

The following is an Adobe Acrobat reproduction of the official

HRS DOCUMENTATION RECORD

for

**ArChem Company/Thames Chelsea
Chemical Company USA**

No graphics illustrations or copies of documents cited as references in the determination of the HRS score are included with this electronic version, but graphics are available with the print versions as part of the ArChem/Thames Chelsea repository records

at

Bracewell Branch Library

10115 Kleckley

Houston, Texas

and/or

TNRCC Records Management Center

Austin, Texas

August 15, 1993

Scroll Down to View

HAZARDOUS RANKING PACKAGE
SITE SUMMARY

Facility Name: ArChem Company/Thames Chelsea Chemical Company USA

Location: 13103 Conklin Lane, at the intersection of Conklin Lane and Beltway 8 located approximately one-half mile northwest of the intersection of FM 2553 and State Highway 3, and 7 miles southeast of the intersection of State Highway 3 and Interstate 45 in southeast Houston, Harris County, Texas. The site coordinates are 29°36'47" north latitude and 95°11'56" west longitude (Attachments 1.01 - 1.06).

Site Legal Description: The site legal description as recorded at the time of conveyance from the Syndicated Land Company of Tract 2 on or about May 2, 1974; Tract 7 from the Texas Gulf Trust Company on June 30, 1970; and Tracts 4 and 8 from the H.B. Fuller Company on October 10, 1978 to the ArChem Company, of the County of Harris, State of Texas, is described as follows (Attachments 2.04, and 6.01 - 6.010):

Tract 2 (Between Tract 1-W and 7): 2.5 acre tract of land out of the Syndicate Land Company 436.5 acre tract and being the East 2.5 acres out of that certain 10.896 acre tract in the Jesse Pruitt Survey, A-628, Harris County, Texas and described in a deed from the Syndicated Land Company to the ArChem Company, a Texas Corporation, on or before May 2, 1974, recorded in Vol. 79, Pages 526-527, Deed Records, Harris County, Texas.

Tract 4 (Identified as Tract 1 in the Deed of Trust): That certain 2.647 acre tract out of the Syndicate Land Company, 436.5 acre tract in the Jesse Pruitt Survey, Harris County, Texas and described in a Deed of Trust from Joseph M. Pellish, H.B. Fuller Company, a Minnesota Corporation, at 2400 Kasota Avenue, St. Paul, Ramsey County, Minnesota to the ArChem Company dated October 10, 1978, recorded on Tape No. 109-97, Pages 1149-1152, Deed Records of Harris County, Texas.

Tract 7: That certain 2.5 acre tract out of the Syndicate Land Company, 436.5 acre tract in the Jesse Pruitt Survey, Harris County, Texas and described in a Deed of Trust from the Texas Gulf Trust Company to the ArChem Company dated June 22, 1970, recorded on Tape No. 117-39, Pages 1274-1275, Deed Records of Harris County, Texas.

Tract 8 (Identified as Tract 2 in the Deed of Trust):
That certain 2.5 acre tract out of the Syndicate Land Company, 436.5 acre tract in the Jesse Pruitt Survey, Harris County, Texas, and being adjacent to the West line of that certain 2.647 acre tract conveyed to Amchem Products, Inc., by Deed recorded in Volume 4280, Page 540, of the Deed Records of Harris County, Texas and described in a deed of trust from Joseph M. Pellish, H.B. Fuller Company, a Minnesota Corporation, at 2400 Kasota Avenue, St. Paul, Ramsey County, Minnesota to the ArChem Company dated October 10, 1978, recorded on Tape No. 109-97, Pages 1149-1152, Deed Records of Harris County, Texas.

Person(s) in charge of the facility: Mr. Roger W. Herrscher, 18510 Finland, Houston, Texas 77058 is the present owner of the facility.

Name of Preparer:

Allan M. Seils

Allan M. Seils, Coordinator
Superfund Site Discovery
and Assessment Team

REVISAL 08/17/93

Date: 08/10/93

Name of Reviewers:

Wesley G. Newberry

Wesley G. Newberry, Leader
Superfund Site Discovery
and Assessment Team

Date: 8/12/93

Stennie A. Meadours

Stennie A. Meadours, Manager
Emergency Response and
Assessment Section

Date: 8/17/93

General Description of the Facility: The ArChem Company/Thames Chelsea Chemical Company USA (the "Site"), is an inactive specialty chemical manufacturing facility that occupies approximately 10 acres located at the intersection of Conklin Lane and Beltway 8 which is approximately one-half mile northwest of the intersection of FM 2553 and State Highway 3, and 7 miles southeast of the intersection of State Highway 3 and Interstate 45 in southeast Houston, Harris County, Texas (Attachments 1.01 - 1.06).

The Site has been inactive since mid-1991, when the Thames Chelsea Chemical Company abandoned the Site after backing out of negotiations with Bankruptcy Court to purchase the ArChem Company Estate assets (Attachment 4.113).

First visual observations of the Site by State Superfund staff on September 12, 1991 noted the following: (see Site Plan - Attachment 1.03 and Report - Attachment 4.117)

- o Fifteen hazardous waste units used in the management of fourteen or more P and U listed hazardous wastes;
- o Approximately 2,000 55 gallon drums in various states of storage and deteriorating conditions;
- o All sumps, secondary containment systems, and roll-off containers were found full of liquids/solids, including two (2) surface impoundments with capacities of 250,000 gallons and 500,000 gallons; and
- o material spills and surface contamination were wide spread throughout the Site with runoff drainage paths to off-site discharge ditches evident.

The volume of wastes estimated at the time of this inspection was:

- Approximately 1,000,000 gallons of wastewater.
- Approximately 1,971 drums of various chemicals.
- Approximately 83,441 gallons of various bulk liquid chemicals.
- Unknown quantity of partially used and unused lab chemicals.
- Unknown quantity of contaminated soil.

(Attachments 4.002, 4.005 - 4.006, 4.023 - 4.025, 4.027, 4.030, 4.032 - 4.046, 4.050 - 4.051, 4.054 - 4.055, 4.065, 4.068, 4.073 - 4.074, 4.076, 4.080, 4.101, 4.117, 4.120, 4.124, 4.126 - 4.128, and 4.132)

In addition, the Site was accessible to the public through broken fence and doors/windows of office buildings at the front of the Site.

Immediately west and adjacent to the ArChem site is the LuMarco facility, a transporter of waste oils. Surface water discharges from the Site were present along a drainage ditch on the north side of Conklin Lane in front of the ArChem and LuMarco facilities which drains to a Harris County Water Control and Improvement District (WCID) drainage ditch adjacent to the western boundary of the LuMarco site. The Harris County WCID drainage ditch flows south for 1.5 miles to Turkey Creek (Within the Scarsdale Community) just northwest of Scarsdale Blvd.; thence to Clear Creek (see Map - Attachment 1.04 and Report - Attachment 1.153).

Parallel to the northern boundary of the ArChem site is a railway spur and beyond is undeveloped property. To the north of the railroad are two (2) large Harris County WCID stormwater flood control ponds which occupy a large portion this open area. The area is used extensively by off-road motor vehicles (bikes and jeeps). Further north, 0.25 to 0.50 miles from the site is the small community of Genoa. Genoa School, a mobile home park and permanent residences fall within this distance (Attachment 4.151).

Open and undeveloped land was observed to the south and immediately east of the Site. A number of residences were documented along Conklin Lane separated from the Site by Beltway 8. At 13214 Conklin Lane, just southeast of the intersection of Beltway 8 and Conklin Lane, a water well with electric pump was observed next to a small residence (Photograph 4). The well is <0.25 mile down-gradient from the Site's surface impoundments. Additional residences and a business were noted at 13426, 13502 and 13430 Conklin Lane, respectively (Attachments 3.030 and 4.151).

Two removal actions by the Texas Water Commission from April through September, 1992 and April through August, 1993 and a removal action by a group of Potentially Responsible Parties in July, 1993 have restricted site access and contained releases of hazardous substances at the Site (Attachments 4.129, 4.133 - 4.134, 4.147 - 4.150, and 4.152 - 4.154).

Background/Operating History:

The Texas Water Commission's (TWC) knowledge of the early history of the Site is incomplete at this time. The four (4) tracts of land (Tracts 2, 4, 7, and 8) that comprise the Site today were owned by different companies throughout the properties history (Attachment 1.06).

One of the first manufacturing companies to own part of the Site was Amchem Products, Inc., a Delaware corporation. Available information indicates the sale of 2.647 acres (Tract 4) of the Site

to Amchem Products, Inc., by the Syndicate Land Company, on February 10, 1961 (Attachment 6.01). On December 11, 1962, of the next year, Amchem Products purchased an additional 2.5 acres (Tract 8) from the Syndicate Land Company, directly west and adjacent to their original 2.647 acre purchase (Attachment 6.02). No detailed information of Amchem's manufacturing activities at the Site is available at this time. Aerial photographs, dated July 5, 1965 and January 22, 1973, document the presence of a large building on Tract 4 and three (3) surface impoundment structures on the northwest corner of Tract 8 (Attachment 2.01 and 2.02). Subsequently, Amchem conveyed its portion of the Site to H.B. Fuller Company, a Minnesota corporation, on June 1, 1976 (Attachment 6.03).

The H.B Fuller Company was a manufacturer of industrial latex coatings and adhesives based upon polyvinyl acetate, ethylenevinyl acetate copolymers and asphaltic emulsions at 13115 Conklin Lane until an August 12, 1977 warehouse fire destroyed the Company's facilities. After the warehouse fire, H.B. Fuller moved their plant operations to 6107 Industrial Way (Attachments 4.010 and 4.022). An August 17, 1978 inspection by Texas Department of Water Resources (TDWR) District 7 Office staff identified the presence of several unregistered pits used by H.B. Fuller for the disposal of intermittent washwaters from batch processes for the production of industrial coatings and adhesives (Attachment 4.010). Even after H.B. Fuller moved their operations, they continued to use the pits for disposal of approximately 2,800 gallons per month of washwater hauled from the Industrial Way location by French Limited. On at least one occasion washwater was dumped outside of the pits (Attachment 4.010). On October 10, 1978, H.B. Fuller Company conveyed ownership of Tracts 4 and 8 to the ArChem Company, 13103 Conklin Lane (Attachment 6.04).

Of the four (4) tracts of land which comprise the Site today, Tract 7 has exchanged ownership more times than any other tract. Warranty Deed records identify the Syndicate Land Company as an early owner of Tract 7 immediately adjacent and west of the Amchem Products, Inc. property (Attachments 1.06 and 6.07).

On October 7, 1963, the Syndicate Land Company sold the 2.5 acre Tract 7 to Mr. James G. Rowe III and Robert E. Blue, Jr. Ownership of Tract 7 changed on March 26, 1964 when Mr. Rowe and Mr. Blue sold the property to Mr. Gerald S. Gordon (Attachment 6.08). The sale of Tract 7 was subject to a Lease Agreement by and between Mr. Rowe and Mr. Blue with Laboratory for Electronics, Inc., a Delaware Corporation. No information is currently available on the activities of Laboratory for Electronics, Inc. on this property. A July 5, 1965 aerial photograph documents the presence of some structures on the southeast corner of Tract 7 (Attachment 2.01). The tract was sold by Mr. Gordon on March 1, 1966 to the Texas Gulf Trust Company, and was also subject to the Lease Agreement with

Laboratory for Electronics, Inc. Texas Gulf Trust Company sold Tract 7 to the ArChem Company on June 22, 1970 with no Lease Agreements in place (Attachments 6.09 - 6.10).

Starting in 1970, the initial operations of the ArChem Company on Tract 7 of the Site involved the production of epoxy curing agents, using Diels-Alder chemistry (Attachment 4.045). By January 22, 1973 the ArChem Company had increased physical plant activities to include an additional 2.5 acre tract (Tract 2) which was purchased from the Syndicate Land Company on or about May 2, 1974 (Attachments 1.06, 2.02, and 6.05).

In early 1976, the ArChem Company, submitted its initial Industrial Solid Waste Management Inventory forms to the Texas Water Quality Board indicating the generation of Maleic acid from empty truck washout and Methyl tetra hydro phthalic anhydride which were managed in an on-site lagoon/pond (Attachments 4.01-4.07). The above ground pond located north of the railroad spur on Tract 7 and contained a spray evaporation system (Attachments 1.02, 2.03, and 4.008). The Disposal Site Deed Recordation and map contained in an April 2, 1986 inspection report show the pond to be 47 feet in width and 103 feet in length (Attachments 4.039 and 6.05).

An August 1, 1978 inspection by TDWR found evidence of wastewater pooled outside the pond and dead vegetation along a release path from the Site to a flood control ditch. Results from Sample No. IN09570 collected from the pooled wastewater indicated a pH 3.9; Conductivity 8,000; and concentrations of BOD (780 mg/l); VSS (54 mg/l); TSS (88 mg/l); TOC (1,950 mg/l); and COD (7,674 mg/l). In addition, a broken valve on a tank truck allowed acetone to leak along the eastern fence boundary with Tract 8 of the facility resulting in dead vegetation (Attachment 4.008).

An aerial photograph taken on April 4, 1979 documents the extent of the area covered by Archem activities at the Site (Tracts 2, 4, 7, and 8), including the location and appearance all four (4) ponds on-site at that time (Attachment 2.03).

In late May and early June, 1981, four (4) ground water monitoring wells were installed on the Site by Harding-Lawson Associates. The 4 inch diameter wells were installed to depths ranging from 32 feet to 54 feet (Attachments 4.146).

A February 25, 1982 inspection report indicated the ArChem Company had inactivated the pond and was using the three (3) former Amchem\H.B. Fuller ponds on Tract 8 to meet its washwater evaporation requirement. Freeboard levels in all the ponds were found to be less than one (1) foot (Attachment 4.013).

On November 15, 1982, Mr. Roger Herrscher, President, ArChem Company, reported to TDWR representatives the excavation of a mastic material from aeration pond #3 which was being converted,

along with two (2) other ponds into evaporation ponds by Demar Engineering, Inc. for ArChem. Mr. Herrscher stated this material had been disposed of in the ponds by the H.B. Fuller Company who use to own the adjoining property east of the ArChem facility (Attachments 1.02 and 4.016).

Beginning in November, 1982, the ArChem Company undertook steps to close the old evaporation pond north of the railroad spur and to reconfigure two (2) of the smaller ponds previously purchased from H.B. Fuller Company (Attachments 4.018 - 4.024, 4.028, and 4.032). An analysis performed by Aqua-Chem Laboratories, Inc. in January, 1983 indicated concentrations of Arsenic (0.012 mg/l), Barium (0.60 mg/l), and Chromium (0.01 mg/l) in bottom soils collected during the closeout of the evaporation pond (Attachment 4.020). Analytical results from the collection of five (5) composite separator water samples along the bottom of the pond yielded 33.0 ug/l of an unknown chlorinated hydrocarbon. In addition, Steve Rohde, ArChem Company, reported the evaporation pond had been constructed on a pipeline easement (Attachment 4.022).

Also, Mr. Rohde reported on the construction of a new collection/evaporation pond at the location of a small pond previously used by the H.B. Fuller Company for the collection of mix tank washwater. Sample No. 01158 was collected from the pond sludge and contaminated soils removed from this small pond during the construction of the new collection/evaporation pond. A Barium concentration of 1.35 mg/l was detected in the sample (Attachment 4.022).

The small pond and two (2) other ponds on Tract 8 received waste aqueous solutions from various sources within the ArChem process and product storage areas. An ArChem representative noted several chemicals were disposed of in dilute aqueous form in the pond system. These wastes were nitrotoluene, toluidenes, isoperone, and safrole. The ponds were modified and lined with imported compacted clay and had short dikes around their peripheries (Attachment 4.023).

An April 4, 1983 TDWR inspection found all the ponds had less than six (6) inches of freeboard. A sample collected from a pool of water outside Pond #1 had a COD of 335 mg/l. A sample collected from Pond #1 had a COD of 6,100 mg/l. In addition, a stormwater runoff sample from the Site collected on March 26, 1982 had a COD of 460 mg/l. Several deficiencies were noted including lack of waste characterization for the 60-70 drums located at various areas throughout the Site (e.g. epoxy containing agents and distillation bottoms). These drums contained various wastes and/or reclaimable materials (Attachments 1.02, 4.024, and 4.029).

A four inch diameter 494-foot deep potable water well less than 200 feet from the ponds was documented on the Site during this time (Attachment 4.023). No date of installation was given on the well log for this well (Attachment 7.2).

On May 2, 1983, Stephen E. Rohde, Special Projects Manager, ArChem Company, submitted to the TDWR, a copy of the Disposal Site Deed Recordation filed with the Harris County Clerk's office for ArChem Company, Industrial Solid Waste Generator #30878 (Attachment 4.028 and 6.06).

On October 29, 1984, Larry Kiefer, ArChem Company, notified the TDWR of the following chemical wastes temporarily stored at the plant (Attachment 4.033).

<u>WASTE</u>	<u>CHEMICAL COMPOSITION</u>
ECA-bottoms	Methyl Tetra Hydro Phthalic Anhydride
Waste Bisphenolic resin solution	Bisphenolic-A-Resin
Waste ECA-100C	Chlorendic Tetra Hydro Phthalic Anhydride
Off. Spec. Butadiene Polymer	Butadiene Polymer
DMPT Bottoms	Di Methyl Para Toluidine
Solid Butadiene Polymer	Butadiene Polymer

During the Spring and Summer, 1985, Raymond F. Carmody, President, ArChem Company, notified the TDWR of the use of small amounts of Lead/Carbon and Lead/Alumina as catalyst for hydrogenation reactions and the generation of spent nickel catalyst at the Site. The spent nickel catalyst would be disposed of by being sent to Parkans International of Houston, Texas for metal recovery (Attachments 4.034 - 4.036).

On February 5, 1986, Russell G. Herrscher, Head of Waste Disposal Division, ArChem Company, confirmed to the TDWR the generation of a spent cleaning solvent (20% water, 50% Xylene, 10% Acetic Acid, and 20% Methanol) used to clean process equipment at the Site. In addition, Mr. Herrscher acknowledged wastewater consisting of 80% water and 20% Phthalonitrile generated during the manufacturing of a crude automotive paint additive was also generated at the Site (Attachment 4.037).

By March 5, 1986, the TDWR Industrial Solid Waste Notice of Registration for the ArChem Company included the following generated wastes (Attachment 4.038):

- 001 Plant Refuse, General Misc.
- 002 Wastewater-Mthpa washdown, cooling tower and boiler blowdown.
- 003 API Separator sludge
- 004 Still bottoms
- 005 Evaporation Pond Liner
- 006 Epoxy Curing agent
- 007 Bisphenolic Resin
- 008 Epoxy Curing agent
- 009 Hexachlorobutdiene
- 010 Dimethyl Para Toluidine
- 011 Butadiene Polymer Solids
- 012 Catalyst, Palladium
- 013 Nickel Catalyst
- 014 Cleaning Solutions
- 015 Nitril Wastes, Organic

Sometime in 1987 or 1988, Linde Praxair installed a hydrogen distribution line into the Site for use as a utility in one or more of the ArChem Company processes (Attachment 3.032).

On January 9, 1988, there was a rupture, explosion and fire of a 500 gallon storage tank containing Toluene at the Site. At the time of this incident, the ArChem Company was manufacturing two products: 1) Nitroanisole, which is Orthomethoxynitrobenzene; and 2) Antimony triacetate. The plant drainage ditches and drainage ditch on the north side of Conklin Lane emptying into the flood control ditch to the west of the Site were blocked to retain contaminated water runoff. Approximately 60,000 gallons of contaminated water used to fight the fire was collected at the Site for disposal at Malone Service Company, Texas City, Texas. In addition, other wastes generated from this incident included contaminated soil, building materials, damaged process equipment, structural steel, and piping. Low concentrations of Lead, Cadmium, O-nitrochlorobenzene, and O-nitroanisole were detected in samples collected from rubble, soil, and wipes from exterior walls of plant buildings (Attachment 4.048).

From April 14, 1988 through June 9, 1988, deficiencies were noted during an annual TWC inspection and discussed with ArChem representatives relating to waste accumulation time and the lack of secondary containment for tank systems. In addition, ArChem notified the TWC of the generation of waste Tetrahydrofuran (Attachments 4.050 - 4.053).

On July 10, 1989, Russell G. Herrscher, ArChem Company, notified the TWC of a non-compliant stormwater discharge from the Site with a COD measurement of 675 mg/l collected on June 29, 1989. The high COD value was traced to several leaking drums stored behind the laboratory facility (Attachment 4.058).

On July 28, 1989, the TWC Southeast Region Office, referred the ArChem Company for High Priority Violations. The referral included: 1) documented discharges and threats to discharge from leaking drums containing hazardous, non-hazardous, and unidentified waste; 2) documented discharges from process wastewater surface impoundments; and 3) several other regulatory deficiencies. In addition, a June 29, 1989 investigation, documented a discharge from leaking drums of hazardous and industrial solid waste was noted to travel from Container Storage #3 through the on-site stormwater ditches to the permitted stormwater discharge outfall. Sample results noted the presence of Toluene, Acetone, Tetrahydrofuran, and Methyl ethyl ketone (Attachments 4.059 and 4.061).

On August 1 and 2, 1989, additional non-compliance was documented at the ArChem facility including: 1) unauthorized discharges from the surface impoundments; and 2) spills at Container Storage Area #3 behind the laboratory facility related to the transfer of S-21 (Antimony triacetate), a hazardous waste, from leaking containers into good containers (Attachments 1.03 and 4.060).

On September 13, 1989, representatives from the TWC Southeast Region Office investigated an allegation concerning a potential threat of a release from Tanks 301 and 302 of Aluminum Chloride (Adamantine Bottoms) and the storage of deteriorating drums of Aluminum Chloride (Adamantine Bottoms) Container Storage #10 and in a storage building at the Site. During the investigation, spills were observed from Tank 903 (possible tetrahydrofuran, methanol and water boiler fuel, or pond water) and Tank 601 (possible pond water) (Attachment 4.063).

On September 14, 1989, Russell G. Herrscher, ArChem Company, was notified the TWC was instituting enforcement action in response to the alleged non-compliance, discovered during an inspection on June 29, 1989 (Attachment 4.064).

On February 21, 1990, the TWC issued an Agreed Order, in the matter of ArChem Company, made certain Findings of Fact and Conclusions of Law. The TWC assessed an administrative penalty in the amount of \$119,600.00 for violations of the Texas Solid Waste Disposal Act, The Texas Water Code and the Rules of the TWC (Attachments 4.066, 4.068, and 4.071).

On June 12, 1990, Jim Abshier, ArChem Company, reported to the TWC, the circumstances and occurrences of a major storm event experienced on February 21, 1990 at the Site. The Company accumulated stormwater to discharge from the Site without first going through the stormwater system in order to avoid an overflowing of the large stormwater pond and the possibility of breaching the dike. No sampling of the discharge was performed (Attachments 1.03 and 4.077).

On June 21, 1990, the ArChem Company, notified Michelle McFaddin, Senior Attorney, filed for bankruptcy and reorganization under Chapter 11 in the United States District Court, Western District of Texas, Court Docket No. 90-04297-H1-11 (Attachment 4.078 and 4.089).

During February and March of 1990, representatives of the TWC District 7 Office observed numerous alleged noncompliances with the Agreed Order of the February 21, 1990. ArChem staff had been directed by a company official to allow the discharge of untreated process wastewater through Outfall No. 001 to the drainage ditch on the north side of Conklin Lane; thence to a flood control ditch west of the Site. A sample of water from Outfall No. 001 indicated concentrations of COD at 1760 mg/l; TOC at 967 mg/l; Oil & Grease at 8 mg/l; and Chlorides at 170 mg/l.

Also, leaking containers, roll-off bin, and discharges from the large east surface impoundment were documented. A sample collected from the large east surface impoundment yielded concentrations of Toluene (780 ppm), Silver (0.004 ppm), bis (2-Ethylhexyl)phthalate (230 ppm), Di-n-butylphthalate (310 ppm), and several unknown compounds (22.14 ppm to 25.91 ppm) (Attachment 4.082).

On August 20, 1990, Jim Abshier, ArChem Company, notified the TWC of: 1) an agreement with M & T Chemical Company to dispose of 69 55-gallon drums of S-21 (Antimony triacetate) and DBTO wastes and 7,500 gallons of bulk S-21 (Antimony triacetate) waste; 2) the shipment of 54 55-gallon drums of spent catalyst to Parkans International, Inc. for recycling of metals; 3) negotiations underway with Amoco to receive 71 55-gallon drums of unidentified waste and 11,000 gallons of bulk Tetrahydrofuran waste; 4) negotiations with Dixie Chemical to receive 257 55-gallon drums of ECA waste and 9,000 gallons of bulk Aluminum Chloride waste (Attachments 4.080 and 4.083).

During September and October of 1990, TWC District 7 representatives observed a number of violations of the Agreed Order, including discharges from: 1) the large eastern most impoundment; and 2) various containers, including the northeast corner roll-off bin, 900 series Tank Farm, and numerous container storage areas. Releases from leaking drums S-21 (Antimony triacetate) and Furfural Alcohol contaminated on-site soils and posed a threat to contaminate surface water runoff from the Site (Attachment 4.088).

On November 12, 1990, Thames Chelsea Chemical Company USA, a subsidiary of Thames Chelsea Limited, became operators at the Site under a lease agreement which was approved through the Bankruptcy Court. The parent company is a financial holding company with an agent located on the Isle of Man off the coast of England and with a registered address at that location.

On December 3, 5, and 6, 1990, TWC District 7 representatives documented various activities undertaken by Thames Chelsea representatives at the Site. Thames Chelsea representatives reported various maintenance activities were underway at the site, including raising the dike around the east surface impoundment. Also, they had conducted a filtering process on a batch of furfural alcohol to complete an ArChem project started for Advanced Resins, Inc. Discussions were continuing with Amoco, Atochem, Du Pont, Cannon Industries, and Dixie Chemical regarding the removal/disposal of drums and bulk materials from the Site. Fisher Drum Company had picked up 337 empty 55-gallon Furfural Aldehyde drums. In addition, Southwest Solvents & Chemicals and FX Distributors had picked up 30 empty methanol drums, 23 acetic acid drums, and 28 unidentified drums.

An inventory of waste at the Site conducted by TWC representatives indicated approximately 1122 55-gallon drums, 3 roll off bins, and 346 three and one half gallon pails of industrial solid and hazardous waste were stored in fifteen (15) different CSA. Also, Site records indicated 26,293 gallons of hazardous waste was stored in five tanks, 2,200 pounds of waste was stored in two tanks and 4,126 gallons of wastewater was stored in tank 604.

Tank 1001 was observed to have leaked possible butanediol waste into the containment area. The contents of the containment and leaking tank were pumped into tank 1002. According to a Thames Chelsea representative tank 1002 was not empty prior to the transfer and that it contained some solid material in the bottom of the tank.

Finally, Thames Chelsea reported they had allowed the east pond to overtop the previous week during the most recent rainfall event (Attachments 4.092 - 4.094).

On December 27, 1990, David Fetterman, Thames Chelsea, reported to the TWC District 7 Office an estimated spill of five (5) gallons of oil on the southside of the plant from a line and hot oil knock out pot. The spill was to a ditch which discharges from the plant, but the spill was stopped before it reached outside of the plant (Attachment 4.095).

On December 28, 1990, David Fetterman, Thames Chelsea, copied the TWC an internal Company note regarding an aborted attempt to start the large east pond spray system due to a major leak inside the pond on the spray piping. In addition, the air unit on the west pond was found to be operable, and it was started on December 21, 1990. This action resulted in the lowering of the water level in the west pond. The contents of the large east pond were pumped to the west pond to reduce the possibility of an overflow in the event of a substantial rain. The contents of both ponds indicated similar analytical contents of 4500 mg/l of COD and 4-5 pH (Attachment 4.096).

On January 2, 1991, Tim Howell, Thames Chelsea, collected a single point discharge sample from Outfall 001. The estimated flow at 6:00 p.m. was 10 gpm with a milky appearance. The analytical results from Precision Labs indicated 340 ppm COD, 7.13 ph, and 30.2 mg/l Oil & Grease. A sample collected at approximately the same time by Brian Lynch, TWC District 7 Office, yielded results of 34 mg/l COD, 6 mg/l TOC, 17 mg/l Cl, and a 524,600 gpd Flow (Attachment 4.098).

On January 18, 1991, as well as during an earlier inspection on December 17, 1990, representatives of the TWC District 7 Office documented that Thames Chelsea no longer shipped off-site non-rinsed furfural drums but rinsed the drums on-site. Further, the dikes had been raised on the surface impoundments to alleviate the problem of discharges from these units (Attachment 4.102 - 4.103).

On January 23, 1991, Jodena N. Henneke, Acting Regional Director, Air Quality Control Region 7, notified David Fetterman, Thames Chelsea, of violations of the Texas Clean Air Act observed by Texas Air Control Board representatives during an inspection of the Site on June 28, 1990. Specifically cited was the construction of manufacturing units at the Site by ArChem Company without the authorization of the Texas Air Control Board (Attachments 4.099 - 4.100, 4.106, and 4.109).

On March 11 - 13, 1991, an investigation of a citizens complaint found an oily discharge from Outfall No. 001 and stained soils at the Site (Attachment 4.106).

On March 26, 1991, James Allen, Du Pont, reported to the TWC the shipment of BHMT drums without a manifest from the Site to the Du Pont Chattanooga, Tennessee plant (Attachments 4.102 and 4.105).

On May 7, 1991, a telephone interview was conducted with an anonymous complainant who had first contacted the TWC on June 5, 1990 regarding illegal dumping of hazardous waste at the Site. The complainant alleged the illegal dumping of hazardous waste into the sanitary sewer system to avoid paying for disposal; the rupture of piping and lost of approximately 1,000 gallons of Furfural Alcohol to the sanitary sewer; the disposal of Toluene to the sanitary sewer; and the burial of drums of S-21 (Antimony triacetate) near the front gate of the Site. Further, the complainant stated having seen photos of the backfilling of a surface impoundment at the Site without first having its contents emptied and the discharge of contents from a new surface impoundment into an adjacent field (Attachment 4.114).

On May 22, 1991, Allyn M. Davis, U.S. Environmental Protection Agency, was notified by the TWC, Thames Chelsea had temporarily ceased its limited operation at the Site until such time as the sale of the property was finalized or rejected by the Bankruptcy Court (Attachment 4.108 and 4.111).

On September 12, 1991, TWC Hazardous and Solid Waste Enforcement Screening Committee determined the Site had been abandoned and Thames Chelsea Chemical company appeared to have backed out of the negotiations for purchase of the property. The site was not totally secured and public access during the night had been reported. Solid waste along with extensive soil contamination and necessary remedial action remained at the facility as a result of operations by ArChem Company, Thames Chelsea Chemical Company and possibly other companies. The Screening Committee referred the Site to the State Superfund program (Attachments 4.113 and 4.115).

From December 17, 1991 through January 15, 1992, Thomas L. Roach, TLR Engineering, notified the TWC, of the hiring of Environmental Methods, Inc. by Agri Concentrate Products Company, Illinois, to conduct an environmental assessment of the Site. Agri Concentrate had recently entered into a Bankruptcy Court Order to purchase the ArChem Company assets. Mr. Roach signed Technical Provisions provided by the TWC for Agri Concentrate Products Company to remediate the ArChem site upon purchase of the ArChem assets from the Bankruptcy Court. In addition, Mr. Roach continued working with Mr. Roger W. Herrscher, ArChem Company, to continue the program setup by Thames Chelsea for responsible companies to remove materials from the Site (Attachments 4.119 - 4.120, and 4.122).

On January 15, 1992, A.J. Kennard, Environmental Methods, Inc., submitted an environmental assessment report to Mr. John Paul, Agri Concentrate Products Company. Six (6) areas of soil contamination were identified with high levels of Total Petroleum Hydrocarbons and Halogenated Compounds. In addition, low levels of ground water contamination were documented in the samples collected during the assessment (Attachment 4.121).

In March of 1992, spill response actions were undertaken by the TWC in response to releases of BEI (5-norbornene-2,3-dicarboximide) and Tetrahydrofuran materials from tanks and drums at the Site. These releases were addressed by the Ethyl Corporation and Amoco, respectively (Attachments 4.122 - 4.127, 4.128, 4.131, and 4.135 - 4.136).

On March 13, 1992, the U.S. Environmental Protection Agency's Technical Assessment Team (TAT) observed that all on-site liquid containment sumps, secondary containment and surface impoundments contained waste fluids and were at capacity. The TAT reported discharge and runoff paths from these areas were evident (Attachment 4.125).

From April to September of 1992, the TWC hired Laidlaw Environmental Services, Inc. to undertake removal actions to temporarily stabilize the Site until Agri completed purchase of the ArChem Company assets. The TWC's limited action was made on the basis that the Bankruptcy Court Order would require Agri to address all environmental concerns at the Site. The removal action

included: 1) repair of damaged fencing and posting of warning signs; 2) overpacking of 128 drums and lab packing laboratory chemical containers found in a small metal building; 3) lowering of the water level in the two (2) surface impoundments to two (2) feet below grade and off-site shipment of approximately 275,000 gallons of wastewater; 5) lowering of the liquid level in the API Separator (sump) to four (4) feet below grade; and 6) removal of all water from tank/drum containment areas. The API Separator and containment liquids placed in drums and/or frac tanks and left on-site (4.128 -4.129, 4.133, 4.140 - 4.141, 4.147, and 4.150).

During April and May of 1992, at the request of the TWC, Elf Atochem covered two (2) roll-offs containing S-21 (Antimony triacetate) material and repaired a leaking valve on a two compartment tank trailer containing S-21 (Antimony triacetate) material (Attachments 4.133 - 4.134, and 4.150).

On April 23, 1992, a representative from the TWC District 7 Office collected samples from furfural drums and ink drums on the Site. The sample results indicate the liquid in the furfural drums stored next to the "CIBA Room" storage area contain furfural components. In addition, the liquid in ink drum No. 4 located in the large northwest warehouse exhibited the ignitable characteristic for hazardous waste. Also, this liquid contained 1,700 mg/kg of 1,1,1-Trichloroethane (Attachment 4.145).

On August 11 and 12, 1992, the TWC responded to a release of Aluminum Chloride (Adamantane) from the small building at the front gate to the Site. Approximately 80 drums labeled "Adamantane Bottoms" and "AlCl₃" were involved with fourteen (14) drums being overpacked (Attachments 4.138 -4.139).

From June through November, 1992, the TWC worked with representatives from TLR Engineering, Advanced Resins, and SYNTECH on the removal of approximately 10,000 gallons of furfural and furfural alcohol from Tanks 203 and 501 to SYNTECH. Also, the TWC worked with representatives from TLR Engineering, NovaChem, and KMCO on the removal from the Site of approximately 10,000 gallons of butanediol to KMCO processing into a concrete grinding aide (Attachments 4.143 -4.144).

On September 15, 1992, the ArChem Company, Inc., Bankruptcy Case (No. 90-04297-H1-11) was dismissed by order of the United States Bankruptcy Court, Austin, Texas.

On April 15, 1993, the TWC hired EmTech Environmental Services, Inc. to undertake extensive removal actions at the Site. To date, approximately 612,000 gallons of wastewater from the two (2) surface impoundments, frac tanks, API Separator and secondary containment areas has been treated and discharged; approximately 129,000 gallons of reject wastewater has been shipped off-site for

deep well disposal; 353 drums have been overpacked; and contents from 784 furfural drums were repackaged into 134 new 55 gallon drums and the empty drums triple-rinsed and crushed. In addition, 49,360 pounds of hazardous waste were removed from a leaking roll-off and shipped off-site for incineration (Attachments 4.147 - 4.149 and 4.153 - 4.154) .

ARCHEM COMPANY\THAMES CHELSEA SITE

MIGRATION HAZARD MODE COMPUTATION

	S	S ²
GROUNDWATER ROUTE SCORE	68.84	4738.95
SURFACE WATER ROUTE SCORE	0.00	0.00
AIR ROUTE SCORE	0.00	0.00
$S_{gw}^2 + S_{sw}^2 + S_a^2$		4738.95
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		68.84
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73$		39.79