United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R04-89/049
April 1989

EPA

Superfund Record of Decision:

Chemtronics (Amendment), NC

50272-101

REPORT DOCUMENTATION PAGE

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

This Record of Decision (ROD) amends the April 5, 1988, Chemtronics ROD which included an incorrect calculation regarding the chemical quality of the ground water. The Chemtronics site is an active waste disposal facility located in a rural area of Swannanoa, Buncombe County, North Carolina. The 1,027-acre site was developed as an industrial facility in 1952 and was purchased by Chemtronics, Inc. in 1978. Approximately 10 acres of the site were used for waste disposal operations. Records indicate the presence of 23 individual onsite disposal areas (DAs) which are grouped into six discrete areas: DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the acid pit. From 1952 to 1971 solid waste materials and possibly solvents were incinerated in pits and chemical wastes, including waste materials generated in the production of the chemical warfare agent 3-quinuclidinyl benzilate (BZ) and the tear gas agent o-chlorobenzylidene malononitrile (CS), were placed in 55-gallon drums with a neutralizing solution, and then buried onsite in trench-type landfills. From 1971 to 1975 small volumes of liquid wastes were disposed of in onsite pits and trenches, and solid wastes, rocket motors, explosive wastes, and other waste types were burned. From 1975 to 1979 Chemtronics, Inc. constructed pits and trenches as needed, for the disposal of spent acid and various organic wastes. In 1980 the State ordered Chemtronics to discontinue (See Attached Sheet)

17. Document Analysis a. Descriptors
Record of Decision - Chemtronics, NC
Amendment
Contaminated Media: soil, sediment, gw, sw
Key Contaminants: VOCs (benzene, toluene, PCE, TCE), other organics (pesticides), explosives, metals (arsenic, lead, chromium)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement

19. Security Class (This Report) None

20. Security Class (This Page) None

21. No. of Pages 77

22. Price

(See ANSI-Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

16. Abstract (continued)

all discharges to site pits and trenches. The pits were subsequently backfilled. Starting in 1979, Chemtronics installed a 500,000-gallon lined lagoon over an old leaching field for the biotreatment of wastewater. The incompatibility of the liner with the brominated wastes introduced into the lagoon caused the lagoon to release its contents. The lagoon was reconstructed in August 1980, using a different liner, and deactivated in 1984. In September 1984, the U.S. Army Toxic Hazardous Materials Agency sampled two drums in DA-10/11. These drums were suspected of containing wastes from the production of BZ. Although no BZ was found, EPA initiated an immediate removal of these drums in January 1985 due to heightened public awareness of the site. In the original ROD the selected remedial action for the contaminants and contaminated soil in DA-23 was soil fixation/stabilization/solidification, followed by capping. This remedy has been changed to capping only. The original remedy was selected due to the concentration level of the contaminant benzylic acid a benzophenone found in the ground water downgradient of DA-23. However, a transcription error was discovered in the analytical results for this ground water sample. The laboratory reported the concentrations as 470 mg/l instead of 470 ug/l. Subsequent sampling verified that the correct concentration was in the 0-470 ug/l range. Therefore, EPA elected to change the source control remedial action for DA-23 to capping only. The primary contaminants of concern affecting the soil, sediment, ground water and surface water are VOCs including benzene, toluene, PCE, and TCE; other organics including pesticides and explosives; and metals including arsenic, lead, and chromium.

The selected remedial action for this site includes multi-layer capping of DA-6, DA-7/8, DA-9, DA-10/11, DA-23 and the acid pit area; ground water pumping and treatment using air stripping, carbon adsorption, or metal removal with treatment and discharge to be determined during design; sampling of pond water and sediment and if necessary, surface water treatment using the ground water treatment system and onsite disposal of sediments; implementation of institutional controls and access restrictions; and sediment, ground water, and surface water monitoring. The estimated present worth cost for this remedial action is $2,248,900 with an annual O&M cost of $501,900.

AMENDMENT TO THE
ENFORCEMENT
RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION

CHEMTRONICS SITE
SWANNANOA, BUNCOMBE COUNTY
NORTH CAROLINA

PREPARED BY:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ATLANTA, GEORGIA

DECLARATION FOR THE RECORD OF DECISION

SITE NAME and LOCATION

Chemtronics
Swannanoa, Buncombe County, North Carolina

STATEMENT OF PURPOSE

This document represents the selected remedial action for this Site developed in accordance with CERCLA as amended by SARA, and to the extent practicable, the National Contingency Plan.

The State of North Carolina has concurred on the selected Remedy.

STATEMENT OF BASIS

The decision is based upon the administrative record for the Chemtronics Site. The attached index identifies the items which comprise the administrative record upon which the selection of a remedial action is based.

DESCRIPTION OF THE SELECTED REMEDY

MIGRATION CONTROL (Remediating Contaminated Groundwater)

Installation of a groundwater interception and extraction system downgradient of the disposal areas in both the Front Valley and Gregg Valley. The level and degree of treatment of the extracted groundwater will depend on 1) the ultimate discharge point of this water and 2) the level of contaminants in the extracted groundwater. The three water discharge alternatives for the treated water are 1) the local sewer system, 2) a surface stream and 3) on-site irrigation. The range of treatment for the extracted groundwater includes air stripping, filtration through activated carbon filter and metal removal. The point of discharge and the degree of treatment will be determined in the Remedial Design stage. The water discharged will meet all ARAR's.

A monitoring program, employing bioassays, will be established for surface water/sediment. Monitoring locations will be located on the Unnamed Stream, Gregg Branch and Bee Tree Creek. The purpose of this monitoring program is 1) to insure no adverse impact on these streams during implementation of the remedial action and 2) to establish a data base to use to measure the success of the remedial action implemented. The initiation of this monitoring program will be concurrent with the remedial design activities.

Review the existing groundwater monitoring system and install additional wells, if necessary, to insure proper monitoring of groundwater downgradient of each disposal area. This includes disposal areas #6, #7/8, #9, #10/11, #23, and the acid pit area.

In addition to the monitoring of the groundwater downgradient of each disposal area identified above, action levels for the contaminants present in the disposal areas will be set so that after remediation levels for groundwater have been obtained and verified through monitoring, if this level is reached in any subsequent sampling episode, a remedial action to permanently eliminate that source of contamination will be initiated.

SOURCE CONTROL (Remediating Contaminated Soils)

Cap Disposal Area #6, Disposal Area #7/8, Disposal Area #9, Disposal Area #10/11, Disposal Area #23, and the Acid Pit Area with a Multi-Layer cap which includes a synthetic liner. Security fencing, vegetative covers and, where deemed necessary, a gas collection/ventilation system will be installed. The multi-layer cap will meet as a minimum, the standards specified under 40 CFR Subsection 264, Subparts K-N.

Sample On-Site Pond on Unnamed Stream

During the Remedial Design stage, sample the water and sediment in the pond. If the analysis indicates contaminants in either the water column or sediment, then the pond will be drained, with the water being treated through the treatment system developed for addressing the extracted groundwater and the sediments will be transported to another disposal area and capped along with that disposal area.

DECLARATION

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate, and is cost-effective. This remedy satisfies the preference for treatment that reduces toxicity, mobility, or volume as a principal element. Finally, it is determined that this remedy utilizes permanent solution and alternative treatment technologies to the maximum extent practicable.

APR 26 1989
Date

Greer C. Tidwell
Greer C. Tidwell
Regional Administrator

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

CHEMTRONICS SITE
SWANNANOA, BUNCOMBE COUNTY NORTH CAROLINA

PREPARED BY:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ATLANTA GEORGIA

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CHEMTRONICS SITE
SWANNANOA, BUNCOMBE COUNTY, NORTH CAROLINA

1.0 INTRODUCTION

The Chemtronics Site was included on the first official National Priorities List (NPL) published by EPA in December 1982. The Chemtronics Site has been the subject of a Remedial Investigation (RI) and a Feasibility Study (FS) performed by two of the potentially responsible parties (PRPs), Chemtronics, Inc., and Northrop Corporation, under an Administrative Order of Consent dated October 1985. The third viable PRP, Hoechst Celanese Corporation, declined to participate in the RI/FS. The RI report, which examined air, groundwater, soil, and surface water and sediment contamination at the Site and the routes of exposure of these contaminants to the public and environment was accepted by the Agency in May 1987. The FS, which develops, examines and evaluates alternatives for remediation of the contamination found on site, was issued in draft form to the public in February 1988.

This Record of Decision (ROD) has been prepared to summarize the remedial alternative selection process and to present the selected remedial alternative.

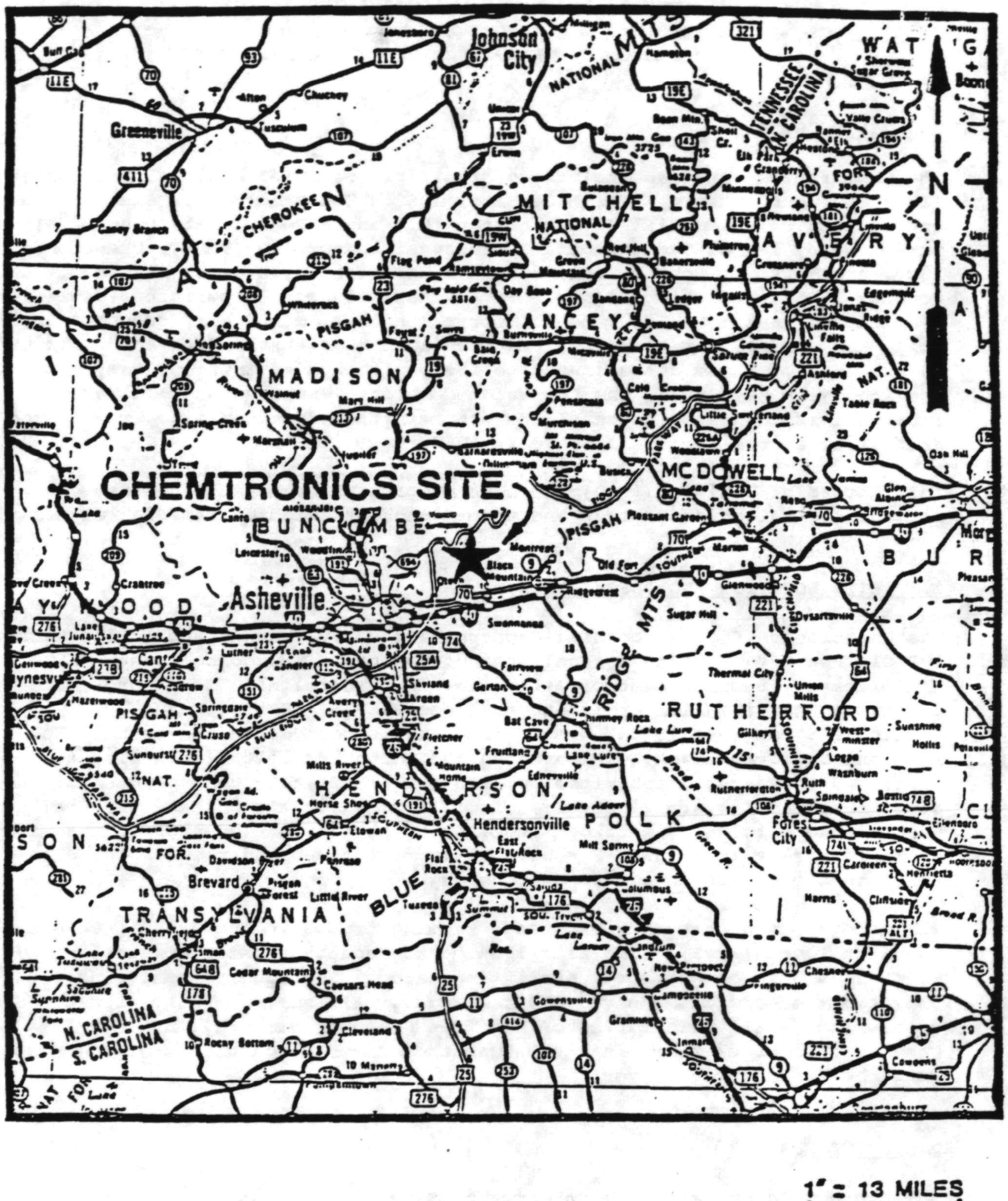
1.1 SITE LOCATION AND DESCRIPTION

The Chemtronics Site encompasses approximately 1,027 acres and is located at 180 Old Bee Tree Road in a rural area of Swannanoa, Buncombe County, approximately 8 miles east of Asheville, North Carolina. The approximate center of the site lies at latitude 35 degrees 38' 18" north and longitude 82 degrees 26' 8" west. The Site is bounded on the east by Bee Tree Road and Bee Tree Creek. The area to the north and west of the Site is comprised of sparsely inhabited woodlands. Immediately to the south of the Site, there are several industrial facilities which lie on land that was once part of the original (Oerlikon) property. The general location of the Site is shown in Figure 1. Figure 2 shows the approximate boundaries of the Site in relationship to its immediate surroundings.

The topography of the Site is steep, ranging from 2,200 to 3,400 feet above mean sea level (amsl). The Site lies on the southeast side of Bartlett Mountain and is moderate to heavily vegetated. Surrounding mountains reach elevations of approximately 3,800 feet amsl. All surface water from the Site drains into small tributaries of Bee Tree Creek or directly into Bee Tree Creek. This creek flows into the Swannanoa River which ultimately, empties into the French Broad River.

1.2 SITE HISTORY

The property comprising the Chemtronics Site was first developed as an industrial facility in 1952. The Site has been owned/operated by Oerlikon Tool and Arms Corporation of America (1952-1959), Celanese Corporation of America



1" = 13 MILES

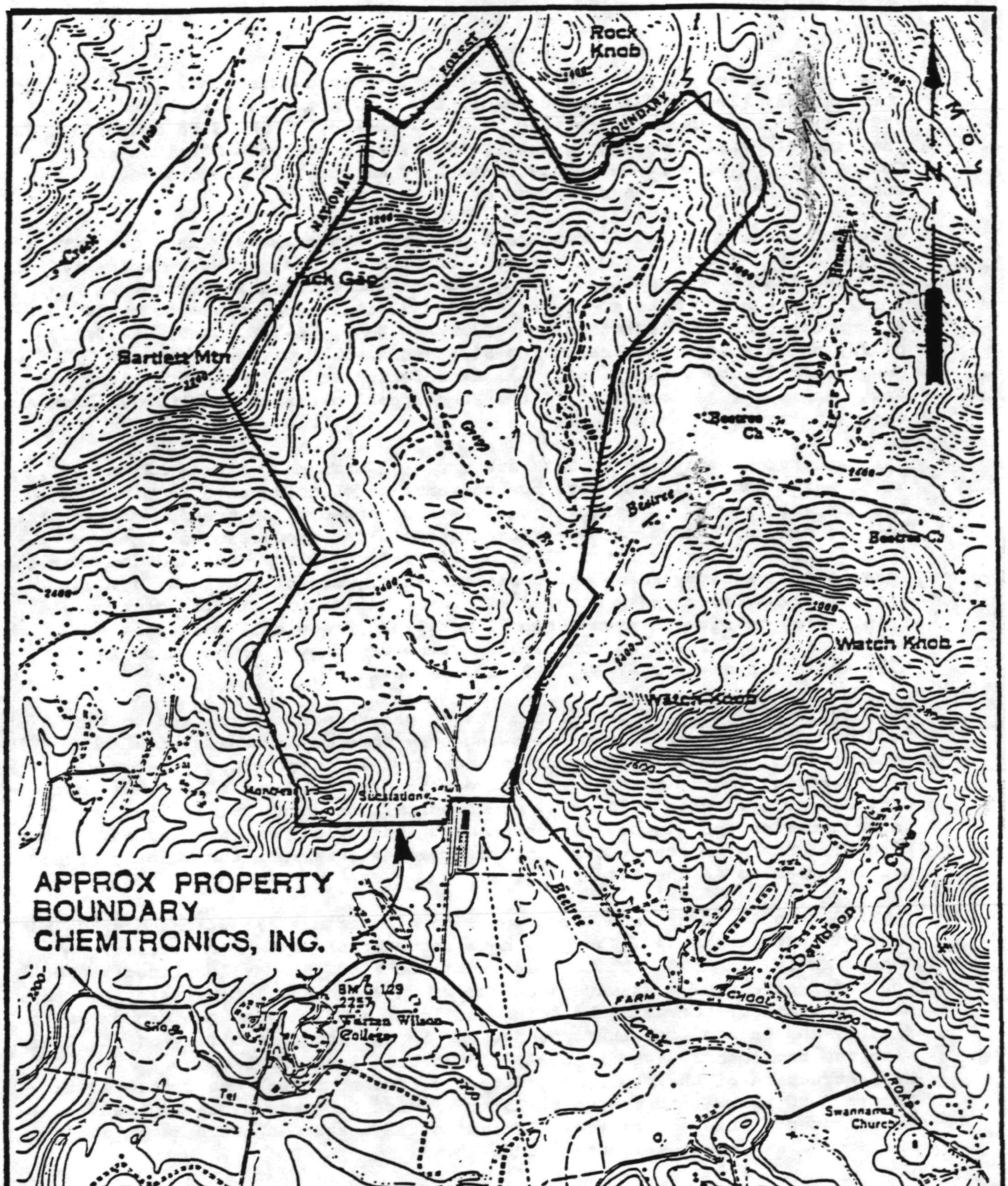
FIGURE NO.

1

GENERAL LOCATION MAP

CHEMTRONICS, INC.

SWANNANOA, NORTH CAROLINA



USGS CRAGGY PINNACLE, N.C. & OTEEN, N.C. QUADS

SCALE 1 : 24,000

	FIGURE NO.
SITE LOCATION MAP CHEMTRONICS, INC. SWANNANOA, NORTH CAROLINA	2

(Hoechst Celanese Corporation) (1959-1965), Northrop Carolina, Inc. (Northrop Corporation) (1965-1971), Chemtronics, Inc., as apart of Airtronics, Inc., (1971-1978), and Chemtronics, Inc. (1978 - present). The Site operated under the name of Amcel Propulsion, Inc. (1959-1965) under both Oerlikon and Celanese. The Site is currently owned by Chemtronics Incorporated, a subsidiary of the Halliburton Company.

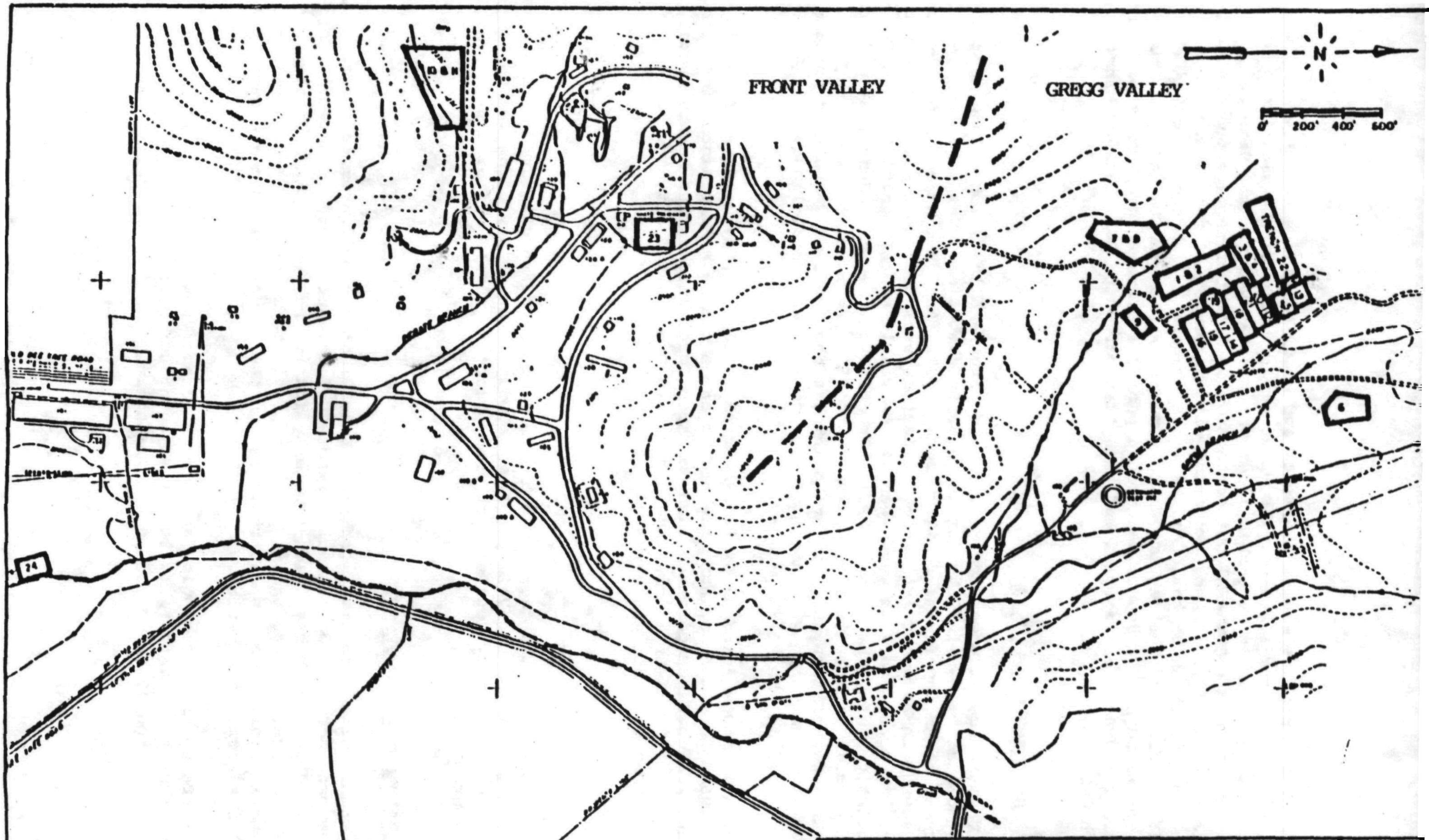
Waste disposal occurred over a small portion (approximately than ten acres) of the Site. Twenty-three individual on-site disposal areas were identified and described by reviewing existing records and through interviews with former and current Site employees. These 23 individual disposal areas (DAs) are grouped into 6 discrete disposal areas: DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the Acid Pit Area. The Site can also be divided into two geographical subsections; they will be referred to as the Front Valley and Gregg Valley. The locations of the 23 disposal areas and the two valleys are shown in Figure 3.

Disposal practices prior to 1971 are not well defined. From 1952 to 1971, solid waste materials and possibly solvents were incinerated in pits dug in the burning ground. Chemical wastes were disposed of in trenches beside this burning ground. Waste materials generated in the production of the incapacitating, surety agent, 3-quinuclidinyl benzilate (BZ) and the tear gas agent, o-chlorobenzylidene malononitrile (CS), were placed in 55 gallon, rim-lid drums, reportedly covered with decontamination "kill" solution and then buried on-site in trench-type landfills. These kill solutions neutralized the BZ and CS compounds. These drums were disposed of in disposal areas DA-6, DA-7/8, DA-9, and DA-10/11.

From 1971-1975, most of the liquid wastes generated on-site went to the Buncombe County Sewer System following some form of neutralization and equalization. Small volumes were disposed of in on-site pits/trenches. Solid wastes, rocket motors, explosive wastes, etc., were all burned in the burning ground. From 1975-1979, Chemtronics, Inc. constructed pits/trenches, as needed, for the disposal of spent acid and various organic wastes. These pits/trenches were constructed in the area that was once the burning ground, now referred to as the Acid Pit Area.

In 1980, the State ordered Chemtronics to discontinue all discharges to these disposal pits/trenches. The pits have subsequently been back-filled. Consequently, in 1979, Chemtronics installed a 500,000 gallon lined lagoon for biotreatment of wastewaters on top of an abandoned leach field for the main production/processing building (Building 113). After the lagoon was filled, the lagoon lost its contents due to the incompatibility of the liner with the brominated waste initially introduced into the lagoon. Reconstruction of the biolagoon, with a different liner, was completed in August 1980 and was in use up to 1984 at which time the biolagoon was deactivated. This entire area, including the abandoned leach field and the biolagoon, has been designated as DA-23.

The Site has been the subject of two previous Region IV, Environmental Protection Agency (EPA) planned investigations, an investigation by the U.S. Army and an emergency response action by Region IV, EPA. In June 1980,



LOCATIONS OF KNOWN/SUSPECTED DISPOSAL AREAS
CHEMTRONICS, INC.
SWANNANOA, NORTH CAROLINA

FIGURE NO.
3

groundwater, surface water, sediment, and waste samples were collected for analysis. In April 1984, private water supply wells in the vicinity of the Site were sampled. In September 1984, the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) collected samples from two drums exposed at the surface in DA-10/11. These two drums were suspected of containing wastes from the production of the chemical warfare agent BZ. Although no BZ was found, in January 1985, an immediate removal of the same two exposed drums was initiated by EPA due to heightened public awareness/involvement with the Site. The drums were sampled and then transported to GSX, Pinewood facility, South Carolina.

2.0 ENFORCEMENT ANALYSIS

The Chemtronics Site was included on the first NPL in December 1982, and EPA assumed lead responsibility for the Site at that time. The Site has been operated as an industrial facility since 1952. An EPA contractor completed a PRP search in November 1983. Notice Letters were sent to the six identified PRPs. Three of the PRPs were found to be viable and EPA initiated negotiations with these three PRPs. Negotiations began in June 1984 and were concluded in October 1985 with two of the PRPs, Chemtronics, Inc. and Northrop Corporation, signing an Administrative Order of Consent to perform an RI/FS. The third PRP, Hoechst Celanese Corporation declined to participate in the RI/FS process.

Negotiation on a Remedial Design/Remedial Action (RD/RA) were initiated in June 1988. Due to the inability of the three viable PRPs (Chemtronics, Inc., Hoechst-Celanese Corporation, and Northrop Corporation), the Agency issued the three PRPs an Unilateral Administrative Order. The effective date of the Administrative Order was March 22, 1989.

3.0 CURRENT SITE STATUS

The Site is an active facility with the majority of manufacturing activities occurring in the Front Valley. The property is presently being leased from Chemtronics, Inc. by Jet Research, Inc., another subsidiary of the Halliburton Company.

3.1 HYDROGEOLOGIC SETTING

The Chemtronics Site lies within the Blue Ridge geologic province. The Blue Ridge province is predominantly composed of ancient igneous and metamorphic rocks. These rocks have been complexly folded and faulted in a northeasterly direction, parallel to the regional trend of the mountains. These structural and metamorphic imprints are reflected in the topographic and drainage patterns within the region.

There are no known geologic faults or shear zones within two miles of the Site, and the Brevard Fault Zone lies about seven miles south of the Site. The Site property is underlain almost entirely by biotite gneiss.

In the Front Valley, the bedrock topography is reflected in the surface topography and has a shape similar to an elongated bowl or trough. The center of the bedrock trough coincides roughly with the center of the topographic valley and this is where the overburden is thickest (65 to 90 feet). Bedrock elevations increase with the surface topography and the overburden decreases as slopes steepen. The thickening of the overburden in the valley is most likely due to natural weathering processes.

In Gregg Valley, the bedrock topography is more complex and is not always reflected by the surface topography. For example, a steep bedrock slope was identified in the northeastern corner of the acid pit area but is not reflected by the surface topography. There is also a bedrock trough near the middle of the acid pit area which has no surface expression. Reshaping of the topography by man in this area is most likely responsible for masking these bedrock features. Elsewhere in Gregg Valley, the bedrock topography is reflected by the surface topography. As in the Front Valley, overburden in Gregg Valley thickens in its central and lower portions.

Groundwater recharge in this area is derived primarily from local precipitation. Generally, the depth of the water table depends on the topography and rock weathering. The water table varies from the ground surface in the valleys (streams) to more than 40 feet below the ground surface in sharply rising slopes.

The aquifer underlying the Site can be subdivided into a surficial zone and a bedrock zone. The surficial zone refers to the overlying saprolite and the bedrock zone includes the weathered and fractured region of the bedrock. These two zones are considered one aquifer as it was demonstrated in the RI that these zones are interconnected.

The groundwater underlying the Site has been classified as Class IIB, using EPA Groundwater Classifications Guidelines of December 1986, since there is potential future use for this aquifer as a source of drinking water. Therefore, the groundwater needs to be remediated to levels protective of public health and where appropriate, to levels protective of the environment.

3.2 SITE CONTAMINATION

The field work associated with the RI for the Chemtronics Site centered on numerous known disposal areas on-site, eight other possible areas of contamination on-site and three off-site areas that reportedly received waste material from the Site. Soil, groundwater, surface water and sediment samples were collected in and around these areas and initially analyzed for the compounds on the Hazardous Substance List (HSL) as well as other selected compounds. After reviewing the analytical data from the HSL scans, indicator parameters were then selected to be run on subsequent samples and sampling episodes.

The indicator compounds selected were:

- Volatile Organic Priority Pollutants
  - Benzene
  - 1,2-Dichloroethane
  - Methylene chloride
  - Tetrachloroethene
  - Toluene
  - Trichloroethene/Trichloroethylene
  - Trihalomethanes
    - Bromoform
    - Chloroform

- Explosives
  - Picric Acid
  - RDX
  - TNT

- Chemical Agents
  - BZ
  - CS
  - and their degradative compounds

- Metals
  - Chromium
  - Nickel

The Agency approved the RI report in May 1987 which documented the presence as well as the level and extent of contaminants on-site. Contamination was found in the following media: surface and subsurface soils, surface water and sediment, and groundwater. In October 1987, the PRPs resampled 12 monitor wells in an attempt to verify and confirm the levels and extent of contamination in the groundwater. The analytical data indicates that, to date, no contamination has migrated pass the Site's boundaries although plumes of contamination in the groundwater have been found emanating from several of the disposal areas.

3.3 AIR CONTAMINATION

The most common source of air contamination at hazardous waste sites are the volatilization of toxic organic chemicals and the spread of airborne contaminated dust particles. During the recent RI, Site personnel used an HNu photoionization analyzer and cyanide sensitive colorimetric indicator tubes to monitor the air while performing the designated RI tasks. An action level of 5 ppm was established in the Chemtronics Project Operations Plan (POP) and Health & Safety Plan. This level was only attained during the excavation of the test pits in the disposal areas. The 5 ppm action level was surpassed on several occasions when the HNu was placed in the test pit or near exposed waste material unearthed during the excavation of the test pits. No cyanide was detected by the colorimetric tube.

3.4 SOIL CONTAMINATION

The study of the soil, surface and subsurface, occurred in two parts. The first task encompassed the excavation of test pits in the majority of the known disposal areas and the second task centered on the collection of surface and subsurface soil samples from borings drilled in and around the disposal areas. These activities not only allowed the determination of the depth of the disposed wastes but also provided data to determine the extent, vertically and horizontally, that the contaminants have migrated in the soil. The three disposal areas where test pits were not excavated were in DA-9, DA-23 and the Acid Pit Area.

3.4.1 SOIL CONTAMINATION IN THE FRONT VALLEY

The Front Valley contains two disposal areas, DA-10/11 and DA-23, where surface and subsurface soil samples were collected and analyzed. Below briefly describes the contaminants present in each disposal area.

DA- 10/11

Refer to the Chemtronics ROD dated April 5, 1988.

DA-23

The analytes detected in and around DA-23 included volatile organic priority pollutants, explosives, CS, BZ, and their degradative products, total organic halides, and total cyanide. The sampling locations are shown in Figure 4. The analytes found are listed in Table 1 along with the maximum concentrations. Table 1 also identifies where the contaminants were found as well as the frequency of their occurrence among both on-site and off-site samples.

3.4.2 SOIL CONTAMINATION IN GREGG VALLEY

Refer to the Chemtronics ROD dated April 5, 1988.

3.5 GROUNDWATER CONTAMINATION

All monitor wells were sampled in June 1986 as part of the RI. Twelve (12) of these wells were resampled in October 1987 in an attempt to verify concentrations.

3.5.1 GROUNDWATER CONTAMINATION IN THE FRONT VALLEY

Groundwater contamination in the surficial zone of the Front Valley exists primarily in the area downgradient of DA-23, the old leach field for Building 113 and the biolagoon. Other portions of the aquifer in this valley also appear to have been adversely affected but the source of contamination in these areas cannot be clearly defined. In each of these locations, volatile organic priority pollutants are present.

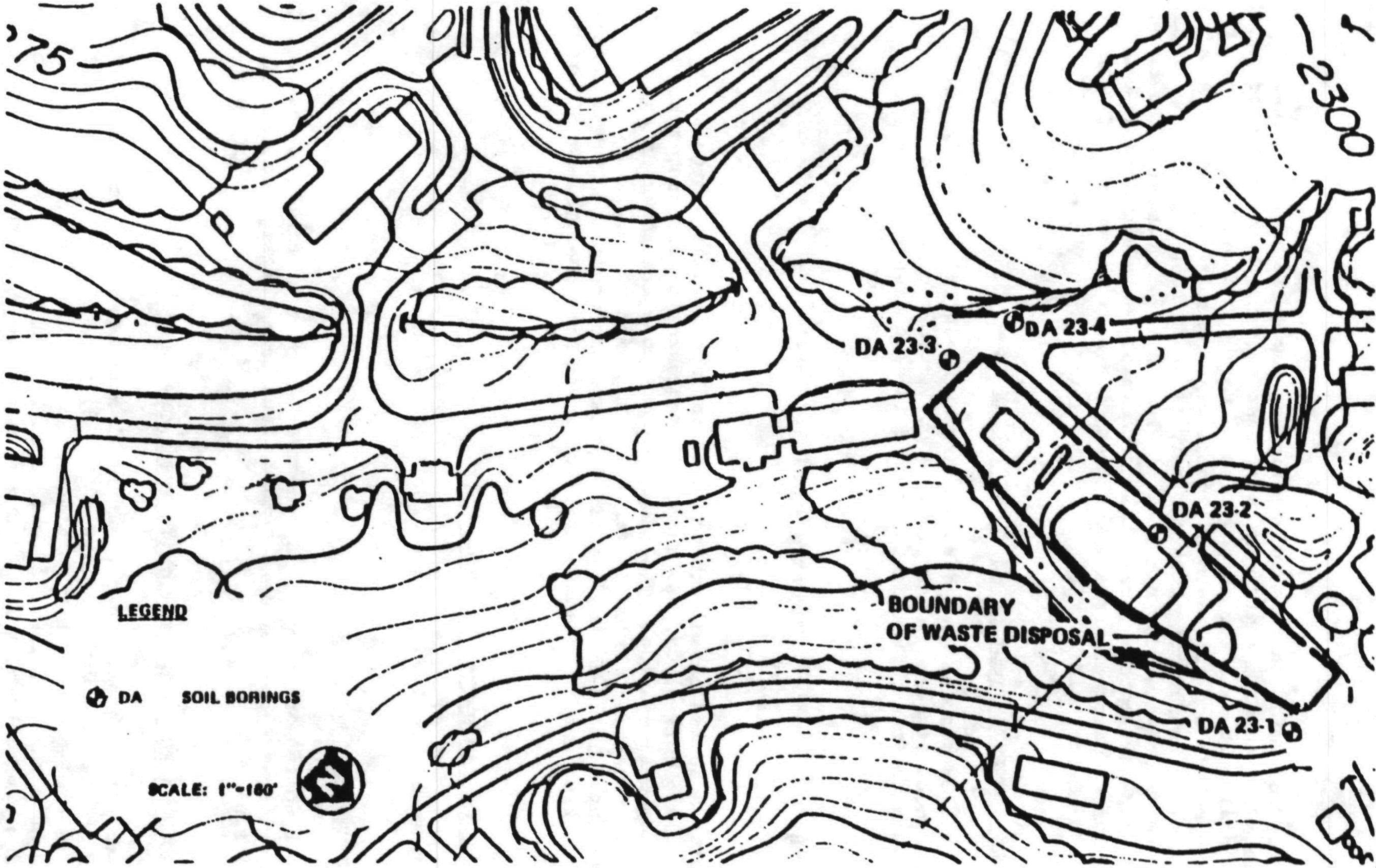


FIGURE NO. 4 LOCATIONS OF SURFACE/SUBSURFACE SOIL SAMPLES IN AND AROUND DISPOSAL AREA 23

TABLE NO. 1 CONTAMINANTS FOUND IN SOIL SAMPLES ASSOCIATED WITH DISPOSAL AREA 23

Compound Detected	Maxium Detected Concentration (mg/Kg)	Location of Maxium Detected Concentration	Boring Interval Sample Depth (ft)	% of Samples Analyzed in Which Compound Was Detected	
				On-site	Off-site
Volatile Organic Priority Pollutants(1)					
Toluene	0.014	DA 23-2	#2 (10-12)	25	0
Methylene chloride	0.140	DA 23-4	#2 (45-85)	100	100
1,2-Dichloroethane	2.70	DA 23-2	#4 (25-27)	100	29
Chloroform	0.011	DA 23-2	#2 (10-12)	25	0
Ethyl Benzene, tetrachloroethene	<0.01	DA 23-2	#2 (10-12)	25	0
Explosives(2)					
TNT	0.6	DA 23-2	#1 (5-9)	50	N/A
	0.5	DA 23-2	#2 (10-12)		
CS, BZ & Degradation Products Total Organic Halides(2)					
Benzylic Acid/ Benzophenone	9.0	DA 23-2	#1 (5-9)		
	3.6	DA 23-2	#2 (10-12)	75	6
	1.9	DA 23-2	#2 (10-12)		
Total Organic Halides(2)	11.0	DA 23-2	#3 (15-19) (20-22)	25	N/A
Total Cyanide(2)	0.18	DA 23-4	#1 (0-2)	25	24
	0.58	DA 23-4	#2 (4.5-8.5)		

DA = Disposal Area
N/A = Not Analyzed

		On-site	Off-site
(1)	Number of locations sampled	4	3
	Number of samples collected	4	30
	Number of samples analyzed	4	17

		On-site	Off-site
(2)	Number of locations sampled	1	3
	Number of samples collected	4	30
	Number of samples analyzed	4	17

The highest concentrations of volatile organics in the groundwater were detected in monitor wells downgradient of DA-23 as shown in Figure 5 and tabulated in Table 2. Concentrations of 1,2-dichloroethane range from 0.15 to 7.4 mg/L. In this area, higher concentrations of volatiles were also detected in the deeper portion of the aquifer, indicating downward as well as lateral migration of the contaminants. 1,2-Dichloroethane was also detected in stream sample RW-7 (Figure 5), indicating that this compound is discharging with groundwater in this vicinity into the northern tributary of the unnamed branch.

Lower concentrations of two other volatile organic compounds were also detected in this area, specifically, 0.11 mg/L of chloroform in monitor well (MW) SW-4 and 0.013 mg/L of trans-1,2-dichloroethene in MW M85L-4.

Benzylic acid, a degradative compound of BZ, was detected in MW SW-4 at 470 mg/L (Figure 6). This implies that BZ derivatives have migrated downgradient with the groundwater from the Building 113 leach field. RDX and picric acid were also detected in the groundwater downgradient of DA-23. A concentration of 0.046 mg/L of RDX in MW SW-6, which is located upgradient to DA-23, may indicate that this well is located near the abandoned tile drainage line leading from Building 113 to the leach field or within the upper boundary of the leach field itself. A low concentration of bis (2-ethylhexyl) phthalate was also detected in MW SW-6 (Figure 6).

Groundwater in the vicinity of MW SW-5, on the southwestern side of the unnamed branch, has also been adversely affected (Figures 5 and 6). Contaminants in this area include trichloroethene, RDX and trans 1,2-dichloroethane. According to groundwater flow patterns in the area, it is unlikely that these contaminants are coming from DA-23 or DA-10/11. It is feasible that these contaminants have migrated from the leach field of Building 107 (Figure 3) or are a result of other past activities or incidents within the upgradient area.

Lastly, 0.17 mg/L of trichloroethene was the only contaminant detected in the furthest downgradient MW M85L-11 (Figure 5). It is unlikely that this contaminant originated from DA-10/11 since this contaminant was not found in either monitor wells, SW-2 or SW-3, both of which are immediately downgradient of DA-10/11. This is further supported by the fact that no trichloroethene contamination was detected in any of the soil borings samples collected from this area. The absence of trichloroethene in groundwater downgradient of DA-23 indicates that the source of trichloroethene in MW M85L-11 is not DA-23 and is therefore, most likely due to some other past activity or incident.

In summary, the extent of the groundwater contamination in the surficial zone in the Front Valley is greatest downgradient of DA-23. The majority of contaminants from this area are migrating with the groundwater and discharging locally into a northern tributary of the unnamed branch. Groundwater contamination in other areas within the valley are most likely due to the presence of other old leach fields (such as that of Building 107) or other past activities. Finally, given that no contaminants were detected in groundwater samples collected from wells downgradient of DA-10/11 during the RI and only methylene chloride at 0.007 mg/L in the October 1987 sampling episode, it appears that contaminants have not moved from this area.

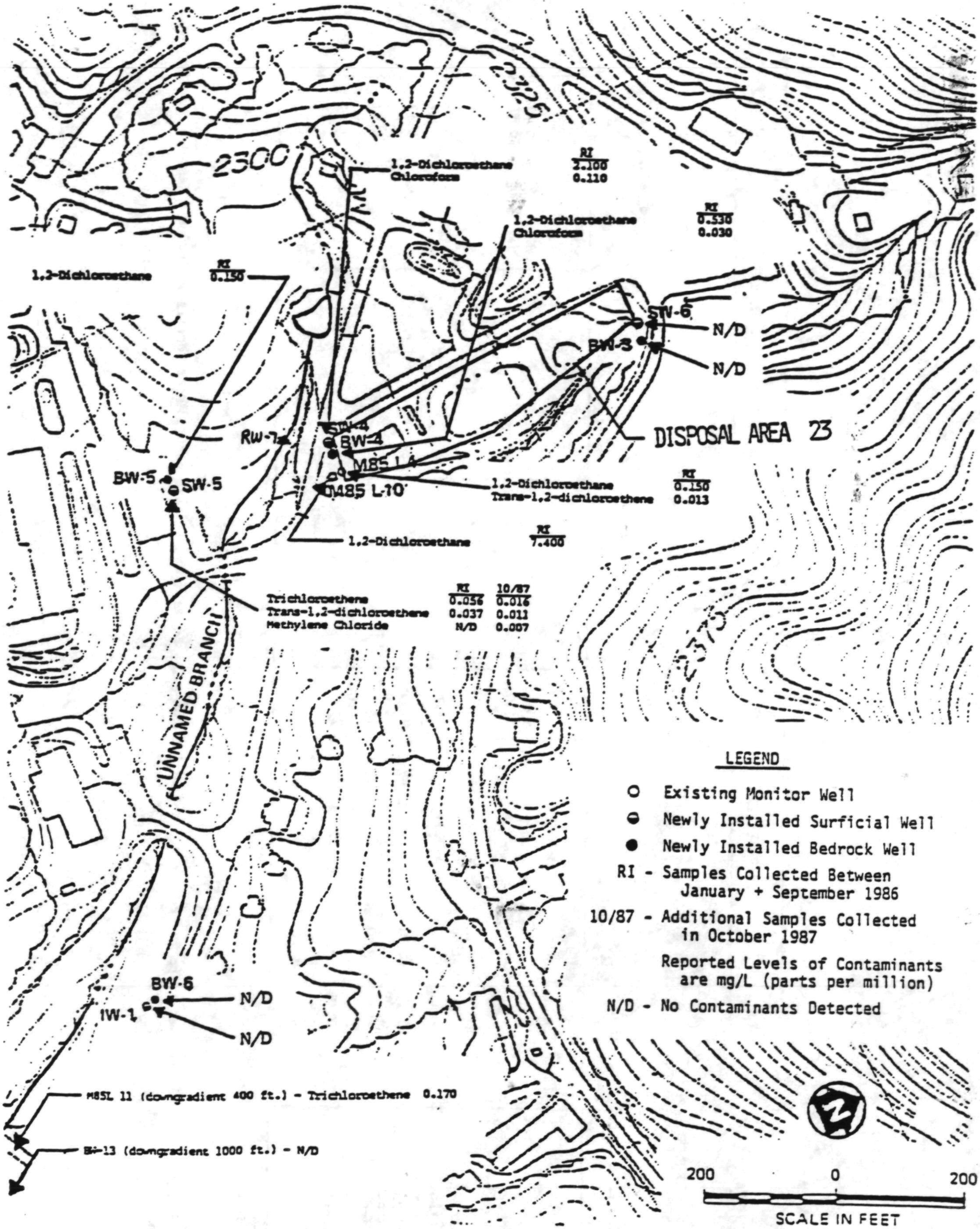


FIGURE NO. 5 LOCATIONS AND CONCENTRATIONS OF VOLATILE CONTAMINANTS ASSOCIATED WITH DISPOSAL AREA 23 FOUND IN THE GROUNDWATER IN THE FRONT VALLEY

Well	Type	Volatiles					Extractable	Explosives		Metals			CS/BZ Products		
		1,2-dichloroethane	Trichloroethylene	Methylene chloride	Chloroform	Benzene	Bis (2-ethylexyl) phthalate (2)	RDX	Picric acid	Chromium	Total organic halide	Total cyanide	Benzylic acid/benzophenone	Pesticides/PCBs	pH
Upgradient															
SW 6	Shallow	-	-	-	<0.01	-	0.012	0.046	-	◆	■	-	NA	■	6.12
BW 3	Bedrock	-	-	-	-	-	<0.01	-	-	-	■	-	NA	-	6.30
Downgradient															
SW 4	Shallow	2.1	-	-	0.11	-	<0.01	0.059	-	-	1.5	0.01	470	-	6.45
IW 1	Intermediate	-	-	-	-	-	-	-	-	0.54	<0.01	-	NA	-	6.01
BW 4	Bedrock	0.53	<0.01	-	0.03	-	0.054	-	-	◆	0.400	-	-	-	6.60
BW 5	Bedrock	0.15	-	-	-	-	<0.01	-	-	◆	1.0	-	-	-	8.04
BW 6	Bedrock	<0.01	<0.01	-	<0.01	-	<0.01	-	-	0.07	■	-	NA	-	6.53
BW 13	Bedrock	-	-	-	<0.01	<0.01	<0.040	-	-	-	-	-	-	-	7.45
H85L4	Existing	0.15	<0.01	-	<0.01	-	-	-	-	-	■	-	NA	■	6.42
H85L10	Existing	7.4	<0.2	<0.2	-	<0.2	-	-	0.023	-	■	-	1.2	■	6.76
H85L11	Existing	-	0.170	-	-	-	-	-	-	-	■	-	NA	-	6.41

- = not detected
■ = qualified data
NA = not analyzed

(1) Number of wells in this Area: 11
(2) Phthalate concentrations are assumed to be the result of contact between groundwater and phthalate-containing materials during well installations or handling and analysis in the laboratory.
(3) Contaminant Levels Measured in mg/L (parts per million)

TABLE NO. 1 CONTAMINANTS FOUND IN THE GROUNDWATER IN THE VICINITY OF DISPOSAL AREA 23

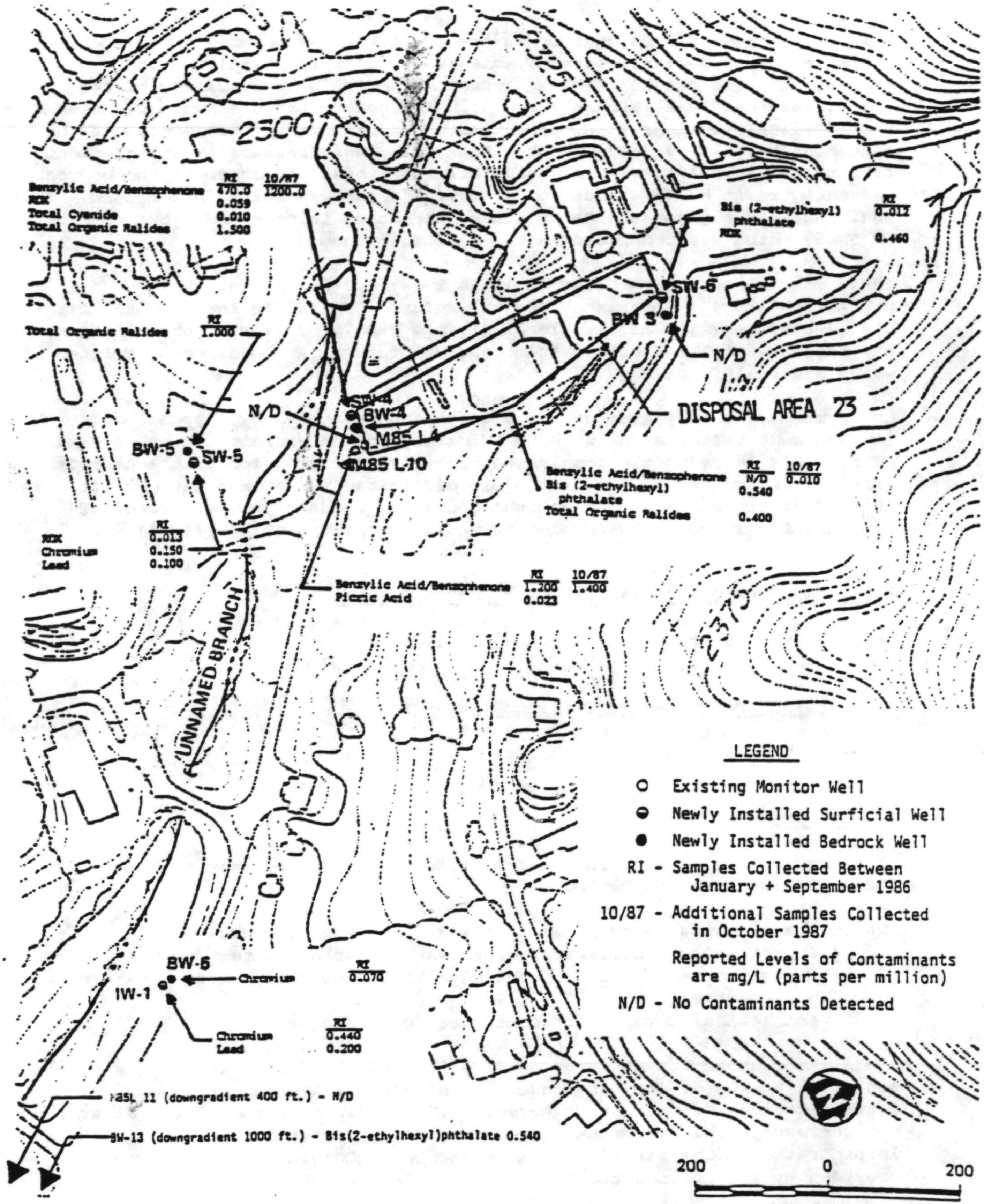


FIGURE NO. 6 LOCATIONS AND CONCENTRATIONS OF NON-VOLATILE CONTAMINANTS ASSOCIATED WITH DISPOSAL AREA 23 FOUND IN THE GROUNDWATER IN THE FRONT VALLEY

The bedrock zone of the aquifer in the Front Valley contains three contaminants: 1,2-dichloroethane, bis (2-ethylhexyl) phthalate, and chloroform. The extent of this contamination is in the vicinity of two wells, BW-4 and BW-5 (Figure 5 and 6). The contaminant detected in MW BW-5 was 1,2-dichloroethane at a concentration of 0.15 mg/L. The source of this contaminant could be DA-23 in that this well is hydraulically downgradient from this disposal area. An essentially horizontal fracture in the bedrock was detected in MW BW-4 that could provide a pathway for this compound. This would explain the appearance of this contaminant in of MW BW-5 but not in MW SW-5, which was completed in the surficial zone.

Three contaminants were detected in MW BW-4: 1,2-dichloroethane, bis (2-ethylhexyl) phthalate, and chloroform. While the low concentration of bis (2-ethylhexyl) phthalate is likely the result of sample contamination, the presence of 1,2-dichloroethane and chloroform can be directly related to waste disposal in DA-23.

In summary, the only area of the bedrock zone affected by disposal activities in the Front Valley appears to be primarily in the vicinity of wells BW-4 and BW-5. This leads to the conclusion that the contamination of the bedrock zone of the aquifer in this valley is of limited extent and has migrated less than 800 feet from areas of waste disposal as evident by the absence of contaminants in wells BW-6 and intermediate monitor well #1 (IW-1).

3.5.2 GROUNDWATER CONTAMINATION IN GREGG VALLEY

Refer to the Chemtronics ROD dated April 5, 1988.

3.6 SURFACE WATER AND SEDIMENT CONTAMINATION

Refer to the Chemtronics ROD dated April 5, 1988.

3.7 RECEPTORS

There has been no change in the identified receptors between now and the April 5, 1988 Chemtronics ROD.

The routes of exposure examined in the Risk Assessment were:

1) ingestion of contaminated groundwater, surface water and wild life;
2) direct contact with the contaminants in the soil, surface waters or groundwater; and
3) inhalation of vapors or contaminated particles.

The aquifer under the Chemtronics Site is classified as Class IIB, a potential source of drinking water, using the USEPA Groundwater Classifications Guidelines of December 1986. Although the site aquifer is not currently used for drinking water purposes, potential (future) use was incorporated in the baseline risk assessment. Consideration of potential groundwater use is consistent with 40 CFR Section 300.68(e)(2)(v).

Groundwater, as noted, is contaminated on-site. The general flow of groundwater is to the east and west to the unnamed stream and Gregg Branch and east to Bee Tree Creek, discharging to these surface water features. Groundwater contamination was particularly noted downgradient of the Acid Pit Area and DA-23. No drinking water wells exist between the site and the groundwater discharge points, thus a pathway via domestic well usage does not exist.

Currently, fugitive dust particle generation is considered an unlikely event. The majority of the disposal areas are capped by dirt and are vegetated. One area, although vegetated, has numerous empty drums exposed at ground level. This area, DA-9, was identified in the RI to have the greatest degree of risk to exposure to the contaminants present. The chance of exposure is greatly reduced to the remoteness of this disposal area.

Contaminated soils will continue to leach to surrounding soils and groundwater.

Surface runoff from surface soils may contaminate additional soils and surface waters and sediments, although concentrations would not be expected to be high.

4.0 CLEANUP CRITERIA

There has been no change in the cleanup goals between now and the April 5, 1988 Chemtronics ROD.

The extent of contamination was defined in Section 3.0, Current Site Status. This section examines the "applicable and relevant or appropriate regulations" (ARARs) associated with the contaminants found on site and the environmental medium contaminated. In the cases where no specific ARAR can be identified, a defendable minimum goal of remedial action will be presented.

4.1 GROUNDWATER REMEDIATION

In determining the degree of groundwater clean-up, Section 121(d) of the Superfund Amendment and Reauthorization Act of 1986 (SARA) requires that the selected remedial action(s) establish a level or standard of control which complies with all ARARs.

This remedy is a cost-effective remedy which will achieve a level protective of human health as will as remove the threats this Site poses to the environment. The remedy will meet appropriate requirements, and is cost-effective. Finally, the remedy utilizes permanent treatment technologies to the maximum extent practicable.

The presence of several contaminated found on Site presented some special problems with respect to the establishment of target cleanup levels. Since these chemicals either lack or have only limited human health standards and supporting physiochemical and toxicological data, it was necessary to develop preliminary pollutant limit values (PPLVs) for critical exposure pathways, using estimates of acceptable daily doses (D_T) and partition coefficients. The calculations and supporting references for these PPLVs are presented in Appendix A of the Feasibility Study.

For those contaminants found in the groundwater on-site Table 3 presents the levels the migration control remedial alternative will achieve at a minimum.

4.2 SOIL REMEDIATION

The Public Health and Environmental Assessment in the RI (Chapter 4), determined that risks to human as a result of exposure to on-site contaminants via inhalation, ingestion and dermal contact are very low under present Site conditions. For potential future use scenarios, the risk is slightly higher. Therefore, remediation and institutional controls will be necessary to assure that an increased risk to human health is not posed in the future.

Table 4 presents remediation levels the source control remedial alternative will achieve. This includes PPLVs for these contaminants lacking promulgated criteria or standards.

4.3 SURFACE WATER/SEDIMENT REMEDIATION

The contaminant levels in the surface waters (the unnamed stream and Gregg Branch) are expected to decline with the implementation of groundwater and soil remediation. Thus, it was concluded that the remediation of surface water is not necessary. A biomonitoring program will be implemented to document that the remediation activities do not have an adverse affect on the surface waters. The RI did not identify any contaminants entering Bee Tree Creek from the Site.

5.0 ALTERNATIVES EVALUATED

Refer to the Chemtronics ROD dated April 5, 1988.

5.1 MODIFICATION OF APRIL 5, 1988 RECORD OF DECISION REMEDIAL ALTERNATIVE FOR DISPOSAL AREA 23

Based on a correction of analytical data with regard to the chemical quality of the groundwater downgradient of DA-23 in the Front Valley, it has been deemed necessary to change the source control remedy selected for DA-23. The mandate to address post-ROD changes is provided by Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) §117(c), which states:

> "After adoption of a final remedial action plan -- (1) if any remedial action is taken (under sections 104 or 120), (2) if any enforcement

> action under section 106 is taken, or (3) if any settlement or consent decree under section 106 or section 122 is entered into, and if such action, settlement or decree differs in any significant respects from the final plan, the lead agency shall publish an explanation of the significant differences and the reasons such changes were made."

5.1.1 CHANGE IN THE RECORD OF DECISION

The remedial action selected in the Chemtronics April 5, 1988 ROD for the contaminants and contaminated soils associated with DA-23 was a soil fixation/stabilization/solidification (f/s/s) process followed by capping the entire disposal area. The f/s/s alternative was selected due to the concentration level of the non-volatile organic contaminant benzylic acid and benzophenone found in the groundwater downgradient of DA-23. The Remedial Investigation Report, dated April 1987, stated that the concentration for benzylic acid/benzophenone in the groundwater downgradient of DA-23 in monitor well (MW) SW-4 as 470 milligram/liter (mg/l). This concentration is equivalent to 470 parts per million (ppm). MW SW-4 is a shallow monitor well and 470 mg/l is a relatively high concentration for a contaminant in groundwater.

In October 1987, approximately one year after the original sampling episode, nine (9) monitor wells were resampled. MW SW-4 was one of these wells. The analytical results for benzylic acid/benzophenone for SW-4 was 1.2 mg/l, which is considerably less than the 470 mg/l level recorded in the initial sampling episode. The concentration level of 1.2 mg/l is more in line with the levels found in other wells downgradient of DA-23 as can be seen in Appendix A.

It was the Agency's rationale, based on the level of 470 mg/l, that the concentration of benzylic acid/benzophenone in the soils of DA-23, the source of this contaminant, must also be relatively high, therefore requiring a more rigorous source control remedial action. This thought process led the Agency to select a soil f/s/s process as the source control remediation for DA-23.

The f/s/s alternative was selected over soil venting or capping due to the fact that the contaminant of concern, benzylic acid/benzophenone, is not readily volatilized. Although soil venting would help remove the volatile organics from the soil, it would not remove the non-volatile organics. Usually, it is the non-volatile organics that determine the length of time necessary to pump and treat the groundwater as non-volatile organics do not readily move with groundwater through the soil as do volatile organics. Soil venting would help reduce the levels of volatile organics, but it does not address the non-volatile fraction of contaminants and therefore, soil venting was not selected as the new source control remedial action for DA-23.

Due to the lower level of benzylic acid/benzophenone than first identified as being present in the groundwater downgradient of DA-23, and the fact that a

TABLE NO. 3 GROUNDWATER REMEDIATION LEVELS AND CITED REFERENCES

Compound	Remediation Level mg/l	Source
1,2-Dichloroethane	0.005	MCL
Trichloroethylene	0.005	MCL
Methylene Chloride	0.06	RSD
Trans-1,2-Dichloroethylene	0.07	PMCLG
Benzene	0.005	MCL
Chloroform	0.1	MCL(TTHM)
Ethylbenzene	0.68	PMCLG
Tetrachloroethylene	0.007	RSD
Bromoform	0.1	MCL(TTHM)
Carbon Tetrachloride	0.005	MCL
Toluene	2.0	PMCLG
Picric Acid	14.0	PPLV
RDX	0.035	USAIWQC
TNT	0.044	PPLV
Total Cyanides	0.200	RfD
Lead	0.05	MCL
Chromium	0.05	MCL
Nickel	0.5	RfD
Copper	1	MCL
Zinc	5	WQC
Benzilic Acid	0.021	PPLV
Benzophenone	0.152	PPLV

MCL - Maximum Contaminant Level.

MCL(TTHM) - The MCL for Total Trihalomethanes (sum of all concentrations) is 0.1 mg/l. TTHM's include chloroform, bromoform, bromodichloromethane, and chlorodibromomethane.

PMCLG - Proposed Maximum Contaminant Level Goal 50 FR 46936-47022 (November 13, 1985).

PPLV - Preliminary Pollutant Limit Value (see Appendix A).

RfD - Reference Dose 52 FR 29992-29997 (August 12, 1987).

RSD - Risk Specific Dose, 51 FR 21648-21693.

USAIWQC - US Army Water Quality Criteria. The given values have been approved by the Army Surgeon General.

WQC - Clean Water Act, Water Quality Criteria for Human Health - Adjusted for Drinking Water Only, [Gold Book].

From TLV - Calculated from a Threshold Limit Value, based on a 70 kg person who drinks 2 liters of water per day. A safety factor of 100 has also been applied.

TABLE NO. 4 SOIL REMEDIATION LEVELS FOR CONTAMINANTS LACKING PROMULGATED CRITERIA OR STANDARDS

Contaminant Group	Soil Standard (mg/Kg)	Source
PCBs	10	TSCA
3-Quinuclidinol	25.7	PPLV
Benzilic Acid	9.3	PPLV
Benzophenone	9.3	PPLV
CS (2-Chlorobenzal-malononitrile)	43.3	PPLV
Malononitrile	N/A+	PPLV
O-Chlorobenzaldehyde	0.31	PPLV
TNT	305	PPLV
RDX	95	PPLV
Picrate/Picric Acid	38,000	PPLV

+ - Malononitrile would not persist in soil based upon K_d partition coefficient soil venting alternative would not decrease the time needed to remediate DA-23, the Agency selected as the preferred source control remedial alternative for DA-23 to place a multi-layer cap, which includes a synthetic liner, over this disposal area instead of implementing a f/s/s process to remediate the contaminated soils of DA-23. The multi-layer cap will meet as a minimum, the requirements specified under 40 CFR Subsection 264, Subparts K-N. A gas collection system will also be incorporated into the cap if deemed necessary.

5.1.3 DOCUMENTATION OF A TRANSCRIPTION ERROR

In a letter dated September 19, 1988 (Appendix B), the PRPs informed the Agency of a possible transcription error made by the laboratory contracted by the PRPs to perform their analytical analyses. Instead of reporting the detected concentration as 470 micrograms/liter (ug/l) or 470 parts per billion (ppb) as they should had done, the laboratory reported the concentration as 470 mg/l or 470 ppm. Misplacing the decimal point by three (3) places resulted in a change of concentration by a magnitude of three (3).

This information and the documentation to support the reported transcription error was transmitted to EPA, Region IV Chief of the Quality Assurance and Laboratory Evaluation Section (QALES of the Environmental Services Division. After reviewing the documentation, QALES concurs that a transcription error had occurred (Appendix C).

5.1.4 CONFIRMATION OF GROUNDWATER QUALITY

Prior to making a final decision on whether to change the selected source control remedy for DA-23, the Agency resampled MW SW-4 the first week of January 1989. The analytical results for the January 1989 sample are 48 ug/l for benzylic acid and 3400 ug/l for benzophenone. These results confirm the lower concentration range of 0.0 to 470 ug/l and not concentrations in the hundreds of parts per million. Therefore, the Agency elected to change the source control remedial alternative for DA-23 from soil f/s/s to capping. The cleanup goal, as specified in Table 3, for benzylic acid and benzophenone are the same as stated in the April 5, 1988 ROD. The goals for benzylic acid and benzophenone are 21 ug/l and 152 ug/l, respectively.

Capping DA-23 will be as protective as would have been a soil f/s/s process of human health and the environment. This is based of the findings that the exposure pathways for the contaminants found at DA-23 are consumption of contaminated groundwater and discharge of contaminated groundwater to surface streams. These findings are documented in the Public Health and Environmental Assessment section of the Remedial Investigation report and the Endangerment Assessment incorporated into the Feasibility Study document. Both of these pathways are mitigated by the groundwater extraction/treatment system required for the Front Valley under the Migration Control section of the ROD. Therefore, in terms of protecting the public health and the environment, capping DA-23 and pumping and treating the groundwater in the Front Valley of the Chemtronics site achieves the same degree of protection as the soil f/s/s process. As documented in the Feasibility Study, capping is the more cost effective remedial action. The North Carolina Department of Human Resources has been apprised and is in complete agreement with the Agency's proposal.

In addition to meeting the requirement of Superfund, being cost effective and protecting public health and the environment, capping DA-23 will also satisfy the post closure requirements imposed upon the owner/operator of the facility by the Resource, Conservation & Recovery Act (RCRA) programs of the Agency and North Carolina Department of Human Resources. The RCRA programs are involved with DA-23 because the biolagoon was operated post-1980.

Under RCRA, when a business or individual stops operating a solid waste management unit (SMU), the SMU needs to be closed out according RCRA regulations. Capping DA-23 and pumping and treating the groundwater will meet RCRA's requirements.

5.2 NINE POINT EVALUATION CRITERIA FOR EVALUATING REMEDIAL ACTION ALTERNATIVES

Each alternative was evaluated using a number of evaluation factors. The regulatory basis for these factors comes from the National Contingency Plan (NCP) and Section 121 of SARA. Section 121(b)(1) states that, "Remedial actions in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances, pollutants and contaminants as a principal element, are to be preferred over remedial actions involving such treatment. The offsite transport and disposal of hazardous substances or contaminated materials without such treatment should be the least favored alternative remedial action where practicable treatment technologies are available."

Section 121 of SARA also requires that the selected remedy be protective of human health and the environment, cost-effective and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Based on the statutory language and current U.S. EPA guidance, the nine criteria used to evaluate the remedial alternatives listed above were:

1. Overall Protection of Human Health and the Environment addresses whether or not the remedy provides adequate protection and describes how risks are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether or not the remedy will meet all of the applicable or relevant and appropriate requirements of other environmental statues and/or provide grounds for invoking a wavier.

3. Long-Term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

4. Reduction of toxicity, mobility, or volume is the anticipated performance of the treatment technologies a remedy may employ.

5. Short-term effectiveness involves the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. Implementability is the technical and administrative feasibility of a remedy including the availability of goods and services needed to implement the chosen solution.

7. Cost includes capital and operation and maintenance costs.

8. Support Agency Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the support agency (IDEM) concurs, opposes, or has no comment on the preferred alternative.

9. Community Acceptance indicates the public support of a given remedy. This criteria is discussed in the Responsiveness Summary.

5.2.1 OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The change in the selected remedial action for DA-23 will be as protective as a f/s/s process. The primary route of exposure identified for DA-23 was exposure to contaminated soils and ingestion of contaminated groundwater emanating from the disposal area. The multi-layer cap will prevent percolation of rain through the contaminated soils and recharging the underlying groundwater with the resulting leachate. Coupled with the migration control remedial action, pump and treat groundwater, these two remedial actions will adequately protect human health and the environment.

5.2.2 COMPLIANCE WITH ARARS

This modification to the April 5, 1988 ROD does not trigger any new Federal and State applicable or relevant and appropriate requirements.

5.2.3 LONG-TERM EFFECTIVENESS AND PERMANENCE

This modification to the source control remedial action for DA-23 does not greatly impact the long-term effectiveness and permanence of the remediation. The multi-cap will decrease the contaminant's mobility as well as the risk of direct contact.

5.2.4 REDUCTION OF TOXICITY, MOBILITY, OR VOLUME

The multi-layer cap will reduce the mobility of the contaminants and the volume of contaminated groundwater but does not address the toxicity of the contaminants.

5.2.5 SHORT-TERM EFFECTIVENESS

During the construction of the multi-layer cap, dust release may occur.

5.2.6 IMPLEMENTABILITY

There should be no difficulty with the design and construction of a suitable multi-layer cap.

5.2.7 COST

Capital cost for groundwater remediation is estimated to be $239,000 with system O&M cost at $139,500 for 30 years, which includes sampling and analysis. The total present worth cost of the groundwater remediation is $378,500.

Capping disposal areas DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the Acid Pit Area with a multi-layered cap is estimated to be $1,350,000. The O&M costs for all caps is $362,400. The above costs include engineering, overhead, profit, contingency, and administrative fees. The total oresent worth cost is $1,870,400.

The present worth cost of this remedy, including both source and migration control remediation is approximately $2,248,900.

5.2.8 STATE ACCEPTANCE

The North Carolina Department of Human Resources has been apprised and is in complete agreement with the Agency's proposal and since it is expected that the RD/RA will be undertaken by the PRPs, there has been no request made under CERCLA, Section 104(c) for the State to contribute ten percent of all costs for the remedial action.

5.2.9 COMMUNITY ACCEPTANCE

Explanation of Significant Difference Fact Sheets were sent to all those on the Chemtronics mailing list including the four information repositories. A legal public notice announcing the proposed amendment to the April 5, 1988 ROD was also published in the Asheville Timers/Citizen Newspaper. These were the two mechanisms employed to notified interested parties, residents, media, and local and state officials of the Agency's intention to amend the April 5, 1988 ROD. In these announcements, the Agency also made it known that the Agency would conduct public meeting in there was interest in the local community.

The Explanation of Significant Difference/Proposed Plan Fact Sheet described, in detail, the justification for amending the ROD. The legal notice briefly described the Agency's justification. Both announced that there was a three week public comment period associated with the proposed amendment to the ROD and encouraged the public to submit written comments to the Agency. The comment period ended March 21. Only one comment was received during this time frame. This letter dealt with several other issues surrounding the Chemtronics site and not the proposed amendment to the April 5, 1988 ROD.

6.0 RECOMMENDED ALTERNATIVES

6.1 DESCRIPTION OF RECOMMENDED REMEDY

The recommended alternative for remediation of groundwater and soil contamination at the Chemtronics Site includes extraction, treatment and discharge of groundwater and capping contaminated soils. The capped areas will be fenced with a chain-linked fence and marked accordingly.

The water and sediment in the pond on the unnamed stream will be sampled. If evidence of contamination is present, the pond will be drained with the water being sent through the treatment system set up for treating groundwater and the sediment will be transported to another disposal area and capped along with that disposal area.

A monitoring program, employing bioassays, will be established for the surface water. Monitoring locations will be located on the unnamed stream, Gregg Branch and Bee Tree Creek. The purpose of this monitoring program is 1) to insure no adverse impact on these streams during implementation of the remedial action and 2) to establish a data base to use to measure the success of the remedial action implemented.

Soils in disposal areas DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the Acid Pit Area will be capped with a multi-layered cap which will include an inert synthetic liner. Where determined necessary, a venting system will also be installed.

A groundwater extraction system will be installed in both the Front Valley and in Gregg Valley. The extracted groundwater will either be treated in each valley or combined and treated through a single system. The treated groundwater will be discharged meeting all ARARs.

These recommended alternatives meet the requirements of the NCP, 40 CFR Section 300.68(j) and SARA. This recommended remedy permanently and significantly reduces the volume of hazardous substances in the groundwater, reduces the toxicity and/or mobility of contaminants in the soils.

6.2 OPERATIONS AND MAINTENANCE

When the remedy is completed, long-term operation and maintenance (O&M) will be required for the caps along with long-term monitoring of the groundwater. This will assure the effectiveness and permanence of the source control remediation and groundwater remedies. Long-term O&M will also be required for monitoring the groundwater extraction systems and the groundwater treatment system(s).

6.3 COST OF RECOMMENDED ALTERNATIVE

Capital cost for groundwater remediation is estimated to be $239,000 with system O&M cost at $139,500 for 30 years, which includes sampling and analysis. The total present worth cost of the groundwater remediation is $378,500.

Capping disposal areas DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the Acid Pit Area with a multi-layered cap is estimated to be $1,350,000. The O&M costs for all caps is $362,400. The above costs include engineering, overhead, profit, contingency, and administrative fees. The total oresent worth cost is $1,870,400.

The present worth cost of this remedy, including both source and migration control remediation is approximately $2,248,900.

6.4 SCHEDULE

The planned schedule for remedial activities at the Chemtronics Site is expected to be governed by a Consent Decree to be signed by the PRPs, but tentatively is as follows:

April 1988 - Approve Record of Decision
April 1989 - Amend April 5, 1988 ROD
May 1989 - Begin Remedial Design
October 1989 - Complete Remedial Design and Mobilize

6.5 FUTURE ACTIONS

Following completion of remedial activities, long-term groundwater monitoring will be required to assure effectiveness of the groundwater cleanup and source control remediation. Maintenance of the caps on disposal areas DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the Acid Pit Area. Action levels for contaminants in the groundwater will be set with the State of North Carolina's concurrence. If these levels are reached during any sampling episode after the remedial activities achieve goal, this will trigger an immediate permanent remediation of the disposal area responsible for this level of contamination is reached downgradient of that disposal area. The action levels expected to be implemented are MCLs and PPLVs.

6.6 CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

Refer to the Chemtronics ROD dated April 5, 1988.

7.0 COMMUNITY RELATIONS

Refer to the Chemtronics ROD dated April 5, 1988 for summarization of previous community relations activities.

Explanation of Significant Difference Fact Sheets (Appendix D) were sent to all those on the Chemtronics mailing list including the four information repositories. A legal public notice (Appendix E) announcing the proposed amendment to the April 5, 1988 ROD was also published in the Asheville Timers/Citizen Newspaper. These were the two mechanisms employed to notified interested parties, residents, media, and local and state officials of the Agency's intention to amend the April 5, 1988 ROD. In these announcements, the Agency also made it known that the Agency would conduct public meeting in there was interest in the local community.

The Explanation of Significant Difference/Proposed Plan Fact Sheet described, in detail, the justification for amending the ROD. The legal notice briefly described the Agency's justification. Both announced that there was a three week public comment period associated with the proposed amendment to the ROD and encouraged the public to submit written comments to the Agency. The comment period ended March 21. Only one comment was received during this time frame. This comment and the Agency's response can be found in Appendix F.

The four information repositories are located at:

Buncombe County Emergency Services
P.O. Box 7601
Asheville, NC 28807
Contact: Mr. Jerry VeHaun

Chemtronics Site Information Bureau
70 Woodfin Place
Asheville, NC 28814

University of North Carolina at Asheville
One University Heights
Asheville, NC 28804-3299
Contact: Dr. Gary Miller

Warren Wilson College Library
Warren Wilson College
701 Warren Wilson College Road
Swannanoa, NC 28778
Contact: Ms. Laura Temple-Haney

The Administrative Record is located at Warren Wilson College's library.

8.0 STATE INVOLVEMENT

The North Carolina Department of Human Resources has been apprised and is in complete agreement with the Agency's proposal and since it is expected that the RD/RA will be undertaken by the PRPs, there has been no request made under CERCLA, Section 104(c) for the State to contribute ten percent of all costs for the remedial action.

APPENDICES

APPENDIX A

Source -- Table 8 from the Chemtronics Superfund Site
Record of Decision Signed April 5, 1988
Contaminants Found in the Groundwater
in the Vicinity of Disposal Area 23

Well	Type	Volatiles					Extractable	Explosives		Metals			CS/BZ Products		
		1,2-dichloroethane	Trichloroethylene	Methylene chloride	Chloroform	Benzene	Bis (2-ethylexyl) phthalate (2)	RDX	Picric acid	Chromium	Total organic halide	Total cyanide	Benzylic acid/benzophenone	Pesticides/PCBs	pH
Upgradient															
SW 6	Shallow	-	-	-	<0.01	-	0.012	0.046	-	◆	●	-	NA	●	6.12
BW 3	Bedrock	-	-	-	-	-	<0.01	-	-	-	●	-	NA	-	6.30
Downgradient															
SW 4	Shallow	2.1	-	-	0.11	-	<0.01	0.059	-	-	1.5	0.01	470	-	6.45
IW 1	Intermediate	-	-	-	-	-	-	-	-	0.54	<0.01	-	NA	-	6.01
BW 4	Bedrock	0.53	<0.01	-	0.03	-	0.054	-	-	◆	0.400	-	-	-	6.60
BW 5	Bedrock	0.15	-	-	-	-	<0.01	-	-	◆	1.0	-	-	-	8.04
BW 6	Bedrock	<0.01	<0.01	-	<0.01	-	<0.01	-	-	0.07	●	-	NA	-	6.53
BW 13	Bedrock	-	-	-	<0.01	<0.01	<0.040	-	-	-	-	-	-	-	7.45
H85L4	Existing	0.15	<0.01	-	<0.01	-	-	-	-	-	●	-	NA	●	6.42
H85L10	Existing	7.4	<0.2	<0.2	-	<0.2	-	-	0.023	-	●	-	1.2	●	6.76
H85L11	Existing	-	0.170	-	-	-	-	-	-	-	●	-	NA	-	6.41

- = not detected
● = qualified data
NA = not analyzed

(1) Number of wells in this Area: 11
(2) Phthalate concentrations are assumed to be the result of contact between groundwater and phthalate-containing materials during well installations or handling and analysis in the laboratory.
(3) Contaminant Levels Measured in mg/L (parts per million)

TABLE NO. 8 CONTAMINANTS FOUND IN THE GROUNDWATER IN THE VICINITY OF DISPOSAL AREA 23

APPENDIX B

Source -- Letter (with enclosures) from
Chemtronics, Inc. dated September 19, 1988

CHEMTRONICS, INC.

180 Old Bee Tree Road • Swannanoa, NC 28778 • (704) 298-7941

September 19, 1988

ERRB
RECEIVED
SEP 20 1988
EPA — REGION IV
ATLANTA, GA.

Mr. Jon K. Bornholm
Superfund Project Manager
U.S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

Reference: Chemtronics Superfund Site RI Report of April 1987

Dear Jon:

It has come to the attention of the PRP's at the Chemtronics Superfund Site that there exists a data error in the RI report that was accepted by EPA in April of 1987.

The data point of concern related to the water analysis on SW-4 in regards to the amount of Benzylic Acid and Benzephenone found in that sample. The certificate of analysis presented during the RI and used in generating data tables reported a quantity of 470 mg/liter or parts per million. In reality the actual result was 470 µg/liter or parts per billion.

According to IT Corporation, the analytical service used during the RI, the error was due to the failure to convert to µg/liter prior to transcription to the raw data worksheet. Attached for your information are two letters received from IT along with their file data on the analysis plus a corrected Certificate of Analysis.

We seek your guidance on the methodology for correction of the record to reflect actual results observed during the RI versus those reported in error.

Sincerely,

John F. Schultheis

John F. Schultheis
PRP Coordinator

JFS:wr

CC: Dr. Gary Serio - Northrop
Tony Young - Piper & Marbury
Charles Case - Moore & Van Allen

A Halliburton Company

IT INTERNATIONAL TECHNOLOGY CORPORATION

ERRB
RECEIVED
SEP 20 1988
EPA – REGION IV
ATLANTA, GA.

September 14, 1988

Mr. John Schultheis
Chemtronics, Inc.
180 Old Bee Tree Road
Swannanoa, NC 28778

Dear Mr. Schultheis,

As per a request from Jim Cloonan of Sirrine Environmental, the benzylic acid result for sample SW-4, originally reported to Metcalf & Eddy on July 18, 1986, was re-checked. It was discovered that the result was actually 470 µg/L (ppb) rather than the 470 mg/L (ppm) as originally reported. As such, a corrected Certificate of Analysis has been issued to Chemtronics (see enclosure).

Please feel free to contact me with any questions or problems.

Sincerely,

Robyn Wagner
Operations Manager

RW:sm

Enclosure

Regional Office
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: Chemtronics, Inc.
ATTN: John Schultheis
180 Old Bee Tree Road
Swannanoa, NC 28778

DATE REPORTED: September 14, 1988
PROJECT CODE: MEDW 22466-Corrected Certifi
ORDER NUMBER: S-5808
PAGE 14 OF 14

Sample Description: SW-4 (X8598) (Water)

CS, BZ, AND DEGRADATION PRODUCTS ANALYSIS

Compound	Concentration(1) (mg/liter)
CS	ND
o-Chlorobenzaldehyde	ND
BZ	ND
Benzylic Acid/Benzophenone(2)	0.47

Remarks: 0.010 = Quantitation Limit(3)
ND = Not detected

(1) The concentration is based on peak heights with a response factor of 1.00 relative to the nearest non-interfered internal standard.

(2) Benzilic Acid degrades to Benzophenone. Quantitation is based on both compounds.

(3) The quantitation limit is 10% of internal standard concentration in extract as analyzed. The limit given is with respect to the sample.

Date of Extraction: 6/9/86
Date of Analysis: 6/26/86

Approved by Operations Manager

Title

INTERNATIONAL
TECHNOLOGY
CORPORATION

ERRB
RECEIVED
SEP 20 1988
EPA – REGION IV
ATLANTA, GA

September 16, 1988

Mr. John Schultheis
Chemtronics, ~~Inc.~~
180 Old Bee Tree Road
Swannanoa, NC 28778

Dear Mr. Schultheis:

Enclosed please find the raw data for sample SW-4 (ITAS sample no. X8598). CS, BZ, and their breakdown products were searched for manually using known retention time windows from standard analyses. Confirmation was based on mass spectral match with standard and referenced (NBS and Battelle) spectra. Estimated concentrations were calculated using the internal standard method; calculations were based on peak height assuming a response factor of 1 using the nearest internal standard (IS):

$$\text{Concentration in extract } (\mu g/ml) = 40\ \mu g/ml \text{ IS} \times \frac{\text{peak height}}{\text{peak height IS}}$$

$$\text{Concentration in sample } (\mu g/L) = \mu g/ml \text{ in extract} \times \frac{1.0\ ml}{1.0\ L} \times \begin{matrix}\text{extract}\\ \text{dilution}\\ \text{factor}\end{matrix}$$

Using the values obtained for benzylic acid in sample SW-4,

$$40\ \mu g/ml \text{ IS} \times \frac{14\ mm \text{ (benzylic acid)}}{71\ mm \text{ (IS)}} = 7.89\ \mu g/ml \text{ benzylic acid}$$

$$7.89\ \mu g/ml \text{ benzylic acid} \times \frac{1.0\ ml}{1.0\ L} \times (2x30) = 473\ \mu g/L \text{ benzylic acid}$$

As benzylic acid, the hydrolysis product from BZ, further decomposed to benzophenone, it was this latter compound that was actually measured.

Please note that the error was due to failure to convert to mg/liter prior to transcription to the raw data worksheet; no problems in analytical approach were seen.

Sincerely,

R. M. Wagner

Robyn Wagner
Operations Manager

RW:sm

Enclosure

CS, BZ, and Degradation Products Analysis

Project Code: MEDW 22466

Lab Sample #: X8598RE

Sample Matrix: Water

Analyst/Inst: DDS/SAL / OWA4

****

Sample Description: SW-4 (G)

Compound	Conc. (mg/L) (1)
CS	ND
o-Chlorobenzaldehyde	↓
Malononitrile	↓
BZ	↓
3-Quinuclidinol	↓
Benzylic Acid / Benzophenone (2)	470

Remarks: .010 = Quantitation Limit (3)
ND = Not detected

(1) The concentration is based on peak heights with a response factor of 1.00 relative to the nearest non-interfered internal standard.

(2) Benzilic Acid degrades to Benzophenone. Quantitation is based on both compounds.

(3) The quantitation limit is 10% of Internal Standard concentration in extract as analyzed. The limit given is with respect to the sample.

****

Reported by: Date: 6-30-86

Approved by: W. T. Wilson Date: 7-2-86

LIBRARY SEARCH REPORT
EXTRACTABLE ORGANIC ANALYSIS

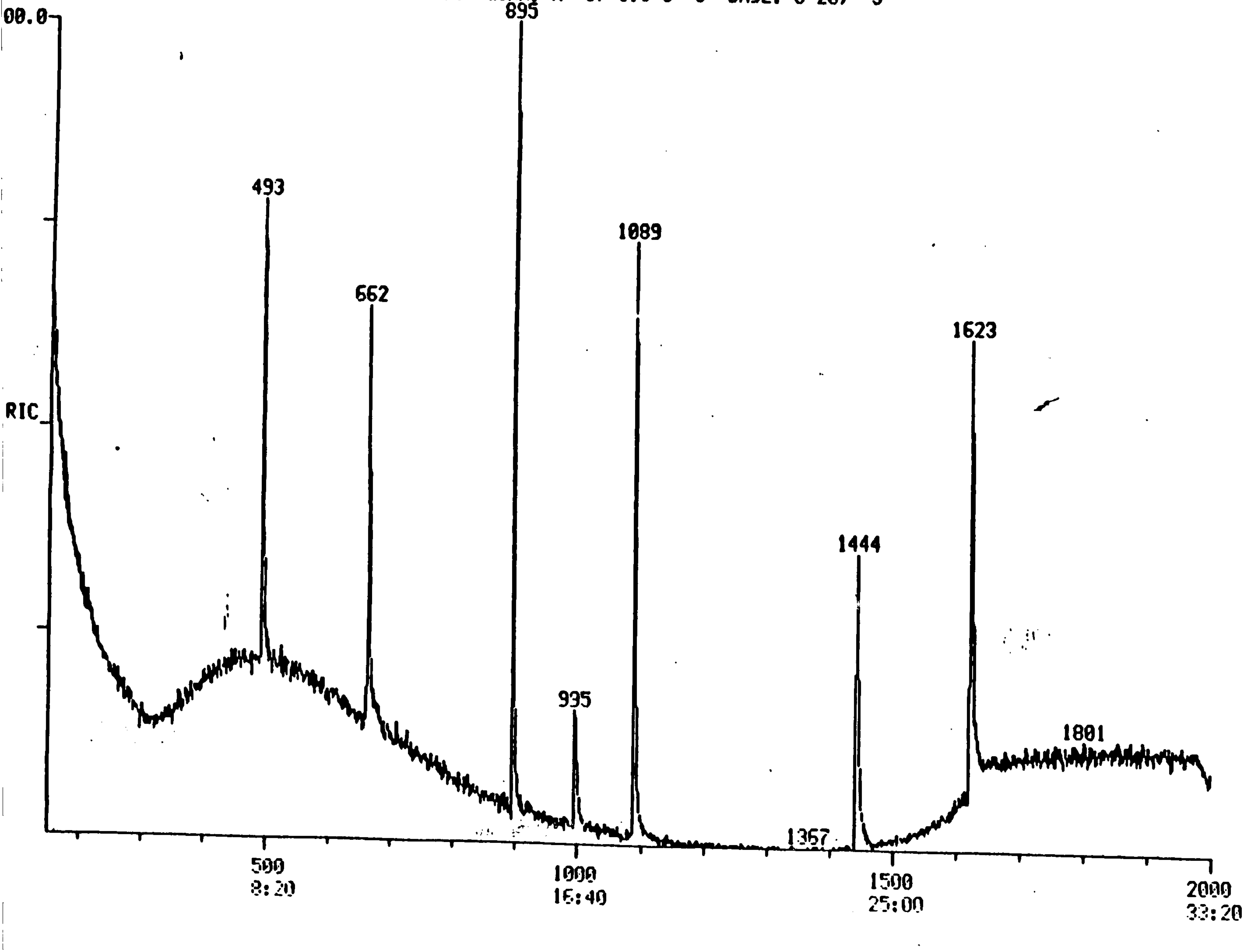
DATA FILE: X8598R2
CALIBRATION FILE: CAL05062
SEARCH OF LIBRARYCE

				AMT	FLA	
SCAN	COMPOUND	DELTA	PUR-FIT	<UG/ML>	SAT	
493	*IS* 1,4-DICHLOROBENZENE-D4	0	904-960	40	0	-1
662	*IS* NAPHTHALENE-D8	0	878-949	40	0	0
895	*IS* ACENAPHTHENE-D10	0	876-973	40	0	0
1089	*IS* PHENANTHRENE-D10	0	899-947	40	0	0
1443	*IS* CHRYSENE-D12	0	863-873	40	0	-2
1623	*IS* PERYLENE-D12	-1	874-893	40	0	-2
981	Benzilic acid			470 ug/L		

$$X * \text{UG/ML} * \frac{1.0\ \text{ML}}{1.0\ \text{L}\ \cancel{\text{K}}\ \cancel{\text{G}}} * \frac{2 \times 30}{}\ \text{(DILUTION) (FACTOR)} = 60.0 * X\ \text{UG/ L}\ \cancel{\text{K}}\ \cancel{\text{G}}$$

FLAGS: SAT - NUMBER OF MASS PEAKS SATURATED
LIB - NUMBER OF PEAKS OUT OF CLP SPECS IN ENHANCED SPECTRUM

RIC
06/27/86 21:24:00 DATA: X8598R2 #1 SCANS 150 TO 2000
CALI: CAL05062 #5
SAMPLE: X 8598 (MEDN 22466) BN/AE: 0.3ML EA + 6.0UL IS, 1.5UL
CONDS.: OWA4: DIR INJ ON 30 M DB-5: 45-325 DEG C AT 12 D/M
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



```
QUANTITATION REPORT    FILE  X8598R2

DATA: X8598R2.TI
06/27/86 21:24:00
SAMPLE: X 8598 (MEDW 22466) BN/AE: 0.3ML EA + 6.0UL IS, 1.5UL
CONDS.: OWA4: DIR INJ ON 30 M DB-5: 45-325 DEG C AT 12 D/M
ORMULA: WATER                INSTRUMENT: OWA4             WEIGHT:     0.000
 JBMITTED BY: MEDW           ANALYST: DDS/SAL             ACCT.NO.  22466
AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT.); DET.LIM. =     0.00
RESP. FAC. FROM  LIBRARY ENTRY

 NO  NAME
  1  *IS* 1,4-DICHLOROBENZENE-D4
  2  *IS* NAPHTHALENE-D8
  3  *IS* ACENAPHTHENE-D10
  4  *IS* PHENANTHRENE-D10
  5  *IS* CHRYSENE-D12
  6  *IS* PERYLENE-D12
  7  *SS* 2-FLUOROPHENOL
  8  *SS* PHENOL-D5
  9  *SS* NITROBENZENE-D5
 10  *SS* 2-FLUOROBIPHENYL
 11  *SS* TRIBROMOPHENOL
 12  *SS* TERPHENYL-D14
 13  N-NITROSODIMETHYLAMINE
 14  PHENOL
 15  BIS(2-CHLOROETHYL)ETHER
 16  2-CHLOROPHENOL
 17  1,3-DICHLOROBENZENE
 18  1,4-DICHLOROBENZENE
 19  BENZYL ALCOHOL
 20  1,2-DICHLOROBENZENE
  1  2-METHYLPHENOL
 22  BIS(2-CHLOROISOPROPYL)ETHER
 23  4-METHYLPHENOL
 24  N-NITROSO-DI-N-PROPYLAMINE
 25  HEXACHLOROETHANE
 26  NITROBENZENE
 27  ISOPHORONE
 28  2-NITROPHENOL
 29  2,4-DIMETHYLPHENOL
 30  BENZOIC ACID
 31  BIS(2-CHLOROETHOXY)METHANE
 32  2,4-DICHLOROPHENOL
 33  1,2,4-TRICHLOROBENZENE
 34  NAPHTHALENE
 35  4-CHLOROANILINE
 36  HEXACHLOROBUTADIENE
 37  4-CHLORO-3-METHYLPHENOL
 38  2-METHYLNAPHTHALENE
 39  HEXACHLOROCYCLOPENTADIENE
 40  2,4,6-TRICHLOROPHENOL
 41  2,4,5-TRICHLOROPHENOL
 42  2-CHLORONAPHTHALENE
 43  2-NITROANALINE
 44  DIMETHYL PHTHALATE
 45  ACENAPTHYLENE
     3-NITROANILINE
```

```
NO   NAME
47   ACENAPHTHENE
48   2, 4-DINITROPHENOL
49   4-NITROPHENOL
50   DIBENZOFURAN
51   2, 6-DINITROTOLUENE
52   2, 4-DINITROTOLUENE
53   DIETHYLPHTHALATE
54   4-CHLOROPHENYL PHENYLETHER
55   FLUORENE
56   4-NITROANILINE
57   4, 6-DINITRO-2-METHYLPHENOL
58   N-NITROSODIPHENYLAMINE
59   1, 2-DIPHENYLHYDRAZINE
60   4-BROMOPHENYL-PHENYLETHER
61   HEXACHLOROBENZENE
62   PENTACHLOROPHENOL
63   PHENANTHRENE
64   ANTHRACENE
65   DI-N-BUTYLPHTHALATE
66   FLUORANTHENE
67   BENZIDINE
68   PYRENE
69   BUTYLBENZYLPHTHALATE
70   3, 3'-DICHLOROBENZIDINE
71   BENZO(A)ANTHRACENE
72   BIS(2-ETHYLHEXYL)PHTHALATE
73   CHRYSENE
74   DI-N-OCTYLPHTHALATE
75   BENZO(B)FLUORANTHENE
76   BENZO(K)FLUORANTHENE
77   BENZO(A)PYRENE
78   INDENO(1, 2, 3-C, D)PYRENE
79   DIBENZO(A, H)ANTHRACENE
80   BENZO(G, H, I)PERYLENE
81   MALONONITRILE
82   O-CHLOROBENZALDEHYDE
83   BENZILIC ACID
84   O-CHLOROBENZYLIDENEMALONONITRILE(CS)

NO   M/E   SCAN    TIME   REF    RRT    METH      AREA(HGHT)    AMOUNT           %TOT
 1   152    493    8:13    1    1.000   A BB           663.     40.000 UG/ML  16.67
 2   136    662   11:02    2    1.000   A BV          2159.     40.000 UG/ML  16.67
 3   164    895   14:55    3    1.000   A BB          1959.     40.000 UG/ML  16.67
 4   188   1089   18:09    4    1.000   A BB          3743.     40.000 UG/ML  16.67
 5   240   1443   24:03    5    1.000   A BB          2337.     40.000 UG/ML  16.67
 6   264   1623   27:03    6    1.000   A BB          2909.     40.000 UG/ML  16.67
 7   112                   1
 8    99                   1
 9    82                   2
10   172                   3
11   330                   4
12   244                   5
13    74                   1
14    94                   1
15    93                   1
16   128                   1
```

```
NO   M/E   SCAN      TIME     REF      RRT    METH         AREA(HGHT)     .MOUNT              %TOT
17   146                       1
18   146                       1
19    79                       1
20   146                       1
21   108                       1
22   121                       1
23   108                       1
24   130                       1
25   117                       1
26    77                       2
27    82                       2
28   139                       2
29   122                       2
30   105                       2
31    93                       2
32   162                       2
33   180                       2
34   128                       2
35   127                       2
36   225                       2
37   107                       2
38   141                       2
39   237                       3
40   196                       3
41   196                       3
42   162                       3
43   138                       3
44   163                       3
45   152                       3
46   138                       3
[illegible]7   154                       3
48   184                       3
49    65                       3
50   168                       3
51   165                       3
52   165                       3
53   149                       3
54   204                       3
55   166                       3
56   138                       3
57   198                       3
58   169                       4
59    77                       3
60   248                       4
61   284                       4
62   266                       4
63   178                       4
64   178                       4
65   149                       4
66   202                       4
67   184                       5
68   202                       5
69   149                       5
70   252                       5
 1   228                       5
     149                       5
```

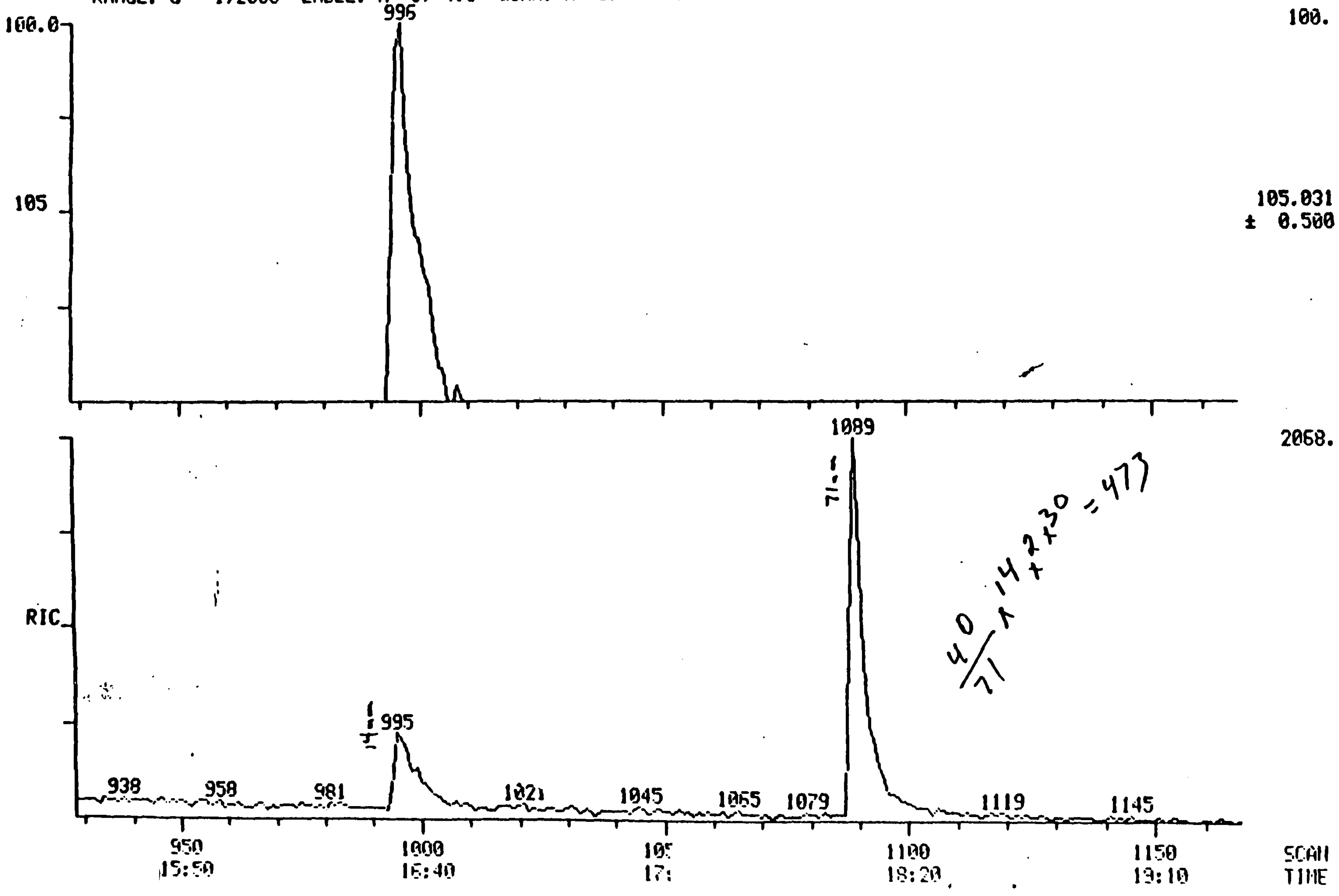
```
NO   M/E   SCAN     TIME    REF     RRT    METH       AREA(HGHT)     MOUNT          %TOT
73   228                     5
74   149                     6
75   252                     6
76   252                     6
77   252                     6
78   276                     6
79   278                     6
80   276                     6
81    66                     1
82   139                     2
83   105                     4
84   153                     3

NO   RET(L)  RATIO  RRT(L)  RATIO      AMNT      AMNT(L)     R.FAC  R.FAC(L)  RATIO
 1    8:41   0.95   1.000   1.00      40.00       40.00     1.000    1.000    1.00
 2   11:29   0.96   1.000   1.00      40.00       40.00     1.000    1.000    1.00
 3   15:21   0.97   1.000   1.00      40.00       40.00     1.000    1.000    1.00
 4   18:36   0.98   1.000   1.00      40.00       40.00     1.000    1.000    1.00
 5   24:29   0.98   1.000   1.00      40.00       40.00     1.000    1.000    1.00
 6   27:29   0.98   1.000   1.00      40.00       40.00     1.000    1.000    1.00
 7    5:59          0.692                        100.00              0.751
 8    8:08          0.940                        100.00              1.098
 9    9:56          0.868                        100.00              0.232
10   13:55          0.907                        100.00              0.749
11   17:06          0.921                        100.00              0.182
12   22:11          0.906                        100.00              0.703
13    2:37          0.303                         50.00              0.721
14    8:10          0.944                         50.00              1.444
15    8:13          0.950                         50.00              1.362
16    8:18          0.960                         50.00              1.342
17    8:34          0.990                         50.00              1.632
 8    8:41          1.004                         50.00              1.845
19    9:27          1.092                         50.00              0.982
20    9:06          1.052                         50.00              1.616
21    9:27          1.092                         50.00              1.242
22    9:26          1.091                         50.00              0.353
23    9:47          1.131                         50.00              1.184
24    9:44          1.125                         50.00              0.150
25    9:46          1.129                         50.00              0.878
26    9:58          0.870                         50.00              0.509
27   10:32          0.920                         50.00              0.841
28   10:42          0.934                         50.00              0.188
29   10:54          0.952                         50.00              0.287
30   11:20          0.990                         50.00              0.202
31   11:04          0.967                         50.00              0.420
32   11:17          0.985                         50.00              0.326
33   11:23          0.994                         50.00              0.499
34   11:30          1.004                         50.00              1.078
35   11:45          1.026                         50.00              0.121
36   11:58          1.045                         50.00              0.365
37   12:54          1.127                         50.00              0.357
38   13:02          1.138                         50.00              0.676
39   13:34          0.884                         50.00              0.403
40   13:46          0.897                         50.00              0.458
41   13:54          0.906                         50.00              0.526
 2   14:05          0.917                         50.00              1.220
```

				FAC(L) RATIO
43	14:28	0.942	50.00	0.246
44	14:56	0.973	50.00	1.524
45	15:00	0.977	50.00	1.614
46	15:31	1.011	50.00	0.010
47	15:25	1.004	50.00	1.182
48	15:37	1.017	50.00	0.094
49	16:03	1.046	50.00	0.056
50	15:47	1.028	50.00	1.685
51	15:02	0.979	50.00	0.279
52	15:55	1.037	50.00	0.423
53	16:30	1.075	50.00	1.670
54	16:35	1.080	50.00	0.789
55	16:32	1.077	50.00	1.400
56	16:32	1.077	50.00	0.017
57	16:48	1.094	50.00	0.267
58	16:51	0.908	50.00	0.357
59	16:55	1.102	50.00	2.071
60	17:38	0.950	50.00	0.260
61	17:55	0.965	50.00	0.365
62	18:21	0.988	50.00	0.169
63	18:37	1.003	50.00	1.167
64	18:44	1.009	50.00	1.164
65	20:06	[illegible].083	50.00	1.343
66	21:16	1.145	50.00	1.482
67	21:48	0.890	80.00	0.028
68	21:45	0.888	50.00	2.055
69	23:24	0.956	50.00	0.719
70	24:31	1.001	50.00	0.159
71	24:27	0.999	50.00	1.617
72	24:47	1.012	50.00	1.141
73	24:32	1.002	50.00	1.752
74	26:07	0.950	50.00	1.597
75	26:45	0.973	50.00	1.823
76	26:48	0.975	50.00	2.017
77	27:23	0.996	50.00	1.328
78	29:57	1.089	50.00	1.422
79	29:59	1.090	50.00	1.069
80	30:37	1.113	50.00	1.081
81	5:26	0.649	100.00	2.451
82	11:01	0.951	100.00	1.000
83	17:27	0.936	50.00	1.000
84	16:09	1.066	100.00	1.000

```
                              IT ANALYTICAL SERVICES
                                  QA/QC REPORT
FILE: X8598R2

INTERNAL STANDARD AREA CHECK
============================

6 OUT OF 6 ARE WITHIN  50% TO 200% OF DAILY STANDARD AREAS.

** INTERNAL STANDARD AREAS ARE WITHIN QC LIMITS **


    *IS* 1,4-DICHLOROBENZENE-D4                  60 %
    *IS* NAPHTHALENE-D8                          51 %
    *IS* ACENAPHTHENE-D10                        68 %
    *IS* PHENANTHRENE-D10                        63 %
    *IS* CHRYSENE-D12                            54 %
    *IS* PERYLENE-D12                            66 %

INTERNAL STANDARD RETENTION TIME CHECK
======================================

6 OUT OF 6 ARE WITHIN +/- 30 SECONDS OF DAILY STANDARD RETENTION TIME

** INTERNAL STANDARD RETENTION TIMES ARE WITHIN QC LIMITS **
```

```
  6/27/86    21:26:29            SCAN 121 OF 2000
      ACQUISITION STARTED

 ACQUIRE                          RUN 0: X8598R2                ACQUIRING
 06/27/86 21:24:00 +  2:04 -     FREE SECTORS: 16356           SCAN: 124 OF 2000
 SAMPLE: X 8598 (MEDW 22466) BN/AE: 0.3ML EA + 6.0UL IS, 1.5UL
 CONDS.: OWA4: DIR INJ ON 30 M DB-5: 45-325 DEG C AT 12 D/M
 FORMULA: WATER                   INSTRUMENT: OWA4              WEIGHT:     0.000
 SUBMITTED BY: MEDW               ANALYST: DDS/SAL              ACCT. NO.:  22466

 LOW MASS:     35                  UP:   0.97 L*                  TOP:   0.00
 HIGH MASS:   500                 DOWN:  0.00 L                 BOTTOM:  0.03

 CENT S/P: 10  ACTUAL:   10       SAMP INT (MS): 0.200          PEAK WIDTH: 1000.
 FRAG S/P: 10  ACTUAL:   10       SAMP INT (MS): 0.200          INTEN/ION:   2

 MIN PEAK WIDTH:   2              MIN FRAG WIDTH %:   80        MIN AREA:    2
 A/D THRESHOLD:    2              BASELINE:    0

 MODE:  CENTROID POSITIVE ION
                                               M.S. TUNE PARAMETERS:
     INTERFACE NUMBER                  0       MULTIPLIER VOLTS:   -2000.00
     SUB-INTERFACE NUMBER              0       LOW RESOLUTION:        126.00
     # OF ACQU BUFFERS                16       HIGH RESOLUTION:       127.00
     INSTRUMENT TYPE                   Q       ION ENERGY:              3.53
     FULL SCALE MASS                 800  AMU  ION PROGRAM:             8.63
     ZERO SCALE MASS                   1  AMU  LENS VOLTAGE:          -75.29
     INTENSITY/ION                     2       EXTRACTOR:               2.00
     PEAK WIDTH                    1000.  MMU  ELECTROMETER RANGE:      7.00
     OFFSET AT LOW MASS                0  MMU  ELECTROMETER ZERO:      -1.11
     OFFSET AT HIGH MASS               0  MMU
     VOLTAGE SETTLING TIME(MS)         4

  6/27/86    21:57:52
     ACQUISITION COMPLETED
     SCANS    1 TO 2000 CENTROID

 MODE       SCANS     SECS   OUT OF       %      PEAKS PER SCAN   PER SEC
 CENTROID    2000      1.5   2000.0      0.1     13828.       7.        7.
```

RIC + MASS CHROMATOGPAM DATA: X8598R2 #1047 SCANS 928 TO 1167
06/27/86 21:24:00 CALI: CAL05062 #5
SAMPLE: X 8598 (MEDW 22466) BN/AE: 0.3ML EA + 6.0UL IS, 1.5UL
CONDS.: OWA4: DIR INJ ON 30 M DB-5: 45-325 DEG C AT 12 D/M
BENZILIC ACID
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

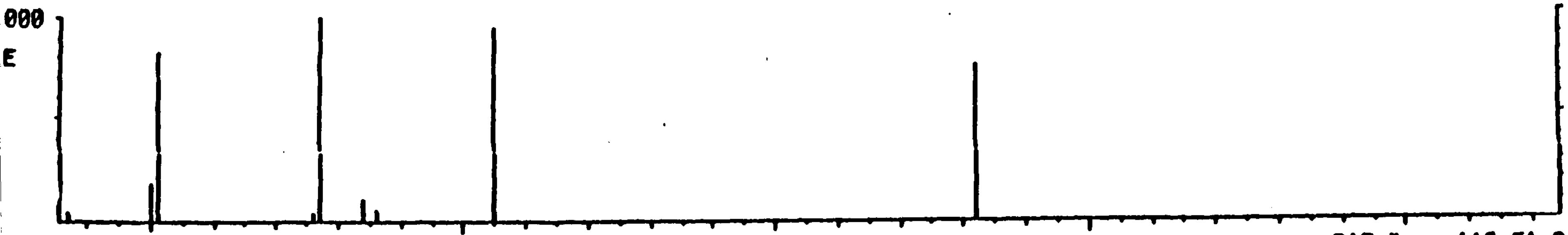


$\frac{40}{71} \times 14.2 \times 30 = 477$

LIBRARY SEARCH
06/27/86 21:24:00 + 16:35
SAMPLE: X 0598 (MEDW 22466) BN/AE: 0.3ML EA + 6.0UL IS, 1.5UL
CONDS.: OWA4: DIR INJ ON 30 M DB-5: 45-325 DEG C AT 12 D/M
ENHANCED (S 15B 1N 0T)

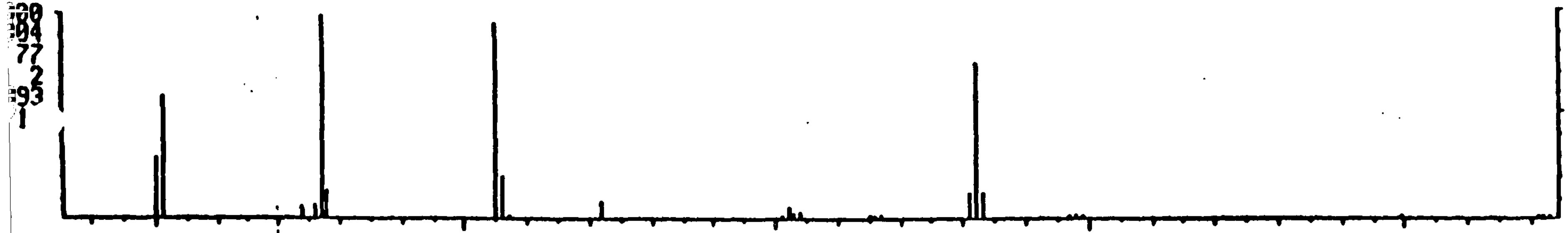
DATA: X0598R2 # 995
CALI: CAL05062 # 5

BASE M/E: 77
RIC: 284.

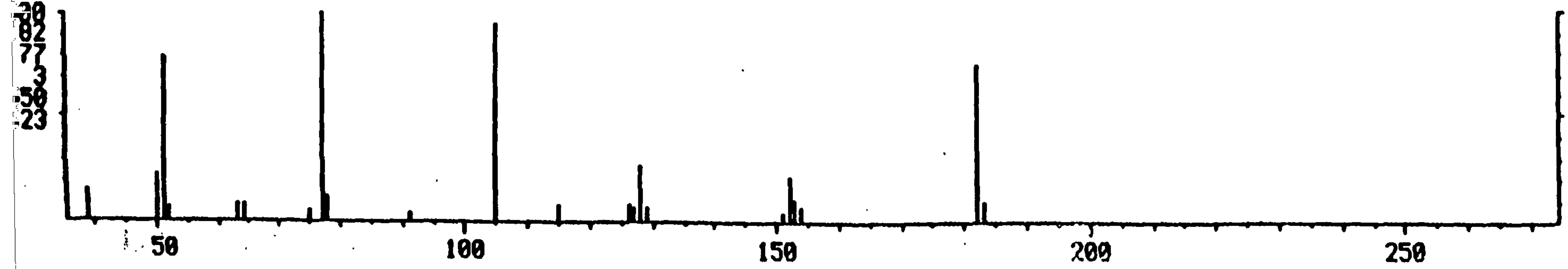


10.0 METHANONE,DIPHENYL- CAS # 119-61-9

6.03 1,2,4-TRIOXOLANE,3,3,5-TRIPHENYL- CAS # 23246-12-0



0.N2 DIAZENE,DIPHENYL- CAS # 103-33-3



APPENDIX C

October 7, 1988 Memorandum from Wade Knight, Chief of Quality Assurance and Laboratory Evaluation Section, Environmental Services Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ENVIRONMENTAL SERVICES DIVISION
ATHENS, GEORGIA 30613

ERRB
RECEIVED
OCT 12 1988
EPA — REGION IV
ATLANTA, GA.

MEMORANDUM

DATE: October 7, 1988

SUBJECT: Data Error - Chemtronics RI Report

FROM: Wade Knight, Chief
Laboratory Evaluation & Quality Assurance Section

TO: Jon K. Bornholm
Project Manager
Superfund Branch
Waste Management Division

We have reviewed the information supplied by Chemtronics concerning a reporting error for Sample SW-4 analyzed June 6, 1986. According to Chemtronics, the value for benzylic acid was reported as 470 mg/L when it should have been reported as 470 ug/L. From our review of the raw data, we agree that the value should have been reported as 470 ug/L.

APPENDIX D

Explanation of Significant Difference
in A Component of the Remedy to be
Implemented at the Chemtronics Superfund Site
Fact Sheet Dated February 10, 1989

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

Explanation of Significant Difference in A Component of the Remedy to be Implemented at the Chemtronics Superfund Site

February 10, 1989

The mandate to address post-ROD changes is provided by CERCLA §117(c), which states:

> "After adoption of a final remedial action plan -- (1) if any remedial action is taken (under sections 104 or 120), (2) if any enforcement action under section 106 is taken, or (3) if any settlement or consent decree under section 106 or section 122 is entered into, and if such action, settlement or decree differs in any significant respects from the final plan, the lead agency shall publish an explanation of the significant differences and the reasons such changes were made."

INTRODUCTION

Based on a correction of analytical data with regard to the chemical quality of the groundwater downgradient of Disposal Area 23 (DA-23) at the Chemtronics Superfund Site, the U.S. Environmental Protection Agency is proposing to change the source control remedy selected for DA-23 in the Record of Decision (ROD). This document is an explanation of the difference between the source control remedy as originally specified in the ROD and the remedy EPA now proposes to be implemented. The rationale and data supporting the proposed change is specified below.

BACKGROUND

Site Description

The Chemtronics Site encompasses approximately 1,027 acres and is located at 180 Old Bee Tree Road in a rural area of Swannanoa, Buncombe County, approximately 8 miles east of Asheville, North Carolina. The approximate center of the site lies at latitude 35° 38' 18" north and longitude 82° 26' 8" west. The Site is bounded on the east by Bee Tree Road and Bee Tree Creek. The area to the north and west of the Site is comprised of sparsely inhabited woodlands. Immediately to the south of the Site, there are several industrial facilities which lie on land that was once part of the original (Oerlikon) property.

Site History

The property comprising the Chemtronics Site was first developed as an industrial facility in 1952. The Site has been owned/operated by Oerlikon Tool and Arms Corporation of America (1952-1959), Celanese Corporation of America (Hoechst-Celanese Corporation) (1959-1965), Northrop Carolina, Inc. (Northrop Corporation) (1965-1971), Chemtronics, Inc., as apart of Airtronics, Inc., (1971-1978), and Chemtronics, Inc. (1978 - present). The Site operated under the name of Amcel Propulsion, Inc. (1959-1965) under both Oerlikon and Celanese. The Site is currently occupied by an active facility owned and operated by Chemtronics Incorporated, a subsidiary of the Halliburton Company.

Waste disposal occurred over a small portion (approximately than ten acres) of the Site. Twenty-three individual on-site disposal areas were identified and described by reviewing existing records and through interviews with former and current Site employees. These 23 individual disposal areas are grouped into 6 discrete disposal areas: DA-6, DA-7/8, DA-9, DA-10/11, DA-23, and the Acid Pit Area. The Site can also be divided into two geographical subsections; they will be referred to as the Front Valley and Gregg Valley.

Disposal Area 23 is located in the Front Valley. DA-23 consists of a lined 40,000 gallon neutralization basin and a lined 500,000 gallon biolagoon built on top of an abandoned tile leach field. The tile field was built in association with Building 113, the main production building. The tile field was abandoned in the 1960's. The neutralization basin and the biolagoon were partially built on top of the abandoned leach field. Soils contaminated due to the tile field were probably used in the construction of the berms to support the basin and biolagoon.

When the biolagoon was originally constructed in 1979, the initial synthetic liner failed when the owner/operator introduced the contents of a 55 gallon drum of BCL 462 (a brominated compound) into the biolagoon to acclimate the bacteria present in the lagoon. The brominated compound disintegrated the liner, releasing the contents of the 55 gallon drum and approximately 300,000 gallons of water. A second liner was installed in 1980 and was used until 1984 when the owner/operator decommissioned the biolagoon. Appendix A provides a list of the wastes and the approximate quantity treated through the biolagoon. An accurate inventory of wastes disposed of through the leach field is not possible as no records of disposal were maintained.

RECORD OF DECISION

In April 1988, EPA prepared the ROD based on the findings of the Remedial Investigation (April 1987), supplemental groundwater data collected in October 1987, the Feasibility Study (March 1988), and the public comments received during the five week comment period following the Feasibility Study public meeting held February 23, 1988. The ROD (available at the four information repositories) specified the following remedial action for DA-23 and groundwater contamination found in the Front Valley:

> Installation of a groundwater interception and extraction system downgradient of the disposal areas in both the Front Valley and Gregg Valley. The level and degree of treatment of the extracted groundwater will depend on 1) the ultimate discharge point of this water and 2) the level of contaminants in the extracted groundwater. The three water discharge alternatives for the treated water are 1) the local sewer system, 2) a surface stream and 3) on-site irrigation. The range of treatment for the extracted groundwater includes air stripping, filtration through activated carbon filter and metal removal. The point of discharge and the degree of treatment will be determined in the Remedial Design stage. The water discharged will meet all ARAR's.
>
> Review the existing groundwater monitoring system and install additional wells, if necessary, to insure proper monitoring of groundwater downgradient of each disposal area.
>
> In addition to the monitoring of the groundwater downgradient of each disposal area identified above, action levels for the contaminants present in the disposal areas will be set so that after remediation levels for groundwater have been obtained and verified through monitoring, if this level is reached in any subsequent sampling episode, a remedial action to permanently eliminate that source of contamination will be initiated.
>
> For the contaminants and contaminated soils associated with DA-23, determine the most appropriate soil fixation/stabilization/solidification process and the mixing ratios for the components involved. Following the soil fixation/stabilization/solidification for DA-23, the entire surface of the disposal area will be capped.

CHANGE IN THE RECORD OF DECISION

The original source control remediation action selected for DA-23 is stated above. The fixation/stabilization/solidification alternative was selected due to the concentration level of the non-volatile organic contaminant benzylic acid and benzophenone found in the groundwater downgradient of DA-23. The Remedial Investigation Report, dated April 1987, stated that the concentration for benzylic acid/benzophenone in the groundwater downgradient of DA-23 in monitor well (MW) SW-4 as 470 milligram/liter (mg/l). This concentration is equivalent to 470 parts per million (ppm). MW SW-4 is a shallow monitor well and 470 mg/l is a relatively high concentration for a contaminant in groundwater.

In October 1987, approximately one year after the original sampling episode, nine (9) monitor wells were resampled. MW SW-4 was one of these wells. The analytical results for benzylic acid/benzophenone for SW-4 was 1.2 mg/l, which is considerably less than the 470 mg/l level recorded in the initial sampling episode. The concentration level of 1.2 mg/l is more in line with the levels found in other wells downgradient of DA-23 as can be seen in Appendix B.

It was the Agency's rationale, based on the level of 470 mg/l, that the concentration of benzylic acid/benzophenone in the soils of DA-23, the source of this contaminant, must also be relatively high, therefore requiring a more rigorous source control remedial action. This thought process led the Agency to select a soil fixation/stabilization/solidification process as the source control remediation for DA-23.

The fixation/stabilization/solidification alternative was selected over soil venting or capping due to the fact that the contaminant of concern, benzylic acid/benzophenone, is not readily volatilized. Although soil venting would help remove the volatile organics from the soil, it would not remove the non-volatile organics. Usually, it is the non-volatile organics that determine the length of time necessary to pump and treat the groundwater as non-volatile organics do not readily move with groundwater through the soil as do volatile organics. Soil venting would help reduce the levels of volatile organics, but it does not address the non-volatile fraction of contaminants and therefore, soil venting was not selected as the new source control remedial action for DA-23.

Due to the lower level of benzylic acid/benzophenone than first identified as being present in the groundwater downgradient of DA-23, and the fact that soil venting alternative would not accelerate the time needed to remediate DA-23, the Agency now proposes that DA-23 be capped with a multi-layer cap, which includes a synthetic liner. The multi-layer cap will meet as a minimum the specified under 40 CFR Subsection 264, Subparts K-N. A gas collection system will also be incorporated into the cap if deemed necessary.

DOCUMENTATION OF A TRANSCRIPTION ERROR

In a letter dated September 19, 1988 (Appendix C), the potentially responsible parties (PRPs) informed the Agency of a possible transcription error made by the laboratory contracted by the PRPs to perform their analytical analyses. Instead of reporting the detected concentration as 470 micrograms/liter (ug/l) or 470 parts per billion (ppb) as they should had done, the laboratory reported the concentration as 470 mg/l or 470 ppm. Misplacing the decimal point by three (3) places resulted in a change of concentration by a magnitude of three (3).

This information and the documentation to support this reported transcription error was transmitted to EPA, Region IV Chief of the Quality Assurance and Laboratory Evaluation Section (QALES) of the Environmental Service Division. After reviewing the documentation, QALES concurs that a transcription error had occurred (Appendix D).

CONFIRMATION OF GROUNDWATER QUALITY

Prior to making a final decision on whether to change the selected source control remedy for DA-23, the Agency resampled MW SW-4 the first week of January 1989. The analytical results for the January 1989 sample are 48 ug/l for benzylic acid and 3400 ug/l for benzophenone. These results confirm the lower concentration range of 0.0 to 470 ug/l and not concentrations in the parts per million. Therefore, the Agency proposes to change the source control remedial alternative for DA-23 from soil fixation/stabilization/solidification to capping. The cleanup goal, as specified in Table 13 of the ROD, for benzylic acid and benzophenone has not changed and remains at 21 ug/l and 152 ug/l, respectively (Appendix E).

Capping will be as protective of human health and the environment as the soil fixation/stabilization/solidification process. This is based of the findings that the exposure pathways for the contaminants found at DA-23 are consumption of contaminated groundwater and discharge of contaminated groundwater to surface streams. These findings are documented in the Public Health and Environmental Assessment section of the Remedial Investigation report and the Endangerment Assessment incorporated into the Feasibility Study document. Both of these pathways are mitigated by the groundwater extraction/treatment system required for the Front Valley under the Migration Control section of the ROD. Therefore, in terms of protecting the public health and the environment, caping DA-23 and pumping and treating the groundwater in the Front Valley of the Chemtronics site achieves the same degree of protection as the soil fixation/stabilization/solidification process. As documented in the Feasibility Study, capping is the more cost effective remedial action. The North Carolina Department of Human Resources has been apprised and is in complete agreement with the Agency's proposal.

In addition to meeting the requirement of Superfund, being cost effective and protecting public health and the environment, capping DA-23 will also satisfy the post closure requirements impose upon the owner/operator of the facility by the Resource, Conservation & Recovery Act (RCRA) programs of the Agency and North Carolina Department of Human Resources. The RCRA programs are involved with DA-23 because the biolagoon was operated post-1980.

Under RCRA, when a business or individual stops operating a solid waste management unit (SMU), the SMU needs to be closed out according RCRA regulations. Capping DA-23 and pumping and treating the groundwater will meet RCRA's requirements.

COMMENTS FROM THE PUBLIC

The public is encouraged to submit written comments on the above change. The public comment period will end three (3) weeks after the date on the title page of this document. Comments will be summarized and responses provided in the Responsiveness Summary that will be placed in the Information Repositories/Administrative Record. The Agency is also willing to meet with local residents to address their concerns. Written comments or requests for further information should be sent to:

Jon Bornholm
US EPA
345 Courtland Street, NE
Atlanta, GA 30365
404/347-7791

APPENDIX E

Legal Notice Published in the
Asheville Times/Citizen Newspaper
March 1989

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

LEGAL NOTICE

Amendment to the Record of Decision for the Chemtronics Superfund Site

March 8, 1989

The mandate to address post-ROD changes is provided by CERCLA §117(c), which states:

> "After adoption of a final remedial action plan -- (1) if any remedial action is taken (under sections 104 or 120), (2) if any enforcement action under section 106 is taken, or (3) if any settlement or consent decree under section 106 or section 122 is entered into, and if such action, settlement or decree differs in any significant respects from the final plan, the lead agency shall publish an explanation of the significant differences and the reasons such changes were made."

RECORD OF DECISION

In April 1988, EPA prepared the ROD based on the findings of the Remedial Investigation (April 1987), supplemental groundwater data collected in October 1987, the Feasibility Study (March 1988), and the public comments received during the five week comment period following the Feasibility Study public meeting held February 23, 1988. The ROD (available at the four information repositories) specified the following remedial action for DA-23 and groundwater contamination found in the Front Valley:

Installation of a groundwater interception and extraction system downgradient of the disposal areas in both the Front Valley and Gregg Valley. The level and degree of treatment of the extracted groundwater will depend on 1) the ultimate discharge point of this water and 2) the level of contaminants in the extracted groundwater. The three water discharge alternatives for the treated water are 1) the local sewer system, 2) a surface stream and 3) on-site irrigation. The range of treatment for the extracted groundwater includes air stripping, filtration through activated carbon filter and metal removal. The point of discharge and the degree of treatment will be determined in the Remedial Design stage. The water discharged will meet all ARAR's.

Review the existing groundwater monitoring system and install additional wells, if necessary, to insure proper monitoring of groundwater downgradient of each disposal area.

In addition to the monitoring of the groundwater downgradient of each disposal area identified above, action levels for the contaminants present in the disposal areas will be set so that after remediation levels for groundwater have been obtained and verified through monitoring, if this level is reached in any subsequent sampling episode, a remedial action to permanently eliminate that source of contamination will be initiated.

For the contaminants and contaminated soils associated with DA-23, determine the most appropriate soil fixation/stabilization/solidification process and the mixing ratios for the components involved. Following the soil fixation/stabilization/solidification for DA-23, the entire surface of the disposal area will be capped.

INTRODUCTION

Based on a correction of analytical data with regard to the chemical quality of the groundwater downgradient of Disposal Area 23 (DA-23) at the Chemtronics Superfund Site, the U.S. Environmental Protection Agency is proposing to change the source control remedy selected for DA-23 in the Record of Decision (ROD). This document is an explanation of the difference between the source control remedy as originally specified in the ROD and the remedy EPA now proposes to be implemented. The rationale and data supporting the proposed change is specified below.

CHANGE IN THE RECORD OF DECISION

The original source control remediation action selected for DA-23 is stated above. The fixation/stabilization/solidification alternative was selected due to the concentration level of the non-volatile organic contaminant benzylic acid and benzophenone found in the groundwater downgradient of DA-23. The Remedial Investigation Report, dated April 1987, stated that the concentration for benzylic acid/benzophenone in the groundwater downgradient of DA-23 in monitor well (MW) SW-4 as 470 milligram/liter (mg/l). This concentration is equivalent to 470 parts per million (ppm). MW SW-4 is a shallow monitor well and 470 mg/l is a relatively high concentration for a contaminant in groundwater.

In October 1987, approximately one year after the original sampling episode, nine (9) monitor wells were resampled. MW SW-4 was one of these wells. The analytical results for benzylic acid/benzophenone for SW-4 was 1.2 mg/l, which is considerably less than the 470 mg/l level recorded in the initial sampling episode. The concentration level of 1.2 mg/l is more in line with the levels found in other wells downgradient of DA-23 as can be seen in Appendix B.

It was the Agency's rationale, based on the level of 470 mg/l, that the concentration of benzylic acid/benzophenone in the soils of DA-23, the source of this contaminant, must also be relatively high, therefore requiring a more rigorous source control remedial action. This thought process led the Agency to select a soil fixation/stabilization/solidification process as the source control remediation for DA-23.

The fixation/stabilization/solidification alternative was selected over soil venting or capping due to the fact that the contaminant of concern, benzylic acid/benzophenone, is not readily volatilized. Although soil venting would help remove the volatile organics from the soil, it would not remove the non-volatile organics. Usually, it is the non-volatile organics that determine the length of time necessary to pump and treat the groundwater as non-volatile organics do not readily move with groundwater through the soil as do volatile organics. Soil venting would help reduce the levels of volatile organics, but it does not address the non-volatile fraction of contaminants and therefore, soil venting was not selected as the new source control remedial action for DA-23.

Due to the lower level of benzylic acid/benzophenone than first identified as being present in the groundwater downgradient of DA-23, and the fact that soil venting alternative would not accelerate the time needed to remediate DA-23, the Agency now proposes that DA-23 be capped with a multi-layer cap, which includes a synthetic liner. The multi-layer cap will meet as a minimum the specified under 40 CFR Subsection 264, Subparts K-N. A gas collection system will also be incorporated into the cap if deemed necessary.

COMMENTS FROM THE PUBLIC

The public is encouraged to submit written comments on the above change to:

Jon Bornholm
US EPA
345 Courtland Street, NE
Atlanta, GA 30365
404/347-7791

Written comments should be postmarked no later than Tuesday, March 21, 1989.

Comments will be summarized and responses provided in the Responsiveness Summary that will be placed in the Information Repositories/Administrative Record. Materials relating to the above change and other information regarding the Chemtronics site are, also, available for citizen review the information repositories. The four information repositories for the Chemtronics Superfund site are located at:

Dr. Gary Miller
Environmental Studies
University of North Carolina
@ Asheville
One University Heights
Asheville, NC 28804-3299

Mr. Jerry VeHaun
Buncombe County Emergency Services
P.O. Box 7601
Asheville, NC 28807

Chemtronics Site Information Bureau
P.O. Box 18177
70 Woodfin Place
Asheville, NC 28814

Warren Wilson College Library
Warren Wilson College
701 Warren Wilson College Road
Swannanoa, NC 28778

The U.S. Environmental Protection Agency, Region IV, upon citizen request, will meet with local residents to address their concerns.

APPENDIX F

Responsiveness Summary
Comments Received by the Agency
and the Agency's Responses

Clean Water Fund
Of North Carolina

138 E. Chestnut St.
Asheville, NC 28801
704/251-0518

RECEIVED
MAR 21 1989
EPA – REGION IV
ATLANTA, GA.

March 20, 1989

Jon Bornholm
Region IV, US EPA
345 Courtland Street, NE
Atlanta, GA 30365

Re: Explanation of Significant Difference . . . Chemtronics Superfund Site

Dear Mr. Bornholm:

Contrary to statements in both the Record of Decision (ROD) and the Feb. 28, 1989, Explanation of Significant Difference (ESD), stated remediation levels for contaminated groundwater <u>do not meet</u> applicable or relevant and appropriate requirements. Groundwater remediation levels as set in Table 13 of the ROD have <u>not</u> been approved by North Carolina's Department of Environmental Management, a violation of CERLCA and SARA Section 121(d)(2)(a)(ii), and are not set at the most stringent chemical-specific levels. Until EPA has completed the process, including public hearing, required for seeking a variance from North Carolina's existing groundwater quality standards, neither the ROD or the ESD can set definitive groundwater remediation goals.

The groundwater remediation goal for this site should be recovery to naturally-occurring state. Therefore, remediation levels should be set at detection levels for all synthetic, man-made substances. EPA's current suggested levels do not begin to attempt this goal. At the <u>least</u>, remediation levels should be set at maximum contaminant level goals (MCLGs) (see Sara Section 121(d)(2)(a) where they are more stringent than MCLs. However, using drinking water standards for remediation levels, particularly in North Carolina, means that remediation levels are not as "clean" as background levels; in essence, this standard allows a continuing level of degradation, which is unacceptable. If site capping and groundwater interception and extraction options chosen for remedial action cannot assure contaminant levels in groundwater no greater than detection levels, then corresponding action levels for groundwater may not protect the public health and the environment, as required by law.

Contrary to the ROD and the ESD, capping and groundwater extraction/treatment/monitoring do not constitute a permanently effective treatment technology which, according to SARA, is preferable. According to the Office of Technology Assessment Special Report OTA-ITE-362 (June 1988), containment, an impermanent technology, will likely require future cleanups for the wastes left in the ground, and is an impermanent technology chosen too frequently by EPA for remedial action. All manmade attempts to control surface and subsurface are susceptible to failure over time. The remedial action chosen for the Chemtronics site promises a "band-aid" cleanup. The chosen remedial action virtually assures that the PRPs, the community, and EPA will have to deal with this site once again in the future.

The ROD and the ESD fail to address off-site hazardous waste dumps used by the PRPs. Specifically, neither document addresses the dumps in Buckeye Cove (Mary Crain's land), the Tropigas site on highway 70, or the site south of Chemtronics property (Asheville Dyeing and Finishing). Though the RI/FS acknowledges PRP dumping of hazardous wastes at these sites, EPA fails to hold the PRPs responsible for these sites. This represents gross negligence on the part of the PRPs and EPA. Questions of ethics and accountability aside, the public health and the environment continue to be endangered by the failure to address the off-site dumps.

Sincerely,

Jennie Y. Rominger

cc: Senator Terry Sanford
Congressman James McClure Clarke
William L. Meyer
Perry Nelson
Citizens' Watch for a Clean Environment

4WD-SFB

Ms. Jennie Y. Rominger
Clean Water Fund of North Carolina
138 East Chestnut Street
Asheville, NC 28801

Re: Response to Comments Received During Public Comment Period on Explanation of Significant Difference for Chemtronics Superfund Site

Dear Ms. Rominger:

This correspondence is in response to your March 20, 1989 letter on the Agency's Explanation of Significant Difference (Amendment to the Record of Decision) for the Chemtronics Superfund Site. The public comment period for this document ended March 21, 1989.

The cleanup goals the Agency selected for contaminated groundwater and soil were based on the information, calculations and conclusions presented in the Public Health and Environmental Assessment and the Endangerment Assessment. The Public Health and Environmental Assessment can be found in the Remedial Investigation report and the Environmental Assessment is located in the Feasibility Study (FS) document. Also presented in the FS are the calculations for deriving Preliminary Pollutant Limit Values (PPLVs). PPLVs are cleanup goals for specific contaminants found at the Chemtronics site that have no established cleanup goals or standards. Since the calculated PPLVs are based on limited toxicological data, a conservative, protective approach was utilized to arrive at these cleanup levels. Based on existing toxicological data, the Agency is confident in stating that the remediation levels set forth in Table 13 of the Record of Decision (ROD) will be protective of human health and the environment.

Provisions in Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) allow the Agency to waive "applicable or relevant and appropriate requirements" (ARARs) under six situations. One of these situations, compliance is technically impracticable, applies to the Chemtronics site. The Agency's position is set forth in the Agency's letter to the State of North Carolina requesting a variance to North Carolina Administrative Code, Title 15, Subchapter 2L, Paragraph .0202 (15 NCAC 2L) dated March 1, 1985. I have enclosed a copy of this request. Presently, the Agency is waiting for a response from the North Carolina Division of Environmental Management on the Agency's request.

The Agency acknowledges the fact that capping the disposal areas is not considered a permanent remedial action. As stated in the FS public meeting conducted on February 23, 1988, the Agency's preferred remedial alternative for addressing the contaminated soils was on-site incineration with a fall back position of capping the disposal areas. Since capping is not a permanent remedial action, the Agency is required under Section 121 of SARA to revisit the site every five (5) years. This review is to assure that human health and the environment are being protected and to consider the remedy in light of new treatment technology developed during the interim. This review process may result in the potentially responsible parties (PRPs) conducting additional remedial action efforts at a later date.

The off-site areas of Buckeye Cove landfill and the landfill off of Highway Route 70 are not part of the Chemtronics site. As you know, the Agency compelled the PRPs to conduct limited investigative field work in these landfills to determine if an imminent and substantial hazard existed. Minimal contamination was found. Trace levels of CS were found at Buckeye Cove landfill and large molecular organics, typically found in municipal landfills, were found in the landfill off of Rt. 70. The level of CS in the Buckeye Cove landfill was below the action level, the PPLV, set for this contaminant in the ROD, Table 13. The Agency for Toxic Substances and Disease Registry reviewed the analytical data generated from this field work and advised the Agency that neither the public nor the environment are at risk due to the levels of contaminants found in these landfills.

The third off-site landfill, designated as Disposal Area 24 (DA-24) in the Chemtronics RI and FS reports was also investigated as part of the Chemtronics RI field work. Based on the analytical data generated from the environmental samples collected from DA-24, the Agency determined that DA-24 did not require remediation. The environmental samples included both surface and subsurface soil samples.

If I can of be of further help, please do not hesitate to contact me at (404)347-7791.

Sincerely yours,

Jon K. Bornholm
Superfund Project Manager

Enclosure

APPENDIX G

Analytical Results of Sampling Monitor Well SW-4 On January 4, 1989

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV, ATHENS, GEORGIA

MEMORANDUM

DATE: FEB 06 1989

SUBJECT: Results of Sampling at Chemtronics, Inc., Swannanoa, North Carolina. ESD Project No. 89-194.

FROM: James C. Gray JCG
Hazardous Waste Section
Environmental Compliance Branch
Environmental Services Division

TO: Jon Bornholm
Superfund Branch
Waste Management Division

THRU: M. D. Lair, Chief
Hazardous Waste Section
Environmental Compliance Branch
Environmental Services Division

ERRB
RECEIVED
FEB 8 1989
EPA – REGION IV
ATLANTA, GA.

As per your request of December 5, 1988, well SW-4 at the Chemtronics site in Swannanoa, North Carolina was sampled. Sampling was conducted on January 4, 1989. Present at the sampling was Beverly Ashbrook of Chemtronics to whom split samples were given. The following data were collected during the sampling and subsequent analysis.

- Well Sounding and Purging. Sounding of the well gave a depth to the water of 9.20' below the top of the well casing. The total depth of the well was determined to be 53.23', leaving a water column of 44.03'. For a 2" diameter well this volume of water calculated out to be 7.18 gallons. After 25 gallons of water had been purged from the well, the sample was collected.

- pH, Conductivity and Temperature. At the time of the sample, the pH of the groundwater was determined to be 5.85, the conductivity was 210 micromhos per square centimeter, and the temperature was 15 degrees centigrade.

- Analytical Results. Final analysis of the sample gave a concentration for benzylic acid of 48 micrograms per liter, and for benzophenone of 3400 micrograms per liter.

A copy of the analytical report is attached to this memo. Should you have any questions regarding these results or should you require additional information, please call me at FTS: 250-3589.

cc: Finger/Patton
Lair/Mundrick
Knight