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EPA Superfund
Record of Decision:

RESIN DISPOSAL
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JEFFERSON BOROUGH, PA
09/29/1995

Text:

RECORD OF DECISION
RESIN DISPOSAL SITE

DECLARATION

SITE NAME AND LOCATION

Resin Disposal Site
Operable Unit #2
Jefferson Borough
Allegheny County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Operable Unit #2 (OU2) at the Resin Disposal Site (Site) in Jefferson Borough, Allegheny County, Pennsylvania, developed and chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, (CERCLA) 42 U.S.C. §§ 9601 et seq. and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. This decision is based on the Administrative Record file for this site.

The Commonwealth of Pennsylvania, Department of Environmental Protection (PADEP) has concurred with the Record of Decision (ROD).

ASSESSMENT OF THE SITE

After consideration of the existing and future risks posed to human health and the environment, EPA's selected remedy for the ground water portion of this Site is No Further Action, with monitoring. Based on information collected to date, the EPA has determined that no additional remedial actions, other than those already selected as part of the Operable Unit 1 (OU1) source control remedy for the Site, are required to ensure protection of human health and the environment. All the components of the OU1 remedy should be completed in the next twelve months. The Site will then qualify for inclusion in the "sites awaiting deletion" subcategory of the Construction Completion category of the National Priorities List.

DESCRIPTION OF THE REMEDY

This Operable Unit is the second and final operable unit for the Site and it addresses ground water contamination. The selected alternative for the ground water at the Site is no further action with periodic monitoring of offsite ground water. This offsite monitoring will include sampling of the offsite monitoring wells, as well as monitoring the seeps and residential wells near the Site. The onsite ground water will be monitored pursuant to the Remedial Action selected in the ROD for the first Operable Unit.

After the source control remedy is completed, the onsite and offsite ground water will both be periodically monitored to ensure that human health and the environment are being protected.

STATUTORY DETERMINATIONS

Pursuant to duly delegated authority, I hereby determine, pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606, that the selected remedy is protective of human health and the environment. Although no further remedial action will be taken, ground water quality at and in the vicinity of the Site will be reviewed within five years in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c) to ensure that human health and the environment continue to be adequately protected.

<IMG SRC 0395204>
Tom Voltaggio
Hazardous Waste Div. Director
Region III

<IMG SRC 0395204A>
Date

RECORD OF DECISION
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RECORD OF DECISION

RESIN DISPOSAL SITE

DECISION SUMMARY

I. SITE NAME, DESCRIPTION, AND LOCATION

A. Site Name and Location

The Site is located about one half mile west of the town of West Elizabeth in Jefferson Borough, Allegheny County, Pennsylvania and comprises approximately 26 acres (Figure 1). West Elizabeth is a mixed commercial, industrial and residential area with a stable population. According to U.S. Census Bureau 1990 records, the population within a one-mile radius of the Site is 1,819. The Site operated as a landfill between 1950 and 1964. The landfill is located in the head of a narrow valley on the site of a former coal mine and comprises slightly less than 2 of the 26 acres.

The Site is surrounded by a suburban residential area to the north and west and by undeveloped property to the south and east. A trailer park and several residential homes are located approximately 1/4-mile southeast and downslope of the Site. The topography of the area is characterized as relatively level highland, with deeply eroded stream valleys. Coal was strip- and deep-mined from the nearby stream valley prior to 1950 in the area surrounding the Site.

Although quantities of ground water are available for domestic use in certain areas, the vast majority of the residents in the Site area are connected to a public water supply. The Monongahela River is located about 1/2 mile from the Site, and is the water source for the public water system in the neighborhood. However, eight residential wells were identified within approximately one mile of the Site. Most of these residents are also hooked up to the public water supply, and use their private well as an alternative water supply for activities like washing their cars or watering their lawns.

B. Site History and Enforcement Activities

Between 1950 and 1964, prior to the enactment of the Resource Conservation and Recovery Act, as amended (RCRA), 42 U.S.C. §§ 6901 et seq., the Pennsylvania Industrial Chemical Corporation (PICCO) Plant generated and deposited an estimated 85,000 tons of production wastes into the onsite landfill. As a result of these activities, the Site is also known as the PICCO Resin Landfill. The wastes consisted mainly of clay poly cakes and dechlor cakes, which are composed of petroleum and coal-derived chemicals mixed with clay. Total petroleum hydrocarbons compose approximately 6% of the waste. The waste was deposited in the landfill by dumping it down a topographic chute above the landfill as a wet viscous sludge. The waste was contained within the landfill behind two earthern dikes (Figure 2). No historical records exist of the actual types or quantities of waste deposited in the landfill.

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Prior to 1950, the original coal was strip-mined and deep-mined on the site property. The deep mining was done through a process known as room and pillar mining which resulted in mine voids throughout the Site. At the location of the landfill, approximately 20 feet of waste was deposited in place of the mined coal.

Hercules Incorporated (Hercules) purchased the business and facilities, which includes the landfill property, from PICCO in 1973. Between 1980 and 1984, a series of field investigations were conducted to provide information on ground water conditions in the coal formation, the deep bedrock formation, and the extent of contaminated soils just downgradient of the landfill. These field investigations were conducted for Hercules and were performed by Roy F. Weston, Inc. (Weston) and Murray Associates. The data from these early investigations indicated that contaminants had migrated beyond the buried waste in the landfill and could be found in ground water in the Pittsburgh Coal Formation and in downslope soils and perched ground water. As a result of these investigations, Weston recommended that Hercules install a leachate collection trench below the lower landfill dike to collect leachate and ground water (See Figure 3). This trench was installed with the initial oil/water separator in 1983. Liquids collected in the trench are now directed to an upgraded oil/water separator which was installed in June of 1995. The oil is presently burned as fuel at the Hercu]es Jefferson Plant boiler, and the water is discharged to the Jefferson Borough Sanitary Sewer System which drains to the West Elizabeth Sanitary Authority (WESA) for treatment.

A Site Investigation was completed in April 1982, and the Site received a Hazard Ranking Score of 37.69 in December 1982. The Site was proposed for the National priority List (NPL) in December 1982 and was

placed on the NPL in September 1983. On November 2, 1987, Hercules entered into a Consent Order and Agreement with the Pennsylvania Department of Environmental Resources (PADER), which was renamed the Pennsylvania Department of Environment Protection (PADEP) on July 1, 1995, to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the Site. The Remedial Investigation (RI) work plan was approved by PADER and EPA in February 1988, and work began on March 17, 1988. The purpose of the initial RI/FS was to characterize the Site for potential remediation. This included an extensive study of the extent of contamination of the soils, ground water, and surface water associated with the landfill and related activities onsite. A final RI for OU1 was submitted to PADER and EPA in March 1991, and the RI and the FS were eventually finalized in June, 1991.

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A Record of Decision for OU1 was signed on June 28, 1991. Hercules signed a Consent Decree to perform the RD/RA in February, 1992. The Remedial Design is almost finished at this time and the Remedial Action for the landfill cap should begin in the next month or two. A Consent Order to perform an RI/FS for OU2 was signed by Hercules in June, 1992. The Final RI Report for OU2 was submitted in August, 1994, and the Final FS Report was submitted in April, 1995. EPA developed the Draft and Final Risk Assessment for the second operable unit at this Site.

C. Highlights of Community Participation

EPA performed the activities set forth in Sections 113(k) and 117(a) of CERCLA, 42 U.S.C. § 9613(k) and 9617(e). The RI/FS and Proposed Plan for the Resin Disposal Site were released to the public on April 22, 1995. These documents were made available to the public in the local information and administrative record repository at the Jefferson Borough Municipal Building, 925 Old Clairton Road, Jefferson Borough, Pennsylvania, and also at the EPA Region III office. The notice of availability for these documents was published in the McKeesport Daily News on April 22, 1995. A public comment period was held from April 22, 1995, through May 22, 1995. This comment period was extended to June 22, 1995 as a result of an extension request by a private citizen. Additionally, a public meeting was held on May 10, 1995, at the Jefferson Borough Municipal Building. At this meeting, representatives from EPA answered questions about the Site and the remedial alternatives under consideration for OU2. Response to the comments received during this period are included in the Responsiveness Summary, which is part of this Record of Decision. This decision document presents the selected remedial action for the Site chosen in accordance with CERCLA and the NCP. The decision for this Site is based on the Administrative Record file.

D. Scope and Role of Operable Units

EPA has chosen to categorize the Site into two operable units.

Operable Unit One

Operable Unit One (OU1), authorized by a ROD signed on June 29, 1991, addressed remediation of the waste material in the landfill, the adjacent contaminated soils and non-aqueous floating product present in the subsurface Pittsburgh Coal nine voids. The remedy for OU1 included replacing the onsite oil/water separator with an upgraded model. The oil/water separator replacement has been completed at this time. Other important components of the remedy for OU1 are installation of a multilayer cap for the landfill, upgrading of the lower landfill dike to increase its stability, installation of drainage controls around the landfill, installation of a skimmer well network, installation of additional fencing around the Site, and placing deed restrictions on the Site's property. The remedial design for the remaining portions of the OU1 remedy is still under review by EPA and PADEP. The Remedial Design will be finalized soon, and the Remedial Action will begin following EPA approval of the final Remedial Design. All the remaining portions of the OU1 remedy will be completed in approximately 8-12 months.

Operable Unit Two

Operable Unit Two (OU2) addresses any ground water remediation required for the ground water beneath, or in the vicinity, of the Site. OU2 includes the ground water in the Pittsburgh Coal mine voids as well as the deeper bedrock formation. This portion of the Site was not addressed in the ROD for OU1. Additional information about the ground water at the Site was obtained in the focused Remedial Investigation for OU2.

E. Site Characteristics

The Site is located on a 26-acre parcel of land of which the landfill itself covers approximately 2-acres and is located on a former coal strip mine at the head of a narrow valley. The landfill is located in the middle of the Site property. The unnamed stream, which originates onsite, runs through the Site from the northeast and flows downslope to the southeast, ultimately discharging into the Monongahela River

approximately 1/2-mile from the Site boundary. No parks, recreation areas, wildlife refuges, historic and/or archeological sites, or wild and scenic rivers are located on or adjacent to the Site. No endangered species of plants or animals were found to exist onsite.

Major sources of ground water in the area are alluvial valley fill aquifers in the large river valleys; however, ground water within the Site area is limited to storage in fractured bedrock, the Pittsburgh Coal mine voids, and as perched ground water in the unconsolidated soils just downhill from the landfill. Ground water yield is low in the bedrock due to the generally unfractured condition of the deep bedrock beneath the Site. At lower altitudes in the surrounding neighborhood, which is about a mile or more downgradient of the Site, there are areas of fractured bedrock where sufficient ground water is present in the deep bedrock aquifer to provide a drinking water source.

Although the coal seam also contains ground water, it is not likely to be used as a potable source because of its undesirable properties, such as the high concentrations of iron, aluminum, manganese and chromium. This ground water also contains high levels of sulphur compounds, and dissolved solids. The proximity of public water lines also reduces the chance of anyone using the coal seam water as a drinking supply in the foreseeable future. The flow of ground water in the unconsolidated soils downgradient from the Site generally parallels the surface topography. The direction of ground water flow is to the west from the Site. Properties east of the Site are considered upgradient. Ground water beneath the Site flows away from, and not towards, an upgradient property. Although the communities surrounding the Site are connected to a public water supply, some homes still use wells for their water supply. These wells are located in the deep bedrock aquifer. No residents currently drink the ground water from the Pittsburgh Coal formation.

F. Nature and Extent of Contamination

Hercules submitted the Focused Remedial Investigation (FRI) report to EPA for OU2 in August 1994. The investigation was considered focused in that only the ground water aspects of the Site were studied. The FRI report presented the results and interpretation of an infiltration evaluation, an ecological habitat assessment, ground water monitoring well sampling, seep sampling, and residential well sampling done to further characterize the extent of OU2 contamination. A total of 11 monitoring wells, eight residential wells, and nine seeps were sampled as part of this FRI. Benzene was present in TW-14, an onsite monitoring well, at a level above the Safe Drinking Water Act federal maximum contaminant level (MCL) of 5 parts per billion. There were no contaminants above any MCL in any of the offsite monitoring wells.

The levels of contamination in the onsite monitoring wells were significantly lower in the OU2 sampling than in the same wells during the OU1 sampling. This decrease in contamination levels, which was generally about a 20% decrease from OU1 sampling to OU2 sampling, suggests that natural attenuation of site-related organic constituents in the ground water within the Pittsburgh Coal mine voids may be occurring through various mechanisms. These mechanisms include adsorption of organic compounds within the saturated coal, natural biodegradation, and even volatilization in the mine voids.

During the OU2 sampling, no site-related contaminants were found in any of the downgradient seep water samples. Ground water from the onsite underground mines discharges at seeps at the outcrop of the Pittsburgh Coal above Lobbs Run (see Figure 1). There is no current impact of the leachate from the landfill to the seeps. The deep bedrock below the Pittsburgh Coal seam is used as a drinking water supply by residents located about one mile downgradient of the Site. The residential wells are even further downgradient than the Lobbs Run seeps and draw water from the bedrock rather than the coal seam. No site-related compounds have ever been detected in any of the residential wells near the Site.

On the basis of the results from the FRI, the EPA prepared a draft risk assessment (RA) in August 1994 to evaluate human-health risks associated with potential exposure to OU2 contamination. A Final RA was prepared by EPA in December, 1994 after incorporating comments on the Draft RA by PADER and Hercules. By using information from the FRI and the RA, Hercules prepared a Focused Feasibility Study (FFS) describing a number of alternatives and their benefits and costs.

The primary contaminants of concern are organic compounds which comprise approximately 5% of the waste volume and include: benzene, naphthalene, toluene, and total xylenes. The remainder of the landfill waste consists mainly of water, clay, lime, zinc salts, and other solids. The wastes in the landfill are presently covered by four to ten feet of native soils. The waste cannot be seen or touched from the ground surface because of this soil cover.

II. SUMMARY OF SITE RISKS

In this focused risk assessment, the hazards posed by chemicals detected during the Remedial Investigation (RI) for OU2 were evaluated. The OU2 RI was designed to characterize the impact, if any, of the Site on the ground water, as well as nearby seeps and streams. Site samples were analyzed for

volatile and semi-volatile organic chemicals. Metals have not been included in the risk assessment because of a determination made during OU1 that inorganics did not appear to be site-related. However, a background well (TW-12) in the Pittsburgh Coal formation had levels of metals exceeding drinking water standards, including the maximum contaminant level (MCL) for chromium and secondary maximum contaminant levels (SMCL) for aluminum, iron and manganese. Although these high levels of metals are not site-related, they are characteristic of ground water in coal seams. The ground water obtained in this background well is from a mined-out section of Pittsburgh Coal and is an area affects by acid mine drainage. Ground water in coal seams is considered less desirable than other aquifers because it typically contains naturally high levels of dissolved solids, metals and sulfur compounds.

Sediment, ground water and surface water was considered the media of potential concern with regard to quantitative risk assessment. All three of these media were previously sampled and assessed in the OU1 risk assessment. Potential risks may exist when there are hazardous chemicals present in a media, such as the ground water, and receptors which may have access to those chemicals through an exposure pathway.

Contaminants of Potential Concern

The data from the RI were examined in order to determine chemicals of potential concern (COPCs). COPCs are defined as those substances that are potentially site-related and whose data are of sufficient quality for use in the risk assessment. The following substances were considered COPCs for OU2 at this Site:

- Benzene
- Benzoic(a)pyrene
- Ethylbenzene
- 2-methylnaphthalene
- 4-methylphenol
- Naphthalene
- Toluene
- Xylenes

The concentrations of the COPCs used for the risk assessment were the maximum positive concentration for each contaminant or the 95% upper confidence limit on the mean (average concentration) for log-normal distributions, whichever was lower. The actual concentration used in the risk assessment for each COPC is shown in Table 1.

Exposure Assessment

The Resin Disposal Site was evaluated with respect to physical characteristics, current and future land and water uses, and exposed populations to identify potential exposure pathways. Several factors determine what receptors may be exposed to the chemicals of concern at a particular site. At this Site, the decision was made to use the most conservative receptor, a future resident who spends some years of both childhood and adulthood in the area, for exposure scenarios. For a Site in a residential area, it is expected that residents could be exposed to surface water, sediments and residential well ground water. The site-related chemicals in the surface water and sediments were of sufficiently low concentrations that they were not expected to be associated with any adverse human health effects. No site-related compounds at all were found in any of the eight residential wells sampled. Ground water as measured by monitoring wells was also treated as a potential source of exposure in the risk assessment. The risk assessment assumed that potable wells would be drilled in the Pittsburgh Coal formation in the future. This is an important assumption because a future resident who is connected to the public water supply is not exposed to the ground water in this manner.

Table 1

Summary of Representative Concentrations of
Contaminants of Potential Concern (COPCs)
Resin Disposal OU2

Ground Water Monitoring Wells

Chemical	Concentration (MG/L)	Rationale
Benzene	0.0152	UCL
Ethylbenzene	0.134	UCL
Naphthalene	6.0	MAX
2-methylnaphthalene	0.72	MAX
4-methylphenol	0.172	UCL
Toluene	0.063	UCL
Xylenes	4.4	MAX

Seep Sediment - Seep #10

Chemical	Concentration (MG/KG)	Rationale
Benzo(a)pyrene	0.33	MAX

UCL - The 95% Upper Confidence Limit on the mean or average concentration for log-normal distributions.

MAX - The maximum positive concentration (MAX) was used in the Risk Assessment for small sample sizes or where UCL > MAX.

Toxicity Assessment

The relationship between the extent of exposure to a contaminant and the potential for adverse effects was evaluated during the toxicity assessment process. Cancer potency factors (CPFs) also known as slope factors, were identified for potential carcinogenic contaminants, and reference doses (RfDs) were identified for chemicals exhibiting noncarcinogenic effects. The RfDs, which are expressed in units of mg/kg/day, are estimates of lifetime daily exposure levels for humans, including sensitive individuals, at which no adverse health effects are noted. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared to the RfD. The RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied (e.g., to account for the use of animal data to predict effects on humans). These uncertainty factors help ensure that the RfDs will not under-estimate the potential for adverse noncarcinogenic effects to occur in humans.

Excess lifetime cancer risks for the Site were determined by multiplying the daily intake of chemicals from environmental media by the CPFs. These risks are probabilities expressed in scientific notation (i.e., 1E-6). An excess lifetime cancer risk of 1E-6 indicates that an individual has a one in a million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime. The U.S. EPA recommended upper bound for lifetime cancer risks is between 1E-4 and 1E-6.

Risk Characterization

The most significant exposure pathway, in terms of impacting human health, was to a future resident via ingestion of contaminated ground water. The total cancer risk at the Site was approximately 2E-5, which is based on a future resident drinking the water from a contaminated onsite well. The risk assessment for OU1, which was done in 1991, included an analysis for this same exposure scenario, and at that the the total cancer risk was 7E-4. This cancer risk is due primarily to the elevated levels of benzene present in ground water in the onsite monitoring wells. Benzene was present in TW-14, an onsite monitoring well, at a level above the Safe Drinking Water Act federal maximum contaminant level (MCL) of 5 parts per billion. There ware no contaminants above any MCL in any of the offsite monitoring wells.

Potential concern for noncarcinogenic effects of a single contaminant in a single medium is expressed as the hazard quotient (HQ) (i.e., the ratio of the estimated intake derived from the contaminant concentration in a given medium to the contaminant's reference dose). The HQs for all contaminants in a medium are added to obtain the Hazard Index (HI). The HI provides a reference point for gauging the significance of multiple contaminant exposures within a single medium or across media. A HI less than or equal to 1 indicates that there is no significant risk of adverse health effects. For potential future residents exposed to the representative concentrations of the COPCs in the monitoring wells, the HI for an adult was calculated to be 14 and the HI for a child was 31. This HI is primarily caused by the naphthalene and methylnaphthalene in the monitoring wells. In the risk assessment for OU1, the HI calculations for both a child and an adult were over 300. The non-carcinogenic effects of the Site have dropped by an order of magnitude since the initial Risk Assessment.

There is no apparent risk of noncarcinogenic health effects posed to the trespasser or to the current residents in the neighborhood. The total chronic and short-term hazard indices that were calculated for these potential receptors were less than one. Although it is currently not used at a potable source, the non-cancer health risk is based on potential future use of the water from the Pittsburgh coal seam, which could be from a future resident drilling a new well in the immediate vicinity of the Site. Although this scenario is theoretically possible, it is extremely unlikely because the water in the mines is acid mine drainage and is generally of poor quality (low pH with high dissolved metals and sulphur).

Residential wells and seep surface water were not expected to be associated with adverse health impacts, based on the results of the OU2 sampling. Risks for OU2 ground water were much lower than in the OU1 RI mostly due to significantly lower chemical concentrations in OU2 monitoring. For example, the cancer risk at the time of the OU1 ROD was calculated to be 7E-4, which is significantly higher than the 2E-5 calculated from the OU2 sampling. Existing residential wells and seep surface water did not contain any COPCs and therefore were not associated with any adverse human health effects.

III. DESCRIPTION OF ALTERNATIVES

A number of remedial alternatives were developed with the goal of further reducing the risk to human health and the environment from the Site. The following sections briefly summarize each of these alternatives. The time to implement each alternative is the time of actual remediation, it does not include the time required to design the remedy.

In the FFS for OU2 at this Site, a screening of engineering technologies applicable to remediating the contaminated media was completed. A full range of remedial technologies and corresponding process

options were identified in be FFS. The technologies were screened according to their effectiveness and implementability. Those technologies determined to be most applicable were then developed into the three remedial alternatives described below.

The following remedial alternatives are numbered to correspond to the alternatives in the FS report:

Alternative 1: No Action
Alternative 2: No Further Action With Offsite Monitoring
Alternative 3: Ground Water Extraction & Treatment

The Capital Cost of each alternative is listed, along with the annual Operation and Maintenance (O & M) Cost, the total Present Worth and the number of months it would take to implement the alternative.

Alternative 1: No Action

Capital Cost: $0
Annual O & M: $0
Present Worth: $0
Months to Implement: 0

The NCP regulations require that the "no action" alternative be evaluated at every NPL site to establish a baseline for comparison. Under this alternative, EPA would take no further action, other than the actions which are part of the OU1 source control remedy, to prevent exposure to the contaminated onsite ground water or to reduce risk at the Site. EPA would review the site every five years to assure continued protection of human health and the environment.

Alternative 2: No Further Action With Offsite Monitoring

Capital Cost: $ 30,000
Annual O & M: $ 10,000
Present Worth: $308,000
Months to Implement: 3 months

This alternative would involve no further remedial action. for the ground water at the Site, other than monitoring the offsite ground water on a quarterly basis for the next three years, and semi-annually for the balance of thirty years. Offsite monitoring walls, seeps and nearby residential wells would be sampled as part of this long-term monitoring program. Monitoring of the bedrock aquifer near the downgradient residential wells will be required, and this monitoring may include installation of new bedrock wells. An offsite monitoring work plan will be developed which will describe the exact monitoring points to be included in the offsite monitoring program. This offsite monitoring is in addition to the onsite monitoring which is a component of the OU1 remedy. EPA would analyze all of this monitoring data every five years to assure continued protection of human health and the environment.

Alternative 3: Ground Water Extraction & Treatment

Capital Cost: $3,900,000
Annual O & M: $594,000
Present Worth: $13,032,000
Months to Implement: 24 to 36 months

Under this alternative, two lines of closely spaced recovery wells would be installed downgradient of the landfill. The ground water extraction wells would be constructed in the Pittsburgh Coal water-bearing zone. These two lines of ground water extraction wells would be located to intercept dissolved-phase ground water contaminants at the Site property boundary and to mitigate offsite contaminant migration. The combined ground water flow rate from the two rows of extraction wells is
estimated to be in the range of 50 to 100 gallons per minute, and would probably vary on a seasonal basis. Ground water extracted from the recovery wells will be conveyed via transmission lines to a treatment system. The treated effluent would be discharged to the unnamed stream that runs across a portion of the Site. An effluent sampling and flow monitoring station would be provided for the treated effluent discharge.

IV. COMPARATIVE ANALYSIS OF ALTERNATIVES

The EPA evaluated each of the remedial alternatives developed for the Site with respect to the nine criteria set forth in the NCP. The following sections present a brief discussion of each of the evaluation criteria and a comparative analysis of each of the remedial alternatives based on the nine evaluation criteria.

The Superfund statute, and the implementing regulations, found in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Section 300, require that the alternative chosen to clean up a hazardous waste site meet several criteria. The alternative must protect human health and the environment, be cost effective, and meet the requirements of environmental regulations. Permanent solutions to contamination problems should be developed, whenever possible. These solutions should reduce the volume, toxicity, or mobility of the contaminants wherever practicable. Emphasis is also placed on treating the wastes at the Site, whenever this is possible, and on applying innovative technologies to clean up the contaminants.

Based on current information, the EPA anticipates that Alternative 2 will be protective of human health and the environment. EPA believes that the Preferred Alternative provides the best balance of trade-offs among the alternatives with respect to the nine criteria (See Table 2) that EPA uses to evaluate alternatives. This section profiles the performance of the Preferred Alternative against the nine criteria noting how it compares to the other remedial alternatives under consideration.

Overall Protection of Human Health and the Environment

This criterion addresses whether a remedial alternative will adequately protect human health and the environment. The evaluation criteria should consider: the reduction of risk; any unacceptable impacts; control of hazards (i.e., toxicity, mobility); and minimization of short-term impacts.

Under Alternative 1, the overall protection of human health and the environment may not be achieved at some time in the future. The RA showed no risks associated with current use of the Site. The deed restrictions, which are part of the OU1 remedy, will prevent future residential use of the Site. There is concern that the onsite ground water contamination could move offsite at some point in the future and subsequently contaminate a nearby residential well. Alternative 2 provides an additional level of control because the monitoring will provide offsite sampling data in future years. Alternative 2 provides for greater overall protection of human health and the environment than Alternative 1 because the monitoring program will detect any offsite ground water problem, if one ever develops, before the contamination reaches a residential well. Alternative 3 has the added protection provided by actively pumping the onsite ground water and treating it at the surface. In comparing Alternatives 2 and 3, the additional cost of Alternative 3 is substantial, approximately $13 million, and the additional protection provided by pumping and treating the ground water is minimal. The aquifer is not used presently as a drinking water source, nor is it likely to be used in the future in that manner. Alternative 2
provides good overall protection of human health and the environment at a low cost.

Compliance With ARARS

This criterion addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) set forth by State and Federal environmental laws and/or provide grounds for invoking a waiver. Three categories of ARARs are considered: chemical specific, action specific and location specific. All three of the alternatives would meet all of the ARARs identified in the Focused Feasibility Study for that particular alternative.

There are several significant ARARs which are applicable or relevant and appropriate only to Alternative 3 because it is the only alternative that involves treatment of contaminated ground water. The treated ground water would have to meet all the appropriate cleanup standards in the Clean Water Act and the Pennsylvania Clean Streams Act before it could be discharged to a receiving stream. These are chemical-specific ARARs, and the standards would be difficult to achieve at this Site. The Pittsburgh Coal has naturally high levels of chromium, aluminum, iron and manganese. For example, a background well in the Pittsburgh Coal formation exceeded the MCL for chromium by an order of magnitude. All of these individual standards must be met by the treatment system whether the contaminant is site-related or naturally occurring.

Table 2

ALTERNATIVE EVALUATION CRITERIA

Overall Protection of Human Health and Environment - Addresses whether a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.

Compliance with ARARs - Refers to whether a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) of federal and state environmental statutes and/or provides grounds for invoking a waiver.

Long-term Effectiveness and Permanence - The ability of a remedy to maintain reliable protection of human health and the environment over time, once the cleanup standards have been met.

Reduction of Toxicity, Mobility, or Volume through Treatment - Relates to the anticipated performance of the treatment technologies with respect to these criteria.

Short-term Effectiveness - Refers to the period of time needed to achieve protection, and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup standards are achieved.

Implementability - The technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

Cost - The following costs are evaluated for each alternative: estimated capital, operation and maintenance and net present worth.

Support Agency Acceptance - This indicates whether, bases on its review of the RI/FS and the Proposed Plan, the State concurs with, opposes, or has no comment on the selected alternative.

Community Acceptance - is described in the Responsiveness Summary section of the ROD following a review of the public meeting transcript and the public comments received during the public comment period.

The Commonwealth has identified The Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. 4, No. 1995-2, 35 P.S. §§ 6026.101 et seq., ("the Act") as an ARAR in this case. However, EPA has reviewed the Act and concluded that the Act in not an ARAR in the present case. EPA will make an independent review of the ARAR when it is identified by PADEP in the future in connection with the selection of remedies for other sites and operable units.

Short-term Effectiveness

This criterion refers to the length of time required to achieve protection of human health and the environment, and to prevent any adverse impacts posed during the implementation of the remedial alternative. Alternatives 1 and 2 do not involve construction or implementation of further remedial activities atthe Site, so no short term adverse impacts will be created by either of these alternatives. Alternative 2 could be easily implemented, and requires only minor sampling activities that can be done in a short period of time. Adding new offsite monitoring wells to the monitoring program is also a possibility. Alternative 2 has good short-term effectiveness because it can be done so rapidly. Alternative 3 has the least short-term effectiveness of all the alternatives. Installation of the extraction well network would involve earth disturbance, extensive excavation, and tree clearing for the pilot boring programs. This construction would have a negative impact in residential areas, mainly because of the additional truck traffic. The treatment system would also be difficult to install.

Long-Term Effectiveness and Permanence

This criterion refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once the cleanup standards have been met. Under Alternative 1, changes in ground water quality over time would result from natural processes (sorption, weathering, biodegradation) as well as from the remedial action performed for OU1 (landfill capping, drainage controls, etc.). Alternative 2 would involve periodic sampling over a 30-year period. Any changes in concentration over time would be detected, and trends in the data could be analyzed. In Alternative 3, the lines of capture wells could probably achieve some interception and recovery of contaminants in the Pittsburgh Coal seam.

Reduction of Toxicity, Mobility and Volume

This criterion addresses the statutory preference for selecting a remedial alternative that permanently reduces the toxicity, mobility, or volume of the hazardous waste through treatment. The Remedial Action for OU1 will have a greater impact on the reduction of toxicity, mobility and volume of waste than any of the three alternatives described in the FFS for OU2. The OU1 activities will reduce landfill seepage volume, and mobility, and will also reduce downgradient contaminant levels. Alternative 3 does involve ground water treatment which should slightly reduce the mobility and volume of contaminants in the Pittsburgh Coal ground water. Due to the inherent high levels of inorganics, such as chromium or iron, in this ground water, restoration of this water to bring it up to public water standards would be difficult and expensive.

Implementability

This criterion describes the technical and administrative feasibility of a remedial alternative, including the availability of materials and services needed to implement the selected solution. All three alternatives involve proven, readily implementable technologies: however, Alternative 3 would involve more construction and operation concerns than either Alternative 1 or Alternative 2. Alternative 3 involves a boring well location program followed by installation of numerous extraction wells. Hydraulic capacity of the unnamed stream to handle treated water would have to be carefully evaluated in the design of the water treatment system. Alternative 3 would be the most difficult alternative to implement.

Costs

This criterion addresses the capital cost for materials, equipment, etc. and the operation and maintenance (O&M) costs. Assuming a net present worth (NPW) including 30 years of O&M costs. Alternative 3 is by far the most expensive option with a present net worth of approximately $13,000,000. Alternative 2 is much less expensive, because sampling is relatively inexpensive in comparison to treatment. Alternative 1 has absolutely no cost.

Support Agency Acceptance

This criterion indicates whether, based on its review of the Remedial Investigation (RI), Feasibility Study (FS), and the Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative. PADEP has concurred with the selection of Alternative 2 for Operable Unit #2 at this Site. The concurrence letter from PADEP is attached. The State also concurred with the remedy selection for Operable Unit #1 in June, 1991.

Community Acceptance

This criterion assesses the public comments received on the RI, FS, and the Proposed Plan. Community interest is moderate at the Site. A public meeting was held on May 10, 1995, at the Jefferson Borough Municipal Building. This meeting was attended by about fifty people and public involvement was good. There were numerous questions about the various aspects of the remedy for OU1, particularly about the operation of the oil/water separator. The public did have some questions and comments about the ground water at the Site. Some members of the community are in favor of Alternative 3, and feel that the high cost of the treatment alternative is warranted. Several of these individuals felt that a treatment remedy like Alternative 3 could be completed for much less than the $13 million cost calculated in the Feasibility Study and described in the Proposed Plan. Most of the citizens at the meeting were quite satisfied with Alternative 2, and felt it was the appropriate remedy for OU2. The Responsiveness Summary addresses specific comments received during the public comment period.

V. DESCRIPTION OF THE SELECTED REMEDY

The selected remedy requires periodic monitoring of the offsite ground water in the vicinity of the Site. This monitoring program will include sampling offsite monitoring wells, seeps and downgradient residential wells. The monitoring will occur on a quarterly basis for the first three years, and semi-annually for the balance of thirty years. The ingestion of water from a new well drilled into the Pittsburgh Coal seam is considered unlikely, because a public water supply is readily available to residents in the area surrounding the Site. A future well in the deeper bedrock aquifer in the vicinity of the Site is also unlikely because the bedrock in this area is dry. Periodic monitoring meets the evaluation criteria of protecting human health and the environment. Additionally, the source control measures undertaken to address OU1 is likely to reduce the contamination in the OU2 ground water, and even further reduce the site-related risks in the future.

In accordance with CERCLA § 121(d), EPA will review the Site in five years to ensure that changes have not occurred that would pose a risk to human health or the environment. During those five years, a ground water monitoring program will be implemented and sampling data will be periodically collected and analyzed. All the data collected during the ground water monitoring program will be evaluated by EPA to make certain that human health and the environment are being adequately protected by the selected remedy. If the offsite ground water monitoring program reveals levels of contamination above the MCL for any COPC then EPA, in consultation with PADEP, may amend the ROD or issue an Explanation of Significant Differences (ESD) in accordance with the NCP.

VI. STATUTORY DETERMINATIONS

The EPA's primary responsibility at Superfund sites is to implement remedial actions that are protective of human health and the environment. Section 121 of CERCLA, 42 U.S.C. § 9621, also establishes several other statutory requirements and preferences. The selected remedy must be cost effective and utilize a permanent solution to the maximum extent practicable. The selected remedial action must comply with all applicable or relevant and appropriate requirements set forth by State and Federal environmental statutes and regulations, unless a waiver is justified. Finally, CERCLA sets forth a statutory preference for remedial actions that permanently reduce the toxicity, mobility, and volume of the site-related wastes. The following sections discuss how the selected remedy meets the statutory requirements and preferences set forth in Section 121 of CERCLA.

Protection of Human Health and the Environment

The risk assessment identified future exposure to contaminated ground water as the most significant exposure pathway in terms of its potential impact on human health. There are no significant health threats to residents presently living near the Site. The offsite monitoring will insure that the Site does not ever present a health risk to future residents even if they decide to drill a private well on a nearby property. Additionally, implementation of this alternative is not expected to result in any adverse short-term risks or cross-media impacts.

Compliance With Applicable or Relevant and Appropriate Requirements

The selected remedial action will comply with all ARARs. The ARARs specific to the selected remedy are presented below. Except where specifically noted, the site specific limitation to the following ARARs will be identified in the remedial design phase.

! Chemical-specific ARARs:

Safe Drinking Water Act - National Primary Drinking Water Standards (40 CFR Part 141). Federal Standards for several chemicals including the MCLs, adopted to protect public drinking water systems. MCLs

are enforceable, health-based drinking water standards established under the Safe Drinking Water Act. These chemical-specific standards are relevant and appropriate for the ground water monitoring program at this Site. For example, benzene is a COPC for this operable unit and it has an MCL of 5 parts per billion. Standards, such as the MCL for benzene, will be considered and used in characterizing human held risks associated with possible contaminated ground water for public consumption.

PA Safe Drinking Water Act (35 PS 722.1-721.17 & 25 PA Code Chapter 109) - State act which established drinking water standards at least as stringent as Federal Standards. These chemical-specific standards are relevant and appropriate for the ground water monitoring at this Site. These standards will be considered and used in characterizing human health risks associated with possible contaminated ground water for public consumption.

! Location-specific ARARs:

None

! Action-specific ARARs:

None

Cost Effectiveness

The selected remedy is cost effective and has been determined to be the best balance between cost and protection of human health, welfare and the environment. The selected remedy has excellent short-term effectiveness proportional to its cost. The estimated capital cost for this alternative is $30,000, with a net present worth cost including 30 years of operation and maintenance of $308,000. The selected remedy provides a level of protection of human health comparable to that provided by the other remedies, but at a significantly reduced cost. Although Alternative 3 may possibly be more effective in the long-term, the site-related risks are so low that they do not justify the additional capital expenditure.

Utilization of Permanent Solutions to the Maximum Extent Practicable

The EPA has determined that the selected remedy represents the maximum extent to which permanent treatment technologies can be utilized in a cost effective manner for the Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, the EPA has determined that the selected remedy provides the best balance in terms of short-term effectiveness; implementability; cost; reduction in toxicity, mobility, and volume; and long-term effectiveness.

The selected remedy does not offer as high a degree of long-term effectiveness as Alternative 3, the pump and treat alternative; however it does have good long-term effectiveness. The excess human cancer risk at the Site has been estimated to be approximately 2 in 100,000 (based on maximum plausible exposure concentrations) for future resident. Current residents are not at risk of exposure to carcinogenic substances. The Site has a relatively high volume (85,000 tons) of low toxicity waste. Due to the relatively low risk associated with the Site, EPA has determined that the use of more costly treatment technologies at the Site are not justifiable.

Documentation of Significant Changes

The preferred alternative originally identified in the Proposed Plan is also the preferred alternative selected in the ROD. There have been no significant changes made to the selected remedy in the time period between the issuance of the Proposed Plan on April 22, 1995 and the signing of the ROD approximately five months later.

RESPONSIVENESS SUMMARY
RESIN DISPOSAL SITE
UNIT #2
JEFFERSON BOROUGH
ALLEGHENY COUNTY, PENNSYLVANIA
JULY, 1995

The EPA established a public comment period from April 22, 1995 to May 22, 1995 on the Remedial Investigation and Feasibility Study (RI/FS), the Proposed Plan which described EPA's preferred alternative and other site-related information for Operable Unit #2 at the Resin Disposal Site in Jefferson Borough, Pennsylvania. This public comment period was extended to June 22, 1995 at the request of a private citizen. The RI/FS and other site-related documents utilized by the EPA to select a preferred alternative are included in the Site's administrative record file and have been available to the public since the beginning of the public comment period. A public meeting was held on May 10, 1995 and approximately 50 people were in attendance. A total of five written comments were also received during the public comment period.

The purpose of this Responsiveness Summary is to summarize significant comments and new data received during the public meeting or in writing, and to provide EPA'S responses to the comments.

This responsiveness summary is divided into the following sections:

Section I Overview: A discussion of the public response to the preferred alternative.

Section II Background of Community Involvement and Concerns: A discussion of the history of community interest and concerns raised during remedial planning activities at the Resin Disposal Site.

Section III Summary of Significant Comments Received During the Public Comment Period and Agency Responses. A summary of comments and responses categorized by topic.

I. Overview:

Comments received from the public suggest that area residents do not object to the selected alternative. In general, the residents are concerned that having a Superfund site in their neighborhood may be having a negative impact on their property values. In addition, there is some concern that hazardous substances are being left in place, and may pose a health threat at some time in the future. EPA has included periodic sampling of offsite ground water in the selected alternative to address this concern.

II. Background of Community Involvement and Concerns:

A public meeting to discuss the RI/FS Work Plan for Operable Unit #1 (OU1) on August 5, 1987 in the old Jefferson Borough Municipal Building. PADER and EPA personnel were both present at the meeting but public interest was low. The RI/FS for OU1 began in November, 1987 after Hercules signed a Consent Order with PADER to do the work. At the end of that RI/FS, a public meeting was held on May 6, 1991 at the new Jefferson Borough Municipal Building to discuss the preferred alternative for OU1. Approximately 30 people were in attendance and they did express some concerns about the possible human health impacts of the Site.

III. Summary of Major Comments Received During the Public Comment Period and Agency Responses:

1. Extension of the Public Comment Period

A citizen asked at the public meeting and also in writing for an extension of the public comment period for an additional thirty days.

EPA Response: This request was granted, and the public comment period was extended to June 22, 1995.

2. Moving the Administrative Record File

The same citizen also requested at the public meeting that the Administrative Record File be moved to the public library located within the Jefferson Borough Municipal Building. The citizen explained that the public library is open for longer hours than the other offices located within the Municipal Building.

EPA Responses: This request was granted. The Administrative Record was moved on May 11th, the day after the public meeting. This transfer was also mentioned in the newspaper advertisement describing the extension of the public comment period.

3. Direction of Ground Water Flow

Several citizens were concerned about property upgradient, or east, of the Site property, and whether it was in any way impacted by the ground water flowing beneath the Site. There was also some confusion about which direction was considered downgradient from the Site.

EPA Response: Ground water flow in the Pittsburgh Coal formation is to the west in the vicinity of the Site. Thus the ground water at the Site flows away from and not towards a property east of the Site. In the vicinity of the Site, the Pittsburgh Coal formation dips towards the southwest. Ground water flow in the Pittsburgh Coal generally follows the dip of the coal formation. During the RI for OU1, a monitoring well (TW-15) was constructed east, or upgradient, of the Site. Analysis of the samples collected from that location show no site-related contaminants of any kind. A property east of the Site is not in any way impacted by the ground water beneath the Site.

4. Ground Water in the Pittsburgh Coal Mine Voids

A concern was raised by PADER about the lateral flow of ground water in the Pittsburgh Coal Mine voids since the voids are a potential source of offsite contaminant migration.

EPA Response: The landfill is located at the head of a valley and the majority of the landfill perimeter is surrounded by a higher topography. The landfill acts as a catch basin to collect surface water and rainfall from the valley. It is clear that surface water and rainfall infiltration are significant contributors to flow into and through the landfill, and hence a significant contributor to leachate generation and contaminant migration. Both of these pathways will be eliminated by components of the OU1 remedy.

Swale improvements around of the perimeter of the landfill were done in March, 1994 in order to reduce surface water runon. These swales are shallow trenches dug into the hillside which prevented water from running down the hill and on to the landfill from higher elevations. Prior to those improvements, the Site was yielding approximately 41,000 gallons of flow through the oil/water separator for each inch of rainfall. Following the swale improvements, the amount collected at the oil/water separator was reduced to 23,000 gallons per inch of rainfall. This is a 40% reduction merely by improving the swale system around the perimeter of the Site. These data clearly support the conclusion that flow from the landfill is greatly affected by vertical infiltration. The landfill cap and the infiltration controls, which are components of the OU1 remedy, will further reduce both the amount of vertical infiltration and the leachate generated by the landfill. The amount of leachate collected at the oil/water separator will be significantly lower after the Remedial Action for OU1 is completed.

The lateral flow of ground water from the Pittsburgh Coal through the landfill is not a significant contributor to offsite contaminant migration. The water in the Lobbs Run seeps, which was sampled as part of the OU2 RI, does not contain site-related contaminants. These seeps are where the Pittsburgh Coal ground water reaches the surface immediately downgradient of the Site. If the Pittsburgh Coal ground water was contributing to offsite contaminant migration, these seep water samples would have to show site-related contamination.

5. Effectiveness of the Pump and Treat Alternative at this Site

A question was raised about the effectiveness of pumping and treating contaminated ground water in an area that has been heavily mined.

EPA Response: A water treatment alternative, such as Alternative 3, would be difficult to install and operate in a complex hydrogeological setting, such as the Pittsburgh Coal formation at this Site. It would be difficult to install recovery wells, and the overall effectiveness of such a system would be questionable. High levels of iron, manganese, aluminum and chromium are present in the upgradient background wells in the Pittsburgh Coal formation. Due to the inherent contamination in the Pittsburgh Coal from past mining activities, restoration of this water quality to potable quality would probably never occur.

6. The Trigger for a Remedial Cleanup.

A comment was submitted by PADEP which raised a concern about the excess cancer risk at this Site, and felt it was enough to warrant a cleanup. The excess lifetime cancer risk of a future resident was estimated in the OU2 Risk Assessment to be 2E-5, which corresponds to 2 excess cancers in a population of 100,000 people.

EPA Response: The potential future risk for using the ground water is 2E-5. This falls within the range that EPA generally considers acceptable for cancer risk, 1E-6 to 1E-4. Additionally, this potential risk is expected to be further reduced over time, after the OU1 remedy is in place, and natural attenuation of chemicals in the ground water occurs. Most importantly, no one is being exposed to this ground water at the

present time nor for the foreseeable future.

The level of cancer risk necessary to trigger action is 1E-4. A risk of this level or greater is enough to trigger a remedial action at a Site. A remedial action which is so triggered can require a cleanup to reduce risks to the 1E-6 level of cancer depending on the Site. Thus a cleanup can continue until the 1E-6 risk level is reached. The cleanup may end however when an MCL is reached, which for some chemicals is a 1E-5 risk level. A cleanup in an industrial setting may end when the 1E-4 risk level is reached.

7. Performance of the Long-Term Monitoring

PADEP commented about whether EPA or Hercules, the potentially responsible party, would actually be doing the long-term monitoring for OU2.

EPA Response: EPA will negotiate with Hercules concerning the long-term monitoring of the offsite ground water. If Hercules is unable or unwilling to perform the remedy, then EPA can issue a unilateral order forcing Hercules to do the necessary sampling. If Hercules agrees to perform the sampling for OU2, EPA will oversee the work and take split samples from some of the monitoring locations, and send then to an EPA-approved laboratory for analysis. Hercules has already agreed to do the long-term monitoring for OU1, which includes the onsite monitoring wells. A similar agreement for the OU2 sampling is likely.

8. Benzene in the Onsite Monitoring Wells

PADEP commented on the presence of Benzene (a human carcinogen) in certain onsite monitoring wells, and whether the public is adequately protected from all of the contaminants in the onsite wells.

EPA Response: A deed restriction which prevents using the onsite monitoring wells as a drinking water source is a component of the OU1 remedy. This restriction will be placed on the deed from the property after the OU1 remedial action is completed. The nearest residential well is a long distance away from the contaminated ground water. The waste has been in the ground for about forty years, and the contamination in the onsite monitoring wells has been decreasing for at least the last 10 years. If the ground water contamination was spreading or moving in any direction, it would have reached a distant sampling location, such as one of the residential wells sampled in the OU1 and OU2 RI's, by now. The EPA feels that periodic monitoring itself is an extra safety precaution. It will detect a serious ground water problem, it one ever develops at this Site, long before the contamination gets anywhere close to a drinking water well.

9. Future Residential Well in the Neighborhood

PADEP commented on the possibility of a new well being drilled in the future near the Site.

EPA Response: There is a remote possibility that someone would drill a drinking well in the vicinity of the Site. This is considered highly unlikely, due to the presence of existing water lines, and the undesirability of the Pittsburgh Coal ground water from the standpoint of unreliable yield and poor water quality. No one in that neighborhood has drilled a drinking water well in at least 25 years, and with good reason. The public water supply is readily accessible and is more reliable and far superior in quality to a private well. The bedrock aquifer in the immediate vicinity of the Site yields very little water, and could not be used as a water source. The unconsolidated zone and the coal seam tend to completely run out of water during dry periods. The coal seam water has high levels of metals, dissolved solids and sulphur compounds, mainly because of historical mining. It would be both difficult and expensive for a private citizen to remove all these compounds from a private well.

10. Declining Property Values Near Superfund Sites

A citizen living near the Site asked if living in the general vicinity of a Superfund Site often has a negative impact on property values.

EPA Response: The negative connotation of a Superfund Site can have an impact on property values in its vicinity. People who are looking to buy a house are often frightened away if they hear that a hazardous waste site exists in a particular neighborhood. This may be the situation even after a site cleanup has been completed.

11. Monitoring in All Directions from the Site

A citizen asked about the monitoring in the future and in which direction from the Site the monitoring will occur offsite.

EPA Response: Monitoring locations will be in all directions from the Site. The EPA usually selects the

greatest number of sampling points downgradient from the Site because that is the direction of ground water flow. Monitoring for OU2 will include seeps, offsite monitoring wells and as well as several residential wells. The monitoring program will help determine water quality in this entire area, and the rate of attenuation of ground water contamination in the future.

12. Discharging Effluent Water to WESA

PADEP asked about the possibility of discharging wastewater from the recovery wells in Alternative 3 directly to the West Elizabeth Sanitary Authority (WESA) instead of treating the contaminated ground water and then discharging it to the unnamed stream as described in the Proposed Plan.

EPA Response: Direct discharge of the wastewater to the treatment plant would be difficult for a number of reasons. First, the wastewater would have to be pre-treated because of the high levels of several metals in the water. The West Elizabeth Sanitary Authority is not equipped to handle high levels of metals, and the metals would have to be removed before the water could be discharged to the treatment plant. Second, this pretreatment process would generate a huge quantity of metallic sludge which would be costly to dispose of. Sludges of this kind typically are sent to a hazardous waste treatment facility or a hazardous waste landfill.

Another problem with this approach is that WESA probably could not handle the increased volume. WESA theoretically has the capacity for this additional wastewater if their treatment plant is operating under ideal conditions. However, frequently the plant is operating under less than ideal conditions, and on those occasions the plant could not handle the additional wastewater. Wastewater recently produced during the cleanup of the nearby Elrama Superfund site could not be handled by WESA because of this problem. Fourth, it is questionable whether the sewer pipe leading from the Site to the treatment plant could handle the extra water volume generated from a water treatment system of this kind.

13. Hercules Agreement with the EPA's Remedy Selection

Hercules Inc., the only responsible party at the Site, submitted a written comment in which they stated that they were in agreement with the EPA's selection of Alternative 2. Hercules also described some of the difficulties and limitations of a pump and treat system (Alternative 3). Hercules expressed the opinion that no further action with offsite monitoring is the appropriate choice for the ground water operable unit at this Site.

EPA Response: Hercules performed the RI/FS for operable units #1 & 2. They are in the process of completing the Remedial Design for operable unit #1, and will soon begin the Remedial Action for the remaining components of the source control remedy. Hercules has been involved in the cleanup of the Resin Disposal Site for many years. Their agreement with EPA's selected remedy for the ground water operable unit is an indication that Hercules may be willing to perform the future monitoring of the ground water at the Site.