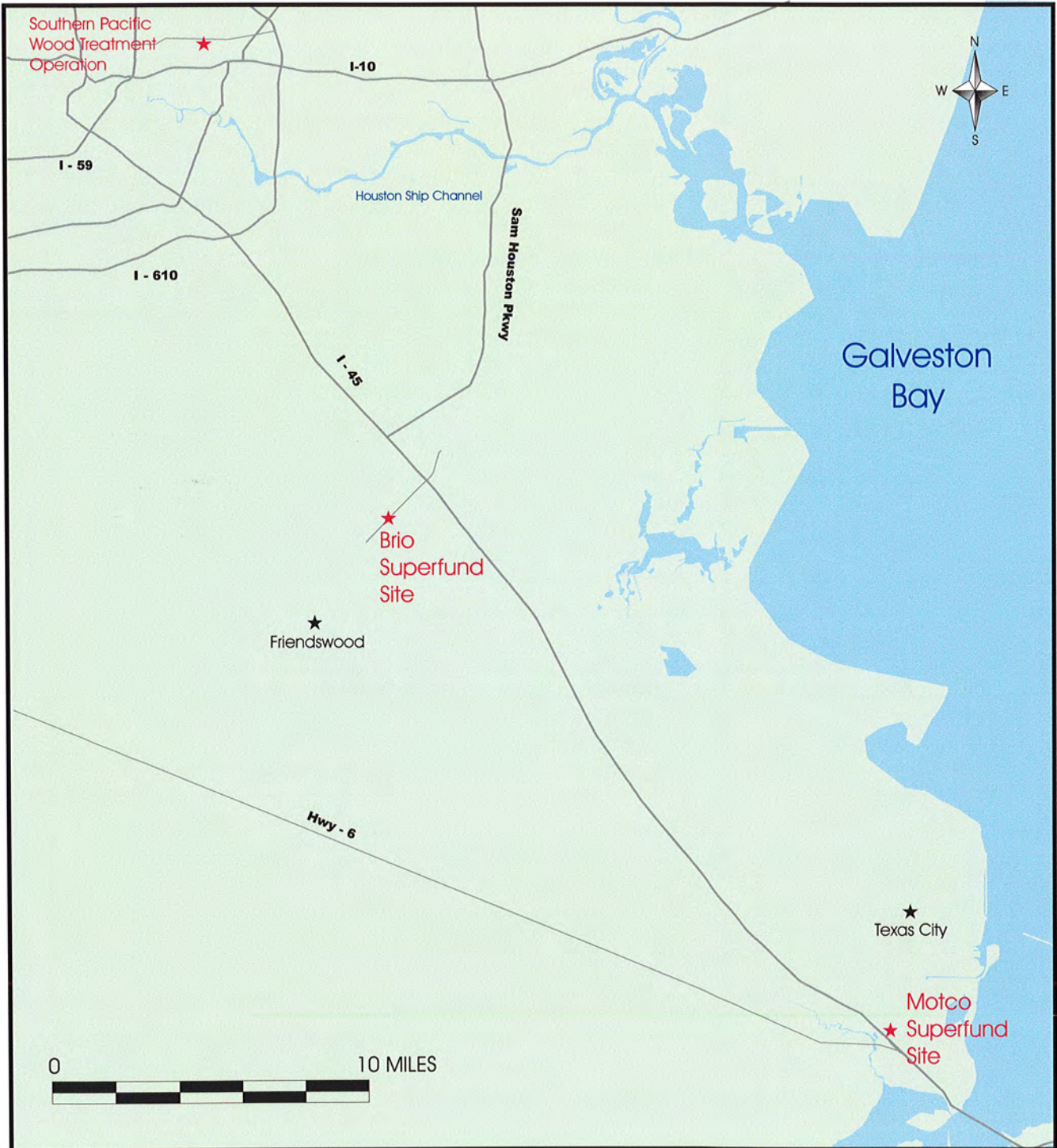


The Southern Pacific Project - A Preliminary Report



The Southern Pacific Project - A Preliminary Report

Prepared for Girardi & Keese

April 19, 1999



Jim TARR
4-19-99



Introduction

A project was undertaken to compile certain facts related to the use of industrial waste at the Southern Pacific Railroad Company wood treating operation in Houston, Texas. This report describes the information found related to the degree and extent of chemical contamination at the Southern Pacific Railroad Company wood treatment site located at 4910 Liberty Road in Houston, Texas. The information collected focuses on the amounts and constituents of industrial waste shipped to the site as well as the source of those wastes. The report is divided into the following sections:

1. Description of the Southern Pacific operation
2. Description of the Brio superfund site
3. Description of the Motco superfund site
4. Relevant health effects studies
5. Existing conditions at the former Southern Pacific wood treatment operation in Houston
6. Personnel with knowledge of relevant matters
7. Maps and photos

Information in this report was obtained from various entities including, but not limited to, the Texas Air Control Board, the Texas Water Commission, City of Houston, LaMarque Public Library, Galveston County Health District, Monsanto, Brio Task Force, the Texas Natural Resource Conservation Commission, Jacobs Engineering Group Inc., CH2M Hill, Inc., Clean Sites Inc., Resource Engineering, Inc., and the United States Environmental Protection Agency.

Description of the Southern Pacific Operation

The former Southern Pacific wood treatment site was located at 4910 Liberty Road in Houston, Texas. At maximum capacity, the operation was capable of treating 1.6 million railroad ties per year and handled between 400,000 and 500,000 gallons of creosote and oil per month. Railroad ties were placed in pressure cylinders where they were treated with a mixture of 30 % creosote and 70 % oil. The creosote was Grade 1, usually supplied by Koppers and similar producers. The oil was often a mixture of a variety of industrial wastes, and was referred to as “creosote extender”.

The operation existed in some form since Texas & New Orleans Railroad Co. established a wood preserving facility at the site in 1890. The site was generally characterized as a ‘COF’ type of preservation site by the American Wood Preservers Association (AWPA). COF means a Creosote, Oil Borne, Fire Retardant site. The site began with two cylinders in 1890, was expanded to a three cylinder operation in 1923, and to a four cylinder operation in 1934. It appears that ownership was transferred to Southern Pacific Railroad between 1963 and 1964. Records of the AWWPA indicate that the operation continued with four cylinders until at least 1972. An aerial photo taken on October 19, 1975 shows the presence of a fifth cylinder which must have been installed some time between 1972 and 1975.

Prior to 1977, and from 1978 to at least 1982, creosote extender was supplied to Southern Pacific by a series of companies doing business as Hard-Lowe Chemical Co., Lowe Chemical Co., Phoenix Chemical Co., JOC Oil Aromatics, Friendswood Oil Processing Corp., and Dixie Oil Processors Inc. These six companies operated at a site now identified as the Brio superfund site. Brio is located near Friendswood, Texas.

Creosote was supplied to the wood treatment operation by the Dominguez and Sapp Co. between December 1977 and June 1978 at the rate of approximately 40,000 gallons per week. This material consisted of industrial waste pumped from pits at the Motco waste disposal site located near Texas City, Texas.

The Southern Pacific Transportation Company formally discontinued treatment operations at the Liberty Road site on or about May 31, 1984. Subsequent to that date, the treatment cylinders and associated equipment were dismantled and removed from the site. A variety of site assessment and chemical contamination clean-up activities then commenced.

Information sources:

1. Biennial Inspection – S.I.P. 3-21/23-78, Robert J. Stahl, Bureau of Air Quality Control, City of Houston Health Department.
2. Memo from G.F. Bozeman, Southern Pacific Transportation Company, to Minor Hibbs, Texas Department of Water Resources, June 4, 1985.
3. Proceedings Forty-Sixth, Sixtieth, and Sixty-Eighth Annual Meeting of the American Wood Preservers' Association, 1950, 1964, and 1972.

Section 2

Description of the BRIO Superfund Site

The Brio superfund site is located at 2501 Choate Road near Friendswood, Texas. The Brio site was formerly a disposal/recycling operation that dealt with several different waste streams generated by the Monsanto Company and other industrial companies located around the Houston area. The site began operation in 1957 as an acrylonitrile catalyst reclamation facility under the name of Hard-Lowe Chemical Co. Eventually acrylonitrile tar, styrene tar, vinyl chloride bottoms, and a variety of other industrial waste streams were disposed of at Brio. Wastes generated included residual styrene tars, copper catalyst, and chlorinated solvents, all of which were disposed of in onsite pits. JOC Oil Aromatics purchased the facility in 1975, and they continued to operate the plant in a similar fashion. In 1978, Friendswood Refining Corporation converted a part of the plant into a diesel and JP-4 jet fuel refining operation. At the same time, Dixie Oil Processors, Inc. retained a portion of the facility for the purpose of continuing a waste blending operation. Friendswood Refining Corp. operated their part of the facility until they went bankrupt in 1981. Brio Refining Inc. purchased the refining portion of the site, and they also went bankrupt. The refining facility was then taken over by the Abilene National Bank in their role as a creditor. Dixie Oil Processors, Inc. continued to operate into the mid 1980s.

It is probable that during the period from 1970 to early 1978 and from June 1978 until 1982, that various entities operating at the Brio site supplied creosote extender to the Southern Pacific wood treatment facility. The amount of creosote extender supplied to Southern Pacific may have been as much as 300,000 to 350,000 gallons per month based on the process requirements at the Southern Pacific site.

The following tables list the chemical constituents of the Brio waste and the potentially responsible parties related to the Brio superfund site.

Table 1. Chemical constituents of Brio wastes.

PURGEABLE COMPOUNDS

hydrogen cyanide
acrylonitrile
methylene chloride
chloroform
benzene
chlorobenzene
chloroform
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
trans-1,2-dichloroethylene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethylene
ethylbenzene
tetrachloroethylene
toluene
1,1,2-trichloroethane
vinylchloride
styrene
1,1,2,2-tetrachloroethane

TENTATIVELY IDENTIFIED PURGEABLE COMPOUNDS

dichlorobutene
1,2-dichlorobutane
trichloromethylpropene
1-methylethylbenzene
methylpropylbenzene
methylethenylbenzene
1,1,3-trichloro-2-methyl-1-propane
1,2,3,4-tetrachlorobutane
1,2-diethylbenzene
2,6,6-trimethylbicyclo[3-1-1]hept-2-ene

SEMI-VOLATILE EXTRACTABLE COMPOUNDS

phenol
bis(2-chloroethyl)ether
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
fluoranthene
fluorene
naphthalene
phenanthrene
di-n-butylphthalate
2,4-dimethylphenol
2,4,6-trichlorophenol
hexachlorobenzene
pyrene
anthracene
sulfur

TENTATIVELY IDENTIFIED SEMI-VOLATILE EXTRACTABLE ORGANIC COMPOUNDS

2,4-diphenylthiophene
1,3,7-octatrien-5-yne
1,3,5,7-cyclooctatetraene
1,4-dichloro-1-butene
1,2-dihydroacenaphthylene
1,1'-ethylidenebisbenzene
1,1-(1-methyl-1,2-ethanediyl)bisbenzene
1-(phenylmethylene)-1h-indene
1-phenylnaphthalene
2-butoxyethanol
bicyclo[4,2,0]octa-1,3,5-triene
1,1'-(1,4-butanediyl)bisbenzene
ethenediylbisbenzene
9-methylene-9h-fluorene
1,2,3,4-tetrahydro-2-phenylnaphthalene
phenylnaphthalene
4-methylphenol
1,1'biphenyl
1,1'-methylenebisbenzene

1,1'-(1,2-ethanediyl)bisbenzene
2-ethyl-1,1'-biphenyl
(1-nitroethyl)benzene
hexachlorobenzene
1,1'-bis(p-ethylphenyl)-ethane
2,5-diphenylthiophene
cyclohexene
3,4-dimethyl-2-pentene
2-phenylnaphthalene
4-methyl-3-penten-2-one
acetic acid (1-methylethyl ester)
benzenethieno[3,2-b] benzothiophene
terphenyl
butyl-2-methyl-propylester-1,2-benzene dicarboxylic acid
2,3-dichloro-2-butene
1,1,3-trichloro-2-methyl-1-propene
trichlorobutane
ethenylcyclobutane
2,5-dimethylheptane
5-methylene-undecane
hexadecanoic acid

METALS

barium
calcium
cerium
cobalt
chromium
copper
iron
lead
magnesium
manganese
mercury
nickel
silicon
silver
tin
titanium
vanadium

zinc
zirconium
phosphorus

Note: carbon disulfide may also have been a constituent of some of the waste brought to the Brio site.

Table 2. Potentially Responsible Parties related to the BRIO superfund site.

PRP NAME

American Hoechst
Amoco Chemicals Corporation
Atlantic Richfield Company
Borg Warner Chemicals
Browning Ferris, Inc.
Cosmar
Cosden Oil & Chemical Company
Dow Chemical Company
Foster Grant Company, Inc.
Goodyear Tire & Rubber Company
Gulf Oil Corporation
Monsanto Company
Rohm & Haas
Shell Oil Company
Union Carbide Corporation

OPERATORS OR FORMER OPERATORS

Hard-Lowe Chemical Company
Lowe Chemical Company
Phoenix Chemical Company
JOC Oil Aromatics, Inc.
Friendswood Oil Processing Corporation
Friendswood Refining Corporation
Brio Refining, Inc.
Dixie Oil Processors, Inc.

Information sources:

1. "Work Plan for Brio Refining and Dixie Oil Processors Superfund Sites Community Relations Plan, CERCLA," prepared for U.S. EPA Region 6 by Jacobs Engineering Group Inc., Project Nos. 05-B561/563-00, June 1989.
2. Organics: "Quality Assurance Report, Volume II, Component 2, Phase 1 Field Investigation" presented to the Environmental Protection Agency Region 6 and Texas Department of Water Resources for the BRIO Site Steering Committee, January 1986 by Resource Engineering, Inc.
3. Metals: Exhibit C pages 22-23 attached to letter from C.R. McLaughlin, Project Manager for the Technical Committee and Monsanto, to Lou Barinka, Superfund Enforcement Section, Air & Waste Management Division, USEPA, Dallas, Texas.

Description of the Motco Superfund Site

The Motco superfund site located near Texas City, Texas was established by U. T. Alexander as an industrial waste disposal site in 1959. At Motco, materials such as styrene tars, oil, spent catalyst, heavy metals, as well as other industrial wastes were dumped into large borrow pits. The principal generator of the styrene tars was Monsanto's Texas City facility. The principal haulers using the site were Malone Trucking Co. and French Limited.

Since August 1964, the Motco site has been the subject of numerous complaints and documentations of illegal discharges. On March 22, 1968 the LaMarque, Texas City Council passed an ordinance that declared the site a health hazard making the operation illegal within their city limits. Mr. Alexander contended that he was planning to clean up the site and change his mode of operation. His permit was not cancelled, and he was given time to obtain professional consultation and present a plan for the improvement of the facility. At a public hearing held in LaMarque on August 29, 1968, it was determined that Mr. Alexander had suddenly left the state, and the Inland Bank and Trust Company of Texas City had foreclosed on a lien held against the property. Shortly thereafter, the Texas Attorney General's office was contacted and asked to initiate legal action against the owner.

On October 18, 1969, the Texas Attorney General was once again contacted and requested to give bank officials time to reconcile the problems associated with the site. Some dike improvements were made by the bank, but on January 2, 1970, the property was sold to J.W. Yeatman of Galveston who then sold it to the Wye Corporation. In an attempt to clean up the site it was leased to Tom Holman of LaMarque and J.R. McDonald of San Antonio in March 12, 1973. Mr. Holman planned to build a rotary kiln, use the styrene tars as fuel and recover copper, mercury, and lead from the pits;

however he was unable to obtain a permit from the Texas Air Control Board (TACB). Motco planned to remove the styrene tars from the pits and market it at an undisclosed location. The land was then to be reclaimed and retained for its commercially strategic location.

In 1975 the Texas Water Quality Board held an enforcement hearing to consider cancellation of the disposal permit which had been granted in 1964. The Texas Water Quality Board also considered the adoption of an enforcement order to control unauthorized discharges from the pits. In July 1976, an enforcement order was adopted by the Texas Water Quality Board which cancelled the waste disposal permit to Petro-Processors Inc., required Motco to remove and dispose of all liquid and semi-liquid wastes in the pits, and required Motco to neutralize or remove remaining sludges in the pits, backfill to ground level, and cover to two feet with compacted clay rich soil.

Before this enforcement order was issued, Motco filed for bankruptcy and the assets of the company were managed by William J. Butterfield, Jr. Between December 1977 and July 1978, Dominguez and Sapp Enterprises removed several thousand barrels of waste from the pits. This waste material was sold to Southern Pacific for use in their railroad tie preservation facility. However, this reclamation effort was halted after the Texas Air Control Board determined that vinyl chloride levels downwind of the Southern Pacific operation created a substantial risk to public health. As best as can be determined, the transfer of industrial waste from Motco to Southern Pacific stopped permanently in the late summer of 1978.

The site was nominated for Superfund status under the Comprehensive Environmental Response, Compensation and Recovery Act (CERCLA) in 1981.

The following tables list the chemical constituents of Motco wastes and the potentially responsible parties related to the Motco superfund site.

Table 3: Chemical constituents of Motco wastes.

PURGEABLE COMPOUNDS

hydrogen cyanide
acrylonitrile
vinyl chloride
methylene chloride
1,1-dichloroethene
1,1-dichloroethane
trans-1,2-dichloroethene
chloroform
1,2-dichloroethane
1,1,1-trichloroethane
1,2-dichloropropane
trans-1,3-dichloropropene
trichloroethylene
1,1,2-trichloroethylene
tetrachloroethylene
1,1,2,2-tetrachloroethane
chlorobenzene
carbon tetrachloride
benzene
toluene
ethylbenzene

SEMI-VOLATILE EXTRACTABLE COMPOUNDS

bis(2-chloroethyl)benzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,2-dichlorobenzene
bis(2-chloroisopropyl)ether
1,2,4-trichlorobenzene
hexachlorobenzene
2,4,6-trichlorophenol
pentachlorophenol
pentachloroethane
tetrachlorobenzene
pentachlorobenzene
naphthalene

acenaphthylene
acenaphthene
fluorene
phenanthrene
anthracene
fluoranthene
pyrene
butylbenzylphthalate
benzo(a)anthracene
chrysene
bis(2-ethylhexyl)phthalate
benzo(b)fluoranthene
benzo(k)fluoranthene
benzo(a)pyrene
indeno(1,2,3-cd)pyrene
dibenzo(g,h)anthracene
benzo(g,h,i)perylene
1,2,4-trimethylbenzene
acetophenone
tetramethylbenzene
tetralin
2-methylnaphthalene
biphenyl
2-ethylnaphthalene
2,3-dimethylnaphthalene

TENTATIVELY IDENTIFIED COMPOUNDS

1,1'-oxybis-2-chloroethane
1,2,2-trichloropropane
1,1,1,2-tetrachloroethane
1,1-oxybis-3-chloropropane
2,2'-oxybischloropropane
2-chloropropane
chlorobutadiene
chloromethylbutane
chloropropane
chloropropene
dichlorobutane
dichlorobutene
dichlorobutene

dichloropropane
dichloropropene
tetrachlorobutane
tetrachloroethane
tetrachloropropane
trichloropropane
trichloropropene
1,2,2-trichloroethane
tetrachlorobutane

NON-CHLORINATED HYDROCARBONS & DERIVATIVES

1,4-dioxane
2,3-dimethylpentane
butane
dimethylbutane
dimethylhexane
dimethylhexene
dimethyloctatriene
dimethylpentane
ethanediol, diformate
ethanol, methoxycarbonate
hexane
isooctanol
methylhexane
pentane
trimethylhexane
trimethyloctane
trimethylpentane
trimethylpentene
trimethyl-2-pentene
cyclohexane
cyclopentane
dimethylcyclohexane
dimethylethenecyclohexanol
ethylmethylcyclopentane
ethylmethylcyclohexane
methylcyclohexane
methylcyclopentane
tetracyclononane
trimethylcyclohexane

3-butene-2-one
(alkyl)benzene
diethylbenzene
dimethoxybenzene
ethenylbenzene
ethylmethylbenzene
indene
methylethenylbenzene
methylethylbenzene
methylpropylbenzene
propylbenzene
styrene
trimethylbenzene
xylene
styrene
1,2-dihydroacenaphthylene
1h-indene(2,3-dihydro-1,1,3-trimethyl-3-phen...)*
1-methyl-1h-indene
1h-phenalene
1-hydroxy-2-hydro-9,10-anthracenedione
1,1'-(1,2-ethenediyl)bis,(e)-benzene
biphenyl
butenylbenzene
alkylbenzene
diethylbenzene
diethylbiphenyl
dimethylnaphthalene
ethenylmethylbenzene
ethenylidenebisbenzene
ethylbenzene
methylfluorene
methylindene
methylnaphthalene
methylphenanthrene
methylpyrene
methylethanediy-bis-benzene
methylethenylbenzene
1,2,3,4-tetramethylnaphthalene
nitroethylbenzene
3,4,5,6-tetramethylphenanthrene
phenylnaphthalene

2-methyl-1-propene trimer
propenylbenzene
tetrahydrocycloprop(ane) –indene*
tetrahydromethylnaphthalene
tetrahydrophenylnaphthalene
triethylbenzene

*Note: This compound is listed exactly as reported in the source document.

METALS

aluminum
cerium
chromium
copper
iron
lead
manganese
mercury
nickel
zinc

Table 4: Potentially Responsible Parties associated with the Motco superfund site.

PRP NAME

Alamo Barge Lines
Amoco Chemical
Amoco Gas
Amoco Oil
Bayou Vista Corp.
Corps of Engineer
Diamond Shamrock
Dixie Chemical Co.
French Limited-French Ellison Ctr, Inc.
General Aniline and Film
Gulf Chemical and Metallurgical
Hard-Lowe Chemical
Houston Light & Power
John Mecom Gun Boat
Malone Trucking Co.

Marathon Oil
Monsanto Company
NASA/Kodak
Petro-Tex
Rohm&Haas
Sea Train Lines
Smith Douglas
Texas City Refining
Texas City Terminal Railroad
Todd Shipyards
U.S. Coast Guard
U.S. Navy
Union Carbide Corp.
Vacuum Tanks Inc.
Velsicol

POSSIBLE MUNICIPAL WASTE GENERATORS

City of Texas City
County of Galveston
Galveston County Health Department
Galveston County Water Districts
Galveston Yacht Basin
Texas State Fish & Game Commission
University of Texas, Medical Branch

Information sources:

1. Texas Water Quality Board – Interoffice Memo – December 16, 1974 from Bill Reeves to John B. Latchford.
2. Motco Trust Group, “Community Information”, June 1987.
3. Galveston County Health District, Environmental Division, May 1, 1979, “Update on the Petro-Processors Waste Pits”.
4. Organics: untitled, undated documents with Bates #'s 253909 to 253915.
5. Metals: Exhibit C, pages 22-23 attached to a letter from C.R. McLaughlin, Project Manager for the Technical Committee and Monsanto, to Lou Barinka, Superfund Enforcement Section, Air & Waste Management Division, U.S.E.P.A., Dallas, Texas.

Section 4

Health Effects Studies

A study of health effects related to the Brio superfund site was found. It describes adverse human health effects in the surrounding population which may be attributed to toxic chemical contamination at the site. Residents of the Southbend subdivision, located north of and adjacent to the site, were surveyed to determine the presence of any pattern of health effects which might have indicated that they were exposed to elevated concentrations of toxic chemicals.

Results from the survey indicated that the presence of several health effects were elevated when compared to United States Center for Disease Control (CDC) surveillance data. Specifically, respondents reported the presence of congenital heart disease at the rate of 521/10,000 live births. That would be equivalent to one instance of congenital heart disease in every nineteen live births, ten times the CDC baseline rate. The rate of Central Nervous System (CNS) malformations was reported at the rate of 312/10,000 live births, which would be equivalent to one instance of a CNS malformation in every 32 live births, sixteen times the CDC baseline rate.

Furthermore, the residences of survey respondents were separated into three zones with Zone 1 having the highest potential for airborne exposure and Zone 3 having the lowest potential. Upper respiratory and allergy complaints were 6.8% and 21% lower in Zones 2 and 3 respectively when compared to Zone 1.

Also of potential interest, a report of deaths related to chemicals used in an Amoco Chicago area research center was found. The report describes an outbreak of brain cancers in Amoco employees. Since 1989, twenty-one workers at the facility have been diagnosed with benign and malignant brain tumors. Seven people who were

diagnosed with malignant tumors worked in a single complex on similar projects from the late 1970s thru the mid 1980s. Investigators suspect chemicals used at the center are linked to the brain tumors. The possibility that chemicals present at the research facility were also present in wastes that were sent to the Brio or Motco sites must be considered.

Another document that raises the spectre of brain cancer was found. A Monsanto memo dated March 20, 1980 discusses a brain tumor study Monsanto was conducting as part of an ongoing occupational medical surveillance program. The study seems to relate to brain tumor deaths among employees of Monsanto's Texas City facility. For some reason, not stated in the memo, the brain tumor study and certain concerns related to the Motco site were linked in the memo writer's mind. While the Monsanto memo does not directly relate brain cancer and Motco wastes, it does pose an interesting coincidence.

Perhaps the most intriguing development of all involves the fate of the Southbend subdivision. In early 1997, a project was undertaken (possibly initiated by Monsanto) to demolish the entire area. Every single residence, six hundred and seventy-seven homes, was destroyed. An elementary school was demolished.

One can only speculate with regard to the motives that would engender such a desperate course of action.

Information sources:

1. "An Analysis of a Health Effects Survey Conducted by Residents Living Near a Toxic Waste Site," Waldemar G. Johanson, Jr., M.D., The University of Texas Health Science Center at Houston, School of Public Health, December, 1991.
2. "Fifth Death in Amoco Cancer Mystery," Associated Press, March 9, 1999.

3. Monsanto memo: J.J. Spano to R.W. Flint and G. L. Tromblee, March 20, 1980,
Subject: Q&A - Texas City.
4. The Southbelt Leader, page 1, May 1, 1997.

Existing Conditions at the Southern Pacific Wood Treatment Operation in Houston

In 1984, the Southern Pacific wood treatment operation in Houston was closed. At the time, Southern Pacific retained their Texas Department of Water Resources wastewater discharge permit (#01054), and solid waste registration (# 31547), in order to continue to contain and dispose of contaminated runoff water. As part of a closure plan filed with the Texas Department of Water Resources, excavation of contaminated soil from a waste storage pond and a related ground water monitoring project was initiated. Five thousand cubic yards of soil were removed from a waste storage pond and disposed of by Rollins Environmental Services. The waste storage pond was filled in with clay.

Groundwater monitoring was conducted in compliance with the Southern Pacific wood treatment operation's RCRA Part B post-closure care permit application and ground water compliance plan approved by the Texas Natural Resource Conservation Commission. Groundwater monitoring results from 1986 - 1990 revealed the presence of benzene, toluene, naphthalene, 2,4-dimethylphenol, chrysene, phenol, 4-nitrophenol, benzo(a)anthracene and pentachlorophenol beneath the wood treatment site. During the second quarter of 1993, the following compounds were found in seven monitoring wells at the closed surface impoundment: benzene, ethylbenzene, xylenes, acenaphthene, dibenzofuran, fluoranthene, fluorene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene.

ERM-Southwest, Inc. prepared a report on February 13, 1998, to document the results of a Phase 2-A RCRA facility investigation and extent of contamination investigation (RFI/EOC). The goal of the RFI/EOC was to investigate impacts and/or releases in soil and groundwater from waste management units and to evaluate the extent of affected groundwater outside the closed impoundments. There were reported soil

impacts throughout portions of the soil column in areas designated as the off-site drainage area, the tie storage area and the former process area. Groundwater impacts were observed within the two upper transmissive zones near the off-site drainage area, the tie storage area, the former process areas, and the closed surface impoundment area. Minor groundwater impacts were observed within the third transmissive zone near the former process area.

Information sources:

1. Memo Re: Administrative Conference at Southern Pacific Transportation Co., from Robert Stahl, Tech III, Enforcement Section, Bureau of Air Quality Control, to Dallas Evans and Gene New, dated May 4, 1984.
2. Groundwater monitoring report from M.H. Belco, Environmental Affairs Group, Southern Pacific Lines, to Wendy J. Rozacky, Supervisor-RCRA Groundwater Enforcement, Unit 1, Industrial and Hazardous Waste Division, Texas Water Commission, dated September 8, 1993.
3. "Phase 2-A Report, RCRA Facility Investigation and Extent of Contamination Investigation for the Houston Wood Preserving Works", February 13, 1998 (W.O. #422-09) by ERM-Southwest, Inc., Houston, Texas.

Personnel Section

This section is included in an attempt to identify individuals who may have information regarding the Southern Pacific site, the BRIO site, and the Motco site.

Southern Pacific

Operational Period

M.A. Lane
Plant Superintendent - 1978
Southern Pacific Wood Preservation Works

W. T. Money
Southern Pacific Transportation Company
Southern Pacific Building
One Market Street
Room 977
San Francisco, California

Robert J. Stahl
Technician III
Enforcement Section
Bureau Of Air Quality Control
City of Houston, Department of Health

George Green
Chief, Field Support
Texas Department of Water Resources
Austin, Texas

Tom Kearns
District 7 Representative
Texas Department of Water Resources
Deer Park, Texas

M.M. Fowler
President
JOC Oil Aromatics
2501 Choate Road
Houston, Texas

Gene Speller
Environmental Health Specialist
Region VII
Texas Air Control Board
Bellaire, Texas

Closure Period

M.A. Lane
Plant Superintendent - 1978
Southern Pacific Wood Preservation Works

G.F. Bozeman
System Utility & Environmental Manager
Southern Pacific
San Francisco, California

Dallas Evans
Chief
Bureau of Air Quality Control
City of Houston, Department of Health

Gene New
Chief of Enforcement
Bureau of Air Quality Control
City of Houston, Department of Health

Robert Stahl
District Supervisor
Bureau of Air Quality Control
City of Houston, Department of Health

Dipek Desai
Engineer I
Bureau of Air Quality Control
City of Houston, Department of Health

Robert Ralston
Texas Air Control Board

Minor Hibbs
Texas Department of Water Resources
Austin, Texas

Post-Closure Period

Aniko Molnar
Remediation Project Manager
Southern Pacific Lines
San Francisco, California

Michelle Belco
Senior Manager
Environmental Field Operations
Southern Pacific Transportation Company
Houston, Texas

Stephen Omo
Industrial and Hazardous Waste Permits Section
Texas Natural Resource Conservation Commission
Austin, Texas

Kirk Smith
Industrial and Hazardous Waste Permits Section
Texas Natural Resource Conservation Commission
Austin, Texas

Chris Peckham
Industrial and Hazardous Waste Permits Section
Texas Natural Resource Conservation Commission
Austin, Texas

Wendy J. Rozacky
Supervisor-RCRA Groundwater Enforcement, Unit 1
Industrial and Hazardous Waste Division
Texas Water Commission
Austin, Texas

Thomas M. Whitehurst
Principal
ERM-Southwest, Inc.
Houston, Texas

Robert Tannis
Assistant Director
Environmental Health Division
Health and Human Services
City of Houston

Motco

Operational Period

Al Withrow
5107 Winding Way
Dickinson
(formerly of Monsanto Engineering Dept. In Texas City)

Dominguez and Sapp
5625 FM 1960 West
Suite 214
Houston, Texas

J.M. Aldridge
Engineering Technician
Air Control Department
Galveston County Health District
La Marque, Texas

Virgil Waggoner
President and Chief Executive Officer
Sterling Chemicals, Inc.
Houston, Texas
(formerly Sales Development Engineer Monsanto Chemical Co., Texas City, Texas)

Closure Period

E.R. Hendrick
Monsanto Chemical Company
Texas City, Texas

Dean Danzer
Monsanto Chemical Company
Texas City, Texas

Capt. R.F. Ingraham
United States Coast Guard
Galveston, Texas

John Henderson
Emergency Response Branch
U.S. Environmental Protection Agency
Dallas, Texas

E.R. Ibert
Galveston County Health District
La Marque, Texas

Gene Speller
Texas Air Control Board
Bellaire, Texas

Black & Veatch Consulting Engineers
Kansas City, Missouri

Post-Closure Period

Gregory A. Mooney
Site Project Manager
CH2M Hill, Inc.
Montgomery, Alabama

Vance Hughes
Senior Consultant, Negotiations
Clean Sites Inc.

Gene Berman
Senior Consultant, Negotiations
Clean Sites Inc.

Willard W. Varnado
Motco Steering Committee Chairman
Monsanto Company
St. Louis, Missouri

Brio

Operational Period

Al Withrow
5107 Winding Way
Dickinson
(formerly of Monsanto Engineering Dept. In Texas City)

Virgil Waggoner
President and Chief Executive Officer
Sterling Chemicals, Inc.
Houston, Texas
(formerly Sales Development Engineer, Monsanto Chemical Co., Texas City, Texas)

Closure Period

Resource Engineering, Inc.
3000 Richmond Avenue
Houston, Texas

Lou Barinka
Superfund Enforcement Section
Air & Waste Management Division
U.S. Environmental Protection Agency
Dallas, Texas

C. R. McLaughlin
Project Manager for the Brio Technical Committee
Monsanto Chemical Company

Post Closure Period

Larry Lowe, son of Ralph L. Lowe, deceased
Pearland, Texas

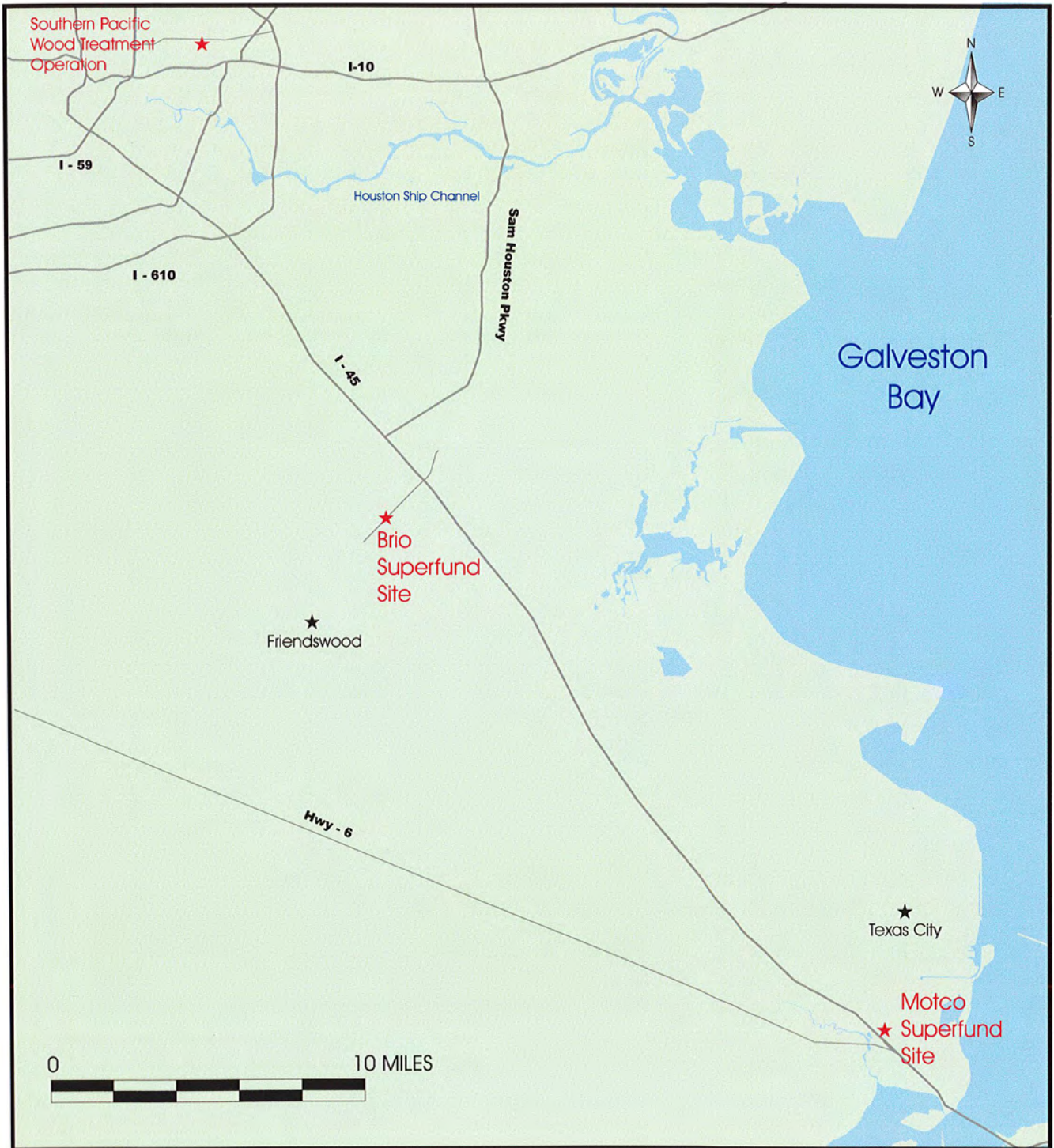
Kirk Brown
K.W. Brown & Associates, Inc.
College Station, Texas

John Meyer
Remedial Project Manager
Region 6
U.S. Environmental Protection Agency
Dallas, Texas

Roy. F. Weston, Inc.
Houston, Texas

Richard Guilliams
Project Coordinator
Brio Site Task Force

Map of Houston - Galveston Area with Relevant Industrial Sites Designated



Southern Pacific Transportation Company
Houston Wood Treatment Operation



Photograph taken October 17, 1975



Brio superfund site as it existed on September 5, 1984



Motco superfund site as it existed in April 1998