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March 1995

EPA Superfund Record of Decision Amendment:

Wrigley Charcoal Superfund Site, Wrigley, TN 2/2/1995

AMENDMENT

TO THE INTERIM ACTION RECORD OF DECISION: WRIGLEY CHARCOAL SUPERFUND SITE WRIGLEY, HICKMAN COUNTY, TENNESSEE

FEBRUARY 1995

PREPARED
BY
U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV

DECLARATION FOR THE AMENDMENT TO THE RECORD OF DECISION

SITE NAME AND LOCATION

Wrigley Charcoal Site
Wrigley, Hickman County, Tennessee

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected Interim Remedial Action (IRA) for the Wrigley Charcoal Site, in Wrigley, Hickman County, Tennessee, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan. This decision is based on the administrative record file for the Site.

The State of Tennessee concurs with the United States Environmental Protection Agency on the selected Interim Remedial Action as amended within this document.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing this response action selected in this ROD Amendment, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

Based on the Remedial Investigation and Feasibility Study (RI/FS) supplemental sampling and analysis, and additional information generated as part of the first phase of the Interim Remedial Action (1993-1994), the U.S. EPA has modified a wide variety of items that require immediate response action for the first step of cleanup activities to be taken at the Wrigley Charcoal Site. The major goal of these cleanup activities is to address the most serious threats at the Wrigley Charcoal Site by removing contaminated media from the Primary Site flood plain, remediating wastes at the Storage Basin, and through limited access restrictions at the Primary Site and the Storage Basin. The cleanup activities as presented in this IRA Record of Decision (ROD) Amendment will achieve significant risk reduction and will prepare the Site for future remedial activities. Information generated by these IRA activities will assist in the development

of the final remedial solution for the Wrigley Site.

The major components of the selected remedy include:

STORAGE BASIN ACTIVITIES

1) Removal, treatment (if necessary), and disposal of waters at the Storage Basin. The approximate volume is estimated at 50,000 gallons;

2) Removal off-site of Storage Basin wood-tars and associated contaminated soils, appropriate disposal and/or treatment, or utilization of these wastes as fuel. The volume of raw sludge is estimated at 300-400 cubic yards;

3) Associated wood tar contaminated soils at or below the tar/soil interface will be removed for disposal in a RCRA Subtitle D landfill. The volume of this material is estimated at 200 cubic yards;

4) A minor amount of wood tar contaminated soil will be removed from the Overflow Basin. This material is expected to be less than 60 cubic yards and will be disposed in a RCRA Subtitle D facility;

5) The existing Storage Basin clay berms will be used for clay cover material once the tar and associated soil has been removed. Since the Storage Basin is perched on top of a hill the finished upper surface can be contoured to conform with the existing topography. An upper dome configuration to enhance drainage is required to prevent infiltration of water. The Overflow Basin will also be contoured to prevent water from accumulating;

6) Air monitoring will be performed at the Storage Basin during excavation and removal of wood tars;

7) At the conclusion of Storage Basin Activities, the road to this area will need to be removed. This will prevent unauthorized access to this area and help to reduce vandalism.

PRIMARY SITE ACTIVITIES

1) The Primary Site Smoke Stack and Retort areas will require further removal of metallic or other debris and excessive vegetation to aid in future sampling prior to cleanup. The total amount of materials removed from these locations are estimated at approximately 200 cubic yards. This debris (including many empty drums) may be placed into an on-site

building or decontaminated (if necessary) and transported from the Site to a recycling facility;

2) A small earthen dam will be eliminated by removing the lower concrete wall. This activity is required since waters accumulating at this location are likely entering an hidden underground conduit and exiting a 16 inch pipe at the Still House area. It is estimated that 10 cubic yards of non-hazardous debris will be removed from this location. This may be staged with other concrete adjacent to this location or disposed at a RCRA Subtitle D facility.

3) EPA plans to perform a minor investigative effort following Phase II remedial efforts. During this effort, additional monitoring wells and soil borings will be placed downgradient of the Storage Basin and Still House foundation sump. These monitoring points will serve to assess the impact, if any, of the Phase I remedial activities at these locations. In addition, surface water samples should be obtained from the leachate seeps in the spillway. This information should determine if conditions have changed since spillway reconstruction in 1993;

4) Air monitoring was recently conducted at the Site following Phase I remedial activities. This monitoring was performed to assess the impact, if any, of the Phase I cleanup activities. Once the final results of the data have been submitted, they will be evaluated to determine if any impacts have occurred. If adverse conditions are identified, EPA and the State will determine how they can be reduced, and implement an appropriate solution.

DECLARATION

The Selected Remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the IRA, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site. This remedy does satisfy the statutory preference for treatment as the principal element of the remedy concerning the Storage Basin.

This IRA as Amended does not constitute the final remedy for the Wrigley Charcoal Site. Subsequent actions are planned to address fully the threats posed by the conditions at this Site.

Since this action will result in hazardous substances remaining on-site above health-based levels, a review will be conducted

within five years after commencement of the remedial action as EPA continues to develop final remedial alternatives for the Wrigley Charcoal Site. The review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment. Because this is an interim action ROD, review of this Site and of this remedy will be continuing as part of the development of the final remedy for the Wrigley Charcoal Site.

2 FEB 95

Richard Green, Associate Director
Waste Management Division

Date

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AMENDMENT TO THE INTERIM ACTION RECORD OF DECISION

Summary of Remedial Alternative Selection
Wrigley Charcoal Site, Wrigley
Hickman County, Tennessee

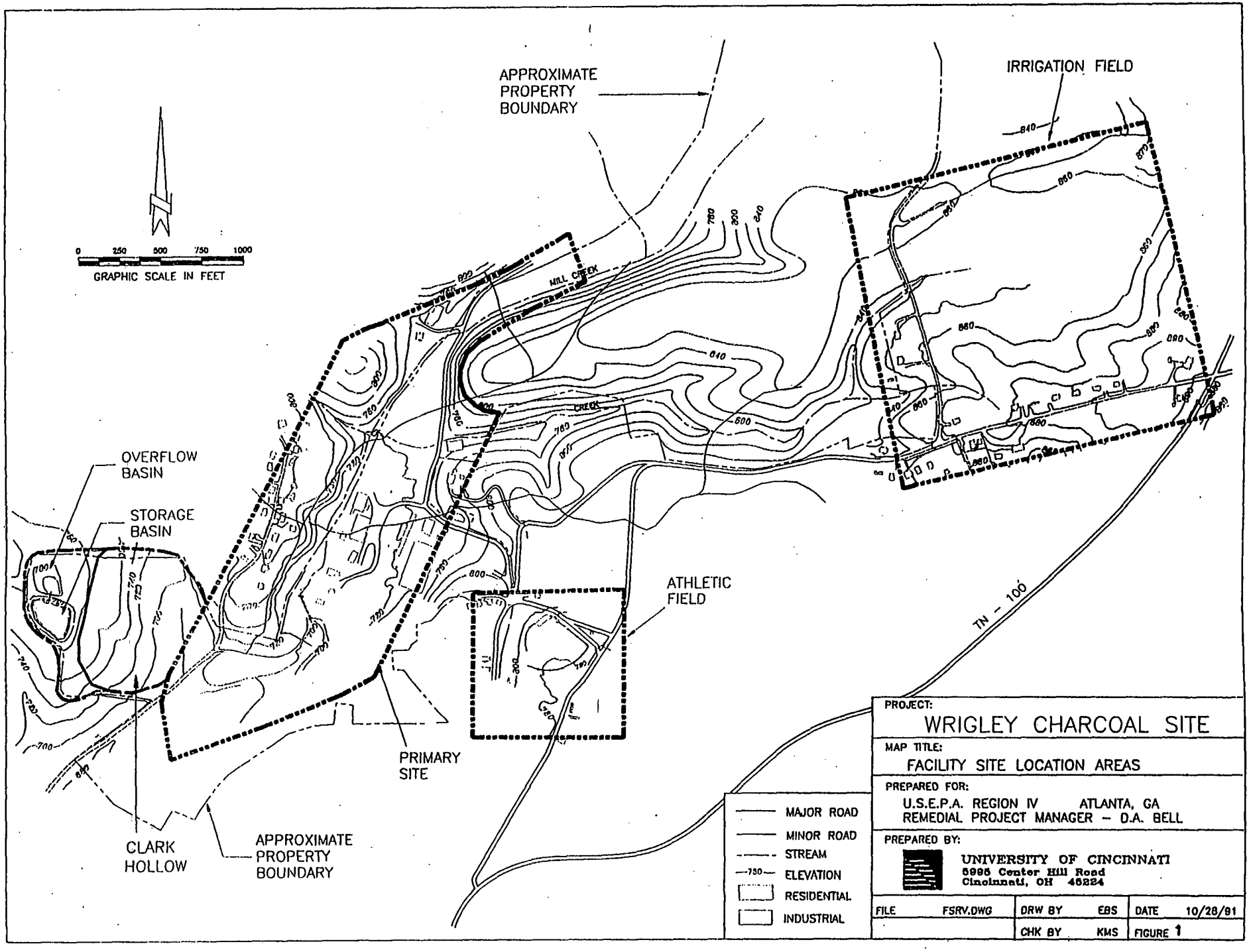
1.0 INTRODUCTION

This document constitutes an Amendment to the September 1991 Interim Remedial Action Record of Decision (IAROD). This document is necessary to adequately support and provide public notice of a wide variety of IAROD activity modifications and several new activities. Work commenced on activities as presented in the IAROD in October 1993. During the early part of this IRA, a variety of additional information was generated that EPA and the State of Tennessee believe should modify the existing selected "Interim" Remedy. In response, the U.S. Environmental Protection Agency (EPA) has prepared a ROD Amendment that provides a full explanation and comparison of old and enhanced Site IRA activities. Based on this new information, the IRA will be divided into two phases: 1) Phase I that consists of the majority of previously selected remedial items, and 2) Phase II that will consist of new activities.

Major differences in Phase I include: 1) the elimination of an on-site consolidation area, 2) off-site disposal of tar-cubes, metallic debris, waste, piles, and wood-tar wastes. New activities to be conducted as Phase II of the IRA consist of: 1) removal, treatment (if necessary) and disposal waters at the Storage Basin, 2) removal off-site of Storage Basin wood-tars and associated contaminated soils, appropriate disposal and/or treatment, or utilization of these wastes as fuel, 3) air monitoring at the Primary Site and the Storage Basin, and 4) additional monitoring wells and soil borings downgradient of the Storage Basin and Still House foundation sump (this activity to be conducted by EPA).

1.1 Site Name and Description

The Wrigley Charcoal Superfund Site (the "Site") is located in Wrigley, Hickman County, Tennessee. This Site is approximately 45 miles southwest of Nashville, Tennessee. The Wrigley Charcoal Superfund Site, as depicted in (Figure 1), consists of four distinct areas: 1) the 35 acre Primary Site (acreage represents the extent of industrial activities in the valley), 2) the three acre Storage Basin (and an adjacent area called Clark Hollow), 3) the forty acre Irrigation Field, and 4) the three and one half


APPROXIMATE PROPERTY BOUNDARY
IRRIGATION FIELD
0 250 500 750 1000
GRAPHIC SCALE IN FEET
HILL CREEK
CREEK
OVERFLOW BASIN
STORAGE BASIN
ATHLETIC FIELD
TN - 100
PRIMARY SITE
CLARK HOLLOW
APPROXIMATE PROPERTY BOUNDARY
MAJOR ROAD
MINOR ROAD
STREAM
ELEVATION
RESIDENTIAL
INDUSTRIAL
PROJECT:
WRIGLEY CHARCOAL SITE
MAP TITLE:
FACILITY SITE LOCATION AREAS
PREPARED FOR:
U.S.E.P.A. REGION IV ATLANTA, GA
REMEDIAL PROJECT MANAGER – D.A. BELL
PREPARED BY:
UNIVERSITY OF CINCINNATI
5995 Center Hill Road
Cincinnati, OH 45224
FILE FSRV.DWG
DRW BY EBS
DATE 10/28/91
CHK BY KMS
FIGURE 1

acre Athletic Field.

The ROD Amendment is being issued by the EPA, however, activities concerning the IRA (also known as Operable Unit 1 (OU-1)) are being conducted by the State of Tennessee through Cooperative Agreements. Due to fundamental changes in the Selected Remedy, the Agency has decided to amend the 1991 ROD pursuant to the National Contingency Plan (NCP), 40 C.F.R. Section 300.435 (c)(2)(ii).

This document includes information that will serve to clarify information previously outlined in the IAROD. The Administrative Record contains the information upon which the IAROD was based. This IAROD Amendment and supporting documentation will become a part of that Administrative Record which is location in the following places:

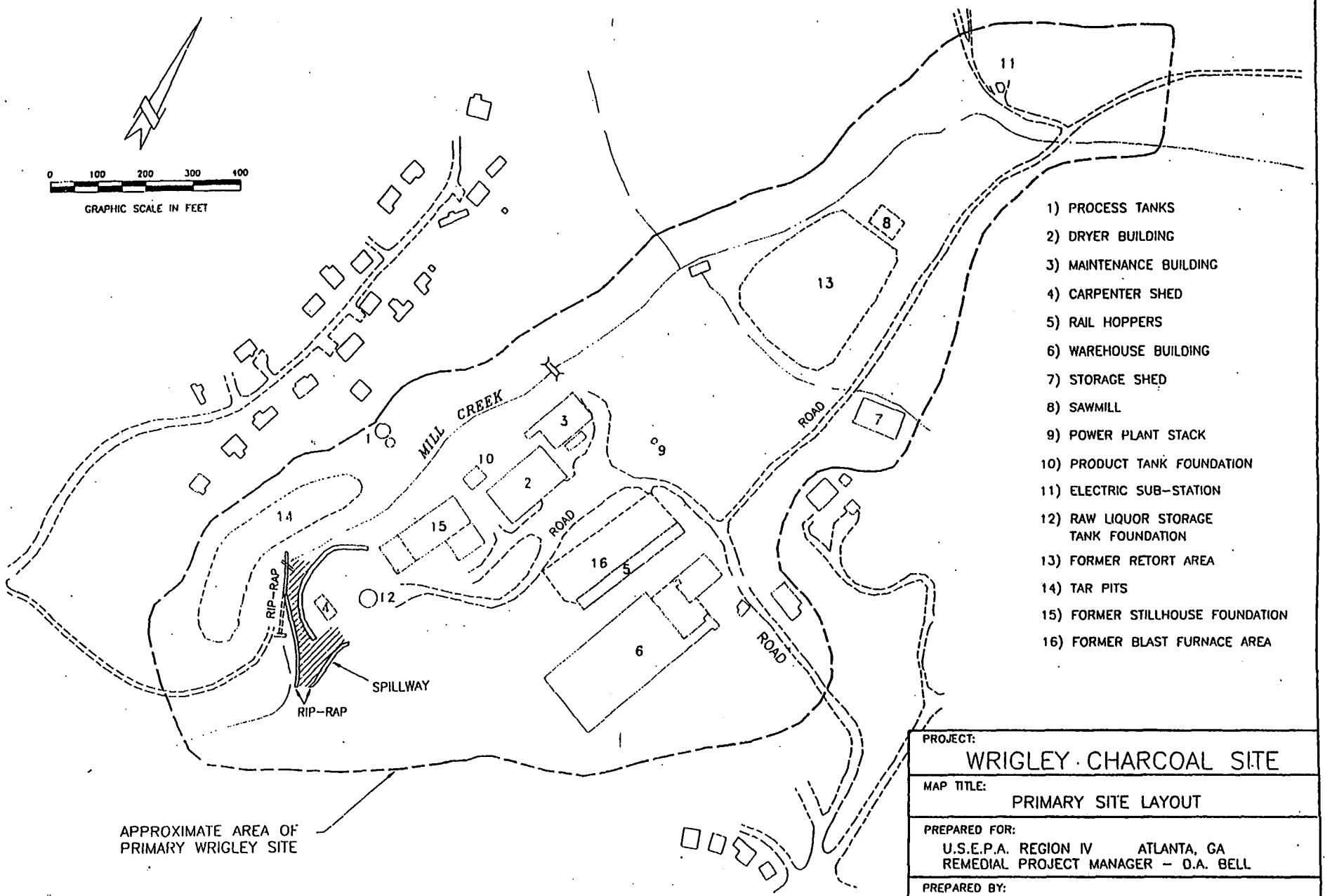
Hickman County Public Library
120 West Swan Street
Centerville, Tennessee 37033
(615) 729-5130

Superfund Records Center
345 Courtland Street, N.E.
Atlanta, Georgia 30365
(404) 347-7791

1.2 Summary of Site History

The Primary Site (Figure 2) was used for industrial operations such as producing iron, charcoal, and wood distillation products intermittently from 1881 to 1966. The Storage Basin and Irrigation Field were utilized by the Tennessee Products and Chemical Corporation for the disposal contaminated Site wastewaters beginning in the 1940's and continuing until the mid-1960's. The Athletic Field was constructed at the previous location of a large ravine in the town of Wrigley. Slag and soils derived from the Primary Site were utilized to fill this area from 1938-1950 when the field was opened. The field has been in use since the early 1950's and is still regularly used by local residents.

The businesses or individuals involved in the industrial operations during this time period no longer exist and previous investigations indicated there are no Potentially Responsible Parties (PRPs) from this time period that may fund cleanup operations. The Site was purchased in 1966 by the Tennessee Farmers Cooperative (TFC) who are the present owners (as the present landowners are a PRP) of most Site areas. Portions of the Primary Site were also utilized from 1978 to 1983 by R.T.



PROJECT: WRIGLEY CHARCOAL SITE

MAP TITLE: PRIMARY SITE LAYOUT

PREPARED FOR: U.S.E.P.A. REGION IV ATLANTA, GA
REMEDIAL PROJECT MANAGER – D.A. BELL

PREPARED BY: UNIVERSITY OF CINCINNATI
5995 Center Hill Road
Cincinnati, OH 45224

FILE	WRIGOLD.DWG	DRW BY	EBS	DATE	10/15/91
		CHK BY	KMS	FIGURE	2

Rivers (another PRP) for metals machining, storage of waste products obtained from other local industries, and recovery of copper from transformers. These additional operations were conducted primarily in three of the remaining on-site buildings; namely, the dryer building, the maintenance building, and the storage shed (Figure 2).

1.3 Waste Handling Procedures and Contamination Problems

Much of the waste at the Wrigley Site was disposed into the North Fork of Mill Creek. This practice occurred until the mid-1940's when the State of Tennessee requested that the TPCC identify adequate alternatives to their waste disposal procedures. The TPCC constructed wastewater impoundments, investigated spray irrigation and trickling filter technology in an attempt to degrade phenolic and PAH contaminated wastestreams. These attempts to reduce or impound contaminated wastestreams inadvertently led to additional areas of contamination. In addition, the overall condition of the facility was poor and spills of VOCs and semi-volatile organic compounds (SVOCs) were commonplace.

The Primary Site is now abandoned but significant contamination exists in abundant waste piles, soils, buildings, tar-pits, and in the above ground storage tanks (called the process tanks). Variable levels of contamination has been identified in stream sediments, fish in the North Fork of Mill Creek, and in the shallow groundwater. These areas contain hazardous substances identified as phenol, 2,4-dimethylphenol, benzene, toluene, polycyclic aromatic hydrocarbons (PAHs), an abundant variety of metals, halocarbons, asbestos, and traces of furans, dibenzofurans and dioxins.

The Storage Basin located 1400 feet west of the Primary Site contains within the deeper sediments high levels of SVOCs, VOCs, and metals.

The Irrigation Field (and associated wastewater collection lagoon) located 3500 feet northeast of the Primary Site appears to have relatively low levels of SVOC, VOC, and metals contamination.

The Athletic Field is located 800 feet southeast of the Primary Site in the east portion of the Wrigley community. Athletic Field subsurface soil analyses showed the presence of relatively low levels of lead, copper, zinc PAHs, toluene, xylene, and trace levels of dibenzofuran, furans and dioxins. Contaminants are all at levels well below the level of concern with the exception of one sample taken outside the outfield fence that had elevated levels of metals. Follow-up sampling indicated

this was an isolated sample and that the soils do not pose a problem at this location.

1.4 Designation of Tar Wastes

Wastes at the Wrigley Charcoal Site have been historically discussed as coal-tar wastes from coking operations. These wastes were previously considered to be K-listed RCRA wastes by the Emergency Response and Removal Branch (ERRB) during an emergency response effort in 1988. These wastes were handled by ERRB as K087 (sludges from coking operations) wastes and 130 cubic yards of tar waste was transported and disposed at the Allied Signal facility in Detroit, Michigan. If the coking operation designation were to be employed to describe Wrigley Site wastes, process tank waste sludges could be classified as K142 - tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal. However, the Wrigley Charcoal Site never received coal for the manufacture of coke to fuel the blast furnaces. The Wrigley Charcoal Site retorted (or distilled) local hardwood trees from the 3,000-acre facility to produce charcoal for the pig-iron blast furnace. Considering the fact that this Site never formally maintained a coking operation, it is reasonable to conclude that tar waste from the Wrigley Charcoal Site can be referred to as "wood-tar" and not "coal-tar" that is a K-listed waste under RCRA. While the Wrigley tars do not fit the profile of a K-listed waste, it is important to note that the tars also have constituents in which the K-listed wastes are based. These constituents are phenol and naphthalene. Phenols have been identified in very high concentrations at the Site and compounds related to naphthalene (methyl-naphthalene) have also been identified.

In spite of high concentrations of phenols, elevated PAHs, and high levels of tentatively identified compounds which include hydrocarbons, recently sampled wood-tar wastes have passed TCLP tests conducted through TDSF. Based upon the above information, the EPA Remedial and RCRA programs and TDSF consider this waste to be classified as a RCRA solid waste and may be utilized as an fuel in an industrial furnace or boiler. Since these wastes are classified as RCRA solid wastes, they will not be subject to 40 CFR Part 260 which refers to Burning of Hazardous Waste in Boilers and Industrial Furnaces (BIF Regulations). In the event off-site incineration is elected, these wastes will not be required to go to a RCRA permitted or interim status facility (in other words a BIF facility). Any facility that does receive this waste will be required by EPA and State of Tennessee to demonstrate the material can be eliminated within specified guidelines as set forth by the Air Pollution Division of the State of Tennessee and the EPA, as well as demonstrate the

residual ash can be handled in accordance with protective procedures that will be outlined as part of the forthcoming remedial design.

In addition, the wood-tar wastes at the Wrigley Site have been sampled for dioxins and all levels identified have been well below the action level of 1 ppb. The State of Tennessee has reviewed all of this data and has concluded that these trace levels of dioxins, furans, and dibenzofurans do not present a problem for off-site transport and incineration at a boiler or industrial furnace. In the event the material is utilized in a boiler or industrial furnace, the facility that receives the waste must apply for a State of Tennessee permit for the incineration of the wood-tar as well as present a compliance monitoring plan that describes the regulatory limits that will be maintained during the incineration of the wood-tars. The subject incineration facility must also submit an evaluation of ash handling and disposal procedures in order that the residual material is handled in accordance with State and Federal regulatory guidelines.

1.5 Explanation of Fundamental Remedy Changes

Significant modifications to the IRA are outlined in Table 1. Additional activities that are now required as part of Phase I are summarized within Table 2. Phase II activities now required at the Storage Basin are outlined in Table 3. The selected remedy and subsequent modifications within this ROD Amendment include many off-site disposal activities instead of temporary storage in an on-site containment area. This change is required at the Wrigley Site since: 1) much of the Site lies within the 100-year floodplain, 2) larger quantities of sludges were encountered in the Process Tanks and at the Still House, 3) vandalism and theft at the Site has recently become a significant problem, and 4) certain mixed Site wastes have passed TCLP and are suitable for disposal in RCRA Subtitle D facilities.

Concerning Site flooding, the flood of 1991 demonstrated that this Site floods much worse than previously thought since several areas outside of the 100-year floodplain were also affected. Many areas that were not underwater during this flood were the Sites of significant soil slumping, debris flows, and small mudslides. Based upon our observations, the Primary Site and Storage Basin area appear to be unfit as potential locations for any type of on-site disposal (landfilling, etc). In light of these difficulties, we have elected to transport and dispose of many Site wastes. This provides more stable and safe Site areas and will significantly reduce the potential for Site wastes to enter and affect the North Fork of Mill Creek, Mill Creek, and the Duck River Drainage Basin.

TABLE 1

SIGNIFICANT DIFFERENCES BETWEEN ORIGINAL IAROD AND MODIFIED* ACTIVITIES

* These modifications have already been accomplished per State of Tennessee Field Changes with the exception of Storage Basin remediation.

ORIGINAL ACTIVITY	MODIFIED ACTIVITY
1) Metallic wastes in the maintenance buildings' burn-pit will be excavated, transported, stabilized and disposed in an EPA approved RCRA facility. Transformers found in the maintenance building will be staged with other transformers found at the Primary Site in an on-site consolidation area.	Interim Action Phase 1 remedial efforts identified 1) transformer carcasses, and 2) transformers filled with non-PCB containing tar. These materials will be transported and disposed in a RCRA Subtitle D facility. In addition, at the present time the State of Tennessee has determined that a Site waste debris can be effectively removed from the flood plain and disposed in EPA approved RCRA facilities. Given these circumstances, the on-site containment facility will not be necessary.
2) Process tank waste sludges will be excavated, transported, incinerated, stabilized and disposed in an EPA approved facility. The metallic tanks will be decontaminated and sold as scrap.	Tank wastes were estimated at 29 cy. More raw sludge was encountered below solid tar wastes. The increase amounted to an additional 15 cy. The wastes have passed TCLP and can be classified as non-hazardous solid wastes that may be recycled. The concrete foundations will be decontaminated, removed, and disposed of as construction debris in an EPA or State approved landfill.
3) Black coal-tar sludge wastes on the ground from the process tanks down to the North Fork of Mill Creek will be excavated, transported off-site, incinerated, stabilized and disposed of in an EPA approved facility.	Mixed wastes and soil may be excavated, transported off-site, and stabilized in an EPA approved RCRA Subtitle D facility. Due to a very steep grade of the hill, the excavated area was graded and seeded. The adjacent area was reinforced with riprap extending approximately 20 feet down and towards the North Fork of Mill Creek. This was needed to prevent erosion or potential failure of this excavated area into the creek.
4) The surficial coal-tars at the NE corner of the Still House are to be excavated to approximately 1 ft. depth (3.5 cy)	The Still House foundation sump was excavated per State change orders to approximately 4 ft (instead of 1 ft) during phase 1 of the Interim Action. Approximately 45 cy of this material was excavated. This material has passed TCLP and may be classified as non-hazardous solid waste and recycled as fuel.

TABLE 1

SIGNIFICANT DIFFERENCES BETWEEN ORIGINAL IAROD AND MODIFIED* ACTIVITIES

* These modifications have already been accomplished per State of Tennessee Field Changes with the exception of Storage Basin remediation.

ORIGINAL ACTIVITY	MODIFIED ACTIVITY
5) Friable asbestos corrugated roofing material (ACM) will be removed for disposal in an approved asbestos landfill. Wastes are on the small building in from of the maintenance building and broken ACM on the ground near the dryer building, maintenance building, area near the previous location of the still house, and in the old tank battery. Also, ACM contaminated soils adjacent to these wastes will be removed to an approved asbestos disposal facility.	Visibly friable ACM was removed from the small building in front of the Maintenance Building, and ACM on the ground may be placed into 20 cubic yard containers. The ACM was tested and disposed in an EPA approved landfill. Visual identification of asbestos contaminated soils is difficult in areas of extensive mixed wastes and debris piles. Therefore, removal of any asbestos contaminated soils is to be performed as part of more extensive excavation efforts (Operable Unit 2) at the Still House since the Tank Battery, Dryer and Maintenance Buildings are adjacent to this area.
6) Exposed black coal-tar wastes in the spillway may be excavated, transported, incinerated, stabilized and disposed in an EPA approved facility.	Wastes located in the spillway were determined to be predominantly soils blackened with charcoal. This material was determined not to be leachable (passed TCLP) and contains no raw coal-tar sludges. This material was disposed in a RCRA Subtitle D facility.
7) Twelve staged drums located near the maintenance building and two drums in the storage shed, will be transported, with contents incinerated, stabilized and disposed of in an EPA approved facility.	Wastes in 14 deteriorating drums were emptied into 3 lined 20 cubic yard containers and sampled. Based upon the results, these wastes were eliminated at an approved EPA facility. The emptied drums were decontaminated and disposed.
8) The spillway should be repaired and re-engineered to accommodate the significant flood waters that frequent this area. This may involve straightening and further excavating the spillway down to the existing creek grade (additional information concerning the spillway is presented on p. 47). This is considered to be an interim activity;	No modification.

TABLE 1

SIGNIFICANT DIFFERENCES BETWEEN ORIGINAL IAROD AND MODIFIED* ACTIVITIES

* These modifications have already been accomplished per State of Tennessee Field Changes with the exception of Storage Basin remediation.

ORIGINAL ACTIVITY	MODIFIED ACTIVITY
9) Site surface waste/debris piles that include tar-cubes, pieces of ACM, transformer materials, crushed drums, and other miscellaneous metallic debris and tar waste will be sorted. Pieces of ACM will be disposed of with other ACM previously described in item 6. Metallic scrap will be transported off-site and disposed in an EPA approved facility. [If during Remedial Design (RD) it is determined that metals debris is to remain on-site, this waste will be placed in the on-site consolidation area] Materials such as tar-cubes and wastes that may be remediated during later remedial activities will be stored in an on-site consolidation area.	Tar-cubes were recently tested and passed TCLP. These cubes and other materials containing low levels of contaminants were disposed in a RCRA Subtitle D facility. Waste debris piles were determined during sorting to contain predominantly tar-cube chips and/or tar contaminated soils. These entire remaining contents of these piles were excavated and removed from the flood plain and disposed in a Subtitle D facility. The materials did not require stabilization as during testing, these wastes passed TCLP.
10) A limited investigation will be performed at the Irrigation Fields' abandoned 3/4 acre lagoon. This activity will include several soil borings/excavations (to approximately 10 feet) and several additional soil samples at the previous location of the feed pipe outflow. This activity will determine whether wastes similar to those at the Storage Basin are present in the deeper soils. This is a modification from the Proposed Plan and considered to be an interim activity;	No modification.
11) Site access controls including fencing and placards will be implemented at the Primary Site.	Due to the high probability of theft, steep Site valley walls, and isolated Site location, gates and short sections of adjoining fence were utilized at the east and south entrances of the Primary Site.
12) Sampling and Analyses	No Modification.

TABLE 1

SIGNIFICANT DIFFERENCES BETWEEN ORIGINAL IAROD AND MODIFIED* ACTIVITIES

* These modifications have already been accomplished per State of Tennessee Field Changes with the exception of Storage Basin remediation.

ORIGINAL ACTIVITY	MODIFIED ACTIVITY
13) Potential Risks through dermal contact will be reduced at the Storage Basin by fencing the area. This will discourage and possibly prevent entry and disturbance of this area until wastes can be appropriately eliminated during later remedial activities.	During OU-1 (Phase I) EPA and Tennessee evaluated the need for immediate Storage Basin remediation. As Storage Basin waste remediation appeared imminent and some of the wood-tar was needed for a State treatability study, a State field change was made to regrade the road to the basin. Since Storage Basin wastes are to be completely remediated, there will be no need to fence the location following cleanup efforts. Once remedial activities have been completed, the access road will be eliminated with the area graded and seeded. Additional activities for the Storage Basin are listed in Table 2.

TABLE 2

ADDITIONAL INTERIM REMEDIAL ACTION ACTIVITIES PHASE I

ADDITIONAL PHASE I ACTIVITY	ESTIMATED COSTS	TIME TO IMPLEMENT
1) Various debris (including scattered transformers) was cleaned out of the Dryer building so that the area could be utilized as a staging area during bad weather conditions.	$2,500	1 Week
2) Slope stabilization was needed at the base of the excavation near the North Fork of Mill Creek below the Process Tanks. Approximately 3 cy of riprap, 3 cy of borrow clay, and 20 linear feet of synthetic cover were utilized to prevent excessive erosion of this area adjacent to the creek.	$3,000	1 Week
3) Surficial waters originating from the unnamed tributary next to Storage Shed are ponding down stream in the former area of the retort sumps. Portions of concrete slabs should be moved so waters can flow freely through this area without entering any relict Site piping that may discharge near the Still House.	$2,500	2 Days
4) Metallic and loose surficial debris should be removed from an area around the smoke stack northeast to the access road down to the North Fork of Mill Creek. A geophysical survey will likely be implemented in this area in the future in order to identify any possible underground storage tanks that may reside at this location.	$5,000	1 Week
5) While invasive activities were mandatory at the Still House Foundation Sump (due to expansion of wastes in this contained area), they have been kept to a minimum during this Interim Action to reduce any potential fugitive emissions. RI data indicated that invasive activities greatly increase the fugitive air emissions. It will be necessary to monitor the ambient air and take grab samples from the perimeter of the Still House to better establish baseline VOC emissions at this location. During this cooperative State/EPA effort the data generated will assist with the selection of an appropriate cleanup method for OU-2 which is proposed to eliminate wastes at this location.	$2,000	1 Month

TABLE 3

STORAGE BASIN REMEDIAL ACTIVITIES
INTERIM REMEDIAL ACTION PHASE II

	ADDITIONAL ACTIVITY	ESTIMATED COSTS	TIME TO IMPLEMENT
1)	Mobilization, demobilization and Storage Basin preparation. Establishment of a new engineer's office in the vicinity of the Storage Basin requiring all necessary utilities.	$10,000	1 week
2)	Restrict access to the Site by installing a gate and short sections of adjoining fence.	$2,000	3 days
3)	Monitor air to develop baseline conditions at the basin. Implement an air monitoring program that will effectively monitor for, and identify any fugitive emissions that may potentially be released during Phase II of the Interim Remedial Action.	$3,000	1 month
4)	Removal and treatment (if necessary based upon analytical at time of removal) of approximately 850,000 gallons of water from basin.	$32,000	2 weeks
5)	Removal and disposal of approx. 350,000 gallons (1,785 cubic yards) of medium-viscosity wood tar waste. Disposal options for this material will be outlined within the Remedial Design. At the present time, the wood tar wastes pass TCLP and are designated a non-hazardous solid waste that may be utilized as a fuel in boilers.	$250,000	1 Month
6)	Remove and dispose of approximately 2,100 cubic yards of associated mixed wood tar and soil. This material will also be considered a non-hazardous solid waste and may be utilized potentially as a fuel or disposed of properly in an approved facility in the most conservative, safe, and effective manner as determined during the Phase II RD.	$113,000	2 weeks
7)	Removal and disposal of wood tar residues and mixed soils from the overflow basin. Based upon a historical data search and photogrametric evaluation, it appears that minimal amounts of wood tar migrated from the Storage to Overflow Basin. The present estimated volume of affected material at this location is less than 50 cubic yards. This material will be disposed in accordance with the final evaluation as presented within the Phase II RD.	$2,000	2 Days

TABLE 3

STORAGE BASIN REMEDIAL ACTIVITIES
INTERIM REMEDIAL ACTION PHASE II

ADDITIONAL ACTIVITY	ESTIMATED COSTS	TIME TO IMPLEMENT
8) In the event that the wood tars are to be utilized as a fuel, the Dryer Building will need to be prepared for the blending of wood tars with sawdust. Fugitive emission controls and additional precautionary measures will be implemented (to be outlined in the Remedial Design).	$4,000	1 Month
9) Utilize existing clay berms to establish a clay cover to enhance drainage, prevent water infiltration, and conform to existing topography. Drawings and cross-sectional plan views will be provided within the Phase II RD. Establish a vegetative cover utilizing top soil and seed to prevent erosion of the clay cover.	$12,000	1 week
10) Contour the surface of the Overflow Basin to properly drain into Clark Hollow. Contouring will conform to final Storage Basin surface and prevent retention of water.	Cost included with #9	3 days
[Potential Additional Phase II activity] In the event that elevated levels of fugitive emissions are identified at the previous location of the Still House, this area will be covered with a sufficient amount of clay/soil to prevent release of contaminants to the air. The clay will be obtained from the east hill borrow location presently being utilized for Phase I construction activities.	$2,000	1 Day

Site vandalism has recently been on the increase with placards shot or stolen, locks on fences shot (one well lock also shot), tarps for roll-off containers stolen, and sections of fencing and gates damaged. At this time the EPA and State of Tennessee believe that large sections of high quality fence & gates would be a viable target for theft in this remote area. For these reasons it has now been determined that short sections of fence adjacent to gates will be utilized instead of perimeter fencing. Several of these areas are remote and we do not believe that the lack of perimeter fencing will pose a problem. Trespassers have been noted to scale other fences at the Primary Site and at the present time, we feel that short sections of fence adjacent to gates will limit the amount of vehicular traffic that may enter several specific Site areas under remediation.

2.0 DESCRIPTION OF ORIGINAL SELECTED REMEDY AND NEW PROPOSED REMEDY

The alternatives that EPA has evaluated for the Amended Interim Action are described briefly below. EPA evaluated these options using the nine evaluation criteria listed in Table 1.

Alternative 1: *No Action*
Cost: $0
Time to Implement: N/A

The EPA requires that this alternative be evaluated at every site to serve as a baseline for comparison for all other alternatives considered. Under this alternative, no remediation would take place. The only reduction of contaminant levels that could potentially occur would be via natural processes such as **dispersion** or **attenuation**. There would be no associated costs with this alternative.

Alternative 2: *Original Remedy - Thirteen remedial items as presented in the ROD. All are small-scale activities except for Spillway restoration.*

Cost: $ 750,000 - $1,100,000
Time to Implement: 6 months

Alternative 3: *New Proposed Remedy - Eliminates on-site consolidation area, provides off-site disposal of wastes, initiates large-scale remediation at the Storage Basin as described in Table 3, expands scope of Still House excavation, provides erosion control at the hill adjacent to the Process Tank.*

Cost: $800,000 - $1,200,000 (Costs = Phase 1 + Phase II)
Time to Implement: Including Phase I - 14 Months

2.1 Alternative 2 - Address Primary Site imminent concerns as described in Tables 1 & 2, access restrictions at the Primary Site and Storage Basin, and sampling and analyses to define feed pipe outflow at Irrigation Field and hot-spot at Athletic Field.

The original remedial measures are designed to reduce and eliminate some of the most imminent and substantial dangers that reside at the Primary Site and reduce risks associated with dermal contact at the Storage Basin through access restrictions. This alternative includes implementation of institutional controls that prevent the future use of ground water at the Primary Site. This alternative reduces the risks associated with various contaminants at the Primary Site but does not address Storage Basin wastes.

2.2 Alternative 3 - Modifies Original Remedy as described in Tables 1 & 2. Addresses remediation of Storage Basin wastes.

This alternative addresses remediation of the Storage Basin where wastes are located at the top of a hill adjacent to the North Fork of Mill Creek. Medium-viscosity wood-tars reside under approximately 2-3 feet of water and 3 inches of silt and clay. Wastes did not present the appearance of being exposed prior to preliminary activities conducted by the State of Tennessee. However, at the present time the State has removed a portion of the water at the basin and investigated (via trackhoe) the extent of wood-tars throughout the basin. Given the basins present condition, dermal contact with these wastes is probable in the event individuals were to enter the basin. Although the berms presently appear intact in spite of recent activities, slumping during times of heavy precipitation has also been noted following the flood of 1991. The basin is also located in karst terrain and in the event the tamped-clay bottom of the basin was compromised, wastes would likely enter the karst network and future waste remediation of these wastes would be impossible. Remediation of the Storage Basin would essentially eliminate risks at this location. Any potential impact to the groundwater/air or from transport of wastes during remedial activities will be monitored in order to insure that these activities have no adverse impact to human health and the environment.

3.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

This section provides the basis for determining which alternative 1) meets the threshold criteria for overall protection of human health and the environment and compliance with ARARs, 2) provides the "best balance" between effectiveness and reduction of toxicity, mobility, or volume through treatment, implementability, and cost, and 3) demonstrates state and community acceptance. A glossary of the evaluation criteria is provided in the IAROD.

3.1 Overall Protection of Human Health and the Environment

Considering the extent of contamination at the Wrigley Charcoal Site, Alternative 1 would not be protective of human health and the environment and will not be further considered. Alternative 2 is protective of human health and the environment to the extent discussed within the IAROD. Alternative 3 provides more protection since it addresses and eliminates the Storage Basin, a major area of Site contamination. In addition, alternative 3 adds additional air and groundwater monitoring in order to fully assess the impact of remedial activities. Alternative 2 is protective of human health and the environment since reduces or controls significant, immediate, and potential threats from direct exposure to hazardous contaminants at the Primary Wrigley Charcoal Site and the Storage Basin. Institutional controls such as deed restrictions will limit future use of these locations which will reduce risks associated with these contaminated areas. Alternatives 2 and 3 also provide the basis for future action with the distinction between the two alternatives being that Alternative 3 will eliminate the need for significant future actions at the Storage Basin. Therefore, concerning overall protection of human health and the environment, Alternative 3 provides significant advantages over Alternative 2.

3.2 Compliance with Applicable or Relevant and Appropriate Requirements

Alternative 2 fully meets ARARs concerning the on-site consolidation and temporary storage of waste and debris prior to remediation during a later operable unit. Alternative 3 will also meet ARARs as applicable to off-site disposal of Primary Site waste and debris. While neither Alternative is considered to be the final Site remedy, Alternative 3 is considered to be more protective because this action fulfills, for the Storage Basin, the statutory preference for remedies that employs treatment that reduces toxicity, mobility, or volume as a principal element. Subsequent actions are planned to address fully the threats posed by the conditions at this Site. Alternative 3 also totally eliminates much of this Site debris through off-site disposal. This prevents these wastes from either being on or adjacent to the flood plain of the North Fork of Mill Creek or from potentially being vandalized in the consolidation area as mentioned in the original selected remedy. Tar-cubes, transformers and non-corroded metallic material that has passed TCLP will be transported and properly disposed in an approved facility instead of stored in an on-site consolidation area.

Since wastes such as tar-cubes will not be moved within to an on-site consolidation area, the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) will not be triggered. This is a change from the original IAROD which indicated ARARs pertaining to storage would need to be waived (previously discussed in Section 9.2 of

the IAROD). Concerning off-site transport and disposal of wood-tar wastes, contaminated soil, and site debris, RCRA Subtitle C requirements are applicable when excavating and transporting the soil that does not pass TCLP. Safety precautions specified in RCRA must be followed which include standards and requirements for owners and operators of treatment, storage, and disposal (TSD) facilities.

A list of major ARARs that pertain to the Wrigley Charcoal Site interim and early final actions is presented below while a more thorough description and explanation of major ARARs is presented in Appendix E of the IAROD.

3.2.1 Action Specific ARARs

- RCRA Subtitle C: 40 CFR 260.1, 40 CFR Part 262, 40 CFR Part 462, 40 CFR Part 262, 40 CFR 264, 40 CFR Part 265.
- Standards Applicable to Transporters of Hazardous Waste: 40 CFR Part 263.
- Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs): 40 CFR Part 264.
- DOT Rules for Hazardous Materials Transport: 40 CFR Part 107, 40 CFR Part 171-179.

3.2.2 Location Specific ARARs

- Federal Protection of Wetlands Executive Order: E.O. 11990, 40 CFR Part 6, Appendix C.
- Clean Water Act (CWA): 40 CFR Part 230, 33 CFR Parts 320-330.
- The Fish and Wildlife Coordination Act: 16 USC 661, Section 404.
- The Fish and Wildlife Improvement Act of 1978: 16 USC 742a, and the Fish and Wildlife Conservation Act of 1980: 16 USC 2901.
- RCRA Location Standards: 40 CFR 264.18.

3.2.3 Contaminant Specific ARARs:

- Reference Dose (RFD): as defined by IRIS (EPA Integrated Risk Information System). TBCs for this interim action.
- Carcinogenic Potency Factors (CPFs): TBCs for this interim action.
- EPA Health Advisories: TBCs for this interim action.
- Clean Air Act (CAA): National Ambient Air Quality Standards

(NESHAPs) 40 CFR Part 50, National Emissions Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR Part 61, New Source Performance Standards (NSPS) 40 CFR Part 60. These are TBCs for the Wrigley interim action.

- Clean Air Act (CAA): NESHAP standards 40 CFR Part 61 Subpart M pertains to any renovation or demolition activities concerning asbestos at the Wrigley Site. This may pertain to removal of ACM from the small building adjacent to the Maintenance Building. These are TBCs for the Wrigley interim action.

EPA will attempt to meet "best demonstrated available technology (BDAT) requirements (as described in RCRA LDR guidance, 9347.3-06FS, 9/90) for wastes to be treated at the Wrigley Charcoal Site. If during remediation, these requirements can not be attained, EPA will obtain a treatability variance, and will attempt to meet the treatability variance levels. Table 3 of the IAROD presents cleanup criteria for the BDAT, and treatability variance levels.

The final Site cleanup levels for the interim activities are not addressed in the original IAROD or this IAROD amendment because such goals are beyond the limited scope of this action. The final cleanup levels for interim activities will be addressed by the final remedial action ROD for the Site.

3.3 Long-Term Effectiveness

Alternative 3 provides for excavation, transportation off-site and incineration of Storage Basin wood-tars and appropriate disposal of the residual ash will permanently eliminate wastes at this location. This provides clear advantages over Alternative 2 since that does not present any remediation at the Storage Basin. The same scenario is applicable for Process Tank and Still House sump wastes at the Primary Site. Also, excavation, transportation, stabilization, and disposal of burn-pit wastes provides long-term effectiveness at the burn-pit. However, all the interim measures will not provide any degree of long term effectiveness for other highly contaminated areas at the Wrigley Site. Primary Site areas such as the Tar Pits and Still House are proposed for remediation during the next operable unit. Concerning these Site areas, the EPA will continue to evaluate long-term effectiveness and permanence as part of the development of the final action for the Site.

3.4 Reduction of Toxicity, Mobility or Volume

Alternative 3 reduces toxicity, mobility, and volume of several Primary Site wastes and eliminates wastes at the Storage Basin. These

actions will significantly reduce the potential for dermal contact, migration, or bioaccumulation of Site waste streams addressed through these Interim Remedial Actions. Activities for this Interim Action are intended to reduce present risks associated with the most imminent and substantial dangers to human health and the environment while preparing several of the Site waste locations for future remedial activities that will eliminate the wastes. Alternative 1 satisfies this requirement concerning small-scale activities at the Primary Site. However, Alternative 3 satisfies this requirement concerning both Primary Site Interim Action Activities as well as the elimination of wastes at the Storage Basin.

3.5 Short-Term Effectiveness

Alternative 3 will provide a much higher degree of short-term effectiveness than Alternative 2 especially where the Storage Basin remediation is considered. The IRA is effective in the short-term because it would significantly reduce the potential threats from contaminants at all of the activity locations previously described. No adverse affects are expected during interim remedial activities that could impact human health or the environment. Any short-term risk to workers involved in Storage Basin excavation, transportation or construction activities would be reduced through evaluations performed during the Phase II Remedial Design, and the Phase II health and safety plan.

3.6 Implementability

The implementability of an alternative is based on technical feasibility, administrative feasibility and availability of services and materials. There are no expected difficulties associated with the implementation of either Alternative 1 or 2 since only standard construction techniques will be utilized.

3.7 Cost

Tentative cost estimates provided by the State of Tennessee indicate that Alternative 3 which includes remediation of the Storage Basin will have a present worth cost of approximately $800,000 - $1,200,000. Previous cost estimates for the associated with the original IAROD were $984,998. Additional areas of contamination that are not addressed during this interim action are proposed for later remedial activities and the costs of these activities will be determined after additional information is obtained.

3.8 State Acceptance

While the EPA is the lead agency for the fund-lead Wrigley Charcoal Site, the State of Tennessee is the lead agency for the IRA (OU-1).

The State has reviewed this document and concurs with the modified cleanup strategy for the Site.

3.9 Community Acceptance

Community response to the alternatives is presented in the Responsiveness Summary (Section 8.0) which addresses comments received during the public meeting and the public comment period (Refer to the Responsiveness Summary for further information).

Public notice of these activities and the Public Meeting appeared in the Hickman County Times on October 31, 1994. The Public Meeting was held on November 3, 1994 at the East Elementary School in Lyles, Tennessee. The community indicated that they support the cleanup measures as they were presented at the meeting. Local citizens, county, and state representatives were also supportive of the proposed activities and were pleased that the cleanup of the Storage Basin was to be accelerated by adding it as part of the first Operable Unit.

4.0 SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternative, and public comments, EPA has determined that the activities as described in Alternative 3 constitute an appropriate interim Site remedy until a final action for the Site is determined.

The major components of the selected remedy include:

STORAGE BASIN ACTIVITIES

1) Removal, treatment (if necessary), and disposal of waters at the Storage Basin. The approximate volume is estimated at 50,000 gallons;

2) Removal off-site of Storage Basin wood-tars and associated contaminated soils, appropriate disposal and/or treatment, or utilization of these wastes as fuel. The volume of raw sludge is estimated at 300-400 cubic yards;

3) Associated wood tar contaminated soils at or below the tar/soil interface will be removed for disposal in a RCRA Subtitle D landfill. The volume of this material is estimated at 200 cubic yards;

4) A minor amount of wood tar contaminated soil will be removed from the Overflow Basin. This material is expected to be less than 60 cubic yards and will be disposed in a RCRA Subtitle D facility;

5) The existing Storage Basin clay berms will be used for clay cover

material once the tar and associated soil has been removed. Since the Storage Basin is perched on top of a hill the finished upper surface can be contoured to conform with the existing topography. An upper dome configuration to enhance drainage is required to prevent infiltration of water. The Overflow Basin will also be contoured to prevent water from accumulating;

6) Air monitoring will be performed at the Storage Basin during excavation and removal of wood tars;

7) At the conclusion of Storage Basin Activities, the road to this area will need to be removed. This will prevent unauthorized access to this area and help to reduce vandalism.

PRIMARY SITE ACTIVITIES

1) The Primary Site Smoke Stack and Retort areas will require further removal of metallic or other debris and excessive vegetation to aid in future sampling prior to cleanup. The total amount of materials removed from these locations are estimated at approximately 200 cubic yards. This debris (including many empty drums) may be placed into an on-site building or decontaminated (if necessary) and transported from the Site to a recycling facility;

2) A small earthen dam will be eliminated by removing the lower concrete wall. This activity is required since waters accumulating at this location are likely entering an hidden underground conduit and exiting a 16 inch pipe at the Still House area. It is estimated that 10 cubic yards of non-hazardous debris will be removed from this location. This may be staged with other concrete adjacent to this location or disposed at a RCRA Subtitle D facility.

3) EPA plans to perform a minor investigative effort following Phase II remedial efforts. During this effort, additional monitoring wells and soil borings will be placed downgradient of the Storage Basin and Still House foundation sump. These monitoring points will serve to assess the impact, if any, of the Phase I remedial activities at these locations. In addition, surface water samples should be obtained from the leachate seeps in the spillway. This information should determine if conditions have changed since spillway reconstruction in 1993;

4) Air monitoring was recently conducted at the Site following Phase I remedial activities. This monitoring was performed to assess the impact, if any, of the Phase I cleanup activities. Once the final results of the data have been submitted, they will be evaluated to determine if any impacts have occurred. If adverse conditions are identified, EPA and the State will determine how

they can be reduced, and implement an appropriate solution.

The major goal of this IRA is to reduce risks at the Primary Site by eliminating, or controlling the most imminent and substantial threats to human health and the environment and also to eliminate wastes and associated threats at the Storage Basin. It should be noted that some of the actions may be modified during the State Lead RD/RA. These changes may reflect modifications resulting from the engineering design process.

5.0 Statutory Requirements

The U.S. EPA and TDEC believe that the activities included in the IRA satisfy the statutory requirements of providing protection of human health and the environment, attain ARARs directly associated with this action and will be cost-effective.

5.1 Protection of Human Health and the Environment

The activities previously described concerning this IRA will provide protection of human health and the environment by removing, treating, and disposing of wood-tar wastes and sludges, and burn-pit wastes that contain significant levels of contaminants. Additional protectiveness is provided by the removal and disposal of the ACM, and drummed wastes, and through Site access and deed restrictions. Implementation of the interim action activities will not pose unacceptable short-term risks or cross media impacts.

5.2 Attainment of the Applicable or Relevant and Appropriate Requirements (ARARs)

For these IRA activities, the final cleanup levels are not addressed in this document because such goals are beyond the limited scope of this action. The final cleanup levels will be addressed by the final remedial action ROD for the Site which takes into account the potential migration of subsurface contaminants. The Storage Basin cleanup is considered an early final remedial action and the final cleanup levels at this location will be addressed by the final remedial action ROD for the Site. ARARs for Site areas that will be addressed will be met as previously discussed in Section 3.2.

5.3 Cost Effectiveness

This IRA employs proven technologies that may be applied to wood-tar wastes, burn-pit wastes, and drummed wastes. The selected remedy provides overall effectiveness proportional to its costs. In the event wood-tars are utilized as a fuel or in the manufacture of coke, these applications both essentially recycle this waste stream and the overall cost per ton ranges from approximately $150.00 to $250.00 according to recent conversations with State of Tennessee personnel. This is

significantly less than other remedial technologies such as thermal descrption, solvent extraction, or on-site incineration. This is also less than biotreatment although for many of the remaining on-site wood-tar waste streams, this may appear to be an appropriate, cost effective technology. This has been evaluated and it has been determined by EPA ORD that the concentrated wood-tars are not suitable for biotreatment. However, biotreatment has been shown in treatability studies to have application to low to moderately contaminated Wrigley soils containing wood-tars. Any potential application of this technology will be evaluated on remaining on-site waste streams during the preparation of the next operable unit.

This selected remedy provides a sufficient margin of protection, and is cost effective when the overall relationship between cost and effectiveness is compared to other alternatives.

5.4 Utilization of Permanent Solutions and Alternative Treatment Technology or Resource Recovery technologies to the Maximum Extent Practicable

Portions of this action are "interim" and are not intended to utilize permanent solutions for any of the four Wrigley Charcoal Site areas. Overall objectives of this IRA are to reduce and/or prevent current or future exposure from exposed contaminants at the Primary Site and Storage Basin that pose the most imminent and substantial threats to human health and the environment. Excavation, off-site treatment and disposal of wood-tar and burn-pit wastes achieves some reduction in the contamination at the Primary Site. Early final actions for wood-tar and burn-pit wastes are intended to utilize permanent solutions on a very limited basis for the Primary Wrigley Site. However, the early final action at the Storage Basin will fully utilize permanent solutions, and either alternative treatment or resource recovery to the maximum extent practicable. The early final actions at the Storage Basin will effectively and completely eliminate these wastes. These activities will also serve to reduce potential complications these wastes may have on future remedial activities.

The EPA will continue to evaluate long-term effectiveness and permanence as part of the development of the final action for the Site. Subsequent actions will provide a final resolution to Site conditions which will be controlled through the selected interim action. Utilization of permanent solution will be addressed in the final decision document for the Site. Portions of this interim action are not designed or expected to be final, but represent the best balance of tradeoffs among alternatives with respect to pertinent criteria, given the limited scope of this action.

5.5 Preference for Treatment

The CERCLA statutory preference for treatment requires that waste treatment be thoroughly evaluated and if possible, treated to reduce or eliminate the threats from hazardous wastes or materials. While the preference for treatment is beyond the scope of many of the cleanup activities, Storage Basin activities that will totally eliminate wastes at that location will satisfy this CERCLA statutory preference.

6.0 Support Agency Comments

The State of Tennessee is the lead agency for the Interim Remedial Action activities which are intended to: 1) eliminate several of the most immediate Site threats, and 2) temporarily address many other Site threats. This IRA is also referred to as OU-1 and now consists of two phases both of which will be State lead. As the support agency for these interim activities, EPA has reviewed these issues with the State, and in cooperation with the State of Tennessee has prepared this Amendment to the IAROD. The EPA and State of Tennessee concur on the activities as presented within this document. Future response actions (OU-2 & OU-3) are expected to be EPA lead and will likely be designed to fully eliminate several large areas of contamination at the Wrigley Site.

7.0 Affirmation of the Statutory Determinations

Considering the modifications that have been made to the selected remedy, the EPA and the State of Tennessee believe that the remedy, as set forth in the ROD and modified by this ESD, remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this Interim Remedial Action.

In addition, the modified remedy utilizes alternative treatment and resource recovery to the maximum extent practicable for this Interim Remedial Action.

8.0 RESPONSIVENESS SUMMARY

The U.S. Environmental Protection Agency (EPA) established a Public Comment Period from 11/7/94 to 12/7/94 for interested parties to comment on EPA's Proposed Plan for the modification of the Interim Remedial Action at the Wrigley Charcoal Site. No extensions were requested to the Public Comment Period. A Public Meeting was held on 11/3/94 and conducted by EPA and the State of Tennessee at the East Elementary School in Lyles, Tennessee. The meeting discussed the need for amending the present Interim Action Record of Decision and past and present Site progress was discussed. EPA and the State also discussed the approach to the future remediation of the Site.

A Responsiveness Summary is required by Superfund law and regulations to provide a summary of citizen comments and concerns about the Site, as raised during the Public Comment Period, and the responses to those concerns. All comments summarized in this document have been factored into the development and implementation of the amended Interim Action ROD at the Wrigley Charcoal Site.

The Responsiveness Summary for the Wrigley Charcoal Site is divided into the following sections:

8.1 Overview: This section discusses the recommended Interim Action for the Site and the Public reaction to this alternative.

8.2 Background of Community Involvement: This section provides a brief history of community interest regarding the Wrigley Charcoal Site.

8.3 Summary of Community Concerns: This section provides information on several of the most important community concerns near the Site.

8.4 Summary of Major Questions Raised During the Public Meeting on November 3, 1994, and EPA responses: This section presents both oral and/or written comments submitted during the Public Meeting and provides the responses to those comments.

8.5 Written Comments Received During Public Comment Period and EPA Responses: This section presents letters or comments submitted during the Public Comment Period and EPA's response to those letters.

Appendix A: Contains the Proposed Plan that was presented to the public on 11/3/94. This document was also placed in the information repository and mailed to those on the mailing list.

Appendix B: Includes the name, address and phone number

of the information repository designated for the Wrigley Charcoal Site.

8.1 Overview

The Proposed Plan for Interim Action activities at the Wrigley Charcoal Site was presented to the public in a fact sheet released on 10/18/94 and at a Public Meeting on 11/3/94.

The major objectives and a description of the modified approach to be implemented as the Interim Remedial Action are presented below:

- Removal and treatment (if necessary) of waters at the Storage Basin. Dependent upon analytical results, waters will be either discharged to the North Fork of Mill Creek or will be transported and disposed off-site in a Publicly Owned Treatment Works (POTW);

- Removal off-site of Storage Basin wood-tar wastes and associated contaminated soils, appropriate disposal and/or treatment, or utilization of these wastes as a fuel;

- Removal of metallic or other debris in the area surrounding the smoke stack extending to the Storage Shed access road down to the North Fork of Mill Creek. This material (including many empty drums) may either be placed into the Storage Shed or decontaminated (if necessary) and transported from the Site to a recycling facility;

- Promote effective drainage and prevent ponding of runoff at the former location of retort sumps. This will likely eliminate one of the sources of surficial waters entering the still house area;

- Provide better control over erosion and/or contaminant migration at the still house area. This can be accomplished by either utilizing and covering the existing open drainage trench at the still house, or by temporarily covering then grading and seeding the area;

- Air monitoring at the Primary Site and Storage Basin will provide additional assurances that the remedy is performed in a manner protective of human health and the environment;

- Additional monitoring wells and soil borings downgradient of the Still House foundation sump and the Storage Basin will provide additional information concerning any

potential impact of selected activities;

- Surface water samples should be obtained from the leachate seeps in the spillway. This information should determine if conditions have changed since spillway reconstruction in 1993;

- Install short sections of fence adjacent to Site gates instead of perimeter fencing. EPA and TDSF believe that perimeter fencing would be a viable target of theft and vandalism.

Implementation of these activities will greatly accelerate the cleanup of the Primary Site and Storage Basin. This action will achieve significant risk reduction early in the Superfund process.

8.2 Background of Community Involvement:

Hickman County is primarily a rural community south southwest of Nashville, Tennessee. The small community of Wrigley that is located just west of State highway 100 is well aware of the past activities that were conducted at the site beginning in 1881. Members of the community have attended the public meetings and availability sessions which included:

State and local officials, neighbors and other community members interviewed periodically since June 1989 to as recently as October 1994 did not indicate having ever received or filed complaints or expressed concerns to local officials except for a single complaint received in 1981. The Wrigley Charcoal site's long history and presence in the community has developed an attitude of acceptance and provided a sense of local history to the community. Curiosity and interest are more frequently encountered than concern. Community residents spoke of taking walks and exploring the site and of children playing on the site.

Though EPA did not perform any formal community relations activities at the site during the 1988 removal activities, EPA was present at the State-sponsored public meeting at the East Elementary School in Wrigley on October 24, 1988. Representatives from EPA and the State of Tennessee provided details of activities conducted to date, pertinent analytical results, as well as proposed activities to be completed in the future. A question and answer period followed these formal presentations, during which the state and federal representatives answered questions from 22 residents and concerned citizens. The State, in conjunction with the EPA, also provided a fact sheet to the community and news media sources in October 1988. This fact sheet referenced EPA's emergency removal activities at the site during the summer and

fall of 1988, and identified both state and EPA contacts.

EPA distributed a fact sheet in August of 1989 prior to having the second public meeting held on October 29, 1989 at the East Elementary School. The purpose of this meeting was to inform citizens and other interested parties of the beginning of the RI/FS.

In December of 1990, another fact sheet was distributed prior to sampling conducted at the Athletic Field and in the town of Wrigley.

In July of 1991, the Proposed Plan fact sheet was distributed explaining interim action activities. Availability of the Proposed Plan was published in the the Hickman County Times on July 15, 1991 and again on July 22, 1991. The third public meeting to present the Proposed Plan for interim action activities concerning the Wrigley Charcoal Site was also held at the East Elementary School on July 25, 1991. At this meeting, concerns and issues were raised concerning the contamination at the Wrigley Charcoal Site.

Site and community visits continued throughout 1992 while the remedial design was in progress. In 1993 another fact sheet was distributed and this coincided with the initiation of the remedial action (Phase I). This phase was completed in July 1994.

8.3 Summary of Community Concerns

The Wrigley community's livelihood revolved around the industrial operations at the plant. The perceptions of the site contamination appear to vary among those formerly employed at the site, those living near the site and those residing some distance from the site or creek.

Since the state and EPA investigations have indicated contamination associated with waste products on the Wrigley Charcoal site, questions have been raised which may not have been of concern previously to the former employees and their families. In addition, the decision to relocate the public water intake (from downstream of the site below the confluence of Mill Creek and the North Fork of Mill Creek to a point upstream of the site on the main branch of Mill Creek) previously created concern to not only the public water recipients but residences along the creek and trout fisherman. Some residents of the community had expressed concerns that relocating the water intake to the main branch of Mill Creek would significantly reduce the water volume flowing through the creek thereby negatively impacting growth potential in the community. Similarly, trout fisherman in the area feel that the dropping water level (resulting from drawdown at the

relocated water intake) could reduce the trout population in the creek.

Historically, everyone interviewed who lived in the area during the operation of the Wrigley plant recalls the smell of wood alcohol either from the creek as it flowed black to the Piney River or in the air from the plant. Though the smell has recalled fond memories for two area residents, several neighbors found it offensive and recalled that it made breathing unpleasant. Another recalled severe headaches and even hospitalization as a child, which she attributed to the wood alcohol fumes. One citizen recalled the wood alcohol odor coming from Piney Creek as it crossed his family's farm over 13 miles away from where the Wrigley process water discharges. other residents have indicated that the smell is still present on rainy or humid days in some areas, including at the old commissary building.

The smell of the creek was always connected to the fact that it was black in color and, on some maps and by some people, it is still referred to as Black Creek. Residents now seemed astounded by the recollection but recall how it was then. One woman recalls during her girlhood that she thought all streams were black. Swimming and playing in the black water creek was a common practice, but parents did caution the children not to put their heads under the water. Two residents recalled the slimy creek bottoms, while another recalled medicinal uses for the water, including treatment for heat rashes. A nearby farmer said his cows and mules preferred the black water to the clear water which was available, and noticed no ill effects. In general, those closest to the site had a greater acceptance of the poor stream condition. State records did note complaints in the 1940's by downstream landowners.

Maintaining the present quality of the public water supply was a concern of many residents. The state of Tannessee's decision to move the water intake has alleviated the concern of some residential water customers, while the concerns of other residents will be alleviated only when the water intake relocation is completed. For other residents, this decision has apparently created concern as to what effects may result from water that has been consumed in the past.

The most noted recreational use of Mill Creek has been trout fishing. According to local residents and wildlife officers, the state has developed a very successful and popular trout fishing program which also brings crowds from Nashville to fish the creek. Regional trout fishing organization's have indicated their concern and interest in activities relating to the future quality and use of Mill Creek.

Health concerns varied considerably among the county residents

interviewed. Many contacts never mentioned health concerns, but only one said there was no concern. This resident remarked how long everyone lived in their community, referencing the number of healthy elderly And that most deaths occur to individuals in their 80's. The County Health Department, however, has received one comment concerning the incidence of cancer in the community. Those that mentioned relatives and former Wrigley plant employees who have cancer or died of cancer wonder if it was due to working at the plant or due to personal health habits, such as smoking. Health concerns noted in the area included emphysema and leukemia. One recalled the memory of seeing a relative covered in black soot at the end of his shift six days a week over a thirty year career.

Access to the site is uncontrolled. Most residents did not know who owns or manages the site and rarely go on to the property. Residents were aware that the site was used for hunting and rifle practice. Children play on the site and unidentified persons have been observed removing items from the site. Several residents indicated that one or more individuals have removed tars and charcoal bricks for heating during winter. Two neighbors have reported fires inside the abandoned buildings on the site, usually at night. A third resident has been concerned about the flammability of the charcoal remnants on the site and off, recalling accounts of spontaneous combustion of charcoal dust, as well as having been burned as a child while walking across a disposal area where the athletic field is now located.

Most of the residents appeared unconcerned, apparently confident that corrective actions were being taken by the proper authorities. In general, the information about site contamination provided in RI/FS and RD/RA documents summarize what is known concerning Wrigley site conditions. This information has been made available to the public and local government officials. Presently, there is no formal or organized community involvement with the Wrigley Charcoal site. However, the county has an active environmental group known as Hickman County Against Lethal Trash (HALT) which was successful in preventing the construction of a hazardous waste incinerator in the county and is very aggressive in protecting the natural resources and environmental setting of the county. Members of this organization indicated their desire to see Mill Creek and the local groundwater resources protected from contamination emanating from the Wrigley Charcoal site. They are interested in having access to information regarding the site, as well.

8.4 Summary of Major Questions Raised During the Public Meeting on November 3, 1994, and EPA responses:

Question: How can you prevent groundwater contamination while you are cleaning the place up?

Response: All on-site cleanup activities will be conducted in order to reduce or eliminate the impact to groundwater. Any large excavations will be performed in coordination with erosion and runoff control features. The majority of the work conducted at the Site thus far has been performed during the dry season from August to November. This has served to prevent excavated material from being saturated with water. In addition, excavated material has been placed either temporarily under high density polyethylene plastic or immediately into roll-off containers for transport. Both methods have been effective in reducing the amount of water that enters the wastes which then prevents the amount of potential fluid leaching from excavated wastes that may enter the subsurface. In addition to prevention of groundwater contamination, we have also been better controlling potential surface water contamination. The spillway reconstruction conducted in 1993 included erosion control features that prevented any excavated wastes from re-entering the North Fork of Mill Creek.

Question: Why would a well a mile downstream not have any contamination?

Response: It is very likely that the groundwaters downstream were contaminated at one time. The reports performed by the State of Tennessee in the 1940's (on the North Fork of Mill Creek to the Duck River) indicated that the drainage basin was contaminated for 26 miles downstream of the old Wrigley Plant. Since that time until the closing of the plant in 1966, the Tennessee Products and Chemical Corporation was working with the State and a local university to develop methods of reducing contamination at the facility. As part of these efforts, after the early 1950's significantly less contamination entered the creek. After approximately 30 years of inactivity, much of the drainage basin appears to have attenuated. It is likely that the significant flood waters that frequent this area have played an important role in reducing contaminant persistence for both surface waters and ground waters. Our sampling and analyses of groundwaters in on-site wells indicates low to moderate levels of contamination in only the shallow aquifer. While this water can discharge via seeps into the creek, analyses of

the creek indicate that levels are below the detection level 50 yards downstream. This indicates that Site contamination is not causing significant surface water contamination downstream. Off-site residential well sampling and analyses indicates no elevated levels of site contaminants.

Question: What about the old ballpark? Has anything been found there?

Response: All of the sampling and analyses to date have only identified one sample that had elevated levels of metals. Additional follow-up sampling was performed to better identify the "hot spot", however, no significant contamination was identified. The Ball Field was built from 1938 to 1950 at a location that was referred to by local residents as the black dump. This originally was a ravine utilized for dumping and burning of garbage, but was subsequently filled in with slag, soils and debris from the Primary Site. When completed, this location served as the Athletic Field for the plant baseball team.

Question: Initially, was the slag dangerous like when it was fresh from the furnaces or whatever?

Response: The slag originally contained high levels of metals similar to other steel or smelter facilities. However, much of this slag has been exposed to the elements for up to 110 years and has subsequently leached. Toxicity tests have been performed on this material and the results show that although the slag still has moderate levels of metals that the toxic metals cannot leach out of the slag.

Question: A county resident not living near the site mentioned that they wanted their water tested since they heard that people have been sick. They contacted the State and they did not know anything, and they called State Superfund and never got a call back.

Response: While water well testing is many times performed at or adjacent to a Superfund site, it is standard procedure for the EPA or the State to test wells not associated with the Superfund site. If a resident adjacent to a Superfund site has any questions concerning their water well, they can either call the State Site Manager for the Wrigley Site at (615) 741-5941 or the EPA Remedial Project Manager at 1-800-435-9233. If we not available at the time of your call we will do our best to get back with you to answer any questions.

Question: A PRP wondered if the cleanup at the Storage Basin would take about two months.

Response: It is likely that the cleanup of the Storage Basin will take approximately two months if the weather cooperates. This cleanup of wood tar involves excavation, and removal off-site of the tar to be utilized as a fuel in a boiler. It will be important to perform these cleanup activities during appropriate weather since these wastes are located at the top of a hill adjacent to the North Fork of Mill Creek.

Question: A PRP asked if the Storage Basin was the only major basin of tar other than the area on the side of Mill Creek (he was referring to the North Fork of Mill Creek)?

Response: In addition to the Storage Basin and the Primary Site tar pits is the Still House area which has moderate to high levels of tar contamination, and the Retort Area which has low to moderate levels of contamination.

Question: What is planned for the majority of the plant site area? Is there another phase of cleanup scheduled?

Response: The first cleanup activitie is called an Interim Action (Operable Unit No. 1). This action served to significantly reduce site risks in the short-term. The second cleanup action called Operable Unit No. 2 will likely clean up site areas that pose a longer-term threat. These areas include the Primary Site tar pits, Still House and Retort Area.

Question: The material that is being taken out of the basin, will it go to fuel conversion immediately, or will it be stockpiled?

Response: The wood tar waste from the Storage Basin will be utilized as a boiler fuel. The tars will be excavated and placed immediately into roll-off containers. No wood tars will be stockpiled at any time at the Storage Basin. However, it is likely that the blended material will be stockpiled for short periods of time at the Dryer Building until it is transported via roll-off container to the appropriate facility selected by the State of Tennessee (as the State is the lead agency for this remedial action). During blending operations these tars will be mixed with shreaded wood at a ratio specified for optimum operating conditions for the selected unit.

Question: A PRP asked how many truck loads do you anticipate will come out of this site?

Response: It is difficult to develop exact numbers but we can give an estimate. If the quantity of wood tar and contaminated soil ranges up to 800 cubic yards, then if 20 cubic yard roll-off containers are utilized there will be approximately 40 truck loads of material transported from the Storage Basin. This material is planned to be moved to the Dryer Building for blending. It is likely that the volume of material will be doubled at this point, yielding approximately 80 truck loads of material from the Dryer Building to the receiving off-site facility.

Question: Is the debris around the smokestack area to be cleaned up?

Response: The metallic and other debris around the smokestack is to be cleaned up as part of the second phase of the Interim Action. This is planned for early 1995.

Question: A PRP stated that they were interested in utilizing their on-site buildings. Are the buildings going to be utilized for fuel conversion? If so is this going to go on indefinitely?

Response: During RD/RA Negotiations for the Interim Action, EPA offered any PRPs the opportunity to participate in the cleanup which included hazardous wastes within several on-site buildings. Now that EPA and the State of Tennessee have devoted significant resources toward remediating wastes in these buildings it is not appropriate for any PRPs to utilize these areas for industrial activities.

It is very likely that during the second phase of the Interim Action the dryer building will be utilized for the blending of wood tar with shreded wood. This process will not go on indefinitely. This work is expected to last approximately six (6) weeks.

Question: What type of ground monitoring will you do on the groundwater and wells when you start excavating all that waste?

Response: All of the on-site wells and off-site residential wells (previously utilized as monitoring points) will be sampled again to make sure that remedial efforts have not created any adverse conditions. During the excavation of any on-site waste, a variety of precautions will be taken so that wastes do not enter the North Fork of Mill Creek or the ground water.

Question: Will there be any random sampling of wells downstream?

Response: Off-site random sampling is not standard operating procedures at Superfund sites. However, downgradient areas that could potentially be impacted from the Site are evaluated as part of these investigations. This is the case at the Wrigley Site and previous sampling and analyses indicated no significant detections of any contaminants off-site. We intend to continue to evaluate any downgradient wells associated with the Site to better assess these remedial efforts.

Question: Have you all ever done a study of deaths within this area from cancer? If you have, have you ever found any significant increase in deaths by cancer in the Wrigley area or Mill Creek area?

Response: No organization has undertaken this type of study. Studies such as this will be conducted under extreme circumsances, but under normal circumstances it is unlikely a costly, very involved study like this will be initiated. An organization such as the Agency for Toxic Substances and Disease Registry (ATSDR) could undertake such a task by first performing a health assessment and then an evaluation of significant health impacts associated with a Superfund site. ATSDR has done a preliminary health assessment for the Wrigley Site. If any additional information is obtained, it would be very helpful if ATSDR would provide updated reports. EPA intends to pass on additional comments and any new information to ATSDR to assist them in pursuing these activities.

Question: What is the last day for phase three? What is the completion date there? What will the site look like when it is completed?

Response: At the present time, we do not know all of the details for the Operable Unit No. 3 at the Wrigley Site. Our 3-Operable Unit strategy involved first addressing the most immediate problems first as part of the Interim Action (Operable Unit No. 1), then during Operable Unit No. 2 we intend to address several major areas of tar contamination, and last, Operable Unit No. 3 is intended to address any shallow groundwater concerns at the south end of the Primary Site (no other groundwater concerns have been identified). As part of our operable unit strategy, we have been eliminating sources for potential shallow groundwater contamination. In this manner, much if not all of the source for groundwater contamination is expected to be eliminated by the end of OU-2 remedial efforts. This will be confirmed at the end of OU-2.

Also, during the development of OU-2 remedial activities groundwater associated difficulties are to be re-assessed. If these are confirmed to be relatively confined and minor (as they presently are), then a minor remedial measure will likely be added to OU-2. In the event there are any remaining (significant) groundwater problems delineated after OU-2, then OU-3 will proposed and then implemented.

Question: Will there be a third phase to the cleanup?

Response: As was stated above, if after OU-2 there is the need for OU-3, then it will be proposed and implemented.

Question: Are there any holdovers from the old Tennessee Products Corportation?

Response: At the present time, no information has been obtained that would clarify this question.

Question: What is the greatest contaminant in that area?

Response: The single most significant and prevalent contaminant at the Wrigley Site are phenols. The next most common Site contaminants are the polycyclic aromatic hydrocarbons (PAHs), a wide variety of metals, and volatile organic compounds (VOCs).

Question: What is the estimated cost of this phase, and are the funds available to complete the clean-up?

Response: The costs for the first phase of the Interim Action have been approximately $450,000. The costs for the second phase of the Interim Action which include all on-site construction and remediation are estimated at $200,000. This brings the total cost of the Interim Action (OU-1) to approximately $650,000.

Question: Is there a buyer for the fuel?

Response: Due to this Site being a Superfund Site, the EPA and the State of Tennessee are obligated to dispose of the wood tar waste in a safe and effective method. It may only go to facilities that are approved by the State and EPA for this activity (and not simply to anyone that wishes to purchase tar to be utilized as fuel). It is likely that this will be an inexpensive manner for disposal of tar wastes but additional transportation and regulatory costs must be included as well. The final costs of this remedial activity will not be known until the State has decided which facility is most appropriate. At the present time, we estimate it will cost between $200 to

$500 per cubic yard to dispose.

For this Interim Action the State has been granted the lead by the EPA. As part of the cleanup of the Wrigley Site, both EPA and the State have looked into various options of waste disposal or utilization of the tars as a fuel due to its high BTU value. While it appears that this material satisfies criteria that would allow its classification as a RCRA solid waste (which would allow it to be utilized at more facilities), both agencies wish to dispose of this material in a conservative manner. This is simply due to the fact that the wood tar waste closely resembles coal tars or other tar compounds that are more strickly regulated.

Question: If the receiving facility does not pay for the fuel, will they charge you (referring to the State of Tennessee) to burn it?

Response: The receiving facility will be required to meet all stipulated requirements for transporting, receiving, and utilizing such materials. Given these requirements, it is probable that the receiving facility will charge to acquire this material.

8.5 Written Comments Received During Public Comment Period and EPA Responses:

One written comment was received by EPA during the Public Comment Period. This letter included several questions from a resident located approximately 1 mile downstream of the Site. These questions are as follows: 1) What will be done during the removal of waste (digging, loading, etc.) to keep materials out of the North Fork of Mill Creek, and 2) after the waste is removed, how will the surface be sealed to prevent future ground water contamination or contaminated surface water runoff downstream.

Response: During the State-Lead Remedial Action, engineering controls have been implemented such as screen, mesh, rip-rap, catchment ponds, and/or stream diversion, or other mechanisms to prevent sediment mobilization. Similar mechanisms will be employed to prevent sediment or contaminant mobilization in surface or subsurface waters. Every attempt has been made to conduct activities during appropriate weather conditions to further prevent any mobilization of contaminants.

Waste locations have been determined and where wastes can be identified at or above levels of concern (Action Levels), they are being completely remediated. At these

locations, there will be little need for employment of a mechanism to "seal" contaminants in since they are being competely removed. These locations include the worst areas on the Site which are the Tar-Pits, Storage Basin, and Still House. At other locations where contaminants have been identified at lower levels such as the Retort Area and at several Primary Site "hot spot" soil locations, the extent of the cleanup is planned to be delineated as part of the Final Site Remedy (to be developed likely during 1996). These marginally contaminated areas have been analyzed to determine if hazardous substances could potentially leach from the soils. Thus far, all marginally contaminated areas pass these leachability tests referred to as TCLP tests. Soils passing these tests are not expected to experience any further leaching into the groundwater so again, it would not be appropriate to "seal" these areas based upon the trace or low levels of contaminants identified.

APPENDICES

Appendix A: Contains the Proposed Plan that was presented to the public on 11/3/94. This document was also placed in the information repository and mailed to those on the mailing list.

Appendix B: Includes the name, address and phone number of the information repository designated for the Wrigley Charcoal Site.

APPENDIX A

Proposed Plan for ROD Amendment

U.S. EPA ISSUES PROPOSED PLAN TO MODIFY INTERIM ACTION RECORD OF DECISION

WRIGLEY CHARCOAL SITE

WRIGLEY, HICKMAN COUNTY, TENNESSEE

EPA REGION IV

October 1994

INTRODUCTION

The U.S. Environmental Protection Agency (EPA), in cooperation with the Tennessee Division of Superfund (TSDF), has begun the Federal "Superfund" process to address environmental contamination at the Wrigley Charcoal Site (the "Site") in Wrigley, Hickman County, Tennessee (Figure 1). The Site was included on the National Priorities List (NPL) in March of 1989, and since this time has been handled by the EPA. One important exception to the overall Site management has been the recently initiated Interim Remedial Action. The State of Tennessee has accepted the cleanup responsibilities under Cooperative Agreements with EPA to begin cleanup activities at the Wrigley Site.

This Fact Sheet Summarizes:

- Modifications to the Interim Remedial Action;
- Status of Wrigley Charcoal Site Activities;

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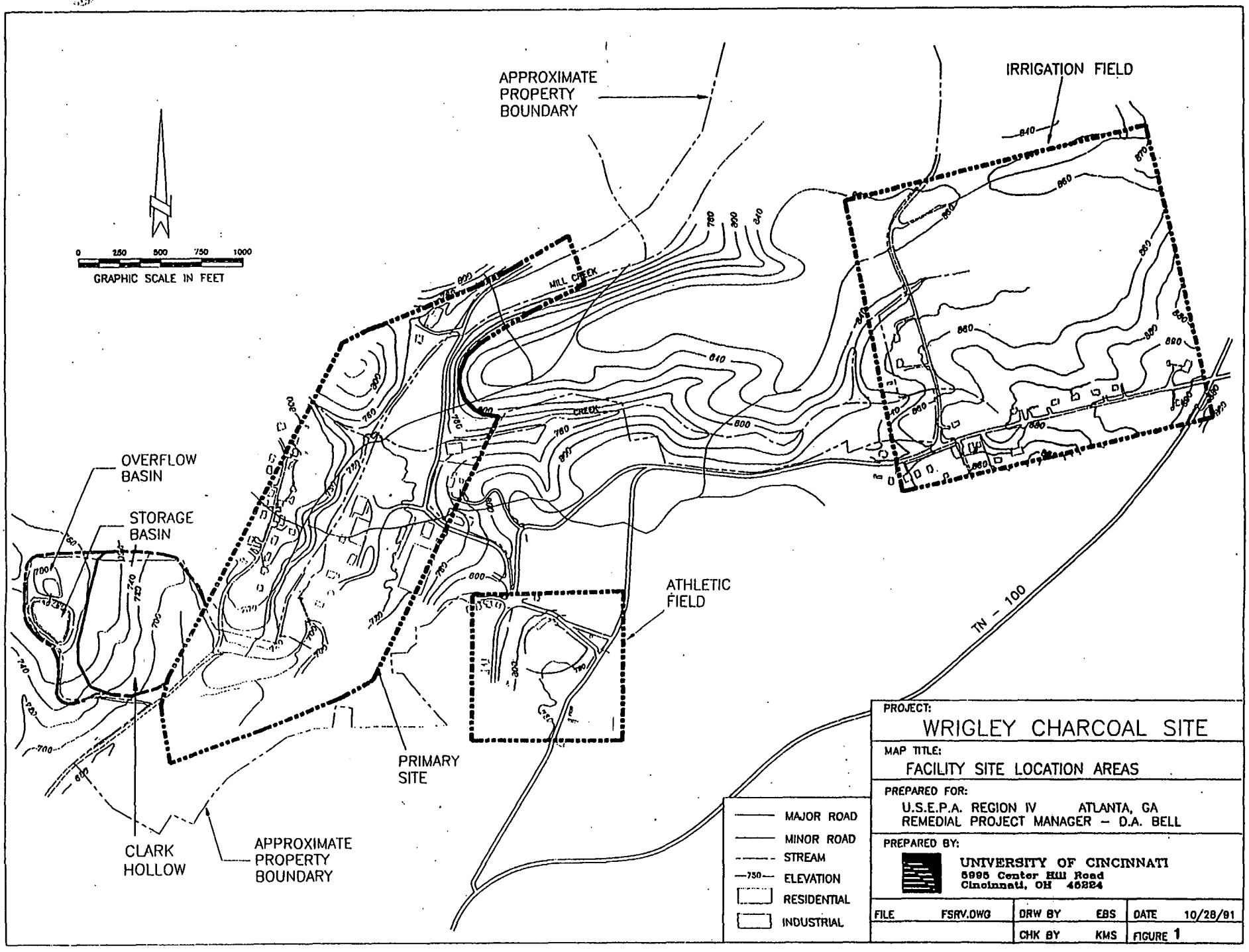
* Underlined words are defined in the Glossary at the end of this Fact Sheet


APPROXIMATE PROPERTY BOUNDARY
IRRIGATION FIELD
GRAPHIC SCALE IN FEET
0 250 500 750 1000
MILL CREEK
CREEK
OVERFLOW BASIN
STORAGE BASIN
ATHLETIC FIELD
TN - 100
PRIMARY SITE
CLARK HOLLOW
APPROXIMATE PROPERTY BOUNDARY
MAJOR ROAD
MINOR ROAD
STREAM
ELEVATION
RESIDENTIAL
INDUSTRIAL
PROJECT:
WRIGLEY CHARCOAL SITE
MAP TITLE:
FACILITY SITE LOCATION AREAS
PREPARED FOR:
U.S.E.P.A. REGION IV ATLANTA, GA
REMEDIAL PROJECT MANAGER – D.A. BELL
PREPARED BY:
UNIVERSITY OF CINCINNATI
5995 Center Hill Road
Cincinnati, OH 45224
FILE FSRV.DWG
DRW BY EBS
DATE 10/28/91
CHK BY KMS
FIGURE 1

This fact sheet is being issued in order to provide notice of proposed modifications to the September 1991 Interim Remedial Action Record of Decision (IAROD) for the Site, and to familiarize the public with the current actions that have been underway at the Site since October 1993.

As part of the public participation requirements under section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), EPA and the State of Tennessee have the responsibility to inform the public about the Superfund activities at the Site.

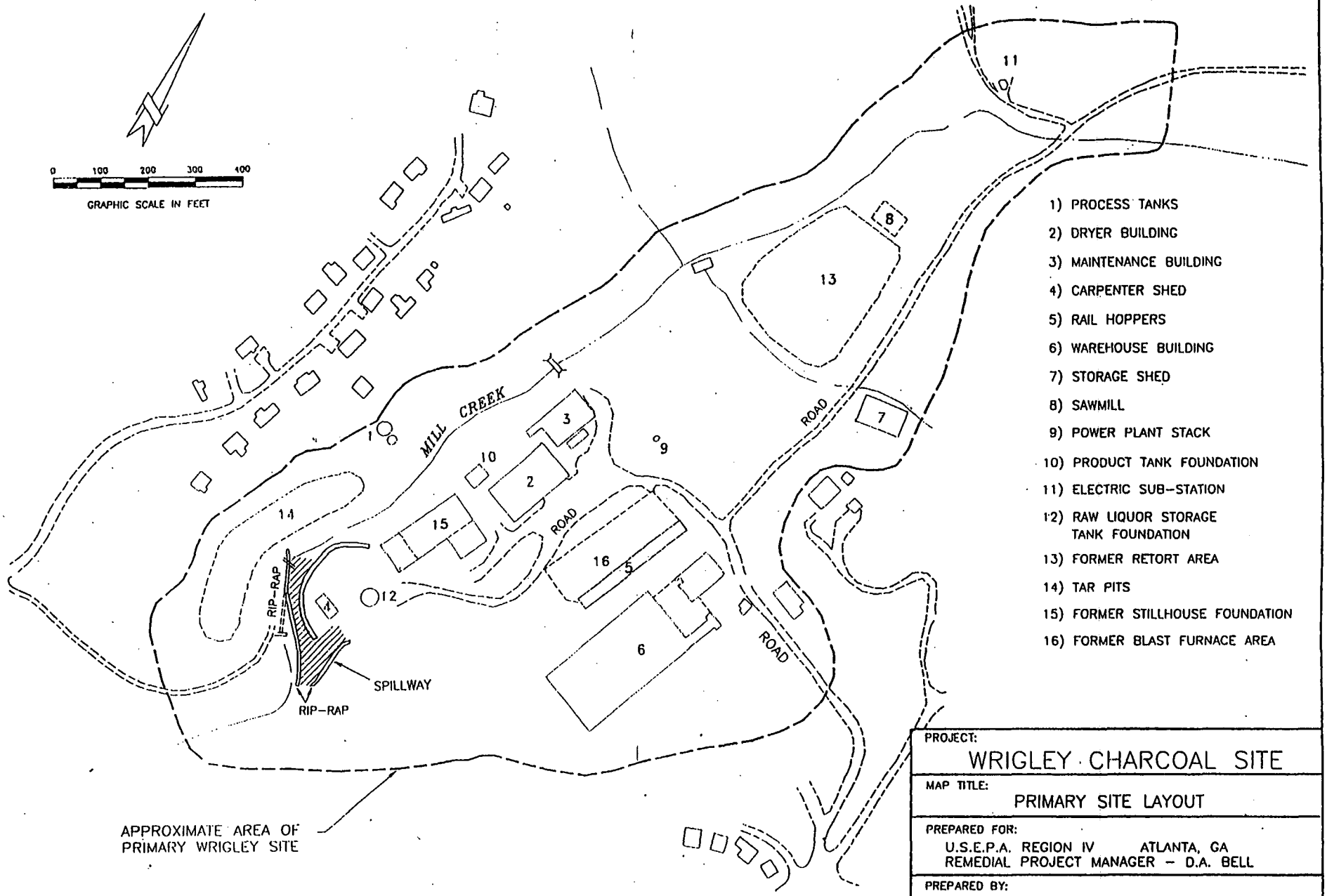
SUMMARY OF SITE HISTORY

The Primary Site (Figure 2) was used for industrial operations such as producing iron, charcoal, and wood distillation products intermittently from 1881 to 1966. The Storage Basin and Irrigation Field were utilized by the Tennessee Products and Chemical Corporation for the disposal of contaminated Site wastewaters beginning in the 1940's and continuing until the mid-1960's. The Athletic Field was constructed at the previous location of a large ravine in the town of Wrigley. Slag and soils derived from the Primary Site were utilized to fill this area from 1938-1950 when the field was opened. The field has been in use since the early 1950's and is still regularly used by local residents.

The businesses or individuals involved in the industrial operations during this time period no longer exist and previous investigations indicated there are no Potentially Responsible Parties (PRPs) from this time period that may fund cleanup operations. The Site was purchased in 1966 by the Tennessee Farmers Cooperative (TFC) who are the present owners (as the present landowners are a PRP) of most Site areas. Portions of the Primary Site were also utilized from 1978 to 1983 by R.T. Rivers (another PRP) for metals machining, storage of waste products obtained from other local industries, and recovery of copper from transformers. These additional operations were conducted primarily in three of the remaining on-site buildings; namely, the dryer building, the maintenance building, and the storage shed (Figure 2).

WASTE HANDLING PROCEDURES AND CONTAMINATION PROBLEMS

Much of the waste at the Wrigley Site was disposed into the North Fork of Mill Creek. This practice occurred until the mid-1940's when the State of Tennessee requested that the TPCC identify adequate alternatives to their waste disposal procedures. The TPCC constructed wastewater impoundments, investigated spray irrigation and trickling filter technology in an attempt to degrade wastestreams that contained phenols and polycyclic aromatic hydrocarbons (PAHs). These attempts to reduce or impound contaminated wastestreams inadvertently led to additional areas of



PROJECT:
WRIGLEY CHARCOAL SITE

MAP TITLE:
PRIMARY SITE LAYOUT

PREPARED FOR:
U.S.E.P.A. REGION IV ATLANTA, GA
REMEDIAL PROJECT MANAGER - D.A. BELL

PREPARED BY:
UNIVERSITY OF CINCINNATI
5995 Center Hill Road
Cincinnati, OH 45224

FILE WRIGOLD.DWG	DRW BY EBS	DATE 10/15/91
	CHK BY KMS	FIGURE 2

contamination. In addition, the overall condition of the facility was poor and spills of VOCs and semi-volatile organic compounds (SVOCs) were commonplace.

The Primary Site is now abandoned but significant contamination was identified in abundant waste piles, soils, buildings, tar-pits, and in the above ground storage tanks (called the process tanks). Much of the raw waste sludges reside in the Primary Site tar pits, still house, and retort area. Significant contamination has also been identified at the Storage Basin. These areas contain tar waste sludges which contain hazardous substances identified as phenol, 2,4-dimethylphenol, benzene, toluene, Polycyclic Aromatic Hydrocarbons (PAHs), a variety of metals, and low levels of halocarbons. While traces of furans, dibenzofurans and dioxins have been identified in the waste sludges, all levels identified have been well below levels of concern.

Low to moderate levels of contamination have been identified in the shallow groundwater at the southern end of the Primary Site. Studies indicate that there are no detectable contaminant levels in ground or surface waters off-site. In addition, all residential wells were sampled during the Remedial Investigation/Feasibility Study (RI/FS) and no contaminants were detected in any of the wells surrounding the Site.

SUMMARY OF SITE RISKS

During the RI/FS from 1989-1991, an analysis was conducted to estimate the health or environmental problems that could result if the contamination at the Site was not remediated. This analysis, commonly referred to as a Baseline Risk Assessment, focussed on the health effects that could result from long-term direct exposure to high concentrations of the contaminants as a result of dermal contact with soil or water, ingestion of Site contaminants or fish from the creek, or exposure to airborne contaminants.

The major causes of concern at the Primary Site and the Storage Basin are from oral and dermal exposures to Site wastes such as PAHs, heavy metals, volatile organic compounds, traces of furans/dioxins, and asbestos contained in waste piles and roofing. The current risks at the Primary Site are elevated for casual visitors that may subject themselves to repeated exposures of various Site contaminants. The State of Tennessee and EPA have noted that it is difficult to keep trespassers out of the Wrigley Site; however, recently installed gates and adjacent short sections of fence have served to keep unauthorized vehicles from entering contaminated Site areas.

Risks associated with ingestion of water or fish from the North Fork of Mill Creek are only slightly elevated. Metals and other Site contaminants were believed to have entered the stream at the

back of the maintenance building from the burn pit. This pit was cleaned up during Phase I of the Interim Remedial Action (October-December 1993) and follow-up sampling of the North Fork of Mill Creek will evaluate the effectiveness of these actions. Risks from dermal exposures to leaking process tank wastes were also eliminated during Phase I of the Interim Remedial Action (IRA). The process tanks were removed, decontaminated and the metal recycled. The associated wastes were removed and temporarily stored in roll-off containers for a Treatability Study in June 1994.

The overall risks identified for samples taken immediately behind the Athletic Field are associated with ingestion or contact with the surface soils. No carcinogens were identified at this location but the hazard index used for non-carcinogens is slightly above the acceptable level. However, numerous samples taken directly within the Athletic Field in April 1991 revealed consistently lower levels of non-carcinogenic contaminants indicating that the associated risks are lower than previously thought.

Sampling and analysis were conducted at the Irrigation Field during the RI/FS. These analyses have determined that there are very low or trace levels of site contaminants at this location and there are no significant risks at this location.

For more detailed information on the risks associated with the Wrigley Charcoal Site, please refer to the Baseline Risk Assessment report (volume III) in the Remedial Investigation. This report along with other important Site documents are located at the information repository in Centerville, Tennessee.

EXPLANATION OF FUNDAMENTAL REMEDY CHANGES

Significant modifications are now being considered for the Interim Remedial Action. During the early part of this IRA, a variety of additional information was generated that EPA and the State of Tennessee believe should modify the existing selected Interim Remedy. In response, the EPA will prepare a ROD Amendment that provides a full explanation and comparison of old and enhanced Site IRA activities. Based on this new information, the IRA is proposed to be divided into two phases: 1) Phase I that consists of the majority of previously selected remedial action items, and 2) Phase II that will consist of new activities.

Major differences in Phase I include: 1) the elimination of an on-site consolidation area, 2) off-site disposal of tar-cubes, metallic debris, waste, piles, and tar wastes.

New activities to be conducted as Phase II of the IRA consist of:

STORAGE BASIN ACTIVITIES

1) Removal, treatment (if necessary), and disposal of waters at the Storage Basin. The approximate volume is estimated at 50,000 gallons;

2) Removal off-site of Storage Basin wood-tars and associated contaminated soils, appropriate disposal and/or treatment, or utilization of these wastes as fuel. The volume of raw sludge is estimated at 300-400 cubic yards;

3) Associated wood tar contaminated soils at or below the tar/soil interface will be removed for disposal in a RCRA Subtitle D landfill. The volume of this material is estimated at 200 cubic yards;

4) A minor amount of wood tar contaminated soil will be removed from the Overflow Basin. This material is expected to be less than 60 cubic yards and will be disposed in a RCRA Subtitle D facility;

5) The existing Storage Basin clay berms will be used for clay cover material once the tar and associated soil has been removed. Since the Storage Basin is perched on top of a hill the finished upper surface can be contoured to conform with the existing topography. An upper dome configuration to enhance drainage is required to prevent infiltration of water. The Overflow Basin will also be contoured to prevent water from accumulating;

6) Air monitoring will be performed at the Storage Basin during excavation and removal of wood tars;

7) At the conclusion of Storage Basin Activities, the road to this area will need to be removed. This will prevent unauthorized access to this area and help to reduce vandalism.

PRIMARY SITE ACTIVITIES

1) The Primary Site Smoke Stack and Retort areas will require further removal of metallic or other debris and excessive vegetation to aid in future sampling prior to cleanup. The total amount of materials removed from these locations are estimated at approximately 200 cubic yards. This debris (including many empty drums) may be placed into an on-site building or decontaminated (if necessary) and transported from the Site to a recycling facility;

2) A small earthen dam will be eliminated by removing the lower concrete wall. This activity is required since waters

accumulating at this location are likely entering an hidden underground conduit and exiting a 16 inch pipe at the Still House area. It is estimated that 10 cubic yards of non-hazardous debris will be removed from this location. This may be staged with other concrete adjacent to this location or disposed at a RCRA Subtitle D facility.

Air monitoring was recently conducted at the Site following Phase I remedial activities. This monitoring was performed to assess the impact, if any, of the Phase I cleanup activities. Once the results of the data have been submitted to EPA from the laboratory, they will be evaluated to determine if any impacts have occurred. If adverse conditions are identified, EPA will determine how they can be reduced.

EPA plans to perform a minor investigative effort following Phase II remedial efforts. During this effort, additional monitoring wells and soil borings will be placed downgradient of the Storage Basin and Still House foundation sump. These monitoring points will serve to assess the impact, if any, of the Phase I remedial activities at these locations.

The selected remedy and subsequent modifications that are proposed include many off-site disposal activities instead of temporary storage in an on-site containment area. On-site containment of Wrigley wastes and in particular, the on-site containment or storage of raw wastes such as flammable wood tars would potentially be difficult due to the recent increase in vandalism. The overall volume of tar waste will increase if Storage Basin wastes are now to be added into the original volumetric estimate. Given the increase in tar waste due to the potential remediation of the Storage Basin, it would be inappropriate to temporarily contain large quantities of tar sludges in the Primary Site 100-year flood plain or adjacent areas. In the case of the Storage Basin, increasing instability of this area indicates it is inappropriate to allow wastes to remain at this location which is at the top of a steep hill in karst terrain.

Concerning flooding of the Primary Industrial Site, the flood of 1991 demonstrated that this Site floods much worse than previously thought since several areas outside of the 100-year floodplain were also affected. Many areas that were not underwater during this flood were noted to have significant soil slumping, debris flows, and small mudslides. Based upon our observations, the Primary Site and Storage Basin area appear to be unfit as potential locations for any type of storage of wastes. In light of these difficulties, we have proposed to transport and dispose of many Site wastes. This would provide more stable and safe Site areas and would significantly reduce the potential for Site wastes to enter and affect the North Fork of Mill Creek, Mill Creek, and the Duck River Drainage Basin.

DESIGNATION OF TAR WASTES

Wastes at the Wrigley Charcoal Site have been historically discussed as coal-tar wastes from coking operations. These wastes were also previously considered to be coal-tars by the EPA Emergency Response and Removal Branch (ERRB) during an emergency response effort in 1988. Approximately 130 cubic yards of tar waste was transported and disposed at the Allied Signal Facility in Detroit, Michigan. However, historical records indicate the Wrigley Charcoal Site did not receive coal to be utilized in the manufacture of coke to fuel the blast furnaces. The Wrigley Charcoal Site retorted (or distilled) local hardwood trees from the 3,000-acre facility to produce charcoal for the pig-iron blast furnace. This process generated what is referred to as "wood tar". Considering that the Site never formally maintained a coking operation, it is reasonable to conclude that tar waste from the Wrigley Charcoal Site can be referred to as "wood-tar" and not "coal-tar". Present regulatory guidelines allow for specified industries to recycle or utilize the wood-tar as a fuel. Coal-tar from coking operations is designated K087 under the Resource Conservation and Recovery Act (RCRA) and may be utilized or recycled by active coking facilities.

Recent testing by the Tennessee Division of Superfund on the Wrigley Site "wood tar" wastes indicates that it passes the toxicity leaching tests in spite of high concentrations of phenols, elevated PAHs, and high levels of tentatively identified compounds which include hydrocarbons. Based upon the above information, the EPA and the State of Tennessee consider this to be a RCRA non-hazardous solid waste that may be recycled and utilized as either an industrial fuel in a boiler or as a fuel in a blast furnace at a steel manufacturing facility. This cost effective method of waste recycling will also eliminate the need for removing Site wastes to landfills.

OTHER WASTE IDENTIFICATION ISSUES

EPA and State of Tennessee performed dioxin sampling as a precautionary measure to ensure effective characterization of all wastes. The findings of our sampling indicate that all levels of dioxin/furan identified have been well below the action level of 1 part per billion (ppb). The State of Tennessee has reviewed this data and has concluded that these trace levels of dioxins, furans, and dibenzofurans do not present a problem for off-site transport of this material and utilization as a fuel for an industrial boiler. In the event the material is utilized in an industrial boiler, the facility that receives the waste must modify their State of Tennessee air pollution permit for the incineration of the Wrigley tars as well as present a compliance monitoring plan that describes the regulatory limits that will be maintained during the incineration of the tars. The subject incineration facility must also submit an evaluation of ash handling and disposal procedures

and perform a trial burn for the tars in order that the wastes and the residual material are handled in accordance with State and Federal regulatory guidelines.

SITE VANDALISM

Concerning Site fencing, Site vandalism has recently been on the increase with warning signs (placards) shot or stolen, locks on fences and wells shot or stolen, tarps for roll-off containers stolen, garbage and appliances dumped, and sections of fencing and gates damaged. At this time the EPA and State of Tennessee believe that large sections of high quality fence & gates would be a viable target for theft at the Wrigley Site. For these reasons it has now been determined that short sections of fence adjacent to gates will be utilized instead of perimeter fencing. Several of these areas are remote and we do not believe that the lack of perimeter fencing will pose a problem. Trespassers have been noted to scale other fences at the Primary Site and at the present time, we feel that short sections of fence adjacent to gates will limit the amount of vehicular traffic that may enter several specific Site areas under remediation.

DESCRIPTION OF ORIGINAL SELECTED REMEDY AND NEW PROPOSED REMEDY

The alternatives that EPA has evaluated for the Amended Interim Action are described briefly below. EPA evaluated these options using the nine evaluation criteria listed in Table 1 (with the exception of community acceptance).

Alternative 1: *No Action*

Present Worth (PW) Cost: $36,000
PW Capital Cost: $30,000 (institutional controls)
O&M Costs: $6,000 (Engineering controls & permitting fees)
Time to Implement: N/A

The EPA requires that this alternative be evaluated at every site to serve as a baseline for comparison for all other alternatives considered. Under this alternative, no remediation would take place. The only reduction of contaminant levels that could potentially occur would be via natural processes such as dispersion or attenuation. The only associated costs with this alternative would be administrative fees incurred by the State of Tennessee for the implementation of institutional and engineering controls.

Alternative 2: *Original Remedy - Thirteen remedial items as presented in the ROD. All are small-scale activities except for Spillway reconstruction. Activities address Primary Site imminent concerns, access restrictions at the Primary Site and Storage Basin.*

The original remedial measures were designed to reduce and eliminate some of the most imminent and substantial dangers present at the Primary Site and reduce risks associated with dermal contact at the Storage Basin through access restrictions. This alternative includes implementation of institutional controls that prevent the future use of ground water at the Primary Site. This alternative reduces the risks associated with various contaminants at the Primary Site but does not eliminate Storage Basin wastes.

Present Worth Cost: $984,998
PW Capital Cost: $787,810
PW O & M Cost: $3,500
Time to Implement: 6 months

Alternative 3: *New Proposed Remedy - Eliminates on-site consolidation area, provides off-site disposal of wastes, remediates and eliminates wood tar wastes at the Storage Basin.*

This alternative addresses remediation of the Storage Basin where wastes are located at the top of a hill adjacent to the North Fork of Mill Creek. Medium-viscosity tars reside under approximately 2-3 feet of water and 3 inches of silt and clay. Prior to mid-1994, the wastes did not present the appearance of being exposed. However, at this time dermal contact with these wastes is probable in the event person(s) enter the basin. Although the berms presently appear intact, slumping during times of heavy precipitation has been noted following the flood of 1991. The basin is also located in karst terrain and in the event the tamped-clay bottom of the basin was compromised, wastes would likely enter the karst network and future waste remediation of these wastes would be impossible. Remediation of the Storage Basin would essentially eliminate risks at this location. The State of Tennessee and EPA have investigated several options for Storage Basin wood tar disposal. Treatability studies performed during 1994 indicate that raw wood tars are not effectively bioremediated. Wood tars with low levels of contaminants may respond to biotreatment but significant amounts of time are required making this a non-feasible option. The State of Tennessee conducted a treatability study to utilize this material as a fuel in an industrial boiler. The study indicated that the wood tars make an efficient fuel for industrial boilers. Also, data from this study indicates that utilization of this wood tar meets regulatory requirements. Any potential impact to the groundwater/air or from transport of wastes during remedial activities will be monitored in order to insure that these activities have no adverse impact to human health and the environment.

Present Worth Cost: . . . . . $900,000 - $1,200,000
PW Capital Cost: . . . . . $897,000 - $1,197,000
PW O & M Cost: $3,000
Time to Implement: 8 months

TABLE 1

EPA CRITERIA FOR EVALUATING CLEANUP ALTERNATIVES

Overall Protection of Public Health and Environment: Degree to which each alternative eliminates, reduces, or controls threats to public health and environment through treatment, engineering methods, or institutional controls (e.g., deed, land use or other restrictions).

Compliance with State and Federal Requirements: Degree to which each alternative meets environmental regulations determined to be applicable or relevant and appropriate to Site conditions.

Short-Term Effectiveness: Length of time needed to implement each alternative and the risks posed to workers and nearby residents during implementation.

Long-Term Effectiveness: Ability to maintain reliable protection after implementation.

Reduction of Toxicity, Mobility, and Volume: Degree to which alternative reduces (1) ability of contaminants to move through the environment, (2) harmful nature of contaminants, and (3) amount of contamination.

Implementability: Technical feasibility (difficulty of constructing, operating, or maintaining) and administrative ease (e.g., amount of coordination with other governmental agencies or relocation or residents) of implementing remedy, including availability of goods or services.

Cost: Benefits of alternative weighed against cost.

State Acceptance: EPA requests State comments on the Proposed Plan and concurrence on final remedy selection.

Community Acceptance: EPA holds a public comment period to get input from the affected community and considers and responds to all comments received prior to the final selection of a remedial (long-term cleanup) action.

EVALUATION OF ALTERNATIVES

This section provides the basis for determining which alternative: 1) meets the threshold for overall protection of human health and the environment and compliance with **Applicable or Relevant and Appropriate Requirements (ARARs)**, 2) provides the "best balance" between effectiveness and reduction of toxicity, mobility, or volume through treatment, implementability, and cost, and 3) demonstrates State acceptance. Community acceptance is also an important consideration and will be evaluated throughout this process.

Overall Protection of Human Health and the Environment

Considering the extent of contamination at the Wrigley Charcoal Site, Alternative 1 would not be protective of human health and the environment and will not be considered further in this Proposed Plan. Alternative 2 is protective of human health and the environment to the extent discussed within the IAROD. Alternative 3 provides more protection since it addresses and eliminates the Storage Basin, a major area of Site contamination. In addition, alternative 3 adds additional monitoring in order to fully assess any potential impact of remedial activities. Alternative 3 is protective of human health and the environment since it reduces or controls significant, immediate, and potential threats from direct exposure to hazardous contaminants at the Primary Wrigley Charcoal Site and the Storage Basin. Institutional controls such as deed restrictions will limit future use of these locations which will reduce risks associated with these contaminated areas. Alternatives 2 and 3 also provide the basis for future action with the distinction between the two alternatives being that Alternative 3 will eliminate the need for significant future actions at the Storage Basin. Therefore, concerning overall protection of human health and the environment, Alternative 3 provides significant advantages over Alternative 2.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Alternative 2 fully meets ARARs identified in the IAROD. Alternative 3 will also meet these ARARs. While neither Alternative is considered to be the final Site remedy, Alternative 3 is considered to be more protective because this action fulfills, for the Storage Basin, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Subsequent actions are planned to address fully the threats posed by the conditions at the Wrigley Site. Alternative 3 also totally eliminates much of this Site debris through off-site disposal instead of storing wastes in an on-site consolidation area. This prevents these wastes from either being on or adjacent to the flood plain of the North Fork of Mill Creek or from potentially being vandalized in the on-site consolidation area (refer to IAROD for

details on the originally proposed and selected consolidation area).

Since wastes such as tar-cubes will not be moved within to an on-site consolidation area, the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) will not be triggered. Therefore, as was stated in the original IAROD, the RCRA storage ARARs do not need to be waived (previously discussed in Section 9.2 of the IAROD). Concerning off-site transport and disposal of tar wastes, contaminated soil, and site debris, RCRA Subtitle C requirements are applicable when excavating and transporting the soil or other contaminated media that does not pass TCLP. Safety precautions as specified by RCRA must be followed which include standards and requirements for owners and operators of treatment, storage, and disposal (TSD) facilities.

The final Site cleanup levels are not addressed in the original IAROD or in the IAROD Amendment (in preparation) because such goals are beyond the scope of an interim action. The final cleanup levels for the Site will be addressed by the final remedial action ROD.

Long-Term Effectiveness

As discussed in Alternative 3, excavation, transportation off-site, and incineration of Storage Basin tars with appropriate disposal of the residual ash will permanently eliminate wastes at this location. The same scenario is applicable for process tank and still house sump wastes at the Primary Site. However, all the interim measures will not provide any degree of long term effectiveness for other highly contaminated areas at the Wrigley Site. Primary Site areas such as the retort area, tar pits, and still house are proposed for remediation during the next operable unit. Concerning these Site areas, the EPA will continue to evaluate long-term effectiveness and permanence as part of the development of the final action for the Site.

Reduction of Toxicity, Mobility or Volume

Alternative 3 reduces toxicity, mobility, and volume of several Primary Site wastes and eliminates wastes at the Storage Basin. These actions will significantly reduce the potential for dermal contact, migration, or bioaccumulation of Site waste streams addressed through this Interim Remedial Action. Activities for this Interim Action are intended to reduce present risks associated with the most imminent and substantial dangers to human health and the environment while preparing several of the Site waste locations for future remedial activities that will eliminate the wastes. Alternative 2 satisfies this requirement concerning small-scale activities at the Primary Site. However, Alternative 3 satisfies this requirement concerning both Primary Site Interim Action Activities as well as the elimination of wastes at the Storage

Basin.

Short-Term Effectiveness

Significant short-term effectiveness will result from the previously mentioned activities. The IRA is effective in the short-term because it would significantly reduce the potential threats from contaminants at all of the activity locations previously described. No adverse effects are expected during interim remedial activities that could impact human health or the environment. Any short-term risk to workers involved in Storage Basin excavation, transportation or construction activities would be reduced through evaluations performed during the Phase II Remedial Design, and the Phase II Health and Safety Plan.

Implementability

The implementability of an alternative is based on technical feasibility, administrative feasibility and availability of services and materials. There are no expected difficulties associated with the implementation of either Alternative 2 or 3 since only standard construction or recycling techniques will be utilized.

Cost

Tentative cost estimates provided by the State of Tennessee indicate that Alternative 3 which includes remediation of the Storage Basin will have a present worth cost of approximately $900,000 - $1,200,000. The cost estimate presented in the original Interim Action ROD was $984,998. Any additional costs concerning Alternative 3 would be due almost entirely to Storage Basin remediation. A comparison of the cost for Alternatives 2 & 3 reveals that a large number of activities are included for each and the total cost is relatively low considering several early final activities are included. However, Alternative 3 includes early final remediation of the Storage Basin tars which will completely eliminate risks at this location. Storage Basin remediation is a large-scale task and the associated costs are relatively low in comparison to the magnitude of the cleanup. Additional areas of contamination that are not addressed during Phases I or II of this Interim Action are proposed for later cleanup and the associated costs of these activities will be determined after additional information is obtained.

State Acceptance

While EPA is the lead agency for the Wrigley Charcoal fund-lead Site, the State of Tennessee has taken the lead for the Interim Remedial Action. EPA and the State of Tennessee have reviewed all of the proposed modifications to these activities and concur on this information as presented within this Proposed Plan.

Community Acceptance

Community acceptance of the Amended Interim Remedial Action will be evaluated after the public comment period and will be described in the Amendment to the Interim Action Record of Decision for the Site.

The public is asked to comment on the proposed modifications to the Interim Remedial Action during the Public Comment Period, which is from October 7, 1994 through November 7, 1994.

Community response to the alternatives will be presented within the responsiveness summary within the Amendment to the Interim Remedial Action ROD.

COMMUNITY RELATIONS

A wide variety of community relations activities have been performed for the Wrigley Charcoal Site. The following Public Meetings/Availability Sessions have been held at the East Elementary School near Wrigley: 1) October 24, 1988 to provide information and also to answer citizens' questions concerning removal activities at the Wrigley Site, 2), October 29, 1989 to inform citizens and other interested parties of the beginning of the RI/FS, and 3) July 25, 1991 to present the Proposed Plan for Interim Action activities. Between public meetings and availability sessions, numerous site visits have been made and members of the local community have periodically met with the EPA project manager to discuss the Site cleanup activities. EPA Fact Sheets have been distributed prior to RI/FS activities, before the 1991 Public Meeting, and prior to RD/RA activities.

A Community Relations Plan had been updated for the Site which contains a list of contacts and interested parties throughout government and the local community that establish communication pathways to ensure timely dissemination of pertinent information. This document along with the RI/FS, Interim Action Record of Decision, RD/RA and other associated documents, are available in both the Administrative Record at the information repository maintained at the Hickman County Memorial Library and at the EPA Records Center in Atlanta, Georgia.

During public meetings and availability sessions the local community voiced their opinions and concerns about the site. The majority of community responses supported EPA and State of Tennessee cleanup activities at the site. As the EPA and the State of Tennessee progress on site cleanup activities, they will continue to keep the community informed through public meetings and fact sheets.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The preferred alternative for the remediation of the Wrigley Charcoal Site is Alternative 3. This alternative appears to represent the overall best interim remedy for the Site. Alternative 1 does not meet the CERCLA statutory preference for treatment of wastes and is not protective of human health or the environment. While Alternative 2 achieves the CERCLA statutory preference (NCP Requirement) for reduction of toxicity, mobility, or volume through treatment, Alternative 3 includes additional large-scale activities that provide an additional margin of effectiveness concerning long-term site clean-up (especially at the Storage Basin).

THE PREFERRED ALTERNATIVE

Based upon consideration of the requirements of CERCLA which includes the detailed analysis of the alternatives, EPA has determined that the activities as presented in Alternative 3 constitute an appropriate interim Site remedy until a final action for the Site is determined. The major components of the EPA preferred (Amended) Interim Remedial Action include:

The original 13 Interim Remedial cleanup activities that have already been performed during Phase I plus new activities to be added as Phase II of the Interim Action. Phase I included the Spillway reconstruction that prevents additional erosion or mobilization of Site wastes into the North Fork of Mill Creek that is part of the Duck River Drainage Basin. The rebuilt Spillway has been designed to accommodate flood waters that frequent this location. The EPA and State of Tennessee are proposing to expand the Interim Action by adding Phase II which will consist of:

STORAGE BASIN ACTIVITIES

1) Removal, treatment (if necessary), and disposal of waters at the Storage Basin. The approximate volume is estimated at 50,000 gallons;

2) Removal off-site of Storage Basin wood-tars and associated contaminated soils, appropriate disposal and/or treatment, or utilization of these wastes as fuel. The volume of raw sludge is estimated at 300-400 cubic yards;

3) Associated wood tar contaminated soils at or below the tar/soil interface will be removed for disposal in a RCRA Subtitle D landfill. The volume of this material is estimated at 200 cubic yards;

4) A minor amount of wood tar contaminated soil will be removed from the Overflow Basin. This material is expected to be less than 60 cubic yards and will be disposed in a RCRA Subtitle D

facility;

5) The existing Storage Basin clay berms will be used for clay cover material once the tar and associated soil has been removed. Since the Storage Basin is perched on top of a hill the finished upper surface can be contoured to conform with the existing topography. An upper dome configuration to enhance drainage is required to prevent infiltration of water. The Overflow Basin will also be contoured to prevent water from accumulating;

6) Air monitoring will be performed at the Storage Basin during excavation and removal of wood tars;

7) At the conclusion of Storage Basin Activities, the road to this area will need to be removed. This will prevent unauthorized access to this area and help to reduce vandalism.

PRIMARY SITE ACTIVITIES

1) The Primary Site Smoke Stack and Retort areas will require further removal of metallic or other debris and excessive vegetation to aid in future sampling prior to cleanup. The total amount of materials removed from these locations are estimated at approximately 200 cubic yards. This debris (including many empty drums) may be placed into an on-site building or decontaminated (if necessary) and transported from the Site to a recycling facility;

2) A small earthen dam will be eliminated by removing the lower concrete wall. This activity is required since waters accumulating at this location are likely entering an hidden underground conduit and exiting a 16 inch pipe at the Still House area. It is estimated that 10 cubic yards of non-hazardous debris will be removed from this location. This may be staged with other concrete adjacent to this location or disposed at a RCRA Subtitle D facility.

Air monitoring data was recently acquired for the Site following Phase I remedial activities. This monitoring was conducted to assess the impact, if any, of these cleanup activities. The results of this study are expected to be submitted to EPA by the end of 1994. If this information suggests further activities are warranted, appropriate measures will be taken.

A minor investigative effort is also planned to follow Phase II remedial efforts. During this effort, additional monitoring wells and soil borings will be placed downgradient of the Storage Basin and Still House foundation sump. These monitoring points will serve to assess the impact, if any, of the Phase I remedial activities at these locations.

The major goal of the entire IRA is to reduce risks at the Primary Site and the Storage Basin by eliminating, or controlling the most imminent and substantial threats to human health and the environment.

It should be noted that some of the actions may be modified following this ROD Amendment, specifically during the Phase II RD/RA. These changes may reflect modifications resulting from the engineering design process.

STATUTORY REQUIREMENTS

The U.S. EPA and the State of Tennessee believe that the activities included in the IRA satisfy the statutory requirements of providing protection of human health and the environment, attain ARARs directly associated with this action and will be cost-effective.

TECHNICAL ASSISTANCE GRANTS

EPA has been authorized by Congress to provide communities affected by Superfund Sites the opportunity to apply for Technical Assistance Grants (TAGS). Grants range up to $50,000 per site and are designed to enable community groups to hire technical advisors or consultants to help them interpret EPA findings and specifications for cleanup activities. The community must provide a 20% match to the amount provided by EPA and only one TAG is awarded per site. Interested persons or community groups may contact the Region IV Grants Specialist listed below.

Sharon Chandler
Technical Assistance Grant Specialist
U.S. EPA, Region IV
345 Courtland Street., N.E.
Atlanta, GA 30365
(404) 347-2234

THE NEXT STEP: THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

EPA solicits input from the community on the cleanup methods proposed for each superfund response action. EPA has set a public comment period from October 7, 1994 to November 7, 1994, to encourage public participation in the selection process. Comments will be summarized and responses provided in the Responsiveness Summary section of the Amendment to the

Interim Remedial Action ROD. The public can send written comments to or obtain further information from:

Douglas A. Bell
Remedial Project Manager
U.S. EPA Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365
(404) 347-7791
1-800-435-9233

MORE INFORMATION

EPA has established two Information Repositories to allow public access to information about the Wrigley Charcoal Superfund Site. Documents are currently available at the repositories (listed below) include the Administrative Record File, which contains all public documents used by EPA that were utilized in the development of EPA cleanup methods for the Site, fact sheets, and RI/FS documents.

Hickman County Public Library
120 West Swan Street
Centerville, TN 37033
(615) 729-5130
Librarian/Director: Mary Pruett
HOURS OF OPERATION: Mon: 11-7,
Tue-Wed-Fri-Sat: 9:5 Thur: 8-12,
Sunday & Holidays Closed
Copy Machine Available:
(15 cents per copy)

EPA Records Center
345 Courtland St., N.E.
Atlanta, GA 30365
(404) 347-0506

LIST OF CONTACTS

Douglas A. Bell
Remedial Project Manager
U.S. EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365
(404) 347-3555 (x3410)

Tim Stewart
Tennessee Department of Environment and Conservation
Environmental Field Office
537 Brick Church Park Drive
Nashville, Tennessee 37243
(615) 741-5940

Suzanne Durham
Community Relations Coordinator
U.S. EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365
(404) 347-3555 (x4136)

GLOSSARY

Administrative Record: A file which is maintained and contains all information used by the lead agency to make its decision on the selection of a response action under CERCLA. This file is required to be available for public review and a copy is to be established at or near the site, usually at an information repository. A duplicate file is maintained in a central location, such as a regional EPA and/or state office.

ARARs: Applicable or Relevant and Appropriate Requirements. Refers to the Federal and State requirements that a remedy that EPA selects must attain. These requirements may vary from site to site.

Baseline Risk Assessment: An assessment which provides an evaluation of the potential threat to human health and the environment in the absence of remedial action.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A Federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. The Acts created a special tax that goes into a trust fund, commonly known as Superfund, to investigate and cleanup abandoned or uncontrolled hazardous waste sites. Under the program, EPA can either pay for site cleanup when the responsible parties cannot be located or are unwilling or unable to perform the work, or take legal action to force responsible parties to cleanup the site or reimburse EPA the cost of the cleanup.

Groundwater: Underground water that fills pores in soils or openings in rocks to the point of saturation. Unlike surface water, groundwater cannot clean itself by exposure to sun or rapid aeration. Groundwater is often used as a source of drinking water via municipal or domestic wells.

Hazardous Substances: Any material that poses a threat to public health and/or the environment. Typical hazardous substances are materials that are toxic, corrosive, ignitable, explosive or chemically active.

Information Repository: A file containing current information, technical reports and reference documents regarding a Superfund NPL

site. The information repository is usually located in a public building that is convenient for local residents, such as a public school, city hall, or a library. As the site proceeds through the Superfund Remedial Process, the file at the information repository is continually updated.

Interim Action Record of Decision: A public document that presents information concerning an expedited cleanup alternative that has been selected to reduce or eliminate problems at a National Priorities List site prior to implementation of the Final Remedy. This document also explains the reasons for choosing that cleanup alternative over other possibilities.

Interim Remedial Actions: Usually short-term cleanup activities selected to reduce risks at a Superfund site while investigations continue. Once additional information is obtained from studies and also from the Interim Remedial Action, then the Final Remedy is proposed for the Site.

Monitoring: The continued collection of information about the environment that helps gauge the effectiveness of a cleanup action.

National Priority List: A list of the nation's hazardous waste sites that are eligible for cleanup under Superfund (1980) and SARA (1986).

Potential Responsible Parties (PRPs): This may be an individual, a company or a group of companies who may have contributed to the hazardous conditions at a site. These parties may be held liable for costs of the remedial activities by the EPA through CERCLA laws.

Preferred Alternative: After evaluating and examining the various remedial alternatives, EPA selects the best alternative based on relevant cost and non-cost factors. This alternative was selected from a list of the most technologically feasible alternatives for a remedial strategy.

Proposed Plan: A fact sheet summarizing EPA's preferred cleanup strategy for an NPL site, the rationale for the preference and reviews of the alternatives presented in the detailed analysis of the remedial investigation/feasibility study.

Resource Conservation and Recovery Act (RCRA): A Federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing, and disposing of hazardous substances. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

Record of Decision: A public document written by EPA that presents information concerning the Final Remedy selected to reduce or eliminate problems at a National Priorities List site. This

document also explains the reasons for choosing that cleanup alternative over other possibilities.

Remedial Action: The EPA selected action for an NPL site.

Remedial Alternative: A potential cleanup option for a Superfund site.

Remedial Design: A set of specifications, plans, and procedures that describe how the remedial action will proceed.

Remedial Investigation and Feasibility Study (RI/FS): Two distinct but related studies, normally conducted together, intended to define the nature and extent of contamination at a site (RI) and to evaluate appropriate, site-specific remedies necessary to achieve final cleanup at the site (FS).

Responsiveness Summary: A summary of oral and/or written public comments received by EPA during a comment period.

Superfund Amendments and Reauthorization Act (SARA): Modifications to CERCLA Enacted on October 17, 1986.

EPA MAILING LIST ADDITIONS

If you know of others that wish to be placed on the mailing list to receive information on the Wrigley Charcoal Site, please request that they fill out and mail this form to:

WRIGLEY CHARCOAL SITE
Suzanne Durham, Community Relations Coordinator
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365
(404) 347-3555 (x4136) or 1-800-435-9233

Name: _____

Address: _____

Affiliation: _____

Telephone: _____

APPENDIX B

Information Concerning Information Repositories

Hickman County Public Library
120 West Swan Street
Centerville, TN 37033
(615) 729-5130
Librarian/Director: Mary Pruett
HOURS OF OPERATION: Mon: 11-7,
Tue-Wed-Fri-Sat: 9:5 Thur: 8-12,
Sunday & Holidays Closed
Copy Machine Available:
(15 cents per copy)

EPA Records Center
345 Courtland St., N.E.
Atlanta, GA 30365
(404) 347-0506