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Agency

Office of
Emergency and
Remedial Response

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August 1986

EPA

Superfund Record of Decision:

Distler Farm, KY

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

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15. SUPPLEMENTARY NOTES	

16. ABSTRACT

Distler Farm is located in the southwest corner of Jefferson County, KY, approximately one mile northwest of West Point, KY. The property is bordered by U.S. Highway 60/31 W (Dixie Highway) on the northwest; Stump Gap Creek on the southeast; and by cultivated farmland on the northeast and southwest. The site is a three-acre area approximately 1,000 feet from the Ohio River. The site was discovered in early 1977 during the development of an enforcement case against Mr. Donald F. Distler, owner of Kentucky Liquid Recycling, Inc. In an effort to locate sites that Mr. Distler may have used for chemical waste storage or disposal, EPA personnel inspected the site in April 1977. They reported approximately 600 drums of industrial waste stored on the ground surface. In December 1978 the Ohio River and its tributaries flooded, causing drums of industrial wastes from the site to be scattered along the floodplain of the creek. The Governor of Kentucky declared an environmental emergency and Region IV of the EPA supervised recovery and onsite storage of 832 drums containing chemicals characteristic of paint and varnish industry. The drums were later removed by the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC). During the cleanup effort U.S. Army personnel located four drum burial sites. Between January 1979 and April 1984, the EPA conducted various surface water, ground water, soil, sediment, and well studies. These studies confirmed the evidence of soil contamination and ground water contamination (See Attached Sheet)

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Distler Farm, KY Contaminated Media: soils, gw, sediment Key contaminants: metals, inorganics, organics, ketone, radioactive materials, toluene, TCE, PCE		

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EPA/ROD/R04-86/011
Distler Farm

16. ABSTRACT (continued)

at the site. No significant site-related contamination appeared in surface waters, sediments or residential wells outside the property boundaries. Prior to the completion of the RI, contaminated soils was removed from the site and transported to permitted hazardous waste disposal facilities; airborne contaminants also are not a problem. Following the removal operations, the pits were backfilled, and the entire affected area was graded, cultivated, and sown with grass seed to control erosion. Hazardous substances in the form of source materials are not present on the site. Surface storage and burial areas have been confirmed as being contaminated. These areas were considered to be the likely sources of potential future releases of contamination. The primary contaminants of concern include: VOCs, PCE, TCE, ketones, toluene, inorganics, radioactive material, and metals.

The selected remedial action includes: excavation and removal of all contaminated soils and offsite disposal in a hazardous waste landfill; backfill with "clean" natural granular soils, extraction of contaminated groundwater and temporary accumulation and onsite storage; transportation of contaminated groundwater to offsite commercial facility and treatment to background levels; reinjection of uncontaminated water into the aquifer; maintenance of vegetation, erosion repair, and ground water monitoring for a one year period. The capital cost is $11,138,400 with O&M in years 1-10 of $113,600 and $20,000 for years 11-30. The Commonwealth of Kentucky will assume O&M costs one year after the remedy is complete.

RECORD OF DECISION

Remedial Alternative Selection

Site: Distler Farm, Boone, Jefferson County, Kentucky

Documents Reviewed:

- Distler Farm Remedial Investigation
- Distler Farm Feasibility Study
- Summary of Remedial Alternative Selection
- Responsiveness Summary
- Staff Recommendations & Reviews

Description of Selected Remedy:

- Excavate and remove all contaminated soils, dispose in an offsite permitted hazardous waste landfill
- Backfill with "clean" natural granular soils, grade to existing grade and revegetate
- Extract contaminated groundwater, temporarily accumulate and store on site
- Transport contaminated groundwater to offsite commercial facility, treat to background levels
- Reinject uncontaminated water into the aquifer.
- Mow and maintain vegetation and repair any erosion, and monitor groundwater for a period of one year

Declarations

The selected remedy is consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300). I have determined that the excavation and removal of contaminated soils, pumping and treating of contaminated groundwater, and reinjection of clean water alternative at the Distler Farm Site is a cost effective remedy and provides adequate protection of public health, welfare, and the environment. The Commonwealth of Kentucky has been consulted and agrees with the approved remedy. Future operations and maintenance activities, to ensure continued effectiveness of the remedy, will be considered part of the approved action and eligible for Trust Fund monies for a period of one year.

I have also determined that the action being taken is appropriate when balanced against the availability of trust fund monies at other sites.

In addition, the off-site, transport, and secure desposition is more cost effective than other remedial actions and is necessary to protect public health, welfare and the environment.

AUG 19 1986
DATE

Jack E. Ravan
Regional Administrator

Record Of Decision
Summary of Remedial Alternative Selection
Distler Farm Site
Jefferson County, Kentucky

Site Location and Description

The Distler Farm property, a 13.68-acre farmland tract, is located in the southwest corner of Jefferson County, Kentucky, approximately one mile northeast of West Point, Kentucky. The property is bordered by U.S. Highway 60/31 W (Dixie Highway) on the northwest; Stump Gap Creek on the southeast; and by cultivated farmland on the northeast and southwest (Figure 1-2, General Site Plan). It is situated about one mile northeast of the Salt River and the Ohio River confluence at 38°00'40" north latitude and 85°55'50" west longitude.

Drums and containers of industrial wastes were buried and stored on the surface within this property in an area of about three acres. This three-acre area, hereafter referred to as the "Distler Farm Site", is adjacent to the tree line along Stump Gap Creek, and located about 200 feet from the southwestern property line and about 1,000 feet from the Ohio River (Figure 1).

Site History

The Distler Farm Site was discovered in early 1977 during the development of an enforcement case against Mr. Donald F. Distler, owner of Kentucky Liquid Recycling, Inc. In an effort to locate sites that Mr. Distler may have used for chemical waste storage or disposal, EPA personnel inspected the Distler Farm Site in April 1977. They reported approximately 600 drums of industrial wastes stored on the ground surface.

In December 1978 the Ohio River and its tributaries flooded, causing drums of industrial wastes from the site to be scattered along the floodplain of Stump Gap Creek. The Governor of Kentucky declared an environmental emergency and requested assistance from the EPA. In January 1979 the EPA Region IV Environmental Emergency Branch supervised recovery and onsite storage of 832 drums containing chemicals characteristic of the paint and varnish industry. The drums were later removed by the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC)to approved hazardous waste disposal facilities. During the cleanup effort U.S. Army personnel from Ft. Knox surveyed the area with metal detectors and found four drum burial sites.

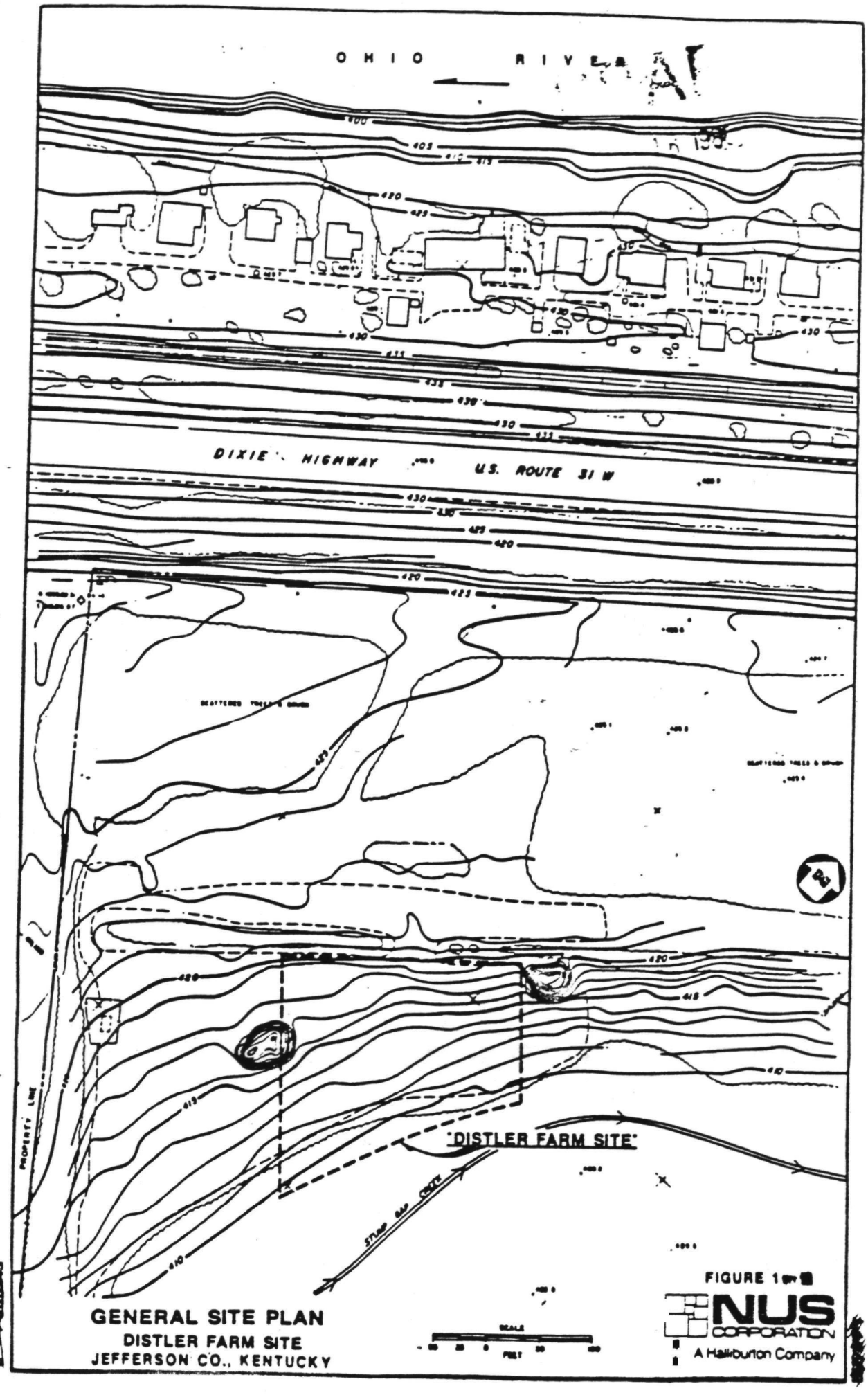
Between January and June 1979 the EPA, in coordination with the KNREPC, took surface water and sediment samples from Stump Gap Creek, sampled private wells in the area, and performed a limited soil coring study. A private well and surface water sampling and testing program indicated that these waters were not contaminated by chemicals from the site. The coring study showed evidence of soil contamination and probable groundwater contamination in the area of drum burial pits.

In October 1981 a hydrogeologic study was performed at the site by an EPA Field Investigation Team (FIT). Eight soil borings were drilled to depths of approximately 20 feet. Groundwater from three of the boreholes and four private wells in the area were sampled and tested. Results of tests performed on groundwater samples taken from a downgradient borehole showed signs of contamination, while all private wells were free of contamination.

In September 1981, and February and July 1982, surveys were performed to confirm buried drum locations and to delineate the extent of a suspected contaminant "pool" in the groundwater. Buried drum locations were mapped and the estimated extent of the suspected contaminant "pool" was documented. The site was later ranked again, using an updated MITRE model, resulting in a MITRE score of 34.62.

In April 1983 the NUS Region IV FIT installed 20 monitoring wells. These wells were sampled by FIT during July 1983. Seven organic priority pollutants, nine inorganic priority pollutants, and several ketone and alcohol derivatives were reported in the collected water samples. The data gathered, however, were not extensive enough to fully define the extent of contamination nor the movement of contaminants within the groundwater regime. In September 1983 a remedial investigation was begun by NUS to define the extent and movement of contamination at the Distler Farm Site.

In February 1984 EPA halted the remedial investigation work for two months while accomplishing the removal of buried drums and waste containers from four burial locations. Approximately 120 fifty-five gallon drums and 2,620 smaller containers were unearthed and sampled. All wastes and visibly contaminated soil were removed from the site and transported to permitted hazardous waste disposal facilities. Chemical analyses revealed that the wastes included toxic, volatile, ignitable, radioactive (lab packs) and reactive materials. Following the removal operations, the pits were backfilled, and the entire affected area was graded, cultivated, and sown with grass seed to control erosion.


OHIO RIVER
DIXIE HIGHWAY
U.S. ROUTE 31 W
"DISTLER FARM SITE"
PROPERTY LINE
STUMP RUN CREEK
FIGURE 1
GENERAL SITE PLAN
DISTLER FARM SITE
JEFFERSON CO., KENTUCKY
NUS CORPORATION
A Halliburton Company

The RI effort was resumed in April 1984, with emphasis redirected to the potential for groundwater contamination. The investigation confirmed that contaminated soils and groundwater were present at the site. No significant site-related contamination had yet appeared in surface waters, sediments, or residential wells outside the property boundaries. The RI also confirmed that airborne contaminants were not a problem at the Distler Farm Site.

NUS completed the RI site investigations in September 1984 and submitted a Draft RI report to the EPA in September 1985. The RI assessed the nature and extent of onsite and offsite contamination resulting from the storage of hazardous wastes on the farm property, and evaluated hazards to human health and the environment. The site was characterized in the terms of:

° Geology and soils

° Surface and groundwater hydrology

° Hazardous substances present

° Nature and extent of contamination

° Contaminant mobility characteristics and migration pathways

° Potential receptors

° Human health and environmental concerns

Details of the remedial site investigation and laboratory analyses are documented in the Remedial Investigation Report.

Current Site Status

Hazardous substances in the form of source materials are not present on the site. Surface storage and burial areas have been confirmed as being contaminated. These areas were considered to be the likely sources of potential future releases of contaminants for the purposes of the Feasibility Study.

Investigations have shown that the site poses no threat to the public through airborne contaminants. Organic vapor monitoring during the remedial investigation has not revealed ambient concentrations above four parts per million. Disturbance of soils beneath the ground surface during remedial action may cause temporary increases in volatile contamination of ambient air at the site.

The absence of contaminants in downstream sediments collected from Stump Gap Creek demonstrates that site contaminants have not migrated offsite. Lack of a downstream surface water monitoring station during the remedial investigation hinders the understanding of the quality of surface water downstream from the site.

Only one surface water sample, upstream of the site, could be taken during the remedial investigation due to dry weather. Contaminants of concern found in this sample, taken in July 1984, are summarized below:

- Hazardous Substances List (HSL) Metals:
  Chromium 6 to 7 ug/l (microgram per liter)
- Total Dissolved Solids (TDS): 120 to 160 mg/l (milligram per liter)
- Total Organic Carbon (TOC): 4.9 mg/l
- Total Organic Halogens (TOH): 22 to 27 ug/l
- Extractable Organic Compounds:
  di-n-butyl-phthalate 12J ug/l (J: estimated value)

No Volatile Organic Compounds (VOC), Pesticides or PCB's were found in this sample. Contaminants of concern found in sediment samples taken in July 1984 were chromium and lead.

Soils at the site are contaminated. The contaminants, however, do not appear to have been transported off the site, even though the contaminated area is within the 10-year flood plain of the Ohio River. Surface water run-off could carry contaminated soils particles to Stump Gap Creek adjacent to the site. Available chemical test data indicate that transport by this mechanism has not occurred, or if it has occurred, it has been diluted to a level approaching background values of below laboratory detection limits.

Contaminants of concern found in soil samples taken from within the soil contamination area shown on Figure 2 are Chromium, Lead, Benzene, Toluene, Trichloroethylene, Tetrachloroethylene, Napthhalene, Bis (2-Ethylhexyl) Phthalate, Di-n-Butyl Phathalate, Isophorone.

Test data indicated the contaminants have been released, distributed, or have migrated to soil depths of six inches to four feet. The soil samples for this testing program were taken in July and September 1984, several months after the excavation of drum burial pits in March and April 1984. The drum burial pits are located within the 'soil contamination' area illustrated on Figure 2.

Groundwater contamination has been detected beneath the site in a localized "pool". This "pool" of contamination has been contained on site by virtue of topography, groundwater flow, and soil characteristics. However, the potential for leakage into a deeper aquifer does exist and could provide a possible migration pathway for contaminants to move offsite. The rate at which contaminants could migrate would probably be impeded because of "barrier effects" in that aquifer (i.e. the effect of the Ohio River). No consistent spatial relationship or distribution of contaminants was found in the deeper aquifer or in offsite residential wells downgradient of the site. Although the "pool" is contained in a relatively small area, its size is expected to increase gradually, through lateral dispersion and molecular diffusion of the contaminants involved.

Figure 2 illustrates the approximate location and extent of soil and groundwater contamination.

The most probable transport mechanism for migration of contaminants from the site is through groundwater, although no groundwater contamination has been shown to have migrated beyond the confines of the site. Groundwater movement in the shallow aquifer is to the southeast across the site in the direction of Stump Gap Creek. The groundwater flow in the deeper aquifer is a direct hydrologic interconnection with the Ohio River.

Contaminants of concern were found in groundwater samples taken from monitoring wells screened in the shallow aquifer and located within the zone of groundwater contamination illustrated on Figure 2. The contaminants found were Chromium, Lead, 1,1,1-Trichloroethane 1,2 Trans-Dichloroethylene, Toluene, Trichloroethylen; Vinyl Chloride; Bis (2-Ethylhexyl) Phthalate; Di-n-Butyl/Phthalate, Isophorone; Naphthalene.

The extent of contamination and the mobility characteristics of chemicals identified at this site provide the basis for identification of a contaminant "pool" and migration mechanisms occurring at the site. The areas identified as drum storage or burial locations have been confirmed as contaminated and are considered likely sources of potential future contamination for purposes of this discussion.

The most probable transport mechanism currently causing migration of chemical contaminants from the site is groundwater advection (longitudinal transport attributable to the bulk flow of groundwater) and dispersion (lateral and vertic spread of chemical substances owing to groundwater convection an diffusion of molecules). Various aspects of chemical test data obtained for groundwater samples is considered to indicate that a contaminant "pool" may be present at the site and that contaminants have not migrated offsite through the groundwater. A consistent spatial (both horizontal and vertical) relationship or distribution of the majority of the contaminants was not found.

Although the known area of groundwater contamination is restricted to the site, its size is expected to grow. In the case of the Distler Farm Site, additional data are warranted to further define the process of groundwater movement vertically and horizontally.

Other comparatively minor routes of transport of contaminants from the site include the following:

- Contaminated sediment transport via surface water run-off. Surface water run-off could carry contaminated soil particles to Stump Gap Creek. Available chemical test data indicate that transport by this mechanism has not occurred, or if it has occurred, it has been diluted to a level approaching background values or below laboratory detection limits.

- Physical transport of site contaminants during flooding conditions of Stump Gap Creek. Portions of the site are located in the 10-year floodplain of the Ohio River. During the 100-year flood, the site would be inundated.

- Evaporation of volatile organic constituents to ambient air with contaminated air moving offsite. Available chemical data gathered during the RI indicated that surface soils are not appreciably contaminated with volatile organic contaminants. However, soil disturbance during remedial action could increase concentrations to some degree.

- Direct contact with contaminated surface soils and other surface materials.

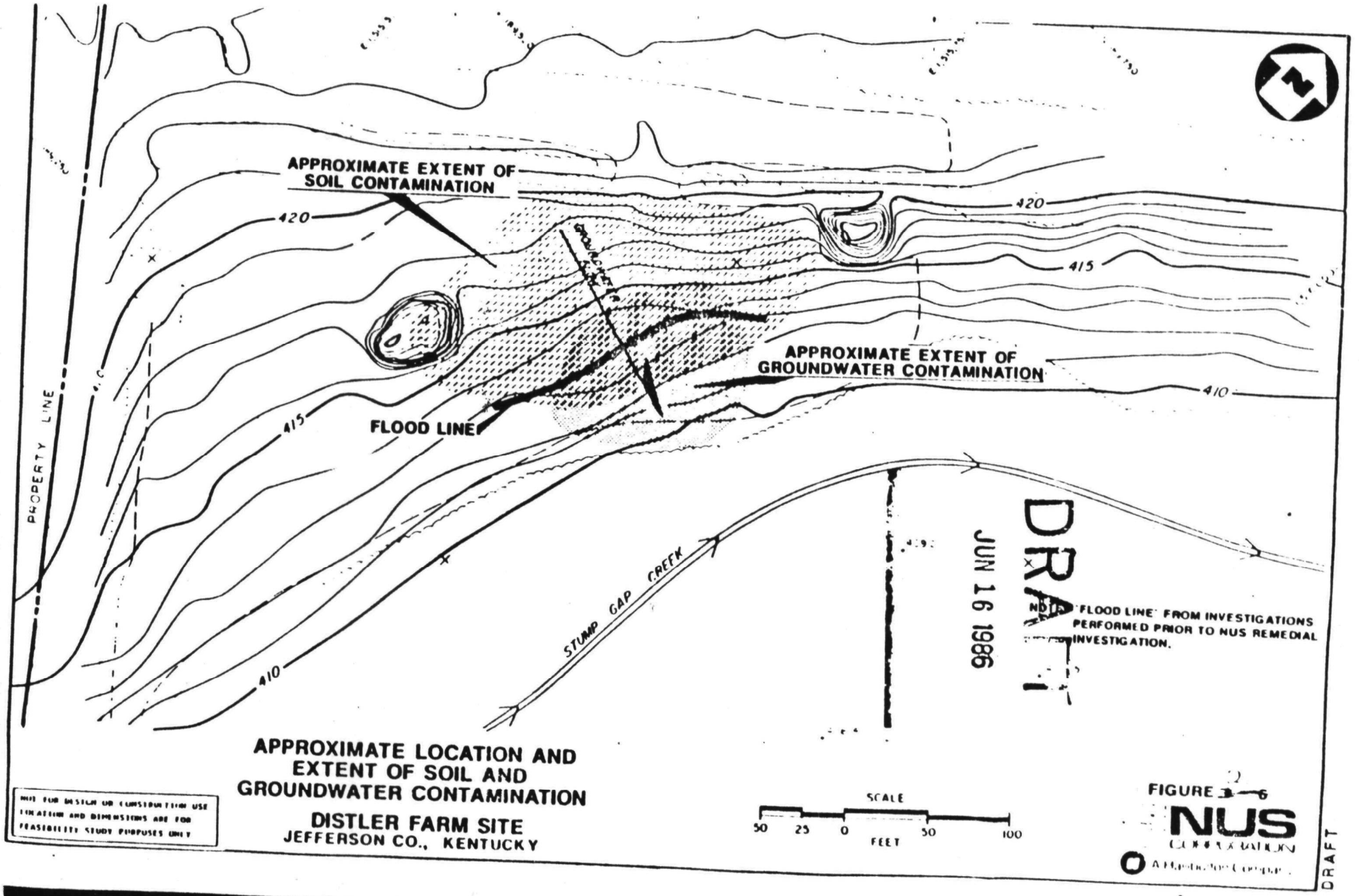
Based on present site conditions and data gathered during the RI, potential human and environmental receptors include the following:

- Nearby users of groundwater for drinking purposes. Approximately 30 homes and an automobile race track located within a 1-mile radius of the site use private groundwater wells for their water supply. In addition, well fields serving West Point, Kentucky are located approximately four miles south and east of the site.

- Nearby users of groundwater for domestic purposes other than drinking, such as bathing, food preparation, laundry, and lawn or garden watering.

- Human contact with surface waters. Chemical test data available for surface waters suggest that these waters are not now contaminated by pollutants present at the site.

- Humans consuming game animals (fish, small animals) which have been contaminated by ingestion of bioaccumulative contaminants.



APPROXIMATE LOCATION AND EXTENT OF SOIL AND GROUNDWATER CONTAMINATION

DISTLER FARM SITE
JEFFERSON CO., KENTUCKY

FIGURE 2-6

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DRAFT

- Third-party intruders who come into direct dermal contact with contaminants present at the site.

- Onsite remediation workers through inhalation of elevated concentrations of volatile organic contaminants during soil disturbance or by direct dermal contact with contaminated soils and residual wastes. In practice, exposure will be limited by health and safety procedures and equipment.

- Environmental receptors including aquatic biota, terrestrial fauna, and vegetation that may be stressed.

Potential receptors represent those whom the site would most likely affect in terms of acute and chronic health implications. Available data does not indicate or confirm any significant past or present human exposure.

ENFORCEMENT ANALYSIS

On November 12, 1985, EPA sent information request/notice letters to approximately thirty (30) potentially responsible parties (PRPs), including Donald Distler, the owner/operator of the Distler Farm site. The letter requested any records, documents, etc. regarding business transactions with Kentucky Liquid Recyclers (KLR), informed the PRPs of their potential liability at the site and offered them each an opportunity to participate in the design and implementation of the remedial action plan and to contribute to any monitoring and maintenance necessary after completion of remedial work.

Only a small percentage of the PRPs expressed any interest in participating in the RD/RA procedures and of those that expressed interest, their participation was conditioned upon EPA providing them more convincing proof of their liability at the site. The majority of the PRP responses were either complete denials or professed no knowledge or belief that any business transactions were conducted with (KLR) or Donald Distler.

A second round of letters to PRPs was issued by EPA on March 12, 1986. These letters contained information which EPA had compiled that established a connection between individual PRPs and KLR, provided a list of all known PRPs and again requested copies of any material that pertained to KLR and the Distler Farm site. The responses to the March 12, 1986, letters provided additional information regarding several PRPs.

The PRPs have made some attempt to organize a steering committee in order to engage in negotiations with EPA. However, to date, said committee has not been formed and formal negotiations have not been conducted. Accordingly, at the present time it is difficult to predict the outcome of such negotiations.

The strategy employed by EPA has been to use fund monies unless PRPs consent through an enforceable agreement to the cleanup. The RD/RA section of the work remains open for negotiation.

EPA's overriding concern is to ensure that the selected remedy complies with the National Contingency Plan. In this regard, there is little flexibility for negotiations. Any technical differences in design and construction approaches used to achieve the remedy may be the subject of negotiations. However, as a practical matter, the PRPs have presented no alternative design and construction models and, therefore, no comparisons can be made at this time.

Alternatives Evaluation

The purpose of the remedial action is to mitigate and minimize contamination in the soils and groundwater, and to reduce potential risks to human health and the environment. The objectives in developing remedial actions at the Distler Farm Site were:

° Soil Contamination:

- Source control
- Reduce concentrations of contaminants
- Control potential migration of surface and subsurface contaminants resulting from contaminated soils
- Prevent or minimize surface erosion and consequent contaminant runoff, including environmental hazards associated with potential flooding of Stump Gap Creek, as well as the Salt River and/or Ohio River
- P[illegible], minimize, or eliminate the onsite potential for ex[illegible] by direct contact; the onsite potential for airborne releases; the potential for contaminant migration by surface water pathways; and the migration of contaminants to groundwater.

° Groundwater Contamination:

- Management of migration
- Prevent increases of contaminant concentrations
- Reduce concentrations of contaminants
- Prevent or minimize further migration of contaminants ("pool" control)

An initial screening of applicable alternative technologies was performed to select those which best met the criteria specified in Section 300.68 of the National Contingency Plan (NCP). Following initial screening of technologies, potential remedial action alternatives were identifed and analyzed. These alternatives were screened and the most promising were retained and were developed further.

Table 3 summarizes the results of the screening process. Each of the six remaining alternatives was evaluated based upon technical considerations, institutional issues, environmental issues, public health aspects, and cost criteria. A cost summary is presented in Table 4. The results of this final evaluation are given below.

Alternative 1: No Remedial Action

Under this no-action alternative, remedial activities would not be performed. Soil and groundwater contamination would be left in their current conditions. As it exists, the site would continue to be a potential source of future contamination. Contaminants have been present in surface materials for about eight years. Some might have volatilized and will continue to do so, decreasing in concentration. Others, especially the less mobile compounds, would remain as they are now. Some would continue to migrate into groundwater by infiltration. Contaminated groundwater could eventually migrate offsite. Private wells downgradient from the site might be affected by the contaminant "pool" at some future time, if no remedial actions are performed on the groundwater.

Regulatory requirements and strategies in connection with protection of groundwater exist. The aquifer underlying the site could be classified as Class I, which would indicate that it could be a sole source of drinking and domestic water supplies for downgradient communities. Regulations require that such aquifers not be degraded or contaminated. This option does not satisfy any currently applicable or relevant State or Federal (RCRA) standards for the closure of a site containing hazardous materials and wastes.

Available data indicate that potential receptors are not presently exposed to signifcant levels of contaminants and are not exposed to an immediate health risk. However, potential receptors could be exposed at some future time if migration of contaminants were to occur specifically, through ingestion or dermal contact with surface waters and surface materials, and groundwater. Based upon the above consideration of public health, this no action alternative has been rejected.

Alternative 2: Soil Contamination: Surface Capping
Surface Grading and Revegetation
Groundwater Contamination: No Remedial Action

This alternative involves the placement of a seal, or cap, over contamined areas. Contaminated soils would remain in place and be covered by the cap. There is no remedial action with respect to groundwater contamination, and the contaminant "pool" is left in its current state. The purpose of this alternative is to reduce the impact of contaminants in site soils by reducing risks associated with direct contact and by reducing potential of contaminant migration via surface water, groundwater and air pathways.

The expected design life of such a sealing/capping system is about 30 years. This is based on the performance of other caps of similar design.

This alternative, by the installation of a cap, would reduce threats to air, surface water and groundwater pathways that currently exist at the site. As a source control option, capping would reduce contaminant migration due to infiltration, which would reduce the contamination that would otherwise reach the underlying groundwater.

This option would mitigate further degradation of groundwater but not migration of contaminants in the groundwater. Contaminated groundwater would continue to move in its current southeast direction. This alternative has been rejected because other alternatives exist which provide much greater protection of public health and the environment.

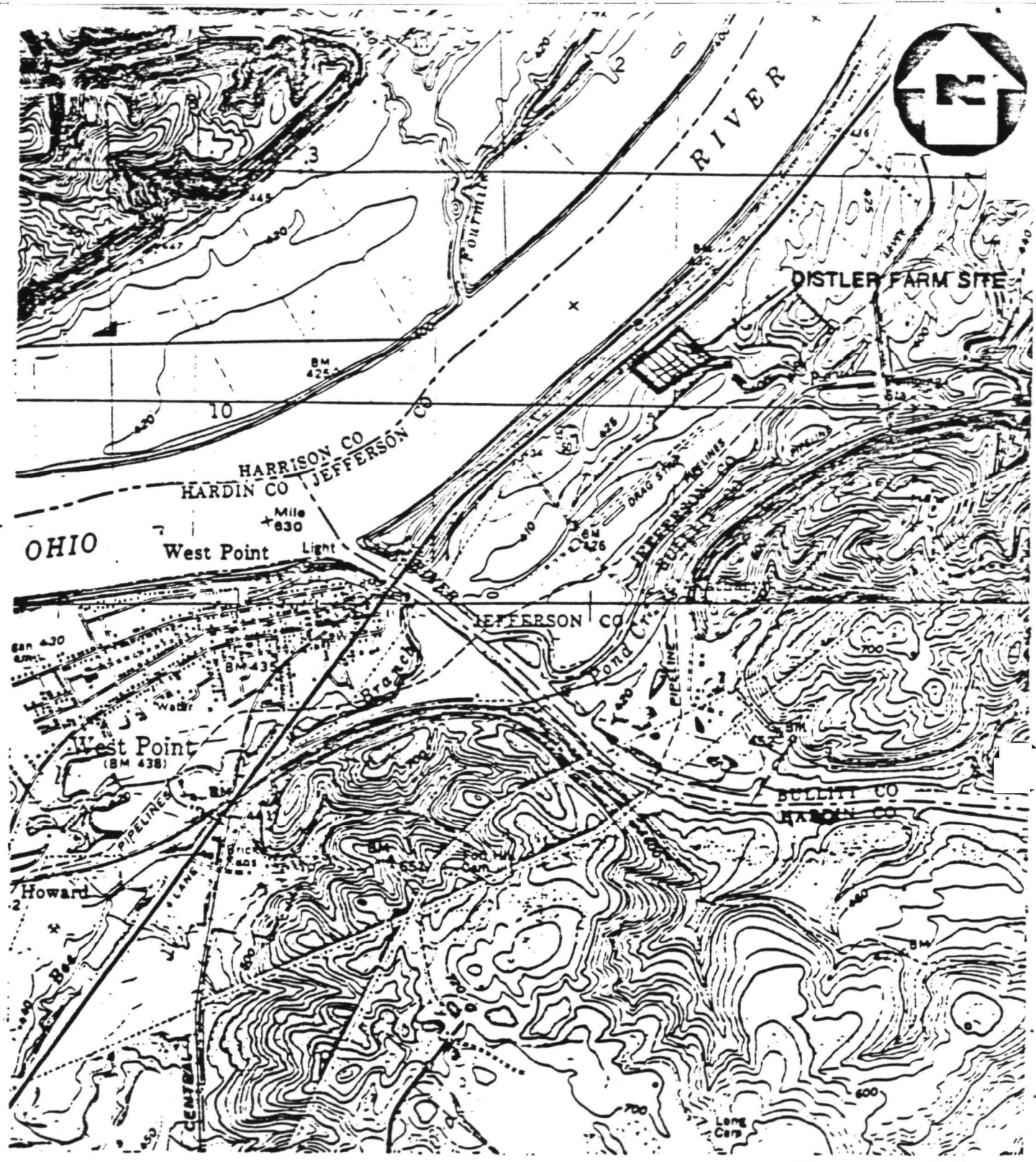
Alternative 3: Soil Contamination: Surface Capping;
Grading and Revegation
Groundwater Contamination: Extraction/Injection
Offsite Treatment/Disposal

This alternative involves the placement of a seal, or cap, over contaminated areas. Contaminated soils would remain in place and be covered by the cap. Contaminated groundwater would be extracted through pumping wells and treated or disposed at an offsite permitted commercial facility. Uncontaminated water would be injected into the aquifer.

The objective of this remedial action is to reduce the concentrations of contaminants in the groundwater to levels where potential risks to human health and the environment are also reduced to acceptable levels. Groundwater remediation criteria intended for this alternative is the Preliminary Protection Concentration Limits (PPCL) based on 10E-6 Unit Cancer Risk.

The movement of the groundwater may be relatively slow and the induced drawdown can be large within this aquifer because of the low hydraulic conductivity. Therefore, the "flushing" action of water extraction from the aquifer could be relatively localized. In order to decrease the size of the possible "dead zone" (area outside the drawdown zone) and to increase the "flushing" effect within the aquifer, the combined use of extraction and injection wells was considered to be more effective in comparison to using extraction wells only.

This alternative has been rejected due to design considerations which were not included in the Feasibility Study. The Distler Farm Site lies in the 10-year flood plain of the Ohio River. During a flood event, an impermeable cap would fail due to an upward vertical hydraulic gradient in the groundwater. The frequency and high probability of such floods preclude the use of an impermeable cap.



SITE LOCATION MAP

DISTLER FARM SITE

JEFFERSON COUNTY, KY

FIGURE ES-1

NUS CORPORATION

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Alternative 4: Soil Contamination: Surface Capping ("RCRA Cap"); Surface Grading and Revegetation
Groundwater Contamination: Extraction/Injection; Offsite Treatment/Disposal

This alternative involves the construction of a seal or cap over contaminated areas. Contaminated soils and materials would remain in their existing place and be covered by the cap. Contaminated groundwater would be extracted and treated/disposed at an offsite permitted commercial facility. Uncontaminated water would be injected into the aquifer.

This alternative is identical to Alternative #3 in almost all aspects related to capping and groundwater remediation. The only differences in Alternative #4 are that the surface seal would be a RCRA type cap, and that groundwater remediation would be to Maximum Contaminant Levels (MCL) and Preliminary Protective Concentration Limit Levels (PPCL).

This alternative has been rejected due to the frequency of flooding at the site. As with Alternative #3, vertical hydraulic gradients during flooding would cause failure of the impermeable cover.

Alternative 5: Soil Contamination: Surface Capping ("RCRA Cap"); Surface Grading and Revegetation
Groundwater Contamination: Extraction/Injection; Offsite Treatment/Disposal

This alternative was rejected, as were Alternatives #3 and #4, because of cap failure due to flooding, groundwater would be cleaned to background levels.

Alternative 6: Soil Contamination: Excavation to Background; Backfilling; Offsite Landfill Disposal; Surface Grading and Revegetation
Groundwater Contamination: Extraction/Injection; Offsite Treatment/Disposal

This alternative represents a more comprehensive cleanup alternative than preceeding alternatives as nearly all contaminated soils would be removed from the site and disposed in an offsite permitted hazardous waste landfill. During excavation, periodic sampling will assure that when "Background" Levels as shown in Table A are reached, excavation will cease. For estimating purposes, this depth was assumed to be eleven feet (11'). Since contaminated soils would be excavated, sources of potential future contamination would be removed; therefore, a seal or cap is not called for in this alternative. Excavations would be backfilled; "clean" native granular soils would be suitable for this purpose. The final surface of backfill would be graded to converge with local topography, and revegetated.

Groundwater would be extracted, temporarily accumulated in onsite storage tanks and transported to an offsite commercial treatment/disposal facility. Uncontaminated water would be injected into the aquifer. Groundwater remediation criteria under this alternative would be to background levels. Maintenance of the restored surface and monitoring to insure the quality of the groundwater will be continued for a period of time which will be adequate to assure the permanence of the remedial measures. This alternative was selected since it is the only alternative proposed which is consistent with other environmental laws.

Alternative Suggested By Public at Public Meeting (Public)

The City of West Point offered to extend water service to the residents of the areas surrounding Distler Farms which might be impacted by migration of contaminated groundwater. The same offer was made by the Louisville Water Company which included serving the City of West Point for about $700,000.

Although this alternative would assure all residents of high quality water supply, it would permit the contamination to remain on site and would be the same as the no action alternative with the addition of public water.

This alternative is environmentally unacceptable since all receptors continue to be exposed, except for those who consume groundwater. Since the contaminated groundwater will remain a threat to the Ohio River, as would be perceived by Ohio River Sanitation Commission (ORSANCO), the alternative is both environmentally and politically unacceptable.

Alternative Technology Alternative

The possible use of biomass at the site was investigated and reviewed. In order to determine the feasibility and implementability of the technique, a three (3) month study would be required, after which a public meeting and the concomitant comment period would be required. This alternative had not been presented to the public at an earlier date. This is an unproven technology over the long term, and the dependability factor is questionable. For this reason and the need for at least a six (6) month delay, this alternative was not considered further.

Community Relations

The surrounding community has concern over the condition of their drinking water. The level of concern was not high as a result of the public meeting held to present the findings of the RI/FS. The meeting was attended by 30+ people, and written comments were received from one private citizen, two attorneys for PRPs and the Louisville Water Company in which they expressed interest in supplying water to these residents.

The Commonwealth of Kentucky also supplied written comments. In general, of those commenters addressing the alternative selection, alternatives #5 and #6 were preferred.

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

It is EPA Policy to give primary consideration to remedial actions that attain or exceed applicable or relevant Federal environmental or public health standards.

State and local standards should also be considered; however State standards that are more stringent than Federal standards may form the basis for the remedy only if the result is consistent with the cost effective remedy based on Federal standards. The State may also pay the additional cost necessary to attain the State standard(s). The environmental or public health laws which may be relevant or applicable to the site are:

- Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) will apply to final action at the site since the selected alternative requires excavation and offsite landfill disposal. Therefore the disposal site will be required to be in compliance with RCRA requirements, by either having interim status or being fully permitted.

- Floodplain Management Executive Order 11988(E.O. 11988)

Floodplain management is a primary concern at this site since it is completely within the 100-year flood plain and partially within the 10-year flood plain. Although the placement of a cap would not adversely effect the floodplain, the fact that the site is within the floodplain ensures that even the placement of an impermeable cap would not, necessarily, preclude the infiltration of flood waters which would percolate through the contaminated soil and thereby perpetuate contamination of the groundwater which renders alternatives 1-5 unacceptable on a environmental basis.

- Clear Water Act (CWA)

The action proposed at the site by this document will comply with the requirements of the act since there is no surface water contamination attributable to this site.

- Occupational Safety and Health Administration (OSHA) requirements.

Any applicable OSHA requirements will be addressed during the detailed design phase of the selected alternative. OSHA requirements address such concerns as on-site worker safety and health. All alternatives can be designed to be in full compliance with all OSHA requirements.

- Groundwater Protection Strategy (GWPS)

The GWPS is an applicable standard for this site. The cleanup of the groundwater to levels recommended by Region IV Office of Groundwater Protection would require 13 years to accomplish. The selected alternative will guarantee clean water for user of the groundwater.

- Department of Transportation

  DOT requirements for movements of hazardous wastes will be carefully observed during any transportation of materials for the site.

- Other

  There are no other known applicable or relevant Federal laws or regulations which apply to this site.

FLOODPLAIN ASSESSMENT

The Distler Farm Site is located near both the Ohio River and the Salt River. The Ohio River Division of the U.S. Department of the Army, Corps of Engineers, has determined, through frequency studies, water surface elevations for various flood conditions (Wright 1986):

Frequency	Elevation
10 - year	431.8 feet
25 - year	436.1 feet
50 - year	439.9 feet
100 - year	442.9 feet
500 - year	449.0 feet

The Distler Farm site lies at elevations between 400 feet and 425 feet. Occurence of a 100-year flood would inundate the majority of the site.

At the Distler Farm site, remedial actions would be designed, constructed, operated, and maintained to prevent washout of hazardous materials by a flood event.

The area of the site affected by any proposed remedial action will be less than three acres. This is quite small, even insignificant, compared to adjacent areas in the 100-year floodplain. Any proposed remedial action would not be expected to have any calculable effect on flood levels or flood volumes.

Since the surrounding area is within the 100-year floodplain, present land use is not expected to change from its predominately rural status. The Planning Commission of Louisville and Jefferson County has designated the area in which the Distler Farm site lies as being unsuitable for any new residential development. Thus, any proposed remedial action would not lead to further development that would create additional floodplain impact.

EPA Feasibility Study (FS) evaluated remedial alternatives are described in the FS and briefly summarized in the April, 1986 Fact Sheet. Although some suggestions recommending alternatives have been communicated to EPA verbally, written recommendations have not been received to date, from either the public or the PRPs.

Recommended Alternative

In compliance with the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300.68), the alternative recommended in this document is an alternative which will resolve the environmental problem at the site and will adequately protect the public health and welfare.

The no-action alternative does not adequately ensure that the public health, welfare and the environment would not be degraded further. The alternative which would implement installation of a cap with no remediation of the groundwater was removed from consideration because groundwater is the primary exposure route and would not prevent further degradation and migration of the contaminated groundwater. The third alternative which proposed installation of a cap and groundwater remediation to preliminary protection concentration limits (PPCL) did not offer adequate reduction of groundwater contaminants. This, and the continuing probability of the percolation of floodwaters through the contaminated soils which would remain onsite made this alternative unacceptable environmentally. The fourth alternative proposed a "RCRA" cap and reduction of groundwater contamination to maximum contamination limits(MCL) and PPCL levels. Once again the frequency of flooding at the site would most likely cause failure of the impermeable cap and the floodwaters would percolate through the contaminated soils under the cap. For these reasons this alternative was also judged to be environmentally unacceptable. The alternative suggested by the public meeting which suggested extending water service to the residents was considered to be environmentally unacceptable since the contaminated groundwater would continue to migrate and would eventually enter the Ohio River. Table 4 indicates that the baseline capital costs for the recommended alternative is $11,138,400, and O & M in years 1-10 of $113,600 and years 11-30 of $20,200, which results in a present worth baseline of $11,996,000.

Operation & Maintenance (O & M)

This remedy will require 13 years to accomplish. The operating costs will be for power for pumps, maintenance of these pumps and injection devices and site maintenance as well. When the remedy is completed, the only O & M required will be to maintain the restored site by mowing and repairing erosion gulleys which might occur in the restored areas and continued monitoring to insure the permanence of the remedy.

The Commonwealth will not be responsible for O & M until one year after the remedy is completed and will be responsible for mowing of ground cover and repair of eroded areas and monitoring at that time. The Commonwealth will fund its portion of this remedial effort from it's own "Superfund" and O & M and legislative allocations as needed.

It is recommended that this site be funded at 90% federal funds and 10% Commonwealth funds, with a one year period of O & M to commence after all remediation has been completed and the site restored.

Schedule

The planned schedule for completion of the cleanup at the Distler Farm Site is as follows:

August 20, 1986 Record of Decision

The Commonwealth has indicated that they do not have the required 10% matching funds available at this time. A schedule for continuation of remediation at the Distler Farm Site is contingent upon the simultaneous availability of both Federal and Commonwealth funding. At such time, ten (10) months will be required for design; six (6) months is required to select a contractor, after which 13 years of activity at the site will culminate in a full remediation of the contamination at the site.

Future Action

As part of the design, additional studies will be performed to completely define the areal extent of contamination in the groundwater. There will be no need for any further action at this site. The proposed remedy is a permanent, complete remedy of the contamination at the site.

TABLE A

BACKGROUND CONCENTRATIONS FOR CONTAMINANTS OF CONCERN

DISTLER FARM SITE

CONTAMINANT	SOILS UG/L	GROUNDWATER UG/L
1,1,1-Trichloroethane	2.5	5
Benzene	2.5	5
1,1-Dichloroethene	2.5	5
Trans-1,2,-Dichloroethene	2.5	5
Toluene	2.5	5
Trichloroethene	2.5	5
2-Butanone	100	5
Naphthalene	10	20
bis(2-ethylhexyl) phtalate	10	20
Arsenic	20R	4.9
Chromium	Detection Limit	4.4
Lead	Detection Limit	5

Note: Background values are actually the detection limits (i.e., compound was analyzed for but not detected). This is true for all compounds except Arsenic in soils.

R Laboratory qualifier indicating result is a false positive.

TABLE 3

SUMMARY OF POTENTIAL REMEDIAL ACTION ALTERNATIVES
DISTLER FARM SITE

Alternative	Surface Contamination	Groundwater Contamination Method	Remediation Criteria
1	No Remedial Action	No Remedial Action	-----
2	Surface Capping ("CERCLA Cap"); Surface Grading and Revegetation	No Remedial Action	-----
3	Surface Capping ("CERCLA Cap"); Surface Grading and Revegetation	Groundwater Extraction/Injection; Offsite Treatment/Disposal	PPCL
4	Surface Capping ("RCRA Cap"); Surface Grading and Revegetation	Groundwater Extraction/Injection; Offsite Treatment/Disposal	MCL, PPCL
5	Surface Capping ("RCRA Cap"); Surface Grading and Revegetation	Groundwater Extraction/Injection: Offsite Treatment/Disposal	Background Levels
6	Excavation to Shallow Groundwater; Backfilling; Offsite Landfill Disposal; Surface Grading and Revegetation	Groundwater Extraction/Injection; Offsite Treatment/Disposal	Drinking Water Standards
Public	No Remedial Action	No Remedial Action	None

PPCL: Preliminary Protective Concentration Limit based on 10-6 Unit Cancer Risk
MCL: Maximum Contaminant Level

TABLE 4

COST SUMMARY OF POTENTIAL REMEDIAL ACTION ALTERNATIVES
DISTLER FARM SITE

ALL COSTS IN THOUSANDS OF DOLLARS ($000'S)

	Remedial Action Alternative						
	1	2	3	4	5	6	Public
Baseline Capital Costs	--	65.0	192.9	387.2	387.2	11,138.4	700
Total Operating and Maintenance Costs							
Year 0	--	0.2	44.6	44.6	44.6	44.4	
1-30	--	1.2					
1-3	--		114.9				
4-30	--		21.5				
1-6	--			114.9			
7-30	--			21.5			
1-10	--				114.9	113.6	
11-30	--				21.5	20.2	
Present Worth Range							
High	--	318	705	1,075	1,245	14,770	N/A
Baseline	--	309	671	1,040	1,210	11,996	700
Low	--	302	638	934	1,104	9,780	N/A

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