydrocarbons (i.e., VOCs) at the Elevator Plant Site is believed to be desorption from unsaturated soils in potential source areas and subsequent infiltration into ground water. The major mechanism for transport is diffusion from Dense Non-Aqueous Phase solvents trapped in bedrock below the water table. Once in ground water, these compounds are adverted and dispersed. COI in the ground water move laterally downgradient in an easterly direction toward Rock Creek, or move vertically downward.

Although not considered to be a significant transport mechanism, some volatilization may occur from the potential source areas. In the absence of other processes, volatilization would be observed as a gradual decline of VOC concentrations in the potential source areas. However, in the natural environment, it is not possible to distinguish this process from other attenuation factors.

Concentrations of certain chlorinated aliphatic hydrocarbons in site soils could decrease with time due to degradation. Bacteria can slowly dechlorinate VOCs, producing dichloroethenes and vinyl chloride from TCE and dichloroethanes, and chloroethane from 1,1,1-TCA. This mechanism may account for some of the DCA and DCEs detected in site soils.

Extent of Contamination

An extensive ground water investigation has been completed at the Plant Site which consisted of drilling, constructing and sampling seventeen monitoring wells in Phase I. The wells were logged during drilling and various geological tests were performed during drilling to help define the Site geology. An additional eleven wells were drilled and constructed during Phase II and all twenty eight wells were sampled. The ground water investigation results are fully detailed in the Administrative Record for the first Operable Unit (ground water). This ROD will focus on the results of the soils investigation.

The Remedial Investigation was conducted in two phases: a) Phase I of the investigation determined the contaminants of concern and the physical conditions at the site such as soil types and geology. b) Phase II of the Remedial Investigation defined the extent of contamination and gathered further information on site conditions. Phase I RI soil investigation activities included samples from two test borings (PTB-1 and PTB-2) and sampling and analysis of composite surface soil samples collected from each of the five potential source areas shown on Figure 3 - Appendix B. Potential source areas were identified based on review of plant process operations. Phase II RI soil investigation activities included laboratory analysis of selected soil samples taken from twelve test borings (PTB-3 through PTB-11, PTB-11A, PTB-12, and PTB-13). Test boring locations are shown on Figure 3 - Appendix B. Based on the analytical results from the test borings, the Former Pond Area was identified as a sixth potential source area.

The following summarizes the investigation results for these compounds in each soil area:

<u>Remote Fill Area/Old Drum Storage Area</u>: No chlorinated solvent compounds of concern detected in any samples.

<u>Degreaser Storage Tank/Courtyard Area</u>: No chlorinated solvent compounds of concern were detected in surface soils or subsurface soils during the Phase I and Phase II remedial investigations, Boring samples taken after the courtyard solvent spill cleanup also indicated no chlorinated solvents in surface soils. However, low concentrations of chlorinated solvents were detected in deeper boring samples. The maximum levels detected were: 130 ppb of TCA and 190 ppb of TCE.

<u>Pumphouse Area</u>: Composite surface samples taken during the Phase I investigation detected a maximum of 432 ppb of Trichloroethane and 89 ppb of 1,1-dichloroethane. Boring samples taken in this area during the Phase II investigation did not detect these contaminants even in the surface sample (0-2 feet deep). Railroad Loading Dock: Surface soils in the vicinity of this area have previously been removed, and the excavation has been left open, but filled with aggregate stone. Approximately two feet of soil remains above the bedrock surface in this area.

The Phase I RI composite soil samples were collected from the bottom of the excavation. A Phase II RI test boring (PTB-11) was also located within the excavation. Xylenes (total = 5.1 ppm) were detected in the test boring soil sample, but were not detected in the composite surface soil sample.

The site history would lead EPA to believe that the xylenes in this soil are from a spill which occurred after the 1984 removal action. Because of the physical situation (a small open pit), EPA believes that the spill would have been confined to the pit. Consequently, the lateral extent of impacted soils in the Railroad Dock Area is considered to be limited to a radius of about one foot from boring PTB-11. Additionally, if the lateral extent were somewhat greater, EPA's remedial decision would not be significantly effected.

Xylenes are a common component of gasoline and are not very toxic. The Resource Conservation Recovery Act ("RCRA") is the federal law that regulates hazardous wastes. Xylenes are also a commonly used solvent, and if used as a solvent and discarded are considered a listed RCRA hazardous waste regardless of it's relatively low toxicity and concentration. Xylenes are also a listed hazardous waste pursuant to the Pennsylvania Solid Waste Management Act. The PADER cleanup level for direct contact for xylenes is 100,000 ppm. The PADER cleanup level for protection of ground water is as follows: o-xylene 3 ppm, m-xylene 5 ppm, and p-xylene 5 ppm. The m-xylene soil concentration was 0.75 ppm, which is well below the PADER cleanup level. EPA does not have an analysis of the p-xylenes/o-xylene by isomer, but published data on the major source of mixed xylenes indicates that the o-xylene/p-xylene ratio is about 1:1. Based on a total p+o xylene concentration of 4.3 ppm the estimated concentration of o-xylene is therefore 2.15 ppm and the estimated concentration of p-xylene is also 2.15 ppm, well below PADER cleanup levels. Additionally, EPA's calculations based on mathematical modeling estimate a much higher safe cleanup level (over 2,600 ppm total xylenes) than the PADER cleanup level. Also, the ground water action selected for Operable Unit One will collect any xylene that leaches to the ground water and no xylene has been detected in site ground water.

Former Pond Area: The Westinghouse Elevator Plant was constructed on top of a pond which was filled in prior to construction. About half of the pond is actually under the building and other structures, and about half is under a grassy area in front of the building. Subsurface soil samples from borings PTB-4 and PTB-6 in the vicinity of the Former Pond Area had detectable levels of VOCs, primarily TCE. The Former Pond Area is now a grassy landscaped area in front of the Westinghouse Plant building. This is not an area that would have been used for industrial activities and its purpose is aesthetic not functional. There is no record that this area was ever used for industrial purposes.

Although this area does not appear to be a spot where surface contamination occurred, the ground water in this area is the most contaminated. There are several possibilities that could explain this fact:

1) Westinghouse suggested during the RI that the pond which was filled in could have contained the contamination before the Elevator Plant was built. EPA investigated this hypothesis but could not find support for this assertion.

2) Solvent spills in the railroad loading dock and the Pumphouse Area could have migrated downward through the porous soils until bedrock was encountered and then flowed downhill along the bedrock surface shown in Figure 3-14 of the RI. Once solvent encountered the low area of the pond, it would then be trapped and would slowly infiltrate the fractures in the bedrock. EPA believes that this is the most likely scenario.

It is possible that the VOCs detected in subsurface soil samples in the Former Pond Area may be indicative of contact of the soil with highly contaminated ground water or soil gas from the ground water, and not from soil contaminants leaching to ground water from this area, especially given the relatively low VOC concentrations (i.e., approximately 700 parts per billion (ppb) maximum in the subsurface soil versus 30,000 ppb in the ground water). At least one sampling event showed ground water close to the level of the bottom of the pond borings (RI figure 3-16 showed a water level of 532 feet Mean Sea Level).

Another possibility is that the soil could have been contaminated by leaks from the currently operating ground water extraction system. Several times in the past, the pipe which carries water from well PMW-1 to the plant air stripper leaked and needed repair. The ground water from these leaks could have caused the low level of contamination. Regardless of the cause, EPA does not view this area as a source of contamination because of the low concentrations.

Based on the concentrations found in soils during the RI, EPA has calculated that all soils would pass the Toxicity Characteristic Leaching Procedure which determines whether the soils would be classified as a characteristic hazardous waste based on the concentration of hazardous constituents. However, the contaminated soils are considered to be listed wastes pursuant regulations promulgated under the Pennsylvania Solid Waste Management Act because-they contain constituents derived from spent solvents. Soils containing TCE or TCA would be classified as F001 listed waste, and soils containing xylene would be classified as F003 listed waste (See, 25 PA CODE § 261.31).

The Remedial Investigation, the Risk Assessment and the Feasibility Study reports are available in the administrative record. The Risk Assessment report considers the toxicology of the site contaminants, the exposure pathways to human and ecological receptors and evaluates the threat to human health and the environment. The Feasibility Study is a scoping study of possible technologies that could be used to remediate the site.

VI. SUMMARY OF SITE RISKS

As part of the Remedial Investigation performed for the Westinghouse Plant Site, a Risk Assessment ("RA") was conducted to evaluate the potential impacts of the Site on human health and the environment. In the RA, chemicals of potential concern were identified for detailed evaluation based on the RI sampling results. The Risk Assessment then evaluated the potential health and environmental risks associated with exposure to these chemicals for each media.

Potential risks to human health were identified by calculating the risk level or hazard index for such chemicals. Potential carcinogenic risks are identified by the risk level (i.e. a 1.0 X 10-6 risk level indicates one additional chance in 1,000,000 that an individual will develop cancer). EPA's acceptable risk range for Superfund cleanups is between 1.0 X 10-4 to 1.0 X 10-6. If the risk exceeds 1.0 X 10-4 EPA generally will take action to reduce the risk to within the acceptable risk range. EPA's point of departure for cleanup levels of carcinogens, once it has been decided that an action will be taken is 1 X 10-6. The actual cleanup level can be between 1.0 X 10-4 to 1.0 X 10-6 depending on site conditions.

The hazard index identifies the potential for individuals to be adversely affected by chemicals that damage human organs (poisons). If the hazard index exceeds one (1.0), there may be concern for potential systemic effects. As a rule, the greater the value of the hazard index above 1.0, the greater the level of concern. The risk assessment estimates the Reasonable Maximum Exposure (RME) for possible receptors. This concept produces a very conservative and protective estimate of risk. The risk associated with the site soils are summarized below:

The only VOC contaminated soils are adjacent to the Westinghouse Plant Building on private property and any exposure of residents or children to these soils would be of very limited duration, even if trespassing occurred. Soils have been removed from the Pumphouse Area and the railroad loading dock where concentrations of contaminants were high. These areas were sampled in Phase II and no contamination in surface soils was detected. The contaminated soil in the Former Pond and Courtyard Areas is deep and poses no significant risk of direct contact. The risk of inhalation of contaminants by maintenance workers was not evaluated in the risk assessment as a reasonable scenario because of the depth of contamination, the low concentrations, and the fact that these areas are below open space where dispersion of contaminants will occur. The Courtyard Area is in an area not accessible to the public, and contamination is also well below the surface. None of these areas are considered by EPA to present a significant direct contact risk to the public.

Risks are presented in Table 8-8 of the Risk Assessment and can be summarized as follows: 1) The only exposure to the Plant soils is to Plant maintenance workers. The exposure scenario is based on incidental ingestion and dermal contact with soils by maintenance workers as shown in Table 8-2 of the Risk Assessment Report. 2) The risk is extremely low to these workers for both systemic effects (poisons) and for cancer risk. For site related chemicals, the hazard index for these workers is virtually 0 (no effect) and the estimated cancer risk is 1.5 X 10-7 (1.5 cancers for ten million people exposed) as shown in table 8-8 of the Risk Assessment Report. EPA's Health based cleanup levels are also compared to the maximum soil concentrations found in each area as shown in Table 1-5 of the Final Feasibility Study summarized below:

COMPARISON OF HUMAN HEALTH BASED LEVELS
WITH DETECTED LEVELS IN SURFACE SOILS(a)

SOIL AREAS	CONTAMINANTS(b)	HEALTH BASED(c) CLEANUP LEVELS (ug/kg) (ug/kg)	MAXIMUM(d) CONC. DETECTED
Railroad Loading Dock	Xylenes	1,000,000,000	5,100
Pumphouse Area	1,1-DCA	1,000,000,000	89
	1,1,1-TCA	931,000,000	432
Courtyard Area	1,2,-DCA	31,000	2
	1,1,1-TCA	931,000,000	130
	1,1,2-TCA	50,000	2
	1,2-DCE	10,000,000	8
	TCE	260,000	190

NOTES: (a) Surface soil is defined as soil at less than 24 inches depth
(b) Contaminants that were found in each area at significant concentration levels.
(c) From ReTeC Risk Assessment, 1991.
(d) From RI report, 1991 and courtyard investigation, 1992.

The Pennsylvania Department of Environmental Resources has also published cleanup levels based on direct contact risks that are given below:

PADER CLEANUP STANDARDS FOR CONTAMINATED SOILS
DECEMBER 1993

SOIL AREAS	CONTAMINANTS (ug/kg)	HEALTH BASED CLEANUP LEVELS (ug/kg)	MAXIMUM CONC. DETECTED
Railroad Loading Dock	Xylenes	100,000,000	5,100
Pumphouse Area	1,1-DCA	7,000,000	89
	1,1,1-TCA	7,000,000	432
Courtyard Area	1,2-DCA	50,000	2
	1,1,1-TCA	7,000,000	130
	1,1,2-TCA	300,000	2
	1,2-DCE	1,000,000	8
	TCE	400,000	190

As shown above, the detected levels of contaminants in all areas are below health based levels calculated in the Feasibility Study and Risk Assessment, and are below Pennsylvania's Cleanup Standards for Contaminated Soils, December 1993.

The Feasibility Study also evaluated the potential of rainfall to leach contaminants from soil and to transport the contaminants downward to contaminate ground water. A mathematical model called the Summers Model was used for this evaluation. EPA generally selects soil cleanup levels which will be protective of ground water. Maximum Contaminant Levels ("MCLs") are the maximum level of contaminants allowed under the Safe Drinking Water Act ("SWDA"). The table on the following page gives Summers model results which is an estimate of the highest levels of contaminants that could remain in soils without causing ground water contamination above MCLs.

The Pennsylvania Department of Environmental Resources has published a document titled: Cleanup Standards for Contaminated Soils, December 1993. The levels given in this document are for guidance regarding what soil cleanup levels may be acceptable, but are not necessarily the appropriate cleanup levels at a site. EPA does not consider these levels to be Applicable or Relevant and Appropriate Requirements ("ARARs"), but are in the category of a "To Be Considered (TBCs)" standard for the Site. The soil cleanup levels in this document were produced using a math model that is similar to the Summers Model to estimate the leaching of contaminants from soils to ground water. The published PADER cleanup levels based on the Crest Model and the EPA cleanup levels based on the Summers Model are compared to actual soil concentrations in the following tables:

FEASIBILITY STUDY LEACHING RESULTS FROM THE SUMMERS MODEL

SOIL AREAS	CONTAMINANTS	SOIL CLEANUP LEVELS PROTECTIVE OF GROUNDWATER MCLs (ug/kg)	MAXIMUM CONC. DETECTED (ug/kg)
Railroad Loading Dock	Xylenes	2,653,200	5,100
Pumphouse Area	1,1-DCA	No MCL	89
	1,1,1-TCA	1,794	432
Courtyard Area	1,2-DCA	28	2
	1,1,1-TCA	12,282	130
	1,1,2-TCA	113	2
	1,2-DCE	1,386	8
	TCE	255	190

PADER CLEANUP STANDARDS FOR CONTAMINATED SOILS COMPARED TO ACTUAL SITE CONCENTRATIONS

SOIL AREAS	CONTAMINANTS	SOIL CLEANUP LEVELS PROTECTIVE OF GROUNDWATER LEVEL 2(a) (ug/kg)	MAXIMUM CONC. DETECTED (ug/kg)
Railroad Loading Dock	o-xylene	3,000	2,150(b)
	m-xylene	5,000	750
	p-xylene	5,000	2,150(b)
Pumphouse Area	1,1-DCA	500	89
	1,1,1-TCA	1,000	432
Courtyard Area	1,2-DCA	300	2
	1,1,1-TCA	1,000	130
	1,1,2-TCA	800	2
	1,2-DCE	600	8
	TCE	2,000	190

Notes: (a) Levels for spills more than one year old.
(b) Estimated values from total xylene analysis.

It should be noted that for the xylenes, both the Summers Model and the PADER's Crest leaching model predict some leaching to ground water from the Railroad Loading Dock. However, xylenes have not actually been detected in site ground water samples. EPA considers actual ground water data to be more reliable than hypothetical math modeling results. Based on the results of both leaching models and the actual ground water data, EPA does not believe that the railroad loading dock is significantly contaminating the ground water at the site.

Ecological Impacts

EPA does not expect any significant impact on terrestrial or aquatic life from Site soils. The Site is an industrial property surrounded by highly developed residential, commercial and industrial areas. The soil areas are adjacent to or inside the operating elevator plant. No known populations of rare or endangered plant or animal species or significant biological communities are present within or in close proximity to the Plant boundaries.

VII. SUMMARY OF ALTERNATIVES

The Superfund process requires that the alternative chosen to clean up a hazardous waste site meet two threshold criteria: protect human health and the environment, and meet the requirements of environmental regulations (Applicable or Relevant and Appropriate Requirements--"ARARs"). EPA's primary balancing criteria are: long term effectiveness and permanence, short term effectiveness, reduction of volume, toxicity, or mobility of the contaminants, cost effectiveness, and implementability. EPA's modifying criteria are State and community acceptance.

The Feasibility Study reviewed a variety of technologies to see if they were applicable to the contamination at the Site. The technologies determined to be most applicable to these materials were further developed into remedial alternatives. These alternatives are presented and discussed below. Many other technologies were reviewed and screened out. This process is fully detailed in the Feasibility Study which can be found in the administrative record located in the Adams County Public Library at 59 East High Street, Gettysburg PA.

All costs and implementation time-frames specified below are scoping estimates based on best available information. Present Worth is the total cost of the remedy including capital costs and 30 years of operation and maintenance of the remedial action, in current dollars.

The process options remaining from the screening process are no action, a low permeability cover, and off-site disposal. Due to the small number of feasible and effective process options, there are only two decisions to be made for each medium: whether or not to take any further action; and, if additional action is taken, whether to cover or to excavate and dispose of off site. These choices are discussed for each medium in the following sections. As required by the ROD for Operable Unit One (ground water), EPA will review the Site every five years to ensure continued protection of human health and the environment.

Soil Area 1 - Railroad Dock Area Surface Soils

This medium consists of the soils remaining at the bottom of the excavation in the Railroad Dock Area. The only COI for this medium are xylenes (total), which were detected at levels nearly five orders of magnitude below the health based cleanup level (see page 18 and 19 above). The Feasibility Study evaluated the potential of rainfall to leach contaminants from soil and to transport the contaminants downward to contaminate ground water. A mathematical model called the Summers Model was used for this evaluation. From the results of the Summers Model, flushing of xylenes from this medium might result in contaminant transfer to ground water. Therefore, the remedial action objective for this media is to reduce the potential for leaching effects. Leaching calculations based on the Summers model indicate that xylene concentrations could be as high as 2,600 ppm without contaminating ground water above the MCLs allowed by the SDWA. The PADER leaching model would indicate a level of about 10-13 ppm of total xylenes as a safe level. Regardless of modeling, no xylene has actually been detected in ground water although several wells monitor ground water associated with this area. This strongly indicates that the level of xylenes at the loading dock is not degrading ground water and analysis of the actual conditions is much more reliable than modeling predictions of ground water conditions.

Although soil contaminated with spent xylenes is considered a hazardous waste, a low permeability cover as required by the Pennsylvania Solid Waste Management Act is not considered appropriate for this medium due to its limited areal extent. The alternatives considered for this media are no action and excavation with off-site disposal.

Alternative 1 - No Additional Action

Under this alternative, no additional action would be taken to reduce possible leaching effects from soil to ground water. Xylene concentrations in soil would naturally attenuate due to biological activity and flushing of the xylenes by infiltrating rain water. As mentioned previously, a ROD has been issued for ground water remediation. Thus, under the no additional action alternative, xylenes which are currently in Railroad Dock Area surface soil would ultimately be remediated by the ground water extraction and treatment system already being designed.

Alternative 2 - Excavation with Off-Site Disposal

Under the excavation/disposal alternative, a small volume of soil near boring PTB-11 would be removed to the bedrock surface and taken to an off-site disposal facility. Transport and disposal would be executed in accordance with local, state, and federal regulations. The excavated area would be backfilled with clean soil. The costs of Alternative 1 and 2 are compared below:

	Time to Implement (Months)	Capital Cost $	Annual O&M $	Total Present Worth $
No Action	___	___	___	___
Excavation	1.5	4,397	50	5,261

Soil Area 2 - Pumphouse Area Surface Soils

This medium consists of surficial soils in the vicinity of the pumphouse which contained detectable levels of VOCs and PCB-1254 during the Phase I RI. The areal extent of this medium is based on the analytical results of a composite sample from five sampling locations (see Figure 3 - Appendix B). Detected levels of VOC contaminants in the composite sample were at least three orders of magnitude less than the health-based levels presented in the risk assessment (see page 18 and 19 above). From the results of the Summers Model, flushing of VOCs from soil may result in transfer of VOCs to ground water. Thus, the remedial objective for Pumphouse Area surface soil is to reduce the potential for leaching effects (i.e., reduced infiltration to ground water). It should be noted that a shallow boring in this area did not detect contamination during the Phase II investigation.

The Pumphouse Area is still used by the facility and is subject to the need for access to perform maintenance work and other uses. The area is also very irregular in shape and is adjacent to plant structures such as a water tank and the pumphouse building. A low permeability cap would be impractical in this area and was screened out. The remedial alternatives presented for this medium are no action, an asphalt cover, and excavation with off-site disposal.

Alternative 1 - No Additional Action

Under the no action alternative, VOCs in the Pumphouse Area would be leached from the soil by surface water infiltration and thereby transfer to ground water. Contaminants transferred from the soil to ground water would be captured and treated by the ground water remediation system. Contaminants in Pumphouse Area soil would thus ultimately be remediated by ground water extraction and treatment.

Alternative 2 - Asphalt Cover

For this alternative, an asphalt cover would be constructed over the grassy area in the vicinity of the pumphouse. The asphalt cover would decrease infiltration such that transfer of Contaminants in surface soils to ground water would be reduced.

Alternative 3 - Excavation with Off-Site Disposal

Under the excavation/disposal alternative, a small volume of soil would be removed and taken to an off-site disposal facility. Transport and disposal would be executed in accordance with local, state, and federal regulations. The excavated area would be backfilled with clean soil.

The costs of Alternatives 1, 2 and 3 are compared below:

	Time to Implement (Months)	Capital Cost $	Annual O&M $	Total Present Worth $
1-No Action	__	__	__	__
2-Asphalt Cover	3	9,742	600	20,117
3-Excavation	2	221,329	400	228,245

Soil Areas 3 and 4 - Courtyard Area Soils

Soil Areas 3 and 4 consist of the surface and subsurface soils in the Courtyard Area containing VOCs above detectable limits. The primary COI is 1,1,1-TCA which overflowed from the solvent storage tank while it was being filled in May 1991. As previously noted, maximum detected levels of VOCs in the Courtyard Area soils do not exceed health-based cleanup levels (see pages 18 and 19 above). Thus, Courtyard Area soils are addressed in this study due to concern for potential leaching effects which could potentially degrade ground water.

As discussed in Section 2.4 of the Feasibility Study, the results of the Summers Model indicate that Courtyard Area soils do not constitute a significant threat of contamination to ground water. The concentration of contaminants in ground water due to contaminants in soils would not exceed EPA's risk based levels based on the Summers Model. The Summers Model is a highly conservative mathematical model which estimates the leaching of contaminants from soils and the resulting ground water contamination levels. The Summers model does not predict risks exceeding a 10-4 risk of cancer or a hazard index exceeding 1 (systemic effects). Concentrations are also below PADER soil cleanup standards. Consequently, Courtyard Area soils are not considered to pose significant risks to human health or the environment. Therefore, the remedial action objective for Courtyard Area surface soils is satisfied by existing conditions, and no action is needed for the Courtyard Area soils.

Concentrations of contaminants in Courtyard Area soils will gradually attenuate due primarily to leaching from soils to ground water and due to bioactivity. Contaminants in soils will ultimately be remediated by the treatment of ground water. The nature and extent of contaminants in soil and subsequent need for soil remediation would be reassessed if active ground water treatment is terminated in the future. No additional action needs to be taken and no additional costs need to be incurred.

Soil Area 5 - Former Pond Area Subsurface Soils

This medium consists of subsurface soils in the vicinity of the Former Pond Area which contain VOCs above detectable limits. According to the risk assessment, there is no plausible pathway of direct exposure to this medium. These soils are addressed in this study at the request of the EPA out of concern for potential leaching effects which could potentially degrade ground water. From the results of the Summers Model, flushing of VOCs from this medium might result in leaching of contaminants to ground water. Thus, the remedial objective for this area would be to reduce the slight potential for leaching effects (i.e., reduce infiltration to the ground water).

Excavation and disposal off-site is not considered a reasonable alternative for the subsurface soils in the Former Pond Area. Much of the former pond is under the elevator plant building (Figure 5 - Appendix B) such that only partial excavation would be possible. Excavation would be less protective of workers during implementation than alternatives which would not create a possibility of direct contact with impacted soils. In addition, EPA does not consider these soils to be a significant source of contamination. Remedial alternatives considered appropriate for Former Pond Area subsurface soils consist of no action and a low permeability cover system.

Alternative 1 - No Additional Action

Under the no action alternative, conditions would be maintained to reduce possible leaching effects from soil to ground water. Contaminant concentrations in soil would naturally attenuate due to anaerobic degradation and flushing of the contaminants by both infiltrating surface water and the fluctuating ground water table. Any contaminants transferred from the soil to ground water would likely be captured and treated by the ground water remediation system. Thus, under the no action alternative, contaminants which are currently in the Former Pond Area subsurface soils would be remediated indirectly by the ground water treatment system.

Alternative 2 - Low Permeability Cover System

Approximately 75 percent of the Former Pond Area is not covered by the plant building or the parking lot. Under this alternative, the "uncovered" portion of the Former Pond Area would be covered with a low permeability cover.

The cover system would consist of a six inch soil base layer, a 40 mil geosynthetic barrier layer (like a swimming pool liner), a geotextile drainage layer and an eighteen inch thick soil cover that would be seeded with grass.

The costs of the alternatives are given below:

	Time to Implement (Months)	Capital Cost $	Annual O&M $	Total Present Worth $
No Action	__	__	__	__
Low Permeability Cover	6	68,558	800	82,391

A low permeability cover system would reduce infiltration such that transfer of contaminants in subsurface soils to ground water would be minimized. Contaminant levels in the subsurface soils would attenuate very gradually due to natural physical, biological, and chemical processes. Contaminants leaching into the ground water would be collected and treated by the ground water extraction and treatment system.

VIII. COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES

In this section the remediation alternatives are compared to each other using the nine criteria that EPA uses in the decision making process.

<u>Protection of Human Health and the Environment</u>: Since there is no significant contact risk from the contaminants in the soil areas, and since the Remedial Action-selected for ground water will address any risk from leaching, all of the Remedial Actions listed for each soil area, including No Additional Action, would be sufficiently protective.

Compliance with ARARS: The Alternatives that involve excavation and off-site disposal of contaminated soil would comply with all ARARs, including the Pennsylvania Solid Waste Management Act hazardous waste closure regulations (See, 25 PA CODE §§ 264.110-264.119 and 264.300-264.316) since all contaminants would be removed from the site. The alternative that involves a low permeability cover would comply with the relevant and appropriate portion of the Pennsylvania Solid Waste Management Act closure regulations. The no action alternative and the asphalt cover would not comply with the Pennsylvania Solid Waste Management Act closure regulations.

Long Term Effectiveness and Permanence: The Alternatives that involve excavation and off-site disposal of contaminated soil would have the highest long term effectiveness and permanence since contaminants would be removed from the Site and could pose no risk at all. The No Additional Action alternative would have the next highest rating because rainwater will leach contaminants into the ground water which will be collected and treated, effecting the second fastest method of removal of contaminants. The contaminants would be captured on activated carbon and the contaminants ultimately destroyed when the carbon is disposed. The asphalt cover and low permeability cover are rated lowest in this category since contaminants would leave the soils at a slower rate.

Reduction of Toxicity Mobility and Volume: The Alternatives that involve excavation and off-site disposal of contaminated soil would have the highest rating since contaminants would be removed from the site and treated so that they could pose no risk at all. The No Additional Action would have the next highest rating because rainwater will leach contaminants into the ground water which will be collected and treated. The contaminants would be captured on activated carbon and the contaminants ultimately destroyed when the carbon is disposed. The asphalt cover and low permeability cover are rated lowest in this category since contaminants would leave the soils at a slower rate and a higher percentage of contaminants would escape the soil via soil gas.

Short Term Effectiveness: The Alternatives that involve excavation and off-site disposal of contaminated soil would have the highest rating since contaminants would be removed from the site in a very short period of time. The No Additional Action would have the next highest rating because rainwater will leach contaminants into the ground water which will be collected and treated. The asphalt cover and low permeability cover are rated lowest in this category since contaminants would leave the soils at a slower rate.

Implementability: The No Additional Action is obviously the easiest to implement. The excavation option for the railroad loading dock only involves excavation of two cubic yards of surface soil and would be very easy to implement. Excavation of subsurface soils to pristine levels at the other soil areas would be extremely difficult and could pose a risk to existing building structures. Installation of an asphalt cover on the Pumphouse Area soils would be very easy. Installation of a low permeability cover in the Former Pond Area could be done, but would be more difficult than usual because of the need to integrate with existing structures. Installation of a low permeability cover in the Courtyard Area was rejected during screening because this is in an area inside the plant structure and is still in use by the Plant. Integrating a low permeability cover into the building structure would be difficult and might need to be periodically disturbed by the need for maintenance of drains and other utilities

Cost: The costs of the alternatives shown above are based on capital costs and operation and maintenance for 30 years. The costs are given in the Description of Alternatives section above and in Table 1 - Appendix A. All of the alternatives evaluated except the No Action alternative involve significant costs for little or no incremental environmental protection.

State Acceptance: The Commonwealth of Pennsylvania concurs with the Preferred Alternative.

Community Acceptance: No comments were made in opposition to the preferred alternative or arguments made for a different alternative at the public meeting held at the Cumberland Township Municipal Building on February 23. EPA did not receive any comments on the Proposed Plan during the comment period.

THE SELECTED ALTERNATIVES

Soil Area 1 - Railroad Dock Area Surface Soils

Alternative Number 1 - No Additional Action: There is no significant contact risk from surface soils. The contaminant xylene is a common component of gasoline and is biodegradable. Xylenes have relatively low toxicity compared to the chlorinated solvents. PADER has published cleanup levels based on the risk of contact with contaminated soils at 100 ppm for xylenes in soil and EPA's estimate of a safe level for xylenes is even higher. Xylenes have not been detected in ground water at the Westinghouse Plant Site and this indicates that leaching of xylenes currently present at about 5 ppm in the site soil is not significantly affecting site ground water. This is confirmed (within model uncertainty) by ground water leaching models. Although xylenes are relatively non-toxic, xylenes that have been used as solvents and discarded are considered a listed hazardous waste (F003) pursuant to Pennsylvania Solid Waste Management Act regulations (See 25 PA CODE § 261.31).

The volume of contaminated soil is very small (2 cubic yards), and the total volume of xylene present in the soils is very small (about 10 cubic centimeters of this gasoline component). Any xylene which does leach into ground water will be captured and treated in the pump and treatment system currently being designed. No additional action is needed to be protective of human health and the environment. The selected remedy requires No Additional Action for soils contaminated with very low levels of listed RCRA hazardous waste. Therefore action specific ARARs do not apply, and the only ARARS for the Site soils are the Pennsylvania Solid Waste Management Act hazardous waste closure regulations which require a low permeability cap (See, 25 PA CODE §§ 264.110-264.119 and 264.300-264.316). The soils are contaminated with listed waste solvent constituents which makes them subject to the capping requirements. EPA is waiving this ARAR on the basis of "Greater Risk to Human Health and the Environment" and "Equivalent Standard of Performance" waivers. Since the ground water under the contaminated areas will be collected and the contaminants ultimately destroyed, leaching of the contaminants is desirable. Capping these areas would reduce the natural leaching and delay the cleanup and destruction of the soil contaminants. Accordingly, the "Greater Risk to Human Health and the Environment" waiver is an appropriate waiver. By leaving the contaminants in place, without a cap, the contaminants will be collected effectively by the pump and treat system. Accordingly, the "Equivalent Standard of Performance" waiver is also appropriate.

Soil Area 2 - Pumphouse Area Soils, Soil Areas 3 and 4 - Courtyard Surface and Subsurface Soils and Soil Area 5 - Former Pond

<u>Alternative Number 1 - No Additional Action</u>: In these areas, surface soil contamination was not present during the most recent sampling events, or was present at very low levels that do not pose a significant contact risk to human health and the environment. Subsurface soils are also contaminated at relatively low levels and only pose a slight potential risk to ground water at the site. The Record of Decision for Operable Unit One (ground water) selected pump and treatment of ground water as the Remedial Action. EPA believes that large amounts of solvent have migrated down into the bedrock and are now the primary source of contamination. The highest levels of total chlorinated solvent in subsurface soils is about 0.6 ppm while ground water has shown solvent contamination as high as 80 ppm. The pump and treat system is in the design phase and will address the minor incremental risk to ground water from leaching of these soils.

CERCLA requires EPA to conduct its remedial actions in compliance with all environmental laws, identified before the Record of Decision, if they are applicable or if they are relevant and appropriate for the situation. These requirements are commonly referred to as ARARs. The selected remedy requires No Additional Action for soils contaminated with very low levels of listed RCRA hazardous waste. Therefore action specific ARARs do not apply, and the only ARARS for the Site soils are the Pennsylvania Solid Waste Management Act hazardous waste closure regulations which require a low permeability cap. (See, 25 PA CODE §§ 264.110-264.119 and 264.300-264.316). The soils are contaminated with listed waste solvent constituents which makes them subject to the capping requirements. EPA is waiving this ARAR on the basis of "Greater Risk to Human Health and the Environment" and "Equivalent Standard of Performance" waivers. Since the ground water under the contaminated areas will be collected and the contaminants ultimately destroyed, leaching of the contaminants is desirable. Capping these areas would reduce the natural leaching and delay the cleanup and destruction of the soil contaminants.

In summary, the preferred alternative is believed to provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, therefore, EPA believes that the preferred alternative will protect human health and the environment, will comply with ARARs or justify a waiver, would be cost effective, and will use permanent solutions to the maximum extent practicable. The preferred alternative will not directly satisfy the preference for treatment as a principle element, but indirectly the contaminants will leach to the ground water, be collected and treated by the pump and treat system or will degrade due to bioactivity. No additional costs would be incurred.

X. 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, 42 U.S.C.§ 9621, established several other statutory requirements and preferences. These specify that when complete, the selected remedial action for a site must comply with applicable or relevant and appropriate environmental standards established under Federal and State environmental laws unless a statutory waiver is granted. The selected remedy must also 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.

Protection of Human Health and the Environment

The selected remedy will be protective of human health and the environment because the risks from these areas are below EPA's trigger levels for direct contact and because any leaching of contaminants to ground water will be addressed by the pump and treat system selected by the ROD for Operable Unit One.

The selected remedy will not pose any unacceptable short-term risks or cross-media impacts to the Site, the workers, or the community. The selected remedy will be readily implementable.

Compliance with ARARs

The Record of Decision for Operable Unit One (June 30, 1992) addressed all the ARARs concerning the ground water remedy at the Site. Among the ARARs addressed in the ROD for Operable Unit One was the Pennsylvania ARAR for ground water which requires that all ground water be remediated to "background" quality as specified by 25 PA CODE Section 264.90-264.100 and in particular 25 PA CODE Section 264.97(i), (j), and 264.100(a)(6) and (9). This ARAR was waived on the basis of greater risk to human health and the environment and the technical impracticability waivers. Reference can be made to the ROD for Operable Unit One for a full discussion of the ARARs discussed therein.

The selected remedy requires no additional action for soils contaminated with very low levels of listed RCRA hazardous waste. Therefore action specific ARARs do not apply, and the only ARARS for the Site soils are the Pennsylvania Solid Waste Management Act hazardous waste closure regulations which require a low permeability cap. (See, 25 PA CODE §§ 264.110-264.119 and 264.300-264.316). Because the soils are contaminated with listed waste constituents, these ARARs are applicable. EPA has waived these ARARs on the basis of "Greater Risk to Human Health and the Environment" since capping would retard the leaching of contaminants to the ground water extraction and treatment system, and on the basis of "Equivalent Standard of Performance" since collection and treatment of the leached contaminants by the ground water extraction and treatment system is a more effective remedy than immobilizing them under a cap system.

Cost Effectiveness

No additional cost would be incurred by the selected remedy. Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

Contaminant concentrations do not justify treatment. Contaminants leaching into the ground water will be captured by the pump and treat system selected by the ROD for the first Operable Unit. The contaminants will be removed by the air stripping unit, captured by a carbon adsorption air control unit and the contaminants will ultimately be destroyed when the carbon is regenerated.

XI. EXPLANATION OF SIGNIFICANT CHANGES

There are no significant changes from the Proposed Plan.

Appendix A

TABLE 1

SUMMARY OF COSTS

Alternative	Time to Implement(a) (Months)	Cap Co ($
Medium 1 - Railroad Dock Area Surface Soils		
No Action	--(c)	
Excavation with Off-Site Disposal	1.5	4,
Medium 2 - Pumphouse Area Surface Soils		
No Action	--	
Asphalt Cover	3	9,
Excavation with Off-Site Disposal	2	221,
Medium 3 - Courtyard Area Subsurface Soils		
No Action	--	
Medium 4 - Courtyard Area Surface Soils		
No Action --	--	--
Medium 5 - Former Pond Area Subsurface Soils		
No Action	--	
Low Permeability Cover System	6	68,

(a) Durations shown are estimated times in months for implementing d each individual soil media. However, it is assumed that the soil media will be duration for remediating the combined media units will be less than the sum o

(b) Reported value represents annual operation and maintenance costs included in the costs for Operable Unit One.

(c) "--" indicates not applicable.

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Appendix B

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APPENDIX C

RESPONSIVENESS SUMMARY
WESTINGHOUSE ELEVATOR COMPANY PLANT SITE
OPERABLE UNIT 2 (Soils)
ADAMS COUNTY, PENNSYLVANIA

This community relations responsiveness summary is divided into the following sections:

SECTION I: Overview: This section discusses EPA's selected remedy for the Westinghouse Elevator Company Plant Site Soils.

SECTION II: Background: This section provides a brief history of community interest and concerns raised during remedial planning at the Westinghouse Elevator Company Plant Site.

SECTION III: Summary of Commentor's Major Issues and Concerns: This section provides a summary of commentor's major issues and concerns, and expressly acknowledges and responds to those issues raised by the local community. "Local Community" may include local homeowners, businesses, the municipality, and often potentially responsible parties (PRPs).

I. OVERVIEW

On February 3, 1995, EPA announced the public comment period and published its preferred alternative for soils at the Westinghouse Elevator Company Plant Site, located in Adams County, Pennsylvania.

When EPA issued its Proposed Plan on February 3, 1995, it also opened a public comment period that was due to end on March 6, 1995. EPA held a public meeting at the Cumberland Township Municipal Building on February 23, 1995 to present the Remedial Alternatives for the Westinghouse Elevator Plant soils and to take public comments on these alternatives. During this comment period, EPA only received written comments from the Commonwealth of Pennsylvania. EPA did not receive comments or questions about the Preferred Alternative during the public meeting.

II. BACKGROUND

In 1983, problems were discovered at three geographic locations in the Gettysburg area that included the Hunterstown Road, the Westinghouse Elevator Co. Plant, and the Shrivers Corner Sites. The community became very concerned and formed a citizens group "Good Neighbors Against Toxic Substance (GNATs)" that vigorously lobbied EPA, the PADER and local congressmen for the solution to the environmental problems present at the Gettysburg sites. This group was knowledgeable regarding site histories and gave EPA substantial input during the past years.

The three sites were placed on the National Priorities List (NPL) and removal actions were performed that addressed the immediate site threats. Surface waste removal and alternative water supplies helped reduce the risk from these sites. The GNATs continued to comment and voice their concerns throughout this process. The GNATs had their own newsletter and were very active. At the Westinghouse Plant Elevator Corporation Plant Site, public water lines were extended to all areas with VOC contamination and Westinghouse Electric Corporation offered connection to these lines at their expense. Reportedly, Westinghouse also entered into legal settlements with some residents.

A Record of Decision for Operable Unit 1 was issued on June 30, 1992. Consent Decree negotiations did not yield an agreement and EPA issued a Unilateral Administrative Order (UAO) to both Westinghouse Electric and Schindler Elevator on 12/29/92. The UAO was modified in February 1993, and Westinghouse agreed to comply with the UAO. The Project is currently in the design Phase and pilot operation of the extraction wells should begin during the summer of 1995.

Perhaps as a result of the reduction of risk, settlements, more frequent communication with EPA, and the very long time frame inherent in the remedial Superfund process, general interest in the sites has declined, although the leaders of the citizens group are still very interested in the progress at these sites. The three most active members of the GNATs have been Mr. Merle Hankey, Mrs. Mary Kennedy and Mr. Donald Waddel. EPA appreciates the assistance given by these individuals in identifying problems at the Gettysburg Sites. Press coverage of the Site was extensive in the early to mid-1980s, but has declined in the last several years.

EPA has had substantial interaction with the public throughout the site history as shown by the public meetings on April 2, 1984, April 22, 1985 and October 23, 1986. These meetings discussed all three

Gettysburg Superfund Sites and covered both Remedial and Removal Actions. A tour of the Plant was conducted by EPA to inform residents and Congressman Goodling's office about the Site in December 1986.

Additional public meetings were conducted specific to the Remedial Investigation/Feasibility Study (RI/FS):

a) April 5, 1988 - Meeting on RI/FS Work Plans.

b) March 8, 1990 - A pre-public meeting to discuss the sites with most active members of GNATs.

c) May 31, 1990 - Meeting on Phase I Remedial Investigation/Phase II Sampling and Analysis and Work Plans.

d) September 1990 - Public Affairs meetings with GNATs members residents and local officials.

e) December 1990 - Meetings with GNATs members and local officials.

f) August 28, 1991 - Meeting to discuss Phase II Remedial Investigation results with residents and GNATs members.

g) May 6, 1992 - Public meeting to discuss Feasibility Study and the Proposed Plan for operable unit 1.

h) February 23, 1995 - Public meeting to discuss the Feasibility Study and the Proposed Plan for operable unit 2 (Site Soils). Those in attendance at the meeting included local area residents, a member of the GNATs citizens group, representatives from the Pennsylvania Department of Environmental Resources, and the Adams County Commissioner.

EPA's Office of Public Affairs has periodically issued Fact Sheets for the Site over the past years to update residents and local officials. These have been well received.

A notice of availability of the Proposed Plan for Operable Unit 2 (Soils) was published in the Gettysburg Times February 3, 1995. This document, the transcript of the public meeting, the RI/FS, the community relations plan and other supporting documentation for the Proposed Plan was made available at that time in the Administrative Record file located in the Adams County Public Library.

III. SUMMARY OF COMMENTORS' MAJOR ISSUES AND CONCERNS

A) Written comments submitted during the comment period - None received.

B) Summary of comments made during the public meeting - No comments or questions from the public during the meeting.

C) Written comments submitted by the Commonwealth of Pennsylvania during the public comment period- None

EPA has been working with the PADER throughout the development of the Proposed Plan and the Record of Decision to make sure that EPA complies with Pennsylvania's laws and regulations.