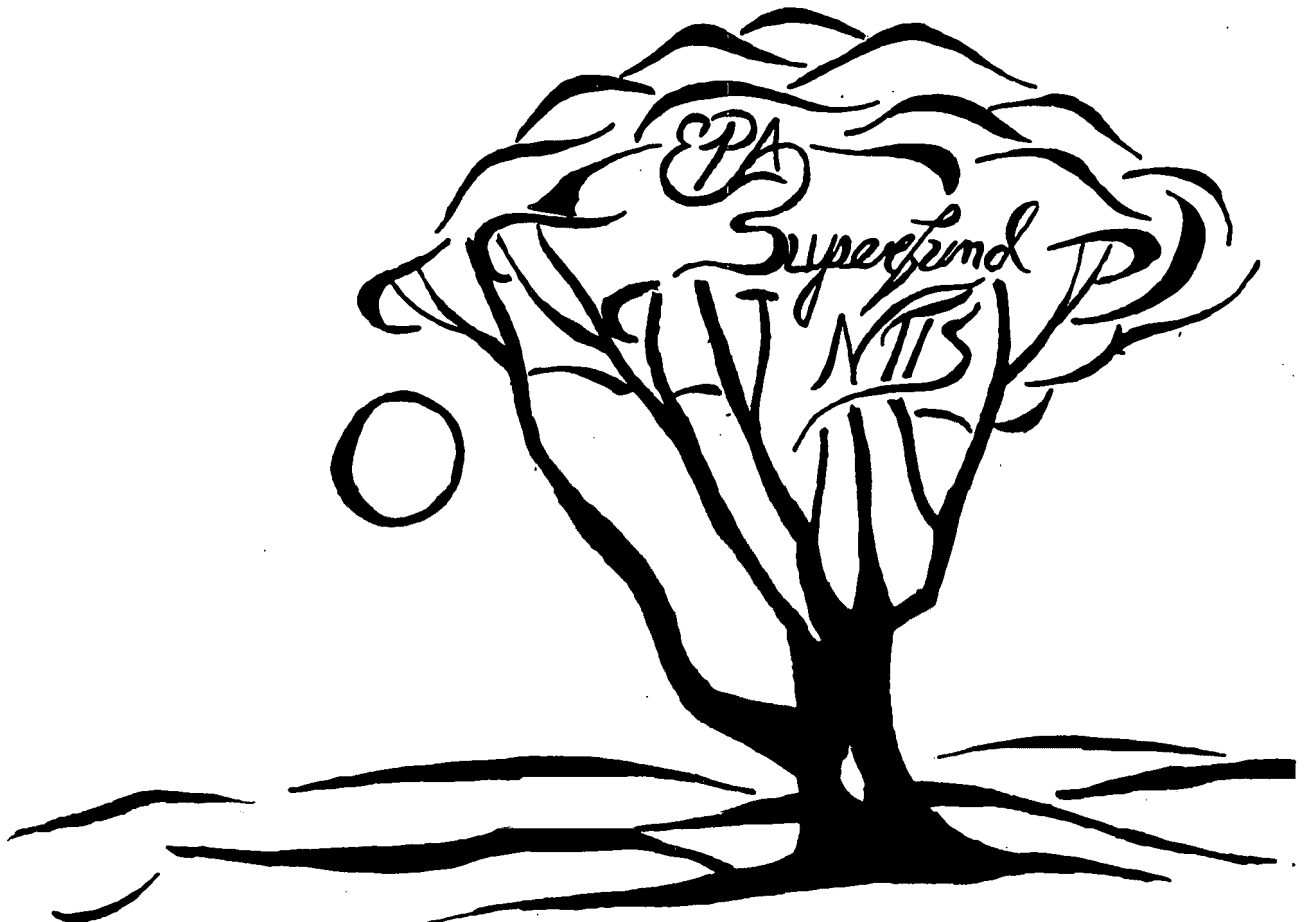


PB94-964001  
EPA/ROD/R04-94/167  
July 1994

# **EPA Superfund Record of Decision:**

**Townsend Saw Chain Company Site,  
Pontiac, SC**



**RECORD OF DECISION**  
**INTERIM REMEDIAL ACTION FOR OFFSITE GROUNDWATER MIGRATION**

**TOWNSEND SAW CHAIN COMPANY SITE**  
**PONTIAC, RICHLAND COUNTY**  
**SOUTH CAROLINA**

**PREPARED BY:**  
**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
**REGION IV**  
**ATLANTA, GEORGIA**

## DECLARATION FOR THE RECORD OF DECISION

### SITE NAME AND LOCATION

Townsend Saw Chain Company Site, Pontiac, Richland County, South Carolina.

### STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedial action for the Townsend Saw Chain Company Site, Pontiac, Richland County, South Carolina, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (NCP). This decision is based on the administrative record file for this Site. The State of South Carolina concurs with the selected remedy.

### ASSESSMENT OF THE SITE

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

### DESCRIPTION OF THE REMEDY

The purpose of this interim action is to prevent the continued offsite migration of the plume of contaminated groundwater. As a result of the Site remedial investigation, the offsite area affected by chromium contamination in the surficial aquifer was found to extend a much greater distance from the Site than previously known. Although the offsite groundwater data is limited, concentrations at numerous distant sampling points significantly exceed federal standards for chromium. The nearest private water wells do not show contamination by chromium; however, these wells are supplied from the underlying Middendorf Aquifer and/or from lower portions of the surficial aquifer, thus presenting a potential threat to human health. Additionally, because the RI work to date has shown that the contaminated groundwater discharges to a tributary and a creek, a potential threat exists to the environment within and surrounding those surface water bodies.

The interim action described in this Record of Decision will expedite the mitigation of these threats through the design, installation, and operation of a groundwater pump-and-treat

system. The system will intercept the migrating groundwater along the periphery of the plume, or at more appropriate locations as determined from a pre-design-phase hydrogeologic study, and direct the affected groundwater to onsite water treatment equipment. Options for the ultimate disposal of the treated groundwater, including discharge to a Publicly-Owned Treatment Works (POTW), to a creek via NPDES permit, to an underground injection well system, or another, to-be-determined disposal option, will be evaluated during the design effort for this action, and may be further developed in the final Site FS or in remedial design following the final ROD.

The components of this interim action include:

1. Planning and timely execution of a pre-design-phase hydrogeologic investigation, to accomplish such detailed hydrogeologic characterization of the offsite groundwater contamination as is necessary to support the remedial design of a groundwater pump-and-treat system which will, as a minimum, prevent further offsite migration and enlargement of the contaminant plume; and
2. Expeditionary design and construction of such a system, and initiation of groundwater pump-and-treat operations.

This action is not the final remedial action for this Site. Subsequent actions may be planned to fully address this and other potential threats posed by conditions at the Site. These actions will be defined when the RI/FS is complete. Other potential threats at this Site include soil contamination and possible ecological damage in the area of the unnamed, offsite tributary northeast of the Site.

#### STATUTORY DETERMINATIONS

This interim action is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements for this limited-scope action, and is cost-effective. Although this interim action is not intended to address fully the statutory mandate for permanence and treatment to the maximum extent practicable, this interim action does utilize treatment and thus is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for the Site, the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element, although partially addressed in this interim remedy, will be addressed by the final response action. Subsequent actions are planned to fully address the threats posed by the conditions at this Site. Because contaminants present in groundwater will remain above health-based levels until the final remediation is completed

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at the Site, a review will be conducted within five years after commencement of the remedial action, 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 ongoing as EPA continues to develop final remedial alternatives for the Site.

The State of South Carolina concurs with the selection of this interim remedial alternative.

Patrick M. Tobin  
Patrick M. Tobin  
Acting Regional Administrator

12-22-93  
Date

RECORD OF DECISION  
INTERIM ACTION FOR OFFSITE GROUNDWATER MIGRATION  
TOWNSEND SAW CHAIN COMPANY SITE

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**INTERIM ACTION RECORD OF DECISION  
TOWNSEND SAW CHAIN COMPANY SITE  
Pontiac, Richland County, South Carolina**

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**1.0 INTRODUCTION**

The Townsend Saw Chain Site is a small manufacturing facility located approximately 15 miles east-northeast of Columbia, South Carolina (Figure 1). The facility is presently owned by Homelite Division of Textron, Inc. ("Textron"), and managed by the Homelite Division ("Homelite") located in Charlotte North Carolina. In operation since 1972, the facility is used for the manufacture of the saw chain and saw bar components of chain saws. Prior to 1972, between 1965 and 1971, Dictaphone Corporation manufactured specialized recording equipment at the facility.

Between 1966 and 1981, under both Dictaphone and Townsend Saw Chain Company (later Textron), waste rinsewaters produced during metals-plating processes were disposed of by direct discharge to the ground surface in the low-lying "waste pond" areas adjacent to the facility on the north side. These discharges caused contamination of Site groundwater, primarily by chromium.

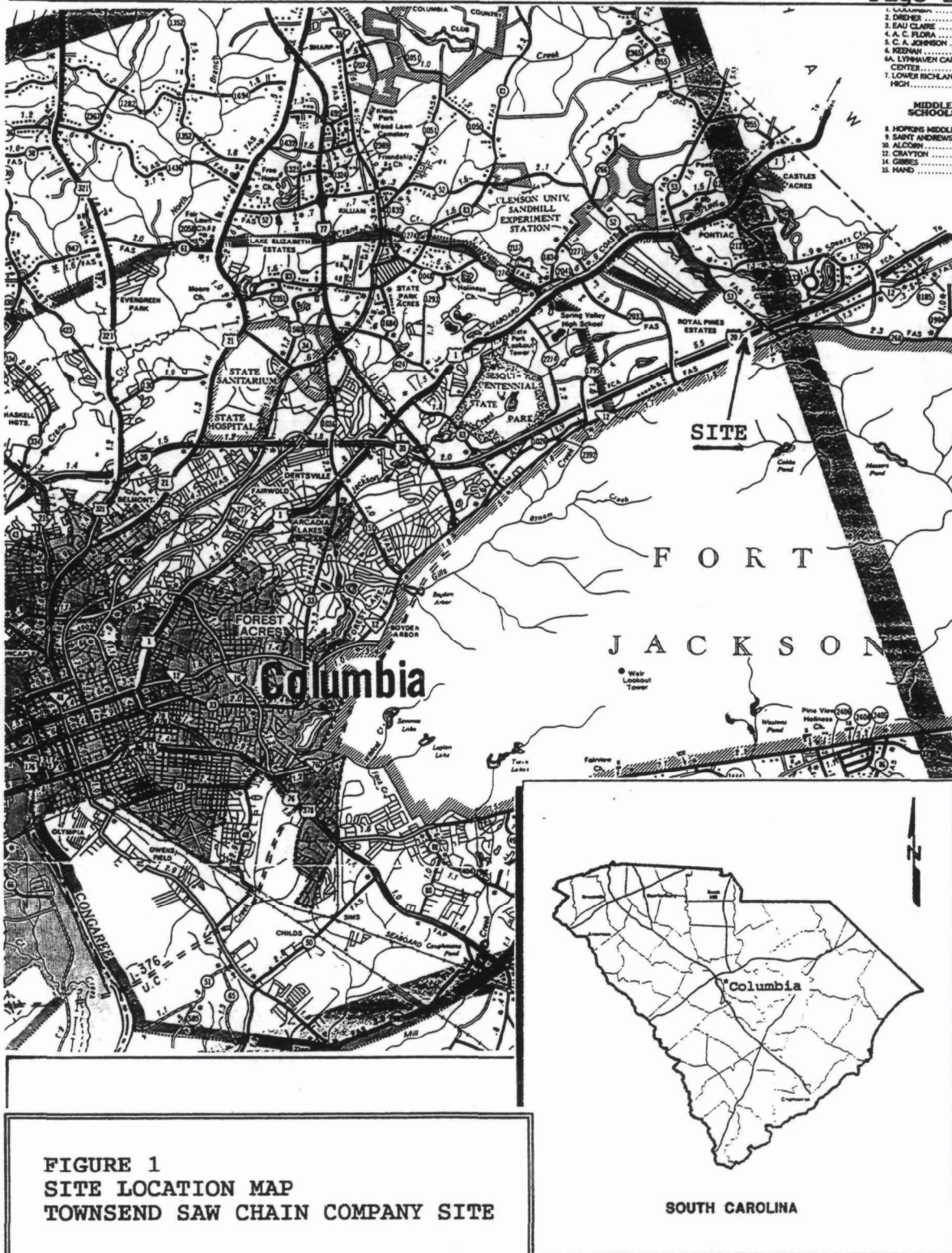
The South Carolina Department of Health and Environmental Control (SCDHEC) has overseen environmental investigations and ongoing remediation of groundwater at the Site since 1982. The Site was evaluated by EPA for possible inclusion on the National Priorities List in 1987, using the Hazard Ranking System (HRS). Because of the large number of people in the surrounding area served by water wells, the Site was assigned an HRS score of 35.94, and was proposed for listing on the NPL in June 1988. The Site was listed on the NPL in February 1990.

In August 1991, Homelite Textron, Inc. agreed to perform a Remedial Investigation/Feasibility Study (RI/FS) at the Townsend Site. RI field work began in May 1992 and the RI Report is presently in preparation. The major preliminary finding of the RI is that the areal extent of chromium-contaminated groundwater in the surficial aquifer is greater than previously believed. The precise extent of groundwater contamination is not yet known, but current data indicate that nearby potable water wells could be impacted at levels above Federal and state groundwater quality standards, unless measures are taken to intercept and/or control the offsite movement of the contaminant plume. This future potential risk to human health will be reduced or eliminated by the proposed Interim Remedial Action described in this Record of Decision.



Interim Action Record of Decision  
Townsend Saw Chain Company Site

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## 2.0 SITE LOCATION AND DESCRIPTION

The Site is located in Richland County, South Carolina, approximately 15 miles east-northeast of Columbia, at the intersection of Interstate Highway 20 and State Highway 53 (Spears Creek Church Road). The nearest municipality is the town of Pontiac. Fort Jackson military reservation is located across Interstate 20 south of the Site (Figure 2).

The facility property consists of approximately 50 acres and is surrounded by a barbed-wire fence. During the RI, the five study areas shown on Figure 3 were investigated on the facility property. Offsite, across SC Road 53 (Spears Creek Church Road) approximately 600 feet northeast of the property boundary, a small seep or spring forms the origin of an unnamed tributary of Spears Creek. Throughout this document, the terms *onsite* and *offsite* are used to denote locations within the facility property (*onsite*), and those across SC Road 53 to the northeast, east and east-southeast (*offsite*).

### 2.1 Site Topography and Drainage

The Site lies within the Upper Coastal Plain physiographic province. Topographically, the region is characterized by flat or gently rolling terrain dissected by densely vegetated streams and creeks. Soils in the area consist predominantly of quartz sand, resulting in high soil permeability and rapid infiltration of rainwater into the underlying geologic units. There is little or no surface runoff.

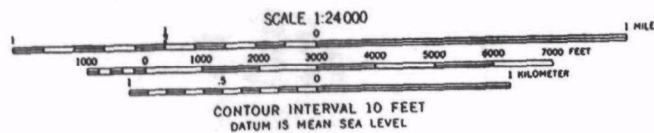
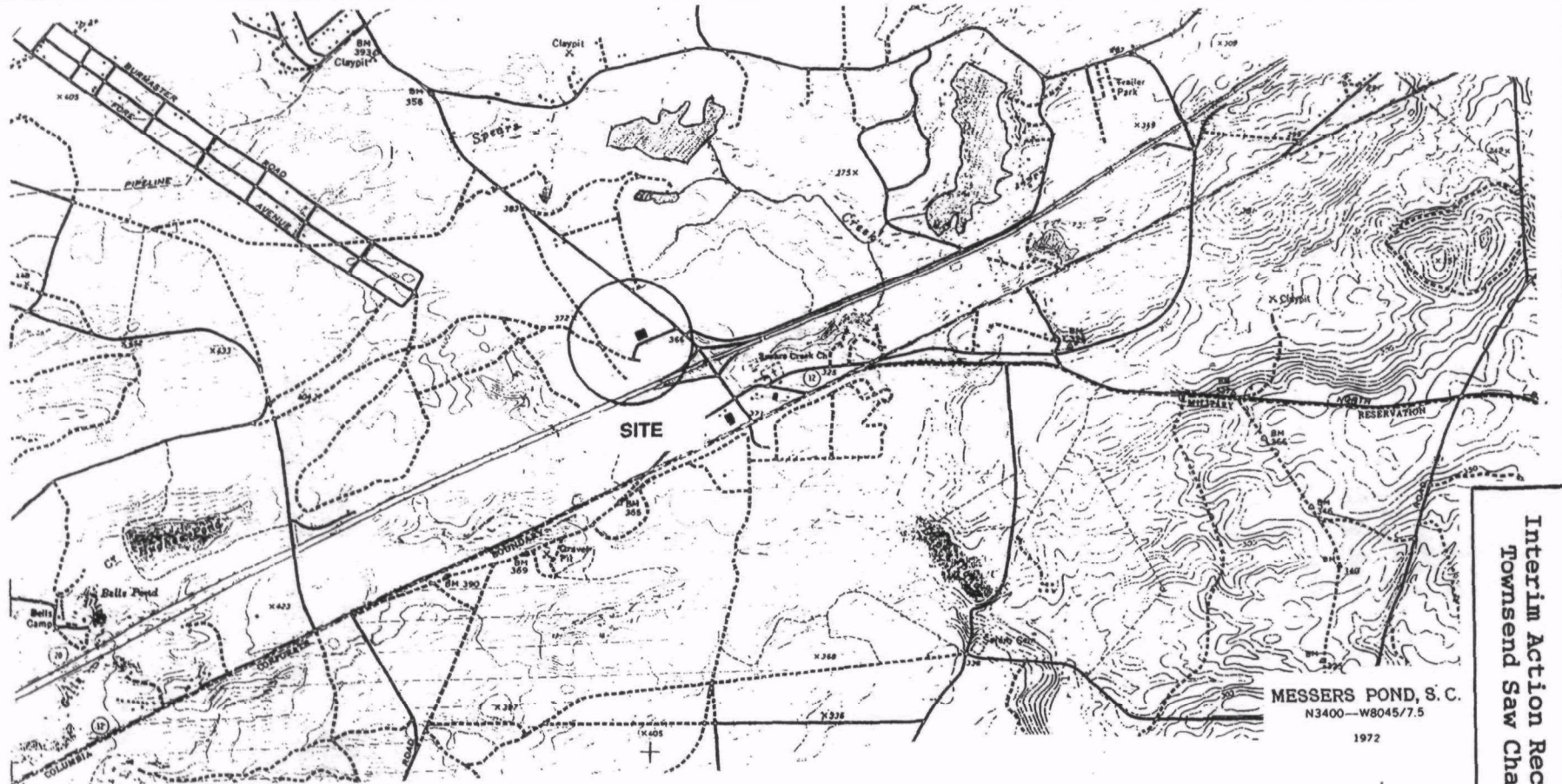
Elevations on Site range from 350 to 375 feet above mean sea level. The Site is relatively flat. There is no direct (surface) drainage of any portion of the Site to drainage features. The nearest significant drainage is the above-mentioned spring, which feeds an unnamed tributary of Spears Creek. The tributary flows northeastward to its confluence with Spears Creek approximately 3700 feet northeast of the facility.

### 2.2 Geologic and Hydrogeologic Setting

The Upper Coastal Plain province is underlain by a seaward-dipping wedge of unconsolidated sediments overlying crystalline bedrock. The sandy surface soils (the Lakeland and Kershaw soil series) were formed from Tertiary marine and eolian (wind-deposited) sands. These soils are typically gray to white and give the White Sand Hills region its name.

Underlying these soils is the upper Cretaceous Middendorf Formation (previously designated the Tuscaloosa Formation). The Middendorf consists of sands and kaolinitic clays representing fluvial and

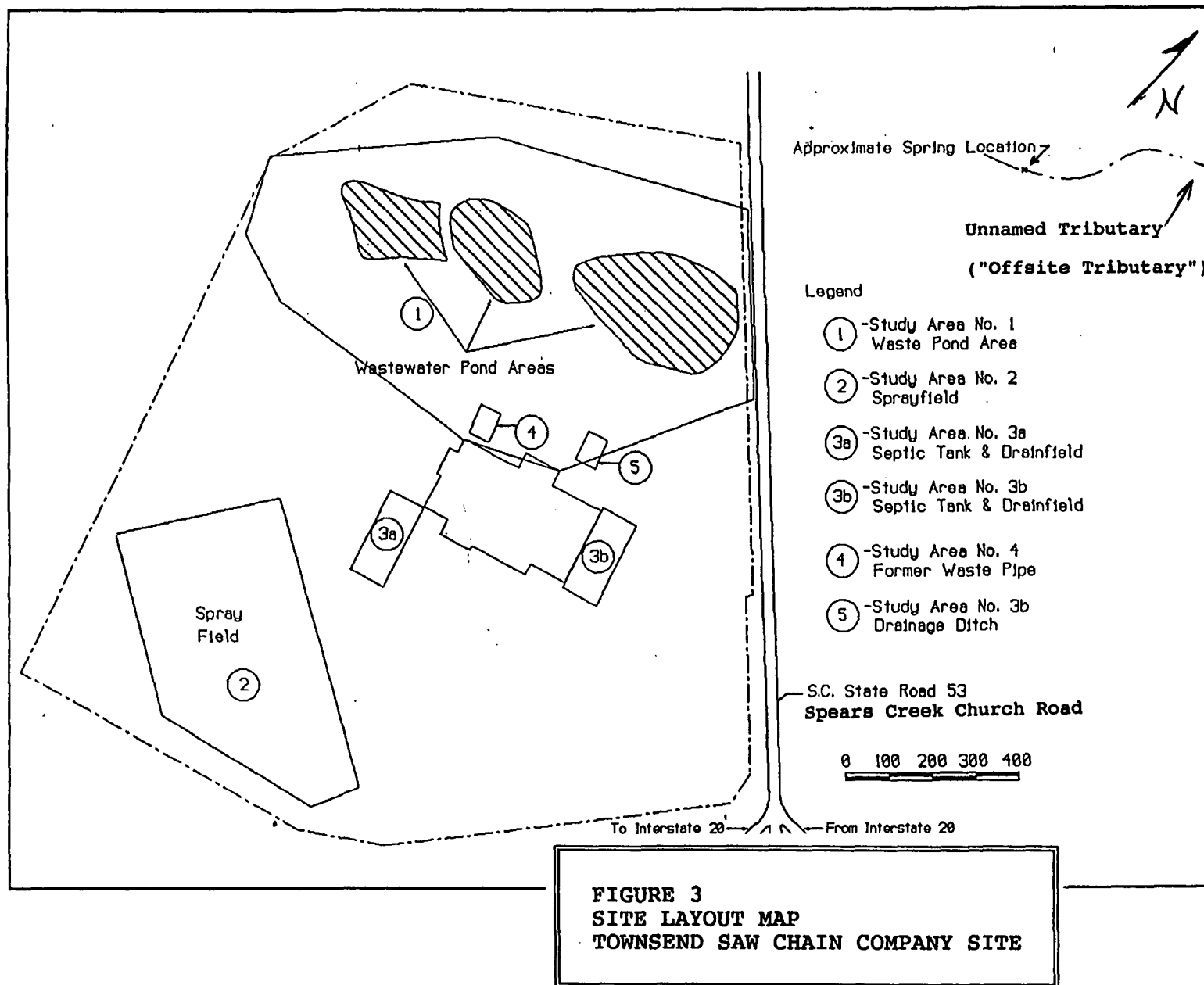




**FIGURE 2**  
**SITE AREA MAP**  
**TOWNSEND SAW CHAIN COMPANY SITE**

MESSERS POND, S. C.  
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 1972





deltaic environments. Subsurface structures present in these sediments include stream channels, overbank deposits, channel scours and fills, and floodplain deposits. Locally, such structures may control groundwater flow patterns. The formation is approximately 200 feet thick in the area of the Site.

Sand strata within the Middendorf are productive aquifers, and the formation serves as a major aquifer in South Carolina. Yields of 10 to 25 gallons per minute (gpm) from wells screened at depths of 50-100 feet, and up to several hundred gpm from those screened from 150-200 feet, are obtained in the Fort Jackson area. Groundwater in the area is classified by EPA as Class IIA and by South Carolina as Class GB.

### 3.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

In 1964, Dictaphone Corporation purchased an approximately 100-acre parcel of land, which eventually became the Site, and constructed a small manufacturing facility to be used primarily for the assembly of certain models of the company's line of office recording equipment. Details of the operations used are unavailable, but two permits issued by the State of South Carolina indicate that wastewaters generated onsite contained low levels of zinc, cyanide, chromium (chromate ion) and residues from acid and alkali cleaning. Operations on site were permitted for the period between June 1966 and June 1971.

Townsend Saw Chain Company purchased the Site in June of 1971. Their operations onsite began in July 1972. From that time to the present, the main operation of the facility has been the manufacture and assembly of saw chains for chain saws. Processes which comprise this overall operation include metal punch-pressing, metal plating (chromium), heat treatment (heat quench bath), a rust-preventative bath, and metal parts cleaning and finishing. Wastewaters produced by these processes contained chromium, cadmium, cyanide, nitrite and nitrate salts, and several volatile organic compounds (VOCs).

Between 1966 and 1981, under both Dictaphone and Townsend Saw Chain Company (later Textron), waste rinsewaters produced during the metals-plating and other processes described above, were disposed of by direct discharge to the ground surface in the low-lying "waste pond" areas adjacent to the facility on the north side. These discharges, which occurred over a period of approximately 15 years, are the origin of the onsite groundwater contamination. In 1982, after the South Carolina Department of Health and Environmental Control (SCDHEC) investigated the site, Textron was fined by the State for violations of the established wastewater treatment rules. Investigations since 1982 have confirmed the

presence of groundwater contaminated by chromium and nitrate onsite and offsite, as well as trace groundwater concentrations of volatile organic compounds (VOCs).

Since 1982, SCDHEC has continued to oversee Textron's remediation program for groundwater. In 1982, a groundwater treatment system was installed, consisting of five extraction (pumping) wells, chemical treatment tanks, and a spray or irrigation field for disposal of the treated water. This system is still in operation. Groundwater is extracted, chemically treated to the applicable South Carolina groundwater quality standard for chromium (0.050 mg/l), and then discharged to the spray field. Plant process wastewater is also treated together with the contaminated groundwater. Performance of the system and conditions at the spray field are monitored by SCDHEC.

In 1987, SCDHEC identified problems in the treatment system's design and performance. To address those deficiencies, a subsequent 1988 modification to the 1982 Court Order directed Homelite to further investigate and define the extent of groundwater contamination, and to investigate Site hydrogeology as necessary to modify the system's design. A report with design revisions was submitted to SCDHEC in 1990, and following SCDHEC review, again in December 1991. The redesign effort has been completed and operation of the expanded pump-and-treat system (referred to as the "enhanced system") will begin in February or March 1994.

Between 1985 and 1988, SCDHEC and EPA took the necessary steps to list the Site on the National Priorities List (NPL), which places it in the Superfund program. A 1985 Preliminary Assessment/Site Inspection (PA/SI) by SCDHEC revealed elevated and/or above-background concentrations of chromium, lead, cadmium, arsenic, cyanide, nickel, and four VOCs in groundwater at the site. Chromium, lead, cadmium and arsenic were present at elevated levels in sediments within the waste pond area, and a stream water sample taken just across Spears Creek Church Road north of the site contained chromium and four VOCs. Based on these results, the Site was then ranked by EPA in 1987 using the Hazard Ranking System (HRS), which evaluates the potential for public exposure to site contamination. Because of the potential for migration of groundwater contaminants offsite, and the large number of people in the surrounding area served by water wells, the Site was assigned an HRS score of 35.94 and was proposed for listing on the NPL in June 1988. The Site was finalized on the NPL in February 1990.

EPA and Homelite signed an agreement in October 1991 under which Homelite agreed to conduct a Remedial Investigation/Feasibility Study (RI/FS). Dictaphone Corporation was named as a Potentially Responsible Party (PRP) by EPA when the Agency notified both

Homelite and Dictaphone that an RI/FS was required for the Site. Dictaphone has not participated in the RI/FS to date.

RI/FS field work began in early May 1992. The initial work included a monitor well upgrade/abandonment program to insure the reliability of the onsite and offsite monitor wells, and an initial sampling of Site soils and the monitor wells. The preliminary results of these sampling activities were presented in the "Preliminary Site Characterization Summary," submitted by the PRP's contractor to EPA in September, 1992.

Based on these initial ("Phase I") results, Homelite proposed further investigation of site groundwater and soils. This effort was designated "Phase II" and began in November 1992. Combined Phase I and II activities have included the installation and addition of 15 new monitoring wells to the previous 38-well network. Sampling has included collection and laboratory analysis of 73 groundwater samples, 17 surface water (stream) samples, 19 stream sediment samples, 35 soil samples, 10 septic tank sludge samples, 6 septic tank wastewater samples, and 10 air samples. Additionally, between January and July 1993, three rounds of offsite shallow groundwater sampling were performed. A total of 48 offsite groundwater samples were collected. After a delay during which access to surrounding properties was obtained, offsite groundwater sampling was continued during June and July 1993. In late June 1993, EPA decided to move forward with an Interim Action at the Site.

#### 4.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

During the workplan preparation phase of the RI, EPA established an information repository at the nearest library, the Richland County Northeast Branch Library in east Columbia. Materials placed at the repository at that time (April 1992) included background information on Superfund and on the Site. Later, in December 1992, the Administrative Record (AR) for the Townsend Saw Chain Site was established. Upon EPA approval of the PRP's RI/FS work plans, the plans were then added to the AR.

An RI "kickoff" public meeting was held by EPA at Pontiac Elementary School on April 22, 1992. Approximately 70 persons attended this meeting. Most public questions and concerns centered around two issues: the proximity of the Site to Pontiac Elementary School, and the long period of groundwater cleanup that has transpired without completion of the cleanup effort. EPA staff explained the lack of any health threats to the school children based on the known situation at that time, and that the RI work included investigation of any such possibilities. EPA and SCDHEC officials also explained the specific details of Homelite's

groundwater remediation activities, their status, and EPA's RI objectives in regards to groundwater contamination.

Following completion of Phase II field work in the summer of 1993, EPA prepared a Fact Sheet to provide public notice of EPA's proposed interim action, to establish a public comment period, and to solicit public comments. The Proposed Plan Fact Sheet established a public comment period from August 20, 1993, to September 20, 1993. Prior to the start of the comment period, a focused Feasibility Study document, prepared by the PRP's contractor and entitled "Technical Memorandum on Interim Remedial Action," was made available at the information repository. This document outlines the specifics of the Interim Action to the degree possible with current information, and provides preliminary evaluations of the possible options for groundwater treatment and disposal to be considered in full in the Interim Action. The Technical Memorandum was then officially added to the AR on August 18, 1993. A notice to area citizens concerning the Proposed Plan public meeting was published in Columbia's daily newspaper, *The State*, on August 20, 1993.

An Interim Action Proposed Plan public meeting was held to present the Interim Remedial Action Proposed Plan to the public on August 31, 1993, at Pontiac Elementary School. Approximately 70 persons attended the meeting. The public expressed a great deal of interest in the Interim Remedial Action. Most questions concerned EPA's planned precautionary sampling of four private water wells at the southwest end of Woodcreek Lake. Details concerning area residents' concerns are provided in the Responsiveness Summary comprising Appendix A to this ROD.

#### 5.0 SCOPE AND ROLE OF THE INTERIM ACTION WITHIN SITE STRATEGY

The scope of the proposed action includes two components: 1) expedited design and construction of a groundwater pump-and-treat system to prevent or minimize continued offsite migration of contaminated groundwater; and, prior to the design effort, 2) planning and conduct of a focused hydrogeologic study to support the design.

The Interim Action addresses groundwater contamination, which at this time appears to be the principal threat posed by the Site. However, this is not the final remedial action at this site. Following completion of the FS, EPA will issue a Proposed Plan for a final remedial action (remedy) at this Site. It will also address environmental contamination in other media (soil, surface water) in addition to groundwater. It will also consider the adequacy of, or possible modifications to, the groundwater pump-and-treat system proposed in this Interim Action, for effectively



cleaning up all contaminated groundwater resulting from the Site. Under the current schedule, a ROD would be issued by EPA in the summer of 1994.

## 6.0 SUMMARY OF SITE CHARACTERISTICS

This Interim Action is concerned with the offsite migration of contaminated groundwater. Therefore, this section provides a summary of those site characteristics most related to this aspect of Site contamination.

### 6.1 Site-Specific Geology and Hydrogeology

Boring logs from the RI and from past investigations have been used to develop an understanding of Site geology. Based on stratigraphic and hydrogeologic characteristics, sediments underlying the Site can be divided into three units:

*Unit I* is exposed at the surface and consists of interbedded and alternating layers of sand, silty or clayey sand, and silt or clay lenses. These various strata are apparently hydraulically connected. Groundwater occurrence and movement in Unit I is controlled by the types of sediment strata present, and their configuration. Perched water zones occur, for example, in the area of the former waste ponds.

*Unit II* is a low-permeability confining unit consisting of hard, dry, kaolinitic silty clays or clayey silt. Unit II appears to be laterally continuous on the Site property. The RI work to date has not revealed any locations where Unit II is absent; however, its continuity and extent in offsite areas has not yet been determined.

*Unit III* consists of slightly-silty, fine- to medium-grained sand. Because few Site borings to date have penetrated into Unit III, its hydrogeologic and stratigraphic characteristics are not well known. Two deep wells recently installed in the offsite area will provide further information on unit III.

The lower portion of unit I, and all of units II and III are part of the Middendorf Formation. It is important to note that the simple, general outline of units I-III given above is not meant to infer that simple patterns of groundwater flow and occurrence are present. Viewed as a whole, the subsurface arrangement of various sediment lenses and layers, having different grain sizes and hydrologic properties, creates a complex geometry and complicates attempts to locate plume boundaries or model Site groundwater flow patterns.

## 6.2 Preliminary RI Findings: Extent of Groundwater Contamination

The RI Report is presently in preparation. The following summary provides a preliminary overview of the RI results to date, particularly with respect to groundwater.

Sampling of the monitoring wells on the Site and across Spears Creek Church Road confirmed that the chromium and nitrate contamination extends offsite to the northeast. However, Phase II offsite groundwater sampling further showed that the areal extent of chromium-contaminated groundwater in the shallow (surficial) aquifer is much larger than previously believed. The extent of contamination by nitrate is not known, as the offsite sampling was intended to identify the main Site contaminant of concern, chromium. Figure 4 illustrates the areal extent of the contamination defined to date, and the locations from which the 48 surficial aquifer samples were collected. No pattern was evident in the distribution of the detected chromium levels. Levels of chromium in the 48 offsite samples (Table 1) generally ranged from 0.20 mg/l to 2.50 mg/l, although two samples (TW-6 and HP-20) registered significantly higher. Delineation of the horizontal and vertical boundaries of the contaminated groundwater (the "plume") is currently underway.

The offsite groundwater sampling has, thus far, been accomplished primarily by using direct-push techniques (DPT) in order to get analytical data (Table 1) as rapidly as possible. Samples have also been recovered from hand-auger borings with temporarily-installed wells, and from surface seeps. Direct-push sample collection involves the use of a special device which drives hollow rods downward through the overlying soil or geologic unit to reach groundwater or a desired depth. DPT samples can be collected rapidly, inexpensively, and without disturbance to the ground surface.

It should be noted that analytical data collected via DPT may have limited accuracy due to inherent problems in the sampling methods used. One common problem is that the analyses can show more chromium than is actually present and moving in the groundwater, due to recovery of samples high in turbidity (clays or other fine particulates). Nonetheless, even with these limitations, the data indicate that shallow groundwater across the large offsite area shown on Figure 3 is contaminated by chromium at levels ranging up to many times the maximum contaminant level (MCL). MCLs have been established by EPA and the states pursuant to the Safe Drinking Water Act of 1974, and specify the maximum permissible amount of a substance in public potable water supplies, and within aquifers used as potable water sources. EPA believes that a concentration of a substance in potable water supplies at or below the respective MCL will not cause unacceptable risk to human health. For

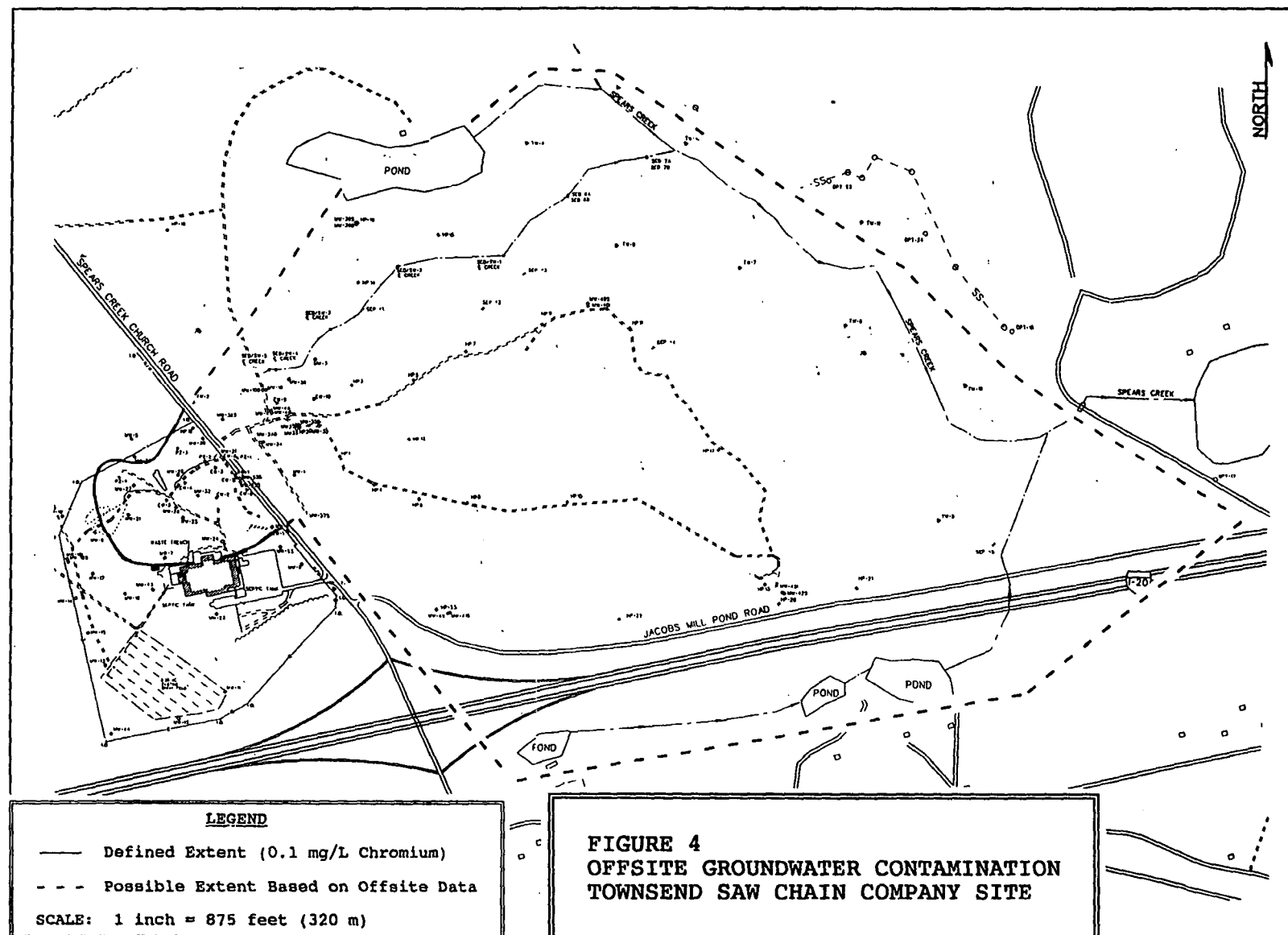


TABLE 1  
OFFSITE GROUNDWATER SAMPLING RESULTS

Sample Point <sup>(1)</sup>	Result (mg/L)	Sample Point	Result (mg/L)
HP-1	0.810	DPT1-27 <sup>(2)</sup>	< 0.050
HP-2	0.168	DPT1-45	< 0.050
HP-3	0.200	DPT3-37	0.530
HP-4	0.970	DPT4-37	0.740
HP-5	1.200	DPT5-30	0.310
HP-6	0.280	DPT6-25	0.510
HP-7	0.880	DPT8-47	0.670
HP-8	0.420	DPT9-24	0.260
HP-9	0.480	DPT10-24	0.930
HP-10	0.260	DPT11-11	< 0.050
HP-11	1.400	DPT12-9	1.800
HP-12	0.050	DPT13-28	< 0.050
HP-13	1.000	DPT14-52	0.240
HP-14	0.310		
HP-15	0.600	TW-1	< 0.050
HP-16	0.330	TW-2	0.340
HP-17	0.390	TW-3	> 0.050
HP-18	< 0.050	TW-4	0.240
HP-19	0.580	TW-5	0.120
HP-20	4.000	TW-6	11.200
HP-21	0.420	TW-7	0.180
HP-22	< 0.050	TW-8	0.330
HP-23	2.500	TW-9	< 0.050
		TW-10	0.070
Seepage #1	< 0.050	TW-11	< 0.050
Seepage #2	< 0.050	TW-12	< 0.050
Seepage #3	0.080		
Seepage #4	< 0.050		
Seepage #5	< 0.050		

All results are for total chromium.

NOTES:

1. HP: Samples collected using HydroPunch® system.  
DPT: Samples collected via HydroCone® system.  
TW: Samples collected from temporary well boreholes.

HydroPunch® and HydroCone® are direct-push technologies.

2. For the DPT samples, depth of sample recovery is indicated by the number following the sample number. For example, sample DPT1-27 was collected at 27 feet below ground surface.

chromium, the South Carolina MCL is 0.05 milligrams per liter (mg/l), while the Federal MCL is 0.10 mg/l.

Reconnaissance of the offsite area bounded by Interstate 20, Spears Creek, and the unnamed tributary, has revealed a number of scattered, small trash-dumping locations. The presence of these trash dumps, the occurrence of the two unusually elevated groundwater samples (11.20 mg/l and 4.00 mg/l), and the lack of historical knowledge about the offsite area, together support the possibility that sources other than the Site could be contributing contaminants to groundwater. This issue will be further investigated during the Interim Action.

As a precaution, Homelite sampled 7 private wells along the south side of Interstate Highway 20. These samples all indicated less than 0.004 mg/l for chromium and below the quantification limit (and below MCLs) for VOCs.

As noted above, the RI surface water samples also indicate potential risks to the ecological health of the unnamed offsite tributary. An upcoming Ecological Assessment (EA) by Homelite in this area, with EPA involvement and oversight, should resolve the issue of whether ecological damage has occurred. The EA results will be considered in the FS for the Site.

## **7.0 SUMMARY OF SITE RISKS**

At this time, the Baseline Risk Assessment has not yet been completed. However, the groundwater sampling results clearly indicate that chromium-contaminated groundwater is migrating offsite in the direction of private water wells, located to the southeast and east of the Site. As noted above, even allowing for some inaccuracy in the direct-push sample results, chromium levels in groundwater range up to 2.50 mg/l (excluding two higher samples), many times above the Federal and State MCLs (0.10 and 0.05 mg/l, respectively). The main contaminant of concern is chromium, although nitrate and several VOCs have been detected at levels above MCLs in offsite wells.

While the contamination may be limited to the shallow aquifer, nearby private water wells could still be impacted at levels above the MCL, unless measures are taken to intercept and/or control the offsite movement of the contaminant plume. Most wells registered with the State of South Carolina draw water from the deeper aquifer (the Middendorf Aquifer), from which no offsite data is available yet. However, the depths of some of the registered wells are not known. EPA believes that water supply wells at some of the homes surrounding Woodcreek Lake are fairly shallow, possibly drawing water from the shallow aquifer. The purpose of the Interim Action

is to minimize or prevent the continued offsite movement of contaminated groundwater. Potential risks to human health posed by consumption of contaminated groundwater will be reduced or eliminated by the proposed Interim Action.

As noted above, the RI surface water samples also indicate risks to the ecological health of the unnamed offsite tributary. An Ecological Assessment in this area will be conducted as part of the FS. The data collection portion of this Interim Action will provide further information useful to the Ecological Assessment. Also, depending on the actual well locations, the pump-and-treat system may improve surface water quality by removing contaminated groundwater, thus preventing it from reaching the tributary.

#### 8.0 DESCRIPTION OF ALTERNATIVES

EPA considered two alternatives before proposing this Interim Action. The alternatives are briefly described below.

Alternative 1: No Action. CERCLA requires EPA to consider a "no-action alternative" at every site for which remedial action is proposed, to serve as a baseline for comparison with other alternatives.

Under the No Action Alternative, EPA would take no actions to minimize or prevent the continued offsite movement of contaminated groundwater. However, because contamination would remain onsite, EPA would require a review of this remedy every five years in accordance with CERCLA. This would constitute an O&M cost, and the only cost under this alternative.

Construction Cost:	\$ 0
Operation and Maintenance (O&M) Costs:	
(six 5-year reviews over 30 years,	
\$15,000 each, discounted at 5%/year)	<u>\$ 41,700</u>
Total Costs:	\$ 41,700

Time Required to Implement Remedy: None.

Alternative 2: Interim Action Pump-and-Treat System. In order to minimize or prevent the continued offsite movement of contaminated groundwater, a pump-and-treat system that will intercept and capture the contaminated groundwater at the periphery of the plume, or at other appropriate locations as determined during design, will be designed and built. After groundwater is extracted, the system will direct it to a treatment facility. The Interim Action Pump-and-Treat System (hereafter referred to as the "Interim System")

will, as a minimum, allow control over the offsite migration of the contaminated groundwater.

The Interim Action has two components:

1. Pre-Design Hydrogeologic Study
2. Design, Construction and Operation of the Interim Action Pump-and-Treat System

The first component is a short, focused investigation of the hydrogeologic characteristics of the offsite area. Detailed hydrogeologic information beyond the scope of the RI/FS is needed to successfully design a system that will accomplish the objectives described above. Also, the locations of the worst chromium and VOC contamination and any other highly contaminated areas (including, possibly, soil contamination) must be determined. Approximately three months will be required to complete this effort.

Design; construction and operation of the Interim Groundwater Pump-and-Treat System is the second component of the Interim Remedial Action. The design will be expedited to correspond to the limited objectives of the Interim Action; i.e., peripheral control of the plume rather than the aggressive pumping and treating of all contaminated groundwater in the offsite area. Issues which must be resolved during design include: the number and placement of pumping wells; the type and degree of treatment required, including whether treatment for VOCs is required in addition to chromium; where to discharge the treated groundwater; and what standard must be achieved to meet the influent requirements of the chosen discharge option. These issues are interrelated; for example, the type of discharge will strongly affect the degree of treatment. The design should take approximately four to five months to complete.

Construction and operation of the Interim System will immediately follow EPA's approval of the design. The Interim System will consist of between 6 and 8 wells, or another number as determined during the remedial design, submersible or other appropriate pumps, pipes/lines, a treatment unit to remove or reduce chromium, and other appurtenances as necessary to complete the system. After the groundwater is treated, it will be discharged to either: 1) a local publicly-owned treatment works (POTW), 2) Spears Creek via an appropriate NPDES permit (National Pollution Discharge Elimination System), or 3) another, to-be-determined disposal option. As stated above, the discharge option to be used will be determined in the design phase. Three to five months will be needed to construct the Interim System.

In accordance with CERCLA, federal and state requirements, referred to as Applicable or Relevant and Appropriate Requirements (ARARs), are recognized for this Interim Action. At this time, EPA believes

that the Interim Action will meet all ARARs which pertain to groundwater as a source for potable drinking water, and to the treatment technologies which groundwater remediation will involve. These ARARs include specific provisions of the Safe Drinking Water Act, the South Carolina Safe Drinking Water Act, the Clean Water Act, the South Carolina Pollution Control Act, the Resource Conservation and Recovery Act, the South Carolina Hazardous Waste Management Act, and the federal and state regulations which implement these statutes. More detailed information concerning ARARs is presented in Section 10.2.

The cost estimates presented below are based on the limited information available at present. O&M costs after the first year will depreciate at an estimated 7% per year. However, the present worth cost of the O&M over an anticipated period of operation cannot be calculated at this time, because the hydrogeologic data and modelling necessary to make an estimate of the length of the period of operation, are not yet available.

Design and Construction Cost (includes design cost and treatment system equipment)	1,610,000
Operation and Maintenance (O&M) Costs:	280,050
Disposal Costs - Treated Groundwater	<u>34,500</u>
Total Cost Estimate	\$1,924,550

Time to Begin Pump-and-Treat Operations: 10 - 13 months

#### 9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

EPA uses nine criteria to evaluate the alternatives which could be selected. The first seven are used to evaluate the alternatives based on environmental protection, cost, and engineering feasibility issues. The preferred alternative is then further evaluated based on the final two criteria, State and community acceptance. To be selected by EPA, an alternative must meet the first two "threshold" criteria, overall protection of human health and the environment, and compliance with ARARs.

This evaluation is more limited in scope than would be the case if the Interim Action was to be the final remedy at this Site. As noted above, following completion of the FS, EPA will issue a Proposed Plan for a final remedial action (remedy) for the Site. The final remedy will reconsider the planning and design for the groundwater pump-and-treat system proposed in this Interim Action, and may propose system additions, modifications, or other actions, to accomplish remediation of all contaminated groundwater originating from this Site. Thus, this Interim Action will be consistent with the final remedy.



EPA's rationale for selecting this action is presented below, in relation to each of the nine criteria. The site-specific rationale is indicated by the " □ " symbol.

1. *Overall Protection of Human Health and the Environment* addresses the degree to which an alternative meets the requirement that it be protective of human health and the environment. This includes an assessment of how public health and environmental risks are properly eliminated, reduced or controlled through treatment, engineering controls, or controls placed on the property to restrict access and (future) development.

□ The No Action Alternative would not be protective of human health and the environment. Potential threats to private water well users located east and southeast of the Site will remain. Since this threshold criterion is not met, the No Action alternative is not considered further in the evaluation below.

□ The Interim Action Pump-and-Treat System will achieve protection of human health and the environment through interception or control of the offsite groundwater plume's movement, thereby preventing contamination of private water wells. Treatment of the contaminated groundwater will also, to some degree, reduce any ecological effects which may be occurring in the unnamed tributary to Spears Creek.

2. *Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)* addresses whether or not an alternative complies with all state and federal environmental and public health laws and requirements that apply, or are relevant and appropriate, to the conditions and cleanup options at a specific site. If an ARAR cannot be met, the analysis of the alternative must provide the grounds for invoking a statutory waiver.

□ The Interim Action will meet ARARs concerning groundwater. The major ARARs for this action include specific provisions of the Clean Water Act, the South Carolina Water Pollution Control Act, and the associated State and Federal regulations that implement those two statutes.

3. *Long-Term Effectiveness and Permanence* refers to the ability of an alternative to maintain reliable protection of human health and the environment over time once the cleanup goals have been met.

□ Long-term effectiveness cannot be evaluated at this point, but rather must be evaluated together with any additional groundwater remedial actions which may be proposed in the final Proposed Plan for this Site. The long-term

effectiveness and permanence of all proposed groundwater cleanup actions will be considered at that time.

4. *Reduction of Toxicity, Mobility, and Volume* addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substance as their principal element.

- ☐ Capture and/or control of the contaminant plume will reduce the mobility of the contaminated groundwater. Treatment of the groundwater will reduce both the toxicity and volume of contaminated groundwater.

5. *Short-Term Effectiveness* addresses the impacts of the alternative on human health and the environment during the construction and implementation phase, until remedial action objectives have been met.

- ☐ No adverse short-term effects are expected to result from this action. Most of the offsite area known to be affected is presently undeveloped. Site work will adhere to a Site-specific Health and Safety Plan to reduce any potential short-term risks to workers and nearby residents.

6. *Implementability* refers to the technical and administrative feasibility of implementing an alternative, including the availability of various services and materials required for its implementation.

- ☐ The Interim Action should be easily implementable, in that the materials and services needed to design and construct the groundwater system are readily available.

7. *Cost* consists of the capital (up-front) costs of implementing an alternative, plus the costs to operate and maintain the alternative over the long term. Under this criterion, the cost-effectiveness of the alternative can be evaluated.

- ☐ The cost of the Interim Action is estimated at approximately \$1,924,550, which includes a first-year annual operating cost of \$280,050. The present net worth of long-term O&M costs cannot be estimated yet, but is expected to constitute the major portion of the overall cost of the action.

8. *State Acceptance* addresses whether, based on its review of the RI, FS, and Proposed Plan, the State concurs with, opposes, or has no comments on the alternative proposed by EPA as the selected alternative (or "remedy").

- ☐ The State of South Carolina concurs with this Interim Action.
9. *Community Acceptance* addresses whether the public agrees with EPA's selection of the alternative.
- ☐ A public meeting was held on August 31, 1993, to present the Proposed Plan for the Interim Remedial Action to the community. Comments at the meeting were generally supportive of the proposed action. Extension of the public comment period has not been requested. There is strong local interest and concern from residents living around Woodcreek Lake and from those east of Spears Creek (Figure 4).

#### 10.0 THE SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the NCP, consideration of the alternatives, and public and state comments, EPA has selected an interim remedy that addresses offsite migration of contaminated groundwater at this Site. Although a numerical estimate of the risks which will remain at the Site upon completion of this remedy cannot be made at present, the achievement of the MCLs for groundwater will insure that risks due to groundwater use and consumption will be within EPA's acceptable risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  for carcinogens and below a hazard quotient of 1 for noncarcinogens, which is considered protective of human health and the environment.

The selected interim remedy for this Site is:

Alternative 2: Interim Action Pump-and-Treat System.

The estimated total cost of the remedy for the first year (design, construction, 1-year operation) is \$1,924,550.

#### 10.1 Description of the Interim Remedial Action

As described in section 8.0, the Interim Remedial Action has two components: 1) a pre-design hydrogeologic study, and 2) design, construction and operation of an Interim Action pump-and-treat system.

In order to expeditiously design a pump-and-treat system to achieve the goals of this Interim Action, the hydrogeologic characteristics of the offsite area will be investigated. Hydrogeologic and other information to be collected includes: 1) definition of the full extent of the contaminated groundwater, 2) aquifer characteristics including yield, transmissivity and storativity, 3) locations of the worst-contaminated areas and/or preferred flow pathways, 4) confirmation or determination of the vertical extent of groundwater

contamination, 5) presence and extent of VOCs, 6) location and nature of any other sources contributing to groundwater contamination, and 7) data and modelling to investigate the apparent mobility of trivalent chromium ( $\text{Cr}^{3+}$ ) in Site-area groundwater, and the presence or absence of hexavalent chromium ( $\text{Cr}^{6+}$ ).

The main component of this Interim Remedial Action is the design, construction and operation of a pump-and-treat system that will intercept and capture the contaminated groundwater and direct it to a treatment facility, followed by discharge of the treated water. The Interim Remedial Action Pump-and-Treat System, or "Interim System" will, as a minimum, prevent, or provide control over, the offsite migration of the contaminated groundwater.

Design of the Interim System will be based on the results of the focused hydrogeologic study described above. Issues which must be resolved during design include, as a minimum: 1) determination of the number and placement of pumping wells, including determining the optimal locations for preventing or limiting plume movement; 2) the type and degree of treatment required, including whether treatment for VOCs is required in addition to chromium; 3) where to discharge the treated groundwater, including identification of what standard(s) must be achieved to meet the influent requirements of the chosen discharge option. These issues are interrelated; for example, the type of discharge will strongly affect the degree of treatment required.

The method of discharge of the treated groundwater, item #3 above, will also be decided in the design phase. Possible discharge options include: 1) a local publicly-owned treatment works (POTW); 2) Spears Creek via an appropriate NPDES permit (National Pollution Discharge Elimination System); or 3) another discharge option investigated during design.

The design for the Interim System will be reviewed and approved by EPA. The design work will be expedited to correspond to the limited objectives of the Interim Action; i.e., a rapid response action to gain peripheral control of the plume. Construction and operation of the Interim System will follow EPA's approval of the design. The design is expected to take approximately four to five months to complete.

Construction of the Interim System will involve installation of approximately 6 to 8 extraction wells, or a different number of wells according to the EPA-approved design; submersible or other appropriate pumps, pipes/lines, and other appurtenances as necessary to complete the system; and a treatment unit to remove or reduce chromium. After the groundwater is treated, it will be discharged via the discharge option selected during design. Based

on past experience regarding the construction of the "enhanced" pump-and-treat system on the Site (page 7), three to five months are estimated for construction of the Interim System. This timeline is contingent upon gaining appropriate access to the Site.

The specific treatment method to be used has not yet been determined, but is expected to involve the use of physical and chemical processes to remove inorganic contaminants. Typically, aeration, chemical reduction, and chemical precipitation are used in combination with phase separation and filtration, to remove metals from groundwater. Aeration of the water, normally by sparging (bubbling) air, may be used as a pretreatment step. The next process, chemical reduction, utilizes reducing agents to reduce the valence state of metal contaminants (in this case, chromium) to more easily precipitable forms. Chemical precipitation, the next step, is achieved by adjusting the pH of the groundwater to the optimum value for precipitation: metal contaminants become less soluble and are precipitated out of the water as solid particles.

Metal removal is then completed using phase separation and filtration. Phase separation processes typically add a polymer to the water to force metal precipitates to clump together or flocculate. Then, a sedimentation process is used to settle out the large floc particles. Finally, the supernatant is filtered to remove any other suspended particles not removed through sedimentation. The settled floc particles and the particles removed by the filter are typically transferred to a solids holding tank. Solids from the holding tank are then dewatered via filter press; the liquids are usually pumped back to the head of the treatment system. Dewatered solids are then collected and stored onsite until disposal.

It is assumed, at present, that the treatment of contaminated groundwater will involve the physical methods generally described above. In this case the solids produced by treatment will require management as a hazardous waste, and disposal in a RCRA-regulated landfill. Treatment and hazardous-waste management actions shall comply with the ARARs described in the following section (Section 10.2).

During the design of the Interim System, it may be determined that treatment of contaminated groundwater for VOCs is warranted. If this proves to be the case, treatment may include passage of the groundwater through an air-, gas-, or steam-stripping unit to remove or reduce the concentrations of VOCs. Alternatively, VOC removal may involve using activated carbon, either for actual removal or as a "polishing" unit. Handling of the spent carbon and operation of the stripping unit shall comply with the ARARs described under the appropriate subsections of Section 10.2.

Following treatment, the groundwater shall be discharged to the selected discharge appurtenance or location. Discharge shall comply with all ARARs which are applicable, or relevant and appropriate, to the particular option.

The goal of this interim remedial action is to intercept and/or gain control over the offsite migration of contaminated groundwater. Based on the information collected during the RI and on a careful analysis of all remedial alternatives, EPA and the State of South Carolina believe that the selected groundwater remedy will achieve this goal. However, the remedy's ability to achieve the remediation goals at all points throughout the area of the plume cannot be determined until the pump-and-treat system has been implemented, modified as necessary, and the natural groundwater system's response monitored over time.

Because this is not the final remedy at this Site, contingency measures, or potential system modifications to address deficiencies of this remedy which may be identified after some period of operation, will not be addressed in this Interim Action ROD. The Interim Remedial Action will be evaluated in this regard as part of the final remedy selection process.

#### 10.2 Applicable or Relevant and Appropriate Requirements (ARARs)

This section presents the ARARs likely to be involved in the Interim Remedial Action. Because of the limited amount of data currently available and the uncertainty concerning some details of the Interim Remedial Action, the following discussion of ARARs is necessarily general. In this manner, enough flexibility is given to allow the specifics of the Interim Remedial Action to be developed in the design phase.

10.2.1 Applicable Requirements. The specific ARARs applicable to this Interim Action will depend on the treatment and discharge options developed during the design phase. The following processes and technologies are those expected by EPA to be used in the Interim Remedial Action. Each is followed by the ARARs associated with its use. Employment of other processes or technologies may be required, however, due to development of new, unforeseen information about the Site during the design phase of the Interim Remedial Action.

*Sludge generation (physical processes or VOC removal using activated carbon:* Groundwater remediation involving physical processes as described above (Section 10.1) and intended to remove inorganic contaminants (metals) from groundwater, and which produce solid hazardous waste (sludge); or spent carbon used to remove organic contaminants (VOCs), shall comply with all applicable portions of the following federal and State of South Carolina regulations:

40 CFR Parts 261, 262 (Subparts A-D), 263, and 268, promulgated under the authority of the Resource Conservation and Recovery Act.

These regulations govern the identification, transportation, manifestation, and land disposal restriction requirements of hazardous wastes. In this case, the regulations would be applicable to the sludges which will likely be produced as a result of chemical treatment of groundwater, and to spent carbon. Sludge from physical/chemical removal processes will, in all likelihood, constitute hazardous waste based on its characteristics. For the spent carbon, it is expected that the material will fail TCLP, and thus the land disposal restrictions in 40 CFR Part 268 will apply. However, if EP toxicity tests are performed and the analytical results do not exceed EP toxicity limits, then the land disposal restrictions in 40 CFR Part 268 will not apply, even though the carbon fails TCLP.

SC Reg: 61-79.124, .261, .262, .263 and .268, South Carolina Hazardous Waste Management Regulations, promulgated pursuant to the Hazardous Waste Management Act, SC Code of Laws, 1976, as amended.

Establishes criteria for identifying and handling hazardous wastes, as well as land disposal restrictions. These regulations are also applicable in exactly the same manner as described above for the federal hazardous waste regulations.

49 CFR Part 107, 171-179, promulgated under the authority of the Hazardous Materials Transportation Act.

Regulates the labelling, packaging, placarding, and transport of hazardous materials offsite. These regulations are applicable in the event hazardous wastes (sludges from treatment) are transported off-site for treatment or disposal.

*Groundwater treatment for VOCs using air stripping:* If it is determined during design that treatment of contaminated groundwater for VOCs is warranted, and that air stripping is to be utilized, the following ARARs will apply:

40 CFR Parts 60 and 61, promulgated under the authority of the Clean Air Act.

Includes the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). Standards for emissions to the atmosphere fall under these regulations. Applicable to emissions from the air-, gas-, or steam-stripping unit if one is used for groundwater treatment for VOCs.

SC Reg. 61-62, South Carolina Air Pollution Control Regulations and Standards, promulgated pursuant to the Pollution Control Act, SC Code of Laws, 1976, as amended.

Establishes limits for emissions of hazardous air pollutants and particulate matter, and establishes acceptable ambient air quality standards within South Carolina. This regulation is applicable in the same manner as the federal regulation cited above, and only if treatment for VOCs is required.

*Discharge of treated groundwater to a surface water body:* In the event that this discharge option is accepted by EPA as the best choice, the following ARAR shall apply.

40 CFR Part 122, 125, 129, 133 and 136, CWA Discharge Limitations (CWA § 301), promulgated under the authority of the Clean Water Act.

Applicable to any point discharges of wastewaters to waters of the United States. At this Site, it is applicable to discharge of treated waters from the groundwater treatment system, to any surface water body.

SC Reg. 61-68, South Carolina Water Classifications and Standards, promulgated pursuant to the Pollution Control Act, SC Code of Laws, 1976, as amended.

These regulations establish classifications for water use, and set numerical standards for protecting state waters. SC Reg. 61-68 is also applicable to discharge of treated waters from the groundwater treatment system, to any surface water body.

*Discharge of the treated groundwater to a Publicly Owned Treatment Works (POTW):* In the event that this option is selected, discharge of treated water will be accomplished in compliance with the following ARAR:

40 CFR § 403.5, CWA Pretreatment Standards (CWA § 307), promulgated under the authority of the Clean Water Act.

Regulates discharges of water to POTWs. This regulation would be applicable to discharge of treated waters from the groundwater treatment system to a local POTW.

SC Reg. 61-68, South Carolina Water Classifications and Standards, as cited above.

These regulations establish classifications for water use, and set numerical standards for protecting state waters. SC Reg.



61-68 is applicable to discharge of treated waters from the groundwater treatment system to a local POTW.

Finally, the ARAR listed below is applicable to all groundwater remediation activities undertaken pursuant to this Interim Action which involve monitoring or extraction wells.

SC Reg. 61-71, South Carolina Well Standards and Regulations, promulgated under to the Safe Drinking Water Act, SC Code of Laws, 1976, as amended.

SC Reg. 61-71 establishes standards for well construction, location and abandonment activities conducted as part of investigation or cleanup operations, at all environmental or hazardous waste sites in the State of South Carolina.

10.2.2 Relevant and Appropriate Requirements. The following regulations are considered relevant and appropriate criteria governing the groundwater remediation contemplated under this Interim Action:

40 CFR Parts 141-143, National Primary and Secondary Drinking Water Standards, promulgated under the authority of the Clean Water Act.

These regulations establish acceptable maximum levels of numerous substances in public drinking water supplies, whether publicly owned or from other sources such as groundwater. Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) are specifically identified in the NCP as remedial action objectives for ground waters that are current or potential sources of drinking water supply (NCP 40 CFR § 300.430(a)(1)(ii) (F)). Therefore, MCLs and MCLGs are relevant and appropriate as criteria for groundwater remediation at this Site.

SC Reg. 61-58, South Carolina Primary Drinking Water Regulations, promulgated pursuant to the Safe Drinking Water Act, SC Code of Laws, 1976, as amended.

These regulations are similar to the federal regulations described above, and are relevant and appropriate as remediation criteria for the same reasons set forth above.

10.2.3 "To Be Considered" (TBC) and Other Guidance.

The following references and regulations are designated "To Be Considered" during the design and implementation of the Interim Remedial Action.

*TBC criteria for groundwater remediation:*

Guidelines for Ground Water Use and Classification, EPA Ground Water Protection Strategy, U.S. EPA, 1986.

This document outlines EPA's policy of considering a site's groundwater classification in evaluating possible remedial response actions. As described under Section 2.2, groundwater at the Site is classified by EPA as Class IIA and by South Carolina as Class GB groundwater, indicating its current and potential use as a source of drinking water.

National Oceanic and Atmospheric Administration (NOAA) ER-L/ER-M Values.

These guidelines were developed as screening criteria for sediment contamination in surface water bodies, and are based on toxicity to aquatic life. While the Interim Action is not intended to address the offsite ecosystem, the ER-L/ER-M values should be considered when judging the potential impacts of remediation efforts (particularly groundwater pumping from wells) on the immediate environment in the offsite area.

40 CFR Part 131, Ambient Water Quality Criteria (CWA § 304), promulgated under the authority of the Clean Water Act.

These regulations set numerical criteria for ambient water quality based on toxicity to aquatic organisms and human health. As with the NOAA values cited above, these regulations should be considered when evaluating the effects of any remediation or other activities in the offsite area.

*TBC criteria for the use of air stripping to remove VOCs from groundwater:*

40 CFR Part 50, National Ambient Air Quality Standards (NAAQS), promulgated under the authority of the Clean Air Act.

This regulation includes the National Ambient Air Quality Standards (NAAQS), and establishes a national baseline of ambient air quality levels. The state regulation which implements this regulation, South Carolina Reg. 62-61, will be considered applicable to the groundwater portion of the remedy if treatment of groundwater for VOC removal via air-, gas- or steam-stripping is utilized. Likewise, the NAAQS is designated TBC only if VOCs treatment of groundwater is undertaken.

Clean Air Act, § 501 and 502, 1990 CAA Amendments, 42 U.S.C.  
§ 7661 and § 7661(a).

The amendments will require that all "major sources" and certain other sources regulated under the CAA obtain operating permits. Although CERCLA § 121(e) exempts this remedy from requiring such a permit, air/gas/steam stripping at this Site may have to comply with any substantive standards associated with such permits. Regulations have been proposed, but not promulgated, for the operating permit program. As with the above-cited regulation, the 1990 CAA amendments will be considered TBC only if groundwater treatment for VOCs is performed.

10.2.4 Other requirements. Remedial design, especially when conducted rapidly to achieve interim objectives such as those outlined in this interim ROD, often includes the discovery and use of unforeseeable but necessary requirements. Therefore, during design of the selected interim remedy, EPA may elect to designate further ARARs which apply, or are relevant and appropriate, to groundwater remediation at this Site. This would be done through a formal ROD modification process such as an Explanation of Significant Differences (ESD) or a ROD Amendment. EPA may also designate other ARARs which apply to this Action during design, or in the final remedy (final ROD) for the Site.

### 10.3 Performance Standards

The standards defined in this section comprise the performance standards defining successful implementation of this interim remedy.

*Performance Standard No. 1:* Groundwater remediation performed under this Interim Remedial Action shall prevent, or control, the offsite migration of all groundwater contaminated by chromium at levels above the applicable State of South Carolina MCL (50 micrograms (ug) per liter).

*Performance Standard No. 2:* Treated groundwater routed for disposal via the selected discharge option shall meet the applicable pretreatment standards or effluent limits, if any, established for that particular discharge option.

### 11.0 STATUTORY DETERMINATIONS

Section 121(b)(1) of CERCLA, 42 U.S.C. § 9621(b)(1), states that a selected remedy must protect human health and the environment; meet ARARs (unless waived); be cost-effective; use permanent solutions, and alternative treatment technologies or resource recovery

technologies to the maximum extent practicable; and finally, wherever feasible, employ treatment to reduce the toxicity, mobility or volume of the contaminants. The selected interim remedy for this Site meets the first two statutory requirements given above, and partially fulfills the others. Since this is an interim remedial action and not a final comprehensive remedy for the Site, the degree to which all statutory requirements are met cannot be assessed. The following sections discuss the degree to which the interim remedy fulfills statutory requirements.

Protection of human health and the environment: The interim remedy will remove or reduce current and future human health risks from dermal contact or ingestion of contaminated groundwater. This will be accomplished through the operation of a groundwater remediation system which will prevent or control the offsite migration of contaminated groundwater which could otherwise reach private water wells. The extracted contaminated groundwater will be treated to remove or reduce contamination. Additionally, although the Interim Action is not intended to address ecological degradation, and the presence of such effects has not yet been established, the Interim Action is nonetheless expected to have some positive impact on the local ecology by reducing the amount of contamination reaching Spears Creek.

Compliance with ARARs: The interim remedy will meet the ARARs listed in Section 10.2. of this interim ROD. The listed ARARs apply only to groundwater remediation as described for this Interim Action. Compliance with all ARARs which may apply to remediation of this Site will be addressed in the final Site ROD.

Cost effectiveness: The interim remedy is cost effective in that it will result in limiting the expansion of the area underlain by contaminated groundwater. While the anticipated costs are large, they could reasonably be expected to be greater if this Action were not undertaken. Furthermore, the treatment technologies to be considered for use are well proven and widely used.

Utilization of permanent solutions, and alternative treatment technologies or resource recovery technologies to the maximum extent practicable: Although this interim remedy is not the final action for the Site, it does represent the maximum extent to which permanent solutions and treatment can practicably be used for this action. The treatment component of this Action will permanently reduce contaminant concentrations in the groundwater, and is thus considered a permanent solution to the problem of offsite migration of contaminated groundwater. Permanence of the Interim Action, and its long-term effectiveness, will be considered by EPA as it develops a final remedy for the Site. In view of the present groundwater situation and the need to move quickly to limit offsite

groundwater movement, EPA and the State of South Carolina believe that the selected interim remedy achieves the best possible balance of trade-offs in terms of long-term effectiveness and permanence, reduction of toxicity/mobility/volume, short-term effectiveness, implementability, and cost.

Preference for treatment as a principal remedy element: Although this Interim Action is not the final remedy for the Site, the Interim System for groundwater remediation will fulfill the preference for treatment as a principal element, through extraction and treatment of contaminated groundwater.

**APPENDIX A**  
**RESPONSIVENESS SUMMARY**

**RESPONSIVENESS SUMMARY**  
**TOWNSEND SAW CHAIN COMPANY SITE**

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**1. Overview**

The U. S. Environmental Protection Agency (EPA) held a public comment period from August 20, 1993 to September 20, 1993, for interested parties to comment on the preliminary Remedial Investigation/ Feasibility Study (RI/FS) results and the Proposed Plan for an Interim Remedial Action at the Townsend Saw Chain Company Site in Pontiac, Richland County, South Carolina. During this period there were no requests to extend the comment period for an additional 30 days.

EPA held a public meeting at 7:00 p.m. on August 31, 1993, at Pontiac Elementary School in Pontiac, South Carolina to present the initial results of the RI/FS, to present the Proposed Plan for the Interim Remedial Action and to receive comments and questions from the public.

EPA proposed that an Interim Remedial Action be undertaken to address the offsite migration of contaminated groundwater. EPA emphasized at this meeting that the proposed action was an interim measure and not the final remedy for the Site. The Interim Action consists of two parts: a short, focused hydrogeologic study to support the design of a groundwater pump-and-treat system, followed by expedited design and construction of a pump-and-treat system which will, as a minimum, limit or prevent the continued offsite movement of contaminated groundwater toward private water well users living east of the Site. Based on the comments received during the public comment period, the residents and local officials in the Pontiac, South Carolina area support the actions proposed by EPA.

This Responsiveness Summary provides a summary of citizens' comments and concerns identified and received at the August 31, 1993 public meeting and during the public comment period, and EPA's response to those comments and concerns. These sections and attachments follow:

- Background of Community Involvement
- Summary of Comments Received During the Public Comment Period and EPA's Responses
- Attachment A: Proposed Plan for Townsend Saw Chain Company Superfund Site
- Attachment B: Public Notice of Public Comment Period
- Attachment C: Proposed Plan Public Meeting Sign In Sheets

- Attachment D: Official Transcript of the Proposed Plan Public Meeting

## 2. Background of Community Involvement

EPA's community relations program for the Site began in December of 1991, when EPA conducted community interviews with local residents and officials in order to develop a community relations plan for the Site. At that time, the main concerns expressed by residents living in areas near the Site were as follows: (1) the possibility of health threats to children attending Pontiac Elementary School, which is located approximately 500 feet northwest of the Site; and (2), concerns from persons living near, particularly east of, the Site. Many residents were surprised to learn that a final overall cleanup was not, in fact, already underway, and asked why the cleanup is taking so long.

EPA personnel conducting the interviews, including the Remedial Project Manager (RPM) and the Community Relations Coordinator (CRC), explained the current status of work, at that time, on the Site, why the Site was to be investigated under Superfund, and what would occur once field work began.

During 1992 and 1993, EPA has taken steps to keep the local community aware and informed of Site activities and findings throughout a lengthy Remedial Investigation (RI). EPA held a public "kickoff" meeting announcing the start of the RI on April 14, 1992. After the first phase of the RI was completed, EPA added the *Preliminary Site Characterization Summary* to the information repository, in October 1992. During RI Phase II groundwater sampling in the winter and spring 1992-1993, the areal extent of groundwater contamination, in the east and southeast directions, was found to be much larger than previously known. Between this time and the August 1993 public meeting, the RPM and CRC initiated regular and substantial telephone contact with those landowners and residents located east of the Site. The two main contacts were the past and current presidents of the Woodcreek Lake Homeowners Association, which is comprised of persons living around Woodcreek Lake. Eleven owners of land parcels located east and south of the Site were contacted via certified letter concerning the preliminary groundwater findings, and requesting short-term access to their properties for collecting samples.

To date, public attention concerning the Site has been limited. The Site has received only infrequent coverage in the one major newspaper published in the area. There have been occasional requests to be added to the Site mailing list, which has been expanded to include additional residents living in close proximity to the Site.



EPA issued a Proposed Plan Fact Sheet in August 1993, to present the Interim Remedial Action to the public and receive public comment. There were many questions from the public, primarily concerning the possible effects to the land and groundwater in the offsite area affected by the groundwater contamination.

3. Summary of Comments Received During the Public Comment Period and Agency Responses

The Public Comment Period opened on August 20, 1993, and was closed on September 20, 1993. The Public Notice which was published in the area's local paper, *The State*, can be found in Attachment B. No written comments were received during the public comment period.

As noted above, on August 31, 1993, EPA held a public meeting to present the Proposed Plan for the Interim Remedial Action to the community and to receive comments. All comments received at this public meeting are summarized below. The responses given are essentially the same as those given at the meeting, although certain ones have been reiterated or elaborated upon for the sake of clarity. Part I of this section addresses those community concerns and comments that are non-technical in nature. Responses to specific legal and technical questions are provided in Part II.

**Part I - Summary and Response to Local Community Concerns**

The following issues and concerns were expressed at the Interim Action Proposed Plan Public Meeting. The majority of expressed comments and concerns focused on the possible effects to the land and groundwater in the offsite area affected by the groundwater contamination.

**Private Water Well and Surface Water Sampling, Woodcreek Lake Area**

- (1) Several questions concerned what EPA's intentions were regarding the lake and surrounding area. Several others asked that EPA go ahead and sample all private water wells around the lake.

**RESPONSE:** Based on the concerns raised at the meeting, the South Carolina Department of Health and Environmental Control (SCDHEC) decided to sample an additional 4 private wells. Since EPA sampled four others, the result was that all eight of the full-time residents' wells were sampled. Results from EPA and SCDHEC, which were provided to Woodcreek Lake residents in October 1993, indicated that no contamination from the Townsend Saw Chain Company Site had reached any of the wells.

- (2) EPA personnel were asked if any work would be done to address the potential for ecological damage in the offsite area, and whether the Agency had determined if such damage was causing, or could cause, a threat to the health of the residents.

RESPONSE: At the meeting, EPA staff explained that an upcoming Ecological Assessment, to be conducted by the PRP under EPA's oversight, will show whether or not the wildlife in the offsite area were being adversely impacted. The data available to date do not suggest serious or large-scale ecological damage, but this will be verified by the upcoming work.

- (3) Two citizens asked if EPA would sample and analyze the lake water, as well as conduct the planned sampling of four private water wells.

RESPONSE: EPA will consider sampling and further work involving the lake, depending on the outcome of the planned Ecological Assessment. At the public meeting, the SCDHEC project manager for the Townsend Site referred to the results of two past samplings of the lake, once in December 1991 and the most recent from January 1993. Both results indicated that total chromium was not detected at 10 micrograms per liter (ug/l). These results do not indicate a cause for concern in Woodcreek Lake. The December 1991 results were previously presented to the public in EPA's Fact Sheet announcing the RI/FS, in April 1992.

#### Origin of the Contamination

- (1) One citizen asked whether the processes which led to the groundwater problem were continuing at this time.

RESPONSE: The process which led to the groundwater contamination, specifically, improper disposal of wastewater, has been discontinued and no longer poses a threat. Groundwater contamination resulted from direct discharge to the ground surface, between 1966 and 1981, of wastewaters containing chromium and other substances. Since 1982, Homelite Textron has been pumping and treating groundwater to remove the contaminants, as well as using a chemical treatment process to remove contaminants from its process wastewater. The water, consisting of both process water and groundwater, is treated at the plant prior to being reinfiltreated back to the groundwater via a sprayfield. The treated water meets the drinking water standards for chromium, and groundwater beneath the sprayfield is monitored by SCDHEC to insure that acceptable groundwater quality is maintained. These methods of wastewater treatment and disposal do not cause environmental harm.

### Repository Information

- (1) A Richland County Councilwoman asked that EPA make the materials that are available to the public at the repository, simpler and more easily understood. She indicated that, in her view, the length and scientific content of the reports would be intimidating to most people.

RESPONSE: EPA is making, agency-wide, a number of efforts to improve public participation in the Superfund process. Such efforts will be made for this site as well, and will include the following actions to promote understanding and involvement by the public. First, EPA will insure that each major report, beginning with the RI Report which has yet to be finalized, will have a summary section at the front that will get the main points of the document, including the conclusions, across to the general reader. Second, EPA staff will insure that enough reference material is at the repository to aid the general reader. All reports will also have an index to the acronyms used. Finally, EPA will hold availability sessions at key points, as progress on the FS and the Interim Remedial Action warrant. These will provide opportunities for Agency staff to explain specific issues, reports, analytical data, or other items which may be confusing.

### Further Work at the Site

- (1) A citizen asked if EPA intends to sample groundwater or wells on the other side (south side) of Interstate Highway 20.

RESPONSE: As part of Interim Remedial Action, under EPA oversight, the PRP's consultant will complete an expedited hydrogeologic study which will identify the boundaries of the contaminated groundwater. If the data from monitor wells suggests that the boundary is south of I-20, groundwater sampling will be done south of I-20 to define the boundary.

- (2) A nearby resident asked when environmental work on this Site will be completely finished, and a "clean bill of health" can be expected.

RESPONSE: Based on experience at other sites, EPA believes that completely cleaning up the contaminated groundwater will take many years of pump-and treat operations. A timeframe of approximately 30 years is often used, but until a groundwater system is operated for some time, it cannot be reliably predicted how long it will take to complete the cleanup.

## Part II - Comprehensive Response to Specific Legal and Technical Questions

### EPA Notification Letters to Property Owners

- (1) A citizen living near the Site asked about the meaning of an EPA letter he received concerning groundwater beneath his property. The letter, as he understood it, showed chromium present at more than 7 times the drinking water standard. Also, he asked whether he will get any sort of final report or notification of what EPA's determination is, about the groundwater.

RESPONSE: Two sets of letters were mailed out in August 1993, one concerning shallow groundwater samples collected via direct-push technology, and a second set concerning water well samples from a group of residences and businesses south of Interstate Highway 20. This question concerns a letter in the first set. EPA staff explained at the meeting that the data were preliminary in nature, and subject to error in that they may be skewed high, due to certain weaknesses in the methodology used. Nonetheless, the data does suggest that groundwater beneath this and other properties may be contaminated above acceptable levels. The hydrogeologic study, which is a part of the Interim Remedial Action, will determine the boundaries of the contaminated groundwater. EPA will insure that the results are made publicly available, and also that the affected property owners are notified directly by letter.

- (2) A resident living near the Site asked about an EPA letter she recently received, which told her that Site-related contamination had not been detected in her water well. The wording of the letter caused some concern and an explanation was requested. She also asked if EPA would resample the wells which had been previously sampled.

RESPONSE: EPA staff at the meeting explained the letter in detail so that the meaning of the results was clarified. The sample results indicated that no contamination from the Site had reached her well. The language in the letter was intended to communicate that other contaminants besides those associated with the Townsend Site, were not analyzed for. Thus EPA cannot be sure that some problem unrelated to the Site, such as bacteria, nitrogen compounds from septic tanks, etc. is not affecting the well in question. EPA may take well samples again, if the upcoming work in the offsite area indicates the need. EPA will insure that these results are also made publicly available.

#### **PRP Responsibility for Providing Drinking Water**

- (1) A Woodcreek Lake resident asked what responsibilities the Potentially Responsible Parties (PRPs) have as far as providing alternate supplies of drinking water, if the plant is shown to be affecting private water wells.

RESPONSE: EPA will insure that the use and consumption of groundwater contaminated at unsafe levels is prevented. EPA and the PRPs will coordinate closely to determine how the drinking water would be provided, in the event that private water wells are found to be impacted by contamination from the Site.

#### **Groundwater Movement**

- (1) A citizen asked how long it takes the groundwater to move from the Site area, down to Woodcreek Lake.

RESPONSE: It is not known at this time what the velocity of the groundwater is, as it moves down in the direction of Spears Creek. This is an item that will be investigated during the upcoming hydrogeologic study. It was explained at the meeting that the rate of movement is very slow compared to surface water flow. Groundwater flow rates vary widely; based on other sites in the surrounding area, the rate is probably somewhere between 100 and 400 feet per year, or 1 foot or less per day.

#### **Performance of Pump-and-Treat System in Preventing Offsite Migration**

- (1) A part-time resident on Woodcreek Lake asked how sure EPA is that the spread of the plume of contaminated groundwater can be contained, and the boundaries of it maintained.

RESPONSE: EPA's experience at other sites indicates that a pump-and-treat system, if designed correctly based on an accurate understanding of Site hydrogeology, can successfully capture all of the affected groundwater needing treatment, and prevent migration. The technologies for hydraulic capture of groundwater using extraction wells, and for treatment by a variety of processes, are both well proven at numerous sites in the United States and overseas.

**Attachment A**

**Proposed Plan for Townsend Saw Chain Superfund Site**

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## INTERIM ACTION PROPOSED PLAN FACT SHEET

### TOWNSEND SAW CHAIN SUPERFUND SITE



Pontiac, Richland County, South Carolina August 1993

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#### INTRODUCTION

The United States Environmental Protection Agency, Region IV (EPA) has prepared this Fact Sheet to propose an Interim Remedial Action to address offsite groundwater contamination at the Townsend Saw Chain Superfund Site (the Site) in Pontiac, Richland County, South Carolina. EPA is the lead Agency for remedial activities at the Site, and, in cooperation with the South Carolina Department of Health and Environmental Control (SCDHEC), is currently investigating the Site. Words appearing in **bold** print are defined in the glossary which begins on page 10 of this publication.

The purpose of the Interim Action outlined in this Proposed Plan is to minimize or prevent the continued offsite movement of contaminated groundwater. To accomplish this, the Action includes the design, construction and operation of a groundwater pump-and-treat system which will capture the groundwater at the **offsite** periphery of the contaminated groundwater. The groundwater will then be pumped through a treatment system prior to discharge. Initiation of this Interim Action, prior to completion of the **Remedial Investigation/Feasibility Study (RI/FS)**, will cause work to begin now on an expanded groundwater cleanup operation, which will supplement those groundwater cleanup operations currently underway.

#### THIS PROPOSED PLAN:

1. Presents a summary of Site background and the findings of the RI to date;
2. Describes EPA's initial evaluation of available alternatives for offsite groundwater cleanup, and provides a summary analysis explaining why EPA is proposing the Action; and
3. Solicits public review and comment on this course of action.

#### **PUBLIC MEETING**

**To Discuss the Interim Action and the  
Status of the Remedial Investigation/Feasibility Study for the  
TOWNSEND SAW CHAIN SUPERFUND SITE**

**August 31, 1993 - 7:00 P.M.  
PONTIAC ELEMENTARY SCHOOL  
500 Spears Creek Church Road  
Pontiac, South Carolina**

Since 1982, SCDHEC has continued to direct Textron to proceed with an investigation and cleanup program for groundwater. In 1982, a groundwater treatment system was installed, consisting of five extraction (pumping) wells, chemical treatment tanks, and a spray or irrigation field for disposal of the treated water. Groundwater is extracted, chemically treated to acceptable standards, and then discharged to the spray field. Performance of the system and conditions at the spray field are monitored by SCDHEC. In 1987, SCDHEC identified problems in the treatment system's design and performance. To address those deficiencies, a subsequent 1988 modification to the 1982 Court Order directed Homelite to further investigate and define the extent of groundwater contamination, and to investigate Site hydrogeology as necessary to modify the system's design. A report with design revisions was submitted to SCDHEC in 1990, and following SCDHEC review, again in December 1991. The redesign effort has been completed and operation of the expanded pump-and-treat system will begin in February or March 1994.

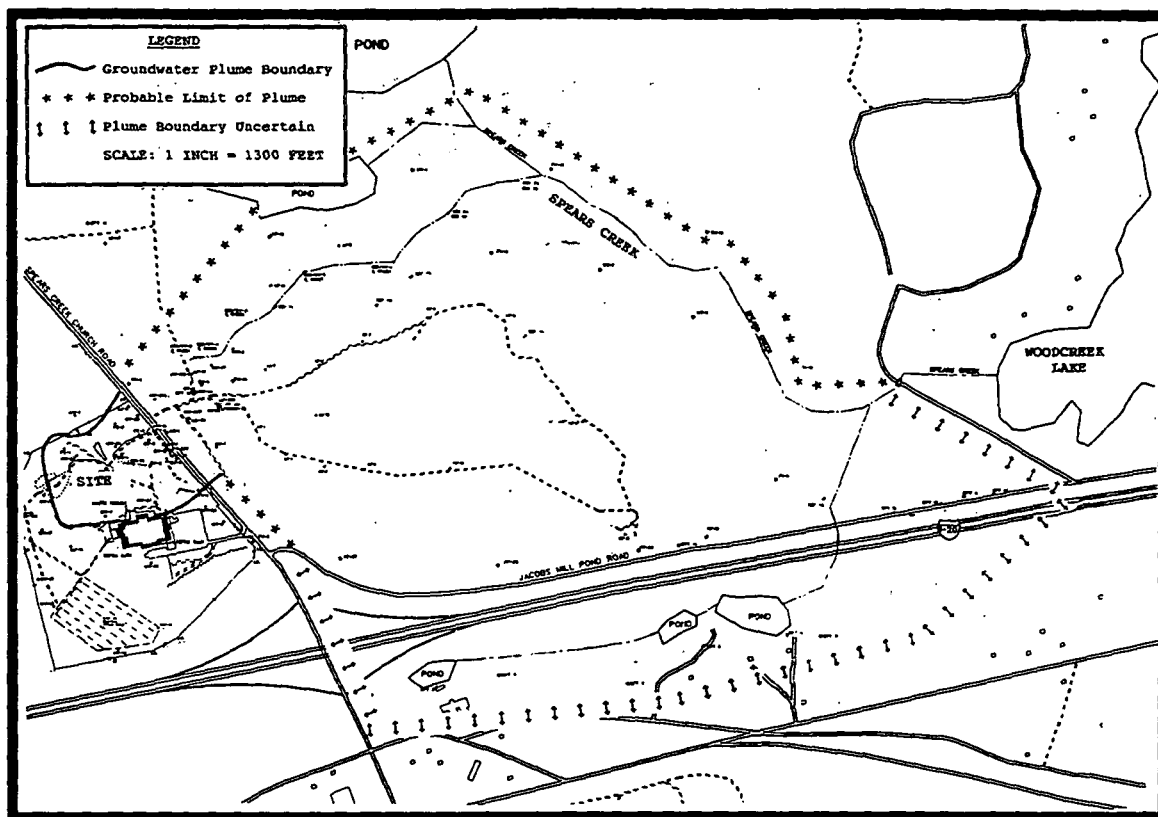
Between 1985 and 1988, SCDHEC and EPA took the necessary steps to list the Site on the National Priorities List (NPL), which places it in the Superfund program. During this period, investigations by SCDHEC revealed above-background concentrations of lead, cadmium, arsenic, cyanide, nickel, and four VOCs in groundwater at the site. Chromium, lead, cadmium and arsenic were present above background levels in sediments within the waste pond area, and a stream water sample taken just across Spears Creek Church Road north of the site contained chromium and four VOCs. Based on these results, the Site was then ranked by EPA in 1987 using the Hazard Ranking System (HRS), which evaluates the potential for public exposure to site contamination. Because of the potential for migration of groundwater contaminants offsite, and the large number of people in the surrounding area served by water wells, the Site was assigned a high HRS score and was proposed for listing on the NPL in June 1988. The Site was finalized on the NPL in February 1990.

EPA and Homelite signed an agreement in October 1991 under which Homelite agreed to conduct a Remedial Investigation/Feasibility Study (RI/FS). Dictaphone Corporation was named as a **Potentially Responsible Party (PRP)** by EPA when the Agency notified both Homelite and Dictaphone that an RI/FS was required for the Site. Dictaphone has not participated in the RI/FS to date. As a PRP, Homelite may pursue legal action to force Dictaphone to share the cost for the RI/FS and subsequent remediation. Additionally, EPA retains the right to pursue legal action against Dictaphone.

An RI "kickoff" public meeting was held by EPA at Pontiac Elementary School on April 22, 1992. Field work began in early May 1992. The initial ("Phase I") work included a monitor well upgrade/abandonment program to insure the reliability of the onsite and offsite monitor wells, and an initial sampling of Site soils and the monitor wells. The preliminary results of these sampling activities were presented in the "Preliminary Site Characterization Summary," submitted by the PRP's contractor to EPA in September, 1992. This document is part of the **Administrative Record** for the Site, and is available for review by the public at the **Information repository** (see page 10).

Based on these initial results, Homelite proposed further investigation of site groundwater and soils. This effort was designated "Phase II" and began in October 1992. Combined Phase I and II activities have included the installation and addition of 15 new monitoring wells to the previous 38-well network. Sampling has included collection and laboratory analysis of 73 groundwater samples, 17 surface water (stream) samples, 19 stream sediment samples, 35 soil samples, 10 septic tank sludge samples, 6 septic tank wastewater samples, and 10 air samples. Additionally, between January and July 1993, three rounds of offsite shallow groundwater sampling were performed using **direct-push technology (DPT)**. A total of 49 offsite groundwater samples were collected, 37 of them by DPT. After a delay during which access to surrounding properties was obtained, offsite groundwater sampling via DPT was continued during June and July 1993. After discussions with Homelite in late June 1993, EPA decided to move forward with an Interim Action at the Site.





**FIGURE 2 OFFSITE GROUNDWATER CONTAMINATION**

The unnamed tributary across Spears Creek Church Road from the Site exhibits contamination from the Site. The tributary is recharged almost entirely by groundwater, and water and sediment samples from it show clear impact from chromium-contaminated groundwater.

#### **SUMMARY OF SITE RISKS**

At this time, the draft *Baseline Risk Assessment* is being revised by EPA's risk assessment contractor. However, the groundwater sampling results clearly indicate that chromium-contaminated groundwater is migrating offsite in the direction of private water wells, located to the southeast and east of the Site. As noted above, chromium levels in groundwater are many times above the drinking water standard. The main contaminant of concern is chromium, although several VOCs have been detected at levels above MCLs in offsite wells.

While the contamination may be limited to the shallow aquifer, nearby wells could still possibly be impacted at levels above the MCL, unless measures are taken to intercept and/or control the offsite movement of the contaminant plume. This future potential risk to human health will be reduced or eliminated by the proposed Interim Action.

Construction and operation of the Interim System will immediately follow EPA's approval of the design. The Interim System will consist of between 6 and 8 wells, submersible or other appropriate pumps, pipes/lines, a treatment unit to remove or reduce chromium, and other appurtenances as necessary to complete the system. After the groundwater is treated, it will be discharged to either: 1) a local publicly-owned treatment works (POTW), 2) Spears Creek via an appropriate *NPDES* permit (*National Pollution Discharge Elimination System*), or 3) another, to-be-determined disposal option. As stated above, the discharge option to be used will be determined in the design phase. Three to five months will be needed to construct the Interim System.

Design and Construction Cost (includes Design Cost and Treatment System Equipment	\$1,610,000
Annual Operation and Maintenance (O&M) Costs:	280,050
Disposal Costs - Treated Groundwater	34,500
Total Costs	<u>\$1,924,550</u>

Time to Begin Pump-and-Treat Operations = 10 - 13 months

O&M costs after first year will depreciate at an estimated 7% per year. These preliminary cost estimates are based on the limited information available at present.

#### EVALUATION OF THE ALTERNATIVES

EPA uses nine criteria to evaluate the alternatives which could be selected. The first seven are used to evaluate the alternatives based on environmental protection, cost, and engineering feasibility issues. The preferred alternative is then further evaluated based on the final two criteria. To be selected by EPA, an alternative must meet the first two "threshold" criteria.

This evaluation is more limited in scope than would be the case if the Interim Action was to be the final remedy at this Site. As noted above, following completion of the FS, EPA will issue a Proposed Plan for a final remedial action (remedy) for the Site. The final remedy will reconsider the planning and design for the groundwater pump-and-treat system proposed in this Interim Action, and may propose system additions, modifications, or other actions, to accomplish remediation of all contaminated groundwater originating from this Site. This Interim Action will be consistent with the final remedy.

EPA's rationale for selecting this action is presented below, in relation to each of the nine criteria. The site-specific rationale is indicated by the " ☐ " symbol.

1. *Overall Protection of Human Health and the Environment* addresses the degree to which an alternative meets the requirement that it be protective of human health and the environment. This includes an assessment of how public health and environmental risks are properly eliminated, reduced or controlled through treatment, engineering controls, or controls placed on the property to restrict access and (future) development.

- ☐ The No Action Alternative would not be protective of human health and the environment, and therefore is not considered further in the evaluation below. It is not protective because the potential threats to private water well users located east and southeast of the Site will not be reduced or eliminated.

The Interim Action Pump-and-Treat System will achieve protection of human health and the environment through interception or control of the offsite groundwater plume's movement, thereby

Modifying Criteria: These two considerations indicate the acceptability of the alternative to the public, or local or State officials.

8. *State Acceptance* addresses whether, based on its review of the RI, FS, and Proposed Plan, the State concurs with, opposes, or has no comments on the alternative proposed by EPA as the selected alternative (or "remedy").

☐ The State of South Carolina concurs with this Interim Action.

9. *Community Acceptance* addresses whether the public agrees with EPA's selection of the alternative. Community acceptance of this Proposed Plan will be evaluated based on comments received during the upcoming public meeting and during the public comment period.

#### **PUBLIC/COMMUNITY REVIEW AND COMMENT**

EPA will hold a Public Meeting on Tuesday, August 31, 1993, to discuss the Interim Action. Officials from EPA and SCDHEC will present a summary of the RI/FS progress to date, the remedial alternatives considered for the present situation, and why EPA is proposing the Action. The public is encouraged to attend this meeting.

EPA is also conducting a 30-day public comment period, from Friday, August 20, 1993 to Monday, September 20, 1993, in order to receive public input and comments on the Interim Action Proposed Plan. Written comments on the RI/FS at this Site or other issues related to Site cleanup are welcomed and are an important part of the decision-making process. Please send all comments to:

Ralph O. Howard, Jr., Remedial Project Manager  
U.S. EPA Region IV, North Superfund Remedial Branch  
345 Courtland Street, NE  
Atlanta, GA 30365  
404/347-7791, or 1-800-435-9233

EPA will review and consider all comments received during the comment period and the public meeting before reaching a final decision on taking this Interim Action at the Townsend Saw Chain Site. The Agency's final decision will be issued in the Interim Action *Record of Decision*, a legal document which formally sets forth EPA's decision summary in selecting the Interim Action. A *Responsiveness Summary*, which contains all of the public comments received and EPA's responses to them, is part of the Record of Decision (ROD). An Interim ROD is expected to be completed for the Site in late September 1993.

For more information on community relations in the Superfund process or at this Site, please contact:

Cynthia Peurifoy, Community Relations Coordinator  
U.S. EPA Region IV  
North Superfund Remedial Branch  
345 Courtland Street, NE  
Atlanta, GA 30365  
404/347-7791, or 1-800-435-9233

**Chromium** - A lustrous, hard, steel-gray metallic element commonly found in the earth's crust. Chromium is used in the production of stainless steel and for hardening other metals. Chromium solutions are used in electrolytic plating operations to provide a hard, durable coating for metal parts.

**Direct-Push Technology (DPT)** - Refers generally to one of several methods of sampling groundwater. Direct-push methods involve the use of hydraulic force to push hollow steel rods down into the ground until the water table is encountered. Groundwater may then be sampled, or the rods pushed further to sample deeper portions of the aquifer or other aquifers. Advantages of direct-push sampling include: speed, the fact that no soil cuttings are produced, and that there is no disturbance to the ground surface at the sampling location.

**Feasibility Study (FS)** - See Remedial Investigation/Feasibility Study.

**Groundwater** - Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities which can be used for drinking water, irrigation and other purposes.

**Hazard Ranking System (HRS)** - A scoring system used by EPA and the state to evaluate relative risks to public health and the environment from releases or threatened releases of hazardous substances. An HRS score is calculated based on actual or potential release of hazardous substances through the air, soils, surface water or groundwater. This score is a primary factor used to decide if a hazardous waste site should be placed on the National Priorities List.

**Information Repository** - A file containing current information, technical reports, and reference documents regarding a Superfund 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 library.

**Interim Remedial Action** - A remedial action that is intended to address immediate potential threats which could become worse unless action is taken immediately. An interim action is not an emergency action; any situation that is an immediate threat to the public health and safety is addressed by EPA or the State as an "emergency response action." Such actions usually include removal of hazardous wastes and/or contaminated soil; thus they are referred to as "removals".

**Maximum Contaminant Level (MCL)** - The maximum permissible level of a contaminant in water that is consumed as drinking water. These levels have been determined by EPA to implement the Safe Drinking Water Act of 1974, as amended in 1986.

**Milligrams per Liter (mg/l)** - Metric system units commonly used to express low concentrations of contaminants, in terms of how much solid material, by weight, is dissolved in a given volume of water. One gram weighs about the same as a postage stamp. One liter is about 3 3/4 gallons.

**Monitoring Wells** - Specially constructed water wells installed at specific locations on or near hazardous waste sites. Groundwater samples for laboratory analysis, and water table measurements, are taken from such wells. Monitoring wells thus provide valuable data concerning the direction of groundwater flow and the types and amounts of contaminants present.

**National Priorities List (NPL)** - EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response using money from the Trust Fund. The list is based primarily on the score a site receives on the Hazard Ranking System.

**Safe Drinking Water Act (SDWA)** - Federal law passed in 1974 to ensure water supply systems serving the public would meet minimum standards for the protection of public health. The law was designed to achieve uniform safety and quality of drinking water in the United States by identifying contaminants and establishing maximum acceptable levels (see "MCL" above).

**Superfund** - The common name used for the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (see also "CERCLA" above), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

**Volatile Organic Compound (VOC)** - An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature. Many common industrial contaminants at environmental sites, such as trichloroethylene, tetrachloroethylene, and 1,1-dichloroethylene, are VOCs.

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**REQUEST TO BE PLACED ON THE  
TOWNSEND SAW CHAIN COMPANY SUPERFUND SITE MAILING LIST**

If you would like your name and address placed on the mailing list for the Townsend Saw Chain Company Superfund Site, please complete this form and return to: Cynthia Peurifoy, Community Relations Coordinator, EPA-Region IV, North Superfund Remedial Branch, 345 Courtland Street, Atlanta, Georgia 30365, or call 1-800-435-9233.

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**AFFILIATION:** \_\_\_\_\_



**REGION IV**

**INTERIM ACTION PROPOSED PLAN  
PUBLIC INFORMATION MEETING**

for the

**TOWNSEND SAW CHAIN  
SUPERFUND SITE**

**Pontiac Elementary School  
500 Spears Creek Church Road  
Pontiac, South Carolina**

**Tuesday, August 31, 1993, 7:00 P.M.**

# **AGENDA**

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**Interim Action Proposed Plan  
Public Information Meeting  
Townsend Chain Saw Superfund Site  
August 31, 1993**

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**WELCOME & INTRODUCTIONS**

**SUPERFUND OVERVIEW**

**COMMUNITY RELATIONS**

**SITE HISTORY**

**PROPOSED INTERIM ACTION**

**WHAT HAPPENS NEXT?**

**QUESTIONS, ANSWERS AND COMMENTS**

## This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the page.



**Attachment B**

**Public Notice of Public Comment Period**

# Howard scientists to study bones of colonial African-Americans

The Washington Post

**WASHINGTON**  
In life they were scorned as unworthy chattel. When they died, they were buried in a desolate field outside colonial New York City.

But early next month, the skeletal remains will become a key part of the Akkadian empire, one of humanity's earliest experiments at nationhood. The empire, named for the Sargon of Akkad,

Services Administration stumbled upon the graveyard as it was clearing the site for construction of a \$276 million federal office tower. The rights to excavate and study the bones were turned over to archaeologists at Lehman College.

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## U.S. ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE INTERIM ACTION PROPOSED PLAN FOR THE TOWNSEND SAW CHAIN SUPERFUND SITE PONTIAC, RICHLAND COUNTY, SOUTH CAROLINA

The U.S. Environmental Protection Agency is inviting public comment on the Interim Action Proposed Plan for the Townsend Saw Chain Superfund Site. This interim action is being proposed to address offsite groundwater contamination. Offsite groundwater data obtained during the Remedial Investigation of the site has indicated that the area affected is larger than previously believed. The proposed pump-and-treat system will intercept the migrating contaminated groundwater and prevent or minimize its movement offsite.

Two alternatives were considered in proposing this action:

- Alternative 1: No Action
- Alternative 2: Interim Groundwater Pump-and-Treat System

EPA is proposing implementation of Alternative 2. The scope of the proposed action includes two components: 1) expedited design and construction of a groundwater pump-and-treat system to prevent or minimize continued offsite migration of contaminated groundwater; and 2) a focused hydrogeologic study to support the design, to be conducted prior to the design effort.

The agency is holding a 30 day comment period, which begins on Friday, August 20, 1993, and ends on Monday, September 20, 1993. Written comments, which must be postmarked no later than September 20, 1993, should be sent to:

Mr. Ralph Howard, Remedial Project Manager  
North Superfund Remedial Branch  
U.S. Environmental Protection Agency, Region IV  
345 Courtland Street, N.E.  
Atlanta, GA 30365

EPA has scheduled a public meeting to present the proposed plan and to discuss the status of the Remedial Investigation/Feasibility Study. The meeting also provides the public an opportunity to submit oral and written comments on the proposed plan and other alternatives. The meeting will be:

Date: Tuesday, August 31, 1993  
Time: 7:00 p.m.  
Place: Pontiac Elementary School  
500 Spears Creek Church Road  
Pontiac, South Carolina

Copies of the proposed plan, as well as the administrative record for the site, are available for review at the site information repository, which is the Richland County Library, Northeast Regional Branch, 7490 Park Land Road, Columbia, South Carolina, (803) 736-6576.

For additional information, or to be added to EPA's mailing list for the site, contact Cynthia B. Peurifoy, Community Relations Coordinator, at 1-800-435-9233.

Black troops to get Civil War marker

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**Attachment C**

**Proposed Plan Public Meeting Sign In Sheets**

TOWNSEND SAW CHIAN SUPERFUND SITE  
INTERIM PROPOSED ACTION PUBLIC MEETING  
AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
ROBERT BRAYLEY Providence RI	TEXTRON, Inc		Public Notice
Bryson D Trexler, Jr Raleigh, NC.	Aquaterra, Inc.		Public notice/call
Butch Swiggert Columbia SC 734-4734	SCDHEE		
Paul L. Bristol Columbia S.C. 935 7015	Central Midlands		Public Notice
Al Matheson 788-0325 116 Whitaker Rd Col. S.C. 29223	LAND OWNER		The STATE PAPER
Park Kathleen Beavers 623 Jacobs mill pond Road Elgin, S.C 29045	Land owner		
PHETT JACOBS 25 SPENGLER CREEK RD PONTIAC SC 29045	LAND OWNER		TALK
John Reynolds 5003 Citadel Ave Columbia, S.C. 29206	Land owner	✓	notice to Woodcreek property owners

TOWNSEND SAW CHIAN SUPERFUND SITE  
INTERIM PROPOSED ACTION PUBLIC MEETING  
AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
LOUI'S BRANHAM 601 JACOBS MILL RD. P.O. ROBERT W. COOPER	CITIZEN Resident	✓	Public Notice
341 JACOBS Millpond Rd	Citizen	✓	word of mouth
JAMES MILLIKEN 750 ADGER RD. COL. S.C. 29205	CITIZEN	✓	✓
Susan Quinn 64 Old Still Rd Columbia, SC 29223	Citizen	✓	Paper
L.S. & H.M. Boatwright 321 Leaning Tree Columbia SC 29223	Citizen	✓	Paper
William L POPE 930 Hampton Hill Columbia SC 29209	Citizen	✓	
Bill & Hazel Bowers 549 Jacobs Millpond Rd. Elgin, SC 29045 788-7211	Citizen	✓	Call
Daisy Hollis P.O. Box 50528 Columbia S.C. 29250	CLEAN	✓	Paper

TOWNSEND SAW CHIAN SUPERFUND SITE  
INTERIM PROPOSED ACTION PUBLIC MEETING  
AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
Wm Thompson & Betty Thompson	Wood creek		letter
Frank & Dana 150 Woodcreek Rd.	Wood creek Lake Holston		
Hyman Kresh PO Box 6527 Columbia SC 29260	Citizen		mailing
Sandra Martin 5803 Pergival Rd. Elgin, S.C. 29045	Citizen		Paper
John Cross 3056 Sigmund Cir Columbia 29204	"	✓	"
Dan B. Pugh 1351 Shaw Church Rd Sumner SC 29160	"		paper
Lill Wood 1600 Bull St Columbia SC	DHEC		Stu W

TOWNSEND SAW CHIAN SUPERFUND SITE  
INTERIM PROPOSED ACTION PUBLIC MEETING  
AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
Sharon Jackson County Council	Richland County Council		Public notice
Bernice Scott	" " "		" "
Cathy H. Muth	R.C. Utilities		" "
John W. Harty IV	" "		" "
John Monroe	Citizen		" "
E. Rahon Rodgers Ph. 788-0323 242 Hape Rd Cal, SC	Self	✓	News Paper - Wildewood
GERALD SHERLY PO Box 156 STATE PARK, SC 935-7015			
Lannie Cone 151 Woodcreek Rd. Elgin SC 29045	Self	✓	neighbors

TOWNSEND SAW CHIAN SUPERFUND SITE  
INTERIM PROPOSED ACTION PUBLIC MEETING  
AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
Paul Younghaus <sup>73</sup> 9330-A Two Notch Rd 772-4075 Columbia SC 29223 <sup>736-2256</sup>	Columbia Northeast Chronicle	✓	Friend
Walter S. Tyler P.O. Box 3246 803-786-5863 Columbia SC 29230	Tyler Const. Co.		Mail out
B.C. SPICER 736-1700 Atlanta Testing 8901 Fern Rd. Ga 30023	Atl. Testing & Engineering	✓	Client
Yangui Mo	SCDHCC		
JENNIFER WILKINSON	SELF	✓	Newspaper.
Karen Crawford	Nelson Mullins et. al. PO Box 11070 Columbia SC 29211	✓	mail out
Newman Jackson Smith	Nelson Mullins PO Box 1806 Charleston SC 29402	✓	mail out
Gene Tadd	Tadd Realty 115 Atrium way st 123 Cela 29223	✓	Pro en.



TOWNSEND SAW CHIAN SUPERFUND SITE  
INTERIM PROPOSED ACTION PUBLIC MEETING  
AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
Tom Griswold Charlotte, NC 704 588-3200	Homeite		Notice
Ed Schuster Columbia, SC 803-251-2975	WSA		Notice
SLOAN ROBINSON CHARLOTTE, N.C. 704 588 3200	Homeite		Notice
ARMANDO FERRER COLUMBIA, S.C. 788-2970	HOMEITE		NOTICE
Walt + Nancy Roberts 207 Spring Valley Rd Columbia, SC 29223 - 1788-0738	Self - Property Owner Woodcreek Lake		Notice - Woodcreek Property Owners Assn.
Cam Lewis Col SC 29211	—		Notice
Faye H. Barnes 113 Spears Ck. Ch. Ln. Elyria, SC	Homeowner		Letter with correct date of mtg. 9-31-93
Vera Bladden 109 Spears Creek Ch. Ln. Elyria SC 29063	Home owner		Written letter

TOWNSEND SAW CHIAN SUPERFUND SITE  
 INTERIM PROPOSED ACTION PUBLIC MEETING  
 AUGUST 31, 1993, PONTIAC, SC

SIGN-IN SHEET

NAME/ADDRESS/TELEPHONE NUMBER	REPRESENTING	ADD TO MAILING LIST? (PLEASE CHECK)	HOW DID YOU HEAR OF THIS MEETING?
Heath Manning	same		Public notice
Jim Cantley / JOHN Cantley	WOODCREAK LAKE HOME OWNERS	✓	Call from friends
Keith Lindler	SCDHEC		
Charles Gorman	SCDHEC		
Tom Frijat	SCDHEC		
Robert C. Sisson	Home owner		
W L Lafaye Jr	same		Newspaper Article
Richard Daniel	Pontiac Elementary		Contact with EPA

## SIGN-IN SHEET

**HOW DID  
YOU HEAR OF  
THIS MEETING?**

[illegible]

**Attachment D**

**Official Transcript of the Proposed Plan Public Meeting**

ORIGINAL

**UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY**

**REGION IV**

**INTERIM ACTION PROPOSED PLAN  
PUBLIC INFORMATION MEETING**

**for the  
TOWNSEND SAW CHAIN SUPERFUND SITE**

**Pontiac Elementary School  
500 Spears Creek Church Road  
Pontiac, South Carolina**

**Tuesday, August 31, 1993  
7:11 p.m. - 8:50 p.m.**

TOWNSEND SAW CHAIN SUPERFUND SITE

2

1                   INTERIM ACTION PROPOSED PLAN  
2                   PUBLIC INFORMATION MEETING  
3                   TOWNSEND SAW CHAIN SUPERFUND SITE  
4                   AUGUST 31, 1993

4   WELCOME AND INTRODUCTIONS   - Ralph Howard

5                   Good evening. I'd like to welcome everyone to  
6                   tonight's meeting. We appreciate your presence here.  
7                   The agenda for tonight is on the screen behind me and,  
8                   I apologize, I hope everyone can read, particularly the  
9                   bottom, when we go through the items you see listed.  
10                  There is a sign in sheet in the back and I hope everyone  
11                  signed in.

12                 Let me start by introducing some of the participants  
13                 from EPA and the South Carolina DHEC staff who are here  
14                 tonight. My name is Ralph Howard; I'm the Remedial  
15                 Project Manager for the EPA on this site. The South  
16                 Carolina section chief, my boss, Jan Rogers, is here to  
17                 my left. Seated next to him is Seth Bruckner. Seth is  
18                 the assigned attorney from the Office of Regional Counsel  
19                 within EPA Region IV. On my right is Cynthia Peurifoy.  
20                 Cynthia is the Community Relations Coordinator. She's  
21                 assigned to our group, South Carolina, also.

22                 Also here tonight is personnel from South Carolina  
23                 DHEC. They have worked with us, in conjunction with us  
24                 on the site. Mr. Keith Lindler is on the front row here.  
25                 Also, Chuck Gorman is here. Butch Swygert is here this

1 evening, and also, Yanquing Mo, also on the front row,  
2 and Tom Knight is here.

3 We also have officials here from Homelite Textron,  
4 that are associated with the site, the PRP that's under  
5 agreement to perform the work at the site. Mr. Tom  
6 Griswold is here. Sloan Robinson is here. Let's see,  
7 Mandy Ferrer is here from the plant. And one other  
8 gentleman, who's name escapes me at the moment ...

9 ROBERT BRAYLEY: Robert Brayley

10 I can't say that.

11 ROBERT BRAYLEY: That's okay.

12 So, anyway, that's our personnel.  
13

14 SUPERFUND OVERVIEW - Ralph Howard.

15 The main purpose of our meeting tonight is to talk  
16 about the Interim Action the EPA is proposing here at the  
17 Townsend Saw Chain site. The purpose of the meeting here  
18 tonight is community relations, and I'm going to ask  
19 Cynthia to say a little bit about community relations in  
20 just a moment.

21 The highlight on this slide didn't come out as well  
22 as I would have liked, but I wanted to point out the  
23 steps of the Superfund process and how we got where we  
24 are. Many of you attended the meeting we had last year  
25 in April at the start of the Remedial Investigation.

1           When I say RI/FS, that's Remedial  
2           Investigation/Feasibility Study. I'm going to have to  
3           stay away from the acronyms here. That started last year  
4           in May, the field work started. We had our meeting in  
5           late April.

6           We are still in the Remedial Investigation phase of  
7           work here. But, in Superfund, there is the prerogative,  
8           the possibility of taking an Interim Action rather than  
9           the final cleanup action on a site, and that's what we're  
10          doing here tonight. We're proposing to step ahead of the  
11          process a little bit, reach a decision based on facts  
12          that are uncovered during the investigation. The facts  
13          that led us to this, we're going to talk about in just  
14          a moment and they concern groundwater.

15          We had the Potentially Responsible Party contractor  
16          prepare a document that serves as a Feasibility Study.  
17          It's a short, focused Feasibility Study, you could say.  
18          And, based on that, we then propose an action, take  
19          public comments on a proposed plan, which is what we're  
20          presenting to you tonight, and then we write a Record of  
21          Decision on that action, depending on public comment,  
22          depending on a number of other factors that we'll go into  
23          later, as to how we select the action.

24          In this case, it's an Interim Record, meaning that  
25          it's not the final action of this site. There will be



1 another Record of Decision later that will close down,  
2 if you will, the investigation phase of EPA's work here  
3 and move into one final, you could say, overall site  
4 cleanup. This Interim Action will be looked at at that  
5 time again to make sure that it's doing what it's  
6 supposed to and it's effective.

7 Most of you are familiar with the site. This is  
8 just a map to, if you are aware of where it's located -  
9 the intersection of I-20 and Spears Creek Church Road,  
10 just down the road from us by some five or six hundred  
11 feet.

12 I'd like to briefly run through the site history.  
13 But before I do that, I'm moving ahead of my agenda, I  
14 want to ask Cynthia to come up and say a few words about  
15 community relations, which is after all the point of our  
16 meeting tonight. Cynthia.

17  
18 COMMUNITY RELATIONS - Cynthia Peurifoy

19 Thank you, Ralph. Good evening, everybody. I would  
20 like to welcome you also and thank you for coming out to  
21 our meeting, and to basically cover a few points about  
22 our community relations program. We are here tonight  
23 because we're in the middle of a public comment period  
24 on the Interim Action, which Ralph is going to be going  
25 through with you in just a little bit.

TOWNSEND SAW CHAIN SUPERFUND SITE

6

1 I would like to point your attention to our site  
2 information repository, which is at the Richland County  
3 Library on Parklane Road. All the information that we've  
4 gathered thus far on the site as well as a lot of  
5 information on the Superfund process and our community  
6 relations plan, information on public involvement, it's  
7 all there for your review so please take some time when  
8 you can and go by and take a look at that information.

9 The public comment period ends September 30 ... 20,  
10 I'm sorry. If you have some comments that you don't get  
11 to us tonight, I have some postage paid envelopes in the  
12 back. Feel free to pick up one and mail it in to us.  
13 There is a provision for an extension for an additional  
14 30 days, if you so desire. If you feel you need you more  
15 time to review the information or get in your comments,  
16 please let us know in time.

17 I want to mention a few things about our ongoing  
18 community relations activities. I'm sure some of you got  
19 our Fact Sheets in the mail or have talked with us over  
20 the period of time that we've been involved in the site.  
21 I'd like to encourage you to call us at any time. We  
22 have an 800 number that's on the Fact Sheets; they're  
23 also on our business cards in the back. I would also  
24 like to encourage you to give us your feedback, to let  
25 us know if there's some additional information you'd like

TOWNSEND SAW CHAIN SUPERFUND SITE

1 for us to review or if you have any suggestions on things  
2 that you'd like for us to do, feel free.

3 When we start this meeting, I'd like to ask that if  
4 you have some comments or questions, to please stand up  
5 and identify yourself. If you represent a particular  
6 group, also identify that group. We do have a reporter  
7 here who's going to be trying to get everything we say,  
8 so if you see her make a motion that she's not picking  
9 up what you're saying, please clarify that or make sure  
10 that she understands what you're saying. Thanks a lot.

11  
12 SITE HISTORY - Ralph Howard

13 Thanks Cynthia. I want to emphasize again, please  
14 make your name known to us so that we can have it  
15 recorded for purposes of documenting the public input  
16 into the decision.

17 I would like to briefly run through some history  
18 about the site. Most of you are maybe somewhat familiar  
19 with this. The site history really dates back to 1966.  
20 The owner at that time was Dictaphone Corporation. From  
21 1972 forward, the owner was at that time Townsend Saw  
22 Chain. Later, it was bought by Textron Corporation -  
23 Sabre Textron and later Homelite Textron. Homelite  
24 Textron currently owns the facility.

25 I won't read all this to you. The highlights are

1           that the company did, in response to DHEC activities,  
2           install a pump-and-treat system for cleaning up  
3           groundwater in 1982. That system is currently in  
4           operation. DHEC and EPA worked together during the mid  
5           '80's to take the steps needed to list the site in the  
6           Superfund program, primarily because of the large number  
7           of people in the area that were served by private water  
8           wells.

9           The site was proposed for listing on the National  
10          Priorities List, which is a list of the nation's most  
11          serious abandoned ... not always abandoned, but hazardous  
12          waste sites. The listing was made final in 1990.

13          There have been phases of activity, numerous phases,  
14          by Homelite Textron concerning the site, under South  
15          Carolina DHEC oversight and at their direction, since  
16          1982, culminating in ... well, still ongoing, but in 1988  
17          ... I guess as you saw on the previous slide, 1987, there  
18          were deficiencies found with the extraction system that  
19          I mentioned is still pumping. There was a redesign  
20          effort and improvement effort that has recently completed  
21          ... was recently completed. And, as you see here, that  
22          was 1991, when the ... late 1991, the plans went in to  
23          DHEC. They've recently been approved, things have been  
24          worked out, and that system is set to begin pumping early  
25          next year, I believe in March.

1           And then the last two items have to do with the  
2 Remedial Investigation. As I mentioned, we began the  
3 work in May of 1993, the fieldwork. The agreement was  
4 signed in August of 1991, work plan development and so  
5 forth, and the fieldwork began in 1992, and brings us to  
6 this point in 1993. We've had a two phase Remedial  
7 Investigation, of which we'll talk about a portion  
8 tonight. We'll talk mainly about groundwater tonight.

9           I want to use this slide to briefly set the stage.  
10 The figure you see is a diagram of the plant itself. It  
11 shows some of the study areas that have been looked at  
12 for the Remedial Investigation. The crosshatched areas  
13 at the top represent the former waste ponds or water  
14 ponds that is the origin of the groundwater problem on  
15 the site. In the period between 1966 and 1981, waste  
16 liquids were disposed of in that area by direct discharge  
17 to the ground, and that's the origin of the groundwater  
18 problem. But this map is just meant to give you an  
19 overview of where things are onsite.

20           The Remedial Investigation report is being prepared  
21 now. There's not too many significant things to talk  
22 about other than groundwater. We had air sampling done  
23 as part of the Remedial Investigation. At this point,  
24 the air sampling does not appear to be a problem or a  
25 threat. We also found two small areas of soil

1           contamination that will have to be dealt with in the  
2           Record of Decision, but those are not of particular note  
3           or concern. They're not a risk outside the plant area.

4           Before I leave this, I want to point out the ...  
5           this tributary, this unnamed tributary that is about 500  
6           feet from the site, across Spears Creek Church Road.  
7           It's fed by a spring. Approximately where I have my  
8           pointer, sitting there, was at the time of the beginning  
9           of the RI, the known limit of the groundwater  
10          contamination in the uppermost unit; and by that I mean  
11          closest to the ground surface. This shallow groundwater  
12          is what I'm referring to and roughly in the area that I'm  
13          pointing ... you can't see the mark. It's not going to  
14          show. Approximately where my pointer is. This is just  
15          to set the stage.

16          The main finding of the Remedial Investigation thus  
17          far has been that the extent of groundwater contamination  
18          in the offsite direction, and by that I mean eastward  
19          from the facility, is greater than we previously  
20          believed, greater than the data would have indicated.

21          I want to point out several things about this  
22          figure. This figure is also in the Fact Sheet that many  
23          of you have, but I want to make sure that the items on  
24          here are clear in their meaning. The boundaries that you  
25          see indicated represent our best estimate at this point

1 of the extent of groundwater contamination. Everywhere  
2 that you see the little dark points and so forth on this  
3 diagram represents a sampling point, and I'm going to  
4 talk about the sampling points and the data in just a  
5 moment, but this is to give you an overall idea.

6 The facility is here, and you can see the different  
7 ponds and so forth. Woodcreek Lake is over here, and the  
8 various ponds in the area. This is the tributary I  
9 referred to a moment ago, and this is Spears Creek.  
10 There's also a scale on this figure to give you an idea.  
11 There's several things about this figure that I want to  
12 make clear.

13 All the sampling points, or almost all the sampling  
14 points that you see indicated here represent points where  
15 we collected a groundwater sample using what we refer to  
16 in the Fact Sheet as direct-push technology. Made  
17 simple, that represents a point where a special device  
18 pushes a rod down into the ground to reach the  
19 groundwater, and then you sample it at that point.

20 Now, these sampling points are all that we have at  
21 the current time, and that sampling method, the DPT -  
22 Direct Push Technology - sampling method was used because  
23 it's fast and it allows a lot of data to be gathered  
24 rapidly, and it's a good way to get a handle on a large  
25 area in a hurry. It is preliminary data, and by that I

1 mean that this data needs to be confirmed in the Interim  
2 Action, which I'm going to describe to you tonight what  
3 that action is. But I think I should point out that the  
4 data are valid but they do need to be confirmed by more  
5 sampling and they need to be confirmed by sampling from  
6 monitoring wells rather than direct-push technology  
7 sampling.

8  
9 PROPOSED INTERIM ACTION - Ralph Howard

10 The Interim Action we are proposing tonight is  
11 intended to intercept the groundwater movement offsite  
12 to the east and to the southeast, on a figure you just  
13 saw. To do that, the Interim Action consists ... well,  
14 the purpose is stated here on this line.

15 The components of our Interim Action are to conduct  
16 a short, very focused study in the area that we believe  
17 may be affected and determine those characteristics we  
18 need to do the next component, which I'll get to in a  
19 moment. But a short, focused study has to be a component  
20 of this action.

21 There are various issues ... the list of issues you  
22 see here will make a little more sense in a moment. But  
23 what we're proposing is in fact a pump-and-treat system  
24 that will, as I said, intercept or control migration of  
25 the groundwater offsite. And the issues that have got



1 to be settled based on that study that I'm talking about  
2 are those listed that you see here: the numbers and  
3 locations of the wells; where they should best be placed;  
4 where the groundwater contamination is precisely -meaning  
5 boundaries and meaning concentrations; and the type of  
6 treatment, whether it's only for the main contaminant  
7 that is associated with the site, chromium, or whether  
8 it's from something else in addition to that.

9 The second component is the Interim Action treatment  
10 system itself. This is a groundwater pump-and-treat  
11 system that would be similar, but probably larger, to the  
12 current system that's in operation. As I mentioned, the  
13 current system that's in operation is to be expanded.  
14 But this would be larger than that and out in front of  
15 that, and I'll come back to the figure in a moment,  
16 explain that.

17 The system, as you might expect, will require wells,  
18 pumps, pipelines and so forth, to pipe the water for  
19 treatment, control equipment and treatment equipment to  
20 actually do the treatment of groundwater, to treat it to  
21 acceptable standards for groundwater.

22 The cleanup or the Interim Action has to be  
23 consistent with the final action, that I mentioned will  
24 come later. There will be a Final Record of Decision for  
25 the site that will be looking at everything about the

1 site rather than ... all facets of the site rather than  
2 just groundwater. That at this point is expected next  
3 spring, but this is an Interim Action to get out ahead  
4 of that, to begin work on this system now, to get work  
5 started now. It's a proactive step to get us going on  
6 these issues which will have to be settled. And, as it  
7 says, it will allow the overall cleanup to begin sooner  
8 than it would otherwise, because the type of work we need  
9 to do is not Remedial Investigation/Feasibility Study  
10 type work. It's work that is based on the decision to  
11 go ahead and pump-and-treat.

12 Here's some more specific facts about the Interim  
13 Action. These are approximate time frames, but these are  
14 our objectives as to how to accomplish the Interim  
15 Action. The first part would be the focused study, find  
16 out what we need to know about how best to attack the  
17 problem out there, and also to verify precisely where the  
18 boundaries are and precisely where the levels of  
19 contamination are. This may result in verifying  
20 boundaries that are different than those that you saw on  
21 the map previously. We're not sure which way that's  
22 going to go; that's got to be determined. And you see  
23 here an approximate overall time frame of ten to thirteen  
24 months, with three months for the study, four to five  
25 months for a design, for an expedited design, and three

1 to five to actually construct what the design calls for.

2 There are substantial costs associated with this  
3 that will be borne by Homelite Textron. These estimates  
4 of cost are very preliminary. They're based on some  
5 assumptions, the details of which are in the document I  
6 mentioned that is the short Feasibility Study, and that  
7 is available at the information repository that Cynthia  
8 mentioned. It's titled "Technical Memorandum on Interim  
9 Remedial Action," and that document is at the Northeast  
10 Richland Library.

11 Now that I have at least briefly gone over what it  
12 is we have in mind, I want to hit a couple of more points  
13 on this map to get some points across. As I mentioned,  
14 one of the tasks to be performed in the focused study is  
15 to make sure where the boundaries are, and, as I  
16 mentioned, at this point the data is preliminary. It  
17 needs to be verified from samples from monitoring wells  
18 as to precise levels. But at this time we think the  
19 levels will still be above the drinking water standard,  
20 which is why we are proceeding with the action rather  
21 than waiting.

22 As you may have noticed also on the Fact Sheet, the  
23 boundary that is shown on the other side of Spears Creek,  
24 we believe that to be a probable boundary. We believe  
25 that the contamination is not going beyond that point in

1 the area where Spears Creek bounds the area on the east.  
2 And the reason we say that is because we do have shallow  
3 groundwater samples on that side there that are below  
4 detection level. The other boundary, the boundary to the  
5 southeast that is near Interstate 20, we're less sure of  
6 that boundary.

7 There was a precautionary sampling done of water  
8 wells, private water wells on the south side of  
9 Interstate 20. Seven private wells were sampled by  
10 Aquaterra, the consultant for Homelite Textron, and those  
11 results were negative; meaning that there was no chromium  
12 or volatile organics detected, below detection limits in  
13 those samples. That was done this spring, and the  
14 results were mailed out recently.

15 Also, the other point I wanted to make, which I was  
16 trying to remember, was that as a precaution, EPA has  
17 decided to go ahead and sample four private residence  
18 wells that are near Woodcreek Lake. I really haven't  
19 emphasized, but I should, that the potential risk for  
20 water well users in the area or in the direction of plume  
21 movement, which would be towards Woodcreek lake and  
22 possibly down southward towards I-20, that's the main  
23 reason or overriding rationale for our proposed action,  
24 because there is a potential threat, or there could be,  
25 to water well users, and we want to take a proactive step

1 here to get out in front of that groundwater plume, and  
2 we want to do it the best way that will work, and that's  
3 the reason for the short study; the short study instead  
4 of just rushing out there right now.

5 Our knowledge of the entire offsite area that you  
6 see is quite limited at this time, and that's got to be  
7 taken care of. The EPA has elected to go ahead and  
8 sample four private residences, which I'll indicate ...  
9 it doesn't look like it's going to show. Two homes on  
10 the east side of Woodcreek Lake and two homes on the  
11 south side here, near I-20. Our rationale is that those  
12 are the nearest to where we think the plume may be, and  
13 we don't expect to find anything. It is precautionary  
14 but it needs to be done.

15  
16 WHAT HAPPENS NEXT - Ralph Howard

17 The further work that is going to occur here  
18 involves the completion of the Remedial Investigation  
19 itself and the Feasibility Study. The Feasibility Study  
20 will look at what the best options are for cleanup not  
21 only of groundwater but of other things that were found  
22 at the site. I mentioned two areas of soil contamination  
23 that are pretty small in size involving any risk. They  
24 will be taken care of. There are other issues that need  
25 to be wrapped up. We expect to do that at the end of the

1 year. Next we will follow up with a post plan, similar  
2 to this one, at which point we will talk about the site  
3 as a whole, including groundwater, and that Record of  
4 Decision ... I'm sorry, that proposed plan will let you  
5 know that we're also going to look back at this Interim  
6 Action to see how far it's come and is it on course.

7 The Final Record of Decision will tie this all  
8 together, if you will, into what we can think of as one  
9 overall site remedy for groundwater and for any other  
10 contamination that's going to be taken care of; and we  
11 expect to do that next spring. March may be a little  
12 optimistic for the Record of Decision, but that's the  
13 objective.

14  
15 QUESTIONS, ANSWERS AND COMMENTS

16 **RALPH HOWARD:** I expect there are a lot of questions. This was  
17 short and brief, but I hope we've at least given you an  
18 idea of what we have in mind, and we'd like to entertain  
19 questions at this time. And, as I mentioned, please let  
20 us know your name so we can have it recorded.

21 **FRANK MANN:** I'm Frank Mann, a property owner on Woodcreek Lake.  
22 You've been talking about contamination of shallow  
23 aquifers and contamination of tributaries near the creek.  
24 Are you planning to test the lake water at Woodcreek?

25 **RALPH HOWARD:** One thing I did not mention in talking about the

1 other issues in the Remedial Investigation was that the  
2 tributary itself is being evaluated for ecological  
3 reasons, mainly. The data we have from the RI would  
4 indicate that there may be some risk to the creatures  
5 that live in and along the tributary.

6 We have done some sampling to date on the tributary,  
7 and the sampling that we have to this point would not  
8 lead us to sample the lake right away, based on what  
9 we're seeing. The reason I say that is because the lake  
10 ... for the lake to be impacted, the water that feeds the  
11 lake would have to show contamination.

12 So what we've done is, we've started up close to the  
13 plant, worked in the eastward direction, moving towards  
14 Woodcreek Lake. And, in doing that, what we're seeing  
15 in the way of chromium in the sediment is not of a nature  
16 or a degree that would lead us to say the lake is  
17 affected.

18 We've also ... South Carolina DHEC has taken  
19 periodic samples from the bridge down ... near your home,  
20 I believe, down over the creek, and the samples from the  
21 creek and from sediment in the creek are low or below  
22 detection limits. And that, when I say below detection  
23 limits, in this case the detection limit is 10 parts per  
24 billion, with the drinking water standard of 100. So we  
25 don't see the contamination in the water leading into the

1 creek ... leading into the lake, I'm sorry. Does that  
2 make sense?

3 FRANK MANN: Yes, sir.

4 WALTER TYLER: I'm Walter Tyler. We have some property on the  
5 south side of I-20 ... (inaudible) ... One sample was  
6 taken from 47 feet from ground service, and it was .670  
7 milligrams per liter, which is seven times above the  
8 acceptable level.

9 RALPH HOWARD: It's above the drinking water standard, that's  
10 correct. This point needed to come up, and it should,  
11 and I want to make sure this is clear; I would like to  
12 make it clear.

13 The sampling method we do, we use the direct-push  
14 that I mentioned earlier, recover samples from the  
15 groundwater in such a way that the sample is oftentimes  
16 full of fine material like clay, like mud. Because of  
17 the way the sample is recovered, when that sample is  
18 analyzed there is potential, you know, sometimes for the  
19 readings to be higher than what is actually present. At  
20 this time, we don't know whether the sample, for example,  
21 from your property is necessarily a whole lot higher than  
22 what's there, or it could be a whole lot higher than what  
23 is there.

24 The way to answer that question is already underway.  
25 The way to answer the question is to get a better sample,



1 and to do that you must take a sample from a properly  
2 installed monitor well that actually represents for you  
3 what the aquifer is like. So we haven't waited to do  
4 that. Those wells have actually been installed.

5 There are ten new wells in the large area that I  
6 showed, that was defined by that boundary. Those wells  
7 are in varying depths into the ground. That sample will  
8 be scheduled next week. I'm not real sure how soon we'll  
9 have those in our hands, but that data could be two or  
10 three months coming. And the reason for that is because  
11 those samples are absolutely crucial because they will  
12 answer your question. They will tell us whether or not  
13 the level is real or whether we're seeing exaggerated  
14 results in these direct-push samples.

15 I'm not sure I remember exactly where the Tyler  
16 Construction property is, but there is a well on the  
17 other side of I-20 that is one of the ones to be sampled.  
18 So the property owners to the south of I-20 are, because  
19 of that location and because we have a well near there,  
20 we'll get a good answer of that and those results are  
21 going to be made public. Those will be publicly  
22 available.

23 **BILL THOMPSON:** I'm Bill Thompson. Just a superfluous question.  
24 What is the velocity from here to Woodcreek lake of the  
25 groundwater? How long does it take for groundwater from

1           here to get to Woodcreek lake? It's a mile and a half.

2   **RALPH HOWARD:** At this point, we can't say with certainty what  
3           that velocity is. In fact, you know, to be quite honest,  
4           there are a number of things we've got to become experts  
5           on, as it were, about the groundwater just in that area.  
6           And it makes sense in a way because up until now all the  
7           site work has been directed at areas close to the site.  
8           And, for that reason, when you go out into a new area,  
9           which this area is, the hydrogeology, the flow rates, the  
10          water depths and so forth can be different; maybe not a  
11          lot different but enough to affect how fast it flows and  
12          so forth. If what we have out there is real, it may be  
13          that it's down there. But that doesn't tell us how fast.  
14          No real good answer for that one.

15   **LEONE CASTLES:** I'm Leone Castles, and we've got a house at  
16          Woodcreek. It looks like we're going to be one of the  
17          ones checked.

18   **RALPH HOWARD:** Well, I think you're next to Mr. Combs or Ms.  
19          Dart.

20   **LEONE CASTLES:** Yes, I am next to Peggy Dart.

21   **RALPH HOWARD:** I think we're going to get Mr. Combs' well and  
22          Peggy Dart's well.

23   **LEONE CASTLES:** Okay. When are you thinking that this work will  
24          be completed? You know, you're talking to people here  
25          and we are all concerned, and more and more. And this

1           has been going on 25 years and it is something now that  
2           is really raising attention. What is your due date for  
3           finishing and giving us a clean bill of health? I mean,  
4           you know, we don't understand all this.

5   **RALPH HOWARD:** I understand, yes, ma'am. That's a very good  
6           question. To answer it honestly and truthfully,  
7           groundwater cleanup is going to require some years here  
8           because, to clean it up, as you can tell from listening  
9           to us, it's got to be pumped out of the ground and  
10          treated. That means that we're stuck with water well  
11          technology, essentially, to remove the groundwater.

12                So if you ... even if you take a lot of wells and  
13           put them in the area that you want to clean up and pump  
14           all the water out, there's limitations to how much water  
15           you could treat and ... and I'm not trying to dodge your  
16           question. I'm trying to explain why it takes so long.

17                How much to treat, to which degree, do you want it  
18           very clean or just barely clean enough - issues like that  
19           mean that a lot of money will be spent and a lot of time  
20           will pass to get the groundwater out and treat it. In  
21           this case, it's hard to say specifically. Groundwater  
22           cleanup in general ...

23   **LEON CASTLES:** What's your guess on time?

24   **RALPH HOWARD:** ... tends to go over years. At most Superfund  
25           sites, we use an estimate like 30 years. It could be

1 shorter in years, but there's no way to say yet if it's  
2 going to be shorter ...

3 LEON CASTLES: Well now, there's one other ... (Inaudible) ...

4 JAN ROGERS: Just to avoid the worst possible twist you could  
5 put on it, final cleanup is what Ralph is talking about.  
6 As far as looking at the total investigation, he made you  
7 an optimistic perspective of in another six months to a  
8 year we could have an RI that deals with the overall  
9 problem.

10 Going to the other gentleman's question about  
11 sediment, we know there's a potential sediment problem.  
12 This groundwater migrates down and surfaces to those  
13 drainage systems to some extent, and can be contributing  
14 to the lake. We don't think it's doing it via the water  
15 path. We think it's doing it via transporting sediments.  
16 But then there are factors in the food chain related to  
17 the drainage system and possibly the head waters of the  
18 lake and any number of other issues.

19 The reason we're going forward with this part as an  
20 Interim Action is, we know there's a groundwater plume  
21 there. We always talk in terms of groundwater movement.  
22 Nobody knows until they do some sophisticated studies of  
23 an immediate area to determine just how fast groundwater  
24 moves. But it's not fast in relative terms. It's not  
25 like it goes from the plant down to the lake in two

1 weeks. It took a lot of years to get there.

2 Initially there were some estimates on what  
3 groundwater was expected to be ... groundwater movement  
4 would be expected to be in that area. The investigation  
5 started out from the plant, and we found out it was much  
6 farther down to some level of detectable contamination  
7 than we would have thought. The plume, we would have  
8 thought would have been tighter packed back towards the  
9 plant itself.

10 There really aren't a whole lot of options dealing  
11 with groundwater contamination. You put in water well  
12 technology, might call in sophisticated technology, until  
13 we come up with something better, especially for these  
14 kinds of contaminants, and you would extract the  
15 solubilized portion that is moving with the groundwater.  
16 That way you can at least control it. You also would go  
17 back and would at least explore, is there a way to go  
18 back into this whole entire area that's been impacted and  
19 clean the entire aquifer with additional wells.

20 None of that will take place quickly as far as the  
21 cleanup. The implementation could take place in a hurry,  
22 in a relatively short time compared to 30 years. But the  
23 reality of it is, the pump-and-treat will go on for a  
24 period of time.

25 What we're looking at is, what are you the public

1 exposed to? You're either directly exposed to it or  
2 you're consuming it. We're concerned down towards the  
3 lake and other areas across the interstate as far as the  
4 consumption.

5 Can we get interceptor wells in there and impact the  
6 flow of this material before it gets to your wells and  
7 keep those wells from ever becoming contaminated? We  
8 feel like at least if we do this action more quickly, we  
9 have a chance of impacting that particular movement.

10 You're still going to have deal with the 30 years  
11 or whatever it takes to clean up the aquifer. There's  
12 a lot of technology that needs to be developed yet in  
13 order to totally restore the aquifer, but nobody's  
14 drinking that aquifer. We know where it's contaminated  
15 and we'll make sure that nobody does drink it.

16 The other aspect is, if your well becomes  
17 contaminated there are alternatives, in that you can go  
18 to the public water supply and other ways of dealing with  
19 a well that's become contaminated. We don't want to get  
20 into what if scenarios, but we need to take away any  
21 exposure that we can identify that could be adverse to  
22 your health.

23 So far, we've found the plume much further out than  
24 we thought it would be. We want to refine the leading  
25 edge of the parts of the plume, but we also want to start

1           some activities on proactively going out and trying to  
2           intercept and keep it from going any further with water  
3           well technology.

4           That water, when it's recovered, has to be treated  
5           and discharged. There aren't a whole lot of options out  
6           there and, the other reason we wanted to start this early  
7           was, one of those options includes the possibility of  
8           treatment or discharge after treatment. And there's no  
9           line that exists for that right now; that will take some  
10          time, even if we could pump the water tomorrow and treat  
11          it.

12          So there's some other things that will have to fall  
13          into place and be considered during the design phase.  
14          But we want to get everybody on even ground as far as  
15          where we're going.

16          If we put out an Interim Record of Decision, we have  
17          made the decision that we need to proactively impact this  
18          groundwater plume, which means we're going to have to  
19          pump it up and we're also going to have to look at all  
20          of the alternatives for discharge that we'll deal with.  
21          And we feel like working with the company, because  
22          they've been very cooperative to date, we will deal with  
23          exploring those options and what becomes the most  
24          feasible option for the ultimate discharge of the water  
25          after it's recovered and treated and has to be disposed

1 of.

2 **LEON CASTLES:** Is there any responsibility from the companies  
3 involved to help secure city water, the lines and so  
4 forth to go into this area that is contaminated?

5 **RALPH HOWARD:** Basically, we don't know what kind of  
6 alternatives we're going to be looking at in terms of  
7 whether or not those wells are contaminated. Liability-  
8 wise, the company has been very cooperative and they will  
9 be willing to implement any sort of alternatives that we  
10 deem are necessary to prevent the public, you, from  
11 drinking contaminated water.

12 **SETH BRUCKNER:** Historically, if we show an adverse impact to  
13 somebody's well, we certainly have to evaluate does it  
14 create a health threat. If it creates a health threat,  
15 there are different measures for dealing with that. Some  
16 of it's due to toxicology, but it's very conservative  
17 estimates that are going to be ... if we feel there's a  
18 health threat, and there probably could be, we'll look at  
19 it from a Superfund perspective of providing alternate  
20 water supply.

21 It's just an option as to whether the PRP wants to  
22 deal with that or not, and I'm not suggesting it will go  
23 either way. If it doesn't occur by parties that are  
24 participating with it, we will pursue it on our own.  
25 On an abandoned site where we have no parties, we would



1           pursue all this work plus any money dealing with the  
2           issues, and then deal with the recovery of the money.  
3           In this case, we have a very active PRP who's been very  
4           cooperative in working all along with us. And I don't  
5           want to get into speculation of what if's, but I think  
6           it's very easily dealt with should it become a problem.

7   **ROBERT SESSIONS:** I hope you can hear me; I'm hoarse.

8   **RALPH HOWARD:** Can you tell me your name?

9   **ROBERT SESSIONS:** My name is Robert Sessions.

10   **RALPH HOWARD:** Robert ...

11   **ROBERT SESSIONS:** Sessions.

12   **RALPH HOWARD:** Sessions?

13   **ROBERT SESSIONS:** Right. I'm a property owner adjacent to the  
14           school.

15   **RALPH HOWARD:** Right.

16   **ROBERT SESSIONS:** My question is about that tributary down there  
17           being contaminated. What effect does that have on the  
18           animals?

19   **RALPH HOWARD:** Now, which tributary ...

20   **ROBERT SESSIONS:** Directly in front of the school, right across  
21           the street. I want to know what effect that will have  
22           on the animals and what effect would the animals then  
23           have on human consumption, because we do hunt and fish  
24           and so does our children?

25   **RALPH HOWARD:** Right. As far as the fish, at this time we don't

1 think fish are a concern, and I'll explain why. We have  
2 water samples from the stream, from the little tributary,  
3 and we have those at about, I think it's seven locations,  
4 moving downward to the ... with the most farthest  
5 downstream closest to Spears Creek being right at Spears  
6 Creek. So we've got seven scattered on that tributary  
7 and there is contamination in the stream water at levels  
8 that are above a drinking water standard, which, you  
9 know, is for humans.

10 As to whether that level is above a level that would  
11 hurt animals and creatures and so forth is really not  
12 clear at this time, and that's because we have guidance  
13 that, where if it's a certain level, it is to trigger our  
14 attention to look into it.

15 Now, if you just want to say did it trigger  
16 anybody's attention, it does but it's not what we  
17 consider a high level. It's just a level ... if you're  
18 talking about levels, it could be like between 100 and  
19 160 parts per billion; the drinking standard being 100.  
20 We have samples of the water, as I mentioned, all the way  
21 down to Spears Creek, and the ones near Spears Creek, the  
22 one at Spears Creek in fact, is below the drinking water  
23 standard as far as people are concerned.

24 But the better answer is, that has to be looked into  
25 and that's one of the things we're doing in the

1 Feasibility Study. What we're doing, the company is  
2 going to do, is an ecological assessment; and what that  
3 involves, in short form, is a taking of stream water.

4 They take stream sediment and they take a group of  
5 animals, probably fish, maybe a plant and maybe an  
6 invertebrate, like a worm or a small animal, and they  
7 will expose the animals to the water and the sediment.  
8 They're looking for toxicity, they're looking to see if  
9 there is an effect. And at this point, there's just no  
10 way to know whether there is an effect. We have to find  
11 that out and we designed this eco assessment, ecological  
12 assessment with the one objective of giving us a thumbs  
13 up or a thumbs down - either there is toxicity or there  
14 is not. But, at this point, there's just no way to  
15 speculate. Every stream is different, the hardness of  
16 the water, the mineral content of the water, the ... and  
17 other physical things about the stream water will control  
18 that and the sediment will control that also. So we  
19 just don't know yet whether there is.

20 But the reason that we're not concerned ...  
21 obviously, we're concerned. The reason we don't think  
22 the lake is being impacted yet is because we don't see  
23 the chromium reaching Woodcreek Lake through the stream  
24 water. And if it was in the stream water in a sizeable  
25 quantity, that would tell us we've got to go look at that

1           because there's a way to get it into the lake. But  
2           without seeing a way into the lake, we don't have any  
3           grounds to think that it's in the lake or even  
4           accumulated in the lake.

5           Does that make sense? So that's why we haven't  
6           proposed more on the lake itself as yet, but it's a ...  
7           you know, it's something that could happen, depending on  
8           what we find.

9   **ROBERT SESSIONS:** My concern is the inhabitants of the lake, be  
10          it deer, rabbit, squirrel, coon. People hunt in those  
11          areas and if we consume these animals, is there a threat  
12          to humans?

13   **JAN ROGERS:** That's what the eco study is going to prove out.  
14          But I guess what Ralph's trying to say is, we've seen a  
15          little impact on the sediment of the drainage system.  
16          It's not extremely high levels, but we now have to go  
17          back and assure that it's not entering the food chain and  
18          working its way up or creating its own toxic effect.

19          The other thing, and I don't off the top of my head  
20          remember chromium completely on the toxicological  
21          perspective, but I don't believe it's material bio-  
22          accumulates. Organics, a lot of organic pollution tends  
23          to go into the body, be stored in the fatty tissue of the  
24          body and tend to accumulate. Chromium and the other  
25          metals tend to have either direct effects or be passed

1 through the body, if I'm remembering right. I don't  
2 think it tends to accumulate a lot, and that's a concern.

3 We do have a concern on the small aquatic organisms.  
4 It's conceivable they could pick up some from the  
5 sediments and then work its way up the food chain. But  
6 it think it's more a concern over immediate toxicity and  
7 impact on the ecosystem than it would be accumulation in  
8 the bio ... bio-accumulation in the food chain, working  
9 its way up. The concentrations we're looking at, I  
10 highly doubt that you would see anything in squirrels,  
11 rabbits, those sorts of things, of any concern.

12 JIM CANTEY: I'm Jim Cantey. My family owns some property on  
13 the far side of the lake from the plant on Woodcreek  
14 Lake, and I'm also the president this year of the  
15 homeowners' association. I would like to thank the EPA  
16 for being involved in this thing.

17 As Ms. Castles said, it's been going on for some  
18 time now. All the people here, I think I speak for all  
19 of them, are concerned about the safety factors involved  
20 - what's going to happen to our drinking water and, as  
21 Mr. Sessions said, what's going to happen to the animals,  
22 the fish we eat, our children swimming in the lake, and  
23 this kind of thing.

24 It seems to me the practical thing to do, in looking  
25 at the map there, not only Woodcreek Lake is affected but

1           there are also other lakes and other streams there, that  
2           perhaps in the interest of calming us, the public, down  
3           somewhat is if you could take some samples directly from  
4           the lake, perhaps take some fish samples.

5           Why not check more than just four wells? You already  
6           have them in place there. I don't know what the cost of  
7           drilling a sample well is. I don't know what the cost  
8           of a push type well is, but I would think it would be a  
9           lot more than just taking a sample, and I know I'm  
10          oversimplifying the fact.

11          I know fish samples are taken from lakes frequently.  
12          I know water samples are taken from lakes and from  
13          private wells and this kind of thing. It seems to me  
14          like a practical thing to do and to assimilate this  
15          information would be just to take more than just a few  
16          samples.

17          I realize that you have sediment problems and many  
18          other type problems involved in it as well. But at the  
19          same point, I think that if you told me my well probably  
20          is safe and if you told me we've checked your well and  
21          it's safe to drink from it, I'd feel a lot more  
22          comfortable with the latter. Or if you told me it's all  
23          right for my children to swim in the lake or it's all  
24          right for me to fish out of the lake, whatever, it would  
25          make me feel a lot better and would make a lot of us feel

1 a lot better if you would do that.

2 Perhaps that is an oversimplification of it, but I  
3 think that that's something you ought to ... from a cost  
4 standpoint, I don't think it would be prohibitive and,  
5 also, it would make us feel a lot better.

6 **RALPH HOWARD:** The reason we haven't proposed sampling more  
7 wells than the ones we've proposed is because we ...  
8 there's several reasons. For one thing, you do have to  
9 move outward from a site, go to the areas that are  
10 closest to where you think the problem may be. And the  
11 geology of the area is such and the nature of the aquifer  
12 is such, with sand being a primary component is such that  
13 we don't see a possibility for contamination to go around  
14 the wells that we're going to sample and show up  
15 somewhere else. That's why we haven't proposed sampling,  
16 you know, just to all the wells.

17 There is the issue of, we have no cause to think  
18 that there's anything else out there. But if you bring  
19 in a whole lot of samples at one time, you bring in the  
20 possibility of other things that are completely unrelated  
21 to this Superfund site.

22 Even in the area that's offsite where the tributary  
23 is, that you saw outlined on a diagram, there are  
24 scattered, small places out there with trash ponds. And  
25 I should have noted this earlier, but there is the

1 possibility that some of those are contributing, or could  
2 be, to the groundwater problem that we see out there.  
3 There is the issue of bringing in those things.

4 I guess the best reason is that it really is  
5 precautionary at this point. We don't really know with  
6 certainty, you could say, that the extent that you saw  
7 on my diagram reaches as far as it does. We have got  
8 wells in place now that will answer that question, of  
9 whether or not it is that far out.

10 That knowledge could change things. It could lead  
11 us to go back to the area of the owners of Woodcreek Lake  
12 and sample it again; that or something untoward in the  
13 samples. But geologically it just ... we don't see a way  
14 to miss it in those private water wells.

15 JIM CANTEY: What about the fish in there?

16 RALPH HOWARD: The possibility of a sample from the lake might  
17 be a good idea. That's been done periodically at least  
18 in the past and we would consider that.

19 Yes?

20 YANQUING MO: I'd like to ... (inaudible) ...

21 RALPH HOWARD: You've got to speak up, we can't hear you.

22 YANQUING MO: DHEC has taken some samples from the lake. The  
23 latest sample was taken in January of '93, and on the  
24 previous samples and the '93 sample showed no  
25 contamination of the lake. So a sampling of surface



1 water in the lake ... (inaudible) ... chromium, there's  
2 been no detection in it.

3 So right now we have some information that shows  
4 that the lake hasn't been impacted yet. And I think in  
5 the ecological assessment, Aquaterra has some proposal  
6 to take some sediment and surface water from the creek  
7 to see if there are any impact there and what is the  
8 impact to the food chain or other life forms there. So  
9 those will provide information to what kind of ecological  
10 impact has been happening by the contamination on the  
11 site. So I hope this will help.

12 **JIM CANTEY:** Thank you.

13 **JAN ROGERS:** From a swimming perspective, we're not seeing it  
14 in any significant concentration in the water. It  
15 shouldn't be piling up in the lake and it's not a  
16 material that's readily absorbed through the skin. So  
17 that's, you know, that's very remote as a concern for an  
18 exposure route.

19 I think the biggest concern right now is, the stream  
20 is a relatively low flow, especially the upper branch.  
21 Spears Creek actually has a pretty decent flow and  
22 probably wouldn't expect to be able to find much chromium  
23 in that.

24 Our theory is that chromium has slowly migrated  
25 through the groundwater and, at various points, it

1 outcrops into that drainage system. But realizing  
2 groundwater moves very slowly compared to any flowing  
3 stream, there's a tremendous dilution effect there. We  
4 want to go ahead and start these measures to contain it.  
5 And, in theory, there is some potential for impact of  
6 what we call the ecosystem for sediments in the various  
7 components of that drainage system.

8 More importantly, we want to intercept it and make  
9 sure it doesn't impact somebody's well at the leading  
10 edge for right now, and that's what the Interim Action  
11 is about. The ecosystem study will go forward and deal  
12 with just what is the impact along that drainage system.  
13 We can detect it, but we can detect extremely low levels.

14 Then the question becomes, how do you interpret the  
15 amount that we've detected and to what degree is it going  
16 to cause a problem? Well, the amounts of concentrations  
17 you're talking about, it's very likely that you'll have  
18 a minimal impact right now on the drainage system. You  
19 may have accumulated some sediments in the lake, but even  
20 that's kind of questionable because you're ... you're not  
21 seeing a lot of ... you do have natural filtration  
22 through there. You're getting some sedimentation moving  
23 down there, but it also gets knocked down before it gets  
24 to the lake.

25 The ecosystem hopefully will tie up some of those

1 issues. And again, it's material that generally ...  
2 chromium is kind of a strange beast in it's toxicological  
3 issues. But, you know, we want to do this Interim Action  
4 while we complete the studies to deal with those other  
5 issues.

6 From the well perspective, that gets into a lot of  
7 other issues. When we go out and sample wells, we're  
8 running analyses on contaminants related to our site.  
9 We're probably not going to run any analysis related to  
10 bacteria, and I assume you've got septic tanks out there.  
11 Health departments generally deal with that on a local  
12 level and they try to make sure that septic tanks are far  
13 enough away from the well that they don't short circuit.  
14 But in my emergency response days, I found a lot of them  
15 that didn't. And usually there was a big train  
16 derailment that was accused of causing the shutdown of  
17 the well, but it was shut down by the local health  
18 department because of bacteria. It just happened to be  
19 unfortunate timing that they looked at the well while we  
20 were looking at the derailment, and the two, to the  
21 public coincided, therefore they were related.

22 We tend to look at the leading edge. We've got  
23 several homes there that we don't really think should  
24 be impacted, but we want to sample those wells to see if  
25 there's any direct exposure of them while we deal with

1 the rest of this delineation of the aquifer.

2 Most of the data we're gathering is technical data  
3 related to draw down tests and other things to see where  
4 you place recovery wells, how far do they have to be  
5 spaced, to impact the leading edge. We've got to be able  
6 to draw any contaminated water coming down and draining  
7 into those wells before it passes through that area, and  
8 that requires some technical issues on better defining  
9 the nature of the soils and the water yields and those  
10 sorts of things.

11 WALTER ROBERTS: I'm Walter Roberts. I've got a house down at  
12 ...

13 RALPH HOWARD: Could you say your name one more time?

14 WALTER ROBERTS: Roberts.

15 RALPH HOWARD: Roberts?

16 WALTER ROBERTS: Walter Roberts. I hope this doesn't sound like  
17 it's addictive speculation, and it calls for speculation  
18 on your part. But I don't think anything had been done  
19 between 1966 and 1981, when this could have been done but  
20 was not done. But since 1981, do you think that the  
21 efforts that have been made have contributed to the  
22 continuing contamination or do you think they have been  
23 adequately keeping the continuing contamination from  
24 occurring?

25 RALPH HOWARD: Well, the first thing that should be kept in

1 mind, and it's very important, is that the contamination  
2 is, as far as its origin is pre-1982. By that I mean  
3 that at that point the company was looked into by DHEC.  
4 They were fined, I think. They did put in the extraction  
5 system to pump-and-treat groundwater. There has been a  
6 lot of groundwater removed, treated and discharged back  
7 to the aquifer.

8 As you may be aware, they have a spray field where  
9 water infiltrates back down. And it's important to keep  
10 in mind that the treated water that goes through there  
11 is below the drinking water standard. It's at the South  
12 Carolina drinking water standard, which is 50 parts per  
13 billion; ours is 100 parts per billion. But there have  
14 been efforts, as you say, since 1982 to deal with the  
15 problem.

16 You know, when you say was it sufficient or not, to  
17 my knowledge, to my belief, it was sufficient as we've  
18 progressed in knowledge about where the contamination  
19 was. I didn't highlight this when I put my diagram up  
20 that showed the facility outline, and I tried to draw  
21 where the groundwater plume was known to exist when we  
22 started the Remedial Investigation, but that is an  
23 interesting case in point. The company had about ... at  
24 the time of the RI, some 50 wells on the site and there  
25 are still 35 or so wells on the site; some of the older

1 wells were abandoned.

2 But the point I'm leading to is that the well  
3 network defined where the plume was, or so we all  
4 believed, and there's no easy answer as to why the extent  
5 appears to be beyond what we had as a closed off, you  
6 could say, monitor well network. Typically ... so  
7 anyway, what I was leading to is, the effort that's been  
8 put against the problem has been proportional to the size  
9 of the problem and so forth. The deficiencies that were  
10 found by DHEC in 1987 and early '88, when they got to  
11 working again, were to the best of everybody's knowledge  
12 going to correct the deficiency.

13 **WALTER ROBERTS:** You mean there was a state of the art sort of  
14 thing at that time?

15 **RALPH HOWARD:** There was some state of the art, and there is  
16 some imprecision in pumping-and-treating the groundwater,  
17 and there's no way to get around that. You can be  
18 conservative in your assumptions, as we are on the  
19 regulatory side. But even so, it is possible for the  
20 geology to fool you, as it were, and your data will tell  
21 you, your information will tell you that you're getting  
22 it all but, in fact, you're not.

3 I wouldn't want to characterize the whole thing as  
4 just a complete ... we were completely blind-sided, or  
5 the company was completely blind-sided. But I think it

1 is fair to say that in large measure all the work to that  
2 point would have led to the conclusion we had, which was  
3 that we had the boundary of it. And I think it should  
4 be kept in mind also that when you're pumping the water  
5 out from a certain area, that is an area that you've  
6 influenced and caused to fall into, you could think of,  
7 fall into your well, your pumping well. And what that  
8 does is, that puts a stop point in the ground. It puts  
9 a hydraulic barrier, is what we refer to it as.

10 So there was ... there's some imprecision and some  
11 questions about where the extent of that barrier was, but  
12 it's ... you know, I think it's fair to say that it's not  
13 as if the effort was known to be short.

14 **WALTER ROBERTS:** To the best of your knowledge now, what is in  
15 place then is adequate to prevent further contamination.  
16 Is that what you're saying?

17 **RALPH HOWARD:** No, definitely not.

18 **JAN ROGERS:** No. What we're proposing should be. A couple of  
19 other variables you have to take into consideration.  
20 Superfund was passed in 1980. Nobody bothered to have  
21 any ... or Congress didn't have any legislation dealing  
22 with multimedia issues up until that point. We had air  
23 laws, we had surface water laws. We had virtually no  
24 groundwater laws. The legislation at the federal level  
25 started with Superfund, which said hazardous waste like

1 is out here, we have to look at both surface soils,  
2 surface waters, groundwater, and subsurface soils as an  
3 entirety as far as dealing with the problem. That only  
4 started with legislation. The program started slowly.

5 The states typically are behind us on their  
6 legislation, following would be the federal legislation  
7 to delegate and implement at the state level. So there's  
8 been a bit of legislation growth from the early '80's.  
9 A lot of authority hasn't existed to do much of anything  
10 until well into the '80's.

11 The other variable is the technology. You didn't  
12 have any targets across the street. You had an  
13 estimation that there was really slow movement, somewhat  
14 identified and contained in that immediate area. There's  
15 nobody using the water over there until you go way down  
16 stream, and most people don't expect contamination across  
17 other streams. They tend to be, especially on  
18 topographic relief areas, a nice outcrop of groundwater  
19 movement.

20 And this technology that we're using hasn't really  
21 been available to us except for maybe the last two years.  
22 It's a way to go out and cheaply poke holes and take  
23 samples of groundwater as a snapshot only. And you pull  
24 that rod back out and you can't go back and get another  
25 sample. You've got your sample and that's it.



1           It's a quick investigative tool that ... the nature  
2           of this business has been evolving for the last, really  
3           13, 14 years, and it's one of those tools that allows us  
4           to take quicker samples and take quicker looks to try to  
5           find the leading edge of something and get the outer  
6           bounds more readily. But we always go back and put in  
7           permanent wells. Those can be duplicated in their  
8           sampling. The kinds of levels we're talking about, you  
9           can mess them up real easily, just like taking the sample  
10          wrong, cross-contaminating. And typically, if we took  
11          a sample of your well tomorrow and it showed  
12          contamination, we'd come back and take another sample  
13          because we want to make sure we're seeing a consistent  
14          level that's not been impacted from any other outside  
15          source, including the sampling technique, the sampling  
16          jar or anything else. If we can show two samples in  
17          somebody's well that are of a concern level, we start  
18          moving forward.

19                But we're talking very, very small numbers here, and  
20                the technology to do field investigations has been  
21                evolving. You know, one person mentioned 25 years. The  
22                fact of the matter is, we couldn't have done anything  
23                about this for those first 15 years because there wasn't  
24                any law out there that gave us any authority to ...

25   **WALTER ROBERTS:** I don't mean to interrupt you, but I think you

1 missed the point of my question. Is contamination at the  
2 plant continuing?

3 JAN ROGERS: No, and the system that's in place via the state  
4 order was oriented toward going at what I would call  
5 source control. The plant had those ponds. There was  
6 percolation into the ground from those ponds, creating  
7 probably some fairly high levels of contamination right  
8 below, in the groundwater of those ponds.

9 The system the state has put in, has been working  
10 on putting in and enhancing is oriented toward that gross  
11 contamination. The stuff down in the rest of this plume  
12 is at a much lower concentration, but it's still a  
13 concentration of concern compared to normal drinking  
14 water standards that exist. And what we want to do is  
15 use this action to supplement what the state action had  
16 already been working on back at the plant, to get a  
17 handle on this leading edge, lower concentration. But  
18 the source has been being addressed by the state since  
19 1982, and really on to '88 with the expanded version of  
20 that, where they went across the street.

21 So there's really two different components going on.  
22 The state's been doing some actions and we actually  
23 didn't do anything on the site until it was granted as  
24 an NPL, which it was not until later on. And these  
25 actions are oriented toward downgrading contamination,

1           trying to get a handle on it. You know, there were  
2           people consuming groundwater downgradient and there's a  
3           discharge going into the lake and the tributary that  
4           could be adversely impacted by just not doing anything.

5   **RALPH HOWARD:** I also wanted to point out that I did mention,  
6           I remember when I was going through the history of the  
7           site, I mentioned about the pump-and-treat system that  
8           Jan was referring to. It's referred to as the enhanced  
9           system by the company in the documents that you may see  
10          at the repository. That system consists of, I guess it's  
11          two additional wells on the other side of Spears Creek,  
12          and that's the ones that will pick up pumping in probably  
13          March of next year, and those are close to the site.  
14          And, for that reason, like he was saying, they will catch  
15          groundwater that is closer to the site. And the  
16          groundwater that is closest to the site is the most  
17          contaminated, based on the data from past studies.

18                But there's not contamination still going on at the  
19                site. It's not as if things are still being putting onto  
20                the ground or in the water or air or anything else that  
21                are continuing to cause a problem. That is not the case.

22   **WALTER ROBERTS:** You're satisfied about that?

23   **RALPH HOWARD:** Yes, sir, because their waste water practices  
24           have been substantially changed, radically since the time  
25           that the rinse waste waters were essentially going out

1 of the back of the facility. But yes, we're ...

2 TOM GRISWOLD: Ralph, could we further address that?

3 RALPH HOWARD: We can ...

4 TOM GRISWOLD: We'd be glad to speak on that issue.

5 RALPH HOWARD: About the change in the ...

6 TOM GRISWOLD: No, in answer to the question that was asked just  
7 a minute ago as to whether the plant is continuing to  
8 contribute to the problem. The answer is emphatically,  
9 no. There is a state of the art treatment system for  
10 treatment of the industrial waste water, which the plant  
11 does naturally have as part of its production process.  
12 It is a permitted facility that is a permit that is  
13 granted to us by the state of South Carolina, a permit  
14 which we meet the requirements of. So in answer to your  
15 question, no.

16 JAN ROGERS: That's what Ralph was trying to say, is they've  
17 changed their whole waste water treatment scheme, where  
18 they no longer discharge untreated waste into the ponds.  
19 They were the original source. There's no longer that  
20 kind of ongoing activity, and what we're trying to do is  
21 deal with the results of those past practices.

22 RALPH HOWARD: More questions? Yes, ma'am.

23 VERA GLADDEN: I'm Vera Gladden and I live on Spears Creek  
24 Church Lane, right off of Spears Creek Road, about a half  
25 a mile from Townsend Saw Chain. My well water has been

1           tested and I've received a letter from you, and I'd like  
2           an explanation.

3   **RALPH HOWARD:**   Sure.

4   **VERA GLADDEN:**   It says that when the water sample was tested,  
5           it said that the analyses indicate that no elevated or  
6           no unusual levels of either type of contaminant. Now,  
7           would you please give me precisely the answer to that?

8   **RALPH HOWARD:**   I thought I took the word unusual out. It was  
9           meant to be elevated, and by that ... and I'm glad you  
10          asked this question. If we give you an answer and we  
11          say, well, everything in your sample was low, that's ...  
12          you cannot say that, because normal drinking water, as  
13          long as it's local quality water, it has a variety of  
14          mineral content. So we can't go back to even say, well,  
15          everything was low except the iron or the magnesium.  
16          Well, those things may be harmless, but you don't want  
17          to hear that they're high. But, in fact, by comparisons  
18          to some other thing, they will be.

19                 What I meant there was that, by elevated or unusual  
20          I mean of any concern as regard to health. They're below  
21          the drinking water standards and they're not elevated,  
22          so there's nothing there to draw our interest or say you  
23          have a possible contamination problem. The first thing  
24          we check them against is the drinking water standard.

25   **VERA GLADDEN:**   The essence of what you're saying, is it safe for

1           me to drink my water?

2   **RALPH HOWARD:** It is. Yes, ma'am, it is.

3   **JAN ROGERS:** Let me explain it like this. You have that in the  
4           letter, and I told him to take it out because we didn't  
5           test your well for bacteria. Your well might have other  
6           things that are really unrelated to what we're  
7           investigating in it ...

8   **VERA GLADDEN:** We're not talking about bacteria. We're talking  
9           about contamination ...

10   **JAN ROGERS:** That's right.

11   **VERA GLADDEN** ... from Townsend Saw Chain.

12   **JAN ROGERS:** Well, bacteria is a contamination but, I mean ...

13   **VERA GLADDEN:** That's true.

14   **JAN ROGERS:** Yeah, that's why I told him, state it as such that  
15           we see no impact from the contamination problem we're  
16           studying on your well. That's really all we're doing in  
17           this study. We're not going out and telling everybody  
18           they don't have a bacteria problem or some other  
19           unrelated issue to drinking water standards that we  
20           really don't, we're not authorized to look at. There are  
21           other programs that deal with those issues. And I said,  
22           sure as anything, we'll get to the public meeting, she'll  
23           stand up and say the county came by, tested the water and  
24           said it's unsafe to drink because of bacteria, and she'll  
25           have this letter saying we said it was safe to drink.

1           So, you know, we tried to context that letter ...

2   **VERA GLADDEN:** I just asked for an answer.

3   **JAN ROGERS:** Yeah.

4   **VERA GLADDEN:** The letter was written and I'd just like ...

5   **JAN ROGERS:** That's all we're saying, it is below any concern  
6           used on public water supplies for chromium. It's below  
7           the safe drinking water standard, and those are using  
8           very conservative numbers that are developed for lifetime  
9           exposure.

10   **VERA GLADDEN:** Do you plan to check the water again?

11   **JAN ROGERS:** I think it depends on what comes out of this study  
12           and confirmation with some permanent wells on the aquifer  
13           itself. But I would guess that we will probably do some  
14           other periodic sampling just to be sure that nobody is  
15           being impacted, and that's also why we try looking at a  
16           lead edge. It minimizes the cost, because there is a  
17           cost involved in running those samples. And  
18           periodically, it's not going to change overnight, we may  
19           go back and look at it again as it pans out and we get  
20           more details about that aquifer down there and implement  
21           the system.

22   **RALPH HOWARD:** More questions? Yes, sir.

23   **RAYBURN ROGERS:** I have a question. My name is Rayburn Rogers.  
24           I own a lot on Woodcreek, by the lake. My question is  
25           this: you mentioned that the Proposed Interim Action

1 Plan, that you will get it into place probably in  
2 thirteen months; is that correct?

3 RALPH HOWARD: The Remedial Action itself. The plan is kind of  
4 only outlined in the Fact Sheet and so forth, but yes,  
5 sir.

6 RAYBURN ROGERS: Once you get that in operation, how sure are  
7 you that the plume boundaries will not expand over and  
8 beyond where they are now, and that the groundwater  
9 migration will cease to remain in that boundary?

10 RALPH HOWARD: The boundary itself is, as I mentioned, kind of  
11 a best approximation at this point. The way we operate  
12 is that even if ... as I mentioned earlier, even if that  
13 data is high, even if those results are high, we believe  
14 they're going to exceed the drinking water standard or  
15 we wouldn't be doing this tonight. If we didn't have  
16 confidence in that data, we wouldn't proceed with this.

17 The boundary may be located closer back to the site  
18 or it could be, even though our current data says that  
19 it's not, on the other side of Spears Creek, for example.  
20 With regard to I-20 and so forth, we're less certain.  
21 But we do have to establish where the boundary is.

22 Now as far as the certainty of preventing the  
23 migration, that I have a great degree of certainty in  
24 because it is achievable and it ... and we also use ...  
25 what we do to verify is, we don't just, you know, we



1           don't just take it on it's word. We will put sampling  
2           in place, probably monitor ... well, there will be  
3           monitor wells that are located behind where we say the  
4           boundary is, because, to successfully do one of these  
5           operations, you have to have what we call a compliance  
6           point or a check point. So the idea there is, if I have  
7           a monitor well and it's behind where I say the boundary  
8           is, then that well should not come up contaminated.  
9           That's how we prove to our satisfaction that it is not  
10          going to go beyond.

11                 And that's a good question. With the imprecision  
12           that I've already mentioned, there should be some way of  
13           being certain that's it's not migrating and that is how  
14           we do it. That, there's not really imprecision with the  
15           monitoring. There's imprecision with the characterizing  
16           part. That's what makes it difficult.

17                 More questions?

18   **SANDRA MARTIN:** My name is Sandra Martin, and I live a mile and  
19           a half from here. I work for the Pontiac school. We own  
20           property on a personal road straight to I-20, and I was  
21           just wondering if there's contamination ... (inaudible)  
22           ... I know it says on the bottom right here, the plume  
23           boundary is uncertain. Are you all going to be testing  
24           on that side?

25   **RALPH HOWARD:** The little marks that you see on the diagram,

1 plus the ones on the Fact Sheets, those are sampling  
2 areas. It's kind of hard on the eyes to read it, but  
3 there's a little DPT there; those are all sampling  
4 points. So, as you see, we've drawn the boundary on the  
5 other side, meaning that those sampling points do show  
6 levels above the drinking water standard, with the  
7 uncertainty that I mentioned earlier. But yes, they do  
8 show.

9 Now, as far as whether that contamination is real,  
10 that we still don't know. We have data that says there  
11 is a chance that that is, there's a possibility that that  
12 level is higher than it should be. So do we know for  
13 sure? No. Do we suspect that it is? Yes, ma'am.

14 **SANDRA MARTIN:** What's the alternative? If I have my well water  
15 tested, what should I do?

16 **RALPH HOWARD:** Well, and I really didn't highlight this but I  
17 know that I mentioned it. We ... actually, the company,  
18 as a precaution went ahead, with our approval, and  
19 sampled seven of the private wells over there. They  
20 sampled ... I guess I won't go through the names, but  
21 they sampled all of the private wells that they could  
22 find anyone in a home to account for. They got them all  
23 except maybe one, and those were the ones I mentioned  
24 were below detection levels.

25 It has to be kept in mind that most of those wells

1           are deep in the sense that they are deeper than our  
2           samples are. Our samples are all from just the water  
3           table, which is the first place that you hit the water  
4           going downward. And most of those wells are deeper, but  
5           one or two of them are not particularly very much deeper.

6           So it's not clear what that means yet. It could be  
7           that the samples are reading way high, but probably not  
8           everywhere, they're not reading way high. That's what  
9           we have to find out, which is real. So it's not clear  
10          whether that property between I-20, again, is a boundary.  
11          It may be a boundary, but we're going to find that out.  
12          That's what part of this Interim Action is about.

13          More questions?

14   WALTER TYLER: This is Walter Tyler. This may get into a legal  
15                   question, but our property has been up for sale for two  
16                   years. If I have a prospective buyer, I'd certainly want  
17                   to show him this letter. It's elevated levels.

18   RALPH HOWARD: Right, and that's true, and if you sold the  
19                   property soon, you should. But that will not be the last  
20                   word on this.

21   WALTER TYLER: We will have ... (inaudible) ...

22   RALPH HOWARD: When we determine if the levels are real out  
23                   there, the findings of that, you will know those.

24   WALTER TYLER: But it's the well, not the site. It could be  
25                   tested ...

1 RALPH HOWARD: Right ...

2 WALTER TYLER: A sample hasn't been taken out of the well to  
3 check ...

4 RALPH HOWARD: I'm not, honestly I'm not sure really why yours  
5 was not sampled. I don't know if you were contacted by  
6 Aquaterra about that or not.

7 WALTER TYLER: They went on the property and drilled two  
8 samples, but they didn't ...

9 RALPH HOWARD: Right, for which we ... right, that was in our  
10 agreement, but I can't say why your well was not sampled.  
11 But it's possibly because it wasn't being used, because  
12 it wasn't in operation, if water's not being used from  
13 it. But I think it would be a mistake not to draw a  
14 conclusion from those seven wells. The conclusion we  
15 draw for now is that we don't see it in the private  
16 wells. But that doesn't mean we're going to just accept  
17 that as the end of the thing.

18 WALTER TYLER: We'll have some future documentation on our  
19 property?

20 RALPH HOWARD: You'll have some future documentation that refers  
21 either directly to you or you will be able to see, you  
22 know, your property is affected or is not, yes, sir. We  
23 will not just publish the results and not make the  
24 property owners aware. We will make you aware.

25 More questions? Yes, sir.

1 **BILL BOWERS:** My name is Bill Bowers. I am one of the full time  
2 residents on this property on Woodcreek Lake. There's  
3 really only eight full time residents over there, and the  
4 four wells that you're trying to look at cover only the  
5 full time residents. It seems to me that it couldn't be  
6 too expensive to look at all the wells and check all  
7 those wells, at least for full time residents. We drink  
8 the water every day. I mean, it don't seem to me like  
9 it would take that much ... (inaudible) ... to test the  
10 water or take that much time ... (inaudible) ... Of  
11 course, we could see what we have over there and we also  
12 would know ... (inaudible) ... At one of the first  
13 meetings that we had, some discussions came up ...  
14 (inaudible) ... we talked about specifically the surface  
15 water ... (inaudible) ...

16 **RALPH HOWARD:** Please speak louder. I know she's having trouble  
17 reading you.

18 **BILL BOWERS:** Okay, I'm sorry. There is a concern, of course,  
19 with it getting into the drinking water and the fish ...  
20 (inaudible) ... so far the lake sample, you know, the  
21 state sampled ... (inaudible) ... about a year and a half  
22 ago ... (inaudible) ... But the great concern is the  
23 fish, because there's some bream ... (inaudible) ... and  
24 the bream come down the stream ... (inaudible) ... We  
25 don't know that. I think the confidence level, I think

1 the people would feel much better if we say ... if you  
2 only inspect it for bacteria or things other than what  
3 ... (inaudible) ... If you don't, I believe that we will  
4 ask the property owners to take matters into their own  
5 hands and test it ourselves. I think it would be much  
6 wiser for you people to do it ... (inaudible) ... Jim is  
7 out there, he's my neighbor. He's out there all the time  
8 and he would probably consider himself permanent.  
9 There's probably about twenty drinking water wells around  
10 there. I think at least the eight full time residents  
11 should be tested ... (inaudible) ... The people who don't  
12 live there permanently probably feel the same way about  
13 it. It would give the people a little more confidence  
14 level if the wells that are consistently, constantly used  
15 were tested ... (inaudible) ...

16 **RALPH HOWARD:** The best answer is that that is a consideration,  
17 and it shouldn't be thought of that these four wells  
18 we're going to sample is the final thing. This is a  
19 start. Whether it leads to sampling all of them, I can't  
20 say. I guess at this point I can't promise you. But we  
21 will not avoid sampling those wells just because we don't  
22 want to do it. The cost is not ... we're not avoiding  
23 it because of cost; that's not the issue.

24 But we have to proceed kind of in a step wise,  
25 logical manner, and I'm not really sure it's possible to

1           completely satisfy you in that regard. But we do have  
2           some things that need to come out, where we have limited  
3           information and we're kind of acting in the dark here.  
4           One is the ecological assessment, but also there is the  
5           issue of exactly where is boundary; and by that I mean,  
6           it cannot reach those wells but through groundwater  
7           migration. And a lot of what we're going to learn now  
8           is precisely that, is groundwater migration and extent.

9           So I guess what I'm saying is, we're not ruling out  
10          sampling all the wells, but, you know, we need to find  
11          out where that limit is or where the best data to show  
12          us that it is and then we could proceed to go ahead and  
13          get them all. It is precautionary. Like I said, we  
14          don't expect anything to come up with these wells.

15   **BILL POWERS:** We are all pleased that you're doing what you're  
16          doing. But most of us know ... (inaudible) ... over 90  
17          percent ... (inaudible) ... we do want to contain it in  
18          that area ... (inaudible) ... To me, the ... (inaudible)  
19          ... thing to do is to get out where people are drinking  
20          water, get that cleared up. Continue with what you're  
21          doing, if you can do it, but I'd say that ... (inaudible)  
22          ... day it would take to check the water in the wells  
23          where people live. It couldn't take more than a day ...  
24          (inaudible) ... It couldn't take more than a day to get  
25          a sample, and I don't know how long it takes ...

1           (inaudible) ... to check those twenty wells ...  
2           (inaudible) ... that facility over there in a half a day.

3   **JAN ROGERS:** We hear your argument. Can we defer an answer?  
4           We hear your concern and I think we can look into it.  
5           One of the things I'll pick up, we need to look at the  
6           various other alternatives to get some of those wells  
7           sampled.

8           Right now, resources, you know, the company is  
9           paying for these things and we'd have to talk to the  
10          company. We'd also have to look at some other routes to  
11          getting something like that done that are available to  
12          us.

13          So we hear your comment. From a technical basis,  
14          we think we have a rationale as to why we only go out and  
15          look at that front edge perimeter. But we need to  
16          explore that other approach too.

17   **RALPH HOWARD:** I also want to point out and make sure ...  
18          because one thing you said that I want to take note of  
19          with the map, and that is that we have some wells that  
20          are actually closer, which would be those wells on the  
21          other side of I-20. At the time, we didn't even have the  
22          direct-push samples that you see on the other side of I-  
23          20. The company did propose to us that they go get those  
24          wells and sample them, and we said yes; so they did  
25          respond quickly. And there was such great uncertainty



1           about the possible effect with little or no data, and  
2           they were willing to do that, which was the appropriate  
3           thing to do.

4           We didn't know what to expect in those wells, those  
5           seven private wells. And I think that that should be  
6           pointed out, that we have reacted to what we saw as the  
7           nearest, closest wells. At that time, the data were  
8           still leading away to the east, towards Spears Creek, and  
9           this is sort of a continuation of that idea of a  
10          precautionary response.

11          But that's not to say that the data may not lead us  
12          in that direction. We really have to consider, okay,  
13          what about the others? But as I mentioned earlier when  
14          I was talking to the one gentleman, the science of it  
15          tells us that it's unlikely that the contamination will  
16          simply go around and get to people who are more distant,  
17          because we know in this case where it's coming from. So  
18          by starting at where it's coming from and working  
19          outward, we look for a route and a pathway and a  
20          direction of movement, you could say. And that's what  
21          leads us, as a precautionary move, to get those wells and  
22          not just some others at random, because of their location  
23          and their position.

24   **SHARON JACKSON:** I'm Sharon Jackson with the Richland County  
25          Council, and I ... (inaudible) ...

1 RALPH HOWARD: Can you speak louder? She's ...

2 SHARON JACKSON: I wanted to ask about getting the rest of them  
3 checked because not too long ago you mentioned that some  
4 wells would test positive, others would test negative.  
5 I'm sure the county would be willing to help you any way  
6 they can, and will, to get these wells tested. You keep  
7 saying on the other hand. Well, on the other hand, these  
8 people are living here from day to day not knowing if the  
9 water they drink is safe. I am willing to work with you  
10 and I'm sure the county will work with you to get these  
11 wells tested. I don't think we need to put this off any  
12 longer.

13 And I would also like to see the documents that you  
14 have at the library, I would like to see them more  
15 simplified so people can understand them when we read  
16 them. We would appreciate you making them this thick  
17 (indicating), simplifying them a little bit where they  
18 can understand what they're reading and doesn't get ...  
19 (inaudible) ... where you fall asleep once you get past  
20 fifteen or twenty pages.

21 RALPH HOWARD: We have that problem quite often, to be honest.

22 JAN ROGERS: We really would like some suggestions on how to ...  
23 (inaudible) ... But, yeah, that's a dilemma. I mean,  
24 it's very, our standard way of doing business ...  
25 (inaudible) ... out to the public as far as ...

1           (inaudible) ...

2   **RALPH HOWARD:**   You know, it's not something we can resolve  
3                   tonight. I can't stand here and tell you we're going to  
4                   do it, but these are the concerns that we need to hear.  
5                   This is why we do this. We've got to find out how people  
6                   feel.

7   **SETH BRUCKNER:** Please keep in mind that our office is available  
8                   to answer any questions ... (inaudible) ... If there's  
9                   something there that you can't figure out, there's a toll  
10                  free number on the back of this document ... (inaudible)  
11                  ...

12   **RALPH HOWARD:** Please do call us. I get quite a few calls, and,  
13                   you know, it's part of the job. I enjoy it and I'd be  
14                   happy to explain in details, in simple terms. But we'll  
15                   take your recommendation under advisement.

16                   Any more questions, please?

17                   I appreciate it tonight. I wish you would stay if  
18                   you like. We could answer any questions one-on-one, in  
19                   whatever depth you'd like.

20                   I want to close by thanking Mr. Inabinet, Richard  
21                   Inabinet and his staff for providing our meeting place  
22                   tonight. This is a beautiful school and, despite their  
23                   initial reservations, we were able to convince them to  
24                   let us meet here about the Townsend Saw Chain site, and  
25                   it's been wonderful. It's a beautiful facility.

1 Compared to some of the ones we have to use from time to  
2 time, this is a palace.

3 If you would like to send in comments, please do in  
4 writing to me. There are additional Fact Sheets in the  
5 back if you do not have one. In the Fact Sheet, my  
6 address and so forth is in there. September 20th is when  
7 we'd like to get your comments by. However, if there is  
8 something that you would like to have further considered  
9 by us, then request an extension of that comment period.  
10 Just tell us in writing that that's what you're doing and  
11 here's why, what it is that you'd like to see addressed,  
12 and we'll proceed from there. Your comments get response  
13 and the Record of Decision has in it the comments that  
14 I receive from you, and I do mean every single one. So  
15 do not hesitate to write in.

16 And also, I want to mention that the Interim Record  
17 of Decision for this, after your comments are  
18 incorporated, plus the Feasibility Study which will have  
19 the ecological results in it, they're going to be added  
20 to that information repository down there at the library  
21 as things go along. And, depending on what we find out  
22 with this ecological work, we may choose to have another  
23 public meeting; because I hear a lot of interest about  
24 that tonight, and we may have some sort of public forum  
25 for that, a meeting or availability session.

1                   Thank you for coming tonight. We appreciate it.  
2   (There being no further discussion, the hearing was concluded  
3   at 8:50 p.m.)  
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**CERTIFICATE**

This is to certify that the Interim Action Proposed Plan Public Information Meeting for the Townsend Saw Chain Superfund Site, consisting of Sixty-five (65) pages, is a true and correct transcript of said meeting; said meeting was reported by the method of Stenomask with Backup.

I further certify that I am neither employed by nor related to any of the parties in this matter or their counsel; nor do I have any interest, financial or otherwise, in the outcome of same.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 14th day of September, 1993.



Patricia Hall  
Court Reporter

Notary Public for South Carolina  
My Commission Expires: Jan. 21, 2002

(Recorded deposition tapes are retained for six (6) months from date of deposition or until transcript has been signed in cases where signature is not waived).

**APPENDIX B**

**STATE OF SOUTH CAROLINA CONCURRENCE LETTER**



Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman  
Robert J. Stripling, Jr., Vice Chairman  
Sandra J. Molander, Secretary

Promoting Health, Protecting the Environment

*Waste*  
*NBAB*  
William E. Applegate, III,  
John H. Burris  
Tony Graham, Jr., MD  
John B. Pate, MD

*Waste*

November 3, 1993

Mr. Patrick Tobin  
Acting Regional Administrator  
US EPA, Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

RE: Revised Interim Record of Decision (IROD)  
Townsend Saw Chain Site  
Richland County, South Carolina

Dear Mr. Tobin:

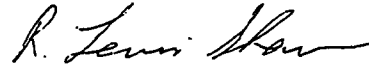
The Department has reviewed, commented on, and concurs with the Interim Record of Decision (IROD) for the alternative selected for the interim remedial action at the Townsend Saw Chain site. The alternatives for the interim remedial activities selected by EPA include extraction and treatment of contaminated groundwater. The treated groundwater will be discharged to either a local publicly-owned treatment works, Spears Creek or another discharge option as determined appropriate. The purpose of the interim remedial action is to prevent or control the off-site migration of contaminated groundwater.

In concurring with this IROD, the South Carolina Department of Health and Environmental Control (SCDHEC) does not waive any right or authority it may have to require corrective action in accordance with the South Carolina Hazardous Waste Management Act and the South Carolina Pollution Control Act. These rights include, but are not limited to, the right to ensure that all necessary permits are obtained, all clean-up goals and criteria are met, and to take a separate action in the event clean-up goals and criteria are not met. Nothing in the concurrence shall preclude SCDHEC from exercising any administrative, legal and equitable remedies available to require additional response actions in the event that: (1) (a) previously unknown or undetected conditions arise at the site, or (b) SCDHEC receives additional information not previously available concerning the premises upon which SCDHEC relied in concurring with the selected remedial alternative; and (2) the implementation of the remedial alternative selected in the IROD is no longer protective of public health and the environment.



This concurrence with the selected remedy for the Townsend Saw Chain site is contingent upon the State's above-mentioned reservation of rights. If you have any questions, please feel free to contact Mr. Lewis Bedenbaugh at (803)734-5211.

Sincerely,



R. Lewis Shaw, P.E.  
Deputy Commissioner  
Environmental Quality Control

CC: Hartsill Truesdale  
Lewis Bedenbaugh  
Keith Lindler  
Rebecca Dotterer  
Harry Mathis  
Charles Gorman  
Bill Galardi  
Yanqing Mo