### Declaration for the Record of Decision

### Site Name and Location

Sol Lynn Site is located in Houston, Harris County, Texas

### Statement of Purpose

This decision document represents the selected remedial action for the Sol Lynn site, developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Contingency Plan (40 CFR Part 300).

### Statement of Basis

This decision is based on the administrative record for the Sol Lynn site. The attached index (Attachment A) identifies the items which comprise the administrative record upon which the selection of the remedial action is based.

### Description of the Selected Remedy

This Record of Decision for the Sol Lynn site requires the following actions to address the polychlorinated biphenyls contaminated soil:

- o excavate the soil;
- o treat the soil with alkali metal polyethylene glycolate (APEG);
- o backfill treated soil.

### 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 statutory preference for remedies that employ treatment technologies which permanently and significantly reduce the toxicity, mobility or volume of hazardous substances.

The State of Texas has been consulted and agrees with the approved remedy.

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Robert E. Layton Jr, P.I Regional Administrator

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Sol Lynn Record of Decision Concurrences

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The Sol Lynn Record of Decision has been reviewed and 1 concur:

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Summary of Remedial Alternatives Selection for the Contaminated Soils at the Sol Lynn/Industrial Transformer Site, Operable Unit I Houston, Texas

### I. SITE LOCATION AND DESCRIPTION

The Sol Lynn Superfund site (also known as Industrial Transformers (IT)) is located in Houston, Texas. As shown in Figure 1, the site is located just south of I-610 and west of Highway 288. The Sol Lynn site encompasses approximately three quarters of an acre.

Surface drainage around the site includes shallow ditches that border the site along Knight and Mansard Streets. These two ditches carry surface runoff by slightly different routes to Braes Bayou which empties into Buffalo Bayou then into the San Jacinto River Basin, which ultimately flows into Galveston Bay. The site is outside the 100-year flood plain.

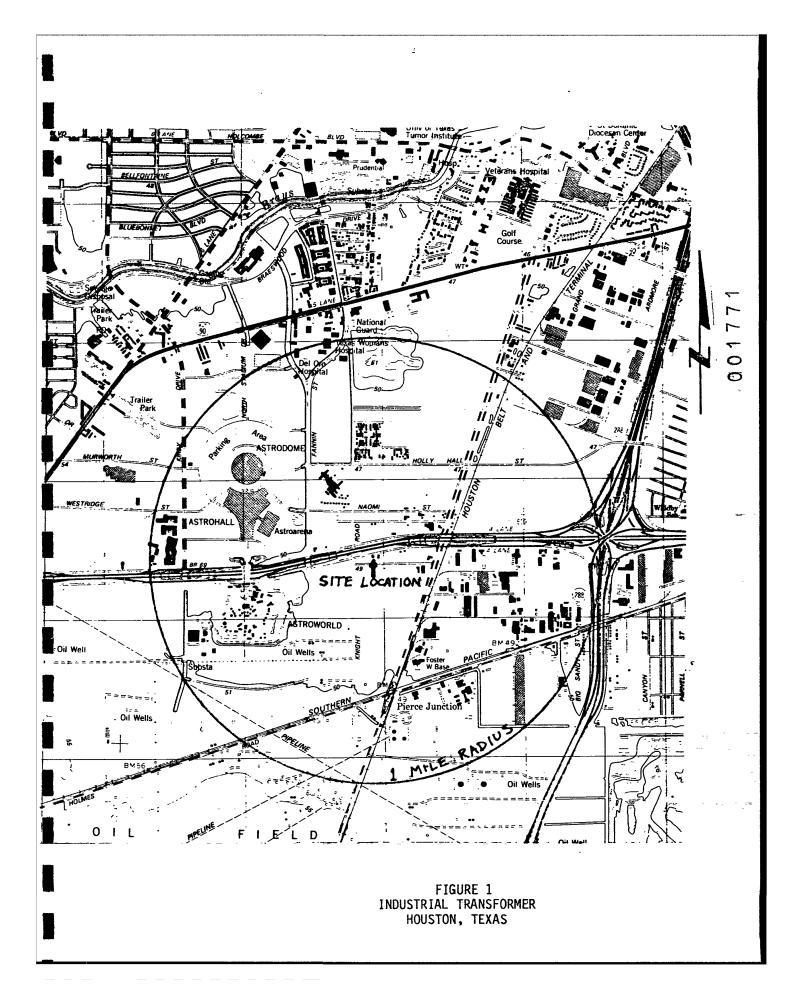
The area around the site is a mix of residential, commercial and light industrial facilities. The light industrial, commercial business area is located directly to the east and south of the site, Astroworld and Astrodome are approximately 4,000 feet to the north of the site, and finally a mix of private, single and multi-family dwellings are approximately 3,000 feet to the west. The residential population is about 2,000 and a maximum daily traffic of 100,000 persons may move within a one-mile radius due to recreational activities associated with the Astrodome and Astroworld.

### Site History

The Sol Lynn site is the location of a former electrical transformer salvage and recycler company which operated between 1971 and 1978. A chemical recycling and supply company subsequently operated at the same location from 1979 through 1980.

The first documented investigation of this site took place during the fall of 1971 when the City of Houston Water Pollution Control Division noted that workers at the Industrial Transformer Company poured oil out of electrical transformers onto the ground as they were being dismantled. In 1981, strong odors originating from the site were brought to the attention of the Texas Department of Water Resources, the predecessor agency of the Texas Water Commission (TWC). Upon inspection it was revealed that approximately 75 drums were scattered about the property. Most of the drums, labeled "trichloroethylene", were empty and had puncture holes.

In October 1984 the site was proposed for inclusion on the National Priorities List. In September 1985, the TWC entered into a Cooperative Agreement with the EPA to conduct the Remedial Investigation/ Feasibility



Study (RI/FS) at the site. Utilizing funds from this cooperative agreement, the TWC contracted with Radian Corporation on June 30, 1986, for a technical assessment of the site. Field work began January 14, 1987.

In an effort to address the obvious contamination in an expeditious manner, the site was broken down into parts called operable units. There is a soil operable unit and a groundwater operable unit. This summary only examines potential remedial alternatives for the soil operable unit. The groundwater operable unit will be addressed in the second, or "Phase II" Feasibility Study.

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### Geology

Surface soils at the site and in the vicinity are of the Lake Charles series. These soils are characterized by somewhat poor drainage and high available water capacity. When the soil is dry, deep, wide cracks form on the surface where water can enter rapidly. When the soil is wet the cracks are sealed and water infiltrates slowly.

Below the surface soil is Beaumont Clay, which is of Pleistocene age. The lithology of the Beaumont Clay is comprised of unconsolidated clays and muds or deposits of clayey sands and silts. The clays and muds were deposited as interdistributary, abandoned channel fill, overbank fluvial or mud-filled coastal lake or tidal creek muds. The sands and silts represent alluvium, levee and crevasse splays.

The uppermost aquifer is encountered at a depth of 30-34 feet below ground surface. This particular aquifer is a water-bearing sand that varies in thickness from 2 feet to 6 feet, averaging 4 1/2 feet. Sand content increases from west to east across the site, from 50% to 70%. This aquifer is not used as a drinking water supply. The groundwater flows to the northwest.

The uppermost water-bearing sand is separated from the next lower, "intermediate" water-bearing sand by a stiff clay, approximately 45 to 52 feet in thickness. The intermediate water-bearing sand is underlain by clay.

The major aquifers in the Houston area are the Chicot and Evangeline. These aquifers supplement surface water in supplying the City with drinking water. In the vicinity of the site the shallowest well for the City of Houston is at 670 feet below the surface. During the groundwater investigation of the site an evaluation of the extent of the contamination and its impacts on these wells will be determined.

### Remedial Investigation Results

During the RI samples were collected from soil, stormwater, and air to determine the nature and extent of contamination.

Because information collected previously by TWC indicates the primary contaminants at the site are polychlorinated biphenyls (PCBs) and trichloroethylene the emphasis for the analytical testing was placed on determining vertical and areal extent of these two contaminants.

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In the samples collected from the upper two feet of soil, concentrations of PCBs varied from 350 ppm at the middle of the site, to 118 ppm at the eastern edge of the site, to not detected in the western part of the site. samples collected at the 2 to 4 foot depth indicated PCBs of less than 5 ppm.

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Seven stormwater samples were collected from "ponded" areas onsite and from the offsite drainage ditch areas. All samples were analyzed for PCBs. Only one sample of "ponded" water at the site near a contaminated area showed PCBs (0.0011 ppm). Two of the samples were analyzed for TCE. Only one sample of "ponded" water shows the presence of TCE at .0026 ppm.

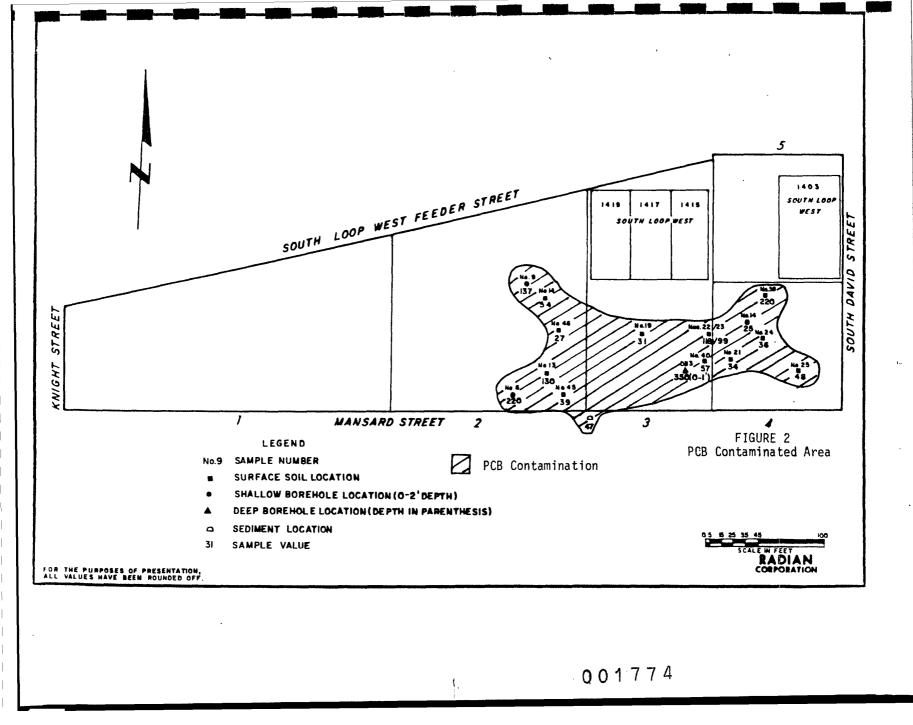
Sediment samples were collected from the same location as the stormwater samples. The results of the sediment sampling showed that only one sample collected in a drainage ditch south of the site exceeded the cleanup criterion. Air samples were also taken. The analysis of the air samples did not detect TCE or PCBs.

In conclusion, analytical results of all samples collected at the site indicate that the PCB contamination is confined to the top two feet of soil and is within the area shown on Figure 2. This constitutes a volume of approximately 2400 cubic yards of contaminated PCB soils that exceed the cleanup criterion. The TCE which is a highly mobile and volatile compound, has migrated much deeper and farther away from the site. Very little TCE remains near the surface because it has either volatilized or moved with the groundwater into the deeper aquifers. The TCE that does remain at the surface will be remediated along with the PCB contaminated soils. Any TCE that has migrated into the deeper groundwater is beyond the scope of this cleanup will be addressed as part of the groundwater operable unit.

### Potential Impacts of the Site on Human Health and the Environment

As part of the remedial investigation, an assessment of the health threat created by the current site conditions was conducted. Factors included in this risk assessment were the identified target receptors, the maximum concentrations of PCBs onsite, and the degree of exposure to the hazards from the site. Target receptors identified in the assessment included the workers, trespassers, and clientele of the business which currently operate at the site.

The results of the risk assessment indicate that the highest concentrations of PCBs found onsite present a  $10^{-3}$  (one thousand in one million) lifetime



cancer risk. The major pathways of exposure are dermal and ingestion. This level represents the threat that would be posed by the site . conditions if no remedy was implemented.

The extent of remedial action necessary is based on a comparison of the contaminant concentrations found at the site to either 1) existing healthbased standards or criteria; or 2) concentrations that would represent a  $10^{-4}$  to  $10^{-7}$  lifetime cancer risk. A health-based criterion for PCB contaminated soil is available (Toxic Substances Control Act Spill Cleanup Policy, Fed. Register, April 2, 1987). This criterion, 25 ppm, which assumes a worker is exposed to the site of eight hours per day for a 40 year period was chosen as the cleanup standard.

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### II. Enforcement

The goal of the EPA is to have those parties responsible for contamination of the site perform the cleanup. There are three identified potentially responsible parties (PRPs) for the IT site. These parties will be given the opportunity to conduct or participate in the remedial action selected for the site. If they refuse, EPA will proceed with funding the remedial design and implementation.

### III. Community Relations History

The Industrial Transformer Superfund site was proposed for the National Priorities List (NPL) in October 1984. In February 1985 the U.S. Environmental Protection Agency (EPA) and the Texas Water Commission (TWC) held a public meeting in Houston for residents near the site to discuss site conditions and the Superfund Program/Process. Approximately 15 people attended the meeting. On October 3, 1985, EPA issued a news release announcing that funds to study the site had been awarded to the TWC.

Initiation of studies on Industrial Transformer was announced by TWC at a public meeting in Houston on September 24, 1986. Evaluation of the site was divided into two separate studies: 1) surface soil contamination; 2) groundwater contamination. The study addressing surface soil contamination was completed in December 1987. On January 21, 1988, EPA announced to the public via a news release that a public meeting would be held on February 2, 1988, to discuss the proposed remedy for surface contamination at the site. The groundwater study is expected to be completed in 1989.

An EPA prepared fact sheet which described alternative remedial actions for the soil contamination along with the EPA preferred alternative was sent to the interested and affected public shortly after the public meeting was announced. EPA and TWC conducted the 7:00 pm public meeting at the Astro Village Hotel on February 2, 1988. Approximately 35 people attended the public meeting.

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Further details on community relations are contained in Attachment B.

### IV. Alternatives Evaluation

The requirements, procedures and preferences that the EPA follows in selection of a Superfund remedy are outlined in the Comprehensive Environmental Response Compensation and Liability Act, (CERCLA) as amended by the Superfund Amendments and Reauthorizaton Act (SARA), the National Contingency Plan (40 CFR Part 300) and various applicable guidelines. The following describes the evaluation criteria used in selection of a remedy for the IT site.

### A. Evaluation Criteria

- 1. <u>SARA Requirements</u>-Section 121(a) through (f) of SARA contains three factors which EPA must consider in selecting a remedy.
  - a. Protection of Human Health and the Environment.

The alternative must provide adequate protection of human health and the environment.

b. Cost Effective

Cost effectiveness includes an evaluation of the following criterion:

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i. Long-term Effectiveness and Permanence

Alternatives are assessed for the long-term effectiveness and permanence they afford along with the degree of certainty that the remedy will prove successful. Factors considered are:

- magnitude of residual risks in terms of amounts and concentrations of waste remaining following implementation of a remedial action, considering the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous substances and their constituents;
- type and degree of long-term management required, including monitoring and operation and maintenance;
- long-term reliability of the engineering and institutional controls, including uncertainties associated with land disposal of untreated wastes and residuals;

### ii. Short-term Effectiveness

The short-term effectiveness of alternatives must be assessed; considering appropriate factors among the following:

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- magnitude of reduction of existing risks;
- short-term risks that might be posed to the community, workers, or the environment during implementation of an alternative including potential threats to human health and the environment associated with evacuation, transportation, and redisposal or containment;;
- time until full protection is achieved.
- potential need for replacement remedy.
- potential for exposure of human and the environmental receptors to remaining waste considering the potential threat to human health and the environment associated with excavation, transportation, redisposal or containment.

### iii. Implementability

The ease or difficulty of implementing the alternatives are assessed by considering the following types of factors:

- degree of difficulty associated with constructing the technology;
- expected operational reliability of the technology;
- need to coordinate with and obtain necessary approvals and permits (e.g. NPDES, Dredge and Fill Permits for off-site actions) from other offices and agencies;
- availability of necessary equipment and specialists;
- available capacity and location of needed treatment, storage, and disposal services.
- compatibility with existing future land use.
- need to respond to other sites
- iv. Cost

The types of costs that should be assessed include the following:

- capitol cost;
- operational and maintenance costs;

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- cost of five-year reviews, where required
- net present value of capital and O&M costs;
- potential future remedial action costs.
- c. Compliance with applicable or relevant and appropriate Federal and State regulations

In determining appropriate remedial actions at Superfund sites, consideration must be given to the requirements of other Federal and State laws. Alternatives should be assessed as to whether they attain legally applicable or relevant and appropriate requirement of other Federal and State public health and environmental laws. Requirement under Federal and State laws that specifically address the circumstances at a Superfund site are considered applicable. Relevant and appropriate requirements, while not applicable to a Superfund site, address situations which are sufficiently similar to those existing at the site.

- 2. <u>SARA Preferences</u>. The EPA is also directed by SARA to give preference to remedial actions which reduce the toxicity, mobility or volume of the waste. Relevant factors are:
  - the treatment processes the remedies employ and materials they will treat;
  - the amount of hazardous materials that will be destroyed or treated;
  - the degree of expected reduction in toxicity, mobility, or volume;
  - the degree to which the treatment is irreversible;
  - the residuals that will remain following treatment, considering the persistence, toxicity, mobility, and propensity for bioaccumulation of such hazardous substances and their constituents.
- 3. EPA Guidelines-It is EPA policy is to consider other factors in factors in selection of a remedy. These are:

a. Community Acceptance

This assessment should look at:

• components of the alternatives which the community supports;

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features of the alternatives about which the community has reservations;

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elements of the alternatives which the community strongly opposes.

### b. State Acceptance

Evaluation factors include assessments of:

- components of the alternatives the State supports;
- features of the alternatives about which the State has reservations;

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• elements of the alternatives under consideration that the State strongly opposes.

### B. Description of Alternatives

In conformance with the NCP, an initial set of remedial approaches were screened to determine whether they might be appropriate for this site. From these possible remedies, eight alternatives were chosen for more detailed evaluation and comparison with the remedy selection criteria outlined above. Each is summarized below:

<u>Alternative 1, No Action</u> - For this remedy, no new or additional remedial actions will be conducted. There are some costs associated with closing out the site, which include plugging monitoring wells, dismantling remedial investigation equipment and the decontamination pad.

In addition, long term monitoring activities would be required. Groundwater, soil sediment, and air samples will be taken at an approximate cost of \$10,000 per year. The present worth of this alternative costs is estimated to be \$450,200 for 30 years.

Alternative 2, Off Site Landfill - In the off site landfill alternative, PCBs above 25 ppm in the soil would be excavated, transported, and disposed at an off site PCB landfill. Approximately 2500 cubic yards of soil will require excavation and transport several hundred miles to an appropriate facility, necessitating over 168 dump trailer loads. The off site landfill will be specifically permitted for the disposal of PCBs and in compliance with the Resource Conservation and Recovery Act and TSCA. The estimated cost of this alternative is 2.3 million.

<u>Alternative 3, Stabilization and Off Site Landfill</u> – This alternative is the same as Alternative 2, except prior to disposal the excavated soils will be stabilized with a cement-type mixture to enhance binding of the toxic substances to the soil. The estimated cost of this alternative is \$3.5 million.

Alternative 4, In-Situ Glassification - This is an innovative technology which uses an electric current passed between electrodes in the ground to convert the soils into a stable glass material resembling natural obsidian.

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Implementation of this process would require power in the form of locally supplied electricity. A square array of four electrodes is placed in the soil to the desired treatment depth, at lest two feet in this case. A mixture of graphite and glass frit is spread between the electrodes to act as a starter path for the electric current established by the potential applied to the electrodes. The current heats the starter path and adjacent soils to  $3600^{\circ}$ F, well above normal melting temperatures of most soils. The molten soils incorporate the inorganic constituents and pyrolysis the organic ones. The pyrolysis byproducts migrate to the surface and combust in the presence of oxygen. A hood placed over the treatment area collects the gases for treatment. Following glassification more topsoil will be added and revegetated. This alternative may require a pilot scale test to determine the most effective electrode spacing and depth of soil treatment. The estimated cost for this alternative is \$1.5 million.

Alternative 5, On Site Incineration - This alternative consists of excavating contaminated soils and incinerating them onsite using the most suitable of several types of mobile or transportable thermal destruction units.

After excavation the soils will be stored temporarily in waste piles then fed into an on site incinerator. The incinerator exhaust gases will be scrubbed prior to venting to the atmosphere. If the ash is hazardous it will be disposed of in a RCRA approved off site landfill (as described in Alt. 2). If not it would be disposed on site. Following excavation the topsoil will be replaced and revegetated. The es timated cost for this alternative is \$2.5 million.

### Alternative 6, Off Site Incineration

This remedy would require the excavation and transportation or two feet of soil in bulk to an off site commercial incineration facility that complies with RCRA.

Transport and regrading will be as described for Alternative 2. The soils will be transported in bulk to an off site commercial incin-

cineration facility in compliance with Section 121 (d) of CERCLA as amended by SARA. The cost of this alternative is estimated at \$6.1 million.

Alternative 7, Chemical Treatment - This is a new technology which results in the dechlorinization of PCBs by mixing soils with alkali metal polyethylene glycolate complex (APEG) in a batch reactor. This treatment changes the chemical composition of the PBCs by chemically reacting with the chlorine atoms occur until they are completely dechlorinized. This process yields polyglycol byproducts that are non-toxic. This technique would be proven effective by implementing treatability testing. This alternative is estimated to cost \$2.2 million.

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<u>Alternative 8, Biological Treatment</u> - This is a new technology in in the hazardous waste field. Wastes are used as a food source for the microorganisms in a slurry medium with mechanical or diffused air supplying oxygen to the microbes. For this alternative the soil will be excavated and treated in a batch system on site. The estimated cost is \$3.3 million.

### Evaluation of Alternatives

An evaluation of the alternatives is shown on Table 1. The following values were assigned to compare remedial selection criteria:

- + Alternative would exceed a criterion in comparison to other alternatives.
- 0 Alternative can be designed to meet the selection criterion.
- In comparison to other remedies, this alternative will present difficulty in achieving a selection criterion.
- 1. <u>Complies with ARARs</u> (meets or exceeds Applicable, or Relevant and Appropriate Federal and State Requirements).

Table 2 delineates the Federal and State statutes which are applicable or relevant and appropriate (ARARs). In all instances where the regulation is considered applicable or relevant and appropriate, those requirements will be met.

- 2. Reduces Toxicity, Mobility, and Volume
  - a. <u>No Action</u> was rated "-" for reducing mobility and toxicity because it does nothing to reduce these parameters. The volume will not change so it was rated a "O".
  - b. Off Site Landfill was rated a "O" for mobility because the landfill encapsulate the waste from the environment as long as all the containment features remain intact. Because of the risk of future leakage from a landfill, total immobilization can not be assured. The toxicity will not change so it was rated "-" and the volume will stay the same.

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TABLE 1

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### COMPARISON OF REMEDIAL ALTERNATIVES

### INDUSTRIAL TRANSFORMER SUPERFUND SITE

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ALTERNATIVES	MOE	REDUC	ES	EFFECTI SHORT-TERM		IMPLEMENT- ABILITY	COST \$ MILLION	
1. NO ACTION	-	-	0	0	-	+	.45	
2. OFF-SITE LANDFILL	0	-	0	-	-	- +	2.3	
3. STABILIZATION AND OFF-SITE LANDFILL	+	-	-	-	0	+	3.5	
4. INSITU GLASSIFICATION	+	+	+	0	+	-	1.5	
5. ON-SITE INCINERATION	+	+	+	-	+	+	2.5	
6. OFF-SITE INCINERATION	+	+	+	-	+	+	6.1	
7. CHEMICAL DECHLORINIZATION	+	+	+	0	+	0	2.2	
8. BIOLOGICAL TREATMENT	+.	+	+	0	+	0	3.3	
LEGEND					ABBRE	VIATIONS	-	
<pre>+ = Alternative would exceed     other alternatives</pre>	l criteri	ion in	compari	son to	MOB =	• Mobility		
0 = Alternative can be designed to meet criterion					TOX = Toxicity			
- = Difficult for alternativ	-				VOL =	Volume		
			Lei Joll		00178	2		

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egulation		Remedial A	lternatives			
		Remedial Alternatives				
	1) No Action	Off-Site 2) Landfill	Stabilization With Off-Site 3) Landfill	Insitu 4) Glassification		
sage and disposal f PCBs (40 CFR 761)	NA	А	A	R		
aste storage/treatment	NA	A	A	R		
and disposal ban	NA	A	A	R		
) Incineration Regulation (40 CFR 265)	s NA	NA	NA	NA		
	A	А	A	. A		
ransport of azardous waste	NA	A	A	NA		
azardous waste	NA	A	A	R		
				•		
ill be met requirement will be met						
	) Operation of hazardous aste storage/treatment acilities (40 CFR 264) ) Hazardous waste and disposal ban 40 CFR 268) ) Incineration Regulation	<ul> <li>Operation of hazardous NA aste storage/treatment acilities (40 CFR 264)</li> <li>Hazardous waste NA and disposal ban 40 CFR 268)</li> <li>Incineration Regulations NA (40 CFR 265)</li> <li>rotection standards for A orkers (29 CFR 1910)</li> <li>egulates the NA ransport of azardous waste 49 CFR 179)</li> <li>peration of NA azardous waste torage</li> <li>ill be met</li> </ul>	) Operation of hazardousNAAaste storage/treatment acilities (40 CFR 264)NAA) Hazardous wasteNAAand disposal ban 40 CFR 268)NAA) Incineration RegulationsNANA(40 CFR 265)AArotection standards for brkers (29 CFR 1910)Aegulates the ransport of azardous waste 49 CFR 179)NAAperation of azardous waste torageNAA	) Operation of hazardous       NA       A       A         aste storage/treatment       accilities (40 CFR 264)       NA       A       A         ) Hazardous waste       NA       A       A       A         and disposal ban       NA       A       A       A         40 CFR 268)       NA       NA       NA       NA         ) Incineration Regulations       NA       NA       NA         (40 CFR 265)       A       A       A         rotection standards for       A       A       A         orkers (29 CFR 1910)       A       A       A         egulates the       NA       A       A         ransport of       NA       A       A         azardous waste       49 CFR 179)       A       A         peration of       NA       A       A         azardous waste       A       A       A         ill be met       MA       A       A		

	Summary c and Appropr	iate Enviro	nmental Statutes			
<u>Statute</u>	Regulation	Remedial Alternatives				
		site cineration	Offsite 6) Incineration	Chemical 7) Dechloriniza		
Toxic Substance and Control Act (TSCA)	Usage/Disposal	R	R	R		
Resource Conservation and Recovery Act	A) Operation of hazardous waste storage/treat- ment facilities (40 CFR 264)	R	A	R		
	B) Hazardous waste land disposal ban (40 CFR 268)	R	R	R		
ı	C) Incineration Regulations (40 CFR 265)	A	A	NA		
Occupational Safety and Health Act	Protection standards for workers (29 CFR 1910)	A	A	Α		
Department of Transportation	Regulates the transport of hazardous waste (49 CFR 179)	NĂ	A	NA		
Texas Solid waste Disposal Act	Operation of hazardous waste storage	R	A	R		
KEY						

- c. <u>Stabilization with Off Site Landfill</u> was rated a "+" for mobility. Stabilization before landfilling will immobilize the waste before containment. The toxicity will not change so it was rated "-" and the volume will greatly increase due to the fixatives added to stabilize the waste so it was rated a "-".
- d. In-Situ Glassification was rated with a "+" for mobility because this method convert the soils into a stable material resembling natural obsidian. It was rated a "+" in toxicity reduction because it would be expected to destroy PCBs in the soil with a greater than 99.9999% destruction efficiency. Glassification will reduce the volume of toxic substances substantially, therefore it is rated a "+".

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- e. On Site and Off Site Incineration were given a "+" for reducing toxicity, and mobility because thermal destruction destroy organics in the soil. Soil will not burn, therefore the volume of soil will not be substantially reduced, however, since the volume of contaminants will be reduced these are rated a "+" on volume reduction.
- f. <u>Chemical Dechlorinization</u> was given a "+" for reducing mobility and toxicity because studies show that PCBs will be eliminated. After treatment the volume of remaining material is relatively unchanged because the material treated is soil. However, since the volume of contaminants will be reduced this rated a "+" on volume reduction.
- g. <u>Biological Treatment</u> was given a "+" for reduction in mobility and toxicity because studies show that PCBs can be biodegraded. The volume of toxic substances will be reduced therefore this alternative was rated a "+" for this criterion.

### 3. Short Term Effectiveness

- a. <u>No Action</u> does nothing to reduce the existing risks. However, because there are no construction activities that will occur there is no potential for increased exposure to workers or the community. Therefore, the overall risks tend to balance each other out for this criterion giving an overall "O" ranking.
- b. Off Site Landfill and Stabilization with Off Site Landfill these alternatives do involve construction activities so there is an increased potential for exposure to the workers. These risks include possible spillage during transportation and the increased contact with the soil the workers experience during excavation. The construction activities are expected to take only a couple of months. For these reasons the landfill alternatives rated a "-".
- c. <u>In-Situ Glassification</u> has the advantage of no excavation, however gases are produced as the soil is melted. The gases produced will be treated and rendered non-hazardous. Therefore it was graded a "O" for short-term effectiveness.

- d. On Site Incineration received a "-" for short-term effectiveness. As previously stated excavation poses a short-term potential health hazard to the workers. Although there will be gases produced from the incineration these gases are primarily non-hazardous and will not impose any significant increased health risks to the community. Air monitoring will be concurrent with any incineration. Time requirements should be approximately two months for the test burn treatability study and another four months for the treatment itself.
- e. <u>Off Site Incineration</u> received a "-" for short-term effectiveness because the soil must be excavated, as well as transported, increasing exposure to the workers and the community. Due to scheduling problems with incinerators, implementation of this alternative may take several years.

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f. <u>Chemical Dechlorinization and Biological Treatment</u> were given "O" for short term effectiveness. Although the worker will be wearing protective gear excavating the contaminants will expose the workers to the contaminants more than an insitu process will.

### 4. Long-term Effectiveness and Permanence

- a. <u>No Action</u> allows for further migration of the contaminants in the environment and therefore this alternative received a "-".
- b. <u>Off Site Landfill</u> was given "-" because a landfill may allow for the potential of migration if the liner is not maintained and is therefore, the least preferred alternative under SARA.
- c. <u>Stabilization with Off Site Landfill</u> was given a "O" for long-term effectiveness because it offers a more permanent solution than landfilling alone but the wastes are not destroyed as in the other treatment alternatives.
- d. In-Situ Glassification, Chemical Dechlorinization, Off and On Site Incineration and Biological Treatment were given a "+" because they eliminate the contaminant thereby rendering both long-term and permanent solutions. Little to no maintenance is required for these alternatives. Glassification, chemical dechlorinization and biological treatment are all innovative technologies, therefore, there is a degree of uncertainty associated with these methods not associated with off or on site incineration.
- 5. Implementability
  - a. <u>No Action</u> is very simple to implement therefore, it rated a "+". There are no construction activities, only setting up monitoring systems.

- b. Off Site Landfill, Stabilization with Off Site landfill and Off Site <u>Incineration</u> were given a "+" because of the minimum amount of difficulty that would be expected from simply excavating the waste and taking them off site for disposal. These alternatives are very compatible with both existing and future land uses.
- c. <u>In-Situ Glassification</u> was given a "-" because there will be some difficulty associated with the construction of this process. It is a new technology and there will be a need for special equipment and specialists. Furthermore, this method causes the soil to contract which may cause structural problems with the existing buildings located on the site.

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- d. <u>On Site Incineration</u> was rated a "+". This technology is new. There is some difficulty associated with the construction setup and trial test burn, however this technology has proven to be reliable in the past. Ample room exists at the site to set up and operate an on site incinerator.
- e. <u>Biological Treatment and Chemical Dechlorinization</u> were both given a "O" because they are innovative technologies. Excellent results have been obtained in field tests on both processes which are being considered and implemented on other Superfund sites. There is ample available space at the site for both of these technologies. They are compatible with current and future land uses.

6. Cost

Estimated costs for each remedial action alternative are summarized in Table 1. A breakdown of this cost may be found in Appendix A of the Feasibility Study.

7. Community Acceptance

The public comment period began January 25, 1988 and ended February 24, 1988. The public meeting was held Febuary 2. One comment was received during the public comment period objecting to the recommended alternate from a vendor of a different technology.

8. State Acceptance

The State of Texas (Texas Water Commission) has concurred with chemical dechlorinization as the treatment alternative.

9. Overall Protection of Human Health and the Environment

"No Action" does not protect human health and the environment. Off Site Landfill, Stabilization with Off Site Landfill and Off Site Incineration,

protect human health and the environment more than the "no action" alternative, however, all require excavation and transportation which increases the exposure of the workers and the community to the PCBs. Glassification does not require excavation or transportation and does provide protection to human health and the environment. It destroys the contaminant and therefore eliminates the threat of dermal contact and ingestion. However, because buildings are located on site it is not technically feasible. Chemical Dechlorinization, Biological Treatment and On site Incineration all require excavation for treatment. These treatments processes do meet the TSCA Spill Cleanup Policy recommendation for the protection of human health and the environment. They destroy the contaminant and thereby eliminate the threat of dermal contact and ingestion, and they are SARA preferred remedies.

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### Selected Remedy: Dechlorinization

### Rationale

As previously stated, based on the information available to evaluate the eight remedial options against these nine criteria, EPA has concluded that Alternative 7, Chemical Dechlorinization, is the Agency's selected alternative. This alternative is protective of human health and the environment, attains all applicable or relevant and appropriate Federal and State requirements and is cost effective. This alternative satifies SARA's preference for a remedy which employs treatment as the principal element to reduce toxicity, mobility or volume.

Treatability studies will be conducted during the design phase of the project. The contaminated soils will be excavated and an alkali metal polyethylene glycolate reagent (APEG) will be applied. This reagent dechlorinates the PCBs, rendering them harmless. After treating the soil to or below a PCB concentration of 25 ppm, the liquid byproducts of this treatment may be pretreated if necessary and discharged into a public owned treatment works facility.

### Operation and Maintenance (O&M)

The need for future operation and maintenance will be minimized since the contamination will be removed. Site operation and maintenance will include a shallow groundwater sampling and analysis program which will be included with the remedy for the groundwater. Additional site maintenance will entail the inspection and care of the surface vegetation.

### Future Actions

No future actions are anticipated for the soil. The selected remedial action will afford a high degree of permanence.

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### Remedial Action Schedule

Approve Remedial Action (sign ROD)	March 1988
Complete Enforcement Negotiation Award Cooperative Agreement Amendment for Design of approved Remedy	Sept. 1988 Sept. 1988
Start Design	Oct. 1988
Complete Design	Dec. 1989
Award Remedial Action Cooperative Agreement Amendment for Construction of approved Remedy	Dec. 1989
Start Construction	June 1990
Complete Remediation	June 1991

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### ATTACHMENT A

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# ATTACHMENT B

Sol Lynn Houston, Texas Responsiveness Summary

# This community relations responsiveness summary is divided into two sections:

Section I: Background on Community Involvement and Concern This section provides a brief history of community interest and concerns raised during the remedial planning activities at the Sol Lynn Superfund site.

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- Section II: Summary of Public Comments Received During the Public Comment Period and the EPA Responses to Comments Both the written and spoken comments are categorized by topics. EPA responses to these relevant major topics are also presented.
- I. Background on Community Involvement

Initiation of studies on Industrial Transformer was announced by TWC at a public meeting in Houston on September 24, 1986. Evaluation of the site was divided into two separate studies: 1) surface soil contamination; 2) groundwater contamination. The study addressing surface soil contamination was completed in December 1987. On January 21, 1988, a news release that a public meeting would be held on February 2, 1988, to discuss the proposed remedy for surface contamination at the site was issued. The groundwater study is expected to be completed in 1989.

An EPA prepared fact sheet which described alternative remedial actions for the soil contamination along with the EPA preferred alternative was sent to the interested and affected public shortly after the public meeting was announced. EPA and TWC conducted the 7:00 pm public meeting at the Astro Village Hotel on February 2, 1988. Approximately 35 people attended the public meeting.

II. <u>Summary of Public Comment Received During Public Comment Period and</u> Agency Responses

This section gives the EPA's responses to the comments during the public comment period. There was only one verbal statement made at the public meeting which was a letter from Ira E. Tobolowski and read by Mr. Sol Lynn. This letter was received by EPA and is addressed along with all the other written comments received during the public comment period in the following summary.

A. <u>Comments from Ira E. Tobolowski on behalf of Mr. Sol Lynn, a</u> responsible party

Comment #1

The results of EPA done by the EPA, TWC and Mr. Sol Lynn indicate there is no contamination hazardous to human health and the environment at the site. This is supported by Exhibits B, D, E, F, J, K, L, M, and N which were attached to the letter.

# Response

The EPA disagrees. Exhibits B, D, and E (soil and water sample results dated May 15, 1985 and January 31, 1985) show low level PCB contamination. These sampling points are outside the contaminated zone. The data concerning TCE in the groundwater is not applicable to this particular study but will be considered in the Phase II results.

Exhibits F and G (sample results dated March 6, 1985 and April 12, 1985) also show PCB contamination above the established 25 ppm cleanup level. These tests were not funded by the TWC or the EPA and no data quality documentation was presented with the results. Therefore, this data is unacceptable.

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Exhibits K, L, and M are results of water samples which containing TCE. These results pertain again to the Phase II study in which the groundwater will be considered.

Exhibit J is a memo dated April 17, 1985, stating low levels of PCB and TCE exist at the site. This memo refers to a map and historical summary of soil and water sampling at the site which was not attached to the memo, therefore, no comments can be made about level or or the location of the contamination referred to in this memo.

#### Comment #2

The data obtained by Radian Corporation for the Texas Water Commission is not accurate. There are serious quality assurance, quality control problems as supported by Exhibits S and T.

# Response

The EPA disagrees. Exhibits S and T are memos from ERT dated March 4, 1987, and April 20, 1987, discussing the installation of monitoring wells at the site. This again relates to the Phase II study. However, it can be stated that all field laboratory data analyses were performed according to standard EPA protocol. These procedures were outlined in a site specific quality assurance/quality control plan. There were no significant deviations from this plan, such as to cause serious problems or questions with any of the data collected for the remedial investigation.

#### Comment #3

Mr. Sol Lynn has been harassed by the Texas Water Commission, the Texas Attorney General and the Environmental Protection Agency.

#### Response

EPA disagrees. In dealing with Mr. Lynn who is a potentially responsible party under CERCLA, the EPA simply carried out those procedures outlined in the National Contingency Plan for the identification, notification and participation of responsible parties in the remediation of Superfund sites.

#### Comment #4

Exhibit R indicates that the EPA has wasted the tax payers money on this site.

#### Response

Exhibit R is a copy of the Project Sampling Plan for the Remedial Investigation and Feasibility Study at Industrial Transformer site prepared by Radian Corporation for the Texas Water Commission dated October 13, 1986. This report does not document EPA cost expenditures. Funds expended at the site are justified because of the threat to human health and environment.

#### Comment #5

Exhibit C and O are secret memos indicating the EPA considered dropping the site from Superfund.

#### Response

The EPA disagrees. These are not secret memos but rather records of telephone conversations. The EPA has never considered dropping the site from the National Priority List. Exhibit C dated September 25, 1985, is a memo stating the Texas Attorney General did not want to file against Mr. Lynn for the clean up of the site. Exhibit O is the record of a phone conversation in which an employee of the Texas Department of Water Resources inquired if the EPA planned to remove the Sol Lynn site from the National Priorities List.

#### B. Comments from Detox Industries, a bioremediation vendor.

Comment #1

A review of the detailed cost breakdown for the recommended alternative indicates an error in addition.

#### Response

EPA agrees. There was an error in the addition of the direct activity costs for the dechlorinization alternative. The total present worth should be \$2,178,562 not \$1,773,660 as indicated in the Feasibility Study. This alternative, as corrected, is still 01823

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\$300,000 less expensive than the other technically feasible treatment alternatives that provide an equivalent level of protection for human health and the environment. Therefore, it remains the most cost-effective remedy for the Industrial Transformer site.

#### Comment #2

In-situ biological treatment was improperly eliminated in Chapter 3 of the Feasibility Study.

#### Response

The in-site treatment of contaminated soils using microbes was screened out because it would take significantly longer than the other technologies considered. This inordinate length of time for cleanup would interfere with possible remedial action to be taken for the groundwater as well as further disrupt businesses operating at the site.

#### Comment #3

In-situ biodegradation is less expensive and takes only six months.

#### Response

Data collected at another Superfund site indicates that PCBs adsorbed to soils cannot be biodegraded to 25 ppm in six months and in fact it will take much longer. Therefore, it was screened out as being technically infeasible in comparison with the other alternatives considered, costs not a factor

# C. Comments from Gulf States Utilities a potentially responsible party

#### Comment #1

The quality assurance project program for PCB analysis did not meet work plan objectives; consequently, all soil PCB data is in question. A review of the data indicates the Quality Assurance objective of <50% relative percent difference was consistently exceeded. Therefore, the PCB soil data is invalidated and should not be included in the Site Investigation Report or used as a basis for selecting a remedial alternative or determining potential public health impacts.

# Response

The EPA disagrees that the PCB data is invalidated because of consistently exceeding the <50% relative percent difference on colocated samples. In those two instances where co-located samples 01824

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were taken in the remedial investigation, the relative difference was 18.5 and 85.7 percent, respectively. With respect to the first set of co-located samples an error was made in the Site Investigation Report text. The actual samples that were duplicated were numbers 22 and 23 not 23 and 24 as indicated. A comparison of samples 22 and 23 give 18.5 percent relative difference. In the other instance where the relative difference was 85.7 percent, both of samples had extremely low concentrations of PCBs where it is not unusual to find significant differences.

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#### Comment #2

The RI fails to state whether the "uppermost water-bearing zone" is in an unconfined hydraulic state (water table condition) or a confined hydraulic state (artesian pressure). Knowing this is fundamental to assessing the potential for surface and near surface contaminants to move downward to the "uppermost water-bearing zone." The very generalized lithologic information in the RI implies that at least 20 feet of clay overlies the "uppermost water-bearing zone"; other data and narrative statements imply that the static water level of this zone ranges from about 3 to 5 feet below ground surface. If this is true, it would appear that the "uppermost water-bearing zone" is in a confined to semiconfined hydraulic state. Therefore, the potential for downward migration of surface contaminants would be orders of magnitude lower than if the zone is in an unconfined hydraulic state.

#### Response

We acknowledged that the hydrogeology of the site was not completely defined in the remedial investigation, however, it was not the intent of this study. Our main objective for the first study was to identify the extent of PCB soil contamination on site. The groundwater and deep soil TCE issue at the site will be covered in Phase II where a more complete geohydrological study will be done.

#### Comment #3

The soil PCB contamination objective of 25 ppm was obtained from the Toxic Substances Control Act (TSCA) PCB spill cleanup policy rule (FR, 2 APR 87), not from a site-specific risk assessment. It is unclear as to the applicability of this TSCA policy as an Appropriate, Relevant, and Applicable Regulation (ARAR).

#### Response

The Toxic Substances Control Act cleanup level of 25 ppm was considered relevent because it assumes an industrial setting with possible worker exposure for eight hours per day for a 40 year period. The Industrial Transformer site is likewise in an industrial setting with active businesses on site. Therefore, situations were similar enough to apply the TSCA cleanup standard.

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#### Comment #4

A decontamination objective of 100 ppm in the soil was selected as the appropriate concentration at the Geneva Industries, Superfund site in Houston as per the Record of Decision (ROD) of 9/18/86. There was no discussion or consideration of this decision as a part of this RI/FS. A decontamination objective of 100 ppm at the Industrial Transformer site would have major implications as to the remedy selection and cost.

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#### Response

The difference in cleanup levels is the result of the conditions which exist at the two sites. The Geneva Industries site is an abandoned facility. In addition to the higher cleanup criterion of 100 ppm, a RCRA compliant cap was placed over the entire surface of the site. This cap, which must be maintained by the State, will limit incidental exposure to the PCB contaminated soil. A cap of this type was nor feasible at the Industrial Transformers site because of the businesses currently operation at the site. As was discussed in EPA's response to comment #3, a 25 ppm cleanup level is needed to protect the health of the workers at the site without closing the businesses.

#### Comment #5

A remedy consisting of partial soil removal (<1 foot) and hot spot removal and treatment to soil concentrations of less than 25 ppm was not considered. This would drastically reduce the volume of soil to be remediated, and consequently be a more cost-effective solution.

#### Response

The complexity and expense associated with excavating a hot spot, testing, excavating, then retesting makes hot spot removal technically impractical.

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